
Proteomic Analysis of Liver Membranes through an Alternative Shotgun Methodology

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Table of Contents

Abstract	5
Declaration	6
Acknowledgments	7
Publications Contributing to the Production of the Thesis	8
Abbreviations	9
Chapter 1: Introduction	11
1.1 Background	12
1.2 Membrane Proteomics	15
1.2.1 Membrane Protein Structure and Sample Preparation	15
1.2.1.1 Membrane Protein Structure	15
1.2.1.2 Membrane Protein Isolation and Purification	19
1.2.1.3 Digestion of Membrane Proteins	23
1.2.2 Shotgun Proteomics Analysis of Membrane Proteins	25
1.2.2.1 Shotgun Proteomics	25
1.2.2.2 Shotgun Proteomic Analysis of Membrane Proteins	27
1.2.2.3 Transmembrane Proteins Identified by Shotgun Proteomics	30
1.2.2.4 Quantitative Shotgun Proteomics	32
1.2.3 Summary of Membrane Proteomics	35
1.3 Shotgun Proteomics using Immobilised pH Gradient Isoelectric Focusing	36
1.3.1 Isoelectric Focusing	36
1.3.2 IPG-IEF as a Shotgun Proteomics Dimension	37
1.3.3 Theoretical Peptide Isoelectric Point and Peptide Separation	40
1.3.4 Peptide pI Filtering for Assigning High Confident Protein Identifications	42
1.3.5 Quantitative Shotgun Proteomics and IPG-IEF Separation of Peptides	44
1.3.6 Summary of Isoelectric Focusing based Shotgun Proteomics	45
1.4 Liver Integral Membrane Proteins and Tumor-induced Inflammation	46
1.4.1 Introduction	46
1.4.2 Liver Structure and Organisation	47
1.4.3 Proteomic Analysis of the Liver	50
1.4.4 Xenobiotic Metabolism and Transportation	51
1.4.5 Summary of Liver Proteomics and Tumor-Induced Inflammation	55
1.5 Thesis Aims and Scope of Research	57
Chapter 2: Shotgun Proteomic Analysis of Rat Liver Membrane Proteins	58
2.1 Introduction	59
2.2 Materials and Methods	62
2.2.1 Membrane protein isolation and preparation for peptide IPG-IEF	62
2.2.2 Peptide IPG-IEF	63
2.2.3 Liquid Chromatography Mass Spectrometry	64
2.2.4 Protein and Peptide Identification	64
2.3 Results	66
2.3.1 Resolution of Identified Peptides within IEF Experiments	66
2.3.2 Analysis of Peptide Outliers in the Basic End of the pH Gradient	70
2.3.3 Evaluation of Peptide IPG-IEF for Protein Identifications	73
2.3.4 Integral Membrane Protein Identifications	75
2.3.5 Cellular Location of Proteins Identified from Each Digest	78
2.3.6 Identified Membrane Protein Families	79
2.4 Discussion	85
2.4.1 Peptide Separation	85

2.4.2 Protein Identifications	87
2.4.3 Integral Membrane Proteins	89
2.4.4 Cellular Location Analysis	90
2.4.5 Identified Membrane Protein Families	91
2.4.5 Conclusion	92
Chapter 3: A Combination of Immobilised pH Gradients Improve Membrane Proteomics	93
3.1 Introduction	94
3.2 Materials and Methods	97
3.2.1 Membrane protein isolation and preparation for peptide IPG-IEF	97
3.2.2 Peptide IPG-IEF	98
3.2.3 Nanoflow liquid Chromatography – Tandem Mass Spectrometry	99
3.2.4 Protein and Peptide Identification	99
3.2.5 Calculation of Normalised Spectral Abundance Factors	100
3.2.6 Statistical Analysis	101
3.3 Results	102
3.3.1 Peptide Separation and Analysis	102
3.3.2 Comparison of BR and NR IPG Strips for Total Peptide and Protein Identifications	106
3.3.3 Analysis of the Relative Abundance of Peptides between BR and NR Range IPG Strips Using NSAF	110
3.3.4 Identified Membrane Protein Families	114
3.3.5 Gene Ontology Annotation Analysis	117
3.4 Discussion	120
3.4.1 Peptide Separation	120
3.4.2 Comparison of Total Peptide, Protein and IMP's Between Broad and Narrow Range IPG Strips	121
3.4.3 Label-Free Quantification Analysis	123
3.4.4 Identified Protein Families	124
3.4.5 Gene Ontology Annotations	125
3.4.6 Conclusion	126
Chapter 4: Affects of Tumor-Induced Inflammation on Membrane Proteins Abundance in the Mouse Liver	127
4.1 Introduction	128
4.2 Materials and Methods	131
4.2.1 Sample Preparation	131
4.2.2 Peptide IPG-IEF	132
4.2.3 Nanoflow liquid Chromatography – Tandem Mass Spectrometry	132
4.2.4 Protein and Peptide Identification	133
4.2.4 Calculation of Normalised Spectral Abundance Factors	134
4.2.5 Statistical Analysis	135
4.3 Results	136
4.3.1 Label-Free Quantification Analysis	136
4.3.2 Membrane Proteome Dynamic Range and Protein Abundance	138
4.3.3 Gene Ontology Analysis of Identified Proteins	140
4.3.3.1 Molecular Process Annotation	140
4.3.3.2 Molecular Function Annotation	143
4.3.3.3 Cellular Component Annotation	146
4.3.4 Transmembrane Protein Abundance	148
4.4 Discussion	152
4.4.1 Proteomic Analysis	152
4.4.2 Gene Ontology Annotations	155
4.4.3 Integral Membrane Protein Analysis	156
4.4.4 Conclusion	158

Chapter 5: Affects of Tumor-Induced Inflammation on Biochemical Pathways in the Mouse Liver	159
5.1 Introduction	160
5.2 Materials and Methods	162
5.2.1 Sample Preparation	162
5.2.2 Peptide IPG-IEF	163
5.2.3 Nanoflow liquid Chromatography – Tandem Mass Spectrometry	163
5.2.4 Protein and Peptide Identification	164
5.2.4 Calculation of Normalised Spectral Abundance Factors	165
5.2.5 Statistical Analysis	166
5.3 Results	167
5.3.1 Fatty Acid Metabolism	167
5.3.2 Xenobiotic Metabolism and Transportation	173
5.3.3 Electron Transport Chain	177
5.3.4 Glycosylation Enzymes and UDP-Sugar Transportation	179
5.4 Discussion	182
5.4.1 Interleukin-6 Receptor	182
5.4.2 Fatty Acid Metabolism and Cholesterol Biosynthesis	183
5.4.3 Xenobiotic Metabolism and Clearance	185
5.4.4 Electron Transport Chain	187
5.4.5 Protein Glycosylation	188
5.4.6 Conclusion	189
Chapter 6: General Discussion	191
6.1 Shotgun Proteomics Using IPG-IEF Separation of Peptides	192
6.1.1 Method Development	192
6.1.2 Improvements to the Methodology	193
6.1.3 Membrane Proteomics	194
6.1.4 Mouse Liver Membrane Profile	196
6.1.4 Tumor-Induced Inflammation and Liver Membrane Proteins	198
6.1.5 Final Conclusion	199
References	200
Appendices	214
Appendix 1	209
Appendix 2	216
Appendix 3	218
Appendix 4	226
Supplementary Tables	229
Table 1	230
Table 2	272
Table 3	310
Table 4	427
Table 5	458
Table 6	562

Abstract

The aim of this thesis was to develop a proteomics methodology that improves the identification of membrane proteomes from mammalian liver. Shotgun proteomics is a method that allows the analysis of proteins from cells, tissues and organs and provides comprehensive characterisation of proteomes of interest. The method developed in this thesis uses separation of peptides from trypsin digested membrane proteins by immobilised pH gradient isoelectric focusing (IPG-IEF) as the first dimension of two dimensional shotgun proteomics. In this thesis, peptide IPG-IEF was shown to be a highly reproducible, high resolution analytical separation that provided the identification of over 4,000 individual protein identifications from rat liver membrane samples. Furthermore, this shotgun proteomics strategy provided the identification of approximately 1,100 integral membrane proteins from the rat liver. The advantages of using peptide IPG-IEF as a shotgun proteomics separation dimension in conjunction with label-free quantification was applied to a biological question: namely, does the presence of a spatially unrelated benign tumor affect the abundance of mouse liver proteins. IPG-IEF shotgun proteomics provided comprehensive coverage of the mouse liver membrane proteome with 1,569 quantified proteins. In addition, the presence of an Englebreth-Holm-Swarm sarcoma induced changes in abundance of proteins in the mouse liver, including many integral membrane proteins. Changes in the abundance of liver proteins was observed in key liver metabolic processes such as fatty acid metabolism, fatty acid transport, xenobiotic metabolism and clearance. These results provide compelling evidence that the developed shotgun proteomics methodology allows for the comprehensive analysis of mammalian liver membrane proteins and detailed some of the underlying changes in liver metabolism induced by the presence of a tumor. This model may reflect changes that could occur in the livers of cancer patients and has implications for drug treatments.

Declaration

I certify that the work in this thesis entitled “Proteomic Analysis of Liver Membrane Proteins through an Alternative Shotgun Methodology” has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University. I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself have been appropriately acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Joel Chick (40936228)

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Publications Contributing to the Production of the Thesis

1. Chick, J. M.; Haynes, P. A.; Molloy, M. P.; Bjellqvist, B.; Baker, M. S.; Len, A. C., Characterisation of the Rat Liver Membrane Proteome Using Peptide Immobilised pH Gradient Isoelectric Focusing. *J Proteome Res* **2008**, 7, (3), 1036-1045.
2. Chick, J. M.; Haynes, P. A.; Bjellqvist, B.; Baker, M. S., A Combination of pH Gradients Improves Membrane Proteomics, *J Proteome Res* **2008**, 7, (11), 4974-4981.
3. Chick, J. M.; Haynes, P. A.; Baker, M. S.; Robertson, G.; Affects of tumor-induced inflammation on mouse liver membrane protein abundance. Publication in preparation.

Abbreviations

2D	Two-dimensional
2D-GE	Two-dimensional gel electrophoresis
3D	Three Dimensional
ABC	ATP-binding Cassette
Acaa	Acetyl-CoA acetyltransferase
Acadm	acyl-CoA dehydrogenase medium chain
Adh	Alcohol Dehydrogenase
Aldh	Aldehyde Dehydrogenase
Apo	Apolipoprotein
B3galnt	Beta-1,3-Galactosyltransferase
Bcrp	Breast Cancer Resistance Protein
BR	Broad Range
Bsep	Bile Salt Export Pump
C1Galt	Core 1 Synthase, Glycoprotein-N-acetylgalactosamine 3- beta-Galactosyltransferase, 1
cIEF	Capillary Isoelectric Focusing
Cpt	Carnitine O-palmitoyltransferase
CRP	C-Reactive Protein
CSF1R	Colony Stimulating factor Receptor 1
Cyp	Cytochrome p450
E-Fabp	Epidermal Fatty Acid Binding Protein
Ehhadh	Enoyl-CoA, hydratase/3- hydroxyacyl-CoA dehydrogenas
EHS	Englebreth-Holm-Swarm
Fabp	Fatty Acid Binding Protein
FT MS	Fourier Transform Tandem Mass Spectrometry
GPI	Glycosyl phosphatidylinositol
GPM	Global Protein Machine
Gst	Glutathione S-Tranferase
ICAM	Intracellular adhesion molecule
ICAT	Isotope Coded Affinity Tags
IL-6	Interluekin-6
IMP	Integral Membrane Proteins
IPG-IEF	Immobilised pH Gradient Isoelectric Focusing
i-TRAQ	Isobaric Tag for Relative and Absolute Quantification
LACS	Acyl CoA Synthase Long Chain
LC	Liquid Chromatography
LC-MS/MS	Liquid Chromatography - Tandem Mass Spectrometry
Ldlr	Low-Density Lipoprotein Receptor
Lrp	Low-Density Lipoprotein Associated Protein
Man	Mannose
Manea	Glycoprotein Endo-Alpha-1,2- Mannosidase
Mdr2	Multidrug Resistannce Proten
Mgat	Mannoside Acetylglucosaminyltransferase
Mgst	Microsomal Glutathione S-Transferase
MS	Mass Spectrometry
MS/MS	Tandem Mass Spectrometry
MudPIT	Multidimensional Protein Identification Technology
NR	Narrow Range
NSAF	Normalised Spectral Abundance Factors
NTCP	Na+/Taurocholate cotransporting polypeptide
OAT	Organic Anion Transporter
Pcca	Propionyl-CoA carboxylase α

Pccb	Propionyl-CoA carboxylase β
pepFDR	Peptide False Discovery Rate
protFDR	Protein False Discovery Rate
PTM	Post-Translational Modification
RT	Room Temperature
SAP	Serum Acute Protein
SCX	Strong Cation Exchange
SDS-PAGE	Sodium Dodecyl Sulphate Polyacrylamide Gel Electrophoresis
SILAC	Stable Isotope Labelling of Amin Acids in Cell Culture
Slc	Solute Carrier
St3Gal	ST3 beta-galactoside alpha-2,3-Sialyltransferase
TM	Transmembrane
TMHMM	Transmembrane Hidden Markov Model
VDAC	Voltage Dependent Anion Channel
(v/v)	Volume/volume

Chapter 1: Introduction

1.1 General Introduction

Membrane proteins are an important class of proteins that are involved in key biological functions (e.g. signal transduction, cell adhesion and cell-to-cell communication but to name a few). In addition, membrane proteins are also very important molecular targets for many drug therapies, which is illustrated by the observation that ~70% of all protein targeted drugs are directed at this class of protein¹. Hopkins and Groom have demonstrated that of the membrane proteins targeted by drugs, 30% of these proteins were G-protein coupled receptors, 7% were ion channels, 4% were transporters and 2% were cytochrome p450s¹. Not only are these proteins important as molecular targets for pharmacological substances they are important in the uptake of these substances into cells, where the substance is intended to be therapeutic. Furthermore, 30% of most genomes have been annotated as membrane proteins² and analysis of the human proteome has demonstrated that approximately 5,500 proteins had transmembrane segments according to Transmembrane Hidden Markov Model (TMHMM) prediction algorithm³. These observations provide evidence for the importance of membrane proteins in the functioning of cells and why membrane protein analysis is an important field of research.

Liver membrane proteins are involved in a diverse array of functions, involving; xenobiotic metabolism and transport; fatty acid metabolism and transport; bile acid and steroid biosynthesis and transport. Recently, adverse liver metabolic function has been observed in tumor-bearing mice, which involves key membrane proteins involved in xenobiotic metabolism⁴⁻⁷. Altered liver drug metabolism in advanced cancer patients has been implicated in the lack of safety of chemotherapeutic compounds^{6, 7}, and therefore the role in which these membrane proteins play in tumor altered liver metabolism warrants further investigation.

Proteomics is terminology used to describe the analysis of the protein constituent of the cell and in particular, membrane proteomics refers to the analysis of the membrane protein constituent of the cell. Methodologies developed for analysis of membrane proteins are generally targeted approaches on individual membrane proteins because they overcome some of the obstacles associated with membrane protein analysis. However, to gain a better understanding of the entire membrane protein component of the cell, global analysis methods have been developed⁸⁻¹⁰. One of the earlier methods for ascertaining the overall profile of the proteome was displayed in the separation and the visual representation of proteins through two-dimensional gel electrophoresis (2D-GE). 2D-GE allows the visual representation of thousands of proteins in a single gel and its combination with tandem MS (MS/MS) of these individual proteins provided a means to characterise the proteome. Although, the disadvantage of this methodology was that each of the individual proteins required further processing for MS/MS analysis and therefore the process became labor intensive.

Shotgun proteomics provided an alternative and less labor intensive method for the analysis of proteomes. Shotgun proteomics refers to the separation and analysis of enzyme digested proteomes through liquid chromatography-tandem MS (LC-MS/MS). Furthermore, incorporating a second separation dimension provided utility in the detection of much more of the proteome, since the dynamic range of a given proteome is many orders of magnitude. Some of the largest shotgun proteomics studies have detailed the characterisation of over 7,000 individual proteins illustrating the power of two dimensional shotgun proteomics¹¹. In addition, quantitative strategies in combination with shotgun proteomics has provided a means of assessing differences in abundance of proteins within a proteome under different biological conditions¹²⁻¹⁶.

The purpose of this Chapter is to provide background knowledge of the types of membrane proteins and how they have been adapted to shotgun proteomic analysis. In

addition, this Chapter also details an alternative separation dimension, immobilised pH gradient isoelectric focusing (IPG-IEF), for use in two dimensional shotgun proteomics and its advantages for the analysis of the membrane proteome. Finally, this Chapter provides knowledge of a specific application of quantitative shotgun proteomics to a biological question involving liver membrane proteins and their role in altered liver metabolism in relation to tumor-induced inflammation.

1.2 Membrane Proteomics

This section is intended to provide a review of the methods involved in the shotgun proteomics analysis of membrane proteins. This review provides knowledge of the types of membrane proteins and their enrichment and purification as well as background knowledge of shotgun proteomics and the basic principle of a shotgun proteomics experiment. Furthermore, information is also provided on the application of shotgun proteomics to the analysis of membrane proteins from the early studies that demonstrate the application of the methodology to recent large scale studies. Finally, quantification methods are reviewed to provide an understanding of the possible methods of analysis of membrane proteins through quantitative shotgun proteomics.

1.2.1 Membrane Protein Structure and Sample Preparation

1.2.1.1 Membrane Protein Structure

Membrane proteins are defined as those that associate with lipid membranes of cells, which are classified into two main groups; peripheral and integral. Peripheral membrane proteins are those that associate with integral membrane proteins, or the polar heads of the membrane bilayer but do not actually associate with the hydrophobic fatty acids of the membrane (Figure 1.01). For these reasons, peripheral membrane proteins are more commonly involved in intracellular signalling. Peripheral membrane proteins bind to integral membrane proteins in the cytosol of the cell through domains such as Src homology domains, examples of these proteins include; phosphoinositol 3-kinase (PI3-kinase)¹⁷, growth factor receptor-bound protein 2 (GRB2)¹⁸ and insulin receptor substrate 1^{19, 20}. The

interaction between peripheral membrane proteins and integral membrane proteins is usually only transient allowing removal with high salt concentrations and elevated pH (pH 11)²¹.

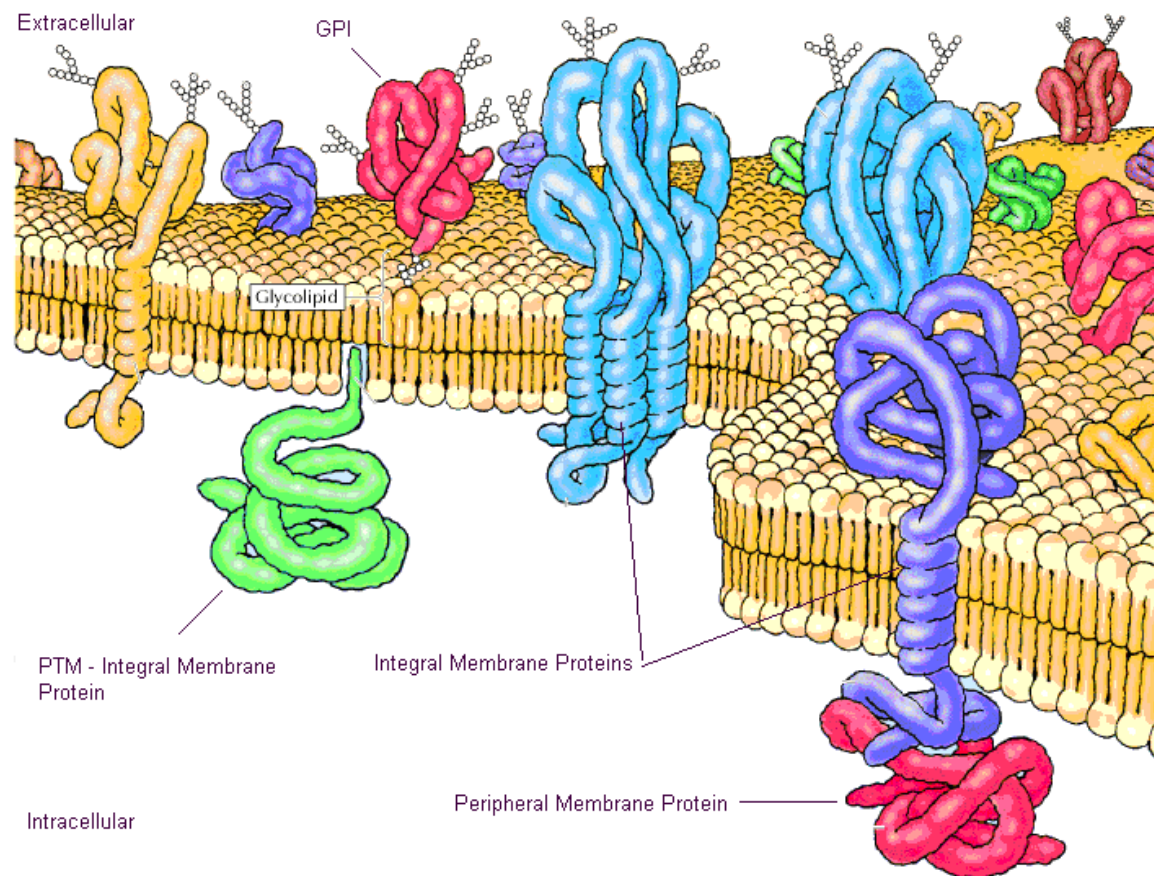


Figure 1.01: Membrane proteins associate with the membrane in a variety of ways and are categorised into two classes; peripheral membrane proteins and integral membrane proteins. Integral membrane proteins contain hydrophobic transmembrane segments, which allow them to embed into the membrane with either single or multitransmembrane domains. Furthermore, integral membrane proteins may be associated to the membrane by attachment of a post-translational (PTM) modification such as lipid anchors and glycosyl phosphatidyl inositol (GPI). Adapted from Lodish et al²².

Integral membrane proteins are those that tranverse the lipid bilayer either partially or entirely. Those that span across the membrane are known as transmembrane proteins in which the association with membrane is through secondary structures known as alpha helices. α -helices are rod like structures with the majority of amino acids being non-polar, which aids in the interaction with the hydrophobic alkyl chains of fatty acids within the

membrane. Transmembrane proteins may span the membrane once, known as single pass membrane proteins or numerous times, known as multi-pass membrane proteins. Single pass membrane proteins can be further sub-categorised into type I and type II integral membrane proteins. Type I integral membrane proteins have an amino terminal end protruding into the extracellular environment. Type II integral membrane proteins have the N-terminal protruding into the cytosol of the cell. In addition, some integral membrane proteins are known as porins, which use β -pleated sheets to form tertiary structure known as a β -barrel, which forms a pore within the membrane. β -barrel membrane proteins are typically found in prokaryotes (e.g. bacteriorhodopsin).

Integral membrane proteins can also be attached to the membrane by post-translational modifications (PTM) through lipids, phospholipids, glycolipids or glycosyl phosphatidylinositol anchors (Figure 1.02). Myristoylation is a PTM that anchors proteins to the membrane by forming an amide bond between the proteins N-terminal amine group and myristic acid. An alternative method for attaching proteins to the membrane uses cysteine thioester linkage to fatty acids such as stearate, palmitate, oleate or myristate, which are common ways in which the *Ras* and Src family of proteins are anchored to the lipid bilayers. Cysteine residues within proteins may also be attached to the lipids such as farnesyl or geranylgeranyl through thioether linkage, which is also used to anchor the *Ras* family of proteins to the membrane^{23, 24}. Finally, proteins can be attached to the membrane by glycosyl phosphatidylinositol (GPI) anchors (e.g. Thy-1 glycoprotein)²⁵. GPI anchors are formed by the attachment of an ethanolamine group with an oligosaccharide to the carboxyl terminus of the protein. The oligosaccharide is made from three mannose and a glucosamine sugars, which is attached to the lipid bilayer through a phospholipids. It has been suggested that 0.5% of all proteins in eukaryotic species are associated with the membrane by GPI

attachment²⁶. It has also been suggested that GPI anchors allow membrane proteins to cluster into organised structures known as microdomains (or lipid rafts)²⁷.

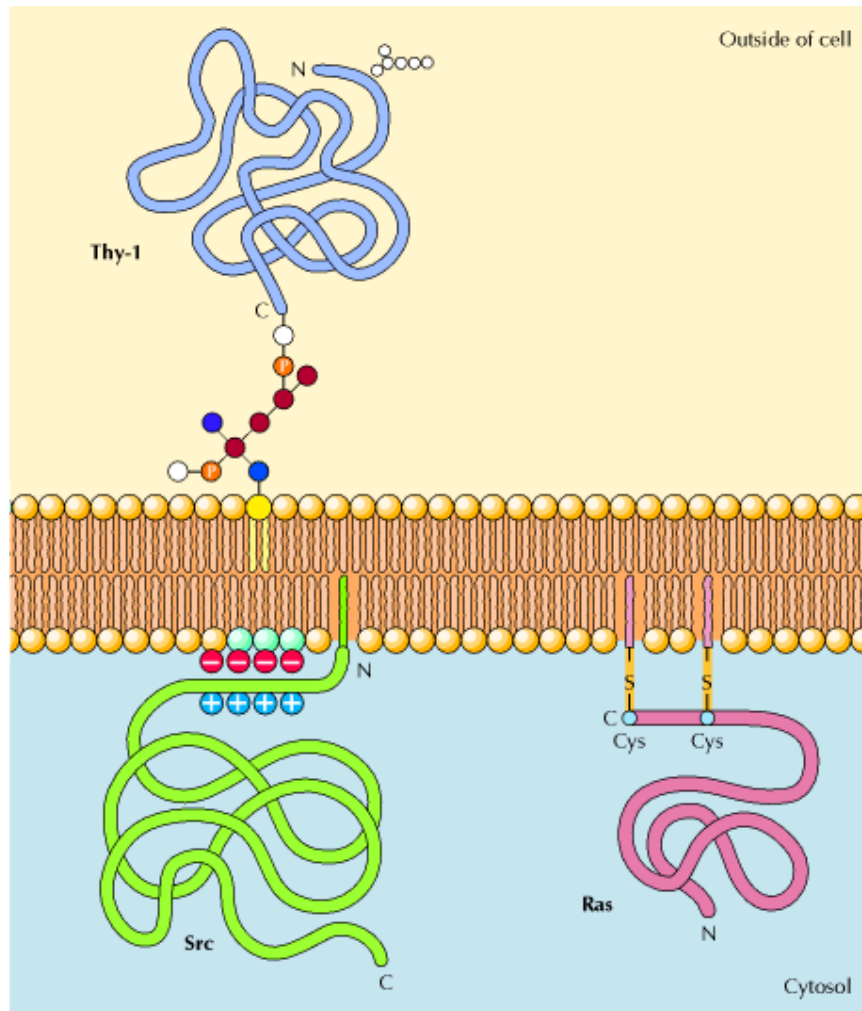


Figure 1.02: Lipid anchored membrane proteins are attached to the membrane in various ways. Proteins can be attached to the membrane by amino linkage between the N-terminus of the protein and myristic acid (Src family). Proteins can also be attached to the membrane by thioester linkage to stearate, palmitate, oleate and myristate or thioether linkage to farnesyl or geranylgeranyl polymers (Ras family). Finally, proteins can also be attached to the membrane by glycosyl phosphoinositol (GPI) anchors (Thy-1 protein). Adapted from Cooper (2000)²⁸.

In addition, some IMPs do not have particular secondary structures or post-translational modifications but are rather part of a protein complex that transverses the membrane. It is arguable whether these proteins are indeed IMPs because they do not specifically interact

with the membrane bilayer. For example, the ubiquinol-cytochrome c oxidoreductase core subunits do not physically interact with the lipid bilayer, but transverse the membrane through interactions with proteins embedded into the membrane²⁹.

1.2.1.2 Membrane Protein Isolation and Purification

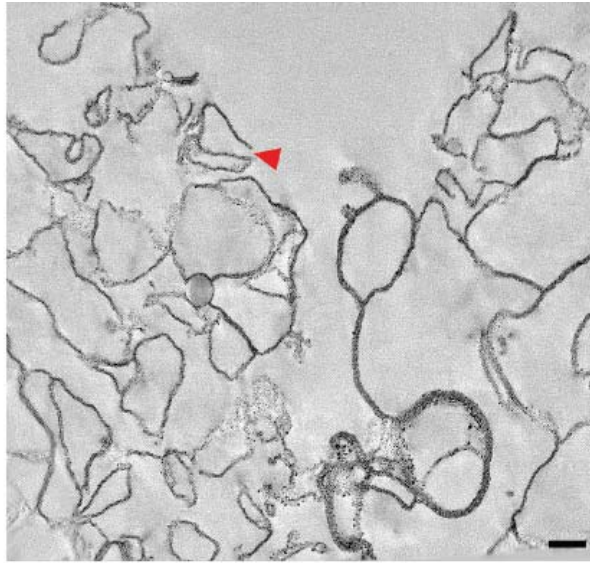
The analysis of membrane proteins is problematic in many ways. Membrane proteins in general are poorly soluble due to the high proportion of hydrophobic amino acids and furthermore, membrane proteins are generally of low abundance compared to their cytosolic counterparts³⁰. Membrane proteins are difficult to solubilise because they contain both hydrophilic and hydrophobic domains. For this reason, solvents that are both water-based and organic-based are optimal for membrane protein solubilisation. Surfactants do provide both water and organic components, which are very useful in membrane protein solubilisation. However, surfactants are generally frowned upon in shotgun proteomics studies because most are incompatible with MS (with the exception of acid-labile salts). To overcome the problem associated with membrane protein abundance, enrichment and purification methods for whole membranes or membrane proteins have been developed. These methods aim to provide a relatively enriched membrane protein sample with little contaminating cytosolic proteins, enhancing the ability to analyse this subset of proteins. Due to both solubility and abundance problems associated with membrane proteins, the most common methods for their analysis involve membrane protein enrichment and subsequent digestion (See Chapter 1.2.4) with enzymes to remove soluble domains.

The first application of membrane protein enrichment was performed in the 1940s, which used density gradient centrifugation to fractionate tissue³¹. Density gradient centrifugation was improved by using high concentrations of sodium carbonate at high pH on the purified cellular membranes for removing cytosolic contaminants³². Molloy *et al.*, (2000) further

modified this method by using sodium carbonate treatment as the first step prior to high speed centrifugation for enrichment of cellular membranes from *Escherichia coli* whole cell lysates³³. This method uses less clean up steps and removes the need to centrifuge proteins through sucrose. The high salt and pH conditions used in sodium carbonate based purification helps to remove peripheral membrane proteins and cytosolic contaminants by solubilisation and breaking electrostatic interactions between these proteins and the lipid membrane. Carbonate in combination with high speed centrifugation has now become the basis behind many membrane enrichment strategies³⁴⁻³⁹. Wu and colleagues⁴⁰ have demonstrated electron microscopic analysis of the carbonate treated membranes and show that the overall micelle structure of the membranes is still intact; however, the micelles contain large openings, which allow the digestion of membrane proteins on both sides of the membrane bilayer (Figure 1.03).

The initial studies by de Duve on density gradient centrifugation³¹ used sucrose as the medium for tissue fractionation. This method separates membranes from cytosolic proteins by buoyancy because membranes float within dense media such as sucrose. The use of sucrose for the density separation of membranes from cytosolic proteins is still used in proteomic studies^{41, 42}. Isolation of membranes by density gradient centrifugation, though useful, still requires additional steps to remove the sucrose either through protein precipitation with organic solvents or membrane clean up methods such as the aforementioned sodium carbonate method.

(A)



(B)

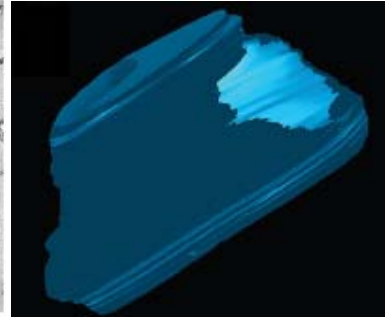


Figure 1.03: (A) Electron microscopy analysis of carbonate treated membranes demonstrating segments of missing membrane within the lipid bilayer (red arrow) and (B) computer generated reconstruction of the lipid bilayer micelle with large openings in the membrane structure. Adapted from Blackler et al⁴⁰.

Alternatively to high speed centrifugation techniques, detergent based purifications of membrane proteins have also been popular. In the 1980s, detergent two phase partitioning was developed for isolation of membrane proteins using the Triton series of detergents, particularly Triton X-114⁴³. Alternatively, two phase partitioning is also achieved using polymer based separation using dextran and polyethylene glycol (PEG)⁴⁴. This two phase partitioning system has been used by Schindler *et al.*, (2006) for the specific enrichment of plasma membrane proteins, where plasma membrane proteins tend to have an affinity for the PEG layer due to charge and hydrophobicity⁴⁵. Like sucrose density gradient centrifugation, an additional clean up step is required for detergent removal.

Solvent based extraction methods have been developed using a mixture of chloroform/methanol, which has been used for the enrichment of membrane proteins from *E.coli*⁴⁶, *Arabidopsis thaliana*⁴⁷ and *Brassica oleracea*⁴⁸. This organic solvent based extraction method was successful in enriching for hydrophobic membrane proteins that

where separated by SDS-PAGE and identified through LC-MS/MS from *A.thaliana*⁴⁷. Chloroform/methanol extraction provides a means to delipidate the lipid bilayer making the proteins more amenable to trypsin digestion. Compared to digestion of proteins from membrane pellets, chloroform/methanol delipidation provided an increase in the recovery of peptides from these membrane proteins⁴⁹. Organic solvent based extraction methods similar to sodium carbonate methods are advantageous because the number of steps required to extract membrane proteins is reduced and samples do not require further clean up steps.

Cell surface capture methods have also demonstrated utility in purifying membrane proteins from cells and tissues. Surface biotinylation has been useful in providing membrane protein identifications from mouse embryonic stem cells⁵⁰, human umbilical vein endothelial cells⁵¹ and *Shewanella oneidensi*⁵². The biotin preferentially binds to the cell surface receptors through interactions with the amino acid lysine. Membrane proteins are then purified by processing the biotin coated membranes through Streptavidin resins and then using reducing agents for removal of the proteins from the resin. However, this method is only applicable to cell surface proteins. In addition, colloidal silica has also been used for the recovery of cell surface membrane proteins, which coats the surface of cells with silica⁵³⁻⁵⁶. The silica creates a dense membrane, which is purified by centrifugation and provides relatively planar membrane sheets. However, like biotinylation, the colloidal silica method is only applicable to cell surface membrane proteins.

It is important to mention that none of the above extraction methods for providing membrane protein preparations results in an entirely pure preparation. In each of these methods, a small portion of identified proteins are from cytosolic origin. In many cases, proteins such as tubulin, actin and ribosomal proteins are also commonly identified in these preparations. Nonetheless, using these methods improves the ability to detect low abundance membrane proteins that may otherwise be lost when separated with whole cell lysates.

1.2.1.3 Digestion of Membrane Proteins

Shotgun proteomics as a methodology requires that proteins are digested into peptides for analysis by LC-MS/MS. In-solution digestion of membrane proteins in the presence of the membrane has proved to be a reliable method for obtaining peptides from soluble domains of IMPs^{30, 34, 38}. Intact membrane proteins are difficult to fractionate using shotgun proteomics except when methods such as sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) are used. In addition, analysis of proteolytic peptides from membrane protein digestion by LC-MS/MS has demonstrated utility in identifying membrane proteins^{9, 10, 34, 35, 38, 57-62}. These methods improve upon membrane protein analysis because proteolytic peptides do not have the same physiochemical constraints in comparison to intact membrane proteins. Although this methodology only allows the digestion of soluble segments of the protein, protein identification is still achievable based on the soluble portions of the protein.

Washburn *et al.*, (2001) demonstrated the identification of membrane proteins from trypsin digestion of *Saccharomyces cerevisiae* cell lysate⁹. In these experiments, insoluble (membrane) fractions after cell rupture were treated with 90% formic acid, followed by cyanogen bromide treatment for protein digestion⁹. This chemical digestion was followed by a pH neutralisation step with further digestion with trypsin or EndoLysC⁹. The use of cyanogen bromide is an advantage because this chemical cleaves after methionine, whereas trypsin cleaves on the carboxylic side after lysine and arginine, which are not commonly found in transmembrane segments of membrane proteins unlike methionine.

Identification of membrane proteins has also been achieved through non-specific enzymes such as proteinase K, which has been implicated in increasing the percent sequence coverage of available soluble domains from the enriched membrane proteins³⁸. Using non-specific

enzymes such as proteinase K, proteins are digested into random peptides with overlapping sequences, which helps in identifying the membrane proteins. The use of proteinase K was conducted at high pH to partially suppress the activity of the enzyme so that proteins are not digested into individual amino acids but into peptides suitable for MS analysis.

Thermal denaturation and organic solvents have also demonstrated utility to enhance the solubility of membrane proteins aiding in their enzymatic digestion⁶³. Organic solvents have been shown to increase peptide sequence coverage and parent ion intensities, which are used by protein assignment algorithms such as Mascot and X-tandem for assigning peptide and protein scores⁶³. The organic solvents used in these experiments were methanol, acetone, 2-propanol and acetonitrile. The results from this study showed that 60% methanol (v/v) and 80% acetonitrile (v/v) were optimal for trypsin digestion⁶³. Blonder and colleagues using 60% methanol assisted digestion and shotgun proteomics techniques have identified membrane proteins from *Pseudomonas aeruginosa*⁵⁸, *Halobacterium halobium*⁶⁴ and rat natural killer cells³⁵. For shotgun proteomic experiments, increasing peptide and protein scores from identified proteins from enriched membrane preparations results in a higher number of identified membrane proteins. In addition, the organic solvents help in solubilising membrane proteins aiding in their digestion with enzymes like trypsin that are still capable of digestion in a partial organic environment. Organic solvents work by providing an organic environment, which has similar properties to that of the hydrophobic alpha helices aiding in solubilisation and therefore, access of trypsin to the digestion of these hydrophobic domains.

Membrane protein digestion has also been improved through the use of surfactants used at low percentages¹⁰. Membrane protein digestion in the presence of surfactants is similar to organic solvents in that detergents provide a means for partially solubilising the membrane proteins and therefore, allowing access of trypsin to digest hydrophobic parts of the proteins. Han and colleagues proposed a method for strong cation exchange (SCX) fractionation of

peptides from membrane proteins, which uses SDS solubilisation, subsequent dilution and trypsin digestion¹⁰. Sample dilution is essential for both trypsin digestion and to reduce the effects of SDS on SCX fractionation and to retain the activity of trypsin. In addition to SDS, mass spectrometry compatible surfactants also known as acid labile salts or “silent” surfactants have also been developed, which have been used to solubilise membrane proteins prior to trypsin digestion^{12, 65-68}. Acid labile salts are advantageous because unlike other detergents like Triton or SDS, acid labile salts are degradable at low pH. In addition, a similar method was developed for urea solubilisation of membrane proteins prior to trypsin digestion⁶⁸. However, similar to SDS solubilisation, acid labile salt and urea solubilised samples require subsequent dilution to retain the activity of trypsin.

1.2.2 Shotgun Proteomic Analysis of Membrane Proteins

1.2.2.1 Shotgun Proteomics

Shotgun proteomics is a bottom-up proteomics approach used to characterise a proteome in a global sense. Shotgun proteomics is referred to as a technology that characterises a complex mixture of peptides derived from a heterogenous pool of proteins, which is analysed by tandem MS³⁰. Large scale shotgun proteomics techniques typically use two dimensions for separation of proteins or peptides, where the first dimension is referred to as a fractionation step and the second dimension is almost always reverse phase chromatography using a C18 resin to separate proteolytic peptides.

First dimension fractionation methods include both protein separation methods such as SDS-PAGE and peptide separation methods such as chromatography or isoelectric focusing. However, some common peptide based fractionation methods such as chromatography and isoelectric focusing can also accommodate proteins. For protein based fractionation methods

the resulting separated proteins requires proteolytic digestion prior to LC-MS/MS. On the other hand, peptide based fractionation requires in-solution proteolytic digestion of proteins prior to their separation. This concept involves separating the peptides into numerous fractions, which reduces the overall complexity of the samples, resulting in the potential to identify more peptide and protein identifications from the sample of interest.

Shotgun proteomics also relies on the ability to couple the second dimension reverse phase chromatography with tandem mass spectrometry using electrospray ionisation or LC matrix assisted laser desorption ionisation (MALDI)⁶⁹. Electrospray ionisation involves the flow of peptides in solution through a very fine capillary under high voltage into the ion transfer tube of the mass spectrometer. This allows the peptides to enter the mass spectrometer in gaseous state for mass and charge analysis. Coupling LC to electrospray ionisation allows the peptides to be eluted off a reverse phase column into the mass spectrometer over a period of time and not as a complex mixture of peptides from a single fraction from the first dimension separation. The end result is an increase in the number of peptides detectable from a single fraction being analysed. However, electrospray is not the only method available for shotgun proteomics; peptides separated by reverse phase chromatography may also be spotted down onto a matrix assisted laser desorption ionisation plate prior to MS/MS analysis⁷⁰.

Once peptides have entered the mass spectrometer, sequential mass-to-charge analysis is performed; once on the parent ion (ionised intact peptide) and another on the fragmented products of the peptide. Sequential MS analysis of parent ions and fragment ions is commonly referred to as tandem mass spectrometry. To create fragmented products of the parent ions, peptides are collided with inert gas in a process called collision induced dissociation. Peptide fragmentation results in a series of different sized fragment ions, which are produced by random breakage of the peptide backbone (Figure 1.04). The random sizes of the fragment ions allows for the recovery of the precise amino acid sequence of the

analysed peptides and therefore, the identity of the original digested protein. To piece this information together, the resulting MS analysis is processed through software programs to match experimentally derived mass spectra with in silico MS/MS data to identify both the peptide amino acid sequence and the original protein. In shotgun proteomics, this process occurs hundreds of thousands of times throughout the analysis of a single fraction over the length of the LC gradient. This process results in the possible identification of tens of thousands of peptides corresponding to thousands of protein identifications over an entire experiment.

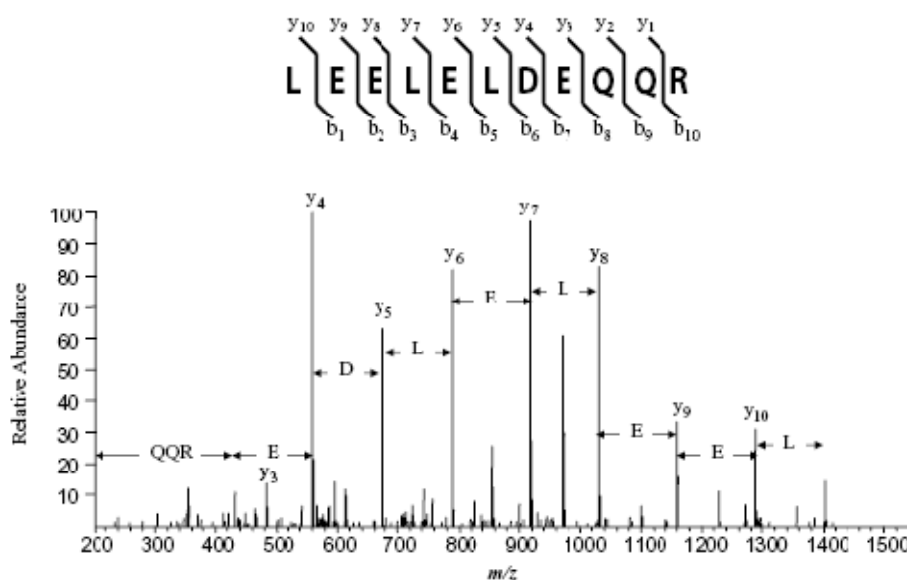


Figure 1.04: Mass-to-charge analysis of a peptide fragmented by collision induced dissociation in the process of tandem mass spectrometry. The peptide is randomly fragmented along the peptide backbone with differences in the mass-to-charge of each fragment ion resulting from the fragmentation occurring between different amino acids. The difference in fragment ion mass-to-charge ratios allows the specific amino acid sequence of the parent ion to be determined⁷¹.

1.2.2.2 Shotgun Proteomic Analysis of Membrane Proteins

The application of shotgun proteomics to membrane enriched samples has shown utility in providing an increase in the number identified membrane proteins^{34-36, 38, 41, 58, 62}. Table 1.1 lists some of the significant contributions to membrane protein characterisation through

shotgun proteomics. Membrane protein analysis through shotgun proteomics was first shown to be achievable through the separation and analysis of proteolytic peptides using multidimensional protein identification technology (MudPIT)^{9, 38}. MudPIT analysis of membrane enriched samples from rat brain provided the identification of 454 proteins providing a comprehensive profile of the rat brain membrane proteome³⁸. Following these investigations, off-line strong cation exchange (SCX) chromatography was used to identify 496 membrane proteins from the human epidermis³⁶ and 876 membrane proteins from rat natural killer cells³⁵. Furthermore, the analysis of IMPs in these studies was improved through the use of increased fractionation and long LC gradients prior to MS/MS analysis and provided a comprehensive coverage of the rat natural killer cell membrane proteome.

Alternatively, studies have also shown that in addition to increasing peptide fractionation and LC separation prior to MS/MS, increasing sample load improves the coverage of the proteome and enhances membrane protein analysis. Studies demonstrating the SCX separation of 5 mg of proteins from mouse brain whole cell lysate provided the identifications of 1447 IMPs⁷². Furthermore, Lai and colleagues have demonstrated the identification of approximately 1100 IMPs from the separation of 40mg of mouse liver whole cell homogenate¹¹. In these studies, high sample loading was accompanied by increased fractionation using a three dimensional separation (anion exchange chromatography, reverse phase chromatography and SDS-PAGE) prior to LC-MS/MS analysis. These studies provide comprehensive coverage of the mouse liver membrane proteome; however, the required time for MS analysis of the generated samples is unfeasible for most laboratories.

Table 1.1: Large scale analysis of membrane proteins using shotgun proteomics.

Sample	Fractionation Method	Mass Spectrometry	No. of IMPs	Year	Ref
Yeast	Online SCX (MudPIT)	3D-ion trap (LCQ - Thermo)	131 (>3TM)	2001	⁸
HL-60 cells	Offline SCX	3D-ion trap (LCQ - Thermo)	491	2001	⁹
Deinococcus radiodurans	Offline SCX	3D-ion trap (LCQ - Thermo)	215	2002	³³
Mouse Brain	Online SCX (MudPIT)	3D-ion trap (LCQ - Thermo)	454	2003	³⁷
Human Epidermis	Offline SCX	3D-ion trap (LCQ - Thermo)	496	2004	³⁵
Rat Natural Killer Cells	Offline SCX	3D-ion trap (LCQ - Thermo)	876	2004	³⁴
Pseudomonas aeruginosa	Offline SCX	3D-ion trap (LCQ - Thermo)	333	2004	⁶⁰
Mouse Brain	Offline SCX	Linear-ion trap (LTQ - Thermo)	1447	2006	⁷¹
Rat Brain	SDS-PAGE	Quadrupole Trap (Qtrap4000, Applied Biosystems)	249	2006	⁴⁴
Mouse Melanoma	SCX	FT-MS/MS (LTQ-FT - Thermo)	645	2006	⁷³
Human Ovarian Tissue	C-IEF	Linear-ion trap (LTQ - Thermo)	773	2007	⁷²
Yeast	C-IEF	Linear-ion trap (LTQ - Thermo)	407	2007	⁷³
Mouse Liver	Offline SAX - SCX	FT-MS/MS (LTQ-FT - Thermo)	~1100	2008	¹⁰
Mouse Kidney	Offline SCX	Qstar (Applied biosystems)	520	2008	⁷⁴

Early studies on membrane proteomics used less sensitive, slower duty cycle MS and less numbers of parent ions to be selected for fragmentation. These initial studies used 3D ion traps for MS/MS analysis^{9, 35, 38} and therefore, analysis at the time was improved through increased sample fractionation, high sample loading and extended LC gradients. Improvements in MS, particularly the development of 2D ion traps and Fourier-transform ion cyclotron resonance MS, have allowed the large number of membrane protein identifications¹¹. Using high sample loading, increased sample fractionation, extended LC

gradients prior to Fourier transform-MS/MS (FT-MS/MS), the largest identified mouse liver membrane proteome of ~1100 IMPs was possible without subcellular fractionation¹¹.

In comparison, shotgun proteomics techniques are superior to 2D gel based membrane protein identification methodologies, since studies using shotgun proteomics have demonstrated the amenability of these techniques to analysis of hydrophobic IMPs^{9, 10, 38, 39, 58}. This is exemplified in early shotgun proteomics studies, which demonstrated that the proteolytic peptides from membrane proteins are amenable to separation and analysis using shotgun proteomics²⁵. Studies on the bacterium *Deinococcus radiodurans* using SCX and gas phase fractionation identified approximately 60 integral membrane proteins³⁴ with grand average hydrophobicity (GRAVY) scores greater than 0.3, a barrier above which proteins are refractory to analysis by 2D-gels³³. Additional studies have identified 45 proteins from mouse brain homogenate³⁸ and over 100 proteins from rat natural killer cells³⁵ that are considered highly hydrophobic IMPs, providing evidence for the compatibility of shotgun proteomics for the analysis of this subset of proteins. This analysis of the current literature on membrane proteomics suggests that shotgun proteomics is the superior technique for the analysis and characterisation of IMPs.

1.2.2.3 Transmembrane Proteins Identified Through Shotgun Proteomics

Analysis of shotgun proteomics experiments from eukaryotic species has shown that transmembrane proteins are the most dominant class of the identified IMPs. Figure 1.05 shows the distribution of the identified TMPs from six selected shotgun proteomics studies^{35, 59, 72, 74-76} on membrane proteins. The total numbers of TMPs are presented as a percentage of all identified TMPs from each experiment and is categorised by the number of transmembrane segments. Single TMPs represent the largest group of TMPs identified in these studies with $48.4 \pm 2.18\%$ of the total number identified. Of the multipass membrane

proteins, double transmembrane segment membrane proteins represent approximately $12.1 \pm 0.46\%$ of the entire dataset. TMPs with greater than two transmembrane segments contribute 39.5% of the dataset. These studies provide evidence that shotgun proteomics is favorable for the identification of TMPs, in particular large hydrophobic multi-transmembrane proteins.

Each of the studies used in this analysis have been achieved through a diverse range of techniques demonstrating that regardless of the individual approaches, shotgun proteomics in general is applicable to the analysis of IMPs. The utility of shotgun proteomics for the analysis of membrane proteins is substantiated by the identification of multiple transmembrane segments containing TMPs. Multipass TMPs contain multiple hydrophobic alpha helices, which increases the hydrophobicity of the protein making these proteins generally difficult for proteomic analysis. Shotgun proteomic datasets contain a range of TMPs based on the number of transmembrane segments, which range from one to twenty-one^{38, 62, 64, 72}.

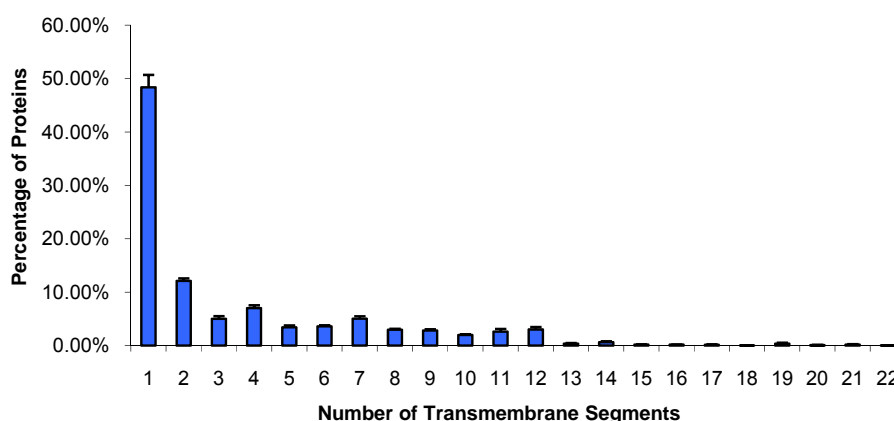


Figure 1.05: Analysis of six large scale shotgun proteomics studies based on the percentage of the total identified IMPs from individual studies as categorised by number of transmembrane segments. The studies involve the analysis of IMPs from four different species, human, mouse, rat and yeast, using different shotgun proteomics methodologies^{35, 59, 72, 74-76}.

1.2.2.4 Quantitative Shotgun Proteomics

Quantitative analysis in shotgun proteomics can be divided into three main groups, which include; label-based, metabolic labeling and label-free quantification. Label based quantification uses chemical tags or radio isotopic labels that act as reporter molecules during MS. In each case, the exact molecular weight of the chemical tag is known and is required for determining the correct mass-to-charge ratio of the peptide and chemical tag from the first MS scan. Metabolic labeling involves the incorporation of stable isotopes of amino acids to form light and heavy forms of peptides, which can be distinguished by MS. On the other hand, label-free quantification as the name implies, does not require chemical modification and the relative quantitative values are determined from spectral counts (number of redundant peptides from individual proteins) or elution peak areas of a peptide of interest.

One of the earliest methods of label based quantification in shotgun proteomics was conducted using isotope coded affinity tags (ICAT)¹⁵. ICAT has been the feature of many quantitative shotgun proteomic analyses and has been used for the quantification of membrane proteins from, for example, human myeloid leukemia¹⁰, *Deinococcus Radiodurans*⁷⁷ and Jurkat T cells⁷⁸. However, the main disadvantage of ICAT labeling is that the label is specific for cysteine residues, which are not present in every peptide. To overcome this disadvantage, N-terminal labeling and metabolic labeling methods were devised, which included isobaric tag for relative and absolute quantitation (i-TRAQ)⁷⁹ and stable isotope labeling in cell culture (SILAC)¹⁴, respectively. Quantitative analysis in shotgun proteomics experiments using i-TRAQ has advantages over ICAT labeling because the labeling is N-terminal and therefore, the modification has the potential to label all peptides. The i-TRAQ labeling methodology uses a nicotinoyloxy succinimide group, which is made with varying molecular weights allowing the ability to perform a multiplexed assay.

SILAC, unlike ICAT and i-TRAQ labeling methods, uses metabolic incorporation of isotopic forms of essential amino acids. Cell lines are grown in culture in the presence of either the light form of the amino acid or heavy form of the amino acid, which is incorporated into the cells proteins. The disadvantage of SILAC is that the method was not applicable to tissues; however, studies have demonstrated the metabolic labeling of rats with N^{15} as a means of quantitative proteomic analysis⁸⁰. Metabolic labeling is still not applicable to quantitative analysis on human subjects and therefore, as a labeling approach, i-TRAQ is an ideal technology for quantitative shotgun proteomics.

Label-free quantitative shotgun proteomics has advantages over labeling approaches, particularly because it does not require expensive labels and quantification only requires peptide identifications. However, label-based approaches require that the peptide identification must be accompanied by the labeling molecule to attain quantification. A variety of methods have been developed to take ordinary shotgun proteomics datasets and conduct methods which include statistical, data transformations and normalisation to represent these datasets in a suitable fashion for quantitative purposes^{16, 81-87}. One method of label-free quantification involves the comparison of proteins between two different biological conditions using peptide chromatography alignments and overall peak intensity to quantify individual peptides from a given protein⁸⁷. Another method of label-free quantification uses spectral counting as the means to assigning quantitative values to given proteins. Therefore, these methods are distinct to from chromatography approach because the quantitative values are assigned to the identified proteins and not the individually identified peptides.

In order for label-free quantitation to be a valuable quantification method, there should be no bias toward a subset of proteins based on protein size (number of amino acids), differences in protein loading between replicate experiments, or other known information about a given protein. A method developed to achieve these outcomes involves the

normalisation of a proteins spectral count and the representation of the data as normal (Gaussian) distribution through quantitative values termed normalised spectral abundance factors (NSAF)⁸³. The formula used to calculate the NSAF values is presented in Equation 1;

$$\text{NSAF} = (\text{Spc}/L) / \sum_{i=1}^N (\text{Spc}/L)_i$$

Equation 1

Where Spc refers to the proteins spectral count and L refers to the proteins amino acid length. A spectra count is a peptide identification assigned by mass spectra matching algorithms through aligning experimental mass spectra to theoretical spectra within a database. A spectral count only occurs when experimental mass spectra are assigned to a peptide sequence (i.e. experimental mass spectra match to theoretical spectra that meet a threshold probability value suggesting that the match is correct); however, the same experimental spectra may be measured numerous times throughout an experiment and therefore, each mass spectrum will result in an additional spectral count.

This method of label-free quantification is applied to biological questions in which three or more replicate experiments have been conducted. Proteins are only used for quantitative analysis if they are detected in all three experiments of either the control or treatment experiments. Furthermore, this methodology also incorporates a method to allow proteins with zero spectral counts in one sample, which would otherwise produce division by zero errors during further analysis. This method involves assigning a fraction of a spectral count to all proteins used in the analysis, which allows the assessment of true biological variation where a protein may be completely “switched off” due to a treatment. Finally, to perform Student’s *t*-test analysis of the proteins within the proteomics datasets between treatment and control samples, the NSAF values are log transformed and the fraction of a spectral is adjusted to satisfy a Shapiro-Wilk normality test. This method of calculating a proteins

NSAF value has been valuable in the describing proteomic changes in protein abundance in yeast cells⁸³.

1.2.3 Summary of Membrane Proteomics

Membrane proteins are an important class of proteins which are implicated in the design of many therapeutic agents. IMPs are a major class of membrane protein which has been pursued in many proteomics experiments. The analysis of IMPs has been made much easier with the use of membrane protein enrichment techniques, which remove highly abundant cytosolic proteins. The major contribution to the characterisation of membrane proteins has been the use of shotgun proteomics and the use of alternative sample preparation steps such as organic solvent enhanced digestion. However, further improvements to shotgun proteomics will be useful in providing increased coverage of the membrane protein component of the cell. In addition, the use of quantitative shotgun proteomics for investigating biological questions is a promising approach for the analysis of global changes in the membrane proteome.

1.3 Shotgun Proteomics using Immobilised pH Gradient Isoelectric Focusing

1.3.1 Isoelectric Focusing

In 1954, Kolin demonstrated the first application of isoelectric focusing for protein separation, through separating hemoglobin from cytochrome C⁸⁸. Kolin deduced the theory that ampholytes in a pH gradient under the influence of a constant electric field strength will migrate to a pH interval where the net charge of the ampholyte is zero, termed isoelectric point⁸⁸. Above this pH interval, the ampholyte becomes negatively charged and below this pH interval the ampholyte becomes positively charged. Applying an electric field of uniform strength to the pH gradient, will enable the current to run in the direction of increasing pH, which will result in the migration of molecules throughout the pH gradient. The pH gradients Kolin produced in the mid 1950s were inherently unstable and therefore researchers sought to investigate methods to create stable pH gradients. The first type of pH gradient that was tried to overcome pH instability was produced by the use of ampholytic compounds⁸⁹ and it was speculated that compounds known as “carrier ampholytes” were the essential ingredients for creating a stable pH gradient. Carrier ampholytes are molecules with both acidic and basic buffering groups and must have the ability to carry an electric field. Carrier ampholyte based isoelectric focusing did provide a means to separate molecules by isoelectric point and was capable of separating thousands of proteins in combination with SDS-PAGE⁹⁰; however, the lack of stability in the pH gradient still plagued the separation of proteins and peptides.

Righetti in the 1980s devised a system of IEF in which the buffering compounds are immobilised into a polyacrylamide matrix⁹¹, which provided pH stability. These buffering compounds known as Immobilines are made from acrylamide derivatives with reactive carboxylic or tertiary amino groups at the opposite end of an acrylic double bond (general

structure: $\text{CH}_2=\text{CH}-\text{CO}-\text{NH}-\text{R}$)⁹¹. These acrylamide derivatives polymerise with the acrylamide and bis-acrylamide in forming the polyacrylamide gel. The polyacrylamide matrix produces a medium that has unlimited stability to maintain the pH gradient and therefore, this technique was termed immobilised pH gradient isoelectric focusing. Protein or peptide loads are considerably higher with IPGs and do not effect the shape of the pH gradient. In carrier ampholyte IEF, proteins being amphoteric species can affect the shape of the pH gradient and therefore, protein load is greatly reduced⁹².

1.3.1 IPG-IEF as a Shotgun Proteomics Dimension

Shotgun proteomics has provided the ability to comprehensively characterise membrane proteomes through various protein and peptide fractionation methods prior to LC-MS/MS. First dimensional fractionation has made use of a variety of different techniques to separate proteins and peptides, which include off-line SCX^{35, 93}, on-line SCX^{9, 12, 38}, cIEF^{72, 74, 75} and 1D SDS-PAGE^{39, 60, 94}. Recently, an alternative sample fractionation method has been developed called peptide immobilised pH gradient isoelectric focusing (peptide IPG-IEF)⁹⁵⁻⁹⁷. This method involves the separation of proteolytic peptides across a pH gradient using IPG strips followed by partitioning of the strips into multiple fractions to be processed through LC-MS/MS.

Figure 1.06 provides a schematic of the shotgun proteomics methodology using IPG-IEF as the first dimension of two dimensional shotgun proteomics. Firstly, a protein sample of interest is digested into peptides, which are applied to an IPG strip in 8M urea. The peptides are then focused across the IPG strip to their respective isoelectric points by applying high voltage for an excess of 30kVhrs. The strips are then cut into multiple fractions and incubated in either an aqueous⁹⁵ or organic solution⁹⁷ to extract peptides out of the

polyacrylamide gel. Each fraction of peptides is then processed through LC-MS/MS analysis and searched against databases for protein identifications.

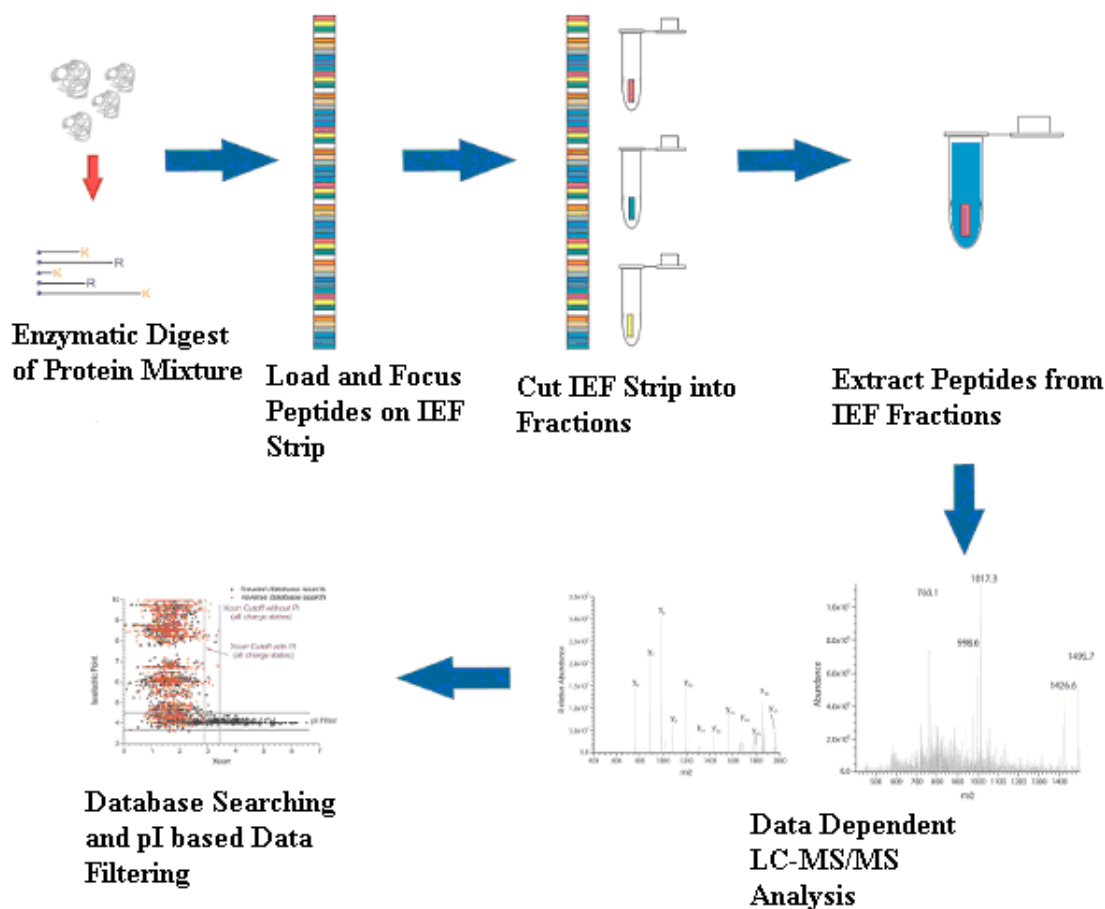


Figure 1.06: Work flow for the separation, extraction and analysis by tandem MS of peptides by IPG-IEF. Peptides derived from the trypsin digestion of proteins are applied to an IPG strip to which is rehydrated and focused using an Ettan IPGphor (GE healthcare). The strip is then partitioned into multiple fractions in which the peptides are extracted with water or organic solvents. Each fraction is then processed by LC-MS/MS, followed by data processing and analysis of the resulting MS/MS spectra through software such as SEQUEST, Mascot or X-Tandem. Figure is adapted from Cargile *et al*⁵⁹.

Cargile *et al* first demonstrated the application of peptide IPG-IEF for the first dimension separation of tryptic peptides from *E.coli* whole cell lysates prior to analysis through 3D ion trap LC-MS/MS⁹⁵. These experiments resulted in the identification of more than 6,000 peptides and 1,223 protein identifications. They also demonstrated the advantage of the high sample loading capacity (max. ~5mg) of IPG strips for high coverage shotgun proteomics⁹⁵.

Immobilised pH gradient IEF demonstrated high resolution separation since the average theoretical peptide *pI* per fraction correlated well with the IPG strip pH gradient. The separation of peptides by IPG-IEF also demonstrated a triphasic distribution of peptides per fraction with peptides being concentrated into fractions 2-12 (3.87-4.92 *pI*), 15-32 (5.33-6.93 *pI*) and 39-45 (7.97-9.63 *pI*)⁹⁵. These studies first demonstrated the utility of IPG-IEF for the first dimension fractionation of peptides for shotgun proteomics studies.

The use of peptide IPG-IEF was further established with the characterisation of *Drosophila melanogaster* proteins analysed through linear ion trap MS/MS and linear ion trap FT-MS/MS⁹⁷. These studies demonstrated the analysis of approximately 1,700 proteins, and showed that IPG-IEF provides high resolution analytical separation of peptides on the basis of *pI*⁹⁷. Again, the peptide distribution showed three distinct separation peaks across the analysed fractions and the average *pI* per fraction correlated well with the actual pH gradient on the IPG strip. The accurate separation of peptides by peptide IPG-IEF was demonstrated by the low standard deviation found in average *pI* for each fraction in the study⁹⁷. These studies demonstrate that peptide IPG-IEF is an accurate, high resolving analytical separation technique for shotgun proteomics.

Analysis of data from IPG-IEF experiments demonstrates that different regions of the pH spectrum varied in consistency for the separation of peptides^{95, 97}. The separation of peptides within the acidic to neutral *pI* regions of broad range (*pI* 3-10) IPG strips demonstrated high resolution separation with low standard deviation in average *pI* per fraction^{95, 97}. However, much higher variability was seen in the basic end of the pH spectrum as demonstrated by higher standard deviations in average *pI* per fraction^{95, 97}. The high standard deviation in average *pI* per fraction is due to the poor buffering capacity of basic peptides within the pH gradient suggesting that acidic and neutral pH gradients are ideal for peptide separation.

After initial application of peptide IPG-IEF as a first dimension peptide separation technique for shotgun proteomics, the separation of peptides was shown to be concentrated

within the *pI* regions of 3-7^{95, 97}. Essader and colleagues demonstrated that using narrow range (NR) IPG strips within the *pI* region of 3.5-4.9, an enrichment of peptides could be achieved⁹⁶. These studies demonstrated the identification of over 7,000 peptides from this small *pI* increment, suggesting that the more acidic *pI* regions of most trypsin digested proteomes are rich in peptides⁹⁶. Furthermore, NR IPG-IEF within the acidic to neutral *pI* regions has been used to overcome the problems associated with poor buffering capacity of basic peptides⁹⁵. These studies also demonstrated the high resolution separation of peptides within NR acidic IPG strips providing evidence that NR IPG-IEF within the acidic to neutral *pI* regions provides an alternative for peptide separation.

1.3.2 Theoretical Peptide Isoelectric Point and Peptide Separation

Theoretical peptide isoelectric points can be determined through the pKa values of contributing ionizable groups from each amino acid within a peptide⁹⁸. In general, there are three potential ionizable groups contributed from an amino acid; the C-terminal carboxylic group, the N-terminal amino group and an amino acid reactive group. The carboxylic acid group of peptides contributes very low pKa value with the majority of amino acids contributing a pKa value of 3.55, with the exception of aspartate and glutamate with 4.55 and 4.75, respectively⁹⁸. In contrast, the N-terminal amino acids contribute more variable amino pKa values with the majority having pKa values of 7.5⁹⁸. However, serine, threonine, valine and methionine contribute lower amino pKa values and the amino acids proline, alanine and glutamate contribute higher pKa values⁹⁸. Most notably, the amino pKa value of 8.36 for proline is much higher than other amino acids because unlike all other amino acids, proline contains a secondary amino group. These pKa values are presented in Table 1.2 and are values calculated by Bjellqvist and colleagues⁹⁸.

In addition to amino and carboxylic pKa values, some amino acids contribute to the *pI* of the peptides by contributing reactive groups. The amino acids aspartate and glutamate contain acidic reactive groups and contribute an additional acidic pKa value. The reactive group of histidine is more neutral with an imidazole side chain, which contains both acidic and basic nitrogen atoms within the imidazole ring. In contrast, cyteine, tyrosine, lysine and arginine all contribute basic reactive groups.

The separation of peptides by IPG-IEF is due to the existence of ionizable groups within the peptide chain. Ionizable groups not only influence where the peptides find their *pI* within the pH gradient but also influence their overall buffering capacity within the pH gradient. For example, peptides generated from trypsin digestion of proteins contain C-terminal arginine and lysine amino acids and therefore, the tryptic digestion favors the production of peptides that have acidic to neutral *pI* values. Peptides with acidic to neutral *pI* values generally have two acidic ionizable groups and therefore buffer well within the acidic to neutral pH regions of the pH gradient. In addition, since trypsin cleaves after lysine and arginine, the number of peptides with acidic to neutral *pI* values is far greater than for peptides that process basic *pI* values⁹⁹. Furthermore, basic peptides contain two ionizable amino groups contributed from the N-terminus and the reactive group of arginine or lysine. The spatial difference between these two groups contributes to low buffering capability of these peptides and results in the poor focusing of peptides observed in the basic end of the pH gradient. In addition, the isoelectric point of basic peptides generally falls around 8-9.5, where neither the N-terminal nor the reactive group (arginine or lysine) pKa values reside within this range. This analysis suggests that acidic *pI* regions of the pH spectrum should be rich with peptides and should provide high resolution peptide separation due to the high buffering capacity of these peptides.

Table 1.2: Amino acid C-terminal, N-terminal and reactive group pKa values as computed by Bjellqvist *et al*⁹⁸.

Amino Acid	Abrev..	C-term	N-term	Reactive Group
Glycine	G	3.55	7.5	NA
Alanine	A	3.55	7.59	NA
Valine	V	3.55	7.44	NA
Leucine	L	3.55	7.5	NA
Isoleucine	I	3.55	7.5	NA
Proline	P	3.55	8.36	NA
Serine	S	3.55	6.93	NA
Threonine	T	3.55	6.82	NA
Cysteine	C	3.55	7.5	9
Methionine	M	3.55	7	NA
Asparagine	N	3.55	7.5	NA
Glutamine	Q	3.55	7.5	NA
Phenylalanine	F	3.55	7.5	NA
Tyrosine	Y	3.55	7.5	10
Tryptophan	W	3.55	7.5	NA
Lysine	K	3.55	7.5	10
Arginine	R	3.55	7.5	12
Histidine	H	3.55	7.5	5.98
Aspartate	D	4.55	7.5	4.05
Glutamate	E	4.75	7.7	4.45

1.3.3 Peptide pI Filtering for Assigning High Confidence Protein Identifications

During the processing and analysis of data from shotgun proteomics techniques it has been common practice to use high throughput methods for validating data. Using search programs such as Mascot and SEQUEST cut off score values are used to limit the amount of false positive data with the general acceptance for false discovery rates below 1%⁹⁹. One way to reduce the amount of false positive identifications is to manually inspect each mass spectrum. With large quantities of data (as high as hundreds of thousands of spectra), high

throughput methods are considered to be much more manageable. With growing interest in shotgun proteomics, methods that reduce false discovery rates are also highly desirable.

Recently, Cargile *et al.*, have determined that IEF of peptides within IPG gels have high reproducibility, accuracy and resolution⁹⁵. Researchers have made use of these attributes to develop a method for reducing false positive identification rates by using peptide *pI* as additional filtering criteria during data processing. Cargile *et al.*, demonstrated that the correlation of experimental and theoretical *pI* of peptides is remarkably accurate^{95, 100}. Firstly, programs such as SEQUEST or Mascot are used to search tandem MS/MS data for possible protein identifications. In the process of matching spectra to peptides, spectra are also searched through reverse databases to determine the number and therefore the rate of false positives. Using the entire dataset of peptide identifications including reverse database identifications, the dataset is then filtered using *pI*. The idea behind this concept is that peptides with theoretical *pI*'s that are not within a set *pI* window of a given fraction are assumed to be false and are removed from the dataset. By filtering the entire dataset including reverse database identifications, one can filter out incorrect identifications, hence reducing the false positive rate and achieving high confidence protein identifications.

Using peptides identified on a FT-linear ion trap instrument, Krijgsveld *et al.*, identified 11,462 peptides from the forward database and 159 from the reverse database with a false discovery rate (FDR) of 2.7%⁹⁷. When the data was filtered for *pI*, the forward database contained 11,258 and the reverse database contained 115 reducing the false positive rate to 2%. The filtering of peptide data by *pI* is more pronounced for datasets identified by less accurate MS where the false positive rate from an ordinary linear ion trap instrument decreased from 9.8% to 3%⁹⁷. Peptide IEF with a FT-ICR linear ion trap was capable of identifying 43% more protein identifications than SDS-PAGE based shotgun proteomics and identified 1,751 validated protein identifications⁹⁷. These studies using IPG-IEF separation of peptides therefore provide an alternative shotgun proteomics methodology that improves

upon existing shotgun technologies based on providing high confidence protein identifications through additional protein validation methods.

Krijgsveld *et al.*, using *pI* as an additional filtering constraint used peptide level false discovery rate analysis. Peptide level false discovery rates (pepFDR) are calculated at the peptide level where peptide scores are ranked and adjusted to limit the percentage of false positives in the entire dataset (>1%). In contrast, protein level false discovery rate can also apply in a two step sequential filtering approach using *pI* filtering as the initial filter. Protein level FDR (protFDR) as the name implies, is calculated at the protein level, where protein scores are ranked and a threshold level is set beyond which assignments are incorrect.

1.3.4 Quantitative Shotgun Proteomics and IPG-IEF Separation of Peptides

Label-based quantitative shotgun proteomics using IPG-IEF as the first dimension of two dimensional shotgun proteomics is problematic in many ways. Labeling approaches such as ICAT or i-TRAQ, which chemically modify the peptides prior to separation also modify the peptides *pI*. This is not problematic if the shotgun proteomics analysis is conducted irrespective of where the peptides focus during IEF. However, IPG-IEF as mentioned in the previous section is advantageous as a shotgun methodology of separating peptides because peptide *pI* can be used as an additional filtering constraint for high confidence protein identifications. Although chemical modification potentially alters a peptide's *pI*, studies have demonstrated that within acidic *pI* regions of IPG strips, the observed changes in peptide *pI* due to chemical modification are only very small¹⁰¹. However, pronounced changes are postulated for peptides that would ordinarily produce basic *pI* values¹⁰¹. Using acidic NR IPG strips with i-TRAQ labeling of peptides was achieved recently in studies on H69 lung cancer cells¹⁰². The use of i-TRAQ labeling is therefore restricted to use with only acidic NR IPG strips. Unlike, i-TRAQ or ICAT, SILAC labeling methodology is not problematic for

IEF separation in shotgun proteomics because the isotopic amino acids have the same pI . However, as mentioned previously, the use of SILAC is restricted to studies involving the labeling of cell in culture. N^{15} metabolic labeling provides an alternative approach to labeling proteins from tissues but like SILAC, incurs an additional cost.

Label-free quantification provides the most ideal situation for quantitative analysis, since the methodology does not require chemical modifications, does not incur an additional cost for labeling peptides and does not restrict the use of broad range (BR) IPG strips for peptide separation. The use of label-free quantitative shotgun proteomics in combination with IPG-IEF to separate peptides has not been demonstrated to date. However, one down-side to label-free quantification is the number of MS/MS experiments required, which exceeds the multiplexed analysis used in i-TRAQ based shotgun proteomics.

1.3.5 Summary of Isoelectric Focusing based Shotgun Proteomics

With both the reproducibility and high resolution capable with IPG-IEF of peptides, shotgun proteomics with the technique of peptide IEF provides a useful alternative to other shotgun methods. The resolution of IPG-IEF is further improving with the development of pH gradients that range between 0.25-0.35 in pH range. The use of IPG-IEF of peptides in either broad or narrow range format provides a superior technique to existing technologies for shotgun proteomics. In addition, using pI as filtering criteria for the extra validation of shotgun proteomics datasets, one can reduce the false positive identifications providing stringent protein identification criteria. Overall, IPG-IEF separation of peptides for the first dimension of label-free quantitative two-dimensional shotgun proteomics contains many advantages over existing shotgun proteomics methods.

1.4 Liver Integral Membrane Proteins and Tumor-induced Inflammation

1.4.1 Introduction

The liver is a critical organ involved in key metabolic functions such as the regulation of blood glucose levels, the body's fat metabolism, bile acid production and the elimination of xenobiotic compounds. For these reasons, the liver has been a primary organ of interest for the overall well-being of humans. The liver has been studied heavily at both the gene and protein levels in association with diseases such as hepatocarcinoma, cholestasis, alcoholism, hepatitis, inflammation and liver fibrosis but to name a few. Inflammation is a well studied manifestation of disease that regulates the expression of specific genes and results in the production of liver proteins to induce a functional outcome.

Recently, tumor-induced inflammation has been identified as a pathological manifestation, which causes abnormalities in liver metabolism⁴⁻⁷. Perturbed liver metabolism through tumor-induced inflammation has been associated with the lack of safety of chemotherapeutic drugs in the treatment of cancer⁷. The reasons for the lack of safety of these drugs are due to the reduced ability to process and excrete potentially toxic forms of the chemotherapeutic drugs^{6, 103, 104}. Tumor-induced inflammation has been shown to result in increased levels of blood interleukin-6, a pro-inflammatory cytokine^{4, 7, 105}. Knowledge of underlying mechanisms of perturbed metabolism in the liver in the presence of a tumor is not well understood; however, other inflammation based metabolic changes in the liver have been investigated in more detail. These studies involve both genomic and proteomic investigations and allow some understanding of inflammation responses in the liver in the presence of a tumor.

In 2008, according to the World Health Organisation, 1 in 2 men and 1 in 3 women have a lifetime risk of cancer. In addition, the expected new cases of cancer in the USA alone, is

expected to reach 1.4 million in 2008. Furthermore, approximately 7.6 million people last year died from cancer or cancer-related illness. With such high incidence of cancer, the potential for complications associated with lack of safety of chemotherapeutic compounds used to treat cancer is also high. These statistics highlight the need for better understanding of how cancer can influence the safety of chemotherapeutic compounds in relation to drug metabolism and clearance in the liver.

Liver metabolic functions have been investigated using a variety of scientific methods from genome level analysis through to the protein level analysis. Proteomics, in particular shotgun proteomics, has the potential to provide a better understanding of liver metabolism because this analysis is focused on the functional level of the cell. Large scale proteomics is also advantageous because it allows global representation of the proteins involved in liver metabolism and has demonstrated utility in providing a protein profile of the liver. Using quantitative proteomics, a global profile of changes in protein abundance in relation to a disease setting has yet to be demonstrated for tumor-induced inflammation related responses in the liver.

1.4.2 Liver Structure and Organisation

The liver hosts a range of cell types with specialised functions, which include; hepatocytes, stellate cells (or ito cells), endothelial cells and kupffer cells (or liver macrophages) (Figure 1.07). Hepatocytes make up approximately 70-80% of all cells within the liver and are involved in the xenobiotic metabolism, one of the major functions of the liver. Hepatocytes are polarised cells containing a basolateral membrane (sinusoid membrane) and an apical membrane (canaliculi membrane). Hepatocytes are involved in the uptake of a variety of molecules from the sinusoid, including xenobiotics, bile acids and

sugars. In addition, one of the major functions of the liver hepatocytes is the production of bile, which is secreted into structures known as the bile canaliculi.

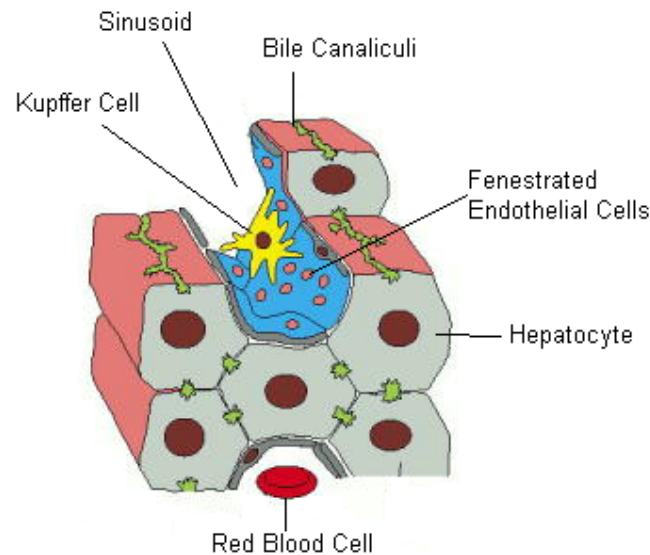


Figure 1.07: Cellular structure of the liver with the hepatocytes which have contact with the sinusoid vessels at the basolateral membrane and the bile canaliculi at the apical membrane. The sinusoid contains endothelial cells, liver resident macrophages (Kupffer cells) and stellate cells (Ito cells). Adapted from Lodish et al²².

The liver also contains stellate cells, which make up 5-8% of the liver cell mass. Hepatic stellate cells are involved in two major processes; fat and vitamin A storage; and liver fibrosis. Kupffer cells reside within the sinusoid of the liver and are involved in the phagocytosis of red blood cells marked for degradation. Finally, endothelial cells also reside in the sinusoid and are described as fenestrated because they present small windows, in which hepatocytes can have direct contact with the sinusoid.

The major functions of the liver include the regulation of blood glucose levels, fatty acid metabolism, bile production, xenobiotic metabolism, amino acid metabolism and the clearance of expired red blood cells. Blood glucose levels are maintained by the liver through a balance between glucose storage as glycogen in the liver and the break down and

secretion of glucose into the blood stream. Key endogenous hormones such as adrenaline, insulin and glucagon are all outside stimuli that maintain the function of liver glucose metabolism. The regulation of blood glucose levels is mediated through the processes of gluconeogenesis, glucogenolysis and glycogenesis.

In addition, the liver is involved in the breakdown of fatty acids but also plays a role in the biosynthesis of fatty acids for the body when energy requirements are low, leading to the storage of fats in adipose tissue. The liver is essential in the production of bile, which is stored and released by the gall bladder for the reabsorption of fatty acids within the intestine. Bile production is also linked to the metabolism and clearance of xenobiotics, another essential function of the liver. Xenobiotics that are taken up by the liver are processed through phase I and II metabolism and are cleared through the bile canaliculi or through the sinusoid.

The liver is also involved in the catabolism of amino acids into ammonia through the urea cycle. The activities of aminotransferases, which are involved in the degradation of amino acids, are diagnostic markers for overall functioning of the liver. The liver also has a primary role in protein metabolism with the ability to convert lactic acid into the amino acid alanine. The liver also actively secretes a whole range of proteins into plasma such as fibrinogen, prothrombin, proaccelerin, thrombokinase, apolipoprotein A-I, B, E, and albumin.

Finally, the liver is also involved in the degradation of expired red blood cells. Red blood cells generally have a life span of 3 months and are cleared from the body through the process of opsonisation in the liver. The breakdown of red blood cells also involves the release of heme from the cells and the liver is therefore involved in the scavenging of lost heme.

1.4.3 Liver Proteomics

Proteomic analysis of liver tissues from rodents has provided detailed information on the overall profile of this organ. A comprehensive proteome profile of mouse liver proteins was provided by large scale analysis using extensive protein fractionation, long LC gradients and high resolution MS^{11, 93}. These studies provided the identification and relative abundance of 7,099 proteins from mouse liver demonstrating the detection of proteins from a dynamic range of 4 orders of magnitude (Figure 1.08)¹¹. The most abundant proteins include; cytochrome p450s (Cyps), glutathione S-transferases (Gsts), oxidative phosphorylation enzymes, ribosomal proteins and histones. It is both interesting and expected that cell surface receptors such as epidermal growth factor receptor (EGFR), tumor growth factor receptor (TGRF) and others cell surface receptors (e.g. integrins) are at the lower end of the relative abundance in these studies. These observations demonstrate that the identification of IMPs is not only dependent on subcellular fractionation methods but is also dependent on the amount of material used for the analysis, number of fractions used to separate the proteins or peptides, and the length of the LC gradient prior to MS/MS analysis. However, it would also be possible to improve upon these shotgun proteomics methods by using sub-cellular fractionation and the advantages of separating peptides by IPG-IEF.

In addition, the mouse liver proteome has also been extensively characterised by other researchers, identifying 3,244 proteins⁹³. In these studies, cytochrome p450s, GSTs, ribosomal proteins, histones and oxidative phosphorylation enzymes were amongst the most abundant protein identifications based on the number of redundant peptides. Furthermore, cell surface receptors again were generally of low abundance compared to cytosolic and organelle proteins. These results provide evidence for the use of membrane protein enrichment techniques to improve upon the identification of IMPs, in particular the identification of cell surface receptors from rodent livers.

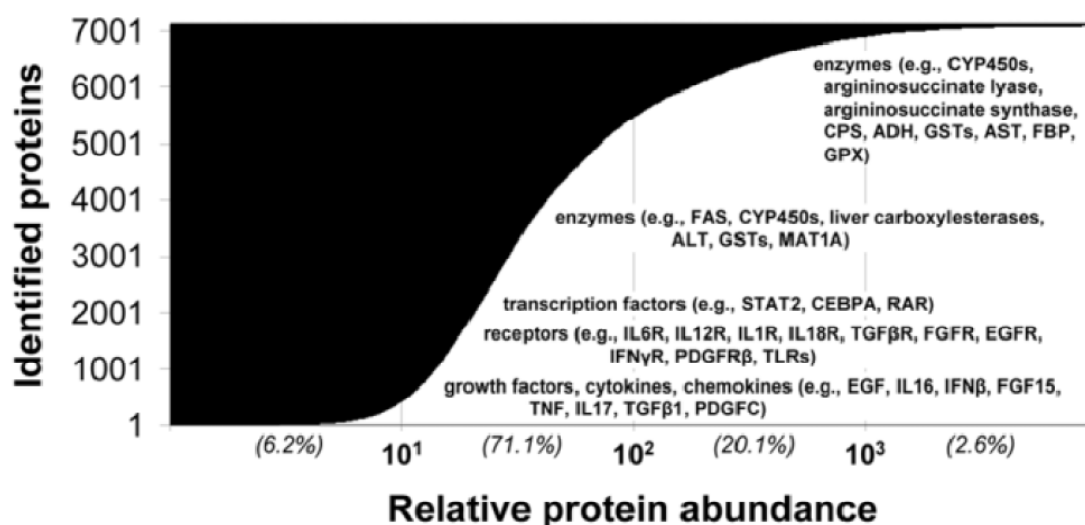


Figure 1.08: Identified proteins from label-free quantitative shotgun proteomic analysis of mouse livers. Proteins are ranked from least abundant through to most abundant with growth factors, cytokines, chemokines representing the former and cytochrome p450s, fatty acid binding protein and glutathione S-transferase's representing the latter. Adapted from Lia *et al*⁶.

1.4.4 Xenobiotic Metabolism and Transportation

Inflammation-induced changes in liver gene expression and protein abundance have been well studied especially for proteins involved in the metabolism and transportation of xenobiotics. Large scale analyses of the differences in liver metabolism mediated through inflammation have been mostly conducted through genomic analysis, particularly microarray analysis. Differential analysis of the liver proteome in association with inflammation has not been studied in much detail; however, large scale proteome profiling of the liver in rodents provides some detailed information on what proteins are abundant within this tissue. Figure 1.09 provides a schematic of the xenobiotic metabolism and transportation and bile acid transportation pathways in hepatocytes of the liver, involving many proteins from the cytochrome p450, ABC transporter and Solute carrier families.

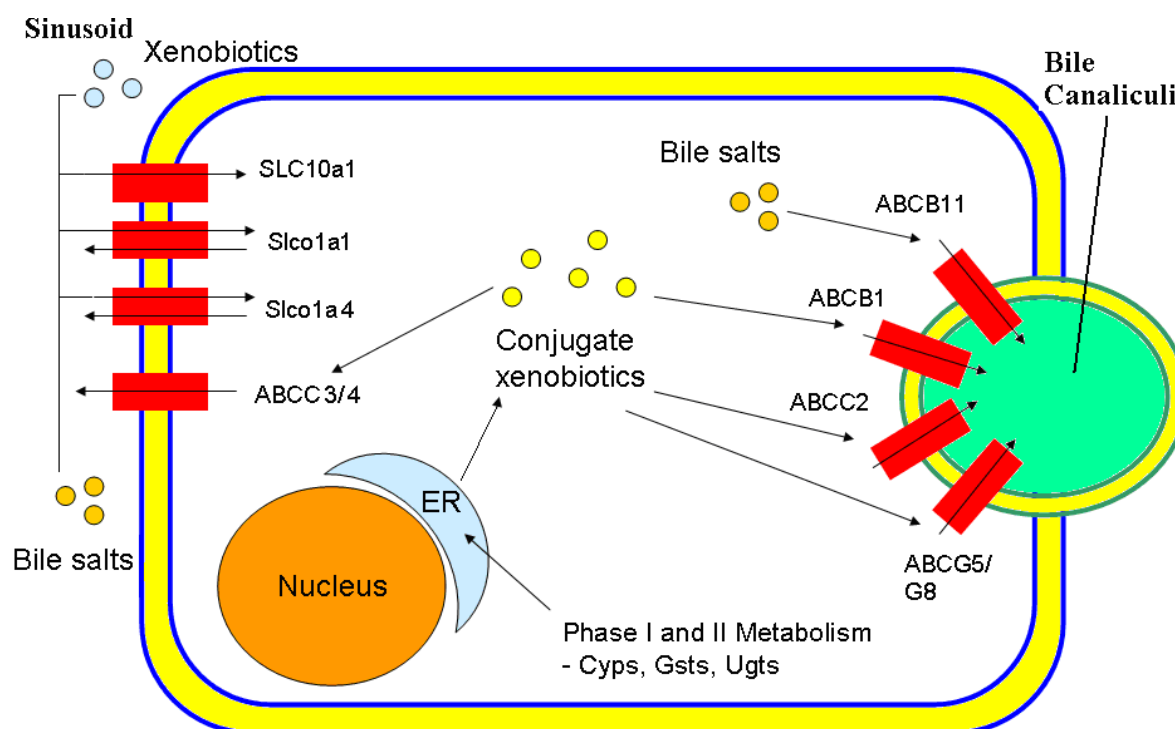


Figure 1.09. A general schematic of the transportation of bile acids and xenobiotics into hepatocytes. Bile acids are cycled through enterohepatic circulation, where bile acids from the hepatocytes are secreted into the bile canaliculi. After release from the gall bladder, bile acids emulsify fatty acids and bring them back to the liver through Slco and Slc10a1 proteins. Xenobiotics enter the hepatocytes through Slc10a1 and Slco proteins are processed in the endoplasmic reticulum by phase I (Cyp) and II (Ugt and Gst) enzymes. The conjugated xenobiotics are then secreted into the sinusoid and bile canaliculi by ABC transporters.

Cytochrome p450s

Some of the most abundant proteins found in rodent livers are the cytochrome P450 enzymes, which are known for their role in the phase I metabolism of 70-80% of all xenobiotics¹⁰⁶. Several studies have demonstrated a link between differences in the family of cytochrome P450 gene expression and IL-6 mediated inflammation. For example, various murine inflammation models involving endotoxin, turpentine or *Citrobacter rodentium* infection have all shown down regulation of the hepatic expression of the cytochrome P450 members 3A11, 1A2, 2A5, 2C29, 4A10, 4A14, 4F14 and 4F15^{4, 107-109}. In addition, changes in some of these enzymes have been confirmed at the protein level using Western blots, even

though it is known that the antibodies used in these studies are not particularly isoform specific^{4, 107, 108}. This highlights another advantage of proteomics, in that isoform specific peptides can be identified and used to confirm the differential expression of P450 enzymes.

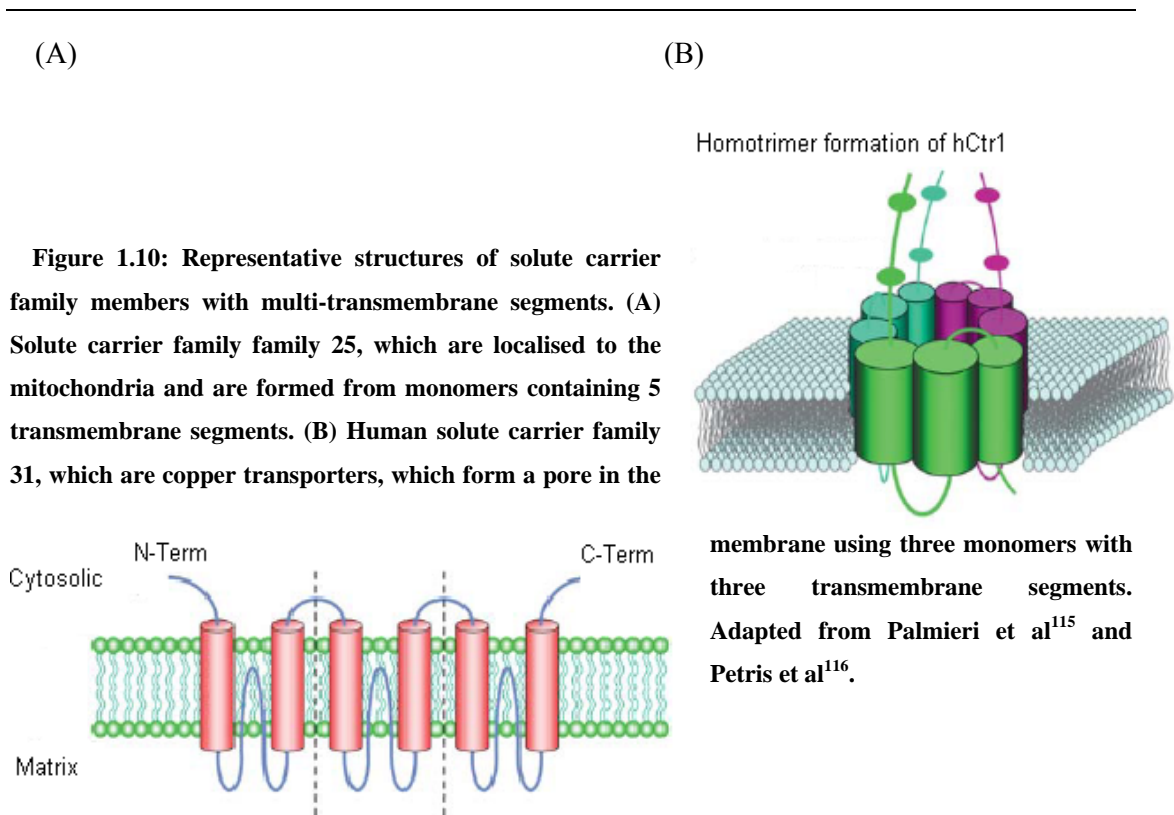
Studies involving the quantitative proteomics analysis of P450s in hepatic injury induced by carbon tetrachloride demonstrated the differential expression of P450 enzymes using acetylation stable isotope labeling with FT-LC-MS/MS. These studies demonstrated the differential abundance of 2C11, 3A2 and E1, which were all down-regulated; while 2C6, 2B2 and 2B1 were all up-regulated in rat livers¹¹⁰. Furthermore, studies involving 1,4 bis 2-(3,5)-dichloropyridyloxybenzene treatment of mice demonstrated the up-regulation of 1A2, 2A4/2A5, 2B10, 2B20, 2C29, 2C37, 2C38, 3A11 and 3A1; however, 2C40, 2E1, 3A41, 27A1 were all down-regulated¹¹¹. Furthermore, the most comprehensive mouse liver characterisation studies conducted to date have demonstrated the identification of 43 and 39 different P450 enzymes, respectively^{11, 93}, out of a possible maximum of 102 as calculated from genome analysis. The power of proteomics to distinguish between different P450 isoforms and the ability to detect differential expression of these enzymes in the same analysis is a good reason for the use of proteomics for characterising the differential expression of P450s.

ATP-Binding Cassette Family and Solute Carrier Family Transporters

Another key area of interest within the drug metabolism field is the transportation of xenobiotics into and out of hepatocytes for the metabolism and clearance of these compounds. The transportation of these compounds is controlled by two classes of transporters, which include the Atp-binding cassette family (ABC) and the solute carrier family (Slc). The study of ABC transporters and Slc members has been achieved at the transcript level and protein level in the mouse and rat liver.

Inflammation has been shown to change the expression of ABC transporter transcripts in rodent livers. Specifically, both tumor-induced inflammation and IL-6 mediated inflammation have been implicated in the differential expression of gene transcripts and protein abundance of ABC transporters⁵¹. In particular, injection of an EHS sarcoma into the hind limb of mice has been shown to down-regulate the gene expression of ABC transporters, C2, C3, G2, B4 and B11 (Bcrp) with an unaltered level of expression for B1a⁵. In addition, ABCC2 and C3 were further confirmed to be down-regulated at the protein level through Western blot analysis⁵¹. Furthermore, B1a, B1b, B4 and B11 were all shown to be down-regulated in turpentine-induced^{112, 113}, IL-6-induced¹¹²⁻¹¹⁴, and lipopolysaccharide-induced inflammation^{112, 113} in rodents. The gene expression of Slc transporters has similar characteristics to ABC transporters, in which Slc10A1, 1B2, 1A4 have been shown to be down-regulated in tumor-induced inflammation⁵.

In proteomics studies, ABC and Slc transporters are quite difficult to analyse because these proteins are particularly hydrophobic containing many transmembrane segments resulting in their poor solubility. Figure 1.10 illustrates some of the structures used by Slc proteins of family 25, the mitochondrial localised family¹¹⁵ and family 31, the copper transporters¹¹⁶. In large proteomics studies in mouse liver, ABC and Slc transporters have been identified, including; 31 and 18 from individual studies, respectively^{11, 93}. It is important to note that Slc10A1 (a key transporter of bile acid and xenobiotic uptake into the liver) was not identified in either of these large scale proteomics studies, yet has been implicated in the uptake of drugs at the basolateral surface of hepatocytes^{117, 118}. These studies demonstrate that large scale proteomics studies are able to identify some ABC and Slc transporters involved in xenobiotic metabolism and clearance but the use of alternative proteomics methods such as membrane protein enrichment could possibly enhance the analysis of this subset of proteins.



1.4.5 Summary of Liver Proteomics and Tumor-Induced Inflammation

The liver is a specialised and vital organ, which is generally indicative of the well being of an individual. Many factors influence the metabolic function of the liver; however, one factor that has been somewhat overlooked is the affects of a spatially unrelated tumor. The presence of a tumor, which leads to tumor-induced inflammation, has been shown to influence the expression of some proteins in the liver explaining some of the reasons behind the lack of safety of some chemotherapeutic drugs. Quantitative proteomics has the potential to provide a better understanding of the liver metabolism in association with tumor-induced inflammation. In particular, quantitative shotgun proteomics is one such proteomics technique that would allow the overall assessment of liver metabolism at the protein level in relation to tumor-induced inflammation. Quantitative shotgun proteomics has advantages over existing methods such as Western blot analysis because it has the ability to distinguish

between enzyme isoforms. This is particularly evident in the liver with the vast array of cytochrome p450 enzymes that are known to play an important role in drug metabolism and chemotherapeutic drug safety. In addition, membrane proteins within the liver play an important role in the clearance of xenobiotics such as ABC transporters and solute carrier proteins.

1.5 Thesis Aims and Scope of Research

The first aim of this research project was to develop a proteomics methodology that uses IPG-IEF as the first dimension separation for two dimensional shotgun proteomic analyses of liver membrane proteins. In addition, the aim was to provide a protein profile of the rat liver membrane proteome. These set of aims were designed to improve upon the existing identified membrane proteome and increase the characterisation of these identified membrane proteins. The advantage of IPG-IEF over alternative shotgun proteomics techniques suggests that this technique has the potential of providing a more comprehensive profile of the rat liver membrane proteome.

The second aim was to improve upon the coverage of the rat liver membrane proteome by using NR pH gradients as an alternative to BR pH gradients and to demonstrate this aim through label-free quantitative shotgun proteomic analysis. NR IPG-IEF is advantageous for shotgun proteomics because it allows the detection of peptides that would otherwise go undetected using broader pH gradients. In addition, relative quantification would provide information on the relative abundance of each protein within the rat liver membrane proteome.

The third aim of this research project was to use the quantitative shotgun proteomics methodology developed from the first two aims to determine the affects of tumor-induced inflammation on the abundance of membrane proteins in the liver. This aim was designed to provide information on the overall metabolic changes in protein abundance in mouse livers in relation to a tumor. This information will help to provide more understanding of the implication of tumor-induced inflammation in the relation to cancer treatment, particularly chemotherapy.

Chapter 2:

Shotgun Proteomic Analysis of
Rat Liver Membrane Proteins

2.1 Introduction

Analysis of membrane proteins is an important field in proteomics because membrane proteins represent 30% of the genome² and constitute approximately 70% of all human protein based drug targets¹. Analysis of membrane proteins has been notoriously difficult, which has been demonstrated by their under-representation in 2D gels^{21, 37, 119}. The majority of proteins presented by 2D gels have a tendency to be hydrophilic with grand average hydrophobicity (GRAVY) (a measure of a proteins overall hydrophobicity) scores of less than 0.3³. The problems associated with membrane protein analysis have been attributed to poor extraction and/or poor solubility²¹ either during sample preparation or during protein separation, such as the first dimension of 2D-GE¹²⁰. Although SDS remains the most efficient choice of solubilising reagent well suited to 1D gels, this surfactant hampers other techniques such as two dimensional liquid chromatography and two-dimensional gel electrophoresis.

Improvements in membrane protein analysis have occurred through increasing protein solubility during sample preparation with the aid of solvents. Trypsin retains enzymatic activity in various solvent environments^{63, 121}. Methanol, isopropanol, acetonitrile and acetone have all been shown to be compatible with trypsin enzymatic activity^{63, 121} and recently, 60% (v/v) methanol has shown utility for membrane protein digestion³⁴. Membrane protein digestion studies have also investigated the use of alternative enzymes to or in conjunction with trypsin¹²² and the use of acid labile salts for increasing protein solubility⁶⁸. SDS solubilisation of membrane proteins has also been adapted to SCX fractionation but only at very low concentrations (0.5%) so that the charge of the detergent has little affect on SCX fractionation¹⁰. For solubility reasons, SDS-PAGE analysis of membrane proteins has been successful in providing large coverage of membrane proteomes because SDS has such high solubilising power^{39, 94, 123, 124}. Alternative surfactants (e.g. CHAPS) have also been

used for solubilising membrane proteins for 2D-GE to compensate for the incompatibility of SDS with 2D-GE^{37, 42, 125, 126}.

For protein identification studies, shotgun proteomics methods have alleviated some of the problems (hydrophobicity) associated with membrane protein analysis. Earlier shotgun proteomics approaches utilised MudPIT⁸ for the identification of membrane proteins²¹. Recently alternative approaches using offline SCX chromatography^{10, 34, 60}, and SDS-PAGE based techniques^{39, 123, 124} have been employed. For example, Wang and colleagues have recently identified 7,800 mouse brain proteins, including 1,447 integral membrane proteins by fractionating 5mg of peptides using SCX fractionation and analysis with LC linear ion trap MS/MS⁷². Many shotgun proteomic methods typically use fast scanning, low resolution mass measurements, which require filtering methods to minimize false positive identifications^{97, 100, 127}. Researchers have demonstrated an overall improvement in membrane protein identifications using shotgun proteomics in comparison to the number identified from 2D gels, especially proteins that are inherently hydrophobic^{34, 38, 68, 72}.

Recently, an alternative to using SCX or SDS-PAGE to separate peptides or proteins prior to LC-MS/MS analysis was described where trypsin digested proteins were separated over an IPG using IEF; this technique was termed peptide IPG-IEF^{95, 100}. Analysis of tryptic peptides from proteins from *Escherichia coli* whole cell lysate using peptide IPG-IEF on a pH 3-10 linear IPG strip, allowed for the identification of 1,223 proteins from LC-MS/MS analysis using a three dimensional ion trap mass spectrometer⁹⁵. Recently, linear ion trap FT-ICR mass spectrometry has identified approximately 1,700 proteins from a pH 3-10 non-linear IPG strip from *Drosophila melanogaster* nuclear extracts⁹⁷. Peptide IPG-IEF was advantageous as peptide *pI* was demonstrated to be an accurate primary filtering criterion to reduce false positive and false negative identifications^{95, 97, 99, 100, 127}. In these studies, peptide *pI* was used as part of a two step sequential filtering method which was used in addition to either; false positive rate analysis⁹⁷ or using X_{corr} cut off scores^{96, 100, 127}. The advantages of

peptide *pI* filtering have not been evaluated for a two step sequential filtering approach which uses protein level false discovery rates (protFDR) for assigning high confidence protein identifications. The distinction between protFDR is that it is calculated at the protein level, where protein scores are ranked and a threshold level is set beyond which assignments are incorrect. However, peptide level false positive rates (pepFPR) are calculated at the peptide level in which the following formula applies, $2 * n(\text{reverse}) / (n(\text{reverse}) + n(\text{forward}))^{97}$, where reverse refers to reverse database assignments and forward refers to forward database assignments.

The aim of this Chapter was to evaluate peptide IPG-IEF as a technique for shotgun proteomics for the characterisation of the rat liver membrane proteome. We used this technique to investigate the addition of methanol to the digestion solution for trypsin digestion of rat liver membrane proteins. This Chapter also details the utility of a two step sequential filtering approach based on orthogonal peptide and protein characteristics (peptide *pI* and protFDR) for assigning high confidence protein identifications. This sequential filtering approach reduces the discovery of false positive protein identifications and helps to recover false negative protein identifications. Results in this Chapter demonstrate that peptide IPG-IEF is a valuable alternative technique to traditional shotgun proteomics techniques for the separation of peptides derived from trypsin digestion of membrane proteins.

2.2 Materials and Methods

2.2.1 Membrane protein isolation and preparation for peptide Immobilised pH Gradient Isoelectric Focusing (IPG-IEF)

Rat livers obtained from 8 week old Dark Agouti rats (Save Sight Institute, Sydney Eye Hospital, Australia) were perfused with 0.9% (w/v) phosphate buffered saline. Rat liver tissue (1.5 g) was then homogenised in 10 mM HEPES buffer (pH 7.8) supplemented with 2 mM NaCl, 10 mM NaOH, 500 mM EDTA and protease inhibitors (3 mg antipain-dihydrochloride, 0.5 mg aprotinin, 0.5 mg bestatin, 1 mg chymostatin, 3 mg E-64, 10 mg EDTA-Na₂, 0.5 mg leupeptin, 20 mg pefabloc SC, 0.5 mg pepstatin, 3 mg phosphoramidon) (Roche Diagnostics, Switzerland) using an Omni TH homogeniser (Omni International Inc., VA, USA). The homogenised tissue was then centrifuged at 13,000 g for 15 min at room temperature (RT).

Membrane proteins were isolated using a modified sodium carbonate stripping method^{32, 37}. Briefly, the supernatant was collected and diluted to a final volume of 40 mL in 0.1 M sodium carbonate (pH 11) then incubated for 1 h rotating at 4°C. The carbonate-treated membranes were sedimented by ultracentrifugation at 120,000 x g for 1 h at 4°C. The supernatant was removed and the membrane pellet was washed once with 0.1 M sodium carbonate (pH 11) and resuspended in 10 mM ammonium bicarbonate (NH₄HCO₃, pH 7.8). Sample was then transferred to a 20 mL glass scintillation vial and pulse sonicated using a Branson 450 Sonifier (Branson, Danbury, USA) using 2 second bursts for 15 intervals on ice. The sonicated sample was then reduced with 10 mM dithiothreitol for 1 h at 37°C and subsequently alkylated with 55 mM iodoacetamide at RT for 30 min. Protein quantification was conducted by Bradford Assay (Sigma-Aldrich, MO, USA). Trypsin digestion was conducted in 10 mM NH₄HCO₃ (pH 7.8) with three different concentrations of methanol,

which included; 0%, (v/v) 40% (v/v) and 60% (v/v). A 300 µg aliquot of protein was digested for each experimental replicate with a total of 6µg of trypsin. The three trypsin digestions were carried out in two stages; 3µg of trypsin was added to each followed by a 20 min water bath sonication and incubation at 37°C for 1.5 h followed by a further 3 µg addition and incubation at 37°C for a further 1.5 h. All three digested samples were evaporated to dryness in a vacuum centrifuge and resuspended in 250 µL of 8 M urea supplemented with a trace of bromophenol blue.

2.2.2 Peptide IPG-IEF

Digested proteins (300 µg) from each of the three digestion strategies were used to passively rehydrate a linear pH 3-10 (in which the actual pH range of the IPG strip is 3.85 to 9.36, information available at www.gehealthcare.com) 18 cm IPG strips (GE Healthcare) for 6 h at room temperature. Isoelectric focusing was conducted on an IPGphorII (GE Healthcare) with a current limit of 50 µA per strip at 20°C with the following focusing program; 300 V for 1 h, a gradient to 1000 V for 1 h, a gradient to 4000 V for 3 h, a gradient to 8000 V for 3 h and 8000 V until 100 kVh was reached. The strips were then cut (with plastic backing still in place) with a scalpel blade into 24 equal length pieces. Peptides were extracted from each fraction by incubation in 100µL of 0.1% (v/v) formic acid for 1 h at RT. The extraction was repeated twice and subsequently combined with the initial fractions. Combined peptide extracts from each fraction were concentrated in a vacuum centrifuge to approximately 30 µL. Each fraction was desalted using C18 tips (PerfectPure C18 Tips) (Eppendorf, Germany) and the eluate dried using a vacuum centrifuge followed by resuspension in 0.1% (v/v) formic acid in preparation for nanoLC-MS/MS.

2.2.3 Liquid Chromatography Mass Spectrometry

Each of the 24 fractions from the three trypsin digestion methods were analysed by nanoLC-MS/MS using a LCQ-Deca ion-trap mass spectrometer (ThermoFinnigan, CA, USA) according to Breci *et al*¹²⁸. Reversed phase columns were packed in-house to approximately 7 cm (100 μ m i.d.) using 100 Å, 5 mM Zorbax C18 resin (Agilent Technologies, CA, USA) in a fused silica capillary with an integrated electrospray tip. A 1.8 kV electrospray voltage was applied via a liquid junction up-stream of the C18 column. Samples were injected onto the C18 column using a Surveyor autosampler. Each sample was loaded onto the C18 column followed by initial wash step with buffer A (5% (v/v) ACN, 0.1% (v/v) formic acid) for 10 min at 1 μ L min⁻¹. Peptides were subsequently eluted from the C18 column with 0% - 50% Buffer B (95% (v/v) ACN, 0.1% (v/v) formic acid) for 58 min at 500 nL min⁻¹ followed by 50-95% Buffer B for 5 min at 500 nL min⁻¹. The column eluate was directed into a nanospray ionisation source of the mass spectrometer. Spectra were scanned over the range 400–1500 amu. Automated peak recognition, dynamic exclusion, and tandem MS of the top three most intense precursor ions at 40% normalisation collision energy were performed using the Xcalibur software (ThermoFinnigan, CA, USA).

2.2.4 Protein and Peptide Identification

Raw files were converted to mzXML format and processed through the global proteome machine (GPM) software, freely available from www.thegpm.org^{129, 130}. For each experiment, the 24 fractions were processed sequentially with output files for each individual fraction and a merged, non-redundant output file was generated for protein identifications with Log(e) values less than -1. These parameters for protein identification represent, and are referred to in this Chapter as, the minimal filtering criteria. Parent ions

were determined using a 0.4 Da fragment ion tolerance. Carbamidomethyl was considered as a complete modification and partial modifications were also considered, which included oxidation of methionine and threonine; and deamidation of asparagine and glutamine. MS/MS spectra were searched against the *Rattus Norvegicus* database (Database derived from SwissProt, Ensemble and NCBI) and reverse database searching was used for estimating false discovery rates¹³¹.

Protein identifications were validated using two filtering methods. The first filtering method uses 1% protFDR, as assessed by reverse database searching³⁰, which was applied to non-redundant protein lists (Method A). ProtFDR is calculated by the following formula; $\text{reverse}/(\text{reverse} + \text{forward}) \times 100$. The second filtering method uses peptide pI filtering as the initial filtering criteria followed by imposing a 1% false discovery rate at the protein level (Method B). Peptide pI was calculated through an open source pI calculator, Compute pI from ExPASy (http://au.expasy.org/tools/pi_tool.html), which calculates peptide pI from amino acid values described by Bjellqvist *et al.*,⁹⁸. Peptide pI filtering was conducted on the data obtained from each of the fractions by removal of statistical outliers were defined as peptides with pI values that fall outside the pI boundaries, determined using ± 0.5 of the standard deviation (calculated over the entire fraction) from the median pI value of the fraction.

Protein hydrophobicity was calculated through GRAVY analysis using the ProtParam algorithm (<http://au.expasy.org/tools/protparam.html>). Transmembrane segment annotation of the identified proteins was determined using either SwissProt annotation (www.ebi.ac.uk/swissprot) or the TransMembrane Hidden Markov Model (TMHMM, <http://www.cbs.dtu.dk/services/TMHMM-2.0/>)^{61, 132, 133}. Cellular location of identified proteins was derived from SwissProt annotation. Statistical analysis was conducted with Microsoft Excel using a Student's *t*-test with two samples assuming unequal variance with $P < 0.05$ for assignment of statistical confidence.

2.3 Results

Evaluation of Peptide IPG-IEF Shotgun Proteomics for Membrane Protein Identifications

Rat liver membrane proteins were purified using a modified sodium carbonate extraction method^{32, 37} and digested with one of three different trypsin digestion solutions containing varying concentrations of methanol (0%, 40% and 60%) in 10 mM ammonium bicarbonate (pH 7.8). Tryptic peptides were separated by IPG-IEF with an 18cm linear pH 3-10 gradient, extracted and analysed by nanoLC-MS/MS.

2.3.1 Resolution of Identified Peptides within IEF Experiments

To illustrate the separation of peptides by IPG-IEF from a rat liver membrane preparation, the number of peptides per fraction was calculated as an average of three replicate experiments for each digestion condition (Figure 2.01). The peptide distribution throughout the 24 fractions before peptide *pI* filtering demonstrated three separation peaks with the majority of peptides separating into fractions 2-6, 9-16 and 20-24 (Figure 2.01A), which is indicative of a well separated sample. The variability in the number of peptides per fraction was higher in the basic end of the IPG strip compared to the acidic to neutral fractions. In comparing the concentrations of methanol, there was little observable difference in the number of peptides in each fraction, except fraction 20, which demonstrated large variability. After filtering the dataset using the *pI* of the peptides and removing statistical outliers, the same three separation peaks were observed for all three digestion conditions

(Figure 2.01B). In addition, peptide *pI* filtering demonstrated that between 21-23% of identified peptides were statistical outliers over the 24 fractions. The basic region (Fractions 17-24) of the IPG strip contained the most statistical outliers with between 41-43% of all peptides within this region.

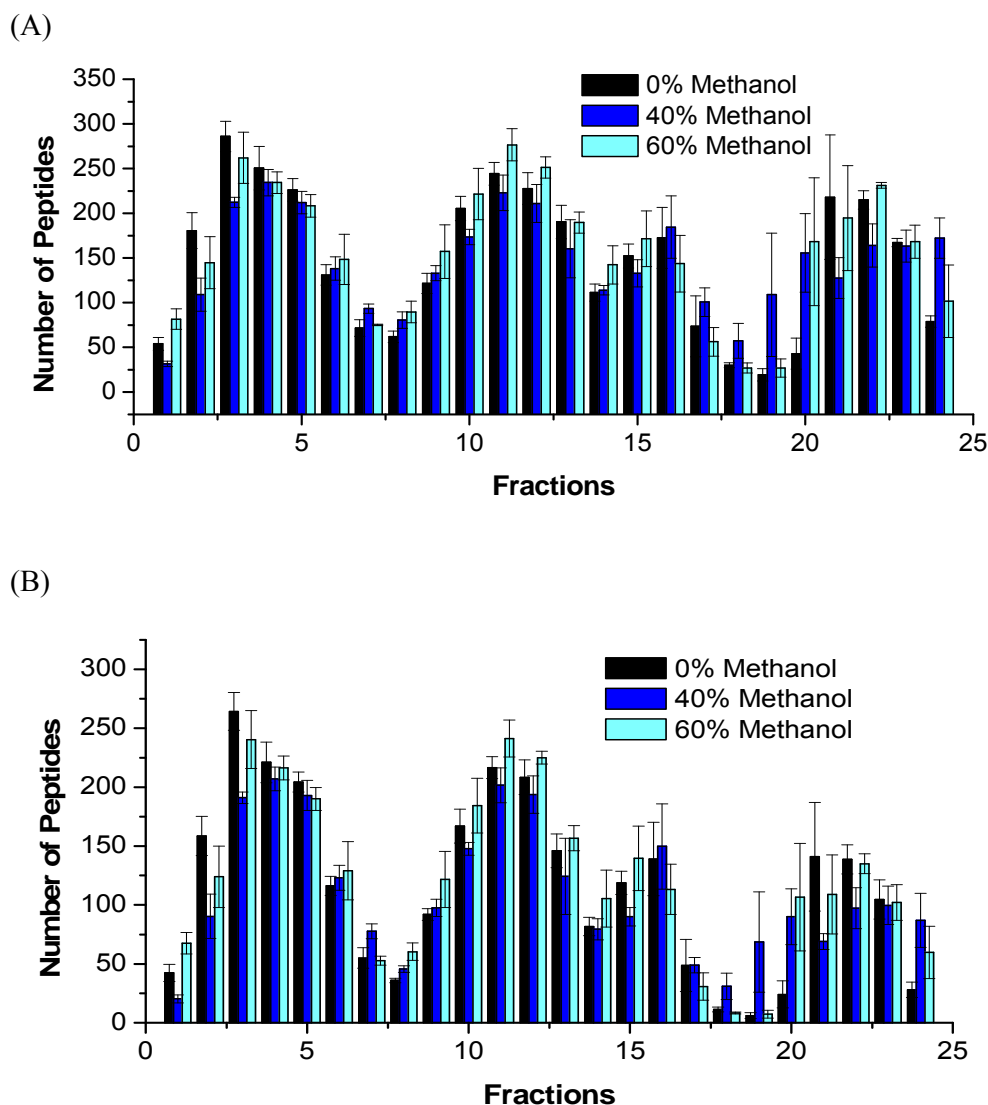


Figure 2.01: IPG-IEF separation of peptides throughout the 24 fractions obtained from the 18cm, *pI* 3-10 IPG strip before (A) and after (B) *pI* filtering. The average number of peptides per fraction over the 24 fractions of the IPG strips for each of the methanol concentrations used.

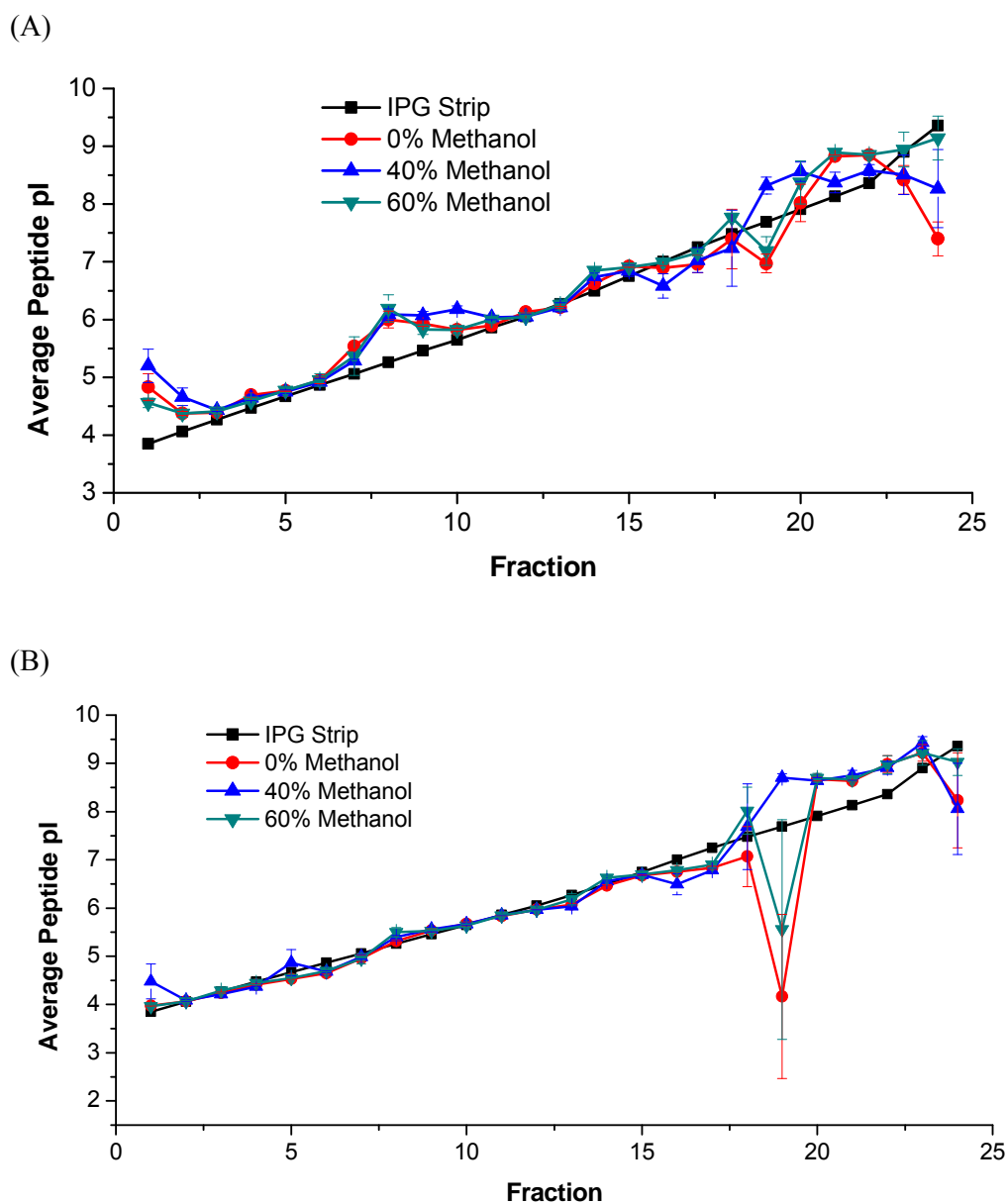


Figure 2.02: IPG-IEF separation of peptides throughout the 24 fractions obtained from the 18cm, pI 3-10 IPG strip before (A) and after (B) pI filtering. Average peptide pI per fraction for each concentration of methanol before and after pI filtering and the actual pI values of the IPG strip.

To demonstrate the IPG-IEF separation of peptides based on pI, the average peptide pI per fraction was calculated for the triplicates of each methanol assisted digest (Figure 2.02A). The average theoretical peptide pI before peptide pI filtering shows correlation between average pI in individual fractions and the actual pH of these fractions. The correlation

between theoretical and observed *pI* for individual fraction does not correlate in fractions 7-9, the basic region and the ends of the IPG strip. In general, the standard deviation in observed peptide *pI* per fraction was between 0.18-0.28 *pI* units. After *pI* filtering of individual fractions (Figure 2.02B), average theoretical peptide *pI* per fraction and the actual pH of the IPG strip correlated well within the acidic to neutral pH regions suggesting that separation of peptides by IPG-IEF is accurate and reproducible. However, the correlation between observed peptide *pI* and the pH of the IPG strip was not optimal within the basic region. Interestingly, the standard deviation for peptide *pI* for fractions 21 and 22 (9-10 *pI*) in the basic end of the IPG strip was approximately 0.2 *pI* units, suggesting good reproducibility but differences in observed and theoretical *pI* do exist. The resolving capabilities of IPG-IEF of tryptic peptides was also assessed by categorizing the total number of non-redundant peptides by the number of times each peptide occurred within all the fractions (Table 2.1). On average, 84.7-86.8% of all peptides were only detected from a single fraction and another 10.9-11.2% of all peptides were found in two fractions. There were minimal differences in this distribution that could be attributed to the concentrations of methanol used to assist protein digestion. After peptide *pI* filtering, the percentages of peptides found in one or two fractions slightly increased suggesting the removal of some peptides found in greater than two fractions as statistical outliers. These observations suggest that peptides were separated into discrete regions based on *pI* and this is evidence to suggest that peptide *pI* filtering as an additional filtering constraint is applicable to assigning high confidence protein identifications.

Table 2.1: The resolving power of IPG-IEF on the separation of peptides by accessing the number of times a peptide is identified within the 24 fractions.

Before Peptide pI Filtering					
	Number of Fractions				
Methanol Concentrations	1	2	3	4	>5
0% Methanol	84.71 ± 0.002%	10.88 ± 0.00%	2.46 ± 0.001%	1.06 ± 0.001%	1.30 ± 0.000%
40% Methanol	84.97 ± 0.02%	10.90 ± 0.01%	3.18 ± 0.004%	1.41 ± 0.003%	1.70 ± 0.005%
60% Methanol	83.18 ± 0.02%	11.30 ± 0.01%	2.71 ± 0.003%	1.37 ± 0.004%	1.28 ± 0.01%
After Peptide pI Filtering					
	Number of Fractions				
Methanol Concentrations	1	2	3	4	>5
0% Methanol	86.76 ± 0.005%	11.21 ± 0.002%	1.56 ± 0.003%	0.49 ± 0.001%	0.06 ± 0.00%
40% Methanol	87.32 ± 0.006%	11.18 ± 0.01%	1.91 ± 0.006%	0.84 ± 0.003%	0.34 ± 0.003%
60% Methanol	84.95 ± 0.019%	11.27 ± 0.008%	2.21 ± 0.007%	1.02 ± 0.004%	0.55 ± 0.003%

2.3.2 Analysis of Peptide Outliers Based on pI

Peptide pI filtering is based on the assumption that false positive peptide assignments generate random pI values with some of these peptides having peptide pI values that lie outside the statistically set pI boundaries. To further test this hypothesis, average log(e) scores were calculated for peptides that were considered to be correct or an outlier (Figure 2.03). The search algorithm XTandem assigns Log(e) scores to peptides based on the overall best match of experimental spectra for a peptide against theoretical spectra for that peptide and therefore, the Log(e) score is an assessment of the quality of that mass spectra. False positive assignments would result from a random match of experimental spectra to the theoretical spectra and therefore, the population of outliers (if truly false positive) should have an average log(e) score that is higher than the true peptide assignments. Analysis of correct and outlier peptides shows that correct peptides have lower average Log(e) score of -

3.26 \pm 0.04 compared to outlier peptides with -2.67 \pm 0.07. In contrast, the higher average log(e) score for peptides considered as outliers is not as high as the log(e) average for the reverse peptides, suggesting that the set of outliers may still contain some false negative assignments. These results suggest that the set of outlier peptides has higher log(e) scores and therefore, suggests that the majority of outlier peptides are generated from random spectral matching in a similar way as false positive assignments.

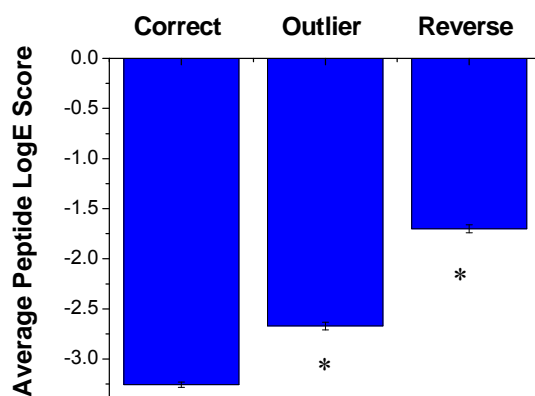


Figure 2.03: Analysis of the average log(e) scores for peptides that were considered correct and outlier peptide assignments based on the statistical analysis of peptide pI. In addition, average peptide log(e) scores were also calculated as a reference point for average log(e) scores of peptides known to be false positives (reverse) (* n=3, p<0.05).

After demonstrating that the basic end of the IPG strip has little correlation between the observed and theoretical peptide pI, it was of interest to investigate why this has been observed. The percentage of unique peptides per fraction for the acidic to neutral pH regions (fractions 1-16) was 87 \pm 1.56% compared with the basic pH regions (fraction 17-24) with 61 \pm 7.81% (Figure 2.04A, n=3, p<0.05). These results suggest that the focusing of peptides within the basic end of the IPG strip is problematic with much lower resolution compared to the acidic to neutral pH regions.

To further investigate the results observed in the basic regions of the IPG strip, the percentage of peptides with C-terminal arginine and lysine was calculated for all the

identified peptides and peptides that were statistically defined as outliers (Figure 2.04B). The results determined that of all the peptides, the percentage containing C-terminal arginine and lysine were similar with $53.6 \pm 11.82\%$ and $46.38 \pm 11.82\%$, respectively. However, when only peptide outliers were taken into consideration, the percentages changed significantly from $70.03 \pm 8.38\%$ with C-terminal arginine compared to $29.97 \pm 8.38\%$ for C-terminal lysine ($n=3$, $p<0.05$). These results suggest that peptides with arginine as the C-terminal amino acid are more common as outliers in each fraction, suggesting that theoretical pI contribution from arginine is not consistent with experimental observations.

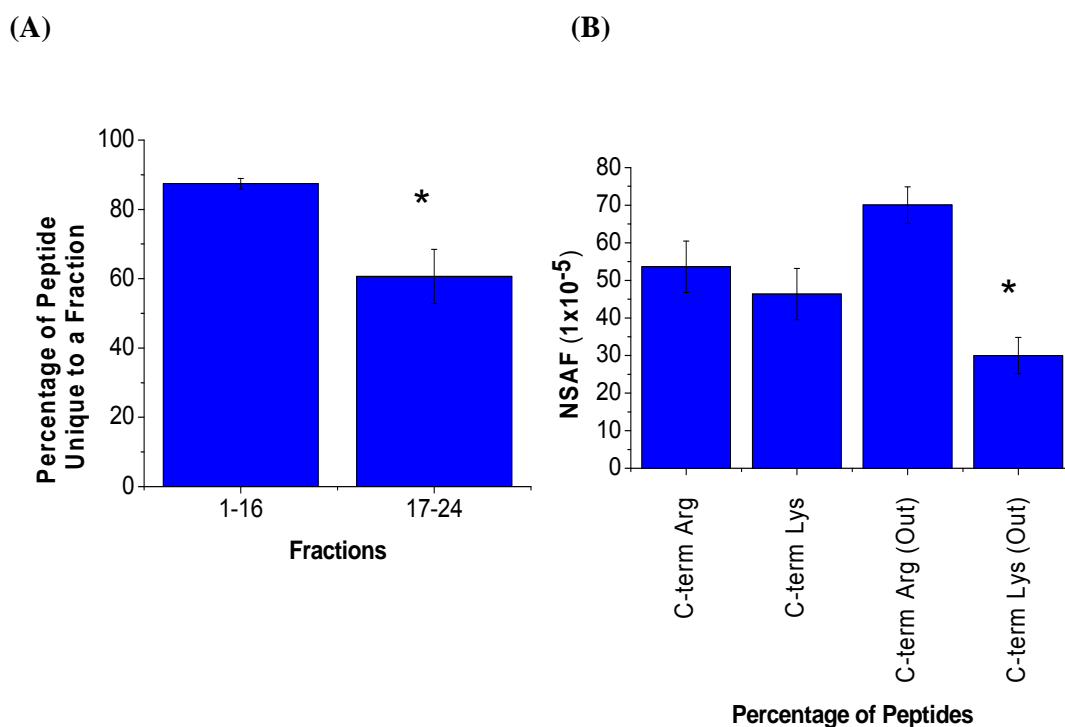


Figure 2.04: Analysis of the differences in correlation between the observed and theoretical peptide pI observed in the basic end of the IPG strips. (A) Analysis of the percent unique peptides in the acidic to neutral pH ranges (fractions 1-16, $61 \pm 7.81\%$) and the basic pH ranges (fractions 17-24, $87 \pm 1.56\%$). (B) Analysis of the percentage of peptides that have c-terminal arginine and lysine from the total set of peptides (arginine = $53.6 \pm 11.82\%$, lysine = $46.38 \pm 11.82\%$) and the set of outlier peptides (arginine = $70.03 \pm 8.38\%$, lysine = $29.97 \pm 8.38\%$) (* $n=3$, $p<0.05$).

2.3.3 Evaluation of Peptide IPG-IEF for Protein Identifications

The total number of protein identifications from the membrane preparations was assessed using two filtering methods as discussed in the material and methods (Figure 2.05). Filtering method A (1% protFDR) resulted in 506 proteins (0% [v/v] methanol), 405 proteins, (40% [v/v] methanol) and 652 proteins (60% [v/v] methanol) on average from three experimental replicates. Filtering method A has been shown to be prone to false negative identifications^{95-97, 99, 100, 127, 134} so to recover these proteins, filtering method B was used. Filtering method B used peptide *pI* as an initial filtering criterion before imposing a 1% protFDR at the protein level. This analysis resulted in 623 proteins (0% [v/v] methanol), 688 proteins (40% [v/v] methanol) and 804 proteins (60% [v/v] methanol), representing a 19-41% increase in protein identifications compared to filtering method A. This data provides evidence that peptide *pI* filtering is a useful method for improving the protFDR of protein identifications and to decrease false negative identifications.

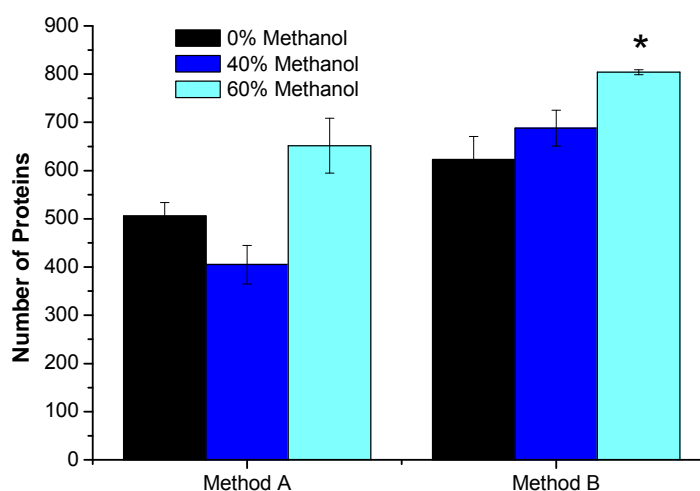


Figure 2.05: A comparison of data filtering methods A and B and a comparison of methanol concentrations for assisting protein digestion with trypsin. * Student's *t*-test comparison between 60% methanol assisted digest and 0% methanol assisted digest using filtering method B.

Comparison between the concentrations of methanol used to assist membrane protein digestion showed that 60% (v/v) methanol allowed increased recovery in total number of proteins compared 0% (v/v) and 40% (v/v) methanol for both filtering methods. From high confidence protein identifications using filtering method B, a 17.6% ($P < 0.05$) and 14% increase in protein identifications was observed for 60% (v/v) methanol compared to 0% (v/v) and 40% (v/v) methanol, respectively (Supp. Table 1). These results demonstrate that 60% (v/v) methanol is the optimal concentration for digestion of proteins with trypsin for increasing the proteome coverage and in combination with peptide IPG-IEF is a valuable method for membrane protein shotgun proteomics. A total of 1549 unique protein identifications, including 690 (626 transmembrane proteins) IMPs were identified from the three concentrations of methanol (Supp. Table 2).

To demonstrate the distribution of proteins identified between each concentration of methanol, a Venn diagram analysis was conducted (Figure 2.06). In total, 41.96% of proteins were identified from all concentrations of methanol. In each of the cases where proteins were identified from one set of experiments or a combination of two, 60% methanol always gave the highest percentage of identified proteins. For example, when proteins were identified from a single experimental set, 60% methanol had a higher percentage of identified proteins. (17.75% compared to 12.4% and 7.75%) Furthermore, for proteins identified in two experimental sets, the number of protein identifications increased with increased percentage of methanol ($0\%/40\% = 3.49\%$, $0\%/60\% = 6.71\%$, $40\%/60\% = 9.94\%$). These results provide evidence that the percentage of methanol influences the total protein identifications with 60% methanol providing the highest percentage protein identifications.

Figure 2.06: Venn diagram analysis of non-redundant protein identifications from each concentration of methanol from the total of 1549 protein identifications. In total, 41.9% of all protein identifications were observed in each experimental set and for other protein identifications the percentages increased with increased concentrations of methanol.

2.3.4 Integral Membrane Protein Identifications

Of the non-redundant proteins identified from the three digests, between 44-49% were classed as IMPs. Transmembrane proteins were the major type of IMPs identified with 419, 421 and 513 for 0%, 40% (v/v) and 60% (v/v) methanol, respectively (Figure 2.07). This analysis of transmembrane proteins provides compelling evidence for the compatibility of peptide IPG-IEF shotgun proteomics for the analysis of transmembrane proteins. Approximately 50% of the identified transmembrane proteins possessed a single transmembrane domain; however peptides were also recovered from proteins with up to 19 transmembrane domains. The number of transmembrane domain containing proteins between each concentration of methanol used to assist trypsin digestion was compared. 60% (v/v) methanol demonstrated an increase in each of the categories ranging from a single

transmembrane domain up to 12 transmembrane domains. The largest difference was observed in the number of proteins identified with a single transmembrane domain in which 60% (v/v) methanol provided 16% more proteins.

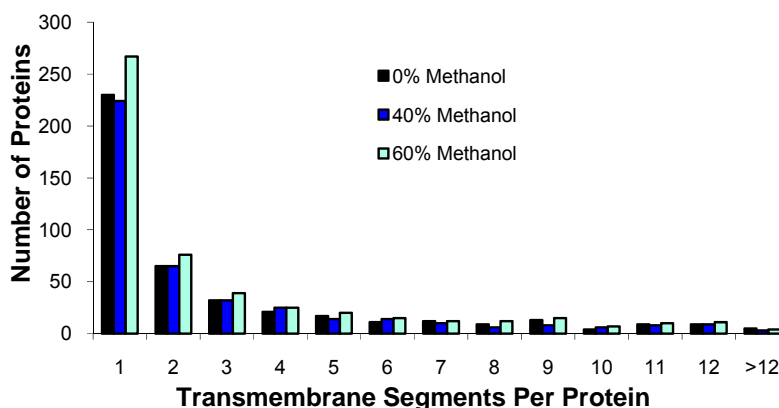


Figure 2.07: Number of transmembrane proteins identified from the three digestion strategies categorised by their number of transmembrane segments.

Integral membrane proteins were not only made up of transmembrane proteins but other types of IMPs from the SWISS-PROT database were also annotated. Four porin proteins were identified, which included voltage dependent anion channel (VDAC) proteins. A subset of proteins were annotated as IMPs (24 – 0% methanol, 25 – 40% [v/v] methanol and 28 – 60% [v/v] methanol) but were not annotated transmembrane or porin proteins, which included many subunits of the electron transport chain. Finally, 20 (0% and 40% [v/v] methanol) and 27 (60% [v/v] methanol) IMPs were annotated as possessing lipid anchor modifications such as palmitate, myristate, prenyl and glycoposphoinositol.

In addition to annotating membrane proteins through protein secondary structures, protein identifications provided in the literature has also been presented through hydrophobicity analysis¹³⁵. To illustrate the diverse array of proteins identified through peptide IPG-IEF shotgun proteomics, identified proteins were ranked based on GRAVY scores (Figure

2.08A). Approximately 22% of all proteins identified displayed a GRAVY score greater than zero. Furthermore, approximately 5% (82) of the non-redundant proteins identified from all three digests had a GRAVY score greater than 0.3, a barrier noted by others^{21, 119}, above which most proteins are refractory to analysis by 2D-GE. Increasing the organic solvent content of digestion did not considerably improve the ability to recover hydrophobic proteins, despite being of value to increase overall numbers of recovered proteins. Nonetheless, analysis of IMPs (Figure 2.08B), illustrated the importance of using 60% methanol, which led to a slight increase in identified hydrophobic IMPs.

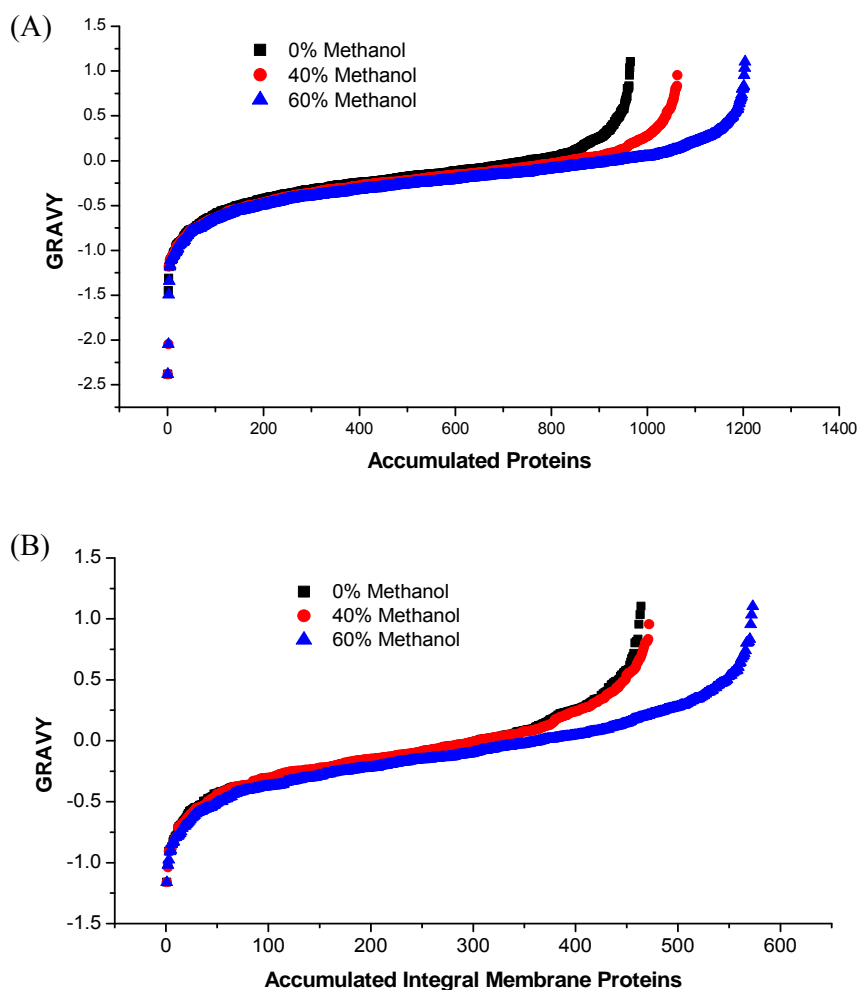


Figure 2.08: Distribution of proteins based on GRAVY scores for the total number of non-redundant proteins (A) and integral membrane proteins (B) identified from the three digestion strategies.

2.3.5 Cellular Location of Proteins Identified from Each Digest

To place the identified proteins in context of their cellular locations, each proteins cellular location was extracted from the Swiss-Prot database. Swiss-Prot cellular locations are a manually curated database derived from experimental observations and therefore, is an accurate method for protein annotation; however, the number of proteins with annotations is much less than when prediction software is used. Comparison of the percentage of non-redundant proteins based on cellular locations demonstrated no significant difference between methanol assisted digests (Appendix 1, Table 1.1). As a representation of the percent coverage of proteins based on cellular location, proteins identified through 60% (v/v) methanol assisted digestion are presented in Figure 2.09. In each dataset, 31% of the protein identifications had no clear cellular location which is consistent with previous large scale proteomic studies¹³⁶. Cytoplasmic proteins made up 18% of the dataset with proteins such as tubulin, actin and ribosomal proteins identified. Proteins localised to the mitochondria constituted 14% of the dataset with many proteins derived from the electron transport chain. Plasma membrane proteins were also well represented by 10% of the identified proteins in particular, solute carriers, receptors such as the EGF receptor and transferrin receptors and transporters. The endoplasmic reticulum made up 9% of the identified proteins with 41 identified cytochrome p450 enzymes. Finally, the nucleus, secreted/extracellular, microsome, peroxisome, Golgi and miscellaneous locations each represented less than 5% of the entire proteome.

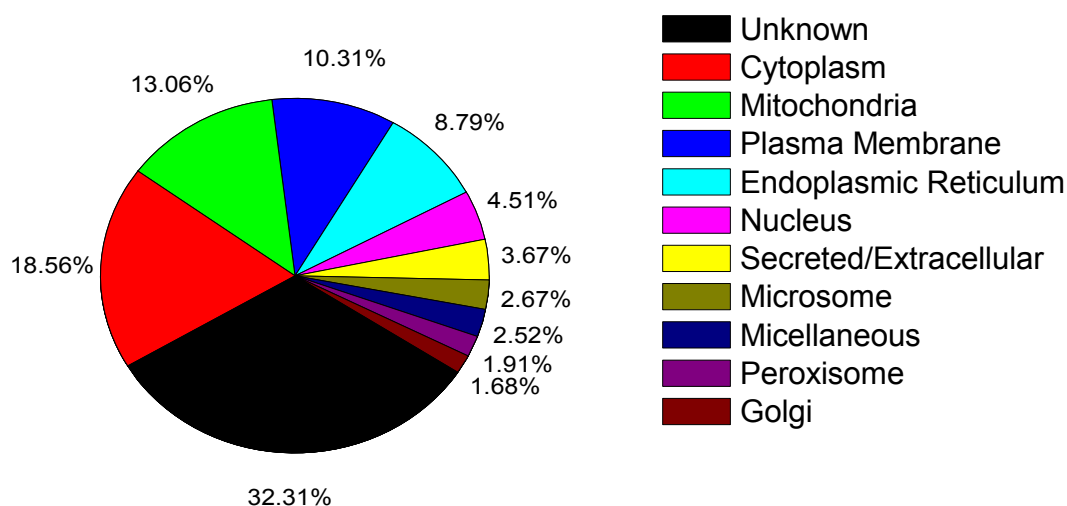


Figure 2.09: Cellular locations of proteins identified from 60% methanol digestion as a representation of the proteins identified from all concentrations of methanol.

2.3.6 Identified Membrane Protein Families

Analysis of the identified proteins from the experimental datasets found a large number of proteins that were from the same protein families. Importantly, the identification of cytochrome p450, ABC transporters and Slc families was of interest because later investigations involving tumor-induced inflammation were anticipated to involve many of these proteins. In this study, 41 different cytochrome p450 proteins were identified from rat livers (Figure 2.10) with the number of unique peptide identifications of the experimental datasets ranging from as low as 1 to as high as 35. The Cyp2 family was the most dominant with 24 different isoforms, which included proteins from 2a, 2b, 2c, 2d, 2e, 2q, 2s, 2t sub-families. In addition, 1a and 3a families were also well represented with 2 and 3 proteins identified in each, respectively. Furthermore, the fatty acid metabolizing cytochrome p450s were represented by 4a proteins including, 4a10, 4a14 and 4f proteins with 4f1, 4f4, 4f6. Other cytochrome p450s included; 7a1, 8b1, 17a1, 27a1, 39a1, and 51a1, which all have

diverse functions within the cell. In all, this study provides one of the largest numbers of cytochrome p450s identified in mammalian liver tissue providing evidence for the use of this shotgun proteomics strategy for the analysis of liver membrane proteins.

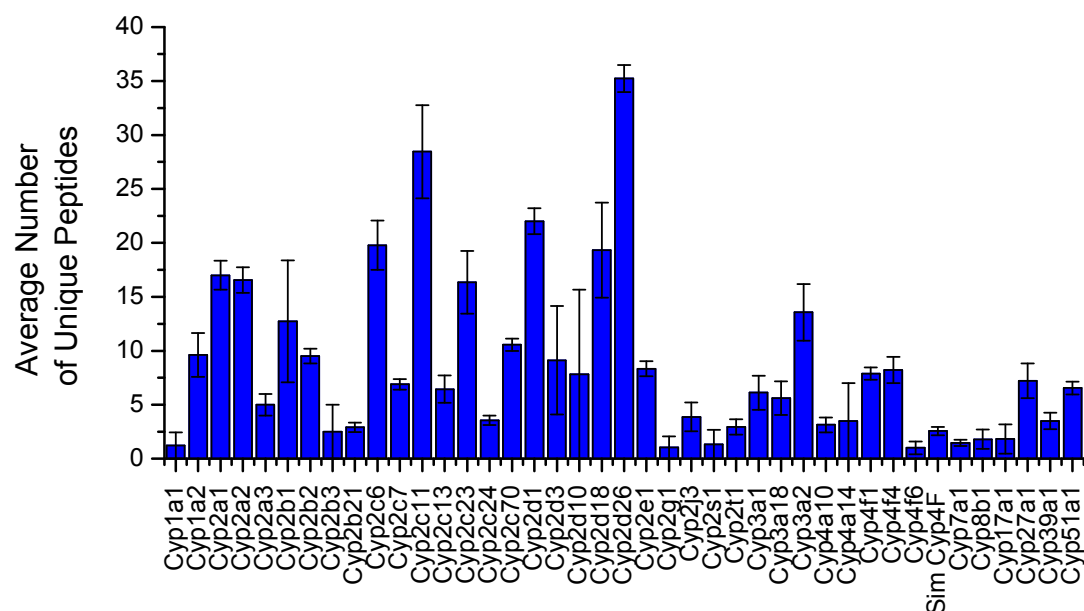
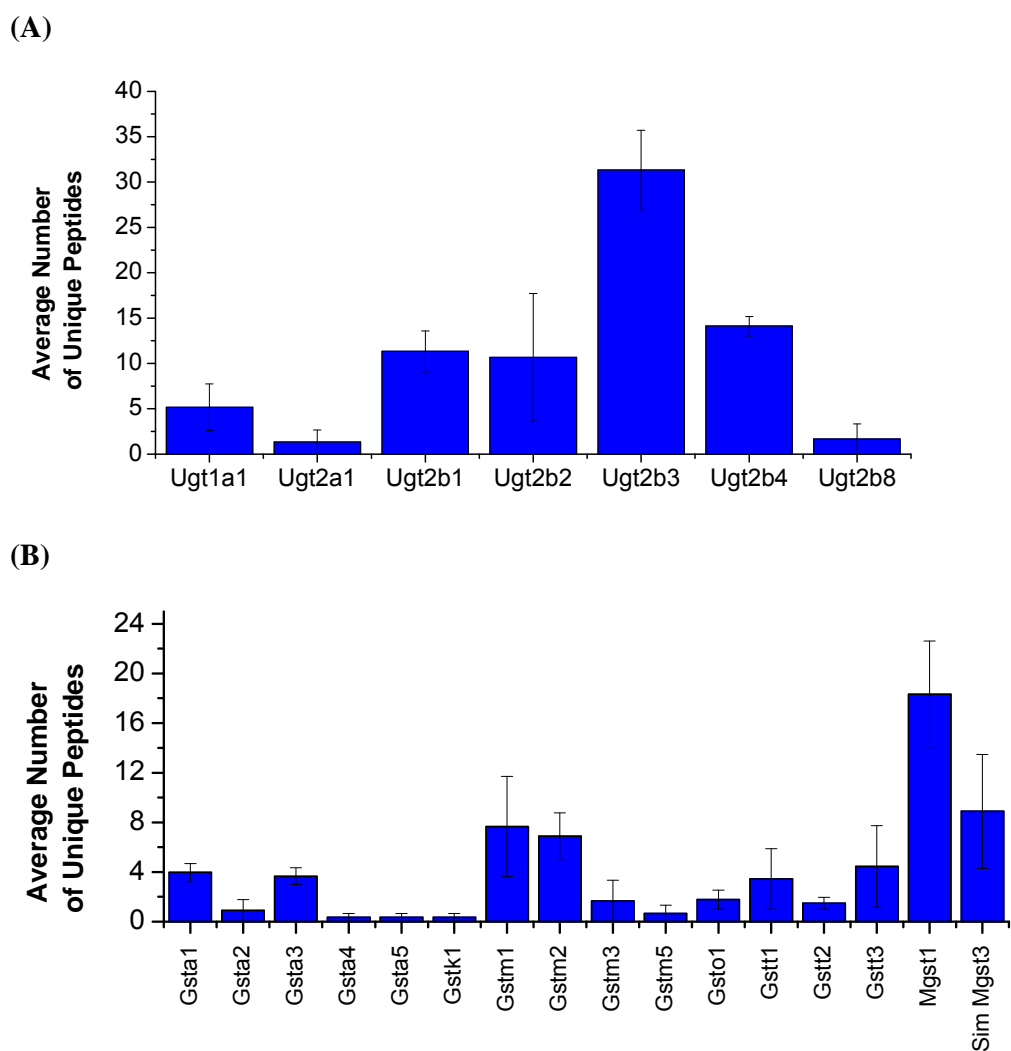


Figure 2.10: In total, 41 different cytochrome p450 enzymes were identified from the three sets of experiments using different concentrations of methanol for assisting protein digestion. Above is all the identified cytochrome p450's with their average number of unique peptides over all experimental datasets.

In addition to Cyp enzymes, other protein families involved in xenobiotic metabolism that are of interest in later studies on tumor-induced inflammation are the UDP-glucuronyl transferases (Ugts) (Figure 2.11a) and Gsts (Figure 2.11b). These proteins are of interest because they are involved in phase II metabolism of xenobiotics, which has been implicated in altered liver metabolism in advanced cancer patients. In total, seven Ugts were identified from all experimental replicates with varying number of unique peptides. Gsts were represented by 15 different isoforms with microsomal glutathione S-transferase 1 (Mgst1) having the highest number of unique peptides with an average of 18. The ability to detect a

large number of xenobiotic metabolizing enzymes in rat livers provides evidence for the use of this shotgun proteomics methodology for further analysis in later Chapters of these enzymes in relation to tumor-induced inflammation.

Shotgun proteomic analysis of rat liver membrane proteins using peptide IPG-IEF also provided the identification of a high number of Slc family proteins (Figure 2.12). These proteins are also implicated in the altered liver metabolism as a result of tumor-induced inflammation. In total, 44 different proteins were identified from this family of proteins with 15 members of the Slc25 family demonstrating the most number of unique peptides in the experimental datasets. Most importantly, many organic cation and organic anion transporters involved in the transportation of xenobiotics in and out of the liver, were identified including; 5 from the Slc21 family and 4 from the Slc22 family. These results demonstrate the utility of IPG-IEF as a valuable first dimension shotgun proteomics methodology and provide the means to assess the role of these proteins in tumor-induced inflammation in later Chapters.



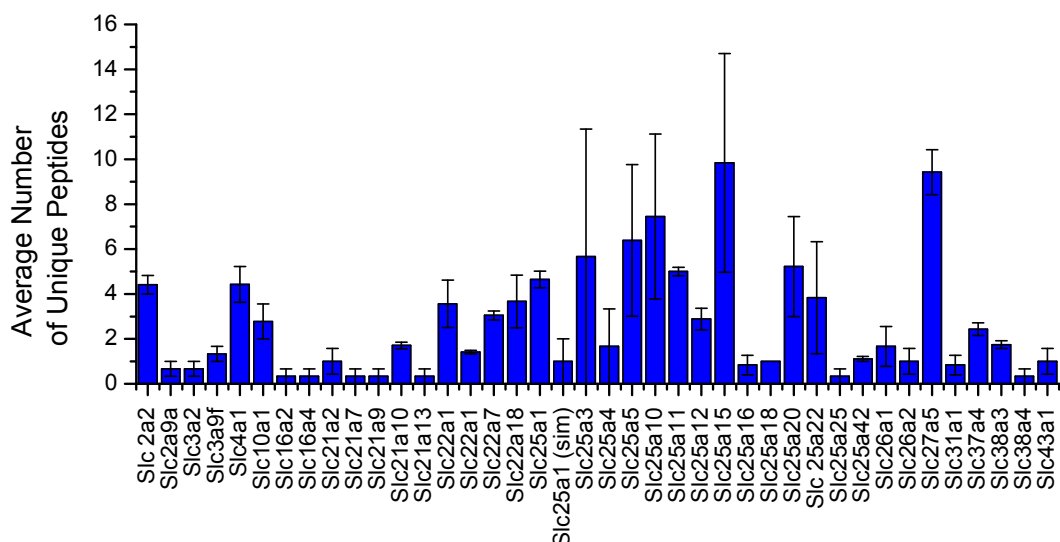


Figure 2.12: In total, 44 different solute carrier family proteins were identified from the three sets of experiments using different concentrations of methanol for assisting protein digestion. Above is all the identified solute carrier family proteins with their average number of unique peptides over all experimental datasets.

Finally, another important protein family associated with tumor-induced inflammation is proteins from the ABC transporter family (Figure 2.13). In this study, ABC transporters generally had lower numbers of unique peptides compared to other proteins such as the Cyps. In total, 11 ABC transporters were identified in this study, including families A, B, C, D and G. In addition to xenobiotic metabolizing enzymes and transporters, peptide IPG-IEF also provided the identification of 12 transmembrane protein family members (Appendix 1, Figure 1.1) and 64 proteins from the electron transport chain (Appendix 1, Figure 1.2).

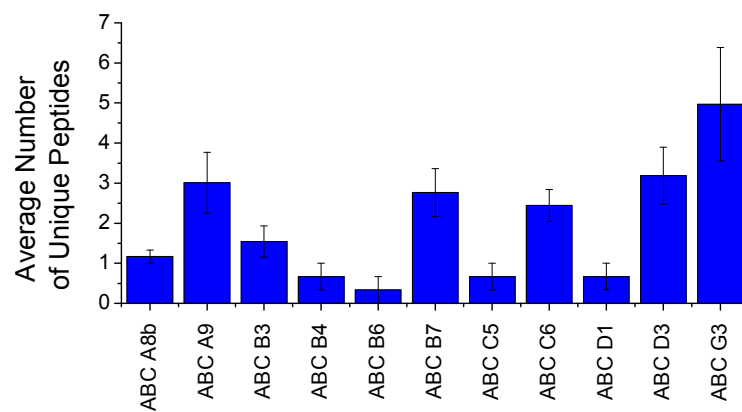


Figure 2.13: In total, 12 different ATP-binding cassette family proteins were identified from the three sets of experiments using different concentrations of methanol for assisting protein digestion. Above is all the identified ATP-binding cassette family proteins with their average number of unique peptides over all experimental datasets.

2.4 Discussion

The aim of this study was to evaluate peptide IPG-IEF as a valuable high coverage shotgun proteomics technique particularly for the analysis of membrane proteins. In addition, this study evaluated the use of a particular organic solvent to assist in trypsin digestion when applied to analyses by peptide IPG-IEF. The increase in the number of membrane proteins identified from complex protein mixtures has been shown to be enhanced with the use of organic solvents such as acetonitrile, acetone, isopropanol and methanol during trypsin digestion⁶³. Where methanol at as high a concentration as 60% has been used³⁴, it has been theorised that this concentration facilitates increased peptide sequence coverage and ion intensities⁶³. Recently, peptide IPG-IEF has been demonstrated as an alternative shotgun proteomics technique, which is advantageous because peptides are separated based on *pI*, and the *pI* of the peptide can then be used as additional filtering criteria for protein identifications⁹⁵⁻⁹⁷.

2.4.1 Peptide Separation

The results in this Chapter show that peptides were separated into three distinct pH regions, where the peptides were concentrated particularly in the acidic to neutral regions of the IPG strip. This phenomenon has been attributed to the digestion of proteins with trypsin, which produces more acidic peptides⁹⁵. Furthermore, the observation in this study of a poorer recovery of peptides, and a greater reduction in peptides after *pI* filtering in the basic end of the pH gradient has been observed previously^{95, 97}. The average peptide *pI* per fraction in this study correlated well with the pH gradient throughout the acidic to neutral pH

regions and also contained a similar *pI* value standard deviation to recent reports in the literature⁹⁵⁻⁹⁷. However, the differences between observed and predicted *pI* in the basic end of the IPG strip can be explained by inaccurate *pKa* values for the amino acid arginine, where the reactive group *pKa* value is less than *pKa* value of 12 prescribed in the Expasy *pI* algorithm. The slightly inaccurate *pKa* value of the reactive group of arginine is further substantiated by a higher percentage of peptides (70% for C-terminal arginine compared to 30% for C-terminal lysine) that are considered outliers, which have a C-terminal arginine.

In addition, differences between observed and theoretical *pI* can be attributed to low buffering capacity of basic peptides because only 61% of peptides are unique to a particular fraction in fractions considered basic compared to acidic to neutral fractions with 87%. This can be explained by the lack of ionisable groups in tryptic basic peptides, which tend to have only three ionisable groups contributing to the peptide isoelectric point. These basic peptides contain an N-terminal *pKa* value of ~7, a C-terminal carboxylic group with *pKa* of ~3.5 and the reactive group of lysine (*pKa* ~ 10) or arginine (*pKa* ~12). These basic peptides focus within the *pI* regions of 8-9 on broad range IPG strips; however, these peptides have no ionisable groups with *pKa* values that fall within this region resulting in poor buffering capacity. Tryptic peptides with a *pI* of less than 5 must have a least two additional acidic ionizable groups, either aspartic acid or glutamic acid. This guarantees that the peptide has high buffering capacity, although an exception is for C-terminal peptides, which do not contain a C-terminal lysine and arginine and therefore only require one additional acidic ionisable group to buffer below a *pI* of 5.

The resolution in peptide separation as determined by assessing the number of fractions each peptide is detected from, is similar to Krijgsveld *et al.*,⁹⁷ in which >94% of all peptides were found in one or at most two fractions. This resolution in peptide separation is slightly higher than studies that use off-gel electrophoresis for the isoelectric focusing of peptides¹³⁷. In all, the separation of peptides in this study demonstrates the ability of IPG-IEF to provide

a well separated sample of tryptic peptides derived from membrane proteins and it also supports the use of peptide *pI* as an additional filtering constraint for high confidence protein identifications.

Peptide IPG-IEF has been suggested as an alternative first dimension shotgun proteomics technique. However, compared to MudPIT^{8, 9, 138} it is less applicable to high throughput analysis as several additional manual steps are required. Furthermore, *pI* filtering of peptides is hindered by either chemical modifications or post-translational modifications. Peptides with disparate *pI*'s that would otherwise be removed as outliers may in fact be present as modified peptides, through modifications such as acetylation, deamidation or through carbamidomethylation of cysteine. Each of these modifications creates an acidic product that would otherwise not be taken into consideration using the Compute *pI*/MW algorithm utilised through ExPASy (www.expasy.org). For example, basic to neutral peptides identified from acidic fractions with an acetylated lysine that are outliers based on theoretical *pI*, may be correct identifications since the basic reactive group of the lysine is exchanged for an uncharged acetyl group. Further improvements to calculating peptide *pI* in relation to peptide modifications would help to recover some of these peptides otherwise lost due to modifications.

2.4.2 Protein Identifications

Peptide *pI* filtering has been shown to increase the confidence in protein identifications through the use of accurate peptide *pI* as additional filtering constraint^{96, 97, 100}. In this study, our results demonstrated that peptide *pI* filtering prior to imposing a 1% protFDR (Method B) increases protein identifications by at least 19% compared to only using a 1% protFDR (Method A). Peptides from proteins with log(e) scores that lay outside threshold scores of the 1% protFDR imposed by method A, still contain false negative identifications. By using

peptide *pI* filtering, false negative identifications are recovered because their *pI* values should lie within the pH boundaries of the individual fractions, in contrast to false positives which should have random *pI* values. This recovery of false negative identifications can be illustrated by assessing the log(e) threshold scores of a 1% protFDR with or without the prior use of peptide *pI* filtering on the dataset. For example, for one of the datasets from 0% methanol assisted digest, the log(e) cut off score is -8 for protein identifications when a 1% protFDR is applied to the dataset. However, when peptide *pI* filtering is used first, this log(e) score increases to -2, allowing more protein assignments with high confidence.

When comparing methanol concentrations for assisting protein digestion with trypsin, 60% methanol was shown to be the optimal concentration because of a higher average number of protein identifications found between experimental replicates (800 proteins) and a combined total number of non-redundant protein identifications (1233 proteins). The increase in protein identifications can be attributed to increased peptide sequence coverage and fragment ion intensities that have been observed for methanol assisted digestion of proteins with trypsin^{34, 63}. Both peptide sequence coverage and fragment ion intensities are two parameters that are used by protein scoring algorithms such as X!Tandem, therefore increases in these parameters results in higher peptide scores and furthermore, protein scores^{129, 130}. Methanol assisted digestion results in proteins that would otherwise not meet the threshold level of 1% protFDR for protein identifications becoming elevated above threshold limits due an increase in peptide scores. In total, 1549 non-redundant proteins, including 690 IMPs, were identified from this analysis providing evidence of the utility of this shotgun proteomics methodology.

Venn diagram analysis of the 1549 non-redundant protein identifications demonstrated that 41.96% of all proteins were identified from all three experimental datasets. Most interestingly, analysis of proteins identified from only a single experimental dataset or from two experimental datasets demonstrated that the percentage of protein identifications

increased with increased concentration of methanol. These results provide further evidence for the ability of high concentrations of methanol in assisting the recovery of more protein identifications.

2.4.3 Integral Membrane Proteins

Analysis of the membrane proteins identified in this study demonstrates a diverse range of proteins with various types of secondary structures and post-translational modifications that embed these proteins into the membrane. This study shows that 60% methanol assisted digestion provided the most number of IMPs with 574 and in total, 690 non-redundant IMPs were identified from all three concentrations of methanol. In a previous study on rat natural killer cells, 876 IMPs were identified from 60% methanol assisted digestion followed by offline SCX fractionation of peptides into 96 fractions³⁴. However, the 60% methanol assisted digestion method used in this study resulted in slightly higher identifications than results from Wu *et al.*,³⁸ which used alternative protein cleavage methods like proteinase K and cyanogen bromide treatment with MudPIT analysis for the identification of 454 rat brain membrane proteins. Ruth *et al.*, have compared the digestion of proteins with trypsin in the presence of an acid labile salt and diluted urea, which identified 288 membrane associated and 80 transmembrane proteins from human leukemia cells⁶⁸. The analysed membrane proteins consisted of both IMPs and membrane associated proteins, hence a greater percentage of membrane proteins⁶⁸. Contrary to our results, these authors suggested that a minority of membrane proteins contained transmembrane segments. In our hands, the majority of IMP identifications were transmembrane proteins, which is also supported by previous studies^{34, 38}.

Wang *et al.*, have demonstrated the identification of greater than 1,300 IMPs from mouse brain through high sample loading and use of linear ion trap mass spectrometry⁷². Increasing

the sample load and using more sensitive mass spectrometry such as linear ion trap LC-MS/MS are avenues that could enhance the number of membrane proteins identified from this study (Chapter 3). Nonetheless, the use of methanol assisted digestion in conjunction with peptide IPG-IEF shotgun proteomics has been presented here as an alternative method for the analysis of membrane proteins.

In this study, increasing methanol concentration increased the number of proteins in total and identified more IMPs. In addition, increasing methanol concentration increased the number of transmembrane proteins with between one and twelve transmembrane segments. Increasing the methanol concentration did not recover peptides from more hydrophobic proteins, contrary to a previous publication³⁴. GRAVY analysis of integral membrane proteins demonstrated that IMPs can contain a diverse range of hydrophobicity scores from largely hydrophilic to quite hydrophobic proteins. From non-redundant protein lists, 82 proteins were considered highly hydrophobic with GRAVY scores greater than 0.3. The number of identified highly hydrophobic proteins is higher than studies from the bacteria *Deinococcus Radiodurans* and mouse brain homogenate, which used gas phase fractionation and MudPIT analysis for peptide separation and analysis^{34, 38}.

2.4.4 Cellular Location Analysis

Cellular location annotation of proteins demonstrated no significant differences between the proteins identified using the concentrations of methanol described in this study. Approximately 30% of the proteins were annotated with unclear cellular location. Interestingly, 41 cytochrome p450s were identified from the endoplasmic reticulum providing the largest number of identified cytochrome p450s to date from a rat liver membrane preparation, which demonstrates the utility of methanol assisted digestion and peptide IPG-IEF shotgun proteomics for identification of this subset of proteins. In addition,

we observed that golgi and nuclear annotation percentages were quite low, suggesting that sub-cellular fractionation methods, which have proven successful for enrichment and analysis of proteins from organelles¹³⁹⁻¹⁴² could improve the coverage of the rat liver membrane proteome.

2.4.5 Identified Membrane Protein Families

Particular protein families have already been implicated in adverse metabolic functions of the liver in mice bearing tumors^{4, 5}. Some of the most important protein families associated with altered liver metabolism have been alluded to earlier (Chapter 1) such as the Cyps, Ugts, Gsts, ABC transporters and Slc families. Therefore, it was important to evaluate the number of identified proteins in each family and some of the important proteins involved in tumor-induced inflammation using the rat liver membrane as a representative model.

In this study, xenobiotic metabolizing enzymes which are important proteins involved in potential toxic effects of anticancer agents in patients were represented by 41 Cyps, 7 Ugts and 16 Gsts. These data represent one of the largest accumulated lists of drug metabolizing enzymes in mammalian liver proteomics and therefore, the shotgun proteomics methodology used in this study is ideal for analysis of mouse liver in association with tumor-induced inflammation. The use of this shotgun proteomics methodology is further substantiated by the identification of 11 ABC transporters and 44 Slc family proteins, which have been implicated in tumor-induced inflammation response in the liver⁵.

In addition to assessing the number of proteins within each protein family, it was also important to demonstrate the identification of proteins already shown to have changes in gene expression or protein abundance in the liver in association with tumor-induced inflammation. Mouse Cyp3a11 has been previously shown to be down regulated in the liver due to the presence of various tumors, including; melanoma^{4, 5}, colorectal tumors^{4, 5} and EHS

sarcoma⁴, while in this study, the rat homologue 3a1 was identified. Furthermore, other important proteins identified in this study included; Slc10a1 (Na⁺/Taurocholate cotransporting polypeptide); Slc21a2, 7, 9, 10, 13 (Organic anion transporters); Slc22a1, 7, 18 (Organic cation and anion transporters). However, ABC transporters that have been shown to be down-regulated in the liver in tumor-bearing mice were not identified in this study, including; ABC B1, ABC B2, ABC C2 and ABC C3⁵. Being unable to identify these important xenobiotic transporters could be improved through modifying the shotgun proteomics methodology through increased sample loading and using faster scanning, higher resolution MS.

2.4.6 Conclusion

In summary, this Chapter has demonstrated the utility of peptide IPG-IEF as a shotgun proteomics technique for membrane protein analysis. In addition, the use of 60% methanol assisted digestion with peptide IPG-IEF provided more protein identifications in total and enhanced the number of membrane protein identifications. Peptide IPG-IEF was highly advantageous because of the ability to use *pI* as an additional filtering criteria for accurate peptide identifications. IPG-IEF was found to be a high-capacity and high resolution analytical tool which also provided the fractionation required for the first dimension of a shotgun proteomics analysis. Furthermore, the *pI* information provided by the IPG-IEF allowed a two step sequential result filtering approach to be used, which gives an improved *protFDR* while minimizing false negative assignments. These results provide the basis for further experimentation for the analysis of alternative pH gradients that have the potential to improve membrane proteomics, and for investigating the affects of tumor-induced inflammation on liver membrane protein abundance.

Chapter 3: A Combination of Immobilised pH Gradients Improve Membrane Proteomics

3.1 Introduction

Comprehensive membrane proteomics has become achievable because of the use of various shotgun proteomic methodologies to separate and analyse proteolytic peptides derived from membrane protein enriched samples. Recently, methods for peptide and protein fractionation have been used for the large scale identification of membrane proteins, including: off-line SCX^{34-36, 57, 58, 72}; online SCX^{38, 72}; cIEF^{74, 75}; IPG-IEF¹⁴³; and 1D SDS-PAGE⁹⁴. These methods have provided the identification of hundreds to over a thousand annotated IMPs, explaining why shotgun proteomics has now become the method of choice for analyzing membrane proteins. With the knowledge that approximately 70% of all protein based drug targets are active against IMPs¹, these methods will be used more frequently to determine the role that IMPs play in various biological environments.

Like most large scale proteomics experiments, membrane proteomics has improved with the use of methods that employ high sample loading, increased peptide and protein fractionation and extended LC separation prior to the application of tandem MS. Wang *et al.*, have achieved approximately 1,400 IMP identifications using a combination of high sample loading and 100 min LC gradient prior to tandem MS analysis⁷². Similar extended LC gradients have provided comprehensive analysis of IMPs for studies in human epithelial ovarian carcinoma⁷⁴ and yeast⁷⁵. Alternatively, Blonder *et al.*, have identified 876 IMPs simply by increasing the number of SCX fractions (96 fractions) prior to the use of a 120 min C18 LC separation before tandem MS analysis of rat natural killer cells³⁵.

In Chapter 2, we demonstrated the use of peptide IPG-IEF as an alternative method for shotgun proteomics of membrane proteins with the identification of 690 IMPs from rat liver membranes¹⁴³. IPG-IEF has been shown to be advantageous as a high resolution shotgun proteomics method primarily because of high sample loading capacity and the ability to use the theoretical *pI* of peptides as an additional means to reduce false discovery rates^{95-97, 143}.

IMP digestion has been shown to be improved with the use of 60% methanol¹⁴³, similar to earlier studies on IMPs^{34, 35}. In addition, unlike 2D gel based protein separation²¹, peptide IPG-IEF was shown to be amenable to analysis of hydrophobic IMPs since peptides do not have the same solubility constraints that hydrophobic IMPs otherwise have. The amenability of hydrophobic IMPs to IEF based shotgun proteomics methods has also been demonstrated with cIEF^{74, 75}.

Alternatively, studies using NR IPG strips (*pI* 3.5-4.5) on whole cell lysates from rat testis samples have demonstrated the separation of over 7,000 peptides across this small acidic region of the *pI* spectrum⁹⁶. These studies using NR IPG strips demonstrated that small acidic *pI* increments were rich in peptides⁹⁶ that may otherwise go undetected with BR IPG strips (*pI* 3-10). In addition, with high loading capacity of IPG strips, NR IPG-IEF should improve IMP analysis when applied to the separation of peptides derived from membrane protein enriched samples. The use of NR IPG-IEF as the first dimension fractionation technique for shotgun proteomics of membrane proteins has yet to be evaluated and may provide an alternative to running extended LC gradients prior to tandem MS.

One approach for label-free quantification that has been developed for shotgun proteomics for comparing biological samples employs calculation of NSAF values¹². These quantitative methods were used originally for determining differences in yeast cells grown in two different media and demonstrated the utility of this method for distinguishing differently abundant proteins¹². Label-free quantification has now been applied to many other biological questions^{16, 84, 87, 144, 145} suggestive of its valuable role in comparative proteomics studies. This type of label-free quantification in essence is not restricted to use in evaluating biological questions but may also be applicable to comparing technical studies such as comparing different shotgun proteomics fractionation methods.

The aim of this study was to quantify the differences between BR IPG-IEF (*pI* 3-10) and NR IPG-IEF (*pI* 3.4-4.9) shotgun proteomics using label-free quantification for the analysis

of rat liver membrane proteins. This Chapter demonstrated the first comparison of BR and NR IPG strips for the first dimension separation of peptides in two dimensional shotgun proteomics. The results demonstrate that NR acidic IPG strips provide a two fold increase in peptide identifications for the identical *pI* region from BR IPG strips. Furthermore, NR IPG strips provide a significant increase in total protein identifications and IMPs. Label-free quantification was valuable in showing a significant enrichment of acidic peptides in NR IPG strips through both raw spectral abundance counts and NSAF values. NR IPG-IEF enriched for a subset of proteins that would otherwise go undetected from BR IPG-IEF. These results demonstrate that NR IPG-IEF is a valuable first dimension separation method for shotgun proteomics of membrane enriched samples and provides the first use of label-free quantification for assessing technical comparisons.

3.2 Materials and Methods

3.2.1 Membrane protein isolation and preparation for peptide Immobilised pH Gradient Isoelectric Focusing (IPG-IEF)

Rat livers obtained from 8 week old Dark Agouti rats (Save Sight Institute, Sydney Eye Hospital, Australia) were perfused with 0.9% (w/v) phosphate buffered saline. Rat liver tissue (1.5 g) was then homogenised in 10 mM HEPES buffer (pH 7.8) supplemented with 2 mM NaCl, 10 mM NaOH, 500 mM EDTA and protease inhibitors (3 mg antipain-dihydrochloride, 0.5 mg aprotinin, 0.5 mg bestatin, 1 mg chymostatin, 3 mg E-64, 10 mg EDTA-Na₂, 0.5 mg leupeptin, 20 mg pefabloc SC, 0.5 mg pepstatin, 3 mg phosphoramidon) (Roche Diagnostics, Switzerland) using an Omni TH homogeniser (Omni International Inc., VA, USA). The homogenised tissue was then centrifuged at 13,000 g for 15 min at room temperature (RT).

Membrane proteins were isolated using a modified sodium carbonate stripping method^{32, 37}. Briefly, the supernatant was collected and diluted to a final volume of 40 mL in 0.1 M sodium carbonate (pH 11) then incubated for 1 h rotating at 4°C. The carbonate-treated membranes were sedimented by ultracentrifugation at 120,000 g for 1 h at 4°C. The supernatant was removed and the membrane pellet was washed once with 0.1 M sodium carbonate (pH 11) and resuspended in 10 mM ammonium bicarbonate (NH₄HCO₃, pH 7.8). Sample was then transferred to a 20 mL glass scintillation vial and pulse sonicated using a Branson 450 Sonifier (Branson, Danbury, USA) using 2 second bursts for 15 intervals on ice. The sonicated sample was then reduced with 10 mM dithiothreitol for 1 h at 37°C and subsequently alkylated with 55 mM iodoacetamide at RT for 30 min. Protein quantification was conducted by Bradford Assay (Sigma-Aldrich, MO, USA). Trypsin digestion was carried out in the presence of 60% (v/v) methanol in 10mM ammonium bicarbonate (pH 7.8)

for approximately 8 h at 37°C. 60% methanol was used because this concentration of methanol was shown to be optimal for protein identifications in the previous Chapter. All digested samples were evaporated to dryness in a vacuum centrifuge and resuspended in 250 µL of 8 M urea supplemented with a trace of bromophenol blue.

3.2.2 Peptide IPG-IEF

Digested proteins (1 mg) in 8M urea were used to passively rehydrate either a linear pH 3-10 (in which the actual pH range of the IPG strip is 3.85 to 9.36, information available at www.gehealthcare.com) 18 cm IPG strips (broad range) or pH 3.4-4.9 (with an actual pH range of 3.35-5) 22cm IPG strips (narrow range) for 6 h at room temperature in triplicate. Isoelectric focusing was conducted on an IPGphorII (GE Healthcare) with a current limit of 50 µA per strip for the BR IPG strip and 200µA limit for NR IPG strip at 20°C with the following focusing program; 300 V for 1 h, a gradient to 1000 V for 1 h, a gradient to 4000 V for 3 h, a gradient to 8000 V for 3 h and 8000 V until 100 kVh was reached. The IPG strips were treated differently for their respective µA limits so that both IPG strips would have 8000 volts as their maximum volt step. The strips were then cut (with plastic backing still in place) with a scalpel blade into 24 equal length pieces. Peptides were extracted from each fraction by incubation in 100µL of 0.1% (v/v) formic acid for 1 h at RT. The extraction was repeated twice and subsequently combined with the initial fractions. Combined peptide extracts were desalted using C18 tips (Omix, Varian Inc., CA, USA) and the eluate dried using a vacuum centrifuge followed by resuspension in 0.1% (v/v) formic acid.

3.2.3 Nanoflow liquid Chromatography – Tandem Mass Spectrometry

Each of the 24 fractions from the triplicate BR and NR IPG-IEF experiments were analysed by nanoLC-MS/MS using a LTQ-XL ion-trap mass spectrometer (Thermo, CA, USA) according to Breci *et al*¹²⁸. Reversed phase columns were packed in-house to approximately 7 cm (100 μ m i.d.) using 100 Å, 5 mM Zorbax C18 resin (Agilent Technologies, CA, USA) in a fused silica capillary with an integrated electrospray tip. A 1.8 kV electrospray voltage was applied via a liquid junction up-stream of the C18 column. Samples were injected onto the C18 column using a Surveyor autosampler (Thermo, CA, USA). Each sample was loaded onto the C18 column followed by initial wash step with buffer A (5% (v/v) ACN, 0.1% (v/v) formic acid) for 10 min at 1 μ L min⁻¹. Peptides were subsequently eluted from the C18 column with 0% - 50% Buffer B (95% (v/v) ACN, 0.1% (v/v) formic acid) over 58 min at 500 nL min⁻¹ followed by 50-95% Buffer B over 5 min at 500 nL min⁻¹. The column eluate was directed into a nanospray ionisation source of the mass spectrometer. Spectra were scanned over the range 400–1500 amu. Automated peak recognition, dynamic exclusion, and tandem MS of the top six most intense precursor ions at 35% normalised collision energy were performed using the Xcalibur software (Thermo, CA, USA).

3.2.4 Protein and Peptide Identification

Raw files were converted to mzXML format and processed through the global proteome machine (GPM) software using version 2.1.1 of the X!Tandem algorithm, freely available from www.thegpm.org^{129, 130}. For each experiment, the 24 fractions were processed sequentially with output files for each individual fraction and a merged, non-redundant output file was generated for protein identifications with Log(e) values less than -1. Peptide

identification was determined using a 0.4 Da parent and fragment ion tolerance. Carbamidomethyl was considered as a complete modification and partial modifications were also considered, which included oxidation of methionine and threonine; and deamidation of asparagine and glutamine. MS/MS spectra were searched against the *Rattus Norvegicus* database (Database derived from SwissProt, Ensemble and NCBI) and reverse database searching was used for estimating false discovery rates¹³¹.

Protein identifications were validated using peptide *pI* filtering as described in the previous Chapter (Chapter 2). Briefly, *pI* was calculated through an open source *pI* calculator, Compute *pI* from ExPASy (http://au.expasy.org/tools/pi_tool.html), which calculates peptide *pI* from amino acid values described by Bjellqvist *et al*⁹⁸. Peptide *pI* filtering was conducted on the data obtained from each of the fractions by removal of statistical outliers that were defined as peptides with *pI* values that fall outside the *pI* boundaries, determined using ± 0.5 of the standard deviation (calculated over the entire fraction) from the median *pI* value of the fraction. For analysis of total protein identifications, proteins were further validated using a 1% false discovery rate by searching the MS spectra against a reverse database and applying the following formula; $FDR = \text{reverse}/(\text{reverse} + \text{forward}) * 100$.

Transmembrane segment annotation of the identified proteins was determined using the TransMembrane Hidden Markov Model (TMHMM, <http://www.cbs.dtu.dk/services/TMHMM-2.0/>)^{61, 132, 146}.

3.2.5 Calculation of Normalised Spectral Abundance Factors

Normalised spectral abundance factors were calculated according to Zybaylov *et al.*,¹² using the following formula: $NSAF = (\text{Spc}/L) / \sum(\text{Spc}/L)$, where Spc refers to spectral count (number of non-redundant peptide identifications for a given protein), L is the length of the

protein. Protein identifications were only included in NSAF data analysis if a given protein was identified in each of the triplicate experiments from either BR or NR IPG strips. The reduced protein list was then adjusted with a fraction of a spectral count to allow the incorporation of proteins with zero spectral counts for statistical analysis¹². An optimal adjustment factor was determined through fitting the natural log of the NSAF values to a Gaussian curve, assessed by computing both R^2 values and applying a Shapiro-Wilk test. To satisfy the Shapiro-Wilk test, a W value greater than 0.05 was required.

3.2.6 Statistical Analysis

Statistical analysis was conducted with Microsoft Excel using the Student's *t*-test with equal sample sizes and $P < 0.05$ for assignment of statistical confidence. Origin8 software package was used for assessing Gaussian distribution of data for label-free quantitation by computing both R^2 values and a Shapiro-Wilk test.

3.3 Results

3.3.1 Peptide Separation and Analysis

To provide an understanding of why NR IPG strips are valuable for protein and peptide identifications, we first sought to determine what would be the theoretical distribution of rat proteolytic peptides corresponding to annotated spectrum libraries (ftp://ftp.thegpm.org/proteotypic_peptide_profiles/eukaryotes/) for 63,964 peptides according to Craig *et al*¹⁴⁷. Of all the proteolytic peptides, 46% (29,623) lie within the pI range of 3-5 (Figure 3.01), which suggests that NR IPG-IEF analysis could be a valuable tool for protein identifications and expanding the dynamic range of the identified rat liver membrane proteome.

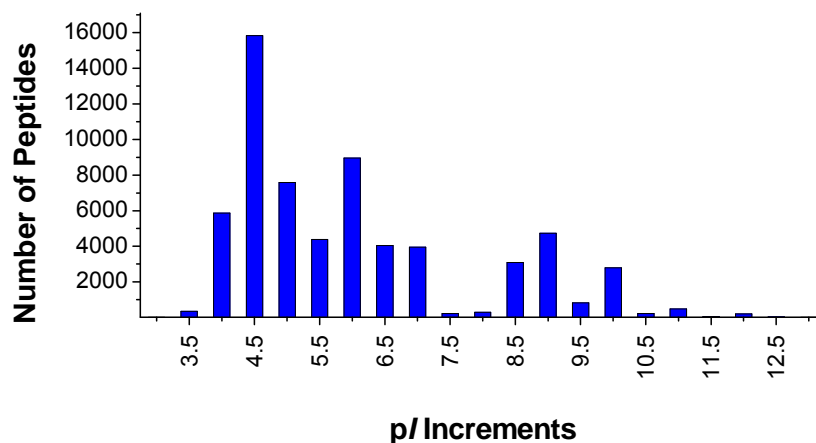


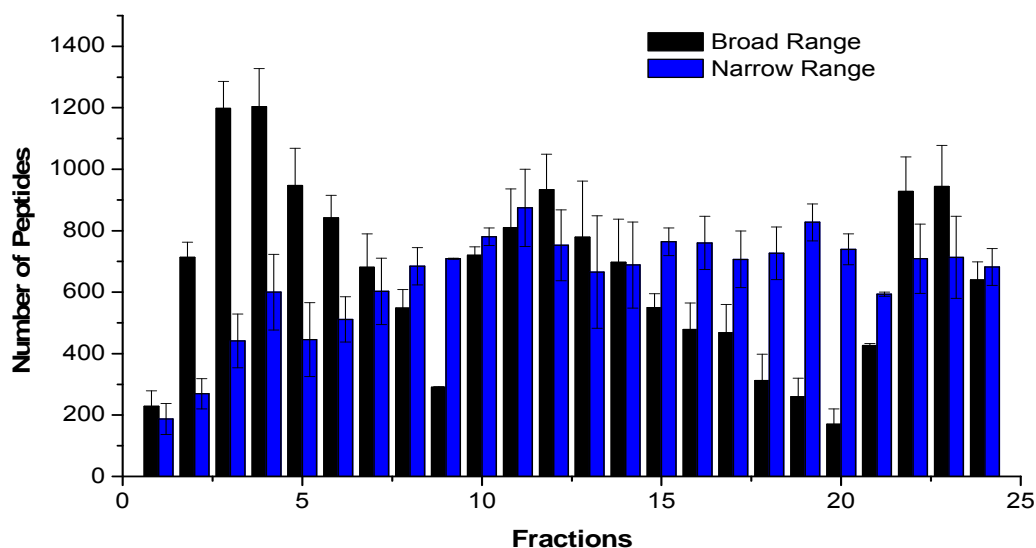
Figure 3.01: Theoretical peptide pI distribution from a *Rattus Norvegicus* annotated spectrum library of 63,964 peptides.

To demonstrate the reproducible separation of tryptic peptides by IEF using BR and NR IPG strips, the number of peptides per fraction for each strip was compiled. Analysis of the number of peptides per fraction demonstrates that NR IPG strips provide a well separated sample with an even distribution of peptides with 642 ± 33 peptides on average per fractions after pI filtering (Figure 3.02a). BR IPG-IEF also demonstrated a well separated sample with

three distinct *pI* regions in which peptides were concentrated. The average reduction in the number of peptides per fraction after *pI* filtering for NR IPG strips was 21%, suggesting a minority of peptides are false positive identifications. This is similar to results from BR pH gradients where a 28% reduction was observed. The high reproducibility of peptide IPG-IEF for both types of IPG strips was indicated by low standard deviation in the number of peptides per fraction between experimental replicates.

To demonstrate that the separation of peptides on the BR and NR IPG strips is due to isoelectric point, the average peptide *pI* per fraction was calculated (Figure 3.02b). The average peptide *pI* per fraction after *pI* filtering starts at approximately 4 and reaches as high as 5.89 ± 0.005 *pI* for the NR IPG strips and as high as 8.65 ± 0.01 for the BR IPG strips. In comparison to the actual pH of the IPG strip, the average *pI* per fraction for the NR IPG strips is slightly higher than the actual pH of the IPG strip between fractions 1 -16. However, the opposite is seen for fractions 19-23 with lower *pI* values than the pH of the IPG strip. Furthermore, fraction 24 shows a large increase in the average *pI* per fraction where this is attributed to the IPG strip retaining peptides with higher *pI* values greater than a *pI* of 5 (Appendix 2, Figure 2.1). The BR IPG strip has more variability in average *pI* per fraction in comparison to the actual pH of the IPG strip. In addition, the average *pI* per fraction was reproducible as shown by the low standard deviation in individual fractions between experimental replicates. These results clearly demonstrate that peptides derived from trypsin digestion of rat liver membrane proteins were reproducibly separated by isoelectric point and therefore, comparisons can be made at the total peptide and protein levels.

(A)



(B)

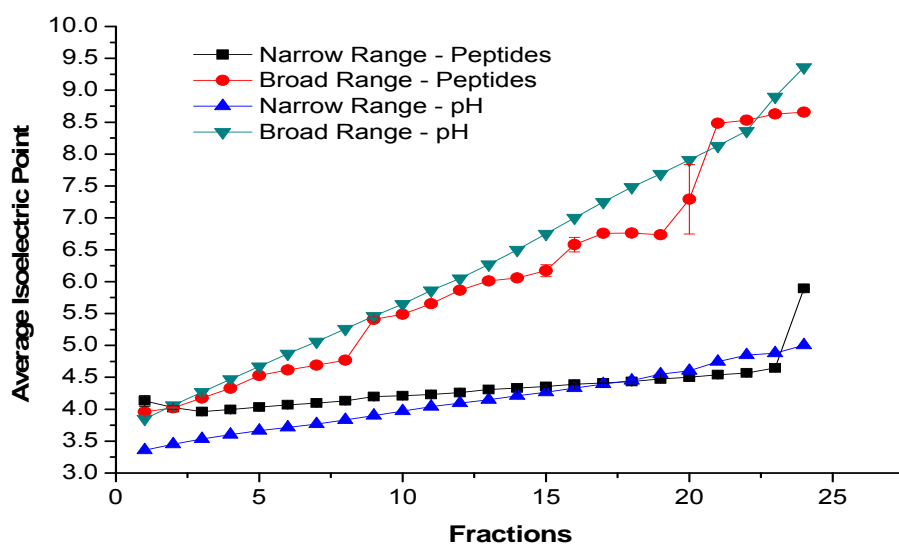


Figure 3.02: IPG-IEF separation of peptides using BR (pI 3-10) and NR (pI 3.4-4.9) IPG strips. (A) Number of peptides per fraction after pI filtering. (B) Average peptide pI per fraction for BR and NR IPG strips after pI filtering and their respective pH gradients.

Chapter 2 (Chapter 2.2.2) demonstrated that the percentage of unique peptides between acidic to neutral fractions compared to basic pH regions of the IPG strip were significantly different; therefore, it was of interest to access the percentage of peptides that were unique to a fraction between broad and narrow range IPG strips (Figure 3.03). In this study, the percentage of unique peptides per fractions was slightly higher in narrow range IPG strips

($72.7 \pm 1.3\%$) compared to broad range IPG strips ($68.8 \pm 0.03\%$, $n=3$, $p<0.05$). These results provide evidence that narrow range IPG strips provide higher resolution in the separation of peptides.

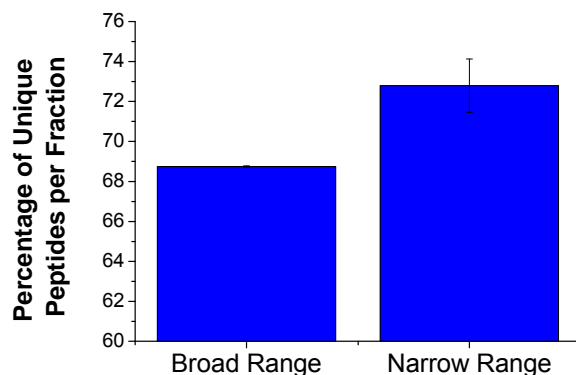


Figure 3.03: Comparison of the percentage of unique peptides per fraction in broad range and narrow range IPG strips ($n=3$, $p<0.05$).

In comparing the differences between broad range (pI 3-10) and narrow range (pI 3.4-4.9) IPG-IEF, peptides were binned into 0.5 pI increments across the pI intervals of 3-10 (Figure 3.04). The NR IPG strip demonstrated an expected higher number of peptide identifications than the BR IPG strip within the pI ranges of 3.5-4, 4-4.5 and 4.5-5 ($n=3$, $p<0.05$). The NR IPG strips within pI increment of 3.5-4 provided 1134 ± 125 peptides compared to 316 ± 12 from the BR IPG strips. The pI increment between 4-4.5 demonstrated the highest difference in peptide numbers with 6292 ± 576 from NR IPG strips and 2197 ± 215 from BR IPG strips. Furthermore, the pI increment of 4.5-5 contained 2968 ± 279 peptides for the NR IPG strips and 1790 ± 123 peptides from the BR IPG strips. The number of peptides within the pI range of 3-5 was two fold greater for the number of peptides from the NR IPG strips over the BR IPG strips. This fold change represents the identification of almost 5,500 more peptide identifications on average from the NR IPG strips compared to the same acidic region from BR IPG strips. These results demonstrate compelling evidence that narrow range IPG strips can enrich for more peptides in a discrete acidic pI region when compared to the same region in BR IPG strips.

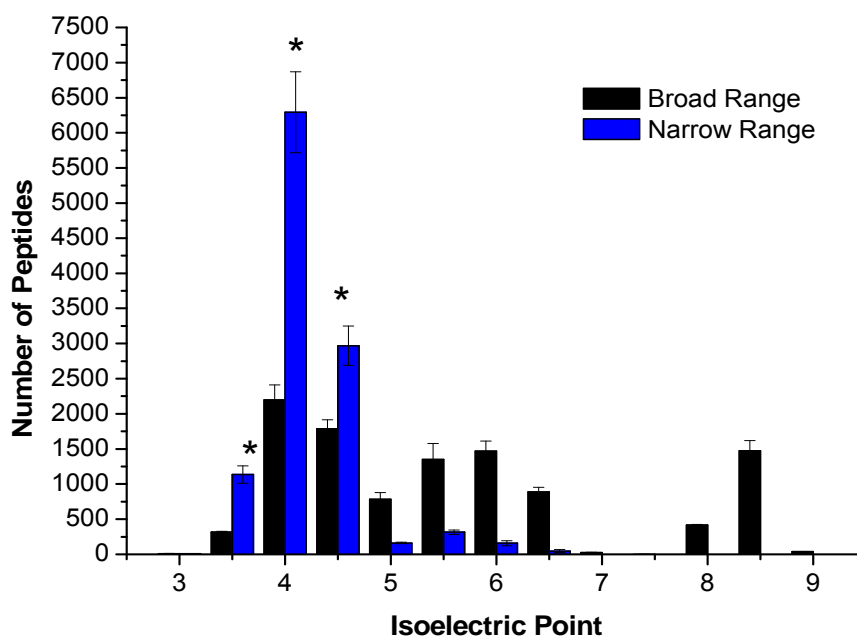


Figure 3.04: Peptides were binned into 0.5 pI increments and presented in a pI histogram representing a pH gradient from 3-10. Broad range IPG strips (black) provided peptide identifications throughout the pH spectrum. NR IPG strips (blue) provided more peptide identifications over the acidic pI regions of 3-5 (*n=3, p<0.05).

3.3.2 Comparison of BR and NR IPG Strips for Total Peptide and Protein Identifications

After demonstrating that NR IPG strips provide more peptide assignments compared to the same pI region from BR IPG strips, it was of interest to compare total peptide, protein and IMP assignments between the two sets of IPG strips (Figure 3.05). Comparisons between BR and NR IPG strips for total peptide identifications demonstrates no significant increase in peptide assignments with $10,752 \pm 1002$ and $11,173 \pm 1583.9$, respectively. At the protein level, NR IPG strips provided an increase in protein identifications with 2603.7 ± 355 compared to BR IPG strips with 2021 ± 138.6 , however, these differences are not statistically significant. Similarly, the analysis of IMPs demonstrated that NR IPG strips provided more IMPs with 826.3 ± 65.1 compared to BR with 712 ± 36.2 , which is also not a statistically significant difference. These results demonstrate the added value of using NR

IPG strips within the *pI* region of 3.4-4.9 for providing an increase in total protein and IMP assignments.

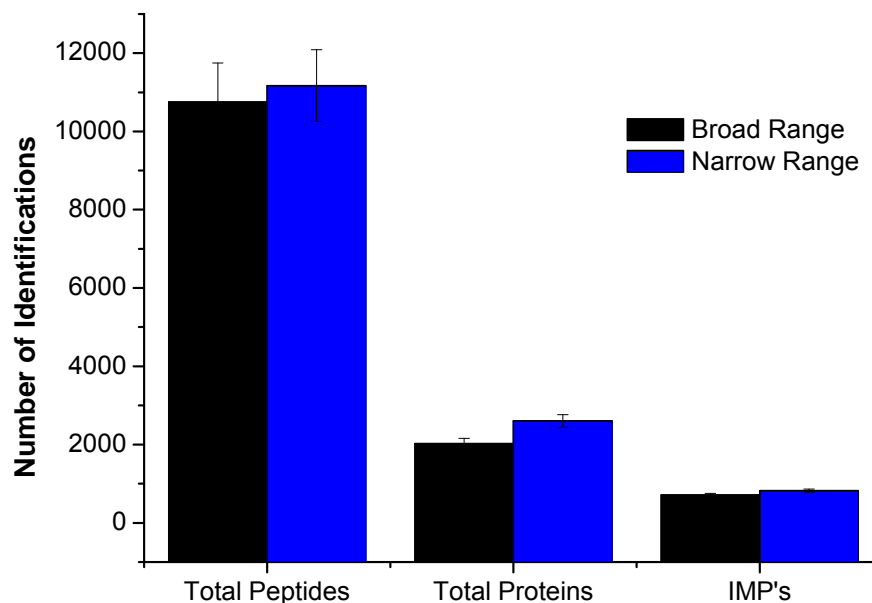


Figure 3.05: Number of peptide, protein and IMP identifications from BR and NR IPG strip triplicates. Peptide, protein and IMP identifications were not significantly different between NR and BR IPG strips.

To determine the differences in the non-redundant protein identifications between BR and NR IPG strips, non-redundant proteins for each set of IPG strips were compiled and compared (Figure 3.06). Of the total 4195 protein identifications found in all three replicates, 2131 proteins (51%) were common to both sets of IPG strips. However, 1428 (34%) of the protein identifications were unique to NR IPG strips, which was more than twice the percentage unique to BR IPG strips (15%, 636). Furthermore, comparing the similarities and differences for IMP identifications demonstrated that 57.8% of IMPs were common to NR and BR IPG strips. NR IPG strips provided an increase in the percentage of total IMPs with 26.6% compared to BR IPG strips with 15.6%.

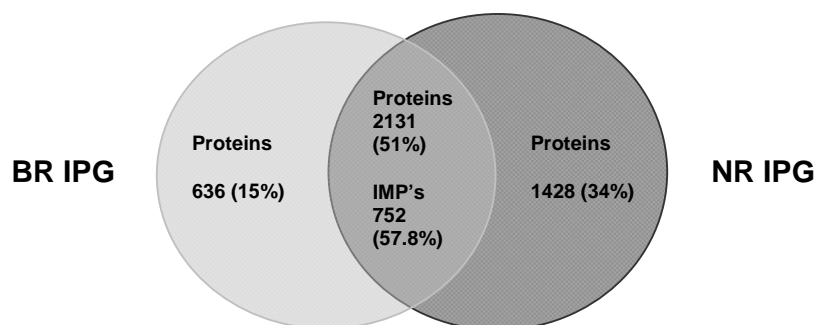


Figure 3.06: Venn diagram representing the number of non-redundant protein and IMP identifications compiled from the triplicate IPG experiments from BR and NR IPG strips.

After demonstrating that the percentage of unique IMPs was higher for NR IPG strips, an analysis of the types of IMPs based on transmembrane segments from BR and NR IPG strips was conducted (Figure 3.07). Single transmembrane proteins represented the most common IMP identifications with a slight increase in protein identifications for NR IPG strips but this increase was found not to be statistically significant. In contrast, IMPs with two transmembrane segments showed a significant increase ($n=3$, $P<0.05$) in protein identifications from NR IPG strips (106 ± 7) compared to BR IPG strips (91 ± 2.7). IMPs with greater than two transmembrane segments did not show an increase in protein identifications, however, both types of IPG strips were amenable to the analysis of multi-transmembrane segment containing IMPs. In total, 1301 non-redundant IMPs were identified from the BR and NR IPG strips suggesting that together BR and NR IPG-IEF are highly valuable techniques for the identification and characterisation of IMPs.

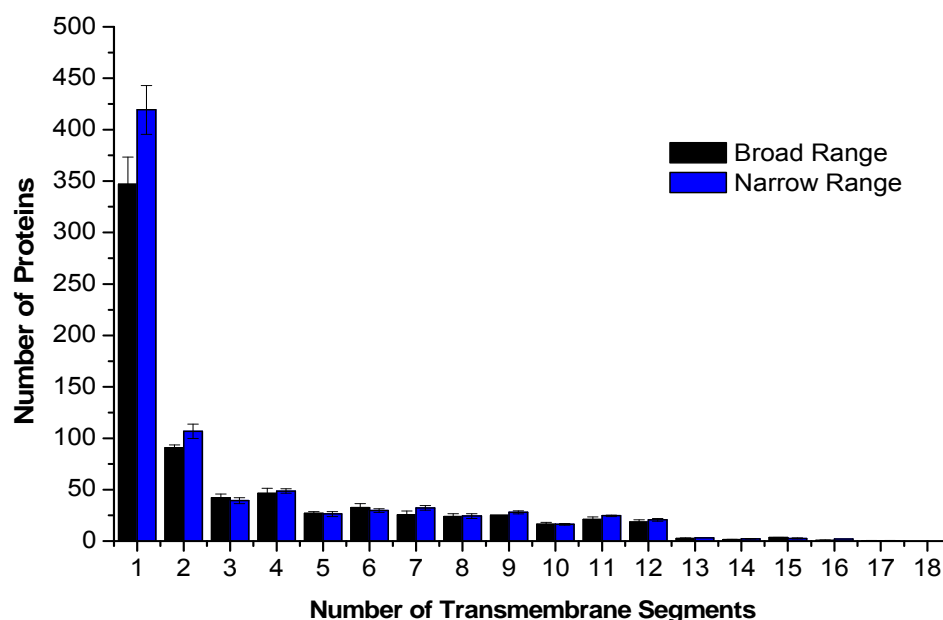


Figure 3.07: Number of IMP identifications from triplicate BR and NR IPG strips based on the proteins number of transmembrane segments. Slight increases in protein numbers were observed for transmembrane proteins with single and double transmembrane segment containing proteins.

To demonstrate that transmembrane segments of IMPs are detectable using this shotgun proteomics strategy, the peptides used to identify IMPs were investigated to determine whether any overlap with the transmembrane segments. Analysis of P11 protein, which contains four transmembrane segments, demonstrates that peptides detected from this protein overlapped with all four transmembrane segments (Figure 3.08). In addition, the sequence coverage and fragment ion intensities were of high quality for all the peptides that overlapped with each of the transmembrane segments (Appendix 2, Figure 2.2). Furthermore, other proteins also provided peptides that overlapped with transmembrane segments such as microsomal glutathione S-transferase 1, translocase of the inner mitochondria 17b and solute carrier family 22 member 7 (Appendix 2, Figures 2.3-2.5). These results demonstrate that the detection and fragmentation of peptides that overlap transmembrane segments is achievable and therefore, suggests no bias against membrane proteins based on the accessibility of transmembrane segments for digestion.

(A)

MQKDSGPLVPLHYYGFGYAALVATGGIIGYAKAGSVPSLAAGLFFGGLAGLGAYQLSQDP
RNVWVFLATSGTLAGIMGMRFYNSGKFMPAGLIAGASLLMVAKLGLSMLSSPH

(B)

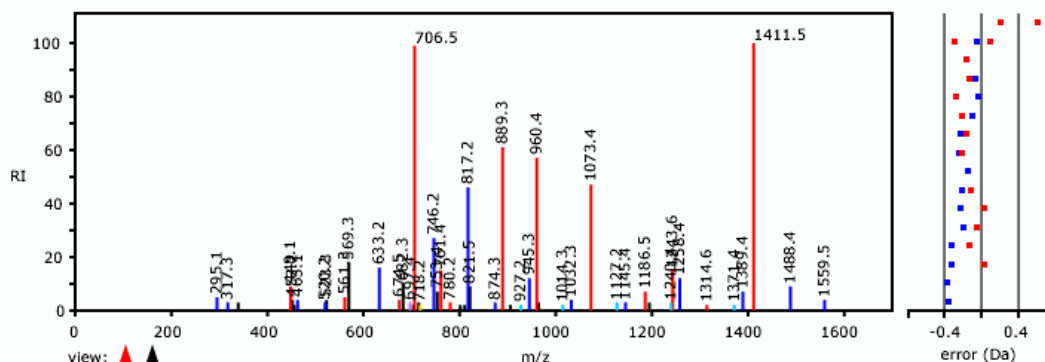


Figure 3.08: (A) Amino acid sequence of P11 proteins and peptide sequences (red) overlapping with the four TM segments (underlined) of the protein. (B) The mass spectra above represents the following peptide sequence; GSVPSLAAGLFFGGLAGLGAYQLSQDPR.

3.3.3 Analysis of the Relative Abundance of Peptides Between BR and NR Range IPG Strips Using NSAF

To demonstrate that NR IPG strips provided both a unique set and an increase in peptide identifications for a subset of proteins, label-free quantification was used to distinguish differences with statistical confidence. From each of the *pI* filtered datasets, proteins that were identified from each of the replicate experiments in either NR or BR IPG strips were only used for further analysis. In addition, to maintain high quality spectra required for label-free quantitation¹², proteins with single spectral counts were removed. To allow the incorporation of proteins with a zero spectral count in one dataset, 0.5 of a spectral count was added to each data point according to Zybaïlov *et al.*,¹². Normalised spectral abundance factors were calculated for each protein and a Student's *t*-test was calculated for comparison between the two IPG strips. To confirm that the dataset was indeed Gaussian and therefore

valid for analysis by a Student's *t*-test both R^2 values and a Shapiro-Wilk test was performed. Analysis of the BR and NR IPG strips demonstrated a Gaussian fit with R^2 values >0.98 and Shapiro-Wilk test of 0.061 and 0.05, respectively (Appendix 2, Figure 2.6).

To investigate the ability to detect a large dynamic range of proteins from the rat liver membrane proteome, the identified proteins were ranked based on their $\ln(\text{NSAF})$ values calculated from the sum of the NSAF values for broad and narrow range IPG strips (Figure 3.09). The dynamic range of the rat liver membrane proteome was calculated to be nine natural log orders of magnitude (or four \log_{10} orders of magnitude). The most abundant protein was microsomal glutathione S-transferase 1 with a $-2.54 \ln(\text{NSAF})$ value and the least abundant was angiotensin-converting enzyme with $-10.7 \ln(\text{NSAF})$. In addition, IMPs were also detected and quantified throughout the dynamic range of the rat liver membrane proteome, suggesting no bias against the analysis of IMPs. These results demonstrate the utility of peptide IPG-IEF in broad and narrow range format for the ability to detect and quantify proteins using label-free quantification for the analysis of proteins over a large dynamic range.

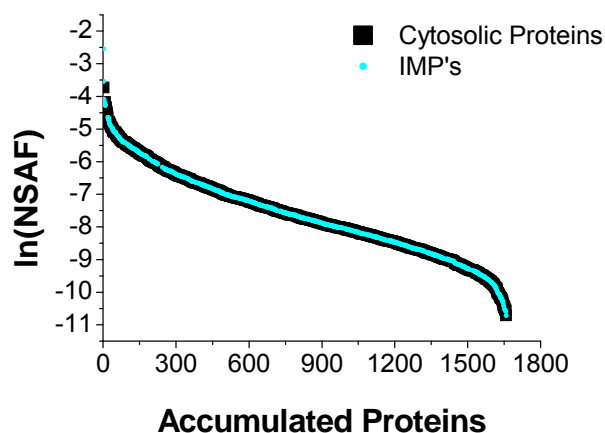


Figure 3.09: Quantitative analysis of proteins identified from broad range and narrow range IPG strips. Quantitative values are calculated using the sum of the NSAF values for each set of IPG strips and presented as a natural log distribution from most abundant to least abundant. Cytosolic proteins are represented by black squares and integral membrane proteins are represented by light blue circles.

The results from this analysis demonstrated that 1659 proteins with a <1% FDR could be found in all three datasets in either the BR or NR IPG strips. Of these protein identifications, 966 proteins were common to both IPG datasets with an additional 287 contributed from BR IPG strips and 406 contributed in addition from NR IPG strips (Table 1). Of the 1659 total proteins, 319 were found to have higher NSAF values ($p < 0.05$) compared to BR IPG strips of which 142 were annotated as IMPs (See supplementary table 4). However, 364 proteins had an increase in NSAF values ($p < 0.05$) in BR IPG strips with 109 of these proteins being annotated as IMPs. In addition, analysis of the distribution of proteins based on the number of spectral counts suggests that NR IPG strips are favorable for providing more protein identifications with between 1-10 and >100 spectral counts ($n=3$, $p < 0.05$) (Figure 3.10). These data demonstrate that NR IPG strips are valuable for increasing the spectral counts for a subset of proteins compared to BR range IPG strips and improve upon the characterisation of some IMPs identified from the BR IPG strips.

Table 1: Comparison of BR and NR IPG strips using label-free quantitation on 1659 proteins that were identified in all three experiments from either IPG strip. The presented percentages are in relation to the total protein identifications.

	Broad Range	Narrow Range
Total Protein Identifications	1235 (74%)	1365 (82%)
Unique Proteins	287 (17%)	406 (24%)
Total Proteins with Increased NSAF	364 (21%)	319 (19%)
IMP's with Increased NSAF	109 (6.6%)	142 (8.6%)

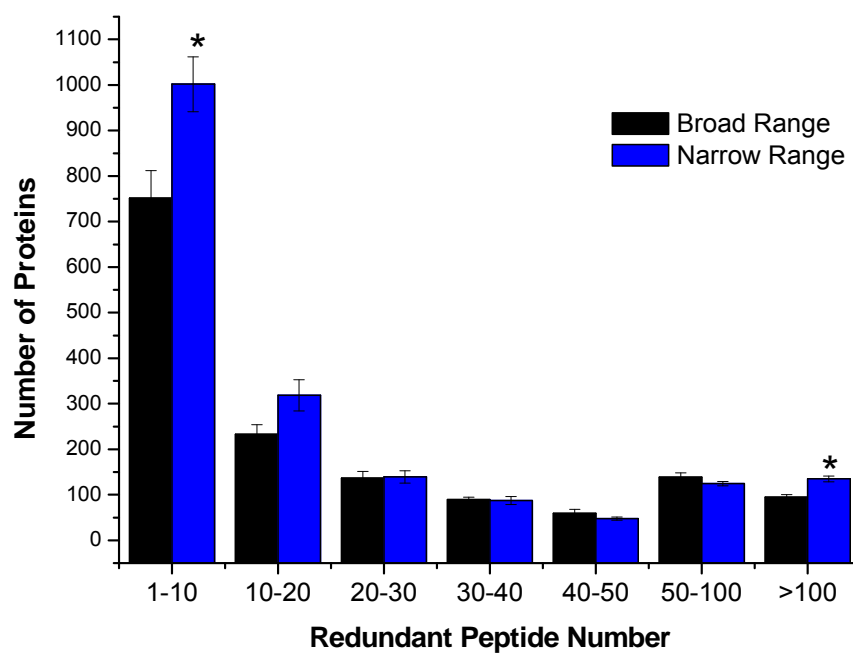


Figure 3.10: Comparison of proteins grouped by spectral counts, which demonstrated significant increases in proteins with spectral counts of 1-10 and >100 (* n=3, p<0.05).

After demonstrating that NR IPG-IEF could improve the characterisation of a subset of proteins including IMPs, it was of interest to investigate if large multi-transmembrane segment containing proteins had increased NSAF values (Figure 3.11). In total, 6 IMPs containing greater than 10 transmembrane segments had significant increases (n=3, p<0.05) in NSAF values in the NR IPG strips compared to the BR IPG strips. For example, multidrug resistance-associated protein 6 (ABC C6) had a 2.79 fold change in NSAF for NR compared to BR IPG strips (p<0.05). Furthermore, multidrug resistance protein 2 (ABC C2) had a 1.79 fold change in NSAF values for NR compared to BR IPG strips (p<0.05). These 6 proteins are largely hydrophobic IMPs that would not be amenable for analysis by 2D gels²¹, hence demonstrating that the use peptide IPG-IEF, in particular NR IPG-IEF, is a valuable technique for analysis of IMPs.

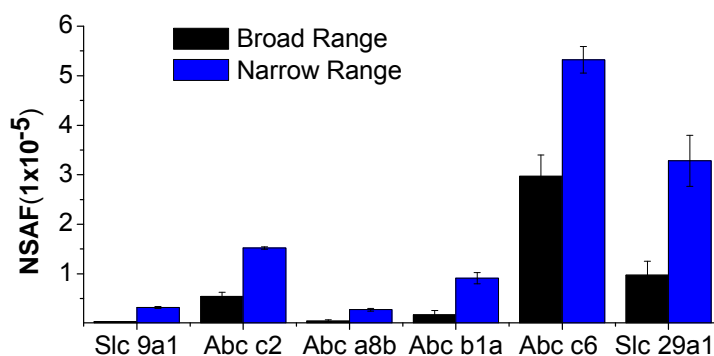


Figure 3.11: A subset of highly hydrophobic, multi-transmembrane segment (>10) containing IMP's with increased NSAF values using NR IPG strips compared to broad range IPG strips (n=3, p<0.05). Slc9a1 = solute carrier family 9 member 1, ABCC2 = ATP-binding cassette family C member 2, ABC a8b = ATP-binding cassette family a member 8b, ABC b1a = ATP-binding cassette family b member 1a, Slc27(7) = solute carrier family 27 member 7, ABC c6 = ATP-binding cassette family C member 6, Slc 29(1) = solute carrier family 29 member 1, Clcn7 = chloride channel 7, ABCC3 = ATP-binding cassette family C member 3 (n=3, p<0.05).

3.3.4 Identified Membrane Protein Families

Although the purpose of this Chapter is to demonstrate the identification of proteins from BR and NR IPG strips, it was of interest to determine whether the higher sample loading and the use of a higher resolution, faster scanning MS could improve upon the characterisation of the protein families referred in Chapter 2.3.6 (Cyts, Gsts, Ugts, ABC transporters and Slc family). The analysis of the identified protein families is presented from the quantitative dataset because of the criteria used to generate this dataset requires high confidence protein identifications (i.e. identification from all three experimental datasets from either BR or NR IPG strips); the analysis is also a measure of reproducibility of identifying individual proteins. As a representative model, this analysis will determine whether the protein families of interest are reproducibly identified and therefore, potentially quantifiable in later Chapters on liver proteins and tumor-induced inflammation (Chapters 4 and 5).

In this study, 41 cytochrome p450s were quantified (Figure 3.12) with 36 of these enzymes the same as those identified in Chapter 2. The abundance of Cyts in the rat liver

membrane proteome ranged from high abundance observed for Cyp2b2 with $47.85 \times 10^{-5} \pm 1.94 \times 10^{-5}$ and $54.09 \times 10^{-5} \pm 4.19 \times 10^{-5}$ to as low as $0.1 \times 10^{-5} \pm 0.06 \times 10^{-5}$ and $0.47 \times 10^{-5} \pm 0.03 \times 10^{-5}$ for Cyp 8b1 in BR and NR IPG strips, respectively. Analysis of Ugt and Gsts demonstrated that the number of Ugt enzymes increased from 7 in Chapter 2 to 9; however, the number of Gsts fell from 16 in Chapter 2 to 11 (Appendix, Figure 2.9). The largest changes in protein numbers was observed for the ABC transporters (Figure 3.13) and Slc family (Figure 3.14) proteins, which increased from 11 and 44 in Chapter 2 to having 25 and 53 in this Chapter, respectively. These results provide evidence for the reproducible identification of protein families known to play important role in the livers response to tumor-induced inflammation.

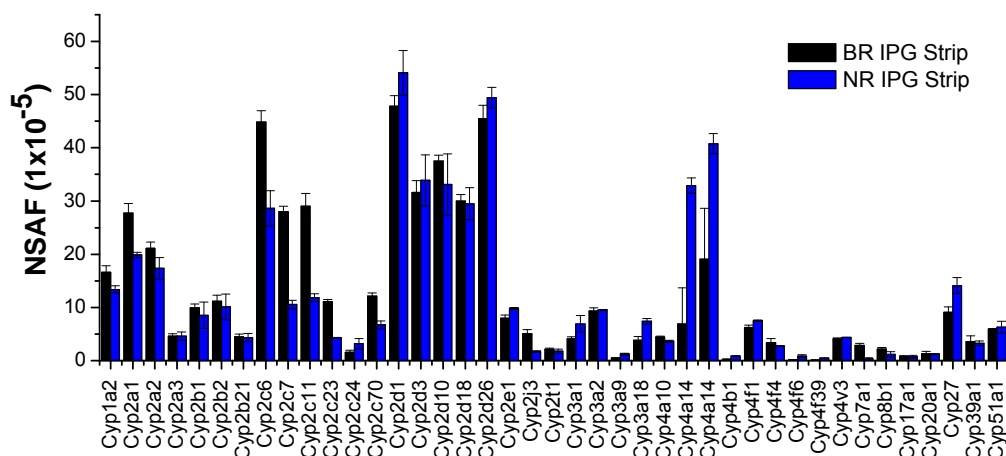


Figure 3.12: Quantitative analysis determined the reproducible identification of 41 different Cytochrome p450s from the rat liver membrane proteome using BR and NR IPG-IEF shotgun proteomics.

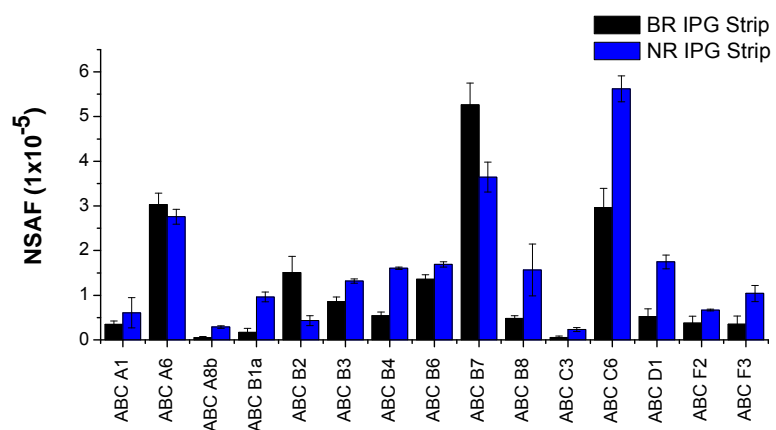


Figure 3.13: Quantitative analysis determined the reproducible identification of 15 different ABC transporters from the rat liver membrane proteome using BR and NR IPG-IEF shotgun proteomics.

demonstrated that the most common processes were macromolecule metabolic process and macromolecule localisation with both represented by 21.1% of annotations. Furthermore, cellular metabolic processes and cellular component organisation and biogenesis were presented by 6.88% and 6.38%, respectively. Transport proteins were represented by a low percentage of 3.11% and likewise, cellular adhesion with 1.41%. Analysis of molecular function (Figure 3.16) demonstrated that the most represented proteins had nucleic acid binding functions. In addition, oxidoreductase activity, substrate-specific transporter activity and structural constituent of ribosomes were also well represented with 9.29%, 8.58% and 8.4%, respectively. Transmembrane transporter activity of proteins was also common with 6.44% of all proteins. Analysis of the cellular component (Figure 3.17) annotations demonstrated that intracellular and intracellular part were the most abundant annotations with 18.84% and 15.57%, respectively. Of the cellular components, membrane components were also well represented with membrane, membrane part, membrane-bounded organelle and organelle membrane with 14.16%, 7.8%, 5.96% and 2.46%, respectively.

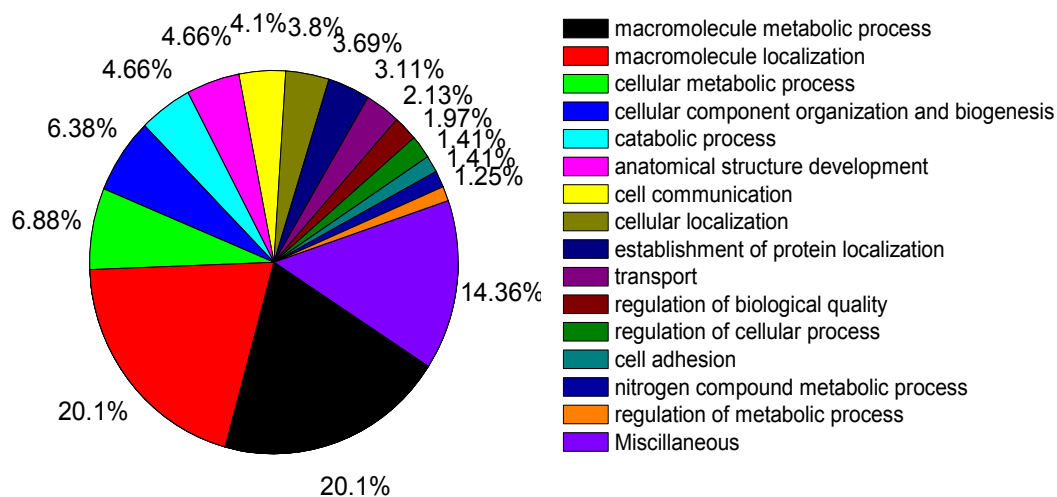


Figure 3.15: Gene ontology annotations for molecular processes based on level 3 protein annotations for the 4195 non-redundant protein identifications from each experimental dataset.

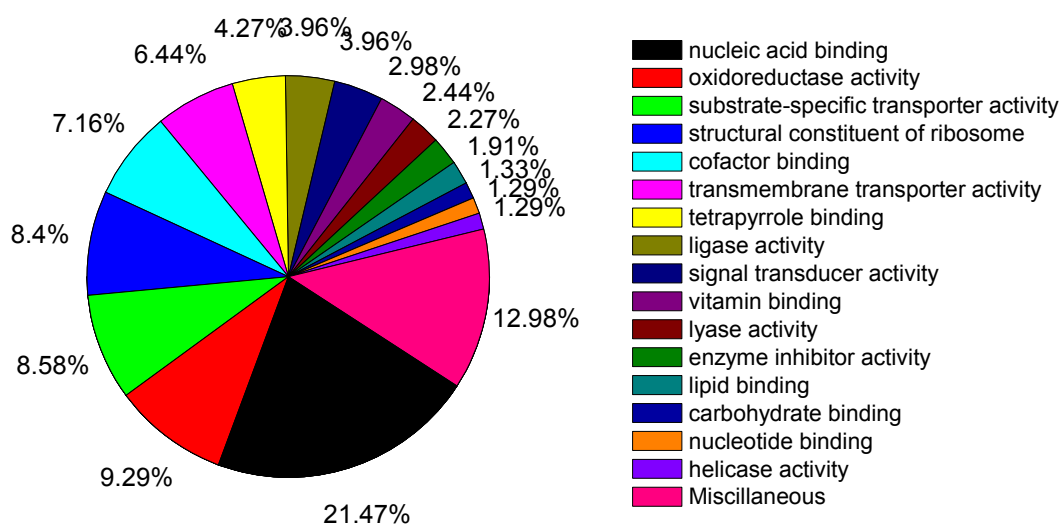


Figure 3.16: Gene ontology annotation for molecular functions based on level 3 protein annotations for the 4195 non-redundant protein identifications from each experimental replicate.

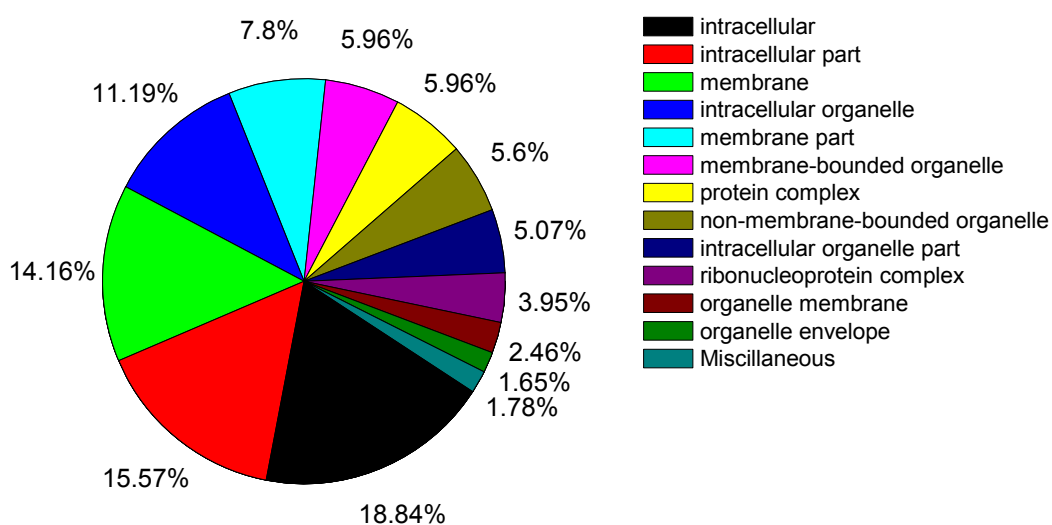


Figure 3.17: Gene ontology annotation for cellular component based on level 3 protein annotations for the 4195 non-redundant protein identifications from each experimental replicate.

3.4 Discussion

The aim of this study was to compare the use of BR and NR IPG strips for the first dimension shotgun proteomics separation of membrane enriched samples from rat liver. Recently, improving membrane protein analysis using shotgun proteomics has been achieved mainly through high sample loading, increased first dimension fractionation or through extended LC gradients prior to tandem MS analysis^{34, 72, 74}. NR IPG strips have been shown to provide an increase in peptide identifications over acidic *pI* regions⁹⁶. These studies demonstrated that acidic pH regions of the pH spectrum are quite rich in peptides derived from proteolytic digestion of rat testis proteins⁹⁶. By applying proteotypic peptides derived from membrane enriched samples to NR IPG strips, it was hypothesised that NR IPG strips would improve the characterisation of some proteins in particular a subset of IMPs.

3.4.1 Peptide Separation

Analysis of rat proteolytic peptides from annotated spectrum libraries demonstrated that a large proportion of experimentally attained peptide sequences have *pI* values that fall within the acidic *pI* region of 3-5. This analysis confirmed that peptide IPG-IEF using NR IPG strips within the acidic *pI* region of 3-5 would be a valuable alternative method to BR IPG strips. In this study, both BR and NR IPG strips provided a well separated sample over 24 fractions. BR IPG strips demonstrated a tripartite distribution of peptides based on the number of peptides per fraction, which is in agreement with previously published data^{95, 97, 143}. The number of peptides per fraction within the NR IPG strip demonstrated a more even distribution across all 24 fractions, again similar to previously reported data⁹⁶. The separation of peptides based on isoelectric point was confirmed by the average *pI* per

fraction, which followed a linear gradient similar to the actual pH of the IPG strip. However, some discrepancies between the average pI of some fractions and the actual pI in each strip do exist. In particular, fraction 24 from the NR IPG strip had quite a high average pI and further analysis of this fraction demonstrates that peptides with much higher pI values are still being retained in this fraction. In comparing the number of peptides identified from the NR IPG strip with the corresponding region on the BR IPG strip, approximately 5,500 more peptides, representing a two fold increase in peptide identifications, were observed. This is the first study to demonstrate an increase in peptide identifications as a direct comparison between the BR and NR IPG strips.

In Chapter 2, analysis of the percentage of unique peptide identifications was significantly different between acidic to neutral pH regions of a broad range IPG strip compared to the basic end of the IPG strip (Chapter 2.2.2). To extend this analysis further, the percentage of unique peptide identifications for broad and narrow range IPG strips demonstrated that narrow range IPG strips had a statistical significant increase in percentage of unique peptides. This is consistent with the acidic amino acids having better buffering capacity than basic peptides based on the number of ionisable groups within the peptides and types of ionisable groups. These results suggest that narrow range IPG strips provide higher resolution peptide separation for the first dimension of two dimensional shotgun proteomics.

3.4.2 Comparison of Total Peptide, Protein and IMPs Between Broad and Narrow Range IPG Strips

The total unique peptide identifications from BR and NR IPG strips demonstrated that approximately 10,000-12,000 high confidence peptide identifications could be assigned for each of the IPG strips after peptide pI filtering and 1% FDR. At the protein level, the number of protein identifications increased by approximately 600 protein identifications on average

for the NR IPG strip with ~2,600 as compared to the BR IPG strip with ~2,000. The number of protein identifications on average from the NR IPG strip was similar to previous reports from rat testis samples using a similar sample load⁹⁶. Importantly, NR IPG strips allowed 114 more IMP identifications than BR IPG strips. Based on each NR IPG strip experimental replicates, an average of 826 IMPs were identified in this study, which is remarkably similar to the data from Blonder *et al*³⁵. What should be noted in this comparison is that we are using less first dimension fractions and shorter LC gradients but using a much higher sample load.

The total number of non-redundant protein identifications across all three BR and all three NR IPG strips was 4,195 high confidence protein assignments of which 1,301 proteins were annotated as IMPs. The total redundant IMP identifications is similar to previous reports of 1,400 IMPs from human epithelial ovarian carcinoma cells⁷² and 1,190 from mouse liver¹¹. Analysis of the similarities and differences between the non-redundant protein identifications between BR and NR IPG strips demonstrated that 2,131 proteins were common to both types of IPG strips. However, NR IPG strips identified 1,428 unique protein assignments, while BR IPG strips provided 636 unique protein identifications. Similarly, NR IPG strips provided more unique IMP identifications. These results together demonstrate that NR IPG strips provide a more comprehensive inventory of protein identifications and in particular IMP identifications compared to BR IPG strips.

The distribution of IMPs based on the number of transmembrane segments is similar to past reports^{35, 72, 76, 143}. The number of total protein and IMP identifications from NR IPG strips demonstrates the utility of NR IEF for improved proteome coverage, in particular the membrane proteome. The number of integral membrane proteins in this study and in previous studies^{35, 72, 76, 143} demonstrates that single transmembrane proteins are the most common IMPs. Furthermore, the use of shotgun proteomics has also allowed the identification of highly hydrophobic, multi-transmembrane spanning IMPs. In addition,

analysis of IMPs also demonstrated that peptides that overlapped with transmembrane segments were detectable providing evidence that the accessibility of transmembrane proteins for digestion does not influence the ability to detect and quantify IMPs. The ability to detect peptides that overlap transmembrane segments using methanol assisted trypsin digestion is consistent with previous reports³⁵.

3.4.3 Label-Free Quantification Analysis

This Chapter establishes for the first time the use of label-free quantitation for use in technique comparisons instead as well as biological studies. In this study, 1,659 proteins were used for label-free quantitation (See Supp Table 4) as they contain at least two spectral counts from all three replicates from either the BR or NR IPG strips. Analysis of the dynamic range of the proteome demonstrated that the shotgun proteomics strategy was capable of detecting and quantifying proteins over four log₁₀ orders of magnitude. These results are consistent with previous studies on the mouse liver and yeast proteomes, which demonstrated the analysis of four log₁₀ orders of magnitude^{11, 12}. In addition, the IMPs in this study were identified throughout this dynamic range suggesting that analysis of membrane enriched samples using peptide IPG-IEF shotgun proteomics provides the ability to analyse low abundance IMPs, consistent with previous studies¹².

NR IPG strips contained 408 proteins that had a significant increase in NSAF values of which 130 were IMPs. It is also important to note that 314 proteins, in particular 123 IMPs, decreased in NSAF values. However, these results provide evidence that NR IPG strips can improve the analysis of a subset of IMPs over the use of BR IPG strips. NR IPG strips were also shown to increase the recovery of proteins containing between 1-10 and >100 spectral counts. The higher number of spectral counts for proteins between 1-10 spectral counts in NR IPG strips is expected when the number of protein identifications also increases.

However, the increase in the number of proteins with > 100 spectral counts is unexpected since the total number of peptide identifications is similar.

Multi-transmembrane segment containing IMPs are a notoriously difficult class of proteins to analyse since they are poorly soluble due to their largely hydrophobic nature. IMPs are also difficult to analyse because the transmembrane domains have few tryptic cleavage sites. In this Chapter, the results demonstrate that a subset of IMPs increased in NSAF values when using NR IPG strips. In particular, multi-transmembrane segment containing IMPs were better represented. As an example, proteins such as the ABC transporters known to contain > 10 transmembrane segments increased in spectral counts due to the use of NR IPG strips. These proteins, due to their largely hydrophobic nature, are refractory to analysis by 2D gels because of poor solubility ²¹. Here we present 6 IMPs, with greater than 10 transmembrane segments, for which NSAF values have significantly improved through the use of NR IPG strips.

3.4.4 Identified Protein Families

Similar to Chapter 2, it was of interest to determine the number of different proteins in the protein families of Cyps, Ugts, Gsts, ABC transporters and Slc proteins because of their association with the livers response to tumor-induced inflammation. The use of label-free quantitative shotgun proteomics inherently assesses the reproducibility of identifying proteins from a complex mixture of proteins because each protein has to be identified from all three datasets from at least one experimental set. Therefore, the rat liver membrane proteome as a representative model provides the means to assess the reproducible identification of proteins that are of interest in later studies on tumor-bearing mice (Chapter 4 and 5).

In total, 41 cytochrome p450s were quantified from the rat liver membrane proteome with a range of quantitative values that demonstrate a range of highly abundant Cyps (2b2, 27, 2c7, 2b1) to low abundance (8b1, 7a1, 3a18). Likewise, 11 Ugts and 7 Gsts were reproducibly identified with the majority of these proteins having moderate to high quantitative values. Most interesting was the identification of 25 ABC transporters and 53 Slc proteins, representing a marked increase from earlier experiments (Chapter 2) using less sensitive, lower resolution and slower scanning MS. The results therefore provide evidence for the use of label-free shotgun proteomics using peptide IPG-IEF as the first dimension separation in conjunction with higher resolution, faster scanning MS. These experiments also provide the foundations for the use of this developed shotgun proteomics methodology in the study of liver protein abundance in relation to tumor-induced inflammation in mouse models.

3.4.5 Gene Ontology Annotations

Gene ontology annotation for the 4195 non-redundant protein identifications demonstrated that particular molecular processes, functions and cellular components were dominant within the rat liver membrane proteome. Macromolecule metabolic processes and macromolecule localisation were the most common molecular process annotations. However, transport and cell adhesion known to contain many IMPs were not as well represented. Nucleic acid binding activity and oxidoreductase activities were the most common molecular function of proteins. The high percentage of oxidoreductase proteins is understandable with many cytochrome p450 enzymes being identified from the rat liver membrane proteome. In contrast to molecular process annotations, transporter activity annotations (substrate-specific transporter activity and transmembrane transporter activity) were quite highly represented. Finally, cell component annotations percentages were high for intracellular and intracellular

part. However, membrane, membrane part, membrane-bounded organelle and organelle membrane annotations were well represented. These data provide detailed analysis of the distribution of membrane proteins from the membrane-enriched rat liver sample and provides information on the source of non-membrane protein contamination.

3.4.6 Conclusion

In summary, this study demonstrates the utility of NR IPG strips as the first dimension separation of peptides for comparative two dimensional shotgun proteomics of a membrane protein enriched sample. NR IPG strips were shown to be advantageous with results suggesting that NR IPG strips could increase protein and IMP identifications. Furthermore, NR IPG strips also provided a set of proteins and specifically IMPs that currently go undetected in BR IPG strips. Label-free quantification was used to quantify the statistically significant differences between BR and NR IPG strips based on the measured spectral abundance of each protein. This Chapter demonstrated the utility of IPG-IEF separation of peptides in a quantitative shotgun proteomics analysis of thousands of liver membrane proteins. These observations provide evidence for the use of this methodology for the analysis of liver membrane proteins in relation to tumor-induced inflammation.

Chapter 4: Affects of Tumor-Induced Inflammation on Membrane Protein Abundance in the Mouse Liver

4.1 Introduction

Liver metabolic function plays an important role in the response of cancer patients to chemotherapy primarily because this organ plays a critical role in the metabolism and clearance of common anti-cancer drugs. In addition, the response of the liver to the presence of a tumour spatially unrelated to the liver in the body potentially can exert major metabolic changes on the whole organism. The major functions of the liver include fatty acid metabolism, xenobiotic metabolism and clearance and regulation of blood glucose levels, to name but a few. In general, the metabolic function of the liver in an individual is a sign of the overall health of that individual. Many factors can perturb metabolism within the liver and commonly studied pathological conditions include, hepatitis C, hepatocarcinoma, cholestasis and alcoholism.

Analysis of the liver metabolism in advanced cancer patients has previously demonstrated a reduced ability to clear anti-cancer agents through cytochrome p450 mediated pathways¹⁰⁵. In addition, it is well substantiated that patients with solid tumors have increased blood levels of proinflammatory cytokines (e.g. tumor necrosis factor α , interleukin-1, interleukin-6), which have been implicated in the progression to malignancy and the promotion of tumor growth, invasion and metastasis^{148, 149}. Analysis in advanced cancer patients has also demonstrated the increase in blood levels of acute phase response proteins such as C-reactive protein¹⁰⁵, suggesting systemic inflammation.

Studies in mice have also demonstrated an increase in the acute phase-reactant, serum amyloid protein P, in mice bearing an EHS sarcoma⁴. The use of a benign tumor in these studies represents what would in affect be early stages of cancer. Analysis of tumor-induced inflammation on the expression of genes and their resulting proteins in the liver is a critical

research question that remains poorly examined to date and therefore, little is known about the global affect on liver metabolism.

Recently, quantitative shotgun proteomics methods examining the abundance of liver proteins has been used in a study of liver biopsies from hepatitis C infected patients¹⁵⁰. In these studies, 1,641 liver proteins were quantified and 210 were observed to have statistically significant changes in abundance using stable isotope labeling of proteins¹⁵⁰. Label-free quantification using accumulated protein spectral counts has been utilised as a means to relatively quantify proteins^{12, 13, 151}. One advantage of label-free quantification over labeling approaches is the ability to assign quantitative values to proteins that are not detected in a particular sample due to biological variation¹². Label-free quantification in shotgun proteomics has been used for the analysis of various biological questions and therefore, is a purposeful tool for quantitative shotgun proteomics^{12, 13, 151}.

Previous Chapters in this thesis have demonstrated the utility of IPG-IEF of peptides in the identification of rat liver membrane proteins¹⁴³. Initial studies demonstrated the identification of 690 IMPs from replicate experiments, providing evidence for its utility in shotgun proteomic analysis of IMPs¹⁴³. However, in Chapter 3, membrane protein identifications through IPG-IEF separation of peptides provided the identification of 700-800 IMPs in a single experiment using more accurate and faster scanning tandem mass spectrometry. Analysis of IMPs is an important area of study as approximately 70% of these proteins are targeted by pharmaceutical agents¹. In addition, IMPs play a critical role in the first steps of molecular interactions between a cell and its external environment, which for internal organs is the blood stream.

The aim of this Chapter was to determine the effects of tumor-induced inflammation on the abundance on IMPs using label-free quantitative shotgun proteomics. To determine the effects of a tumor on liver membrane protein abundance, livers from mice containing an

EHS sarcoma injected into the hind limb were compared with control mice. Here we demonstrate the first shotgun proteomics study on the effects of tumor-induced inflammation on liver membrane proteins. These results demonstrate that shotgun proteomics provided quantitative data of proteins over a large dynamic range and that many important metabolic proteins were detected to have statistically significant changes in abundance throughout this dynamic range. In addition, many IMPs changed in abundance, including many large hydrophobic multi-transmembrane segment containing proteins and cell surface receptors.

4.2 Methods

4.2.1 Sample Preparation

Eight- to ten-week-old C57BL/6 male mice (Concord RG Hospital, Australia) were aseptically inoculated with either 0.3 ml suspension of Englebreth-Holm-Swarm (EHS) sarcoma into the right quadriceps muscle, suspended in 0.3 ml of PBS subcutaneously into the right flank. Control animals were inoculated with the PBS vehicle alone. Tumor mass reached ~3g or 10% of the total body weight of the mouse between 17 to 21 days. Mice were then euthanised, livers perfused with PBS and harvested. PBS perfused mouse liver tissue (1.5 g) was then homogenised in 10 mM HEPES buffer (pH 7.8) supplemented with 2 mM NaCl, 10 mM NaOH, 500 mM EDTA and protease inhibitors (3 mg antipain-dihydrochloride, 0.5 mg aprotinin, 0.5 mg bestatin, 1 mg chymostatin, 3 mg E-64, 10 mg EDTA-Na₂, 0.5 mg leupeptin, 20 mg pefabloc SC, 0.5 mg pepstatin, 3 mg phosphoramidon) (Roche Diagnostics, Switzerland) using an Omni TH homogeniser (Omni International Inc., VA, USA). The homogenised tissue was then centrifuged at 13,000 *g* for 15 min at room temperature (RT).

Membrane proteins were isolated using a modified sodium carbonate stripping method as previously described in this thesis^{32, 37}. Briefly, the supernatant was collected and diluted to a final volume of 40 mL in 0.1 M sodium carbonate (pH 11) then incubated for 1 h rotating at 4°C. The carbonate-treated membranes were sedimented by ultracentrifugation at 120,000 *x g* for 1 h at 4°C. The supernatant was removed and the membrane pellet was washed once with 0.1 M sodium carbonate (pH 11) and resuspended in 10 mM ammonium bicarbonate (NH₄HCO₃, pH 7.8). Sample was then transferred to a 20 mL glass scintillation vial and pulse sonicated using a Branson 450 Sonifier (Branson, Danbury, USA) using 2 second bursts for 15 intervals on ice. The sonicated sample was then reduced with 10 mM dithiothreitol for 1 h at 37°C and subsequently alkylated with 55 mM iodoacetamide at RT

for 30 min. Protein quantification was conducted by Bradford Assay (Sigma-Aldrich, MO, USA). Trypsin digestion was carried out in the presence of 60% (v/v) methanol in 10mM ammonium bicarbonate (pH 7.8) for approximately 8 hr at 37°C. All digested samples were evaporated to dryness in a vacuum centrifuge and resuspended in 250 μ L of 8 M urea supplemented with a trace of Bromophenol Blue.

4.2.2 Peptide IPG-IEF

Digested proteins (1 mg) in 8M urea were used to passively rehydrate either a linear pH 3-10 for 6 hrs at room temperature in triplicate. Isoelectric focusing was conducted on an IPGphorII (GE Healthcare) with a current limit of 50 μ A per strip on a 3-10 linear IPG strip at 20°C with the following focusing program; 300 V for 1 h, a gradient to 1000 V for 1 h, a gradient to 4000 V for 3 h, a gradient to 8000 V for 3 h and 8000 V until 100 kVh was reached. The IPG strips were treated differently for their respective μ A limits so that both IPG strips would have 8000 volts as their maximum volt step. The strips were then cut (with plastic backing still in place) with a scalpel blade into 24 equal length pieces. Peptides were extracted from each fraction by incubation in 100 μ L of 0.1% (v/v) formic acid for 1 h at RT. The extraction was repeated twice and subsequently combined with the initial fractions. Combined peptide extracts were desalted using C18 tips (Omix, Varian Incorporated) and the eluate dried using a vacuum centrifuge followed by resuspension in 0.1% (v/v) formic acid in preparation for nanoLC-MS/MS.

4.2.3 Nanoflow liquid Chromatography – Tandem Mass Spectrometry

Each of the 24 fractions from the triplicate BR and NR IPG-IEF experiments were analysed by nanoLC-MS/MS using a LTQ-XL ion-trap mass spectrometer (Thermo, CA,

USA) according to Breci *et al*¹²⁸. Reversed phase columns were packed in-house to approximately 7 cm (100 μ m i.d.) using 100 Å, 5 mM Zorbax C18 resin (Agilent Technologies, CA, USA) in a fused silica capillary with an integrated electrospray tip. A 1.8 kV electrospray voltage was applied via a liquid junction up-stream of the C18 column. Samples were injected onto the C18 column using a Surveyor autosampler (Thermo, CA, USA). Each sample was loaded onto the C18 column followed by initial wash step with buffer A (5% (v/v) ACN, 0.1% (v/v) formic acid) for 10 min at 1 μ L min⁻¹. Peptides were subsequently eluted from the C18 column with 0% - 50% Buffer B (95% (v/v) ACN, 0.1% (v/v) formic acid) over 58 min at 500 nL min⁻¹ followed by 50-95% Buffer B over 5 min at 500 nL min⁻¹. The column eluate was directed into a nanospray ionisation source of the mass spectrometer. Spectra were scanned over the range 400–1500 amu. Automated peak recognition, dynamic exclusion, and tandem MS of the top six most intense precursor ions at 35% normalisation collision energy were performed using the Xcalibur software (Thermo, CA, USA).

4.2.4 Protein and Peptide Identification

Raw files were converted to mzXML format and processed through the global proteome machine (GPM) software using version 2.1.1 of the X!Tandem algorithm, freely available from www.thegpm.org^{129, 130}. For each experiment, the 24 fractions were processed sequentially with output files for each individual fraction and a merged, non-redundant output file was generated for protein identifications with Log(e) values less than -1. Peptide identification was determined using a 0.4 Da fragment ion tolerance. Carbamidomethyl was considered as a complete modification and partial modifications were also considered, which included oxidation of methionine and threonine; and deamidation of asparagine and glutamine. MS/MS spectra were searched against the *Mus Musculus* database (Database

derived from SwissProt, Ensemble and NCBI) and reverse database searching was used for estimating false discovery rates¹³¹. For analysis of total protein identifications, proteins were validated using a 1% false discovery rate by searching the MS spectra against a reverse database and applying the following formula; $FDR = \text{reverse}/(\text{reverse} + \text{forward}) * 100$.

Transmembrane segment annotation of the identified proteins was determined using the TransMembrane Hidden Markov Model (TMHMM, <http://www.cbs.dtu.dk/services/TMHMM-2.0/>)^{61, 132, 146}. Gene ontology analysis was conducted on quantified proteins using the Blast-2-go annotation software (www.blast2go.org).

4.2.4 Calculation of Normalised Spectral Abundance Factors

Normalised spectral abundance factors were calculated according to Zybaylov et al., 2006 using the following formula:

$$NSAF = (\text{Spc}/L) / \sum (\text{Spc}/L)$$

Where, Spc refers to spectral count (number of non-redundant peptide identifications for a given protein), L is the length of the protein. Protein identifications were only included in NSAF data analysis if a given protein was identified in each of the triplicate experiments from either BR or NR IPG strips. The reduced protein list was then adjusted with a fraction of a spectral count to allow the incorporation of proteins with zero spectral counts for statistical analysis. An optimal adjustment factor was determined through fitting the natural log of the NSAF values to a Gaussian curve, assessed by computing both R^2 values and applying a Shapiro-Wilk test. To satisfy the Shapiro-Wilk test, a W value greater than 0.05 was needed to be obtained.

4.2.5 Statistical Analysis

Statistical analysis was conducted with Microsoft Excel using a Student's *t*-test with equal sample sizes and $P < 0.05$ for assignment of statistical confidence. Origin8 software package was used for assessing Gaussian distribution of data for label free quantitation by computing both R^2 values and a Shapiro-Wilk test.

4.3 Results

4.3.1 Label-Free Quantification Analysis

The label-free quantification method used in this study is a normalised value calculated from raw spectral counts (Supp. Table 5 and Supp. Table 6). To be able to apply a Student's *t*-test analysis on individual proteins between control and tumor-bearing mice, the log-transformation of the data needs to be normal in distribution. In this study, both datasets had normal distributions as determined by a Shapiro-Wilk test with *W* values of 0.052 and 0.054 for control and tumor-bearing mice, respectively (Figure 4.01). The normal distribution was also confirmed with an R-squared value of 0.998 for each of the datasets. Furthermore, to allow the incorporation of proteins in each dataset with zero spectral counts and therefore, to remove division by zero errors, each protein in each dataset was given the same additional fraction of a spectral count. In this study, 0.18 was added to each protein as this value is the lowest possible fraction which maintains a Shapiro-Wilk score greater than 0.05.

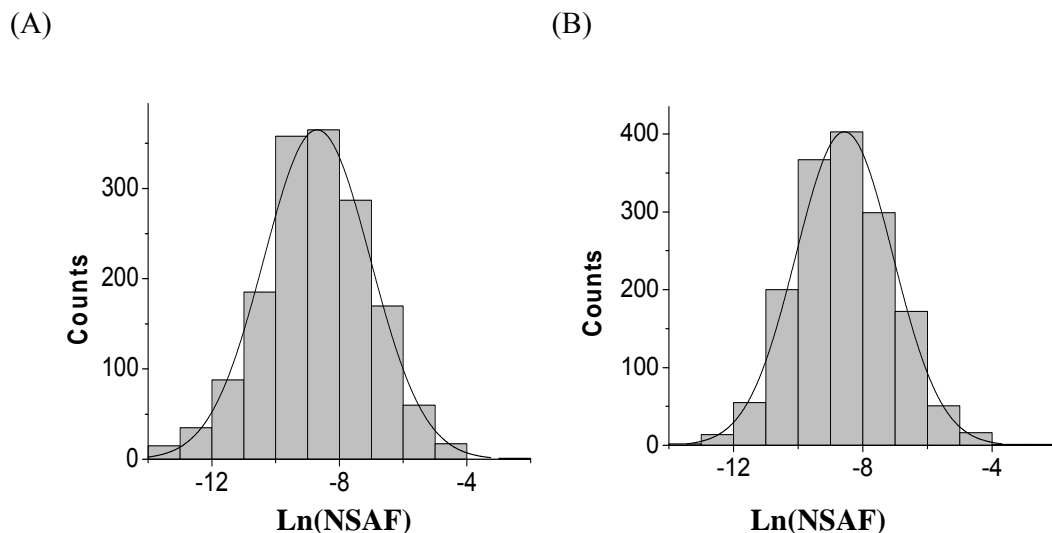


Figure 4.01: Normality distribution of $\ln(\text{NSAF})$ values for all 1581 proteins for (A) control and (B) tumor-bearing mice. Analysis demonstrated that the data had a normal distribution with Shapiro-Wilk test values of 0.052 (control) and 0.054 (tumor) and R-squared values of 0.998 for the datasets.

A natural log plot was constructed for the average values from control and tumor-bearing mice to demonstrate the effects of biological variation on statistical analysis (Figure 4.02). Linearity analysis of the data demonstrated that proteins with non-significant changes in abundance had adjusted R-squared values of 0.77 compared to 0.4 for proteins with statistically significant changes in abundance. Proteins with non-significant changes in abundance were observed in similar positions as proteins with significant changes, providing evidence for biological variations within replicates of control and tumor-bearing mice. However, these results provide evidence that proteins that do not have significant changes in abundance, generally fit a linear distribution, whereas, proteins with significant changes rarely fit this linear relationship.

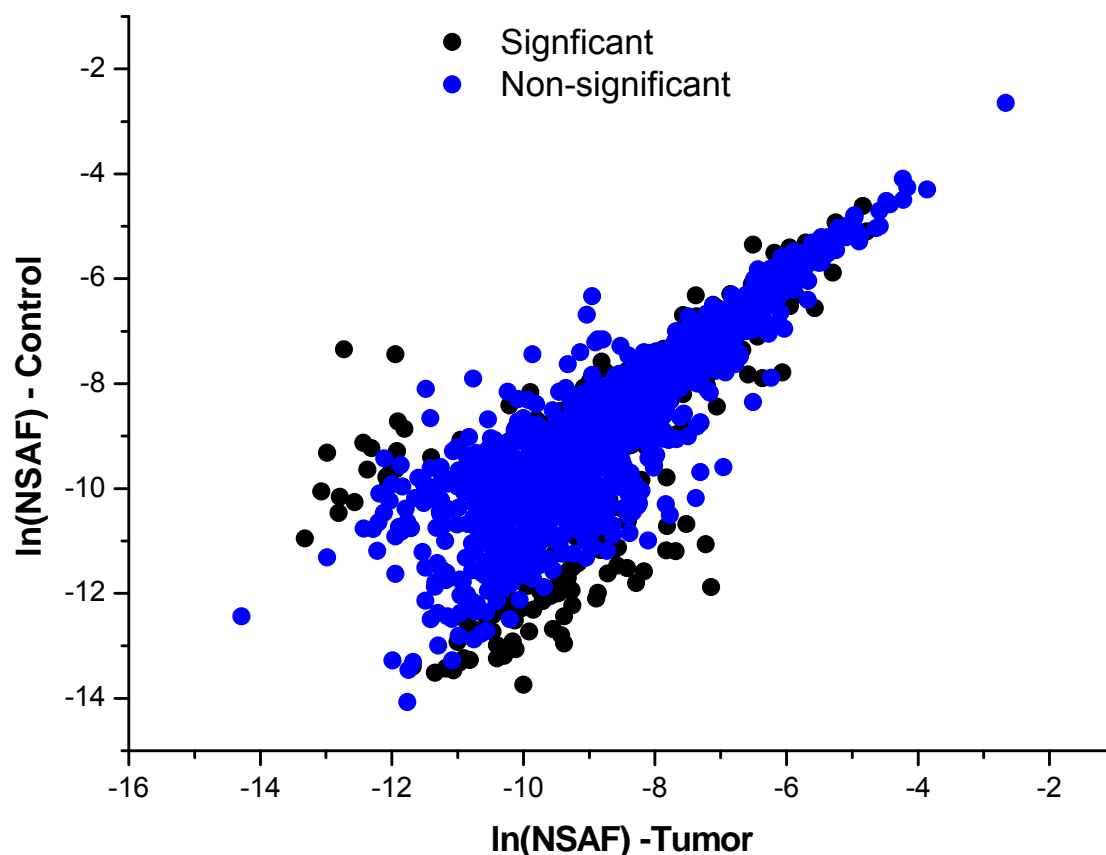


Figure 4.02: Comparison of $\ln(\text{NSAF})$ values for control and tumor-bearing mice. The dark blue circles represent the proteins with no significant changes and the black squares represent the 230 proteins that had statistically significant changes in abundance.

4.3.2 Membrane Proteome Dynamic Range and Protein Abundance

In total, 1634 proteins satisfied the criteria for quantitative analysis, including 787 IMPs from the livers of control or tumor-bearing mice (Supp. Table 6). Statistical analysis determined that of the proteins detected, 230 proteins changed in abundance in the liver when controls were compared to tumor-bearing mice ($n=3$, $p<0.05$). Relative to control mice liver proteins, 82 proteins (including 29 IMPs) from tumor-bearing mice were observed to be down-regulated, whereas 152 proteins (including 76 IMPs) were observed to be up-regulated

($n=3$, $p<0.05$). Overall, these results demonstrate that a spatially unrelated EHS sarcoma has the ability to significantly influence the abundance of proteins within the liver.

To determine the dynamic range of the identified proteome, proteins were ranked based on their respective $\ln(\text{NSAF})$ calculated from their collective spectral counts from each of the replicate experiments (Figure 2.03). The results in this study demonstrate that the identified proteins span between 10 natural log orders of magnitude, providing evidence for the ability to detect and quantify low abundance proteins. Furthermore, proteins with statistically significant changes in abundance were detected throughout the dynamic range of the liver proteome, suggesting that there is no bias in the quantification of the identified proteins based on abundance.

The protein with the highest collective $\ln(\text{NSAF})$ values of -2.65 (control) and -2.66 (tumor-bearing) was microsomal glutathione S-transferase 1. However, the protein with the lowest collective $\ln(\text{NSAF})$ values in each of the samples changed; sialoadhesin with -13.77 for control mice; and collagen alpha-2(XI) chain with -13.98 for tumor-bearing mice, respectively. In addition, the average change in abundance for proteins that were statistically significant was 1.57 natural log orders of magnitude. In particular, large shifts in abundance were observed for some proteins such as cytochrome p450 4a14 and NADH dehydrogenase iron-sulfur protein 3 as shown in figure 2.03. These results demonstrate the utility of this shotgun proteomics methodology and label-free quantification for the analysis and monitoring changes in abundance of proteins from the mouse liver membrane proteome over a large dynamic range.

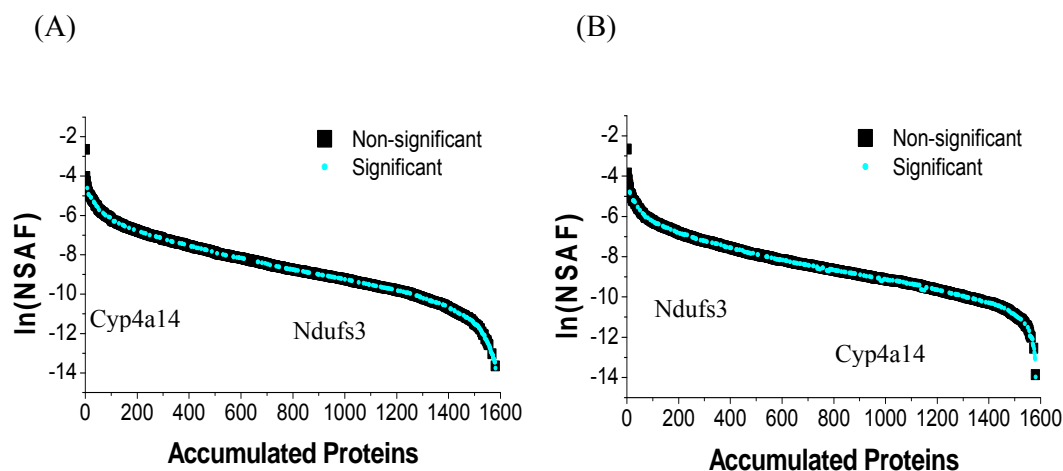


Figure 4.03: Distribution of proteins based on their $\ln(\text{NSAF})$ values as calculated from the sum of their spectral counts from the three replicate experiments for control (A) and tumor-bearing mice (B). Proteins are presented as having statistically significant changes (blue) or non-significant (black) changes in abundance. Cytochrome p450 4a14 (Cyp4a14) and NADH dehydrogenase iron-sulfur protein 3 (Ndufs3) are representing rather large changes in abundance.

4.3.3 Gene Ontology Analysis of Identified Proteins

4.3.3.1 Molecular Process Annotation

To determine changes in abundance within the liver membrane proteome, proteins were categorised using gene ontology annotation based on molecular process, molecular function and cellular component. To provide an understanding of how these protein categories changed between control and tumor-bearing mice, the sum of all proteins within each category was calculated and statistical analyses performed. Data are presented as percentages of the total annotations of the control datasets.

Analysis of the annotated molecular processes (Figure 4.04) demonstrated that 49% of the 1,581 quantified proteins had a process annotation. Molecular process annotations were dominated by primary metabolism and transport annotations with approximately 45% in total. In particular, primary metabolism was observed to show an increase in abundance from $22.7 \pm 0.11\%$ in control and $23.3 \pm 0.17\%$ tumor-bearing mice ($n=3$, $p<0.05$). In total, 52 proteins within primary metabolism were observed to have statistically significant changes in abundance including retinol saturase and ribophorin 1. In addition, macromolecular metabolism also represented a large proportion of the proteome, which increased in abundance in tumor-bearing mice compared ($13.6 \pm 0.1\%$) to controls ($13.1 \pm 0.1\%$) ($n=3$, $p<0.05$). Other large molecular processes that increased in abundance in tumor bearing mice compared to the controls, included; biosynthetic processes (control = $8.63 \pm 0.04\%$, tumor = $8.87 \pm 0.06\%$) and cellular communication (control = $5.5 \pm 0.007\%$, tumor = 5.63 ± 0.03) ($n=3$, $p<0.05$). Furthermore, less abundant processes involving response to biotic stimuli, abiotic stimuli, external stimuli and stress, and cellular homeostasis, where all up regulated in tumor-bearing mice ($n=3$, $p<0.05$). Proteins associated with these molecular processes that changed in abundance included protein disulfide isomerase isoforms A4 and A6, complement component 3, and fibrinogen isoforms α , β and γ . These data demonstrate that the presence of a tumor possesses the ability to influence the abundance of liver proteins involved in key metabolic pathways.

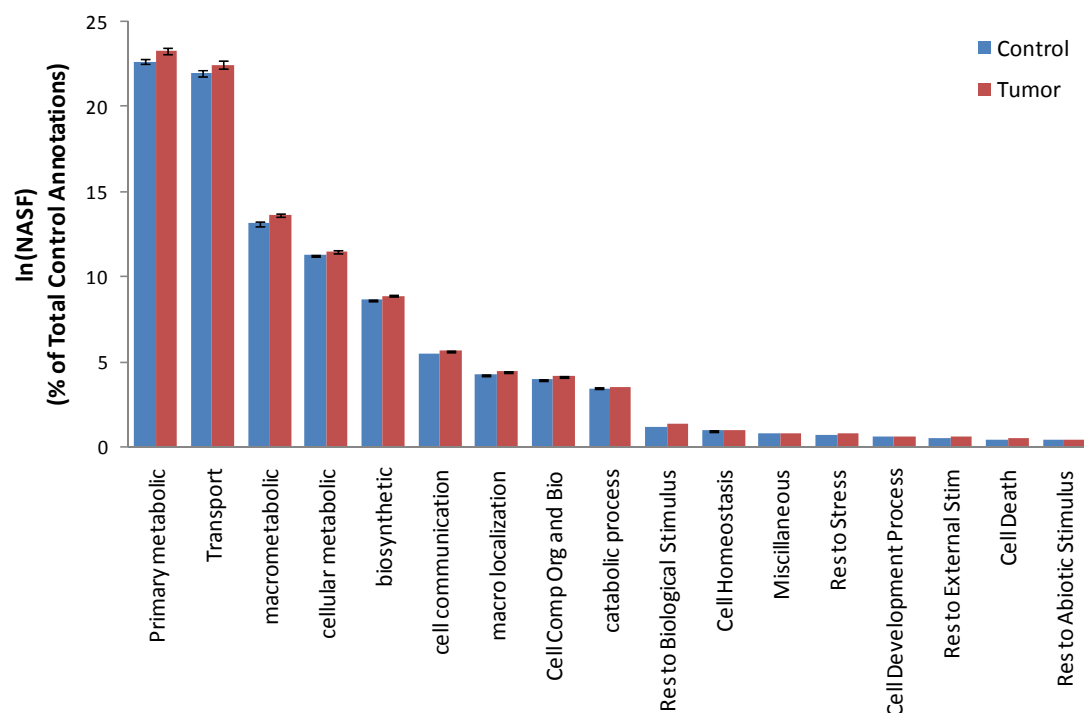


Figure 4.04: Analysis of proteins by gene ontology annotations based on molecular process. Proteins were annotated into groups based on level 3 gene ontology classifications. Percentages are calculated from the sum of all ln(NSAF) values for all the protein in each classifications in relation to the total of the controls. Macro = Macromolecular, Cell Comp Org and Bio= Cellular Component Organisation and biogenesis, Resp = Response, Stim = Stimulus (* n=3, p<0.05).

After demonstrating that primary metabolic processes were the largest molecular process category, it was of interest to determine whether sub-classifications had also changed in abundance between control and tumor-bearing mice. The most abundant of the primary metabolic processes was protein metabolism (Figure 4.05), which was significantly down-regulated in tumor-bearing mice by 1.93% (n=3, p<0.05). Furthermore, nucleotide metabolism was also down-regulated in tumor-bearing mice by 0.41% (n=3, p<0.05). However, carbohydrate, lipid and amino acid metabolism did not change between control and tumor-bearing mice. In addition to primary metabolic processes, transport process was also highly abundant in the liver samples; however, sub-classification detected no changes in abundance for electron, ion and protein transport processes (Appendix 3, Figure 3.1).

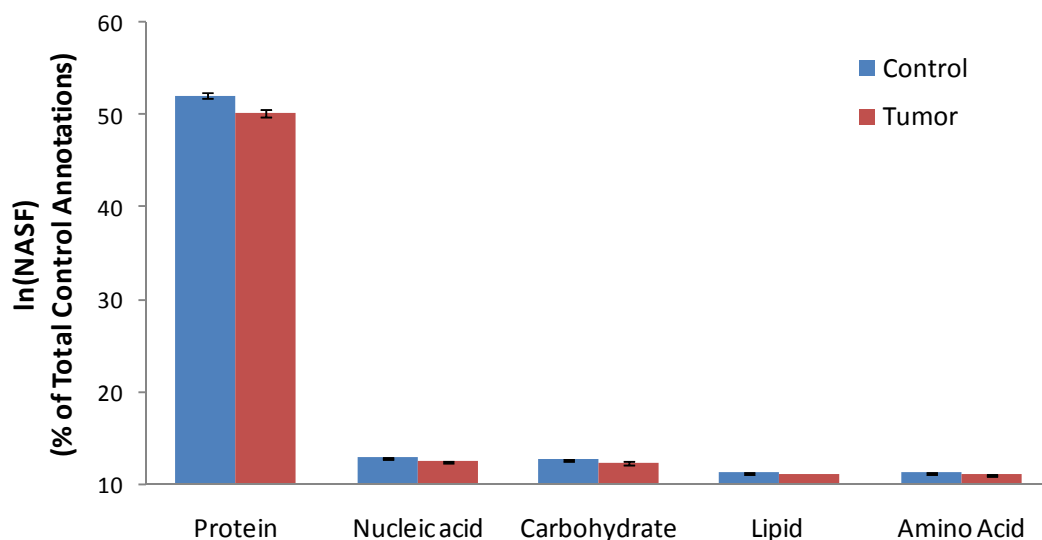


Figure 4.05: Sub-classification of primary metabolic processes demonstrates that protein and nucleotide metabolic processes were down-regulated in tumor-bearing mice with protein metabolism being the most abundant process. Carbohydrate, lipid and amino acid metabolism demonstrated no significant changes in abundance (*n=3, p<0.05).

4.3.3.1 Molecular Function Annotation

Molecular functions (Figure 4.06) were annotated for 53% of the proteins, in which the most dominant categories included, nucleotide binding (~14.5%), oxidoreductase activity (~12.8%), hydrolase activity (~11.5%) and ion binding (~11%), which equated to approximately 50% of all functional annotations. Protein binding was shown to be a dominant molecular function and was observed to be up-regulated in tumor-bearing mice with $7.15 \pm 0.03\%$ compared to controls with $6.86 \pm 0.04\%$ (n=3, p<0.05). In particular, ring finger protein 121 (26 fold change) and leucine rich repeat containing 59 (1.4 fold change), both transmembrane proteins, were both up-regulated in tumor-bearing mice. Proteins with lyase functions were shown to be down regulated in tumor-bearing mice with $1.27 \pm 0.01\%$ compared to controls with $1.29 \pm 0.003\%$. Finally, proteins with enzyme inhibitor activity

and lipid binding were observed to be up regulated by 0.09% and 0.02% in controls compared to tumor-bearing mice, respectively.

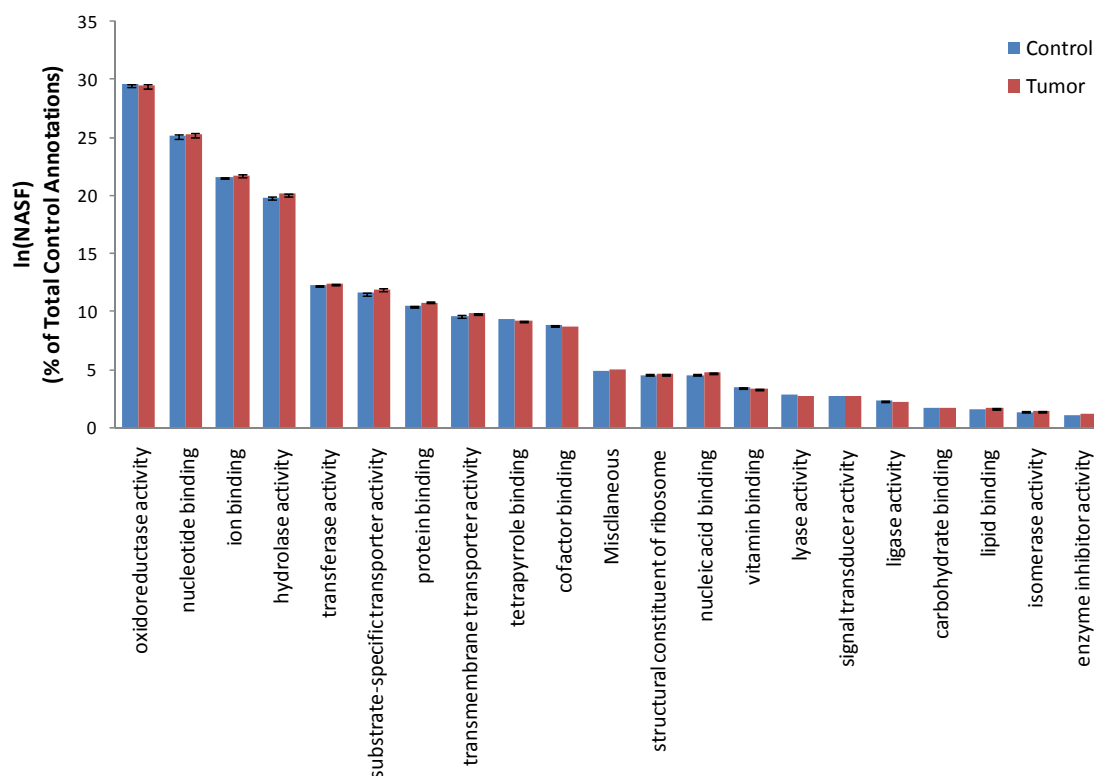


Figure 4.06: Analysis of proteins by gene ontology annotations based on molecular function. Proteins were annotated into groups based on level 3 gene ontology classifications. Percentages are calculated from the sum of all ln(NSAF) values for all the protein in each classifications in relation to the total of the controls. (*n=3, p<0.05).

Like molecular process annotations, the most abundant molecular function annotations were broken down into sub-categories. Analysis of the oxidoreductase activity (Figure 4.06a) demonstrated that monooxygenase activity decreased in abundance in tumor-bearing mice by 1.2% compared to controls. However, electron carrier activity increased in abundance in tumor-bearing mice by 0.97% compared to controls. Likewise, analysis of ion binding functions demonstrated that calcium, zinc and copper binding were all increased in tumor-bearing mice (Figure 4.06b). However, sub-categories in nucleotide binding functions demonstrated no significant changes (Appendix 3, Figure 3.2) and likewise with hydrolase

activity (Appendix 3, Figure 3.3). These results demonstrate that although some molecular functions appear to have no significant changes in abundance, subcategorizing the data helps to gain a better understanding of changes in the overall behavior of the membrane proteome.

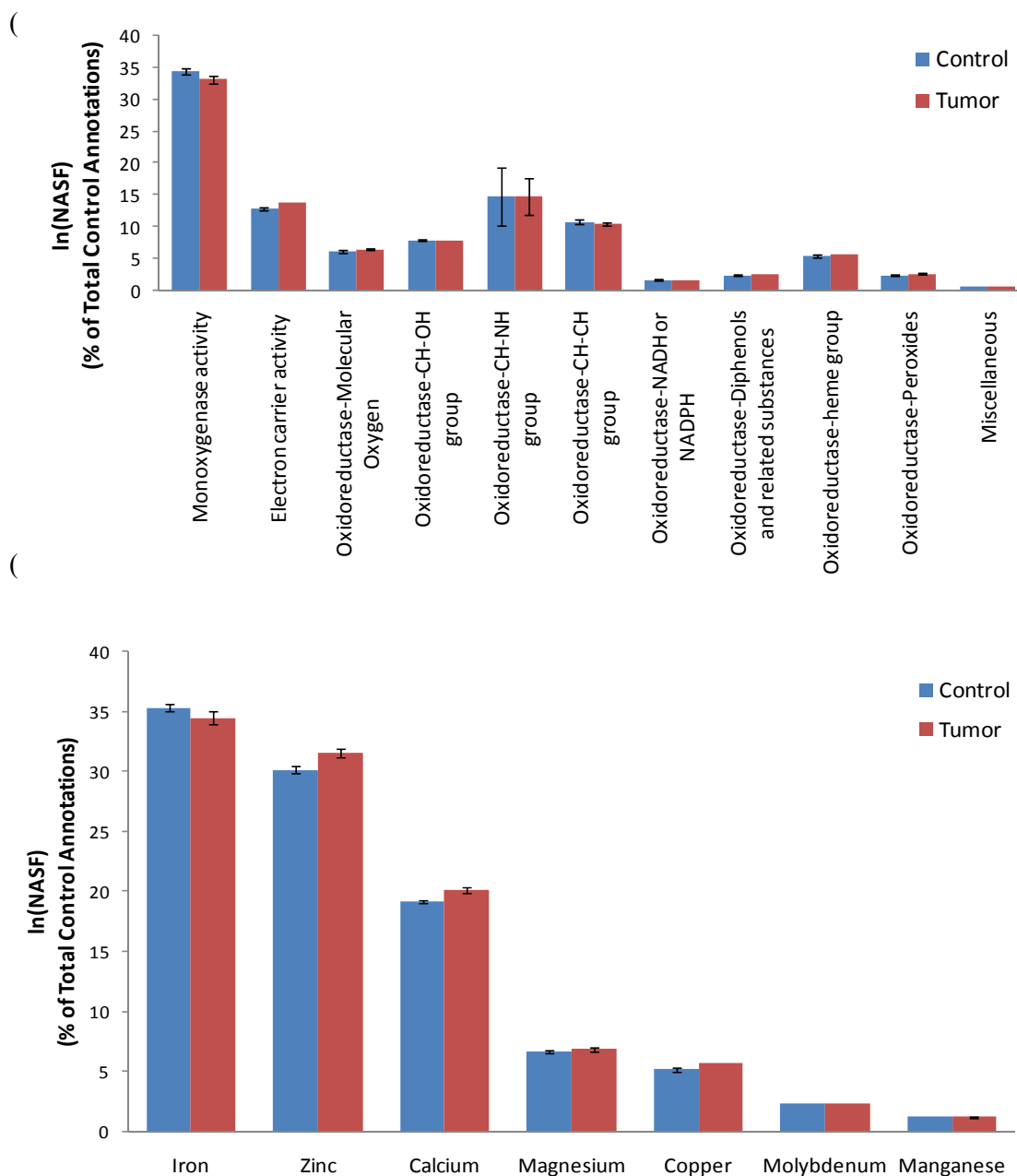


Figure 4.06: Analysis of sub-categories from the molecular function annotations of (A) oxidoreductase (Ox) function and (B) ion binding functions between control and tumor-bearing mice(*n=3, p<0.05). For oxidoreductase activity both monooxygenase activity and electron carrier activity had significant changes in abundance. Likewise, proteins with ion binding binding functions, calcium, copper and zinc binding had significant changes in abundance.

6.3.3.1 Cellular Component Annotations

Cellular component annotations were represented by only 20% of the data, suggesting that little is known about the location of the quantified proteins in these datasets. Analysis of cellular component annotations (Figure 4.07) determined that the four most abundant components all had statistically significant up-regulation in tumor-bearing mice. These cellular components included; intracellular (increase = 1.01%), intracellular part (increase = 0.83%), intracellular organelle (increase = 0.67%) and membrane-bounded organelle (increase = 0.57%). Further sub-classification of membrane-bounded organelle demonstrated that mitochondria and endoplasmic reticulum were the most dominant annotations; however, the only annotation that was statistically different was the Golgi apparatus (1% increase in tumor bearing mice) (Figure 4.08). In addition, extracellular space represented the lowest percentages, which increase in tumor-bearing mice with $0.59 \pm 0.002\%$ compared to $0.49 \pm 0.017\%$ in controls.

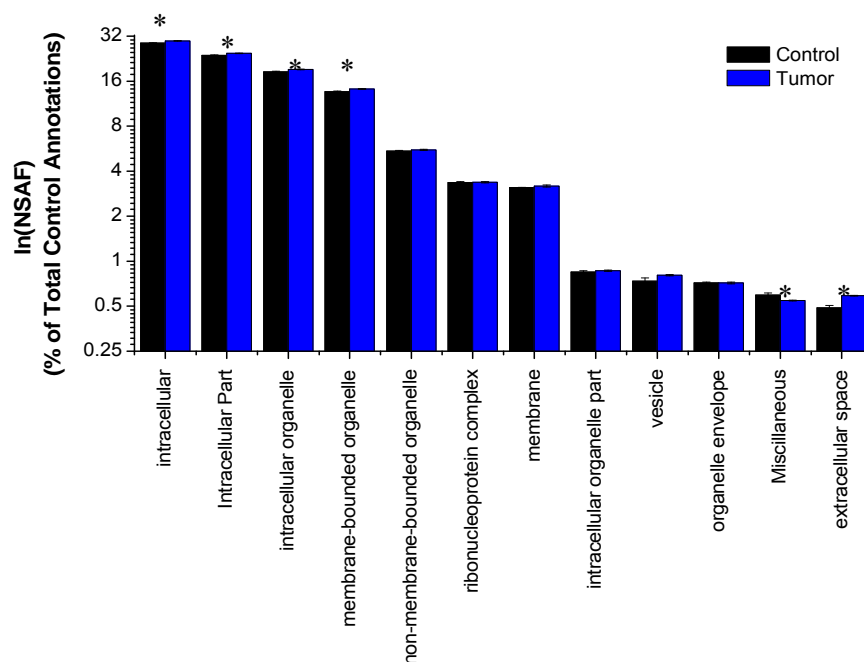


Figure 4.07: Analysis of proteins by gene ontology annotations based on cellular component. Proteins were annotated into groups based on level 3 gene ontology classifications. Percentages are calculated from the sum of all ln(NSAF) values for all the protein in each classifications in relation to the total of the controls (*n=3, p<0.05.)

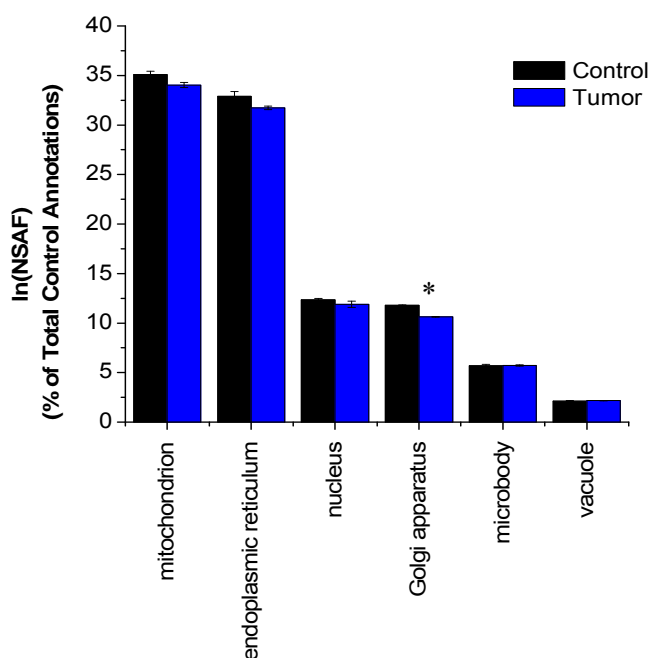


Figure 4.08: Sub-classification of membrane-bounded organelle annotations, which demonstrated that the Golgi apparatus had a significant decrease in protein abundance in the mouse liver membrane proteome (*n=3, p<0.05).

4.3.4 Transmembrane Protein Abundance

To demonstrate that transmembrane proteins from the purified mouse liver membrane proteome were quantified and differently abundant, analysis of the types of TMPs was conducted (Figure 4.09). In total, 787 predicted transmembrane proteins (TMPs) were quantified through peptide IPG-IEF shotgun proteomics and label-free quantification, including 102 TMPs (44% of all proteins that were differentially abundant due to the presence of a tumor) that had differential abundance due to the presence of the tumor. These results demonstrate that based on TMP predictions, single TMPs were the most abundant TMPs (369 proteins) and of these proteins, 62 were statistically changed in abundance ($n=3$, $p<0.05$). In addition, 110 proteins were predicted to contain two transmembrane segments of which 10 changed significantly in abundance. Analysis of proteins with greater than 10 transmembrane segments demonstrated that 61 were quantified and 9 of these had statistically significant changes in abundance. These results provide evidence for the differential expression of TMPs in mouse liver membrane proteome in relation to tumor-induced inflammation.

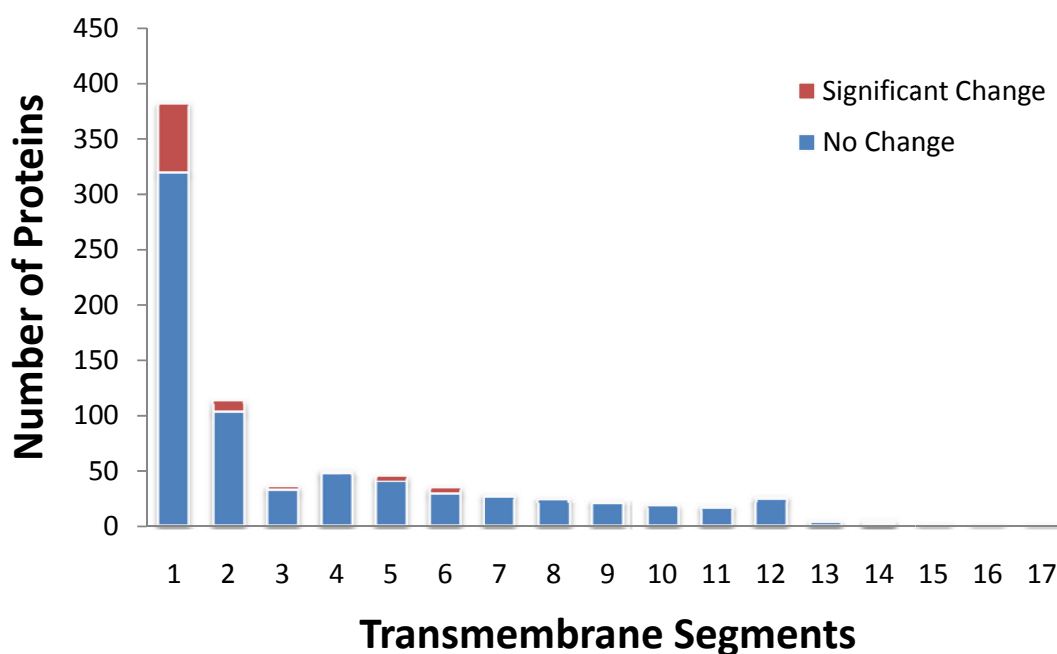


Figure 4.09: Number of quantified transmembrane proteins based on the number of transmembrane segments. Proteins that did not change significantly in abundance are presented in black and the number of proteins that changed in abundance that were statistically significant is presented in blue.

To demonstrate that the label-free quantitative shotgun proteomics method used in this study is not bias against IMPs, the abundance distribution of IMPs is presented in figure 4.10. IMPs were quantified throughout the dynamic range for the identified membrane proteome suggestive that there is no inherent bias in the quantification of IMPs from the mouse liver proteome. Furthermore, analysis of the IMPs that changed significantly demonstrated that changes in IMP abundance is not skewed toward more highly or more lower abundance IMPs.

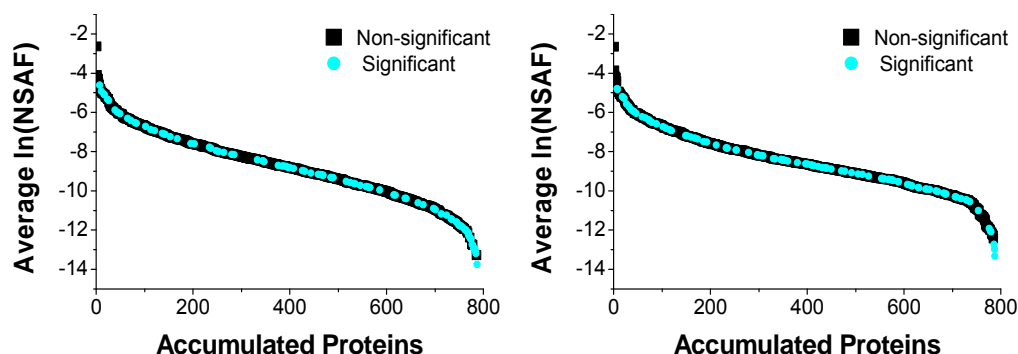


Figure 4.10: Abundance distribution of integral membrane proteins in control and tumor-bearing mice. Black squares represent proteins with non-significant change in abundance and light blue circles represent the proteins with isiginificant changes in abundance.

To provide details of TMPs of interest that changed in abundance in tumor-bearing mice, proteins representing the solute carrier family and transmembrane protein family are displayed in figure 4.11a and 4.11b. Solute carrier family 4a1 (also known as anion exchanger 1) is a 12 transmembrane segment IMP that was up-regulated in tumor-bearing mice with a 6.6 fold change. Also the Slc7a2a protein which is a low affinity cationic amino acid transporter 1 was also up-regulated in tumor-bearing mice with a 30 fold change. Alternatively, Slc7a2b (low affinity cationic amino transporter 2) was down-regulated in tumor-bearing mice with a 51 fold change. Both of these cationic amino acid transporters contain 14 transmembrane segments, providing evidence for the utility of the shotgun proteomics strategy and label-free quantification in hydrophobic transporter analysis. Slc23a1, a vitamin C transporter, demonstrated a 1.8 fold down-regulation in tumor-bearing mice. Finally, Slc31a1, Slc35e2 and Slc38a4 were up-regulated in tumor-bearing mice with 35, 12 and 2.1 fold changes in abundance, respectively. In addition, another 64 solute carrier family members were also identified and quantified through label-free shotgun proteomics.

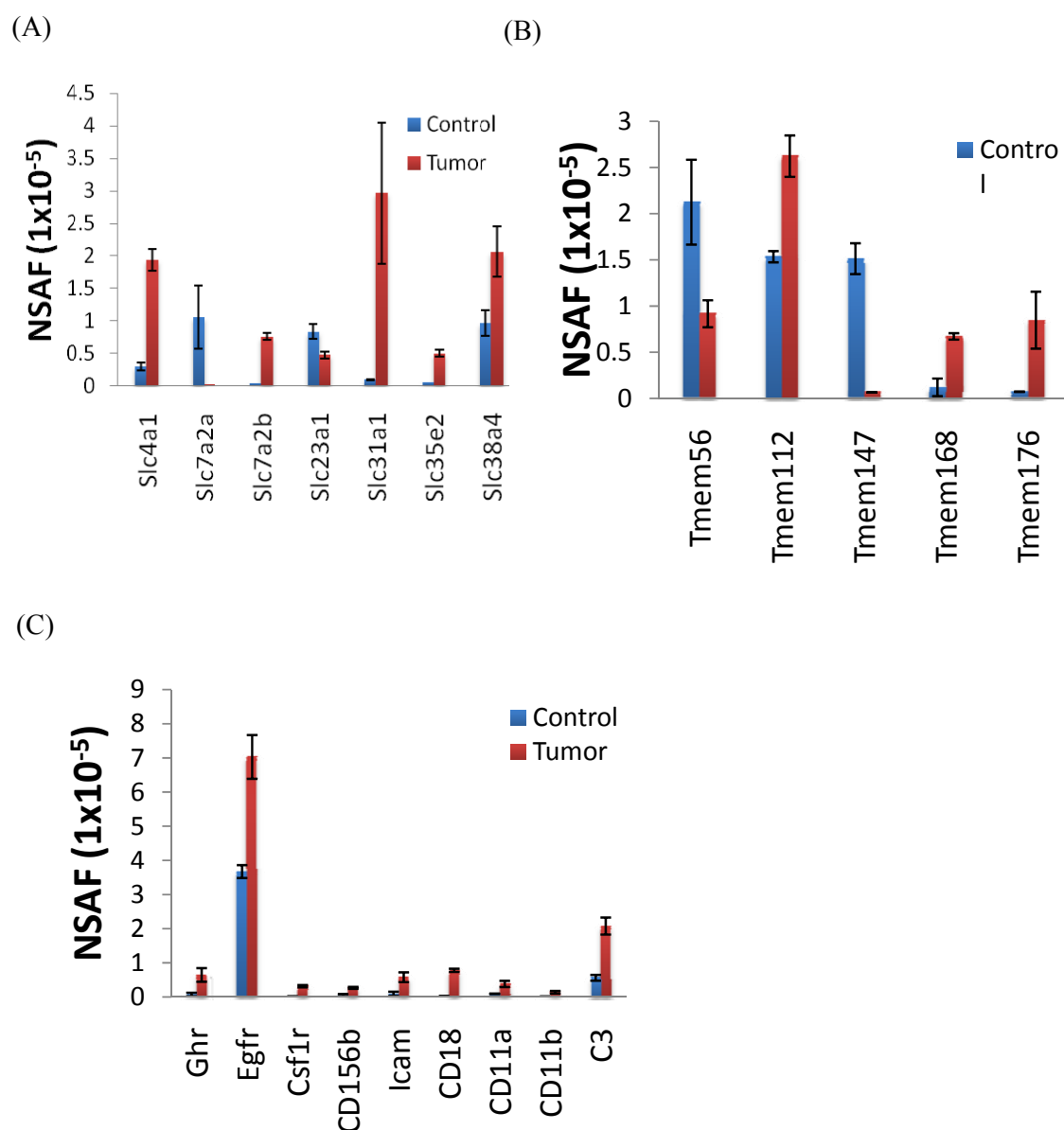


Figure 4.11: Transmembrane proteins that changed significantly in abundance between control and tumor-bearing mice. (A) Solute carrier family, (B) Transmembrane protein family and (C) Cell surface receptors (n=3, p<0.05).

A total of 35 transmembrane (Tmem) family members were also identified from the mouse liver membrane protein samples and 5 proteins were observed to have statistically significant changes in abundance. In particular, Tmem112, also known as lipase maturation factor 1 was shown to have been 1.7 fold up-regulated in tumor-bearing mice. Tmem56 and Tmem147

both demonstrated down-regulation in tumor-bearing mice with 24 fold and 2.3 fold changes in abundance, respectively. However, Tmem 146a and 168 were shown to be up-regulated in tumor-bearing mice with 12 fold and 5.7 fold changes in abundance, respectively. These results demonstrate that tumor-bearing mice have an altered abundance of largely hydrophobic multi-transmembrane proteins and therefore, suggest the potential role of these transmembrane proteins in the altered metabolic state of the liver in cancer patients.

Analysis of the liver membrane proteome found that many cell surface receptors significantly changed in abundance (Figure 4.11c). One of the most prominent cell surface receptors observed was the epidermal growth factor receptor (EGFR), which was up-regulated in tumor-bearing mice by 1.9 fold. In addition, growth hormone receptor (GHR) and colony stimulating factor 1 receptor (CSF1R) had quite large increases in abundance by 8.5 fold and 18.8 fold in tumor-bearing mice, respectively. In addition, intracellular adhesion molecule (ICAM), integrin β 2 (CD18), integrin α L (CD11a) and integrin α M (CD11b), all which are known interacting partners of each other, were up-regulated from 3.9 fold to 36.6 fold in tumor-bearing mice. Finally, complement component 3 and a disintegrin and metalloproteinase domain 17 (CD156b) were also up-regulated in tumor-bearing mice by 3.7 and 4.8 fold, respectively. These results demonstrate that in addition to large multi-transmembrane segment containing IMPs, cell surface receptors were quantified and displayed statistically significant changes in abundance due to tumor-induced inflammation.

4.4 Discussion

The aim of this study was to test whether the presence of a benign tumour and any tumor-induced inflammation that it caused had the ability to influence the abundance of membrane proteins within the liver using quantitative shotgun proteomics. Recently, tumor-induced inflammation has been recognised as a cause of altered liver metabolic function in cancer patients with the signature of elevated blood IL-6 and hepatic acute phase reactive protein^{4, 7}. Previously, liver shotgun proteomics analysis has been extensively conducted^{11, 93} and quantitative analysis has provided valuable information about the changes in the liver proteome in relation to hepatitis C-induced fibrosis¹⁵⁰. To determine the effects of tumor-induced inflammation of liver membrane proteins, this Chapter focused on the label-free quantitative shotgun proteomics using peptide IPG-IEF for the analysis of enriched membrane proteins in control and tumor-bearing (hind limb EHS sarcoma) mice.

4.4.1 Proteomic Analysis

Label-free quantitative analysis of the mouse liver membrane proteome was performed on control and tumor-bearing mice. To allow the analysis of individual proteins through Student's *t*-test statistical comparison, the overall data needs to be normal in distribution as used by Zybaylov et al¹². Shapiro-Wilk analysis of the $\ln(\text{NSAF})$ values determined that the quantified membrane proteome had a normal distribution. In addition, natural log plots of control verse tumor $\ln(\text{NSAF})$ values demonstrated that the distribution of proteins with non-significant change in abundance had an expected higher degree of linearity than proteins

with significant changes in abundance. These results therefore provide evidence for the use of statistical assessment of individual proteins within the mouse liver membrane proteome between control and tumor-bearing mice.

In total, 1,581 proteins were identified from the liver membrane proteome from the control and tumor-bearing mice, which included 230 proteins that were differentially abundant. These results are similar to studies on human liver biopsies in relation to hepatitis C virus-induced fibrosis, in which 1,641 proteins were quantified and 210 proteins were statistically different between samples using stable isotope labelling¹⁵⁰. Analysis of the mouse liver proteome between control and tumor-bearing animals demonstrated that the dynamic range of the proteome was quite broadly represented by 10 natural log orders of magnitude. On a \log_{10} scale, this dynamic range represents 5-6 orders of magnitude, higher than previous studies on mouse liver proteins¹¹. The results Chapter are focused on membrane enriched samples, which reduces the complexity of sample and therefore, contributes to a higher order of magnitude in quantification. In addition, proteins were quantified and shown to be differentially abundant throughout the dynamic range of the quantified liver membrane proteome. These results suggest the ability to quantify statistically significant differences in protein abundance is not skewed to high or low abundance proteins.

The protein Mgst1 was observed to be the most abundant liver membrane protein in both controls and tumor-bearing mice with an average of ~1,100 peptide counts. The least abundant proteins identified varied between control and tumor-bearing mice which were sialoadhesin and collagen alpha-2(XI) chain, respectively. Large changes in relative abundance were observed for proteins such as Cyp4a14 which was high in control mice but almost the least abundant in tumor-bearing mice. The opposite change was observed for Ndufs3, where low abundance was observed in controls but high abundance in the tumor-bearing mice. These results provided evidence for the dynamic shift in abundance of some

proteins in relation to tumor-induced inflammation and these changes are observed in a rather large dynamic range of the liver membrane proteome.

4.4.2 Gene Ontology Annotations

To provide an detailed understanding of the changes in abundance of different cellular processes within the membrane proteome, gene ontology analysis determined that many molecular processes had changes in abundance. Primary metabolic processes were the most common annotation of the membrane proteome and were observed to increase by 0.6% in tumor-bearing mice compared to controls. Although, this percent change may seem small, the implications of this change are prominent because the percentage represents changes in a large number (52) of proteins. Proteins involved in response to different stimuli, which included biotic, abiotic, external and stress, were all shown to be up-regulated in tumor-bearing mice, including fibrinogen α , β , γ , and complement component 3.

Additional analysis of proteins from the two largest groups, primary metabolic analysis and transport process, provided additional information on changes in abundance in sub-groups of proteins within the mouse liver membrane proteome. Within primary metabolic processes, both protein and nucleic metabolism had observed decreases in accumulated protein abundance; however, similar analysis on transport processes demonstrated no significant changes in abundance.

Gene ontology annotations based on molecular function demonstrated that protein binding, enzyme inhibitor activity and lipid binding were observed to be more abundant in tumor-bearing mice compared to controls. In this study, approximately 50% of all the function based annotations were from nucleotide binding, oxidoreductase acitivity, hydrolase activity

and ion binding functions. Breaking down each of these categories into sub-classes, provided further information in which categories within oxidoreductase and ion binding demonstrated significant changes in abundance. Monooxygenase activity was observed to be down-regulated in tumor-bearing mice, which is in line with results in later parts of this thesis (Chapter 5.2) where cytochrome p450s known to be monooxygenases demonstrated decreases in abundance in tumor-bearing mice. Similarly, the observed increase in abundance of electron carrier activity of oxidoreductases is in line with individual protein analysis demonstrating the increase in abundance of Complex I electron transport chain proteins (see Chapter 5.2). Similar analysis of ion binding proteins, demonstrated that calcium, zinc and copper binding proteins were collectively up-regulated in tumor-bearing mice.

Unlike molecular processes and functions, cellular component annotation was quite low with only 20% of the proteins being annotated; suggesting that little information is available on membrane protein localisation. Approximately, 85% of the control and 88% of tumor-bearing mice cellular component annotations were derived from four main classifications, which included intracellular, intracellular part, intracellular organelle and membrane-bounded organelle. Membrane-bounded organelle annotations were sub-categorised based on organelle, which determined that only the Golgi apparatus had a significant change in abundance, which was observed to be down-regulated in tumor-bearing mice.

4.4.3 Integral Membrane Protein Analysis

Analysis of the IMPs that changed in abundance between control and tumor-bearing mice demonstrated that many transmembrane segment containing IMPs had significant changes in

abundance. In total, 787 transmembrane proteins were quantified, of which 102 transmembrane proteins changed in abundance, ranging from proteins with single transmembrane segments through to as many as 16 transmembrane segments. These results provide compelling evidence that IMP identification, quantification and analysis of differential abundance of IMPs is achievable using label-free quantitative shotgun proteomics, similar to previous studies¹². The ability to analyse IMPs using quantitative shotgun proteomics has been demonstrated in previous publications^{11, 12, 150}; however, the use of a membrane enrichment strategy has further enhanced the analysis of IMPs in a quantitative methodology in this study. In addition, the quantitative analysis of IMPs was not biased, as demonstrated by the detection and quantification of IMPs throughout the dynamic range of the proteome. Furthermore, the IMPs with significant changes in abundance were not clustered to high or low abundance proteins suggesting that high numbers of detected peptides from individual proteins are not required to obtain reliable assessment of changes in protein abundance.

Transmembrane proteins with multi-transmembrane segments were quantified and demonstrated statistically significant changes in abundance. In this study, members of the solute carrier family and transmembrane protein families demonstrated changes in abundance due to tumor-induced inflammation. These proteins represent previously unreported changes in protein abundance within the liver membrane proteome in relation to tumor-induced inflammation. For example, the Slc4a1 protein is an anion exchanger found abundantly in red blood cells¹⁵² but it has not been reported in relation to differential abundance in the liver. Interestingly, Slc7a2a and 7a2b are low affinity cationic amino acid transporters, which demonstrated opposite changes in abundance. Slc7a2a is mostly abundant within the liver; however, Slc7a2b has been observed to increase in abundance upon stimulation with cytokines^{153, 154} and endotoxin treatment¹⁵⁵⁻¹⁵⁷, suggesting Slc7a2b is responsive to inflammation reactions. In addition, Slc38a4 is a sodium/neutral amino acid

transporter, which in this study was shown to be induced in tumor-bearing mice and has been shown to be expressed highly in the perivenous hepatocytes of rodent livers^{158, 159}.

Proteins of the transmembrane family were also quantified and demonstrated significant changes in abundance; however not much is known about their functions. Recently, Tmem112 has been characterised at the genome level and is also known as lipase maturation factor 1, which is important protein involved in hypertriglyceridemia¹⁶⁰. These results provide novel candidate proteins that have changed in abundance within the mouse liver membrane proteome in tumor-bearing mice and therefore, are potentially linked to the altered metabolic state of the liver observed in cancer patients.

Cell surface receptors were also investigated for changes in abundance in tumor-bearing mice since previous studies have shown elevated levels of IL-6 in cancer and it is known that this cytokine instigates pro-inflammatory signal transduction pathways through these types of receptors. For example, liver EGFR abundance increased in tumor-bearing mice and it is well established that EGFR expression is induced by IL-6¹⁶¹ and at the transcript level by lipopolysaccharide-induced inflammation¹⁶². Macrophage colon stimulating factor 1 receptor has also been shown in mouse models to play an important role in chronic inflammatory diseases such as arthritis¹⁶³ and atherosclerosis¹⁶⁴. CSF1R was shown to have an increased abundance in tumor bearing mice and this is consistent with elevated CSF1R gene expression data from LPS-induced inflammation in the mouse liver¹⁶². Cell adhesion molecules, notably component-3 receptor (CD11b/CD18) and ICAM-1 have been shown to be expressed on the surface of Kupffer cells¹⁶⁵. These cell adhesion molecules are involved in Kupffer cell interactions with C3-opsonised erythrocytes and are also involved in leukocyte interactions^{165, 166}. In this study, CD11b, CD18 and ICAM-1 were all shown to be significantly increased in tumor-bearing mice. ICAM-1 increased protein abundance due to tumor-induced inflammation is consistent with gene expression profiles of LPS-induced

inflammation in mouse liver¹⁶². In addition, C3 was increased in abundance in tumor-bearing mice, which is a target protein of the component-3 receptor (Cd11b/CD18). These results provide evidence for the association between tumor-induced inflammation and the abundance of cell surface receptors in the mouse liver.

4.4.4 Conclusion

In summary, this study demonstrates the label-free quantitative shotgun proteomics analysis of tumor-induced inflammation on the mouse liver membrane proteome. Label-free quantitative shotgun proteomics provided the identification and quantification of a large dynamic range of proteins, representing 10 natural log orders of magnitude. Tumor-induced inflammation was observed to influence the abundance of various different molecular processes, functions and cellular component, including; primary molecular processes, protein binding functions and membrane-bounded organelle components. Analysis of the transmembrane protein component of the membrane proteome demonstrated that a large number of IMPs had significantly changed abundance levels, which included many large hydrophobic multi-transmembrane proteins and cell surface receptors. These results provide compelling evidence for the influence of tumor-induced inflammation on the abundance of membrane proteins within mouse livers.

Chapter 5: Affects of Tumor-Induced Inflammation on Biochemical Pathways in the Mouse Liver

5.1 Introduction

Tumor-induced inflammation has been associated with lack of safety of chemotherapeutic agents in patients with solid tumors. This type of inflammation is associated with increased levels of IL-6, serum amyloid protein P and hepatic expression of C-reactive protein^{4, 105}. Furthermore, the tumor-induced inflammation has been shown to influence gene expression and protein abundance of some proteins. In all, the number of proteins in liver thus far which have shown altered abundance in relation to tumor-induced inflammation is only small, and therefore this important biological study requires further investigation.

Initial studies have shown changes in abundance of proteins involved in xenobiotic metabolism and clearance. In particular, human cytochrome p450 3a4 has been implicated in the altered clearance of anti-cancer agents and has been shown to have reduced gene expression and protein abundance in tumor-bearing mice^{4, 105}. Studies in mice have demonstrated that mouse Cyp3a11 (mouse homologue of human Cyp3a4), has altered gene expression and protein abundance in association with tumor-induced inflammation from breast, melanoma and EHS sarcoma tumors⁴. However, protein analysis of cytochrome p450 3a11 was achieved using 3a family specific antibodies that are not isoform specific. Furthermore, transgenic mice containing human Cyp3a4 demonstrated reduced gene expression and protein abundance in relation to tumor-induced inflammation⁴.

Drug transporters have also been shown to have altered gene expression and protein abundance in tumor-bearing mice⁵. ABC transporters C2 and C3 have been shown through transcript analysis and Western blot analysis to have decreased levels of abundance in mice livers in association with the presence of a hind limb EHS sarcoma⁵. Furthermore, at the transcript level, Ntcp (Slc10a1), OATp2, OATpc, Bsep, ABCG2, Mdr2 and Bcrp have all

been shown to have reduced gene expression levels in tumor-bearing mice⁵. These results support the finding that tumor-induced inflammation in mice studies, provides details of the underlying molecular processes in the reduced clearance of xenobiotics seen in cancer patients.

In Chapter 4, we demonstrated the application of label-free quantitative shotgun proteomics of the mouse liver membrane proteome in relation to tumor-induced inflammation. In particular, collective analysis of proteins based on the molecular processes to which they are involved in, their molecular functions and their cellular locations, provided interesting information of altered abundance of proteins based of cellular classifications. For example, collectively, proteins involved in primary metabolic processes, in particular protein and nucleic acid metabolism, had altered abundance due to tumor-induced inflammation. Knowing how tumor-induced inflammation affects the global profile of the mouse liver membrane proteome, it was of interest to investigate how tumor-induced inflammation influences the abundance of individual proteins.

The aim of this Chapter is to provide detailed analysis of individual proteins that have changed in abundance in tumor-bearing mice as determined through label-free shotgun proteomics of the mouse liver membrane proteome. Initial analysis of the data found that many of the proteins that have changed in abundance included proteins from the same biochemical pathways or protein complexes not described in the gene ontology analysis in Chapter 4. Proteins from fatty acid metabolism pathways were quantified and many demonstrating altered protein abundance in tumor-bearing mice. Similarly, proteins involved in cholesterol biosynthesis, xenobiotic metabolism and clearance, oxidative phosphorylation and protein glycosylation, all demonstrated altered protein abundance in tumor-bearing mice.

5.2 Methods

5.2.1 Sample Preparation

Eight- to ten-week-old C57BL/6 male mice (Concord RG Hospital, Australia) were aseptically inoculated with either 0.3 ml suspension of Englebreth-Holm-Swarm (EHS) sarcoma into the right quadriceps muscle, suspended in 0.3 ml of PBS subcutaneously into the right flank. Control animals were inoculated with the vehicle alone. Tumor mass reached ~3g or 10% of the total body weight of the mouse over 17-21 days. Mice were then euthanised, perfused with saline solution (PBS) and livers harvested.

Mouse liver tissue (1.5 g) was then homogenised in 10 mM HEPES buffer (pH 7.8) supplemented with 2 mM NaCl, 10 mM NaOH, 500 mM EDTA and protease inhibitors (3 mg antipain-dihydrochloride, 0.5 mg aprotinin, 0.5 mg bestatin, 1 mg chymostatin, 3 mg E-64, 10 mg EDTA-Na₂, 0.5 mg leupeptin, 20 mg pepabloc SC, 0.5 mg pepstatin, 3 mg phosphoramidon) (Roche Diagnostics, Switzerland) using an Omni TH homogeniser (Omni International Inc., VA, USA). The homogenised tissue was then centrifuged at 13,000 *g* for 15 min at room temperature (RT).

Membrane proteins were isolated using a modified sodium carbonate stripping method^{32, 37}. Briefly, the supernatant was collected and diluted to a final volume of 40 mL in 0.1 M sodium carbonate (pH 11) then incubated for 1 h rotating at 4°C. The carbonate-treated membranes were sedimented by ultracentrifugation at 120,000 *x g* for 1 h at 4°C. The supernatant was removed and the membrane pellet was washed once with 0.1 M sodium carbonate (pH 11) and resuspended in 10 mM ammonium bicarbonate (NH₄HCO₃, pH 7.8). Sample was then transferred to a 20 mL glass scintillation vial and pulse sonicated using a Branson 450 Sonifier (Branson, Danbury, USA) using 2 second bursts for 15 intervals on ice. The sonicated sample was then reduced with 10 mM dithiothreitol for 1 h at 37°C and subsequently alkylated with 55 mM iodoacetamide at RT for 30 min. Protein quantification

was conducted by Bradford Assay (Sigma-Aldrich, MO, USA). Trypsin digestion was carried out in the presence of 60% (v/v) methanol in 10mM ammonium bicarbonate (pH 7.8) for approximately 8 hours at 37°C. All digested samples were evaporated to dryness in a vacuum centrifuge and resuspended in 250 µL of 8 M urea supplemented with a trace of bromophenol blue.

5.2.2 Peptide IPG-IEF

Digested proteins (1 mg) in 8M urea were used to passively rehydrate either a linear pH 3-10 for 6 hrs at room temperature in triplicate. Isoelectric focusing was conducted on an IPGphorII (GE Healthcare) with a current limit of 50 µA per strip on a 3-10 linear IPG strip at 20°C with the following focusing program; 300 V for 1 h, a gradient to 1000 V for 1 h, a gradient to 4000 V for 3 h, a gradient to 8000 V for 3 h and 8000 V until 100 kVh was reached. The IPG strips were treated differently for their respective µA limits so that both IPG strips would have 8000 volts as their maximum volt step. The strips were then cut (with plastic backing still in place) with a scalpel blade into 24 equal length pieces. Peptides were extracted from each fraction by incubation in 100µL of 0.1% (v/v) formic acid for 1 h at RT. The extraction was repeated twice and subsequently combined with the initial fractions. Combined peptide extracts were desalted using C18 tips (Omix, Varian Incorporated) and the eluate dried using a vacuum centrifuge followed by resuspension in 0.1% (v/v) formic acid in preparation for nanoLC-MS/MS.

5.2.3 Nanoflow liquid Chromatography – Tandem Mass Spectrometry

Each of the 24 fractions from the triplicate BR and NR IPG-IEF experiments were analysed by nanoLC-MS/MS using a LTQ-XL ion-trap mass spectrometer (Thermo, CA,

USA) according to Breci *et al*¹²⁸. Reversed phase columns were packed in-house to approximately 7 cm (100 μ m i.d.) using 100 Å, 5 mM Zorbax C18 resin (Agilent Technologies, CA, USA) in a fused silica capillary with an integrated electrospray tip. A 1.8 kV electrospray voltage was applied via a liquid junction up-stream of the C18 column. Samples were injected onto the C18 column using a Surveyor autosampler (Thermo, CA, USA). Each sample was loaded onto the C18 column followed by initial wash step with buffer A (5% (v/v) ACN, 0.1% (v/v) formic acid) for 10 min at 1 μ L min⁻¹. Peptides were subsequently eluted from the C18 column with 0% - 50% Buffer B (95% (v/v) ACN, 0.1% (v/v) formic acid) over 58 min at 500 nL min⁻¹ followed by 50-95% Buffer B over 5 min at 500 nL min⁻¹. The column eluate was directed into a nanospray ionisation source of the mass spectrometer. Spectra were scanned over the range 400–1500 amu. Automated peak recognition, dynamic exclusion, and tandem MS of the top six most intense precursor ions at 35% normalised collision energy were performed using the Xcalibur software (Thermo, CA, USA).

5.2.4 Protein and Peptide Identification

Raw files were converted to mzXML format and processed through the global proteome machine (GPM) software using version 2.1.1 of the X!Tandem algorithm, freely available from www.thegpm.org^{129, 130}. For each experiment, the 24 fractions were processed sequentially with output files for each individual fraction and a merged, non-redundant output file was generated for protein identifications with Log(e) values less than -1. Peptide identification was determined using a 0.4 Da parent and fragment ion tolerance. Carbamidomethyl was considered as a complete modification and partial modifications were also considered, which included oxidation of methionine and threonine; and deamidation of asparagine and glutamine. MS/MS spectra were searched against the *Mus Musculus* database

(Database derived from SwissProt, Ensemble and NCBI) and reverse database searching was used for estimating false discovery rates¹³¹. For analysis of total protein identifications, proteins were further validated using a 1% false discovery rate by searching the MS spectra against a reverse database and applying the following formula; protein FDR = reverse/(reverse + forward)*100.

Transmembrane segment annotation of the identified proteins was determined using the TransMembrane Hidden Markov Model (TMHMM, <http://www.cbs.dtu.dk/services/TMHMM-2.0/>)^{61, 132, 146}. Gene ontology analysis was conducted on quantified proteins using the Blast-2-go annotation software (www.blast2go.org).

5.2.4 Calculation of Normalised Spectral Abundance Factors

Normalised spectral abundance factors were calculated according to Zybaylov et al., 2006 using the following formula:

$$\text{NSAF} = (\text{Spc}/L) / \sum (\text{Spc}/L)$$

Where, Spc refers to spectral count (number of non-redundant peptide identifications for a given protein), L is the length of the protein. Protein identifications were only included in NSAF data analysis if a given protein was identified in each of the triplicate experiments from either BR or NR IPG strips. The reduced protein list was then adjusted with a fraction of a spectral count to allow the incorporation of proteins with zero spectral counts for statistical analysis. An optimal adjustment factor was determined through fitting the natural log of the NSAF values to a Gaussian curve, assessed by computing both R² values and

applying a Shapiro-Wilk test. To satisfy the Shapiro-Wilk test, a W value greater than 0.05 was required.

5.2.5 Statistical Analysis

Statistical analysis was conducted with Microsoft Excel using a Student's *t*-test with equal sample sizes and $P < 0.05$ for assignment of statistical confidence. Origin8 software package was used for assessing Gaussian distribution of data for label free quantitation by computing both R^2 values and a Shapiro-Wilk test.

5.3 Results

Tumor-induced inflammation in mouse models has been previously shown to increase blood levels of IL-6, therefore, it was of interest to demonstrate the identification and quantification of the IL-6 receptor. In this study, IL-6 receptor beta (IL-6R β) had low level abundance in both control and tumor-bearing mice with no observable change in abundance (Figure 5.01). However, IL-6R α , also required for IL-6 mediated signal transduction was not detected from the mouse samples. These results provide some evidence to suggest that IL-6 signal transduction pathways are active in the mouse liver in control and tumor-bearing mice.

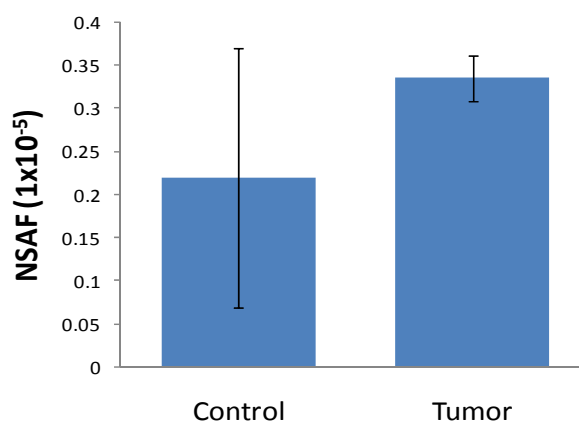


Figure 5.01: IL-6Rb quantification from the mouse liver membrane proteome in control and tumor-bearing mice with low relative abundance of 0.24×10^{-5} and 0.36×10^{-5} , respectively.

5.3.1 Fatty Acid Metabolism

Analysis of the proteins which changed in abundance demonstrated that many proteins were part of the fatty acid degradation pathway. Firstly, to demonstrate that the importation

of fatty acids through the plasma membrane into the cells is a viable process in both control and tumor-bearing mice, analysis of proteins involved in fatty acid uptake was conducted (Figure 5.02). In this study, CD36, a known scavenger receptor for fatty acids was detected at low abundance in control and tumor-bearing mice (NSAF = 5×10^{-5}). Analysis of the solute carrier family 27 fatty acid transporters demonstrated that Slc27a2 and Slc27a5 were moderately abundant in the mouse samples with average NSAF values of 43×10^{-5} and 21×10^{-5} for control and tumor-bearing mice, respectively. Slc27a4 was also detected in the mouse samples but at low levels of 2.7×10^{-5} and 1.4×10^{-5} in control and tumor-bearing mice, respectively. In addition, long acyl CoA synthetases (LACS) 1 and 5 were of moderate abundance in the mouse samples with LACS1 demonstrating decreased abundance in tumor-bearing mice ($n=3$, $p<0.5$). Furthermore, LACS3 was also detected but at much lower levels compared to isoforms 1 (55 fold lower in controls, 18 fold lower in tumor-bearing mice) and 5 (29 fold lower in controls and 17 fold lower in tumor-bearing mice).

Analysis of intracellular processing of fatty acids also detected the presence of fatty acid transport proteins that are localised to the cytosol, peroxisomes and mitochondria. Liver specific fatty acid binding protein (FABP1) and epidermal specific fatty acid binding proteins (E-FABP) were detected with FABP1 being the most dominant protein with approximately 29×10^{-5} . In addition, E-FABP was shown to be up-regulated in tumor-bearing mice with a 13.9 fold change ($n=3$, $p<0.05$). Peroxisomal fatty acid transporter, ABCD3, was detected at moderate levels within the mouse liver samples and in addition, ABCD1 and ABCD4 were also detected but at much lower levels. Furthermore, mitochondrial fatty acid transporters were also detected with the most abundant transporters being Slc25a20 and Cpt1a, whilst Cpt2 was at much lower levels of abundance. This data provides evidence for a functional fatty acid importation pathway through the plasma membrane and into the peroxisomes and mitochondria of liver cells.

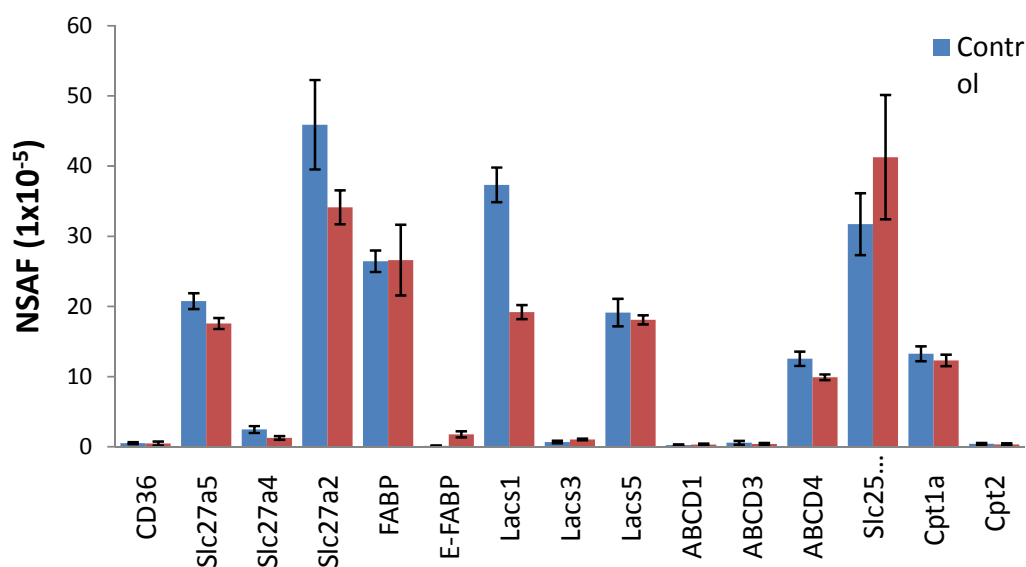


Figure 5.02: Quantitative analysis of proteins involved in fatty acid importation into the cell and proteins involved in the transportation of the fatty acids into the mitochondrial and peroxisomes. Cell surface proteins included; CD36; solute carrier family members 2, 4; liver-specific (FABP1) and endothelial-specific (E-FABP) fatty acid binding proteins; and acyl CoA synthase long chain (LACS) enzymes 1, 3, 5. Peroxisomal transporters, included; ATP-binding cassette family, D1, D3, and D4. Mitochondrial transporters, included; solute carrier family 25 member 25 and carnitine palmitoyltransferases 1a and 2. (* $p < 0.05$, $n = 3$)

Further analysis of fatty acid enzymes demonstrated that a subset had significant changes in abundance and were localised to the peroxisomes and mitochondrial (Figure 5.03). Acetyl-CoA acetyltransferase (Acaa) 1B and Ehhadh (enoyl-CoA, hydratase/3-hydroxyacyl-CoA dehydrogenase) both localised to the peroxisomes were down-regulated in tumor-bearing mice by 5.7 fold and 2.8 fold, respectively. Acetyl-CoA acetyltransferase 2, acyl-CoA dehydrogenase medium chain (Acadm) and acyl-CoA dehydrogenase short/branched chain that are all involved in mitochondrial fatty acid degradation were down-regulated in tumor-bearing mice by 1.8, 3.1 and 10.8 fold, respectively. In addition, β -ketothiolase (Hadhb) also a mitochondrial localised fatty acid degradation enzyme was down-regulated by 2.4 fold in tumor-bearing mice. Furthermore, Acaa1b, Acaa2 and Ehhadh are the most

abundant fatty acid degradation enzymes, suggesting that a reduction in these enzymes should impair the ability of the liver to degrade fatty acids.

To further support the observations of reduced fatty acid metabolism, analysis of ω -oxidation enzymes involved in the metabolism of unsaturated fatty acids also found a down-regulation of these enzymes in tumor-bearing mice. In addition, propionyl-CoA carboxylase α (Pcca) was down-regulated by 15.3 fold in tumor-bearing mice; however, propionyl-CoA carboxylase β (Pccb) was up-regulated by 9 fold in tumor-bearing mice. Furthermore, Elongation of long chain fatty acids member 6 (Elovl6) demonstrated a down-regulation of abundance in tumor-bearing mice by almost 10 fold. These results provide evidence for the down-regulation of fatty acid metabolism through the down-regulation of β -oxidation and ω -oxidation enzymes in tumor-bearing mice in the presence of an active fatty acid importation pathway.

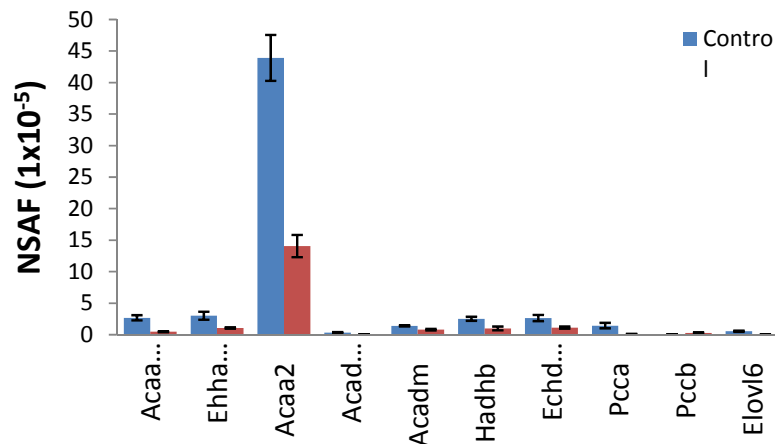


Figure 5.03: Fatty acid degradation enzymes that were observed to have significant changes in abundance. Peroxisomal proteins, acetyl-CoA acetyltransferase (Acaa) 1b and enoyl-Coenzyme A, hydratase/3-hydroxyacyl Coenzyme A dehydrogenase were significantly down-regulated. Mitochondrial fatty acid degradation enzymes were also down-regulated in tumor-bearing mice, including; Acaa2, acyl-CoA dehydrogenase short/branch chain, acyl-CoA dehydrogenase medium chain, b-ketothiolase b-subunit, enoyl Coenzyme A hydratase domain containing 2, propionyl-CoA carboxylase α (Pcca). Propionyl-CoA carboxylase β (Pccb) was up-regulated in tumor-bearing mice. Elongation of very long chain fatty acids protein 6 (Elovl6) was also down regulated in tumor-bearing mice. (n=3, p<0.05).

Microsomal triglyceride transfer protein (Mttp, 1.4 fold) was shown to be down-regulated in tumor-bearing mice; however, protein disulfide isomerase enzymes A3 (1.5 fold), A4 (4.5 fold), and A6 (8.3 fold), known to interact with Mttp were up-regulated in tumor-bearing mice (Figure 4.05). Apolipoproteins A1 (ApoA1), A2 (ApoA2) and A5 (ApoA5), proteins involved in the transport of cholesterol and fatty acids back to the liver, were all quantified in this study. Interestingly, ApoA1 was shown to be up-regulated in tumor-bearing mice by 4.2 fold. In addition, ApoE, ApoO and ApoO-like were the most abundant apolipoproteins within the mouse liver; however, showed no observed differences in abundance in relation to tumor-induced inflammation. Furthermore, Low-density lipoprotein receptor (Ldlr1) and related protein 1 (Lrp1) were both detected in the mouse liver samples with Lrp1 demonstrating an up-regulation in tumor-bearing mice. These results provide evidence that pathways for the up-take of cholesterol and triglycerides in the liver are present.

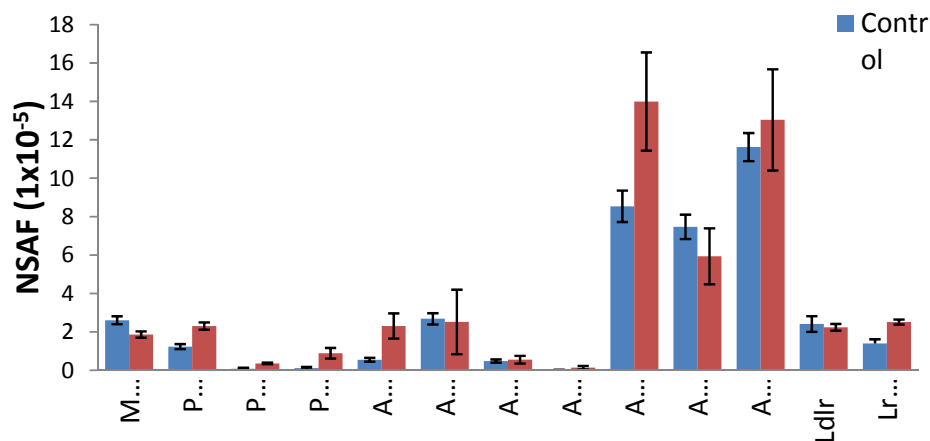


Figure 4.05: Analysis of proteins involved in triglyceride and cholesterol up-take in the liver demonstrated the quantification of Mttp, Pdia3, Pdia4, and Pdia6, involved in apolipoprotein secretion. In addition, apolipoproteins involved in the transportation of cholesterol and triglycerides to the liver were also detected including, A1, A2, A5, B, E, O and O-like. Low-density lipoprotein receptor (Ldlr) and associated protein (Lrp1) were also detected in the mouse liver membrane samples. (*n=3, p<0.05).

After demonstrating initial evidence suggesting that mice under tumor-induced inflammation are increasing the production of some apolipoproteins, it was of interest to investigate cholesterol biosynthesis pathways. In this study, enzymes involved in cholesterol biosynthesis (Figure 4.06) increased in abundance in tumor-bearing mice, including; squalene epoxidase (4.27 fold), NAD(P) steroid dehydrogenase-like (1.39 fold), farnesyl diphosphate synthetase (1.95 fold) and farnesyl diphosphate farnesyl transferase (4.66 fold). Translocator protein, which is involved in the rate limiting step of cholesterol biosynthesis, was significantly increased in tumor-bearing mice with a fold change of 1.38, suggesting that the liver under tumor-induced inflammation has the capability of synthesizing cholesterol. Furthermore, steroid reductase enzymes, 7 and 24 dehydrocholesterol reductase were also detected in the mouse liver samples. Finally, results also demonstrated the detection of the cholesterol efflux transporters, ABCA1, 2, 3, and 6; however at low level abundance. These results provide evidence that tumor-induced inflammation results in the increased abundance of cholesterol biosynthesis enzymes, which may serve to increase bile acid production.

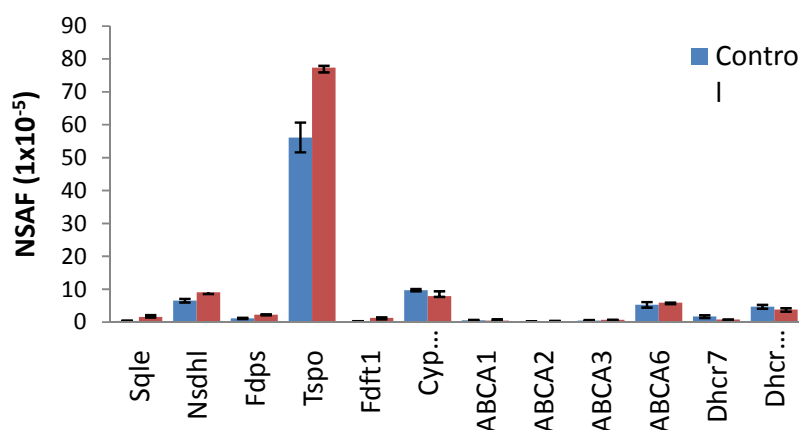


Figure 4.06: Cholesterol biosynthesis enzymes detected from the mouse liver membrane samples. Cholesterol synthesis enzymes were observed to be up-regulated in tumor-bearing mice, which included; squalene epoxidase, NAD(P) steroid dehydrogenase-like, farnesyl diphosphate synthetase, translocator protein and farnesyl diphosphate farnesyl transferase 1. Cholesterol synthesis enzymes, Cyp27a1, 7-dehydrocholesterol reductase, 24-dehydrocholesterol reductase and the cholesterol transporters, ABCA1, ABCA3, and ABCA6 were also quantified. (*n=3, p<0.05).

5.3.2 Xenobiotic Metabolism and Transportation

Previous studies have demonstrated the reduced metabolism and clearance of xenobiotic compounds in cancer patients and animal models^{4, 105}. It was therefore of interest to investigate enzymes involved in phase I and phase II xenobiotic metabolism, including; cytochrome p450, UDP-glucuronide transferases and glutathione S-transferases. In total, 46 different Cyp isoforms were quantified in this study in which 29 of these enzymes involved in xenobiotic metabolism are presented in figure 5.07. Cyp1a family was represented by three isoforms, which all demonstrated statistically significant decreases in abundance between 1.25-1.77 fold changes. Cypb family was represented by 2b9 and 2b10, which both demonstrated decreased abundance in tumor-bearing mice; however these decreases are not statistically significant. The largest family of Cyp enzymes was the Cyp2C family having quantified 12 of these proteins but none of these enzymes changed significantly in abundance. In addition, Cyp2d, 2j and 3a families were also represented by 4, 3 and 5 proteins, respectively, with none of these proteins having changes in abundance. It was also of interest to determine the abundance of Cyp3a11 and 3a13 that are the mouse equivalents of human 3a5 and 3a4, respectively, which perform a central role in xenobiotic metabolism. In this study, cyp3a11 was the most abundant 3a enzyme, whereas 3a13 was more moderately abundant. These results clearly demonstrate the ability to quantify a large number of cytochrome p450 phase I xenobiotic metabolism enzymes and have provided descriptive analysis of changes in abundance in some of the enzymes due to tumor-induced inflammation.

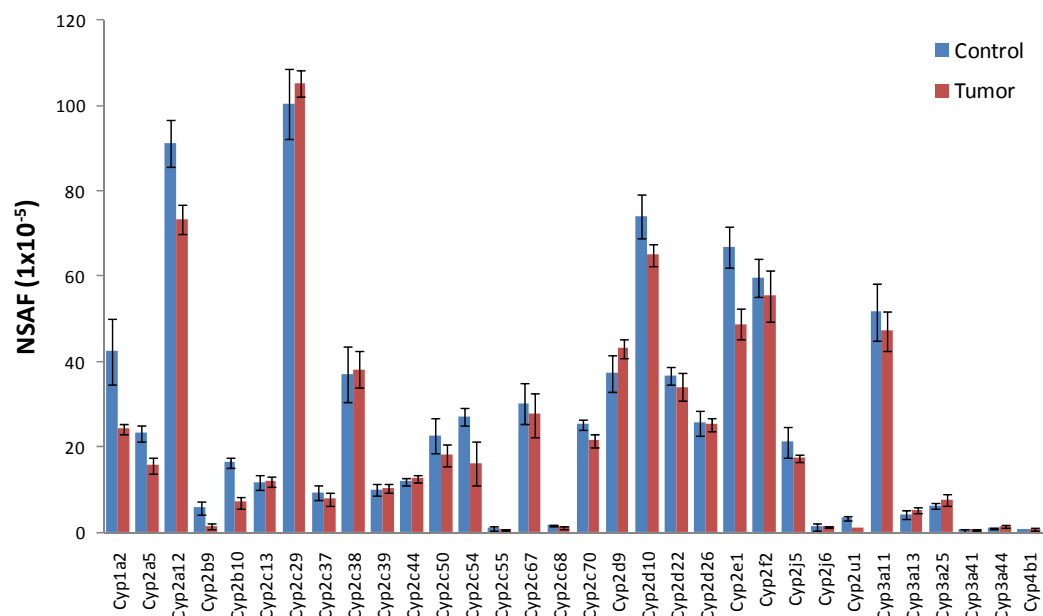
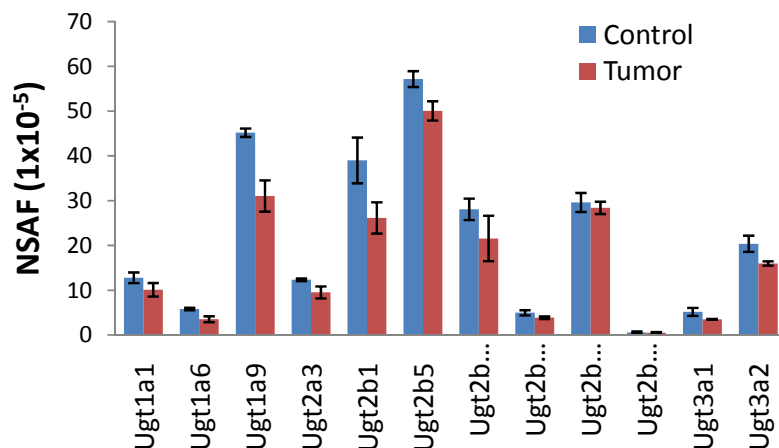


Figure 5.07: Abundance of cytochrome p450 enzymes within the control and tumor-bearing mice with 46 in total quantified in which 29 are presented here. The Cyps quantified represent 6 families, 1B, 2B, 2C, 2D, 2J and 3A, in particular 2C was represented with 12 isoforms. (*n=3, p<0.05).

Phase II metabolism of xenobiotics is mediated through Ugts and Gst enzymes, it was therefore necessary to investigate their abundance profiles to determine the overall effects of xenobiotic metabolism (Figure 5.08). In this study, 10 Ugts were quantified in which two had statistically significant changes in abundance. These enzymes included Ugts 1a9 and 2b5 with 1.46 fold and 1.15 fold changes in abundance; however these changes in abundance overall are both quite small. Analysis of Gsts demonstrated the quantification of 12 enzymes in which two demonstrated statistically significant changes in abundance. These enzymes included, Gst-pi1, which increased in abundance in tumor bearing mice with a 1.87 fold change and Gst-k1, which decreased in abundance in tumor-bearing mice by 2.9 fold. In addition, microsomal Gst1 was the most abundant membrane protein in the mouse samples suggesting that glutathione-conjugation used in phase II xenobiotic metabolism is active. These results demonstrate the influence of tumor associated inflammation on the abundance

of specific proteins involved in the metabolic detoxification and clearance of xenobiotic compounds from mouse livers.

(A)



(B)

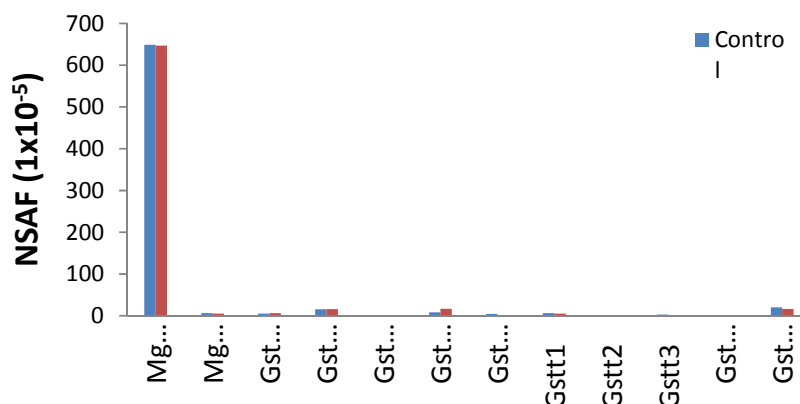


Figure 5.08: Phase II metabolism of xenobiotic compounds is conducted through glucuronic acid and glutathione conjugation using Ugt and Gst enzymes. In total, 10 Ugts and 12 Gsts were quantified and of these proteins, two of each family demonstrated significant changes in abundance. (* $p < 0.05$, $n = 3$)

In addition to the changes in protein abundance for proteins involved in phase I and phase II metabolism of xenobiotics, it was of interest to investigate the relative abundance of transporters involved in drug clearance (Figure 5.09). ABCC2 is a transporter involved in the canalicular extrusion of bile and xenobiotics through glucuronide conjugates and is able to confer resistance to some anticancer agents^{167, 168}. In this study, ABCC2 was shown to be

down-regulated in tumor bearing mice by 1.93 fold. ABCC3 is involved in the efflux of glucuronide and sulfate conjugated xenobiotics into the sinusoid of the liver for clearance through the kidneys¹⁶⁹. ABCC3 in this study was shown to be down regulated in tumor bearing mice by 2.36 fold suggesting evidence for a reduction in xenobiotic clearance. Furthermore, ABCG2, a transporter also known for its ability to transport similarly conjugated xenobiotics into the bile canaliculi of the liver was shown to be down regulated in tumor bearing mice with a 1.69 fold change. These results support the idea that the abundance of xenobiotic transporters suggests that xenobiotic clearance by liver cells is slowed in tumor bearing mice.

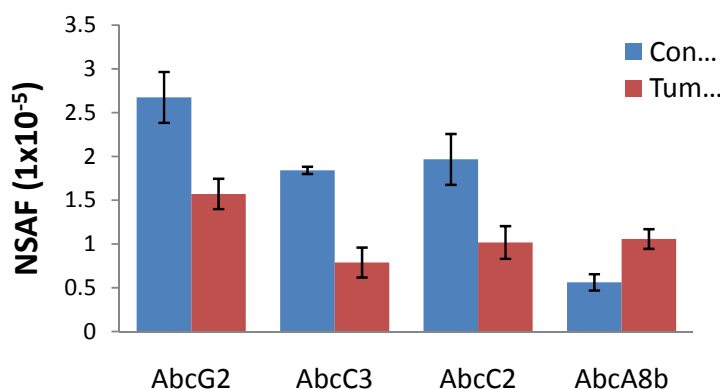


Figure 5.09: Conjugated xenobiotics are cleared from the liver into the sinusoid blood vessel or through the bile caniculus through ABC transporters. ABC transporters, C2, C3 and G2, all demonstrated a significant decrease in abundance in tumor-bearing mice. ($p < 0.05$, $n = 3$).

5.3.3 Electron Transport Chain

Examination of the proteins that were shown to be up-regulated in tumor-bearing mice found that many proteins that are part of complex I (NADH dehydrogenase) of the electron transport chain were represented (Figure 5.10). NADH dehydrogenase alpha subunits (Ndufa) 5, 9 and 12 were all up-regulated by 48 fold, 1.95 fold and 3.9 fold in tumor-bearing mice. The most striking observation was the up-regulation of five iron-sulfur subunits

(Ndufs), which demonstrated significant changes in abundance that ranged from 122 fold change in Ndufs3 to as low as 4.5 fold change in Ndufs8. In addition, both flavoprotein subunits, Ndufv1 and Ndufv2 were up-regulated in tumor-bearing mice by 6.4 and 18.5 fold, respectively. The beta subunit demonstrated an up-regulation in Ndufb4 with a 2 fold change; however, Ndufb9 did not fit the trend with a down-regulation of 1.2 fold. To put these observations into context in relation to quantified Nduf subunits, 12 out of a total of 30 changed in abundance of which 11 were up-regulated in tumor bearing mice (Appendix 4, Figure 4.2a).

In addition to NADH dehydrogenase subunits, cytochrome c oxidase 5b (Cox5b) and mitochondrial ATP synthase 8 (mt-Atp8) both had significant increases in protein abundance with 3.26 and 2.72 fold change, respectively. In context of proteins quantified from the electron transport chain, 14 out of 58 proteins (Appendix 4, Figure 4b-d) had significant changes in abundance in the mouse liver due to the presence of a tumor.

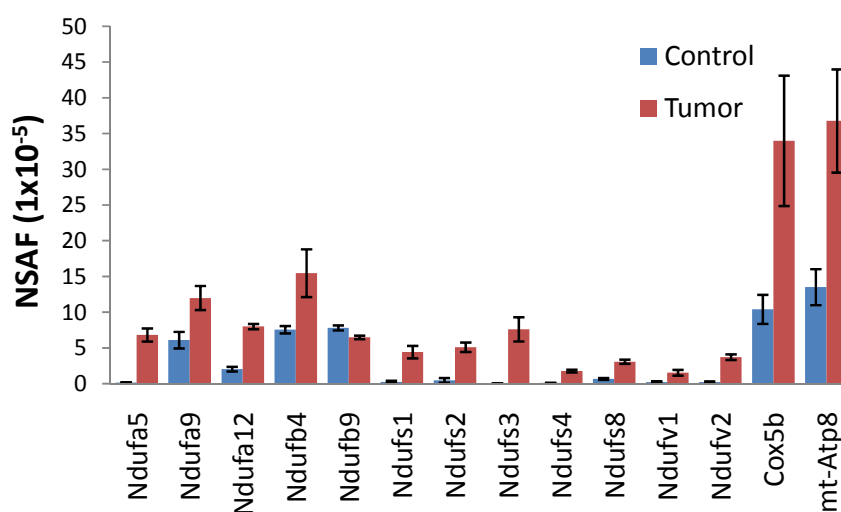


Figure 5.10: NADH dehydrogenase subunits quantified and demonstrated changes in abundance in tumor-bearing mice compared to the controls. All but one subunit was up-regulated in tumor-bearing mice, including; the alpha (Ndufa), beta (Ndufb), iron-sulfur (Ndufs) and flavoprotein subunits (Ndufv) (n=3, p<0.05).

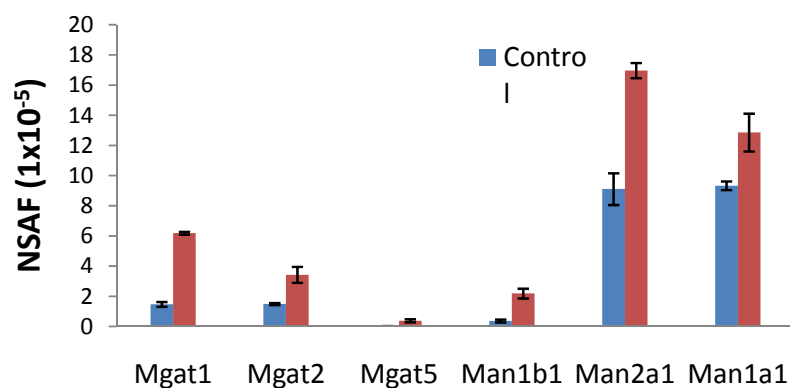
5.3.4 Glycosylation Enzymes and UDP-Sugar Transportation

Analysis of liver membrane protein abundance also found that enzymes involved in N-linked glycosylation were significantly increased in tumor bearing mice (Figure 5.11a). In particular, mannoside acetylglucosaminyltransferase (Mgat) 1, 2 and 5 are all enzymes involved in the synthesis of glycans and were shown to have greater than a two fold increase in abundance in tumor bearing mice. In addition, glycoprotein endo-alpha-1,2-mannosidase (Manea) was 3.8 fold more abundant in tumor bearing mice, which is involved in the hydrolysis of terminal mannosyl residues in complex glycans. Furthermore, mannosidase, alpha, class 1B, member 1 (Man 1b1) and mannosidase 2, alpha 1 (Man 2a1) were both up-regulated in tumor bearing mice with a 6.03 and 1.75 fold change, respectively. Both of these enzymes are involved in the synthesis of glycans on asparagine residues of target proteins.

O-linked glycosylation enzymes (Figure 5.11b) were also increased by at least 3.5 fold in tumor bearing mice with enzymes including; ST3 beta-galactoside alpha-2,3-sialyltransferase 1 (St3Gal1); core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase, 1 (C1GalT1); C1GALT1-specific chaperone 1 (C1GalT2); and beta galactoside alpha 2,6 sialyltransferase 1 (St6gal1). Beta-1,3-galactosyltransferase 3 (B3galnt1) was shown to have a 3.4 fold change in tumor bearing mice, which is involved in the glycosylation of ceramide, a sphingolipid that resides in the plasma membrane. Beta-glucuronidase is a glycosidase involved in the removal of glucuronide from proteins, which was also shown to up-regulated by 3.9 fold. Furthermore, each of these enzymes are single transmembrane containing IMPs localised to the golgi apparatus, providing evidence for the

utility of the designed quantitative shotgun proteomics technique for the analysis of differentially abundant IMPs. This study also demonstrated that the presence of a tumor can influence the abundance of enzymes involved in protein and lipid glycosylation within the membranes of mouse livers.

(A)



(B)

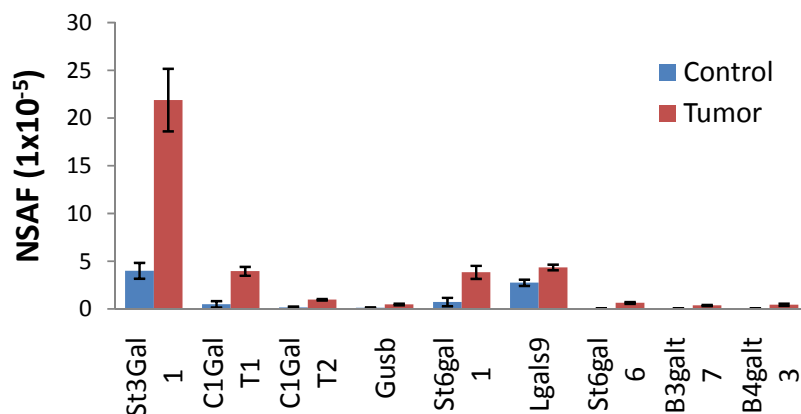


Figure 5.11: Enzymes involved in the glycosylation of proteins in the Golgi apparatus were quantified and demonstrated significant changes in abundance. These enzymes include proteins involved in (A) mannose-related glycosylation and (B) galactose-related glycosylation (n=3, p<0.05)

After demonstrating that protein glycosylation was significantly altered in tumor-bearing mice, it was of interest to investigate the abundance and possible changes in abundance of UDP-sugar transporters in the Golgi apparatus and ER (Figure 5.12). Solute carrier family

35 proteins are transporters that are involved in the supply of UDP-sugars to the Golgi and ER. Slc35a1, known to transport UDP-sialic acid, was quantified in the mouse liver samples, which demonstrated moderate to low abundance. Acetylglucosamine transporter, Slc35a3 was also quantified and demonstrated similar levels of abundance to Slc35a1, a sialic acid transporter. The most abundant transporter was Slc35d1, which was approximately 3-4 fold higher than all other UDP-sugar transporters and is involved in the transportation of UDP-glucuronic acid and UDP-GalNac. Importantly, Slc35e2 demonstrated a significant increase in abundance in tumor-bearing mice; however there is no known substrate for this transporter. These results demonstrate that transporters for sugar substrates required for protein glycosylation have been quantified and with the increased abundance of glycosylation enzymes suggests protein glycosylation has increased in activity in tumor-bearing mice.

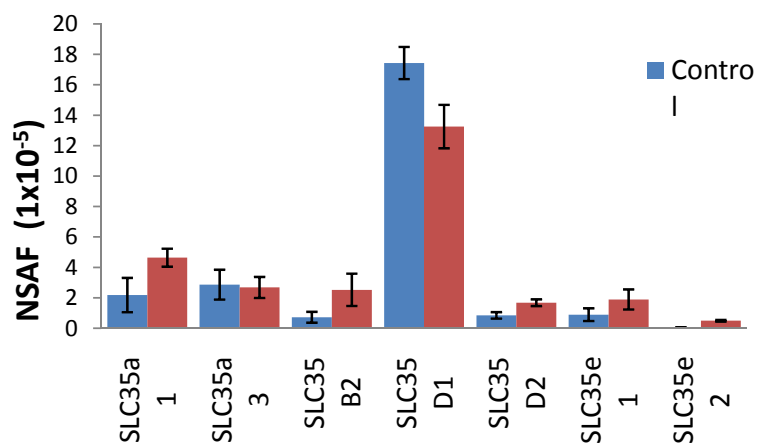


Figure 5.12: Abundance of UDP-sugar transporters of the solute carrier family 35 in control and tumor-bearing mice. Slc35e1 demonstrated a significant up-regulation in tumor-bearing mice. (* $p < 0.05$, $n=3$).

5.4 Discussion

Advanced stage cancer patients have been shown to have altered drug metabolism of chemotherapeutic drugs, which prevents the ability to define safe and effective chemotherapeutic doses for patient treatment⁷. Tumor-induced inflammation has been implicated as a possible explanation for this adverse drug metabolism, which results in the increased blood levels of IL-6 and promotion of the acute phase response⁴. IL-6 has been shown to reduce hepatic expression of cytochrome p450s and drug clearance transporters^{112, 113}. Furthermore, the presence of a spatially unrelated tumor has also been demonstrated to influence the hepatic expression of drug metabolizing enzymes and drug clearance transporters⁵. It has been suggested that tumor-induced inflammation is one underlying cause of this altered expression of hepatic enzymes^{4, 5, 105}. The aim of this study was to determine the differential abundance of hepatic membrane proteins in response to tumor-induced inflammation caused by the presence of an EHS sarcoma in mice. To assess this aim, enriched mouse liver membrane proteins from control or tumor bearing mice were analysed through label-free quantitative shotgun proteomics.

5.4.1 Interleukin-6 Receptor

In this study, IL6-R β (gp130) was quantified in the mouse samples, suggesting that the systemic inflammation associated with increased IL-6 in tumor-bearing mice had the potential to induce an inflammatory response in the liver tissue. The IL-6 receptor is composed of two subunits, the alpha subunit and two beta subunits; however, in this study, the α subunit was undetectable. Although, previous studies have identified soluble forms of both receptors^{170, 171}, which would go undetected in this study, since the sample is a purified membrane preparation. In addition, studies on the membrane localised alpha subunit, have

also demonstrated that the transmembrane segment is not required for signal transduction¹⁷¹ and therefore, suggesting alternative mode of activation through the membrane localised β receptor and the soluble α subunit. However, the detection of the β -receptor suggests the potential for IL-6 mediated signal transduction within the liver cells in tumor-bearing mice.

5.4.2 Fatty Acid Metabolism and Cholesterol Biosynthesis

In this study, fatty acid degradation enzymes were shown to be down-regulated in the peroxisomes and mitochondria. The products of fatty acid degradation are succinate and acetyl-CoA, which can be used for the production of energy or processes such as gluconeogenesis. Fatty acid degradation enzymes that were observed to be down-regulated included the peroxisomal proteins, Acaa1b and Ehhadh, and many mitochondrial enzymes including the highly abundant Acaa2. These results are similar to a recent quantitative shotgun proteomics study on hepatitis C infection in liver cells, which demonstrated down-regulation in fatty acid metabolizing enzymes¹⁵⁰. Furthermore, the quantification of proteins associated with fatty acid importation such as CD36, Slc27a transporters, LACS enzymes, liver-specific and epidermal-specific FABP suggests that the up-take of fatty acids from the sinusoid is functional. Furthermore, this is also exemplified with the quantification of fatty acid transporters localised to the peroxisomes (ABCD family) and the mitochondrial (Slc25a20, Cpt1b and Cpt2).

Omega oxidation of fatty acids is conducted in the ER and is performed by stepwise hydroxylation and oxidation reactions. These reactions are performed by CyPs, alcohol dehydrogenases and aldehyde dehydrogenases. In this study, Cyp 4a, 4f, 4v3, 2e1 and 2u1 were quantified, which demonstrated that all the quantified 4a family, 4v3, 2e1 and 2u1 enzymes were significantly down-regulated in tumor-bearing mice. The cytochrome p450 enzymes that were observed to have been down-regulated in tumor-bearing mice represent

the most abundant Cyps involved in fatty acid metabolism in this mouse liver study. This observation suggests a reduction in lipid peroxidation that would result in a decrease in dicarboxylic acids for peroxisomal β -oxidation and a decrease in the hydroxylation of arachidonic acid to form hydroxyeicosatetraenoic acid used for the production of inflammatory mediators such as leukotrienes. The reduction of Cyp4a14 and 4a12 protein in this study is consistent with gene expression profiles of LPS-induced inflammation in mouse liver¹⁶². Furthermore, Cyp4a gene expression is under the control of peroxisomal proliferator-activated receptor (PPAR)¹⁷², which regulates the expression of enzymes involved in β -oxidation.

Taken together, an active fatty acid importation pathway through the quantification of fatty acid transport proteins and the reduction in β and ω -oxidation of fatty acids in this study, suggests that liver cells are limited in supply of fatty acids but have the potential to re-accumulate for cellular metabolic needs. This idea is supported by the up-regulation of proteins such as Pdia isoforms 3, 4, and 6, which promote the secretion of apolipoproteins (fatty acid and cholesterol binding proteins) into the blood^{173, 174}. However, the down-regulation of MTP that forms a complex with Pdia isoforms^{173, 174} and is required for apolipoprotein B secretion^{175, 176}, suggests that alternative apolipoproteins may be in use for fatty acid accumulation.

Apolipoprotein A1 is involved in the redistribution of fatty acids and cholesterol from tissues back to the liver¹⁷⁷. Therefore, the up-regulation of apoA-1, suggests that tumor-bearing mice livers are actively seeking to re-accumulate cholesterol and fatty acids. ApoA-1 has been implicated in the interaction with the cholesterol efflux pump, ABCA1, which accepts the efflux of cholesterol from cells for transportation in the blood stream¹⁷⁸. The quantification of four ABCA family members 1, 3 and 6, suggests the ability of the cells to undertake cholesterol efflux onto apoA-1. In addition, ApoA-I and apoE are necessary for serum amyloid A protein bound high density lipoprotein circulation¹⁷⁹. Recent studies have

demonstrated that tumor-bearing mice have elevated blood concentrations of SAP⁴ suggesting a connection between increased hepatic abundance of apoA-I and the high apoE abundance observed in this study, with elevated SAP observed in these mice. The active re-accumulation of fatty acids is further substantiated by the increased abundance of Lrp1 and the detection of Ldlr for the internalisation of cholesterol and fatty acid binding proteins from the blood.

Tumor-bearing mice also demonstrated an increase in abundance of cholesterol synthesizing enzymes. In this study, Tspo was also significantly increased in tumor bearing mice, which is involved in transportation of cholesterol into the mitochondria and is the rate limiting step of bile biosynthesis¹⁸⁰. Cholesterol is a major constituent of bile acid and is formed from the hydroxylation by the mitochondrial located Cyp27a1. Enzymes involved in the production of cholesterol were also observed to be up-regulated in tumor-bearing mice with significant increases in abundance of Sqle, Nsdhl, Fdps and Fdft1. The increase in cholesterol synthesis enzymes is similar to gene transcript analysis in relation to atherosclerosis, where significant increases were observed for the expression of Sqle, Fdft1, Fdps and Dhcr7¹⁸¹. To further support this concept, the analysis of bile acid transporters in this study demonstrated no significant changes in abundance with relatively moderate abundances overall. These results are therefore supportive of the increase in production of bile by the liver so as to increase the reabsorption of fatty acids through enterohepatic circulation.

5.4.3 Xenobiotic Metabolism and Clearance

The higher levels of blood IL-6 known to reduce the clearance of drugs warrants further investigation into specific xenobiotic metabolizing enzymes that are also suggestive of reduce drug clearance. In this study, proteins involved in phase I and phase II metabolism of

xenobiotics were down regulated in tumor bearing mice suggestive of reduced drug clearance in association with tumor-induced inflammation. Phase I proteins included cytochrome p450s 1a2, 2a5, 2a12 and the NADH-b5r3, which have not been implicated in hepatic response to tumor-induced inflammation. In total, 46 different cytochrome p450s were quantified with the highest expression observed for Cyp2c29, which metabolises arachidonic acid to 14,15-cis-epoxyeicosatrienoic acid. Cyp3a11 was highly abundant in the mouse samples; however, the overall abundance between control and tumor-bearing mice was unaltered contrary to previous studies^{4, 5}. These studies demonstrate the advantage of proteomic analysis of cytochrome p450 because of the ability to quantify these proteins with isoform specificity.

In addition, phase II metabolic proteins included 12 Ugt enzymes known for their role in the xenobiotic conjugation of glucuronides to xenobiotics to increase the compounds solubility for excretion. The glucuronide conjugates are then pumped out of the liver through ABC transporters for excretion through the kidneys. In this study, two isoforms demonstrated significant decreases in abundance in tumor-bearing mice, which included Ugt1a9 and 2b5. Similarly, 12 Gsts were quantified in this study, including Mgst1, which was the most abundant protein in the mouse liver membrane proteome. Furthermore, Gstpi1 demonstrated an up-regulation in tumor-bearing mice, whereas, Gstk1 demonstrated a down-regulation in tumor-bearing mice.

Inflammation induced IL-6 production has been associated with increased drug resistance, therefore resulting in enterohepatic drug accumulation. IL-6 has been implicated in the reduced expression of hepatic transporter mRNA^{5, 113} and therefore it was important to investigate whether drug clearance transporters changed in abundance in tumor bearing mice. Our results demonstrated that specific drug clearance transporters, namely ABCC2, ABCC3 and ABCG2, were all significantly down regulated in tumor bearing mice. All three of these transporters have been shown in the same tumor-induced inflammation model to be

significantly decreased in tumor bearing mice⁵. ABCC3 has been shown to be down-regulated in liver at the protein level in tumor bearing mice⁵. ABCC3 has been implicated in the transportation of glucuronide, sulfates and bile acids at the basolateral membrane of hepatocytes^{182, 183} and is induced in endotoxin mediated cholestasis¹¹². Although ABCC3 expression is down-regulated in tumor bearing mice, NTCP, OatpA and OatpC were highly abundant suggesting an active enterohepatic bile transportation system. ABCG2 has been implicated in the biliary excretion of sulfate and glucuronide conjugate metabolites as demonstrated by impaired clearance of 4-methylumbelliferyl conjugates in ABCG2 negative mice¹⁸⁴.

5.4.4 Electron Transport Chain

This study also demonstrated an increased abundance of complex I NADH dehydrogenase subunits in tumor-bearing mice. Complex I is a source of production of reactive oxygen species, which are known mediators of inflammation responses providing evidence that the liver is responding to tumor-induced inflammation. In line with this observation, ABC transporters involved in the transportation of heme and iron-sulfur components of complex I were highly abundant in both control and tumor-bearing mice (Appendix 4, Figure 4.4). Furthermore, nicotinamide nucleotide transhydrogenase was also a dominant protein within the enriched liver membrane proteome suggesting a mechanism for recycling NAD back to NADH for complex I proton transportation. In addition, mitochondria ATP synthase 8 and Cox5b were also increased in tumor-bearing mice suggesting that oxidative phosphorylation is promoted in these mice. Recent proteomics studies on human liver biopsies from hepatitis C infected patients demonstrated a down-regulation of oxidative phosphorylation proteins, in particular complex III, IV and the ATP synthase subunits¹⁵⁰. This is the first study to

demonstrate the up-regulation of 11 subunits of NADH dehydrogenase (complex I) of the electron transport chain in tumor-bearing mice.

5.4.5 Protein Glycosylation

A key component of a cellular response to inflammation is conveyed through the membrane by cytokines and through cell-to-cell interactions. Protein involved in interactions at the surface of cells that are involved in cell adhesion have a tendency to be glycosylated. In this study, enzymes involved in glycosylation pathways increased in abundance in tumor bearing mice. In particular, the glycosylation enzymes involved in the maturation of both N-linked (St6gal1) and O-linked (St3gal1) glycosylation have increased in abundance in tumor-bearing mice. This observation is consistent with studies suggesting that St6gal1 is predominantly expressed in liver cells^{185, 186} and is induced by inflammation mediated IL-6¹⁸⁷. Furthermore, inflammation was also shown to induce expression and function of St3gal1 and St6gal1 in mouse liver tissue and was shown to induce both α 2,3-linked sialic acid and α 2,6-linked sialic acid glycotopes on serum proteins¹⁸⁸. In addition, a macrophage specific cell surface protein, Sialoadhesin, binds preferentially to α 2,3-linked sialic acid glycotopes on hemopoietic cells and was shown to be up-regulated by tumor-induced inflammation in this study. These results suggest a link between increased cell protein glycosylation and the increased abundance of cell adhesion proteins in macrophages as a consequence of tumor-induced inflammation.

This link between glycotope presentation and macrophage expressed lectins is further exemplified with the increased abundance of Clec4f, which is a Kupffer cell specific lectin known to preferentially bind GalNAc β 1-3Gal modified proteins. In this study, β 1,3-

galactosyltransferase was increased in abundance in tumor bearing mice, confirming the link between increased glycotope presentation and the specific lectins for which they interact on the surface of macrophages.

Finally, to mediate the increase in protein glycosylation, UDP-sugars are transported into the Golgi apparatus and ER as substrates for the mentioned enzymes. The transportation of these UDP-sugars is mediated by transporters of the solute carrier family 35. In this study, six members of the Slc35 family were identified, including the transporters for sialic acid, GalNac and glucuonic acid. The most abundant transporter was Slc35D1, which is understandable with the role of Ugts in phase II metabolism of xenobiotics in the liver.

5.4.6 Conclusion

Tumor-induced inflammation had a profound affect on the abundance of proteins within the liver, which included many biochemical pathways. Proteins from the fatty acid importation and degradation pathways were quantified with many in the degradation pathway demonstrating a significant down-regulation in tumor-bearing mice. Furthermore, proteins from xenobiotic metabolism and transport including Cyps, Ugts and Gsts and ABC transporters, all demonstrated changes in abundance with many demonstrating down-regulation in tumor-bearing mice. In contrast, 14 electron transport chain proteins and 15 glycosylation enzymes all demonstrated a significant increase in tumor-bearing mice. These results demonstrate that tumor-induced inflammation has a significant influence on the abundance of proteins in the liver and provides some understanding of the global changes seen in liver metabolism in cancer patients.

Chapter 6: General Discussion

6.1 Shotgun Proteomics Using IPG-IEF Separation of Peptides

6.1.1 Method Development

The initial aims of this thesis were to develop a methodology that uses the advantages of separating peptides by IPG-IEF for the first dimension separation of two dimensional shotgun proteomics. The results in this initial study (Chapter 2) demonstrate that the developed method results in a sample of tryptic peptides from rat liver membrane proteins that can be separated and analysed by two dimensional shotgun proteomics. In addition, the preparation of trypsin digested rat liver membrane proteins was enhanced with the use of 60% methanol, which confirming what has been shown previously^{34, 63, 64}. Furthermore, IPG-IEF provided high resolution separation of peptides for two dimensional shotgun proteomics^{95, 97, 101, 102}. The utility of both the sample preparation method and the IPG-IEF fractionation approach are evident from the detection of thousands of peptides and over 1500 proteins using these methods.

Separation of peptides by IPG-IEF was demonstrated to be high resolution with approximately 95% of all peptides focusing into two or less fractions. Furthermore, the high correlation between theoretical and observed *pI* for most peptides, suggests that IPG-IEF separation is accurate. For these reasons, the desired outcome of using peptide *pI* as additional filtering constraint with protein false discovery rate, was achievable and provided the recovery of high confidence protein identifications. The ability to use peptide *pI* filtering as an additional filtering constraint in combination with peptide false discovery rates has been demonstrated⁹⁷; however, in this study, peptide *pI* filtering was combined with protein false discovery rates.

6.1.2 Improvements to the Methodology

After demonstrating the identification of as many as 804 proteins on average from single experiments using a 3D ion trap, it was of interest to investigate methods to improve the analysis of rat liver membrane proteins. Improvements were made to the method through increasing the sample load, using C18 tips that have higher capacity for removing contaminant molecules after focusing, and using higher resolution, faster scanning mass spectrometry with the ability to increase the number of parent ions selected for fragmentation. The alteration to the method in Chapter 3 resulted in the identification of approximately 2100 proteins on average, a thousand more than the previous method in Chapter 2. Furthermore, the number of peptide identifications increased by almost 3 fold, providing evidence that the resulting methodology is a significantly improved technique for shotgun proteomic analysis of the rat liver membrane proteome.

In addition to providing improvements to the overall methodology, a comparison between different pH gradients was also assessed. In Chapter 2, observations of higher resolution separation of peptides within the acidic regions of the IPG strip and the tendency of tryptic peptides to be acidic, prompted a comparison of broad range (*pI* 3-10) and narrow range (3.4-4.9) IPG strips. The comparison of the two pH gradients determined that narrow range IPG strips provided the identification of a sub-set of proteins that otherwise went undetected from broad range IPG strips. These observations were due to a greater than 2 fold increase in acidic peptides from narrow range IPG strips, resulting in the detection of different proteins. These observations were further confirmed by using rigorous statistical analysis through label-free quantification to assess the overall change in spectral counts in individual proteins over the identified proteome. This statistical approach determined that the narrow range IPG strips did improve the spectral counts of 319 proteins. However, what was most interesting

about the comparison was that in combination, the two types of pH gradients could provide comprehensive analysis of the rat liver membrane proteome as demonstrated by the 4195 high confidence protein identifications. This is the highest number of identified proteins from the rat liver membrane proteome ever compiled from a coherent study.

Furthermore, the label-free quantitative analysis of rat liver membrane proteins from broad and narrow range IPG strips also allowed the assessment of the overall depth of coverage of the membrane proteome. Analysis of the dynamic range of the quantified proteins determined that the shotgun proteomics methodology using IPG-IEF separation of peptides provided a comprehensive, in-depth coverage of the membrane proteome. Membrane proteins were detected throughout the dynamic range covered by this shotgun proteomics methodology providing evidence for the use of this method for analysis of biological questions involving membrane proteins.

6.1.3 Membrane Proteomics

Analysis of the IMP constituent identified from the rat liver membrane proteome provided evidence for the utility of shotgun proteomics for the analysis of IMPs. Studies conducted using IPG-IEF for the separation of 300µg of membrane protein digest and MS analysis with a 3D ion trap provided the identification 690 non-redundant IMPs (Chapter 2). On average the percentage of IMPs was between 44-49% for each experiment. Using a larger sample load (1mg digest) and high resolution, faster scanning MS with the linear ion trap, an expected increase in IMPs was observed with 1,100 in total and with 826 on average in each experiment (Chapter 3). The percentage of IMPs in these experiments was approximately 33-35% IMP, which is a direct result of higher sample loading and the higher resolution,

faster scanning of the linear ion trap MS. However, the lower percentage of IMPs in experiments with higher sample loading and linear ion trap MS is not due to analytical incompleteness, as the percentages are the same for proteins that were reproducibly identified (i.e. proteins used in label-free quantification because they were detected in at least 3 experiments) from the broad and narrow range IPG strips. Regardless of the percentage of IMPs that were detected, the shotgun proteomics methodology resulted in a large number of IMPs that may go undetected by other techniques such as 2D gel analysis. These results provide compelling evidence for the use of this shotgun proteomics methodology for the analysis of liver membrane proteins.

Previous studies have concluded that highly hydrophobic IMPs are refractory to analysis by 2D gels due to poor solubility of these proteins and the tendency to precipitate during the first dimension. Unlike the separation of proteins on IPG strips in 2D gels, the separation of peptides is not problematic for IPG strips because tryptic peptides are much more soluble than hydrophobic intact proteins and therefore, the identification of highly hydrophobic IMPs is achievable. The recovery of highly hydrophobic IMPs provided evidence for the utility of IPG-IEF based shotgun proteomics for membrane protein analysis. The ability to use spectral counting as a means for non-biased quantification also provides valuable methods to compare the abundance of these hard to detect proteins in biological studies.

Some of the most dominant families of proteins identified from the rat liver membrane proteome included xenobiotic metabolizing enzymes (Cyts, Gsts and Ugts) and transporters (ABC transporters and Slc proteins), which are important IMPs involved in drug metabolism of the liver. Shotgun proteomic analysis using IPG-IEF methodology identified 41 Cyts from the rat liver membrane proteome from 3D ion trap and linear ion trap experiments. The most striking feature of the data was the increase in spectral counts over the entire family, which was low in 3D ion trap experiments with 8.63 ± 0.7 compared to 85.8 ± 3.66 in linear

ion trap experiments. Analysis of ABC transporters and Slc proteins determined that in total 25 and 53 family members were identified respectively, demonstrating a marked increase from earlier studies (Chapter 2). These results provided evidence for the ability of the shotgun proteomics methodology to recover highly hydrophobic IMPs. The ability to detect rat liver cytochrome p450s, ABC transporters and Slc proteins, provided the rationale for the use of this shotgun methodology for later comparative biological studies with mouse livers subjected to tumor-induced inflammation.

6.1.4 Mouse Liver Membrane Profile

After demonstrating the utility of the developed shotgun proteomics methodology for the analysis of rat liver membrane proteins, the methodology was then used to investigate the effects of tumor-induced inflammation on the abundance of membrane proteins in mouse livers. Studies have shown the association of tumor-induced inflammation with altered drug metabolism and clearance mediated through key membrane proteins such as cytochrome p450s, ABC transporters and Slc proteins. In earlier studies on rat liver membrane proteins, the identification and quantification of many Cyps, ABC transporters and Slc proteins provided the stepping stones to warrant investigation of these proteins in mouse models of liver protein abundance and tumor-induced inflammation. Therefore, the affects of tumor-induced inflammation on liver membrane proteins was an ideal study to demonstrate the application of the developed quantitative shotgun proteomics methodology.

Proteomics analysis of the mouse liver samples demonstrated a broad coverage of the membrane proteome as determined by the five \log_{10} orders of magnitude in protein abundance. In total, 1581 proteins were quantified with 80 (28 IMPs) demonstrating a down-

regulation in tumor-bearing mice, compared to 150 (74 IMPs) which displayed an up-regulation in tumor-bearing mice. IMPs with changes in abundance were quantified throughout the dynamic range of the identified proteome. These results conclude that the presence of even the most mild of tumors (EHS sarcoma) has a profound affect on the abundance of proteins, particularly IMPs, in the mouse liver. These results have significant implications in the treatment of cancer with chemotherapeutic agents because the ability to metabolise and clear these compounds is coupled to their narrow therapeutic index and therefore, may be the difference between an effective dose and toxicity.

These studies also demonstrate the use of gene ontology annotations and quantification to determine changes in abundance of different metabolic processes, functions and cellular locations of proteins. The results concluded that various cellular processes, functions and cellular components demonstrated changes in abundance. These results detailed changes in abundance of primary metabolic processes such as protein and nucleotide metabolism. In addition, ion binding functions including, calcium, copper and zinc binding proteins further substantiate the ability to use protein quantification as a means to assess the overall dynamics of cellular processes and protein functions.

Furthermore, the use of IPG-IEF shotgun proteomics in conjunction with label-free quantification provided the means to measure changes in the relative abundance of IMPs. These observations and detailed analysis provides evidence that the developed shotgun proteomics methodology with quantification is an ideal methodology for assessment of biological questions associated with IMPs. These conclusions can be made from the ability to detect changes in abundance of proteins with as little as one transmembrane segment to as many as sixteen transmembrane segments. This is further substantiated by the changes in the abundance of large hydrophobic IMPs that would otherwise go undetected in techniques such as 2D gels.

6.1.5 Tumor-Induced Inflammation and Liver Membrane Proteins

Analysis of the membrane proteome from mouse livers in association with tumor-induced inflammation concluded that significant changes in abundance of proteins was observed that were from the same or interconnecting biochemical pathways. For example, proteins associated with β -oxidation of fatty acids demonstrated that proteins involved in both peroxisomal and mitochondrial break down of fatty acids were down-regulated in tumor-bearing mice. In addition proteins involved in the internalisation of fatty acids at the cell membrane (LACS1) were also down regulated. These findings were then coupled with the up-regulation of pathways and proteins involved in the re-accumulation of fatty acids in the liver such as cholesterol biosynthesis used in bile production and the production Apo-AI.

In addition, xenobiotic metabolism and clearance was also altered in tumor-bearing mice. similar to previous studies. Unlike previous studies the abundance of Cyp3a11, a key drug metabolizing enzyme, was unaltered. However, other Cyp enzymes including 1a2, 2a5 and 2a12 demonstrated a decrease in abundance in tumor-bearing mice. Also important was the decrease in abundance in tumor-bearing mice of drug transporters such as ABCC2, ABCC3 and ABCG2, which are all important proteins in the internalisation and clearance of drugs from the liver for secretion. In all, these observations provide evidence for the notion that tumor-induced inflammation is associated with decreased drug metabolism and clearance, resulting in a narrow therapeutic index of some anti-cancer agents and therefore, the lack of safety of these agents.

Some of the most compelling observations in changes in abundance of biochemical pathways and protein complexes was observed for the up-regulation of both NADH

dehydrogenase subunit enzymes (Complex I), and glycosylation enzymes. In total, 30 different subunits of NADH dehydrogenase complex were quantified in which 11 demonstrated an up-regulation. Furthermore, 15 different glycosylation enzymes were also detected and observed to be up-regulated in tumor-bearing mice, which was further substantiated by the quantification of UDP-conjugated sugar transporters. These results provide compelling evidence for the utility of the developed shotgun proteomics methodology in the identification and quantification of liver IMPs.

6.1.6 Final Conclusion

This thesis details the development of a shotgun proteomics methodology using IPG-IEF separation of peptides as a means to comprehensively analyse the membrane proteome of a given cell or tissue. The results of these studies show the transition from providing evidence that the concept is capable of comprehensive membrane protein analysis to improving the methodology with alternate methods and higher resolution and faster scanning MS. Finally, to demonstrate the utility of the methodology, the technique was applied to a biological question of interest involving tumor-induced inflammation and its effects on liver membrane protein abundance. The developed methodology results in the identification and quantification of thousands of rat and mouse liver membrane proteins. The application of this shotgun proteomics technique provided detailed information on the effects of tumor-induced inflammation on liver membrane proteins. In particular, this study has shown that mouse livers subjected to tumor-induced inflammation have altered abundance in metabolic pathways such as fatty acid metabolism, cholesterol biosynthesis, glycosylation, and xenobiotic clearance and metabolism.

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Appendices

Appendix 1:

Table 1.1: Cellular location of identified proteins from 0% methanol and 40% methanol assisted digests analysis by peptide IPG-IEF shotgun proteomics.

Cellular Location	Percentage Coverage (Total Number)	
	0% Methanol	40% Methanol
Unknown	32.35%	31.41%
Cytoplasm	16.22%	20.19%
Mitochondria	14.71%	14.75%
Endoplasmic Reticulum	9.68%	9.49%
Cell Membrane	9.58%	8.46%
Nucleus	3.98%	3.80%
Secreted/Extracellular	3.89%	3.02%
Microsome	3.23%	2.76%
Micellaneous	2.28%	2.24%
Peroxisome	1.90%	1.98%
Golgi	2.18%	1.90%

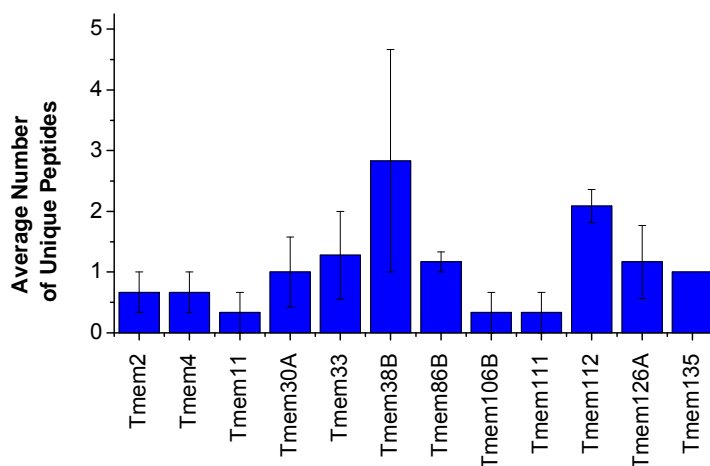


Figure 1.1: Average number of unique peptides for proteins of the transmembrane (Tmem) proteins family.

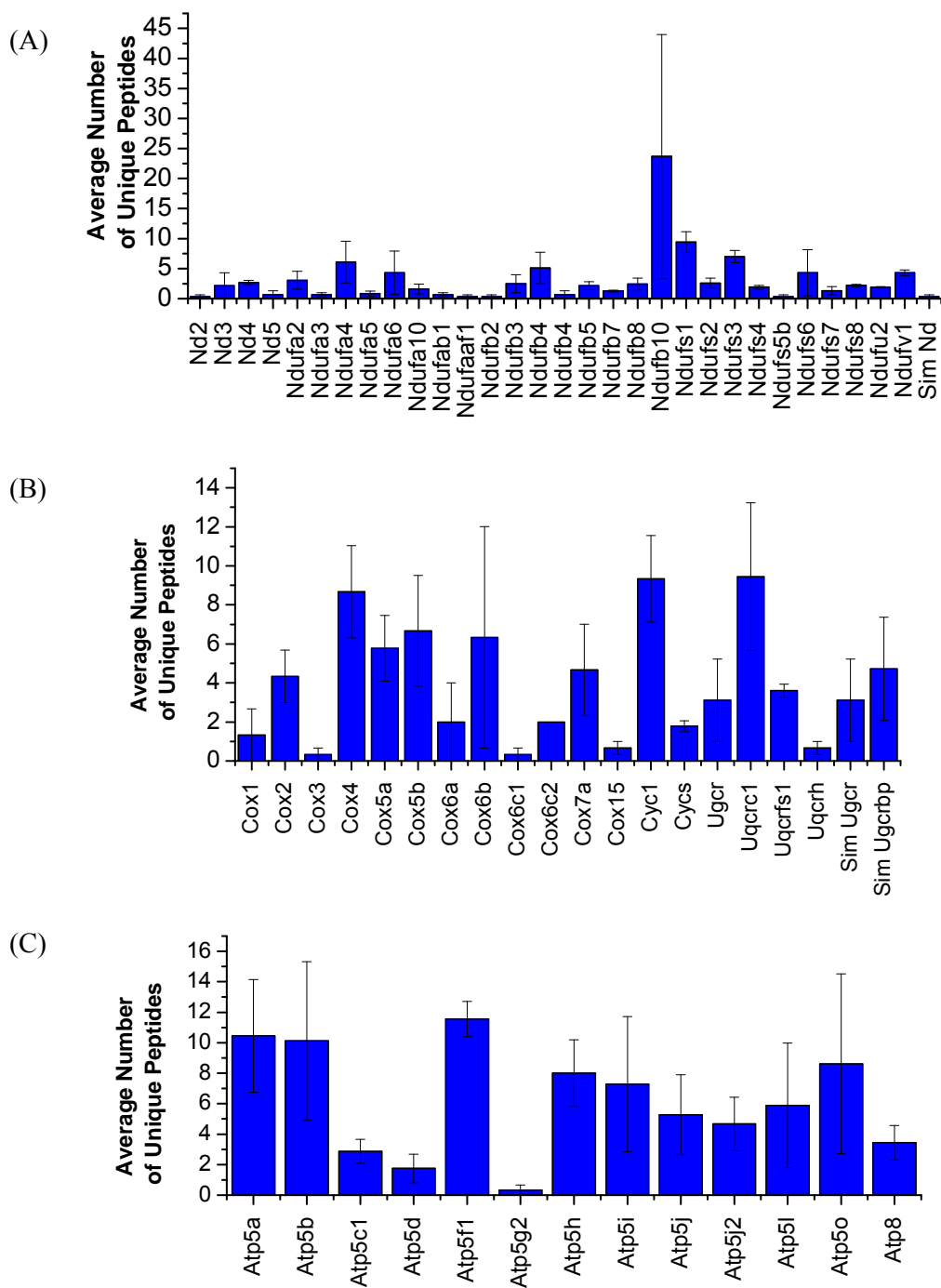


Figure 1.2: Average number of unique peptides for proteins of the electron transport chain. (A) NADH dehydrogenase (Nduf), (B) Cytochrome C oxidase (Cox), Cytochrome C (Cyc), Ubiquinol-cytochrome C reductase subunits, (C) ATP synthase subunits.

Appendix 2:

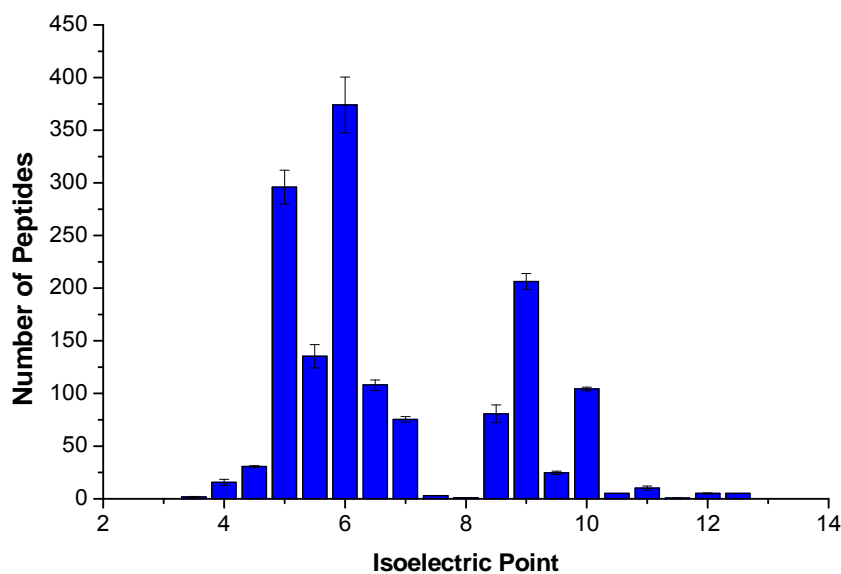


Figure 2.1: Isoelectric point analysis of peptides identified from fraction 24 from each of the replicate experiments from narrow range (3.4-4.9) IPG strips. The *pI* distribution of peptides demonstrates that peptides were detected with *pI* values through the pH spectrum. The largest number of peptides was shown to be detected from *pI* regions of 4-4.5, 5.5-6 and 8.5-9.

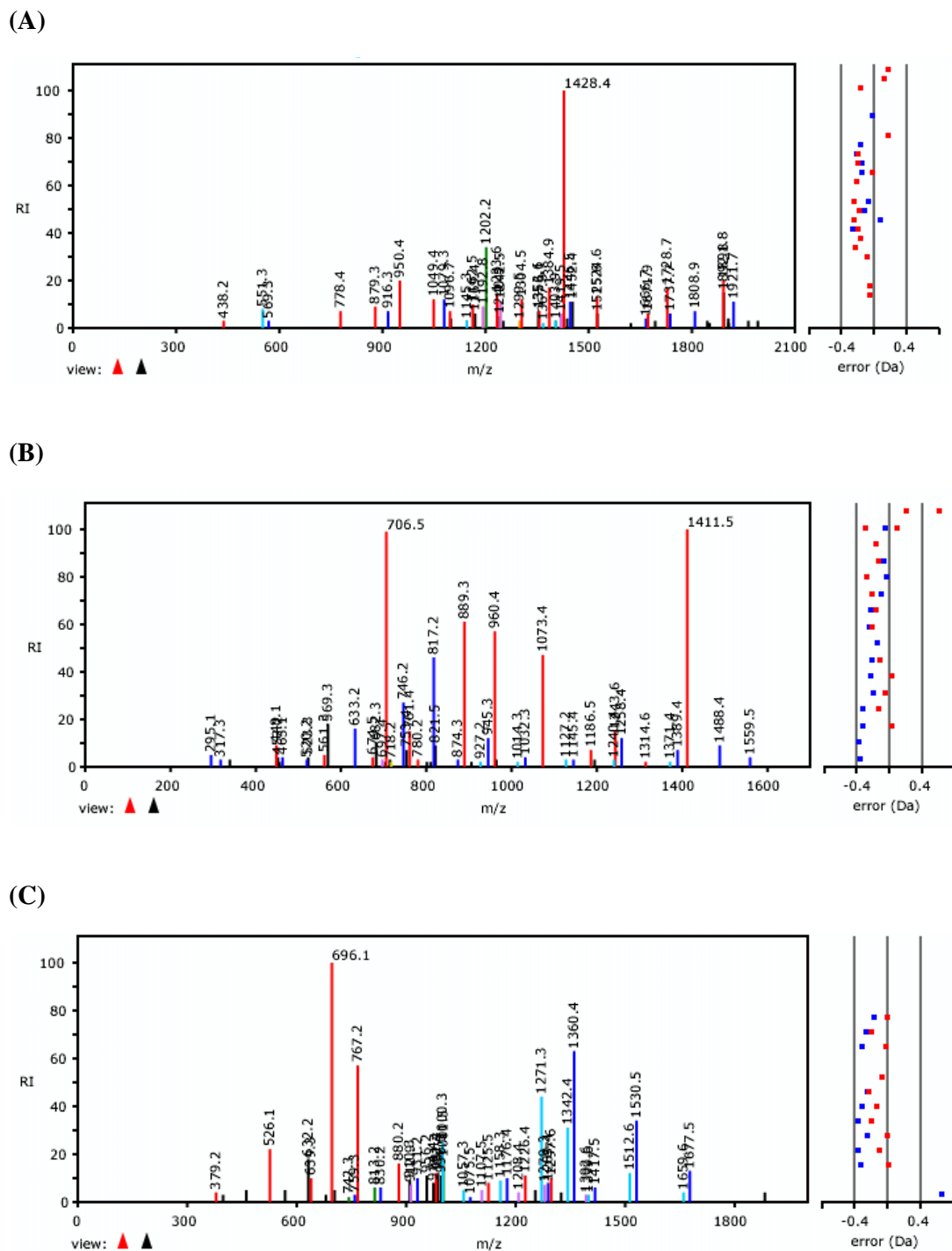


Figure 2.2: Mass spectra representing the peptide sequences overlapping with the TM segments of P11 protein. The mass spectra above represent the following peptides sequences; (A) DSGPLVPLHYYGFGYAALVATGGIIGYAK, (B) NVWVFLATSGTLAGIMGMGR, (C) FMPAGLIAGASLLMVAKLGLSMLSSPHP.

(A)

MEEYAREPCPWRIVDDCGGAFTMGVIGGGVFQAVKGFRNAPVGIRHRFRGSINAVRIRAP

QIGGSFAVWGGLFSTIDCGLVRLR**GKEDPWNSITSGALTGA**VLAA**RS**GPLAMVGSAMMGG

ILLALIEGVGILLTRYTAQQFR**NAPFLED**PNQLTPKEGAPAGYPNYQQYH

(B)

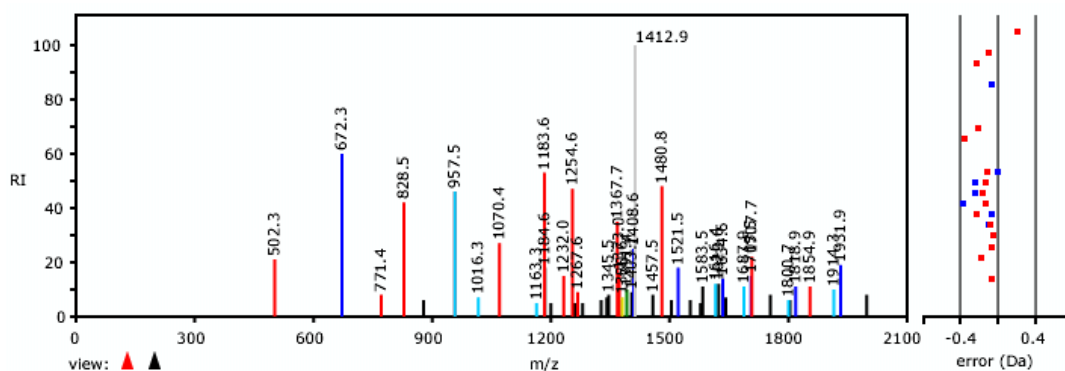
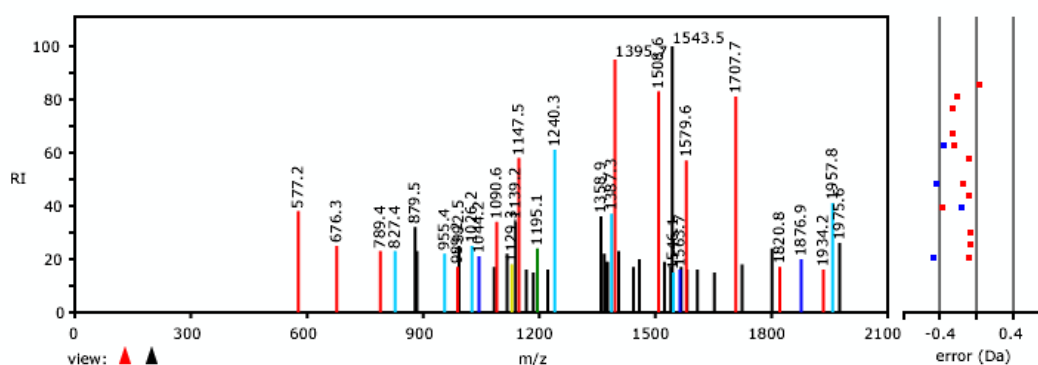


Figure 2.3: (A) Amino acid sequence representing the TM segments (Underlined) and identified peptides (Red) for the translocase of the in mitochondria 17b protein (TIM17b). (B) The mass spectrum above represents the following peptide; SGPLAMVGSAMMGGILLALIEGVGILLTR.

(A)

MGFEDLLDKVGGFGPPFQLRNLVLMALPRMLLPMHFLLPVFMAAVPAHHCALPGAPANLSH
QDLWLEAHLPRETDGSFSSCLRFAYPQTPNVTLGTEVSNSGEPEGEPLTVPCSQGW EYD
RSEFSSTIATEWDLVCQQRGLNKITSTCFFIGVLVGAVVGYLSDRFGRRRLLL VAYVSS
LVLGLMSAASINYIMFVVTRTLTGSALAGFTIIVLPLELEWLDVEHRTVAGVISTVFWSG
GVLLLLALVGYLIRSWRWLLLAATLPCVPGIISIWWVPESARWLLTQGRVEEAKKYLLSCA
KLNGRPVGEGLSQEALNNVVTMERALQRP SYLDLFRTSQLRHISLCCMMVWFGVNF SY Y
GLTLDVSGLG LNVYQTQLLFGAVELPSKIMVYFLVRRLGRRLTEAGMLLGAALTFGTSL L
VSLETKS WITALVVVGKAFSEAAFTTAYLFTSELYPTVLRQTGLGLTALMGRLGASLAPL
AALLDGVWLLLPKVAYGGIALVA ACTALLLPETKKAQLPETIQDVERKRRKMC RSGTELD

(B)



(C)

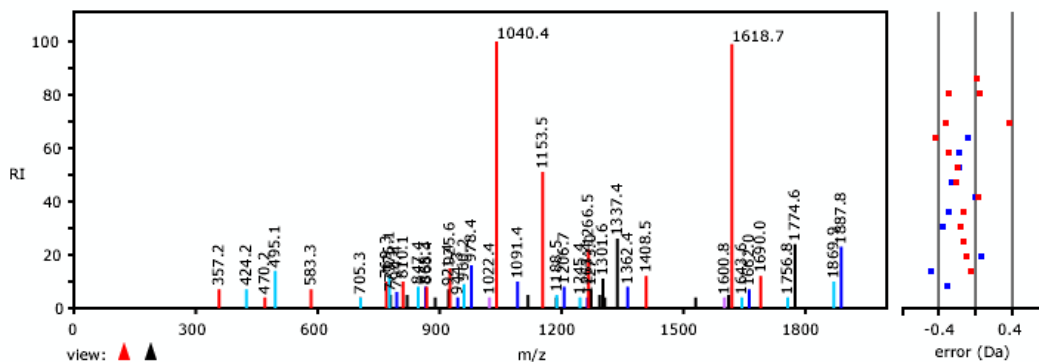
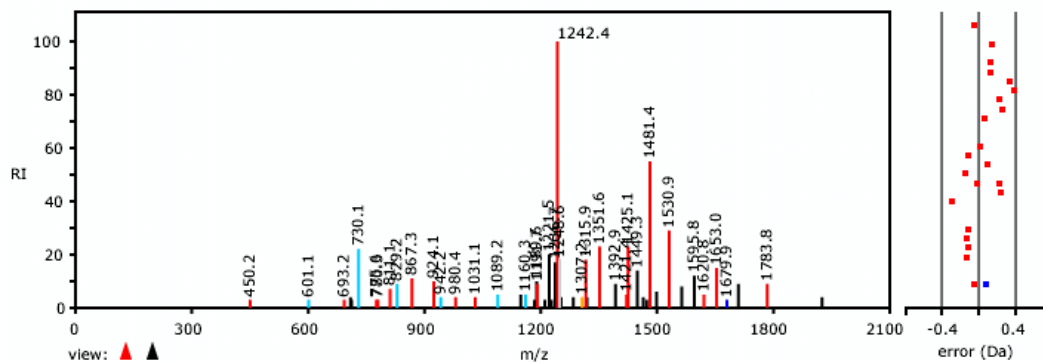


Figure 2.4: (A) Amino acid sequence representing the TM segments (Underlined) and identified peptides (Red) for Solute Carrier Family 22 Member 7 (SLC22a7). The mass spectrum above represents the following peptide; (B) LLLVAYVSSLVLGLMSAASINYIMFVVTR and (C) RLTEAGMLLGAALTFGTSLLSLET K.

(A)

MADLKQLMDNEVLMAFTSYATIILAKMMFLSSATAFQRLTNKVFPANPEDCAGFGKGENAK
KFLRTDEKVERVRRAHLNDLENIVPFLGIGLLYSLSGPDLSTALIHFRIFVGARIYHTIA
YLTPLPQPNRGLAFFVGyGVTLsMAYRLLRSRLYL

(B)



(C)

Figure 2.5: (A) Amino acid sequence representing the TM segments (Underlined) and identified peptides (Red) for Microsomal Glutathione S-transferase 1. The mass spectra above represent the following peptides; (B) QLMDNEVLMAFTSYATIILAK and (C) GLAFFVGyGVTLsMAYRLLR.

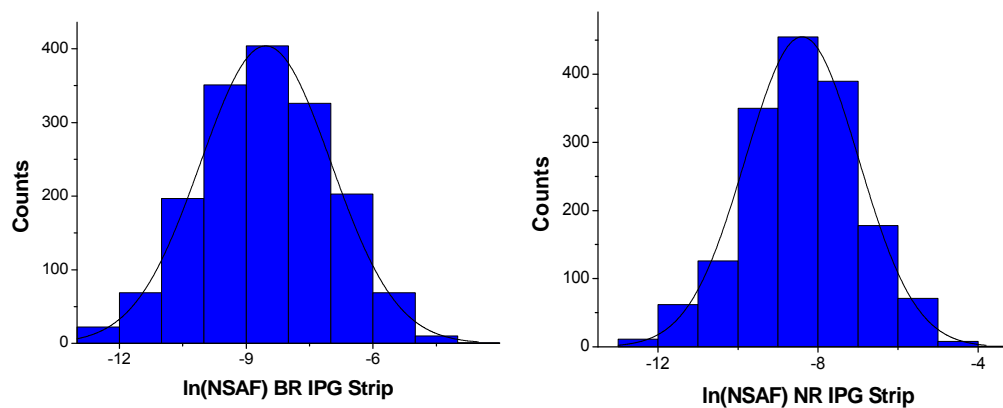


Figure 2.6: Natural log distribution of normalized spectral abundance factors calculated for the 1659 proteins used in the label free quantification from broad and narrow range IPG strips.

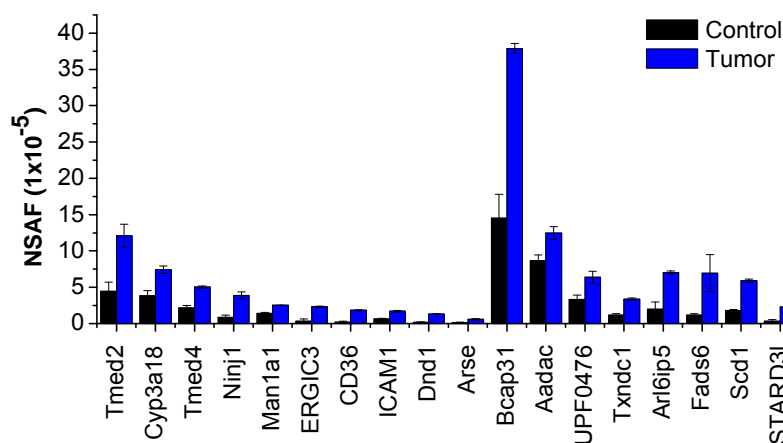


Figure 2.7: Multi-transmembrane segment containing proteins with a significant increase in NSAF values in NR IPG strips in comparison to BR IPG strips. Proteins are presented in groups depending on the number of transmembrane segments as follows; 2 TM's – Tmed2, Cyp3a18, Tmed4, Ninj1, Man1a1, ERGIC3, CD36, ICAM1, Dnd1, Arse; 3 TM's – Bcap31, Aadac, UPF0476, Txndc1; 4 TM's – Arl6ip5, Fads6, STARD3l, ABC B6 (n=3, p<0.05).

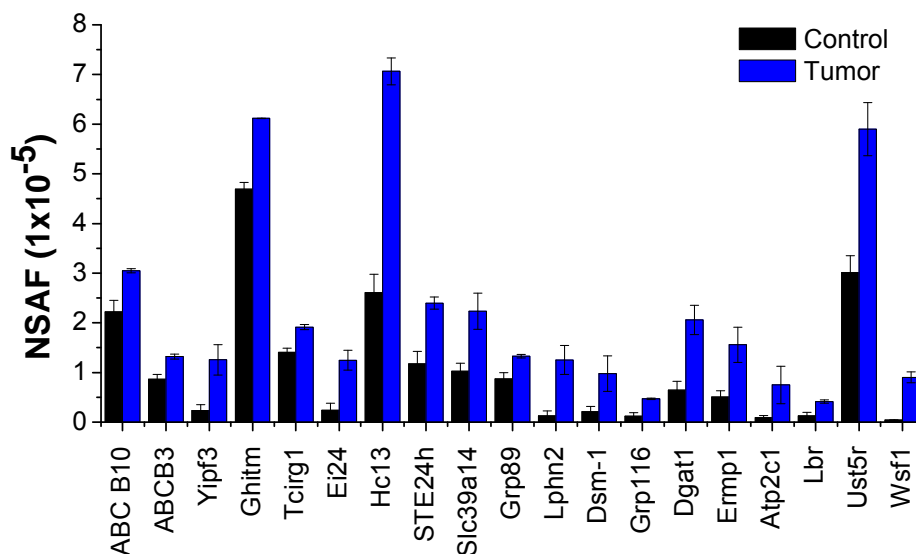
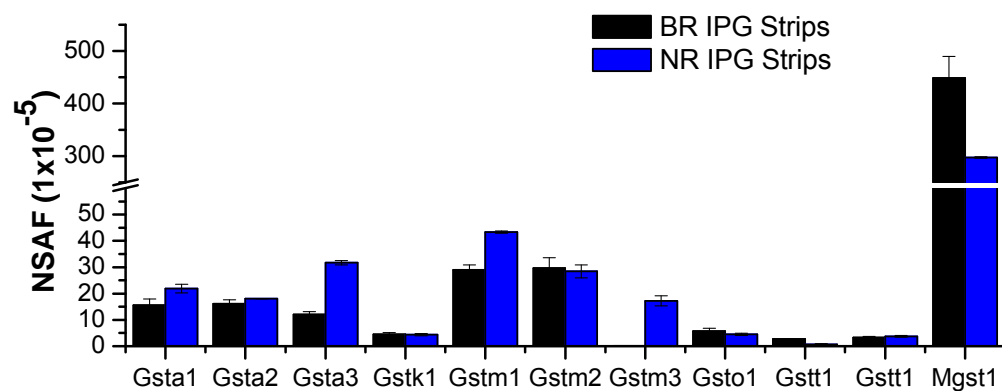


Figure 2.8: Multi-transmembrane segment containing proteins with a significant increase in NSAF values in NR IPG strips in comparison to BR IPG strips. Proteins are presented in groups depending on the number of transmembrane segments as follows; 5 TM's – ABC B10, ABC B3, Yipf3; 6 TM's – Ghitm, Tcirp1, Ei24; 7 TM's – Hc13, STE24h, SLC39a14, Grp89, Lphn2, Dsm-1, Grp116; 8 TM's – Dgat1, Emp1, Atp2c1, Lbr; 9 TM's – Ustrb5, Wsf1 (n=3, p<0.05).

(A)



(B)

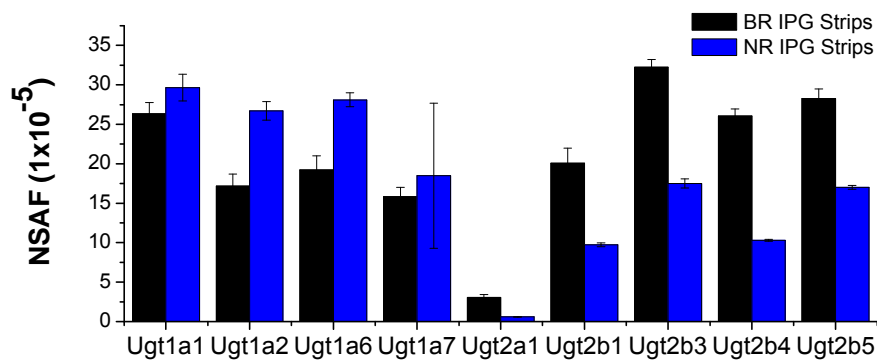


Figure 2.9: Quantitative analysis of xenobiotic metabolizing enzymes identified from rat liver membrane proteome using BR (black) and NR (blue) IPG strips. In total, (A) 11 glutathione S-transferase's (Gst's) and (B) 9 UDP-glucuronoyl transferase's (Ugt's) were quantified and therefore, reproducibly identified from the IPG strips.

Appendix 3:

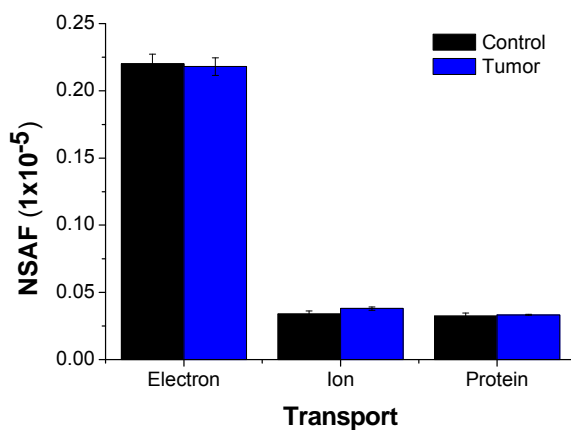


Figure 3.1: Sub-classification of proteins from the molecular process of transport into the following groups; electron, ion and proteins transport. The abundance of each sub-category is calculated from the accumulation of NSAF scores for the associated proteins for both control and tumor-bearing mice.

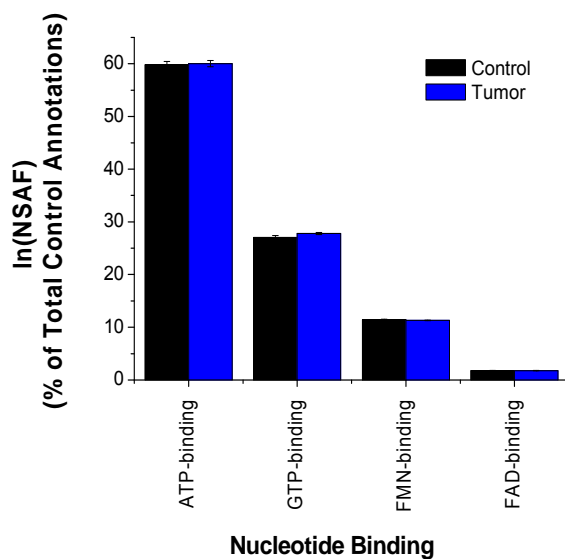


Figure 3.2: Sub-classification of proteins from the molecular function of nucleotide binding into the following groups; ATP-binding, GTP-binding, FMN-binding and FAD-binding. The abundance of each sub-category is calculated from the accumulation of NSAF scores for the associated proteins for both control and tumor-bearing mice.

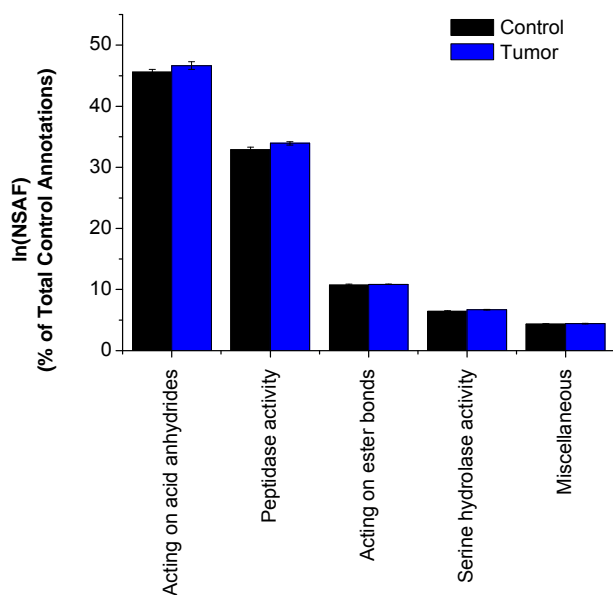


Figure 3.3: Sub-classification of proteins from the molecular function of nucleotide binding into the following groups; acting on acid anhydrides, peptidase activity, acting on ester bonds, serine hydrolase activity and miscellaneous. The abundance of each sub-category is calculated from the accumulation of NSAF scores for the associated proteins for both control and tumor-bearing mice.

Appendix 4:

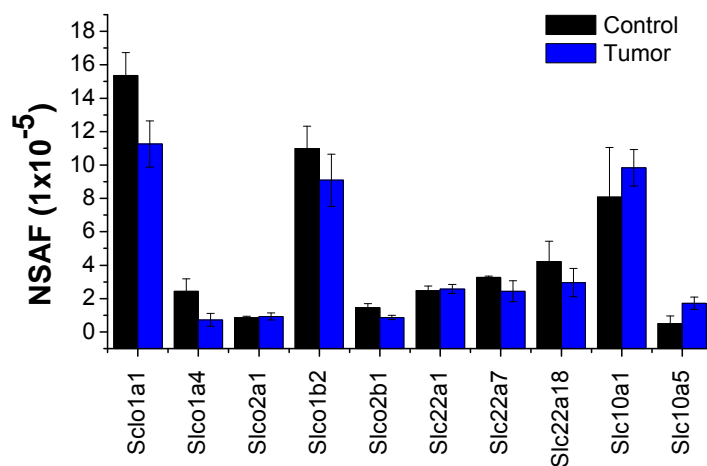


Figure 4.1: Comparison of the protein abundance of solute carrier family proteins from control and tumor-bearing mice. Solute carrier family organic anion transporters (Slco), 1a1, 1a4, 2a1, 1b2 and 2b1; anion transporter- Slc22a7; cation transporter – Slc22a18; Bile acid transporters – Slc10a1 and Slc10a5.

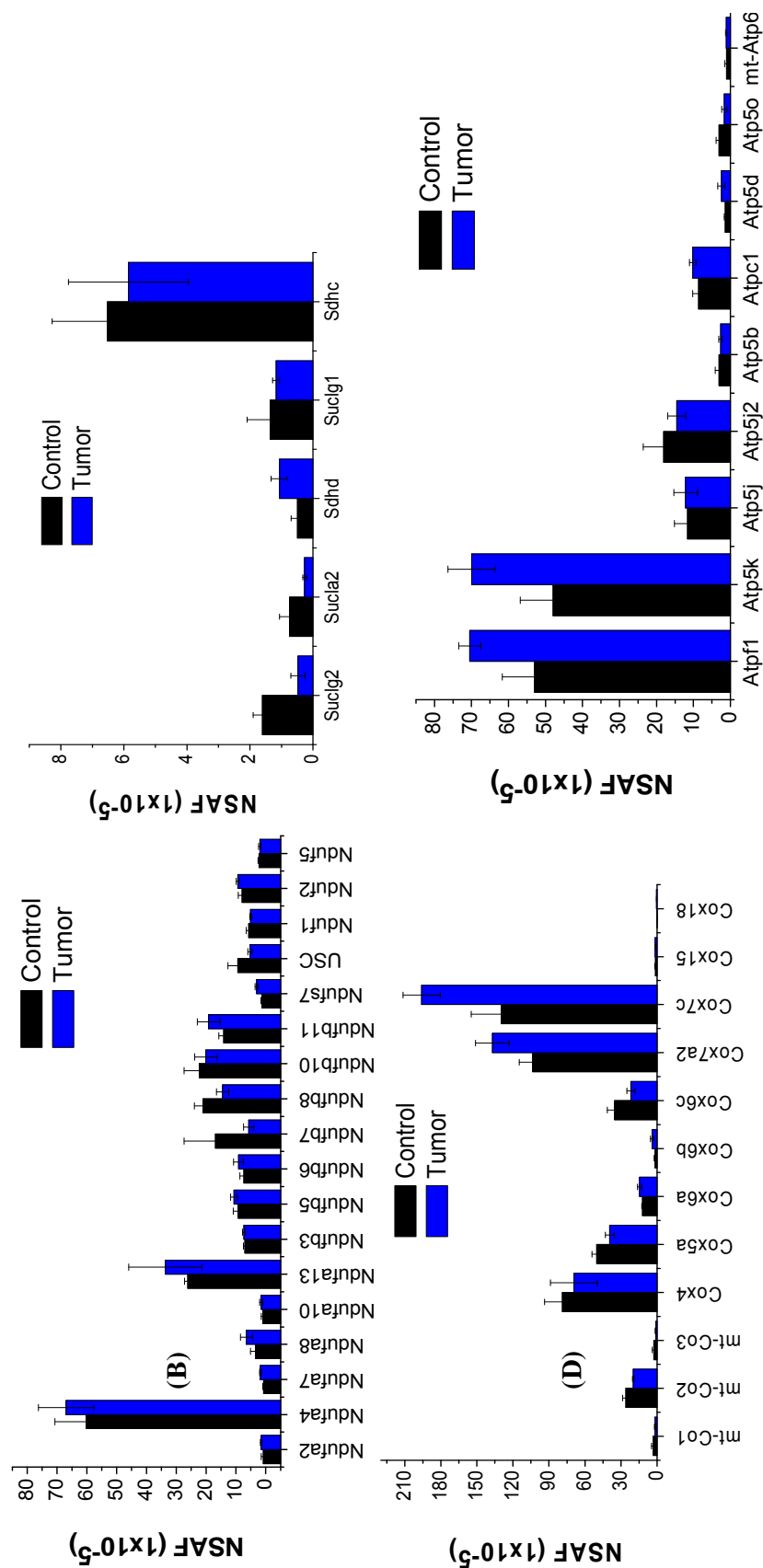


Figure 4.2: Analysis of the abundance of proteins identified from the electron transport chain, including; (A) Complex I – NADH dehydrogenase subunits (Nduf), (B) Complex II – succinate-coenzyme A liage subunits (Sudl) and succinate dehydrogenase subunits (Sudh), (C) Complex III – cytochrome c oxidase subunits (Cox) and mitochondrial cytochrome c oxidase subunits (mt-cox) and (D) Complex IV – ATP synthase subunits (mt-Atp6).

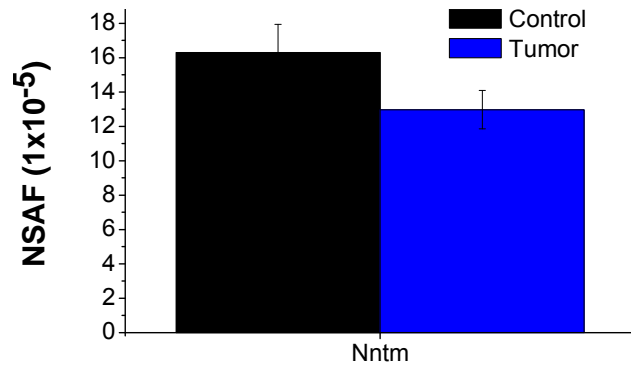


Figure 4.3: Protein abundance of nicotinamide nucleotide transdehydrogenase (Nntm) in control and tumor-bearing mice.

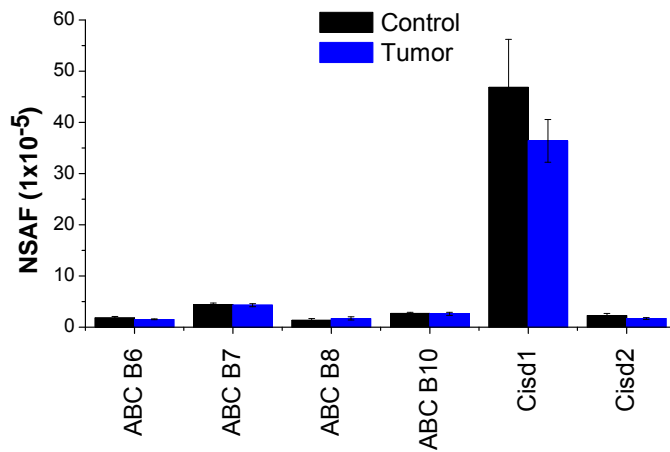


Figure 4.4: Protein abundance of Heme and Iron Cluster Transporters in control and tumor bearing mice, including; ATP-binding cassette family B isoforms (ABC B) and CDGSH iron sulfur domain 1 (Cisd1) and 2 (Cisd2).

Supplementary Tables

Supplementary Table 1:
Peptide IPG-IEF Shotgun Proteomics Analysis of Methanol Assisted Membrane Protein Digests

% = Percent Protein Coverage
 NR = Non-Redundant Peptide Count
 Log(E) = X!Tandem Expectation Score
 Rep = Replication

		0% Methanol									40% Methanol									60% Methanol										
		Rep 1			Rep 2			Rep 3			Rep 1			Rep 2			Rep 3			Rep 1			Rep 2			Rep 3				
Ensemble	Accession	SwissProt/NCBI	Accession	%	NR	log(e)	%	NR	log(e)	%	NR	log(e)	%	NR	log(e)	%	NR	log(e)	%	NR	log(e)	%	NR	log(e)	%	NR	log(e)			
ENSRNOP00000000025	XP_342776			8.9	1	-3.7														11	1	-5.6	15	2	-12.9					
ENSRNOP00000000047	P45380			9.2	3	-32.5														10	4	-27.6	2.1	1	-6.4	2.1	1	-6.2		
ENSRNOP00000000072	P29419			15	1	-4.7	15	2	-13.2						15	1	-6.1	31	31	31	55	6	-47.6	51	5	-48.4	37	2	-12.5	
ENSRNOP00000000083	Q6AXN3			6.9	2	-14	8.8	4	-26.6	3.3	1	-3.1								9.8	2	-10.5	6.9	2	-13.5					
ENSRNOP00000000107	Q9JJ40			4.8	2	-12.8				9	3	-20.1								2.5	1	-2.9								
ENSRNOP00000000134	P29410			24	6	-51.7	7.9	2	-10.2	15	3	-18.9	18	3	-29.4	3.8	1	-3.2	11	11	11	19	4	-28.5	23	5	-35.2	16	3	-21.8
ENSRNOP00000000146	NP_001020169										9	2	-10.2																	
ENSRNOP00000000177	P17046										1.9	1	-2.9									4.1	2	-9.3						
ENSRNOP00000000178	P07953													3.3	1	-4.6														
ENSRNOP00000000186	Q9R112			5	1	-4.6	7.4	2	-11.5						5	1	-4.6				4.4	1	-8.1	9.4	2	-12.4	7.4	2	-15.5	
ENSRNOP00000000201	P97532																									4	1	-3.9		
ENSRNOP00000000219	P23711			25	5	-38.9				3.5	1	-5.3	7.3	2	-10.2											2.5	1	-1.9		
ENSRNOP00000000246	Q45QJ8						6.3	2	-8.8									2.6	2.6	2.6	5.6	2	-12.5	5.4	2	-10.9	2.6	1	-3	
ENSRNOP00000000246							6.3	2	-8.8									2.6	2.6	2.6	5.6	2	-12.5	5.4	2	-10.9	2.6	1	-3	
ENSRNOP00000000306	P32089			19	3	-22.2	22	6	-41.5	16	3	-20	5.8	2	-9.9	32	7	-53.3	6.8	6.8	6.8	25	6	-44.8	25	5	-41.5	8.7	3	-18.4
ENSRNOP00000000336	Q9ET64																						2.6	1	-2					
ENSRNOP00000000345	XP_228305			1.8	1	-2.1	1.8	1	-3.9	1.8	1	-3.4	5.8	4	-27.4	3.3	2	-11.4			1.8	1	-3.8	1.8	1	-3.5	2.6	2	-12.9	
ENSRNOP00000000351	NM_053371											10	1	-1.6												10	1	-1.5		
ENSRNOP00000000434	NP_612539																			5.9	1	-3.1				3.5	1	-4.5		
ENSRNOP00000000514	P08649																			1.8	1	-2.4				1.8	1	-2.7		
ENSRNOP00000000514																				1.8	1	-2.4				1.8	1	-2.7		
ENSRNOP00000000527	P36372			2.3	1	-4.1	4.6	2	-9.8	2.3	1	-5.7						2.3	2.3	2.3	2.3	1	-4.9	2.3	1	-3.7				
ENSRNOP00000000528	P28064			9.1	2	-14.4				4	1	-3.6	4	1	-2.7			4.7	4.7	4.7	13	3	-21.6	4.7	1	-6				

ENSRNOP0000000532	P28077																	5	5	5										5	1	-4.4
ENSRNOP0000000537	NP_997693																							0.6	1	-1.8						
ENSRNOP0000000541	NP_001008885							5.3	1	-5.6	5.3	1	-3.7					5.3	5.3	5.3	5.3	1	-3.2									
ENSRNOP0000000542	NP_997694										5.4	1	-2.4																			
ENSRNOP0000000631	Q6P6G2	3.4	1	-4.5							3.4	1	-2.2								3.4	1	-2.8									
ENSRNOP0000000662	XP_215413													10	1	-6.7	10	10	10	10	10	1	-5.4						10	1	-5	
ENSRNOP0000000673	NP_001007740	5.1	1	-3.1							5.1	1	-2.9				5.1	5.1	5.1	10	2	-10.3							5.6	1	-7.5	
ENSRNOP0000000674	Q499R7													8.9	2	-11.8	5.4	5.4	5.4													
ENSRNOP0000000686	Q8CHN6	4.8	3	-22.2	2.5	1	-4.6	2.5	1	-6	7	3	-19.8				2.5	2.5	2.5	5.2	2	-13	5.2	2	-11.4	5.2	2	-10.2				
ENSRNOP0000000687	P61459				8.7	1	-2.3														12	1	-2.3						8.7	1	-3.5	
ENSRNOP0000000696	P10960													3.2	2	-11.7	1.6	1.6	1.6													
ENSRNOP0000000749	XP_215378	31	3	-27.1				24	2	-14.6	20	2	-18.4	25	3	-35.8	24	24	24	50	4	-37.1	7.4	1	-3.2	24	2	-16.6				
ENSRNOP0000000990	NP_075210	4.6	1	-4.5																												
ENSRNOP0000001014	Q920M2	13	2	-8.9																												
ENSRNOP0000001048	NP_001028828	4.6	1	-5.3																5.8	2	-16.2										
ENSRNOP0000001079	P55051																												6.1	1	-1.7	
ENSRNOP0000001092	XP_228197																			0.7	1	-2.4										
ENSRNOP0000001095	P69897	26	8	-68.1	11.5	3	-28.8				40	11	-102	51	19	-187	34	34	34	25	10	-94	27	10	-100	27	10	-95.2				
ENSRNOP0000001098	Q9Z1E1																												1.6	1	-2	
ENSRNOP0000001154	NM_001025663																			2.8	1	-1.9										
ENSRNOP0000001160	Q04462													5.5	2	-30.8																
ENSRNOP0000001200	Q3KR92										5	1	-6.3												5	1	-6					
ENSRNOP0000001211	P20673	6.2	2	-18.1				4.1	1	-11.4				12	5	-44.8	6.2	6.2	6.2	6.2	2	-17.5	8.4	2	-24.8	6.4	3	-23.8				
ENSRNOP0000001285	Q64581	18	6	-66	14	6	-43.9	21	9	-84.9	10	4	-35.6	2.8	1	-8.7				26	9	-106	35	9	-93.7	10	4	-30.7				
ENSRNOP0000001291	P05183	29	18	-169	28	18	-172	31	19	-175	24	11	-94.5	16	4	-55.5	13	13	13	34	17	-187	27	16	-155	14	6	-55.2				
ENSRNOP0000001299	P97943																							0	1	-4	2.2	1	-2.6			
ENSRNOP0000001379	NM_001037348																			5.9	1	-2.7										
ENSRNOP0000001397	Q63524	13	2	-14	13	2	-14.3	17	3	-26.4	4	1	-2.4	9.5	2	-17.7																
ENSRNOP0000001432	NP_001020801																			1.7	1	-4.4										
ENSRNOP0000001500	P31044	6	1	-1.9							19	2	-14.9														6.4	1	-4.9			
ENSRNOP0000001517	XP_001080241										0.8	1	-5				1.2	1.2	1.2													
ENSRNOP0000001545	P10818	42	6	-45.1																												
ENSRNOP0000001556	P15651										11	2	-16.7											4.1	1	-2.3	2.7	1	-3.8			
ENSRNOP0000001609	P56571	9	1	-1.9	9	1	-4.3	9	1	-3.8	9	1	-4.5	3.4	1	-2.8	12	12	12				9	1	-2.8							
ENSRNOP0000001666	Q01579	8.3	1	-2.3													8.3	8.3	8.3	8.3	1	-5.8										
ENSRNOP0000001689	Q4G061																												1.3	1	-4.7	
ENSRNOP0000001699	O88618	15	5	-39.6				7.9	3	-19	7	3	-17.7	17	7	-58.1	11	11	11	16	3	-40.8	4.6	3	-16.6	5.5	3	-21.5				
ENSRNOP0000001708	P48450										6.5	3	-37.2							5	3	-20.3	3.8	2	-8.7	1.5	1	-3.6				

[illegible]

ENSRNOP00000002705	XP_223289	8.6	5	-39.1	3.4	3	-16.6	8	5	-42.9	10	5	-43.6	7.8	5	-39.6	6.7	6.7	6.7	7.5	5	-36.4	9	7	-59	10	5	-39.1
ENSRNOP00000002712	P36511	23	18	-182	21	13	-116	28	17	-178	18	8	-76	17	10	-146	19	19	19	26	16	-218	27	17	-189	18	9	-81.5
ENSRNOP00000002716	Q62789	7	5	-36.6																								
ENSRNOP00000002724	P09875	20	10	-118	14	9	-60.5	20	12	-116	27	11	-93.9	29	10	-112	26	26	26	18	8	-123	18	9	-81.1	17	7	-72.1
ENSRNOP00000002727	XP_001060277										2.3	1	-2.3	2.6	1	-7.5												
ENSRNOP00000002727	P07895										2.3	1	-2.3	2.6	1	-7.5												
ENSRNOP00000002732	Q06647	14	2	-15.3				7.5	1	-7.1	41	8	-70.3	29	7	-62.8	46	46	46	7.5	1	-8.9	18	3	-38.7	45	8	-75.4
ENSRNOP00000002738	O35112	3.6	1	-3.7																		1.7	1	-3.9	1.7	1	-4.2	
ENSRNOP00000002991	XP_214027																7.8	7.8	7.8	21	2	-12.3				7.8	1	-7.6
ENSRNOP00000002996	NP_001013896				17	3	-22.4				8.1	2	-10.5	6.9	1	-5.7				18	3	-23.6	15	3	-26.7	13	3	-18.4
ENSRNOP00000003004	Q6AYS8	17	5	-45.3				17	7	-65.9	23	4	-42.8	36	5	-66.7	28	28	28	28	7	-75.8	17	7	-68.8	15	4	-30.6
ENSRNOP00000003020	Q5FVN1	11	2	-18.7	23	5	-33.1				5.7	2	-10	11	2	-22.4	5.7	5.7	5.7	5.7	2	-10.1	8.1	3	-22.4	5.4	2	-10.1
ENSRNOP00000003022	P35171	53	3	-19.8	11	2	-9.3	25	3	-16.6	15	1	-4.3	25	2	-13.4	25	25	25	25	2	-12.4	25	2	-13	25	2	-10
ENSRNOP00000003052	P27615				2.1	1	-2.6							2.3	1	-4.5												
ENSRNOP00000003072	NP_148981	2.8	1	-4.2															36	2	-9							
ENSRNOP00000003128	Q9Z142										0	1	-7.2	16	3	-21.4	3.5	3.5	3.5	4.5	1	-7.8	11	2	-22.8	4.5	1	-5.6
ENSRNOP00000003255	NP_620240				0.4	1	-2.8																					
ENSRNOP00000003334	P63245																									3.8	1	-2.5
ENSRNOP00000003390	P16617	2.4	1	-3	2.4	1	-3.6				3.8	1	-2.8	3.4	1	-4.5				9.6	3	-25.1	3.8	1	-3.8	9.6	2	-16.1
ENSRNOP00000003436	O35777	7.8	3	-19.8	2.4	1	-2.4	4.8	2	-8.7	6	2	-8.5	5.1	2	-9.8				2.7	1	-2.8	5.4	2	-12.3	5.1	2	-10.7
ENSRNOP00000003476	NP_001037702										8.8	1	-3.6															
ENSRNOP00000003494	XP_228551																					1.1	1	-2				
ENSRNOP00000003514	Q9WU49																									10	1	-1.8
ENSRNOP00000003611	P19804							11	1	-3.4	11	1	-2.4							19	2	-10.9	11	1	-2	9	1	-2.8
ENSRNOP00000003633	P50554	6.4	2	-12.8	6	2	-10.6	6.4	2	-15.3							2.8	2.8	2.8				4.2	1	-3.4			
ENSRNOP00000003645	NP_001012145	4	1	-7.1				9.9	3	-19.2				8.5	2	-16.2	2.5	2.5	2.5	6.5	2	-13	6.5	2	-12.2			
ENSRNOP00000003658	Q05982	31	3	-17.9																								
ENSRNOP00000003674	NP_001032415	6.5	2	-12	26	2	-12.1	26	2	-12.3	28	2	-9.3	26	2	-12.2	27	27	27	33	3	-21	26	3	-20.1			
ENSRNOP00000003691	O70199	3.2	1	-5.6	5.7	2	-13.8	3.2	1	-4	4.3	2	-10.7	8.1	3	-24.2	5.7	5.7	5.7	3.2	1	-5.8	4.9	2	-12.4	2.4	1	-3.3
ENSRNOP00000003739	Q704E8	6	3	-19.4	6.4	2	-10.8	8.9	4	-29.7	1.7	1	-2.6	1.7	1	-5.5	2.9	2.9	2.9	7.2	5	-39	6.5	2	-13.8	6	4	-26.8
ENSRNOP00000003791	Q6AY30	22	5	-56.1	9.1	5	-34	8.9	2	-11.8	3.5	1	-3.7				3.5	3.5	3.5	17	4	-30.5	20	5	-35.4	7.5	3	-17.8
ENSRNOP00000003812	Q62904	9.5	2	-11.3				10	2	-10.8				3.3	1	-6.5	3	3	3	6.8	2	-12.4	7.1	2	-17.1	3.3	1	-3.1
ENSRNOP00000003869	Q07652							0.4	1	-2.6																0.4	1	-2.7
ENSRNOP00000003910	P21396	21	8	-82.4	7.8	4	-30.8	18	8	-70.9	14	5	-40.4	15	5	-50.5	15	15	15	14	5	-47.6	12	5	-43.6	22	9	-72.7
ENSRNOP00000003921	P02770	9	8	-81.4	9.5	9	-70.6	9.9	6	-47.4	2.1	1	-6.4	13	6	-65	20	20	20	13	9	-74.7	11	6	-50.6	7.2	4	-33.3
ENSRNOP00000003932	P07340	7.8	1	-4.2	3.3	2	-11.5				6.5	2	-11	6.5	2	-11.5				3.3	1	-4.4	3.3	1	-2.5	3.3	1	-3
ENSRNOP00000003965	P10719	15	6	-53	2.1	1	-2.2	7.4	3	-18.8	37	15	-142	24	11	-116	35	35	35	8.9	3	-25.5	8.7	3	-19.6	34	14	-147
ENSRNOP00000004091	P18418	3.4	1	-1.9	2.6	1	-5.7										2.9	2.9	2.9				2.6	1	-4.2			

[illegible]

ENSRNOP00000005262	Q9JHW1																			0.7	1	-5	0.7	1	-3.2			
ENSRNOP00000005273	Q9DC16	15	4	-31.4	8	1	-4.3	11	2	-10.5	8	1	-5.4				13	13	13	19	5	-34.1	13	2	-16.9			
ENSRNOP00000005280	Q5PQX1												3	1	-2													
ENSRNOP00000005370	P62963	5.8	1	-6.3				20	2	-11.1	11	1	-3.5				11	11	11	9.3	1	-2.1	20	2	-10.5	11	1	-5.6
ENSRNOP00000005459	Q5I0K9	13	2	-13.1	8.3	2	-13.9	8.3	3	-26.5	13	2	-11.2	25	4	-58	21	21	21	18	4	-27.6	8.3	1	-4.4			
ENSRNOP00000005471	P62832																10	10	10				10	1	-5.7	10	1	-6.4
ENSRNOP00000005491	P11505																						1.8	2	-8.6			
ENSRNOP00000005596	Q9WTQ1																			3	2	-8.8						
ENSRNOP00000005611	Q9JLJ3	7.7	4	-30.7	7.9	3	-19.4	12	5	-38.7	17	6	-63.6	13	7	-63.3	26	26	26	7.1	3	-25	12	4	-42.9	13	5	-53.4
ENSRNOP00000005661	NP_001013882																			7.7	1	-3.3						
ENSRNOP00000005665	XM_221100	5.6	1	-6.8	5.6	1	-4.1					9	2	-8.7	5.6	1	-2.7						5.6	1	-2	5.6	1	-3.8
ENSRNOP00000005702	Q6P791	7.5	1	-2.9																7.5	1	-2.2						
ENSRNOP00000005844	P04176	4.6	2	-14.3				4.6	2	-9.4				4.6	2	-11.5	7.7	7.7	7.7	2.4	1	-2	4.6	2	-14.2	2.4	1	-2.2
ENSRNOP00000005853	P15083	1.9	1	-5.2	4.2	3	-16.9	1.5	1	-3.6	2.8	2	-10							2.5	1	-2	1.1	1	-4.2	5.1	3	-22.5
ENSRNOP00000005875	P55006	38	15	-153	21	12	-108	37	11	-105	30	9	-69.3	34	11	-130	37	37	37	33.7	17	-205	43	15	-163	39	7	-74.1
ENSRNOP00000005901	XP_230889	22	2	-17																12	2	-9.7	7	1	-4			
ENSRNOP00000005912	Q6TXI6	15	3	-27	16	5	-37.7										3	3	3				13	4	-31.5			
ENSRNOP00000005960	P62919	5.8	1	-7.8	13	2	-10.3				14	3	-20.7	3.9	1	-6.2	28	28	28	5.8	2	-15.7	9.7	2	-24.5	14	3	-17.8
ENSRNOP00000005970	XP_216635	11	1	-6.5													11	11	11									
ENSRNOP00000005990	Q9Z1P2	1.2	1	-3.1						2.5	2	-13.2								1.2	1	-2.6						
ENSRNOP00000006004	Q63150							2.1	1	-4.3	1.9	1	-2.2							3.3	1	-2.7	4.8	2	-9.5			
ENSRNOP00000006020	XP_576003																									4.8	1	-3.1
ENSRNOP00000006053	XP_573640	2.7	1	-2.6	6	2	-8.9			2.7	1	-2.1	2.7	1	-2.3					12	4	-26.6				4.5	2	-8.6
ENSRNOP00000006083	Q9Z250									6.5	1	-1.6																
ENSRNOP00000006087	NP_113695	4.4	5	-40.7				3.6	3	-17.3	3.6	3	-18.1	1.5	1	-2.4	1.7	1.7	1.7	4.5	5	-39.9	2.8	4	-28	0.8	1	-1.7
ENSRNOP00000006119	Q9Z1X1	5.1	4	-31	3.4	2	-11.9	5.5	3	-21.9	5.5	3	-27.6	2.1	1	-4.2	2.1	2.1	2.1	6.3	5	-40	5.5	3	-24.3	2	2	-11.8
ENSRNOP00000006143	Q80Z70	4.8	2	-31.7	2.7	1	-6.9	2.7	2	-16.5	2.7	1	-6.9				2.7	2.7	2.7	4.8	2	-15	14	3	-33.8			
ENSRNOP00000006154	XP_213949	19	1	-2.9																			19	1	-2.3			
ENSRNOP00000006160	NP_001006961	7.2	1	-7.4	19	2	-13.6	19	2	-13.9	11	1	-3.7	19	2	-10.5							7.2	1	-6.7	13	2	-12.9
ENSRNOP00000006314	XP_213214	21	1	-2	21	1	-4.5	21	1	-3.7	32	1	-4.3	21	1	-2.8	21	21	21	21	1	-3.4	21	1	-5.1	12	1	-3.6
ENSRNOP00000006322	P68370												21	8	-90.4													
ENSRNOP00000006330	XP_230613	3.5	1	-6.4																			3	1	-2.4	3.8	1	-2.3
ENSRNOP00000006335	P51871	1.7	1	-2.8				2	1	-11	3.5	2	-12.3															
ENSRNOP00000006355	P62332									5.1	1	-2.6	11	1	-4.9	11	11	11								17	3	-21.1
ENSRNOP00000006359	P84100	8.7	1	-11	12	2	-16.7	8.2	1	-6.4	8.2	1	-8.5	8.2	1	-5.9	3.4	3.4	3.4	12	2	-18.4	12	2	-15.3	13	3	-23.1
ENSRNOP00000006369	XP_347237							2.1	1	-5.3	3.7	2	-18.1	2.1	1	-7	2.1	2.1	2.1	6.9	3	-17.4				3.7	2	-13.6
ENSRNOP00000006443	Q9JK11	2.4	2	-16.1																2.2	2	-12.6	1	1	-4.6			
ENSRNOP00000006473	XP_234264									3.5	1	-4.7																

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ENSRNOP0000007645	XP_216735	5.6	2	-10.1	4.1	1	-3.2												3.3	1	-2.8	3.3	1	-3.1				
ENSRNOP0000007773	NP_001007659									4.3	1	-1.7													5.8	1	-3.5	
ENSRNOP0000007825	P26435				8	3	-18.1	3.6	1	-3.5	3.6	1	-2.8	10	2	-23.3	10	10	10	11	3	-18.9	3.6	2	-10.9	3.6	1	-3.4
ENSRNOP0000007840	Q7TP78	16	3	-25																								
ENSRNOP0000007841	P02761	20	2	-23															23	3	-24.5							
ENSRNOP0000007870	P16232	46	14	-140	35	15	-120	36	11	-96.2	32	10	-85.9	23	5	-41.2	26	26	26	35	11	-99.7	25	8	-77.8	35	10	-79.8
ENSRNOP0000007914	NP_001007644																								3.1	1	-2	
ENSRNOP0000008018	Q07116	24	13	-118	18	6	-45.1	9.9	4	-26.3	1.5	1	-1.6						36	15	-157	16	5	-65	7.9	4	-24.3	
ENSRNOP0000008041	NP_001007146																		1.2	1	-4.9				1.2	1	-6	
ENSRNOP0000008045	Q498D5									3.4	1	-3.6							8.7	2	-8.4							
ENSRNOP0000008094	XR_009461																								8.1	2	-12.2	
ENSRNOP0000008119	XP_220404																		9.3	2	-11.1							
ENSRNOP0000008150	Q8CGU6									2.1	1	-4.7																
ENSRNOP0000008211	NP_113828																		9.3	2	-8.1							
ENSRNOP0000008325	Q63362				6.9	1	-2.3	28	2	-10.6												16	1	-2.9				
ENSRNOP0000008329	XM_216400	6.9	1	-2.2							25	2	-20.6	6.9	1	-2.4	7	7	7						6.9	1	-2.8	
ENSRNOP0000008374	P27653				1.6	1	-4				1	1	-2.5	3	1	-5.1	1.1	1.1	1.1			1.1	1	-4.4	1.5	1	-7.4	
ENSRNOP0000008454	Q8R515																		2.9	1	-2							
ENSRNOP0000008503	Q9JM53	26	13	-109	23	17	-145	20	9	-74.5	18	9	-75.2	5.2	3	-21.1	5.4	5.4	5.4	24	14	-122	16	11	-87.6	18	8	-64.6
ENSRNOP0000008504	P14659	10.1	4	-38.9																								
ENSRNOP0000008518	Q5BJV4																0.9	0.9	0.9									
ENSRNOP0000008522	P05712	16	2	-24.3	16	4	-34	19	4	-29.2	19	3	-16.1	27	3	-45	22	22	22	16	2	-12.8	21	2	-29.6	16	2	-24.9
ENSRNOP0000008525	NP_001008283																5.9	5.9	5.9									
ENSRNOP0000008574	NP_075591	6	7	-61																								
ENSRNOP0000008679	Q498S1												4	1	-3.2													
ENSRNOP0000008728	P38659	3.1	2	-15.4	2.3	1	-6.8	3.1	2	-16.5	1.6	1	-4.1				1.7	1.7	1.7	1.7	1	-2.6	3.6	2	-12.3			
ENSRNOP0000008841	P02692	35	3	-22.7	40	5	-43.2	32	3	-28.2	18	3	-24.8	43	4	-32.7	47	47	47	51	5	-46	10	1	-7.2	35	2	-22.6
ENSRNOP0000008854	XP_343220																		1.4	1	-2.8							
ENSRNOP0000008888	P11654																								2.2	3	-16.8	
ENSRNOP0000008910	XP_238167				0.6	1	-2.1																					
ENSRNOP0000008913	Q3B8P6									3.6	1	-4.3							3.6	1	-2.3							
ENSRNOP0000008932	P67779	15	5	-40.6	15	5	-33.7	12	5	-32.5	9.2	3	-25.7	5.8	2	-9.4	8.7	8.7	8.7	14	5	-41.8	11	5	-40	12	4	-32.3
ENSRNOP0000008932	NM_001034003	15	5	-40.6	15	5	-33.7	12	5	-32.5	9.2	3	-25.7	5.8	2	-9.4	8.7	8.7	8.7	14	5	-41.8	11	5	-40	12	4	-32.3
ENSRNOP0000008980	Q6P6R2																					9.4	3	-27.4				
ENSRNOP0000008987	Q5FVR3												5.7	1	-8.1													
ENSRNOP0000009028	NP_997687	1	1	-8.1																								
ENSRNOP0000009053	Q9WVJ4	6	1	-2													6	6	6				6	1	-2.5	4.9	1	-1.8
ENSRNOP0000009111	P00884	20	8	-89.8	18	8	-80.9	10	5	-45.4	17	6	-52.9	23	8	-94.6	27	27	27	18	9	-89.6	21	7	-71.2	19	5	-62.2

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ENSRNOP00000010185	Q9ES40																			5.3	1	-2.4	8.5	2	-12.2			
ENSRNOP00000010209	P25235	32	13	-136	6.4	4	-32.9	20	12	-112	32	14	-128	19	8	-82.8	24	24	24	31	12	-123	15	7	-65.3	20	9	-75.3
ENSRNOP00000010210	XP_342582																											
ENSRNOP00000010243	NP_001091709				6.8	3	-22.6															4.1	2	-12.7				
ENSRNOP00000010251	XP_230734	2.9	1	-5	5.3	2	-13.6							2.9	1	-3.2				3.4	1	-2.6	2.5	1	-1.7	5.3	2	-7.9
ENSRNOP00000010260	P97562	2.1	1	-4.2				2.1	2	-12.1	4.8	3	-19.1	5.6	3	-23.4	8.4	8.4	8.4	7.8	4	-31.6	5.1	3	-18.5			
ENSRNOP00000010318	NP_001020826										4	1	-1.7									5.3	1	-3.8	4	1	-1.6	
ENSRNOP00000010375	Q9JJ05																					2.8	1	-2				
ENSRNOP00000010383	P62755	10	3	-21.3	5.7	1	-5.5				2.8	1	-1.7									9.3	2	-18				
ENSRNOP00000010385	Q3ZU82																		4.5	2	-8.8							
ENSRNOP00000010419	NP_620245																								9.7	2	-8.3	
ENSRNOP00000010467	XP_243652																		0.7	1	-6.2	1.7	3	-19.1				
ENSRNOP00000010481	NP_001007702	7.7	1	-6.2				3.5	2	-14.2	3.5	1	-3.9				6.1	6.1	6.1	3.5	1	-4.7	3.5	1	-3.2	4.8	2	-15.4
ENSRNOP00000010512	Q63584	23	3	-23.1	22	2	-17.8	13	1	-3.3	30	3	-26.2	17	2	-13.7	30	30	30	37	4	-33.2	30	3	-27.6	17	2	-12.2
ENSRNOP00000010512		23	3	-23.1	22	2	-17.8	13	1	-3.3	30	3	-26.2	17	2	-13.7	30	30	30	37	4	-33.2	30	3	-27.6	17	2	-12.2
ENSRNOP00000010545	P49432										4.2	1	-3.9	4.2	1	-6.6	4.2	4.2	4.2							3.1	1	-2.5
ENSRNOP00000010573	P17764	4	1	-2.7							5.7	2	-13	3.8	1	-7.3	16	16	16									
ENSRNOP00000010579	P08011	72	13	-138	54	24	-241	68	22	-221	56	9	-115	68	21	-246	45	45	45	65	10	-122	72	9	-85.4	59	12	-145
ENSRNOP00000010593	P21913										2.8	1	-1.6															
ENSRNOP00000010595	Q4V8C2										1.9	1	-3.4	1.9	1	-6												
ENSRNOP00000010602	NP_001073368	2.7	1	-2.3																								
ENSRNOP00000010619	P62074										6.7	1	-1.7															
ENSRNOP00000010631	NP_001006981										5.8	2	-12.8															
ENSRNOP00000010663	NP_001019914	20	7	-59.6	13	6	-47.1	13	5	-40	1.8	1	-1.8	6.6	3	-23.3	4.4	4.4	4.4	16	5	-40	13	4	-38.4	2.2	1	-4.2
ENSRNOP00000010680	Q09137										1.4	1	-2.9															
ENSRNOP00000010720	P97536							1.5	1	-2.8	1.5	1	-2.1				1.1	1.1	1.1				0	1	-3.3	0.9	1	-2.4
ENSRNOP00000010753	NM_017280	13	2	-21.5	7.4	3	-17.8	7	2	-10.5				7.4	2	-12.4	6.6	6.6	6.6	9.4	2	-10.1	17	3	-31.7	5.1	1	-1.9
ENSRNOP00000010760	Q562C4	20	4	-33	11	6	-44.1	15	5	-37.1	11	2	-16.6	26	5	-44	30	30	30	34	7	-61	20	2	-25.2	15	3	-21.5
ENSRNOP00000010779	Q9JKW1				4.7	1	-6.2				4.7	1	-3.4												4.7	1	-6.8	
ENSRNOP00000010798	Q63135	4.5	2	-12.3													5.9	5.9	5.9	4.5	2	-11.8	4.5	2	-14.1			
ENSRNOP00000010867	Q02974	4	1	-4	4	1	-5.1	4	1	-4.6	8.7	2	-14.7	4	1	-3.7	4	4	4				4	1	-4.3	4	1	-6.6
ENSRNOP00000010871	Q9WV97	16	1	-3.1																16	1	-2				16	1	-3.8
ENSRNOP00000010980	NP_001013237																			3.2	1	-2.5						
ENSRNOP00000010984	Q03336	13	3	-21.6	10	2	-15.8	14	3	-21.2	8	2	-10.6	12	3	-24	20	20	20	15	4	-33.1	20	5	-36.4	12	3	-20.4
ENSRNOP00000011006	XP_230050	3.2	2	-8.8							1.8	1	-2.7															
ENSRNOP00000011065	NP_445983																			3.6	1	-2.5						
ENSRNOP00000011069	P29266	4.8	1	-2							5.1	1	-3.2	4.8	1	-5.9	4.8	4.8	4.8									
ENSRNOP00000011082	NP_001008323	2.6	1	-4.1				2.6	1	-4.9	2.6	1	-4										2	1	-1.7	3.2	1	-6.5

ENSRNOP00000011130	Q07014										3.7	1	-3.9															2.1	1	-5.3
ENSRNOP00000011158	Q5EBA4	7.4	2	-9.5				4.6	1	-5.5	2.8	1	-3.3	2.8	1	-2.7	7.4	7.4	7.4					2.8	1	-2.6				
ENSRNOP00000011183	XP_216785	11	1	-2.2							12	2	-10.5							32	4	-23.6								
ENSRNOP00000011230	P04762	16	6	-65.9	14	6	-54.6	18	7	-53.5	8.3	5	-34.8	22	8	-83.9	19	19	19	20	8	-74.3	20	7	-70.2	12	7	-60.7		
ENSRNOP00000011275	P26453	9.8	3	-20.1				6.7	2	-12.9				6.7	2	-10.4														
ENSRNOP00000011316	XP_235517	15	1	-3.3																15	1	-9								
ENSRNOP00000011327	NP_599217										4.6	1	-1.8														4.1	1	-4.1	
ENSRNOP00000011330	Q64591																										3.6	1	-4.8	
ENSRNOP00000011333	P62083										11	1	-3.5	7.2	1	-2.9	7.2	7.2	7.2								9.3	2	-8.1	
ENSRNOP00000011429	O88989	6	1	-3.3				2.7	1	-4.3	5.7	2	-12.3	3	1	-2.4	11	11	11								8.1	2	-11.4	
ENSRNOP00000011483	Q8K009	5.1	3	-20.7	1.6	1	-2.9	3.6	3	-15.7	3.6	2	-11.2				4.7	4.7	4.7	4.8	3	-20.2	1.6	1	-5.7	1.1	1	-3.2		
ENSRNOP00000011484	XP_235518										25	4	-33.7				19	19	19	19	2	-13.8	0	1	-1.9					
ENSRNOP00000011485	NP_942081	0	1	-3.9				13	2	-8.9	5.7	1	-3.6	3	1	-5	5.7	5.7	5.7	13	2	-13.7	19	2	-21.4	5.7	1	-3.3		
ENSRNOP00000011494	P16036																17	17	17											
ENSRNOP00000011521	O88941	5.5	3	-29	1.3	1	-6.8	1.7	1	-3.7	12	6	-56.8	5.8	2	-34.6	1.3	1.3	1.3	11	8	-79.8	7.8	5	-48	11	6	-53.3		
ENSRNOP00000011609	XP_575398				1.4	1	-2.5																							
ENSRNOP00000011724	P48004	18	3	-35.9	15	3	-27.4	23	4	-31				4	1	-5.7	14	14	14	18	4	-40	9.2	3	-24	4	1	-4.9		
ENSRNOP00000011768	XP_236411																													
ENSRNOP00000011773	P68035	19	6	-44																										
ENSRNOP00000011784	P23965	8	2	-10.7	3.1	1	-2.8	11	2	-9	4.8	1	-1.6	4.8	1	-4							4.8	1	-2.8	12	3	-22.6		
ENSRNOP00000011822	P52303	3.8	1	-5.2																3.8	1	-7								
ENSRNOP00000011823	P55159	22	5	-43.6	17	4	-40.2	19	5	-44.1	16	5	-40.8	6.8	2	-12.1	4.2	4.2	4.2	17	5	-40.2	12	3	-24.8	5.4	2	-10.3		
ENSRNOP00000011846	XP_215769	19	5	-50.3	12	5	-44.4	14	5	-44.2	21	4	-34.3	16	5	-43.6	18	18	18	14	4	-29.4	16	5	-36	9.6	3	-20.2		
ENSRNOP00000011855											1	1	-3.5														1	1	-5.3	
ENSRNOP00000011880	Q64680	25	17	-156	26	15	-147	28	17	-176							28	28	28	13	18	-194	11	14	-140	16	9	-92		
ENSRNOP00000011960	XP_342984										4.5	2	-10.2																	
ENSRNOP00000011985	Q8K4D6													6.5	1	-2.4														
ENSRNOP00000012036	XP_573746													9.2	1	-4.4														
ENSRNOP00000012050	Q68FP2	35	8	-74.9	13	6	-51	11	3	-26.1	32	7	-67	17	4	-44.9	17	17	17	19	6	-47.1	17	4	-55.3	11	4	-29.6		
ENSRNOP00000012075	P09034	17	7	-54.4	11	5	-38.4	19	5	-40.5	8	2	-11.1	23	8	-84.5	24	24	24	20	8	-69.9	17	7	-54.7	13	4	-34.4		
ENSRNOP00000012083	NP_001030100							17	7	-60.9																				
ENSRNOP00000012162	Q00910	1.4	1	-2.8																6.9	3	-18.1	1.4	1	-2.5					
ENSRNOP00000012192	P06399	1.3	1	-2.6	1.3	1	-4.5							1.3	1	-2.9	1.3	1.3	1.3	2.7	2	-10.4	2.8	2	-11.5	2.8	2	-10.2		
ENSRNOP00000012219	XP_343460				11	4	-25.1										12	12	12								5.3	1	-5.1	
ENSRNOP00000012233	P61805	26	3	-22.4	18	3	-19.5	26	3	-21.5	26	3	-22.2	26	3	-21.7	26	26	26	26	3	-19.7	26	3	-21.7	26	3	-20.3		
ENSRNOP00000012240	NP_001029301	1.5	1	-2.9																										
ENSRNOP00000012255	XP_214103				6.3	1	-4.7				15	3	-17.1	13	2	-12.7	13	13	13				15	2	-19					
ENSRNOP00000012270	XP_235924																			5.6	1	-6.1								

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ENSRNOP00000013588	P62850													9	1	-4.2										11	1	-4.7	8.5	1	-3.9
ENSRNOP00000013588	XP_001057008													9	1	-4.2										11	1	-4.7	8.5	1	-3.9
ENSRNOP00000013607	Q66HN6	21	13	-126	9.9	6	-54.9	19	12	-105	13	7	-65.4	14	7	-56.4	10	10	10	17	11	-96.7	12	6	-54.3	15	8	-67.2			
ENSRNOP00000013612	Q89049																											2.8	1	-4.4	
ENSRNOP00000013629	P62944																		3.8	1	-4.5										
ENSRNOP00000013691	P70500										8.9	2	-10.4										4.7	1	-3.8	9.9	2	-9.6			
ENSRNOP00000013780											0.5	1	-1.7				1.2	1.2	1.2	1.2	1	-3	1.2	1	-5	0.7	1	-6.3			
ENSRNOP00000013785	P38652	7.3	2	-16.2				4.3	1	-4.3	6.8	3	-21.2	13	2	-21.9	3	3	3	10	3	-31.4				2.1	1	-1.8			
ENSRNOP00000013789	P10860	9	8	-81.5	17	9	-82.3	16	6	-46.9	23	9	-86.7	26	10	-90.6	27	27	27	21	10	-91.3	18	10	-95	24	9	-69.2			
ENSRNOP00000013816	XP_342641	46	32	-319	31	26	-230	37	30	-270	42	24	-228	44	23	-273	45	45	45	41	28	-270	44	27	-266	38	26	-257			
ENSRNOP00000013829	P12007	15	5	-36.1										1.9	1	-2.5				10	4	-30.5	5.9	3	-15.9						
ENSRNOP00000013863	Q6P9T8	28	9	-80.3	14	4	-41.1	22	8	-72.7	41	12	-120	53	18	-190	44	44	44	36	12	-114	30	11	-101	27	9	-97.8			
ENSRNOP00000013863	NP_954525	28	9	-80.3	14	4	-41.1	22	8	-72.7	41	12	-120	53	18	-190	44	44	44	36	12	-114	30	11	-101	27	9	-97.8			
ENSRNOP00000013997	P62198				3.7	1	-3.5																								
ENSRNOP00000014028	Q2M2R8																						2.8	1	-6.9						
ENSRNOP00000014051	Q9JKJ9	11	4	-30.6				3	1	-5.2	17	5	-36.1	13	3	-30.5	7	7	7	10	3	-27.3	11	4	-31.4	4.4	2	-12.7			
ENSRNOP00000014051	XP_236983	11	4	-30.6				3	1	-5.2	17	5	-36.1	13	3	-30.5	7	7	7	10	3	-27.3	11	4	-31.4	4.4	2	-12.7			
ENSRNOP00000014058	P62898	4.1	2	-11.5	6.7	1	-2.3				12	1	-6.6	23	2	-10.4				29	3	-22.5	29	3	-21.2	12	1	-7			
ENSRNOP00000014089	P16257																			14	1	-3									
ENSRNOP00000014118	Q9Z2S9	2.6	1	-3.7						2.6	1	-3.6															8.6	3	-22.8		
ENSRNOP00000014177	P14141	17	3	-20.7	23	5	-37.5	17	2	-12	32	6																			

ENSRNOP00000014785	P49134	3.8	3	-19.7	1.4	1	-3.5	2	1	-2.6	2.4	2	-10.9	3.5	2	-9	1.1	1.1	1.1	3.3	3	-20.3	5.3	4	-24.9	5.4	4	-28.5
ENSRNOP00000014800	Q7TP07																								0.3	1	-1.6	
ENSRNOP00000014810	Q62896																		8.5	1	-3.4							
ENSRNOP00000014819	Q6AXX6	29	3	-23.9				9.6	2	-10.6	9.2	2	-15.1	5.2	1	-3.2	5.2	5.2	5.2	17	4	-23.6	18	4	-27.9	10	2	-12
ENSRNOP00000014837	O08730	3.9	1	-7.8				3.9	1	-6									3.9	1	-4.3	3.5	1	-4.4				
ENSRNOP00000014912																									25	1	-5.8	
ENSRNOP00000014966	P04166									9.6	1	-3.8				25	25	25	31	5	-42.3							
ENSRNOP00000014979	XP_215288												2.3	1	-3.1	2.6	2.6	2.6										
ENSRNOP00000015043	NM_053370	21	2	-14.6	19	2	-11.7	21	3	-22.1	10	1	-1.9	10	1	-4	10	10	10	10	1	-3.9	10	1	-5	10	1	-4.3
ENSRNOP00000015049	P18757	12	4	-33.3	15	4	-23.1	11	4	-27.6	12	4	-33.1	12	4	-33.4	11	11	11	27	8	-64.9	16	4	-35.4	14	5	-39
ENSRNOP00000015057	P21588	4.1	1	-6.1							3.8	2	-10.6	2.4	1	-3.8				6.3	2	-13.8	9.9	3	-28.7	6.9	2	-25.6
ENSRNOP00000015082																									1	1	-1.6	
ENSRNOP00000015177	NP_001029322										1.4	1	-3.4										1.4	1	-4	1.4	1	-4
ENSRNOP00000015186	Q9Z0V6										3.9	1	-4.4				3.9	3.9	3.9							3.9	1	-3.7
ENSRNOP00000015190	NM_012860	3.9	1	-6.5	5	1	-2.3	3.9	1	-5.9	6.1	2	-14.3	9.6	3	-22.8	9.9	9.9	9.9	7.7	2	-18.1	9.9	3	-25.2	6.1	2	-12.6
ENSRNOP00000015197	XP_577054																											
ENSRNOP00000015207	Q5XI31	3.1	1	-3.5																2.9	1	-7	2.9	1	-6.6			
ENSRNOP00000015217	NP_001020317	13	2	-13.7	13	2	-11.6	19	2	-11.3	5.1	1	-5.9	5.1	1	-6.1	5.1	5.1	5.1	5.2	1	-4.6	10	2	-13.6	5.1	1	-7
ENSRNOP00000015218	NP_113911	3.9	1	-2.1																			3.9	1	-2.8			
ENSRNOP00000015247	XP_214310							3.9	4	-26.2	3.3	3	-17.3	1.2	1	-4.9	1.8	1.8	1.8	2.4	2	-10.9	1.8	2	-11.1	2.4	2	-12.8
ENSRNOP00000015282	NP_001011975	3.1	1	-3.6							3.1	1	-3.5	3.1	1	-7.5							3.1	1	-4.4			
ENSRNOP00000015336	O09171	30	17	-171	26	16	-155	24	10	-93.1	17	6	-48	22	9	-104	25	25	25	30	19	-181	29	13	-122	23	7	-52.7
ENSRNOP00000015367	Q7TQM4										1.9	1	-2.7										1.5	1	-2.7			
ENSRNOP00000015403	Q5XIG1																						9.5	1	-1.8			
ENSRNOP00000015420	P11915	1.6	1	-2.2							4.8	2	-15.3	2.9	1	-2.3	4.6	4.6	4.6				2.9	1	-3.3	1.8	1	-9.6
ENSRNOP00000015475	Q63377	4.7	1	-7.3				4.7	2	-9.2				4.7	1	-5.1	4.7	4.7	4.7	4.7	1	-4.8	4.7	1	-6	4.7	1	-7.3
ENSRNOP00000015518	Q6AY09																									3.3	1	-2.6
ENSRNOP00000015545	Q02253	12	5	-46.5	8.4	5	-47.1	6.5	4	-32.9	10	4	-36.1	16	6	-53.3	23	23	23	16	7	-63	12	5	-45.7	11	5	-38.5
ENSRNOP00000015598	P62494	14	3	-21.8	14	2	-23.1	21	5	-37.7	15	2	-17.3	14	3	-25.5	18	18	18	17	4	-31.5	19	4	-27.8	26	5	-37.2
ENSRNOP00000015601	Q9WUS0													3.2	1	-5.5	3.54	3.54	3.54					3.2	1	-3.5		
ENSRNOP00000015618	P40307	16	3	-22.7	24	2	-13.3	19	2	-9.9	5	1	-1.6				6	6	6	20	3	-20.8	12	2	-11.6	6	1	-3.5
ENSRNOP00000015667	P97612	10	4	-32.6				11	6	-48.9							9.8	9.8	9.8	20	8	-82						
ENSRNOP00000015684	XP_217094	21	3	-31.3	27	5	-37.3	21	3	-25.3	19	3	-31.7	19	3	-27.4	21	21	21	26	5	-51	25	4	-31.5	21	3	-26.4
ENSRNOP00000015684	XP_217094	21	3	-31.3	27	5	-37.3	21	3	-25.3	19	3	-31.7	19	3	-27.4	21	21	21	26	5	-51	25	4	-31.5	21	3	-26.4
ENSRNOP00000015723	P19999																									4.6	1	-3.7
ENSRNOP00000015744	Q9ESW4	5.7	1	-7.5	5.7	1	-6.9	5.7	1	-4.4	5.7	1	-5.6							5.7	1	-6	5.7	1	-1.7			
ENSRNOP00000015744	XP_578248	5.7	1	-7.5	5.7	1	-6.9	5.7	1	-4.4	5.7	1	-5.6							5.7	1	-6	5.7	1	-1.7			
ENSRNOP00000015747	P28073	3.8	1	-3.2				3.8	1	-3.5										3.8	1	-1.8						

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ENSRNOP00000016646	NP_001041650																						0	1	-3.2			
ENSRNOP00000016709	Q64640	6.9	2	-10.6	4.2	1	-2.6	4.2	1	-4.1	4.2	1	-6.2	4.2	1	-2.9	7.2	7.2	7.2	6.9	2	-13.1	6.9	2	-12.8			
ENSRNOP00000016723	NP_001014164										3	1	-3.1				3.7	3.7	3.7							3	1	-4.4
ENSRNOP00000016739	P16970	6.5	4	-30.1	6.1	3	-24.2	5	2	-8.9	6.8	3	-20	3.2	2	-12.3	1.2	1.2	1.2	14	7	-71.9				3.2	2	-9.9
ENSRNOP00000016751	Q5M9I5	16	1	-5	0	1	-3.2													16	1	-3.2						
ENSRNOP00000016776	Q9JLT6																			9.2	1	-6.5						
ENSRNOP00000016813	NP_073183							9.8	2	-9.9	6	1	-2	5.1	2	-11										12	3	-18.6
ENSRNOP00000016851	Q9Z339	3.3	1	-3.2				3.3	1	-3.1							3.3	3.3	3.3	3.3	1	-5.6						
ENSRNOP00000016872	Q5BJX3																							3.1	1	-3.1		
ENSRNOP00000016876	Q9JHW0	3.2	1	-3.5																9.7	2	-8.6	3.2	1	-1.9			
ENSRNOP00000016883	P05182	20	9	-83.2	14	5	-31.6	17	8	-58.2	19	8	-63.2	10	5	-37.9	11	11	11	28	16	-158	20	10	-84.2	9.1	3	-26.5
ENSRNOP00000016897	P47967				8.3	1	-5.3				8.3	1	-2.5	8.3	1	-4.1							8.3	1	-3.6	8.3	1	-2.6
ENSRNOP00000016937	XP_342783																			9.4	1	-3.5	27	2	-12.1			
ENSRNOP00000016954	P18886										4.4	2	-10.9							1.5	1	-1.9						
ENSRNOP00000016965	P19234	8.5	2	-9.6							21	5	-37.8	19	3	-23.7	24	24	24	12	3	-18.7	17	3	-16.6	22	4	-33.4
ENSRNOP00000016986	NP_001030109																			3.8	1	-4.3						
ENSRNOP00000017002	XP_218185																							4.9	1	-3.4		
ENSRNOP00000017042	P97840							6.8	2	-9.9							9	9	9									
ENSRNOP00000017051	XR_009424																							6.6	1	-1.9		
ENSRNOP00000017067	XP_216944	29	9	-75.5	25	8	-69.2	29	7	-58.4	8	2	-15.1	21	7	-62.1	32	32	32	13	6	-50.2	30	9	-75.2	8.3	4	-26.5
ENSRNOP00000017090	Q5FVN0				2.5	1	-3.8	5.5	2	-16.2							2.5	2.5	2.5	6.6	3	-18.8	6.6	4	-30.8	6.6	3	-19.5
ENSRNOP00000017101	P70580	32	10	-109	21	6	-45.1	10	4	-33.8	26	5	-47.1	11	5	-48.6	18	18	18	32	9	-106	7.2	3	-33.5	17	3	-30.7
ENSRNOP00000017121											6.8	1	-2.2															
ENSRNOP00000017180	XR_006078	11	4	-31	14	7	-54.7	12	6	-42.9	16	6	-42.1	14	5	-42.7	14	14	14	12	5	-37.5	6	2	-37.5	10	4	-31.4
ENSRNOP00000017201	XP_220606							5.3	1	-5	8.5	2	-12.8													5.3	1	-5.4
ENSRNOP00000017211	Q66HG5	5	3	-18.4	3.6	2	-13.9	4.7	3	-21.3	5.4	3	-19	6.2	3	-25.9	2	2	2	1.8	1	-4.8	3.9	3	-20.2	3.9	2	-12.1
ENSRNOP00000017212	XP_219898							1.1	1	-2.7																1.1	1	-1.6
ENSRNOP00000017212	Q5FWI3							1.1	1	-2.7																1.1	1	-1.6
ENSRNOP00000017237	P05178	41	30	-305	28	23	-229	30	20	-194	26	12	-110	23	11	-140	30	30	30	34	20	-218	31	20	-224	24	12	-107
ENSRNOP00000017243	Q7TQ74	4.4	2	-20.1							6.6	3	-23.5	4.6	3	-21.7										4.8	3	-20.1
ENSRNOP00000017268	Q91X78				11	3	-20.1	12	3	-21.5	5.5	2	-8.9				7.2	7.2	7.2	0	0	-15.5	7	3	-25.8			
ENSRNOP00000017301	Q9WUF4				8.9	1	-3							13	1	-4.2	21	21	21	13	1	-2.6						
ENSRNOP00000017310	P08683	43	38	-416	38	41	-400	36	32	-295	29	15	-135	35	18	-222	36	36	36	41	37	-421	38	25	-318	26	14	-119
ENSRNOP00000017396	XP_345209	26	2	-12																								
ENSRNOP00000017472	Q5XIH7	39	12	-112	19	8	-63.6	15	7	-50.8	36	10	-105	28	9	-89.1	40	40	40	40	12	-121	28	11	-95.5	35	10	-104
ENSRNOP00000017643	P10716																									2.2	1	-2.7
ENSRNOP00000017675	P31210	13	2	-19.5										3.4	1	-4	6.8	6.8	6.8	9.3	2	-10.5	2.5	1	-3.3			
ENSRNOP00000017686	P15650	2.8	1	-2.1	7.9	3	-15.7	11	4	-23.2	8.1	3	-22.8	8.1	3	-18.5	12	12	12	5.3	2	-13.1	4.9	2	-14	10	4	-26.1

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ENSRNOP00000018821	P48056	1.9	1	-6.3							1.9	1	-2.2									1.9	1	-4.7				
ENSRNOP00000018850	P13437	25	6	-64.1	25	7	-70.6	16	4	-29.9	43	12	-121	47	12	-138	36	36	36	28	10	-93.6	33	10	-95.2	29	10	-103
ENSRNOP00000018897	XP_223785	9.5	1	-2.8	6.1	1	-3.3	8.8	1	-2.9							6.1	6.1	6.1	15	2	-10.4	6.1	1	-2.9			
ENSRNOP00000018922	XP_215851																4.5	4.5	4.5									
ENSRNOP00000018942	NP_001009653																5.2	5.2	5.2							2.4	1	-2.6
ENSRNOP00000018973	XP_214372	2.4	1	-6.1	11.5	3	-20				7.4	2	-9.4	14	4	-34.8				6.8	3	-24.4	9.7	3	-26.3	10	4	-35.4
ENSRNOP00000018982	Q5BJU9				2.8	2	-7.9																					
ENSRNOP00000019001	XP_001070838																		6.1	2	-8.3							
ENSRNOP00000019021	P07756	29	36	-375	25	49	-458	25	39	-359	25	30	-324	41	56	-703	43	43	43	33.8	42	-428	21	28	-285	23	29	-310
ENSRNOP00000019039	XP_215269	5.4	1	-2.8	12	1	-6.5	5.4	1	-2.8	4.3	1	-2.2	9.7	2	-8.6	10	10	10	17	2	-15.1	16	2	-13.7	13	2	-11
ENSRNOP00000019052	Q9ET58							2.3	1	-3.5																		
ENSRNOP00000019059	P56574	1.8	1	-3													4.4	4.4	4.4	3.5	1	-5.1				1.8	1	-3
ENSRNOP00000019106	Q3MIF4							7.4	2	-12.7	7	1	-2.2	2.2	1	-6.7										7.1	2	-19.7
ENSRNOP00000019108	Q7TSP3	4.8	2	-13.5	1.6	1	-2.3	3.8	1	-4	3.5	2	-14.1	7.7	2	-24.1	1.8	1.8	1.8	6.2	2	-19.7	6.4	2	-25.2	7	4	-28.1
ENSRNOP00000019115	NP_001006987										2	1	-2.2													2.3	1	-2.9
ENSRNOP00000019133	Q63279																					2	1	-2.3	2	1	-1.9	
ENSRNOP00000019141	Q9CQ91	27	1	-3.3																		12	1	-2.1				
ENSRNOP00000019141	XP_001076462	27	1	-3.3																		12	1	-2.1				
ENSRNOP00000019162	P17078													17	2	-11.1							7.4	1	-2.2			
ENSRNOP00000019184	XP_231144	11	2	-12.5																15	3	-28.3	6.8	1	-2.7			
ENSRNOP00000019231	P42893							2.1	1	-6.8				1.7	1	-7.6	1.7	1.7	1.7				1.7	1	-5.8	5.2	2	-21.3
ENSRNOP00000019302	XP_341441	5.3	2	-12.8	7.6	3	-19.2	4.6	2	-8.7	4.8	2	-12.5	5.3	2	-17.1				9.9	4	-33.4	14	5	-50.9	1.5	1	-1.6
ENSRNOP00000019323	NP_997679							15	2	-10.6	15	2	-11.9	7	1	-2.9	7	7	7	7	1	-4.1	15	2	-13.3	15	2	-9.9
ENSRNOP00000019362	P36972										6.6	1	-2.5										6.6	1	-3			
ENSRNOP00000019374	XP_215704	29	3	-24.5	10	1	-3.9	29	3	-27.9	8	1	-2.3	19	2	-10	19	19	19	29	3	-29.4	10	1	-9.1	8.9	1	-3.8
ENSRNOP00000019489	XP_001070068																											
ENSRNOP00000019519	Q924C3	8.3	4	-33.9	4.8	4	-25.6	6.6	4	-31.9	5	3	-18.3	1.9	1	-3				7.5	4	-33.5	8.1	5	-50.5			
ENSRNOP00000019527	NP_001013123																		4.5	1	-2.9				14	2	-8.3	
ENSRNOP00000019544	Q9JK41	10	1	-3															9.5	2	-10.6	0	1	-2.9				
ENSRNOP00000019548	XP_226107										7.5	1	-3.8															
ENSRNOP00000019571	Q8VHE9	25	17	-198	26	18	-172	22	13	-113	24	13	-123	11	3	-52	9	9	9	25	12	-140	29	20	-216	18	10	-88.5
ENSRNOP00000019620	Q498C8	23	2	-26.1	18	2	-15.5	18	2	-12.9	14	2	-9.7	5.1	1	-2.7				23	3	-25.8	8.6	2	-15.5	7	1	-4.5
ENSRNOP00000019624	Q9DCS9	28	3	-31.4	18	3	-19.8	13	2	-9.9	31	5	-35.6	10	1	-2.3	187	187	187	30	4	-30	23	3	-32.8	38	5	-40.8
ENSRNOP00000019642	XP_344977	9.3	2	-12.5							3.7	1	-1.9							8.8	2	-9.3						
ENSRNOP00000019652	P32198	11	8	-71.2	6.6	5	-42.5	5.4	4	-35.8	11	6	-53.2	10	8	-67.6	8.3	8.3	8.3	12	7	-66	6.6	5	-44.7	11	7	-62.5
ENSRNOP00000019755																							1.5	1	-1.9	4.6	1	-2.5
ENSRNOP00000019761	XP_215919	2.4	1	-4.2							2.2	1	-2.6															
ENSRNOP00000019772	P04937				0.5	1	-2.4																			0.6	1	-2.7

ENSRNOP00000019795	NP_112258																			5.4	1	-3.1	5.4	1	-5.7	5.4	1	-3.9
ENSRNOP00000019912	P63039	7.7	2	-11.3	3	1	-3.4				12	4	-39.8	16	6	-58.3	13	13	13	4.4	2	-11.6	3	1	-3.7	2.1	1	-4.5
ENSRNOP00000019914	NP_942071	34.7	6	-57.3				18	2	-15.6				24	3	-31.9	32	32	32	26	4	-32.9	22	3	-25.1	25	3	-23.6
ENSRNOP00000019969	Q03626				3	3	-25.2	4.8	5	-38.9										3	4	-29.2						
ENSRNOP00000020002	P15684	8.6	5	-39.3	2.9	2	-11.4	2.6	1	-4.3	4.6	3	-20.7							4.6	3	-20.3	7.3	5	-48	11	6	-51.2
ENSRNOP00000020026														2.9	1	-2.2												
ENSRNOP00000020066	P26772																			11	1	-6.3				8.9	1	-2.6
ENSRNOP00000020079	XP_001073988										13	1	-2.9										19	2	-10.4			
ENSRNOP00000020093	P80385							5.5	1	-5.4																		
ENSRNOP00000020161	Q63151	1.9	1	-3.8																								
ENSRNOP00000020192	O35952										4.2	1	-4.4	9.6	2	-9.2	8.5	8.5	8.5	8.5	1	-3.5						
ENSRNOP00000020265	P26376	2.4	1	-5.3													25	25	25	14	1	-7.1	11	2	-10.8	14	1	-4.7
ENSRNOP00000020267	Q99PU6										4.4	2	-12.2	2.7	1	-9.6	2.7	2.7	2.7							2.1	1	-2.2
ENSRNOP00000020291	XR_007365							9	4	-27.2							5.7	5.7	5.7									
ENSRNOP00000020302	Q63707	2.3	1	-2.4	5.5	1	-5.2				4	1	-5							5.8	2	-16.1	4	1	-9.7	6.3	2	-12.2
ENSRNOP00000020306	NP_001012104	21	7	-59	9.1	4	-30.4	10	5	-37.1	14	7	-53.9	12	6	-50	15	15	15	15	7	-56.4	15	6	-54.2	11	5	-43.3
ENSRNOP00000020322	P41562	6.3	2	-13.1	8.2	3	-22.3	6.3	2	-10.9	6.8	2	-14.6	3.9	2	-10.1	7.7	7.7	7.7	6.5	2	-17.1	3.9	1	-5.3	2.1	1	-3.6
ENSRNOP00000020325	Q64057	3	1	-2.6	3	1	-2.9							4.5	2	-12.3	13	13	13	3	1	-4.7	0	1	-2.5	2.4	1	-1.7
ENSRNOP00000020335	P97584																									3.6	1	-3
ENSRNOP00000020364	NP_001007701	7.2	2	-15.8	9.4	2	-14.3	7.2	2	-9.7	4.7	1	-4.8	4.7	1	-7	4.7	4.7	4.7	9.4	3	-15.5	4.7	1	-8.8			
ENSRNOP00000020376	Q5U2X7										4.9	1	-4.7															
ENSRNOP00000020380	XP_001063810							9.2	1	-2.7																		
ENSRNOP00000020446	P00173	44	18	-163	29	7	-56	38	4	-33.5	59	4	-32	38	6	-46.1	37	37	37	81	18	-165	30	5	-44.2	50	3	-24.5
ENSRNOP00000020478	P11598	20	9	-73.8	5.5	3	-17.2	5.1	2	-14.9	11	5	-46.1	4.9	3	-16.6	12	12	12	22	9	-81.1	23	11	-97.1	3.5	2	-10.2
ENSRNOP00000020544	P13803	6.6	1	-3.1	15	3	-22.6				22	4	-30.3	27	5	-61.2	17	17	17	6.6	1	-2	7.8	2	-12	9	2	-12.6
ENSRNOP00000020558	Q9JLA3	0.8	1	-2.6	0.8	1	-8.4	0.8	1	-6.9										2.4	2	-14.2				0.8	1	-8.2
ENSRNOP00000020573											0.2	1	-1.9															
ENSRNOP00000020581	P60905																			19	2	-9.5						
ENSRNOP00000020596	NP_663710										2.1	1	-2.7															
ENSRNOP00000020625	P06214	10	2	-15.3	10	3	-24.7	12	4	-29.3	10	2	-16.6	10	2	-13.9	10	10	10	10	2	-17.4	10	2	-15.4			
ENSRNOP00000020670	P35434										7.7	1	-5.5	7.7	1	-8.6	7.7	7.7	7.7							11	2	-12.9
ENSRNOP00000020681	Q9Z270	9.6	2	-16.2				5.2	1	-9.7	6	1	-3.7				4.4	4.4	4.4	12	4	-23.8				5.2	1	-17.5
ENSRNOP00000020737	XM_579636	70	4	-40.4	47	4	-33.7	63	4	-30.4	47	3	-28.5	47	3	-31.4	47	47	47	73	5	-50.3	47	3	-34.7	47	3	-25.3
ENSRNOP00000020737	NM_134395	70	4	-40.4	47	4	-33.7	63	4	-30.4	47	3	-28.5	47	3	-31.4	47	47	47	73	5	-50.3	47	3	-34.7	47	3	-25.3
ENSRNOP00000020748	P35280	17.4	3	-21.4										6.3	2	-11.6				9.2	2	-14.1	14	3	-23.4	11.1	2	-14.1
ENSRNOP00000020749	P18297																									5.3	1	-5.7
ENSRNOP00000020752	Q06A39	3.2	2	-10.3	1.6	1	-5				1.6	1	-6.1	1.6	1	-2.7				3.2	2	-10.7	1.6	1	-2.4			
ENSRNOP00000020767	P28494	8.1	6	-46.7	6.6	6	-46.8	6.5	5	-33.5	3.7	3	-22.4	1.2	1	-4.4				7.5	6	-48.7	6	6	-47.7	2.6	3	-19.1

ENSRNOP00000020775	Q63108	29	1	-4	5	2	-12.2	11	5	-38						2.9	2.9	2.9				8.4	3	-19.9				
ENSRNOP00000020785					2.9	1	-2.2																					
ENSRNOP00000020932	Q6AYZ1	19	5	-58.8				9.6	3	-23.8	15.6	5	-42.2	3.8	1	-83.5	29	29	29	0	0	-73.1			17	4	-51.9	
ENSRNOP00000021111		3.4	1	-3.7																								
ENSRNOP00000021155	NP_001032276									3	1	-3.2						5.3	1	-1.8	3	1	-3.2	13	2	-11.4		
ENSRNOP00000021162	Q62786																							1	1	-4.4		
ENSRNOP00000021170	Q9Z1Y3																	3.8	2	-12.5				3.5	2	-12.8		
ENSRNOP00000021215	XR_005946				8.2	2	-10.8																					
ENSRNOP00000021243	NP_598242												4.5	1	-5.7	4.5	4.5	4.5	2.7	1	-2.5			2.7	1	-1.8		
ENSRNOP00000021257	Q68FT3	12	2	-19.3						4.6	2	-10				2.1	2.1	2.1	4.5	2	-10.5			4	2	-10.8		
ENSRNOP00000021318	O70257	5.4	1	-3.7														5.4	1	-3.3								
ENSRNOP00000021384	P17220	33	2	-34.7				13	2	-14.6	4.3	1	-3.9	4	1	-3.4				33	4	-34.4						
ENSRNOP00000021389	Q9Z0U5																	1.1	1	-2.5	0.7	1	-2.5					
ENSRNOP00000021397	P31430									3.7	1	-1.7																
ENSRNOP00000021407	NP_942026	21	9	-100	15	7	-61.1	15	5	-42.9	29	13	-125	17	7	-70.8	23	23	23	30	15	-140	14	6	-50.8	19	7	-66.8
ENSRNOP00000021512	Q9WVK3	11	2	-10.1	8.5	1	-3.6			2.6	1	-2.9	11	2	-11.9				2.6	1	-2.8	2.6	1	-1.9	2.6	1	-2.1	
ENSRNOP00000021514	P32551	44	16	-192	20	11	-106	26	11	-109	28	10	-98.3	36	11	-120	42	42	42	44	19	-217	33	16	-153	19	6	-81.9
ENSRNOP00000021524	Q9JJK4															2.7	2.7	2.7										
ENSRNOP00000021545	XP_215236				6.1	1	-3.4			6.8	1	-2.7	6.1	1	-2.1				6.8	1	-1.9			6.1	1	-5.1		
ENSRNOP00000021612	P55281	7.4	4	-34.3				7.1	4	-27.6	3.3	1	-4					1.8	1	-6.3	5.2	3	-22.9	1.8	1	-2.4		
ENSRNOP00000021638	XP_214428	19	6	-54.1	18	6	-48.7	18	5	-47.1	16	4	-31.7	8.4	4	-30.3	8.9	8.9	8.9	19	6	-53.2	12	5	-44.1	12	5	-37.8
ENSRNOP00000021646	P97852	7.5	4	-36.9	3.4	2	-13.5	9.3	6	-56	3.5	2	-25.8	4.1	2	-15.8	3.5	3.5	3.5	7.5	4	-42	11	6	-60.9	6.7	4	-39.8
ENSRNOP00000021650	NP_445959	5.3	1	-2.8	5.3	1	-3.8			7.7	1	-1.9						5.3	1	-3.1								
ENSRNOP00000021657	P07633									6.7	2	-12.8	1.7	1	-3.6													
ENSRNOP00000021711	Q8R4E1	4.6	2	-14.4																								
ENSRNOP00000021716	Q68FT1									2.9	1	-2																
ENSRNOP00000021812	P16303	9.9	4	-30.6	7.3	4	-26.8			6.2	2	-9.4	2.8	1	-5.1	2.8	2.8	2.8	7.8	3	-22.2	4.4	2	-11.6	3.5	2	-13.5	
ENSRNOP00000021820	Q4G043																							1	1	-1.7		
ENSRNOP00000021862	P50137	14	6	-43.7	14	6	-40.8	12	4	-34.7	13	5	-46.3	12	3	-19.8	7.5	7.5	7.5	13	5	-37	6.3	3	-18.4	6.3	2	-16.3
ENSRNOP00000021893	Q5BK17	11	2	-11.7	13	3	-19.3	11	3	-19.3	12	3	-19.3	8.8	2	-14.1	5.6	5.6	5.6	15	3	-20.9	17	4	-31	7	2	-11.3
ENSRNOP00000021920	P19511	34	9	-112	27	13	-111	27	12	-99.8	27	7	-72.5	34	8	-100	26	26	26	35	14	-131	29	9	-82.8	29	6	-54.6
ENSRNOP00000021934	Q08415	3.8	1	-2.6										3.8	1	-2.2												
ENSRNOP00000021940	NP_001007658									17	1	-2.5																
ENSRNOP00000021958	Q6UPR8																							1.1	1	-6.7		
ENSRNOP00000021970	P09118																							12	3	-16.8		
ENSRNOP00000022011	NP_001011959							3.7	1	-4																		
ENSRNOP00000022014	XP_001067683																							6.5	1	-2.5		
ENSRNOP00000022022	NP_001006967	4.1	2	-9				2.8	1	-3																		

ENSRNOP00000022089	Q561S0	8.5	2	-11.9	16	2	-9.3	17	3	-21.1									17	4	-31.5				2.8	1	-4.2	
ENSRNOP00000022113	P02767																				8.2	1	-6.5	8.2	1	-5.9		
ENSRNOP00000022117	Q10473																		3	2	-10.4							
ENSRNOP00000022150	Q63493	6.8	2	-13.3	3.3	1	-3.6			3.6	1	-5	3.6	1	-6.8	3.6	3.6	3.6	6.8	2	-13.5	3.6	1	-2.4				
ENSRNOP00000022209	P04550									9.8	1	-4.4	9.8	1	-4.9	9.8	9.8	9.8	9.8	1	-2.2				9.8	1	-4.2	
ENSRNOP00000022254	NP_036829	4.1	2	-15.9	2.7	1	-3.3	2.7	1	-5.5	1.4	1	-2.5	1.4	1	-3.1	2.7	2.7	2.7	4.1	2	-15.2	0	1	-2.2	1.4	1	-3.9
ENSRNOP00000022275	P24473																		6.6	1	-4.9	6.6	1	-4.9	6.6	1	-2.6	
ENSRNOP00000022307	P13255																				5.5	1	-8.2					
ENSRNOP00000022309	P13221	3.1	1	-2.4						5.6	1	-2.6													3.6	1	-2.8	
ENSRNOP00000022348	P62268	7	1	-3.1						7	1	-2.2				7	7	7							7	1	-5.4	
ENSRNOP00000022401	Q3B7U7									1.3	2	-11.8													0.4	1	-2.6	
ENSRNOP00000022455	Q3B8P3																								2.9	1	-5.5	
ENSRNOP00000022487	P12075	30	3	-21.7				30	5	-35.8	30	5	-37.7	26	3	-19.9	29	29	29	30	6	-47.4	17	3	-18.6	17	2	-11.1
ENSRNOP00000022519	NP_001007689									5.1	1	-7.1																
ENSRNOP00000022532	Q99ML5	6.9	2	-14.3	7.3	2	-13.6	9.5	3	-18	6.9	2	-16.6	6.9	2	-14.8	3.2	3.2	3.2	17	5	-45.1	17	5	-47.2	9.3	3	-24.9
ENSRNOP00000022540	Q5XIN6	14	6	-56.2	5.8	3	-20	12	6	-46.6	3	2	-12.9	3.7	2	-11.7	7	7	7	18	8	-71.4	10	6	-45.8	5.1	2	-20.4
ENSRNOP00000022550	P04897				2.8	1	-3.8	9	3	-17.3									7	2	-10.2	4.1	2	-10.1	8.2	2	-17.4	
ENSRNOP00000022578	Q5U4F4	2.6	1	-4.8									2.6	1	-8.1				2.6	1	-4.2	2.6	1	-2.7				
ENSRNOP00000022582	P54777																		3.7	1	-3.5							
ENSRNOP00000022628	P04182															3.4	3.4	3.4										
ENSRNOP00000022632	NP_001007667	14	3	-22.1	8.6	3	-19.5	4.3	1	-5.3	4.3	1	-5.7	4.3	1	-6.7	4.3	4.3	4.3	7.7	2	-17.3	4.3	1	-7	2.2	1	-2.4
ENSRNOP00000022703	P10867	29	13	-116	24	12	-99.8	18	12	-101	18	8	-62.8	15	8	-63.3	16	16	16	26	13	-123	16	9	-79.1	9.3	5	-39.3
ENSRNOP00000022747	XP_001074132	20	1	-4				20	1	-4	20	1	-6.1	20	1	-3.7	20	20	20	20	1	-4.2	20	1	-4.9	20	1	-5.4
ENSRNOP00000022747	Q9CPX8	20	1	-4				20	1	-4	20	1	-6.1	20	1	-3.7	20	20	20	20	1	-4.2	20	1	-4.9	20	1	-5.4
ENSRNOP00000022828	P24368	8.3	2	-8.7															3.7	1	-2.2	3.7	1	-2.9	5.6	1	-3.7	
ENSRNOP00000022892	P15999	9	4	-44.4	10	4	-33.6	12	6	-50.3	24	11	-116	24	13	-127	28	28	28	17	7	-64.3	13	6	-52.8	28	15	-138
ENSRNOP00000022897	Q71TY3																				15	1	-3.5					
ENSRNOP00000022949	P21531	5.7	2	-12.3	3.7	1	-3.7			9	2	-8.7	7.2	2	-11	14	14	14	10	3	-18.2	3.7	1	-3.5	5.7	2	-9.5	
ENSRNOP00000022985	NP_001009399	41	12	-130	18	8	-78	29	11	-91.1	6.1	2	-11.8	23	5	-60.3	18	18	18	22	10	-102	19	7	-58	15	4	-28.2
ENSRNOP00000023017	P07151	10	1	-7.1						10	1	-4.5	6.7	1	-2.6				10	1	-3.1	6.7	1	-2.8				
ENSRNOP00000023066	Q62876																						11	1	-1.8			
ENSRNOP00000023072	P51635											3.7	1	-3.6					3.1	1	-1.8				4.3	1	-2.6	
ENSRNOP00000023080	NP_001009646									3.4	1	-1.8							3.4	1	-2.6							
ENSRNOP00000023132	Q63716	7.5	1	-4.6				18	4	-24.9	21	4	-26.5	27	5	-37.5	22	22	22	16	3	-21.1	21	4	-31.3	21	5	-34.4
ENSRNOP00000023152	P17178	20	6	-49.4	11	5	-33.3	11	4	-34.9	24	9	-75.1	15	3	-30.4	19	19	19	18	6	-47.6	13	5	-40.1	16	8	-61.1
ENSRNOP00000023211	XP_229475	2.2	1	-2.8	4.1	2	-9.1												2.8	1	-3							
ENSRNOP00000023215	NP_001028871	3.4	1	-3															3.4	1	-3.9	3.4	1	-2				
ENSRNOP00000023227	NP_112289				3.9	1	-3.5																					

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ENSRNOP00000025813	NP_001004224	6.1	1	-2.1	10	4	-28.5	6.9	2	-10.1	19	4	-33.7	3.7	1	-5.1	3.7	3.7	3.7	9.4	3	-20.3	13	3	-17.4	6.9	2	-11.4
ENSRNOP00000025824	NP_954522										1.7	1	-2.7	4.6	1	-2.9				2	1	-4				2	1	-2.4
ENSRNOP00000025828	Q5EB77	21	5	-44	22	4	-31.8	12	2	-16.4	6.8	1	-5.9	17	3	-23.7	5	5	5	12	2	-15.1	17	3	-27.4	17	3	-21.7
ENSRNOP00000025842	NP_076445	3.3	1	-5.2																								
ENSRNOP00000025844	Q63507															4.1	4.1	4.1										
ENSRNOP00000025845	Q64194										3	1	-6							3	1	-5.2						
ENSRNOP00000025863	XP_343841													2.6	1	-9.2						2.6	1	-8.1				
ENSRNOP00000025904	NP_001011965										3.9	1	-5.2	3.9	1	-6.9									3.9	1	-6.8	
ENSRNOP00000025939	P08010	33	6	-49.4	22	5	-42	17	4	-27.9	37	8	-72.1	28	5	-49.8	19	19	19	25	6	-43.3	26	4	-47.3	18	5	-38.3
ENSRNOP00000025990	XP_233431	13	1	-2.1							4.6	1	-2.1															
ENSRNOP00000026016	Q9WU82	3.7	1	-2.3							1	1	-2.7															
ENSRNOP00000026040	NM_001033927										3.5	1	-4.8				3.5	3.5	3.5	3.5	1	-4.4						
ENSRNOP00000026057	O35547	2	1	-4.6																		1.4	1	-2.3				
ENSRNOP00000026122	P22791	17	6	-50	2.5	1	-5.1				12	6	-50	30	11	-104	29	29	29	20	6	-60.6	13	5	-43.5	14	5	-49.8
ENSRNOP00000026186	P17988	5.2	1	-7.8				5.2	1	-7.1	9.3	2	-9.4	8.9	2	-18.2	22	22	22	5.2	1	-5.5				8.2	2	-12.1
ENSRNOP00000026197	Q9R1Z0	10.5	2	-15				20	5	-38.6	11	2	-31.4							22	3	-30.5	15	2	-11.5			
ENSRNOP00000026200	Q35077										3.7	1	-2.1	3.7	1	-2.3	11	11	11	6	2	-8.6	10	2	-17.9	3.7	1	-2.8
ENSRNOP00000026224	Q08850																		5	1	-2.8	5	1	-2.8				
ENSRNOP00000026259	XP_218615																		0	0	-8.2							
ENSRNOP00000026290	P27364	30	14	-156	13	8	-60.2	22	9	-79.8	28	9	-82.5	28	10	-99.4	24	24	24	29	14	-131	27	14	-132	13	7	-62.7
ENSRNOP00000026291	Q5I0J9																6.1	6.1	6.1	8.8	1	-2.7				6.1	1	-2.1
ENSRNOP00000026306	Q62878	10.2	4	-26.5													11	11	11									
ENSRNOP00000026316	P52873	9	6	-49.1	5.4	6	-50.7	4.8	5	-40.3	8.7	7	-70.1	16	12	-148	19	19	19	12	8	-67.9	3.5	4	-33.9	5.3	5	-47.4
ENSRNOP00000026326	P22071																		17.7	6	-47.5	5.3	2	-27.9				
ENSRNOP00000026327	Q91XP6							1.1	1	-2.9																		
ENSRNOP00000026339	Q4KM65																2.2	2.2	2.2									
ENSRNOP00000026347	Q6TEK4													7.5	1	-5.8	7.5	7.5	7.5									
ENSRNOP00000026351	NP_001028854	2.1	1	-2																10	1	-2.6						
ENSRNOP00000026355	NP_112520										9	4	-31.1	4.6	2	-11.7	2.2	2.2	2.2	2.4	1	-3.3	3.8	2	-9	11	5	-36.7
ENSRNOP00000026359	Q6AYU5													3.2	1	-3.6												
ENSRNOP00000026373	P59215	7.4	2	-8.4																								
ENSRNOP00000026408	XP_231089	5.8	1	-3.1	8.6	2	-8.5				11	2	-10.5	5.8	1	-3.7	5.8	5.8	5.8	5.8	1	-1.9	5.8	1	-3.1	5.8	1	-3.5
ENSRNOP00000026445	NM_001004221																									9.3	2	-18
ENSRNOP00000026462	NP_001020808	3.7	1	-2.2																								
ENSRNOP00000026473	P00185	10	6	-47.8	5.5	3	-21.5	5	2	-12.8																		
ENSRNOP00000026528	P24050										11	2	-8	14	3	-20.7	11	11	11									
ENSRNOP00000026560	NP_445945																			22	2	-10.1						
ENSRNOP00000026574	Q9ES38	18	10	-87.7	12	11	-103	13	13	-112	8	6	-47.1	20	10	-103	7.8	7.8	7.8	21	12	-105	20	12	-97.2	4.6	3	-18.7

ENSRNOP00000026576	P62250	12	3	-20.3							18	3	-19.7	5.6	1	-5.7				5.6	1	-3.9	5.6	1	-5.9			
ENSRNOP00000026580								9.9	3	-16.1										9.4	3	-21.6				9.7	3	-16.6
ENSRNOP00000026583	P18424																								3	1	-3.4	
ENSRNOP00000026641	Q3SWT8	6.8	1	-4.4																								
ENSRNOP00000026648	P62076	39	3	-26.2	24	3	-21.7	14	1	-5.8	14	1	-6							14	1	-7.7	34	3	-23.4			
ENSRNOP00000026653	XP_341465																								1.3	1	-2.2	
ENSRNOP00000026696	P48721				4.4	3	-25.9	1.9	1	-3.6	7.1	4	-31.3	15	5	-50.6	3.4	3.4	3.4				4	2	-14.5	11	5	-48.2
ENSRNOP00000026706	Q6I7R3				9.4	2	-16.6	7.1	2	-11																		
ENSRNOP00000026707																									1	2	-9.6	
ENSRNOP00000026710	P08753										8.5	2	-7.8							0	0	-9.5	6.8	2	-10.8			
ENSRNOP00000026734	Q66HF2																			3.8	1	-6.2						
ENSRNOP00000026738	P18484				2.9	1	-6.2																					
ENSRNOP00000026760	P52631																					0	1	-5.5				
ENSRNOP00000026794	XP_215144										3.7	1	-4.5							10	7	-54	0.8	1	-2.4			
ENSRNOP00000026799	NP_001020050	8.2	3	-25.4	7.6	3	-18.3	5.9	2	-11.3				7.4	3	-22.6	5.5	5.5	5.5	15	7	-53.9	16	4	-38.5	5.1	2	-8.4
ENSRNOP00000026918	XP_578804	14	1	-2.8	14	1	-4.3	23	2	-10										14	1	-5.2	14	1	-1.9			
ENSRNOP00000026928	P34064	35	7	-57.3	23	4	-34.6	27	5	-40.2	13	3	-18.1	5	1	-2.7	9.5	9.5	9.5	35	6	-52.4	14	2	-12.3	22	2	-14.4
ENSRNOP00000027040	NP_001032257	7.4	2	-16.8	3.7	1	-4.9	3.7	1	-2.7	7.4	2	-16	3.7	1	-3	3.7	3.7	3.7	7.4	2	-16.7	3.7	2	-10	3.4	1	-4.9
ENSRNOP00000027061	NP_001006955																								2	1	-2.1	
ENSRNOP00000027064	NP_001020227										3.6	1	-6.5															
ENSRNOP00000027083	NP_861544										2.4	1	-2.3							2.4	1	-4.1	2.4	1	-2	2.4	1	-2.4
ENSRNOP00000027112	NP_001013090	17	4	-40.8	5	1	-3.2				3.4	1	-6.8	3.4	1	-5.8				8.4	2	-14.3	8.4	2	-13.3	8.4	2	-9.1
ENSRNOP00000027160	P11715				4.5	1	-4.9	4.5	1	-4.4							4.5	4.5	4.5									
ENSRNOP00000027217	XP_340908	11	1	-6.3				3	1	-3.9	3	1	-1.7							3	1	-4.8	2.2	2	-11.9	3	1	-2.9
ENSRNOP00000027234	P53987	4	2	-14.7	2.4	1	-3.7				2.4	1	-8.2							4.3	2	-14.2	4.3	2	-9.6	6.3	2	-16.9
ENSRNOP00000027256											3.7	1	-1.6															
ENSRNOP00000027290	Q499P8	5.2	1	-3.3																5.2	1	-4.8	2.1	1	-2			
ENSRNOP00000027345	XP_344662	4.8	1	-4.2							4.8	1	-3							4.8	1	-3.4	9.5	2	-11			
ENSRNOP00000027360	Q62667	9.1	6	-46.9	6	5	-41.3				1.4	1	-1.8	1	1	-3.4				6.2	4	-24.4	3.2	2	-10.8	1.4	1	-1.8
ENSRNOP00000027391	Q9R283	0	1	-2.9																								
ENSRNOP00000027406	NP_742014							3.8	2	-9.1	4.8	1	-5.7							3.8	1	-1.8	18	3	-17.6			
ENSRNOP00000027501	Q9Z2M4																								1.3	1	-3.2	
ENSRNOP00000027511	NP_001007622	9.9	2	-11.8	4.2	1	-6	11	2	-12.1	14	3	-21.1	8.6	2	-14.6	9.3	9.3	9.3	7.3	2	-14.6	3.2	1	-5.2	11	3	-17.7
ENSRNOP00000027520	P97521	30	6	-64.2	2.7	1	-2.6	12	3	-19	13	4	-29.3	17	4	-40.1	21	21	21	14	5	-33.1	0	1	-2.8	10	2	-16.1
ENSRNOP00000027552	P12368										8.2	1	-5.2												3.2	1	-5.4	
ENSRNOP00000027615	P0C546	5	1	-4.8	5	1	-2.8							5	1	-6.9				9.7	2	-12.4	5	1	-2.6	5	1	-7.1
ENSRNOP00000027617	NP_596905				2.6	1	-4.7															2.6	1	-6.6	2.2	1	-2.1	
ENSRNOP00000027700	P12928	12	4	-37.5	12	4	-33.3	4	2	-13.1	2.3	1	-6	13	6	-48.3	20	20	20	18	6	-59	14	5	-36	6.1	3	-20.1

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ENSRNOP00000028510	NP_543168	1.9	1	-4.4						1.9	1	-6.2				4.4	4.4	4.4	1.9	1	-5.3								
ENSRNOP00000028514	NP_001033583									7.1	1	-5.6																	
ENSRNOP00000028589	NP_112621															2.4	2.4	2.4											
ENSRNOP00000028624	O08589	12	1	-2.9	12	1	-2.1			12	1	-2.9				12	12	12				0	1	-2.2	12	1	-3.3		
ENSRNOP00000028627	NP_001017385	8.4	1	-5.1												1.9	1.9	1.9	8.5	1	-4.5								
ENSRNOP00000028627		8.4	1	-5.1												1.9	1.9	1.9	8.5	1	-4.5								
ENSRNOP00000028680	XP_341862	8.9	1	-6.1	3.2	2	-12.6	0.8	1	-3	9.5	7	-58.8	0.8	1	-2.8	3.5	3.5	3.5	3.7	3	-20.1	0.8	1	-1.8	3.1	3	-18.7	
ENSRNOP00000028687	Q9R063				25	2	-8.4																						
ENSRNOP00000028699	NP_001028872	13	5	-48.9												10	10	10				14	6	-51.4					
ENSRNOP00000028725	XP_215196	7.9	1	-3.8	7.9	1	-4.1	7.9	1	-4												7.9	1	-3.6					
ENSRNOP00000028770	XP_227459	11.9	1	-7.8	2.1	1	-5.6	11	1	-5.2	11	1	-9.1	11	1	-8.5				11	1	-5	11	1	-2.9	11	1	-3	
ENSRNOP00000028784	NP_543185																												
ENSRNOP00000028787	Q0ZHH6	22	7	-67.3	19	6	-41.2	15	5	-37.5	7.2	3	-19.9	5.4	2	-21.5	2	2	2	23	6	-58.5	14	7	-55.5	6.1	3	-16.8	
ENSRNOP00000028888	Q91XU8	3.6	1	-2.5				3.6	1	-4.9									3.6	1	-2.5								
ENSRNOP00000028929	NP_075580				1.8	1	-4.7															1.8	1	-3.3	3	2	-10.8		
ENSRNOP00000028934	P20817									26	11	-134	24	10	-91.7														
ENSRNOP00000028995	Q562A0	17	7	-70.6	2.4	2	-13.6	5.5	2	-15.5	9.6	4	-35.5	8.4	4	-34.3	7	7	7	13	7	-60.4	14	4	-45.3	6	3	-23	
ENSRNOP00000029124	Q3B8P0																					4.5	1	-1.8					
ENSRNOP00000029144	Q9ER34									3.3	1	-5.3				1.8	1.8	1.8											
ENSRNOP00000029234	Q5XIM9																									2.6	1	-2.3	
ENSRNOP00000029333	Q5M875	19	5	-40.8	13	3	-24.8	15	4	-26.4	13	3	-29	10	3	-29.4	16	16	16	17	5	-44.5	19	4	-48.6	25	7	-72.2	
ENSRNOP00000029426	P56135	21	4	-46.5	21	7	-50.8	12	1	-4.4	21	2	-12.1	4	1	-3.8	21	21	21	21	2	-11.3	21	2	-20.3				

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ENSRNOP00000036343	O55213	12	3	-19.9				9.1	2	-8.3				14	3	-18.5	13	13	13	9.8	2	-15.5	7.3	2	-8.9	7.6	2	-9.6
ENSRNOP00000036381	Q04970																								5.8	1	-3.2	
ENSRNOP00000036480	XP_221105	9.6	2	-12.4						6.7	1	-5.4								6.7	1	-5.4				9.6	2	-9.7
ENSRNOP00000036486	P62282									6.2	1	-2.4																
ENSRNOP00000036514	P09895				4.4	1	-3.4			7.1	2	-9.9	14	3	-33	10	10	10	4.4	1	-4.8	7.4	2	-12.4	4.4	1	-3.8	
ENSRNOP00000036519	NP_001013116	26	11	-100	24	13	-115	22	7	-50.7	23	5	-37.6	8.3	3	-20.2	13	13	13	20	12	-106	21	6	-47.3	6.5	2	-13.8
ENSRNOP00000036541	NP_001032740				8.5	2	-8.8																					
ENSRNOP00000036550	P41123							4	1	-8.5																		
ENSRNOP00000036690	P62278							23	3	-16	17	2	-10.7	30	4	-41.3	30	30	30	7.3	1	-4.1	30	3	-30	15	2	-19.5
ENSRNOP00000036726	Q923V8									9.3	1	-2.6																
ENSRNOP00000036810	XP_215848	5.1	1	-5.9	5.1	1	-2.5	5.1	1	-2.8	4.1	1	-4	9.2	2	-18.6												
ENSRNOP00000036896	P05179	26	8	-78.6	11.8	6	-47.1	13	4	-68.7	11	3	-27.8	18	5	-50.4	15	15	15	23	8	-94.8	15	4	-44.8	18	9	-64.2
ENSRNOP00000036948	O88777							4.6	2	-8.8	2.3	1	-4.2	2.3	1	-5.4	5.1	5.1	5.1				1.3	1	-4.3	5.2	3	-23.3
ENSRNOP00000036958	XP_343175	5.4	3	-16.6	6.8	3	-22.8	11	4	-25.7	10	4	-33.4				5.7	5.7	5.7	11	3	-30.3	6.3	2	-27.5	9.2	3	-38.4
ENSRNOP00000037032	NP_001020891	4.4	1	-2.1							2.2	1	-2.3				3.1	3.1	3.1									
ENSRNOP00000037256	NP_001008525	15	2	-20.9							29	2	-25.4															
ENSRNOP00000037521	XP_342342																7.6	7.6	7.6									
ENSRNOP00000037587	Q3T1J1									13	1	-2.8																
ENSRNOP00000037617	XP_235093																								2.8	2	-17.2	
ENSRNOP00000037647	Q5BK62																		6.9	1	-3.4	6.9	1	-2.8				
ENSRNOP00000037699	NP_001025223							10	1	-3.2																		
ENSRNOP00000037786	P04903	13.5	3	-19.3	14	4	-26.6	4.1	1	-2.8																		
ENSRNOP00000037891	NP_001007725				5	1	-4.2	5	1	-4.3	5	1	-4.1															
ENSRNOP00000037928	NP_001008282																		4.7	1	-1.8							
ENSRNOP00000037996	XR_006088									3.8	1	-2.1																
ENSRNOP00000038003	P34058									5	1	-2.3																
ENSRNOP00000038037	XP_219953																								0.6	1	-2.7	
ENSRNOP00000038073	Q64428							11	1	-2.7	7.4	1	-6.3				7.4	7.4	7.4						7.4	1	-5.9	
ENSRNOP00000038092	XP_222117	1.9	1	-1.9				1.9	1	-2.8	1.9	1	-2.6															
ENSRNOP00000038100	XP_228758	8.1	1	-4.2				12	1	-4.1	12	1	-3.5	8.1	1	-6.7	8.1	8.1	8.1	8.1	1	-1.9	24	2	-8.8	37	2	-23.2
ENSRNOP00000038110	Q62949	1.2	1	-4										2.1	1	-2.3							2.7	2	-14.8	0.9	1	-5
ENSRNOP00000038378	XP_230476																		1.6	1	-1.8							
ENSRNOP00000038428	Q07936							8.2	2	-9																		
ENSRNOP00000038471	XR_006243																1.1	1.1	1.1									
ENSRNOP00000038527	P17475																						9.9	3	-23.5			
ENSRNOP00000038874	XP_232355	3.1	1	-4.4																								
ENSRNOP00000038987																	33	33	33									
ENSRNOP00000039003	O55212				17	5	-32.4																					

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ENSRNOP00000040401	XP_576028													11	1	-5.2												11	1	-5.6
ENSRNOP00000040478	XP_213463				15	4	-26.5				4.7	1	-2	17	3	-20.6	9.9	9.9	9.9	10	2	-9.9					10.3	2	-12.1	
ENSRNOP00000040585	P19939																					9.1	1	-2.4						
ENSRNOP00000040598	Q5BJK9	5.7	1	-2.5																										
ENSRNOP00000040662	XR_008791																					5.9	1	-2.2						
ENSRNOP00000040703	P62275																									12	1	-1.6		
ENSRNOP00000040740	P17077												6.7	1	-3.9											12	3	-19.8		
ENSRNOP00000040740	XP_234521												6.7	1	-3.9											12	3	-19.8		
ENSRNOP00000040752	O88397						5.1	2	-18.6																					
ENSRNOP00000040759	Q64119	8	1	-2.1																							8	1	-4	
ENSRNOP00000040848	NP_001025074																14	14	14	14	3	-21.7								
ENSRNOP00000040859	P35565	25	12	-112	9.1	10	-96.7	13	6	-47.3	12	8	-69.7	12	8	-74				26	13	-127	12	8	-73.5	9.6	5	-37.3		
ENSRNOP00000040879	XP_001064738	2.1	1	-2.6				11	2	-11.3	11	1	-2.1							11	1	-2.2	0	1	-2					
ENSRNOP00000040879	Q497J1	2.1	1	-2.6				11	2	-11.3	11	1	-2.1							11	1	-2.2	0	1	-2					
ENSRNOP00000040955					2.4	1	-4													9.6	1	-2.5				9.6	1	-3.4		
ENSRNOP00000040969	NP_997681	14.6	1	-7.8							18	7	-60.9	40	4	-36.6	31	31	31	34	4	-32.8	27	2	-28.1	18	2	-17.1		
ENSRNOP00000041138	P04800	20	9	-76.2	11	5	-33.5	22	10	-92.1	12	5	-37.3	3.2	1	-36.3				25	10	-98.7	22	7	-65.8	12	5	-36.1		
ENSRNOP00000041174	P10633	40	17	-279	48	22	-229	36	22	-290	30.6	15	-140	40	19	-239	39	39	39	38	25	-290	41	25	-256	26	14	-159		
ENSRNOP00000041281	XP_001070960																			12	1	-4.1								
ENSRNOP00000041287	XP_232123																					0.8	1	-3.9						
ENSRNOP00000041336	NP_058909							4.6	2	-8.3																				
ENSRNOP00000041462	P23358										18	2	-12	22	3	-23	35	35	35				9.1	1	-2.5	18	2	-11.5		
ENSRNOP00000041533																										4.9	1	-4.4		
ENSRNOP00000041638	P62912	5.2	1	-2							15	1	-5.1	19	2	-13.4														
ENSRNOP00000041707											18	2	-12									11	1	-2.8						
ENSRNOP00000041821	P05197				2.7	1	-4.2				1.4	1	-5.4	4.4	2	-12.6	2.7	2.7	2.7			2.7	1	-2.2						
ENSRNOP00000041865	Q06646																			21	1	-3.1				21	1	-3.2		
ENSRNOP00000041873	Q9R066	4.7	1	-4.3																8	2	-13.8								
ENSRNOP00000041889	NP_001011979																									3.6	1	-6.2		
ENSRNOP00000041899	XR_007404																13	13	13											
ENSRNOP00000041984											5.6	1	-7.6																	
ENSRNOP00000041995	P46953																8	8	8							2.8	1	-1.7		
ENSRNOP00000042002	Q63448																4.2	4.2	4.2											
ENSRNOP00000042029	P15146				1.4	2	-9.3																							
ENSRNOP00000042040	NP_671749																			4.2	1	-2.1								
ENSRNOP00000042132	P07872	2.2	1	-4.9				5.4	2	-7.5																				
ENSRNOP00000042133	XR_009114												5.1	1	-20.9															
ENSRNOP00000042135	Q2XTA8				31	2	-9.2																							

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ENSRNOP00000045800	XM_221101	7.6	7	-58.8	2.8	3	-23.9	3	3	-24.9	1.1	1	-2.1	1	1	-6.5	3.1	3.1	3.1	2.9	3	-22.5	2.6	3	-25.8			
ENSRNOP00000045847	XP_237227																											
ENSRNOP00000045886	P30839	29	23	-223	23	26	-254	22	13	-126	20	8	-94.3	18	8	-80.2	23	23	23	34	19	-187	20	14	-125	18	8	-82.6
ENSRNOP00000045936	Q66X93																1.6	1.6	1.6						1.6	1	-4.5	
ENSRNOP00000045952	NP_001041345				19	6	-47.1	19	6	-51.3				16	5	-36.3	34	34	34				23	6	-63	5.6	2	-8.4
ENSRNOP00000046090	P62271	17	3	-19.1							43	7	-61.3	24	4	-29.2	25	25	25	27	5	-36.1	24	4	-30	24	4	-29.7
ENSRNOP00000046157	XP_227546													5	1	-7.5	9.5	9.5	9.5									
ENSRNOP00000046157														5	1	-7.5	9.5	9.5	9.5									
ENSRNOP00000046170	P33124							1.5	1	-2.8																		
ENSRNOP00000046328	NP_988843																					24	3	-24.9				
ENSRNOP00000046414	P00406	15	2	-23.7	14	3	-23.4	14	3	-24.3	18	3	-34.4	14	4	-29.9	14	14	14	14	4	-31.4	14	3	-23.8	14	3	-23.3
ENSRNOP00000046460	XP_227659																8.4	8.4	8.4									
ENSRNOP00000046512	P14173				3.3	1	-5.1							15	1	-3									2.3	1	-5.1	
ENSRNOP00000046600	NP_001041344													5	1	-2									4.1	1	-4	
ENSRNOP00000046654	P16573	6	2	-14.7				6	2	-10.9							2.3	2.3	2.3	6	2	-16.2	7.3	3	-27.7	2.3	1	-6
ENSRNOP00000046668	P15127																											
ENSRNOP00000046692	Q5RK07										4.6	2	-11.6							2	1	-4.4	2.1	1	-4.1			
ENSRNOP00000046711	XR_008598																21	21	21									
ENSRNOP00000046716											3.6	1	-2															
ENSRNOP00000046737	P62246																6.7	6.7	6.7									
ENSRNOP00000046783	NP_476480				0	1	-5.1																2.8	2	-14.2	1.7	1	-6.3
ENSRNOP00000046802																				2.2	1	-2						
ENSRNOP00000046842	NP_001030094	1.7	1	-2.4	3.9	2	-13.4				9.5	5	-37.1				1.7	1.7	1.7	1.9	1	-3.4	5.1	3	-19.4	6.4	3	-18.7
ENSRNOP00000046867	XP_001055358	2.1	1	-2.5	7.3	2	-8.9	7.6	2	-11.5	7.3	2	-11.2	13	3	-29.9	10	10	10	8.8	3	-19.1	6.1	2	-10.8	3.5	1	-3.5
ENSRNOP00000046867		2.1	1	-2.5	7.3	2	-8.9	7.6	2	-11.5	7.3	2	-11.2	13	3	-29.9	10	10	10	8.8	3	-19.1	6.1	2	-10.8	3.5	1	-3.5
ENSRNOP00000047028	XP_213612	11	1	-2.6																								
ENSRNOP00000047148	P60868													8.4	1	-3.4				8.4	1	-3.1						
ENSRNOP00000047214	XR_008812																6.3	6.3	6.3									
ENSRNOP00000047304	P62989				13	2	-10.4																14	2	-9.8			
ENSRNOP00000047579	NP_001012007	2.4	1	-2.7							2.4	1	-2.4							6.1	2	-12.2						
ENSRNOP00000047647	Q63060																9.5	9.5	9.5									
ENSRNOP00000047674	XM_215248	12	1	-7.3				12	1	-6.2				12	1	-5.1	12	12	12	12	1	-8.3	0	1	-3.1			
ENSRNOP00000047680	XP_213832	28	2	-26.2	22	2	-14.3										16	16	16				28	3	-24.3			
ENSRNOP00000047683	NP_599206	1.6	1	-3.4																			1.6	1	-3.5	5.3	2	-17.6
ENSRNOP00000047755	P11950																			20	1	-2.4						
ENSRNOP00000047767	XR_008501																8.7	8.7	8.7									
ENSRNOP00000047800	Q09073	16	10	-80.5	26	7	-51.9	17	6	-53.2							11.5	11.5	11.5									
ENSRNOP00000047800	XR_004388	16	10	-80.5	26	7	-51.9	17	6	-53.2							11.5	11.5	11.5									

ENSRNOP00000047811	P61206										25	5	-35.1								10	1	-4.1	0	1	-1.8	16	2	-15.2	
ENSRNOP00000047905	P29995																									0.5	1	-3.9		
ENSRNOP00000047928															6.9	6.9	6.9													
ENSRNOP00000047954	P00159	2.1	1	-2.7																										
ENSRNOP00000048088	Q05096									1.2	1	-2.3														1.2	1	-3.6		
ENSRNOP00000048116	XM_213058														7	7	7									7	1	-2.4		
ENSRNOP00000048171	P51647	7.8	2	-21.1																		0	1	-2.5	2.8	1	-3.1			
ENSRNOP00000048250	P02091	45	9	-86.1	27	4	-30.1	8.2	1	-2.9				59	10	-96.6	43	43	43	51	10	-91.1	32	5	-44.2	37	3	-42.2		
ENSRNOP00000048282	XR_007411													12	1	-5.4														
ENSRNOP00000048364	P63025	3.2	1	-6.1							16	1	-1.8								16	1	-7.2	16	1	-3.7				
ENSRNOP00000048416	XP_220907																						12	3	-17					
ENSRNOP00000048417	NP_001008829	8.9	3	-20.3				7.5	2	-10.1													3.2	1	-3.7	3.2	1	-3.1		
ENSRNOP00000048422	P18445										8.1	1	-1.6	14	2	-11.5	14	14	14				6.8	1	-1.7	4.1	1	-1.6		
ENSRNOP00000048479	P27952	8	1	-1.9							13	2	-15.7																	
ENSRNOP00000048537	XR_006187													2.8	1	-5.4							14	2	-11.4					
ENSRNOP00000048546	P11517	34	7	-58.8				11	1	-8.3	25	5	-41.4	45	10	-86	22	22	22	28	6	-62.7	23	3	-25.5	35	4	-31.7		
ENSRNOP00000048563	P48199																			1.1	1	-3.7								
ENSRNOP00000048631	XR_007561																									20	2	-18.1		
ENSRNOP00000048678	Q7TPJ0	20	2	-23.8																										
ENSRNOP00000048711	P12938										30	15	-131	22	9	-194	28	28	28							22	10	-88.5		
ENSRNOP00000048723	XP_578078										10	2	-10.7	27	2	-14.5	49	49	49	10	2	-12.1	9.3	1	-2.5	9.3	1	-1.8		
ENSRNOP00000048850	Q62826																													
ENSRNOP00000048877	XP_343254	1.8	1	-1.9				1.8	1	-3.3	5.1	3	-25.5	1.8	1	-9.1				1.8	1	-2.4				1.6	1	-3.7		
ENSRNOP00000048929	Q68FS4	10.6	3	-19.3							7.8	2	-15.4									0	1	-2.1						
ENSRNOP00000048929	XP_001061168	10.6	3	-19.3							7.8	2	-15.4									0	1	-2.1						
ENSRNOP00000049003	P06866										2.1	1	-2	3.4	1	-6.5	3.7	3.7	3.7				3.4	1	-3.1					
ENSRNOP00000049143	Q02874																									5.1	1	-1.5		
ENSRNOP00000049419	NP_955404																					3.4	1	-2.4						
ENSRNOP00000049420																										2.2	1	-2		
ENSRNOP00000049473	P14046				2.4	3	-27.3	2.7	4	-36.9				1.7	1	-2.9				3.1	4	-29.6	4.3	5	-47.7	4.1	4	-31.3		
ENSRNOP00000049522	XR_007958										12	2	-12.1																	
ENSRNOP00000049537	NM_001013233																			26	1	-4								
ENSRNOP00000049546	XP_001074729																					0	1	-2.8	16	3	-32.3			
ENSRNOP00000049600	NP_001013929				3.4	1	-3.7				2.6	1	-5.2									6.1	2	-11.1						
ENSRNOP00000049689	XR_006058				16.6	3	-16.5																							
ENSRNOP00000049726	XP_216479	5.4	1	-5.5	5.4	1	-2.9	5.4	1	-2.9				5.4	1	-3.9				14	2	-10.2	5.4	1	-3.2	5.4	1	-5.8		
ENSRNOP00000049797	NP_001012226																													
ENSRNOP00000049864	XP_342612																					2.4	1	-5.2						

ENSRNOP00000049879	P35435	1.6	1	-4.8	1.6	1	-5.8	3.1	2	-10.2	7.1	3	-29.1	6.6	3	-35.3	5.8	5.8	5.8	5.4	3	-20.5	3.5	2	-13.7	9.6	5	-44.3
ENSRNOP00000049978	NP_001011908																		0.4	1	-4.5							
ENSRNOP00000049998	NM_001040008															27	27	27										
ENSRNOP00000050010	NP_001007804																								2.1	1	-1.5	
ENSRNOP00000050050	P97564	8.8	2	-11.7	4.3	2	-10	1.4	1	-2.9	8.9	5	-43.5				5	5	5	3.6	2	-12.9	5.3	3	-20.3	8.7	5	-45.7
ENSRNOP00000050137	Q9ZZL0																					26	7	-52.6				
ENSRNOP00000050322	P63269	18.6	6	-43.8				4	1	-12												13	5	-38.4				
ENSRNOP00000050328	XP_212651																					0	1	-2				
ENSRNOP00000050371											6.8	1	-1.9												6.8	1	-3.3	
ENSRNOP00000050505	Q6AYA5	4	1	-4.1																								
ENSRNOP00000050589	P19132	24	3	-25.2							13	2	-9.6				6.6	6.6	6.6	4.9	1	-3.7						
ENSRNOP00000050649	Q5PQL3																3.3	3.3	3.3									
ENSRNOP00000050663	P14480																								6.2	2	-9.8	
ENSRNOP00000050691	P07871										2.1	1	-3				5.9	5.9	5.9				2.8	1	-2.4	4.7	1	-2.5
ENSRNOP00000050737	P20280													8.8	1	-4.5	8.8	8.8	8.8	8.8	1	-2.8				8.8	1	-2.7
ENSRNOP00000050737														8.8	1	-4.5	8.8	8.8	8.8	8.8	1	-2.8				8.8	1	-2.7
ENSRNOP00000050947	P70712																			3	1	-3.7						
ENSRNOP00000050960	XP_343021	4.9	1	-2.9	8.2	2	-9.3	3.2	1	-3.1	2.4	1	-2.2							4.5	2	-11.2	5.5	2	-10			
ENSRNOP00000050968	P02650	17	5	-42.9	20	6	-49	11	3	-18	13	5	-38.2	9.4	3	-17.3	6.8	6.8	6.8	22	5	-37.1	16	4	-30.8	13	4	-26.6
ENSRNOP00000050973	XR_006972										3.2	2	-10															
ENSRNOP00000050980	Q3B8R3							1.2	2	-8.1																		
ENSRNOP00000050986	Q99P75	6.5	1	-3.2				13	2	-17.7										14	2	-15.9						
ENSRNOP00000051016	NM_053982										6.2	1	-1.9	6.2	1	-2.1							6.2	1	-2.6			
ENSRNOP00000051134	XP_001060406																											
ENSRNOP00000051135	NP_446423	4.3	1	-3.7				15	4	-26.6	12	3	-21.3	10	2	-22.3	10	10	10	7.7	2	-16.2	26	3	-47	5	1	-4.1
ENSRNOP00000051326	P05505										5	1	-1.9															
ENSRNOP00000051361	P36365	36	15	-148	14	6	-41.8	31	15	-137	17	8	-71	9.4	4	-33.5	16	16	16	32	14	-126	30	13	-108	10	5	-35.7
ENSRNOP00000051363	Q5I0G9	3.1	1	-2.4							4.3	2	-10.8							4.3	2	-8.5	0	1	-1.8	1.4	1	-5.9
ENSRNOP00000051412	O88269	3.3	3	-19.9				2.5	3	-21.1	2.3	3	-18.4	1	1	-5.7	1	1	1	2.3	3	-20.2	2.5	3	-26.2	1.7	2	-14.7
ENSRNOP00000051445	O88813	11	7	-68.4	13	9	-107	15	12	-120	13	9	-73.9	13	8	-102	15	15	15	21	14	-149	20	11	-102	16	8	-61
ENSRNOP00000051607	P19225	26	10	-101	14	9	-76	25	16	-147	15	10	-96.2	14	6	-58	15	15	15	29	13	-130	28	13	-136	7.3	3	-23.2
ENSRNOP00000051613	P33273				7.9	4	-28.9	8	4	-36.1	8.1	4	-27.2							0	0	-38.6	16	4	-27.1	8	4	-28.9
ENSRNOP00000051614	Q63853																								11	3	-21.5	
ENSRNOP00000051674	P07150							8.6	3	-21.2																		
ENSRNOP00000051684	XP_219626										2.7	1	-3.7							4.4	1	-2.2				6.8	2	-14.6
ENSRNOP00000051700	NP_445897													4.5	2	-13.4	14	14	14				14	2	-12.8			
ENSRNOP00000051714	Q641Z6																1.9	1.9	1.9									
ENSRNOP00000051758	Q4V892				3.9	1	-4.4													7.4	2	-11.9	3.9	1	-3.7			

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ENSRNOP00000053926		7.5	1	-4.7	7.5	1	-3				7.5	1	-5.2	7.5	1	-4	7.5	7.5	7.5	7.5	1	-4.4				7.5	1	-3.4
ENSRNOP00000054015	P20611																		10	3	-16.9							
ENSRNOP00000054026	Q5XI78	0	1	-3.5	1.3	1	-3	3.2	2	-9.1				1.3	1	-2.7	1.3	1.3	1.3	1.3	1	-3.5	1.3	1	-2.4			
ENSRNOP00000054078	P20812	12	6	-46.7							6.7	3	-23.3	6.5	3	-22.1				0	5	-53.4	14	7	-50.2			
ENSRNOP00000054084	P10610										2.4	1	-2.3				5.2	5.2	5.2									
ENSRNOP00000054092	P05544																					5.9	2	-13.4				
ENSRNOP00000054104	P05545	6.7	2	-10.3																								
ENSRNOP00000054159	P21533				22	5	-34.6																					
ENSRNOP00000054178	NM_001014105	10	2	-12.7	13	3	-24.5	9.4	2	-10.6	12	2	-24.9	9.8	2	-18.5	3.9	3.9	3.9	5.9	1	-7	9.8	2	-15	9.8	2	-18.9
ENSRNOP00000054347																			2.6	1	-1.9	0	1	-3	2.6	1	-3.7	
ENSRNOP00000054537	P14562	7.6	3	-22.5	2.4	1	-4				3.4	1	-7									0	1	-2.3				
ENSRNOP00000054548	XP_230950																					0.8	1	-2.8				
ENSRNOP00000054559																	5.9	5.9	5.9				6.5	1	-2.8	6.5	1	-2.8
ENSRNOP00000054666																						10.1	2	-8.7				
ENSRNOP00000054740	NM_001030021													32	1	-3.2	28	28	28							16	1	-4.9
ENSRNOP00000054750											4.6	1	-1.7															
ENSRNOP00000054783														6.3	2	-15												
ENSRNOP00000054810	NP_001020578	7.1	2	-9.4	3.7	1	-5.2	3.7	1	-4.7	3.7	1	-3.3	6.8	2	-9.6									7.1	2	-10.4	
ENSRNOP00000054834	P51590	10.6	3	-20.2	10	5	-34				10	4	-28.9				8.2	8.2	8.2				3.5	2	-16.2	2	1	-2.1
ENSRNOP00000054923	Q5BJP3																								16	1	-2.6	
ENSRNOP00000054947	P06686	4.9	4	-42.5	7.3	5	-40	0.03	3	-17.2	0.02	2	-10.2				7	7	7				4.5	4	-36.3	5.1	3	-20.9
ENSRNOP00000055035	Q03248	4.3	1	-6.9	6.9	2	-12.7							4.3	1	-6.7	4.3	4.3	4.3				6.9	2	-13.2	4.3	1	-4.4
ENSRNOP00000055035		4.3	1	-6.9	6.9	2	-12.7							4.3	1	-6.7	4.3	4.3	4.3				6.9	2	-13.2	4.3	1	-4.4
ENSRNOP00000055038	XM_574740	22	1	-8.7	21	2	-11	21	1	-10.4	21	1	-2.3				21	21	21				21	1	-9.4			
ENSRNOP00000055188																									7.5	1	-2	
ENSRNOP00000055224	Q641Y2	6.3	3	-22.7				4.2	3	-19	6.3	3	-21.3	4.2	2	-24.3	6.3	6.3	6.3				4.1	1	-4.1	2.4	1	-5.2
ENSRNOP00000055288	XP_217412																											
ENSRNOP00000055369	P04797	15	9	-80.3	11	6	-49.5	20	8	-63.7	17	6	-46.5	28	12	-138	23	23	23				20	8	-76.3	16	7	-62.6
ENSRNOP00000055387	XP_243478																								2.1	1	-2.5	
ENSRNOP00000055460	NP_001009631	7	1	-3.3																		7	1	-3.2				
ENSRNOP00000055686	NP_072129	5.7	1	-2.6	5.7	1	-2.8				4.4	1	-7.5				5.7	5.7	5.7				5.7	1	-3.5	5.7	1	-3.1
ENSRNOP00000055794	P29314													15	2	-11.6												
ENSRNOP00000055811	NP_072141	0	1	-7							2.1	1	-2.6									3.7	2	-16.6	3	2	-9.6	
ENSRNOP00000055824	P14740	12	6	-59.9	9.4	7	-53.6	12	7	-52	14	7	-59	1.2	1	-4.9	3.6	3.6	3.6				12	6	-57.6	14	6	-67.4
ENSRNOP00000055922																									8.5	1	-4.1	
ENSRNOP00000055964	Q7TP70													3.3	2	-9.6												
ENSRNOP00000056148	XR_008757													9.2	1	-18.1												
ENSRNOP00000056246	Q10758							59	1	-9.6				20	1	-13.5	20	20	20									

ENSRNOP00000056269	XP_001058844	11	2	-12.9				5.8	1	-5.7						5.8	5.8	5.8				15	3	-20.4	10	2	-14.3
ENSRNOP00000056294																									6	1	-4.1
ENSRNOP00000056296	Q8CFM6									1.5	1	-1.6															
ENSRNOP00000056307																						0	1	-2.2			
ENSRNOP00000056413	Q63617																					1	1	-2.1			
ENSRNOP00000056518	NM_001025010																					3.5	2	-17	2.8	3	-18.1
ENSRNOP00000056555																											
ENSRNOP00000056567	XP_578679							12	2	-11.3	3.9	1	-2.2	3.9	1	-2.8									3.9	1	-1.6
ENSRNOP00000056595	P63018																7	7	7								
ENSRNOP00000056699	Q64565													2	1	-3.3											
ENSRNOP00000056750	XP_213106										7.2	2	-9.8												4.1	1	-2.7
ENSRNOP00000056824	NP_955417	6.9	2	-17.9	3.3	1	-5	3.3	1	-8.7	6.9	2	-19.8	9	3	-22.5	9	9	9						3.3	1	-7
ENSRNOP00000056935																						4.1	1	-1.9			
ENSRNOP00000056968	O35826																								1.2	1	-1.9
ENSRNOP00000057025	P04642				12	4	-36.3																				
ENSRNOP00000057271	NP_001094433										3.2	2	-9.2				4.1	4.1	4.1						1.4	1	-1.9
ENSRNOP00000057374	NP_001004102										2.7	1	-3.3														
ENSRNOP00000057443	P46418													9	1	-17.6											
ENSRNOP00000057445	Q5U305																					7.5	1	-5.2			
ENSRNOP00000057449	Q6RUV5				5.7	1	-4.4																		6.6	2	-9.5
ENSRNOP00000057452	P10868	5.1	1	-5.2													5.1	5.1	5.1								
ENSRNOP00000057476											33	1	-2.5														
ENSRNOP00000057501	Q63270				4.7	2	-16.9	3.9	2	-12.6				3	2	-11.5	2.9	2.9	2.9								
ENSRNOP00000057980	Q5U314										2.1	1	-2.2														
ENSRNOP00000058054	NM_001037205				2.1	1	-2.5	1.4	1	-3.4																	
ENSRNOP00000058139	XR_008402													0	1	-3.7											
ENSRNOP00000058212	XP_343761																								13	1	-2.3
ENSRNOP00000058241	P07632	29	5	-42.7	13	3	-21.9	21	3	-20.7	6.9	1	-5.7	25	3	-25.8	35	35	35						6.9	1	-1.5
ENSRNOP00000058269	Q7TMU5	3.5	1	-6.2	4.1	1	-2.8	4.1	1	-3.8																	
ENSRNOP00000058419	Q68FT5	10	2	-30.4	12	5	-36.2	8.5	2	-18.2				8.5	2	-19.5	8.5	8.5	8.5								
ENSRNOP00000058474	Q4KLN2				5.8	1	-2.3				5.8	1	-2.1														
ENSRNOP00000058474	XP_001066436				5.8	1	-2.3				5.8	1	-2.1														
ENSRNOP00000058548					1.5	1	-2																				
ENSRNOP00000058595	XP_213824	15	3	-17.8	16	5	-32.5				6	1	-4.1	17	1	-18.1	0	0	0								
ENSRNOP00000058601	P35427										5.7	1	-2.7	5.7	1	-3	5.7	5.7	5.7								
ENSRNOP00000058601											5.7	1	-2.7	5.7	1	-3	5.7	5.7	5.7								
ENSRNOP00000058613	P50237													4.9	1	-3.1	12	12	12								
ENSRNOP00000058624	P04797				11	2	-9.2																				

[illegible]

Supplementary Table 2:

Protein Descriptions for Non-Redundant Proteins Identified from Peptide IPG-IEF Experiments

Ensemble Accession	SwissProt/NCBI Accession	Protein Description
ENSRNOP00000000025	XP_342776	PREDICTED: similar to heme-binding protein
ENSRNOP00000000047	P45380	Sulfate anion transporter 1 (SAT-1) (Solute carrier family 26 member 1) (Canalicular sulfate transporter) (Sulfate/carbonate antiporter).
ENSRNOP00000000072	P29419	ATP synthase e chain, mitochondrial (EC 3.6.3.14).
ENSRNOP00000000083	Q6AXN3	Transmembrane emp24 domain-containing protein 5 precursor.
ENSRNOP00000000107	Q9JJ40	PDZ domain-containing protein 1 (Na/Pi cotransporter C-terminal-associated protein) (NaPi-Cap1) (Na(+)/H(+) exchanger regulatory factor 3) (Sodium-hydrogen exchanger regulatory factor 3) (Dietary Pi-regulated RNA-1) (Diphor-1) (C-terminal-linking and modu
ENSRNOP00000000134	P29410	Adenylate kinase isoenzyme 2, mitochondrial (EC 2.7.4.3) (ATP-AMP transphosphorylase).
ENSRNOP00000000146	NP_001020169	hypothetical protein LOC307180
ENSRNOP00000000177	P17046	Lysosome-associated membrane glycoprotein 2 precursor (LAMP-2) (Lysosomal membrane glycoprotein-type B) (LGP-B) (LGP-96) (LGP-110) (CD107b antigen).
ENSRNOP00000000178	P07953	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 1 (6PF-2-K/Fru- 2,6-P2ASE liver isozyme) [Includes: 6-phosphofructo-2-kinase (EC 2.7.1.105); Fructose-2,6-bisphosphatase (EC 3.1.3.46)].
ENSRNOP00000000186	Q9R112	Sulfide:quinone oxidoreductase, mitochondrial precursor
ENSRNOP00000000201	P97532	3-mercaptopyruvate sulfurtransferase (EC 2.8.1.2) (MST)
ENSRNOP00000000219	P23711	Heme oxygenase 2 (EC 1.14.99.3) (HO-2).
ENSRNOP00000000246	Q45QJ8	similar to hypothetical protein FLJ12681
ENSRNOP00000000246		Transmembrane protein 112 [Tmem112]
ENSRNOP00000000306	P32089	Tricarboxylate transport protein, mitochondrial precursor (Citrate transport protein) (CTP) (Tricarboxylate carrier protein) (Solute carrier family 25 member 1).
ENSRNOP00000000336	Q9ET64	Sphingomyelin phosphodiesterase 2 (EC 3.1.4.12) (Neutral sphingomyelinase) (nSMase) (N-SMase) (Lyso-platelet-activating factor- phospholipase C) (Lyso-PAF-PLC).
ENSRNOP00000000345	XP_228305	PREDICTED: similar to SEC63-like
ENSRNOP00000000351	NM_053371	fractured callus expressed transcript 1 (Fxc1), mRNA
ENSRNOP00000000434	NP_612539	MAWD binding protein
ENSRNOP00000000514	P08649	Complement C4 precursor [Contains: Complement C4 beta chain; Complement C4 alpha chain; C4a anaphylatoxin; Complement C4 gamma chain] [C4]
ENSRNOP00000000514		Unknown
ENSRNOP00000000527	P36372	Antigen peptide transporter 2 (APT2).
ENSRNOP00000000528	P28064	Proteasome subunit beta type 8 precursor (EC 3.4.25.1) (Proteasome component C13) (Macropain subunit C13) (Multicatalytic endopeptidase complex subunit C13).
ENSRNOP00000000532	P28077	Proteasome subunit beta type 9 precursor (EC 3.4.25.1) (Proteasome chain 7) (Macropain chain 7) (Multicatalytic endopeptidase complex chain 7) (RING12 protein) (Low molecular mass protein 2).
ENSRNOP00000000537	NP_997693	procollagen, type XI, alpha 2
ENSRNOP00000000541	NP_001008885	RT1 class I, locus Ke4
ENSRNOP00000000542	NP_997694	hydroxysteroid (17-beta) dehydrogenase 8
ENSRNOP00000000631	Q6P6G2	Uncharacterized protein C6orf89 homolog.
ENSRNOP00000000662	XP_215413	PREDICTED: similar to RIKEN cDNA 2010107G23
ENSRNOP00000000673	NP_001007740	SAR1a gene homolog 1
ENSRNOP00000000674	Q499R7	Pyp_mapped protein (Fragment).
ENSRNOP00000000686	Q8CHN6	Sphingosine-1-phosphate lyase 1 (EC 4.1.2.27) (SP-lyase) (SPL) (Sphingosine-1-phosphate aldolase).
ENSRNOP00000000687	P61459	Pterin-4-alpha-carbinolamine dehydratase (EC 4.2.1.96) (PHS) (4-alpha- hydroxy-tetrahydropterin dehydratase) (Phenylalanine hydroxylase- stimulating protein) (Pterin carbinolamine dehydratase) (PCD) (Dimerization cofactor of hepatocyte nuclear factor 1-al
ENSRNOP00000000696	P10960	Sulfated glycoprotein 1 precursor (SGP-1) (Prosaposin).

ENSRNOP00000000749	XP_215378	PREDICTED: similar to DNA segment, Chr 10, ERATO Doi 214, expressed
ENSRNOP00000000990	NP_075210	RT1 class Ib gene RT1-M3
ENSRNOP00000001014	Q920M2	RING finger protein 39 (LTP-induced RING finger protein).
ENSRNOP00000001048	NP_001028828	mannosidase, alpha, class 1A, member 1
ENSRNOP00000001079	P55051	Fatty acid-binding protein, brain (B-FABP) (Brain lipid-binding protein) (BLBP).
ENSRNOP00000001092	XP_228197	PREDICTED: similar to GRIP and coiled-coil domain-containing protein 2 (Golgi coiled coil protein GCC185)
ENSRNOP00000001095	P69897	Tubulin beta-5 chain.
ENSRNOP00000001098	Q9Z1E1	Flotillin-1 (Reggie-2) (REG-2).
ENSRNOP00000001154	NM_001025663	similar to heterogeneous nuclear ribonucleoprotein G - human (LOC302855), mRNA
ENSRNOP00000001160	Q04462	Valyl-tRNA synthetase (EC 6.1.1.9) (Valine--tRNA ligase) (ValRS).
ENSRNOP00000001200	Q3KR92	Protein-tyrosine sulfotransferase 1 (EC 2.8.2.20) (Tyrosylprotein sulfotransferase-1) (TPST-1).
ENSRNOP00000001211	P20673	Argininosuccinate lyase (EC 4.3.2.1) (Argininosuccinase) (ASAL).
ENSRNOP00000001285	Q64581	Cytochrome P450 3A18 (EC 1.14.14.1) (CYP11A18) (P450(6)beta-2).
ENSRNOP00000001291	P05183	Cytochrome P450 3A2 (EC 1.14.14.1) (CYP11A2) (P450-PCN2) (P450/6- beta-A) (Testosterone 6-beta-hydroxylase).
ENSRNOP00000001299	P97943	Scavenger receptor class B member 1 (SRB1) (SR-BI)
ENSRNOP00000001379	NM_001037348	JTV1 (MGC125271), mRNA
ENSRNOP00000001397	Q63524	Transmembrane emp24 domain trafficking protein 2 precursor (Membrane protein p24A) (RNP21.4).
ENSRNOP00000001432	NP_001020801	ADP-ribosylation factor-like 6 interacting protein 4
ENSRNOP00000001500	P31044	Phosphatidylethanolamine-binding protein 1 (PEBP-1) (HCNPPP) (23 kDa morphine-binding protein) (P23K) .
ENSRNOP00000001517	XP_001080241	Gcn11i_predicted
ENSRNOP00000001545	P10818	Cytochrome c oxidase polypeptide VIa-liver, mitochondrial precursor (EC 1.9.3.1).
ENSRNOP00000001556	P15651	Short-chain specific acyl-CoA dehydrogenase, mitochondrial precursor (EC 1.3.99.2) (SCAD) (Butyryl-CoA dehydrogenase).
ENSRNOP00000001609	P56571	ES1 protein homolog, mitochondrial precursor.
ENSRNOP00000001666	Q01579	Glutathione S-transferase theta-1 (EC 2.5.1.18) (GST class-theta-1) (Glutathione S-transferase 5) (GST 5-5).
ENSRNOP00000001689	Q4G061	Eukaryotic translation initiation factor 3 subunit 9 (eIF-3 eta)
ENSRNOP00000001699	O88618	Formimidoyltransferase-cyclodeaminase (Formiminotransferase- cyclodeaminase) (FTCD) (58 kDa microtubule-binding protein) [Includes: Glutamate formimidoyltransferase (EC 2.1.2.5) (Glutamate formiminotransferase) (Glutamate formyltransferase); Formimidoyl
ENSRNOP00000001708	P48450	Lanosterol synthase (EC 5.4.99.7) (Oxidosqualene--lanosterol cyclase) (2,3-epoxysqualene--lanosterol cyclase) (OSC).
ENSRNOP00000001715	XP_215376	PREDICTED: similar to mKIAA0572 protein
ENSRNOP00000001738	P11507	Sarcoplasmic/endoplasmic reticulum calcium ATPase 2 (EC 3.6.3.8) (Calcium pump 2) (SERCA2) (SR Ca(2+)-ATPase 2) (Calcium-transporting ATPase sarcoplasmic reticulum type, slow twitch skeletal muscle isoform) (Endoplasmic reticulum class 1/2 Ca(2+) ATPase).
ENSRNOP00000001752	P51577	P2X purinoceptor 4 (ATP receptor) (P2X4) (Purinergic receptor).
ENSRNOP00000001809	P32755	4-hydroxyphenylpyruvate dioxygenase (EC 1.13.11.27) (4HPPD) (HPD) (4-hydroxyphenylpyruvic acid oxidase) (HPPDase) (F protein) (F Alloantigen).
ENSRNOP00000001816	P11884	Aldehyde dehydrogenase, mitochondrial precursor (EC 1.2.1.3) (ALDH class 2) (ALDH1) (ALDH-E2).
ENSRNOP00000001863	P51538	Cytochrome P450 3A9 (EC 1.14.14.1) (CYP11A9) (P450-OLF3) (Olfactive) (3AH15).
ENSRNOP00000001876	P09367	L-serine dehydratase/L-threonine deaminase [Includes: L-serine dehydratase (EC 4.3.1.17) (L-serine deaminase) (SDH); L-threonine dehydratase (EC 4.3.1.19) (L-threonine deaminase) (TDH)].
ENSRNOP00000001899	XP_341048	PREDICTED: similar to leucine rich repeat protein 4, neuronal
ENSRNOP00000001905	XP_222022	PREDICTED: similar to Transferrin receptor protein 2 (TfR2)
ENSRNOP00000001924	P84817	Mitochondria fission 1 protein (Fis1 homolog) (rFis1) (Tetratricopeptide repeat protein 11) (TPR repeat protein 11).
ENSRNOP00000001928	P53565	Homeobox protein cut-like 1 (CCAAT displacement protein) (CDP) (CDP2) (Fragment).

ENSRNOP00000001958	P04636	Malate dehydrogenase, mitochondrial precursor (EC 1.1.1.37).
ENSRNOP00000001961	P00388	NADPH--cytochrome P450 reductase (EC 1.6.2.4) (CPR) (P450R).
ENSRNOP00000002037	P18421	Proteasome subunit beta type 1 (EC 3.4.25.1) (Proteasome component C5) (Macropain subunit C5) (Multicatalytic endopeptidase complex subunit C5) (Proteasome gamma chain).
ENSRNOP00000002116	P21571	ATP synthase coupling factor 6, mitochondrial precursor (EC 3.6.3.14) (ATPase subunit F6).
ENSRNOP00000002134	NP_001008287	metaxin 2 (predicted)
ENSRNOP00000002169	XP_213673	PREDICTED: similar to mKIAA0002 protein
ENSRNOP00000002194	P83732	60S ribosomal protein L24 (L30).
ENSRNOP00000002209	NM_199391	similar to RIKEN cDNA 5830404H04 (RGD735112), mRNA
ENSRNOP00000002214		Unknown
ENSRNOP00000002238	NP_997684	translocase of outer mitochondrial membrane 70 homolog A
ENSRNOP00000002255	P61943	Type 2 lactosamine alpha-2,3-sialyltransferase (EC 2.4.99.-) (CMP- NeuAc:beta-galactoside alpha-2,3-sialyltransferase VI) (ST3Gal VI) (Sialyltransferase 10).
ENSRNOP00000002257	NP_001032172	coproporphyrinogen oxidase
ENSRNOP00000002316	Q9QYM0	Multidrug resistance-associated protein 5.
ENSRNOP00000002343	NP_598269	RN protein
ENSRNOP00000002366	P29147	D-beta-hydroxybutyrate dehydrogenase, mitochondrial precursor (EC 1.1.1.30) (BDH) (3-hydroxybutyrate dehydrogenase).
ENSRNOP00000002407	Q99376	Transferrin receptor protein 1 (TfR1) (TR) (TfR) (Trfr) (CD71 antigen) (Fragment).
ENSRNOP00000002410	P07896	Peroxisomal bifunctional enzyme (PBE) (PBFE) .
ENSRNOP00000002450	NP_001020573	uridine monophosphate synthetase
ENSRNOP00000002484	NP_001008336	eukaryotic translation initiation factor 4A2
ENSRNOP00000002499	P13721	CMP-N-acetylneuraminate-beta-galactosamide-alpha-2,6-sialyltransferase (EC 2.4.99.1) (Beta-galactoside alpha-2,6-sialyltransferase) (Alpha 2,6-ST) (Sialyltransferase 1) (ST6Gal I).
ENSRNOP00000002540	XP_001064198	similar to stromal cell-derived factor 2-like 1
ENSRNOP00000002549	NP_071637	phosphatidylinositol 4-kinase a
ENSRNOP00000002576	XP_001058756	similar to Proline oxidase, mitochondrial precursor (Proline dehydrogenase)
ENSRNOP00000002680	P49890	Estrogen sulfotransferase, isoform 6 (EC 2.8.2.4) (EST-6) (Sulfotransferase, estrogen-preferring) (Estrone sulfotransferase).
ENSRNOP00000002687	P97829	Leukocyte surface antigen CD47 precursor (Integrin-associated protein) (IAP).
ENSRNOP00000002699	P52847	Sulfotransferase family cytosolic 1B member 1 (EC 2.8.2.-) (Sulfotransferase 1B1) (DOPA/tyrosine sulfotransferase).
ENSRNOP00000002704	P36510	UDP-glucuronosyltransferase 2A1 precursor (EC 2.4.1.17) (UDPGT) (UGT- OLF).
ENSRNOP00000002705	XP_223289	PREDICTED: similar to RIKEN cDNA 2010321J07
ENSRNOP00000002712	P36511	UDP-glucuronosyltransferase 2B4 precursor (EC 2.4.1.17) (UDPGT) (UDP-glucuronosyltransferase 2B12).
ENSRNOP00000002716	Q62789	UDP-glucuronosyltransferase 2B8 precursor (EC 2.4.1.17) (UDPGT) (UGT2B-RH4).
ENSRNOP00000002724	P09875	UDP-glucuronosyltransferase 2B1 precursor (EC 2.4.1.17) (UDPGT) (UDPGT-2).
ENSRNOP00000002727	XP_001060277	ATPase, H transporting, lysosomal V1 subunit A (predicted)
ENSRNOP00000002727	P07895	Superoxide dismutase [Mn], mitochondrial precursor (EC 1.15.1.1)
ENSRNOP00000002732	Q06647	ATP synthase O subunit, mitochondrial precursor (EC 3.6.3.14) (Oligomycin sensitivity conferral protein) (OSCP).
ENSRNOP00000002738	O35112	CD166 antigen precursor (Activated leukocyte-cell adhesion molecule) (ALCAM) (MEMD protein) (HB2) (SB-10 antigen) (KG-CAM).
ENSRNOP00000002991	XP_214027	PREDICTED: similar to OCIA domain containing 2
ENSRNOP00000002996	NP_001013896	OCIA domain containing 1
ENSRNOP00000003004	Q6AYS8	Dehydrogenase/reductase SDR family member 8 precursor (EC 1.1.1.-) (17-beta-hydroxysteroid dehydrogenase 11) (17-beta-HSD 11) (17-beta- HSD XI) (17betaHSDXI) (17bHSD11) (17betaHSD11).
ENSRNOP00000003020	Q5FVN1	Genethonin-1.
ENSRNOP00000003022	P35171	Cytochrome c oxidase polypeptide VIIa-liver/heart, mitochondrial precursor (EC 1.9.3.1) (Cytochrome c oxidase subunit VIIa-L).

ENSRNOP00000003052	P27615	Lysosome membrane protein 2 (Lysosome membrane protein II) (LIMP II) (Scavenger receptor class B member 2) (85 kDa lysosomal membrane sialoglycoprotein) (LGP85) (CD36 antigen-like 2).
ENSRNOP00000003072	NP_148981	SEC31-like 1
ENSRNOP00000003128	Q9Z142	Transmembrane protein 33 (DB83 protein).
ENSRNOP00000003255	NP_620240	golgi-associated protein GCP360
ENSRNOP00000003334	P63245	Guanine nucleotide-binding protein subunit beta 2-like 1 (Receptor of activated protein kinase C 1) (RACK1) (Receptor for activated C kinase).
ENSRNOP00000003390	P16617	Phosphoglycerate kinase 1 (EC 2.7.2.3).
ENSRNOP00000003436	Q35777	Implantation-associated protein.
ENSRNOP00000003476	NP_001037702	malignant T cell amplified sequence 1
ENSRNOP00000003494	XP_228551	TAF1 RNA polymerase II, TATA box binding protein (TBP)-associated factor (predicted)
ENSRNOP00000003514	Q9WU49	Calcium-regulated heat stable protein 1 (Calcium-regulated heat-stable protein of 24 kDa) (CRHSP-24).
ENSRNOP00000003611	P19804	Nucleoside diphosphate kinase B (EC 2.7.4.6) (NDK B) (NDP kinase B) (P18).
ENSRNOP00000003633	P50554	4-aminobutyrate aminotransferase, mitochondrial precursor (EC 2.6.1.19) ((S)-3-amino-2-methylpropionate transaminase) (EC 2.6.1.22) (Gamma-amino-N-butyrate transaminase) (GABA transaminase) (GABA aminotransferase) (GABA-AT) (GABA-T) (L-AIBAT) [Contains: 4
ENSRNOP00000003645	NP_001012145	homogentisate 1, 2-dioxygenase (predicted)
ENSRNOP00000003658	Q05982	Nucleoside diphosphate kinase A (EC 2.7.4.6) (NDK A) (NDP kinase A) (Tumor metastatic process-associated protein) (Metastasis inhibition factor NM23).
ENSRNOP00000003674	NP_001032415	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 4, 15kDa
ENSRNOP00000003691	O70199	UDP-glucose 6-dehydrogenase (EC 1.1.1.22) (UDP-Glc dehydrogenase) (UDP-GlcDH) (UDPGDH).
ENSRNOP00000003739	Q704E8	ATP-binding cassette sub-family B member 7, mitochondrial precursor (ATP-binding cassette transporter 7) (ABC transporter 7 protein).
ENSRNOP00000003791	Q6AY30	Probable saccharopine dehydrogenase (EC 1.5.1.9).
ENSRNOP00000003812	Q62904	3-keto-steroid reductase (EC 1.1.1.270) (Estradiol 17-beta- dehydrogenase 7) (EC 1.1.1.62) (17-beta-HSD 7) (17-beta-hydroxysteroid dehydrogenase 7) (PRL receptor-associated protein) (PRAP).
ENSRNOP00000003869	Q07652	Voltage-dependent R-type calcium channel subunit alpha-1E (Voltage- gated calcium channel subunit alpha Cav2.3) (Calcium channel, L type, alpha-1 polypeptide, isoform 6) (RBE-II) (RBE2) (Brain calcium channel II) (BII).
ENSRNOP00000003910	P21396	Amine oxidase A (EC 1.4.3.4) (Monoamine oxidase type A) (MAO-A)
ENSRNOP00000003921	P02770	Serum albumin precursor.
ENSRNOP00000003932	P07340	Sodium/potassium-transporting ATPase beta-1 chain (Sodium/potassium-dependent ATPase beta-1 subunit).
ENSRNOP00000003965	P10719	ATP synthase beta chain, mitochondrial precursor (EC 3.6.3.14).
ENSRNOP00000004091	P18418	Calreticulin precursor (CRP55) (Calregulin) (HACBP) (Erp60) (CALBP) (Calcium-binding protein 3) (CABP3).
ENSRNOP00000004121	Q64244	ADP-ribosyl cyclase 1 (EC 3.2.2.5) (Cyclic ADP-ribose hydrolase 1) (cADPr hydrolase 1) (CD38 homolog) (CD38H).
ENSRNOP00000004174	P04276	Vitamin D-binding protein precursor (DBP) (Group-specific component) (Gc-globulin) (VDB).
ENSRNOP00000004206	P38718	Brain protein 44 (0-44 protein).
ENSRNOP00000004213	XR_008312	similar to 60S ribosomal protein L35 (predicted) (RGD1562863_predicted), mRNA
ENSRNOP00000004228	NP_001005534	succinate dehydrogenase complex, subunit C
ENSRNOP00000004278	P62703	40S ribosomal protein S4, X isoform.
ENSRNOP00000004351	Q9JJ19	Ezrin-radixin-moesin-binding phosphoprotein 50 (EBP50) (Na ⁺)/H ⁺ exchange regulatory cofactor NHE-RF) (NHERF-1) (Regulatory cofactor of Na ⁺ /H ⁺ exchanger) (Sodium-hydrogen exchanger regulatory factor 1) (Solute carrier family 9 isoform 3 regulatory f
ENSRNOP00000004359	NP_446091	leukotriene C4 synthase
ENSRNOP00000004384	XP_340740	PREDICTED: similar to Mpv17-like protein
ENSRNOP00000004385	P11348	Dihydropteridine reductase (EC 1.5.1.34) (HDHPR) (Quinoid dihydropteridine reductase).

ENSRNOP00000004494	XP_343783	PREDICTED: similar to Mospd2 protein
ENSRNOP00000004520	NP_112330	ARP3 actin-related protein 3 homolog
ENSRNOP00000004570	XP_344745	glutaryl-Coenzyme A dehydrogenase (predicted)
ENSRNOP00000004599	Q8K4B7	Dimethylaniline monooxygenase [N-oxide-forming] 4 (EC 1.14.13.8) (Hepatic flavin-containing monooxygenase 4) (FMO 4) (Dimethylaniline oxidase 4).
ENSRNOP00000004662	P04638	Apolipoprotein A-II precursor (Apo-AII) (ApoA-II)
ENSRNOP00000004673	Q499N5	hypothetical protein LOC619561
ENSRNOP00000004673	Q499N5	Putative uncharacterized protein LOC619561
ENSRNOP00000004686	P00481	Ornithine carbamoyltransferase, mitochondrial precursor (EC 2.1.3.3) (OTCase) (Ornithine transcarbamylase).
ENSRNOP00000004797	NP_001007005	tubulin, alpha 4
ENSRNOP00000004798	XP_573571	PREDICTED: similar to microsomal glutathione S-transferase 3
ENSRNOP00000004799	P35704	Peroxiredoxin-2 (EC 1.11.1.15) (Thioredoxin peroxidase 1) (Thioredoxin-dependent peroxide reductase 1) (Thiol-specific antioxidant protein) (TSA).
ENSRNOP00000004810	Q6XUX2	Receptor-interacting serine/threonine-protein kinase 5 (EC 2.7.11.1) (Dusty protein kinase) (Dusty PK).
ENSRNOP00000004836	P31399	ATP synthase D chain, mitochondrial (EC 3.6.3.14) [Atp5h]
ENSRNOP00000004836		Unknown
ENSRNOP00000004864	Q9EQ76	Dimethylaniline monooxygenase 3 (EC 1.14.13.8) (Hepatic flavin-containing monooxygenase 3) (FMO 3) (Dimethylaniline oxidase 3).
ENSRNOP00000004878	NP_001012025	UBX domain containing 2 (predicted)
ENSRNOP00000004895	NM_001077585	similar to MIR-interacting saposin-like protein precursor (Transmembrane protein 4) (Putative secreted protein ZSIG9) (MGC156825), mRNA
ENSRNOP00000004900	P04633	Mitochondrial brown fat uncoupling protein 1 (UCP 1) (Thermogenin).
ENSRNOP00000004917	P14408	Fumarate hydratase, mitochondrial precursor (EC 4.2.1.2) (Fumarase).
ENSRNOP00000004941	Q5RJR8	Leucine-rich repeat-containing protein 59 (Protein p34).
ENSRNOP00000004942	XP_001054517	similar to transmembrane emp24 protein transport domain containing 7
ENSRNOP00000004942		TRANSMEMBRANE EMP24 DOMAIN CONTAINING PRECURSOR
ENSRNOP00000004979	P08033	Gap junction beta-1 protein (Connexin-32) (Cx32) (GAP junction 28 kDa liver protein).
ENSRNOP00000004991	P10536	Ras-related protein Rab-1B.
ENSRNOP00000005005	O88867	Kynurenine 3-monooxygenase (EC 1.14.13.9) (Kynurenine 3-hydroxylase).
ENSRNOP00000005014	NP_445964	peroxiredoxin 4
ENSRNOP00000005046	O35165	Golgi SNAP receptor complex member 2 (27 kDa Golgi SNARE protein) (Membrin).
ENSRNOP00000005144	P97700	Mitochondrial 2-oxoglutarate/malate carrier protein (OGCP) (Solute carrier family 25 member 11).
ENSRNOP00000005262	Q9JHW1	Carboxypeptidase D precursor (EC 3.4.17.22) (Metalloprotease D) (gp180).
ENSRNOP00000005273	Q9DC16	Endoplasmic reticulum-Golgi intermediate compartment protein 1 (ER-Golgi intermediate compartment 32 kDa protein) (ERGIC-32) [Ergic1]
ENSRNOP00000005280	Q5PQX1	Torsin-1A-interacting protein 1 (Lamina-associated polypeptide 1B) (Lamina-associated polypeptide 1C).
ENSRNOP00000005370	P62963	Profilin-1 (Profilin I).
ENSRNOP00000005459	Q5I0K9	LOC690745 protein (Fragment).
ENSRNOP00000005471	P62832	60S ribosomal protein L23.
ENSRNOP00000005491	P11505	Plasma membrane calcium-transporting ATPase 1 (EC 3.6.3.8) (PMCA1) (Plasma membrane calcium pump isoform 1) (Plasma membrane calcium ATPase isoform 1).
ENSRNOP00000005596	Q9WTQ1	PKC mu protein (Fragment).
ENSRNOP00000005611	Q9JLJ3	4-trimethylaminobutyraldehyde dehydrogenase (EC 1.2.1.47) (TMABADH) (Aldehyde dehydrogenase 9A1) (EC 1.2.1.3).
ENSRNOP00000005661	NP_001013882	Bcl-2 inhibitor of transcription
ENSRNOP00000005665	XM_221100	ATP-binding cassette, sub-family A (ABC1), member 8a (predicted) (Abca8a_predicted), mRNA
ENSRNOP00000005702	Q6P791	UPF0404 protein C11orf59 homolog.
ENSRNOP00000005844	P04176	Phenylalanine-4-hydroxylase (EC 1.14.16.1) (PAH) (Phe-4- monooxygenase).
ENSRNOP00000005853	P15083	Polymeric-immunoglobulin receptor precursor (Poly-Ig receptor) (PIGR) .

ENSRNOP00000005875	P55006	Retinol dehydrogenase 7 (EC 1.1.1.105) (Retinol dehydrogenase type III) (RODH III).
ENSRNOP00000005901	XP_230889	PREDICTED: similar to RIKEN cDNA 2010011I20
ENSRNOP00000005912	Q6TXI6	LRRGT00013 [LOC317456]
ENSRNOP00000005960	P62919	60S ribosomal protein L8.
ENSRNOP00000005970	XP_216635	PREDICTED: similar to Cox7a2l protein
ENSRNOP00000005990	Q9Z1P2	Alpha-actinin-1 (Alpha-actinin cytoskeletal isoform) (Non-muscle alpha-actinin-1) (F actin cross linking protein).
ENSRNOP00000006004	Q63150	Dihydropyrimidinase (EC 3.5.2.2) (DHPase) (Hydantoinase) (DHP).
ENSRNOP00000006020	XP_576003	similar to alcohol dehydrogenase PAN2 (predicted)
ENSRNOP00000006053	XP_573640	PREDICTED: similar to SEC14 (S. cerevisiae)-like 2
ENSRNOP00000006083	Q9Z250	Lin-7 homolog A (Lin-7A) (Mammalian lin-seven protein 1) (MAL5-1) (Vertebrate lin-7 homolog 1) (Veli-1 protein).
ENSRNOP00000006087	NP_113695	epidermal growth factor receptor
ENSRNOP00000006119	Q9Z1X1	Protein FAM62A (Membrane bound C2 domain-containing protein) (vp115).
ENSRNOP00000006143	Q80Z70	Sel-1 homolog precursor (Suppressor of lin-12-like protein) (Sel-1L).
ENSRNOP00000006154	XP_213949	PREDICTED: similar to RIKEN cDNA 2310005N03
ENSRNOP00000006160	NP_001006961	mitochondrial protein, 18 kDa
ENSRNOP00000006314	XP_213214	PREDICTED: similar to mitochondria-associated granulocyte macrophage CSF signaling molecule
ENSRNOP00000006322	P68370	Tubulin alpha-1 chain (Alpha-tubulin 1).
ENSRNOP00000006330	XP_230613	PREDICTED: similar to glycolate oxidase; short-chain alpha-hydroxy acid oxidase
ENSRNOP00000006335	P51871	Cytochrome P450 4F6 (EC 1.14.14.1) (CYP1V6).
ENSRNOP00000006355	P62332	ADP-ribosylation factor 6.
ENSRNOP00000006359	P84100	60S ribosomal protein L19.
ENSRNOP00000006369	XP_347237	PREDICTED: SEC23A (S. cerevisiae) (predicted)
ENSRNOP00000006443	Q9JK11	Reticulon-4 (Neurite outgrowth inhibitor) (Nogo protein) (Foocen) (Glut4 vesicle 20 kDa protein).
ENSRNOP00000006473	XP_234264	L-2-hydroxyglutarate dehydrogenase (predicted)
ENSRNOP00000006483	P84082	ADP-ribosylation factor 2.
ENSRNOP00000006533	P33274	Cytochrome P450 4F1 (EC 1.14.14.1) (CYP1V1) (P450-A3).
ENSRNOP00000006542	Q99MS0	SEC14-like protein 2 (Alpha-tocopherol-associated protein) (TAP) (Supernatant protein factor) (SPF) (Squalene transfer protein).
ENSRNOP00000006562	Q9WVC7	A-kinase anchor protein 6 (Protein kinase A-anchoring protein 6) (PRKA6) (mAKAP).
ENSRNOP00000006567	NP_001009622	SAR1a gene homolog 2
ENSRNOP00000006582	NP_083007	chr2 synaptotagmin
ENSRNOP00000006607	Q5M7U6	Actin-like protein 2 (Actin-related protein 2).
ENSRNOP00000006802	XP_223611	PREDICTED: similar to Transmembrane emp24 protein transport domain containing 4
ENSRNOP00000006855	Q9QXU2	Surfeit locus protein 1.
ENSRNOP00000006874	XP_215814	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, assembly factor 1 (predicted)
ENSRNOP00000006890	XP_343235	PREDICTED: similar to RIKEN cDNA 4921531G14
ENSRNOP00000006913	Q99P55	Sphingosine-1-phosphate phosphatase 1 (EC 3.1.3.-) (Sphingosine-1-phosphatase 1) (SPPase1) (Spp1).
ENSRNOP00000006950	Q6NYB7	Ras-related protein Rab-1A.
ENSRNOP00000006971	P21213	Histidine ammonia-lyase (EC 4.3.1.3) (Histidase).
ENSRNOP00000006995	XP_216709	PREDICTED: similar to Meningioma expressed antigen 6
ENSRNOP00000007015	Q9JJ46	3-beta-hydroxysteroid-delta(8),delta(7)-isomerase (EC 5.3.3.5) (Cholesterol delta-isomerase) (Delta8-delta7 sterol isomerase) (D8-D7 sterol isomerase) (Emopamil-binding protein).
ENSRNOP00000007062	XP_577349	similar to solute carrier family 2, member 9 isoform ε
ENSRNOP00000007092	Q6TXG7	LRRGT00032.
ENSRNOP00000007100	P62260	14-3-3 protein epsilon (14-3-3E) (Mitochondrial import stimulation factor L subunit) (MSF L).
ENSRNOP00000007110	Q5XIA1	Nicalin precursor (Nicastrin-like protein).
ENSRNOP00000007116	NP_001008507	dehydrogenase/reductase (SDR family) member 7E
ENSRNOP00000007158		Transmembrane protein 11 (Protein PM1)
ENSRNOP00000007194	XM_346284	similar to 40S ribosomal protein S19 (LOC367761), mRNA
ENSRNOP00000007223	NP_446250	SAC1 (suppressor of actin mutations 1, homolog)-like

ENSRNOP00000007298	Q01205	Dihydrolipoyllysine-residue succinyltransferase component of 2- oxoglutarate dehydrogenase complex, mitochondrial precursor (EC 2.3.1.61) (Dihydrolipoamide succinyltransferase component of 2- oxoglutarate dehydrogenase complex) (E2) (E2K).
ENSRNOP00000007305	NP_001007751	choline phosphotransferase 1
ENSRNOP00000007331	XP_235065	amidohydrolase domain containing 1 (predicted)
ENSRNOP00000007398	Q62812	Myosin-9 (Myosin heavy chain, nonmuscle IIa) (Nonmuscle myosin heavy chain IIa) (NMMHC II-a) (NMMHC-IIA) (Cellular myosin heavy chain, type A) (Nonmuscle myosin heavy chain-A) (NMMHC-A).
ENSRNOP00000007403	Q45QK0	Guanine nucleotide binding protein gamma 12 (Fragment).
ENSRNOP00000007430	P52759	Ribonuclease UK114 (EC 3.1.-.-) (14.5 kDa translational inhibitor protein) (Perchloric acid soluble protein).
ENSRNOP00000007437	XP_575507	PREDICTED: similar to protein kinase C inhibitor
ENSRNOP00000007437	XP_57	PREDICTED: similar to protein kinase C inhibitor 5507
ENSRNOP00000007484	NM_001014202	similar to RIKEN cDNA 1110021N07 (RGD1311835), mRNA
ENSRNOP00000007552	Q68FT4	Sucg2 protein (Fragment).
ENSRNOP00000007554	Q9Z269	Vesicle-associated membrane protein-associated protein B (VAMP- associated protein B) (VAMP-B) (VAP-B).
ENSRNOP00000007567	Q62425	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 4 (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase MLRQ subunit) (Complex I-MLRQ) (CI-MLRQ) [Ndufa4]
ENSRNOP00000007612	XP_215797	similar to RIKEN cDNA 2610318K02 (predicted)
ENSRNOP00000007624	P13086	Succinyl-CoA ligase [GDP-forming] subunit alpha, mitochondrial precursor (EC 6.2.1.4) (Succinyl-CoA synthetase subunit alpha) (SCS- alpha).
ENSRNOP00000007645	XP_216735	PREDICTED: similar to Dehydrogenase/reductase SDR family member 7 precursor (Retinal short-chain dehydrogenase/reductase 4)
ENSRNOP00000007773	NP_001007659	mesenchymal stem cell protein DSCD75
ENSRNOP00000007825	P26435	Sodium/bile acid cotransporter (Na(+)/bile acid cotransporter) (Na(+)/taurocholate transport protein) (Sodium/taurocholate cotransporting polypeptide) (Solute carrier family 10 member 1).
ENSRNOP00000007840	Q7TP78	Aa2-258.
ENSRNOP00000007841	P02761	Major urinary protein precursor (MUP) (Alpha-2u-globulin) (Alpha(2)- euglobulin) (Allergen Rat n 1) (Rat n I) .
ENSRNOP00000007870	P16232	Corticosteroid 11-beta-dehydrogenase isozyme 1 (EC 1.1.1.146) (11-DH) (11-beta-hydroxysteroid dehydrogenase 1) (11-beta-HSD1).
ENSRNOP00000007914	NP_001007644	thioredoxin-related transmembrane protein 2
ENSRNOP00000008018	Q07116	Sulfite oxidase, mitochondrial precursor (EC 1.8.3.1).
ENSRNOP00000008041	NP_001007146	catenin (cadherin-associated protein), alpha 1, 102kDa
ENSRNOP00000008045	Q498D5	Protein FAM82A
ENSRNOP00000008094	XR_009461	similar to glyceraldehyde-3-phosphate dehydrogenase (predicted) (RGD1562815_predicted), mRNA
ENSRNOP00000008119	XP_220404	PREDICTED: similar to chromosome 5 open reading frame 15
ENSRNOP00000008150	Q8CGU6	Nicastrin precursor.
ENSRNOP00000008211	NP_113828	plasma glutamate carboxypeptidase
ENSRNOP00000008325	Q63362	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5 (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase 13 kDa-B subunit) (Complex I-13kD-B) (CI-13kD-B) (Complex I subunit B13).
ENSRNOP00000008329	XM_216400	Sec61 beta subunit (predicted) (Sec61b_predicted), mRNA
ENSRNOP00000008374	P27653	C-1-tetrahydrofolate synthase, cytoplasmic (C1-THF synthase) .
ENSRNOP00000008454	Q8R515	Zinc fingers and homeoboxes protein 1.
ENSRNOP00000008503	Q9JM53	Apoptosis-inducing factor 1, mitochondrial precursor (EC 1.-.-.-) (Programmed cell death protein 8).
ENSRNOP00000008504	P14659	Heat shock-related 70 kDa protein 2 (Heat shock protein 70.2) (Testis- specific heat shock protein-related) (HST).
ENSRNOP00000008518	Q5BJV4	Copa protein (Fragment).
ENSRNOP00000008522	P05712	Ras-related protein Rab-2A.
ENSRNOP00000008525	NP_001008283	galactokinase 1
ENSRNOP00000008574	NP_075591	Murinoglobulin 1 homolog
ENSRNOP00000008679	Q498S1	Map2k3 protein (Fragment).
ENSRNOP00000008728	P38659	Protein disulfide-isomerase A4 precursor (EC 5.3.4.1) (Protein ERp-72) (ERp72) (Calcium-binding protein 2) (CaBP2).
ENSRNOP00000008841	P02692	Fatty acid-binding protein, liver (L-FABP) (Z-protein) (Squalene- and sterol-carrier protein) (SCP) (p14).

ENSRNOP00000008854	XP_343220	PREDICTED: similar to Methyl-CpG binding domain protein 6
ENSRNOP00000008888	P11654	Nuclear pore membrane glycoprotein 210 precursor (POM210) (Nuclear pore protein gp210).
ENSRNOP00000008910	XP_238167	filamin, alpha (predicted)
ENSRNOP00000008913	Q3B8P6	Alg2 protein (Fragment).
ENSRNOP00000008932	P67779	Prohibitin [Phb]
ENSRNOP00000008932	NM_001034003	similar to RIKEN cDNA 2310001A20 (RGD1308874), mRNA
ENSRNOP00000008980	Q6P6R2	Dihydrolipoyl dehydrogenase, mitochondrial precursor (EC 1.8.1.4) (Dihydrolipoamide dehydrogenase).
ENSRNOP00000008987	Q5FVR3	CD302 antigen precursor (C-type lectin domain family 13 member A).
ENSRNOP00000009028	NP_997687	erythroid spectrin beta
ENSRNOP00000009053	Q9WVJ4	Synaptojanin-2-binding protein (Mitochondrial outer membrane protein 25) (NPW16).
ENSRNOP00000009111	P00884	Fructose-bisphosphate aldolase B (EC 4.1.2.13) (Liver-type aldolase).
ENSRNOP00000009115	Q62671	Ubiquitin-protein ligase EDD1 (EC 6.3.2.-) (Hyperplastic discs protein homolog) (100 kDa protein) (Fragment).
ENSRNOP00000009183	P09811	Glycogen phosphorylase, liver form (EC 2.4.1.1).
ENSRNOP00000009187	Q9EQ25	Sodium-coupled neutral amino acid transporter 4 (Na(+)-coupled neutral amino acid transporter 4) (Amino acid transporter A3) (System A amino acid transporter 3) (Solute carrier family 38 member 4).
ENSRNOP00000009221	Q66HG4	Aldose 1-epimerase (EC 5.1.3.3) (Galactose mutarotase)
ENSRNOP00000009288	P29994	Inositol 1,4,5-trisphosphate receptor type 1 (Type 1 inositol 1,4,5- trisphosphate receptor) (Type 1 InsP3 receptor) (IP3 receptor isoform 1) (InsP3R1) (IP-3-R).
ENSRNOP00000009377	P38650	Dynein heavy chain, cytosolic (DYHC) (Cytoplasmic dynein heavy chain 1) (DHC1) (Dynein heavy chain 1, cytoplasmic 1) (MAP 1C).
ENSRNOP00000009402	Q5BQE6	24-dehydrocholesterol reductase.
ENSRNOP00000009425	XP_216859	PREDICTED: similar to NADH oxidoreductase
ENSRNOP00000009431	P05426	60S ribosomal protein L7.
ENSRNOP00000009462	NP_001020594	alcohol dehydrogenase, iron containing, 1
ENSRNOP00000009467	Q63041	Alpha-1-macroglobulin precursor (Alpha-1-M) .
ENSRNOP00000009467	NP_665722	pregnancy-zone protein
ENSRNOP00000009489	Q9JI29	Semaphorin (Fragment)
ENSRNOP00000009511	Q62636	Ras-related protein Rap-1b precursor (GTP-binding protein smg p21B).
ENSRNOP00000009547	NP_001020305	low molecular mass ubiquinone-binding protein
ENSRNOP00000009555	Q64380	Sarcosine dehydrogenase, mitochondrial precursor (EC 1.5.99.1) (SarDH).
ENSRNOP00000009556	NP_786937	heat shock protein 1, alpha
ENSRNOP00000009566	Q9WTV0	Prolactin regulatory element-binding protein (Mammalian guanine nucleotide exchange factor mSec12).
ENSRNOP00000009585	XP_001079920	similar to Der1-like domain family, member 2
ENSRNOP00000009586	P63045	Vesicle-associated membrane protein 2 (VAMP-2) (Synaptobrevin-2).
ENSRNOP00000009587	NP_001019971	thioredoxin domain containing 1
ENSRNOP00000009634	P22985	Xanthine dehydrogenase/oxidase .
ENSRNOP00000009662	P97523	Hepatocyte growth factor receptor precursor (EC 2.7.10.1) (HGF receptor) (Scatter factor receptor) (SF receptor) (HGF/SF receptor) (Met proto-oncogene tyrosine kinase) (c-Met).
ENSRNOP00000009777	Q63276	Bile acid CoA:amino acid N-acyltransferase (EC 2.3.1.65) (BAT) (BACAT) (Glycine N-choyloltransferase) (Kan-1) (Long-chain fatty-acyl-CoA hydrolase) (EC 3.1.2.2).
ENSRNOP00000009779		RIKEN cDNA 4933425L03 gene
ENSRNOP00000009816	XR_006124	similar to 60S ribosomal protein L7a (Surfeit locus protein 3) (LOC311948), mRNA
ENSRNOP00000009838	XP_573447	similar to hypothetical protein FLJ32569 (predicted)
ENSRNOP00000009960	XP_223522	sortilin-related VPS10 domain containing receptor 2 (predicted)
ENSRNOP00000009985	Q64654	Cytochrome P450 51A1 (EC 1.14.13.70) (CYPL1) (P450LI) (Sterol 14-alpha demethylase) (Lanosterol 14-alpha demethylase) (LDM) (P450-14DM).
ENSRNOP00000009988	XP_575143	PREDICTED: similar to 40S ribosomal protein S3
ENSRNOP00000009989	Q9Z1W6	Protein LYRIC (Lysine-rich CEACAM1 co-isolated protein) (Metastasis adhesion protein) (Metadherin).
ENSRNOP00000009990	XP_573644	PREDICTED: similar to ASC-1 complex subunit P100
ENSRNOP00000009994	NP_001008385	RAS-related C3 botulinum substrate 2

ENSRNOP00000009998	Q91YP3	Putative deoxyribose-phosphate aldolase (EC 4.1.2.4) (Phosphodeoxyriboaldolase) (Deoxyriboaldolase) (DERA) [Dera]
ENSRNOP00000009998	XP_001071552	similar to Putative deoxyribose-phosphate aldolase (Phosphodeoxyriboaldolase) (Deoxyriboaldolase)
ENSRNOP00000010053	Q66HA6	ADP-ribosylation factor-like protein 8B.
ENSRNOP00000010061	P63036	DnaJ homolog subfamily A member 1 (DnaJ-like protein 1)
ENSRNOP00000010117	XP_216880	PREDICTED: similar to RIKEN cDNA 2410011G03
ENSRNOP00000010185	Q9ES40	PRA1 family protein 3 (ARL-6-interacting protein 5) (ADP-ribosylation- like factor 6-interacting protein 5) (Aip-5) (Glutamate transporter EAAC1-interacting protein) (GTRAP3-18) (Prenylated Rab acceptor protein 2) (Protein JWa).
ENSRNOP00000010209	P25235	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 63 kDa subunit precursor (EC 2.4.1.119) (Ribophorin II) (RPN-II).
ENSRNOP00000010210	XP_342582	Cse1I_predicted
ENSRNOP00000010243	NP_001091709	aspartate-beta-hydroxylase
ENSRNOP00000010251	XP_230734	PREDICTED: similar to histocompatibility 13
ENSRNOP00000010260	P97562	Acyl-coenzyme A oxidase 2, peroxisomal (EC 1.17.99.3) (3-alpha,7- alpha,12-alpha trihydroxy-5-beta-cholestanoyl-CoA 24-hydroxylase) (3- alpha,7-alpha,12-alpha-trihydroxy-5-beta-cholestanoyl-CoA oxidase) (Trihydroxycoprostanoyl-CoA oxidase), (THCCox) (THCA-
ENSRNOP00000010318	NP_001020826	cytidylate kinase
ENSRNOP00000010375	Q9JJ05	Glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase 1 (EC 2.4.1.122) (Core 1 beta1,3-galactosyltransferase 1) (Core1 UDP- galactose:N- acetylgalactosamine-alpha-R beta 1,3-galactosyltransferase 1) (Core 1 beta3-Gal-T) (C1GalT1) (Core 1 O-glycan
ENSRNOP00000010383	P62755	40S ribosomal protein S6.
ENSRNOP00000010385	Q3ZU82	Golgin subfamily A member 5 (Golgin-84).
ENSRNOP00000010419	NP_620245	EH-domain containing 3 Source: RefSeq_peptide NP_620245
ENSRNOP00000010467	XP_243652	PREDICTED: similar to KIAA0315
ENSRNOP00000010481	NP_001007702	translocating chain-associating membrane protein
ENSRNOP00000010512	Q63584	Transmembrane emp24 domain-containing protein 10 precursor (Transmembrane protein Tmp21) (21 kDa transmembrane-trafficking protein) [Tmed10]
ENSRNOP00000010512		Unknown
ENSRNOP00000010545	P49432	Pyruvate dehydrogenase E1 component subunit beta, mitochondrial precursor (EC 1.2.4.1) (PDHE1-B).
ENSRNOP00000010573	P17764	Acetyl-CoA acetyltransferase, mitochondrial precursor (EC 2.3.1.9) (Acetoacetyl-CoA thiolase).
ENSRNOP00000010579	P08011	Microsomal glutathione S-transferase 1 (EC 2.5.1.18) (Microsomal GST- 1) (Microsomal GST-I).
ENSRNOP00000010593	P21913	Succinate dehydrogenase iron-sulfur protein (EC 1.3.5.1) (Ip) (Iron-sulfur subunit of complex II) (Fragment).
ENSRNOP00000010595	Q4V8C2	Centromere/kinetochore protein zw10 homolog.
ENSRNOP00000010602	NP_001073368	similar to Ancient ubiquitous protein 1 precursor
ENSRNOP00000010619	P62074	Mitochondrial import inner membrane translocase subunit Tim10.
ENSRNOP00000010631	NP_001006981	B-cell receptor-associated protein BAP29
ENSRNOP00000010663	NP_001019914	UDP-glucose pyrophosphorylase 2
ENSRNOP00000010680	Q09137	5'-AMP-activated protein kinase catalytic subunit alpha-2 (EC 2.7.11.1) (AMPK alpha-2 chain).
ENSRNOP00000010720	P97536	Cullin-associated NEDD8-dissociated protein 1 (Cullin-associated and neddylation-dissociated protein 1) (p120 CAND1) (TBP-interacting protein TIP120A) (TBP-interacting protein of 120 kDa A).
ENSRNOP00000010753	NM_017280	proteasome (prosome, macropain) subunit, alpha type 3 (Psm3), mRNA
ENSRNOP00000010760	Q562C4	Methyltransferase-like protein 7B precursor (EC 2.1.1.-) (Associated with lipid droplet protein 1) (ALDI).
ENSRNOP00000010779	Q9JKW1	Mitochondrial import inner membrane translocase subunit Tim22.
ENSRNOP00000010798	Q63135	Complement regulatory protein Crry precursor (Antigen 5I2).
ENSRNOP00000010867	Q02974	Ketohexokinase (EC 2.7.1.3) (Hepatic fructokinase).
ENSRNOP00000010871	Q9WV97	Mitochondrial import inner membrane translocase subunit Tim9.
ENSRNOP00000010980	NP_001013237	sialyltransferase 4A (beta-galactoside alpha-2,3-sialyltransferase) (predicted)
ENSRNOP00000010984	Q03336	Regucalcin (RC) (Senescence marker protein 30) (SMP-30).

ENSRNOP00000011006	XP_230050	PREDICTED: similar to Large neutral amino acids transporter small subunit 3 (L-type amino acid transporter 3) (Solute carrier family 43 member 1)
ENSRNOP00000011065	NP_445983	synaptobrevin-like 1
ENSRNOP00000011069	P29266	3-hydroxyisobutyrate dehydrogenase, mitochondrial precursor (EC 1.1.1.31) (HIBADH).
ENSRNOP00000011082	NP_001008323	serine hydroxymethyl transferase 2 (mitochondrial)
ENSRNOP00000011130	Q07014	Tyrosine-protein kinase Lyn (EC 2.7.10.2).
ENSRNOP00000011158	Q5EBA4	Nipsnap1 protein (Fragment).
ENSRNOP00000011183	XP_216785	PREDICTED: similar to neuronal protein 15.6
ENSRNOP00000011230	P04762	Catalase (EC 1.11.1.6).
ENSRNOP00000011275	P26453	Basigin precursor (OX-47 antigen) (Glycoprotein CE9) (CD147 antigen).
ENSRNOP00000011316	XP_235517	PREDICTED: similar to RIKEN cDNA C920005C14 gene
ENSRNOP00000011327	NP_599217	TOR1D
ENSRNOP00000011330	Q64591	2,4-dienoyl-CoA reductase, mitochondrial precursor (EC 1.3.1.34) (2,4- dienoyl-CoA reductase [NADPH]) (4-enoyl-CoA reductase [NADPH]).
ENSRNOP00000011333	P62083	40S ribosomal protein S7 (S8).
ENSRNOP00000011429	O88989	Malate dehydrogenase, cytoplasmic (EC 1.1.1.37) (Cytosolic malate dehydrogenase).
ENSRNOP00000011483	Q8K009	aldehyde dehydrogenase 1 family, member L2
ENSRNOP00000011484	XP_235518	PREDICTED: similar to NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 6 (B14)
ENSRNOP00000011485	NP_942081	mal, T-cell differentiation protein 2
ENSRNOP00000011494	P16036	Phosphate carrier protein, mitochondrial precursor (PTP) (Solute carrier family 25 member 3).
ENSRNOP00000011521	O88941	Mannosyl-oligosaccharide glucosidase (EC 3.2.1.106) (Glycoprotein- processing glucosidase I).
ENSRNOP00000011609	XP_575398	PREDICTED: similar to RIKEN cDNA 2610101N10
ENSRNOP00000011724	P48004	Proteasome subunit alpha type 7 (EC 3.4.25.1) (Proteasome subunit RC6- 1).
ENSRNOP00000011768	XP_236411	Myo5c_predicted
ENSRNOP00000011773	P68035	Actin, alpha cardiac (Alpha-cardiac actin).
ENSRNOP00000011784	P23965	3,2-trans-enoyl-CoA isomerase, mitochondrial precursor (EC 5.3.3.8) (Dodecenoyl-CoA isomerase) (Delta(3),delta(2)-enoyl-CoA isomerase) (D3,D2-enoyl-CoA isomerase).
ENSRNOP00000011822	P52303	AP-1 complex subunit beta-1 (Adapter-related protein complex 1 beta-1 subunit) (Beta-adaptin 1) (Adaptor protein complex AP-1 beta-1 subunit) (Golgi adaptor HA1/AP1 adaptin beta subunit) (Clathrin assembly protein complex 1 beta large chain).
ENSRNOP00000011823	P55159	Serum paraoxonase/arylesterase 1 (EC 3.1.1.2) (EC 3.1.8.1) (PON 1) (Serum arylalkylphosphatase 1) (A-esterase 1) (Aromatic esterase 1).
ENSRNOP00000011846	XP_215769	PREDICTED: similar to mitochondrial carrier homolog 2
ENSRNOP00000011855		peroxisome biogenesis factor 1
ENSRNOP00000011880	Q64680	Cytochrome P450 2D18 (EC 1.14.14.1) (CYP11D18) (P450 2D-29/2D-35).
ENSRNOP00000011960	XP_342984	DnaJ (Hsp40) homolog, subfamily C, member 11 (predicted)
ENSRNOP00000011985	Q8K4D6	Cytochrome P450 4X1 (EC 1.14.14.1) (CYP1VX1).
ENSRNOP00000012036	XP_573746	similar to EMeg32 protein (predicted)
ENSRNOP00000012050	Q68FP2	Serum paraoxonase/lactonase 3 (EC 3.1.1.-).
ENSRNOP00000012075	P09034	Argininosuccinate synthase (EC 6.3.4.5) (Citrulline--aspartate ligase).
ENSRNOP00000012083	NP_001030100	inner membrane protein, mitochondrial
ENSRNOP00000012162	Q00910	Solute carrier organic anion transporter family member 2A1 (Solute carrier family 21 member 2) (Prostaglandin transporter) (PGT) (Matrin F/G 1).
ENSRNOP00000012192	P06399	Fibrinogen alpha chain precursor .
ENSRNOP00000012219	XP_343460	RAB6B, member RAS oncogene family (predicted)
ENSRNOP00000012233	P61805	Defender against cell death 1 (DAD-1).
ENSRNOP00000012240	NP_001029301	translocation protein 1 (predicted)
ENSRNOP00000012255	XP_214103	PREDICTED: similar to ribosomal protein L28
ENSRNOP00000012270	XP_235924	PREDICTED: similar to RIKEN cDNA 1810026J23
ENSRNOP00000012289	NP_001028737	ectonucleoside triphosphate diphosphohydrolase 8
ENSRNOP00000012327	XP_216756	PREDICTED: similar to c14orf1-like protein
ENSRNOP00000012346	P14942	Glutathione S-transferase alpha-4 (EC 2.5.1.18) (Glutathione S- transferase Yk) (GST Yk) (GST 8-8) (GST K) (GST A4-4).

ENSRNOP00000012376	P52296	Importin beta-1 subunit (Karyopherin beta-1 subunit) (Nuclear factor P97).
ENSRNOP00000012413	P10634	Cytochrome P450 2D26 (EC 1.14.14.1) (CYP1D26) (P450-DB2) (P450-CMF2) (Debrisoquine 4-hydroxylase).
ENSRNOP00000012425	XP_215776	NADH dehydrogenase (ubiquinone) Fe-S protein 3 (predicted)
ENSRNOP00000012533	Q5U2X6	Coiled-coil domain-containing protein 47 precursor.
ENSRNOP00000012585	XP_576374	PREDICTED: similar to L-lactate dehydrogenase A chain (LDH-A) (LDH muscle subunit) (LDH-M)
ENSRNOP00000012665	Q99068	Alpha-2-macroglobulin receptor-associated protein precursor (Alpha-2- MRAP) (Low density lipoprotein receptor-related protein-associated protein 1) (RAP) (Gp330-binding 45 kDa protein).
ENSRNOP00000012725	P12346	Serotransferrin precursor (Transferrin) (Siderophilin) (Beta-1-metal- binding globulin).
ENSRNOP00000012769	NP_001020820	transmembrane 9 superfamily protein member 4
ENSRNOP00000012775	Q9EPH8	Polyadenylate-binding protein 1 (Poly(A)-binding protein 1) (PABP 1).
ENSRNOP00000012806	NP_114455	hydroxysteroid (17-beta) dehydrogenase 12
ENSRNOP00000012819	P18125	Cytochrome P450 7A1 (EC 1.14.13.17) (Cholesterol 7-alpha- monooxygenase) (CYP7A1) (Cholesterol 7-alpha-hydroxylase).
ENSRNOP00000012826		dehydrogenase/reductase (SDR family) member 13
ENSRNOP00000012847	Q7TPB1	T-complex protein 1 subunit delta (TCP-1-delta) (CCT-delta).
ENSRNOP00000012853	P97519	Hydroxymethylglutaryl-CoA lyase, mitochondrial precursor (EC 4.1.3.4) (HMG-CoA lyase) (HL) (3-hydroxy-3-methylglutarate-CoA lyase).
ENSRNOP00000012878	P20070	NADH-cytochrome b5 reductase (EC 1.6.2.2) (B5R) (Diaphorase-1) (Cytochrome b5 reductase 3) .
ENSRNOP00000012883	P52020	Squalene monooxygenase (EC 1.14.99.7) (Squalene epoxidase) (SE).
ENSRNOP00000013052	Q4V7F2	Cysteine-rich with EGF-like domain protein 1 precursor.
ENSRNOP00000013091	NP_001014285	synaptophysin-like protein
ENSRNOP00000013151	NP_001026816	stomatin (Epb7.2)-like 2
ENSRNOP00000013168	Q5PQR2	Putative uncharacterized protein
ENSRNOP00000013233	O88177	Peroxisome assembly protein 12 (Peroxin-12) (Peroxisome assembly factor 3) (PAF3).
ENSRNOP00000013238	P08503	Medium-chain specific acyl-CoA dehydrogenase, mitochondrial precursor (EC 1.3.99.3) (MCAD).
ENSRNOP00000013244	P13697	NADP-dependent malic enzyme (EC 1.1.1.40) (NADP-ME) (Malic enzyme 1).
ENSRNOP00000013249	P35738	2-oxoisovalerate dehydrogenase beta subunit, mitochondrial precursor (EC 1.2.4.4) (Branched-chain alpha-keto acid dehydrogenase E1 component beta chain) (BCKDH E1-beta) (Fragment).
ENSRNOP00000013262	Q6UPE1	Electron transfer flavoprotein-ubiquinone oxidoreductase, mitochondrial precursor (EC 1.5.5.1) (ETF-QO) (ETF-ubiquinone oxidoreductase) (ETF dehydrogenase) (Electron-transferring- flavoprotein dehydrogenase).
ENSRNOP00000013324	XP_214241	esterase D/formylglutathione hydrolase
ENSRNOP00000013354	P27139	Carbonic anhydrase 2 (EC 4.2.1.1) (Carbonic anhydrase II) (Carbonate dehydratase II) (CA-II).
ENSRNOP00000013392	Q6AYY8	Acetyl-coenzyme A transporter 1 (AT-1) (Acetyl-CoA transporter) (Solute carrier family 33 member 1).
ENSRNOP00000013409	NP_113838	solute carrier family 21, member 10
ENSRNOP00000013417	O54889	DNA-directed RNA polymerase I largest subunit (EC 2.7.7.6) (RNA polymerase I 194 kDa subunit) (RPA194).
ENSRNOP00000013462	P50878	60S ribosomal protein L4 (L1).
ENSRNOP00000013488	Q5U2V8	Transmembrane protein 111.
ENSRNOP00000013496	P35952	Low-density lipoprotein receptor precursor (LDL receptor)
ENSRNOP00000013582	XP_214155	PREDICTED: similar to purine-nucleoside phosphorylase
ENSRNOP00000013584	P0C089	Protein-tyrosine phosphatase mitochondrial 1, mitochondrial precursor (EC 3.1.3.48) (EC 3.1.3.16).
ENSRNOP00000013588	P62850	40S ribosomal protein S24
ENSRNOP00000013588	XP_001057008	similar to ribosomal protein S24
ENSRNOP00000013607	Q66HN6	PREDICTED: similar to Expressed sequence AI788959
ENSRNOP00000013612	O89049	Thioredoxin reductase 1, cytoplasmic (EC 1.8.1.9) (TR) (TR1) (NADPH- dependent thioredoxin reductase).

ENSRNOP00000013629	P62944	AP-2 complex subunit beta-1 (Adapter-related protein complex 2 beta-1 subunit) (Beta-adaptin) (Plasma membrane adaptor HA2/AP2 adaptin beta subunit) (Clathrin assembly protein complex 2 beta large chain) (AP105B).
ENSRNOP00000013691	P70500	CDP-diacylglycerol--inositol 3-phosphatidyltransferase (EC 2.7.8.11) (Phosphatidylinositol synthase) (PtdIns synthase) (PI synthase).
ENSRNOP00000013780		RIKEN cDNA 1300010F03 gene
ENSRNOP00000013785	P38652	Phosphoglucosyltransferase-1 (EC 5.4.2.2) (Glucose phosphomutase 1) (PGM 1).
ENSRNOP00000013789	P10860	Glutamate dehydrogenase 1, mitochondrial precursor (EC 1.4.1.3) (GDH) (Memory-related protein 2) (MRG-2).
ENSRNOP00000013816	XP_342641	PREDICTED: similar to citrin
ENSRNOP00000013829	P12007	Isovaleryl-CoA dehydrogenase, mitochondrial precursor (EC 1.3.99.10) (IVD).
ENSRNOP00000013863	Q6P9T8	Tubulin beta-2C chain.
ENSRNOP00000013863	NP_954525	tubulin, beta, 2
ENSRNOP00000013997	P62198	26S protease regulatory subunit 8 (Proteasome 26S subunit ATPase 5) (Proteasome subunit p45) (p45/SUG) (Thyroid hormone receptor- interacting protein 1) (TRIP1).
ENSRNOP00000014028	Q2M2R8	Pex5_predicted protein (Fragment).
ENSRNOP00000014051	Q9JKJ9	Cytochrome P450 39A1 (EC 1.14.13.99) (24-hydroxycholesterol 7-alpha-hydroxylase) (Oxysterol 7-alpha-hydroxylase) (mCYP39A1) [Cyp39a1]
ENSRNOP00000014051	XP_236983	cytochrome P450, family 39, subfamily a, polypeptide 1 (predicted)
ENSRNOP00000014058	P62898	Cytochrome c, somatic.
ENSRNOP00000014089	P16257	Peripheral-type benzodiazepine receptor (PBR) (PKBS) (Mitochondrial benzodiazepine receptor).
ENSRNOP00000014118	Q9Z2S9	Flotillin-2 (Reggie-1) (REG-1).
ENSRNOP00000014177	P14141	Carbonic anhydrase 3 (EC 4.2.1.1) (Carbonic anhydrase III) (Carbonate dehydratase III) (CA-III).
ENSRNOP00000014216	P08699	Galectin-3 (Galactose-specific lectin 3) (Mac-2 antigen) (IgE-binding protein) (35 kDa lectin) (Carbohydrate-binding protein 35) (CBP 35) (Laminin-binding protein) (Lectin L-29).
ENSRNOP00000014235	P18163	Long-chain-fatty-acid--CoA ligase 1 (EC 6.2.1.3) (Long-chain acyl-CoA synthetase 1) (LACS 1) (Long-chain-fatty-acid--CoA ligase, liver isozyme).
ENSRNOP00000014321	Q80TA1	Ethanolaminophosphotransferase 1 (EC 2.7.8.1) (Selenoprotein I).
ENSRNOP00000014407	P11951	Cytochrome c oxidase polypeptide VIc-2 (EC 1.9.3.1).
ENSRNOP00000014415	Q9QYL8	Acyl-protein thioesterase 2 (EC 3.1.2.-) (Lysophospholipase II) (Lysophospholipase 2).
ENSRNOP00000014452	P36198	LIM/homeobox protein Lhx2 (Homeobox protein LH-2)
ENSRNOP00000014464	P48037	Annexin A6 (Annexin VI) (Lipocortin VI) (P68) (P70) (Protein III) (Chromobindin-20) (67 kDa calelectrin) (Calphobindin-II) (CPB-II) (Calcium-binding protein CATA 65/67).
ENSRNOP00000014496	Q5U2Q3	Ester hydrolase C11orf54 homolog (EC 3.1.-.-).
ENSRNOP00000014532	Q9QXU8	Cytoplasmic dynein 1 light intermediate chain 1 (Dynein light intermediate chain 1, cytosolic) (Dynein light chain A) (DLC-A).
ENSRNOP00000014602	P56603	Secretory carrier-associated membrane protein 1 (Secretory carrier membrane protein 1) (SCAMP 37).
ENSRNOP00000014630	XP_227765	PREDICTED: similar to Microsomal triglyceride transfer protein
ENSRNOP00000014637	Q60587	Trifunctional enzyme subunit beta, mitochondrial precursor (TP-beta) .
ENSRNOP00000014658	Q9WVK7	Short chain 3-hydroxyacyl-CoA dehydrogenase, mitochondrial precursor (EC 1.1.1.35) (HCDH) (Medium and short chain L-3-hydroxyacyl-coenzyme A dehydrogenase).
ENSRNOP00000014670	Q66H35	RIKEN cDNA 4930503L19 gene
ENSRNOP00000014684	Q505J9	ATPase family AAA domain-containing protein 1.
ENSRNOP00000014704	Q05962	ADP/ATP translocase 1 (Adenine nucleotide translocator 1) (ANT 1) (ADP,ATP carrier protein 1) (Solute carrier family 25 member 4).
ENSRNOP00000014725	NP_001011953	phosphatidylinositol glycan anchor biosynthesis, class K
ENSRNOP00000014785	P49134	Integrin beta-1 precursor (Fibronectin receptor beta subunit) (Integrin VLA-4 beta subunit) (CD29 antigen).
ENSRNOP00000014800	Q7TP07	Da1-12.
ENSRNOP00000014810	Q62896	BET1 homolog (Golgi vesicular membrane trafficking protein p18) (rBET1).
ENSRNOP00000014819	Q6AXX6	Uncharacterized protein C10orf58 homolog precursor.

ENSRNOP00000014837	O08730	Glycogenin-1 (EC 2.4.1.186).
ENSRNOP00000014912		signal sequence receptor, gamma
ENSRNOP00000014966	P04166	Cytochrome b5 outer mitochondrial membrane isoform precursor.
ENSRNOP00000014979	XP_215288	3'-phosphoadenosine 5'-phosphosulfate synthase 2
ENSRNOP00000015043	NM_053370	translocase of inner mitochondrial membrane 8 homolog a (yeast) (Timm8a), mRNA
ENSRNOP00000015049	P18757	Cystathionine gamma-lyase (EC 4.4.1.1) (Gamma-cystathionase) (Probasin-related antigen) (PRB-RA).
ENSRNOP00000015057	P21588	5'-nucleotidase precursor (EC 3.1.3.5) (Ecto-5'-nucleotidase) (5'-NT) (CD73 antigen).
ENSRNOP00000015082		sarcolemma associated proteir
ENSRNOP00000015177	NP_001029322	signal recognition particle receptor ('docking protein')
ENSRNOP00000015186	Q9Z0V6	Thioredoxin-dependent peroxide reductase, mitochondrial precursor (EC 1.11.1.15) (Peroxiredoxin-3) (PRX-3) (PRx III).
ENSRNOP00000015190	NM_012860	methionine adenosyltransferase I, alpha (Mat1a), mRNA/
ENSRNOP00000015197	XP_577054	similar to 2610030H06Rik protein (predicted)
ENSRNOP00000015207	Q5XI31	GPI transamidase component PIG-S (Phosphatidylinositol-glycan biosynthesis, class S protein).
ENSRNOP00000015217	NP_001020317	NADH dehydrogenase (ubiquinone) Fe-S protein 4, 18kDa (NADH-coenzyme Q reductase)
ENSRNOP00000015218	NP_113911	signal peptidase complex 18kD
ENSRNOP00000015247	XP_214310	PREDICTED: similar to cation-transporting atpase
ENSRNOP00000015282	NP_001011975	aldehyde dehydrogenase 1 family, member B1 (predicted)
ENSRNOP00000015336	O09171	Betaine--homocysteine S-methyltransferase (EC 2.1.1.5).
ENSRNOP00000015367	Q7TQM4	Sterol O-acyltransferase 2 (EC 2.3.1.26) (Cholesterol acyltransferase 2) (Acyl coenzyme A:cholesterol acyltransferase 2) (ACAT-2).
ENSRNOP00000015403	Q5XIG1	similar to mKIAA0613 protein (predicted)
ENSRNOP00000015420	P11915	Nonspecific lipid-transfer protein (EC 2.3.1.176) (Propanoyl-CoA C-acyltransferase) (NSL-TP) (Sterol carrier protein 2) (SCP-2) (Sterol carrier protein X) (SCP-X) (SCP-chi) (SCPX).
ENSRNOP00000015475	Q63377	Sodium/potassium-transporting ATPase beta-3 chain (Sodium/potassium-dependent ATPase beta-3 subunit) (ATPB-3) (CD298 antigen).
ENSRNOP00000015518	Q6AY09	Heterogeneous nuclear ribonucleoprotein H' (hnRNP H')
ENSRNOP00000015545	Q02253	Methylmalonate-semialdehyde dehydrogenase) (EC 1.2.1.18).
ENSRNOP00000015598	P62494	Ras-related protein Rab-11A (Rab-11) (24KG).
ENSRNOP00000015601	Q9WUS0	Adenylate kinase isoenzyme 4, mitochondrial (EC 2.7.4.3) (Adenylate kinase 3-like 1) (ATP-AMP transphosphorylase).
ENSRNOP00000015618	P40307	Proteasome subunit beta type 2 (EC 3.4.25.1) (Proteasome component C7- I) (Macropain subunit C7-I) (Multicatalytic endopeptidase complex subunit C7-I).
ENSRNOP00000015667	P97612	Fatty-acid amide hydrolase (EC 3.1.-.-) (Oleamide hydrolase) (Anandamide amidohydrolase).
ENSRNOP00000015684	XP_217094	PREDICTED: hypothetical protein
ENSRNOP00000015684	XP_217094	PREDICTED: hypothetical protein XP_217094
ENSRNOP00000015723	P19999	Mannose-binding protein A precursor (MBP-A) (Mannan-binding protein). [
ENSRNOP00000015744	Q9ESW4	Acylglycerol kinase, mitochondrial precursor (EC 2.7.1.94) (EC 2.7.1.107) (Multiple substrate lipid kinase) (Multi-substrate lipid kinase) (MuLK) [Agk]
ENSRNOP00000015744	XP_578248	similar to putative lipid kinase (predicted)
ENSRNOP00000015747	P28073	Proteasome subunit beta type 6 precursor (EC 3.4.25.1) (Proteasome delta chain) (Macropain delta chain) (Multicatalytic endopeptidase complex delta chain) (Proteasome subunit Y) (Proteasome chain 5) [Psm6]
ENSRNOP00000015779	Q8VHU8	Eukaryotic translation initiation factor 5A isoform II (Fragment)
ENSRNOP00000015802	Q5I0P5	Cytochrome P450 2c13 [Cyp2c13]
ENSRNOP00000015810	NP_113777	solute carrier family 37 (glycerol-6-phosphate transporter), member 4
ENSRNOP00000015814	P58200	Vesicle transport through interaction with t-SNAREs homolog 1B (Vesicle transport v-SNARE protein Vti1-like 1) (Vti1-rp1) (Fragment).
ENSRNOP00000015844	NP_001012193	retinol dehydrogenase 11 (predicted)
ENSRNOP00000015851	NP_001005550	NADH dehydrogenase (ubiquinone) Fe-S protein 1, 75kDa
ENSRNOP00000015851	Q66HF1	NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial precursor (EC 1.6.5.3) (EC 1.6.99.3).

ENSRNOP00000015866	P12336	Solute carrier family 2, facilitated glucose transporter member 2 (Glucose transporter type 2, liver).
ENSRNOP00000015886	Q68FQ0	T-complex protein 1 subunit epsilon (TCP-1-epsilon) (CCT-epsilon).
ENSRNOP00000015910	Q63569	26S protease regulatory subunit 6A (TAT-binding protein 1) (TBP-1) (Spermatogenic cell/sperm-associated TAT-binding protein homolog SATA).
ENSRNOP00000015931	P62815	Vacuolar ATP synthase subunit B, brain isoform (EC 3.6.3.14) (V-ATPase B2 subunit) (Vacuolar proton pump B isoform 2) (Endomembrane proton pump 58 kDa subunit).
ENSRNOP00000015946	P18420	Proteasome subunit alpha type 1 (EC 3.4.25.1) (Proteasome component C2) (Macropain subunit C2) (Multicatalytic endopeptidase complex subunit C2) (Proteasome nu chain).
ENSRNOP00000015956	P00507	Aspartate aminotransferase, mitochondrial precursor (EC 2.6.1.1) (Transaminase A) (Glutamate oxaloacetate transaminase 2).
ENSRNOP00000015974	Q64602	Kynurenine/alpha-aminoacidipate aminotransferase mitochondrial precursor (KAT/AadAT) (Kynurenine--oxoglutarate transaminase II) (EC 2.6.1.7) (Kynurenine aminotransferase II) (Kynurenine--oxoglutarate aminotransferase II) (2-aminoacidipat transaminase) (EC 2).
ENSRNOP00000015997	XP_212849	PREDICTED: similar to carboxylesterase isoenzyme gene
ENSRNOP00000016043	Q7TPA1	Ab1-114.
ENSRNOP00000016051	XP_215544	PREDICTED: similar to NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 5
ENSRNOP00000016060	XP_217400	PREDICTED: similar to NADH dehydrogenase (ubiquinone) 1 beta subcomplex 3
ENSRNOP00000016137	NP_001026992	coatomer protein complex, subunit gamma
ENSRNOP00000016150	XP_215949	PREDICTED: similar to dolichol-phosphate-mannose synthase
ENSRNOP00000016167	Q642F9	Cdig2 protein (Fragment).
ENSRNOP00000016176	A2ADF5	Novel protein [RP23-291H3.2]
ENSRNOP00000016176	XP_238429	similar to Hypothetical protein MGC37938 (predicted)
ENSRNOP00000016205	Q64611	Cysteine sulfinic acid decarboxylase (EC 4.1.1.29) (Sulfinioalanine decarboxylase) (Cysteine-sulfinate decarboxylase).
ENSRNOP00000016324	NP_001032174	protein-O-mannosyltransferase 2
ENSRNOP00000016329	P49242	40S ribosomal protein S3a (V-fos transformation effector protein) .
ENSRNOP00000016346	P06757	Alcohol dehydrogenase 1 (EC 1.1.1.1) (Alcohol dehydrogenase A subunit).
ENSRNOP00000016353	P18614	Integrin alpha-1 precursor (Laminin and collagen receptor) (VLA-1) (CD49a antigen).
ENSRNOP00000016356	Q66H15	FAM82B
ENSRNOP00000016432	P09527	Ras-related protein Rab-7 (RAS-related protein P23) (RAS-related protein BRL-RAS).
ENSRNOP00000016450	Q63347	26S protease regulatory subunit 7 (Proteasome 26S subunit ATPase 2) (Protein MSS1).
ENSRNOP00000016454	NP_001009648	glycine-N-acyltransferase
ENSRNOP00000016504	NP_001007665	abhydrolase domain containing 14b
ENSRNOP00000016509	NP_001009290	NADH dehydrogenase (ubiquinone) 1, subcomplex unknown, 2 (predicted)
ENSRNOP00000016520	NP_001004241	sorting and assembly machinery component 50 homolog
ENSRNOP00000016529	Q5FV18	Similar to Adenosine deaminase CG11994-PA.
ENSRNOP00000016561	XP_232252	PREDICTED: similar to BCL2-like 13
ENSRNOP00000016616	Q923M1	Peptide methionine sulfoxide reductase (EC 1.8.4.11) (Protein- methionine-S-oxide reductase) (PMSR) (Peptide-methionine (S)-S-oxide reductase) (Peptide Met(O) reductase).
ENSRNOP00000016646	NP_001041650	agmatine ureohydrolase (agmatinase)
ENSRNOP00000016709	Q64640	Adenosine kinase (EC 2.7.1.20) (AK) (Adenosine 5'-phosphotransferase).
ENSRNOP00000016723	NP_001014164	hypothetical protein LOC361151
ENSRNOP00000016739	P16970	ATP-binding cassette sub-family D member 3 (70 kDa peroxisomal membrane protein) (PMP70).
ENSRNOP00000016751	Q5M9I5	Ubiquinol-cytochrome c reductase complex 11 kDa protein, mitochondrial precursor (EC 1.10.2.2) (Mitochondrial hinge protein) (Cytochrome C1, nonheme 11 kDa protein) (Complex III subunit VIII).
ENSRNOP00000016776	Q9JLT6	BH3-interacting domain death agonist (BID) (p22 BID) .
ENSRNOP00000016813	NP_073183	RAB5A, member RAS oncogene family

ENSRNOP00000016851	Q9Z339	Glutathione transferase omega-1 (EC 2.5.1.18) (GSTO 1-1) (Glutathione-dependent dehydroascorbate reductase).
ENSRNOP00000016872	Q5BJX3	Hs2st1 protein (Fragment).
ENSRNOP00000016876	Q9JHW0	Proteasome subunit beta type 7 precursor (EC 3.4.25.1) (Proteasome subunit Z) (Macropain chain Z) (Multicatalytic endopeptidase complex chain Z).
ENSRNOP00000016883	P05182	Cytochrome P450 2E1 (EC 1.14.14.1) (CYP1IE1) (P450-J) (P450RLM6).
ENSRNOP00000016897	P47967	Galectin-5 (RL-18).
ENSRNOP00000016937	XP_342783	PREDICTED: similar to CGI-141 protein
ENSRNOP00000016954	P18886	Carnitine O-palmitoyltransferase II, mitochondrial precursor (EC 2.3.1.21) (CPT II).
ENSRNOP00000016965	P19234	NADH-ubiquinone oxidoreductase 24 kDa subunit, mitochondrial precursor (EC 1.6.5.3) (EC 1.6.99.3).
ENSRNOP00000016986	NP_001030109	phosphoglycerate dehydrogenase like 1
ENSRNOP00000017002	XP_218185	PREDICTED: similar to mBB1
ENSRNOP00000017042	P97840	Galectin-9 (36 kDa beta-galactoside-binding lectin) (Urate transporter/channel) (UAT).
ENSRNOP00000017051	XR_009424	sim to KOX31-like Zfp (predicted) (RGD1559150_predicted), mRNA
ENSRNOP00000017067	XP_216944	cytochrome c-1 (predicted)
ENSRNOP00000017090	Q5FVN0	Putative O-acyltransferase OACT5 (EC 2.3.-.-) (O-acyltransferase domain-containing protein 5).
ENSRNOP00000017101	P70580	Membrane-associated progesterone receptor component 1 (Acidic 25 kDa protein) (25-DX) (Ventral midline antigen) (VEMA).
ENSRNOP00000017121		RGD1309350_predicted
ENSRNOP00000017180	XR_006078	similar to eukaryotic translation elongation factor 1 alpha 2 (LOC364172), mRNA
ENSRNOP00000017201	XP_220606	mannose-P-dolichol utilization defect 1
ENSRNOP00000017211	Q66HG5	Transmembrane 9 superfamily protein member 2 precursor.
ENSRNOP00000017212	XP_219898	transmembrane protein 2 (predicted)
ENSRNOP00000017212	Q5FWI3	Transmembrane protein 2 [Tmem2]
ENSRNOP00000017237	P05178	Cytochrome P450 2C6 (EC 1.14.14.1) (CYP1IC6) (P450 PB1) (PTF2).
ENSRNOP00000017243	Q7TQ74	Ac1573.
ENSRNOP00000017268	Q91X78	Erlin-1 precursor (Endoplasmic reticulum lipid raft-associated protein 1) (Stomatin-prohibitin-flotillin-HflC/K domain-containing protein 1) (SPFH domain-containing protein 1) (Protein KE04 homolog)
ENSRNOP00000017301	Q9WUF4	Vesicle-associated membrane protein 8 (VAMP-8) (Endobrevin) (EDB).
ENSRNOP00000017310	P08683	Cytochrome P450 2C11 (EC 1.14.14.1) (CYP1IC11) (P-450(M-1)) (P450H) (P450-UT-A) (UT-2).
ENSRNOP00000017396	XP_345209	PREDICTED: similar to Rab33B
ENSRNOP00000017472	Q5XIH7	Prohibitin-2 (B-cell receptor-associated protein BAP37) (BAP-37).
ENSRNOP00000017643	P10716	C-type lectin domain family 4 member F (C-type lectin superfamily member 13) (C-type lectin 13) (Kupffer cell receptor).
ENSRNOP00000017675	P31210	3-oxo-5-beta-steroid 4-dehydrogenase (EC 1.3.99.6) (Delta(4)-3- ketosteroid 5-beta reductase) (Aldo-keto reductase family 1 member D1).
ENSRNOP00000017686	P15650	Long-chain specific acyl-CoA dehydrogenase, mitochondrial precursor (EC 1.3.99.13) (LCAD).
ENSRNOP00000017692	P61751	ADP-ribosylation factor 4.
ENSRNOP00000017805	XP_227000	PREDICTED: similar to RIKEN cDNA B230106I24 gene
ENSRNOP00000017840	P24470	Cytochrome P450 2C23 (EC 1.14.14.1) (CYP1IC23) (Arachidonic acid epoxigenase).
ENSRNOP00000017911	P07824	Arginase-1 (EC 3.5.3.1) (Type I arginase) (Liver-type arginase).
ENSRNOP00000017928	O88496	Vitamin K-dependent gamma-carboxylase (EC 6.4.-.-) (Gamma-glutamyl carboxylase) (Vitamin K gamma glutamyl carboxylase).
ENSRNOP00000017954	P25093	Fumarylacetoacetase (EC 3.7.1.2) (Fumarylacetoacetate hydrolase) (Beta-diketonease) (FAA).
ENSRNOP00000017965	P42123	L-lactate dehydrogenase B chain (EC 1.1.1.27) (LDH-B) (LDH heart subunit) (LDH-H).
ENSRNOP00000018001	XP_238346	PREDICTED: similar to coiled-coil-helix-coiled-coil-helix domain containing 3
ENSRNOP00000018005	P28075	Proteasome subunit beta type 5 precursor (EC 3.4.25.1) (Proteasome epsilon chain) (Macropain epsilon chain) (Multicatalytic endopeptidase complex epsilon chain) (Proteasome subunit X) (Proteasome chain 6).
ENSRNOP00000018009	XP_238534	protein kinase C substrate 80K-H (predicted)

ENSRNOP00000018043	XP_220013	PREDICTED: similar to transmembrane protein TM9SF3
ENSRNOP00000018083	P31646	Sodium- and chloride-dependent GABA transporter 2.
ENSRNOP00000018091	Q8CHM1	Aquaporin-11 (AQP-11).
ENSRNOP00000018167	NP_742060	peroxisomal membrane anchor protein
ENSRNOP00000018170	P18298	S-adenosylmethionine synthetase isoform type-2 (EC 2.5.1.6) (Methionine adenosyltransferase 2) (AdoMet synthetase 2) (Methionine adenosyltransferase II) (MAT-II).
ENSRNOP00000018173	P21670	Proteasome subunit alpha type 4 (EC 3.4.25.1) (Proteasome component C9) (Macropain subunit C9) (Multicatalytic endopeptidase complex subunit C9) (Proteasome subunit L).
ENSRNOP00000018175	Q64566	Calcium-transporting ATPase type 2C member 1 (EC 3.6.3.8) (ATPase 2C1) (ATP-dependent Ca(2+) pump PMR1).
ENSRNOP00000018190	P63322	Ras-related protein Ral-A precursor
ENSRNOP00000018248	NP_001014275	selenoprotein T
ENSRNOP00000018259	Q920D2	Dihydrofolate reductase
ENSRNOP00000018310	XP_225257	PREDICTED: similar to Thioredoxin domain containing protein 5 precursor (Thioredoxin-like protein p46) (Endoplasmic reticulum protein ERp46)
ENSRNOP00000018319	Q64535	Copper-transporting ATPase 2 (EC 3.6.3.4) (Copper pump 2) (Wilson disease-associated protein homolog) (Pinal night-specific ATPase).
ENSRNOP00000018325	P04904	Glutathione S-transferase alpha-3 (EC 2.5.1.18) (Glutathione S- transferase Yc-1) (GST Yc1) (GST 2-2) (GST AA) (GST A3-3).
ENSRNOP00000018328	NP_062259	transglutaminase 2, C polypeptide
ENSRNOP00000018336	Q920L2	Succinate dehydrogenase flavoprotein subunit, mitochondrial precursor (EC 1.3.5.1) (Fp) (Flavoprotein subunit of complex II).
ENSRNOP00000018447	P07308	Acyl-CoA desaturase 1 (EC 1.14.19.1) (Stearoyl-CoA desaturase 1) (Fatty acid desaturase 1) (Delta(9)-desaturase 1).
ENSRNOP00000018455	P61621	Protein transport protein Sec61 alpha subunit isoform 1 (Sec61 alpha- 1).
ENSRNOP00000018462	P81155	Voltage-dependent anion-selective channel protein 2 (VDAC-2) (Outer mitochondrial membrane protein porin 2) (B36-VDAC).
ENSRNOP00000018533	XP_344415	similar to hypothetical protein MGC48915
ENSRNOP00000018622	P02696	Retinol-binding protein I, cellular (Cellular retinol-binding protein) (CRBP).
ENSRNOP00000018695	P97675	Ectonucleotide pyrophosphatase/phosphodiesterase 3 (E-NPP 3) (Phosphodiesterase I/nucleotide pyrophosphatase 3) (Phosphodiesterase I beta) (PD-Ibeta) (RB13-6 antigen) (B10) [Includes: Alkaline phosphodiesterase I (EC 3.1.4.1); Nucleotide pyrophosphatase (
ENSRNOP00000018711	Q08163	Adenylyl cyclase-associated protein 1 (CAP 1)
ENSRNOP00000018723	NP_001005908	growth hormone inducible transmembrane protein
ENSRNOP00000018761	Q9QZH8	Arylacetamide deacetylase (EC 3.1.1.-) (AADAC)
ENSRNOP00000018782	Q8K3Y6	Zinc finger CCCH type antiviral protein 1 (rZAP).
ENSRNOP00000018795	Q62730	Estradiol 17-beta-dehydrogenase 2 (EC 1.1.1.62) (17-beta-HSD 2) (17- beta-hydroxysteroid dehydrogenase 2).
ENSRNOP00000018796	Q5XIU9	Membrane associated progesterone receptor component 2.
ENSRNOP00000018820	P19944	60S acidic ribosomal protein P1.
ENSRNOP00000018821	P48056	Sodium- and chloride-dependent betaine transporter (Na+/Cl- betaine/GABA transporter).
ENSRNOP00000018850	P13437	3-ketoacyl-CoA thiolase, mitochondrial (EC 2.3.1.16) (Beta- ketothiolase) (Acetyl-CoA acyltransferase) (Mitochondrial 3-oxoacyl- CoA thiolase).
ENSRNOP00000018897	XP_223785	PREDICTED: similar to catechol-O-methyltransferase domain containing 1
ENSRNOP00000018922	XP_215851	fumarylacetoacetate hydrolase domain containing 2A (predicted
ENSRNOP00000018942	NP_001009653	methylcrotonoyl-Coenzyme A carboxylase 1 (alpha
ENSRNOP00000018973	XP_214372	PREDICTED: similar to SPFH domain family, member 2
ENSRNOP00000018982	Q5BJU9	Acin1 protein (Fragment).
ENSRNOP00000019001	XP_001070838	similar to zinc finger protein 703
ENSRNOP00000019021	P07756	Carbamoyl-phosphate synthase , mitochondrial precursor (EC 6.3.4.16) (Carbamoyl-phosphate synthetase I) (CPSase I).
ENSRNOP00000019039	XP_215269	PREDICTED: similar to NADH dehydrogenase (ubiquinone) 1 beta subcomplex 8
ENSRNOP00000019052	Q9ET58	Krueppel-like factor 2 (Lung krueppel-like factor).
ENSRNOP00000019059	P56574	Isocitrate dehydrogenase [NADP], mitochondrial precursor (EC 1.1.1.42) (Oxalosuccinate decarboxylase) (IDH) (NADP(+)-specific ICDH) (IDP) (ICD-M).
ENSRNOP00000019106	Q3MIF4	Xylulose kinase (EC 2.7.1.17) (Xylulokinase).
ENSRNOP00000019108	Q7TSP3	NYGGF2.

ENSRNOP00000019115	NP_001006987	evolutionarily conserved signaling intermediate in Toll pathway
ENSRNOP00000019133	Q63279	Keratin, type I cytoskeletal 19 (Cytokeratin-19) (CK-19) (Keratin-19) (K19) (Type I keratin Ka19).
ENSRNOP00000019141	Q9CQ91	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3 (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase B9 subunit) (Complex I-B9) (CI-B9) [Ndufa3]
ENSRNOP00000019141	XP_001076462	similar to NADH-ubiquinone oxidoreductase B9 subunit (Complex I-B9) (CI-B9)
ENSRNOP00000019162	P17078	60S ribosomal protein L35.
ENSRNOP00000019184	XP_231144	PREDICTED: similar to prostaglandin E synthase 2
ENSRNOP00000019231	P42893	Endothelin-converting enzyme 1 (EC 3.4.24.71) (ECE-1).
ENSRNOP00000019302	XP_341441	PREDICTED: similar to family 4 cytochrome P450
ENSRNOP00000019323	NP_997679	TOM22 protein
ENSRNOP00000019362	P36972	Adenine phosphoribosyltransferase (EC 2.4.2.7) (APRT).
ENSRNOP00000019374	XP_215704	PREDICTED: similar to RIKEN cDNA 1500009M05
ENSRNOP00000019489	XP_001070068	similar to nucleoredoxin
ENSRNOP00000019519	Q924C3	Ectonucleotide pyrophosphatase/phosphodiesterase 1 (E-NPP 1) (Phosphodiesterase I/nucleotide pyrophosphatase 1) (Plasma-cell membrane glycoprotein PC-1) [Includes: Alkaline phosphodiesterase I (EC 3.1.4.1); Nucleotide pyrophosphatase (EC 3.6.1.9) (NPPase)]
ENSRNOP00000019527	NP_001013123	FK506 binding protein 11 (predicted)
ENSRNOP00000019544	Q9JK41	High-affinity copper uptake protein 1 (rCTR1) (Copper transporter 1) (Solute carrier family 31 member 1).
ENSRNOP00000019548	XP_226107	Brunol4_predicted
ENSRNOP00000019571	Q8VHE9	All-trans-retinol 13,14-reductase precursor (EC 1.3.99.23) (All-trans- 13,14-dihydroretinol saturase) (RetSat) (RMT-7).
ENSRNOP00000019620	Q498C8	Protein RER1.
ENSRNOP00000019624	Q9DCS9	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10 (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase PDSW subunit) (Complex I-PDSW) (CI-PDSW)
ENSRNOP00000019642	XP_344977	PREDICTED: similar to 26S proteasome subunit p40.5
ENSRNOP00000019652	P32198	Carnitine O-palmitoyltransferase I, liver isoform (EC 2.3.1.21) (CPT I) (CPTI-L) (Carnitine palmitoyltransferase 1A).
ENSRNOP00000019755		heparan-alpha-glucosaminide N-acetyltransferase
ENSRNOP00000019761	XP_215919	PREDICTED: similar to GPI transamidase component PIG-T precursor (Phosphatidylinositol-glycan biosynthesis, class T protein) (Neuronal development-associated protein 7)
ENSRNOP00000019772	P04937	Fibronectin precursor (FN)
ENSRNOP00000019795	NP_112258	opioid receptor, sigma 1
ENSRNOP00000019912	P63039	60 kDa heat shock protein, mitochondrial precursor (Hsp60) (60 kDa chaperonin) (CPN60) (Heat shock protein 60) (HSP-60) (Mitochondrial matrix protein P1) (HSP-65).
ENSRNOP00000019914	NP_942071	beta-glo
ENSRNOP00000019969	Q03626	Murineoglobulin-1 precursor (Alpha-1 inhibitor 3 variant I) (Alpha-X protein).
ENSRNOP00000020002	P15684	Aminopeptidase N (EC 3.4.11.2) (rAPN) (Alanyl aminopeptidase) (Microsomal aminopeptidase) (Aminopeptidase M) (APM) (Kidney Zn peptidase) (KZP) (CD13 antigen).
ENSRNOP00000020026		phosphofurin acidic cluster sorting protein 2
ENSRNOP00000020066	P26772	10 kDa heat shock protein, mitochondrial (Hsp10) (10 kDa chaperonin) (CPN10).
ENSRNOP00000020079	XP_001073988	similar to CG3740-PA
ENSRNOP00000020093	P80385	5'-AMP-activated protein kinase subunit gamma-1 (AMPK gamma-1 chain) (AMPKgamma).
ENSRNOP00000020161	Q63151	Long-chain-fatty-acid--CoA ligase 3 (EC 6.2.1.3) (Long-chain acyl-CoA synthetase 3) (LACS 3) (Brain acyl-CoA synthetase II).
ENSRNOP00000020192	O35952	Hydroxyacylglutathione hydrolase (EC 3.1.2.6) (Glyoxalase II) (Glx II) (Round spermatid protein RSP29).
ENSRNOP00000020265	P26376	Interferon-inducible protein.
ENSRNOP00000020267	Q99PU6	Branched-chain alpha-keto acid dihydrolipoyl acyltransferase (Fragment).
ENSRNOP00000020291	XR_007365	similar to eukaryotic translation elongation factor 1 alpha 1 (predicted) (RGD1566344_predicted), mRNA

ENSRNOP00000020302	Q63707	Dihydroorotate dehydrogenase, mitochondrial precursor (EC 1.3.3.1) (Dihydroorotate oxidase) (DHODEHase).
ENSRNOP00000020306	NP_001012104	dolichyl-di-phosphooligosaccharide-protein glycotransferase (predicted)
ENSRNOP00000020322	P41562	Isocitrate dehydrogenase cytoplasmic (EC 1.1.1.42) (Cytosolic NADP-isocitrate dehydrogenase) (Oxalosuccinate decarboxylase) (IDH) (NADP(+)-specific ICDH) (IDP).
ENSRNOP00000020325	Q64057	Aldehyde dehydrogenase family 7 member A1 (EC 1.2.1.3) (Antiquitin-1) (Fragment).
ENSRNOP00000020335	P97584	NADP-dependent leukotriene B4 12-hydroxydehydrogenase (EC 1.3.1.74) (15-oxoprostaglandin 13-reductase) (EC 1.3.1.48) (Dithiolethione- inducible gene 1 protein) (D3T-inducible gene 1 protein) (DIG-1).
ENSRNOP00000020364	NP_001007701	cation-dependent mannose-6-phosphate receptor
ENSRNOP00000020376	Q5U2X7	TIM21-like protein, mitochondrial precursor.
ENSRNOP00000020380	XP_001063810	similar to haloacid dehalogenase-like hydrolase domain containing c
ENSRNOP00000020446	P00173	Cytochrome b5.
ENSRNOP00000020478	P11598	Protein disulfide-isomerase A3 precursor (EC 5.3.4.1) (Disulfide isomerase ER-60) (ERp60) (58 kDa microsomal protein) (p58) (ERp57) (HIP-70) (Q-2).
ENSRNOP00000020544	P13803	Electron transfer flavoprotein alpha-subunit, mitochondrial precursor (Alpha-ETF).
ENSRNOP00000020558	Q9JLA3	UDP-glucose:glycoprotein glucosyltransferase 1 precursor (EC 2.4.1.-) (UDP-glucose ceramide glucosyltransferase-like 1) (UDP-- Glc:glycoprotein glucosyltransferase) (RUGT).
ENSRNOP00000020573		MII
ENSRNOP00000020581	P60905	DnaJ homolog subfamily C member 5 (Cysteine string protein) (CSP).
ENSRNOP00000020596	NP_663710	mitochondrial Ca2+-dependent solute carrier
ENSRNOP00000020625	P06214	Delta-aminolevulinic acid dehydratase (EC 4.2.1.24) (Porphobilinogen synthase) (ALADH).
ENSRNOP00000020670	P35434	ATP synthase delta chain, mitochondrial precursor (EC 3.6.3.14).
ENSRNOP00000020681	Q9Z270	Vesicle-associated membrane protein-associated protein A (VAMP- associated protein A) (VAMP-A) (VAP-A) (33 kDa Vamp-associated protein) (VAP-33).
ENSRNOP00000020737	XM_579636	P11 protein (Cdtw1), mRNA
ENSRNOP00000020737	NM_134395	P11 protein (Cdtw1), mRNA
ENSRNOP00000020748	P35280	Ras-related protein Rab-8A.
ENSRNOP00000020749	P18297	Sepiapterin reductase (EC 1.1.1.153) (SPR).
ENSRNOP00000020752	Q06A39	Phosphatidylinositol glycan class N (Fragment)
ENSRNOP00000020767	P28494	Alpha-mannosidase 2 (EC 3.2.1.114) (Alpha-mannosidase II) (Mannosyl-oligosaccharide 1,3-1,6-alpha-mannosidase) (MAN II) (Golgi alpha- mannosidase II) (Mannosidase alpha class 2A member 1) (Fragment).
ENSRNOP00000020775	Q63108	Liver carboxylesterase 3 precursor (EC 3.1.1.1) (Carboxylesterase ES-3) (pl 5.5 esterase) (ES-HTEL).
ENSRNOP00000020785		ubiquitin specific peptidase 5 (isopeptidase T)
ENSRNOP00000020932	Q6AYZ1	Tubulin alpha-6 chain (Alpha-tubulin 6).
ENSRNOP00000021111		lectin, mannose-binding 2-like
ENSRNOP00000021155	NP_001032276	dehydrogenase/reductase (SDR family) member 3
ENSRNOP00000021162	Q62786	Prostaglandin F2 receptor negative regulator precursor (Prostaglandin F2-alpha receptor regulatory protein) (Prostaglandin F2-alpha receptor-associated protein) (CD315 antigen).
ENSRNOP00000021170	Q9Z1Y3	Neural-cadherin precursor (N-cadherin) (Cadherin-2).
ENSRNOP00000021215	XR_005946	similar to prohibitin (LOC364817), mRNA
ENSRNOP00000021243	NP_598242	camello-like 1
ENSRNOP00000021257	Q68FT3	Probable oxidoreductase C10orf33 homolog (EC 1.-.-.-) [Rattus norvegicus
ENSRNOP00000021318	O70257	Syntaxin-7.
ENSRNOP00000021384	P17220	proteasome (prosome, macropain) subunit, alpha type 2
ENSRNOP00000021389	Q9Z0U5	Aldehyde oxidase (EC 1.2.3.1).
ENSRNOP00000021397	P31430	Dipeptidase 1 precursor (EC 3.4.13.19) (Microsomal dipeptidase) (Renal dipeptidase).
ENSRNOP00000021407	NP_942026	choline dehydrogenase precursor
ENSRNOP00000021512	Q9WVK3	Peroxisomal trans-2-enoyl-CoA reductase (EC 1.3.1.38) (RLF98) (Peroxisomal 2,4-dienoyl CoA reductase px-2,4-DCR1).

ENSRNOP00000021514	P32551	Ubiquinol-cytochrome-c reductase complex core protein 2, mitochondrial precursor (EC 1.10.2.2) (Complex III subunit II).
ENSRNOP00000021524	Q9JJK4	Peroxisomal biogenesis factor 3 (Peroxin-3) (Peroxisomal assembly protein PEX3).
ENSRNOP00000021545	XP_215236	PREDICTED: similar to RIKEN cDNA 5033414D02
ENSRNOP00000021612	P55281	Cadherin-17 precursor (Liver-intestine-cadherin) (LI-cadherin).
ENSRNOP00000021638	XP_214428	PREDICTED: similar to Vesicular integral-membrane protein VIP36 precursor (Lectin, mannose-binding 2)
ENSRNOP00000021646	P97852	Peroxisomal multifunctional enzyme type 2 (MFE-2) (D-bifunctional protein) (DBP) (17-beta-hydroxysteroid dehydrogenase 4) (17-beta-HSD 4) [Includes: D-3-hydroxyacyl-CoA dehydratase (EC 4.2.1.107) (3- alpha,7-alpha,12-alpha-trihydroxy 5-beta-cholest-24-eno
ENSRNOP00000021650	NP_445959	non-metastatic cells 3, protein expressed in
ENSRNOP00000021657	P07633	Propionyl-CoA carboxylase beta chain, mitochondrial precursor (EC 6.4.1.3) (PCCase subunit beta) (Propanoyl-CoA:carbon dioxide ligase subunit beta).
ENSRNOP00000021711	Q8R4E1	T-cell immunomodulatory protein precursor (Protein TIP) (CDA08-like protein).
ENSRNOP00000021716	Q68FT1	Ubiquinone biosynthesis protein COQ9, mitochondrial precursor.
ENSRNOP00000021812	P16303	Carboxylesterase 3 precursor (EC 3.1.1.1) (Liver carboxylesterase 10) (Carboxylesterase ES-10) (pl 6.1 esterase) (ES-HVEL).
ENSRNOP00000021820	Q4G043	Ccdc21 protein (Fragment).
ENSRNOP00000021862	P50137	Transketolase (EC 2.2.1.1) (TK).
ENSRNOP00000021893	Q5BK17	Iodotyrosine dehalogenase 1 precursor (EC 1.-.-.) (IYD-1).
ENSRNOP00000021920	P19511	ATP synthase B chain, mitochondrial precursor (EC 3.6.3.14).
ENSRNOP00000021934	Q08415	Kynurenine--oxoglutarate transaminase 1, mitochondrial precursor (EC 2.6.1.7) (Kynurenine--oxoglutarate transaminase I) (Kynurenine aminotransferase I) (KATI) (Glutamine--phenylpyruvate transaminase) (EC 2.6.1.64) (Glutamine transaminase K) (GTK) (Cystein
ENSRNOP00000021940	NP_001007658	hypothetical protein LOC299612
ENSRNOP00000021958	Q6UPR8	Probable peptidase KIAA1815 homolog (EC 3.4.-.-)
ENSRNOP00000021970	P09118	Uricase (EC 1.7.3.3) (Urate oxidase)
ENSRNOP00000022011	NP_001011959	protective protein for beta-galactosidase
ENSRNOP00000022014	XP_001067683	hypothetical protein LOC689373
ENSRNOP00000022022	NP_001006967	peroxisomal delta3, delta2-enoyl-Coenzyme A isomerase
ENSRNOP00000022089	Q561S0	NADH dehydrogenase 1 alpha subcomplex subunit 10, mitochondrial precursor (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase 42 kDa subunit) (Complex I-42kD) (CI-42kD).
ENSRNOP00000022113	P02767	Transthyretin precursor (Prealbumin) (TBPA).
ENSRNOP00000022117	Q10473	Polypeptide N-acetylgalactosaminyltransferase 1 (EC 2.4.1.41) (Protein-UDP acetylgalactosaminyltransferase 1) (UDP- GalNAc:polypeptide N-acetylgalactosaminyltransferase 1) (Polypeptide GalNAc transferase 1) (GalNAc-T1) (pp-GaNTase 1) [Contains: Polypeptid
ENSRNOP00000022150	Q63493	T-cell surface glycoprotein CD1d precursor (CD1d antigen).
ENSRNOP00000022209	P04550	Parathymosin (Zinc-binding 11.5 kDa protein).
ENSRNOP00000022254	NP_036829	solute carrier family 22 (organic cation transporter), member 1
ENSRNOP00000022275	P24473	Glutathione S-transferase kappa 1 (EC 2.5.1.18) (GST 13-13) (Glutathione S-transferase subunit 13) (GST class-kappa) (GSTK1-1) (rGSTK1).
ENSRNOP00000022307	P13255	Glycine N-methyltransferase (EC 2.1.1.20) (Folate-binding protein)
ENSRNOP00000022309	P13221	Aspartate aminotransferase, cytoplasmic (EC 2.6.1.1) (Transaminase A) (Glutamate oxaloacetate transaminase 1).
ENSRNOP00000022348	P62268	40S ribosomal protein S23.
ENSRNOP00000022401	Q3B7U7	Tln1 protein (Fragment).
ENSRNOP00000022455	Q3B8P3	RGD1306809_predicted protein.
ENSRNOP00000022487	P12075	Cytochrome c oxidase polypeptide Vb, mitochondrial precursor (EC 1.9.3.1) (VIA*).
ENSRNOP00000022519	NP_001007689	hypothetical protein LOC307343
ENSRNOP00000022532	Q99ML5	Prenylcysteine oxidase precursor (EC 1.8.3.5) (Chloride ion pump- associated 55 kDa protein).
ENSRNOP00000022540	Q5XIN6	Leucine zipper-EF-hand containing transmembrane protein 1, mitochondrial precursor.

ENSRNOP00000022550	P04897	Guanine nucleotide-binding protein G(i), alpha-2 subunit (Adenylate cyclase-inhibiting G alpha protein).
ENSRNOP00000022578	Q5U4F4	Transmembrane protein 135
ENSRNOP00000022582	P54777	Peroxisome assembly factor 2 (PAF-2) (Peroxisomal-type ATPase 1) (Peroxin-6) (Peroxisomal biogenesis factor 6).
ENSRNOP00000022628	P04182	Ornithine aminotransferase, mitochondrial precursor (EC 2.6.1.13) (Ornithine--oxo-acid aminotransferase).
ENSRNOP00000022632	NP_001007667	BCS1-like
ENSRNOP00000022703	P10867	L-gulonolactone oxidase (EC 1.1.3.8) (LGO) (L-gulono-gamma-lactone oxidase) (GLO).
ENSRNOP00000022747	XP_001074132	similar to ubiquinol-cytochrome c reductase subunit
ENSRNOP00000022747	Q9CPX8	Ubiquinol-cytochrome c reductase complex 6.4 kDa protein (EC 1.10.2.2) (Complex III subunit XI) [Uqc]
ENSRNOP00000022828	P24368	Peptidyl-prolyl cis-trans isomerase B precursor (EC 5.2.1.8) (PPIase) (Rotamase) (Cyclophilin B) (S-cyclophilin) (SCYLP) (CYP-S1).
ENSRNOP00000022892	P15999	ATP synthase alpha chain, mitochondrial precursor (EC 3.6.3.14).
ENSRNOP00000022897	Q71TY3	40S ribosomal protein S27.
ENSRNOP00000022949	P21531	60S ribosomal protein L3 (L4).
ENSRNOP00000022985	NP_001009399	NAD(P) dependent steroid dehydrogenase-like
ENSRNOP00000023017	P07151	Beta-2-microglobulin precursor.
ENSRNOP00000023066	Q62876	Synaptogyrin-1 (p29).
ENSRNOP00000023072	P51635	Alcohol dehydrogenase (EC 1.1.1.2) (Aldehyde reductase) (Aldo- keto reductase family 1 member A1) (3-DG-reducing enzyme).
ENSRNOP00000023080	NP_001009646	quinolinate phosphoribosyltransferase (predicted)
ENSRNOP00000023132	Q63716	Peroxiredoxin-1 (EC 1.11.1.15) (Thioredoxin peroxidase 2) (Thioredoxin-dependent peroxide reductase 2) (Heme-binding 23 kDa protein) (HBP23).
ENSRNOP00000023152	P17178	Cytochrome P450 27, mitochondrial precursor (EC 1.14.13.15) (Cytochrome P-450C27/25) (Sterol 26-hydroxylase) (Sterol 27- hydroxylase) (Vitamin D(3) 25-hydroxylase) (5-beta-cholestane-3- alpha,7-alpha,12-alpha-triol 27-hydroxylase).
ENSRNOP00000023211	XP_229475	PREDICTED: similar to cisplatin resistance related protein CRR9p
ENSRNOP00000023215	NP_001028871	COX15 homolog, cytochrome c oxidase assembly protein
ENSRNOP00000023227	NP_112289	dihydropyrimidine dehydrogenase
ENSRNOP00000023252	P47860	6-phosphofructokinase type C (EC 2.7.1.11) (Phosphofructokinase 1) (Phosphohexokinase) (Phosphofructo-1-kinase isozyme C) (PFK-C).
ENSRNOP00000023350	P27867	Sorbitol dehydrogenase (EC 1.1.1.14) (L-iditol 2-dehydrogenase).
ENSRNOP00000023370	Q01177	Plasminogen precursor (EC 3.4.21.7) .
ENSRNOP00000023385	P80299	Epoxide hydrolase 2 (EC 3.3.2.10) (Soluble epoxide hydrolase) (SEH) (Epoxide hydratase) (Cytosolic epoxide hydrolase) (CEH).
ENSRNOP00000023395	Q925S8	ATP-dependent metalloprotease YME1L1 (EC 3.4.24.-) (YME1-like protein 1) (ATP-dependent metalloprotease FtsH1) (Meg-4).
ENSRNOP00000023425	NP_954520	T-cell, immune regulator 1, ATPase, H+ transporting, lysosomal V0 protein a isoform 3
ENSRNOP00000023447	P16638	ATP-citrate synthase (EC 2.3.3.8) (ATP-citrate (pro-S)-lyase) (Citrate cleavage enzyme).
ENSRNOP00000023452	Q4QRB4	Tubulin beta-3 chain (Neuron-specific class III beta-tubulin).
ENSRNOP00000023506	XP_214979	PREDICTED: similar to alpha/beta hydrolase fold protein
ENSRNOP00000023516	XP_341355	PREDICTED: similar to succinate-Coenzyme A ligase, ADP-forming, beta subunit
ENSRNOP00000023526	XP_215197	PREDICTED: similar to NADH dehydrogenase (ubiquinone) Fe-S protein 8
ENSRNOP00000023543	XP_233688	PREDICTED: similar to hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase)
ENSRNOP00000023550	XP_237056	similar to RW1 protein (predicted)
ENSRNOP00000023554	P17425	Hydroxymethylglutaryl-CoA synthase, cytoplasmic (EC 2.3.3.10) (HMG-CoA synthase) (3-hydroxy-3-methylglutaryl coenzyme A synthase).
ENSRNOP00000023562	XP_215286	PREDICTED: similar to ring finger protein 153
ENSRNOP00000023582	P04691	Tubulin beta chain (T beta-15).
ENSRNOP00000023592		RIKEN cDNA 2810459M11 gene
ENSRNOP00000023606	NP_001011927	ATPase, H+ transporting, V0 subunit D isoform 1 (predicted)
ENSRNOP00000023611	Q8K5B7	Neuron-specific class III beta-tubulin (Fragment).

ENSRNOP00000023623	Q9JHZ9	System N amino acid transporter 1 (SN1) (N-system amino acid transporter 1) (Solute carrier family 38 member 3).
ENSRNOP00000023659	P24008	3-oxo-5-alpha-steroid 4-dehydrogenase 1 (EC 1.3.99.5) (Steroid 5- alpha-reductase 1) (SR type 1).
ENSRNOP00000023685	P19112	fructose biphosphatase 1
ENSRNOP00000023701	NP_001017445	UBX domain containing 8
ENSRNOP00000023753	A0FKI7	Acyl-CoA-binding domain-containing protein 5.
ENSRNOP00000023796	NP_955433	cytochrome P450, family 20, subfamily A, polypeptide 1
ENSRNOP00000023806	XR_008964	similar to Pol(yrC)-binding protein 1 (Alpha-CP1) (hnRNP-E1) (predicted) (RGD1561319_predicted), mRNA
ENSRNOP00000023811	XP_214570	PREDICTED: similar to NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 2
ENSRNOP00000023835	P23457	3-alpha-hydroxysteroid dehydrogenase (EC 1.1.1.213) (3-alpha-HSD) (Hydroxyprostaglandin dehydrogenase).
ENSRNOP00000023855	NP_001012165	neighbor of Cox4 (predicted)
ENSRNOP00000023900	Q5XIT9	Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial precursor (EC 6.4.1.4) (3-methylcrotonyl-CoA carboxylase 2) (MCCase subunit beta) (3-methylcrotonyl-CoA:carbon dioxide ligase subunit beta) (3- methylcrotonyl-CoA carboxylase non-biotin-containing
ENSRNOP00000023900	NP_001012177	methylcrotonoyl-Coenzyme A carboxylase 2 (beta)
ENSRNOP00000023935	P62909	40S ribosomal protein S3.
ENSRNOP00000023977	Q63691	Monocyte differentiation antigen CD14 precursor (Myeloid cell-specific leucine-rich glycoprotein).
ENSRNOP00000024033	P10888	Cytochrome c oxidase subunit 4 isoform 1, mitochondrial precursor (EC 1.9.3.1) (Cytochrome c oxidase subunit IV isoform 1) (COX IV-1) (Cytochrome c oxidase polypeptide IV).
ENSRNOP00000024063	Q8CG45	Aflatoxin B1 aldehyde reductase member 2 (EC 1.-.-.-) (rAFAR2)
ENSRNOP00000024083	Q68FU3	Electron transfer flavoprotein beta-subunit (Beta-ETF).
ENSRNOP00000024106	P04764	Alpha-enolase (EC 4.2.1.11) (2-phospho-D-glycerate hydro-lyase) (Non- neural enolase) (NNE) (Enolase 1).
ENSRNOP00000024160	P38918	Aflatoxin B1 aldehyde reductase member 1 (EC 1.-.-.-) (AFB1-AR) (rAFAR1).
ENSRNOP00000024264	NP_001020806	asparaginyl-tRNA synthetase
ENSRNOP00000024281	Q9JHI3	Solute carrier organic anion transporter family member 2B1 (Solute carrier family 21 member 9) (Organic anion transporter moatp1).
ENSRNOP00000024287	P70550	Ras-related protein Rab-8B.
ENSRNOP00000024295	XM_575607	No description available. Protein Family: PROBABLE UROCANATE HYDRATASE EC_4.2.1.49 UROCANASE IMIDAZOLONEPROPIONATE HYDROLASE
ENSRNOP00000024310	P10760	Adenosylhomocysteinase (EC 3.3.1.1) (S-adenosyl-L-homocysteine hydrolase) (AdoHcyase).
ENSRNOP00000024327	P52504	NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial precursor (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase 13 kDa-A subunit) (Complex I-13kD-A) (CI-13kD-A).
ENSRNOP00000024362	P57093	Phytanoyl-CoA dioxygenase, peroxisomal precursor (EC 1.14.11.18) (Phytanoyl-CoA alpha-hydroxylase) (PhyH) (Phytanic acid oxidase).
ENSRNOP00000024374	O70531	Sulfate transporter (Diastrophic dysplasia protein homolog) (Solute carrier family 26 member 2).
ENSRNOP00000024380	NP_001029308	mitochondrial ribosomal protein L2
ENSRNOP00000024385	XP_231129	dolichyl pyrophosphate phosphatase 1 (predicted)
ENSRNOP00000024423	Q8K4C0	Dimethylaniline monooxygenase 5 (EC 1.14.13.8) (Hepatic flavin-containing monooxygenase 5) (FMO 5) (Dimethylaniline oxidase 5).
ENSRNOP00000024430	P31000	Vimentin.
ENSRNOP00000024447	XP_214276	PREDICTED: similar to signal peptidase 12kDa
ENSRNOP00000024450	XP_342960	similar to KIAA0090 protein (predicted)
ENSRNOP00000024452	XP_217181	lactamase, beta (predicted)
ENSRNOP00000024471	XP_215044	NADH dehydrogenase (ubiquinone) 1, alpha/beta subcomplex, 1 (predicted)
ENSRNOP00000024471		similar to Cytochrome P450 2C7 (CYPIIC7) (P450F) (PTF1)
ENSRNOP00000024516	XP_001060577	similar to ribosomal protein S27a
ENSRNOP00000024517	NP_001006973	NADH dehydrogenase (ubiquinone) flavoprotein 1, 51kDa
ENSRNOP00000024602		solute carrier family 25 (mitochondrial carrier, Aralar), member 12

ENSRNOP00000024609	P20788	Ubiquinol-cytochrome c reductase iron-sulfur subunit, mitochondrial precursor (EC 1.10.2.2) (Rieske iron-sulfur protein) (RISP) (Liver regeneration-related protein LRRGT00195).
ENSRNOP00000024622	P10959	Liver carboxylesterase 1 precursor (EC 3.1.1.1) (Carboxylesterase ES-1) (E1) (ES-THET) (Esterase-2) (Retinyl ester hydrolase) (REH) (Neutral retinyl ester hydrolase) (NREH) [Es2]
ENSRNOP00000024632	Q5BJM6	Afg3l2 protein.
ENSRNOP00000024691	Q6TEK3	Vitamin K epoxide reductase complex subunit 1-like protein 1 (VKORC1-like protein 1).
ENSRNOP00000024707	Q63965	Sideroflexin-1 (Tricarboxylate carrier protein) (TCC).
ENSRNOP00000024710	P20059	Hemopexin precursor.
ENSRNOP00000024711	O88767	Protein DJ-1 (Contraception-associated protein 1) (CAP1 protein) (Fertility protein SP22).
ENSRNOP00000024736	Q61830	Macrophage mannose receptor 1 precursor (MMR) (CD206 antigen) [Mrc1]
ENSRNOP00000024736	XP_225585	mannose receptor, C type 1 (predicted)
ENSRNOP00000024772	XP_214994	signal peptidase complex subunit 2_predicted
ENSRNOP00000024775	Q9WTT6	Guanine deaminase (EC 3.5.4.3) (Guanase) (Guanine aminase) (Guanine aminohydrolase) (GAH).
ENSRNOP00000024779	XP_214859	PREDICTED: similar to Clptm1 protein
ENSRNOP00000024782	Q8VID1	Dehydrogenase/reductase SDR family member 4 (EC 1.1.1.184) (NADPH-dependent carbonyl reductase/NADP-retinol dehydrogenase) (CR) (PHCR) (Peroxisomal short-chain alcohol dehydrogenase) (NADPH-dependent retinol dehydrogenase/reductase) (NDRD).
ENSRNOP00000024785	P08482	Muscarinic acetylcholine receptor M1.
ENSRNOP00000024812		phosphatidylserine decarboxylase
ENSRNOP00000024827	XP_214296	6-phosphogluconolactonase (predicted)
ENSRNOP00000024832	P55797	Apolipoprotein C-IV precursor (Apo-CIV) (ApoC-IV) (Apolipoprotein E-linked) (ECL) (Fragment).
ENSRNOP00000024947	NP_001020846	tubulin, beta 6
ENSRNOP00000024952	P50399	Rab GDP dissociation inhibitor beta (Rab GDI beta) (Guanosine diphosphate dissociation inhibitor 2) (GDI-2) (GDI-3).
ENSRNOP00000024972	XP_573551	PREDICTED: similar to ATP-binding cassette, subfamily G, member 3
ENSRNOP00000024973	P45953	Very-long-chain specific acyl-CoA dehydrogenase, mitochondrial precursor (EC 1.3.99.-) (VLCAD).
ENSRNOP00000024980	Q9ET20	Secretory carrier-associated membrane protein 4 (Secretory carrier membrane protein 4) (SCAMP-4).
ENSRNOP00000025000	Q7TP27	Ba1-651.
ENSRNOP00000025051	Q4G057	Aars protein (Fragment).
ENSRNOP00000025064	P06761	78 kDa glucose-regulated protein precursor (GRP 78) (Heat shock 70 kDa protein 5) (Immunoglobulin heavy chain-binding protein) (BiP) (Steroidogenesis-activator polypeptide).
ENSRNOP00000025070	P82808	Glucosamine--fructose-6-phosphate aminotransferase [isomerizing] 1 (EC 2.6.1.16) (Hexosephosphate aminotransferase 1) (D-fructose-6-phosphate amidotransferase 1) (GFAT 1) (GFAT1).
ENSRNOP00000025094	NP_445989	solute carrier family 22 member 7
ENSRNOP00000025133	NP_001019421	block of proliferation 1 (predicted)
ENSRNOP00000025165		RIKEN cDNA 4631427C17 gene
ENSRNOP00000025196	NP_062156	solute carrier family 3, member 2
ENSRNOP00000025203	XP_215069	Tu translation elongation factor, mitochondrial (predicted)
ENSRNOP00000025240	NP_001014049	solute carrier family 25 (mitochondrial carrier, glutamate), member 22
ENSRNOP00000025254	P02706	Asialoglycoprotein receptor 1 (ASGPR 1) (ASGP-R 1) (Hepatic lectin 1) (RHL-1).
ENSRNOP00000025260	XP_341320	phosphoenolpyruvate carboxykinase 2 (mitochondrial) (predicted)
ENSRNOP00000025281	Q75Q40	Probable mitochondrial import receptor subunit TOM40 homolog (Translocase of outer membrane 40 kDa subunit homolog) (38 kDa mitochondrial outer membrane protein) (OM38).
ENSRNOP00000025292	Q64550	UDP-glucuronosyltransferase 1-1 precursor (EC 2.4.1.17) (UDPGT) (UGT1*1) (UGT1-01) (UGT1.1) (UGT1A1) (B1).
ENSRNOP00000025327	NP_001020857	SEC22 vesicle trafficking protein-like 1
ENSRNOP00000025351	NM_017008	glyceraldehyde-3-phosphate dehydrogenase (Gapdh), mRNA
ENSRNOP00000025388	NP_001012064	poliovirus receptor-related 2 (herpesvirus entry mediator B) (predicted)
ENSRNOP00000025421	P62718	60S ribosomal protein L18a.

ENSRNOP00000025426	XP_233065	PREDICTED: similar to protein tyrosine phosphatase, receptor type, D
ENSRNOP00000025446	P14604	Enoyl-CoA hydratase, mitochondrial precursor (EC 4.2.1.17) (Short chain enoyl-CoA hydratase) (SCEH) (Enoyl-CoA hydratase 1).
ENSRNOP00000025523	XP_342298	PREDICTED: similar to CA XIV
ENSRNOP00000025525	P11240	Cytochrome c oxidase polypeptide Va, mitochondrial precursor (EC 1.9.3.1).
ENSRNOP00000025534	P08650	Complement C5 (Fragment).
ENSRNOP00000025560	XP_341105	PREDICTED: similar to Williams-Beuren syndrome critical region protein 21
ENSRNOP00000025570	Q62638	Golgi apparatus protein 1 precursor (Golgi sialoglycoprotein MG-160) (E-selectin ligand 1) (ESL-1).
ENSRNOP00000025589	NP_742035	glutathione-S-transferase, mu 5
ENSRNOP00000025627	O70595	Mitochondrial ATP-binding cassette sub-family B member 6 (Ubiquitously expressed mammalian ABC half transporter).
ENSRNOP00000025649	P61107	Ras-related protein Rab-14.
ENSRNOP00000025655	P13471	40S ribosomal protein S14.
ENSRNOP00000025657	P46413	Glutathione synthetase (EC 6.3.2.3) (Glutathione synthase) (GSH synthetase) (GSH-S).
ENSRNOP00000025689	P08009	Glutathione S-transferase Yb-3 (EC 2.5.1.18) (Chain 4) (GST Yb3) (GST class-mu 3).
ENSRNOP00000025782	Q3MIB2	Eif3s8 protein (Fragment).
ENSRNOP00000025796	P62243	40S ribosomal protein S8.
ENSRNOP00000025804	Q5XHY5	Threonyl-tRNA synthetase, cytoplasmic (EC 6.1.1.3) (Threonine--tRNA ligase) (ThrRS).
ENSRNOP00000025813	NP_001004224	B-cell receptor-associated protein 31
ENSRNOP00000025824	NP_954522	chaperonin containing TCP1, subunit 3 (gamma)
ENSRNOP00000025828	Q5EB77	Ras-related protein Rab-18.
ENSRNOP00000025842	NP_076445	secretory carrier membrane protein 2
ENSRNOP00000025844	Q63507	60S ribosomal protein L14.
ENSRNOP00000025845	Q64194	Lysosomal acid lipase/cholesteryl ester hydrolase precursor (EC 3.1.1.13) (LAL) (Acid cholesteryl ester hydrolase) (Sterol esterase) (Lipase A) (Cholesteryl esterase).
ENSRNOP00000025863	XP_343841	ATP-binding cassette, sub-family D (ALD), member 1 (predicted)
ENSRNOP00000025904	NP_001011965	stomatin
ENSRNOP00000025939	P08010	Glutathione S-transferase Mu 2 (EC 2.5.1.18) (GSTM2-2) (Glutathione S-transferase Yb-2) (GST Yb2) (GST 4-4).
ENSRNOP00000025990	XP_233431	PREDICTED: similar to RIKEN cDNA 1110038M16
ENSRNOP00000026016	Q9WU82	Beta-catenin.
ENSRNOP00000026040	NM_001033927	similar to RIKEN cDNA 2810409H07 (RGD1307982), mRNA
ENSRNOP00000026057	O35547	Long-chain-fatty-acid--CoA ligase 4 (EC 6.2.1.3) (Long-chain acyl-CoA synthetase 4) (LACS 4).
ENSRNOP00000026122	P22791	Hydroxymethylglutaryl-CoA synthase, mitochondrial precursor (EC 2.3.3.10) (HMG-CoA synthase) (3-hydroxy-3-methylglutaryl coenzyme A synthase).
ENSRNOP00000026186	P17988	Sulfotransferase 1A1 (EC 2.8.2.1) (Aryl sulfotransferase) (Phenol sulfotransferase) (PST-1) (Sulfokinase) (Aryl sulfotransferase IV) (ASTIV) (Tyrosine-ester sulfotransferase) (Minoxidil sulfotransferase).
ENSRNOP00000026197	Q9R1Z0	Voltage-dependent anion-selective channel protein 3 (VDAC-3) (rVDAC3) (Outer mitochondrial membrane protein porin 3).
ENSRNOP00000026200	O35077	Glycerol-3-phosphate dehydrogenase, cytoplasmic (EC 1.1.1.8) (GPD-C) (GPDH-C).
ENSRNOP00000026224	Q08850	Syntaxin-4.
ENSRNOP00000026259	XP_218615	PREDICTED: similar to Leucine rich repeat containing 4B
ENSRNOP00000026290	P27364	3 beta-hydroxysteroid dehydrogenase type 3 (3 beta-hydroxysteroid dehydrogenase type III) (3Beta-HSD III) (NADPH-dependent 3-beta-hydroxy-delta(5)-steroid dehydrogenase) (EC 1.1.1.-) (3-beta-hydroxy-5-ene steroid dehydrogenase) (Progesterone reductase).
ENSRNOP00000026291	Q5I0J9	Putative L-aspartate dehydrogenase (EC 1.4.1.21).
ENSRNOP00000026306	Q62878	3 beta-hydroxysteroid dehydrogenase/delta 5-->4-isomerase type IV (3Beta-HSD IV) [Includes: 3-beta-hydroxy-delta(5)-steroid dehydrogenase (EC 1.1.1.145) (3-beta-hydroxy-5-ene steroid dehydrogenase) (Progesterone reductase); Steroid delta isomerase (EC 5.3

ENSRNOP00000026316	P52873	Pyruvate carboxylase, mitochondrial precursor (EC 6.4.1.1) (Pyruvic carboxylase) (PCB).
ENSRNOP00000026326	P22071	3 beta-hydroxysteroid dehydrogenase/delta 5-->4-isomerase type I (3Beta-HSD I) [Includes: 3-beta-hydroxy-delta(5)-steroid dehydrogenase (EC 1.1.1.145) (3-beta-hydroxy-5-ene steroid dehydrogenase) (Progesterone reductase); Steroid delta-isomerase (EC 5.3.3
ENSRNOP00000026327	Q91XP6	Dystroglycan 1
ENSRNOP00000026339	Q4KM65	Cleavage and polyadenylation specificity factor 5 (Nucleoside diphosphate-linked moiety X motif 21) (Nudix motif 21).
ENSRNOP00000026347	Q6TEK4	Vitamin K epoxide reductase complex subunit 1 (EC 1.1.4.1) (Vitamin K1 2,3-epoxide reductase subunit 1).
ENSRNOP00000026351	NP_001028854	carbohydrate kinase-like
ENSRNOP00000026355	NP_112520	cytochrome P450, family 8, subfamily b, polypeptide 1
ENSRNOP00000026359	Q6AYU5	Poly(RC) binding protein 2
ENSRNOP00000026373	P59215	Guanine nucleotide-binding protein G(o), alpha subunit 1.
ENSRNOP00000026408	XP_231089	PREDICTED: similar to 1-acylglycerol-3-phosphate O-acyltransferase 2
ENSRNOP00000026445	NM_001004221	similar to 2310044H10Rik protein (MGC93975), mRNA
ENSRNOP00000026462	NP_001020808	proteasome (prosome, macropain) subunit, beta type 10
ENSRNOP00000026473	P00185	Cytochrome P450 1A1 (EC 1.14.14.1) (CYP1A1) (CYPIA1) (P450-C) (P450MT2) .
ENSRNOP00000026528	P24050	40S ribosomal protein S5.
ENSRNOP00000026560	NP_445945	2-hydroxyphytanoyl-Coenzyme A lyase
ENSRNOP00000026574	Q9ES38	Bile acyl-CoA synthetase (EC 6.2.1.7) (BACS) (Bile acid CoA ligase) (BA-CoA ligase) (BAL) (Cholate--CoA ligase) (Very long chain acyl-CoA synthetase-related protein) (VLACS-related) (VLCSR) (Fatty acid transport protein 5) (FATP-5) (Solute carrier family
ENSRNOP00000026576	P62250	40S ribosomal protein S16.
ENSRNOP00000026580		lysosomal-associated membrane protein 1
ENSRNOP00000026583	P18424	Phosphatidylcholine-sterol acyltransferase precursor (EC 2.3.1.43) (Lecithin-cholesterol acyltransferase) (Phospholipid-cholesterol acyltransferase)
ENSRNOP00000026641	Q3SWT8	RGD1306126 protein.
ENSRNOP00000026648	P62076	Mitochondrial import inner membrane translocase subunit Tim13.
ENSRNOP00000026653	XP_341465	similar to cullin 4A (predicted)
ENSRNOP00000026696	P48721	Stress-70 protein, mitochondrial precursor (75 kDa glucose-regulated protein) (GRP 75) (Heat shock 70 kDa protein 9) (Peptide-binding protein 74) (PBP74) (MTHSP70) (Mortalin).
ENSRNOP00000026706	Q6I7R3	Isochorismatase domain-containing protein 1 (Down-regulated in nephrectomized rat kidney protein 1) (DR-NR1).
ENSRNOP00000026707		procollagen, type VI, alpha 3
ENSRNOP00000026710	P08753	Guanine nucleotide-binding protein G(k), alpha subunit (G(i) alpha-3).
ENSRNOP00000026734	Q66HF2	Transmembrane 9 superfamily protein member 1 precursor.
ENSRNOP00000026738	P18484	AP-2 complex subunit alpha-2 (Adapter-related protein complex 2 alpha-2 subunit) (Alpha-adaptin C) (Adaptor protein complex AP-2 alpha-2 subunit) (Clathrin assembly protein complex 2 alpha-C large chain) (100 kDa coated vesicle protein C) (Plasma membran
ENSRNOP00000026760	P52631	Signal transducer and activator of transcription 3.
ENSRNOP00000026794	XP_215144	PREDICTED: similar to alpha glucosidase II, alpha subunit
ENSRNOP00000026799	NP_001020050	aspartyl aminopeptidase
ENSRNOP00000026918	XP_578804	PREDICTED: similar to RAB17, member RAS oncogene family
ENSRNOP00000026928	P34064	Proteasome subunit alpha type 5 (EC 3.4.25.1) (Proteasome zeta chain) (Macropain zeta chain) (Multicatalytic endopeptidase complex zeta chain).
ENSRNOP00000027040	NP_001032257	FK506 binding protein 8
ENSRNOP00000027061	NP_001006955	Coenzyme A synthase
ENSRNOP00000027064	NP_001020227	GDP-mannose pyrophosphorylase A
ENSRNOP00000027083	NP_861544	MIRO2 protein
ENSRNOP00000027112	NP_001013090	sideroflexin 2 (predicted)
ENSRNOP00000027160	P11715	Cytochrome P450 17A1 (EC 1.14.99.9) (CYPXVII) (P450-C17) (P450c17) (Steroid 17-alpha-hydroxylase/17,20 lyase).
ENSRNOP00000027217	XP_340908	PREDICTED: similar to RIKEN cDNA 1300010M03
ENSRNOP00000027234	P53987	Monocarboxylate transporter 1 (MCT 1).
ENSRNOP00000027256		serine/threonine kinase 11 interacting protein

ENSRNOP00000027290	Q499P8	UPF0420 protein C16orf58 homolog.
ENSRNOP00000027345	XP_344662	PREDICTED: similar to receptor expression enhancing protein 5
ENSRNOP00000027360	Q62667	Major vault protein (MVP).
ENSRNOP00000027391	Q9R283	Short transient receptor potential channel 2 (TrpC2) (rTRP2).
ENSRNOP00000027406	NP_742014	Yip1p-interacting factor
ENSRNOP00000027501	Q9Z2M4	Peroxisomal 2,4-dienoyl-CoA reductase (EC 1.3.1.34) (2,4-dienoyl-CoA reductase 2) (DCR-AKL) (pVI-AKL).
ENSRNOP00000027511	NP_001007622	dehydrogenase/reductase (SDR family) member 1
ENSRNOP00000027520	P97521	Mitochondrial carnitine/acylcarnitine carrier protein (Carnitine/acylcarnitine translocase) (CAC) (Solute carrier family 25 member 20).
ENSRNOP00000027552	P12368	cAMP-dependent protein kinase type II-alpha regulatory subunit.
ENSRNOP00000027615	P0C546	Solute carrier family 25 member 42.
ENSRNOP00000027617	NP_596905	chloride channel CLIC-like 1
ENSRNOP00000027700	P12928	Pyruvate kinase isozymes R/L (EC 2.7.1.40) (L-PK).
ENSRNOP00000027753	Q9JI85	Nucleobindin-2 precursor (DNA-binding protein NEFA).
ENSRNOP00000027754	Q9JJW3	Up-regulated during skeletal muscle growth protein 5 (Diabetes- associated protein in insulin-sensitive tissues).
ENSRNOP00000027756	NP_112634	fatty acid desaturase 2
ENSRNOP00000027760	Q62745	CD81 antigen (26 kDa cell surface protein TAPA-1) (Target of the antiproliferative antibody 1).
ENSRNOP00000027773	Q9QXQ0	Alpha-actinin-4 (Non-muscle alpha-actinin 4) (F-actin cross-linking protein).
ENSRNOP00000027782	XP_573196	similar to hypothetical protein D11Ert99e (predicted)
ENSRNOP00000027800	Q68FU8	Splicing factor 4.
ENSRNOP00000027809	XP_341852	Harvey rat sarcoma oncogene, subgroup R (predicted)
ENSRNOP00000027815	Q9ERM8	Secretory carrier membrane protein 3 (Fragment).
ENSRNOP00000027867	XP_215616	keratinocyte associated protein 2 (predicted)
ENSRNOP00000027925	Q6AY78	Organic cation transporter-like protein 2 (Solute carrier family 22 member 18).
ENSRNOP00000027980	XP_214305	PREDICTED: similar to novel cell death-regulatory protein GRIM19
ENSRNOP00000027987	NP_001014810	Yip1 interacting factor homolog B isoform b
ENSRNOP00000027992	NP_001008694	reticulocalbin 3, EF-hand calcium binding domain
ENSRNOP00000027992	Q3T1L0	Similar to RIKEN cDNA 2410004H02 [LOC361571]
ENSRNOP00000027995	P11960	2-oxoisovalerate dehydrogenase subunit alpha, mitochondrial precursor (EC 1.2.4.4) (Branched-chain alpha-keto acid dehydrogenase E1 component alpha chain) (BCKDH E1-alpha) (Fragment).
ENSRNOP00000027999	P70584	Short/branched chain specific acyl-CoA dehydrogenase, mitochondrial precursor (EC 1.3.99.-) (SBCAD) (2-methyl branched chain acyl-CoA dehydrogenase) (2-MEBCAD) (2-methylbutyryl-coenzyme A dehydrogenase) (2-methylbutyryl-CoA dehydrogenase).
ENSRNOP00000028009	O08590	Membrane copper amine oxidase (EC 1.4.3.6) (Semicarbazide-sensitive amine oxidase) (SSAO) (Vascular adhesion protein 1) (VAP-1) (VP97).
ENSRNOP00000028033	P43428	Glucose-6-phosphatase (EC 3.1.3.9) (G6Pase) (G-6-Pase).
ENSRNOP00000028058	XP_227420	pre-B-cell leukemia transcription factor interacting protein 1
ENSRNOP00000028066	Q00238	Intercellular adhesion molecule 1 precursor (ICAM-1).
ENSRNOP00000028075	NP_001014120	coiled-coil domain containing 51
ENSRNOP00000028084	NP_001028855	vesicle amine transport protein 1 homolog (T californica)
ENSRNOP00000028093	P54708	Potassium-transporting ATPase alpha chain 2 (EC 3.6.3.10) (Proton pump) (Non-gastric H(+)/K(+) ATPase subunit alpha).
ENSRNOP00000028102	Q4KLZ6	Dihydroxyacetone kinase (EC 2.7.1.29) (Glycerone kinase) (DHA kinase).
ENSRNOP00000028177	XP_001070735	similar to cytochrome P450, family 2, subfamily s, polypeptide 1
ENSRNOP00000028194	Q9Z2Z8	7-dehydrocholesterol reductase (EC 1.3.1.21) (7-DHC reductase) (Sterol delta-7-reductase).
ENSRNOP00000028196	P04167	Cytochrome P450 2B2 (EC 1.14.14.1) (CYP1B2) (P450E) (P450 PB4).
ENSRNOP00000028237	P11711	Cytochrome P450 2A1 (EC 1.14.14.1) (CYP1A1) (Steroid hormones 7- alpha-hydroxylase) (Testosterone 7-alpha-hydroxylase) (P450-UT-F).
ENSRNOP00000028249	P15149	Cytochrome P450 2A2 (EC 1.14.14.1) (CYP1A2) (Testosterone 15-alpha-hydroxylase) (P450-UT-4).
ENSRNOP00000028298	Q6PCT7	RGD1311196 protein.
ENSRNOP00000028390	Q63083	Nucleobindin-1 precursor (CALNUC) (Bone 63 kDa calcium-binding protein).
ENSRNOP00000028392	Q2V057	Proline oxidase-like protein (Fragment).

ENSRNOP00000028404	NP_599196	cytochrome P450 monooxygenase CYP2T1
ENSRNOP00000028445	P23562	Band 3 anion transport protein (Anion exchange protein 1) (AE 1) (Solute carrier family 4 member 1) (CD233 antigen).
ENSRNOP00000028462	Q4FZS8	Syvn1 protein (Fragment).
ENSRNOP00000028484	P34067	Proteasome subunit beta type 4 precursor (EC 3.4.25.1) (Proteasome beta chain) (Macropain beta chain) (Multicatalytic endopeptidase complex beta chain) (Proteasome chain 3) (RN3).
ENSRNOP00000028485	NP_001013089	transmembrane 7 superfamily member 2 (predicted)
ENSRNOP00000028510	NP_543168	selenium binding protein 2
ENSRNOP00000028514	NP_001033583	hypothetical protein LOC292792
ENSRNOP00000028589	NP_112621	proteasome (prosome, macropain) 26S subunit, non-ATPase, 4
ENSRNOP00000028624	O08589	Phospholemman precursor (FXVD domain-containing ion transport regulator 1).
ENSRNOP00000028627	NP_001017385	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 1 (predicted)
ENSRNOP00000028627		Source: RefSeq_peptide NP_001017385
ENSRNOP00000028680	XP_341862	PREDICTED: similar to Nodal modulator 1
ENSRNOP00000028687	Q9R063	Peroxisomal antioxidant enzyme (PLP) (Thioredoxin reductase) (Thioredoxin peroxidase PMP20) (Antioxidant enzyme B166) (AOEB166).
ENSRNOP00000028699	NP_001028872	longevity assurance homolog 2
ENSRNOP00000028725	XP_215196	PREDICTED: similar to binding protein
ENSRNOP00000028770	XP_227459	PREDICTED: similar to histone H2b-613
ENSRNOP00000028784	NP_543185	reticulon 3 isoform A
ENSRNOP00000028787	Q0ZHH6	Atlastin-3.
ENSRNOP00000028888	Q91XU8	Phosphatidate cytidyltransferase 2 (EC 2.7.7.41) (CDP-diglyceride synthetase 2) (CDP-diglyceride pyrophosphorylase 2) (CDP- diacylglycerol synthase 2) (CDS 2) (CTP:phosphatidate cytidyltransferase 2) (CDP-DAG synthase 2) (CDP-DG synthetase 2). Source:
ENSRNOP00000028929	NP_075580	unconventional myosin Myr2 I heavy chain
ENSRNOP00000028934	P20817	Cytochrome P450 4A14 precursor (EC 1.14.15.3) (CYPIVA14) (Lauric acid omega-hydroxylase) (P450-LA-omega 3).
ENSRNOP00000028995	Q562A0	Arl6p2 protein (Fragment).
ENSRNOP00000029124	Q3B8P0	Presenilins-associated rhomboid-like protein, mitochondrial precursor (EC 3.4.21.105) (Mitochondrial intramembrane-cleaving protease PARL) [Contains: P-beta (Pbeta)].
ENSRNOP00000029144	Q9ER34	Aconitate hydratase, mitochondrial precursor (EC 4.2.1.3) (Citrate hydro-lyase) (Aconitase).
ENSRNOP00000029234	Q5XIM9	T-complex protein 1 subunit beta (TCP-1-beta) (CCT-beta)
ENSRNOP00000029333	Q5M875	17-beta hydroxysteroid dehydrogenase 13 precursor (EC 1.1.-.-) (Short- chain dehydrogenase/reductase 9).
ENSRNOP00000029426	P56135	ATP synthase f chain, mitochondrial (EC 3.6.3.14)
ENSRNOP00000029426	XP_001074466	similar to ATP synthase, H+ transporting, mitochondrial F0 complex, subunit f, isoform 2
ENSRNOP00000029515	NP_997475	glucose phosphate isomerase
ENSRNOP00000029578	NP_001013175	nicotinamide nucleotide transhydrogenase
ENSRNOP00000029702	XP_228701	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 3, X-linker
ENSRNOP00000029808	Q02769	Squalene synthetase (EC 2.5.1.21) (SQS) (SS) (Farnesyl-diphosphate farnesyltransferase) (FPP:FPP farnesyltransferase).
ENSRNOP00000029816	XP_343055	PREDICTED: similar to FLJ16237 protein
ENSRNOP00000030030	XP_343028	carbamyl phosphatase synthetase 2
ENSRNOP00000030069	P00176	Cytochrome P450 2B1 (EC 1.14.14.1) (CYP1B1) (P450-B) (P450b) (P450- PB1 and P450-PB2) (P450-LM2).
ENSRNOP00000030076	XP_001054494	protease, serine, 25
ENSRNOP00000030204	XR_006230	similar to 60S ribosomal protein L7a (LOC364041), mRNA
ENSRNOP00000030229	NM_001031663	similar to RIKEN cDNA 2410005O16 (LOC500419), mRNA
ENSRNOP00000030271	Q8R431	Monoglyceride lipase (EC 3.1.1.23) (MGL).
ENSRNOP00000030279	P26284	Pyruvate dehydrogenase E1 component alpha subunit, somatic form, mitochondrial precursor (EC 1.2.4.1) (PDHE1-A type I).

ENSRNOP00000030323	O35244	Peroxisomal protein 2 (EC 1.11.1.15) (Antioxidant protein 2) (1-Cys peroxiredoxin) (1-Cys PRX) (Acidic calcium-independent phospholipase A2) (EC 3.1.1.-) (aiPLA2) (Non-selenium glutathione peroxidase) (EC 1.11.1.7) (NSGPx) (Thiol-specific antioxidant protein).
ENSRNOP00000030360	XP_218416	PREDICTED: similar to OPA3 protein
ENSRNOP00000030481	Q63342	Dimethylglycine dehydrogenase, mitochondrial precursor (EC 1.5.99.2) (ME2GLYDH).
ENSRNOP00000030517	XR_008037	similar to Ras GTPase-activating-like protein IQGAP2 (predicted) (RGD1561455_predicted), mRNA
ENSRNOP00000030640	XP_573131	PREDICTED: similar to RIKEN cDNA C730027E14
ENSRNOP00000030668	NP_001009703	transmembrane emp24 protein transport domain containing 9
ENSRNOP00000030736	P16261	Grave disease carrier protein (GDC) (Mitochondrial solute carrier protein homolog) (Solute carrier family 25 member 16) (Fragment).
ENSRNOP00000030807	Q5M7W6	Protein ITFG3.
ENSRNOP00000030866		talin 2
ENSRNOP00000030913	P07379	Phosphoenolpyruvate carboxykinase, cytosolic (EC 4.1.1.32) (Phosphoenolpyruvate carboxylase) (PEPCK-C).
ENSRNOP00000030928	NP_741991	cell division cycle 42
ENSRNOP00000031061	O08629	Transcription intermediary factor 1-beta (TIF1-beta) (Tripartite motif-containing protein 28) (Nuclear corepressor KAP-1) (KRAB-associated protein 1) (Fragment).
ENSRNOP00000031078	P62902	60S ribosomal protein L31.
ENSRNOP00000031081	XP_573117	PREDICTED: similar to SCO cytochrome oxidase deficient homolog 1 (yeast)
ENSRNOP00000031191	XM_574978	similar to Ac2-125 (LOC499654), mRNA
ENSRNOP00000031331	XP_341784	PREDICTED: similar to retinol dehydrogenase 13 (all-trans and 9-cis)
ENSRNOP00000031592	XP_227142	Fras1 related extracellular matrix protein 2
ENSRNOP00000031599	NP_775427	hydroxysteroid (17-beta) dehydrogenase 6
ENSRNOP00000032048	XP_230827	PREDICTED: similar to RIKEN cDNA D930001I22
ENSRNOP00000032361	NP_001004283	eukaryotic translation initiation factor 3 subunit 7
ENSRNOP00000032417	Q8CF78	Enolase (EC 4.2.1.11) [Eno1]
ENSRNOP00000032681	NP_001011557	hypothetical protein LOC293113
ENSRNOP00000032681	Q5HZA9	Transmembrane protein 126A
ENSRNOP00000032687	Q498M9	Similar to glyceraldehyde-3-phosphate dehydrogenase [LOC303448]
ENSRNOP00000032687		Unknown
ENSRNOP00000032735	P02680	Fibrinogen gamma chain precursor.
ENSRNOP00000032890	P08461	Dihydrolipoyllysine-residue acetyltransferase component of pyruvate dehydrogenase complex (EC 2.3.1.12) (E2) (Dihydrolipoamide acetyltransferase component of pyruvate dehydrogenase complex) (PDC-E2) (70 kDa mitochondrial autoantigen of primary biliary ci
ENSRNOP00000032893	XP_230497	similar to hypothetical protein FLJ23375 (predicted)
ENSRNOP00000032903	P62914	60S ribosomal protein L11.
ENSRNOP00000032909	XP_230015	PREDICTED: similar to solute carrier family 25 (mitochondrial carrier, Aralar), member 12
ENSRNOP00000032909	XP_23001	PREDICTED: similar to solute carrier family 25 (mitochondrial carrier, Aralar), member 12 5
ENSRNOP00000033023	XP_346320	PREDICTED: similar to 60S ribosomal protein L7a
ENSRNOP00000033050	Q68FV1	Transmembrane protein 38B.
ENSRNOP00000033144	P62853	40S ribosomal protein S25.
ENSRNOP00000033158	P30713	Glutathione S-transferase theta-2 (EC 2.5.1.18) (GST class-theta-2) (Glutathione S-transferase 12) (GST 12-12) (Glutathione S-transferase Yrs-Yrs).
ENSRNOP00000033323	NP_001019409	glutamyl-prolyl-tRNA synthetase
ENSRNOP00000033346		Unknown
ENSRNOP00000033706	XP_343226	PREDICTED: similar to ubiquinol-cytochrome c reductase binding protein
ENSRNOP00000033706		Source: RefSeq_peptide_predicted XP_343226
ENSRNOP00000033769		Unknown
ENSRNOP00000033943	Q6AXM8	Serum paraoxonase/arylesterase 2 (EC 3.1.1.2) (EC 3.1.8.1) (PON 2) (Serum arylalkylphosphatase 2) (A-esterase 2) (Aromatic esterase 2).
ENSRNOP00000034117	NP_001008845	RT1 class I, CE7
ENSRNOP00000034135	Q5BK63	Ndufa9 protein (Fragment).
ENSRNOP00000034144	NP_001029298	nitrilase family, member 2
ENSRNOP00000034210	Q5IOH1	Lrp1 protein (Fragment).

ENSRNOP00000034264	NM_001014080	similar to ubiquitin-protein ligase (EC 6.3.2.19) E1 - mouse (LOC314432)
ENSRNOP00000034293	P07687	Epoxide hydrolase 1 (EC 3.3.2.3) (Microsomal epoxide hydrolase) (Epoxide hydratase).
ENSRNOP00000034299	Q5BJY9	Keratin, type I cytoskeletal 18 (Cytokeratin-18) (CK-18) (Keratin-18) (K18).
ENSRNOP00000034321	Q63203	Low affinity immunoglobulin gamma Fc region receptor II precursor (Fc-gamma RII) (FcRII) (IgG Fc receptor II beta) (CD32 antigen).
ENSRNOP00000034336	XP_214916	PREDICTED: similar to Ras-interacting protein 1
ENSRNOP00000034407	Q6PCT8	Succinate dehydrogenase cytochrome b small subunit, mitochondrial precursor (CybS) (Succinate-ubiquinone reductase membrane anchor subunit) (QPs3) (CII-4) (Succinate dehydrogenase complex subunit D) (Succinate-ubiquinone oxidoreductase cytoch
ENSRNOP00000034511	XP_341665	PREDICTED: similar to NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 7
ENSRNOP00000034525	Q7TPJ1	Ac2-233.
ENSRNOP00000034694	XP_235062	PREDICTED: similar to genes associated with retinoid-IFN-induced mortality 19
ENSRNOP00000034723	P08541	UDP-glucuronosyltransferase 2B2 precursor (EC 2.4.1.17) (UDPGT) (3-hydroxyandrogen specific) (UDPGTr-4) (RLUG23)
ENSRNOP00000034767	NP_001041363	Ribosomal_L22 domain containing protein RGD1359290
ENSRNOP00000034770	XP_342665	PREDICTED: similar to NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 2
ENSRNOP00000034828	NP_001013122	eukaryotic translation elongation factor 1 delta
ENSRNOP00000034846	NP_001012197	tumor rejection antigen gp96 (predicted)
ENSRNOP00000034921	Q8VHF5	Citrate synthase, mitochondrial precursor (EC 2.3.3.1).
ENSRNOP00000034945	XP_216910	PREDICTED: similar to Methionine-tRNA synthetase
ENSRNOP00000034963		MOCO sulphurase C-terminal domain containing 2
ENSRNOP00000035020	O89046	Coronin-1B (Coronin-2).
ENSRNOP00000035110	Q9ERM3	Diacylglycerol O-acyltransferase 1 (EC 2.3.1.20) (Diglyceride acyltransferase).
ENSRNOP00000035191	P60901	Proteasome subunit alpha type 6 (EC 3.4.25.1) (Proteasome iota chain) (Macropair iota chain) (Multicatalytic endopeptidase complex iota chain) [Psm6]
ENSRNOP00000035203	Q6AXS6	LOC362683 protein (Fragment).
ENSRNOP00000035308		Unknown
ENSRNOP00000035401	XP_243652	plexin B2
ENSRNOP00000035413	XR_006310	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) (LOC498461), mRNA
ENSRNOP00000035416	Q64232	Synaptic glycoprotein SC2 [Gpsn2]
ENSRNOP00000035423	P50170	Retinol dehydrogenase 2 (EC 1.1.1.105) (Retinol dehydrogenase type II) (RODH II) (29 k-protein).
ENSRNOP00000035430	XP_230892	PREDICTED: similar to Aminopeptidase-like 1
ENSRNOP00000035493	XR_007144	similar to 40S ribosomal protein S2 (LOC367712), mRNA
ENSRNOP00000035497	Q5FVQ4	Protein KIAA0152 precursor.
ENSRNOP00000035601	P51650	Succinate semialdehyde dehydrogenase (EC 1.2.1.24) (NAD(+)-dependent succinic semialdehyde dehydrogenase).
ENSRNOP00000035966	Q62902	ERGIC-53 protein precursor (ER-Golgi intermediate compartment 53 kDa protein) (Lectin, mannose-binding 1) (p58).
ENSRNOP00000035996	XP_216388	similar to chromosome 9 open reading frame 5 (predicted)
ENSRNOP00000036146	NP_001041328	mitochondrial ribosomal protein S33
ENSRNOP00000036236	Q6LCX1	Cytochrome P450 2B3 (Fragment).
ENSRNOP00000036343	O55213	Ribosomal protein S2.
ENSRNOP00000036381	Q04970	GTPase NRas precursor (Transforming protein N-Ras).
ENSRNOP00000036480	XP_221105	PREDICTED: similar to hypothetical protein
ENSRNOP00000036486	P62282	40S ribosomal protein S11 [Rps11]
ENSRNOP00000036514	P09895	60S ribosomal protein L5.
ENSRNOP00000036519	NP_001013116	dehydrogenase/reductase (SDR family) member 7 (predicted)
ENSRNOP00000036541	NP_001032740	protogenin
ENSRNOP00000036550	P41123	60S ribosomal protein L13 [Rpl13]
ENSRNOP00000036690	P62278	40S ribosomal protein S13.
ENSRNOP00000036726	Q923V8	15 kDa selenoprotein precursor.
ENSRNOP00000036810	XP_215848	PREDICTED: similar to Protein C20orf116 homolog precursor

ENSRNOP00000036896	P05179	Cytochrome P450 2C7 (EC 1.14.14.1) (CYP11C7) (P450F) (PTF1) [Cyp2c7]
ENSRNOP00000036948	O88777	Presenilin-2 (EC 3.4.23.-) (PS-2) .
ENSRNOP00000036958	XP_343175	PREDICTED: similar to ilvB (bacterial acetolactate synthase)-like
ENSRNOP00000037032	NP_001020891	dehydrogenase E1 and transketolase domain containing 1
ENSRNOP00000037256	NP_001008525	NADH dehydrogenase (ubiquinone) Fe-S protein 7 (predicted)
ENSRNOP00000037521	XP_342342	similar to RIKEN cDNA 2310008M10 (predicted)
ENSRNOP00000037587	Q3T1J1	Eukaryotic translation initiation factor 5A-1 (eIF-5A-1) (eIF-5A1) (Eukaryotic initiation factor 5A isoform 1) (eIF-5A) (eIF-4D) [Eif5a]
ENSRNOP00000037617	XP_235093	transmembrane and tetratricopeptide repeat containing 3 (predicted)
ENSRNOP00000037647	Q5BK62	Protein Mpv17.
ENSRNOP00000037699	NP_001025223	NADH dehydrogenase (ubiquinone) Fe-S protein 5b
ENSRNOP00000037786	P04903	Glutathione S-transferase alpha-2 (EC 2.5.1.18) (Glutathione S- transferase Ya-2) (GST Ya2) (GST 1b-1b) (GST A2-2).
ENSRNOP00000037891	NP_001007725	dephospho-CoA kinase domain containing
ENSRNOP00000037928	NP_001008282	proteasome (prosome, macropain) 26S subunit, non-ATPase, 3 (predicted)
ENSRNOP00000037996	XR_006088	similar to hypothetical protein MGC10084 (predicted) (RGD1307344_predicted), mRNA
ENSRNOP00000038003	P34058	Heat shock protein HSP 90-beta (HSP 84)
ENSRNOP00000038037	XP_219953	similar to golgi-specific brefeldin A-resistance guanine nucleotide exchange factor 1 (predicted)
ENSRNOP00000038073	Q64428	Trifunctional enzyme subunit alpha, mitochondrial precursor (TP-alpha) .
ENSRNOP00000038092	XP_222117	PREDICTED: similar to radical S-adenosyl methionine and flavodoxin domains 1
ENSRNOP00000038100	XP_228758	PREDICTED: similar to mitochondrial inner membrane translocase component Tim17b
ENSRNOP00000038110	Q62949	Cortistatin precursor .
ENSRNOP00000038378	XP_230476	PREDICTED: similar to hypothetical protein 4932702D22
ENSRNOP00000038428	Q07936	Annexin A2 (Annexin-2) (Annexin II) (Lipocortin II) (Calpactin I heavy chain) (Chromobindin-8) (p36) (Protein I) (Placental anticoagulant protein IV) (PAP-IV).
ENSRNOP00000038471	XR_006243	similar to SEC24 related gene family, member C (LOC313182), mRNA
ENSRNOP00000038527	P17475	Alpha-1-antitrypsin precursor (Alpha-1-antitrypsin) (Alpha-1- proteinase inhibitor).
ENSRNOP00000038874	XP_232355	PREDICTED: similar to TAP binding protein-like
ENSRNOP00000038987		Unknown
ENSRNOP00000039003	O55212	Ribosomal protein S2.
ENSRNOP00000039048	P05503	Cytochrome c oxidase subunit 1 (EC 1.9.3.1) (Cytochrome c oxidase polypeptide I).
ENSRNOP00000039050	P04905	Glutathione S-transferase Mu 1 (EC 2.5.1.18) (GSTM1-1) (Glutathione S-transferase Yb-1) (GST Yb1) (GST 3-3).
ENSRNOP00000039132	Q62991	Sec1 family domain-containing protein 1 (Syntaxin-binding protein 1- like 2) (Vesicle transport-related protein Ra410) (Sly1p).
ENSRNOP00000039176	Q6P752	Torsin-1A-interacting protein 2.
ENSRNOP00000039276	P62859	40S ribosomal protein S28
ENSRNOP00000039303	XR_007764	similar to prohibitin (LOC682062), mRNA
ENSRNOP00000039338	P24329	Thiosulfate sulfurtransferase (EC 2.8.1.1) (Rhodanese).
ENSRNOP00000039357	Q02357	ankyrin 1, erythroid
ENSRNOP00000039404		Unknown
ENSRNOP00000039412	P20767	Ig lambda-2 chain C region.
ENSRNOP00000039430	NP_599207	integral membrane transport protein UST5r
ENSRNOP00000039448	Q9D6Y9	glucan (1,4-alpha-), branching enzyme 1
ENSRNOP00000039493	Q5XI60	Receptor expression-enhancing protein 6 (Polyposis locus protein 1- like 1).
ENSRNOP00000039545	P51869	Cytochrome P450 4F4 (EC 1.14.14.1) (CYP11V4).
ENSRNOP00000039702	NP_001028244	triosephosphate isomerase
ENSRNOP00000039714	Q6AY86	Vacuolar protein sorting-associated protein 26A (Vesicle protein sorting 26A).
ENSRNOP00000039718	XP_229173	PREDICTED: similar to ATPase, Class VI, type 11C isoform a
ENSRNOP00000039725	P05506	NADH-ubiquinone oxidoreductase chain 3 (EC 1.6.5.3) (NADH dehydrogenase subunit 3).

ENSRNOP00000039774	P24049	60S ribosomal protein L17 (L23) (Amino acid starvation-induced protein) (ASI) [Rpl17]
ENSRNOP00000039779	NP_062160	apolipoprotein B
ENSRNOP00000039792	Q9QYE2	Solute carrier organic anion transporter family member 1A6 (Solute carrier family 21 member 13) (Kidney-specific organic anion- transporting polypeptide 5) (OATP-5).
ENSRNOP00000039848	XM_343333	similar to cervical cancer receptor (predicted) (LOC363003), mRNA
ENSRNOP00000039968	P32232	Cystathionine beta-synthase (EC 4.2.1.22) (Serine sulfhydryase) (Beta- thionase) (Hemoprotein H-450).
ENSRNOP00000039971	Q5PQK9	Igha_mapped protein.
ENSRNOP00000040018	P30427	Plectin-1 (PLTN) (PCN).
ENSRNOP00000040087	XP_576382	PREDICTED: similar to integral membrane protein 1
ENSRNOP00000040100	P70473	Alpha-methylacyl-CoA racemase (EC 5.1.99.4) (2-methylacyl-CoA racemase) (2- arylpropionyl-CoA epimerase).
ENSRNOP00000040121	P46462	Transitional endoplasmic reticulum ATPase (TER ATPase) (15S Mg(2+)- ATPase p97 subunit) (Valosin-containing protein) (VCP).
ENSRNOP00000040136	Q08851	Syntaxin-5.
ENSRNOP00000040139	Q4V8K1	LOC499991 protein.
ENSRNOP00000040177	XP_574997	PREDICTED: similar to histone H2a(A)-613
ENSRNOP00000040223	Q07523	Hydroxyacid oxidase 2 (EC 1.1.3.15) (HAOX2) ((S)-2-hydroxy-acid oxidase, peroxisomal) (Long chain alpha-hydroxy acid oxidase) (Long- chain L-2-hydroxy acid oxidase).
ENSRNOP00000040234	Q63262	POU domain, class 3, transcription factor 3 (Brain-specific homeobox/POU domain protein 1) (Brain-1) (Brn-1 protein).
ENSRNOP00000040237	P70502	Solute carrier organic anion transporter family member 1A3 (Solute carrier family 21 member 4) (Sodium-independent organic anion transporter K1) (OAT-K1) (OAT-K2) (rOAT-K).
ENSRNOP00000040310	Q4QQV3	E2-induced gene 5 protein homolog [E2ig5]
ENSRNOP00000040310	XP_001056805	similar to growth and transformation-dependent proteir
ENSRNOP00000040338	Q3KRE2	Methyltransferase like 7A [Mettl7a]
ENSRNOP00000040401	O35093	Mitochondrial import inner membrane translocase subunit Tim23
ENSRNOP00000040401	XP_576028	similar to Translocase of inner mitochondrial membrane 23 homolog (predicted)
ENSRNOP00000040478	XP_213463	PREDICTED: similar to Rab5c protein
ENSRNOP00000040585	P19939	Apolipoprotein C-I precursor (Apo-CI) (ApoC-I) (Liver regeneration- related protein LRRG04).
ENSRNOP00000040598	Q5BJK9	Dock9 protein (Fragment).
ENSRNOP00000040662	XR_008791	similar to ribosomal protein L27 (predicted) (RGD1565365_predicted), mRNA
ENSRNOP00000040703	P62275	40S ribosomal protein S29.
ENSRNOP00000040740	P17077	60S ribosomal protein L9
ENSRNOP00000040740	XP_234521	similar to 60S ribosomal protein L9 (predicted)
ENSRNOP00000040752	O88397	Solute carrier organic anion transporter family member 1A5 (Solute carrier family 21 member 7) (Sodium-independent organic anion transporter 3) (Organic anion- transporting polypeptide 3) (OATP3).
ENSRNOP00000040759	Q64119	Myosin light polypeptide 6 (Smooth muscle and nonmuscle myosin light chain alkali 6) (Myosin light chain alkali 3) (Myosin light chain 3) (MLC-3) (LC17).
ENSRNOP00000040848	NP_001025074	growth and transformation-dependent protein
ENSRNOP00000040859	P35565	Calnexin precursor.
ENSRNOP00000040878	XP_001064738	similar to CG7582-PA
ENSRNOP00000040879	Q497J1	Transmembrane protein 86B
ENSRNOP00000040955		Unknown
ENSRNOP00000040969	NP_997681	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit G
ENSRNOP00000041138	P04800	Cytochrome P450 3A1 (EC 1.14.14.1) (CYP11A1) (P450-PCN1).
ENSRNOP00000041174	P10633	Cytochrome P450 2D1 (EC 1.14.14.1) (CYP11D1) (P450-DB1) (P450-CMF1A) (P450-UT-7) (Debrisoquine 4-hydroxylase).
ENSRNOP00000041281	XP_001070960	similar to mitochondrial hepatocellular carcinoma-downregulated carrier protein
ENSRNOP00000041287	XP_232123	dysferlin (predicted)
ENSRNOP00000041336	NP_058909	sperm outer dense fiber major protein 2
ENSRNOP00000041462	P23358	60S ribosomal protein L12
ENSRNOP00000041533		Unknown

ENSRNOP00000041638	P62912	60S ribosomal protein L32.
ENSRNOP00000041707		Unknown
ENSRNOP00000041821	P05197	Elongation factor 2 (EF-2).
ENSRNOP00000041865	Q06646	ATP synthase lipid-binding protein, mitochondrial precursor (EC 3.6.3.14) (ATP synthase proteolipid P2) (ATPase protein 9) (ATPase subunit C).
ENSRNOP00000041873	Q9R066	Coxsackievirus and adenovirus receptor homolog precursor (rCAR).
ENSRNOP00000041889	NP_001011979	TAR DNA binding protein
ENSRNOP00000041899	XR_007404	similar to 60S ribosomal protein L9 (predicted) (RGD1566198_predicted), mRNA
ENSRNOP00000041984		Unknown
ENSRNOP00000041995	P46953	3-hydroxyanthranilate 3,4-dioxygenase (EC 1.13.11.6) (3-HAO) (3-hydroxyanthranilic acid dioxygenase) (3-hydroxyanthranilate
ENSRNOP00000042002	Q63448	Acyl-coenzyme A oxidase 3, peroxisomal (EC 1.3.3.6) (Pristanoyl-CoA oxidase) (Branched-chain acyl-CoA oxidase) (BRCACoX).
ENSRNOP00000042029	P15146	Microtubule-associated protein 2 (MAP 2) (MAP-2).
ENSRNOP00000042040	NP_671749	solute carrier family 16, member 2
ENSRNOP00000042132	P07872	Acyl-coenzyme A oxidase 1, peroxisomal (EC 1.3.3.6) (Palmitoyl-CoA oxidase) (AOX) .
ENSRNOP00000042133	XR_009114	similar to glyceraldehyde-3-phosphate dehydrogenase (predicted) (RGD1564974_predicted), mRNA
ENSRNOP00000042135	Q2XTA8	NADH dehydrogenase 1 beta 4 (Fragment).
ENSRNOP00000042180	XP_242062	PREDICTED: similar to Catns protein
ENSRNOP00000042210	XP_001056160	similar to 60S ribosomal protein L32
ENSRNOP00000042382	P16086	Spectrin alpha chain, brain (Spectrin, non-erythroid alpha chain) (Alpha-II spectrin) (Fodrin alpha chain).
ENSRNOP00000042411	P62804	Histone H4 .
ENSRNOP00000042421	NP_001014262	aldo-keto reductase family 1, member C12
ENSRNOP00000042462		Unknown
ENSRNOP00000042496	XP_236124	tectorin alpha (predicted)
ENSRNOP00000042521	P11608	ATP synthase protein 8 (EC 3.6.3.14) (ATPase subunit 8) (A6L) (Chargerin II).
ENSRNOP00000042556	Q08201	Multidrug resistance protein 2 (EC 3.6.3.44) (ATP-binding cassette sub-family B member 4) (P-glycoprotein 2) (P-glycoprotein 3).
ENSRNOP00000042597	Q64573	Liver carboxylesterase 4 precursor (EC 3.1.1.1) (Carboxylesterase ES-4) (Microsomal palmitoyl-CoA hydrolase) (Kidney microsomal carboxylesterase).
ENSRNOP00000042615	XP_213668	protease, serine, 7 (enterokinase) (predicted)
ENSRNOP00000042628	XP_576339	PREDICTED: similar to Tubulin alpha-2 chain (Alpha-tubulin 2)
ENSRNOP00000042628	NM_001044270	similar to Tubulin alpha-2 chain (Alpha-tubulin 2) (predicted) (RGD1565476_predicted), mRNA
ENSRNOP00000042681		ribosomal protein L10A
ENSRNOP00000042700		Unknown
ENSRNOP00000042902	XP_574048	PREDICTED: similar to ribosomal protein S19
ENSRNOP00000042949	Q8VBU2	Protein NDRG2 (NDRG1-related protein) (Antidepressant-related protein ADRG123).
ENSRNOP00000042986	NP_942028	cytochrome P450 CYP2B21
ENSRNOP00000043004	P62752	60S ribosomal protein L23a
ENSRNOP00000043007	P62425	60S ribosomal protein L7a
ENSRNOP00000043009	NM_001024884	similar to interferon-inducible GTPase (RGD1309362), mRNA
ENSRNOP00000043115	XP_214121	PREDICTED: similar to RIKEN cDNA 4933407N01
ENSRNOP00000043141	P05508	NADH-ubiquinone oxidoreductase chain 4 (EC 1.6.5.3) (NADH dehydrogenase subunit 4).
ENSRNOP00000043148	P22734	Catechol O-methyltransferase (EC 2.1.1.6).
ENSRNOP00000043164	XP_577252	similar to Acyl-CoA-binding protein (ACBP) (Diazepam binding inhibitor) (predicted)
ENSRNOP00000043191	Q5BJT4	Thioredoxin domain-containing protein C5orf14 homolog precursor
ENSRNOP00000043239	P08542	UDP-glucuronosyltransferase 2B3 precursor (EC 2.4.1.17) (UDPGT) (Testosterone, dihydrotestosterone, and beta-estradiol specific) (17- beta-hydroxysteroid specific) (UDPGTr-3) (RLUG38).

ENSRNOP00000043239	P19488	UDP-glucuronosyltransferase 2B5 precursor (EC 2.4.1.17) (UDPGT) (17- beta-hydroxysteroid specific) (UDPGTr-5) (UDP-glucuronosyltransferase R-21) (UDPGTr-21).
ENSRNOP00000043366		timeless homolog (Drosophila)
ENSRNOP00000043466	P19643	Amine oxidase B (EC 1.4.3.4) (Monoamine oxidase type B) (MAO-B).
ENSRNOP00000043488	P10111	Peptidyl-prolyl cis-trans isomerase A (EC 5.2.1.8) (PPIase A) (Rotamase A) (Cyclophilin A) (Cyclosporin A-binding protein) (p31) (p1B15) [Ppia]
ENSRNOP00000043488		Unknown
ENSRNOP00000043510	P00502	Glutathione S-transferase alpha-1 (EC 2.5.1.18) (Glutathione S- transferase Ya-1) (GST Ya1) (Ligandin) (GST 1a-1a) (GST B) (GST 1-1) (GST A1-1).
ENSRNOP00000043519	O35763	Moesin (Membrane-organizing extension spike protein)
ENSRNOP00000043537	Q9WVB1	Ras-related protein Rab-6A (Rab-6) (Fragment)
ENSRNOP00000043567	P68136	Actin, alpha skeletal muscle (Alpha-actin-1) [Acta1]
ENSRNOP00000043608	O70351	3-hydroxyacyl-CoA dehydrogenase type-2 (EC 1.1.1.35) (3-hydroxyacyl- CoA dehydrogenase type II) (Type II HADH) (3-hydroxy-2-methylbutyryl- CoA dehydrogenase) (EC 1.1.1.178) (Endoplasmic reticulum-associated amyloid beta-peptide binding protein).
ENSRNOP00000043782	O35532	C-4 methylsterol oxidase (EC 1.14.13.72) (Methylsterol monooxygenase) (Neuropep 1) (RANP-1).
ENSRNOP00000043843	P13676	Acylamino-acid-releasing enzyme (EC 3.4.19.1) (AARE) (Acyl-peptide hydrolase) (APH) (Acylaminoacyl-peptidase).
ENSRNOP00000043885	P11662	NADH-ubiquinone oxidoreductase chain 2 (EC 1.6.5.3) (NADH dehydrogenase subunit 2).
ENSRNOP00000043915	P15589	Steryl-sulfatase precursor (EC 3.1.6.2) (Steroid sulfatase) (Steryl- sulfate sulfohydrolase) (Arylsulfatase C) (ASC).
ENSRNOP00000043950	Q6P0K8	Junction plakoglobin.
ENSRNOP00000043972	P11497	Acetyl-CoA carboxylase 1 (EC 6.4.1.2) (ACC-alpha) .
ENSRNOP00000044081	NP_001007723	hemoglobin alpha 2 chain
ENSRNOP00000044125	NP_001026815	acid phosphatase 6, lysophosphatidic
ENSRNOP00000044296	P60711	Actin, cytoplasmic 1 (Beta-actin).
ENSRNOP00000044340	P54311	Guanine nucleotide-binding protein G(I)/G(S)/G(T) beta subunit 1 (Transducin beta chain 1).
ENSRNOP00000044376	P08290	Asialoglycoprotein receptor 2 (ASGP-R 2) (ASGPR 2) (Hepatic lectin R2/3) (RHL-2).
ENSRNOP00000044411	P25409	Alanine aminotransferase 1 (EC 2.6.1.2) (ALT1) (Glutamic--pyruvic transaminase 1) (GPT 1) (Glutamic--alanine transaminase 1).
ENSRNOP00000044430	NP_001004248	transmembrane protein 30A
ENSRNOP00000044560	Q09325	Alpha-1,3-mannosyl-glycoprotein 2-beta-N-acetylglucosaminyltransferase (EC 2.4.1.101) (N-glycosyl-oligosaccharide-glycoprotein N-acetylglucosaminyltransferase I) (GNT-I) (GlcNAc-T I).
ENSRNOP00000044573	P11661	NADH-ubiquinone oxidoreductase chain 5 (EC 1.6.5.3) (NADH dehydrogenase subunit 5).
ENSRNOP00000044682	NP_001015019	coiled-coil-helix-coiled-coil-helix domain containing 2
ENSRNOP00000044696	NP_001004250	ubiquinol-cytochrome c reductase core protein I
ENSRNOP00000044696	Q68FY0	Ubiquinol-cytochrome-c reductase complex core protein 1, mitochondrial precursor (EC 1.10.2.2) (Core I protein).
ENSRNOP00000044914	NP_001007266	amplified in osteosarcoma
ENSRNOP00000044916		enamelin
ENSRNOP00000044956	P62961	Nuclease sensitive element-binding protein 1 (Y-box-binding protein 1) (Y-box transcription factor) (YB-1) (CCAAT-binding transcription factor I subunit A) (CBF-A) (Enhancer factor I subunit A) (EFI-A) (DNA-binding protein B) (DBPB) [Ybx1]
ENSRNOP00000044986	Q4FZT6	Histone H2A type 3
ENSRNOP00000044986	XP_001075643	similar to H2A histone family, member J
ENSRNOP00000045033	P06760	Beta-glucuronidase precursor (EC 3.2.1.31).
ENSRNOP00000045076	P15709	Bile-salt sulfotransferase (EC 2.8.2.14) (Hydroxysteroid sulfotransferase) (ST) (ST-20).
ENSRNOP00000045093	P40112	Proteasome subunit beta type 3 (EC 3.4.25.1) (Proteasome theta chain) (Proteasome chain 13) (Proteasome component C10-II) [Psm3]
ENSRNOP00000045215	P12001	60S ribosomal protein L18 [Rpl18]
ENSRNOP00000045215		Unknown

ENSRNOP00000045242	Q6LCP5	Mitochondrial glycerol-3-phosphate dehydrogenase (EC 1.1.99.5) (Fragment).
ENSRNOP00000045406	P13599	IgG receptor FcRn large subunit p51 precursor (FcRn) (Neonatal Fc receptor) (IgG Fc fragment receptor transporter, alpha chain).
ENSRNOP00000045431	NP_001012023	erythrocyte protein band 4.1-like 5
ENSRNOP00000045458	P12749	60S ribosomal protein L26 [Rpl26]
ENSRNOP00000045458	XP_001076247	similar to 60S ribosomal protein L26 (Silica-induced gene 20 protein) (SIG-20)
ENSRNOP00000045458	XP_001076223	similar to 60S ribosomal protein L26 (Silica-induced gene 20 protein) (SIG-20)
ENSRNOP00000045570	XR_006852	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) (38 kDa BFA-dependent ADP-ribosylation substrate) (BARS-38) (LOC367081), mRNA
ENSRNOP00000045629	XR_007321	similar to ribosomal protein S27a (predicted) (RGD1560343_predicted), mRNA
ENSRNOP00000045630	NP_997656	BING4 protein
ENSRNOP00000045650	P06685	ATPase, Na+/K+ transporting, alpha 1 polypeptide
ENSRNOP00000045711	XP_341006	PREDICTED: similar to 5830458K16Rik protein
ENSRNOP00000045800	XM_221101	ATP-binding cassette transporter sub-family A member 9 (predicted) (Abca9_predicted), mRNA
ENSRNOP00000045847	XP_237227	similar to chromosome 20 open reading frame 81 (predicted)
ENSRNOP00000045886	P30839	Fatty aldehyde dehydrogenase (EC 1.2.1.3) (Aldehyde dehydrogenase, microsomal) (Aldehyde dehydrogenase family 3 member A2) (Aldehyde dehydrogenase 10).
ENSRNOP00000045936	Q66X93	Staphylococcal nuclease domain-containing protein 1 (p100 co-activator) (100 kDa coactivator) (SND p102) (p105 coactivator).
ENSRNOP00000045952	NP_001041345	solute carrier family 25 member 15
ENSRNOP00000046090	P62271	40S ribosomal protein S18 [Rps18]
ENSRNOP00000046157	XP_227546	similar to Acidic ribosomal phosphoprotein P0 (predicted)
ENSRNOP00000046157		Unknown
ENSRNOP00000046170	P33124	Long-chain-fatty-acid--CoA ligase 6 (EC 6.2.1.3) (Long-chain acyl-CoA synthetase 6) (LACS 6) (Long-chain-fatty-acid--CoA ligase, brain isozyme).
ENSRNOP00000046328	NP_988843	alpha-2u globulin PGCL2
ENSRNOP00000046414	P00406	Cytochrome c oxidase subunit 2 (EC 1.9.3.1) (Cytochrome c oxidase polypeptide II).
ENSRNOP00000046460	XP_227659	similar to glyceraldehyde-3-phosphate dehydrogenase (predicted)
ENSRNOP00000046512	P14173	Aromatic-L-amino-acid decarboxylase (EC 4.1.1.28) (AADC) (DOPA decarboxylase) (DDC).
ENSRNOP00000046600	NP_001041344	ribosomal protein L14
ENSRNOP00000046654	P16573	Carcinoembryonic antigen-related cell adhesion molecule 1 precursor (Cell-CAM 105) (C-CAM 105) (Ecto-ATPase) (ATP-dependent taurocolate- carrier protein) (GP110) (pp120).
ENSRNOP00000046668	P15127	Insulin receptor precursor (EC 2.7.10.1) (IR) (CD220 antigen) [Contains: Insulin receptor subunit alpha; Insulin receptor subunit beta].
ENSRNOP00000046692	Q5RK07	RGD1359202 protein (Fragment).
ENSRNOP00000046711	XR_008598	similar to Tubulin alpha-2 chain (Alpha-tubulin 2) (predicted) (RGD1560975_predicted), mRNA
ENSRNOP00000046716		Unknown
ENSRNOP00000046737	P62246	40S ribosomal protein S15a
ENSRNOP00000046783	NP_476480	heterogeneous nuclear ribonucleoprotein U
ENSRNOP00000046802		Unknown
ENSRNOP00000046842	NP_001030094	ATPase family, AAA domain containing 3A
ENSRNOP00000046867	XP_001055358	glyoxylate reductase/hydroxypyruvate reductase (predicted)
ENSRNOP00000046867		Unknown
ENSRNOP00000047028	XP_213612	PREDICTED: hypothetical protein XP_213612
ENSRNOP00000047148	P60868	40S ribosomal protein S20.
ENSRNOP00000047214	XR_008812	similar to prohibitin (predicted) (RGD1566197_predicted), mRNA
ENSRNOP00000047304	P62989	Ubiquitin [Rps27a]
ENSRNOP00000047579	NP_001012007	interferon inducible protein 1 (predicted)
ENSRNOP00000047647	Q63060	Glycerol kinase (EC 2.7.1.30) (ATP:glycerol 3-phosphotransferase) (Glycerokinase) (GK) (ATP-stimulated glucocorticoid-receptor translocation promoter) (ASTP).

ENSRNOP00000047674	XM_215248	similar to RIKEN cDNA 0610010D20 (predicted) (LOC293949), mRNA
ENSRNOP00000047680	XP_213832	PREDICTED: similar to ORM1-like 2
ENSRNOP00000047683	NP_599206	integral membrane transport protein UST4r
ENSRNOP00000047755	P11950	Cytochrome c oxidase polypeptide Vlc-1 (EC 1.9.3.1).
ENSRNOP00000047767	XR_008501	similar to Rpl7a protein (predicted) (RGD1561297_predicted), mRNA
ENSRNOP00000047800	Q09073	ADP/ATP translocase 2 (Adenine nucleotide translocator 2) (ANT 2) (ADP,ATP carrier protein 2) (Solute carrier family 25 member 5) [Slc25a5]
ENSRNOP00000047800	XR_004388	similar to solute carrier family 25, member 5 (LOC673916), mRNA
ENSRNOP00000047811	P61206	ADP-ribosylation factor 3 (Liver regeneration-related protein LRRG202).
ENSRNOP00000047905	P29995	Inositol 1,4,5-trisphosphate receptor type 2 (Type 2 inositol 1,4,5- trisphosphate receptor) (Type 2 InsP3 receptor) (IP3 receptor isoform 2) (InsP3R2).
ENSRNOP00000047928		Unknown
ENSRNOP00000047954	P00159	Cytochrome b.
ENSRNOP00000048088	Q05096	Myosin Ib (Myosin I alpha) (MMI-alpha) (MMIa) (Myosin heavy chain myr 1).
ENSRNOP00000048116	XM_213058	similar to ribosomal protein S26 (LOC298785), mRNA
ENSRNOP00000048171	P51647	Retinal dehydrogenase 1 (EC 1.2.1.36) (Raldh1) (RALDH 1) (Aldehyde dehydrogenase family 1 member A1) (Aldehyde dehydrogenase, cytosolic) (ALDH1) (ALDH-E1).
ENSRNOP00000048250	P02091	Hemoglobin beta-1 subunit (Hemoglobin beta-1 chain) (Beta-1-globin) (Hemoglobin beta chain, major-form).
ENSRNOP00000048282	XR_007411	similar to glyceraldehyde-3-phosphate dehydrogenase (predicted) (RGD1559621_predicted), mRNA
ENSRNOP00000048364	P63025	Vesicle-associated membrane protein 3 (VAMP-3) (Synaptobrevin-3) (Cellubrevin) (CEB).
ENSRNOP00000048416	XP_220907	ADP-ribosylation factor-like 12 (predicted)
ENSRNOP00000048417	NP_001008829	RT1 class Ia, locus A2
ENSRNOP00000048422	P18445	60S ribosomal protein L27a
ENSRNOP00000048479	P27952	40S ribosomal protein S2 [Rps2]
ENSRNOP00000048537	XR_006187	similar to glyceraldehyde-3-phosphate dehydrogenase (LOC367262), mRNA
ENSRNOP00000048546	P11517	Hemoglobin beta-2 subunit (Hemoglobin beta-2 chain) (Beta-2-globin) (Hemoglobin beta chain, minor-form).
ENSRNOP00000048563	P48199	C-reactive protein precursor.
ENSRNOP00000048631	XR_007561	similar to Triosephosphate isomerase (TIM) (Triose-phosphate isomerase) (LOC365156), mRNA
ENSRNOP00000048678	Q7TPJ0	Translocon-associated protein alpha subunit precursor (TRAP-alpha) (Signal sequence receptor alpha subunit) (SSR-alpha) (Liver regeneration-related protein LRRG137).
ENSRNOP00000048711	P12938	Cytochrome P450 2D3 (EC 1.14.14.1) (CYP1D3) (P450-DB3) (Debrisoquine 4-hydroxylase).
ENSRNOP00000048723	XP_578078	PREDICTED: similar to Cytochrome c oxidase polypeptide VIb (Cytochrome c oxidase subunit AED)
ENSRNOP00000048850	Q62826	Heterogeneous nuclear ribonucleoprotein M
ENSRNOP00000048877	XP_343254	PREDICTED: similar to RIKEN cDNA C920006C10
ENSRNOP00000048929	Q68FS4	Cytosol aminopeptidase (EC 3.4.11.1) (Leucine aminopeptidase) (LAP) (Leucyl aminopeptidase) (Leucine aminopeptidase 3) (Proline aminopeptidase) (EC 3.4.11.5) (Prolyl aminopeptidase) [Lap3]
ENSRNOP00000048929	XP_001061168	similar to leucine aminopeptidase 3 (predicted)
ENSRNOP00000049003	P06866	Haptoglobin precursor .
ENSRNOP00000049143	Q02874	Core histone macro-H2A.1 (Histone macroH2A1) (mH2A1) (H2A.y) (H2A/y).
ENSRNOP00000049419	NP_955404	eukaryotic translation initiation factor 4A1
ENSRNOP00000049420		Unknown
ENSRNOP00000049473	P14046	Alpha-1-inhibitor 3 precursor (Alpha-1-inhibitor III) (Alpha-1- inhibitor 3 variant II).
ENSRNOP00000049522	XR_007958	similar to 60S ribosomal protein L17 (L23) (Amino acid starvation-induced protein) (ASI) (LOC367398), mRNA
ENSRNOP00000049537	NM_001013233	glycophorin C (Gerbich blood group) (Gypc), mRNA
ENSRNOP00000049546	XP_001074729	similar to 40S ribosomal protein S4, X isoform
ENSRNOP00000049600	NP_001013929	DnaJ (Hsp40) homolog, subfamily B, member 12

ENSRNOP00000049689	XR_006058	similar to Tricarboxylate transport protein, mitochondrial precursor (Citrate transport protein) (CTP) (Tricarboxylate carrier protein) (Solute carrier family 25 member 1) (LOC288311), mRNA
ENSRNOP00000049726	XP_216479	PREDICTED: similar to Echdc2 protein
ENSRNOP00000049797	NP_001012226	signal transducer and activator of transcription 4
ENSRNOP00000049864	XP_342612	PREDICTED: similar to actin-related protein 3-beta
ENSRNOP00000049879	P35435	ATP synthase gamma chain, mitochondrial (EC 3.6.3.14).
ENSRNOP00000049978	NP_001011908	spectrin alpha 1 (predicted)
ENSRNOP00000049998	NM_001040008	similar to Tubulin alpha-3 chain (Alpha-tubulin 3) (LOC500319), mRNA
ENSRNOP00000050010	NP_001007804	caseinolytic peptidase X
ENSRNOP00000050050	P97564	Glycerol-3-phosphate acyltransferase, mitochondrial precursor (EC 2.3.1.15) (GPAT).
ENSRNOP00000050137	Q9Z2L0	Voltage-dependent anion-selective channel protein 1 (VDAC-1) (rVDAC1) (Outer mitochondrial membrane protein porin 1) [Vdac1]
ENSRNOP00000050322	P63269	Actin, gamma-enteric smooth muscle (Smooth muscle gamma actin) (Gamma- 2-actin) (Alpha-actin-3).
ENSRNOP00000050328	XP_212651	similar to ribosomal protein L31 (predicted)
ENSRNOP00000050371		Unknown
ENSRNOP00000050505	Q6AYA5	Transmembrane protein 106B.
ENSRNOP00000050589	P19132	Ferritin heavy chain (EC 1.16.3.1) (Ferritin H subunit) [Fth1]
ENSRNOP00000050649	Q5PQL3	Signal peptide peptidase-like 2B (EC 3.4.23.-) (Protein SPP-like 2B) (Protein SPPL2b).
ENSRNOP00000050663	P14480	Fibrinogen beta chain precursor (Liver regeneration related protein LRRG189) (Liver regeneration-related protein LRRG043) (Liver regeneration-related protein LRRG036)
ENSRNOP00000050691	P07871	3-ketoacyl-CoA thiolase B, peroxisomal precursor (EC 2.3.1.16) (Beta- ketothiolase B) (Acetyl-CoA acyltransferase B) (Peroxisomal 3-oxoacyl- CoA thiolase B).
ENSRNOP00000050737	P20280	60S ribosomal protein L21
ENSRNOP00000050737		Unknown
ENSRNOP00000050947	P70712	Kynureninase (EC 3.7.1.3) (L-kynurenine hydrolase).
ENSRNOP00000050960	XP_343021	PREDICTED: similar to lysocardiolipin acyltransferase isoform 1
ENSRNOP00000050968	P02650	Apolipoprotein E precursor (Apo-E).
ENSRNOP00000050973	XR_006972	similar to prohibitin (LOC502917), mRNA
ENSRNOP00000050980	Q3B8R3	LOC360570 protein (Fragment).
ENSRNOP00000050986	Q99P75	Ras-related protein Rab-9A (Rab-9).
ENSRNOP00000051016	NM_053982	ribosomal protein S15a (Rps15a), mRNA
ENSRNOP00000051134	XP_001060406	similar to ribosomal protein L31
ENSRNOP00000051135	NP_446423	ribosomal protein L6
ENSRNOP00000051326	P05505	Cytochrome c oxidase subunit 3 (EC 1.9.3.1) (Cytochrome c oxidase polypeptide III).
ENSRNOP00000051361	P36365	Dimethylaniline monooxygenase 1 (EC 1.14.13.8) (Hepatic flavin-containing monooxygenase 1) (FMO 1) (Dimethylaniline oxidase 1).
ENSRNOP00000051363	Q5I0G9	RGD1306274 protein (Fragment).
ENSRNOP00000051412	O88269	Multidrug resistance-associated protein 6 (ATP-binding cassette sub- family C member 6) (MRP-like protein 1) (MLP-1).
ENSRNOP00000051445	O88813	Long-chain-fatty-acid--CoA ligase 5 (EC 6.2.1.3) (Long-chain acyl-CoA synthetase 5) (LACS 5).
ENSRNOP00000051607	P19225	Cytochrome P450 2C70 (EC 1.14.14.1) (CYPIIC70) (P-450Md) (P450 P49).
ENSRNOP00000051613	P33273	Cytochrome P450 2C24 (EC 1.14.14.1) (CYPIIC24) (P450-PROS2) (Fragment).
ENSRNOP00000051614	Q63853	cytochrome P450, family 2, subfamily c, polypeptide 80 (predicted)
ENSRNOP00000051674	P07150	Annexin A1 (Annexin-1) (Annexin I) (Lipocortin I) (Calpactin II) (Chromobindin-9) (p35) (Phospholipase A2 inhibitory protein).
ENSRNOP00000051684	XP_219626	PREDICTED: similar to glycine-N-acyltransferase isoform a
ENSRNOP00000051700	NP_445897	fatty acid desaturase 1
ENSRNOP00000051714	Q641Z6	EH-domain containing 1.
ENSRNOP00000051758	Q4V892	Single Ig IL-1-related receptor (Single Ig IL-1R-related molecule) (Single immunoglobulin domain-containing IL1R-related protein) (Toll/interleukin-1 receptor 8) (TIR8).
ENSRNOP00000051805	Q6AYA6	Uncharacterized protein C17orf62 homolog.

ENSRNOP00000051835	O88637	Ethanolamine-phosphate cytidyltransferase (EC 2.7.7.14) (Phosphorylethanolamine transferase) (CTP:phosphoethanolamine cytidyltransferase).
ENSRNOP00000051841	P04785	Protein disulfide-isomerase precursor (EC 5.3.4.1) (PDI) (Prolyl 4- hydroxylase beta subunit) (Cellular thyroid hormone-binding protein).
ENSRNOP00000051846	NP_596909	solute carrier family 25 (mitochondrial carrier; dicarboxylate transporter), member 10
ENSRNOP00000051859	P20816	Actin, cytoplasmic 2 (Gamma-actin). Source: Uniprot/SWISSPROT P63259
ENSRNOP00000051958	NP_653349	kidney-specific protein (KS)
ENSRNOP00000052051	Q7M075	Glycoprotein IIb
ENSRNOP00000052051	XP_001063315	similar to Integrin alpha-IIb precursor (Platelet membrane glycoprotein IIb) (GPIIb) (CD41 antigen)
ENSRNOP00000052113		ATPase, H ⁺ transporting, lysosomal V0 subunit A1
ENSRNOP00000052152	Q7M074	Fibronectin receptor alpha chain (Fragments).
ENSRNOP00000052227	NP_001029299	asparagine-linked glycosylation 8 homolog (yeast, alpha-1,3-glucosyltransferase)
ENSRNOP00000052351	P02793	Ferritin light chain 1 (Ferritin L subunit 1) [Ftl1]
ENSRNOP00000052452	XP_238286	RGD1566320 (predicted)
ENSRNOP00000052452		Unknown
ENSRNOP00000052465	XP_230637	PREDICTED: similar to Ribosome-binding protein 1 (Ribosome receptor protein) (mRRp)
ENSRNOP00000052539	Q8R500	Mitofusin-2 (EC 3.6.5.-) (Transmembrane GTPase MFN2) (Mitochondrial transmembrane GTPase FZO1A) (Protein HSG).
ENSRNOP00000052593	XP_342332	PREDICTED: similar to Amylo-1,6-glucosidase, 4-alpha-glucanotransferase, 4-alpha-isomer 1
ENSRNOP00000052630		Unknown
ENSRNOP00000052656	P11442	Clathrin heavy chain.
ENSRNOP00000052754	XR_008724	similar to 60S ribosomal protein L12 (LOC366490), mRNA
ENSRNOP00000052781		solute carrier family 16 (monocarboxylic acid transporters), member 4
ENSRNOP00000052830	XP_236683	PREDICTED: similar to 40S ribosomal protein S16
ENSRNOP00000052875	P12939	Cytochrome P450 2D10 (EC 1.14.14.1) (CYPIID10) (P450-DB5) (P450-CMF1B) (Debrisoquine 4-hydroxylase).
ENSRNOP00000052895	NP_001012010	ring finger protein 135 (predicted)
ENSRNOP00000053038	Q505J6	Mitochondrial glutamate carrier 2 (GC-2) (Glutamate/H ⁺ symporter 2) (Solute carrier family 25 member 18).
ENSRNOP00000053122	Q63190	Emerin.
ENSRNOP00000053123	NM_031100	ribosomal protein L10 (Rpl10), mRNA
ENSRNOP00000053174	XP_343274	aarF domain containing kinase 5
ENSRNOP00000053215	Q07984	Translocon-associated protein delta subunit precursor (TRAP-delta) (Signal sequence receptor delta subunit) (SSR-delta).
ENSRNOP00000053245	P97608	5-oxoprolinase (EC 3.5.2.9) (5-oxo-L-prolinase) (Pyroglutamate) (5- OPase).
ENSRNOP00000053385	Q4KM64	LOC502872 protein.
ENSRNOP00000053467	Q05511	Serine protease hepsin (EC 3.4.21.106) [Contains: Serine protease hepsin non-catalytic chain; Serine protease hepsin catalytic chain].
ENSRNOP00000053518	Q07066	Peroxisomal membrane protein 2 (22 kDa peroxisomal membrane protein).
ENSRNOP00000053723	XR_007959	similar to ORF (predicted) (RGD1563743_predicted), mRNA
ENSRNOP00000053756	NP_001026808	CD68 antigen
ENSRNOP00000053853	NP_001012088	peroxisome biogenesis factor 16
ENSRNOP00000053925	P08516	Cytochrome P450 4A10 (EC 1.14.15.3) (CYPIVA10) (Lauric acid omega-hydroxylase) (P450-LA-omega 1) (P452).
ENSRNOP00000053926	Q9D880	Import inner membrane translocase subunit TIM50, mitochondrial precursor
ENSRNOP00000053926		translocase of inner mitochondrial membrane 50 homolog
ENSRNOP00000054015	P20611	Lysosomal acid phosphatase precursor (EC 3.1.3.2) (LAP).
ENSRNOP00000054026	Q5XI78	2-oxoglutarate dehydrogenase E1 component, mitochondrial precursor (EC 1.2.4.2) (Alpha-ketoglutarate dehydrogenase).
ENSRNOP00000054078	P20812	Cytochrome P450 2A3 (EC 1.14.14.1) (CYPIIA3) (Coumarin 7-hydroxylase).
ENSRNOP00000054084	P10610	Cytochrome P450 2G1 (EC 1.14.14.1) (CYPIIG1) (P450-OLF1) (Olfactive).
ENSRNOP00000054092	P05544	Contrapsin-like protease inhibitor 3 precursor (CPI-23) (Serine protease inhibitor 1) (SPI-1).

ENSRNOP00000054104	P05545	Contrapsin-like protease inhibitor 1 precursor (CPI-21) (Kallikrein-binding protein) (KBP) (Growth hormone-regulated proteinase inhibitor) (Serine protease inhibitor 2) (SPI-2) (GHR-P63) (SPI-2.3) (Thyroid hormone-regulated protein).
ENSRNOP00000054159	P21533	60S ribosomal protein L6 (Neoplasm-related protein C140).
ENSRNOP00000054178	NM_001014105	similar to RIKEN cDNA 9430083G14 (RGD1549725), mRNA
ENSRNOP00000054347		sideroflexin 5
ENSRNOP00000054537	P14562	Lysosome-associated membrane glycoprotein 1 precursor (LAMP-1) (120 kDa lysosomal membrane glycoprotein) (LGP-120) (CD107a antigen) [Lamp1]
ENSRNOP00000054548	XP_230950	integrin alpha V (predicted)
ENSRNOP00000054559		Unknown
ENSRNOP00000054666		Unknown
ENSRNOP00000054740	NM_001030021	ribosomal protein, large P2 (Rplp2), mRNA
ENSRNOP00000054750		Unknown
ENSRNOP00000054783		protein tyrosine phosphatase-like A domain containing 1
ENSRNOP00000054810	NP_001020578	asparagine-linked glycosylation 5 homolog (yeast, dolichyl-phosphate beta-glucosyltransferase)
ENSRNOP00000054834	P51590	Cytochrome P450 2J3 (EC 1.14.14.1) (CYP11J3).
ENSRNOP00000054923	Q5BJP3	Ubiquitin-fold modifier 1 precursor.
ENSRNOP00000054947	P06686	Sodium/potassium-transporting ATPase alpha-2 chain precursor (EC 3.6.3.9) (Sodium pump 2) (Na+/K+ ATPase 2) (Alpha(+)).
ENSRNOP00000055035	Q03248	Beta-ureidopropionase (EC 3.5.1.6) (Beta-alanine synthase) (N-carbamoyl-beta-alanine amidohydrolase)
ENSRNOP00000055035		ureidopropionase, beta
ENSRNOP00000055038	XM_574740	similar to Glutathione S-transferase, theta 3 (LOC499422), mRNA
ENSRNOP00000055188		Unknown
ENSRNOP00000055224	Q641Y2	NADH dehydrogenase (Ubiquinone) Fe-S protein 2 [Ndufs2]
ENSRNOP00000055288	XP_217412	PREDICTED: similar to 40S ribosomal protein S2
ENSRNOP00000055369	P04797	cytochrome P450, family 1, subfamily a, polypeptide 2
ENSRNOP00000055387	XP_243478	similar to oxysterol-binding protein-like protein 8 isoform a (predicted)
ENSRNOP00000055460	NP_001009631	putative membrane protein
ENSRNOP00000055686	NP_072129	MIPP65 protein
ENSRNOP00000055794	P29314	40S ribosomal protein S9 [Rps9]
ENSRNOP00000055811	NP_072141	cationic amino acid transporter-2A
ENSRNOP00000055824	P14740	Dipeptidyl peptidase 4 (EC 3.4.14.5) (Dipeptidyl peptidase IV) (DPP IV) (T-cell activation antigen CD26) (GP110 glycoprotein) (Bile canaliculus domain-specific membrane glycoprotein) [Contains: Dipeptidyl peptidase 4 membrane form (Dipeptidyl peptidase IV]
ENSRNOP00000055922		Unknown
ENSRNOP00000055964	Q7TP70	Ab2-079.
ENSRNOP00000056148	XR_008757	similar to 60S ribosomal protein L7 (LOC292518), mRNA
ENSRNOP00000056246	Q10758	Keratin, type II cytoskeletal 8 (Cytokeratin-8) (CK-8) (Keratin-8) (K8) (Cytokeratin endo A).
ENSRNOP00000056269	XP_001058844	similar to signal peptidase complex subunit 3 homolog
ENSRNOP00000056294		Unknown
ENSRNOP00000056296	Q8CFM6	Stabilin-2 precursor (Fasciclin, EGF-like, laminin-type EGF-like and link domain-containing scavenger receptor 2) (FEEL-2) (Hyaluronan receptor for endocytosis) [Contains: 175 kDa stabilin-2 (175 kDa hyaluronan receptor for endocytosis)] (Fragment)
ENSRNOP00000056307		Unknown
ENSRNOP00000056413	Q63617	Hypoxia up-regulated protein 1 precursor (150 kDa oxygen-regulated protein) (Orp150).
ENSRNOP00000056518	NM_001025010	similar to CDNA sequence BC034204 (RGD1311293), mRNA
ENSRNOP00000056555		Unknown
ENSRNOP00000056567	XP_578679	PREDICTED: similar to ribosomal protein L15
ENSRNOP00000056595	P63018	Heat shock cognate 71 kDa protein
ENSRNOP00000056699	Q64565	Alanine--glyoxylate aminotransferase 2, mitochondrial precursor (EC 2.6.1.44) ((R)-3-amino-2-methylpropionate--pyruvate transaminase) (EC 2.6.1.40) (AGT 2) (Beta-alanine-pyruvate aminotransferase) (Beta- ALAAT II) (D-AIBAT).
ENSRNOP00000056750	XP_213106	PREDICTED: similar to 40S ribosomal protein S9

ENSRNOP00000056824	NP_955417	dihydrolipoamide dehydrogenase (E3 component of pyruvate dehydrogenase complex, 2-oxo-glutarate complex, branched chain keto acid dehydrogenase complex)
ENSRNOP00000056935		Unknown
ENSRNOP00000056968	O35826	Bifunctional UDP-N-acetylglucosamine 2-epimerase/N-acetylmannosamine kinase (UDP-GlcNAc-2-epimerase/ManAc kinase) [Includes: UDP-N- acetylglucosamine 2-epimerase (EC 5.1.3.14) (Uridine diphosphate-N- acetylglucosamine-2-epimerase) (UDP-GlcNAc-2-epimerase)]
ENSRNOP00000057025	P04642	L-lactate dehydrogenase A chain (EC 1.1.1.27) (LDH-A) (LDH muscle subunit) (LDH-M) [Ldha]
ENSRNOP00000057271	NP_001094433	aminoadipate-semialdehyde synthase
ENSRNOP00000057374	NP_001004102	suppression of tumorigenicity 7 isoform a
ENSRNOP00000057443	P46418	Glutathione S-transferase alpha-5 (EC 2.5.1.18) (Glutathione S- transferase Yc-2) (GST Yc2) (GST A5-5).
ENSRNOP00000057445	Q5U305	ER lumen protein retaining receptor 2 (KDEL receptor 2) (KDEL endoplasmic reticulum protein retention receptor 2).
ENSRNOP00000057449	Q6RUV5	Ras-related C3 botulinum toxin substrate 1 precursor (p21-Rac1).
ENSRNOP00000057452	P10868	Guanidinoacetate N-methyltransferase (EC 2.1.1.2).
ENSRNOP00000057476		Unknown
ENSRNOP00000057501	Q63270	Iron-responsive element-binding protein 1 (IRE-BP 1) (Iron regulatory protein 1) (IRP1) (Ferritin repressor protein) (Aconitate hydratase) (EC 4.2.1.3) (Citrate hydro-lyase) (Aconitase).
ENSRNOP00000057980	Q5U314	Similar to ATP-binding cassette transporter ABCG3
ENSRNOP00000058054	NM_001037205	similar to ATP-binding cassette, sub-family G (WHITE), member 3 (LOC360997), mRNA
ENSRNOP00000058139	XR_008402	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) (LOC305750), mRNA
ENSRNOP00000058212	XP_343761	PREDICTED: similar to NADH dehydrogenase
ENSRNOP00000058241	P07632	Superoxide dismutase (EC 1.15.1.1).
ENSRNOP00000058269	Q7TMU5	IQ motif containing GTPase activating protein 2
ENSRNOP00000058419	Q68FT5	Betaine--homocysteine S-methyltransferase 2
ENSRNOP00000058474	Q4KLN2	LOC295241 protein
ENSRNOP00000058474	XP_001066436	similar to metaxin 3
ENSRNOP00000058548		Unknown
ENSRNOP00000058595	XP_213824	PREDICTED: similar to RAB5B protein
ENSRNOP00000058601	P35427	60S ribosomal protein L13a [Rpl13a]
ENSRNOP00000058601		Unknown
ENSRNOP00000058613	P50237	Sulfotransferase 1C1 (EC 2.8.2.-) (N-hydroxyarylamine sulfotransferase) (HAST-I).
ENSRNOP00000058624	P04797	Glyceraldehyde-3-phosphate dehydrogenase (EC 1.2.1.12) (GAPDH) (38 kDa BFA-dependent ADP-ribosylation substrate) (BARS-38) [Gapdh]
ENSRNOP00000058624		Unknown
ENSRNOP00000058722	XP_226606	similar to KIAA0372 gene product (predicted)
ENSRNOP00000058727	XP_213821	nascent-polypeptide-associated complex alpha polypeptide (predicted)
sp CAS1_BOVIN		Alpha-S1-casein precursor
sp K2C1_HUMAN	sp K2C1_HUMAN	Keratin, type II cytoskeletal 1
sp TRYP_PIG	sp TRYP_PIG	Trypsin precursor

Supplementary Table 3

Protein Identifications from Broad Range and Narrow Range IPG strips

Rep = Replicate

NR = Non-Redundant Peptide Count

Log(E) = X!Tandem Expectation Value

Ensembl Accession	Broad Range						Narrow Range					
	Rep 1		Rep 2		Rep 3		Rep 1		Rep 2		Rep 3	
	NR	Log(E)	NR	Log(E)	NR	Log(E)	NR	Log(E)	NR	Log(E)	NR	Log(E)
ENSRNOP00000000025	4	-26	3	-16.7	3	-15.2	8	-45.2	7	-45.5	8	-39
ENSRNOP00000000047	28	-128	38	-135	56	-135	10	-32.7	7	-30.3	8	-29.7
ENSRNOP00000000050					2	-3.8	1	-5.7			1	-2.3
ENSRNOP00000000052	3	-11			4	-13.2	5	-15.5	7	-16.3	4	-7.5
ENSRNOP00000000072	38	-63.3	65	-97.8	51	-78.7	54	-81.6	49	-45.2	57	-63.6
ENSRNOP00000000078							1	-2	3	-19.2	1	-3.6
ENSRNOP00000000079									2	-2.8	2	-10.8
ENSRNOP00000000083	20	-22.3	7	-20.1	10	-46.6	33	-65.8	21	-61	27	-59.6
ENSRNOP00000000106	5	-43.2	5	-29.6	3	-15.6	6	-33.8	8	-33.8	5	-20.1
ENSRNOP00000000107	20	-92.2	20	-95.7	12	-74.8	23	-101	23	-112	23	-102
ENSRNOP00000000132							4	-11.4				
ENSRNOP00000000134	5	-23.6	2	-3.9	5	-19.4	6	-17.1	8	-14.6	3	-15.4
ENSRNOP00000000146	7	-35.6	5	-29.9	4	-31.8			11	-29.8	3	-10.3
ENSRNOP00000000162							3	-30.9				
ENSRNOP00000000163							2	-3.5				
ENSRNOP00000000168					2	-4.1			2	-12.4		
ENSRNOP00000000172			1	-3.2					1	-3.4		
ENSRNOP00000000177	17	-48.8	12	-36	12	-45.5	4	-27.1	2	-10.5	4	-27.9
ENSRNOP00000000178			14	-58	12	-60.3	20	-57.7	10	-56.3	3	-17.3
ENSRNOP00000000186	32	-120	26	-109	25	-70.6	8	-44.4	5	-29.7	5	-19.5
ENSRNOP00000000200	10	-16.4	6	-26.6	5	-19.1	6	-8.4	12	-24.9	11	-3.8
ENSRNOP00000000201	10	-54.1	5	-29.8	6	-28.1	7	-26.3	10	-39.5	17	-22.6
ENSRNOP00000000219	27	-107	15	-49.4	22	-73.3	33	-114	27	-93.6	30	-110

ENSRNOP00000000246	6	-32	8	-30.2	11	-24.5	6	-32.8	4	-10.3	3	-8.8
ENSRNOP00000000304									2	-4		
ENSRNOP00000000306	96	-120	54	-85.8	83	-118	20	-67.1	22	-65.1	29	-68.5
ENSRNOP00000000336			1	-6.2								
ENSRNOP00000000345	24	-78.7	11	-56.4	19	-57.3	17	-78.4	21	-88.6	14	-47
ENSRNOP00000000351			3	-6.1	3	-5.1						
ENSRNOP00000000360							8	-28.6	5	-22.9		
ENSRNOP00000000382	2	-3.7	1	-4								
ENSRNOP00000000434	15	-89.6	23	-62.2	18	-67.7	28	-109	11	-60.5	44	-102
ENSRNOP00000000441							3	-3.2	4	-2.8		
ENSRNOP00000000477					3	-11						
ENSRNOP00000000481							3	-11.9	6	-44.4	3	-13.7
ENSRNOP00000000514	6	-24	3	-19.1			12	-66.4			6	-50.5
ENSRNOP00000000522							3	-4.8	2	-2.8		
ENSRNOP00000000527	11	-65.2	6	-26.1	7	-28.2	11	-24.2	14	-33.3	9	-30.2
ENSRNOP00000000528	80	-125	47	-98.4	65	-156	31	-85.3	33	-93.4	78	-79.9
ENSRNOP00000000529	11	-93	20	-58.8	12	-57.2	5	-11	5	-29.2	2	-9.6
ENSRNOP00000000532	21	-65.9	19	-75.9	18	-77.5	13	-68.3	12	-42.7	8	-36.6
ENSRNOP00000000537							5	-29.8	3	-4.2	5	-4.1
ENSRNOP00000000541	26	-27.5	9	-29.1	9	-34	10	-12.1	7	-12.4	4	-5.3
ENSRNOP00000000542	4	-24.3							1	-3.3		
ENSRNOP00000000544	17	-23.2									3	-15.7
ENSRNOP00000000549	1	-3.7					8	-28.6	6	-38.2	5	-13.6
ENSRNOP00000000550									2	-3.3	1	-3.1
ENSRNOP00000000568			2	-4.7	2	-4.3						
ENSRNOP00000000581							1	-3.4			1	-2.7
ENSRNOP00000000588									1	-2.7		
ENSRNOP00000000597							1	-2.9				
ENSRNOP00000000599							1	-3.2				
ENSRNOP00000000603	4	-26.2	9	-36.5	8	-31.1			8	-23	14	-39.9
ENSRNOP00000000612							1	-2.8				
ENSRNOP00000000617	1	-3.9	1	-4	4	-6.3	4	-15.6	3	-18.1	4	-8.2
ENSRNOP00000000627							2	-7.9	1	-5.5	1	-1.9
ENSRNOP00000000635	22	-63.4	7	-22.9	11	-36.2	2	-6.2	7	-6.8	2	-5.8
ENSRNOP00000000639	2	-3.7	2	-5.8	2	-5.9	1	-1.4				
ENSRNOP00000000650	2	-8.4					1	-8.4	1	-10.6	1	-5.1

ENSRNOP00000000653			1	-3.6								
ENSRNOP00000000662	9	-39.3	3	-15			11	-49.6	9	-30.6	9	-17.3
ENSRNOP00000000673	15	-57.1	10	-29.6	7	-26	12	-41	14	-32.3	9	-33.7
ENSRNOP00000000674	7	-30.6	7	-27.4	4	-18.5	3	-10.4	5	-20.1	2	-11.1
ENSRNOP00000000678	1	-3										
ENSRNOP00000000686	7	-35.6	6	-28.5	22	-49	6	-54.7	6	-46.5	8	-29.9
ENSRNOP00000000687			10	-11.1	14	-21.2	4	-11	3	-3.2	15	-21.6
ENSRNOP00000000707	4	-9			1	-5.5	6	-25.9	9	-62.8	3	-8.8
ENSRNOP00000000742					1	-4.6					1	-1.9
ENSRNOP00000000749	62	-61.1	47	-47	42	-71	74	-44.3	81	-43.3	48	-51.7
ENSRNOP00000000772	13	-21.3	9	-19	9	-22.2			2	-9.5	5	-22.5
ENSRNOP00000000791									2	-2.2		
ENSRNOP00000000801	13	-26	14	-29.5	7	-20.1	10	-25.4	10	-23.6	20	-30.1
ENSRNOP00000000819							39	-120	34	-218		
ENSRNOP00000000821	26	-178	15	-92.2	25	-108					18	-88.7
ENSRNOP00000000828					1	-2.1						
ENSRNOP00000000831									2	-9.2		
ENSRNOP00000000832									12	-36.8		
ENSRNOP00000000881			2	-2.8					2	-2.5	2	-3.7
ENSRNOP00000000886									2	-8.9	1	-7.9
ENSRNOP00000000891									3	-14		
ENSRNOP00000000975	3	-12.1	2	-5.7	4	-17.6			3	-20.4	4	-17.6
ENSRNOP00000000990											1	-2.1
ENSRNOP00000001044							4	-19.5	3	-25.1		
ENSRNOP00000001048	16	-99.1	12	-35.9	9	-37.9	19	-75.7	15	-47.8	17	-42.9
ENSRNOP00000001049							6	-42.7	6	-25.2	4	-28.2
ENSRNOP00000001079	6	-23.5			5	-22.6	20	-17.7	5	-5.8		
ENSRNOP00000001093							2	-8.8				
ENSRNOP00000001095	208	-348	263	-379	284	-368	153	-238	72	-233	98	-194
ENSRNOP00000001098	30	-141	11	-73.1	8	-63.4	32	-116	31	-114	18	-83.2
ENSRNOP00000001115	4	-16.6			1	-2.3	6	-12.4	2	-5.5	2	-3.8
ENSRNOP00000001121			1	-2.7	2	-5.4	6	-42.9	7	-33.1	1	-3.4
ENSRNOP00000001133							2	-2			1	-2.1
ENSRNOP00000001160	19	-96.8	8	-58.5	5	-42.3	29	-128	25	-88.9	6	-33.6
ENSRNOP00000001171	4	-9.1	1	-5.7	1	-2.1	5	-27.4	5	-20.5	3	-20.4
ENSRNOP00000001179	2	-12.3	5	-13.7	2	-4.1						

ENSRNOP00000001190	2	-6.5							1	-3.5		
ENSRNOP00000001200			1	-2.4							1	-10.5
ENSRNOP00000001211	47	-216	34	-123	67	-130	100	-234	89	-235	77	-184
ENSRNOP00000001219							1	-2.4				
ENSRNOP00000001220	2	-8.3	3	-7.1	1	-3.3						
ENSRNOP00000001227	12	-70.5	5	-21	6	-33.8	19	-93	17	-74.1	13	-65.4
ENSRNOP00000001228							1	-5.9				
ENSRNOP00000001229	1	-4.1										
ENSRNOP00000001235			1	-2.7								
ENSRNOP00000001247	13	-40.1	14	-40.7	18	-50.4			1	-3.6		
ENSRNOP00000001265	35	-45.2	35	-42.7	51	-43.5			20	-27.7	9	-20.4
ENSRNOP00000001285	37	-155	15	-54.5	27	-120	48	-114	46	-137	36	-105
ENSRNOP00000001291	65	-168	67	-179	60	-139	56	-169	51	-130	50	-167
ENSRNOP00000001298							7	-29.3	6	-25.3		
ENSRNOP00000001299			21	-98.5								
ENSRNOP00000001301	32	-121			38	-145	41	-99	41	-94.5	42	-88.8
ENSRNOP00000001309							1	-4.1				
ENSRNOP00000001315	2	-6.2			2	-3.8	1	-3.2			1	-3.1
ENSRNOP00000001322	2	-8.4										
ENSRNOP00000001348	3	-9.8					5	-18.2	6	-22.3	2	-2.7
ENSRNOP00000001349											1	-4
ENSRNOP00000001363							2	-5.2	2	-3.5		
ENSRNOP00000001365	3	-12.7					1	-1.7				
ENSRNOP00000001373							1	-5.5	7	-34.4		
ENSRNOP00000001379	3	-18.4	13	-4.4			4	-32.1	7	-43.9	5	-22.1
ENSRNOP00000001383	1	-2.7			1	-5.3	4	-10.2	3	-12.4	2	-8.8
ENSRNOP00000001397	21	-43.8	8	-24.1	8	-36.8	35	-36.2	40	-53	22	-44.7
ENSRNOP00000001401							1	-2.5	2	-13.3		
ENSRNOP00000001409	10	-55.3	4	-15	6	-27.4	33	-75.7	28	-89.9	14	-38.8
ENSRNOP00000001416	3	-17.2	5	-14.4	4	-15.6						
ENSRNOP00000001437	6	-20.5					3	-10.1	3	-19.2	2	-10.6
ENSRNOP00000001446											2	-3.9
ENSRNOP00000001500	13	-68	12	-44.1	15	-79.5	30	-90.8	14	-50.9	41	-69.5
ENSRNOP00000001508	2	-9.4					2	-10.2	2	-15.3	3	-19.6
ENSRNOP00000001517	48	-302	21	-114	19	-92.1	72	-378	59	-290	37	-196
ENSRNOP00000001518	10	-53.8	7	-31.9	2	-7.9	8	-24.7	4	-28	7	-17.7

ENSRNOP00000001545	27	-70.7	16	-31.7	15	-28.5						
ENSRNOP00000001547	15	-61.1	12	-57.5	10	-41.5	5	-18.9	5	-22.5	5	-24.4
ENSRNOP00000001556	18	-77.1	33	-85.9	24	-81.2	22	-69.2	35	-72	42	-54.5
ENSRNOP00000001562			2	-4.8	2	-3.1						
ENSRNOP00000001564							6	-30.8				
ENSRNOP00000001589	5	-5.9					12	-55.8	16	-71.2	11	-46
ENSRNOP00000001602	3	-13.7							7	-16.9		
ENSRNOP00000001606											1	-2.3
ENSRNOP00000001609	13	-50.4	10	-30.1	7	-19.1	1	-6.6			2	-11.3
ENSRNOP00000001625	2	-21.1					5	-24.9	4	-14.5	1	-7.7
ENSRNOP00000001631							1	-6.2				
ENSRNOP00000001636							3	-8.2	4	-7.8	3	-8.5
ENSRNOP00000001638							2	-3.1				
ENSRNOP00000001639							10	-38.1	8	-25.1	4	-21.5
ENSRNOP00000001654	3	-15.4					2	-4.5	3	-5.9		
ENSRNOP00000001664	4	-16.2	4	-15.6	5	-28	6	-15.7	6	-16	6	-29
ENSRNOP00000001666	14	-45.4	10	-45.6	8	-46.6	8	-22.5	4	-7.4	10	-25.9
ENSRNOP00000001669	11	-43.4	7	-34.3	8	-44.1	1	-1.8	2	-5.7	2	-14.7
ENSRNOP00000001679	2	-4.4					4	-5.3	3	-18.8	6	-6.6
ENSRNOP00000001689	8	-33.2	5	-22.5			14	-55.4	12	-38	6	-24.6
ENSRNOP00000001695							2	-10.6	1	-4.2		
ENSRNOP00000001699	115	-308	110	-254	101	-264	69	-208	84	-251	66	-186
ENSRNOP00000001708	16	-80	12	-58.9	20	-48.2	11	-56.8	14	-59.9	8	-39.1
ENSRNOP00000001717	3	-15.8	3	-14.3	2	-8.6	4	-6	4	-5.4		
ENSRNOP00000001738	140	-368	182	-316	191	-323	161	-408	214	-400	245	-347
ENSRNOP00000001745							2	-10	2	-8	4	-3.8
ENSRNOP00000001752	3	-13.1					1	-9.6	1	-10.9	2	-10
ENSRNOP00000001783							1	-3.8	2	-8	1	-6.6
ENSRNOP00000001794							2	-2.6	2	-3		
ENSRNOP00000001809	52	-224	61	-198	61	-201	46	-137	42	-129	69	-136
ENSRNOP00000001812							4	-17.1	3	-10.6	3	-5.4
ENSRNOP00000001816	79	-284	64	-215	70	-246	98	-240	76	-208	70	-236
ENSRNOP00000001822							8	-30	4	-21.9		
ENSRNOP00000001863	3	-13.2	2	-4.1	4	-23.9	9	-37.9	11	-37.3	5	-17
ENSRNOP00000001866	4	-26.7	1	-5.2	8	-18.3	8	-4.7	8	-18.7		
ENSRNOP00000001876	9	-51.5	9	-40.7	6	-36	13	-65	14	-53.9	11	-45.9

ENSRNOP00000001882	4	-23.4	1	-5.7	1	-5.6	2	-12.5	3	-15		
ENSRNOP00000001890	1	-7.1	1	-5			3	-5.5	3	-5.3		
ENSRNOP00000001899	4	-9.8										
ENSRNOP00000001905	51	-196	28	-153	40	-135	29	-140	24	-132	18	-76.5
ENSRNOP00000001911	4	-23.6			3	-11.7						
ENSRNOP00000001918					1	-2.4	2	-19.6	2	-19.6	3	-22.2
ENSRNOP00000001924	27	-58.7	8	-17.1	8	-26.3	5	-21.7	2	-16.5	2	-7.5
ENSRNOP00000001932							11	-52.7	11	-71.2	3	-11.9
ENSRNOP00000001954	9	-33.8	5	-25.1	8	-31.6	15	-41.4	23	-52.1	6	-32.1
ENSRNOP00000001958	37	-125	38	-141	29	-124	20	-92.2	12	-55.1	28	-81.5
ENSRNOP00000001960							4	-14.2	3	-5.8	1	-3.2
ENSRNOP00000001961	349	-560	303	-490	314	-504	262	-402	294	-377	258	-411
ENSRNOP00000001962									2	-2.3		
ENSRNOP00000002020							1	-6.2	1	-9.6	1	-5.9
ENSRNOP00000002037	101	-236	85	-226	71	-195	72	-190	73	-202	66	-217
ENSRNOP00000002044	3	-14.8			3	-5.7	4	-12.1	4	-9.6	1	-3.1
ENSRNOP00000002052							58	-45.7			84	-39.6
ENSRNOP00000002055	5	-35.7	3	-18.6			14	-52.2	8	-34.9	6	-20.2
ENSRNOP00000002072	2	-13.3	1	-7.5	2	-12.8						
ENSRNOP00000002083							1	-2.9			1	-3.6
ENSRNOP00000002116	33	-91.3	28	-79.8	19	-56.6	54	-121	68	-175	28	-71.4
ENSRNOP00000002124	18	-75.5										
ENSRNOP00000002134	2	-6.4			1	-3.6	1	-2.9	2	-3.4		
ENSRNOP00000002163							3	-28.8	5	-26.9		
ENSRNOP00000002169	11	-36.4	4	-23	8	-37.8	16	-62	18	-104	8	-37.3
ENSRNOP00000002180	7	-50.8	5	-16.4	5	-25.3	1	-2	4	-23.9		
ENSRNOP00000002194	18	-34	8	-24.2	6	-16.1	2	-6.5	4	-22.4	4	-8.5
ENSRNOP00000002198									1	-2.8		
ENSRNOP00000002206							2	-10.9			1	-3.4
ENSRNOP00000002209	3	-9.7					6	-16.6	11	-43.1	4	-38.3
ENSRNOP00000002214									58	-94.5		
ENSRNOP00000002222	2	-5.7					4	-20.1	7	-28.2		
ENSRNOP00000002238	56	-202	49	-173	48	-180	44	-102	39	-109	35	-87.7
ENSRNOP00000002255	2	-7.7	3	-15.1	6	-15.5	2	-4.2			2	-2.9
ENSRNOP00000002257	1	-7.3					2	-3.6	4	-22.6	2	-13.4
ENSRNOP00000002260							1	-7.1	5	-16		

ENSRNOP00000002284									1	-6.6		
ENSRNOP00000002290									1	-6.9		
ENSRNOP00000002294			1	-2.6								
ENSRNOP00000002316	6	-10.8					1	-1.6	3	-9.5	1	-1.9
ENSRNOP00000002321									1	-10.1		
ENSRNOP00000002325	10	-40.7	2	-13.5	4	-19.4	4	-12.8	4	-19	4	-14.9
ENSRNOP00000002327	3	-9.1			3	-7	11	-55.2	15	-74.5	6	-34.1
ENSRNOP00000002331	2	-6.3										
ENSRNOP00000002343	4	-22					10	-63.3	8	-46.9	6	-24.1
ENSRNOP00000002354									2	-8		
ENSRNOP00000002358					1	-2.8	11	-61.2	12	-65	7	-42.1
ENSRNOP00000002366	57	-98.8	51	-85.5	65	-124	23	-76	17	-67.1	14	-72.1
ENSRNOP00000002403	1	-3					4	-21.6			1	-3.1
ENSRNOP00000002407	53	-230	55	-187	22	-135	42	-114	50	-164	20	-107
ENSRNOP00000002410	40	-194	20	-91	35	-144	38	-134	32	-123	28	-99
ENSRNOP00000002429							1	-7.4				
ENSRNOP00000002443							2	-2.7				
ENSRNOP00000002447	4	-6.3			3	-2.8	3	-16.7	2	-5.9		
ENSRNOP00000002450	3	-23.6			2	-5.9	2	-5.3	3	-13.1		
ENSRNOP00000002462	2	-12.2					6	-21.4	9	-43.6	3	-11.1
ENSRNOP00000002464					1	-8.8						
ENSRNOP00000002478							13	-85.5	6	-52.7	3	-25.6
ENSRNOP00000002484	17	-65.8	9	-54.7	16	-47.7	13	-54.5	13	-47.1	9	-53.3
ENSRNOP00000002486	1	-2.8										
ENSRNOP00000002496							8	-48.9			7	-48.4
ENSRNOP00000002499	30	-73.9	20	-74.7	23	-63	39	-89.8	24	-48.1	67	-77.3
ENSRNOP00000002504	16	-24.1	10	-23.7			13	-33.3	11	-40.7	13	-18.8
ENSRNOP00000002511	1	-2.8										
ENSRNOP00000002530									1	-10.7		
ENSRNOP00000002531	3	-9.6					11	-34.7	9	-34.1	6	-24.4
ENSRNOP00000002540	1	-3.5			1	-2.8	3	-23.6	2	-8.7	1	-6.7
ENSRNOP00000002549	2	-16.1					3	-16.8	2	-11.2		
ENSRNOP00000002550			8	-23.7	8	-16.7	8	-44.1	11	-61.4	2	-4.5
ENSRNOP00000002576	24	-115	13	-76.2	10	-45.2	17	-50	28	-98.9	23	-61.9
ENSRNOP00000002593	2	-6.1					2	-6.4				
ENSRNOP00000002599	2	-9.5										

ENSRNOP00000002680	32	-115	12	-51.3	8	-38.2	34	-93	33	-113	23	-98.9
ENSRNOP00000002687	3	-11.2					5	-13.2	8	-15.1	2	-12.5
ENSRNOP00000002699	36	-84.7	32	-69.5	34	-56.7	18	-43.6	8	-17.5	13	-30.4
ENSRNOP00000002704									3	-10.4		
ENSRNOP00000002705	39	-110	59	-99.5	52	-92.2	5	-9.5	4	-18.6	7	-37.1
ENSRNOP00000002712	206	-361	188	-298	177	-327	64	-146	99	-132	57	-133
ENSRNOP00000002716									10	-32.3		
ENSRNOP00000002724	135	-305	157	-255	143	-272	62	-172	75	-177	53	-149
ENSRNOP00000002727	14	-49.9			4	-10.9	10	-57.1	16	-63.5	6	-28.4
ENSRNOP00000002728	77	-251	78	-193	59	-190	18	-78.6	26	-62.3	30	-86.4
ENSRNOP00000002732	44	-113	34	-106	52	-102	16	-30.4	12	-26.8	20	-31.3
ENSRNOP00000002738	34	-149	26	-87.5	28	-116	38	-81.2	25	-59.9	20	-48.1
ENSRNOP00000002752	2	-2.7					2	-1.6	2	-11.2	2	-2.5
ENSRNOP00000002769							2	-10.2				
ENSRNOP00000002799							1	-6.5				
ENSRNOP00000002806	2	-12.5					12	-27.3	8	-15.2		
ENSRNOP00000002810	2	-9.1			2	-8.6						
ENSRNOP00000002855					1	-5						
ENSRNOP00000002862									1	-2.7		
ENSRNOP00000002867	3	-8.8										
ENSRNOP00000002883	2	-13.5							6	-34.2	1	-8.7
ENSRNOP00000002888											1	-3.7
ENSRNOP00000002890							8	-35.3	10	-50	3	-14.8
ENSRNOP00000002905							1	-6.9			1	-6.7
ENSRNOP00000002906							2	-6.9	2	-5.8		
ENSRNOP00000002916									1	-2.8		
ENSRNOP00000002977			4	-9.1	1	-2.6	6	-30.8	2	-2.3	3	-12.1
ENSRNOP00000002984	2	-4.6					1	-1.5	4	-15.2		
ENSRNOP00000002987							1	-3.3				
ENSRNOP00000002991	23	-47.9	16	-37	16	-31.4	2	-2.8	5	-17.9		
ENSRNOP00000002996	51	-140	30	-76.9	23	-88.9	39	-123	35	-105	63	-90.3
ENSRNOP00000003004	50	-81.1	26	-89.2	35	-104	14	-58.1	20	-86.6	13	-55.3
ENSRNOP00000003010							2	-19.4	4	-23.2		
ENSRNOP00000003013					5	-19.6						
ENSRNOP00000003017							2	-5.6			2	-6.8
ENSRNOP00000003020	50	-195	51	-124	60	-168	110	-224	80	-197	63	-149

ENSRNOP00000003022	159	-91.3	122	-61.7	149	-68	18	-26.9	12	-43.2	12	-26.8
ENSRNOP00000003046							6	-40.9	4	-19.2	1	-5.5
ENSRNOP00000003052	29	-109	26	-83.6	38	-85	21	-79.8	15	-66.1	27	-80.4
ENSRNOP00000003066	3	-3	2	-9.7			7	-27.9	6	-21.5	2	-10.8
ENSRNOP00000003067							1	-1.6	2	-2.7		
ENSRNOP00000003072	11	-86.8	3	-16.6	1	-2.7	17	-78.5	16	-96.8	8	-41.7
ENSRNOP00000003077							2	-5.3	2	-3.6	2	-4.5
ENSRNOP00000003128	9	-33.5	7	-21.2	8	-19			2	-2.4		
ENSRNOP00000003146							1	-3.3	2	-5.2	1	-3.1
ENSRNOP00000003182	5	-11.7										
ENSRNOP00000003186							5	-19.3			2	-1.9
ENSRNOP00000003192							4	-22.2				
ENSRNOP00000003213	3	-10					2	-2.3				
ENSRNOP00000003219	4	-21.2	2	-2.3	4	-4.6			1	-7.3		
ENSRNOP00000003249	7	-46.4	8	-27.9	6	-15.9	1	-3.5				
ENSRNOP00000003251			7	-24.2	6	-16.1	11	-35.5	10	-36.1	8	-15.9
ENSRNOP00000003252	36	-187			20	-126	45	-213	35	-172	33	-160
ENSRNOP00000003255	5	-21.8					29	-153	24	-160	4	-23.4
ENSRNOP00000003268	4	-8.2										
ENSRNOP00000003274											1	-2.2
ENSRNOP00000003277	7	-29.1	3	-14.5	5	-29.5	19	-73.3	16	-53.5	8	-37.8
ENSRNOP00000003282	3	-4.2	2	-3.5			6	-27.3	6	-34.6	3	-19.8
ENSRNOP00000003284	14	-77.8	3	-21.7	1	-4.6	4	-27.5	7	-27	4	-26.3
ENSRNOP00000003295									1	-5		
ENSRNOP00000003300	7	-26.7	1	-4.3			2	-14.9			1	-1.6
ENSRNOP00000003327							4	-22.5	3	-15.5		
ENSRNOP00000003334	17	-50.5	15	-68.6	7	-30.3	12	-47.4	12	-46.5	80	-46.5
ENSRNOP00000003343					2	-2.3	6	-29.7	6	-33.4	1	-2.3
ENSRNOP00000003378							16	-95.4				
ENSRNOP00000003390	55	-239	31	-155	39	-152	31	-97	18	-86.6	21	-79.7
ENSRNOP00000003395							3	-15.9			2	-2.2
ENSRNOP00000003413	4	-16	6	-42.7	4	-31.2	17	-74.8	8	-55.9	4	-29.4
ENSRNOP00000003414							2	-8.6				
ENSRNOP00000003435							5	-5.5	3	-3.1	5	-5.8
ENSRNOP00000003436	24	-50.9	11	-30	10	-44.9	7	-25	12	-22.9	8	-25
ENSRNOP00000003449							5	-30.2			2	-4.3

ENSRNOP00000003460									4	-3.5		
ENSRNOP00000003492							2	-11.9	1	-11.1	1	-10.3
ENSRNOP00000003498	35	-72.6	50	-63.2	72	-79.6	58	-46.9	58	-58.6	98	-75.9
ENSRNOP00000003526							1	-3.2				
ENSRNOP00000003542	8	-14.2	3	-13.1	2	-4.9	19	-31.2	15	-32.2	9	-13.1
ENSRNOP00000003563	229	-98.6										
ENSRNOP00000003611	22	-28.8	30	-44.1	9	-24	1	-1.5	4	-24.3	2	-9.9
ENSRNOP00000003633	33	-141	25	-100	29	-126	20	-92.1	22	-80.9	16	-68.5
ENSRNOP00000003645	19	-75.3	9	-46.3	7	-29	18	-38.2	19	-53	12	-24.3
ENSRNOP00000003674	25	-45.3	6	-15.8	14	-44.5	14	-49	10	-38.1	22	-40.7
ENSRNOP00000003687	10	-65.3	8	-34.2	5	-21.4	8	-43.7				
ENSRNOP00000003691	22	-93.5	9	-59	12	-66.4	36	-135	27	-68.9	17	-72.6
ENSRNOP00000003707	4	-8.5										
ENSRNOP00000003715	1	-2.6					5	-29.1	8	-29.6	2	-10.7
ENSRNOP00000003728	15	-48.7	4	-28.5	12	-30.5	5	-9.4	8	-27.8	3	-7.7
ENSRNOP00000003739	64	-234	41	-110	59	-156	37	-137	41	-140	26	-106
ENSRNOP00000003748							6	-44	5	-24.8	1	-3.5
ENSRNOP00000003762							2	-10.1	3	-11.7	1	-5.2
ENSRNOP00000003770					6	-36.4						
ENSRNOP00000003791	49	-156	43	-139	36	-142	21	-76.1	40	-125	33	-120
ENSRNOP00000003804									1	-3.6		
ENSRNOP00000003811									1	-2.6		
ENSRNOP00000003812	17	-80.9	9	-51.6	12	-56.9	3	-14.2	21	-27.7		
ENSRNOP00000003817											2	-2.6
ENSRNOP00000003836							1	-2.6				
ENSRNOP00000003840							2	-2.4				
ENSRNOP00000003867							2	-5.5	2	-2.8		
ENSRNOP00000003882							3	-25.6	2	-22.5	2	-2.2
ENSRNOP00000003886							1	-2.2			1	-7.2
ENSRNOP00000003888	2	-5.8										
ENSRNOP00000003891	4	-3.8	2	-5			4	-11.1	5	-18	1	-3.3
ENSRNOP00000003895							2	-8.1	3	-23.8		
ENSRNOP00000003910	137	-197	99	-189	85	-252	118	-183	145	-236	123	-192
ENSRNOP00000003921	19	-96.9	35	-75.3	39	-72.3	13	-37.3	10	-43.9	43	-36.3
ENSRNOP00000003932	14	-37.8	18	-58.7	15	-23.1	6	-16	7	-16.3	7	-17.6
ENSRNOP00000003961									11	-65.1		

ENSRNOP00000003963					2	-5.3	4	-14.2	4	-13.8	2	-2.6
ENSRNOP00000003965	94	-295	95	-297	89	-320	112	-315	104	-251	129	-250
ENSRNOP00000003977							2	-2.5	9	-11.3	4	-3.5
ENSRNOP00000003983			5	-17.8			8	-26.1				
ENSRNOP00000004005							2	-2.9				
ENSRNOP00000004006							3	-11.6	3	-2.7	2	-3.4
ENSRNOP00000004023	5	-30.2	5	-22.3	8	-28.8	10	-39.9	13	-46.7	4	-12.5
ENSRNOP00000004046	2	-16.1	3	-4.1			4	-18.1	3	-16.3		
ENSRNOP00000004065									2	-2.9		
ENSRNOP00000004074							4	-13.7	3	-10.6	1	-4.6
ENSRNOP00000004078	2	-16.3					29	-109	21	-99		
ENSRNOP00000004081	7	-29			3	-18.6					1	-2.3
ENSRNOP00000004091	10	-60.1	5	-17.7	4	-20.2	26	-122	40	-123	19	-79.5
ENSRNOP00000004093									1	-2.6		
ENSRNOP00000004121			2	-9.9			1	-3.7	1	-5.7		
ENSRNOP00000004163					2	-3.6	2	-4.1	1	-2.9	2	-11.7
ENSRNOP00000004172									2	-7.5		
ENSRNOP00000004173							1	-3.7				
ENSRNOP00000004174	2	-11					5	-18.6	1	-4.3	1	-6.5
ENSRNOP00000004187							5	-24.2				
ENSRNOP00000004206	18	-31	32	-45.3	39	-28.8	4	-1.7	5	-3.4	7	-13.7
ENSRNOP00000004213									15	-5.8		
ENSRNOP00000004217					1	-2.4			3	-14.3	5	-11.9
ENSRNOP00000004228	43	-51.2	25	-33.5	24	-24						
ENSRNOP00000004235									1	-2.6		
ENSRNOP00000004243							2	-6.5	4	-19.6	1	-2.2
ENSRNOP00000004256	2	-3.4					4	-15.1	6	-16	1	-2.1
ENSRNOP00000004261							54	-21.7			81	-24.1
ENSRNOP00000004274			6	-23.1							4	-22.6
ENSRNOP00000004278	47	-180	40	-133	49	-131	40	-122	31	-88.7	48	-86.2
ENSRNOP00000004283	2	-9.2					16	-91.3	12	-75.5	4	-15.2
ENSRNOP00000004293									5	-16.9		
ENSRNOP00000004311							54	-13.6	51	-35.5		
ENSRNOP00000004319	1	-8.1	2	-10.6	2	-9.1			1	-7.7	1	-2.5
ENSRNOP00000004320							1	-3.3				
ENSRNOP00000004322							1	-5.6				

ENSRNOP00000004323	5	-28.8	1	-5.8	1	-11	3	-8.6	4	-20.3	3	-6.1
ENSRNOP00000004351			1	-3.6			4	-11.3	3	-12.8	1	-2.3
ENSRNOP00000004370	1	-7.6					8	-56.6	11	-75.1	8	-53.9
ENSRNOP00000004384	9	-47.3	8	-29.5	7	-20.6						
ENSRNOP00000004385	37	-82.5	29	-80.3	20	-80.1	15	-38.6	28	-55.9	21	-46.7
ENSRNOP00000004416									3	-7.9		
ENSRNOP00000004438							2	-9.5			2	-8.4
ENSRNOP00000004494	14	-71.6	8	-23.2	3	-16	15	-47.4				
ENSRNOP00000004495									2	-2.6		
ENSRNOP00000004519	8	-22.2	1	-2.4	1	-2.8	8	-6.4	7	-14.3		
ENSRNOP00000004520	8	-42	2	-11.1	9	-38	17	-77.4	13	-66.1	25	-54.3
ENSRNOP00000004533									15	-66.3	6	-38.9
ENSRNOP00000004551					1	-2						
ENSRNOP00000004559					3	-4.2						
ENSRNOP00000004570	12	-36.7	10	-47.9	7	-33.8	10	-53	8	-38.7	9	-58.4
ENSRNOP00000004592	6	-38.6	1	-5.3	3	-7.7	5	-34.3	5	-28.8		
ENSRNOP00000004599	20	-27.6	44	-37.8	45	-34.9	3	-25.2	6	-24.5	6	-23.9
ENSRNOP00000004600							2	-3	2	-2.2		
ENSRNOP00000004609	11	-47.4	4	-23.6	2	-5.6	2	-13.3	8	-45	6	-26.9
ENSRNOP00000004662											3	-7.8
ENSRNOP00000004673	14	-57.6	9	-55.3	11	-62.3	17	-71.9	19	-69	8	-43.1
ENSRNOP00000004676							2	-6.4				
ENSRNOP00000004686	126	-246	123	-220	127	-245	145	-213	105	-203	200	-200
ENSRNOP00000004688	5	-28.2				3	-15.3				4	-16.8
ENSRNOP00000004692							1	-5.7	1	-3.9		
ENSRNOP00000004740									1	-2.2		
ENSRNOP00000004770	133	-321	104	-227	116	-283	154	-240	149	-180	96	-218
ENSRNOP00000004797	145	-293	159	-214	137	-257	85	-218	102	-234	136	-176
ENSRNOP00000004798			37	-74.8			2	-8.7				
ENSRNOP00000004799	7	-28.4	4	-11.3			3	-16.3	2	-3.7	2	-9.3
ENSRNOP00000004810									1	-2.5		
ENSRNOP00000004814	3	-26	1	-2.4			22	-114	20	-119	6	-29.2
ENSRNOP00000004836	68	-126	80	-123	76	-134	82	-177	87	-204	96	-141
ENSRNOP00000004864	191	-294	229	-299	203	-338	191	-172	123	-138	100	-188
ENSRNOP00000004878	9	-28.5	5	-44.3	15	-36.3	15	-34.3	12	-27.8	5	-8.8
ENSRNOP00000004885							1	-1.9	2	-8.7	2	-5.3

ENSRNOP00000004895							4	-18.8	3	-12.9	4	-19
ENSRNOP00000004896	17	-87.1	4	-18.1	2	-14.1	1	-1.7			1	-6.4
ENSRNOP00000004911	2	-13.3					3	-14.2	4	-11.3	5	-12
ENSRNOP00000004917	54	-151	50	-184	43	-171	84	-106	97	-117	61	-111
ENSRNOP00000004919							3	-4.8			1	-5
ENSRNOP00000004938	3	-9.5	1	-2.4	1	-2			2	-9.2		
ENSRNOP00000004941	19	-83.3	25	-41.7	29	-58.2	23	-75.4	22	-90.1	25	-74.1
ENSRNOP00000004942	41	-48.6	30	-44	10	-40	16	-36.9	24	-38.9	7	-18
ENSRNOP00000004949							2	-2	1	-2.8		
ENSRNOP00000004979	15	-50.3	15	-35.7	11	-28.4	3	-5.1	4	-14.1	3	-5.3
ENSRNOP00000004991	68	-175	41	-126	50	-160	102	-128	101	-141	119	-153
ENSRNOP00000005003							1	-2.2				
ENSRNOP00000005005	73	-234	52	-130	45	-118	52	-95.3	54	-102	82	-114
ENSRNOP00000005014	4	-19.4	3	-10.5			9	-27	6	-28.4	4	-29
ENSRNOP00000005016	5	-14.2			2	-9.9	3	-15.9	4	-16.8		
ENSRNOP00000005039	2	-7.7					3	-16.3				
ENSRNOP00000005046	15	-76.9	13	-57.2	18	-51.8	5	-24.9	4	-26.9	2	-7.5
ENSRNOP00000005073											2	-9
ENSRNOP00000005078	3	-9.6							2	-3.8		
ENSRNOP00000005089							3	-17.9	3	-18		
ENSRNOP00000005101							4	-17	3	-17.3		
ENSRNOP00000005109	1	-6.9					1	-1.4	1	-2.9		
ENSRNOP00000005122							1	-1.5	3	-11.1	2	-14.1
ENSRNOP00000005125									2	-5.8		
ENSRNOP00000005126	1	-6.5					1	-4.2				
ENSRNOP00000005127	21	-87.3	11	-59.1	12	-66.4	13	-53	12	-45.4	14	-31.1
ENSRNOP00000005138							3	-11.2	2	-5	1	-1.9
ENSRNOP00000005144	215	-188	123	-167	116	-146	23	-99.2	12	-72.6	24	-92.4
ENSRNOP00000005194	3	-18.6	2	-13.4	4	-25.3	7	-28.3	6	-15	7	-25.1
ENSRNOP00000005198							2	-3.3				
ENSRNOP00000005204	2	-12.3			3	-14.9	10	-50.7	11	-56.5	7	-33.3
ENSRNOP00000005226	2	-5.4										
ENSRNOP00000005258	15	-94.6	11	-41.8	3	-19.4	19	-48.4	11	-46.1	6	-24.9
ENSRNOP00000005262	14	-94.3	7	-36.8	11	-49.9	22	-115	15	-92.9	16	-93.3
ENSRNOP00000005273	22	-79.8	25	-58.5	29	-64.9	2	-1.7			4	-9.8
ENSRNOP00000005280	7	-13.2			1	-6.6	13	-53.7	7	-28.3	6	-30.2

ENSRNOP00000005283							7	-20.8	15	-61.6	4	-11.1
ENSRNOP00000005285							4	-26.5	6	-25.3		
ENSRNOP00000005286							1	-3	2	-3.5		
ENSRNOP00000005289									2	-6.8		
ENSRNOP00000005293	2	-13.1			1	-3.6	2	-4.1				
ENSRNOP00000005295	1	-3.3							1	-3.9	1	-2.9
ENSRNOP00000005310			2	-10.7	8	-10.3						
ENSRNOP00000005329	17	-76.4	15	-37.1	8	-26.3	26	-101	24	-109	20	-106
ENSRNOP00000005337	3	-7.4										
ENSRNOP00000005346	1	-5.2										
ENSRNOP00000005349							3	-10.6	4	-20.7	3	-11.6
ENSRNOP00000005367							2	-4.6	2	-5.4		
ENSRNOP00000005368									2	-4.2		
ENSRNOP00000005370	26	-66.7	32	-67.5	40	-66.1	7	-17.8	5	-14.4	4	-17.9
ENSRNOP00000005374									3	-9.3		
ENSRNOP00000005379	3	-7.6					2	-9	6	-8.1		
ENSRNOP00000005382									6	-30.6		
ENSRNOP00000005385											1	-3.2
ENSRNOP00000005401	3	-13.3	1	-4.9								
ENSRNOP00000005415									1	-6.4		
ENSRNOP00000005440							2	-6.7	3	-21.7	1	-3.2
ENSRNOP00000005459	24	-62.7	16	-34.4	20	-41.6	17	-51.8	13	-70.1	15	-47.4
ENSRNOP00000005461	7	-3.8										
ENSRNOP00000005471	19	-40.6	10	-22.2	19	-34.7	2	-9.4	3	-13.3	2	-19.7
ENSRNOP00000005479	1	-2.8					7	-40.3	12	-59.1	4	-12.4
ENSRNOP00000005489	2	-17.3					6	-41.2	7	-61.5	4	-26.2
ENSRNOP00000005490	2	-3									1	-2
ENSRNOP00000005491	29	-93	18	-68.6	11	-68.8	65	-211	36	-133	23	-121
ENSRNOP00000005504							2	-3.4				
ENSRNOP00000005535	2	-21.5										
ENSRNOP00000005571									2	-4.1		
ENSRNOP00000005583									1	-2.2		
ENSRNOP00000005588	25	-51.9	28	-36.1	27	-34.5	11	-26.8			7	-17
ENSRNOP00000005604	8	-64.3			1	-12.3	13	-63.4	20	-103	13	-74
ENSRNOP00000005608	2	-13.4	2	-5.3	4	-19.8	2	-4.9	1	-4.6	3	-15.9
ENSRNOP00000005611	86	-160	63	-137	76	-132	114	-159	72	-122	104	-140

ENSRNOP00000005612							1	-4.1				
ENSRNOP00000005623			1	-4.7	3	-13	3	-12.7	2	-2.4	3	-12.7
ENSRNOP00000005641	1	-4.1							2	-9.6		
ENSRNOP00000005658	9	-37.6	7	-27.7	4	-9.1	12	-18.7	18	-29.3	9	-24.5
ENSRNOP00000005661	2	-12.6	1	-4.4			2	-4.5	2	-5.7		
ENSRNOP00000005665	28	-55.5	16	-56.9	30	-57.8	17	-32.6	19	-30.7	14	-44.2
ENSRNOP00000005702	4	-24.5					2	-6.3	3	-15.8	3	-5.6
ENSRNOP00000005705	3	-20.6	1	-4.7			6	-28.7	7	-39	6	-28.5
ENSRNOP00000005715							2	-3.9	2	-3.7		
ENSRNOP00000005719	18	-64.6			48	-66.2					4	-9.8
ENSRNOP00000005755	8	-21.5	9	-42.6	13	-42.7	11	-42.7	18	-54	4	-17.9
ENSRNOP00000005770									2	-2.5		
ENSRNOP00000005775	6	-25.1										
ENSRNOP00000005781							4	-22.3	2	-8.5	2	-2.5
ENSRNOP00000005784							13	-47.9	9	-44.5		
ENSRNOP00000005803									1	-2.3		
ENSRNOP00000005829	3	-5.6					4	-6.1	3	-7.1		
ENSRNOP00000005844	47	-130	37	-132	28	-115	57	-185	45	-179	52	-166
ENSRNOP00000005853	19	-74.4	24	-58.9	41	-63.8	143	-163	72	-170	114	-126
ENSRNOP00000005855	2	-3.3	3	-13.1	1	-2.8						
ENSRNOP00000005875	196	-382	203	-393	215	-420	108	-249	129	-222	135	-283
ENSRNOP00000005901	12	-40.1	6	-28.9	9	-33.3	9	-7.8	8	-6		
ENSRNOP00000005912	17	-74.3	17	-59.2	11	-34.6	19	-47.1	15	-48.1	10	-30.3
ENSRNOP00000005927	1	-5.9			5	-31.7	13	-56.6	11	-71.1	1	-6.5
ENSRNOP00000005930	2	-10.2					2	-10.4	2	-7.4	1	-3
ENSRNOP00000005958											1	-2.6
ENSRNOP00000005960			41	-33.3	22	-45	3	-9.3			2	-1.7
ENSRNOP00000005961	3	-17.9	1	-2.9			5	-39.4	3	-17	1	-10.1
ENSRNOP00000005970	11	-16	6	-16	9	-16.8						
ENSRNOP00000005987	65	-391										
ENSRNOP00000005990							6	-26.9				
ENSRNOP00000006004	20	-103	16	-72.7	15	-65.4	29	-117	27	-85.8	18	-85.2
ENSRNOP00000006005							2	-5.6				
ENSRNOP00000006018			1	-2.5			3	-4.8	2	-3.4	1	-3.5
ENSRNOP00000006020	3	-18.5					3	-16.6				
ENSRNOP00000006029	7	-45.2	4	-26.9	6	-31.3						

ENSRNOP00000006053	16	-84.3	11	-13.2	7	-12.1	25	-74.5	24	-55.3	12	-54.1
ENSRNOP00000006067											1	-3.3
ENSRNOP00000006087	52	-174	38	-144	36	-133	39	-125	34	-83.5	29	-66.5
ENSRNOP00000006119	29	-157	21	-106	20	-92.7	48	-242	53	-235	37	-138
ENSRNOP00000006128							2	-1.7	3	-16.7		
ENSRNOP00000006139	2	-12.9			2	-8.9	3	-10.9				
ENSRNOP00000006141	5	-32.4	4	-15.4	7	-27.4	2	-7.6	5	-32.2	3	-14.3
ENSRNOP00000006143			11	-56.6	19	-85.2	24	-40.7			9	-21.9
ENSRNOP00000006154	8	-23.7	4	-17.2	4	-8.8	2	-6.1	2	-6		
ENSRNOP00000006160	20	-67.2	7	-33.9	13	-60.4	12	-37.8	12	-52.3	8	-48.3
ENSRNOP00000006190							4	-4.1	4	-10.4		
ENSRNOP00000006197	8	-64.6	3	-18.6	8	-53.3	34	-128	33	-114	10	-68.4
ENSRNOP00000006198							1	-3.1				
ENSRNOP00000006218					6	-47.1						
ENSRNOP00000006225			2	-4.9	5	-12.2	3	-21.1	3	-15.8		
ENSRNOP00000006275									8	-35.9		
ENSRNOP00000006279	1	-6.5										
ENSRNOP00000006284	2	-9.4	1	-3.2	1	-2.9			3	-18.6		
ENSRNOP00000006314	29	-56.7	12	-43.5	6	-40	8	-17.5	11	-16.9	2	-12.2
ENSRNOP00000006322	154	-347	153	-193	127	-263						
ENSRNOP00000006330	41	-215	37	-148	29	-132	50	-132	38	-97.3	30	-106
ENSRNOP00000006335	2	-16.5					8	-46.2	4	-21.9	3	-27.1
ENSRNOP00000006340	4	-27.9	3	-20.1			13	-72.9	10	-54.7	8	-33.6
ENSRNOP00000006355	14	-53.9	13	-60.7	12	-59.1	7	-18.1	3	-4.4	4	-3.2
ENSRNOP00000006356	12	-45.2	2	-10.4	4	-4.4	8	-42.2	5	-31.5	6	-36.8
ENSRNOP00000006359	21	-71.5	10	-24.5	13	-39.5	37	-40.9	25	-43.5	22	-35.3
ENSRNOP00000006361	8	-37.8			3	-15.6	10	-67.6	14	-96.9	5	-21.4
ENSRNOP00000006366							4	-16.9	2	-12.3	2	-11
ENSRNOP00000006369	21	-119	5	-42.9	7	-34.5	30	-115	23	-108	22	-61.6
ENSRNOP00000006376							1	-8.8	2	-7.7	1	-2.6
ENSRNOP00000006400	1	-7.2										
ENSRNOP00000006406							4	-9.9	2	-9	4	-10.6
ENSRNOP00000006407							2	-9.4				
ENSRNOP00000006443	6	-23.2	3	-9.8	5	-16.8			2	-5.5		
ENSRNOP00000006452	3	-16.2	1	-9.2	2	-16.3	2	-11	3	-13.7		
ENSRNOP00000006462			2	-4.7								

ENSRNOP00000006473	2	-12.7	6	-20	8	-14.7	2	-7.2	4	-14.6	3	-12.6
ENSRNOP00000006483							36	-100			28	-78.7
ENSRNOP00000006492					2	-8.6						
ENSRNOP00000006519	18	-80.6	4	-17.8	5	-12.5	8	-26.1	4	-24.1	11	-36.2
ENSRNOP00000006533	57	-211	39	-160	39	-130	44	-150	81	-146	42	-136
ENSRNOP00000006542	25	-102	10	-27.7	15	-57.1	33	-81.5	27	-76.1	16	-68.9
ENSRNOP00000006562					2	-8						
ENSRNOP00000006566									1	-7		
ENSRNOP00000006567	29	-80.4	22	-51.7	12	-46.1	12	-46.8	12	-42.4	12	-50.4
ENSRNOP00000006570	2	-4.1	4	-10.5	4	-17.7	15	-72.6	7	-24.2	3	-19.7
ENSRNOP00000006578	4	-20.5	3	-3.2	2	-9.9	5	-12.7	9	-26.5	8	-22.6
ENSRNOP00000006582	15	-54.8	10	-53.5	6	-23.1	20	-101	17	-79.3	9	-31.6
ENSRNOP00000006584							3	-12.5	3	-17.3		
ENSRNOP00000006591	2	-11	2	-12.1	3	-18.7						
ENSRNOP00000006597	6	-32.4	1	-2.8	2	-5.3						
ENSRNOP00000006603	2	-3.4	2	-2.6			3	-15.3	2	-12.8	1	-1.3
ENSRNOP00000006605	1	-6.4					14	-34.3	8	-30.4	6	-7.2
ENSRNOP00000006607	7	-26.3	10	-40.9	4	-24.8	14	-51.7	19	-69.6	7	-22.9
ENSRNOP00000006615					4	-31.5	13	-54.6	5	-28	8	-32.8
ENSRNOP00000006618							1	-6.8	2	-6.9	1	-1.6
ENSRNOP00000006727							1	-3				
ENSRNOP00000006733									2	-8.9		
ENSRNOP00000006754							10	-52.9				
ENSRNOP00000006755									1	-9.4		
ENSRNOP00000006796	1	-3										
ENSRNOP00000006798	1	-3										
ENSRNOP00000006802	7	-21.5	4	-22.4	8	-29.4	12	-39.1	11	-25.2	12	-46.9
ENSRNOP00000006804			1	-6.8								
ENSRNOP00000006830					1	-3.1	2	-2.6	3	-11.3		
ENSRNOP00000006855	80	-98.5	98	-94.2	75	-66.7	30	-87.9	30	-111	29	-91.1
ENSRNOP00000006874	2	-5.8			3	-20.2	1	-2.4				
ENSRNOP00000006890							2	-7.4	3	-2.6		
ENSRNOP00000006892	5	-11.8					24	-27.7	16	-16.5	1	-1.6
ENSRNOP00000006900	2	-7.6	3	-7.2	1	-12.2						
ENSRNOP00000006913	2	-5.3					1	-3.1				
ENSRNOP00000006924	11	-38.5	5	-17.8	2	-8.6	5	-26.8	5	-21.4	6	-26.2

ENSRNOP00000006946							9	-33.8	5	-17.3	2	-3.9
ENSRNOP00000006950	84	-188	58	-149	67	-178	108	-152	110	-191	121	-173
ENSRNOP00000006971	77	-228	87	-188	72	-185	68	-132	69	-95.2	64	-147
ENSRNOP00000006995	43	-149	37	-137	32	-129	90	-231	100	-231	40	-123
ENSRNOP00000007002	2	-4.1	1	-3.2			3	-15.1			3	-4.1
ENSRNOP00000007015	11	-17.5	2	-5.4	8	-18.5						
ENSRNOP00000007028							2	-5				
ENSRNOP00000007042									4	-22		
ENSRNOP00000007054	4	-28.7					2	-11.4	1	-5.6		
ENSRNOP00000007061							3	-18.7	1	-10.1	1	-4.8
ENSRNOP00000007062	10	-40.5	4	-25.7	2	-5.9	16	-52.1	19	-48.7	5	-7.2
ENSRNOP00000007087	2	-13.9	1	-2.9	2	-12.1	11	-41.9	9	-47.6	6	-30.3
ENSRNOP00000007092	33	-140	22	-95	26	-99.1	23	-99.1	28	-71.2	40	-81.6
ENSRNOP00000007100	13	-44.8	9	-33.3	21	-28.7	16	-51.6	12	-56.3	8	-28.9
ENSRNOP00000007110	23	-75.7	5	-26.3	8	-43.4	8	-23.8	3	-12.9	5	-17.8
ENSRNOP00000007116	11	-54.2	5	-38.7	10	-56.5	15	-43.8	12	-58.1	17	-34.4
ENSRNOP00000007160					6	-3.1						
ENSRNOP00000007174	1	-2.6										
ENSRNOP00000007223	107	-343	106	-294	84	-280	58	-160	58	-156	41	-152
ENSRNOP00000007255							3	-4.4	1	-2.3		
ENSRNOP00000007287	8	-44.6	7	-11.1			11	-29	15	-40	5	-21.1
ENSRNOP00000007288	5	-39.5	1	-3.9			10	-61.1	12	-97.9	7	-29.4
ENSRNOP00000007298	23	-65.2	35	-74.6	42	-99	85	-83.9	64	-100	102	-89.2
ENSRNOP00000007299							1	-11.1				
ENSRNOP00000007304									7	-28.7		
ENSRNOP00000007305	4	-13.6	11	-7.4	11	-7.4						
ENSRNOP00000007327							2	-2.9				
ENSRNOP00000007328							1	-5.3				
ENSRNOP00000007331	34	-121	10	-61.7	10	-54.8	14	-40.2	19	-47.3	13	-46.9
ENSRNOP00000007398	23	-123	10	-47	9	-52.8	82	-349	63	-311	42	-153
ENSRNOP00000007403							4	-7	3	-9.3	9	-15.6
ENSRNOP00000007427	6	-19.6										
ENSRNOP00000007428									4	-21		
ENSRNOP00000007430	57	-99.4	51	-72.8	29	-64.7	66	-119	36	-97.7	38	-97.4
ENSRNOP00000007437							4	-22.2				
ENSRNOP00000007441											6	-37.8

ENSRNOP00000007464							2	-3.6	2	-2.6		
ENSRNOP00000007484	31	-54.3	39	-47.5	41	-53.1	5	-20.6	4	-17.6	8	-20.9
ENSRNOP00000007498	7	-73.3	4	-18.8	11	-45.5	8	-16.5	4	-2.7	2	-10.3
ENSRNOP00000007528	1	-2.7					1	-8.7	3	-14.2		
ENSRNOP00000007548	2	-17.7					4	-27.8	5	-21.1	3	-17.1
ENSRNOP00000007552	47	-148	28	-90.1	38	-90.7	71	-141	51	-138	51	-94.1
ENSRNOP00000007554	18	-65.1	24	-60.4	18	-39.2	17	-60.5	21	-82.8	13	-52.4
ENSRNOP00000007567	66	-207	59	-84.4	74	-92	19	-46.8	20	-33.7	12	-17.5
ENSRNOP00000007583	4	-11.2					1	-3.5				
ENSRNOP00000007608									2	-15.5	1	-1.4
ENSRNOP00000007612	4	-27.6	1	-5.5			3	-8.7	4	-8.7	3	-7.3
ENSRNOP00000007620	2	-3.3					2	-3.5	6	-32.8		
ENSRNOP00000007623	3	-11.4	5	-20.9	4	-14.5	7	-25.4	8	-30.4	7	-22.5
ENSRNOP00000007624	8	-25.1	2	-9.7					1	-4.1	2	-10.3
ENSRNOP00000007641	9	-55	9	-43.8	8	-27.9						
ENSRNOP00000007645	9	-22.6	3	-15.3	6	-23.7			4	-19.1	4	-19.8
ENSRNOP00000007677									2	-9	2	-2.7
ENSRNOP00000007681									1	-2.5		
ENSRNOP00000007695					2	-10.1	10	-46.6	7	-32.5	14	-24.2
ENSRNOP00000007701							3	-15.8	3	-14.2		
ENSRNOP00000007711	2	-2.7	4	-14.6								
ENSRNOP00000007763	4	-11.1			1	-3.7	12	-29.5	9	-32.9	3	-11.6
ENSRNOP00000007766	9	-46.2	5	-24.3	2	-3.4	2	-12.2	3	-11.4	3	-10.8
ENSRNOP00000007773	5	-31.1	2	-11.4			2	-7.4	2	-6.8		
ENSRNOP00000007789	8	-15.9	3	-7.4	2	-4.1						
ENSRNOP00000007794							3	-21.4				
ENSRNOP00000007825	34	-67	5	-16.1	10	-46.3	13	-39.4	15	-31.9	11	-6.1
ENSRNOP00000007840	4	-2.9	5	-5	5	-4.8						
ENSRNOP00000007841											14	-49.5
ENSRNOP00000007854	9	-39.2			1	-2.7	2	-5.7	1	-5		
ENSRNOP00000007855							1	-1.5	1	-2.3		
ENSRNOP00000007870	136	-197	127	-157	97	-154	24	-67.4	13	-57.3	26	-75.1
ENSRNOP00000007886							2	-7.9	4	-17.7		
ENSRNOP00000007888							3	-17.4	7	-32.3	3	-11.6
ENSRNOP00000007914	5	-16.3					7	-21.1	5	-17.1	4	-13.9
ENSRNOP00000007919							3	-3				

ENSRNOP00000007925							4	-5.5				
ENSRNOP00000007969							1	-6.9	1	-8.6	1	-7.3
ENSRNOP00000007995	2	-13.4	3	-5.9	1	-2.8			8	-40.4	7	-34.4
ENSRNOP00000008008	3	-5.9	1	-7.9	1	-7.5					2	-12.1
ENSRNOP00000008018	4	-18.5	13	-42.8	4	-20.5	15	-81.8	14	-62.1	9	-51.3
ENSRNOP00000008035			1	-11.7	1	-3.6	1	-4.5	1	-4.2	1	-5.4
ENSRNOP00000008041	4	-11.9					16	-43.4	20	-73.4	1	-2.3
ENSRNOP00000008045	5	-31.4					22	-46.1	30	-58.1	7	-42.8
ENSRNOP00000008046	1	-7.8					1	-1.7				
ENSRNOP00000008083	8	-36.5	3	-14	1	-3.4	6	-29.6	7	-40.2		
ENSRNOP00000008084	6	-28.1					11	-45	10	-55.6	2	-4.6
ENSRNOP00000008094	24	-81.6	19	-84.7	22	-75.8						
ENSRNOP00000008119	3	-18.1	3	-6.9	3	-5.8	6	-13.4	10	-15.7	10	-13.8
ENSRNOP00000008120									2	-15	1	-2.2
ENSRNOP00000008140									1	-4.7		
ENSRNOP00000008150	2	-4.7					5	-41.5	5	-34.6	5	-33.9
ENSRNOP00000008163	15	-55.5	9	-50			5	-20.9	7	-46.3		
ENSRNOP00000008193							1	-4.9				
ENSRNOP00000008200	15	-102	4	-19.5	3	-19.4	19	-106	18	-91.1	12	-39.4
ENSRNOP00000008210					2	-11.4	4	-17.2	8	-44.8		
ENSRNOP00000008211	5	-30.4	3	-9.4	1	-2.4	6	-40.5	12	-51.6	5	-20
ENSRNOP00000008229	3	-16.1					2	-13.6	2	-11.1		
ENSRNOP00000008238	10	-39.9	3	-13.4	2	-10.8	3	-19.7	7	-38.5	1	-3.5
ENSRNOP00000008289			1	-3.2			6	-32.6	6	-31	2	-5.7
ENSRNOP00000008319	3	-21	1	-11.5			9	-41.1	8	-30.9	9	-31.4
ENSRNOP00000008325	4	-20.3			2	-15.4	13	-74.6	3	-14.3	5	-37.7
ENSRNOP00000008329	15	-24	6	-25.5	4	-24.2	29	-24.5	21	-4	6	-22.1
ENSRNOP00000008359							1	-2.3				
ENSRNOP00000008364	7	-28.3	9	-24.7	5	-26.3	6	-33.7	13	-42.2	4	-22.5
ENSRNOP00000008374	38	-167	18	-106	11	-70.8	36	-141	42	-194	22	-134
ENSRNOP00000008390							3	-19.3				
ENSRNOP00000008391	4	-19.5										
ENSRNOP00000008410	2	-17.1					22	-68.6	9	-45.7	1	-5.7
ENSRNOP00000008416							6	-47	8	-45.7	1	-8
ENSRNOP00000008451									2	-3.5	2	-12.5
ENSRNOP00000008458											1	-2.1

ENSRNOP00000008465	9	-47	8	-43.9	9	-46.7	9	-35.5	13	-52.5	6	-28.7
ENSRNOP00000008477	434	-464	294	-409	340	-401	616	-372	632	-353	419	-308
ENSRNOP00000008486	2	-8.9										
ENSRNOP00000008489			2	-2.4					1	-4.8		
ENSRNOP00000008503	26	-97.5	27	-89.3	23	-76.4	24	-100	27	-103		
ENSRNOP00000008504	35	-130	28	-116	32	-104	49	-96.6	38	-93.2	47	-118
ENSRNOP00000008509							5	-5.6				
ENSRNOP00000008518	12	-61.1	9	-41.9	12	-62.9	21	-64.4	18	-76	16	-59.7
ENSRNOP00000008522	38	-141	39	-134	53	-203	36	-103	24	-90.3	25	-83.1
ENSRNOP00000008525	10	-42.1	3	-16.1	4	-16.2	28	-57.1	16	-68.7	9	-18.3
ENSRNOP00000008557							1	-8.5	4	-23	1	-4.3
ENSRNOP00000008574	10	-56.9					19	-72.9	21	-90.6		
ENSRNOP00000008582							1	-4.8	6	-19.7		
ENSRNOP00000008608							4	-24.3	2	-6.4	4	-8.8
ENSRNOP00000008619											29	-108
ENSRNOP00000008630							4	-26.2	4	-28.1		
ENSRNOP00000008677											3	-17
ENSRNOP00000008679	1	-2.6	2	-6.1			3	-6.8	6	-18.8	2	-7.8
ENSRNOP00000008680	3	-6.3					3	-3.5				
ENSRNOP00000008686									5	-29.1		
ENSRNOP00000008687									4	-19.9	1	-1.4
ENSRNOP00000008698			1	-4.7	1	-6.1	3	-16.2	4	-15.1	2	-2.1
ENSRNOP00000008713	2	-9.5					4	-16.1	2	-8.9		
ENSRNOP00000008726									1	-5.3	1	-3.1
ENSRNOP00000008728	13	-50.2	3	-13.5	9	-40.5	18	-103	18	-100	1	-4.9
ENSRNOP00000008730									1	-6.6		
ENSRNOP00000008736	35	-29.4	21	-5.8	17	-4.2						
ENSRNOP00000008737	3	-12.8					2	-19.6	10	-52.2		
ENSRNOP00000008759	1	-6.7					1	-7.8	2	-6.3	1	-8.5
ENSRNOP00000008819									1	-3.1		
ENSRNOP00000008839							1	-1.6	2	-3.9		
ENSRNOP00000008841	42	-96.3	52	-94.8	57	-104	58	-71	85	-69.2	70	-115
ENSRNOP00000008877	3	-15					2	-2.9				
ENSRNOP00000008888			2	-2.4	2	-2.5			2	-8.2		
ENSRNOP00000008910	3	-18.3					4	-21.3	7	-51.3		
ENSRNOP00000008913	3	-5.8	1	-3.4			5	-28.1	6	-35.2	2	-11.6

ENSRNOP00000008932	31	-102	27	-105	31	-118	33	-118	35	-112	32	-125
ENSRNOP00000008934							3	-10.8	2	-9.4		
ENSRNOP00000008946											1	-2.5
ENSRNOP00000008948									1	-2.3		
ENSRNOP00000008954	1	-4.9										
ENSRNOP00000008964							1	-2.9				
ENSRNOP00000008966	15	-87.5	10	-38.4	9	-56.7	20	-69.6	17	-93.1	16	-66.2
ENSRNOP00000008972									2	-9.2		
ENSRNOP00000008980			40	-101	33	-108	80	-103			31	-93.2
ENSRNOP00000008986	10	-40.8	1	-4.3	2	-12.7	7	-25.5	9	-34.9	16	-33
ENSRNOP00000008987	9	-31.6	4	-19.7	18	-29.6	7	-13	11	-31.1	3	-9
ENSRNOP00000009000	3	-15.1					1	-3.6	2	-4.9		
ENSRNOP00000009002									1	-4.4		
ENSRNOP00000009028	4	-23.8					2	-3.8	3	-13.7		
ENSRNOP00000009053	20	-40.1	6	-36.1	8	-25.9	18	-70	19	-73.6	19	-72.1
ENSRNOP00000009096	1	-2.8	3	-9.1			2	-2.3	3	-10.5		
ENSRNOP00000009100							4	-26.9	7	-39.7	4	-22
ENSRNOP00000009111	438	-338	208	-299	240	-275	396	-219	425	-238	423	-241
ENSRNOP00000009115							3	-13.1	4	-5.6	1	-5.5
ENSRNOP00000009136					1	-2.2	6	-44.5	4	-21		
ENSRNOP00000009139					1	-2.2						
ENSRNOP00000009140							1	-6.5				
ENSRNOP00000009164	4	-13.8	1	-2.2	1	-2.3			1	-2.9	1	-1.5
ENSRNOP00000009175	1	-3.3										
ENSRNOP00000009181							1	-6.8				
ENSRNOP00000009183	115	-425	110	-370	112	-361	121	-415	137	-434	122	-324
ENSRNOP00000009187	10	-34.6	4	-20.7			18	-60.8	20	-66.4	6	-32.8
ENSRNOP00000009198	2	-4					5	-18.8	5	-20.8	2	-9.4
ENSRNOP00000009221	2	-4.3	4	-17	2	-16.8	7	-26.8	5	-13.3		
ENSRNOP00000009249	2	-7.2	4	-16.6	4	-2.6	6	-32.1	14	-58.1	8	-5.2
ENSRNOP00000009253							2	-4.3	2	-8.8	1	-2.2
ENSRNOP00000009260							2	-12.1	1	-6.4	1	-3.1
ENSRNOP00000009288	4	-9	2	-15.6			2	-18	3	-28.5		
ENSRNOP00000009295							2	-4.2	6	-4.4	3	-4.7
ENSRNOP00000009306	3	-9			3	-7.7						
ENSRNOP00000009312							4	-29.6	3	-25.1	5	-22.3

ENSRNOP00000009321	1	-6.3					5	-14.7	7	-22.3	1	-1.7
ENSRNOP00000009339	2	-4	4	-13.9			1	-1.9				
ENSRNOP00000009354							2	-4.2	4	-12.5		
ENSRNOP00000009375	1	-9.6			2	-7.9						
ENSRNOP00000009377	100	-577	51	-293	69	-346	130	-582	131	-618	88	-470
ENSRNOP00000009393							2	-2.7				
ENSRNOP00000009398	17	-22.9	10	-11.6	10	-12.7	5	-32.3	8	-28.1	4	-20.5
ENSRNOP00000009402	33	-79.6	19	-56.9	39	-90.6	21	-39.9	32	-72	21	-45.5
ENSRNOP00000009404							2	-7.2	5	-9.9		
ENSRNOP00000009407	39	-53.3	37	-68.9	32	-73.1	29	-57.4	23	-47.9	31	-53.8
ENSRNOP00000009425	6	-17.6	3	-5.5	2	-5.2						
ENSRNOP00000009431	48	-127	87	-99.2	77	-96.4	13	-49.9	8	-42.2	24	-69.1
ENSRNOP00000009450							3	-20.1	2	-4.2		
ENSRNOP00000009462	7	-50.4	4	-16.3	1	-7.7	12	-53.3	11	-62.6	8	-46.5
ENSRNOP00000009467	38	-168	28	-144	28	-168	18	-113	29	-160	12	-62.7
ENSRNOP00000009482									2	-3		
ENSRNOP00000009500	1	-3.4					5	-22.5	2	-7.8	1	-2.9
ENSRNOP00000009511	34	-58.6	11	-29.3	8	-30.3	27	-61.6	27	-58.2	21	-36.8
ENSRNOP00000009515					2	-4.2	2	-6.6	1	-6.7	2	-6
ENSRNOP00000009546			1	-2.7			5	-21.6	4	-6	4	-4.1
ENSRNOP00000009547	7	-21.7	17	-36.9	25	-40.6			2	-8.6	5	-16.5
ENSRNOP00000009555	80	-254	59	-130	52	-204	38	-114	37	-129	28	-126
ENSRNOP00000009556	58	-252	53	-215	34	-171	62	-193	67	-234	47	-158
ENSRNOP00000009566	22	-60.6	8	-30.1	7	-43.5	16	-85.4	13	-88.9	11	-65.1
ENSRNOP00000009585	2	-5.7			2	-19.4						
ENSRNOP00000009586	5	-32.9	5	-35.4			19	-61.6	19	-56.9	27	-65.7
ENSRNOP00000009587	4	-15.8	5	-25.6	3	-18.6	9	-20.5	12	-25.8	10	-25.4
ENSRNOP00000009611	8	-45.8	4	-28.1	7	-35.5	10	-54.4	5	-24.2	7	-46.1
ENSRNOP00000009634	70	-339	50	-223	52	-204	65	-192	66	-222	63	-214
ENSRNOP00000009635							7	-24.5	3	-27.6	2	-13.3
ENSRNOP00000009649	23	-96.8	12	-30.9	11	-40.6	25	-102	19	-79.1	39	-94.7
ENSRNOP00000009662	6	-34.6			2	-9.8	12	-56.2	11	-41.6	4	-24.9
ENSRNOP00000009665									1	-5.2		
ENSRNOP00000009666	57	-91.4	84	-84.8	68	-83.3	70	-92.3	75	-72.5	100	-77.8
ENSRNOP00000009681	11	-34.7	4	-16.2	5	-16.5	16	-47.4	21	-50.6	7	-18.8
ENSRNOP00000009708	2	-10.4					6	-5.3	6	-5.2	1	-2.3

ENSRNOP00000009737	1	-2.7					6	-20.8	7	-10.7		
ENSRNOP00000009747									1	-7.8	1	-1.5
ENSRNOP00000009749	1	-4.2	3	-16	2	-9.3	3	-18.2	6	-27.9	3	-4.6
ENSRNOP00000009770							2	-9.9	2	-11	2	-9.6
ENSRNOP00000009777	62	-179	50	-144	48	-143	49	-102	32	-85.5	23	-84.4
ENSRNOP00000009779	5	-40.3	2	-3.2	3	-13.3	9	-44.2	4	-22.7	2	-13.5
ENSRNOP00000009812							6	-22.5	11	-24.1	1	-1.9
ENSRNOP00000009813							21	-81.3	25	-106	14	-66.3
ENSRNOP00000009815	165	-42.8	107	-30.5	247	-47.8			12	-16.1		
ENSRNOP00000009817					2	-3.3	4	-12.8	3	-14		
ENSRNOP00000009824	4	-4.2					2	-6	2	-6.4	1	-3.3
ENSRNOP00000009838	28	-115	23	-74.5	17	-85.5	4	-28	2	-5.4	5	-28.9
ENSRNOP00000009839									1	-3		
ENSRNOP00000009866					2	-3.8						
ENSRNOP00000009873	3	-24.3	3	-20.3	4	-26.3	2	-13.1	5	-21.5	1	-3.7
ENSRNOP00000009893							2	-6.5	5	-21.9	2	-6.2
ENSRNOP00000009900	2	-5.4			2	-10.8	4	-21.1	5	-22.5	10	-4.9
ENSRNOP00000009985	47	-196	38	-150	37	-191	49	-162	59	-109	27	-130
ENSRNOP00000009988							31	-82.9				
ENSRNOP00000009989	9	-42.1	12	-56.8	10	-49.8	32	-83.2	27	-109	8	-48.8
ENSRNOP00000009993							1	-2.5				
ENSRNOP00000009994											3	-15.1
ENSRNOP00000009998	16	-54.3	9	-37.6	7	-37.3	8	-50.1	7	-32.6	8	-55.8
ENSRNOP00000010010							3	-2.3	2	-2.3		
ENSRNOP00000010012	6	-21.3	1	-3.1	2	-10.6			5	-12		
ENSRNOP00000010018	1	-5.2							2	-2.4		
ENSRNOP00000010022							1	-3.4				
ENSRNOP00000010043							56	-24.1			84	-34.1
ENSRNOP00000010053					9	-55.5	12	-65.8	7	-44.9	7	-37.4
ENSRNOP00000010054	10	-53	3	-22.9	3	-15.9	25	-86	21	-83.9	12	-39.4
ENSRNOP00000010061	6	-47.5			2	-10.1	5	-31.5	7	-40.3	10	-41.5
ENSRNOP00000010072							3	-29.8	2	-14.4	5	-17.1
ENSRNOP00000010079							3	-3.3	1	-2.4		
ENSRNOP00000010087	2	-4.3										
ENSRNOP00000010100							1	-2.2	4	-20.6		
ENSRNOP00000010117	31	-103	29	-41.5	32	-48.4	15	-24.3	16	-31.2	11	-32.5

ENSRNOP00000010118							2	-12.7			2	-8.7
ENSRNOP00000010149							1	-2.9	1	-2.6	1	-3.2
ENSRNOP00000010158	6	-40	24	-37.3	21	-34.3	6	-32.7				
ENSRNOP00000010185	11	-62.6	2	-9.6	2	-4.1	14	-39.1	14	-43.4	14	-41.2
ENSRNOP00000010197	80	-157	28	-86.1	31	-110	71	-97.9	82	-94.2	41	-111
ENSRNOP00000010209	204	-628	172	-582	195	-562	163	-442	179	-444	221	-473
ENSRNOP00000010210	18	-103	13	-46.1	22	-61.5	22	-104	20	-80.8	13	-88.7
ENSRNOP00000010218	4	-12.5					1	-10.3			2	-7.1
ENSRNOP00000010243	15	-103	3	-22.9	7	-32.9	34	-123	32	-129	14	-37.1
ENSRNOP00000010246							3	-12.2				
ENSRNOP00000010251	11	-47.6	12	-55.1	16	-77.8	28	-111	28	-98.4	29	-65.1
ENSRNOP00000010252	10	-67.1	2	-15.2	2	-9.1	20	-97	21	-111	8	-59.2
ENSRNOP00000010253	3	-3.8										
ENSRNOP00000010260	51	-200	24	-92.5	26	-116	35	-108	23	-88.8	28	-63.9
ENSRNOP00000010288									1	-2.3		
ENSRNOP00000010308					2	-4.4			3	-21.9	3	-10.4
ENSRNOP00000010316							2	-9.8	2	-14.4		
ENSRNOP00000010318	17	-52	10	-28.9	6	-38.1	17	-55.7	13	-38.7	7	-28.6
ENSRNOP00000010375	4	-7.7	6	-8.8	5	-8.7	3	-3.9	4	-15.9	2	-4.5
ENSRNOP00000010379	2	-14.2	4	-6.9	3	-7.4						
ENSRNOP00000010383	40	-80	45	-81.4	29	-55.7	58	-87	66	-81.1	103	-118
ENSRNOP00000010385	14	-66.7			4	-18.7	38	-135	48	-203	15	-86
ENSRNOP00000010386	3	-21.8									3	-12.7
ENSRNOP00000010395	1	-5.7										
ENSRNOP00000010397	4	-8.7							4	-8.5	1	-3.6
ENSRNOP00000010419	12	-57.8	5	-17.5			24	-98.7	36	-111	16	-95.2
ENSRNOP00000010421	2	-11.6					11	-49.8	9	-35.3	6	-35.6
ENSRNOP00000010429	91	-83.2	26	-60.1	18	-71	41	-102	40	-75	34	-98
ENSRNOP00000010464							2	-13.3	3	-11.4		
ENSRNOP00000010467	51	-252	37	-122	36	-142	55	-218	63	-140	37	-184
ENSRNOP00000010481	7	-28.5	3	-12.4	4	-10.9			2	-9.5		
ENSRNOP00000010512	38	-70.6	37	-57.7	31	-77.8	55	-77.4	54	-76.1	50	-66.4
ENSRNOP00000010545	11	-45.8	9	-33.3	9	-32.1	23	-74.1	12	-64.9	13	-57.5
ENSRNOP00000010551							2	-9	2	-5.5		
ENSRNOP00000010556					2	-5.6						
ENSRNOP00000010558			2	-5.8					1	-8.2	1	-3.2

ENSRNOP00000010573	44	-164	49	-104	39	-87.8	43	-128	47	-137	33	-95.5
ENSRNOP00000010579	1146	-505	726	-422	1034	-505	538	-268	860	-340	487	-240
ENSRNOP00000010593	5	-15.8			2	-5.4	6	-11.6	6	-22.8	4	-11.4
ENSRNOP00000010595	1	-4.4										
ENSRNOP00000010601	5	-21.8			1	-2.1	14	-66.5	13	-73.1	6	-34.5
ENSRNOP00000010602	10	-55.3	8	-38.5	8	-40.4	10	-27.1	12	-28.5	5	-25.7
ENSRNOP00000010619							3	-15.7	4	-17.6	1	-2.7
ENSRNOP00000010621			1	-3.4			13	-103	10	-55.4	9	-53
ENSRNOP00000010627							2	-4.8	2	-13.2	2	-3
ENSRNOP00000010631	14	-30.4	2	-3.7	3	-16.5	2	-2.2			2	-2.5
ENSRNOP00000010633							1	-2.3				
ENSRNOP00000010637	2	-11.6	2	-11.4	4	-20.3	14	-64.3	12	-78.5	6	-31
ENSRNOP00000010640	5	-23.1	3	-13.2	3	-17.6	3	-3.2	5	-17.9	3	-14.9
ENSRNOP00000010648	1	-4.1			3	-5.2			2	-2.5		
ENSRNOP00000010659							2	-3.6	1	-2.9		
ENSRNOP00000010660					5	-2.5	10	-18.9			7	-19.1
ENSRNOP00000010663	76	-277	65	-172	56	-159	99	-178	94	-209	93	-208
ENSRNOP00000010674							8	-25.2	10	-45.9	5	-24.1
ENSRNOP00000010678	1	-2.7			1	-2.4						
ENSRNOP00000010680	5	-30	2	-11.3	2	-9.4	6	-25.3	2	-2.2		
ENSRNOP00000010701							6	-23	4	-12.3		
ENSRNOP00000010720	30	-122	20	-86.9	13	-31.5	13	-82.5	16	-110	10	-62.4
ENSRNOP00000010753							15	-52.8				
ENSRNOP00000010760	87	-89.1	81	-88.2	57	-90.9	20	-52.3	29	-41.9	15	-42
ENSRNOP00000010762					1	-4.3	4	-25.5	1	-6	3	-25.9
ENSRNOP00000010779			2	-6.2	3	-8.7	1	-3	1	-4.2		
ENSRNOP00000010810	1	-7.6	2	-15.7			2	-5.6	2	-6.8	1	-6.3
ENSRNOP00000010856									4	-3.8		
ENSRNOP00000010867	24	-48.3	7	-36	17	-60.7	65	-94.9	82	-81	29	-44.2
ENSRNOP00000010871	4	-10.4	6	-9	5	-8.9						
ENSRNOP00000010874	5	-10.6	4	-8.7	4	-8.9	2	-10.1	1	-4.6		
ENSRNOP00000010887									1	-3.3		
ENSRNOP00000010894							3	-11.9	2	-2.7		
ENSRNOP00000010895			3	-9.6	2	-11.2			1	-2.5		
ENSRNOP00000010932									2	-2.5		
ENSRNOP00000010948							4	-28.6	6	-29	2	-8.9

ENSRNOP00000010956									2	-4.7		
ENSRNOP00000010961									1	-4.3		
ENSRNOP00000010976							2	-9.1	1	-2.8		
ENSRNOP00000010980	5	-33.2	3	-13.3	6	-15	10	-32.7	9	-26.2	12	-5.3
ENSRNOP00000010984	29	-146	31	-76.7	30	-71.9	114	-105	46	-101	80	-101
ENSRNOP00000010986									2	-6.1		
ENSRNOP00000011003	1	-3										
ENSRNOP00000011006	9	-53.5	10	-18.6	9	-51.1	8	-21.2	7	-25.9	31	-28.3
ENSRNOP00000011045							2	-4	2	-3		
ENSRNOP00000011049					1	-3.6	4	-6.2	6	-18.9	3	-4.2
ENSRNOP00000011065	7	-23.6	4	-22.8	4	-32	3	-14.9	1	-5.1	3	-15.9
ENSRNOP00000011069	8	-27	6	-26.7	4	-21.5	6	-29.2	9	-49.1	3	-19.7
ENSRNOP00000011082	32	-119	21	-98	31	-113	13	-64.7	12	-64.8	17	-75.2
ENSRNOP00000011105							5	-28.9	3	-21	1	-4.2
ENSRNOP00000011108							2	-8.5				
ENSRNOP00000011112			4	-12.2								
ENSRNOP00000011130	9	-44.5	6	-19.6	8	-25.8	4	-13.6	4	-19.8	1	-4.3
ENSRNOP00000011132	2	-6.7										
ENSRNOP00000011136	1	-5.4										
ENSRNOP00000011158	29	-130	8	-37	12	-44.6	14	-34.9	15	-34.1	10	-28.3
ENSRNOP00000011166	6	-38.4	2	-22.5			17	-92.4	16	-112	11	-85.1
ENSRNOP00000011175					1	-2.3	2	-4.8	2	-5		
ENSRNOP00000011183	30	-78.8	10	-61.5	18	-71.2	51	-90	48	-114	37	-77
ENSRNOP00000011208							1	-4.1	3	-16.9		
ENSRNOP00000011228			2	-2.6			3	-1.7			3	-8.3
ENSRNOP00000011230	86	-274	51	-196	46	-163	79	-198	63	-186	39	-144
ENSRNOP00000011237	2	-6.6	2	-11.7	7	-18.5	6	-4.6	5	-10.6	7	-11.3
ENSRNOP00000011263							1	-7.1	3	-18.7		
ENSRNOP00000011269									3	-3.5		
ENSRNOP00000011275							45	-100	36	-109		
ENSRNOP00000011284	3	-4.5	3	-8.2	3	-7.6						
ENSRNOP00000011298									1	-3.5		
ENSRNOP00000011312	10	-50	6	-25.7	6	-22.2	1	-1.5				
ENSRNOP00000011316	4	-7.2	2	-7.2								
ENSRNOP00000011326							10	-53.5	10	-42.2	4	-19.3
ENSRNOP00000011327	4	-20.1			3	-11.3	8	-35.6	8	-34.5	4	-21.1

ENSRNOP00000011330	21	-86.2	11	-47.2	13	-53.7	19	-77.2	27	-59	17	-52
ENSRNOP00000011332	3	-2.7	1	-2.6			6	-3.7	6	-4	6	-3.7
ENSRNOP00000011333	23	-82.1	19	-61.8	18	-64.3	29	-47.3	25	-53.6	23	-73.5
ENSRNOP00000011358	3	-6	3	-6.1	3	-6.2	1	-1.7			2	-9.9
ENSRNOP00000011392							2	-2.8			3	-2
ENSRNOP00000011427	2	-2.6										
ENSRNOP00000011429	61	-68.1	41	-77	53	-72	20	-65.1	19	-52.7	15	-57.8
ENSRNOP00000011438							3	-4.5				
ENSRNOP00000011446	48	-128	42	-92.5	50	-98.4			16	-52.6	11	-39.4
ENSRNOP00000011481							3	-11.3	7	-19	1	-1.9
ENSRNOP00000011483			37	-129			63	-283	51	-244	60	-222
ENSRNOP00000011484	12	-42.4	6	-21.6	6	-16.1						
ENSRNOP00000011485	3	-3.8	2	-2.9	2	-2.7	2	-4.8	1	-2.9	3	-4.9
ENSRNOP00000011499							2	-6.6	2	-6.5		
ENSRNOP00000011500									1	-2.6	1	-1.7
ENSRNOP00000011501	9	-27.7					6	-35.1	3	-22.7		
ENSRNOP00000011521	60	-255	68	-232	70	-235	56	-111	34	-146	49	-168
ENSRNOP00000011553	4	-5.2	4	-5.4	2	-5.5			8	-55.7		
ENSRNOP00000011560			1	-4.9								
ENSRNOP00000011565							4	-10.4	2	-2.3		
ENSRNOP00000011572	3	-23.6										
ENSRNOP00000011576	3	-10.6									2	-2.9
ENSRNOP00000011579									3	-5.5		
ENSRNOP00000011619							5	-26.5	3	-20.5		
ENSRNOP00000011628	4	-29.1	1	-8	1	-7.7					4	-20.6
ENSRNOP00000011633	2	-4.6			2	-2.3	5	-12.6	2	-4.8		
ENSRNOP00000011654							2	-9.8	2	-9.5	4	-8.9
ENSRNOP00000011662			1	-3.2			4	-25	6	-23.5	1	-5.2
ENSRNOP00000011687	2	-3.3							1	-3.6		
ENSRNOP00000011711	2	-4.1										
ENSRNOP00000011714			3	-14.9								
ENSRNOP00000011718			1	-4.7							1	-1.7
ENSRNOP00000011724	72	-182	96	-137	73	-163	34	-151	22	-100	139	-153
ENSRNOP00000011747							2	-12	2	-11.7	2	-9.4
ENSRNOP00000011765							1	-2.4	3	-9.2		
ENSRNOP00000011767	4	-25.7					2	-10.1	1	-6.5	1	-3

ENSRNOP00000011773	66	-174			52	-149						
ENSRNOP00000011784	24	-72.4	23	-103	19	-108	18	-47.5	18	-72.2	19	-53.2
ENSRNOP00000011799									2	-3.7		
ENSRNOP00000011815							2	-15.1	5	-24.7		
ENSRNOP00000011816	5	-26.1	2	-17.3	2	-17	4	-20.5				
ENSRNOP00000011822	11	-44.9	3	-5.1	6	-26.4	7	-47.4	7	-44.5	4	-26.4
ENSRNOP00000011823	61	-170	38	-119	45	-162	73	-141	85	-166	59	-140
ENSRNOP00000011824									1	-2.2		
ENSRNOP00000011834	3	-12.5	3	-3.9	2	-8.6	3	-3.2	8	-13.4	2	-3.3
ENSRNOP00000011838	2	-10.7							2	-8.6		
ENSRNOP00000011846	22	-58.8	34	-61.1	36	-57.8	8	-35.3	7	-35.5	7	-28
ENSRNOP00000011855	5	-6.6	1	-4.4	2	-13.1	17	-97.8	7	-35.6	4	-24
ENSRNOP00000011880	212	-305	203	-303	202	-270	135	-233	120	-242	172	-222
ENSRNOP00000011889							2	-13.9	2	-18.4	1	-4
ENSRNOP00000011898							1	-3.4	1	-5.8		
ENSRNOP00000011930			1	-3.4	1	-3	5	-30.8	7	-47.6	4	-19.7
ENSRNOP00000011937	3	-15.5	3	-5.5	6	-4.5					2	-1.8
ENSRNOP00000011952									1	-5		
ENSRNOP00000011960	31	-168	31	-163	43	-194	27	-94.1	26	-82.5	16	-93.8
ENSRNOP00000011969	8	-13.7	5	-12.5	6	-12.1	3	-15.8	3	-19.6	3	-15.6
ENSRNOP00000011995									3	-19.6	1	-3.8
ENSRNOP00000012036	3	-4.7	6	-22.3	4	-22.4	9	-23.3	5	-9.9	4	-18.6
ENSRNOP00000012043									2	-9	2	-2
ENSRNOP00000012050	159	-176	73	-164	94	-175	62	-138	78	-115	60	-120
ENSRNOP00000012059									1	-4.8		
ENSRNOP00000012060	2	-5.5					4	-5			4	-5
ENSRNOP00000012075	120	-284	69	-225	78	-239	141	-300	161	-246	113	-228
ENSRNOP00000012083									79	-301		
ENSRNOP00000012091			7	-3.5	10	-3.7						
ENSRNOP00000012092	8	-34.6	8	-29.8	8	-29.8	7	-3	6	-21.6		
ENSRNOP00000012093							4	-36.7	3	-12	3	-23.2
ENSRNOP00000012101							3	-17	3	-13.2	1	-1.8
ENSRNOP00000012102							2	-14.9	2	-12.7	2	-11.3
ENSRNOP00000012111									5	-23.5		
ENSRNOP00000012114	6	-32.9										
ENSRNOP00000012124			1	-5.8	1	-6.1	2	-9.3				

ENSRNOP00000012154	4	-14.5	3	-14								
ENSRNOP00000012161					1	-3.5	4	-12.7	3	-12.5		
ENSRNOP00000012162	17	-82.1	9	-40.7	20	-70.2	12	-41.1	12	-64.1	3	-16.3
ENSRNOP00000012179	1	-6.7			1	-11.4						
ENSRNOP00000012192	10	-4.9	8	-12.5	6	-19.1	19	-64.6	24	-109	14	-74.2
ENSRNOP00000012222	6	-35.6	3	-13.9	1	-14.3	22	-117	19	-52	7	-45.3
ENSRNOP00000012233	10	-23.8	13	-21.9	9	-14.2	31	-22.1	35	-24	11	-20.9
ENSRNOP00000012235							2	-9				
ENSRNOP00000012240	14	-42.6	2	-2.9	7	-35	15	-37.2	11	-18.9	10	-35.7
ENSRNOP00000012247											2	-11.2
ENSRNOP00000012255			5	-14.4	5	-12.1	13	-33.1	3	-14.6	7	-28.7
ENSRNOP00000012260	2	-12.3			1	-3.1	5	-17.8	4	-15.9	3	-13.4
ENSRNOP00000012270	10	-52.7	2	-8.7	2	-13.1	6	-22	3	-28	6	-20.9
ENSRNOP00000012271	2	-9.1			2	-2.6	2	-19.9	6	-30.8	1	-2.2
ENSRNOP00000012280			1	-2.5								
ENSRNOP00000012287	2	-6.1			4	-16.3	2	-8.4	1	-7.7		
ENSRNOP00000012289	9	-31	2	-14.1	11	-35.1	12	-12.4	9	-14.2	7	-6.9
ENSRNOP00000012295							3	-14.4	2	-15.5	14	-13.1
ENSRNOP00000012296	1	-7.4										
ENSRNOP00000012306			1	-2.3	1	-2.7	1	-1.6	1	-4.1		
ENSRNOP00000012327	13	-40.4	8	-17	9	-31.1	2	-2.2	3	-4.5	2	-3.6
ENSRNOP00000012328	2	-7.3					13	-53.5	6	-15.2	3	-9.1
ENSRNOP00000012334									6	-35.9	2	-9.7
ENSRNOP00000012346	9	-11.7	5	-9.3	2	-2.6	5	-4.3			1	-10.5
ENSRNOP00000012376	10	-64.5	7	-21.6	5	-23.1	4	-21.3	4	-30.4	8	-38.8
ENSRNOP00000012400	5	-20.1	1	-3	2	-14.1	2	-11.8	3	-12.5		
ENSRNOP00000012413	353	-626	322	-578	278	-532	266	-380	272	-403	276	-395
ENSRNOP00000012425	25	-121	18	-88.2	19	-77.8	27	-94.4	22	-91.2	18	-86.2
ENSRNOP00000012428									1	-6.8		
ENSRNOP00000012436	6	-34.3	2	-12.4			15	-94.2	18	-90.7	6	-33.5
ENSRNOP00000012448	9	-49.7	17	-72.6	9	-44	8	-27.3	7	-18.6	25	-19.2
ENSRNOP00000012474											1	-2.1
ENSRNOP00000012482							1	-6.4	2	-5.7		
ENSRNOP00000012490							1	-6.4	1	-5		
ENSRNOP00000012495	5	-15.6	6	-11.9			7	-43.4	7	-33.3		
ENSRNOP00000012501	14	-71.5	3	-19.3	2	-4.7	32	-116	30	-132	5	-13.2

ENSRNOP00000012503			1	-2.8	2	-2.8						
ENSRNOP00000012530					2	-6.3	3	-6.9	2	-3.8		
ENSRNOP00000012533	11	-63.4	8	-42.5	17	-80.8	35	-87.2	24	-104	14	-48.5
ENSRNOP00000012549							2	-8.3	5	-21.8	2	-9.3
ENSRNOP00000012558	4	-17.9	2	-7.6	1	-2.2						
ENSRNOP00000012585			144	-254								
ENSRNOP00000012588							6	-32.4				
ENSRNOP00000012597									1	-4.2		
ENSRNOP00000012608	2	-7.5					2	-10.3	6	-11		
ENSRNOP00000012612							2	-8.2				
ENSRNOP00000012616	10	-47.5	9	-45.1	13	-43.6	26	-61.2	30	-55.9	35	-48.7
ENSRNOP00000012622							4	-18.8	4	-19.3	1	-11.1
ENSRNOP00000012627											2	-5
ENSRNOP00000012636									1	-2.4		
ENSRNOP00000012640							25	-44.7	18	-44.2		
ENSRNOP00000012661											1	-2
ENSRNOP00000012663	4	-13.6					2	-5.2	3	-14.2	2	-4
ENSRNOP00000012665	2	-7.3										
ENSRNOP00000012681	169	-338	138	-358	133	-350	154	-212	127	-202	150	-240
ENSRNOP00000012691											1	-2.7
ENSRNOP00000012696	1	-3.4					1	-5.1				
ENSRNOP00000012701							4	-19.9	3	-16.6	3	-13.5
ENSRNOP00000012715					2	-2.5	2	-6	3	-17.8		
ENSRNOP00000012722							6	-34.8	6	-26.5		
ENSRNOP00000012725	59	-319	32	-133	31	-138	45	-158	37	-162	22	-109
ENSRNOP00000012769	21	-90.4	8	-39.8	9	-63.7	20	-68.3	18	-67.2	15	-22.6
ENSRNOP00000012775	13	-70.9	10	-35.7	6	-22.1	10	-55.9	20	-59.5	11	-44.6
ENSRNOP00000012781	4	-17.7	6	-17.3	5	-17.4	7	-19.8	6	-25.6	2	-2.8
ENSRNOP00000012789							7	-21.9	6	-22.2	4	-8.8
ENSRNOP00000012796							5	-22.4	10	-59.1	4	-33.5
ENSRNOP00000012806	66	-164	40	-136	57	-146	44	-83.1	35	-66.4	37	-95.4
ENSRNOP00000012819	15	-69.4	19	-103	23	-87.9	4	-41.5	18	-78.1	1	-5.3
ENSRNOP00000012823									2	-8.6		
ENSRNOP00000012826	2	-13.3										
ENSRNOP00000012837					1	-2.1						
ENSRNOP00000012847	9	-50.9	10	-65.1	7	-49.2	9	-54.8	10	-64.5	15	-66.3

ENSRNOP00000012853	15	-54.7	6	-30.1	6	-31	17	-30.7	13	-20.2	8	-21.1
ENSRNOP00000012878	202	-350	201	-264	170	-292	136	-230	117	-268	149	-288
ENSRNOP00000012883	7	-34.6	1	-4.1	1	-2.4	5	-26.8	3	-28.2	10	-55
ENSRNOP00000012887							7	-34.1				
ENSRNOP00000012902							7	-26.7	5	-12.3	3	-16
ENSRNOP00000012921									1	-8		
ENSRNOP00000012924							3	-13.9	3	-12	2	-11.1
ENSRNOP00000012943							4	-20	5	-20.1		
ENSRNOP00000012977	10	-32.9	2	-5.3			2	-5.5			4	-9.3
ENSRNOP00000012983			1	-2.9								
ENSRNOP00000012996									3	-24.5		
ENSRNOP00000013004			4	-18.3					8	-53.2		
ENSRNOP00000013017							3	-17.9	3	-26.2	2	-9.9
ENSRNOP00000013022	2	-16.6	2	-8.4	2	-3.5	1	-2.5				
ENSRNOP00000013043	3	-25.4	2	-11.6	1	-4.9	14	-55.4	11	-53.1	5	-36.9
ENSRNOP00000013045							4	-4.5	4	-9.6		
ENSRNOP00000013052					1	-5.5	6	-18	5	-23.5	2	-8.4
ENSRNOP00000013058							7	-23.8	4	-13.4		
ENSRNOP00000013087					28	-89.4						
ENSRNOP00000013091	6	-21	4	-15	4	-18.3	2	-9.5				
ENSRNOP00000013100	4	-27	1	-2.4			3	-18	9	-50	2	-16.8
ENSRNOP00000013122	11	-29.4	9	-32.2								
ENSRNOP00000013134	2	-15.2	2	-4								
ENSRNOP00000013151	67	-245	42	-162	55	-221	80	-205	89	-207	52	-205
ENSRNOP00000013168	14	-56.6			17	-48.4			25	-26.3		
ENSRNOP00000013175					1	-3	1	-1.9				
ENSRNOP00000013176							5	-33.5	6	-32.6		
ENSRNOP00000013202							3	-9.4	7	-33.2		
ENSRNOP00000013204											2	-2.5
ENSRNOP00000013209	2	-3.8					3	-11.4	3	-24.7	1	-3.2
ENSRNOP00000013213	2	-19.4					7	-25.7	7	-28.1		
ENSRNOP00000013220									3	-3.6		
ENSRNOP00000013224									1	-6.8		
ENSRNOP00000013225	3	-12.2	3	-13.1			3	-14.4			4	-21
ENSRNOP00000013233	2	-6.3					7	-5.7	4	-6.5	1	-3.9
ENSRNOP00000013238	39	-143	26	-118	35	-126	39	-81.9	27	-115	42	-88.6

ENSRNOP00000013241	1	-2.6			2	-6.4	1	-4.9				
ENSRNOP00000013243	1	-4.5					3	-22.2	2	-6.6	2	-11.4
ENSRNOP00000013244	11	-53.1	9	-29.8	5	-26.2	11	-49.5	8	-47.5	9	-41.9
ENSRNOP00000013246	8	-13.5			4	-11.2	8	-4	4	-4.1		
ENSRNOP00000013249	4	-27.1	8	-29.6	6	-27.7	2	-8.3	3	-22.8	1	-2
ENSRNOP00000013257							2	-4.1				
ENSRNOP00000013262	55	-141	62	-173	58	-170	37	-107	39	-84.5	45	-119
ENSRNOP00000013272									2	-10.7		
ENSRNOP00000013276							4	-4.3	4	-11		
ENSRNOP00000013277	3	-15.2										
ENSRNOP00000013299	34	-89.8			16	-45.3	58	-15.5	56	-46.2	82	-31
ENSRNOP00000013314	1	-9										
ENSRNOP00000013321	3	-20.7	1	-5.3	1	-2.2	5	-28.8	8	-35.8	4	-20.7
ENSRNOP00000013322	2	-2.9										
ENSRNOP00000013324	4	-17.4	2	-13.4	4	-24.5	7	-27	10	-33.3	4	-10.5
ENSRNOP00000013354	1	-7.8	3	-10.1								
ENSRNOP00000013366			1	-3.8								
ENSRNOP00000013375	3	-17.4					2	-21.9	8	-43.1	1	-1.5
ENSRNOP00000013378					1	-2.2						
ENSRNOP00000013384							1	-3.3	3	-15.5	2	-3.3
ENSRNOP00000013392	31	-119	26	-56.9	31	-82.7	6	-15.1	5	-35.2	5	-16.5
ENSRNOP00000013398							1	-3.9	2	-2.7	2	-3.7
ENSRNOP00000013409	41	-103	27	-60.1	17	-64.3	33	-64.3	62	-73.6	29	-60.8
ENSRNOP00000013434									1	-6		
ENSRNOP00000013462	47	-163	43	-156	48	-116	11	-61	13	-70.6	16	-79.8
ENSRNOP00000013463	6	-16.3	5	-12.4	3	-12.3	1	-4.3				
ENSRNOP00000013471	1	-4.7					2	-2.3	1	-2.6		
ENSRNOP00000013488	3	-14.6	1	-5.5	7	-27.7	12	-47.7	11	-35.2	9	-62.6
ENSRNOP00000013494							1	-5.7				
ENSRNOP00000013496	8	-62.6			6	-12.4	11	-43.3	5	-22.7	15	-31.3
ENSRNOP00000013513					2	-6.8	6	-33.6	6	-26.4	3	-12.1
ENSRNOP00000013535									2	-3.5		
ENSRNOP00000013548			2	-8	1	-4.3	2	-6.8				
ENSRNOP00000013559	19	-86.2	5	-23.5	5	-23.4	30	-105	23	-83.7	10	-57.7
ENSRNOP00000013568									2	-12.6		
ENSRNOP00000013570							1	-2.4				

ENSRNOP00000013573	1	-5.5			1	-5.3	3	-19.6	3	-14		
ENSRNOP00000013580	2	-6.5										
ENSRNOP00000013581							1	-3.5	2	-3.1		
ENSRNOP00000013582	70	-187	35	-145	44	-166	60	-93	52	-70.1	35	-67.3
ENSRNOP00000013584	4	-26.9	5	-27.7	1	-6	2	-5.6	5	-5.4		
ENSRNOP00000013588	30	-61.2	50	-64.9	30	-73.8	8	-27.8	9	-21.5	10	-38.8
ENSRNOP00000013607	85	-337	57	-197	41	-208	55	-193	86	-261	59	-206
ENSRNOP00000013608	118	-220	85	-159	81	-152			31	-85.7	35	-83.9
ENSRNOP00000013612	2	-9.6	3	-13.7	2	-9.2	8	-56.9	3	-13.7	2	-16.9
ENSRNOP00000013621	4	-11.6	3	-10	4	-9.5						
ENSRNOP00000013625	4	-18.1							3	-11.2		
ENSRNOP00000013629	13	-84.4	4	-12.1	3	-16.6	5	-32.6	7	-38.6	5	-16.6
ENSRNOP00000013632					1	-2	2	-14.7	3	-13.6	2	-3.1
ENSRNOP00000013639							1	-3.5			1	-2.6
ENSRNOP00000013682							2	-4.2	1	-3		
ENSRNOP00000013689							2	-11.2	1	-4.3	1	-6.9
ENSRNOP00000013691	16	-32.2	7	-28.3	13	-44.9	15	-15.3	14	-32.9	5	-23
ENSRNOP00000013698	3	-4.7	6	-4.7	15	-48.3						
ENSRNOP00000013724							1	-2.5				
ENSRNOP00000013726							2	-3.6				
ENSRNOP00000013733					1	-2.2						
ENSRNOP00000013738							2	-7.3			1	-4
ENSRNOP00000013747					1	-2.3	1	-2.1	4	-4.4		
ENSRNOP00000013759	9	-58	7	-33.1	9	-33.9	8	-25.1	5	-16.3	5	-19.9
ENSRNOP00000013761							2	-13.8				
ENSRNOP00000013768									2	-6.2		
ENSRNOP00000013771									2	-3.5		
ENSRNOP00000013780	35	-218	21	-99	20	-117	33	-159	32	-184	20	-134
ENSRNOP00000013785	63	-231	40	-150	35	-176	57	-190	48	-170	34	-159
ENSRNOP00000013789	211	-424	194	-372	228	-423	243	-428	218	-412	209	-338
ENSRNOP00000013795							4	-6.4	3	-7.7		
ENSRNOP00000013815					1	-2.4						
ENSRNOP00000013816	591	-717	541	-730	535	-742	365	-499	325	-454	327	-543
ENSRNOP00000013829	56	-178	49	-116	45	-116	57	-147	58	-155	51	-132
ENSRNOP00000013831	7	-29.9	4	-22.7	2	-14.6	6	-31	2	-8.5	2	-7
ENSRNOP00000013845							2	-8.8	4	-2.3		

ENSRNOP00000013854											1	-2.2
ENSRNOP00000013863	238	-436	287	-432	320	-416	194	-238	99	-263	100	-211
ENSRNOP00000013896	24	-89.7							15	-86.7		
ENSRNOP00000013899									2	-2.4		
ENSRNOP00000013902											1	-4.5
ENSRNOP00000013912							5	-15.9	2	-5.5		
ENSRNOP00000013914							1	-2.9	3	-19.6		
ENSRNOP00000013931									1	-2.3		
ENSRNOP00000013933							2	-4				
ENSRNOP00000013961	24	-89.1					14	-46.8	16	-81.4	18	-38.7
ENSRNOP00000013994							1	-1.9	2	-3.2		
ENSRNOP00000013997	20	-76.7	18	-51.2	12	-66.4	37	-118	39	-126	26	-74.7
ENSRNOP00000014004									3	-11.2		
ENSRNOP00000014010									1	-3.1		
ENSRNOP00000014027	1	-8.2					2	-4.2				
ENSRNOP00000014028	6	-40	1	-2.7	1	-3	10	-70.3	7	-51.2	5	-48.3
ENSRNOP00000014031							1	-3.6				
ENSRNOP00000014038											1	-2.9
ENSRNOP00000014051	18	-64.3	34	-95.1	15	-75.6	13	-76.1	12	-50.6	18	-72
ENSRNOP00000014058							2	-7				
ENSRNOP00000014062	5	-28.6	3	-27.9	2	-20.5	7	-39.3	9	-55.5	4	-27.9
ENSRNOP00000014073	12	-54.4	8	-33.8	7	-43.7	16	-65.9	14	-78.6	17	-66.1
ENSRNOP00000014096							1	-6.4				
ENSRNOP00000014118	24	-116	28	-72.5	13	-68.5	32	-141	27	-128	15	-52.7
ENSRNOP00000014128	1	-8	1	-2.7	1	-2.5						
ENSRNOP00000014167	7	-38.6			3	-5.1	9	-66.4	10	-64	15	-73.5
ENSRNOP00000014173	19	-54.7	12	-56	12	-33	36	-63.4	27	-44.4	23	-63.8
ENSRNOP00000014177	86	-239	72	-152	78	-199	41	-115	53	-106	43	-126
ENSRNOP00000014178	2	-8.2	2	-11.7	1	-11.8	7	-21.8	2	-11.1	2	-12.2
ENSRNOP00000014179							1	-2.5				
ENSRNOP00000014182	2	-10.1					7	-56.9	13	-82.6	7	-44.4
ENSRNOP00000014193									1	-2.8		
ENSRNOP00000014202							2	-9.2			3	-15.7
ENSRNOP00000014216					3	-9.3						
ENSRNOP00000014235	315	-498	285	-455	331	-517	418	-413	251	-370	380	-463
ENSRNOP00000014236	2	-6.5										

ENSRNOP00000014248							1	-3.5	2	-2.2		
ENSRNOP00000014274							3	-17.1	3	-13.9	1	-6
ENSRNOP00000014298					1	-2						
ENSRNOP00000014307									1	-3.5		
ENSRNOP00000014309							1	-4.3			1	-2.8
ENSRNOP00000014310	3	-6.3										
ENSRNOP00000014321	29	-35.3	27	-26.2	29	-24.6						
ENSRNOP00000014377					1	-2.7	3	-22.5				
ENSRNOP00000014382							1	-2	4	-22.4		
ENSRNOP00000014383					1	-2.1	1	-2.2			1	-2.2
ENSRNOP00000014384							1	-9.6	2	-8.5		
ENSRNOP00000014404			1	-2.5								
ENSRNOP00000014407	50	-43.2	33	-39.2	35	-46.1	106	-58.8	100	-48.4	120	-50.1
ENSRNOP00000014415	3	-9.6	2	-9.4	2	-6.7			2	-3.2		
ENSRNOP00000014431									3	-20.2		
ENSRNOP00000014464	5	-31.8	2	-12.6	2	-12.3	40	-136	33	-127	13	-80
ENSRNOP00000014492									2	-4.2	2	-6.1
ENSRNOP00000014496	7	-26.5	3	-9.4	3	-9.9						
ENSRNOP00000014532							2	-15.2	2	-7.2	6	-3.5
ENSRNOP00000014546			1	-6.5			3	-7.5	3	-14.1	1	-4.2
ENSRNOP00000014585	1	-2.9					3	-4.9	1	-2.4	1	-1.6
ENSRNOP00000014595									1	-2.6		
ENSRNOP00000014602	33	-92	7	-17.4	15	-74.7	2	-9.3			1	-2
ENSRNOP00000014604	9	-38.8	3	-16								
ENSRNOP00000014609									2	-10.9		
ENSRNOP00000014625	2	-6.7	3	-8.1								
ENSRNOP00000014630	42	-174	26	-119	22	-91	41	-161	37	-140	22	-77.7
ENSRNOP00000014637	51	-181	31	-152	46	-189	43	-119	55	-116	33	-110
ENSRNOP00000014658	29	-117	30	-135	22	-106	36	-115	34	-86.3	19	-83.5
ENSRNOP00000014684	3	-12.1	6	-28.1	2	-10.8	9	-24.9	5	-14	11	-24.7
ENSRNOP00000014704											41	-82.5
ENSRNOP00000014718	3	-10.6	3	-3.3			3	-10.4	4	-21.4	3	-12.5
ENSRNOP00000014725	1	-3.2					2	-22.6	3	-21.9		
ENSRNOP00000014734							6	-5.5	4	-4.2	1	-4.2
ENSRNOP00000014780	6	-47.9	2	-11.4	4	-15.4	8	-51.4	10	-63.6	23	-36.7
ENSRNOP00000014785	24	-107	38	-84.2	38	-84.6	25	-64.6	36	-84	27	-59.7

ENSRNOP00000014800	11	-52.2	8	-28.4	7	-52.8	7	-62.7	13	-71.9	5	-42.3
ENSRNOP00000014810	2	-3.3	5	-12.3	6	-24.2	4	-16.4	8	-17.8	5	-16.5
ENSRNOP00000014817	10	-61	3	-16.4	8	-54.7	24	-127	17	-87.5	17	-89.6
ENSRNOP00000014819	37	-129	17	-61.8	28	-94.6	41	-93.4	52	-108	35	-86.1
ENSRNOP00000014828									2	-4.9		
ENSRNOP00000014833											1	-4.6
ENSRNOP00000014837	31	-57	25	-35.1	20	-52.5	20	-66.9	15	-65	17	-60.9
ENSRNOP00000014845									2	-20.1	2	-1.9
ENSRNOP00000014859							3	-28.6	8	-50.5	1	-3
ENSRNOP00000014914	9	-61.6	6	-37.7	3	-12.8	6	-4	2	-3.8		
ENSRNOP00000014940			1	-4.1	1	-4			4	-16.5		
ENSRNOP00000014966	97	-128	101	-114	86	-120						
ENSRNOP00000014979	39	-142	22	-88	21	-78.3						
ENSRNOP00000014988									3	-12.6		
ENSRNOP00000014993											1	-3.6
ENSRNOP00000015006							61	-112	41	-100	51	-88.3
ENSRNOP00000015011			1	-2.3								
ENSRNOP00000015018	12	-57.2	8	-43.2	5	-17.8	5	-3.7				
ENSRNOP00000015019	9	-32.1	5	-14	4	-9.6	9	-65.6	5	-36.5	3	-13.9
ENSRNOP00000015030	2	-4.5					6	-28.6				
ENSRNOP00000015033							1	-2.7	2	-4.6		
ENSRNOP00000015043	4	-6.8	9	-13.7	4	-12.5	6	-6.9	3	-5.7		
ENSRNOP00000015049	58	-164	44	-106	41	-116	30	-96.8	30	-110	29	-73.2
ENSRNOP00000015057	56	-184	37	-165	32	-116	26	-131	21	-95.9	43	-126
ENSRNOP00000015068							1	-2.4				
ENSRNOP00000015077									2	-2.9	1	-1.7
ENSRNOP00000015082	10	-20	3	-10.2					14	-69.1		
ENSRNOP00000015090	1	-6.4					4	-18.8	1	-3	3	-15
ENSRNOP00000015096									1	-4.4		
ENSRNOP00000015102	11	-35.8	2	-3.3	5	-19	5	-26.1	4	-13.1	1	-2.5
ENSRNOP00000015112	24	-63.5	25	-33.2	30	-49.4	14	-53.9	12	-37.3	8	-27.5
ENSRNOP00000015113	2	-3							4	-17.8	1	-2.8
ENSRNOP00000015122							1	-2.1	2	-6		
ENSRNOP00000015124									1	-3.4		
ENSRNOP00000015152	2	-7.4	3	-22	2	-18.9	9	-22.5				
ENSRNOP00000015161	11	-58.2	5	-28.6			7	-25.8	6	-29.5	6	-35.1

ENSRNOP00000015169					2	-3.3						
ENSRNOP00000015177	35	-108	21	-43.7	19	-67.6	19	-73.3	26	-88.2	26	-64.7
ENSRNOP00000015179	8	-51.5	2	-2.3	1	-5	9	-37.3	11	-54	11	-34.6
ENSRNOP00000015186	6	-13.3	7	-3.7	1	-3.5						
ENSRNOP00000015190	28	-83.6	62	-72.6	61	-81.9	9	-31.6	12	-24.4	13	-33.4
ENSRNOP00000015197	3	-5.4	5	-4.7	3	-4.7						
ENSRNOP00000015207	6	-39.1	13	-38.2	9	-48.5	4	-21	3	-17.4	4	-5.5
ENSRNOP00000015213	3	-13.8	3	-14.6	3	-12.3	6	-23.5	7	-35.3	4	-39.6
ENSRNOP00000015217	26	-82.5	10	-28.8	9	-28.8	27	-66.2	29	-74.7	18	-45.1
ENSRNOP00000015218	8	-26.7	7	-24.5	2	-2.7	9	-34.8	10	-50.4	5	-23.3
ENSRNOP00000015223	3	-12.2					4	-31.9	7	-23.4	4	-13
ENSRNOP00000015232	12	-79.1	5	-22.8	11	-55.5	23	-111	14	-90	11	-90.7
ENSRNOP00000015234	33	-115	61	-68.6	55	-76.2	27	-75.9	24	-89.4	17	-42.6
ENSRNOP00000015240	3	-12.4			3	-4.2	8	-8.3	8	-8.6		
ENSRNOP00000015247	34	-149	16	-90.1	20	-90.7	27	-91.5	31	-99.8	16	-55.2
ENSRNOP00000015256					4	-11	10	-43.2			9	-35.4
ENSRNOP00000015271	3	-13.7										
ENSRNOP00000015275					2	-9.5						
ENSRNOP00000015282	3	-24.1	5	-24.7	10	-66.3	10	-60.8	10	-43.9	11	-53.2
ENSRNOP00000015331							20	-89.5				
ENSRNOP00000015336	332	-370	280	-327	291	-298	399	-332	433	-315	324	-328
ENSRNOP00000015344	3	-14.7					11	-37.3	17	-70	3	-18.6
ENSRNOP00000015355	4	-19.4	2	-5.8								
ENSRNOP00000015367	9	-60	6	-23.6	8	-43.9			4	-10.3	1	-1.4
ENSRNOP00000015398											12	-43.5
ENSRNOP00000015420	48	-120	23	-78.3	14	-88.2	29	-104	25	-87.8	35	-77.9
ENSRNOP00000015434	1	-5.8			1	-4.6	1	-1.6			1	-1.7
ENSRNOP00000015438	4	-19	3	-10	3	-12.1	11	-65.7	5	-21.6	5	-30
ENSRNOP00000015440											4	-19.6
ENSRNOP00000015448							4	-27.3	5	-23.1	3	-9.6
ENSRNOP00000015456	20	-90.1	6	-30.5	9	-54.8	18	-86.2	25	-86.5	5	-35.4
ENSRNOP00000015475	32	-76.1	25	-40.5	12	-28.9	4	-22.9			4	-9.4
ENSRNOP00000015496							1	-3			1	-1.4
ENSRNOP00000015498					1	-6.7	5	-16.7	3	-15.5	4	-5.4
ENSRNOP00000015506	7	-44.2	2	-6.3	2	-7.2	7	-15.5	5	-29.5		
ENSRNOP00000015508							2	-2.3	1	-5.8		

ENSRNOP00000015518							7	-30	6	-33.1		
ENSRNOP00000015521			3	-8.1			2	-16				
ENSRNOP00000015526	4	-22.3	1	-4.1	4	-14.8	7	-16.8	5	-5.2	2	-5.7
ENSRNOP00000015534							9	-38	5	-18.5	2	-18.4
ENSRNOP00000015545	179	-349	170	-355	175	-271	152	-238	110	-228	152	-234
ENSRNOP00000015547	1	-4.4					6	-33.5	2	-6.8	2	-6.3
ENSRNOP00000015562	1	-7.4	3	-19.4	5	-19.4	10	-38.7	12	-44.8	7	-36.6
ENSRNOP00000015568							6	-13.6	2	-9.1		
ENSRNOP00000015598			25	-86.7					74	-69.7		
ENSRNOP00000015601	38	-104	35	-95.2	39	-94.7	35	-47.9	30	-43.5	33	-30.2
ENSRNOP00000015609							54	-20.9				
ENSRNOP00000015618	49	-162	51	-139	61	-112	12	-43.2	12	-42.8	11	-41.9
ENSRNOP00000015620							1	-3.8	1	-4.5	1	-4
ENSRNOP00000015628	1	-3.5	2	-7	2	-7.1	3	-12.9			2	-3.6
ENSRNOP00000015647	10	-46.1			4	-14.5	9	-32.6	9	-45	7	-41.4
ENSRNOP00000015665							2	-5.2	2	-2.8		
ENSRNOP00000015667	78	-246									85	-183
ENSRNOP00000015684	43	-71.2	56	-48.7	39	-63.3	30	-54.9	47	-61.1	36	-80.7
ENSRNOP00000015692	2	-20	1	-12.8	1	-13.2	2	-14.3	3	-13.1	2	-7
ENSRNOP00000015723	10	-6.1	3	-7.2	7	-6.7	16	-21.1	12	-22.1	5	-19.3
ENSRNOP00000015732	6	-34.4	6	-32.5	2	-19.5	12	-62.5	11	-67.1	2	-7.4
ENSRNOP00000015744	8	-45.4	12	-38.9	9	-48.3	5	-24.9	4	-31.7	5	-36.7
ENSRNOP00000015747							11	-46.9	17	-45.8		
ENSRNOP00000015757							23	-122	24	-90.7	12	-78
ENSRNOP00000015769											1	-2
ENSRNOP00000015786	1	-4.5	1	-3.3	2	-9.9						
ENSRNOP00000015790							1	-10.1	1	-8.3		
ENSRNOP00000015802	108	-264	69	-188	95	-224	62	-182	63	-175	51	-125
ENSRNOP00000015804			1	-2.3	1	-5.7			2	-6.7		
ENSRNOP00000015808							3	-9.4	6	-23.7	3	-15.8
ENSRNOP00000015810	152	-97.9	64	-101	69	-97.5	104	-116	119	-126	79	-72.2
ENSRNOP00000015814	3	-18.2	5	-15.2	4	-7.9	9	-35.2	12	-58.5	5	-23.5
ENSRNOP00000015820									2	-9	2	-1.6
ENSRNOP00000015843	3	-18.3					11	-37	9	-34.6	2	-9.5
ENSRNOP00000015844	25	-94.3	20	-84	13	-60.4	15	-54.9	18	-58.6	17	-52.1
ENSRNOP00000015851	52	-278	48	-195	52	-218	79	-240	95	-266	75	-200

ENSRNOP00000015852	6	-34.1	4	-11.8	8	-21.8	5	-33	5	-32.8	2	-11.2
ENSRNOP00000015853	2	-5			4	-3.6	8	-31.5	16	-65.3	9	-41.7
ENSRNOP00000015863									1	-3.9		
ENSRNOP00000015866	92	-189	108	-129	78	-146	118	-141	53	-136	52	-134
ENSRNOP00000015869							1	-7.7			1	-7.9
ENSRNOP00000015875									9	-43.9		
ENSRNOP00000015886	12	-41.7	3	-17.6	8	-42.6	17	-78.8	11	-78	5	-22.6
ENSRNOP00000015887									1	-3.3		
ENSRNOP00000015893	3	-8.3	2	-7.4	3	-7.4			2	-2.6		
ENSRNOP00000015896									1	-2.5		
ENSRNOP00000015910	15	-68.3	11	-52.7	5	-33.9						
ENSRNOP00000015913	313	-341	418	-338	544	-345	127	-201	105	-164	229	-201
ENSRNOP00000015917					4	-22.6	29	-103	37	-123		
ENSRNOP00000015931	6	-19.2					5	-19.3	4	-17.1		
ENSRNOP00000015946	57	-177	51	-135	52	-154	67	-141	65	-130	54	-96.9
ENSRNOP00000015956	100	-218	53	-173	55	-170	35	-112	36	-110	36	-111
ENSRNOP00000015961	85	-282	64	-190	76	-254	91	-205	87	-220		
ENSRNOP00000015967							1	-9.8	1	-9.2		
ENSRNOP00000015974	52	-160	33	-125	32	-123	22	-46.1	23	-80.3	19	-38.2
ENSRNOP00000015986	3	-9.3	2	-8.5			7	-3.7	8	-21.7		
ENSRNOP00000015997			5	-23.2								
ENSRNOP00000016036			1	-3			1	-2.6	2	-10.4	1	-6.2
ENSRNOP00000016040	2	-2.7					3	-26.5	1	-3.2		
ENSRNOP00000016043	101	-137	99	-118	94	-119	32	-64.1	37	-77.8	26	-78.9
ENSRNOP00000016051	30	-78.3	34	-91.2	30	-91.1	15	-67.5	21	-65.1	16	-66.6
ENSRNOP00000016060	11	-27.8	4	-4.3	5	-4.9	12	-22.4	12	-5	14	-21
ENSRNOP00000016075							3	-16.3				
ENSRNOP00000016083	18	-59.8	3	-14.4	10	-50.2	11	-63.4	12	-62.5	8	-29.7
ENSRNOP00000016111									1	-2.2	1	-5.3
ENSRNOP00000016137	20	-76	7	-34.4	9	-43.9			12	-50.6	8	-37.3
ENSRNOP00000016150	6	-39.6	6	-20	8	-27.5	5	-14.4	7	-14.4	3	-3.9
ENSRNOP00000016167	8	-42.2	14	-51.6	13	-52.5	14	-60.8	16	-56.2	6	-16.1
ENSRNOP00000016176	18	-19.7	5	-15.2	2	-6.4	5	-10.1	6	-20.1	3	-7.7
ENSRNOP00000016195							3	-15	4	-16.6	3	-22.4
ENSRNOP00000016205	27	-107	29	-115	23	-101	38	-145	26	-120	41	-148
ENSRNOP00000016217							3	-18.8	4	-22.8	4	-14.6

ENSRNOP00000016221	1	-3.6					1	-2.7				
ENSRNOP00000016224	14	-39.4	6	-19.2	1	-6.6						
ENSRNOP00000016273							3	-9.8	5	-25.6		
ENSRNOP00000016280									1	-6.4		
ENSRNOP00000016292	12	-83.7	6	-33.1	8	-48.2	11	-33.2	8	-22.8	4	-4.8
ENSRNOP00000016324			1	-4.1	1	-6.5			3	-3.1		
ENSRNOP00000016329	35	-118	20	-46.8	12	-41.2	22	-42	28	-72.6	18	-42.9
ENSRNOP00000016341											1	-4
ENSRNOP00000016346	67	-184	51	-136	43	-146	18	-74.7	27	-102	14	-69.6
ENSRNOP00000016353	21	-102	19	-21.5	11	-38.9	33	-103	35	-111	36	-101
ENSRNOP00000016356	25	-92.1	20	-88.1	10	-54.2	48	-123	39	-103	24	-107
ENSRNOP00000016358	2	-5.8	2	-4			5	-30.5	3	-16.7		
ENSRNOP00000016372									2	-2.7	2	-5.8
ENSRNOP00000016376							1	-3.9	2	-8.7		
ENSRNOP00000016380	2	-2.6										
ENSRNOP00000016386	1	-5										
ENSRNOP00000016389	4	-12.8	2	-4.9	1	-2.2	2	-8	2	-9.2		
ENSRNOP00000016392	2	-11.4					5	-23	6	-16.1	1	-1.7
ENSRNOP00000016399	1	-7.3	1	-7								
ENSRNOP00000016410	11	-61.4	7	-38.8	4	-23.3	14	-50.5	19	-54.7	11	-28.5
ENSRNOP00000016428											3	-3.1
ENSRNOP00000016432	43	-145	43	-134	36	-148	59	-150	60	-162	53	-146
ENSRNOP00000016438							1	-2.6				
ENSRNOP00000016447	4	-21.8			2	-6.8	6	-16.4	4	-15.4	4	-14.5
ENSRNOP00000016449							7	-18.3	8	-27.3	4	-11.1
ENSRNOP00000016450	16	-59.6	7	-34.5	8	-48.6	17	-80.1	16	-77.4	16	-70.5
ENSRNOP00000016454	18	-81.6	15	-61.9	17	-72.7	1	-1.8			1	-1.9
ENSRNOP00000016458	1	-8.2							4	-19.7	3	-21.1
ENSRNOP00000016493					1	-2	1	-6.7	3	-14.4		
ENSRNOP00000016495	2	-4.6	1	-4.6			11	-27.7	12	-36.2	8	-26.6
ENSRNOP00000016504	5	-10.4	5	-12	4	-6.5						
ENSRNOP00000016508	5	-20.2										
ENSRNOP00000016509	13	-33.4	19	-31.6	13	-25.1	8	-29.8	6	-4.5	4	-15.7
ENSRNOP00000016520	31	-106	16	-37.4	27	-81.2	2	-6.3			2	-5.9
ENSRNOP00000016529			1	-2.2								
ENSRNOP00000016540	2	-4.8	2	-3.8	2	-3.4	4	-9.2	7	-36.5		

ENSRNOP00000016561	20	-31	20	-33.3	13	-17.7	14	-50.7	19	-70.2	12	-45.5
ENSRNOP00000016563							4	-10.8	4	-22.5		
ENSRNOP00000016568									2	-8.1		
ENSRNOP00000016593	7	-32.2	9	-26.3	11	-14.6						
ENSRNOP00000016601							1	-5.4	3	-16.1		
ENSRNOP00000016616	4	-27.2			3	-4.9	1	-3.1			1	-2.9
ENSRNOP00000016646	2	-7.5					5	-29.1	9	-43.1	5	-4.4
ENSRNOP00000016677	1	-4.6					4	-30	6	-38	1	-3.2
ENSRNOP00000016696					1	-4	3	-19.9	2	-3.1	1	-9
ENSRNOP00000016709	46	-106	55	-81.9	22	-57.5	13	-51.6	14	-55.5	14	-53.8
ENSRNOP00000016723							3	-12.7	1	-7.7	2	-2.5
ENSRNOP00000016739	54	-209					42	-141			27	-122
ENSRNOP00000016751			2	-7.6	1	-3.4	3	-7.5	1	-5.2		
ENSRNOP00000016756	4	-19.2	1	-10.4	3	-13.2	1	-12.2	2	-15.1	1	-11.5
ENSRNOP00000016758							1	-2.3	1	-6.3		
ENSRNOP00000016776	1	-7.5			3	-20.3	1	-4.4				
ENSRNOP00000016784							2	-2.6			1	-2.6
ENSRNOP00000016789							4	-12.8	1	-7		
ENSRNOP00000016792	3	-12.7					2	-1.9				
ENSRNOP00000016813			29	-26.9	21	-39.3	15	-51.1				
ENSRNOP00000016846	2	-9.5					5	-25.7	10	-42.6	3	-11.5
ENSRNOP00000016851	13	-40.5	22	-72.4	20	-50.3	10	-18.1	8	-28.7	12	-33.3
ENSRNOP00000016871			1	-3.7								
ENSRNOP00000016872							1	-4.8	2	-13.2		
ENSRNOP00000016874									1	-5.1		
ENSRNOP00000016876	23	-94.4	9	-54.5	17	-63.7	33	-64.7	27	-61.9	24	-52.5
ENSRNOP00000016883	51	-229	52	-206	58	-192	53	-146	59	-145	52	-133
ENSRNOP00000016887	1	-4.9					6	-8.1	2	-3.1	4	-8.2
ENSRNOP00000016891							10	-51.8	10	-51.4		
ENSRNOP00000016912									1	-3.5	1	-2
ENSRNOP00000016916	8	-19.1					10	-52.7	11	-52.4	3	-17.9
ENSRNOP00000016937	6	-19.6	5	-14.2	3	-19	9	-11.6	9	-10.2	1	-4.6
ENSRNOP00000016948							3	-11.9				
ENSRNOP00000016954	8	-56.5			1	-2.1	11	-45.5	6	-24.7	5	-24.9
ENSRNOP00000016962							2	-10.8	3	-19.2	3	-18.8
ENSRNOP00000016965	18	-65	12	-47.4	13	-40.7	8	-24.6	10	-40.7	12	-19.1

ENSRNOP00000016981	8	-36.2	3	-11.7	4	-20.8	12	-28.4	24	-61.5	6	-31.8
ENSRNOP00000016984	2	-5.7					4	-19.4	5	-18.5		
ENSRNOP00000016986	6	-16.3	2	-2.3			2	-3.2	1	-8.5	4	-3.2
ENSRNOP00000016991							2	-11.5	3	-23.1		
ENSRNOP00000017002	10	-47.9	4	-17.9	13	-36.5						
ENSRNOP00000017005											2	-8.4
ENSRNOP00000017017							3	-6.3	6	-15.5	2	-4.9
ENSRNOP00000017042	32	-55.8	21	-38.2	17	-20	15	-29.1	11	-40.7	9	-30.2
ENSRNOP00000017053							1	-2.7				
ENSRNOP00000017067	83	-107	127	-101	124	-122	43	-51.3	51	-112	63	-83.3
ENSRNOP00000017075									1	-2.3		
ENSRNOP00000017090	20	-78.4	11	-47.5	7	-27.3	3	-12.7	5	-7.9	4	-18.5
ENSRNOP00000017101	140	-254	240	-154	194	-144	309	-267	199	-312	175	-173
ENSRNOP00000017104					1	-3.8	2	-5.5				
ENSRNOP00000017121	5	-22	2	-2.9	3	-5.3	6	-12.7	2	-4.2	4	-15.9
ENSRNOP00000017153							2	-2			2	-11.3
ENSRNOP00000017163	4	-30.1	3	-14.9	4	-18.8	6	-35.6	6	-34.2	2	-7.3
ENSRNOP00000017175					1	-3.2						
ENSRNOP00000017180							42	-112				
ENSRNOP00000017199	8	-40			4	-30.9	12	-34.2	15	-47.6	6	-27
ENSRNOP00000017201	3	-11.6	4	-12.6	2	-12.3						
ENSRNOP00000017211	44	-85.2	25	-74.7	29	-81	9	-31.9	10	-25.7	10	-22.9
ENSRNOP00000017212	9	-60.9			9	-62.4	16	-90.1	23	-94.1	15	-69.1
ENSRNOP00000017213									1	-2.5		
ENSRNOP00000017227	14	-50.2	5	-31.5	4	-11.9	8	-35.5	8	-34.1	8	-45.8
ENSRNOP00000017237	309	-583	302	-459	296	-420	124	-377	133	-350	166	-351
ENSRNOP00000017243	30	-129	21	-78.5	30	-80.3	25	-64.7				
ENSRNOP00000017245	6	-26.2	2	-4.4	1	-2.9	6	-36.9	2	-7	2	-7.8
ENSRNOP00000017247							2	-5.4	3	-10.3		
ENSRNOP00000017252	2	-4	4	-11.6	8	-15.6						
ENSRNOP00000017254					1	-2.1	6	-21.3	4	-17.3		
ENSRNOP00000017261	7	-41.6					1	-5.5				
ENSRNOP00000017268	43	-176	26	-105	31	-130	31	-72.3	35	-80.5	26	-56.4
ENSRNOP00000017270											2	-3.4
ENSRNOP00000017271	2	-9.7					8	-20.2	5	-7.1		
ENSRNOP00000017276											1	-4.8

ENSRNOP00000017278	4	-30.7					4	-4.4				
ENSRNOP00000017281							2	-2.2	2	-2.4		
ENSRNOP00000017301	16	-59.2	11	-19.9	3	-6.5	15	-25.5	10	-14.7	4	-4.3
ENSRNOP00000017307	4	-11.4										
ENSRNOP00000017310	190	-441	207	-457	213	-464	61	-231	60	-220	68	-225
ENSRNOP00000017323					1	-2.3	2	-19.7	6	-23.6	1	-4
ENSRNOP00000017332	3	-10.3			3	-15.4	1	-3.5	1	-4.6	1	-3.1
ENSRNOP00000017339	2	-16					12	-26.7	18	-31.8	10	-21
ENSRNOP00000017353									3	-21.3		
ENSRNOP00000017362							3	-16.8	2	-15.7		
ENSRNOP00000017375							4	-21.5				
ENSRNOP00000017377	78	-114	76	-113	89	-97.6	13	-42.9	15	-30.2	12	-46.5
ENSRNOP00000017379	1	-3.8			1	-4.7	2	-11.8	3	-16.9		
ENSRNOP00000017389							2	-5.6				
ENSRNOP00000017391	5	-26.5	2	-6.8	1	-10.7	4	-9.9				
ENSRNOP00000017396	24	-46.1	32	-32.8	28	-40.4	54	-13.8	51	-38.8	86	-26.4
ENSRNOP00000017404							1	-2.9				
ENSRNOP00000017407	1	-4.2	1	-2.7	1	-2.4	3	-16.8	5	-21.1		
ENSRNOP00000017409	5	-13.2	4	-17.8	2	-9.1	5	-9.8	2	-7.5	3	-11.7
ENSRNOP00000017452							1	-2.7	2	-2.8		
ENSRNOP00000017454	2	-13.1	3	-11.2			2	-5.8	2	-12.1	3	-15
ENSRNOP00000017468	251	-360	174	-309	164	-288	161	-223	154	-191	182	-201
ENSRNOP00000017472	296	-256	225	-274	217	-294	258	-225	234	-232	255	-219
ENSRNOP00000017561							3	-6	1	-4.6		
ENSRNOP00000017579									2	-2.3	2	-2
ENSRNOP00000017588	1	-3.6										
ENSRNOP00000017619									1	-4.6		
ENSRNOP00000017626	2	-14.9			2	-3.8	3	-16.7				
ENSRNOP00000017643	37	-130	4	-21.4	3	-12.4	39	-79.4	32	-53.7	18	-39.7
ENSRNOP00000017675	35	-133	33	-120	31	-112	28	-51.9	29	-77.2	16	-23.6
ENSRNOP00000017684							1	-7.4	2	-13.8		
ENSRNOP00000017686	71	-228	63	-172	57	-207	40	-155	36	-126	42	-153
ENSRNOP00000017692	103	-116	28	-61.2	16	-72.9	41	-111	44	-116	33	-78
ENSRNOP00000017710							1	-7.4	2	-2.9		
ENSRNOP00000017722	3	-10.4					5	-20.7	3	-13.3	2	-5.6
ENSRNOP00000017785	6	-40	4	-13.8	7	-27.4	2	-7.9				

ENSRNOP00000017787											3	-11.2
ENSRNOP00000017805	2	-16.3	3	-3			7	-32.4	5	-31.3	9	-37.1
ENSRNOP00000017834											8	-17
ENSRNOP00000017838					1	-3.3	1	-4.1				
ENSRNOP00000017840	83	-293	66	-233	78	-280	25	-141	23	-102	22	-110
ENSRNOP00000017858							1	-6.9			1	-1.5
ENSRNOP00000017879	2	-10.6	2	-12.3	3	-13.2	1	-6.6	4	-16.6	2	-2.1
ENSRNOP00000017907							1	-6.3	2	-7.9		
ENSRNOP00000017911	123	-316	61	-199	53	-195	106	-270	111	-267	155	-280
ENSRNOP00000017928	10	-46.2	7	-27.8	7	-37.6			3	-14		
ENSRNOP00000017938	3	-4.8					1	-2.3	2	-14.1		
ENSRNOP00000017942					2	-2.9			1	-2.5	1	-3
ENSRNOP00000017944											2	-2.9
ENSRNOP00000017950							4	-22.4	3	-22.3	3	-11.7
ENSRNOP00000017954	67	-178	56	-148	58	-157	24	-65.5	27	-106	26	-61.1
ENSRNOP00000017965	9	-35.9					8	-29.7	9	-32.9	5	-19.8
ENSRNOP00000017967	3	-13.5	1	-5.4			1	-1.6	3	-13.1		
ENSRNOP00000018001	27	-83.8	19	-53.2	11	-57	53	-136	27	-73.1	42	-78.9
ENSRNOP00000018003							3	-5	2	-6.6		
ENSRNOP00000018005	39	-97	31	-110	47	-81.9	26	-75.7	19	-57	23	-90
ENSRNOP00000018009							2	-16.6	5	-18.6		
ENSRNOP00000018021							6	-36.8	9	-59.1	2	-12.7
ENSRNOP00000018022	1	-6.2					2	-2.2				
ENSRNOP00000018043	13	-61.1			4	-21.8	6	-16.6	9	-29.8	7	-35
ENSRNOP00000018061							1	-4.6	1	-5.2		
ENSRNOP00000018072							1	-3.1	2	-3.9		
ENSRNOP00000018074							1	-2.4	2	-6		
ENSRNOP00000018083	6	-21.9	4	-23.6	3	-12.7	7	-30.7	7	-13.6		
ENSRNOP00000018116							3	-8.7			2	-8.8
ENSRNOP00000018120	2	-11.7					4	-4.6	3	-13.8		
ENSRNOP00000018122	4	-18.7	5	-15.6	2	-2.8	6	-19.1	6	-14.4	3	-12.6
ENSRNOP00000018145							3	-18	3	-16.8	2	-5.6
ENSRNOP00000018167	15	-70.9	8	-28.7	4	-29	9	-39.6	7	-44.3	10	-25.7
ENSRNOP00000018170	12	-38.4			14	-48.1			6	-17.1		
ENSRNOP00000018173	20	-47.3	17	-31.4	21	-38.2	13	-28.3	12	-33.9	14	-37.5
ENSRNOP00000018175	2	-13.8					15	-75.8	12	-74.3	3	-20.3

ENSRNOP00000018177									4	-19.9	1	-1.3
ENSRNOP00000018190	8	-37.4			2	-12.4	18	-63.5	8	-41.3	8	-38
ENSRNOP00000018194									2	-3.8	2	-4.4
ENSRNOP00000018202							1	-4.4	2	-4.5	1	-4.3
ENSRNOP00000018225							2	-4.2	2	-4.8	2	-2.9
ENSRNOP00000018248	13	-14.9	13	-22.5	13	-14.1	8	-31	4	-16.6	5	-16.1
ENSRNOP00000018259	26	-71.3	5	-23.2	5	-17.5	20	-82.3	23	-50.5	12	-47
ENSRNOP00000018293							2	-6.4			1	-2.9
ENSRNOP00000018310							2	-4.7	1	-2.4		
ENSRNOP00000018325	47	-166	33	-101	30	-98.9	85	-172	94	-158	72	-194
ENSRNOP00000018328	3	-6.7	2	-7.7	8	-13.8	8	-48.8	10	-38.9	3	-17.4
ENSRNOP00000018332	2	-11					4	-18.8	1	-3.2	2	-15.2
ENSRNOP00000018336	10	-36.7	7	-40.5	6	-29.9	29	-77.9	27	-70.8	13	-46.2
ENSRNOP00000018339							3	-13.1	3	-11.9	1	-3.6
ENSRNOP00000018341			1	-3.2								
ENSRNOP00000018343			7	-31.2			3	-13.1	1	-2.8		
ENSRNOP00000018385	3	-10.8					1	-2.5			1	-3.1
ENSRNOP00000018411							2	-2.6				
ENSRNOP00000018441							2	-2.2	4	-15.5		
ENSRNOP00000018447	8	-19.6	8	-26.3	9	-29.3	26	-63.4	26	-97.4	21	-38.2
ENSRNOP00000018453	2	-5.6					2	-3	2	-2.8		
ENSRNOP00000018455	114	-148	77	-108	63	-106	18	-62.7	18	-59.4	15	-58.5
ENSRNOP00000018462	55	-120	69	-90.7	65	-73.3	14	-58.6	10	-58.4	12	-60.4
ENSRNOP00000018464							1	-2.6			2	-6
ENSRNOP00000018470							4	-27.6	2	-5.5	1	-3.7
ENSRNOP00000018487									2	-4.1		
ENSRNOP00000018489	1	-2.9			5	-3.9						
ENSRNOP00000018506									1	-3.8		
ENSRNOP00000018545	1	-4.1					11	-54	9	-54.9	2	-5.1
ENSRNOP00000018547	2	-9.3										
ENSRNOP00000018560	1	-4.2					1	-6.7	2	-3.7	1	-5.7
ENSRNOP00000018598	8	-20.4			1	-4.8	22	-54.6	9	-37.6	4	-26.1
ENSRNOP00000018609	38	-132					36	-121				
ENSRNOP00000018622			2	-9.1	6	-24.9	9	-25.5	8	-16.2	12	-18.1
ENSRNOP00000018646	5	-24.7	6	-17.2	2	-2.7	5	-13.5	4	-11.9	3	-12
ENSRNOP00000018649							2	-5.7				

ENSRNOP00000018654	1	-13.5			2	-13.8	2	-6.6	4	-21.2		
ENSRNOP00000018683							2	-6.6	2	-8.1	3	-8.2
ENSRNOP00000018684	2	-9.5	1	-4.9								
ENSRNOP00000018691							5	-4	6	-11.9	2	-2.3
ENSRNOP00000018695	48	-190	33	-107	28	-104	32	-87.5	29	-100	18	-74.9
ENSRNOP00000018711	6	-40.7	3	-17.1	9	-47	15	-83.3	20	-76.3	9	-60.6
ENSRNOP00000018717							1	-3.2			1	-3.2
ENSRNOP00000018723	25	-95.1	21	-42.9	20	-55.9	24	-54.4	15	-46.9	22	-36.5
ENSRNOP00000018734					2	-2.6			1	-4.2	1	-3.5
ENSRNOP00000018737	7	-31.8	5	-38.7	5	-34.1	22	-71.6	23	-56.2	9	-47.5
ENSRNOP00000018761	59	-170	46	-152	38	-162	49	-160	47	-138	56	-134
ENSRNOP00000018782									1	-4.1		
ENSRNOP00000018795	101	-268	95	-241	100	-265	41	-135	48	-95.4	73	-134
ENSRNOP00000018796	23	-72.3	13	-48.5	32	-58.6	7	-28	7	-39.7	14	-17.1
ENSRNOP00000018808									1	-2.7		
ENSRNOP00000018821	3	-20.2	5	-13.1	2	-5.1	3	-22	5	-15.4	1	-2.7
ENSRNOP00000018845	3	-13.5	2	-3.2					4	-20.1	1	-8.4
ENSRNOP00000018848	4	-16.7										
ENSRNOP00000018850	320	-501	459	-500	463	-482	371	-494	401	-476	330	-470
ENSRNOP00000018851									11	-35.8	4	-26.3
ENSRNOP00000018861							2	-8.9	1	-10.5		
ENSRNOP00000018864									3	-2.9	2	-4.4
ENSRNOP00000018897	22	-56.1	13	-57.3	22	-42.2	14	-46.6	15	-41.4	10	-33.8
ENSRNOP00000018922	2	-4.8			2	-4.9	3	-20.2	2	-13.1	3	-24.6
ENSRNOP00000018934					10	-22.7						
ENSRNOP00000018942	50	-207	24	-116	21	-126	69	-181	57	-169	52	-173
ENSRNOP00000018959	11	-15.3	2	-2.3	2	-3.7						
ENSRNOP00000018973	54	-174	18	-81.9	19	-116	37	-121	35	-73	21	-75.3
ENSRNOP00000019004	1	-3.7					3	-24.4	4	-24.4	2	-15.7
ENSRNOP00000019021	1140	-1711	998	-1529	1020	-1568	1015	-1571	1125	-1578	1238	-1628
ENSRNOP00000019021	1140	-1711	998	-1529	1020	-1568	1015	-1571	1125	-1578	1238	-1628
ENSRNOP00000019039	36	-94.9	27	-90.2	33	-106	29	-98.8	34	-87.2	50	-80
ENSRNOP00000019040							35	-54.6	28	-72.5	40	-56
ENSRNOP00000019047							3	-15.1	2	-5.5	1	-2.9
ENSRNOP00000019053									3	-11.7		
ENSRNOP00000019059	16	-75.7	2	-15.7	7	-33	43	-86.9	31	-62.9	20	-69.6

ENSRNOP00000019072							2	-9.2				
ENSRNOP00000019104	14	-57.7	6	-17.6	4	-27.1	6	-22.1	5	-18.2	3	-16.6
ENSRNOP00000019106	51	-115	32	-78.9	42	-82	27	-52.4	23	-47	16	-26.2
ENSRNOP00000019108	39	-149	19	-58.8	17	-96.2	41	-149	21	-78.7	20	-81.7
ENSRNOP00000019115	4	-19.7	3	-19			2	-18.7	3	-26		
ENSRNOP00000019121	1	-4.7					3	-15.8	4	-25.3	4	-13.2
ENSRNOP00000019126	3	-16.8	5	-25.7								
ENSRNOP00000019133	9	-3.7	2	-2.9	1	-2.4	6	-19.3	8	-21.8	5	-17.9
ENSRNOP00000019141	5	-31.3	17	-45.1	2	-11.1	10	-24.1	11	-17	11	-10.1
ENSRNOP00000019144	7	-69.2	2	-7.8	4	-29.3	14	-47.8	12	-32.6	13	-25.1
ENSRNOP00000019162	18	-25.5	15	-21.2	20	-22.4	19	-13.1			27	-24.4
ENSRNOP00000019172	3	-20.3	1	-4.8	2	-9.6						
ENSRNOP00000019174	18	-110	5	-31.8	7	-25	7	-17.9	10	-33.6	4	-19.5
ENSRNOP00000019175											1	-2.7
ENSRNOP00000019181							1	-6.6				
ENSRNOP00000019184	3	-17.9	1	-4.2	2	-2.7	7	-42.4	2	-21.5	3	-20.8
ENSRNOP00000019192	18	-88.9	15	-76.3	11	-56.8	17	-61.9	22	-66.5	9	-40.3
ENSRNOP00000019214											1	-3
ENSRNOP00000019231	24	-112	16	-72.2	5	-21.5	19	-90.9	17	-85.5	7	-23.8
ENSRNOP00000019237									2	-3.8		
ENSRNOP00000019265	10	-35.9					10	-38.6	7	-22.4	7	-19.2
ENSRNOP00000019283			6	-24.1								
ENSRNOP00000019285	3	-19.5	2	-15.9	2	-13	4	-8.4	5	-6.6	4	-12
ENSRNOP00000019298											3	-5.1
ENSRNOP00000019302	35	-122	25	-93	28	-116	26	-84.2	16	-62.3	24	-95.7
ENSRNOP00000019323	27	-120	14	-73.8	9	-47.2	2	-3.5	11	-52.2	4	-12.8
ENSRNOP00000019329							12	-25.5	12	-21		
ENSRNOP00000019340							2	-3.6	4	-26.5		
ENSRNOP00000019346									1	-3		
ENSRNOP00000019350	7	-36.6	3	-21.1			5	-29.6	4	-18.5	3	-11.6
ENSRNOP00000019351							2	-3				
ENSRNOP00000019362	9	-58.1	4	-25.4	3	-22.3	11	-36.4	10	-27.8	5	-11.6
ENSRNOP00000019374	7	-38.7	4	-21.7	2	-19.9	5	-19.1	6	-10.1	5	-18.4
ENSRNOP00000019379									1	-10		
ENSRNOP00000019382									13	-31.9		
ENSRNOP00000019386	4	-16	2	-4.3	2	-3.4	8	-45.6	7	-33.2	6	-16.2

ENSRNOP00000019409							2	-14.2	3	-28.8		
ENSRNOP00000019477	4	-17.5					4	-22.1	4	-10.9		
ENSRNOP00000019486	2	-9.2										
ENSRNOP00000019500					5	-9.2	4	-15.2	2	-17.9		
ENSRNOP00000019507							3	-14.2	1	-4.6		
ENSRNOP00000019508			35	-89.7					39	-54.2		
ENSRNOP00000019519	23	-118	28	-138	26	-143	34	-166	42	-193	25	-118
ENSRNOP00000019527	5	-28.3	1	-8.3	3	-7.3	5	-23.2	7	-41.1	6	-22.9
ENSRNOP00000019528							1	-2	2	-9.4	2	-3.6
ENSRNOP00000019529	4	-25.3					2	-14.1	2	-13.6	3	-12.2
ENSRNOP00000019531	17	-81.5			12	-62.3	19	-140	20	-131		
ENSRNOP00000019536									2	-6.7		
ENSRNOP00000019544	11	-5.8	8	-5.8	19	-5.4			2	-5.4		
ENSRNOP00000019552	1	-4					3	-16.8	4	-24.7		
ENSRNOP00000019563	3	-5.8			2	-5.9						
ENSRNOP00000019568							1	-3.3			1	-3.8
ENSRNOP00000019571	61	-197	47	-169	41	-171	28	-68.1	26	-111	24	-87.3
ENSRNOP00000019596							1	-1.8			2	-2.9
ENSRNOP00000019606							2	-8.7	3	-10.6	1	-1.3
ENSRNOP00000019620	20	-44	18	-43.7	18	-8.3	14	-23.7	16	-46.8	6	-15.5
ENSRNOP00000019623	2	-4.4										
ENSRNOP00000019624	45	-143	49	-124	56	-150	69	-112	53	-81.2	135	-91
ENSRNOP00000019625	4	-32					19	-82.4	25	-59.4	4	-39.9
ENSRNOP00000019642	5	-21.6	7	-20.6	8	-26.5	6	-29.6	6	-42.2	7	-38.8
ENSRNOP00000019652	91	-276	70	-198	70	-205	61	-133	51	-127	32	-71.7
ENSRNOP00000019660							2	-4.6				
ENSRNOP00000019666							7	-21.5	4	-18.9	3	-16.1
ENSRNOP00000019672	1	-3.6			1	-2.2						
ENSRNOP00000019685	2	-3.9					2	-17.5	1	-3.7		
ENSRNOP00000019713	8	-26.6	5	-13.2	6	-26.6	14	-37	14	-57.1	9	-22.2
ENSRNOP00000019734							3	-16.6	5	-17.1	2	-7.7
ENSRNOP00000019735							1	-9.3	1	-8.4		
ENSRNOP00000019755	1	-3.1	4	-8.3	2	-12	1	-1.7	2	-2.6		
ENSRNOP00000019756	2	-12.4			2	-7.9	5	-13.5	4	-8.3	1	-2.4
ENSRNOP00000019767	15	-21.8	16	-31.2	18	-33.1	15	-43.8	11	-49	17	-42.2
ENSRNOP00000019772	10	-59.2					5	-42.4	5	-37.5	4	-29.5

ENSRNOP00000019795	13	-30	8	-39.7	10	-31	11	-47.7	13	-48	10	-36.8
ENSRNOP00000019797	14	-41.3	36	-19.3	40	-20.4			6	-19.3	10	-40.5
ENSRNOP00000019802	3	-16.8	2	-3.6	3	-6.1	7	-55.9	7	-49.2		
ENSRNOP00000019810	4	-14.2										
ENSRNOP00000019824					1	-2.5						
ENSRNOP00000019862	7	-27.2	4	-24.1	3	-16.6	6	-22.2	6	-41.4	7	-29.3
ENSRNOP00000019874	14	-46.9	4	-27.4	4	-22.4	10	-47.2	9	-28.7	2	-12.5
ENSRNOP00000019886							2	-15.3			1	-1.5
ENSRNOP00000019892					10	-54.5						
ENSRNOP00000019898					3	-10.6						
ENSRNOP00000019912	50	-282	43	-100	39	-161	109	-291	133	-324	91	-269
ENSRNOP00000019914	24	-109	9	-46.5	5	-36.6	9	-35	13	-13	9	-23.7
ENSRNOP00000019923	5	-40	1	-4.2	1	-5.1	6	-20.1	6	-36.8	5	-28.8
ENSRNOP00000019933	7	-17.7			1	-6.3	9	-31.9	9	-21.2	3	-32.3
ENSRNOP00000019937							1	-2.3				
ENSRNOP00000019939	6	-14.5	10	-14.8	11	-8.7						
ENSRNOP00000019956									2	-8.3	3	-20.3
ENSRNOP00000019969			9	-77.9							13	-46.4
ENSRNOP00000019993	1	-3					6	-14.8	3	-5.9		
ENSRNOP00000020002	61	-313	33	-193	54	-266	59	-211	64	-216	40	-193
ENSRNOP00000020015	87	-222	84	-177	100	-144	41	-169	44	-123	55	-166
ENSRNOP00000020020	3	-9.7			3	-3.5	2	-13.7	2	-11.3	5	-4.9
ENSRNOP00000020043							2	-6.6				
ENSRNOP00000020048	6	-11	1	-3.5								
ENSRNOP00000020066	8	-30.2	8	-22.4			2	-6.5				
ENSRNOP00000020074							1	-2.7	1	-5.9		
ENSRNOP00000020077									3	-19.8	2	-4.7
ENSRNOP00000020079	4	-13.7	4	-2.5	10	-3.3	4	-15.2	3	-9.9	4	-17.1
ENSRNOP00000020093	11	-49.5	7	-35.6	6	-37.8	15	-53.9	24	-68.8	8	-42.3
ENSRNOP00000020135	4	-15.6					3	-16.5	5	-26.2	1	-3.8
ENSRNOP00000020149									2	-6.8		
ENSRNOP00000020161	6	-36.1					5	-21.9	3	-12.9		
ENSRNOP00000020174	8	-42.8	5	-33.7	3	-18.7	6	-45.5	4	-21.6	3	-19.2
ENSRNOP00000020192	10	-46.9			2	-4.3	8	-34.3	12	-31.6	2	-7.4
ENSRNOP00000020201							4	-17				
ENSRNOP00000020206	12	-59.5										

ENSRNOP00000020229	14	-24	7	-13.1	14	-22.9						
ENSRNOP00000020252	4	-16	8	-38.4	6	-11.2	1	-7.5				
ENSRNOP00000020265	10	-42.5	2	-10.9	4	-12.1					2	-11.7
ENSRNOP00000020267	1	-4.3					6	-14.8	6	-19.9	1	-5.9
ENSRNOP00000020284	4	-10.6										
ENSRNOP00000020291					19	-29.9						
ENSRNOP00000020302	16	-116	16	-66.5	18	-73.2	23	-99.7	26	-93.4	11	-48
ENSRNOP00000020304	2	-19.1					10	-71.5	10	-68.4	7	-42
ENSRNOP00000020306	118	-177	129	-202	121	-192	91	-96.6	101	-97.2	111	-112
ENSRNOP00000020307	1	-2.7					1	-5.2				
ENSRNOP00000020313	3	-10.7					4	-22	3	-8.8		
ENSRNOP00000020322	84	-220	60	-158	64	-193	100	-181	100	-186	98	-200
ENSRNOP00000020325	55	-116	44	-154	29	-122	34	-108	28	-97.1	28	-84.3
ENSRNOP00000020335			4	-23.1	5	-19.8	8	-50.7	8	-18.7	5	-21.4
ENSRNOP00000020338							2	-11.3	2	-7.7	1	-6.7
ENSRNOP00000020347							1	-5.7			1	-7.1
ENSRNOP00000020364	28	-57.5	41	-47.2	34	-47.3	16	-61.2	27	-77.7	18	-38.1
ENSRNOP00000020365							11	-19.8	2	-2.8	4	-4.3
ENSRNOP00000020374	3	-18.2	1	-3	1	-2.2	4	-22.4	6	-37.3	4	-22.9
ENSRNOP00000020376	4	-9.5	1	-2.2	3	-11.4	11	-47.2	11	-47.8	4	-17.4
ENSRNOP00000020380	23	-86	22	-71.1	14	-57.2	14	-57.2	16	-77.9	13	-38.2
ENSRNOP00000020385	3	-12.8										
ENSRNOP00000020387	1	-3										
ENSRNOP00000020402							1	-2.8	3	-13.5		
ENSRNOP00000020405	2	-9.5										
ENSRNOP00000020419							4	-28.7	8	-33.2		
ENSRNOP00000020420							2	-14				
ENSRNOP00000020433	4	-26.7					3	-21.1	2	-4.8		
ENSRNOP00000020445			1	-3.2								
ENSRNOP00000020446	226	-268	196	-242	230	-294	248	-269	279	-339	300	-256
ENSRNOP00000020447					1	-2.9						
ENSRNOP00000020451	3	-16.9	1	-3.9			2	-4.7				
ENSRNOP00000020478	53	-190	54	-165	66	-150	65	-254	63	-215	77	-191
ENSRNOP00000020480	20	-73.7	16	-64.7	13	-54.6	15	-76.1	16	-58.7	7	-20.5
ENSRNOP00000020504	3	-12.2										
ENSRNOP00000020537	1	-3.6					3	-12.2	3	-15.5	1	-2.2

ENSRNOP00000020543							3	-19.1	2	-24.1		
ENSRNOP00000020544	36	-186	25	-170	25	-150	40	-159	41	-151	36	-150
ENSRNOP00000020548	2	-3.6	4	-23.4	3	-2.9	13	-54.3	14	-63		
ENSRNOP00000020553											2	-4
ENSRNOP00000020558	11	-57.4	5	-32.3	15	-89.9	18	-130	19	-159	13	-102
ENSRNOP00000020581			5	-9.9			2	-11.1	5	-18.6	2	-5
ENSRNOP00000020596			5	-25.7	6	-25.4	11	-49	17	-48.8	15	-52.8
ENSRNOP00000020601							2	-2.5	2	-2.7	2	-2.7
ENSRNOP00000020609	3	-19.7	2	-9.6			1	-2	2	-2.5	1	-2.1
ENSRNOP00000020625	51	-130	92	-147	100	-147	54	-74.9	42	-86.4	43	-83.4
ENSRNOP00000020635	30	-91.9	44	-87.5	47	-93.3	19	-47.9	11	-39.3	17	-50.5
ENSRNOP00000020646	5	-29.2			2	-14.8	18	-27	4	-14.9	4	-12.2
ENSRNOP00000020647	15	-80.8					13	-58.7			7	-38.5
ENSRNOP00000020669							3	-15.5			3	-15.3
ENSRNOP00000020670	17	-48.4	6	-28.3	3	-9.2	18	-29.1	15	-23.9	29	-32.9
ENSRNOP00000020681	47	-103	40	-72.3	49	-83.2	37	-70.6	29	-60.6	29	-75
ENSRNOP00000020702											2	-5.8
ENSRNOP00000020728					1	-2.2						
ENSRNOP00000020737	269	-125	159	-106	209	-90.4	9	-39	1	-2.6	9	-40.1
ENSRNOP00000020744	4	-27.5					5	-40.5	6	-38.7	4	-21.3
ENSRNOP00000020748	31	-70.1	41	-64.7			67	-56.8	61	-83.4	96	-56.1
ENSRNOP00000020749	8	-38.7	9	-37.9	9	-35.3	3	-11.3	1	-4.3	4	-11.7
ENSRNOP00000020752	7	-33.1	1	-2.7	3	-17.8	9	-44.3	23	-70.2	6	-28.2
ENSRNOP00000020767	48	-221	42	-176	31	-138	25	-132	27	-112	20	-110
ENSRNOP00000020770							10	-58.1	5	-35.4	6	-30.2
ENSRNOP00000020775	18	-108	10	-19.6	7	-25.7	5	-32.6	10	-41.3	1	-2.2
ENSRNOP00000020785							2	-9.4	7	-39.9	4	-15.1
ENSRNOP00000020795									4	-16.6		
ENSRNOP00000020860			2	-6								
ENSRNOP00000020886							3	-3.7	2	-4.2		
ENSRNOP00000020889							2	-11.8				
ENSRNOP00000020892	2	-9.7										
ENSRNOP00000020916									4	-35.1		
ENSRNOP00000020925							1	-9	1	-9.2		
ENSRNOP00000020932	176	-381	169	-239	149	-287	105	-265	117	-274	148	-248
ENSRNOP00000020988					3	-10.1						

ENSRNOP00000021017	12	-81.5	4	-19.7	3	-5.5	10	-42.5	10	-20	6	-28
ENSRNOP00000021030	23	-94.4	4	-11.7	8	-38	29	-125	20	-95.4	17	-80.2
ENSRNOP00000021055	3	-13.1			2	-10	1	-1.7				
ENSRNOP00000021060			2	-13.4	1	-8.2	11	-44.7			9	-41.7
ENSRNOP00000021066	6	-20.7	2	-5.2			2	-2.2	6	-11	4	-17.5
ENSRNOP00000021071							9	-63.7	3	-30.6	9	-23.2
ENSRNOP00000021075	5	-13.3	1	-4.4	3	-11.2	4	-21.9	5	-32.5	2	-11.4
ENSRNOP00000021105			1	-11.3			10	-52	8	-57.3	3	-19.2
ENSRNOP00000021111	4	-17.4	3	-20.2	2	-3	4	-28	3	-24.4	4	-15.4
ENSRNOP00000021134							6	-28.2	7	-46.1	2	-18.8
ENSRNOP00000021152	3	-19.2					7	-44.3	10	-29	5	-43.9
ENSRNOP00000021153	2	-8.4										
ENSRNOP00000021155	9	-40.6	3	-11.9	6	-22.9	8	-6.7	5	-6.5		
ENSRNOP00000021162	16	-46.6	9	-16.9	8	-18.7	2	-1.5	4	-11.8	2	-4.4
ENSRNOP00000021170	13	-84.2	5	-31.1	6	-41.3	16	-67.6	19	-103	15	-80.5
ENSRNOP00000021171	8	-28.3					3	-17.1				
ENSRNOP00000021200	2	-2.8			3	-9.6	1	-3.3	4	-11.6	2	-6.2
ENSRNOP00000021208	1	-5.9	2	-5.1	2	-11.7						
ENSRNOP00000021215	41	-59.7	10	-15.3	21	-41.4	86	-49.1	95	-57.4	60	-46.1
ENSRNOP00000021243			2	-2.2								
ENSRNOP00000021257	22	-88.1	17	-51.2	12	-74.1	27	-46.4	29	-59.1	32	-36.2
ENSRNOP00000021263	2	-7.5					5	-28.7	4	-26.1		
ENSRNOP00000021274							1	-1.8	1	-3.8		
ENSRNOP00000021310	2	-2.6										
ENSRNOP00000021318	7	-17.8									2	-5.6
ENSRNOP00000021321									12	-60.6	9	-41.2
ENSRNOP00000021353							1	-5.1	3	-11.8		
ENSRNOP00000021362	1	-8.9			1	-5.5	2	-2.9	1	-3		
ENSRNOP00000021366							4	-27.4	2	-11.5		
ENSRNOP00000021384	39	-121	81	-102	93	-112	17	-37.9	11	-30.7	14	-45.7
ENSRNOP00000021386			1	-4.7								
ENSRNOP00000021387	2	-2.6					1	-7.7	1	-4.9	3	-12.6
ENSRNOP00000021389	7	-40.5	3	-12.5	7	-37.3	18	-62.5	14	-55.4	11	-64.2
ENSRNOP00000021397	20	-114	12	-95.6	10	-80.8	8	-34.9	13	-38.9	8	-24.3
ENSRNOP00000021400	4	-13.6			1	-2.3	17	-59.2	17	-78.7	10	-62.3
ENSRNOP00000021405											2	-8.7

ENSRNOP00000021407	82	-213	81	-145	71	-210	99	-124	80	-142	72	-140
ENSRNOP00000021430									1	-2.2		
ENSRNOP00000021434									2	-3.2		
ENSRNOP00000021455									1	-3.5	2	-3.7
ENSRNOP00000021512	30	-97.8	14	-46.1	29	-69.7	34	-32.5	25	-41.6	18	-19.6
ENSRNOP00000021514	85	-196	72	-217	70	-217	35	-119	37	-166	30	-109
ENSRNOP00000021524					2	-2.9	5	-23.1	5	-22.9	4	-7.9
ENSRNOP00000021528							7	-12.6	3	-13.9		
ENSRNOP00000021533			2	-18.7			8	-15.7	3	-15.9		
ENSRNOP00000021545	13	-42.8	10	-23.1	4	-22	29	-29.6	22	-36.8	5	-19.4
ENSRNOP00000021546									3	-13.4	1	-1.4
ENSRNOP00000021549	1	-5										
ENSRNOP00000021591							9	-22.8	6	-18.3		
ENSRNOP00000021609					7	-20.6						
ENSRNOP00000021612	43	-183	19	-109	24	-91.6	51	-205	52	-202	25	-145
ENSRNOP00000021629	5	-7.4	1	-7.5			4	-19				
ENSRNOP00000021637	10	-38.5	3	-13.6	6	-35.8	9	-54.8	6	-33.9	3	-19
ENSRNOP00000021638	91	-188	95	-185	67	-194	168	-193	137	-185	119	-166
ENSRNOP00000021646	61	-180	40	-167	30	-129	16	-59.9	16	-61.8	23	-74
ENSRNOP00000021650	11	-39	5	-15.6	5	-14.7			3	-3.7	10	-3.7
ENSRNOP00000021657	15	-81.5	2	-10.6	2	-17.6	25	-105	27	-109	16	-80.2
ENSRNOP00000021660									1	-5.2		
ENSRNOP00000021671									1	-9.9		
ENSRNOP00000021676	2	-10.3	3	-13.4	3	-18.6						
ENSRNOP00000021694	2	-6.8							1	-2.6		
ENSRNOP00000021711	3	-29.8					3	-12.3				
ENSRNOP00000021716	4	-23.6	1	-6.5			19	-8.2	7	-17.7		
ENSRNOP00000021729	1	-10.9			3	-14	2	-16	2	-12	3	-25.6
ENSRNOP00000021756							1	-13.9	1	-3.8		
ENSRNOP00000021786											6	-24.5
ENSRNOP00000021812	28	-132	26	-106	25	-104	23	-122	40	-135	15	-82.5
ENSRNOP00000021816	4	-27.2	2	-5.1	1	-2.6	2	-11	3	-17	2	-11.2
ENSRNOP00000021833							7	-32.9	2	-9.6	1	-1.5
ENSRNOP00000021840	14	-67.8	7	-32.9	5	-37.5	10	-68.3	11	-46.1	9	-48.5
ENSRNOP00000021862	65	-230	77	-203	65	-194	60	-185	58	-179	61	-157
ENSRNOP00000021866							3	-4.7			1	-3

ENSRNOP00000021871					2	-3.5	1	-2.1	1	-2.7	1	-1.4
ENSRNOP00000021872									2	-9.6	3	-15.2
ENSRNOP00000021884	3	-7.1	2	-6.5	2	-6.8	2	-9.8	3	-11.5	1	-3.6
ENSRNOP00000021893	6	-36.3	10	-43.9	8	-45.1	22	-58.7	30	-63.8	27	-64.9
ENSRNOP00000021899									2	-12		
ENSRNOP00000021915	1	-4.7										
ENSRNOP00000021920	324	-292	289	-244	255	-263	155	-160	119	-154	100	-173
ENSRNOP00000021921	3	-9.8					2	-6.2	1	-3.8	3	-17.4
ENSRNOP00000021923			1	-2.8								
ENSRNOP00000021925	2	-7.9					7	-16.9	6	-7.8		
ENSRNOP00000021934	10	-34.8	6	-11	5	-29.4	13	-43	17	-54.6	9	-31.6
ENSRNOP00000021945							2	-9.1				
ENSRNOP00000021951							1	-1.9	2	-4.3		
ENSRNOP00000021954							1	-3.8			1	-3
ENSRNOP00000021958	10	-53	4	-19.5	4	-18.3	23	-54.7	19	-61.8	11	-59
ENSRNOP00000021970	6	-2.8	4	-2.7	3	-3			6	-23.9	2	-2.4
ENSRNOP00000021989							9	-2.2				
ENSRNOP00000022002									1	-5.1		
ENSRNOP00000022007			1	-3.8								
ENSRNOP00000022011	2	-7.8	6	-20.4	4	-20.6						
ENSRNOP00000022014									2	-3.6		
ENSRNOP00000022021											1	-3.6
ENSRNOP00000022022	8	-38.8	12	-38.2	17	-44.8	10	-30.3	11	-52	9	-36.5
ENSRNOP00000022055	7	-35.7			2	-11.2	15	-56.2	12	-52.5	8	-36.5
ENSRNOP00000022063									1	-3		
ENSRNOP00000022065	5	-18.5	2	-10.8	1	-3.7						
ENSRNOP00000022084							1	-4.5	5	-29.1	3	-18.9
ENSRNOP00000022089	2	-9.5	1	-2.7	1	-2.2	3	-25.8	5	-23.6	3	-13.9
ENSRNOP00000022095							5	-29.6	2	-7.7	1	-6.9
ENSRNOP00000022113	2	-24.7	2	-14.6			3	-21.7	3	-18.3	7	-21.4
ENSRNOP00000022117			1	-3			1	-1.6	1	-10.7		
ENSRNOP00000022150	16	-83.3	9	-36.5	9	-43.4	11	-25.2	7	-23.3	8	-14.6
ENSRNOP00000022171			1	-2.4					3	-5		
ENSRNOP00000022182									1	-3.7	1	-5.4
ENSRNOP00000022188	2	-4.2										
ENSRNOP00000022209	2	-6					5	-14.9	6	-21.4	4	-6.2

ENSRNOP00000022213							4	-31.2			1	-2
ENSRNOP00000022221	2	-11.1	3	-19.3	3	-8.5	2	-19	2	-9.1		
ENSRNOP00000022226	3	-4.5	2	-5.3	4	-5.4	2	-2.9	5	-3.2		
ENSRNOP00000022241	1	-2.7					2	-3.6				
ENSRNOP00000022254	24	-81	4	-23.7	4	-25.5	7	-11.7	6	-12.5	9	-27.6
ENSRNOP00000022264	3	-18.6			1	-6						
ENSRNOP00000022270							9	-58.9	10	-66	5	-32.1
ENSRNOP00000022275	20	-91.2	11	-48.3	11	-35.5	9	-45.9	12	-49.9	11	-28.6
ENSRNOP00000022307	27	-113	18	-54.2	16	-67.7	11	-28.7	11	-23	8	-17.5
ENSRNOP00000022309	49	-227	35	-153	34	-159	31	-142	18	-85.4	13	-84.5
ENSRNOP00000022326							1	-6.1	2	-6.9	1	-4.1
ENSRNOP00000022336							1	-2	4	-3.5		
ENSRNOP00000022341	2	-5.3	1	-7.2	1	-7.4	8	-10.2	11	-14	5	-9.4
ENSRNOP00000022342	3	-14.3										
ENSRNOP00000022343									4	-4.2	4	-18.2
ENSRNOP00000022348	13	-32.2	5	-21.6								
ENSRNOP00000022356	2	-11.5					1	-3.6	4	-19.3		
ENSRNOP00000022359	3	-11.1					2	-2.6				
ENSRNOP00000022366			5	-9.2								
ENSRNOP00000022373	2	-7					4	-28.5	3	-19.8	5	-11.1
ENSRNOP00000022389							6	-29.1	4	-21.4	4	-22.6
ENSRNOP00000022401	18	-127	15	-72.4	11	-65.4	16	-122	20	-160	10	-84
ENSRNOP00000022410							2	-4.6	2	-3.2		
ENSRNOP00000022440							1	-6.7				
ENSRNOP00000022455	20	-66.1	26	-91.3	13	-46.2						
ENSRNOP00000022462	2	-12.6					1	-5.3	1	-4		
ENSRNOP00000022467									2	-2.9		
ENSRNOP00000022485									2	-9.4		
ENSRNOP00000022487	36	-78.2	16	-30	15	-39.7	6	-15.3	109	-112	10	-6.5
ENSRNOP00000022496	14	-90.9	10	-57.7	7	-46.5	12	-61.6	15	-97.1	5	-34.7
ENSRNOP00000022499									2	-7.8		
ENSRNOP00000022502	1	-4.3										
ENSRNOP00000022511							4	-7.3	2	-4.7	2	-4.6
ENSRNOP00000022519	19	-73.3	14	-45.9	27	-73.6	22	-60.7	15	-32.7	18	-58.1
ENSRNOP00000022532	6	-30.2	5	-29.8	7	-31.2	17	-64.8	14	-60.4	9	-25.1
ENSRNOP00000022538									3	-14.5		

ENSRNOP00000022539			4	-19.5								
ENSRNOP00000022540	21	-107	18	-73.5	35	-152	55	-276	60	-255	54	-266
ENSRNOP00000022548							24	-71.4				
ENSRNOP00000022550	14	-62.7	23	-28.7	26	-33.2	12	-56.3	15	-62.1	10	-50.9
ENSRNOP00000022552	3	-15	1	-9.5	2	-4.4	1	-8	1	-7.5	1	-9.2
ENSRNOP00000022557	1	-8.8					1	-8.8				
ENSRNOP00000022573	6	-12.5			2	-3.9	6	-16.4	5	-24.2	3	-3.9
ENSRNOP00000022578	15	-77.6	9	-55.6	6	-44	5	-18.9	8	-31	5	-28.2
ENSRNOP00000022582	11	-33.4	5	-25	3	-18.6	17	-69.7	9	-61.8	7	-32.4
ENSRNOP00000022602							1	-5.1	1	-6.5		
ENSRNOP00000022621	3	-21			2	-10.2	2	-11.2	2	-10		
ENSRNOP00000022626			5	-17.6			8	-26.8	5	-11.4	7	-26.3
ENSRNOP00000022628	27	-91.6	21	-63.3	15	-70.2	18	-66.5	5	-33.5	15	-72.3
ENSRNOP00000022632	14	-71.8	9	-42.4	10	-52.5	10	-39.8	16	-58.1	2	-9.5
ENSRNOP00000022635	6	-28.4			1	-2.7	8	-71.3	14	-75.8	10	-69.9
ENSRNOP00000022642							1	-3.5	2	-8.8		
ENSRNOP00000022650	6	-11.8	7	-11.6	4	-15.5	9	-46.7	9	-36.3	1	-5.1
ENSRNOP00000022670							2	-14.9	2	-11.2		
ENSRNOP00000022703	56	-144	51	-106	30	-81.2	39	-111	47	-109	28	-98.5
ENSRNOP00000022721	1	-3.1					1	-1.4	2	-12.6		
ENSRNOP00000022735							2	-7.5			2	-7.5
ENSRNOP00000022736									2	-9.3		
ENSRNOP00000022746							2	-16.2	10	-38.4	2	-11.1
ENSRNOP00000022747	9	-8.7	3	-8.7	2	-7.3	11	-6	8	-6.4	7	-6.6
ENSRNOP00000022779	4	-41.2	7	-19.9	7	-26	3	-15.9	6	-31.6		
ENSRNOP00000022786	2	-18.7	1	-3.2	1	-5.5	6	-19.4	5	-17.2	2	-17.2
ENSRNOP00000022788					1	-5.6	2	-5.2	3	-12.5		
ENSRNOP00000022817	2	-4.5					3	-6.2	2	-9		
ENSRNOP00000022828	8	-54.1	11	-54	10	-48.7	13	-29.2	10	-34.8	10	-36.8
ENSRNOP00000022836	3	-13.6					4	-12.2	4	-26.6	3	-17.9
ENSRNOP00000022851	6	-11.9			2	-11.6	1	-1.7	4	-2.3	1	-1.5
ENSRNOP00000022854							1	-2.5	1	-3		
ENSRNOP00000022861							2	-8.7			1	-1.5
ENSRNOP00000022862							6	-43.8	5	-25.4	2	-3.8
ENSRNOP00000022873							2	-15.7	2	-3.2		
ENSRNOP00000022874							7	-37.3	7	-23.4	4	-19

ENSRNOP00000022875									3	-20.1		
ENSRNOP00000022881					1	-5.9						
ENSRNOP00000022892	186	-475	245	-474	193	-507	366	-497	307	-452	306	-479
ENSRNOP00000022897	3	-9.8	2	-9.6			3	-4.1			1	-2.3
ENSRNOP00000022899							1	-2.2	2	-9.7		
ENSRNOP00000022949	81	-206	47	-157	56	-174	91	-152	83	-139	56	-139
ENSRNOP00000022951			1	-3.8								
ENSRNOP00000022958			1	-2.7	5	-23.1						
ENSRNOP00000022960							2	-11.7	1	-5.3		
ENSRNOP00000022971					2	-2.2	1	-1.7	4	-4.7	1	-2
ENSRNOP00000022979							3	-18.6				
ENSRNOP00000022983							4	-6.9	5	-22.5	4	-16.8
ENSRNOP00000022985	40	-155	43	-97.7	32	-107	47	-165	66	-143	33	-124
ENSRNOP00000022986							2	-2.3				
ENSRNOP00000022988	5	-16	1	-7.8					4	-7.5		
ENSRNOP00000023003			3	-12.2								
ENSRNOP00000023012							2	-3.9	1	-3.1		
ENSRNOP00000023017	4	-3.6	4	-14.6	4	-14.2	11	-24.2	13	-20.2	7	-22.9
ENSRNOP00000023032	18	-43	15	-12	10	-43.2	5	-10.9	4	-21.2	2	-11.1
ENSRNOP00000023037	3	-11.5			1	-2	2	-11.5	4	-25.4		
ENSRNOP00000023040					1	-3.7	3	-9.6	3	-14.1		
ENSRNOP00000023066	2	-5.1							3	-6.6		
ENSRNOP00000023072	46	-152	32	-113	19	-96.3	21	-113	22	-91.7	25	-92.4
ENSRNOP00000023080	6	-22.3	8	-14	10	-15.2	3	-17.3			4	-8.6
ENSRNOP00000023122	2	-3.1					8	-32.2	4	-22.3	4	-14.7
ENSRNOP00000023130							1	-5.4				
ENSRNOP00000023132	26	-100	27	-78.4	24	-55.7	20	-78.1	23	-73.6	10	-56.6
ENSRNOP00000023133							3	-5.6	5	-23.2	2	-4.9
ENSRNOP00000023149							3	-19.6	2	-8.9	3	-29.2
ENSRNOP00000023150							2	-4.6	1	-4.3	2	-4
ENSRNOP00000023152	91	-217	54	-148	57	-177	68	-135	98	-146	88	-173
ENSRNOP00000023163			3	-8.6	3	-10.5	4	-12.9	6	-21.5	2	-5.3
ENSRNOP00000023187	2	-9.7	1	-3.3	2	-3.9	2	-7.9	2	-9.7	2	-4.6
ENSRNOP00000023211	14	-42.7	12	-35.8	9	-27.1	14	-35.5	16	-44.2	3	-19.3
ENSRNOP00000023214	1	-4.4									1	-3.5
ENSRNOP00000023215	19	-67.4	13	-24.6	12	-28.3	9	-27.5	6	-14.2	11	-23.5

ENSRNOP00000023227	5	-35.3	4	-32.9	5	-52.4	9	-29.2	6	-27.2	4	-18.7
ENSRNOP00000023247							5	-23.1				
ENSRNOP00000023259	2	-9.4										
ENSRNOP00000023282							1	-2.7				
ENSRNOP00000023286									1	-6.8	3	-6.6
ENSRNOP00000023303							1	-4.3				
ENSRNOP00000023318	1	-10.5										
ENSRNOP00000023319	4	-19.7										
ENSRNOP00000023320	2	-2.8					2	-6.4			3	-16
ENSRNOP00000023329	1	-3.4										
ENSRNOP00000023342	2	-9.2					12	-59.7	10	-32.4	3	-12.4
ENSRNOP00000023344	11	-51.6										
ENSRNOP00000023350	38	-114	43	-74.1	43	-66.8	11	-28.5	17	-47.2	13	-49.6
ENSRNOP00000023354							2	-2.3	2	-8.4		
ENSRNOP00000023370	8	-42.9	3	-14.2	2	-7.2	5	-15.3	7	-15.6	2	-4.7
ENSRNOP00000023379							2	-11.6	3	-13.3	2	-10.2
ENSRNOP00000023383							4	-18.4				
ENSRNOP00000023385	9	-32.9	5	-22.7	7	-27.1	13	-36.8	15	-66.3	17	-42.4
ENSRNOP00000023395	22	-125	13	-71.5	15	-77.8	27	-105	30	-100	14	-61.7
ENSRNOP00000023405	2	-6.1										
ENSRNOP00000023418					1	-2.7	6	-41.3	5	-46.8	2	-9
ENSRNOP00000023425	16	-93.2	14	-54	17	-70.3	19	-68.5	14	-89.5	16	-58.4
ENSRNOP00000023437							1	-2.4				
ENSRNOP00000023447	158	-440	116	-393	137	-378	109	-293	116	-323	81	-264
ENSRNOP00000023452	86	-215	142	-212	152	-202	76	-131			48	-104
ENSRNOP00000023514							6	-24.4	5	-12.8		
ENSRNOP00000023516	31	-124	26	-76.9	27	-85.4	37	-138	29	-119	27	-97.4
ENSRNOP00000023526	11	-29.4	8	-24.8	12	-35	13	-42	16	-37.5	3	-19.2
ENSRNOP00000023543	9	-53.4	4	-24.8	4	-26.5	1	-2.8			2	-7
ENSRNOP00000023554	8	-51.9	17	-34	21	-48	21	-52.4	17	-49.6	56	-42
ENSRNOP00000023562	16	-52	20	-46.5	15	-49.2	13	-44.4	18	-34.2	7	-30.8
ENSRNOP00000023567							1	-1.8	3	-9.9		
ENSRNOP00000023582									68	-233		
ENSRNOP00000023584									1	-3.9		
ENSRNOP00000023592	5	-27.6	9	-17.8	14	-8.4	11	-33.8	9	-32.7	5	-26.6
ENSRNOP00000023601			1	-2.4			3	-16.4			1	-2.1

ENSRNOP00000023606	5	-23	6	-20.5	4	-17.6	10	-50.4	7	-25.9	9	-4.9
ENSRNOP00000023611	222	-368	272	-423	304	-424	161	-238			96	-191
ENSRNOP00000023615	6	-16.7	2	-8.3			9	-42.6	8	-70.1	6	-34.3
ENSRNOP00000023623	36	-106	33	-56.5	45	-86.4	12	-18.9	39	-50.9	17	-48.5
ENSRNOP00000023628			1	-2.3			13	-67.7	22	-83.7	4	-15.4
ENSRNOP00000023632	4	-19.9					7	-44.5	8	-50.4	5	-29.1
ENSRNOP00000023659	8	-34.2	12	-56.7	13	-50.3						
ENSRNOP00000023685	82	-186	45	-139	43	-124	54	-127	49	-96.8	35	-107
ENSRNOP00000023701	6	-20.3	7	-40.2	2	-11.1	10	-55.9	9	-41.4	7	-28.3
ENSRNOP00000023713							10	-60.7				
ENSRNOP00000023729							3	-10.1	4	-17.4	2	-17.9
ENSRNOP00000023753	2	-4.4	3	-4.9	5	-9.5	14	-19.6	15	-5.2	6	-4.2
ENSRNOP00000023763			1	-4.2	1	-4.7						
ENSRNOP00000023786							2	-4.2				
ENSRNOP00000023787							2	-6	2	-6		
ENSRNOP00000023796	15	-105	3	-12.7	6	-33.9	7	-50.1	5	-39	5	-26.4
ENSRNOP00000023806	21	-62.3	7	-35.3	10	-27.4	10	-19.1			3	-15.9
ENSRNOP00000023811	6	-22.3	5	-10.7	5	-19.3					1	-5.4
ENSRNOP00000023835	15	-94.1	12	-28	14	-70.2	51	-135	53	-148	38	-114
ENSRNOP00000023843							1	-2.2	4	-16.5	1	-4
ENSRNOP00000023854							1	-5.7	1	-9.4		
ENSRNOP00000023860	4	-28					12	-76.9	12	-62.8	3	-13.6
ENSRNOP00000023875							2	-4.8	1	-5.7		
ENSRNOP00000023900	34	-151	16	-85.2	10	-51.2	33	-148	15	-78	20	-111
ENSRNOP00000023913	31	-109										
ENSRNOP00000023914	14	-61.8	15	-41.9	12	-36.3	13	-34.9	11	-35.9	8	-25.9
ENSRNOP00000023924			2	-3.8	1	-2.9	6	-29.5	2	-8.4	4	-23
ENSRNOP00000023934	10	-27.4	5	-18.8	5	-19.5						
ENSRNOP00000023935	52	-170	69	-143	53	-140	46	-118	36	-99.8	70	-137
ENSRNOP00000023977	4	-12.4	8	-8.9	6	-21	3	-18.5	5	-47.8	4	-24.2
ENSRNOP00000023984	4	-23.4	4	-19.7	4	-18.8	4	-25.1	3	-21.7	4	-15.5
ENSRNOP00000024012	3	-21.3										
ENSRNOP00000024016					1	-2.8						
ENSRNOP00000024020	13	-57.9	13	-47	7	-28.2	20	-72.7	10	-41.8	8	-43.3
ENSRNOP00000024033	96	-177	92	-171	100	-168	40	-98.8	44	-77.9	86	-117
ENSRNOP00000024054					1	-2.5	9	-26.6	7	-29.3	4	-19

ENSRNOP00000024063	24	-70.6	22	-57.7	28	-65.4			1	-2.5		
ENSRNOP00000024067			2	-8.4			2	-10.4	4	-9.3	2	-10.7
ENSRNOP00000024083	29	-88.8	68	-82.2	23	-67.2	83	-79.8	35	-76.7	45	-58.1
ENSRNOP00000024084			57	-135					63	-111	70	-100
ENSRNOP00000024086							1	-2.3				
ENSRNOP00000024091	1	-3.5										
ENSRNOP00000024093					3	-20			9	-27.3	8	-27.3
ENSRNOP00000024106	63	-173	44	-190	40	-171	110	-230	88	-221	63	-204
ENSRNOP00000024111	1	-3.7										
ENSRNOP00000024112							1	-2.2	2	-4.6	2	-2.5
ENSRNOP00000024138							4	-23.3			1	-2
ENSRNOP00000024141							3	-20.2	2	-5.4	2	-7.4
ENSRNOP00000024160	10	-49.4	5	-13.3	14	-37	2	-10.5	2	-6	1	-5.6
ENSRNOP00000024185	8	-33.9	9	-36.5	7	-19.4	4	-20.8	4	-10.4	4	-21.9
ENSRNOP00000024196							1	-2.6				
ENSRNOP00000024206	2	-7.5					1	-1.6				
ENSRNOP00000024229	2	-2.6					10	-2.8	4	-10.9	1	-2.9
ENSRNOP00000024232	20	-85.5	19	-81.1	25	-120	24	-121	21	-96.7	23	-94.1
ENSRNOP00000024239	4	-24	1	-5.7			1	-5.8	4	-20.9	2	-4.2
ENSRNOP00000024261									1	-4.2		
ENSRNOP00000024264	6	-35.4	2	-8.5	2	-9	9	-63.3	9	-55.1	10	-40.4
ENSRNOP00000024278							3	-12				
ENSRNOP00000024281	11	-53.2	4	-18.8	4	-18.7	2	-5.4	9	-33.7		
ENSRNOP00000024287	30	-69.1	36	-53.5	34	-59.3	67	-53.2	58	-65	94	-52
ENSRNOP00000024295	73	-210	59	-210	57	-191	33	-121	63	-111	34	-85.3
ENSRNOP00000024306	5	-35	5	-20	3	-19.8	6	-39.8	9	-53.1	5	-35.6
ENSRNOP00000024310	89	-153	65	-119	70	-136	69	-123	55	-82.7	79	-108
ENSRNOP00000024321									2	-6.2		
ENSRNOP00000024327									6	-31		
ENSRNOP00000024362	9	-41.5			4	-21.2	17	-46.2	19	-44.5	9	-26.4
ENSRNOP00000024374	4	-8.1	4	-17.1	3	-8.6						
ENSRNOP00000024380					1	-3.9			2	-4		
ENSRNOP00000024385	1	-6.8	2	-8.5	5	-15.7	2	-10.4	2	-8.2	1	-2.5
ENSRNOP00000024388	6	-19.4			2	-9.4	7	-33.2	12	-44.6	2	-13.5
ENSRNOP00000024391									2	-4		
ENSRNOP00000024392	1	-2.7	2	-12.7	3	-11.2	7	-39.9	7	-12.5		

ENSRNOP00000024399							2	-2.2	1	-4.3		
ENSRNOP00000024400	3	-24.3							1	-2.3		
ENSRNOP00000024404							2	-3.9				
ENSRNOP00000024406			2	-2.5								
ENSRNOP00000024407							1	-1.4	1	-3.7	1	-1.4
ENSRNOP00000024423	159	-301	148	-260	148	-249	78	-130	55	-108	67	-134
ENSRNOP00000024430	8	-50.8	6	-17.2	3	-6.2	21	-68.3	15	-51	9	-45
ENSRNOP00000024436	2	-4.5					1	-2.4	2	-3.8	2	-4.7
ENSRNOP00000024440	1	-3.3					3	-14.5	5	-28.3		
ENSRNOP00000024447	13	-31.3	5	-15.6	8	-30.9	4	-4.7	5	-12.3	3	-10.1
ENSRNOP00000024450	45	-194	30	-148	24	-89.8	17	-63.1	25	-70.9	16	-73.9
ENSRNOP00000024452	10	-40.2	7	-30	9	-34.4	3	-12	6	-39.8	3	-22.2
ENSRNOP00000024460	2	-3.3	1	-3.2								
ENSRNOP00000024464	9	-17.2			5	-5.5						
ENSRNOP00000024471	6	-19.6			2	-2.5	6	-2.9	4	-2.6	4	-3.3
ENSRNOP00000024488	4	-2.7										
ENSRNOP00000024516	31	-43.6										
ENSRNOP00000024517	14	-59.6	7	-34.7	10	-46.5	21	-81.5	31	-79.5	15	-64.5
ENSRNOP00000024564	16	-98.4	6	-39.1	10	-48.1	33	-161	28	-127	6	-49.1
ENSRNOP00000024576							4	-19	3	-21		
ENSRNOP00000024599							1	-2.9	4	-27.5	2	-2.6
ENSRNOP00000024601							1	-3.6	1	-8.5		
ENSRNOP00000024602											37	-98.7
ENSRNOP00000024609	35	-106	18	-65.3	30	-114	21	-48.9	16	-34.5	18	-53.2
ENSRNOP00000024622			10	-18.6	6	-18.5						
ENSRNOP00000024632	47	-173	40	-111	50	-119	38	-144	39	-125	21	-70.1
ENSRNOP00000024648	2	-9.6	3	-8.8	2	-4.1	7	-19.5	5	-26.5	5	-25.8
ENSRNOP00000024657							3	-16.5				
ENSRNOP00000024658	2	-11	3	-15.5							1	-3.6
ENSRNOP00000024659	1	-6.1	4	-30.4	2	-10.4	6	-36.9	9	-34.3	2	-7
ENSRNOP00000024674							2	-11.3				
ENSRNOP00000024691	6	-20	3	-2.9	5	-3.2						
ENSRNOP00000024697	1	-6.3										
ENSRNOP00000024700							1	-4.1				
ENSRNOP00000024707	93	-154	127	-148	110	-187	65	-133	76	-132	52	-153
ENSRNOP00000024708											2	-2.6

ENSRNOP00000024710	1	-3.3					1	-3.7				
ENSRNOP00000024711	11	-54.9	7	-23.5	5	-12.6	25	-48.8	17	-56	18	-55
ENSRNOP00000024712							6	-41.7	6	-45.8	8	-55.4
ENSRNOP00000024718	1	-3.8	1	-2.6								
ENSRNOP00000024719	6	-51.2	3	-28.4	3	-28.3	4	-35.6	7	-39.7	5	-19.7
ENSRNOP00000024725							1	-8.2				
ENSRNOP00000024736	89	-331	43	-189	56	-215	36	-138	43	-165	23	-128
ENSRNOP00000024753	2	-22.3			2	-12	5	-30.1	4	-19.6	1	-7.4
ENSRNOP00000024762							2	-11.2	1	-3.7		
ENSRNOP00000024772	20	-86.2	4	-27.3	4	-27.3	18	-27.8	14	-30.1	13	-46.5
ENSRNOP00000024775	17	-102	13	-80.5	15	-74.9	40	-143	35	-126	50	-99.7
ENSRNOP00000024779	27	-81.7	12	-61.4	3	-15.1	24	-76.5	27	-105	20	-92.8
ENSRNOP00000024782	9	-59	4	-22.4	3	-11.3	5	-14.7	5	-8.1	1	-1.9
ENSRNOP00000024812	2	-4	1	-3.9	3	-16.7						
ENSRNOP00000024815									1	-5.2	1	-5.8
ENSRNOP00000024827	27	-68.5	9	-30.9	10	-42.5	8	-27.3	7	-28.1	7	-27.3
ENSRNOP00000024832	8	-6.1	4	-4.3	4	-4.8	17	-4.8	21	-14.8	8	-6.3
ENSRNOP00000024838							2	-5.7				
ENSRNOP00000024863	12	-57.1	2	-11.1	3	-11.4	7	-44.5	12	-37.9	2	-3.7
ENSRNOP00000024891									3	-9		
ENSRNOP00000024895					1	-2.2	7	-40.6	1	-4.7		
ENSRNOP00000024914							2	-12.3			1	-1.7
ENSRNOP00000024917									2	-6.6		
ENSRNOP00000024918							2	-11	3	-29.6	1	-2.7
ENSRNOP00000024938									1	-5		
ENSRNOP00000024947	88	-232	119	-218	126	-194			39	-138		
ENSRNOP00000024952	20	-119	8	-47.5	12	-69.4	10	-47.2	7	-33.3	11	-61.8
ENSRNOP00000024972	64	-193	44	-142	37	-124	35	-57.5	13	-75.4	23	-67.8
ENSRNOP00000024973	43	-225	38	-181	39	-151	36	-162	33	-159	43	-199
ENSRNOP00000024980	6	-8.2	6	-7.7	3	-4.7	1	-5.3			1	-5.3
ENSRNOP00000025000	73	-189	34	-148	45	-138			61	-255		
ENSRNOP00000025045	226	-345	191	-323	168	-273	162	-248	179	-211	178	-233
ENSRNOP00000025051	41	-184	10	-55.5	24	-78.2	75	-237	75	-234	51	-161
ENSRNOP00000025064	170	-484	149	-385	198	-408	234	-442	174	-390	204	-378
ENSRNOP00000025070	12	-93.3	5	-32	10	-48	20	-81.9	12	-62.4	10	-34.3
ENSRNOP00000025072							1	-2.6				

ENSRNOP00000025086							1	-4.5				
ENSRNOP00000025090					45	-138	44	-201	63	-262	58	-221
ENSRNOP00000025094	59	-154	71	-158	73	-147	36	-81.2	33	-94.5	35	-86.1
ENSRNOP00000025101									2	-12.2	2	-8.1
ENSRNOP00000025104	37	-98.9			53	-81.7	81	-99.7	79	-135	105	-99.3
ENSRNOP00000025122									2	-9.7	6	-32.1
ENSRNOP00000025147							2	-3.5	2	-11.8		
ENSRNOP00000025152							3	-10			3	-9
ENSRNOP00000025158	1	-4.9							1	-5.7		
ENSRNOP00000025179									2	-3.1		
ENSRNOP00000025193	1	-3	1	-3.6	2	-12.6	3	-12.6	2	-7.8		
ENSRNOP00000025196	6	-42.9	7	-19.8	4	-13.5	6	-38.6	7	-51.5	3	-24.6
ENSRNOP00000025203	27	-120	28	-104	40	-83.8	26	-118	22	-85.2	62	-88.2
ENSRNOP00000025213	2	-7.5			1	-6.3	2	-6.9	4	-20.5	2	-5.9
ENSRNOP00000025217	23	-58.4	14	-52.5	16	-43.8	45	-53.3	50	-50.6	16	-53
ENSRNOP00000025222					4	-10.4						
ENSRNOP00000025224	5	-41.8	5	-49.5	4	-25.7	4	-31.1			3	-21.3
ENSRNOP00000025225									3	-20.8		
ENSRNOP00000025240	32	-113	47	-111	46	-113	9	-48.2	11	-53.6	13	-58
ENSRNOP00000025241							4	-15.9	4	-17.3	2	-4.1
ENSRNOP00000025254	59	-121	63	-64.3	66	-89.2	44	-83.3	27	-79.2	37	-61.5
ENSRNOP00000025260	5	-38.3	1	-13.6	4	-23.3	3	-17.1	1	-4.1	1	-6.3
ENSRNOP00000025281	26	-103	17	-86.7	15	-80.2	42	-87.7	33	-69.4	32	-75.5
ENSRNOP00000025282							2	-3.1	2	-3.8		
ENSRNOP00000025284	2	-4					8	-62.3	3	-28.9	4	-29.1
ENSRNOP00000025317							2	-3.6				
ENSRNOP00000025318							1	-5.4	2	-6.7		
ENSRNOP00000025323	17	-89.7	10	-74.3			15	-38.8	18	-47.7	15	-60.3
ENSRNOP00000025327	42	-157	44	-140	43	-113	70	-143	71	-129	49	-114
ENSRNOP00000025342	3	-9.9										
ENSRNOP00000025388	9	-33.1			5	-29.3	9	-60.6	10	-67.8	3	-19.9
ENSRNOP00000025394	1	-3.4					2	-6.1	3	-19.2		
ENSRNOP00000025400	1	-3.4					4	-18.5	1	-3.5	1	-1.9
ENSRNOP00000025403							1	-8.3	2	-8.3	1	-4.3
ENSRNOP00000025421	6	-20	3	-11.6	7	-20.6	2	-2.2				
ENSRNOP00000025426	22	-116	11	-56.6	12	-62.1	30	-204	35	-200	23	-145

ENSRNOP00000025433	10	-64.8	2	-13.3	5	-23.1	18	-70.9	19	-84.3	9	-71.4
ENSRNOP00000025446	17	-59	9	-29.8	11	-29.4	22	-37.8	14	-32.9	12	-44.9
ENSRNOP00000025462							2	-6.1	2	-6		
ENSRNOP00000025495									2	-4		
ENSRNOP00000025506	1	-11.2										
ENSRNOP00000025510	1	-4.7	2	-9.1			9	-55.2	7	-22	2	-4.9
ENSRNOP00000025523	14	-43.3			6	-45	10	-39.2	12	-39.9	7	-39.3
ENSRNOP00000025525	107	-245	82	-168	77	-201	110	-309	121	-312	81	-204
ENSRNOP00000025529							1	-8.8				
ENSRNOP00000025534	4	-17.6					6	-30.4	4	-14.9	5	-19.4
ENSRNOP00000025559							5	-19.1	5	-39	2	-3.3
ENSRNOP00000025560							1	-1.8			3	-12.5
ENSRNOP00000025570	7	-35.5			2	-15.3	15	-26.4	12	-49.6	15	-34.8
ENSRNOP00000025590	1	-2.7					3	-23.8			4	-4.6
ENSRNOP00000025598									2	-9		
ENSRNOP00000025612	9	-35.1	3	-16.9	1	-11.3	4	-15.2	4	-8.1	8	-24.3
ENSRNOP00000025627	19	-58	12	-31.8	15	-27.4	17	-110	14	-110	14	-91.2
ENSRNOP00000025633									1	-5.5		
ENSRNOP00000025649	52	-166	71	-128	71	-140	80	-116	82	-126	103	-126
ENSRNOP00000025652	140	-211	114	-208	95	-155			164	-174	156	-165
ENSRNOP00000025655	10	-37.5	15	-29	12	-27.5	15	-59.4	15	-55.5	15	-62.8
ENSRNOP00000025657	3	-9.9	3	-10.2	6	-17.9	5	-25	6	-42.7	2	-17.3
ENSRNOP00000025677											1	-2.3
ENSRNOP00000025678	11	-56.8					7	-26.7	6	-18.7		
ENSRNOP00000025689							33	-115	33	-101	44	-77
ENSRNOP00000025710	13	-52.7	11	-36.6	8	-34.2	6	-25.7	12	-50	4	-18.9
ENSRNOP00000025711							6	-13.8	7	-29.3	3	-14
ENSRNOP00000025736									1	-5		
ENSRNOP00000025756							4	-21.4				
ENSRNOP00000025758	1	-2.6			4	-6						
ENSRNOP00000025769	2	-4.8					7	-27.6	6	-16.4	3	-12.2
ENSRNOP00000025782	10	-45.3	12	-6	10	-20.4	6	-22.8	5	-23.6	2	-8.4
ENSRNOP00000025784							1	-2.6				
ENSRNOP00000025788	2	-12.3										
ENSRNOP00000025794	7	-38	6	-33.1	7	-27.5	1	-1.5				
ENSRNOP00000025796	40	-117	34	-112	31	-103	33	-70.8	33	-72.1	23	-76.4

ENSRNOP00000025797							1	-2.3			1	-1.5
ENSRNOP00000025804	9	-47.3	5	-25.1	6	-25.4	12	-68.9	5	-23.6	7	-36.7
ENSRNOP00000025813	79	-178	33	-99.6	38	-127	103	-176	97	-172	100	-146
ENSRNOP00000025819	5	-29.9	2	-7.9	2	-13.8	22	-95.5	22	-110	12	-64.8
ENSRNOP00000025824	20	-57	9	-23.6	13	-41.3	30	-66.2	35	-82.1	8	-37.4
ENSRNOP00000025828	37	-116	50	-92.9	41	-95.2	46	-71.4	27	-69.5	35	-80.6
ENSRNOP00000025842	5	-24.5	4	-26.8	3	-26.3	3	-16.7	2	-18.3	2	-14.1
ENSRNOP00000025843	2	-3.1					2	-7.7	1	-6	2	-3
ENSRNOP00000025844	17	-45.5	12	-48.7	14	-47.5	16	-24.3	20	-27.1	11	-17.3
ENSRNOP00000025845	6	-15	7	-21.3	3	-10.3			3	-12.4	5	-31.5
ENSRNOP00000025851							2	-7.9	5	-15.7	3	-10.7
ENSRNOP00000025859											1	-2.1
ENSRNOP00000025863	9	-44.3	4	-9.6	4	-17.1	17	-59.4	15	-45.6	12	-46.9
ENSRNOP00000025878	2	-4.4			2	-2.4	1	-5.6	2	-4.9		
ENSRNOP00000025880							3	-8.7				
ENSRNOP00000025881	2	-3.7					9	-32.8	7	-44.3	6	-18.6
ENSRNOP00000025887	10	-64.3	11	-35.1	12	-45	13	-47.1	10	-54.5	12	-56.5
ENSRNOP00000025898					1	-3.4						
ENSRNOP00000025900	8	-42.1	2	-8.6	2	-10.6	13	-37.3	10	-59	4	-20.8
ENSRNOP00000025904	24	-78.8	6	-29.7	8	-44	6	-24	15	-29.2	6	-27.5
ENSRNOP00000025906	9	-46.2	7	-28.6	7	-28.1	11	-20.1	11	-30	2	-3.7
ENSRNOP00000025915	9	-57	3	-29.6					10	-45.6		
ENSRNOP00000025921							2	-3.3	3	-4.1		
ENSRNOP00000025925	1	-3					8	-35.8	6	-34.2	9	-26
ENSRNOP00000025928							1	-1.9	2	-5.2		
ENSRNOP00000025933							4	-26.9	2	-16.8	2	-6.1
ENSRNOP00000025939	75	-242	100	-194	88	-153	59	-152	67	-165	71	-158
ENSRNOP00000025952	2	-2.9										
ENSRNOP00000025980					3	-12.6						
ENSRNOP00000025986	3	-15.2	2	-6.2			2	-3.3			3	-5.2
ENSRNOP00000025990	1	-6.4			2	-2.2						
ENSRNOP00000025994	29	-102					21	-61.2			39	-59.6
ENSRNOP00000025997	2	-7.9							2	-10.4	1	-4.2
ENSRNOP00000026003	24	-97.8	10	-41.4	13	-45.4	4	-23.9			3	-17.2
ENSRNOP00000026016	5	-24.4					3	-6.3	2	-12.9		
ENSRNOP00000026021									1	-3.9		

ENSRNOP00000026033									1	-2.4		
ENSRNOP00000026040	6	-27.3	3	-6	2	-6.6	6	-29	5	-22.9	2	-2.9
ENSRNOP00000026057	4	-22	2	-7.1	2	-7.2	3	-9.9	7	-23.5	3	-9.7
ENSRNOP00000026080	1	-3.5										
ENSRNOP00000026092	4	-14.8							1	-8.5		
ENSRNOP00000026100			1	-3								
ENSRNOP00000026111	2	-15.6	1	-6.8	2	-2.1						
ENSRNOP00000026122	237	-395	214	-359	257	-333	108	-324	120	-316	151	-237
ENSRNOP00000026135	1	-5.6			3	-8.1						
ENSRNOP00000026141			2	-16.9							2	-2.5
ENSRNOP00000026168							2	-2.3				
ENSRNOP00000026184									1	-4.7		
ENSRNOP00000026185							5	-13.9	4	-24.8		
ENSRNOP00000026186	36	-111	29	-87	25	-84.7	19	-75.7	15	-75.1	21	-74.9
ENSRNOP00000026197	76	-179	54	-185	55	-172	40	-111	53	-90.3	28	-92.9
ENSRNOP00000026200	41	-137	17	-46.4	20	-59.7	16	-47.6	14	-66.2	13	-45.5
ENSRNOP00000026224	12	-50.2	6	-32.4	7	-28.7	22	-64.1	12	-67.3	11	-75.8
ENSRNOP00000026232							2	-9.5	1	-8.5	2	-10.6
ENSRNOP00000026250	2	-7.2					2	-10.4	2	-2.7		
ENSRNOP00000026279	15	-81.9	7	-19.7	11	-34.2	5	-34.3	8	-34.2		
ENSRNOP00000026280	1	-6.5	1	-4.1	1	-4.7					2	-4.1
ENSRNOP00000026284							1	-2.8				
ENSRNOP00000026290	165	-306	178	-286	181	-305	89	-190	78	-162	97	-215
ENSRNOP00000026291	15	-49.6	5	-29.4	3	-18.7	1	-5.8			1	-2.1
ENSRNOP00000026316	206	-672	182	-570	163	-514	180	-364	171	-390	212	-395
ENSRNOP00000026323							1	-1.4			2	-8.2
ENSRNOP00000026324	7	-23.8			1	-4.8	17	-67.9	14	-41.3	4	-17.6
ENSRNOP00000026326	35	-74.1	43	-70.3	44	-65	15	-31.1	21	-48.6		
ENSRNOP00000026327	3	-11.5	3	-11.9	3	-12.1	7	-29.3	10	-44.4	1	-3.1
ENSRNOP00000026328	5	-22.6										
ENSRNOP00000026339	20	-42.9	5	-31.6	10	-35	17	-97	12	-62.5	14	-87.1
ENSRNOP00000026351	6	-22.4							2	-8		
ENSRNOP00000026354	1	-8.3					1	-4.2			2	-11.7
ENSRNOP00000026355	20	-76.1	13	-36.8	11	-34	12	-31.9	10	-13.2	3	-10.7
ENSRNOP00000026358							4	-13.6	3	-16.3	2	-5.1
ENSRNOP00000026392									50	-36.2		

ENSRNOP00000026394							1	-1.6			4	-8.8
ENSRNOP00000026398	1	-2.6	3	-10	2	-4.1	5	-25.2	9	-42.2	5	-33.7
ENSRNOP00000026407	3	-4							2	-9.2	1	-2.8
ENSRNOP00000026408	17	-50.2	11	-37	11	-36.1	5	-27.6	9	-42.7	2	-9.6
ENSRNOP00000026416	2	-3.8										
ENSRNOP00000026427	18	-74.9	8	-45.6	2	-3.9	36	-82.6				
ENSRNOP00000026428	25	-95.2	6	-40.1	11	-37.8	19	-61.8	16	-42.7	13	-54.3
ENSRNOP00000026438	3	-14.2					9	-35.1	7	-43	2	-6.1
ENSRNOP00000026445	13	-21.5	9	-29.5	6	-5.6	4	-10.7	3	-9.9	2	-3.4
ENSRNOP00000026462	15	-32	5	-11.7	3	-10.4	14	-36.7	13	-43.8	9	-29.3
ENSRNOP00000026466	1	-8.6			3	-8.5	9	-26.9	7	-26.9	5	-20.1
ENSRNOP00000026471	2	-3.4										
ENSRNOP00000026473	15	-27	13	-37.1								
ENSRNOP00000026480									1	-6.8		
ENSRNOP00000026507	42	-64.8	25	-42.2	22	-43.2					10	-37.9
ENSRNOP00000026528	25	-74.1	13	-59.4	9	-43.4	18	-58.7	9	-10.7	12	-34.4
ENSRNOP00000026552	2	-7.6					3	-11.1	3	-11.4	1	-2.3
ENSRNOP00000026573	1	-3.9			1	-3.9	10	-27.4	10	-42.1		
ENSRNOP00000026574	131	-365	115	-330	110	-302	189	-316	199	-306	216	-321
ENSRNOP00000026576	24	-55.4	36	-59.4	40	-59.3	31	-31	20	-45.3	20	-39.3
ENSRNOP00000026581	6	-31.3	2	-6.5	7	-23.7	3	-17.4	5	-22.8	9	-16.7
ENSRNOP00000026583	3	-20.3										
ENSRNOP00000026588	21	-78.2	7	-42	6	-24.2	14	-40.7	8	-28.3	13	-59.5
ENSRNOP00000026631							1	-2.5				
ENSRNOP00000026633									2	-5	1	-2.8
ENSRNOP00000026643							2	-4.2				
ENSRNOP00000026648	5	-20.4	2	-15.5	2	-20						
ENSRNOP00000026653					4	-13.3	6	-14.1	7	-23.9	6	-3.1
ENSRNOP00000026657									2	-3.1		
ENSRNOP00000026665									2	-2.7		
ENSRNOP00000026670									3	-5.4		
ENSRNOP00000026677							1	-2.2				
ENSRNOP00000026696	31	-155	15	-97.2	13	-90.2	52	-192	44	-179	36	-146
ENSRNOP00000026705							2	-9.7				
ENSRNOP00000026706	6	-33.7	4	-12.5	3	-5.2	10	-38.2	7	-32.2	5	-14.6
ENSRNOP00000026707	6	-38.3									11	-55.7

ENSRNOP00000026710	8	-43	21	-15.6	24	-14	6	-31.1	2	-8.4	2	-19.8
ENSRNOP00000026718	2	-3.7										
ENSRNOP00000026719							14	-84.3	8	-36.6		
ENSRNOP00000026728	3	-12.7	5	-4.4			5	-12.9	5	-28.1	5	-6
ENSRNOP00000026730	6	-30.5			3	-2.7			9	-61	3	-16.9
ENSRNOP00000026734	10	-41.9	2	-2.3	5	-2.8	10	-12.5	15	-44	7	-3.8
ENSRNOP00000026738	12	-74.9	5	-36.9	5	-31.5	14	-69.2	14	-79.8	3	-24.1
ENSRNOP00000026748	3	-10.5					6	-21.1	4	-13.2	2	-13.3
ENSRNOP00000026751	4	-22.6	3	-11.6	1	-5.4	1	-4.3	3	-18.3		
ENSRNOP00000026757									1	-7.6		
ENSRNOP00000026760	4	-11.9	5	-26.1	3	-13.7	14	-57.8	9	-56.4	7	-38.9
ENSRNOP00000026783							7	-47	8	-50.5	2	-5.5
ENSRNOP00000026785	1	-4.6	2	-7.8	3	-17.9	4	-17.8	4	-12.3		
ENSRNOP00000026792							4	-19.6	6	-40.1	4	-27.3
ENSRNOP00000026794	28	-146	30	-129	41	-177	21	-77.3	24	-106	33	-64.4
ENSRNOP00000026799	32	-141	24	-100	27	-121	40	-119	42	-96.4	24	-108
ENSRNOP00000026817							1	-1.9	2	-14		
ENSRNOP00000026820	10	-40.9	3	-15.9			15	-52.9	9	-43.9	5	-14.6
ENSRNOP00000026821	5	-14.7			1	-2.8	13	-6.8	13	-7.8	8	-7
ENSRNOP00000026831	8	-23.9	7	-20.5	12	-7.4	12	-22.1	10	-15.4	19	-13.4
ENSRNOP00000026854	7	-32.7	2	-7.1	2	-7.5	2	-4.2	5	-9.8		
ENSRNOP00000026873	2	-8	1	-5.2								
ENSRNOP00000026875	1	-4.6	2	-5.4	2	-5						
ENSRNOP00000026895									2	-7.1		
ENSRNOP00000026909									1	-3.4		
ENSRNOP00000026918	19	-33.3	8	-26.9	13	-38.9	10	-44.4	10	-34.9	7	-43.9
ENSRNOP00000026920	75	-322	77	-280	82	-300	105	-306	89	-256	101	-226
ENSRNOP00000026921	2	-5.4										
ENSRNOP00000026928	48	-104	19	-75.2	18	-66.4	33	-85.4	24	-55.2	21	-52.3
ENSRNOP00000026929	2	-3					7	-16.8	10	-13	2	-3.8
ENSRNOP00000026932	15	-27.7	15	-33.9	18	-35.1			12	-41.4	14	-59.2
ENSRNOP00000026949	4	-27			3	-4	1	-5.6	4	-34.5	1	-8.8
ENSRNOP00000026960							1	-1.7			2	-2.5
ENSRNOP00000026964									2	-6.8		
ENSRNOP00000026965	4	-23.6					5	-25	5	-21.6	1	-8.6
ENSRNOP00000026968	6	-46.8			6	-39.6	10	-72.7			6	-27.6

ENSRNOP00000026974							3	-20.4				
ENSRNOP00000026992							3	-6.1	1	-3.6		
ENSRNOP00000026996									1	-3.7		
ENSRNOP00000027040	25	-85.2	17	-41	20	-36.6	19	-49.8	22	-68	28	-51.4
ENSRNOP00000027045							1	-3.3	2	-17.1	1	-1.8
ENSRNOP00000027048	12	-34.8	4	-13	5	-19.9	3	-2.2			5	-2.3
ENSRNOP00000027054									4	-21.1		
ENSRNOP00000027055					1	-3.1						
ENSRNOP00000027060			3	-15.1			2	-7.7	4	-6.3		
ENSRNOP00000027061	10	-68.4	11	-47.4	3	-23.2	5	-24.4	11	-45.7	3	-20.4
ENSRNOP00000027064	5	-12	6	-15.5	5	-19.1	6	-26	4	-26.1	1	-4.4
ENSRNOP00000027076	3	-13.4	3	-17.9	3	-17.5	5	-22.9	6	-22.4	3	-12.4
ENSRNOP00000027083	8	-42.9	5	-22.8	3	-13.9	7	-41.5	4	-15.5	2	-10
ENSRNOP00000027088	9	-14.4	9	-16.2	6	-5	17	-35.9	10	-25.1	6	-17.6
ENSRNOP00000027091							1	-4.9			1	-4.8
ENSRNOP00000027093	1	-2.6										
ENSRNOP00000027112	49	-72.7	35	-68.9	52	-98.6	5	-19.1	3	-6.1	3	-18.1
ENSRNOP00000027132							7	-18.4				
ENSRNOP00000027141	3	-14.5					9	-3.4	7	-27.7		
ENSRNOP00000027160	8	-33.8	4	-18.1	3	-18.5	7	-35.6	7	-41.4	2	-8.7
ENSRNOP00000027166							1	-5.4	2	-6.5	1	-2.7
ENSRNOP00000027200							2	-4.5			2	-4.6
ENSRNOP00000027216											1	-2.4
ENSRNOP00000027217	4	-20.7	1	-2.5	1	-2.8						
ENSRNOP00000027220	1	-3.5			3	-16.4	4	-11.9	4	-21.8	5	-12.8
ENSRNOP00000027233							1	-12.6			3	-13.5
ENSRNOP00000027234	44	-121	31	-55.9	32	-97.3	53	-99.9	31	-88.8	30	-74.4
ENSRNOP00000027262	1	-3.4			2	-8.8	2	-11.7	3	-8.8	2	-11.8
ENSRNOP00000027268	8	-28.8	8	-21.7	10	-34.3			1	-8.8	1	-7.3
ENSRNOP00000027271	8	-50.4	7	-22			34	-198	27	-168	18	-102
ENSRNOP00000027272	6	-11.8					10	-13.6	11	-28.1	4	-6
ENSRNOP00000027290	8	-49.4	1	-4.1			5	-23.6	1	-5.2	1	-6.1
ENSRNOP00000027305	29	-106	20	-83	16	-58.5	9	-19.1	11	-31.2	1	-4.9
ENSRNOP00000027321	3	-16.8							2	-7		
ENSRNOP00000027345	8	-16.1	4	-4	2	-4.5	13	-20.4	19	-28.3	11	-19.8
ENSRNOP00000027346	6	-10.9					11	-55	10	-71.6	3	-19.5

ENSRNOP00000027351	2	-3.5	4	-3.7	5	-10.9	3	-20			1	-6.9
ENSRNOP00000027360	88	-290	86	-244	71	-257	133	-428	113	-402	97	-343
ENSRNOP00000027370							2	-2.4				
ENSRNOP00000027381					2	-2.6	7	-30.1	8	-37.8	3	-13.8
ENSRNOP00000027384	3	-18										
ENSRNOP00000027406	11	-37	8	-33.1	6	-39.8	2	-4.2			2	-5.9
ENSRNOP00000027407							9	-27.7	4	-25.2	9	-34.9
ENSRNOP00000027418									1	-5.8		
ENSRNOP00000027435							1	-11.5			1	-2.2
ENSRNOP00000027436							2	-4.6	2	-4.7		
ENSRNOP00000027449	2	-3.7			1	-3.3	5	-31	6	-30.2	1	-6.2
ENSRNOP00000027455									1	-3.3		
ENSRNOP00000027459									1	-7.6		
ENSRNOP00000027463							1	-6.9	2	-5.7		
ENSRNOP00000027494			2	-8.9			1	-6.5	2	-10.4	3	-19.8
ENSRNOP00000027497	68	-189	50	-131			72	-186	68	-198		
ENSRNOP00000027501	14	-44.4	5	-19.9	5	-2.6						
ENSRNOP00000027511	40	-157	22	-85.7	13	-84.7	26	-70.3	26	-57.8	8	-28.4
ENSRNOP00000027518					3	-9.6	8	-22	7	-20.1	2	-9.5
ENSRNOP00000027520	58	-111	123	-131	87	-141	19	-67.1	28	-73.6	28	-82.6
ENSRNOP00000027521							2	-9.1				
ENSRNOP00000027526							1	-1.7	2	-2.7		
ENSRNOP00000027537	1	-6.4	13	-57.9	18	-48.4	22	-81.2	25	-85.9	62	-104
ENSRNOP00000027552	16	-78.2	6	-30.1	2	-9.8	12	-54	20	-65.3	4	-21.6
ENSRNOP00000027579							2	-11.3			2	-2.3
ENSRNOP00000027585	2	-15.7	2	-7.6	1	-11.5						
ENSRNOP00000027608			1	-4	1	-2.5					2	-3.9
ENSRNOP00000027612	4	-14.5	6	-5.2	5	-3.5						
ENSRNOP00000027615	36	-74.7	25	-98	19	-74.7	5	-11.4	3	-9.1	6	-19.9
ENSRNOP00000027617							16	-54.6	15	-57.1		
ENSRNOP00000027627							1	-4.7	1	-4.7	1	-4.9
ENSRNOP00000027641	4	-10.6	2	-4.9	1	-2.2	5	-13.9	4	-11.8	5	-20.1
ENSRNOP00000027662					1	-3.4	4	-11.7	1	-4.9	2	-3.4
ENSRNOP00000027665	4	-17.1	2	-6.1	2	-10.1	2	-5.2				
ENSRNOP00000027666							2	-3.4				
ENSRNOP00000027677							3	-11.1	2	-3		

ENSRNOP00000027685	8	-25.9	4	-21.4	2	-11.5	9	-51.1	12	-45.8	3	-4.4
ENSRNOP00000027695							1	-3.2				
ENSRNOP00000027700	89	-301	60	-220	77	-280	88	-284	76	-288	74	-273
ENSRNOP00000027704							3	-9.7	2	-9.6	1	-2.7
ENSRNOP00000027710											1	-2.1
ENSRNOP00000027728							2	-2.4	2	-2.9		
ENSRNOP00000027754	9	-30.4	26	-19.7	45	-59.9			5	-37.3	5	-19.4
ENSRNOP00000027756	18	-72.8	5	-21.2	6	-24.1	22	-55.4	15	-47.1	8	-38.4
ENSRNOP00000027760	14	-12.6	15	-10.2	11	-10.5	24	-42.1	21	-20.6	15	-10.5
ENSRNOP00000027761											1	-3.2
ENSRNOP00000027762	5	-12.6	4	-11.3	5	-23.2			1	-3.3		
ENSRNOP00000027765							4	-22.3	4	-8.2	3	-8.3
ENSRNOP00000027773	10	-40.6	5	-32	2	-10.3	14	-72.3	12	-71.2	8	-37.1
ENSRNOP00000027780	23	-27.2										
ENSRNOP00000027782	4	-3.5	4	-10.4	4	-9.7	3	-3.7	4	-3.5	3	-3.5
ENSRNOP00000027786									1	-4.9		
ENSRNOP00000027791					3	-19.5	2	-4.7	1	-7.7	2	-15.6
ENSRNOP00000027800			1	-2.7	1	-3	2	-9	2	-8.8	3	-9.8
ENSRNOP00000027802											1	-2.1
ENSRNOP00000027809	4	-29	11	-31.2	10	-43.6	5	-25.7	8	-38.1	6	-31.3
ENSRNOP00000027811							2	-11.6	1	-8.4		
ENSRNOP00000027815	22	-70.9	34	-82.8	33	-75.3	11	-43.7	6	-31.8	11	-35.9
ENSRNOP00000027834	36	-156	26	-123	22	-96.1	7	-17.4	10	-37.8	3	-31
ENSRNOP00000027847							7	-15.4	2	-12.6		
ENSRNOP00000027867	5	-9.3	5	-9.4	6	-19.4						
ENSRNOP00000027878	4	-5.8	5	-5.5	1	-5.6						
ENSRNOP00000027879	4	-16.6	1	-12.6	1	-5.3						
ENSRNOP00000027925	21	-53.1	30	-41.7	35	-50	6	-16.7	5	-2.4	4	-2.6
ENSRNOP00000027937			1	-2.3			1	-4.3				
ENSRNOP00000027980	59	-143	41	-114	51	-133	82	-103	39	-80.5	70	-95.5
ENSRNOP00000027985							2	-2.9			1	-2.6
ENSRNOP00000027986											2	-2.6
ENSRNOP00000027987	7	-30.2	4	-14.9	5	-40.9	2	-2.8	7	-30.8	9	-24.7
ENSRNOP00000027992	32	-88	18	-87.2	12	-51.8	4	-17.8	10	-42.5	5	-26.9
ENSRNOP00000027994					3	-14.5			1	-2.4	2	-2.5
ENSRNOP00000027995	23	-110	14	-63.4	13	-52	17	-46.8	14	-48.3	19	-61.9

ENSRNOP00000027999	7	-37.8	9	-35.9	7	-37.1	2	-6.8	9	-31.9	2	-5.9
ENSRNOP00000028006			2	-3			2	-4.4			2	-4.6
ENSRNOP00000028009	3	-13.7	5	-12.1	6	-20.5	5	-20.7	5	-16.8	8	-32.9
ENSRNOP00000028020											3	-13.5
ENSRNOP00000028030							4	-20.5	1	-9	2	-3.8
ENSRNOP00000028033	55	-38.8	39	-35.9	49	-37.8	2	-5.6	6	-12		
ENSRNOP00000028041					3	-15.3	3	-34.6	1	-6.2		
ENSRNOP00000028058							7	-26.2	3	-25.4	1	-4
ENSRNOP00000028060	16	-32.5	12	-39.5	11	-40.9			9	-13.7	37	-14.4
ENSRNOP00000028066	5	-35.4	5	-23.5	3	-18	9	-41.1	6	-21.4	10	-29.7
ENSRNOP00000028067									2	-6.8		
ENSRNOP00000028075	12	-94.3	12	-58.9	9	-48.6	17	-55.9	19	-63.3	9	-25.1
ENSRNOP00000028077	2	-3.7			1	-5.5	13	-81.9	8	-53.2	6	-26.5
ENSRNOP00000028084	23	-107	20	-58.2	21	-93.8	17	-69.7	15	-57.3	9	-40.8
ENSRNOP00000028093	14	-17.1			14	-41.8			3	-13.2	3	-14.3
ENSRNOP00000028100					2	-12.6	3	-10.4			3	-10
ENSRNOP00000028102	119	-293	100	-315	97	-334	82	-201	71	-193	66	-206
ENSRNOP00000028125									2	-4.7	1	-3.4
ENSRNOP00000028130							4	-21.5	3	-17		
ENSRNOP00000028173	2	-3.5	2	-5.3	1	-4.2	8	-27.9	9	-31	12	-28.4
ENSRNOP00000028175			2	-3.2	4	-4.2	3	-2	5	-11.2	4	-10.1
ENSRNOP00000028176							2	-11.5	5	-19.2		
ENSRNOP00000028177			3	-3								
ENSRNOP00000028188	6	-27.6	1	-2.5	2	-5.1	17	-48.9	23	-87.4	3	-27.2
ENSRNOP00000028194	19	-47.7	6	-25.2	13	-42.5	1	-2.8	1	-3.3	1	-2.7
ENSRNOP00000028196	83	-215	60	-169	88	-198	30	-138	28	-113	66	-119
ENSRNOP00000028211							4	-20.6	3	-20.7		
ENSRNOP00000028217									3	-14.9		
ENSRNOP00000028234											1	-8.6
ENSRNOP00000028237	234	-479	172	-408	163	-368	107	-279	100	-259	106	-266
ENSRNOP00000028249	152	-425	147	-346	129	-326	75	-235	88	-224	101	-262
ENSRNOP00000028290			1	-3.5								
ENSRNOP00000028295	2	-4					1	-5.8				
ENSRNOP00000028298	10	-19.9	1	-9.7			5	-27	8	-22.7	1	-2.5
ENSRNOP00000028302									1	-2.3		
ENSRNOP00000028328							9	-19	9	-21.5		

ENSRNOP00000028332	3	-13					2	-14.3	2	-2.8		
ENSRNOP00000028350	2	-2.9										
ENSRNOP00000028364							1	-2.4				
ENSRNOP00000028375	1	-4.6	1	-8.9	4	-9.9						
ENSRNOP00000028389							3	-21.2	2	-4.4	1	-1.6
ENSRNOP00000028390							1	-1.4	1	-4.8		
ENSRNOP00000028392	77	-113	21	-43.9	27	-78.3	41	-69.2	74	-88.2	43	-67.3
ENSRNOP00000028395									2	-10	1	-5.3
ENSRNOP00000028404	18	-101	14	-57.2	11	-56.1	14	-49.9	10	-41.8	7	-27.6
ENSRNOP00000028431							2	-5.2	2	-4.7		
ENSRNOP00000028445	27	-192	24	-95.7	32	-142	18	-71.4	21	-118	20	-107
ENSRNOP00000028447							3	-10.9	2	-5.3		
ENSRNOP00000028462	9	-39.4			1	-2.5	3	-2.6	4	-2.5		
ENSRNOP00000028467			1	-2.3								
ENSRNOP00000028484	49	-146	42	-110	25	-100	71	-115	64	-98.2	45	-112
ENSRNOP00000028485	55	-157	55	-102	59	-136	26	-61	28	-81.8	37	-73.5
ENSRNOP00000028495	2	-11					3	-10	3	-9.4	2	-9.1
ENSRNOP00000028508	19	-30.7	15	-29.3								
ENSRNOP00000028510	26	-127	22	-118	19	-100	9	-56.3	15	-58.3	36	-51.5
ENSRNOP00000028514							2	-7			2	-5.1
ENSRNOP00000028517							2	-13.8	1	-5.8	1	-2.9
ENSRNOP00000028525									2	-10	2	-2.8
ENSRNOP00000028530									1	-4.1		
ENSRNOP00000028546							2	-6.3				
ENSRNOP00000028549	4	-13.5					3	-21	4	-21.7		
ENSRNOP00000028555	17	-46.5	23	-53	13	-33.2	21	-45.2	17	-38.2	25	-75.2
ENSRNOP00000028561	5	-11.4					7	-12.7	9	-23.1	1	-2.1
ENSRNOP00000028576											20	-115
ENSRNOP00000028589	5	-25			3	-14.7	7	-28.8	9	-26		
ENSRNOP00000028624	6	-14	3	-2.8	8	-16.9	4	-14.5	3	-13.4	8	-13.7
ENSRNOP00000028627	10	-36.9	1	-5.4								
ENSRNOP00000028636	13	-49.3							8	-30.8		
ENSRNOP00000028650	2	-15.5					8	-42.7	4	-12.2	1	-2.7
ENSRNOP00000028672									1	-8.7		
ENSRNOP00000028677									2	-2.6		
ENSRNOP00000028678									3	-4.4		

ENSRNOP00000028680	21	-108	19	-95	16	-75.8	36	-178	39	-209	35	-153
ENSRNOP00000028687							4	-21.2	10	-47.4	6	-35
ENSRNOP00000028699	30	-119	34	-107	31	-116	12	-53.8	15	-60.5	37	-50.3
ENSRNOP00000028701	1	-4	1	-2.6					1	-8.9		
ENSRNOP00000028712							1	-5.2	2	-6.2		
ENSRNOP00000028720							1	-2.6				
ENSRNOP00000028725	2	-6.7	2	-8.1	1	-8.6	2	-8.1	1	-3.3	1	-7.5
ENSRNOP00000028737							3	-15.4	2	-13		
ENSRNOP00000028743	1	-3.6			2	-2.9	2	-6.6	2	-6.3		
ENSRNOP00000028749							2	-4.5	3	-13.4	1	-6.7
ENSRNOP00000028751	2	-11.4	2	-4.1	3	-2.9	2	-12.6				
ENSRNOP00000028752			1	-2.6			2	-13.7	2	-9.4	1	-8.4
ENSRNOP00000028770							11	-11				
ENSRNOP00000028779	7	-17.8	6	-9.3	8	-26.2			4	-11	9	-18.3
ENSRNOP00000028787	75	-226	71	-212	70	-200	47	-129	53	-140	38	-148
ENSRNOP00000028796							2	-7.2	1	-2.9		
ENSRNOP00000028811	1	-6.9					2	-5.8	3	-15.1		
ENSRNOP00000028828	1	-3.7	2	-5.5	2	-5.2	6	-28.3	6	-26.4	4	-19.8
ENSRNOP00000028838			1	-9.7	1	-7.9	4	-8.9	5	-19.8		
ENSRNOP00000028847	2	-9.7	3	-4.6								
ENSRNOP00000028855	4	-22.9					3	-21.2	4	-20.2	2	-2.8
ENSRNOP00000028875			3	-17.5					1	-4	3	-14.5
ENSRNOP00000028885	3	-18.8										
ENSRNOP00000028886							1	-4.2				
ENSRNOP00000028887	1	-4.8					1	-3.6	2	-9		
ENSRNOP00000028888	8	-23.1	7	-28.1	8	-32.5	6	-9.2	11	-44.6	3	-7.9
ENSRNOP00000028900	4	-20.9	1	-6.4	2	-25.5	6	-11.6	6	-14.2	3	-12.1
ENSRNOP00000028929	12	-74.2	5	-38.3	12	-71.3	8	-45	10	-64.5	2	-10
ENSRNOP00000028934	180	-367	134	-326			166	-263	134	-230	176	-270
ENSRNOP00000028962							3	-2.8				
ENSRNOP00000028995	44	-177	36	-122	35	-114	31	-178	26	-113	23	-160
ENSRNOP00000029012									6	-10.3		
ENSRNOP00000029018			1	-4.3								
ENSRNOP00000029022	25	-90.9										
ENSRNOP00000029049	1	-5.7					4	-25.9	1	-5.7		
ENSRNOP00000029068	132	-471	75	-304	71	-284	193	-335	133	-304	128	-340

ENSRNOP00000029070	25	-51.1			14	-39.4	57	-39.3	55	-48	84	-34.1
ENSRNOP00000029074	6	-29.1					9	-20.1	7	-13.8	3	-17.3
ENSRNOP00000029088			1	-3.6								
ENSRNOP00000029124	7	-28	5	-12.7	6	-22.6	2	-3.6			1	-2.7
ENSRNOP00000029144	24	-115	23	-85.3	21	-93.1	23	-120	13	-90.1	33	-116
ENSRNOP00000029152	10	-28	5	-25.2	3	-19.1	2	-12.9	2	-11.6	2	-13.2
ENSRNOP00000029181							19	-40.9				
ENSRNOP00000029234	5	-30	1	-2.9	2	-8.8	16	-101	11	-66.5	18	-116
ENSRNOP00000029276	20	-101	8	-36.2	6	-31	20	-106	20	-68.5		
ENSRNOP00000029280									1	-4.7		
ENSRNOP00000029333	41	-124	32	-95.6	25	-65.3	31	-83.5	24	-87.6	26	-84
ENSRNOP00000029336							1	-6.2				
ENSRNOP00000029351									1	-3.1		
ENSRNOP00000029368	6	-27.1										
ENSRNOP00000029373	28	-156	16	-56.8	26	-126						
ENSRNOP00000029411							1	-1.9	3	-9.9		
ENSRNOP00000029426	23	-51.9	17	-57.6	15	-57	7	-18.6	10	-18.3	9	-23.7
ENSRNOP00000029466							1	-5.4				
ENSRNOP00000029515	42	-184	35	-172	34	-163	48	-151	51	-99.6	58	-121
ENSRNOP00000029540	6	-39.8	4	-36	4	-37	2	-2				
ENSRNOP00000029575							17	-83.3	10	-69	9	-31.6
ENSRNOP00000029578	357	-610	376	-540	409	-585	161	-315	170	-293	243	-333
ENSRNOP00000029604							1	-2.3				
ENSRNOP00000029617							1	-4.4				
ENSRNOP00000029702	18	-107	10	-48.5	10	-59.9	25	-137	18	-89.1	18	-83.8
ENSRNOP00000029709	1	-4.3	2	-3	3	-3.4						
ENSRNOP00000029737							2	-2.2	1	-6.7	2	-2.2
ENSRNOP00000029754	2	-3					2	-4.2	2	-3.2		
ENSRNOP00000029790	17	-59.9	4	-24.9	4	-14.9	4	-11.2	8	-28.1	1	-4.4
ENSRNOP00000029802							2	-7	3	-3.1		
ENSRNOP00000029808	6	-45.7	4	-16.1	1	-6.6	22	-57	17	-48.2	7	-33.3
ENSRNOP00000029816	19	-86.5	10	-50.2	9	-32	15	-49.4	11	-38.6	21	-55.2
ENSRNOP00000029819									2	-7.2	1	-4.9
ENSRNOP00000029821											10	-43.4
ENSRNOP00000029827									1	-2.5		
ENSRNOP00000029890			1	-2.8								

ENSRNOP00000029891	2	-10.9					2	-2.2	1	-5.6	2	-3.3
ENSRNOP00000029895							2	-2.9				
ENSRNOP00000029921	2	-7.1			2	-6.4						
ENSRNOP00000029929							5	-19.1	2	-4.4		
ENSRNOP00000029936	3	-16.2			4	-23.7			4	-24		
ENSRNOP00000029969							4	-9.9	2	-9	1	-1.4
ENSRNOP00000029993							2	-7.7				
ENSRNOP00000030007	21	-53	15	-30.4	26	-38.3	4	-21	6	-20.4	5	-25.3
ENSRNOP00000030025							3	-14	1	-4.9	1	-2
ENSRNOP00000030030	60	-338	32	-180	29	-149	48	-194	57	-209	40	-181
ENSRNOP00000030069									25	-95.6		
ENSRNOP00000030076							3	-4.2	7	-50.1	1	-3.2
ENSRNOP00000030138							8	-49.1	7	-26.6	2	-2.4
ENSRNOP00000030139											3	-12.2
ENSRNOP00000030146	1	-3					2	-3.1	3	-17.3		
ENSRNOP00000030177							5	-22.7	5	-16.8		
ENSRNOP00000030229									2	-5.2	1	-3.8
ENSRNOP00000030271	1	-4.2					6	-7.4	7	-5.5	1	-7.1
ENSRNOP00000030279							8	-40.9				
ENSRNOP00000030323	9	-61.4	5	-28	9	-35.5	14	-63.6	15	-79.9	10	-43.8
ENSRNOP00000030340	16	-63.8	9	-58.1	9	-50.5	10	-68.9	7	-43.1	9	-57.8
ENSRNOP00000030355									2	-4.2		
ENSRNOP00000030360	9	-21.6	5	-18.5	6	-26.6	13	-34.9	17	-47	10	-27.2
ENSRNOP00000030371	28	-75.2	24	-47.5	21	-64.6			27	-73.6	31	-88.3
ENSRNOP00000030374	179	-317	134	-306	112	-246	161	-240	171	-198	163	-191
ENSRNOP00000030417							1	-4.2				
ENSRNOP00000030453							1	-3.2				
ENSRNOP00000030481	70	-263	41	-183	37	-182	60	-209	49	-200	42	-164
ENSRNOP00000030517	2	-17.5					5	-22.2	6	-25.3	3	-17.3
ENSRNOP00000030562	2	-3.7					3	-5.3	4	-14.2	3	-5.5
ENSRNOP00000030572	3	-11.2							1	-2.5		
ENSRNOP00000030638	2	-9.8										
ENSRNOP00000030640	1	-3.8					1	-1.9				
ENSRNOP00000030665	1	-6.7	2	-16.1	4	-27.1	1	-6.3	4	-10.4	2	-7.5
ENSRNOP00000030667							3	-12.4	3	-8.8		
ENSRNOP00000030668	106	-118	106	-102	87	-105	79	-75.5	113	-84.9	58	-72.6

ENSRNOP00000030696	3	-12.9					5	-26.9	2	-9.1	1	-1.7
ENSRNOP00000030736	8	-36.2	12	-37.3	11	-40.5						
ENSRNOP00000030747							1	-2.3				
ENSRNOP00000030758	2	-11.4										
ENSRNOP00000030766							1	-7.8	1	-3.8	1	-3.1
ENSRNOP00000030781	4	-13.4					3	-3.9	5	-23.7	1	-10.2
ENSRNOP00000030782							1	-5.1				
ENSRNOP00000030796									2	-11.2		
ENSRNOP00000030807	8	-46.1	4	-35.2			7	-11.7	3	-14.6	3	-11.5
ENSRNOP00000030864							1	-2.7	2	-2.3	1	-2.2
ENSRNOP00000030866	4	-20.4			1	-2.8	6	-24.9				
ENSRNOP00000030885	13	-43.4	3	-14.3	4	-20.6	10	-32.3	13	-52.7	9	-41
ENSRNOP00000030913	43	-214	33	-163	30	-136	31	-173	29	-130	32	-168
ENSRNOP00000030928	25	-87.8	13	-53.1	14	-54.1	40	-55.3	28	-67.9	35	-51.2
ENSRNOP00000030965							8	-24.6	4	-10.1	1	-3
ENSRNOP00000031020	2	-19.1	7	-42.2	6	-35.3	10	-58.5	10	-35	13	-51.9
ENSRNOP00000031045							2	-21.3				
ENSRNOP00000031061							12	-42.3	9	-46.7	3	-11.9
ENSRNOP00000031063	5	-21.8	2	-8.1	2	-20.4	2	-8.9	2	-9.5	4	-8.9
ENSRNOP00000031071									1	-6.3		
ENSRNOP00000031078	9	-36.1					15	-35.4	9	-27.2		
ENSRNOP00000031081	14	-30.4	7	-19.2	7	-17.9	4	-17.6	8	-19.5	4	-15.6
ENSRNOP00000031083					1	-2						
ENSRNOP00000031121	25	-63.1	15	-49.4	8	-20	10	-40.6	6	-26	12	-52
ENSRNOP00000031191	9	-19.7	5	-10.8	5	-14.3	11	-37.6	13	-36.2	10	-37.2
ENSRNOP00000031214	7	-3					4	-39.6			1	-15.3
ENSRNOP00000031237	11	-35.8	8	-24.7	10	-16.2			1	-5.6	3	-12.7
ENSRNOP00000031241	2	-7.2			2	-8.6	7	-39	7	-34.6	5	-25.8
ENSRNOP00000031266					1	-2.2						
ENSRNOP00000031270			1	-2.5			3	-2.1	6	-3.2	2	-2.1
ENSRNOP00000031294	3	-6.5	2	-5.5	2	-5.1	6	-5.6	6	-19.2	6	-5.9
ENSRNOP00000031325							1	-5.3	3	-16.2	1	-1.9
ENSRNOP00000031331	2	-11.6					1	-2.3				
ENSRNOP00000031360	2	-7.4					3	-23.3	4	-23.1	2	-17
ENSRNOP00000031372							1	-5.7	1	-3.1		
ENSRNOP00000031375	5	-28.3	1	-10.1	1	-12.5	2	-4.1	3	-13.7	2	-11.1

ENSRNOP00000031381							4	-12				
ENSRNOP00000031473	2	-5.9	1	-2.4	1	-8.6					1	-8.5
ENSRNOP00000031514					40	-73.7						
ENSRNOP00000031520	49	-122			25	-60.4	20	-75.4	19	-71.4	16	-74.1
ENSRNOP00000031535							4	-16.6	3	-17.8		
ENSRNOP00000031561					2	-3.6	3	-7.2	3	-7.6	2	-7.4
ENSRNOP00000031570							1	-3				
ENSRNOP00000031588	4	-20.2			2	-16.3	7	-54	7	-50.3	6	-21.2
ENSRNOP00000031599	51	-62.6	59	-76.7	84	-113	75	-37.5	59	-43.7	34	-46.7
ENSRNOP00000031610							1	-3.5			1	-3.7
ENSRNOP00000031680									3	-6.1		
ENSRNOP00000031726	1	-3.8					4	-13.2	5	-26.1	4	-14.6
ENSRNOP00000031747											3	-8.6
ENSRNOP00000031786							1	-2.3				
ENSRNOP00000031829									1	-8.6	1	-8.6
ENSRNOP00000031879							7	-26.2	2	-8.6	3	-8.4
ENSRNOP00000031951	1	-3.7	1	-3.8			3	-14.3	6	-19.8	1	-4.1
ENSRNOP00000031961	2	-5.9					12	-67.5	12	-71.4	11	-63
ENSRNOP00000031981									2	-12.7		
ENSRNOP00000032034	2	-9.2										
ENSRNOP00000032041	9	-53.5	5	-40.2	6	-33.3	15	-52.8	21	-73.6	17	-59.9
ENSRNOP00000032048	8	-23.4	14	-55.1	12	-41.1	1	-3.7	1	-7.9		
ENSRNOP00000032065	1	-13.5										
ENSRNOP00000032108	22	-125	1	-4.8	7	-51.6	5	-28.7	16	-65	2	-8.6
ENSRNOP00000032132					1	-5.3	2	-6	1	-3.1		
ENSRNOP00000032156	29	-163	10	-38.8	8	-26.2	30	-205	32	-189	11	-93.2
ENSRNOP00000032170									1	-4		
ENSRNOP00000032218			1	-2.4	1	-2	11	-40.2	12	-48.3	7	-31.2
ENSRNOP00000032265	2	-3.2	2	-3.4								
ENSRNOP00000032298									1	-5.9		
ENSRNOP00000032313									1	-4		
ENSRNOP00000032320							8	-54.1	4	-15.7	3	-19.9
ENSRNOP00000032338			8	-7.5								
ENSRNOP00000032361	2	-7.5	1	-4.9	3	-6.4	1	-1.4	4	-16.7		
ENSRNOP00000032389							5	-13.3				
ENSRNOP00000032404	1	-3.4									1	-2.8

ENSRNOP00000032423							2	-4.6	3	-4.4		
ENSRNOP00000032468									1	-2.8		
ENSRNOP00000032471							1	-1.7			1	-2.8
ENSRNOP00000032499							1	-3.9	3	-13.1		
ENSRNOP00000032594							1	-3.1				
ENSRNOP00000032597	5	-7.7			2	-7.4			2	-10.6	1	-8.3
ENSRNOP00000032605	2	-3.5										
ENSRNOP00000032621	10	-55.7										
ENSRNOP00000032622							23	-33.7				
ENSRNOP00000032635	24	-89.9	20	-75.8	20	-79.2			13	-63.6	17	-66
ENSRNOP00000032681	49	-126	49	-91.6	47	-102	14	-51.3	14	-20.6	7	-43.2
ENSRNOP00000032687							21	-22.6				
ENSRNOP00000032735	15	-65.9	6	-22.1	6	-25.2	1	-2.3			1	-2.7
ENSRNOP00000032768	3	-25.7	6	-38.4	5	-29.8	9	-44.6	19	-78.1	10	-28.4
ENSRNOP00000032812					1	-2.5						
ENSRNOP00000032845							4	-23.2				
ENSRNOP00000032881					2	-3.8						
ENSRNOP00000032890	13	-58.1	12	-65.7	12	-54.3	11	-39.7	5	-9.1	10	-38.4
ENSRNOP00000032893	19	-69.5	10	-42.4	7	-40.7	10	-17.8	9	-33.2	5	-26.4
ENSRNOP00000032896	2	-2.6					1	-5.3	6	-27.1	3	-3.7
ENSRNOP00000032902							1	-9.6	1	-5.8		
ENSRNOP00000032903	3	-9.3	37	-18.3	41	-33.3	2	-19.4	3	-21.8	8	-37
ENSRNOP00000032909	58	-162	103	-106	89	-149	42	-108	37	-65	41	-101
ENSRNOP00000032921											2	-5.3
ENSRNOP00000032963							2	-7.3	5	-12.1	2	-6.8
ENSRNOP00000033029							13	-30.4				
ENSRNOP00000033050	9	-21.1	8	-7.1	9	-5.8	2	-11.2			2	-2.4
ENSRNOP00000033098	2	-2.6										
ENSRNOP00000033101	2	-13.4					1	-2.7	1	-3.5		
ENSRNOP00000033131									3	-15.3		
ENSRNOP00000033144	12	-29.7	50	-20.5	55	-21.9	3	-2.6			5	-24.3
ENSRNOP00000033154	12	-31.8			16	-34.2						
ENSRNOP00000033158	5	-29.4	11	-47.9	8	-18.8						
ENSRNOP00000033197									1	-6.1		
ENSRNOP00000033202					2	-2.1						
ENSRNOP00000033222	4	-20.6	9	-21.7	4	-3.6	2	-5.5	4	-5.3	1	-4.9

ENSRNOP00000033253							3	-25.8	6	-44.6		
ENSRNOP00000033290	2	-8	3	-12.7	1	-2.9	6	-27.3	1	-3.7	4	-9.2
ENSRNOP00000033323			23	-79.7								
ENSRNOP00000033324	5	-30.7	2	-3.9			7	-24	8	-31.1	7	-24
ENSRNOP00000033401							1	-1.6	2	-6.2		
ENSRNOP00000033415	5	-27.9										
ENSRNOP00000033449											1	-5.4
ENSRNOP00000033466	4	-14.2	4	-19.9	1	-4.1	3	-25	4	-28.3	2	-12.3
ENSRNOP00000033476	12	-33.4	1	-5.8	7	-32.8	7	-21.6	4	-27.8	2	-2
ENSRNOP00000033595	1	-3.9	1	-4.1								
ENSRNOP00000033600	1	-4.6	1	-2.6								
ENSRNOP00000033608	1	-2.7	2	-7.9								
ENSRNOP00000033667	3	-5.4										
ENSRNOP00000033692	3	-16.2			2	-6.2						
ENSRNOP00000033706	21	-44.8	15	-46.7	17	-48.5	71	-59.3	55	-46	52	-42.4
ENSRNOP00000033708					1	-6.5						
ENSRNOP00000033752									1	-3.6		
ENSRNOP00000033812			1	-2.6			1	-9	2	-7.7	1	-4.8
ENSRNOP00000033826	2	-4.8										
ENSRNOP00000033943	45	-161	46	-156	47	-166	22	-91.3	28	-141	27	-93.6
ENSRNOP00000033945			1	-7.5	1	-7.5	6	-29.4	4	-22.7		
ENSRNOP00000033949	6	-13.1	6	-11.3	2	-2.2					3	-3.5
ENSRNOP00000033950	31	-168	13	-92.7	22	-144	33	-171	38	-226	29	-147
ENSRNOP00000033956											15	-54.1
ENSRNOP00000034016							2	-16.8	3	-16		
ENSRNOP00000034024							3	-4.2	4	-21.2		
ENSRNOP00000034030	1	-2.7										
ENSRNOP00000034034									67	-203		
ENSRNOP00000034047							1	-1.9			1	-2.7
ENSRNOP00000034048					2	-13.5	5	-21.2	4	-13.4		
ENSRNOP00000034117							7	-34.5				
ENSRNOP00000034118	2	-5.2					6	-24.6	6	-13.9	6	-5.7
ENSRNOP00000034134							4	-7.4	3	-8.1	2	-7.4
ENSRNOP00000034135	68	-219	74	-169	82	-163	36	-72.7	31	-60	42	-80.7
ENSRNOP00000034144	50	-140	38	-142	34	-106	19	-40.5	22	-47.3	10	-43.8
ENSRNOP00000034210	121	-521	68	-312	80	-370	190	-486	172	-445	129	-343

ENSRNOP00000034249	6	-19.4			4	-22.8	15	-35.9	3	-22.4	4	-22.7
ENSRNOP00000034264	14	-97.4										
ENSRNOP00000034271	2	-3.1										
ENSRNOP00000034288	7	-17.6	6	-17.2	11	-17.7			1	-2.8	2	-3.2
ENSRNOP00000034293	184	-372	223	-402	222	-463	126	-234	74	-201	131	-249
ENSRNOP00000034299	12	-53.5	8	-51.7	11	-41.3	28	-113	30	-113	26	-103
ENSRNOP00000034321	17	-40.2	5	-19.2	12	-20.8	9	-13.1	11	-23.2	7	-15.8
ENSRNOP00000034336							2	-17.2				
ENSRNOP00000034360	2	-8.5					1	-1.3				
ENSRNOP00000034407	7	-12.5	2	-3.3	2	-3.5						
ENSRNOP00000034466					2	-3.6	2	-5.7	1	-5.2		
ENSRNOP00000034511	7	-39	20	-38.6	11	-16.3	59	-101	48	-101	89	-79.8
ENSRNOP00000034518	1	-2.7										
ENSRNOP00000034519	28	-78.4	29	-73.8	23	-75.6			6	-21.3	12	-28.5
ENSRNOP00000034525			5	-46.4	11	-74.5	43	-144	35	-146	20	-71.6
ENSRNOP00000034552							3	-14.4	4	-17.4	2	-5.4
ENSRNOP00000034572							5	-32.6				
ENSRNOP00000034575							4	-16.4			2	-2.4
ENSRNOP00000034647	1	-2.8	1	-4.8			2	-4.2	3	-4.5	1	-2.7
ENSRNOP00000034698	1	-9.7					1	-10.5				
ENSRNOP00000034720	1	-3.3	2	-9.8			1	-2.2			1	-2.4
ENSRNOP00000034723	258	-563	226	-458	195	-412	92	-256	90	-250	97	-257
ENSRNOP00000034745									25	-48.4	30	-55.1
ENSRNOP00000034770	1	-9.5	1	-10.6	1	-4			1	-2.2		
ENSRNOP00000034772							2	-4.2			2	-4
ENSRNOP00000034789									2	-2.5		
ENSRNOP00000034828	7	-28.1	5	-12.6	8	-18.1	9	-19.8	5	-18.7	8	-4.5
ENSRNOP00000034846	59	-214	39	-124	40	-125			59	-206		
ENSRNOP00000034912	1	-9.1					15	-89.8	18	-91	2	-10.9
ENSRNOP00000034921	9	-38.3			1	-6.3	11	-41.2	7	-41.6	4	-20.4
ENSRNOP00000034945	21	-101	3	-9.2	5	-15.9	10	-62.2	13	-79.3	10	-54.3
ENSRNOP00000034954	2	-17.7			1	-12.3	3	-23.2				
ENSRNOP00000034963	25	-58.1	29	-55	21	-43.3	9	-38.7	6	-34.8	11	-53.2
ENSRNOP00000034974							2	-10.2				
ENSRNOP00000035006	2	-17.4			2	-15.7	10	-51.3	4	-29.8	3	-31.3
ENSRNOP00000035020	2	-6.1	1	-7.1	4	-22.3	4	-16.4	7	-32.3	3	-8.5

ENSRNOP00000035053	2	-2.9					4	-2.4	8	-14.2		
ENSRNOP00000035054							6	-22.9	4	-14	2	-10.7
ENSRNOP00000035061							4	-1.9	4	-9.3		
ENSRNOP00000035064									3	-16.6		
ENSRNOP00000035090	4	-28.2	7	-29.7	6	-25.1	10	-39.5	11	-32.4	7	-30.8
ENSRNOP00000035110	4	-30.8	2	-10.6	6	-42.4	8	-29.1	9	-29.7	12	-36.6
ENSRNOP00000035136							1	-2.3			1	-2.7
ENSRNOP00000035138							1	-9.3				
ENSRNOP00000035156	31	-51.8	25	-39.7	25	-39	40	-45.2	25	-31.6	31	-63.2
ENSRNOP00000035176	8	-37.6	8	-34.6	4	-13.2	14	-47.9	16	-69.3	7	-26.1
ENSRNOP00000035177							2	-19.6	4	-38.3	2	-4
ENSRNOP00000035203	7	-40.9	2	-3.8			7	-18.5	6	-10.2	8	-10.8
ENSRNOP00000035208	4	-7.6										
ENSRNOP00000035212	11	-46.1										
ENSRNOP00000035278	1	-3.1										
ENSRNOP00000035329	20	-27.9										
ENSRNOP00000035416	15	-47.7	17	-46.6	21	-56	10	-39.8	7	-36.9	8	-37.9
ENSRNOP00000035423							87	-210				
ENSRNOP00000035430	2	-15.1	7	-16.5	4	-12.6	7	-38.3	5	-17.3		
ENSRNOP00000035440	12	-46.3					9	-28.4				
ENSRNOP00000035497	19	-62.4	24	-69.2	23	-75	32	-75.4	27	-70.9	56	-66.8
ENSRNOP00000035517									1	-2.3		
ENSRNOP00000035540	2	-9.2					5	-39.7	6	-30.2	3	-21.7
ENSRNOP00000035566	2	-12.3							3	-20.5	1	-1.6
ENSRNOP00000035601	20	-76.3	3	-17.9	7	-37.4	11	-46.5	9	-58.5	6	-53.1
ENSRNOP00000035649	4	-8.3	2	-7.1	4	-7.9						
ENSRNOP00000035655			2	-4.7			5	-14.6			2	-2.6
ENSRNOP00000035661			4	-6.5					1	-2.2		
ENSRNOP00000035783			2	-2.4			5	-25.6	3	-10.7	3	-11.3
ENSRNOP00000035797							5	-32.5	2	-11.2	2	-10.6
ENSRNOP00000035825									2	-3.3		
ENSRNOP00000035840	1	-6					8	-51.2	8	-66.6	7	-58.8
ENSRNOP00000035860							1	-6.5				
ENSRNOP00000035891	11	-36.1										
ENSRNOP00000035943									1	-10.8		
ENSRNOP00000035966	133	-335	105	-236	127	-297	184	-248	155	-229	130	-214

ENSRNOP00000035974									2	-2.4		
ENSRNOP00000035996	5	-8.3					1	-2.7				
ENSRNOP00000036017							4	-11.1				
ENSRNOP00000036045	3	-21.5			2	-4.1	4	-4.9			6	-16.3
ENSRNOP00000036054	2	-4.1			2	-8.5	3	-4.2	4	-14.9	4	-3.8
ENSRNOP00000036065					1	-2.5						
ENSRNOP00000036080									2	-12.6		
ENSRNOP00000036086							2	-18.8	4	-23.6	2	-18.7
ENSRNOP00000036105	2	-12.4					1	-2.6	2	-3.6	3	-9.5
ENSRNOP00000036115	12	-36.5					10	-21.1	8	-36.9	5	-17.9
ENSRNOP00000036116							2	-3				
ENSRNOP00000036157	3	-16.5					14	-32.4	11	-31.6		
ENSRNOP00000036200							4	-17.1	4	-24	1	-4.2
ENSRNOP00000036212	60	-81.3										
ENSRNOP00000036236											3	-10.2
ENSRNOP00000036270	8	-63.8	5	-20.7			1	-2.2	5	-17.8	2	-5.7
ENSRNOP00000036307							1	-2	2	-2.7		
ENSRNOP00000036312			2	-2.6	1	-4.2						
ENSRNOP00000036343					28	-116						
ENSRNOP00000036381	2	-15.5					6	-33.5	7	-40.6	7	-37.1
ENSRNOP00000036391	16	-82.2	15	-49.4	11	-61.3			22	-67	10	-48.2
ENSRNOP00000036405	1	-3	2	-3.6	4	-3.1			1	-3.8		
ENSRNOP00000036480	6	-16.4	6	-28.6	7	-16.6	7	-35.3	7	-22.8	34	-32.7
ENSRNOP00000036486	9	-20.9	2	-10.9			3	-2.3	13	-20.9	1	-3.3
ENSRNOP00000036487							5	-18.7	5	-18.5	1	-2.3
ENSRNOP00000036495	1	-3.4			1	-2.4	6	-22.1	5	-13.1	5	-15.6
ENSRNOP00000036514	91	-152	69	-88.2	63	-97.5	71	-92.6	51	-65.7	70	-57.4
ENSRNOP00000036519	161	-145	56	-90.7	55	-105	94	-72.9	139	-92.7	44	-86.3
ENSRNOP00000036567	1	-5.7										
ENSRNOP00000036574	28	-93.9	14	-91.2	8	-82.4	6	-32.5	6	-37.7	4	-24.9
ENSRNOP00000036616	3	-11					2	-5.3	2	-13.7	2	-3.9
ENSRNOP00000036667					9	-32.6						
ENSRNOP00000036680							2	-10.6	1	-4.5		
ENSRNOP00000036690	37	-80.5	28	-58.8	9	-37.6	33	-58.6	22	-46.7	19	-37.9
ENSRNOP00000036716	1	-3.1										
ENSRNOP00000036726							2	-6.4			2	-9.9

ENSRNOP00000036731	3	-21.9	5	-23.6	5	-5.8	3	-1.4	3	-2.7		
ENSRNOP00000036734									2	-5		
ENSRNOP00000036742	4	-4.8	2	-4.4	3	-4.4						
ENSRNOP00000036787	3	-9.2					4	-10.9	2	-9.3	1	-13.4
ENSRNOP00000036802			1	-3.4								
ENSRNOP00000036810	12	-52.5	7	-35.7	6	-26.4	33	-126	24	-129	19	-97.9
ENSRNOP00000036844			1	-2.5								
ENSRNOP00000036848							1	-1.3	2	-3.7		
ENSRNOP00000036881	2	-3.5					7	-22.9	7	-17.4	2	-15.7
ENSRNOP00000036882							6	-12.9	6	-13.2	4	-28.2
ENSRNOP00000036896	116	-233	105	-227	130	-244	69	-141	71	-168	55	-150
ENSRNOP00000036917							1	-2.4				
ENSRNOP00000036948	31	-103	23	-110	21	-90	10	-76.8	8	-45.8	13	-64
ENSRNOP00000036958	54	-207	39	-149	55	-172	26	-89.1	34	-123	31	-84.2
ENSRNOP00000036992	5	-25.9	2	-3	2	-2.5			1	-4.8	3	-24.3
ENSRNOP00000037023	2	-9.9	1	-2.3	1	-5.7						
ENSRNOP00000037032	36	-129	26	-121	21	-107	27	-115	26	-92.6	18	-67.9
ENSRNOP00000037042							2	-11.9	1	-11		
ENSRNOP00000037043					1	-6.4	6	-41.3	9	-48.2	1	-6.7
ENSRNOP00000037051	12	-33.1	4	-14.4	8	-29.2	7	-30	11	-20.4	14	-29.3
ENSRNOP00000037053	4	-24.4			1	-3.6	8	-38.5	4	-25.4	4	-20.2
ENSRNOP00000037069	5	-30.4										
ENSRNOP00000037166							4	-14.7	3	-10.1	1	-2.6
ENSRNOP00000037217	4	-21.5	2	-12.4	3	-14.3			2	-5.8		
ENSRNOP00000037380							3	-21.1				
ENSRNOP00000037388	5	-30.9	4	-30.8	3	-17.8	16	-42.8	13	-44.8	14	-32
ENSRNOP00000037396					9	-19.7						
ENSRNOP00000037398	2	-7.2			1	-2.6						
ENSRNOP00000037509									1	-2.4		
ENSRNOP00000037520							1	-4.3				
ENSRNOP00000037536	2	-3.5					6	-34.2	10	-48.9		
ENSRNOP00000037568	1	-2.6	1	-4.4			4	-15.9	6	-24	1	-6.1
ENSRNOP00000037572							1	-4.8				
ENSRNOP00000037594	2	-3.8							1	-4.3	2	-3.3
ENSRNOP00000037600							1	-7.2				
ENSRNOP00000037607	5	-26.2	2	-3								

ENSRNOP00000037617	1	-8.6	2	-5.7	2	-6.5	1	-4.2	5	-13.3	1	-4.2
ENSRNOP00000037642	3	-12.5					10	-16.5	13	-23	1	-1.8
ENSRNOP00000037647	24	-48.5	9	-50.9	13	-50	16	-12.9	14	-14	8	-14
ENSRNOP00000037657	1	-3.4										
ENSRNOP00000037786	62	-127	37	-65.1	50	-93	46	-94.2	47	-101	42	-87
ENSRNOP00000037803							16	-42.6				
ENSRNOP00000037891	3	-18					2	-13.2	3	-10.6		
ENSRNOP00000037902	11	-60.2	3	-17.7	3	-20	12	-68.6	11	-75.8	6	-61.9
ENSRNOP00000037928	31	-119	21	-117	19	-99	46	-116	45	-116	26	-138
ENSRNOP00000037932							2	-5.4	4	-19.4	3	-16.3
ENSRNOP00000037975							1	-2	1	-6.3	2	-4.1
ENSRNOP00000037996	5	-28.9	4	-12.5	8	-23.3			6	-25.8	1	-3.5
ENSRNOP00000038003									17	-77.4		
ENSRNOP00000038006									2	-8.4		
ENSRNOP00000038037	2	-2.9			7	-32.8	12	-62.7	5	-41.4		
ENSRNOP00000038073	26	-71.9	18	-57.2	13	-34.4	5	-34.2	10	-36.2	9	-29.4
ENSRNOP00000038092	5	-27.5					4	-15.9	8	-31.8	3	-2.1
ENSRNOP00000038094			1	-4.5	3	-13.9	5	-15.1	2	-6	2	-7.8
ENSRNOP00000038100	16	-42.4	16	-36.5	16	-39.4	4	-19.8	2	-12.6	2	-3.6
ENSRNOP00000038110			29	-102	27	-130	36	-121	38	-155	33	-110
ENSRNOP00000038197							3	-11.1				
ENSRNOP00000038207									2	-9.4		
ENSRNOP00000038215							2	-5.8	1	-4.2		
ENSRNOP00000038276									13	-55.5		
ENSRNOP00000038304							2	-2.4				
ENSRNOP00000038308							2	-6.8	1	-7	1	-1.4
ENSRNOP00000038337	6	-29.2	2	-12.1	2	-19.3						
ENSRNOP00000038351	2	-24	1	-9.3	1	-4.4						
ENSRNOP00000038358							3	-6.1				
ENSRNOP00000038369					1	-2						
ENSRNOP00000038406											1	-7.2
ENSRNOP00000038422					1	-8.5			2	-6.7		
ENSRNOP00000038428							4	-13.7	1	-2.7		
ENSRNOP00000038444									4	-20.1		
ENSRNOP00000038452									2	-7.4		
ENSRNOP00000038458					1	-2.6	5	-3.2	2	-3.2		

ENSRNOP00000038471			3	-16.3								
ENSRNOP00000038491							21	-27.8			14	-37.7
ENSRNOP00000038527	4	-28.4			1	-6.1						
ENSRNOP00000038594	6	-27					10	-25.3				
ENSRNOP00000038602	24	-59	13	-42.1	21	-62.4	28	-54.6	26	-56.9		
ENSRNOP00000038651	2	-9.1										
ENSRNOP00000038700									1	-2.8		
ENSRNOP00000038721									16	-112		
ENSRNOP00000038738			1	-4.8			1	-1.6	3	-10.6		
ENSRNOP00000038745	24	-53.2	10	-18.3	8	-30.8	21	-30.1	22	-37.3		
ENSRNOP00000038770					2	-3.7	2	-11.4	3	-12.3	1	-1.4
ENSRNOP00000038774							3	-20.6				
ENSRNOP00000038798	5	-5.7			3	-7.5			2	-21.5	1	-4.9
ENSRNOP00000038874	1	-8.3	4	-11.3			6	-34.5	12	-40.2	2	-17.7
ENSRNOP00000038926									1	-2.8		
ENSRNOP00000038947	2	-8.7	3	-19.1	3	-26.7						
ENSRNOP00000038987	27	-90.5					52	-93.9				
ENSRNOP00000039003	61	-101										
ENSRNOP00000039019							3	-3			12	-28.2
ENSRNOP00000039048	9	-15	9	-22.9	10	-18.4						
ENSRNOP00000039050	88	-196	77	-213	95	-217	111	-186	133	-190	99	-182
ENSRNOP00000039075							1	-5				
ENSRNOP00000039099			17	-20.5	2	-2.3			21	-18.3	11	-10.9
ENSRNOP00000039102	4	-30.6			1	-3.8	7	-15.2	4	-14.7	2	-7.1
ENSRNOP00000039132	5	-29.7	1	-4.1	2	-10.8	2	-5.4	4	-35.8		
ENSRNOP00000039176	9	-54.5	2	-8.6	2	-7.3	10	-42.3	12	-67.3	1	-4.7
ENSRNOP00000039179	19	-21			20	-23.3						
ENSRNOP00000039247			1	-2.4								
ENSRNOP00000039276							1	-6	5	-21.6	2	-2.8
ENSRNOP00000039289	7	-35.4	7	-33.2							4	-3.2
ENSRNOP00000039298							2	-6.1			1	-3.4
ENSRNOP00000039303	48	-124			27	-73	41	-54	46	-57	25	-36.6
ENSRNOP00000039309							1	-2.2			1	-2.2
ENSRNOP00000039311	110	-288	111	-313	101	-282			105	-201	126	-234
ENSRNOP00000039338	47	-110	99	-129	103	-146	55	-100	49	-104	52	-106
ENSRNOP00000039351							1	-3.3				

ENSRNOP00000039357			1	-2.9	2	-10.1	4	-20.7	3	-16	4	-11.8
ENSRNOP00000039373	2	-9.3					2	-3.5	8	-26.9	2	-2.6
ENSRNOP00000039406							2	-9.1				
ENSRNOP00000039430	20	-74.9	21	-56	26	-61.5	44	-23	39	-24.1	31	-23.8
ENSRNOP00000039438	6	-34.6			3	-15.4						
ENSRNOP00000039448	39	-153	17	-75	21	-91.9	36	-119	17	-89.8	40	-117
ENSRNOP00000039462	1	-4.3					2	-6.3				
ENSRNOP00000039474	5	-18.4	1	-4.4			4	-20.5	4	-23.2	5	-24.2
ENSRNOP00000039493	11	-35	15	-39.9	6	-37.4	13	-31.3	13	-31.2	22	-40.8
ENSRNOP00000039533							1	-1.8	2	-3.6		
ENSRNOP00000039545	38	-124	13	-84.5	22	-88.2	16	-55	15	-45.7	15	-66
ENSRNOP00000039553	3	-18.4	7	-28.5			8	-11.7	11	-28.7	5	-18.3
ENSRNOP00000039571	1	-8										
ENSRNOP00000039584									123	-197		
ENSRNOP00000039600	7	-47.8	4	-15.5	4	-14.2	9	-49.6	13	-56.1	5	-34.6
ENSRNOP00000039610	10	-64	6	-40.7	1	-2.2	26	-116	26	-128	10	-59.9
ENSRNOP00000039621	2	-3.7										
ENSRNOP00000039624			3	-8.2					4	-19.9		
ENSRNOP00000039671	14	-14.7	14	-13.5	3	-4.2						
ENSRNOP00000039702									6	-35.5		
ENSRNOP00000039714	4	-17.1					4	-26.6	6	-22.2	2	-4.1
ENSRNOP00000039718	94	-333	50	-231	55	-207	51	-225	56	-191	50	-202
ENSRNOP00000039729									4	-9.4		
ENSRNOP00000039779	48	-341	27	-167	25	-155	63	-356	58	-364	38	-225
ENSRNOP00000039792	13	-42.5	7	-36.9	9	-33.4	13	-13.6	12	-27.3	10	-13.7
ENSRNOP00000039847							1	-2.4				
ENSRNOP00000039848	25	-77.7	12	-36	14	-39.7			1	-6.3		
ENSRNOP00000039858							2	-8.7	1	-5.2	2	-7.8
ENSRNOP00000039908	4	-24.3	6	-26.9	8	-33						
ENSRNOP00000039917											6	-22.8
ENSRNOP00000039935							2	-4	1	-3.2	2	-4
ENSRNOP00000039965	2	-7.1										
ENSRNOP00000039968	62	-153	35	-109	35	-81.4	19	-90.5	19	-87.2	27	-64.3
ENSRNOP00000039971	3	-18	2	-9.1	4	-18.5	4	-7.8	4	-10.4	5	-7.5
ENSRNOP00000040018	10	-61.8	3	-10.8							9	-55.3
ENSRNOP00000040028									2	-7.7		

ENSRNOP00000040033	2	-9.6										
ENSRNOP00000040081	6	-28.9			2	-9.1	4	-19	5	-21.3	1	-3.1
ENSRNOP00000040086					3	-10.9						
ENSRNOP00000040087	49	-170	57	-155	47	-151	41	-105	20	-74.2	31	-91.5
ENSRNOP00000040096							2	-2.3				
ENSRNOP00000040100					10	-63.4						
ENSRNOP00000040121	50	-220	47	-179	55	-204	98	-346	71	-263	77	-190
ENSRNOP00000040136	14	-36.9	13	-28.4	10	-33.6	23	-68.6	23	-42.6	9	-48.5
ENSRNOP00000040139	30	-82.6	32	-86.2	24	-75.1	14	-45	26	-59.7	9	-27.1
ENSRNOP00000040141	3	-12							4	-32.5	4	-7.7
ENSRNOP00000040165							2	-4.6				
ENSRNOP00000040177	9	-46.9	16	-51.5	16	-67.8	20	-41.6	25	-41	15	-25.4
ENSRNOP00000040194	2	-6.1					1	-3.4	3	-15.6		
ENSRNOP00000040222							2	-5.9	2	-5.2	1	-3.5
ENSRNOP00000040223	13	-59.5	6	-30.7	10	-54	14	-51.4	19	-56.2	12	-48.1
ENSRNOP00000040233					13	-60						
ENSRNOP00000040234			3	-18.2			2	-1.5	5	-30.7		
ENSRNOP00000040239	22	-50.4	25	-48.1	18	-50.9	3	-10.8	6	-11.1	3	-20.7
ENSRNOP00000040256					1	-3.4						
ENSRNOP00000040266					261	-496						
ENSRNOP00000040310							11	-24.4	12	-33.2		
ENSRNOP00000040338	10	-26.5	9	-17.7	7	-24.4	3	-7.1	9	-7.1	4	-7.6
ENSRNOP00000040341							3	-11.8				
ENSRNOP00000040401									12	-40.4		
ENSRNOP00000040412	5	-24.4			6	-22.4						
ENSRNOP00000040453							6	-16.6				
ENSRNOP00000040478			34	-45.8								
ENSRNOP00000040485	1	-2.8										
ENSRNOP00000040498	42	-210			30	-132			128	-310	89	-266
ENSRNOP00000040516	16	-81	8	-46.9	13	-64.8	14	-61.4				
ENSRNOP00000040548					4	-17.4						
ENSRNOP00000040562							2	-4.5			2	-3.8
ENSRNOP00000040585	2	-3.3	2	-3	2	-2.7						
ENSRNOP00000040600					3	-9.3						
ENSRNOP00000040635									1	-7.4		
ENSRNOP00000040645									9	-61.1		

ENSRNOP00000040666												1	-9.7
ENSRNOP00000040703							2	-2.9					
ENSRNOP00000040708					3	-4.9						1	-2.3
ENSRNOP00000040728							1	-3				1	-3
ENSRNOP00000040740	11	-53.7											
ENSRNOP00000040756	13	-54.3	5	-11.9	5	-20.9	17	-95.3	14	-65.3	6	-32.1	
ENSRNOP00000040759											1	-2.7	
ENSRNOP00000040804	2	-3.9											
ENSRNOP00000040816	263	-221	233	-191	467	-215	23	-91.6					
ENSRNOP00000040848	24	-45.7	24	-32.3	15	-34					5	-14.6	
ENSRNOP00000040859	168	-390			182	-387	304	-555	310	-548	253	-408	
ENSRNOP00000040879	67	-43.7	60	-60.6	104	-56.4	25	-39.1	13	-30.7	34	-40.4	
ENSRNOP00000040884	10	-30.1											
ENSRNOP00000040916	2	-8.6											
ENSRNOP00000040948											1	-2.3	
ENSRNOP00000040955	30	-34.8	13	-28.9	5	-12	17	-15.5	18	-15.3	24	-16.6	
ENSRNOP00000040960									7	-10.7			
ENSRNOP00000040966							1	-1.6	2	-3.1			
ENSRNOP00000040969	61	-107	71	-108	94	-91.2	19	-47.9	23	-45.1	21	-55.4	
ENSRNOP00000041026							4	-20.1	13	-64.9	4	-22.1	
ENSRNOP00000041029	1	-2.6											
ENSRNOP00000041034					10	-21.2							
ENSRNOP00000041037	1	-3.3	1	-3.1			5	-46.6	5	-40.9	3	-16.7	
ENSRNOP00000041055	5	-25.7			3	-7.3	12	-40.9			6	-18.5	
ENSRNOP00000041125							1	-4.6			1	-1.5	
ENSRNOP00000041127	2	-10.4											
ENSRNOP00000041134									7	-15.8			
ENSRNOP00000041138	37	-106	24	-48.6	24	-52.9	58	-153	48	-123	28	-109	
ENSRNOP00000041169	2	-8.1	1	-3.6	2	-2.7							
ENSRNOP00000041174	348	-562	331	-618	318	-566	266	-387	285	-456	312	-456	
ENSRNOP00000041199			10	-17.2									
ENSRNOP00000041281	6	-22.5	1	-11.7	3	-28.8							
ENSRNOP00000041287	7	-45.2	2	-6.3	4	-21.5	8	-59.9			7	-39	
ENSRNOP00000041318							4	-20.8	6	-29	3	-3.8	
ENSRNOP00000041344					14	-28.1							
ENSRNOP00000041379	11	-57	10	-38.5	5	-21.4	24	-49	19	-35.7	11	-16.4	

ENSRNOP00000041387					1	-5.3						
ENSRNOP00000041393	2	-9.2										
ENSRNOP00000041429			1	-2.4								
ENSRNOP00000041458	10	-11.8										
ENSRNOP00000041462							7	-17.9				
ENSRNOP00000041476	1	-3.8					1	-7.3	2	-6.6		
ENSRNOP00000041493							2	-8.5	1	-6.3		
ENSRNOP00000041521	3	-16.9	3	-9.8	3	-11					2	-7.7
ENSRNOP00000041523							6	-19.6			12	-51.4
ENSRNOP00000041531							60	-224	51	-203		
ENSRNOP00000041532	120	-343										
ENSRNOP00000041559					5	-3.5						
ENSRNOP00000041575									34	-24.8	28	-24.8
ENSRNOP00000041604							3	-24.4				
ENSRNOP00000041608	240	-240	263	-223	193	-191	161	-108	128	-97.2	128	-97.7
ENSRNOP00000041638	8	-6.4	6	-5.7	11	-19.9						
ENSRNOP00000041640	2	-5										
ENSRNOP00000041651	3	-13.8										
ENSRNOP00000041663	6	-23.1			5	-30.3	6	-21	7	-28.2	8	-16.8
ENSRNOP00000041687					1	-3.8						
ENSRNOP00000041706	1	-3.8					3	-12.8				
ENSRNOP00000041776			16	-105								
ENSRNOP00000041817							14	-78.8				
ENSRNOP00000041821	48	-257	52	-185	41	-151	33	-145	38	-143	30	-135
ENSRNOP00000041826			16	-60.7	13	-50.7						
ENSRNOP00000041828	11	-73.3										
ENSRNOP00000041865							13	-2.6				
ENSRNOP00000041867	2	-12.8	1	-3.1	1	-2.5	5	-18.5	11	-36.1	4	-13.5
ENSRNOP00000041873			9	-35.3	15	-36.5	9	-43.6	6	-15.6	12	-37.2
ENSRNOP00000041883							3	-17.2	1	-2.7	1	-1.7
ENSRNOP00000041889			4	-11.5	2	-3.2			1	-2.8	2	-3.2
ENSRNOP00000041962									2	-11.9		
ENSRNOP00000041966							14	-29.6				
ENSRNOP00000041984	2	-15.3										
ENSRNOP00000041995	14	-36.1	8	-20.8	2	-3.3	13	-49.2	11	-45.2	4	-28.3
ENSRNOP00000042002	20	-101	10	-63.4	15	-65.8	14	-64.7	15	-79.1	6	-44.3

ENSRNOP00000042004									2	-10.2		
ENSRNOP00000042023			31	-27.6								
ENSRNOP00000042040	21	-38.2	12	-24.9	11	-28.2	8	-11	4	-7.2	8	-7.6
ENSRNOP00000042068							8	-10.7				
ENSRNOP00000042072	194	-406	160	-418								
ENSRNOP00000042094					2	-8.3						
ENSRNOP00000042132	24	-156	15	-93.2	26	-136	27	-152			13	-70.5
ENSRNOP00000042133					16	-56.8						
ENSRNOP00000042136	7	-30.2					11	-56.1	6	-34.5	24	-42.7
ENSRNOP00000042148	9	-31.2	4	-16.9	2	-2.7	5	-22	7	-32.6	2	-18.5
ENSRNOP00000042159	136	-384	117	-310	131	-321	122	-309	105	-286	99	-309
ENSRNOP00000042180	6	-28.3			2	-2.2					4	-24.5
ENSRNOP00000042191							125	-186	101	-143		
ENSRNOP00000042200							2	-7.7	2	-12		
ENSRNOP00000042202			1	-2.4								
ENSRNOP00000042252							4	-19.9	2	-2.7		
ENSRNOP00000042305	1	-6.1										
ENSRNOP00000042314					6	-14						
ENSRNOP00000042328	3	-4.5					4	-3	5	-5		
ENSRNOP00000042368	5	-28.5					9	-33.1	7	-37.9	7	-26.2
ENSRNOP00000042382	5	-24.6					17	-57.2	18	-90.2	11	-39
ENSRNOP00000042411							3	-17.1				
ENSRNOP00000042414							4	-15.6				
ENSRNOP00000042421	14	-68.4	9	-37.9	10	-63.5	16	-72.3	12	-36.6	15	-63.9
ENSRNOP00000042490							3	-5.1	3	-13.2	1	-5
ENSRNOP00000042494							2	-11.7	2	-7.5		
ENSRNOP00000042521	16	-35.9	22	-21.6	13	-34.9						
ENSRNOP00000042533							1	-4.4				
ENSRNOP00000042538	17	-68.1			22	-70.9						
ENSRNOP00000042556	8	-65	11	-19.7	8	-21.8	24	-182	23	-110	21	-115
ENSRNOP00000042597	37	-148	20	-65.9	17	-65.6	16	-71.2	13	-51.9	23	-47.6
ENSRNOP00000042628	171	-354	169	-228	147	-286	103	-260	117	-274	147	-241
ENSRNOP00000042681							12	-23.8				
ENSRNOP00000042683			15	-27.6								
ENSRNOP00000042700	5	-29.9	2	-19.9	1	-8.2	4	-7.4	3	-10.5	2	-6.2
ENSRNOP00000042710					1	-2.5	3	-11.9	4	-11.3	5	-11.3

ENSRNOP00000042733	8	-35.6	3	-15.6	1	-3.9						
ENSRNOP00000042739							2	-3.4				
ENSRNOP00000042760							7	-14.6	5	-4.7		
ENSRNOP00000042782			1	-2.5								
ENSRNOP00000042811	1	-2.7										
ENSRNOP00000042839	2	-4.9					4	-12.2	3	-9.7	2	-4.3
ENSRNOP00000042858	1	-2.6										
ENSRNOP00000042868	12	-32.8	12	-31.9								
ENSRNOP00000042870							2	-12.9				
ENSRNOP00000042902	42	-78.8	26	-63.7	36	-73	27	-37.4	20	-31.3		
ENSRNOP00000042935							4	-11.2				
ENSRNOP00000042937									2	-9.4		
ENSRNOP00000042949	8	-30.9	8	-35	8	-38.9	1	-9.7	12	-32.7	4	-19.4
ENSRNOP00000042964					1	-2.2						
ENSRNOP00000042975			2	-3.9	5	-19.4						
ENSRNOP00000042976											1	-2.5
ENSRNOP00000042986	28	-53.3	34	-29.1	28	-43.5	33	-44	20	-39.8	18	-35
ENSRNOP00000042992	5	-21	4	-5.7	10	-18.7			2	-4.7	2	-5.2
ENSRNOP00000043004							20	-82				
ENSRNOP00000043007			14	-28.8					6	-30.4		
ENSRNOP00000043009	2	-6.6	2	-4.9	2	-3.2	6	-29.9	8	-48.8	4	-19.1
ENSRNOP00000043032			5	-22								
ENSRNOP00000043060	4	-18.2	1	-5.1	1	-4.8			1	-2.4		
ENSRNOP00000043064							44	-55.1			19	-61.9
ENSRNOP00000043068					1	-6.7						
ENSRNOP00000043080					3	-18.1						
ENSRNOP00000043115	1	-5.5			1	-5.7	2	-3.4	4	-10.9	4	-18.4
ENSRNOP00000043141	72	-92.8	69	-69.9	58	-77.2	3	-18.1			5	-26
ENSRNOP00000043148	30	-109	25	-92.5	26	-101	29	-98.9	34	-120	30	-121
ENSRNOP00000043164	3	-4.7	2	-3.9	1	-2.6	10	-6.7	9	-6.6	9	-6.3
ENSRNOP00000043179	5	-15.6	6	-15.9	8	-27.5	8	-41.8	5	-7.3	13	-33.1
ENSRNOP00000043180									38	-78.7		
ENSRNOP00000043183					2	-3.8					2	-2.7
ENSRNOP00000043191							6	-30.1				
ENSRNOP00000043229			4	-16.9	5	-37.5						
ENSRNOP00000043232	24	-140							22	-75.2		

ENSRNOP00000043239	247	-466	224	-394	236	-495	114	-201	149	-223	95	-238
ENSRNOP00000043254											2	-8.5
ENSRNOP00000043300							3	-10.4				
ENSRNOP00000043302									4	-27.5		
ENSRNOP00000043343					33	-101						
ENSRNOP00000043388	3	-10.6					5	-15.2	5	-26.2	6	-17
ENSRNOP00000043412											2	-6.2
ENSRNOP00000043426	4	-24.7	7	-30.2	4	-13.5	1	-7.6	4	-23.1	1	-4.4
ENSRNOP00000043428	7	-32.3										
ENSRNOP00000043446			3	-15.7							17	-100
ENSRNOP00000043447			19	-51.7	21	-54.8						
ENSRNOP00000043466	180	-299	205	-309	223	-338	190	-208	244	-226	305	-220
ENSRNOP00000043510	55	-123	31	-62.8	57	-100	47	-95.2	48	-104	55	-84.7
ENSRNOP00000043519	1	-4.1	1	-4.9	2	-11.6			2	-4.2		
ENSRNOP00000043524									30	-94.1		
ENSRNOP00000043537			54	-70.6			84	-106	80	-139	105	-108
ENSRNOP00000043543									2	-4.6	7	-30.2
ENSRNOP00000043549							2	-6.6	2	-6.4		
ENSRNOP00000043554							2	-13.8			2	-8.2
ENSRNOP00000043567			13	-35.7								
ENSRNOP00000043572	3	-17.3	1	-2.6	3	-10.2						
ENSRNOP00000043573			2	-15.9			1	-5.4	5	-17.3	2	-10.2
ENSRNOP00000043608	78	-175	52	-196	52	-210	120	-136	76	-107	62	-121
ENSRNOP00000043623	7	-25.5										
ENSRNOP00000043624	10	-12.1	5	-13.9	10	-12.6						
ENSRNOP00000043660							2	-11.7				
ENSRNOP00000043690	2	-13.2										
ENSRNOP00000043734	2	-3.3										
ENSRNOP00000043770	1	-3.6			1	-2.7	2	-5	2	-5.7	5	-4.6
ENSRNOP00000043782	7	-23.3	3	-9.6			4	-14.4	3	-3.5	2	-5.2
ENSRNOP00000043788									23	-80.8		
ENSRNOP00000043828									2	-7.3		
ENSRNOP00000043841							3	-7.6	4	-17.7	4	-8.8
ENSRNOP00000043843	5	-32.8			2	-17	8	-53.4	5	-24.8	4	-18.6
ENSRNOP00000043885	42	-24.5	19	-16.7	24	-22.4	2	-4.1			4	-5.2
ENSRNOP00000043896							2	-2.7	1	-2.4	2	-3.5

ENSRNOP00000043915	10	-44.5	2	-8.9	5	-29.5	6	-34	4	-14.5	7	-10.5
ENSRNOP00000043918							2	-2.4				
ENSRNOP00000043950	6	-28.5	4	-16.9	5	-13.4	2	-1.9	1	-5.7	2	-2
ENSRNOP00000043972	125	-636	67	-382	89	-376	137	-500	89	-390	83	-365
ENSRNOP00000044007	15	-58.3	8	-25.5	8	-27.2						
ENSRNOP00000044022							2	-3.1			2	-7.9
ENSRNOP00000044036			1	-3.4			1	-4.3	1	-12.3		
ENSRNOP00000044037					1	-2.1	2	-9.4	3	-12.9		
ENSRNOP00000044081	71	-85.7	59	-79.4	32	-69.9	24	-44.1			25	-35.5
ENSRNOP00000044096							22	-136	25	-150		
ENSRNOP00000044119					3	-11.1						
ENSRNOP00000044124			20	-55.4								
ENSRNOP00000044125	1	-4.9					4	-22	7	-49.7	2	-10.4
ENSRNOP00000044134	1	-2.7										
ENSRNOP00000044153									3	-19.1	3	-26.8
ENSRNOP00000044163							4	-20.2	3	-12.4	5	-26.3
ENSRNOP00000044213			2	-2.6								
ENSRNOP00000044233									14	-41.2		
ENSRNOP00000044272	2	-3.2										
ENSRNOP00000044273					4	-27.3						
ENSRNOP00000044279							1	-5.8	2	-14.6		
ENSRNOP00000044296	100	-254	97	-199	84	-256	89	-187			80	-150
ENSRNOP00000044301					7	-19.5						
ENSRNOP00000044303			16	-47.6								
ENSRNOP00000044360							6	-32.5	5	-28.7		
ENSRNOP00000044376	22	-45.7	86	-59.7	50	-61.8	32	-62.2	18	-51.8	11	-44
ENSRNOP00000044411	4	-31.9	4	-23.6	7	-31.7	19	-84.8	13	-56.8	25	-40.7
ENSRNOP00000044430	10	-66.3	3	-16.5	16	-41.4	16	-49.1	15	-59.8	5	-24.2
ENSRNOP00000044431											1	-2.9
ENSRNOP00000044466											1	-3.2
ENSRNOP00000044480	4	-26.6			1	-6.9						
ENSRNOP00000044548	2	-10					1	-7.4	1	-6.2	1	-2.8
ENSRNOP00000044552									2	-2.6		
ENSRNOP00000044560	12	-75.3	3	-23.7	7	-32.6	16	-77.6	17	-77.8	13	-77.3
ENSRNOP00000044573	24	-66.2	29	-85.7	30	-80.2			6	-13.7	1	-4.1
ENSRNOP00000044586											10	-42.1

ENSRNOP00000044589	5	-12.3	1	-2.8			11	-9.8	4	-9.1	9	-8.2
ENSRNOP00000044608							3	-18.4				
ENSRNOP00000044638											2	-5.7
ENSRNOP00000044696	67	-186	60	-153	57	-152	112	-119	63	-108	81	-93.9
ENSRNOP00000044706			2	-2.9								
ENSRNOP00000044720			4	-20.9			16	-33.7			5	-13.5
ENSRNOP00000044731											6	-23.4
ENSRNOP00000044732	4	-24.3							4	-14.1		
ENSRNOP00000044741									1	-3.4		
ENSRNOP00000044820							6	-6.2			2	-3.1
ENSRNOP00000044831					1	-2.2					2	-3
ENSRNOP00000044836					11	-37.5	47	-73.3				
ENSRNOP00000044837					14	-29.1	4	-17.9				
ENSRNOP00000044869			14	-32.9	20	-13.7						
ENSRNOP00000044890	4	-23.3										
ENSRNOP00000044897									2	-9.1		
ENSRNOP00000044909	4	-3.1	2	-3.1	2	-3.5			5	-3.2	2	-2.8
ENSRNOP00000044914							1	-4.6	1	-4.3	1	-4.2
ENSRNOP00000044940	4	-11.5							6	-31.8		
ENSRNOP00000044954									21	-119	19	-90.7
ENSRNOP00000044956	5	-19.2			2	-2.4						
ENSRNOP00000044986							4	-12.2				
ENSRNOP00000045002	212	-380	204	-361	202	-419	107	-218	122	-201	94	-211
ENSRNOP00000045007	2	-4.9			1	-2.4						
ENSRNOP00000045019									1	-2.8		
ENSRNOP00000045026									1	-2.4		
ENSRNOP00000045029	176	-165	159	-155	173	-153	61	-130	59	-136	45	-114
ENSRNOP00000045030							21	-81.3	10	-60.1		
ENSRNOP00000045033	8	-44.8			5	-24.2	3	-14.9	11	-40	6	-24.4
ENSRNOP00000045076	13	-64.1	9	-14.6	6	-28.8	23	-56.5	28	-67	13	-55.5
ENSRNOP00000045093	6	-24.7										
ENSRNOP00000045117							2	-4.5				
ENSRNOP00000045120							1	-1.8	2	-12.2		
ENSRNOP00000045156									1	-2.4		
ENSRNOP00000045159							2	-2.5	1	-2.8		
ENSRNOP00000045180	6	-11.9	4	-9	7	-26.3					4	-22.7

ENSRNOP00000045196	80	-228	53	-161	70	-190	20	-87.8			57	-77.3
ENSRNOP00000045215							9	-30.4	8	-31		
ENSRNOP00000045242	5	-23.4	3	-15.5	4	-21.4	4	-23.2	1	-9.6	2	-6.3
ENSRNOP00000045263	7	-27.5	3	-13.4	10	-37.1	4	-31.7	2	-10.8		
ENSRNOP00000045308							24	-38.8	16	-24.6		
ENSRNOP00000045313			137	-300								
ENSRNOP00000045365							2	-8.1	1	-4.2	1	-3
ENSRNOP00000045406	9	-12.5	6	-18.8	2	-5.3	3	-1.4				
ENSRNOP00000045415											2	-2.2
ENSRNOP00000045431	4	-25.9	2	-9.8			8	-49.8	2	-10.9	7	-41.9
ENSRNOP00000045448							14	-57.3			14	-39.4
ENSRNOP00000045493							2	-8.9				
ENSRNOP00000045510							1	-8.6	2	-11.1	3	-14.8
ENSRNOP00000045530			7	-18.2								
ENSRNOP00000045536			87	-222	91	-252						
ENSRNOP00000045539							7	-4.2	3	-2.8	4	-2.9
ENSRNOP00000045551							3	-17.9				
ENSRNOP00000045567					139	-414	176	-286	147	-237	185	-295
ENSRNOP00000045591									4	-32.1		
ENSRNOP00000045593					1	-2	1	-4.7			2	-5.4
ENSRNOP00000045598	67	-166										
ENSRNOP00000045629					11	-12.4			6	-17.4		
ENSRNOP00000045630	16	-79	9	-48.3	3	-19.1	4	-35.9	7	-35.8	12	-35.6
ENSRNOP00000045650			88	-229	82	-235	112	-272	108	-325	143	-286
ENSRNOP00000045651	2	-3										
ENSRNOP00000045670	149	-236	129	-250	100	-176	149	-191	166	-175	157	-169
ENSRNOP00000045686	2	-3.3	1	-3.3			14	-7.2	4	-12.3	4	-4.8
ENSRNOP00000045702	2	-7.9			1	-5.5	2	-21.9	2	-7.9	2	-25.3
ENSRNOP00000045711	2	-3.4							1	-7.3		
ENSRNOP00000045739	1	-2.7										
ENSRNOP00000045757					1	-2.5						
ENSRNOP00000045771	16	-32										
ENSRNOP00000045800	87	-298	54	-211	64	-238	45	-183	40	-178	50	-172
ENSRNOP00000045816			5	-2.5	2	-2.1			5	-3.3	4	-3.1
ENSRNOP00000045817							2	-15.6	2	-6.1	2	-15.7
ENSRNOP00000045886	153	-343	150	-363	174	-402	182	-298	174	-292	163	-320

ENSRNOP00000045893	5	-12.4	2	-6.3	3	-10.1			2	-8.5		
ENSRNOP00000045936	36	-115	35	-68.7	27	-66.5					37	-118
ENSRNOP00000045940			9	-42.6	14	-39.6						
ENSRNOP00000045952	84	-131	82	-114	79	-90.7						
ENSRNOP00000045969			49	-137			59	-133			66	-126
ENSRNOP00000045983							12	-40	10	-52.8		
ENSRNOP00000046012											9	-55.5
ENSRNOP00000046028	2	-5.4	3	-8.7	2	-11.4	5	-29.6	4	-26.3		
ENSRNOP00000046047							1	-4.2			4	-17.4
ENSRNOP00000046072									3	-11.1		
ENSRNOP00000046090							27	-70.1				
ENSRNOP00000046101							2	-16.7	2	-3.8		
ENSRNOP00000046124											1	-2.8
ENSRNOP00000046127									5	-11.3	2	-3.3
ENSRNOP00000046133			3	-8.5								
ENSRNOP00000046150									1	-6	1	-3.5
ENSRNOP00000046175							6	-19.6	5	-26.7		
ENSRNOP00000046194	2	-10.6										
ENSRNOP00000046233	1	-2.6			1	-3	3	-9	7	-32.9	3	-12.3
ENSRNOP00000046251									52	-168		
ENSRNOP00000046286					1	-2	5	-25.5	2	-5.4	2	-4.5
ENSRNOP00000046301			8	-15.2	8	-17.9						
ENSRNOP00000046328	5	-23.6	9	-34.1	9	-52.4	7	-37.5	5	-21.5		
ENSRNOP00000046335							11	-23.5				
ENSRNOP00000046345									7	-20.9	2	-5.7
ENSRNOP00000046362							11	-2.7			4	-2.4
ENSRNOP00000046390	9	-45.5										
ENSRNOP00000046394	2	-4.1	3	-13.8	3	-13.9						
ENSRNOP00000046399							3	-8.5	3	-9.4		
ENSRNOP00000046411	16	-65			9	-34.6						
ENSRNOP00000046414	49	-43.2	29	-36.5	27	-29.5	32	-41.8	34	-55.2	36	-47
ENSRNOP00000046415	9	-36.5	15	-33.8	12	-29.9	6	-26.5	6	-20.9	8	-24.1
ENSRNOP00000046424									14	-91.4		
ENSRNOP00000046432					1	-2.3						
ENSRNOP00000046474									1	-8.2		
ENSRNOP00000046486							2	-10.8	2	-10.1	3	-13.9

ENSRNOP00000046488			2	-6.2					3	-28.4		
ENSRNOP00000046490									1	-4.1		
ENSRNOP00000046507											156	-165
ENSRNOP00000046509			3	-15.4			1	-3.6			1	-15.5
ENSRNOP00000046512	9	-37.8	6	-31	12	-54.9	23	-93.9	18	-90.1	11	-54.6
ENSRNOP00000046553	47	-42.6										
ENSRNOP00000046637	4	-5.2			2	-3.1	12	-48.9	9	-41	8	-38.6
ENSRNOP00000046654	17	-54.7	16	-43.3	15	-54.9	8	-30.6	5	-28.2	6	-33.5
ENSRNOP00000046668	15	-78.2	2	-13.9	1	-11.1	18	-72.6	27	-78.7	13	-46.4
ENSRNOP00000046691							2	-7.7				
ENSRNOP00000046692					4	-4.1	2	-6.6	1	-5.7	1	-4.8
ENSRNOP00000046711	5	-13.8							4	-20.9	7	-19.9
ENSRNOP00000046735	3	-2.8										
ENSRNOP00000046737	26	-50.1	22	-36.9	18	-37.4	11	-41.2	23	-39.3	8	-45.7
ENSRNOP00000046783	25	-92.7	20	-54.6	21	-59.9	10	-12.3	6	-10.4		
ENSRNOP00000046789	1	-4.2					2	-4.1			1	-5.4
ENSRNOP00000046842	30	-134	35	-83.7	29	-140	29	-117	22	-106	20	-105
ENSRNOP00000046867	42	-103	28	-76.7	17	-62.1	24	-67.4	18	-83.2	23	-66.7
ENSRNOP00000046899	1	-4.7					3	-11	2	-8.3	2	-9.1
ENSRNOP00000046913											1	-6.1
ENSRNOP00000046938									3	-10.3		
ENSRNOP00000046952	3	-9	3	-15.9	3	-16.5						
ENSRNOP00000046966			9	-45.8								
ENSRNOP00000046992	7	-48.9			4	-15.9	8	-9.5	2	-6.1	28	-9.4
ENSRNOP00000047038	2	-7.1										
ENSRNOP00000047044							8	-32.3			4	-20.2
ENSRNOP00000047095			1	-4								
ENSRNOP00000047103							1	-2.8				
ENSRNOP00000047113							1	-5.1			1	-7.3
ENSRNOP00000047116	2	-11.2										
ENSRNOP00000047143									2	-14.5		
ENSRNOP00000047148	5	-26.3	4	-20.3	4	-20.2						
ENSRNOP00000047214	19	-27			4	-14.9	19	-24.2	21	-39.7	8	-26.1
ENSRNOP00000047263			46	-89.4	25	-86.9			41	-102	35	-93.4
ENSRNOP00000047275									1	-3.3	2	-2.6
ENSRNOP00000047328									5	-22.9		

ENSRNOP00000047330					1	-2.8						
ENSRNOP00000047364	6	-28.1			3	-9.1					1	-2
ENSRNOP00000047366					4	-15.9	7	-22	4	-4.8	4	-11.5
ENSRNOP00000047376	3	-21.4					4	-28.4	2	-7.2	2	-6.2
ENSRNOP00000047403	2	-8	2	-7.9			2	-19.5	2	-12.2		
ENSRNOP00000047447							1	-5.8	1	-7.9	1	-1.6
ENSRNOP00000047453							1	-3.1				
ENSRNOP00000047461							1	-10.1				
ENSRNOP00000047556									1	-6.3		
ENSRNOP00000047579	7	-29	4	-22.1	7	-44.4	27	-96.4	24	-104	12	-55.5
ENSRNOP00000047647			7	-30.6			6	-28.6	9	-51.7	2	-8
ENSRNOP00000047662					5	-12						
ENSRNOP00000047674	26	-113	18	-89.4	19	-79.5	20	-81.2	20	-97.5	16	-65.1
ENSRNOP00000047680	12	-36.1	2	-3.4	3	-7.6						
ENSRNOP00000047683	20	-35.4	12	-33	17	-50.1	15	-17.6	13	-12.1	21	-18.8
ENSRNOP00000047705					51	-40.4						
ENSRNOP00000047706			7	-2.3	1	-2.9						
ENSRNOP00000047709	13	-66	4	-23.6	5	-27.1						
ENSRNOP00000047749	4	-17.1										
ENSRNOP00000047760	22	-54.6									10	-32.6
ENSRNOP00000047769			5	-9.8	4	-10.6			10	-25	5	-25.3
ENSRNOP00000047787					12	-32.4						
ENSRNOP00000047800	32	-74.3	156	-62.7	62	-67.6						
ENSRNOP00000047809			2	-4.9			2	-4.6	4	-18.7	7	-17.2
ENSRNOP00000047811	104	-127					43	-124				
ENSRNOP00000047897									3	-14.6		
ENSRNOP00000047905	24	-148	6	-32.1	16	-75	20	-132	35	-166	5	-36
ENSRNOP00000047913	2	-5.8			1	-3.1						
ENSRNOP00000047932							2	-3.7				
ENSRNOP00000047948					9	-36.9			16	-27.2		
ENSRNOP00000047962									1	-3.4		
ENSRNOP00000048036	9	-15										
ENSRNOP00000048088	30	-176	18	-129	32	-171	55	-164			44	-154
ENSRNOP00000048116							7	-27				
ENSRNOP00000048157	42	-138	50	-138	84	-152			49	-98.5		
ENSRNOP00000048162									6	-27.4		

ENSRNOP00000048170			14	-26.8	18	-17.6			66	-29.2	22	-20.5
ENSRNOP00000048171	16	-87.2	8	-54.9	12	-82.8	14	-61.6	15	-67.8	13	-70
ENSRNOP00000048184	1	-10.2	1	-12.7	3	-11.6	5	-23.9	3	-15.3	4	-15.7
ENSRNOP00000048191	2	-4.9										
ENSRNOP00000048230							2	-11.5	2	-5.1		
ENSRNOP00000048250	51	-168	38	-99.1	35	-92.5	42	-79.2	42	-74	43	-71.5
ENSRNOP00000048294											2	-7
ENSRNOP00000048358	99	-217	188	-162	103	-232	73	-122	74	-110	206	-124
ENSRNOP00000048364	14	-47	14	-65.3	18	-69.5	27	-71.2	26	-67.3	32	-63.9
ENSRNOP00000048390			50	-140	82	-145	57	-117			65	-117
ENSRNOP00000048400	6	-14.1					7	-5.8	8	-14.3		
ENSRNOP00000048410	2	-2.6					2	-4.6	2	-11.8	1	-1.7
ENSRNOP00000048417			8	-35.3	4	-19.3	12	-48.9	9	-31.7	4	-27.2
ENSRNOP00000048422	25	-37.9	17	-51.2	47	-34.5					3	-10.2
ENSRNOP00000048472	7	-48.4										
ENSRNOP00000048475	4	-17.6			2	-8.7	2	-18.4	4	-12.3	2	-10.5
ENSRNOP00000048476	21	-71.6	10	-39.1	10	-31	19	-64.6	21	-81.9	15	-31.3
ENSRNOP00000048479	47	-83.3	19	-32.1	10	-21.6	40	-45	33	-33.5	11	-29.5
ENSRNOP00000048508							1	-2.6				
ENSRNOP00000048532									4	-25.1		
ENSRNOP00000048536							1	-2.3	2	-12.2		
ENSRNOP00000048546	32	-141	16	-61.5	16	-69.7	2	-8.8			7	-36.6
ENSRNOP00000048563	4	-16	2	-3.8	4	-3.8						
ENSRNOP00000048572	5	-23.1					4	-21.3	6	-39.7	3	-11
ENSRNOP00000048631			10	-62	13	-47.1						
ENSRNOP00000048672			19	-25.5								
ENSRNOP00000048698							4	-24				
ENSRNOP00000048711	210	-482	222	-440	223	-404	141	-267	142	-294	207	-256
ENSRNOP00000048723	3	-21.9			6	-5.3					2	-3
ENSRNOP00000048780							240	-110	228	-95.1		
ENSRNOP00000048796							1	-2.3				
ENSRNOP00000048801	2	-12										
ENSRNOP00000048818							2	-4	3	-14.9	1	-2
ENSRNOP00000048834	2	-11.6			4	-2.9						
ENSRNOP00000048864	7	-11.2			4	-15.3	3	-9.7	5	-10.5	2	-9.7
ENSRNOP00000048877	17	-66.5	18	-39.6	13	-35.7	19	-53.4	15	-54.8	7	-26.9

ENSRNOP00000048878	26	-62	12	-21.7	12	-37.7	58	-40.3	59	-76.3	88	-52.1
ENSRNOP00000048890							9	-43.2	14	-61.4	7	-29.1
ENSRNOP00000048893	2	-3.4	2	-5.1	3	-7.2	3	-8.3	12	-5.6	4	-6.6
ENSRNOP00000048900									1	-2.6		
ENSRNOP00000048908	10	-36.3										
ENSRNOP00000048929							54	-29.2	66	-27.5		
ENSRNOP00000048979							3	-2.1			1	-3.8
ENSRNOP00000048983	2	-8.9										
ENSRNOP00000048999											3	-18.5
ENSRNOP00000049003	11	-25.7	9	-45.4	16	-42.6	16	-59.6	14	-44.9	47	-49.9
ENSRNOP00000049006							4	-21.8	3	-21.7	2	-6.4
ENSRNOP00000049087							2	-3.1				
ENSRNOP00000049120							5	-5.3	2	-2.4		
ENSRNOP00000049121							2	-13.3				
ENSRNOP00000049143							4	-13.7	3	-18.3	3	-4
ENSRNOP00000049214							3	-10.6	4	-11.4		
ENSRNOP00000049222	28	-39.7	18	-39.2	57	-58.3						
ENSRNOP00000049231							1	-4.3	3	-3.7		
ENSRNOP00000049243							3	-19.2	5	-18.8		
ENSRNOP00000049261	3	-17.4							6	-20.3	2	-4.6
ENSRNOP00000049290							4	-4.4	5	-12.5		
ENSRNOP00000049400	12	-25.6										
ENSRNOP00000049419	40	-155	28	-114	49	-77.3	44	-145	40	-97.5	30	-111
ENSRNOP00000049443	6	-20.8	1	-9	2	-6.1						
ENSRNOP00000049462									2	-2.6		
ENSRNOP00000049473							19	-65.9	15	-79.4	13	-41.5
ENSRNOP00000049480											1	-6.4
ENSRNOP00000049495							4	-12.7	6	-28.9	4	-16.8
ENSRNOP00000049498							1	-1.8	2	-4.8		
ENSRNOP00000049499									7	-38.7		
ENSRNOP00000049519							3	-16	2	-22.3	2	-15.5
ENSRNOP00000049546									7	-23.6		
ENSRNOP00000049558	2	-2.8										
ENSRNOP00000049600	2	-16.8	4	-10.2	3	-2.3	8	-43.7	8	-29.9	2	-8.8
ENSRNOP00000049619	38	-87.8	49	-75.6	49	-71			10	-49.4	17	-67.4
ENSRNOP00000049626	17	-53.6										

ENSRNOP00000049629	13	-70	10	-20.7	5	-20.5	43	-151	45	-167	28	-152
ENSRNOP00000049630	2	-10.1					1	-1.7			1	-1.5
ENSRNOP00000049651									6	-38.2		
ENSRNOP00000049726	25	-70.1	32	-82.1	24	-75.9	12	-33.7	13	-29.7	12	-28.3
ENSRNOP00000049730	2	-2.9										
ENSRNOP00000049742									13	-62.7	13	-56.4
ENSRNOP00000049779							5	-2.7				
ENSRNOP00000049797	8	-30.7			2	-9.2	6	-45.2	11	-60.1	11	-47.7
ENSRNOP00000049807	4	-22.3	2	-5.4	6	-12.2	4	-34.8	4	-35.5	3	-11.4
ENSRNOP00000049841											1	-2.6
ENSRNOP00000049863							5	-33.5	5	-35.8	3	-17.1
ENSRNOP00000049876	6	-20.9	7	-21.3					12	-10		
ENSRNOP00000049879	106	-149	108	-160	101	-166	47	-83.7	54	-125	76	-95.9
ENSRNOP00000049903			2	-2.4			7	-36.6	10	-29.8		
ENSRNOP00000049912											1	-3.3
ENSRNOP00000049915					28	-24.6						
ENSRNOP00000049949							3	-23.7				
ENSRNOP00000049974											1	-2.2
ENSRNOP00000049976									4	-18.3		
ENSRNOP00000049978	2	-11.7					3	-11.1				
ENSRNOP00000049990	2	-17	2	-11.3			2	-2.9				
ENSRNOP00000049998	140	-281	148	-168	121	-236	81	-192	101	-227	101	-166
ENSRNOP00000050010	9	-53.8	10	-14	4	-12.9	17	-44	13	-34	1	-4.3
ENSRNOP00000050012	1	-3.6					1	-2.4				
ENSRNOP00000050013	5	-9.4	1	-9.2			14	-21.6	17	-27.5	4	-14
ENSRNOP00000050029							2	-3.5	2	-14	2	-3.6
ENSRNOP00000050038									2	-5.1	1	-3.1
ENSRNOP00000050050	20	-99.3	26	-103	22	-80.2	6	-43.6	8	-47.4	6	-33.6
ENSRNOP00000050057			1	-2.3								
ENSRNOP00000050125							2	-8.9	3	-20		
ENSRNOP00000050137	169	-223			74	-161	204	-173	174	-147	89	-104
ENSRNOP00000050143							1	-9			3	-17.8
ENSRNOP00000050145	21	-56.3										
ENSRNOP00000050192									3	-3	4	-3.2
ENSRNOP00000050197			6	-29.7	6	-16.9						
ENSRNOP00000050206	9	-37.5	13	-39.2			9	-47.4	10	-54.8	12	-43.3

ENSRNOP00000050213	66	-219	47	-188	55	-172	68	-101	74	-74.3	70	-123
ENSRNOP00000050220	3	-2.6	2	-5.2	5	-13.7	2	-8.3	3	-8.5	3	-11
ENSRNOP00000050252	60	-152	77	-132	79	-132					53	-60.1
ENSRNOP00000050313							3	-4.8	1	-7.5		
ENSRNOP00000050322							79	-143	62	-108		
ENSRNOP00000050338	5	-18.2	2	-6.5	5	-13.4	5	-19.7	7	-34	2	-8.6
ENSRNOP00000050340					2	-8.5						
ENSRNOP00000050343					1	-2.6	2	-3.3	3	-3.4	7	-2.6
ENSRNOP00000050367									3	-13	2	-3.1
ENSRNOP00000050368							12	-38.6	12	-37.2	8	-6.2
ENSRNOP00000050371	2	-3.8										
ENSRNOP00000050426	5	-20.1							1	-3		
ENSRNOP00000050429									40	-39.4		
ENSRNOP00000050480							1	-5.3	2	-6.1		
ENSRNOP00000050493							2	-4.6	2	-4.8		
ENSRNOP00000050505	2	-10.1					2	-9.5	2	-6.5		
ENSRNOP00000050556							11	-53.6	7	-31.5	4	-23.2
ENSRNOP00000050581	71	-113	84	-97.9							12	-57.4
ENSRNOP00000050589	31	-34.7	15	-31.8	14	-50.5			15	-26.4	13	-34.3
ENSRNOP00000050599	35	-110										
ENSRNOP00000050605	19	-79.6					20	-63.1	21	-58.2	39	-86.3
ENSRNOP00000050622							3	-26.1				
ENSRNOP00000050663	10	-38.3	2	-5.5	6	-24			22	-103		
ENSRNOP00000050691	31	-123			22	-65.4	30	-93.4	30	-101	23	-60.6
ENSRNOP00000050732									4	-13.6	2	-9.1
ENSRNOP00000050753							3	-9.8				
ENSRNOP00000050774	3	-19.3							1	-4.7	2	-5.4
ENSRNOP00000050794	3	-15.5										
ENSRNOP00000050815	2	-3.8										
ENSRNOP00000050847	3	-19.6					2	-15.2	3	-13.7		
ENSRNOP00000050912									2	-8.3		
ENSRNOP00000050925							1	-4.7			2	-8.1
ENSRNOP00000050934									5	-27.9		
ENSRNOP00000050941									4	-6		
ENSRNOP00000050947			3	-17.4	4	-29.4	6	-28.6	9	-45.3	5	-32.2
ENSRNOP00000050960	6	-16.5	10	-18.1	15	-27.7	1	-2.4	1	-2.2	1	-3

ENSRNOP00000050961									1	-3	1	-1.8
ENSRNOP00000050968	44	-152	36	-95.1	62	-145	72	-152	77	-147	69	-148
ENSRNOP00000050980							2	-1.9	4	-11.4		
ENSRNOP00000050986	14	-51.9	3	-14.5	4	-13.1	9	-39.9	8	-47.3	5	-23.1
ENSRNOP00000050987											2	-3.8
ENSRNOP00000051033	2	-9.2					5	-20.1	4	-30.8		
ENSRNOP00000051045									1	-4.5		
ENSRNOP00000051106									2	-8.5		
ENSRNOP00000051109											18	-67.6
ENSRNOP00000051113							10	-58.1	9	-34.5	4	-25.7
ENSRNOP00000051130							5	-31.3				
ENSRNOP00000051135	26	-115					19	-60.1				
ENSRNOP00000051142							3	-9.8	2	-2.3	2	-3.5
ENSRNOP00000051189							11	-41.4				
ENSRNOP00000051237	3	-11.5										
ENSRNOP00000051248							2	-10.5	2	-13.9	2	-18.2
ENSRNOP00000051316							2	-9.1				
ENSRNOP00000051321							2	-1.8	2	-2.2		
ENSRNOP00000051326	8	-4.5	2	-3	1	-2.6						
ENSRNOP00000051327			6	-11.8	3	-9.9						
ENSRNOP00000051352			2	-6.2					2	-17.6	2	-7.4
ENSRNOP00000051361	90	-266	66	-174	58	-181	51	-116	41	-124	36	-105
ENSRNOP00000051363	15	-84.1	16	-62.3	19	-95.3	13	-51.3	5	-23.9	5	-31.5
ENSRNOP00000051383							11	-15				
ENSRNOP00000051399							1	-3.8				
ENSRNOP00000051406							3	-15.9	3	-15	1	-7.6
ENSRNOP00000051410									11	-31.1		
ENSRNOP00000051412	55	-246	51	-241	76	-264	87	-264	90	-226	94	-223
ENSRNOP00000051440	1	-3.2										
ENSRNOP00000051445	119	-272	123	-238	98	-242	82	-185	74	-179	62	-179
ENSRNOP00000051485							2	-6.6				
ENSRNOP00000051502							2	-4.4				
ENSRNOP00000051504	3	-9.9	2	-10.4	3	-10.3	1	-1.5				
ENSRNOP00000051538									34	-164		
ENSRNOP00000051584	3	-12			3	-5.9	1	-1.4			1	-1.8
ENSRNOP00000051602									2	-3.9		

ENSRNOP00000051604	91	-273										
ENSRNOP00000051607	99	-311	76	-237	73	-240	46	-160	40	-121	31	-168
ENSRNOP00000051613	38	-34.3					25	-30.5	25	-31.1	17	-46.9
ENSRNOP00000051616							23	-20.9				
ENSRNOP00000051619	230	-328			218	-207						
ENSRNOP00000051623			240	-267	225	-220					131	-228
ENSRNOP00000051625											153	-320
ENSRNOP00000051626			76	-139								
ENSRNOP00000051634							2	-10.9	2	-3.6	4	-4.5
ENSRNOP00000051641							52	-155	40	-146	28	-134
ENSRNOP00000051651							1	-2	2	-8.6		
ENSRNOP00000051674							2	-6.4	5	-30.3	7	-16.5
ENSRNOP00000051684	39	-140	40	-130	39	-112	16	-72.8	17	-64.3	11	-61.8
ENSRNOP00000051700			14	-53.5								
ENSRNOP00000051714	20	-78.5	10	-25.2	4	-17.6	29	-135	24	-92	22	-123
ENSRNOP00000051758	6	-36.4	6	-18.7	5	-25.6	24	-60.3	20	-61.3	24	-63.4
ENSRNOP00000051787	4	-15.7										
ENSRNOP00000051796	1	-3.4					3	-15.2	2	-5.7	8	-22.7
ENSRNOP00000051804	4	-23.8	2	-3								
ENSRNOP00000051805	5	-20.1	5	-20.4	2	-3.9			6	-11.1		
ENSRNOP00000051808							1	-2.3				
ENSRNOP00000051832											1	-2.1
ENSRNOP00000051835	10	-33.3	4	-22.4	3	-25.6	11	-33.7	10	-39.9	8	-32.5
ENSRNOP00000051839							2	-4.6	3	-4.7	3	-13.1
ENSRNOP00000051840	4	-16.7					4	-22.3	2	-5.5		
ENSRNOP00000051841	43	-181	25	-118	23	-108	73	-227	60	-201	55	-181
ENSRNOP00000051845	2	-4.7										
ENSRNOP00000051846	162	-170	147	-178	124	-143	18	-79.3	18	-64.2	19	-82.9
ENSRNOP00000051848	2	-7	2	-15.4	2	-2.6	1	-2.6			4	-21.9
ENSRNOP00000051856					2	-2	1	-2	2	-8.5	1	-4.7
ENSRNOP00000051859									91	-183		
ENSRNOP00000051877							1	-5.1				
ENSRNOP00000051894							1	-4.4	1	-5.8		
ENSRNOP00000051905									1	-2.4		
ENSRNOP00000051911	2	-4.4			2	-8.2	6	-41.2	6	-39.6		
ENSRNOP00000051917											1	-2.7

ENSRNOP00000051933									4	-18.6		
ENSRNOP00000051938							2	-16.9	2	-17.6		
ENSRNOP00000051949							4	-17.5	4	-12.6		
ENSRNOP00000051958	3	-18.1	3	-20.3	3	-15.7	25	-79.7	18	-49.8	9	-53
ENSRNOP00000052000							3	-17.8				
ENSRNOP00000052049							4	-18.2				
ENSRNOP00000052051	25	-122	12	-68	10	-35.7	5	-25	4	-5	4	-25.1
ENSRNOP00000052112							13	-48.1	11	-41.9		
ENSRNOP00000052113	25	-90.7	9	-59.3	9	-48.9					15	-25.6
ENSRNOP00000052152	17	-112	4	-22.7	12	-57.7	8	-38.9	11	-48.6	13	-67.8
ENSRNOP00000052155							2	-3	1	-5.6		
ENSRNOP00000052196											1	-2.2
ENSRNOP00000052201							1	-1.5	2	-4.8		
ENSRNOP00000052203	10	-27.7					6	-27.8			3	-5.3
ENSRNOP00000052225							1	-2.9	1	-3.8		
ENSRNOP00000052241	1	-4.8										
ENSRNOP00000052247							54	-24.9	50	-37.7		
ENSRNOP00000052248	1	-3.5										
ENSRNOP00000052273	2	-2.9	2	-2.8								
ENSRNOP00000052365									1	-2.3		
ENSRNOP00000052405							45	-82.1	34	-81.4		
ENSRNOP00000052446	2	-14.4					3	-21	4	-17.6	1	-5.7
ENSRNOP00000052452	3	-12.1										
ENSRNOP00000052465	9	-42.8	2	-3	2	-2.1						
ENSRNOP00000052488	5	-24.4										
ENSRNOP00000052489	6	-28.1					7	-42.6	5	-24.6	5	-11.3
ENSRNOP00000052490	43	-130	40	-84.3	41	-117	25	-77.5	23	-102	34	-81.4
ENSRNOP00000052499	31	-86.2	34	-76.7	33	-81.5			37	-93.1		
ENSRNOP00000052539	15	-110	12	-63.6	10	-44.3	39	-149	34	-129	25	-97.2
ENSRNOP00000052543	5	-21.8										
ENSRNOP00000052546			40	-184	46	-191			37	-150		
ENSRNOP00000052583	2	-4.1	7	-18.3	1	-2.5	4	-5.3	8	-20.7	3	-6.1
ENSRNOP00000052593	36	-197	24	-162	24	-134	58	-226	41	-160	49	-183
ENSRNOP00000052608											1	-3.6
ENSRNOP00000052627									2	-11.3		
ENSRNOP00000052630	20	-32	2	-2.8								

ENSRNOP00000052656			41	-204	47	-215	41	-177	43	-206	19	-120
ENSRNOP00000052657							2	-11.9	2	-8		
ENSRNOP00000052697	1	-4.5					8	-2.9	7	-3.7	6	-2.8
ENSRNOP00000052781	2	-5.4			1	-2						
ENSRNOP00000052801									1	-9.3	3	-10.5
ENSRNOP00000052859							11	-30.3	6	-21		
ENSRNOP00000052869									1	-5.3		
ENSRNOP00000052875	273	-506	249	-492	257	-488	125	-312	176	-392	207	-364
ENSRNOP00000052878									1	-4.3		
ENSRNOP00000052882			3	-18	2	-19.7	7	-35.2	6	-33.2	2	-3.1
ENSRNOP00000052895	18	-65.8	11	-42.6			14	-72.4	12	-71.7	9	-44.1
ENSRNOP00000052898							2	-9.6				
ENSRNOP00000052911							1	-6.6	4	-10.2	1	-2.5
ENSRNOP00000052944									5	-15.7		
ENSRNOP00000052972							10	-34.9				
ENSRNOP00000052981	3	-14.1	2	-3.5	3	-11.3						
ENSRNOP00000052992							3	-2.7				
ENSRNOP00000053001					2	-4.2					2	-2
ENSRNOP00000053037							1	-4	2	-3.3		
ENSRNOP00000053094	3	-28.6	2	-2.9			7	-32.7	6	-33	7	-27
ENSRNOP00000053097	2	-8.5										
ENSRNOP00000053105							7	-21.4	3	-7.5	1	-2.3
ENSRNOP00000053116	33	-32	13	-17.2	6	-24.1	13	-11.9			4	-10.2
ENSRNOP00000053121	10	-50.3	9	-32.2	6	-39.5						
ENSRNOP00000053122							4	-30.8	6	-34.1	4	-6.1
ENSRNOP00000053123	23	-67.6	11	-27.3			14	-23.3			22	-34.6
ENSRNOP00000053129	2	-3.5					8	-14.5	4	-12.4		
ENSRNOP00000053134	5	-26.1	4	-10.3	1	-2	1	-8.9			1	-9.5
ENSRNOP00000053135	12	-57.2	6	-36.3	8	-40.4	10	-70.3	16	-72.9	4	-35.6
ENSRNOP00000053144							1	-2.4			2	-3.9
ENSRNOP00000053147			1	-3.8			3	-10.9				
ENSRNOP00000053156									2	-8.3		
ENSRNOP00000053157							2	-11.7	2	-14	1	-11.4
ENSRNOP00000053167							3	-25			1	-7.6
ENSRNOP00000053169	2	-8.8										
ENSRNOP00000053174	16	-73.3	3	-13.6	4	-5.2	3	-16	12	-43.8	5	-27.7

ENSRNOP00000053212									1	-2.8		
ENSRNOP00000053213							2	-2.4				
ENSRNOP00000053215	35	-82.1	95	-77.6	89	-87.6	16	-29.9	9	-15.1	14	-39.3
ENSRNOP00000053220			4	-12.8	4	-5.7	10	-36.5	6	-22.8	14	-33.8
ENSRNOP00000053243	2	-5.7							14	-87.6	8	-44.4
ENSRNOP00000053245	27	-93.5	17	-79.8	14	-62.3	27	-137	25	-120	15	-111
ENSRNOP00000053246					1	-3.5	1	-1.3				
ENSRNOP00000053307							7	-40.6	1	-4		
ENSRNOP00000053309							6	-34.2			1	-1.8
ENSRNOP00000053310	9	-62.6	3	-22.6	1	-2.6						
ENSRNOP00000053357	2	-11.7	7	-7	1	-3.5						
ENSRNOP00000053385	4	-22.4	8	-29.7	6	-21.1	3	-20.9	5	-17.6		
ENSRNOP00000053432							12	-67.6				
ENSRNOP00000053447							1	-4.9	2	-8		
ENSRNOP00000053467	4	-23	1	-3.2	1	-3.1						
ENSRNOP00000053471	1	-2.7					3	-9.3	2	-3.5		
ENSRNOP00000053475	5	-30.5							3	-17.8		
ENSRNOP00000053479									5	-30.8	2	-9.2
ENSRNOP00000053513							2	-4.4	3	-12.6		
ENSRNOP00000053518	83	-112	80	-100	83	-91.7	16	-53	9	-21.2	20	-51.5
ENSRNOP00000053530	3	-9.6	4	-19.4	4	-19.7						
ENSRNOP00000053553							5	-12.8	7	-10	5	-12.7
ENSRNOP00000053568	11	-27.6										
ENSRNOP00000053582							38	-31.1				
ENSRNOP00000053647							1	-6.5	1	-4.5		
ENSRNOP00000053659	3	-21.6			2	-7.3	6	-10.8	6	-8.7	4	-14.7
ENSRNOP00000053662									2	-3.2		
ENSRNOP00000053675	106	-137	91	-93.7	95	-102			45	-91.8		
ENSRNOP00000053681					3	-15.7						
ENSRNOP00000053685			2	-4.1	2	-4.3						
ENSRNOP00000053689			5	-23			3	-16.2			1	-1.6
ENSRNOP00000053709									1	-6.3		
ENSRNOP00000053790					37	-85.4			32	-89.3		
ENSRNOP00000053834							2	-6.7	2	-4		
ENSRNOP00000053848	3	-12.4	1	-2.7			5	-28.3	4	-17.2	1	-3.1
ENSRNOP00000053864			1	-4.6								

ENSRNOP00000053925	33	-122	31	-104	31	-106	24	-73.2	25	-81.4	19	-55.7
ENSRNOP00000053926	4	-6.7	2	-4.2	4	-6.7	9	-6.6	7	-6.5	5	-4.9
ENSRNOP00000053935	1	-3.3										
ENSRNOP00000053972	1	-3.3					1	-2.1	2	-8.7		
ENSRNOP00000053979	8	-43.3	10	-34.7	4	-26.2			4	-22	8	-27.6
ENSRNOP00000053988							4	-27.8	3	-19.3	3	-20.5
ENSRNOP00000054003	1	-7.2					5	-22.1	8	-42.1	4	-12
ENSRNOP00000054015	42	-52.8	7	-31	13	-32	1	-5.3	4	-13.5	1	-2.1
ENSRNOP00000054026	9	-56.4	8	-49	10	-32.3	15	-102	12	-87.6	12	-47
ENSRNOP00000054063	25	-54.9							57	-66.2		
ENSRNOP00000054078	41	-88.2	27	-62	26	-62.1	17	-39.7			28	-31.2
ENSRNOP00000054084	17	-24.5					3	-1.9			1	-1.8
ENSRNOP00000054091			10	-40.7	7	-39.6						
ENSRNOP00000054104							10	-35.2			8	-23.2
ENSRNOP00000054115							12	-104				
ENSRNOP00000054120	4	-4.1	3	-10.3	2	-2.6	5	-31	4	-18.2		
ENSRNOP00000054131							8	-32.2	9	-36.6	3	-12.2
ENSRNOP00000054159	26	-115	24	-72.1	32	-88.9			17	-52.8	7	-36.1
ENSRNOP00000054178	42	-119	38	-109	40	-99.1	19	-36.5	33	-36.9	32	-28.9
ENSRNOP00000054193							3	-18.1				
ENSRNOP00000054206	5	-36	5	-32.8	3	-18	2	-6.5	9	-44.6	1	-4.3
ENSRNOP00000054214											1	-3.2
ENSRNOP00000054222									2	-2.4		
ENSRNOP00000054244	1	-6.3										
ENSRNOP00000054266	2	-9.2										
ENSRNOP00000054273					1	-2.3						
ENSRNOP00000054281							1	-1.8	2	-4.4		
ENSRNOP00000054332									2	-3.4	2	-5.7
ENSRNOP00000054342	1	-2.7							3	-22.3		
ENSRNOP00000054347	37	-38.8	25	-41.7	22	-45.4	7	-28.7	5	-19	6	-38.7
ENSRNOP00000054403											51	-49.2
ENSRNOP00000054429	2	-4.7										
ENSRNOP00000054444			1	-2.3			1	-7.8				
ENSRNOP00000054469					1	-2.7						
ENSRNOP00000054496							1	-3.6				
ENSRNOP00000054500	2	-9.1										

ENSRNOP00000054515							2	-3				
ENSRNOP00000054537	8	-35.6			2	-8.6						
ENSRNOP00000054548	12	-48.7	3	-17.9	6	-42.3	7	-29.5	9	-39.2	7	-41.2
ENSRNOP00000054643							2	-6.8	3	-7.3		
ENSRNOP00000054682					1	-2			3	-4.1		
ENSRNOP00000054703	5	-26.7	4	-5.4	6	-5.3						
ENSRNOP00000054740	9	-58.8	4	-24	3	-9.8	16	-59.7	16	-64.3	6	-41.5
ENSRNOP00000054782									17	-55.3		
ENSRNOP00000054783	3	-19.6	2	-17.6	6	-18.4	5	-17.2			5	-16.8
ENSRNOP00000054789	20	-36.6					2	-9.8	20	-26.7		
ENSRNOP00000054790							1	-1.7			2	-3.3
ENSRNOP00000054810	10	-40.3	13	-39.6	7	-29.4	5	-6	11	-55.1	13	-51.5
ENSRNOP00000054834	51	-145	27	-89.7	28	-90	11	-60	10	-55.9	8	-51.5
ENSRNOP00000054880	23	-92	28	-138	26	-133	40	-135	43	-199	16	-60.1
ENSRNOP00000054903	7	-28.7	1	-3.6	4	-28.9	6	-22.3	14	-59.2	3	-15.8
ENSRNOP00000054923	1	-7.5			1	-8.2					1	-10.6
ENSRNOP00000054924	98	-331	69	-205	77	-219	98	-314			71	-207
ENSRNOP00000054931	8	-28.8	10	-17.8	4	-8.9	23	-85	14	-66.2	13	-53.9
ENSRNOP00000054932									3	-15	2	-6.5
ENSRNOP00000054947					57	-126	67	-176	66	-187	82	-155
ENSRNOP00000054967							1	-5.1			2	-2.3
ENSRNOP00000054975					13	-33.2						
ENSRNOP00000054992	1	-3.8										
ENSRNOP00000055035	3	-18.1	7	-32.6			6	-58	5	-24.8	1	-7.9
ENSRNOP00000055038	6	-39	4	-25.1	9	-35.1						
ENSRNOP00000055073											2	-5.1
ENSRNOP00000055169	5	-19.4	1	-7.5	1	-10.3			1	-3.4		
ENSRNOP00000055177							1	-6.5	1	-7.1		
ENSRNOP00000055207							10	-19.7				
ENSRNOP00000055224	10	-36.6	15	-35.2	15	-26	8	-44.3	11	-35.5	9	-49.8
ENSRNOP00000055240	3	-6.6										
ENSRNOP00000055247											2	-9.3
ENSRNOP00000055259	38	-49.6	24	-38.7	22	-40.4			29	-45.6	25	-51.1
ENSRNOP00000055278							5	-21.5	4	-13.3		
ENSRNOP00000055288	41	-48.5			11	-29	44	-55.7	39	-53.9		
ENSRNOP00000055350							2	-3.4				

ENSRNOP00000055354	13	-69.7										
ENSRNOP00000055369	113	-281	121	-291	114	-284	70	-174	84	-185	76	-180
ENSRNOP00000055371							4	-12.4	1	-2.2		
ENSRNOP00000055378							2	-4			2	-3.9
ENSRNOP00000055387	1	-3.7	1	-3.2	4	-19.1	7	-28	8	-43.6	4	-26.2
ENSRNOP00000055400							3	-15.4	1	-5.8	1	-5
ENSRNOP00000055416							2	-9.9	1	-5.5	1	-1.8
ENSRNOP00000055460	14	-21	6	-30.3	5	-17.7						
ENSRNOP00000055463	27	-60.2							13	-50.8	12	-59.2
ENSRNOP00000055580	13	-57.1					14	-44.9	9	-19.4		
ENSRNOP00000055593									2	-7.2		
ENSRNOP00000055673									1	-2.9		
ENSRNOP00000055686	4	-21.5	4	-7.1	9	-29			4	-24.1		
ENSRNOP00000055707			3	-15.1								
ENSRNOP00000055726	10	-50.4										
ENSRNOP00000055757					13	-44.4	45	-43.3				
ENSRNOP00000055768							11	-19.2				
ENSRNOP00000055776			2	-9.3			3	-11.5				
ENSRNOP00000055805	2	-3					2	-4.7	3	-12.7	2	-9.2
ENSRNOP00000055811	4	-28.4			3	-19.3	2	-6	1	-6.2	2	-5.3
ENSRNOP00000055814	5	-15.4					3	-5.2	5	-25.1	2	-5.5
ENSRNOP00000055815							32	-80.9	31	-98.9	18	-48.1
ENSRNOP00000055824	105	-197					102	-199	89	-172	121	-224
ENSRNOP00000055839									3	-2.2		
ENSRNOP00000055852									2	-8.3		
ENSRNOP00000055903							5	-22.6				
ENSRNOP00000055923					6	-30.4			4	-22.4		
ENSRNOP00000055961									1	-2.5	3	-2
ENSRNOP00000055965									4	-11.7		
ENSRNOP00000055984							33	-48.3				
ENSRNOP00000056035							2	-8.9				
ENSRNOP00000056037							9	-40.3	4	-8.6	3	-14.6
ENSRNOP00000056040							2	-7.7	2	-16.3		
ENSRNOP00000056074	5	-19.3			7	-22.1					2	-2.6
ENSRNOP00000056095							3	-2.1	4	-23	4	-12.3
ENSRNOP00000056097							28	-60.9			16	-60.3

ENSRNOP00000056140			2	-2.4								
ENSRNOP00000056148			34	-56.3							19	-45
ENSRNOP00000056171											3	-6.4
ENSRNOP00000056213	4	-21.2	1	-5.3			11	-39.6	6	-24.9	2	-17.1
ENSRNOP00000056223					1	-2.4						
ENSRNOP00000056246	8	-13									3	-13.8
ENSRNOP00000056269	16	-68.4	11	-57.6	14	-62.7	12	-58.1	18	-45.4	5	-22.7
ENSRNOP00000056280			30	-23.9	25	-23			3	-12.7		
ENSRNOP00000056294	2	-11.6	2	-14.4	1	-7.3	4	-20	1	-2.8	3	-16.9
ENSRNOP00000056296	3	-17.8										
ENSRNOP00000056298			1	-4	2	-11.7	1	-8.9	2	-3.7		
ENSRNOP00000056307							28	-49.6	27	-54.3	29	-60.2
ENSRNOP00000056312							44	-146			46	-90.6
ENSRNOP00000056314	12	-34.6										
ENSRNOP00000056317					39	-93.4						
ENSRNOP00000056335			2	-11.2								
ENSRNOP00000056357	52	-160										
ENSRNOP00000056365											2	-10
ENSRNOP00000056379					1	-2.1						
ENSRNOP00000056394	39	-212			26	-129						
ENSRNOP00000056397					1	-2.2						
ENSRNOP00000056413	11	-63	1	-4.8	2	-23	11	-91.7	11	-80.3	5	-32
ENSRNOP00000056418	1	-3.7										
ENSRNOP00000056436									5	-19		
ENSRNOP00000056456							10	-19.4				
ENSRNOP00000056498							1	-2.5			2	-2.4
ENSRNOP00000056499	2	-9.6										
ENSRNOP00000056518	15	-84.3	7	-42.3	5	-29	7	-29.2	10	-46.9	4	-14.8
ENSRNOP00000056519			3	-9.7	3	-10.2	10	-21.3	6	-32.2	3	-14.1
ENSRNOP00000056550	1	-4.1	1	-6.5	1	-6.3	7	-14.9			2	-4.6
ENSRNOP00000056565	2	-7.4			3	-5.3						
ENSRNOP00000056567	22	-72.8	10	-28.7	12	-61.1	11	-37.2	6	-18.1	10	-38.3
ENSRNOP00000056586							1	-2.4				
ENSRNOP00000056595					49	-108	76	-96.9	64	-108	27	-78.7
ENSRNOP00000056611							3	-21.6				
ENSRNOP00000056614							4	-11				

ENSRNOP00000056615					3	-13.4	11	-13	11	-31.2	9	-30.9
ENSRNOP00000056642	4	-27.4	4	-26.9	7	-21.8	9	-24.7	10	-51.7	8	-38.4
ENSRNOP00000056697							1	-2.5				
ENSRNOP00000056699	31	-107	33	-78.7	32	-87.1	24	-90.5	28	-63.1	20	-61.8
ENSRNOP00000056710					1	-2.3						
ENSRNOP00000056719							3	-11.7				
ENSRNOP00000056722									4	-19.5	2	-4
ENSRNOP00000056732			2	-7.4	2	-5	3	-16.5	2	-3	2	-8
ENSRNOP00000056750									18	-73.8		
ENSRNOP00000056751									26	-33.3	11	-35.8
ENSRNOP00000056769							7	-19.9	9	-41.8	1	-4.1
ENSRNOP00000056782			4	-18			6	-37.5	4	-24.8		
ENSRNOP00000056783					6	-38.1						
ENSRNOP00000056788							37	-131	29	-134	16	-87.3
ENSRNOP00000056795							2	-3			1	-4.3
ENSRNOP00000056820							6	-20.5	9	-29.8		
ENSRNOP00000056824	77	-125							88	-110		
ENSRNOP00000056845									4	-13.5		
ENSRNOP00000056859									1	-6.8		
ENSRNOP00000056870							3	-8.7				
ENSRNOP00000056892							3	-16.7				
ENSRNOP00000056906	1	-3.5										
ENSRNOP00000056912	4	-17.4					6	-32.4	8	-55	3	-11
ENSRNOP00000056935							6	-26.4				
ENSRNOP00000056968	5	-37.5	5	-28.6	5	-36.6	9	-40.6	9	-42.6	26	-41.2
ENSRNOP00000056976	11	-36.6	16	-38.7	18	-35.3						
ENSRNOP00000056997							1	-2.6				
ENSRNOP00000056998									1	-3		
ENSRNOP00000057025	124	-232										
ENSRNOP00000057043			2	-3.5	1	-2.3			11	-42		
ENSRNOP00000057097							5	-12.4				
ENSRNOP00000057102							2	-8.3	1	-12.2		
ENSRNOP00000057148			2	-10.4	2	-8.9						
ENSRNOP00000057161					1	-6.2						
ENSRNOP00000057211			19	-65.8			9	-46.7			5	-26.2
ENSRNOP00000057242	2	-8	4	-16.8								

ENSRNOP00000057269	2	-2.6										
ENSRNOP00000057271	94	-294	61	-201	81	-223	70	-242	57	-229	59	-138
ENSRNOP00000057292							96	-343				
ENSRNOP00000057295							1	-2	2	-2.5		
ENSRNOP00000057301					2	-13.6	5	-26.1	4	-27	3	-25
ENSRNOP00000057305	11	-65.4					17	-81.5	12	-58.9	9	-59.5
ENSRNOP00000057307					1	-2	1	-2.4				
ENSRNOP00000057374									2	-3		
ENSRNOP00000057388					3	-2.4						
ENSRNOP00000057400							3	-13.1	4	-17.2	8	-2.9
ENSRNOP00000057404			2	-2.8								
ENSRNOP00000057443							6	-23.3	10	-16.4		
ENSRNOP00000057445	15	-46.7	9	-21.3	10	-23.8						
ENSRNOP00000057446	16	-73.5	7	-19.5	9	-28	25	-33.7	14	-27.7	14	-35.4
ENSRNOP00000057449	7	-26	7	-21.1	6	-24.9	3	-20.4			4	-16.5
ENSRNOP00000057452	24	-94.1	17	-69.1	14	-43.7	13	-32.5	13	-24.6	14	-31.7
ENSRNOP00000057461									2	-3.1		
ENSRNOP00000057476							5	-33.7				
ENSRNOP00000057484							37	-91.8	27	-94.4	17	-71.9
ENSRNOP00000057490							2	-3.2	1	-4.5		
ENSRNOP00000057501	60	-277	35	-178	35	-214	47	-158	40	-134	31	-138
ENSRNOP00000057509	2	-4.1	1	-3.7			11	-55.1	12	-64.4	1	-3.7
ENSRNOP00000057545							1	-2.1	4	-10.9		
ENSRNOP00000057551	37	-116	29	-108								
ENSRNOP00000057555											1	-2.4
ENSRNOP00000057582											1	-3.1
ENSRNOP00000057590	4	-18.8					3	-12.1	2	-3.8	3	-20.4
ENSRNOP00000057601											2	-15.4
ENSRNOP00000057612									3	-15.4		
ENSRNOP00000057658	27	-40.7										
ENSRNOP00000057662					1	-2.3						
ENSRNOP00000057728							1	-2.2	1	-2.3		
ENSRNOP00000057734							1	-5.7				
ENSRNOP00000057743									11	-29.5		
ENSRNOP00000057752			1	-3.3								
ENSRNOP00000057771							4	-5.2	2	-4.9		

ENSRNOP00000057804							10	-37.8	10	-22.7		
ENSRNOP00000057817	15	-58.3										
ENSRNOP00000057829									10	-27.5		
ENSRNOP00000057845							2	-3.4			3	-13.3
ENSRNOP00000057867							2	-10.5	2	-3.1	3	-18.9
ENSRNOP00000057876											1	-2.5
ENSRNOP00000057893							3	-10				
ENSRNOP00000057917	2	-7					2	-7.1	2	-7	2	-7.1
ENSRNOP00000057939											1	-2
ENSRNOP00000057949	31	-106	23	-92.2			13	-29.5	8	-33.4		
ENSRNOP00000057967							3	-16.6	2	-3.7		
ENSRNOP00000057971	1	-8.2					5	-39	5	-28.1	3	-15.8
ENSRNOP00000057980	24	-87.2	18	-71.8	14	-45.1	13	-30.8				
ENSRNOP00000057994									2	-8.3		
ENSRNOP00000058013	14	-21.7					2	-9				
ENSRNOP00000058054	53	-146					28	-39.5	9	-48.5		
ENSRNOP00000058058	3	-16.3	2	-4.3	2	-4.1			1	-2.4		
ENSRNOP00000058078							2	-9.7			2	-8.9
ENSRNOP00000058109	2	-3.9			2	-3.6						
ENSRNOP00000058136	5	-18.2					3	-14.6			2	-6.2
ENSRNOP00000058137							3	-9.5				
ENSRNOP00000058139					12	-30.4						
ENSRNOP00000058210	4	-12.7	4	-13.1	2	-3.6	2	-3.3	3	-4.8		
ENSRNOP00000058212	7	-3.7	2	-2.8	2	-2.5						
ENSRNOP00000058216							1	-6			2	-4.8
ENSRNOP00000058241	17	-93.2	4	-23.4	7	-30.3	12	-39	19	-28.2	8	-33.7
ENSRNOP00000058260	143	-174	127	-129	124	-150	179	-122	109	-132	189	-120
ENSRNOP00000058264							2	-9				
ENSRNOP00000058268							36	-216	43	-188	33	-152
ENSRNOP00000058269	17	-67.7	8	-34.6	22	-85.5	11	-64.5	6	-36.2	13	-43.8
ENSRNOP00000058286			1	-2.4					1	-10.4		
ENSRNOP00000058292							3	-15	1	-2.6		
ENSRNOP00000058321							1	-4.5			1	-2.8
ENSRNOP00000058347							5	-27.8	3	-14.9		
ENSRNOP00000058419	48	-84.1	24	-62.2	26	-71.7	78	-89.1	78	-78.6	43	-105
ENSRNOP00000058431	11	-29.2			1	-2.2	7	-13.2	18	-30	1	-2.3

ENSRNOP00000058448							2	-1.7	6	-28.4		
ENSRNOP00000058456											1	-2.1
ENSRNOP00000058474	1	-4.7	1	-6.3			2	-5.4	2	-3.1	1	-5.2
ENSRNOP00000058491							1	-2.5				
ENSRNOP00000058502	3	-12.8										
ENSRNOP00000058524	5	-30.7	6	-28.7	2	-5.5						
ENSRNOP00000058550									3	-5.7		
ENSRNOP00000058556									3	-2.5		
ENSRNOP00000058560	7	-25.5	3	-12.4			1	-3.5	4	-13.5	1	-6.1
ENSRNOP00000058571	5	-9.8			5	-2.7						
ENSRNOP00000058593	43	-196					24	-88			29	-120
ENSRNOP00000058595	26	-49.5	30	-44.9	20	-32.5	17	-50.5	12	-43.8	17	-53.2
ENSRNOP00000058600							1	-5.4				
ENSRNOP00000058601									20	-16.9		
ENSRNOP00000058611							3	-6.6	3	-8.9	1	-3.1
ENSRNOP00000058613	7	-32.3	2	-7.8	6	-39.4	32	-98	21	-64	15	-57.5
ENSRNOP00000058621	4	-12.5										
ENSRNOP00000058647	1	-3.6										
ENSRNOP00000058714									1	-8.6		
ENSRNOP00000058718	2	-3.1					3	-15.1	9	-54.6	2	-3.1
ENSRNOP00000058722	3	-20.4			1	-6						
ENSRNOP00000058727	3	-15.7	2	-9.1	1	-9.5	3	-18.5			1	-6.2
ENSRNOP00000058773									3	-16.4		
sp CAS1_BOVIN	2	-3.7										
sp CO5_HUMAN	3	-11.8										
sp GSTA1_HUMAN	17	-27.4										
sp K1C10_HUMAN	23	-120	2	-14.7	6	-37.5	105	-259	103	-336	39	-169
sp K1C9_HUMAN	16	-104	3	-14.2	12	-73.4	58	-256	38	-134	19	-79.7
sp K22E_HUMAN	36	-206	9	-22.1	10	-35.4	61	-186	57	-167	43	-102
sp K2C1_HUMAN	45	-232	16	-59.5	31	-168	98	-288	81	-198	68	-210
sp TRYP_PIG	29	-55.3	42	-72.8	46	-96	19	-50.3	27	-73.9	59	-63.1

Supplementary Table 4:**Label-Free Quantification of Rat Liver Membrane Proteins Identified from Broad and Narrow Range IPG Strips**

BR = Broad Range

NR = Narrow Range

NSAF = Normalised Spectral Abundance Factor

SE = Standard Error

TM = Transmembrane Segments

Prob. = Probability (Student T-test)

Essembl Accession	BR IPG Strips		NR IPG Strips		TM	Prob.
	Average NSAF (x10 ⁵)	SE (x10 ⁵)	Average NSAF (x10 ⁵)	SE (x10 ⁵)		
ENSRNOP00000053675	33.81769886	0.378636237	0.218863628	0.006018257	0	7.60774E-09
ENSRNOP00000023811	4.29583383	0.059376313	0.466760185	0.012834855	0	2.3202E-07
ENSRNOP00000047148	2.927568177	0.05362883	0.384390741	0.010569881	0	4.41069E-07
ENSRNOP00000003128	2.480669765	0.055708225	0.1851923	0.005092372	3	2.19056E-07
ENSRNOP00000016454	4.189614088	0.112419769	0.154535467	0.004249378	0	1.10898E-07
ENSRNOP00000008094	4.786563934	0.132585125	0.136953587	0.003765916	0	8.91881E-08
ENSRNOP00000013621	0.628176552	0.020325283	0.104197035	0.002865184	0	1.89752E-06
ENSRNOP00000014321	5.264051139	0.223874254	0.115220398	0.003168302	9	1.99448E-07
ENSRNOP00000025794	2.335512057	0.097491253	0.206047289	0.005665837	0	1.06273E-06
ENSRNOP00000045952	17.63027958	0.834618846	0.135332835	0.003721349	0	9.71279E-08
ENSRNOP00000003022	124.9033445	5.452620927	15.86108346	1.704362688	1	4.96217E-05
ENSRNOP00000021514	12.15872048	0.270935981	6.491995461	0.149032974	0	3.95233E-05
ENSRNOP00000017954	10.57885824	0.041636093	5.702931514	0.299518171	0	0.000331662
ENSRNOP00000004384	3.164660583	0.157447758	0.235786073	0.006483587	0	1.42093E-06
ENSRNOP00000002712	26.04312232	0.906062769	10.30587297	0.107692268	1	1.3262E-05
ENSRNOP00000017840	11.12333966	0.389113084	4.341834319	0.060429418	1	1.47926E-05
ENSRNOP00000027762	0.507838734	0.025418822	0.062234691	0.001711314	11	3.1076E-06
ENSRNOP00000002180	0.250210483	0.012880504	0.025857828	0.000711032	0	2.52791E-06
ENSRNOP00000028033	9.727633966	0.525472518	0.290388546	0.158365195	8	0.001774735
ENSRNOP00000013392	3.921366855	0.177547132	0.967246167	0.02723992	9	1.168E-05
ENSRNOP00000011553	0.42601034	0.023475462	0.059638198	0.001639916	0	6.26266E-06
ENSRNOP00000007641	2.209051808	0.132215494	0.151968432	0.00417879	2	2.05152E-06
ENSRNOP00000000186	6.809051256	0.213492121	1.978594685	0.243683803	0	0.000504108
ENSRNOP00000017928	0.804057049	0.048557548	0.060346304	0.001659388	5	2.44191E-06
ENSRNOP00000011284	0.849962737	0.046837519	0.152984944	0.004206742	4	1.08071E-05
ENSRNOP00000046952	0.443523266	0.024440518	0.07982984	0.002195141	9	1.08071E-05
ENSRNOP00000045029	28.0125827	1.008202632	10.53224129	0.789579627	0	0.000267607
ENSRNOP00000026751	1.411504136	0.086235834	0.214753512	0.005905238	0	9.18618E-06
ENSRNOP00000015367	1.119515007	0.074785589	0.087294844	0.002400412	8	4.38743E-06
ENSRNOP00000043239	32.25899543	0.978680426	17.51765562	0.579807157	1	0.00016848
ENSRNOP00000000639	0.324156717	0.017862779	0.081683032	0.0022461	1	2.57985E-05
ENSRNOP00000027585	1.031407638	0.05683611	0.259900558	0.007146681	0	2.57985E-05
ENSRNOP00000006322	23.37896024	1.696506557	0.101649996	0.002795146	0	2.29791E-07
ENSRNOP00000043141	10.5395947	0.691545601	0.970657201	0.155711962	13	0.000221848
ENSRNOP00000051846	36.5815993	2.281737485	6.136851455	0.272282225	0	2.13473E-05
ENSRNOP00000053518	30.84911407	1.463152785	9.073045237	0.860010685	4	0.000381537
ENSRNOP00000039048	1.390440293	0.098131411	0.088993187	0.002447112	12	3.90364E-06
ENSRNOP00000014966	47.33076074	3.560704642	0.313304782	0.008615177	1	3.51414E-07
ENSRNOP00000016043	23.73309458	1.164501645	8.62877035	0.352967796	0	8.89436E-05
ENSRNOP00000029540	0.665487892	0.047347686	0.08227068	0.002262259	0	9.79305E-06
ENSRNOP00000034846	4.146674047	0.334759515	0.057035534	0.001568349	0	8.40617E-07
ENSRNOP00000052499	3.895661445	0.313621581	0.073778223	0.002028735	0	1.43509E-06

ENSRNOP00000024423	20.67670854	0.694255695	12.18055213	0.276157861	1	0.000199638
ENSRNOP00000002991	8.76297273	0.580803351	0.671287808	0.36609097	0	0.005162764
ENSRNOP00000014177	21.98622779	0.283937981	15.08446737	0.642560668	0	0.001135847
ENSRNOP00000038100	6.965599744	0.383842019	1.664815785	0.298527616	1	0.001191108
ENSRNOP000000024063	4.976284061	0.43181269	0.12463896	0.003427291	0	2.11106E-06
ENSRNOP000000026932	5.742175258	0.519051403	0.218863628	0.006018257	3	4.51542E-06
ENSRNOP00000017377	29.02677295	2.251250073	5.746962579	0.012880919	0	3.35946E-05
ENSRNOP00000032681	18.08412105	0.977423878	4.529912538	0.932949804	3	0.002053245
ENSRNOP00000027867	1.93717766	0.169710785	0.208869855	0.005743451	3	1.87495E-05
ENSRNOP00000000177	2.471513531	0.149256346	1.001660544	0.027543412	1	0.00016135
ENSRNOP00000020737	133.3761983	12.80201893	7.623749693	0.209635966	4	1.00511E-05
ENSRNOP00000057445	3.983350478	0.384416193	0.215766501	0.005933093	4	7.43524E-06
ENSRNOP000000051504	0.580252587	0.048128315	0.116393125	0.003200549	0	5.34901E-05
ENSRNOP00000045002	28.24953501	1.218031443	17.01880191	0.258313391	1	0.000392375
ENSRNOP00000002699	8.34831147	0.215374136	4.612498365	0.368322954	0	0.001822841
ENSRNOP00000024452	1.198612666	0.067051095	0.582177249	0.016008565	0	0.000351865
ENSRNOP00000027268	1.701418525	0.170979761	0.116690046	0.003208714	0	1.43368E-05
ENSRNOP00000046654	2.302182965	0.09429219	1.256817534	0.07954573	1	0.0011703
ENSRNOP00000024295	6.4505332	0.203565172	4.411021807	0.163056682	0	0.001534291
ENSRNOP00000054703	2.764955142	0.266266635	0.390961523	0.010750562	0	5.10635E-05
ENSRNOP00000013816	59.9868237	1.739940514	46.28378086	0.404192974	0	0.001017143
ENSRNOP00000006029	1.396847025	0.140923578	0.144754741	0.00398043	0	3.42296E-05
ENSRNOP00000013462	8.022642417	0.372181772	3.250983044	0.441898716	0	0.004053368
ENSRNOP00000007567	59.08521982	4.529512988	16.40594926	2.076585542	1	0.000809027
ENSRNOP00000027112	10.25931054	1.031041451	1.173395377	0.151649443	4	0.000161922
ENSRNOP00000044573	3.37500818	0.384666492	0.074987702	0.002061993	15	7.09359E-06
ENSRNOP00000011429	11.24487773	0.74346761	4.691012023	0.315607525	0	0.00076665
ENSRNOP00000051684	9.77783116	0.599835848	4.041104792	0.38905345	0	0.001346158
ENSRNOP00000011312	2.428238316	0.268771333	0.198880427	0.005468764	0	2.22909E-05
ENSRNOP00000012327	5.358775238	0.45822488	1.633660649	0.044921993	4	0.000175072
ENSRNOP00000010117	12.2158452	0.610804953	6.309995169	0.46671303	0	0.001649361
ENSRNOP00000007870	30.02125994	2.705728398	8.161091649	0.428620832	0	0.000264045
ENSRNOP000000034723	31.05747381	1.7639614	16.65217757	0.738830325	1	0.001078395
ENSRNOP00000029373	2.119825765	0.261570376	0.056822979	0.001562504	0	1.17571E-05
ENSRNOP00000053121	2.449205887	0.299707375	0.175932685	0.004837753	1	3.95909E-05
ENSRNOP00000001247	5.23497099	0.674789052	0.211770825	0.005823221	0	1.88271E-05
ENSRNOP00000016346	10.47578272	0.903435773	3.886264408	0.212385513	0	0.000687815
ENSRNOP00000015618	19.62695988	1.991494613	5.377588905	0.000580142	0	0.000250639
ENSRNOP00000027834	4.565944827	0.446640703	0.974203883	0.238181083	3	0.003016641
ENSRNOP00000011446	13.39138287	0.724767234	2.88266833	1.356575606	0	0.107633899
ENSRNOP00000001545	12.71296935	1.718174393	0.412094578	0.011331674	0	1.3698E-05
ENSRNOP00000004228	13.11274643	1.817869751	0.27066567	0.007442697	3	8.98525E-06
ENSRNOP00000017310	29.00071709	2.434481161	11.845697	0.730558766	1	0.001204899
ENSRNOP00000004979	3.625260074	0.364104186	1.131439884	0.031112051	4	0.000372455
ENSRNOP00000040239	3.054024681	0.366291147	0.606434635	0.016675588	2	0.000170178
ENSRNOP00000005273	6.526693788	0.765273166	1.225074945	0.238602631	2	0.002639567
ENSRNOP00000024947	18.3012123	2.72729457	0.102332211	0.002813906	0	6.46511E-06
ENSRNOP00000017201	1.235300717	0.159055862	0.1851923	0.005092372	5	0.000187338
ENSRNOP00000053530	0.693452927	0.089288195	0.103960223	0.002858672	1	0.000187338
ENSRNOP00000002366	12.26042936	1.008194832	4.610155977	0.647920288	0	0.003115854
ENSRNOP000000023350	7.902667208	0.724963333	3.050289187	0.237297505	0	0.001665384
ENSRNOP00000009838	3.974293569	0.42843055	1.132099207	0.101799236	0	0.001100899
ENSRNOP00000054347	5.920082674	0.635379581	1.812413919	0.036239336	4	0.000422506
ENSRNOP00000014979	3.240311776	0.486554697	0.074987702	0.002061993	0	1.36322E-05
ENSRNOP00000029124	1.236781069	0.048770646	0.273487626	0.149148173	5	0.024831688

ENSRNOP00000021920	81.76577114	4.062712536	42.10635663	5.203767147	0	0.006148241
ENSRNOP00000028787	9.710416731	0.373082322	6.989895689	0.300387235	2	0.004496901
ENSRNOP00000001669	2.733278219	0.196454823	0.712819444	0.266353748	0	0.04940139
ENSRNOP000000051607	12.14961757	0.569578818	6.735865988	0.717533233	2	0.005966461
ENSRNOP00000018462	15.74277525	1.848046479	4.07185857	0.08878127	0	0.000438815
ENSRNOP00000010760	22.33790146	2.515568975	6.402077884	0.430726664	1	0.000769705
ENSRNOP00000001547	2.821923631	0.213912895	1.53873847	0.042311846	0	0.001998047
ENSRNOP00000005588	13.65271376	1.175553858	5.526959455	0.664858113	0	0.003300698
ENSRNOP00000016520	3.887949348	0.545809478	0.495048681	0.013612725	0	0.000198387
ENSRNOP00000006355	4.860694785	0.199410483	2.478289651	0.373798024	0	0.009417842
ENSRNOP00000044007	2.386984497	0.36940135	0.142057448	0.00390626	0	4.71077E-05
ENSRNOP00000005046	5.414695697	0.553869578	1.486633147	0.378135198	1	0.006229391
ENSRNOP00000003633	4.248303622	0.12856028	3.249548176	0.147527539	0	0.00760011
ENSRNOP00000018455	12.7717705	1.631620435	3.160653738	0.099709019	10	0.000495374
ENSRNOP000000034144	10.74753409	0.744528949	4.436195166	0.847080352	0	0.008911905
ENSRNOP000000030736	3.039065782	0.485359112	0.174589688	0.004800824	0	8.70134E-05
ENSRNOP00000009467	1.523815336	0.073655309	0.877646618	0.094308069	0	0.007785006
ENSRNOP00000046737	12.4672997	0.927263801	6.64674004	0.50054528	0	0.004103
ENSRNOP00000025000	2.474295316	0.415071963	0.031244876	0.000859164	0	1.31171E-05
ENSRNOP00000003812	2.781879363	0.335658245	0.392273693	0.252806889	0	0.020361945
ENSRNOP00000026408	3.470545422	0.310278208	1.133691465	0.288362093	3	0.009495761
ENSRNOP00000007484	10.93567673	1.395941677	2.753660288	0.429627863	5	0.003300355
ENSRNOP00000043950	0.496659406	0.035336002	0.306996632	0.008441717	0	0.003093021
ENSRNOP00000039848	3.440553072	0.583919329	0.127062495	0.003493933	1	3.66103E-05
ENSRNOP00000020229	3.296075479	0.557696226	0.173267038	0.004764454	1	9.9084E-05
ENSRNOP00000006591	0.706878806	0.099579414	0.156652391	0.004307588	0	0.000460235
ENSRNOP00000036742	1.188531592	0.179168206	0.198019473	0.00544509	0	0.000421683
ENSRNOP00000037217	0.959967857	0.144712794	0.159938805	0.004397957	0	0.000421683
ENSRNOP00000002724	20.06057009	1.933604707	9.742549173	0.235869758	1	0.002118331
ENSRNOP00000056976	3.903053252	0.679403879	0.156652391	0.004307588	1	8.6014E-05
ENSRNOP00000001699	14.61691703	0.689215957	11.40518668	0.149419373	0	0.006853654
ENSRNOP00000023659	3.279057935	0.571489885	0.177296504	0.004875255	3	0.000129898
ENSRNOP00000041638	4.738057671	0.81530687	0.33883332	0.009317154	0	9.29018E-05
ENSRNOP00000017211	3.562728666	0.406341414	1.405391477	0.083306237	9	0.001872587
ENSRNOP00000003219	0.497320943	0.074592597	0.101200217	0.002782778	1	0.000407326
ENSRNOP00000027406	2.158104503	0.263398118	0.780588706	0.021464433	4	0.001605442
ENSRNOP00000021676	0.713215285	0.108382614	0.140314412	0.003858331	8	0.000704456
ENSRNOP00000038947	1.284575641	0.195208497	0.252720984	0.006949259	0	0.000704456
ENSRNOP00000005144	34.34180232	5.175035946	7.046383751	0.288060106	0	0.000476634
ENSRNOP00000023934	0.403429547	0.069252299	0.036361286	0.000999854	6	0.000130756
ENSRNOP00000011484	4.628893348	0.807087767	0.35186537	0.009675506	0	0.000105558
ENSRNOP000000054159	6.760134351	0.703260846	1.620107316	0.737767929	0	0.102711298
ENSRNOP000000050050	2.046964635	0.259776127	0.718179319	0.019748316	0	0.001419745
ENSRNOP00000027615	6.101368511	0.833558648	1.779353975	0.142042486	1	0.001801202
ENSRNOP00000012819	2.840789746	0.440330226	0.320107648	0.226667661	1	0.020725557
ENSRNOP00000001609	2.829571279	0.367183714	0.643145363	0.240319171	0	0.042368421
ENSRNOP00000005471	8.435859151	1.340347872	1.633660649	0.044921993	0	0.00075301
ENSRNOP00000005970	4.913669118	0.881787421	0.404800869	0.011131113	1	0.000153853
ENSRNOP00000042521	19.10504495	3.604899062	0.682723853	0.01877337	1	5.11386E-05
ENSRNOP000000014496	1.160451958	0.200476359	0.14521428	0.003993066	0	0.000273685
ENSRNOP00000019571	5.915552354	0.434076671	3.869711098	0.088076783	1	0.005995298
ENSRNOP00000005370	17.35088326	2.719056666	3.558115856	0.536667163	0	0.001976064
ENSRNOP00000002705	6.92832302	1.144712107	1.172577702	0.142729574	1	0.001333712
ENSRNOP00000027999	1.381440739	0.177079364	0.529427062	0.014558053	0	0.001794871
ENSRNOP00000043624	7.139125458	1.348796559	0.497201067	0.013671911	0	0.000212556

ENSRNOP00000052981	2.258215514	0.379133308	0.408415162	0.011230498	0	0.000500324
ENSRNOP00000028237	27.72883776	1.773305138	19.86172768	0.485969254	1	0.008481446
ENSRNOP00000001416	3.124706212	0.554697058	0.431533002	0.011866187	2	0.000493767
ENSRNOP00000032048	3.333264276	0.65320156	0.174589688	0.004800824	5	0.000180705
ENSRNOP00000006900	0.752272902	0.122994413	0.165733689	0.004557304	0	0.000729094
ENSRNOP00000000351	2.097245678	0.342893541	0.462045436	0.01270521	0	0.000729094
ENSRNOP00000024374	0.374814929	0.065535386	0.061897832	0.001702051	9	0.000751216
ENSRNOP00000036896	25.81948454	1.948048643	16.60869111	0.799495019	0	0.007598861
ENSRNOP00000023032	2.550142904	0.337696614	0.75398619	0.191781488	0	0.010309525
ENSRNOP00000046783	1.982349323	0.020283948	0.408217139	0.350759543	0	0.060838138
ENSRNOP00000003249	1.803782677	0.346457509	0.166336357	0.004573876	0	0.000299705
ENSRNOP00000017237	44.83058621	2.128272538	28.61612159	3.324907686	0	0.025983371
ENSRNOP00000026326	8.070826813	0.9496387	1.281531314	1.155525113	0	0.054436872
ENSRNOP00000040139	4.563690789	0.469719462	2.18361428	0.259032499	4	0.007970371
ENSRNOP00000006855	8.445541029	1.050678224	3.721180496	0.061928036	7	0.002601663
ENSRNOP00000010874	0.873134344	0.01599457	0.25909354	0.141298269	0	0.042555064
ENSRNOP00000030007	4.996553969	0.753517881	1.550161986	0.139391764	6	0.00262229
ENSRNOP00000021162	0.92765824	0.14892021	0.259900558	0.007146681	1	0.001366805
ENSRNOP00000040848	10.0325432	1.422408863	2.316631736	1.018874363	1	0.085748295
ENSRNOP00000040338	3.962122114	0.323510668	2.292602223	0.240348796	1	0.016805122
ENSRNOP00000013091	1.439732625	0.102433134	0.402250282	0.219369686	3	0.039179613
ENSRNOP00000001265	18.59867398	2.846084222	3.810914099	1.770373094	0	0.098362617
ENSRNOP00000002728	9.784970521	0.940036247	4.59488241	0.794251256	1	0.02247213
ENSRNOP00000043885	5.906742141	1.073741259	1.0262222	0.199872928	8	0.003418315
ENSRNOP00000022455	3.290735932	0.706964221	0.102332211	0.002813906	0	8.60258E-05
ENSRNOP00000026197	15.69739585	0.900113981	10.39837092	0.965209523	0	0.016731272
ENSRNOP00000000306	17.96571653	2.122454563	7.843878399	1.072579754	0	0.013082396
ENSRNOP00000007223	12.2782519	1.018324669	7.302439274	0.656739152	2	0.01191633
ENSRNOP00000029426	14.68170123	1.159564724	8.820343921	0.886242536	1	0.018329243
ENSRNOP00000000532	6.549301	0.212089654	4.208730728	0.560304605	0	0.024596047
ENSRNOP00000027925	5.204773987	0.927515849	1.139122106	0.112416241	10	0.002476597
ENSRNOP00000036948	2.819174798	0.195556124	1.769790006	0.185538901	0	0.023046629
ENSRNOP00000020749	4.04954419	0.358499403	2.320391341	0.243262115	0	0.018127387
ENSRNOP00000039908	0.822117783	0.171861204	0.078595358	0.002161196	0	0.00058802
ENSRNOP00000037996	1.528682808	0.318389931	0.156117741	0.004292887	0	0.000332516
ENSRNOP00000009555	4.9950471	0.410280791	3.14386701	0.235052859	0	0.013975058
ENSRNOP00000015049	8.691911228	0.507608238	6.853329909	0.114053393	0	0.018679162
ENSRNOP00000015112	2.916950272	0.297565874	1.418701405	0.22615615	11	0.016060499
ENSRNOP00000017785	3.087874046	0.423426586	0.717905017	0.391513954	0	0.03080429
ENSRNOP00000054834	5.061398483	0.798062881	1.721267341	0.12962328	2	0.003041346
ENSRNOP00000003004	8.950529675	1.164880906	4.241158934	0.017259189	1	0.005247809
ENSRNOP00000040969	53.8606488	8.587737444	18.53681162	1.084678497	0	0.004062417
ENSRNOP00000016051	12.27003622	1.108621966	7.834309667	0.372094297	1	0.012356278
ENSRNOP00000028102	13.230079	0.3138475	11.34287496	0.509180702	0	0.036190733
ENSRNOP00000013608	14.76739722	1.013210357	4.846516113	2.376475742	0	0.210778955
ENSRNOP00000055038	7.270817446	1.605894667	0.672683796	0.018497291	0	0.000382599
ENSRNOP00000048157	23.71456028	5.697317595	0.249959006	0.00687331	0	4.86747E-05
ENSRNOP00000009815	92.23229708	22.35349339	0.336341898	0.009248646	2	1.86153E-05
ENSRNOP00000027305	3.62398188	0.451654845	0.69817782	0.590625616	0	0.057110229
ENSRNOP000000026290	34.19443781	2.721240116	23.2955599	1.275649596	0	0.019354369
ENSRNOP00000017686	10.77805814	0.456563359	8.908084929	0.38267475	0	0.035576739
ENSRNOP00000010481	0.910859658	0.195474878	0.122306145	0.003363144	8	0.000621405
ENSRNOP00000010579	448.388055	41.03445541	297.2170918	1.569986768	2	0.014008361
ENSRNOP00000016593	1.769965472	0.403696194	0.155059316	0.004263782	0	0.000501116
ENSRNOP00000023623	5.547488466	0.61311267	2.890670387	0.373240261	11	0.020221255

ENSRNOP00000053925	4.422221962	0.161440841	3.658533186	0.180331676	1	0.034736421
ENSRNOP00000028194	1.968867979	0.471407099	0.09711783	0.002670522	6	0.00043338
ENSRNOP00000015910	1.708551194	0.405766388	0.101200217	0.002782778	0	0.000626715
ENSRNOP00000040816	94.45860241	23.16535788	2.857074506	2.667557114	2	0.018438637
ENSRNOP00000025240	9.596552406	1.549559849	3.466798148	0.462020613	1	0.011869705
ENSRNOP00000010379	0.528850211	0.112264118	0.093542941	0.00257222	11	0.001777911
ENSRNOP00000017252	0.331123889	0.070290856	0.05856914	0.00161052	0	0.001777912
ENSRNOP00000016504	1.5462784	0.344105754	0.21782142	0.005989599	0	0.001723951
ENSRNOP00000051805	1.736462397	0.386428935	0.24461229	0.006726288	1	0.001723951
ENSRNOP00000033943	9.547080067	0.608213778	6.69985265	0.602455929	0	0.03599157
ENSRNOP00000022307	5.079247797	0.548960567	2.949065547	0.222084937	0	0.014334766
ENSRNOP00000011846	7.380310947	1.342948212	2.298891912	0.031995855	0	0.00552115
ENSRNOP00000034963	5.492478999	0.671997062	2.94213501	0.256111169	1	0.014033018
ENSRNOP00000013463	0.879058718	0.202822675	0.116097711	0.003192426	0	0.002109632
ENSRNOP00000011130	1.145753681	0.076538372	0.314480755	0.222683269	0	0.062374508
ENSRNOP00000033158	2.584430687	0.643095425	0.187469255	0.005154983	0	0.000707196
ENSRNOP00000025710	0.957862203	0.101173789	0.559378198	0.055203208	5	0.021962044
ENSRNOP00000002732	14.87908499	1.777409677	8.263712563	0.783296117	0	0.018479426
ENSRNOP00000007840	1.762138387	0.410840276	0.265944757	0.007312883	0	0.00165418
ENSRNOP00000032735	1.498085711	0.381410294	0.102792131	0.002826552	0	0.000380658
ENSRNOP00000037607	0.826911905	0.185590892	0.153498316	0.004220858	1	0.001467909
ENSRNOP00000026648	2.593892009	0.582169348	0.481499981	0.013240166	0	0.001467909
ENSRNOP00000045893	0.838162372	0.18811595	0.155586728	0.004278285	0	0.001467909
ENSRNOP00000009425	2.626339123	0.612804061	0.408415162	0.011230498	0	0.001594916
ENSRNOP00000024691	1.680857025	0.392194611	0.261385704	0.007187519	3	0.001594916
ENSRNOP00000006443	0.25314112	0.059065458	0.039365317	0.001082458	2	0.001594916
ENSRNOP00000003932	3.863202968	0.480618315	2.148103138	0.155833796	1	0.016686456
ENSRNOP00000024185	1.171236847	0.118858838	0.779701673	0.021440042	12	0.017084845
ENSRNOP00000025782	0.89419947	0.095740142	0.377589615	0.119629609	0	0.03822183
ENSRNOP00000019106	5.480312133	0.440050449	3.314881076	0.499980297	0	0.035105904
ENSRNOP00000050960	2.106047904	0.559220379	0.120374995	0.003310042	4	0.000730173
ENSRNOP00000055460	3.116264355	0.818567031	0.2298618	0.006320682	1	0.000526531
ENSRNOP00000026003	2.871255508	0.582544638	0.879131988	0.050411108	0	0.004808231
ENSRNOP00000026279	3.433411806	0.515049389	0.797613693	0.600133385	0	0.059122049
ENSRNOP00000049619	12.43078571	1.600573253	4.11512196	1.977511233	0	0.193213528
ENSRNOP00000031237	1.898872766	0.231758692	0.701933185	0.286061387	2	0.129071452
ENSRNOP00000015974	6.631937894	0.704898985	4.400967446	0.087997634	0	0.018747979
ENSRNOP00000054206	0.345453898	0.048454649	0.102152493	0.055709495	0	0.049191319
ENSRNOP00000026507	9.01118386	1.344542797	2.825266134	1.321820325	0	0.162990855
ENSRNOP00000015475	6.019879901	1.342881919	1.475564457	0.040574703	1	0.007082772
ENSRNOP00000034288	3.572295482	0.695738892	0.988882465	0.36950809	4	0.065123635
ENSRNOP00000049726	6.788510832	0.920023251	3.863386669	0.106234442	0	0.014692045
ENSRNOP00000017002	1.438608228	0.399953912	0.096707184	0.00265923	5	0.001057564
ENSRNOP00000007789	1.37231885	0.35877631	0.173267038	0.004764454	0	0.001172133
ENSRNOP00000034135	14.53259909	1.393310157	9.85465483	0.742232818	0	0.039633571
ENSRNOP00000025094	9.225717398	1.039520255	6.067657929	0.112013031	11	0.02932008
ENSRNOP00000020767	2.562775484	0.261297245	1.759174203	0.080591608	1	0.034627302
ENSRNOP00000000047	4.305940597	0.972373007	1.188134129	0.051568959	9	0.007089989
ENSRNOP00000025421	2.462084043	0.485363226	0.608107779	0.331635349	0	0.040787097
ENSRNOP000000024160	2.236826091	0.580370441	0.316141659	0.172409814	0	0.019520754
ENSRNOP000000048546	10.50458352	1.924791979	3.68740076	1.10854957	0	0.055909929
ENSRNOP00000013249	1.239458662	0.277960128	0.266438975	0.145304148	0	0.035078631
ENSRNOP00000027815	6.344668922	1.099067778	3.005935593	0.082656466	4	0.021837128
ENSRNOP00000004599	4.887390851	1.2567602	0.907497749	0.183580951	0	0.013951223
ENSRNOP00000055686	0.99373183	0.286664521	0.100754401	0.002770519	0	0.001230944

ENSRNOP00000057449	2.463044505	0.160056122	1.814524035	0.190228668	0	0.070918614
ENSRNOP00000003739	5.264257224	0.48173155	3.645411484	0.33288943	5	0.047850486
ENSRNOP00000023611	43.82287443	5.759692828	24.04823918	3.66383376	0	0.040628792
ENSRNOP00000004206	25.06963464	5.936612617	6.738019505	1.183381609	0	0.019976273
ENSRNOP000000034519	18.95299631	1.649724174	7.670649118	3.627503094	0	0.218313344
ENSRNOP000000034407	1.94174032	0.543930437	0.2823611	0.007764295	0	0.002359858
ENSRNOP00000013584	0.38812861	0.061656431	0.12234121	0.066719538	0	0.056514891
ENSRNOP00000015802	23.94494418	2.008013389	18.41931994	0.686601281	1	0.054784976
ENSRNOP00000027992	1.866395876	0.424349669	0.591458314	0.053184389	0	0.012206624
ENSRNOP00000013588	21.05100027	4.728859283	6.945820285	0.646538032	0	0.010044978
ENSRNOP00000047709	0.904481422	0.274372682	0.075732613	0.002082476	0	0.001064822
ENSRNOP00000001095	41.58972166	5.57225597	23.86544438	3.01170191	0	0.043447331
ENSRNOP00000025254	16.19339711	1.29906081	12.79018573	0.378131394	1	0.06096721
ENSRNOP000000035416	3.655527182	0.48005988	2.300987033	0.099870463	3	0.035941396
ENSRNOP00000010871	3.698734571	1.066161244	0.513960653	0.014132762	0	0.00291558
ENSRNOP00000027612	1.503138685	0.433280138	0.208869855	0.005743451	0	0.00291558
ENSRNOP00000020015	13.54953539	1.081071022	9.597467199	1.115129888	0	0.076098181
ENSRNOP00000009431	20.23487206	4.233913791	7.401482216	1.45626913	0	0.037708653
ENSRNOP00000028995	4.800119378	0.12834435	4.083088698	0.294041178	2	0.090766894
ENSRNOP00000014604	0.759813238	0.237852442	0.057178123	0.00157227	0	0.00238537
ENSRNOP00000020775	1.534437229	0.331475356	0.338381567	0.254602042	0	0.059837928
ENSRNOP00000023447	8.982905659	0.348993282	7.504930736	0.546664618	0	0.086214177
ENSRNOP00000000529	1.510075411	0.35971573	0.434712038	0.110571947	7	0.018712316
ENSRNOP00000038337	0.748744151	0.214857676	0.127772341	0.003513452	0	0.003100983
ENSRNOP00000022011	1.014162435	0.30237795	0.138194858	0.003800048	0	0.004870324
ENSRNOP00000000635	2.489888597	0.663023175	0.587949848	0.016167298	2	0.006639963
ENSRNOP00000050663	0.902776349	0.280407295	0.09093936	0.002500628	0	0.004339636
ENSRNOP00000009873	0.837897068	0.094586912	0.310445413	0.169303331	0	0.072912626
ENSRNOP00000051361	9.678058649	0.819086732	7.089231293	0.639940235	1	0.06334074
ENSRNOP00000024450	2.399411002	0.325729366	1.544498345	0.012741035	0	0.038515965
ENSRNOP000000006154	3.319587566	0.732717847	0.883575406	0.481863328	0	0.048173576
ENSRNOP000000007015	2.28473434	0.730434655	0.198880427	0.005468764	5	0.005596579
ENSRNOP000000016509	9.473727462	1.65547507	4.391284433	0.866260955	1	0.03543546
ENSRNOP00000021384	22.78063132	5.936189501	6.064318382	0.214494075	0	0.018525929
ENSRNOP00000055369	16.61772022	1.217883263	13.38371519	0.716378882	1	0.081621699
ENSRNOP00000048422	14.79841494	4.612417149	1.579349667	0.64363812	0	0.027986176
ENSRNOP00000022779	1.275774644	0.250457252	0.35158573	0.226584898	0	0.066250985
ENSRNOP00000019544	2.819053826	0.924120009	0.2420238	0.00665511	3	0.006737922
ENSRNOP00000049222	40.15818406	14.10412942	0.726071399	0.01996533	1	0.000294161
ENSRNOP00000020635	14.23226178	2.427515621	7.860773744	0.064513711	0	0.043252428
ENSRNOP00000020252	0.96730329	0.309380313	0.10891071	0.0029948	0	0.002120506
ENSRNOP00000051445	12.07445418	1.045288906	9.202003674	0.612765219	1	0.064134395
ENSRNOP00000015190	10.40735624	2.66718287	3.084781823	0.41110925	0	0.029376037
ENSRNOP00000000772	6.161334161	0.403612113	2.849824754	1.253377192	0	0.212474481
ENSRNOP000000003611	9.994047006	3.194638851	1.125504385	0.42055855	0	0.025406732
ENSRNOP00000026122	36.01357834	2.338421818	26.51429983	3.403966843	0	0.104793374
ENSRNOP00000038073	7.32603346	1.091915085	3.967556929	0.732474399	0	0.074421372
ENSRNOP00000024707	25.15372057	3.518004278	16.07948809	0.753299169	2	0.047802917
ENSRNOP00000019323	8.518699129	2.201865002	2.493286332	0.485606762	1	0.025751519
ENSRNOP00000042975	1.037126827	0.314923206	0.1851923	0.005092372	0	0.004521988
ENSRNOP00000052051	1.092114744	0.25302748	0.422339785	0.016776205	1	0.016070079
ENSRNOP00000036958	5.681475004	0.481445283	4.331784531	0.353373295	1	0.087051442
ENSRNOP00000024736	3.068570674	0.483488015	1.73031547	0.216254668	1	0.044899015
ENSRNOP00000042949	1.663596616	0.091673123	0.798951037	0.341218286	0	0.210792544
ENSRNOP00000028084	3.906684173	0.066013451	2.721907827	0.511497065	0	0.089754406

ENSRNOP00000042733	1.013247212	0.330390343	0.137364859	0.003777225	0	0.003993905
ENSRNOP00000013863	46.37495987	5.869799859	26.74859746	5.519242582	0	0.07226851
ENSRNOP00000056699	4.370295111	0.314098299	3.679693296	0.117747249	0	0.104451343
ENSRNOP00000007305	1.342532224	0.467898682	0.1149309	0.003160341	8	0.002187239
ENSRNOP00000053385	3.122791998	0.70031515	0.858417108	0.553220269	3	0.068287751
ENSRNOP00000028888	1.331294537	0.054060575	0.915881134	0.174885208	8	0.090834835
ENSRNOP00000024281	0.7000946	0.196384733	0.151359184	0.08254467	12	0.038024919
ENSRNOP00000019652	7.209995483	0.254537595	4.927531478	0.975370614	1	0.091751429
ENSRNOP00000011082	4.063263039	0.387279194	2.947848784	0.316061866	0	0.098299606
ENSRNOP00000005875	47.07733296	3.429026241	36.65026301	3.529815625	0	0.115544937
ENSRNOP00000017042	4.800995789	0.6550076	2.943545022	0.420929353	0	0.064779178
ENSRNOP00000053215	31.53583351	9.243256659	7.954990063	0.121604776	1	0.028611395
ENSRNOP00000014602	3.863986423	1.372925046	0.305853025	0.166798844	4	0.013390172
ENSRNOP00000027520	22.14540415	5.637634932	7.800535501	1.099856056	3	0.033183156
ENSRNOP000000040879	24.9519651	4.802667493	12.818014	1.531639189	6	0.043253712
ENSRNOP00000023132	9.550412074	0.654312257	6.275234084	1.315402054	0	0.091855952
ENSRNOP00000028485	9.879041889	0.6349457	7.449019925	0.984050648	7	0.133307561
ENSRNOP00000045406	1.256036833	0.285792638	0.359228898	0.231510656	1	0.075847275
ENSRNOP00000057980	2.097047172	0.230887253	0.641794437	0.570038233	5	0.100481524
ENSRNOP00000017090	1.910020918	0.457723203	0.786169551	0.082419402	9	0.037623066
ENSRNOP00000023543	0.546360869	0.11420789	0.214920435	0.080307663	0	0.128875788
ENSRNOP00000015018	1.022885218	0.190367764	0.308670014	0.232246741	10	0.088917811
ENSRNOP00000004896	2.317748027	0.894055252	0.095896223	0.00263693	0	0.003689575
ENSRNOP00000031081	2.408297219	0.424648957	1.424506863	0.039170734	0	0.041601893
ENSRNOP00000029578	25.55079648	2.114334833	18.33658178	2.739985976	12	0.13318151
ENSRNOP00000039671	0.796505408	0.305529399	0.048302532	0.001328211	3	0.011332745
ENSRNOP00000041608	47.32173465	5.318912568	35.59331408	1.758355073	2	0.081089104
ENSRNOP00000020364	9.201424415	1.454061999	5.880707222	0.374730186	1	0.073196737
ENSRNOP00000024447	6.343617144	1.2620542	3.421719601	0.19620794	2	0.052849403
ENSRNOP00000022309	6.914388591	0.454650852	4.246416147	1.173756455	0	0.103339886
ENSRNOP00000021646	4.280523657	0.673497428	2.650574188	0.354888024	0	0.096260441
ENSRNOP00000033144	23.94596468	8.713283344	3.592997222	0.576385409	0	0.039540819
ENSRNOP000000034293	33.75847051	3.765314548	26.12348891	1.043725382	0	0.123408637
ENSRNOP00000015234	19.12700453	4.085248952	9.737971943	1.258534034	0	0.08032025
ENSRNOP00000026291	1.911844484	0.761249758	0.154535467	0.004249378	0	0.003928356
ENSRNOP00000044081	27.52214902	5.219372304	16.22570066	0.654693695	0	0.092055174
ENSRNOP00000024972	5.303406064	0.608265518	3.792875926	0.435710714	5	0.104659342
ENSRNOP00000016709	8.349505923	2.131979484	3.594777104	0.180871356	0	0.051741607
ENSRNOP00000015956	11.51417858	1.826483866	7.698568497	0.280554537	0	0.068830853
ENSRNOP00000001905	3.590842083	0.413643183	2.518132162	0.338919655	1	0.112265317
ENSRNOP00000010158	1.559878325	0.540530664	0.259371259	0.203617625	0	0.072279109
ENSRNOP00000030668	30.89508843	2.341555745	25.3491423	1.948986527	1	0.131886715
ENSRNOP00000022226	1.134523747	0.094101633	0.514320012	0.280487609	3	0.10792734
ENSRNOP000000051363	1.782186728	0.187199749	1.045172047	0.308699905	9	0.109176221
ENSRNOP00000042902	9.996402367	0.882136964	3.269151294	3.082642115	0	0.111863603
ENSRNOP00000019797	5.786142442	1.700285848	1.71097542	0.800491698	0	0.189102755
ENSRNOP00000020681	13.31763837	0.767399536	11.7644606	0.627840308	1	0.182445812
ENSRNOP00000023452	20.85460706	4.192956498	11.65316414	1.521985559	0	0.105685815
ENSRNOP00000041821	4.027853673	0.384734113	3.356763272	0.011350546	0	0.131707598
ENSRNOP000000046394	3.304745307	1.319251821	0.42354165	0.011646443	0	0.008890436
ENSRNOP000000029790	1.589824819	0.514690322	0.361829543	0.256210862	0	0.072232311
ENSRNOP00000003390	7.207272144	0.7887607	5.407929358	0.561374306	0	0.12560012
ENSRNOP00000026186	7.539239344	0.502587195	6.561139507	0.383924004	0	0.20749599
ENSRNOP00000017675	7.487566219	0.307007908	5.726288225	0.939219306	0	0.141654258
ENSRNOP00000042992	4.327528567	1.243884694	1.487623187	0.555868692	0	0.117462098

ENSRNOP0000002238	6.099644666	0.128922112	5.749309145	0.278780946	0	0.304638608
ENSRNOP00000015744	0.923853358	0.154351177	0.622732029	0.01712373	0	0.094340528
ENSRNOP00000024632	4.16580152	0.269033132	3.063381456	0.543414547	2	0.134959937
ENSRNOP00000036574	1.54865864	0.45253458	0.602462526	0.059455059	0	0.056200211
ENSRNOP00000018005	10.86839829	1.310654348	8.503236312	0.103941126	0	0.115650619
ENSRNOP00000027501	0.599070866	0.256322013	0.052759513	0.001450768	0	0.008942992
ENSRNOP00000013698	1.374744893	0.599722212	0.099656859	0.002740339	0	0.006842675
ENSRNOP000000504015	3.645582088	1.669997869	0.1149309	0.003160341	1	0.002020044
ENSRNOP00000016150	2.006668751	0.237396574	1.453205044	0.187812002	0	0.129462734
ENSRNOP00000015913	104.8708529	19.8279933	60.59187791	11.80122206	2	0.141259807
ENSRNOP00000025842	0.983281933	0.094690569	0.782767182	0.068476713	4	0.163598647
ENSRNOP00000023562	4.595685563	0.595838903	3.090089731	0.554101618	4	0.120738569
ENSRNOP00000042040	1.976942863	0.298396267	1.426830218	0.039234621	11	0.107700245
ENSRNOP00000009547	15.28578661	5.037964849	4.378999013	1.925921051	1	0.165146212
ENSRNOP00000017067	25.25007187	4.357541135	16.05196019	2.257977813	0	0.148681449
ENSRNOP00000028249	21.07812006	1.20535708	17.35053132	2.041874385	1	0.209302292
ENSRNOP00000027754	34.98636602	13.84093135	6.190998604	2.7228539	1	0.111301218
ENSRNOP00000047800	20.32895448	9.763719654	0.146610571	0.004031461	0	0.00077849
ENSRNOP00000001708	1.623412658	0.232057085	1.175613885	0.088531818	0	0.116531812
ENSRNOP00000052465	0.257695377	0.109744813	0.03540441	0.000973542	0	0.009660511
ENSRNOP00000032909	13.55259716	2.772756679	8.370777373	0.165384737	0	0.13028262
ENSRNOP00000027665	0.225014129	0.033749598	0.103481804	0.056434444	0	0.121411517
ENSRNOP00000018173	5.519652655	0.329356727	4.991209748	0.251132922	0	0.269243962
ENSRNOP00000022487	12.44818275	2.971753215	6.552874518	1.098339273	0	0.0995315
ENSRNOP00000029152	0.95564227	0.254765013	0.477479104	0.013129601	9	0.089790977
ENSRNOP00000045263	0.88004708	0.252665391	0.275237858	0.194895442	1	0.105316398
ENSRNOP00000012092	2.706992782	0.149169865	1.085385452	0.879243728	0	0.124947312
ENSRNOP00000000146	1.210844961	0.127556745	0.677518118	0.276111425	1	0.257688495
ENSRNOP00000011960	4.625796033	0.630285928	3.267440917	0.492824944	0	0.147871534
ENSRNOP00000021812	3.438185161	0.120318157	2.91780662	0.339028386	0	0.204917415
ENSRNOP00000026355	2.16814182	0.274130366	1.161440273	0.502117244	0	0.134892905
ENSRNOP00000007773	0.443200975	0.099471368	0.185932235	0.101399297	1	0.115412177
ENSRNOP00000006141	1.410077323	0.228035899	0.97126525	0.125408728	1	0.150521406
ENSRNOP00000003728	2.300404059	0.622787756	1.138052143	0.147081688	1	0.159611272
ENSRNOP00000022550	5.451297115	1.117342775	3.499066274	0.107291149	0	0.174509321
ENSRNOP00000039968	5.645932113	0.801038016	4.080882324	0.535219877	0	0.172598289
ENSRNOP00000001924	6.764322204	2.488702687	2.073462021	0.527399091	1	0.052789734
ENSRNOP00000018897	5.339135843	0.695676061	4.106351565	0.339150913	1	0.188822959
ENSRNOP00000010720	1.244445675	0.230013679	0.851257071	0.048812707	0	0.171126091
ENSRNOP00000056269	5.385309826	0.311055886	3.729591877	0.99412392	1	0.165719097
ENSRNOP00000015207	1.314075228	0.330909217	0.74177024	0.020397013	2	0.132313793
ENSRNOP00000014800	0.207254934	0.017023415	0.17685377	0.013812634	0	0.234315247
ENSRNOP000000021397	2.514444735	0.390037689	1.896640168	0.052153338	0	0.171937425
ENSRNOP00000011065	1.780190624	0.217094273	1.455443123	0.040021412	1	0.191212998
ENSRNOP00000000246	1.129922649	0.220066662	0.708451609	0.13527706	7	0.169225361
ENSRNOP00000022578	1.626521518	0.328164776	1.098618951	0.03020955	5	0.17639195
ENSRNOP00000012162	1.773073698	0.35412772	0.904147732	0.390883783	11	0.148563989
ENSRNOP00000017243	2.417267849	0.209078705	0.935519294	0.878131854	10	0.129364051
ENSRNOP00000028725	0.603533972	0.085021018	0.302275797	0.16484798	0	0.145310477
ENSRNOP000000024782	1.6479718	0.287188172	0.680401645	0.511941741	0	0.133932662
ENSRNOP00000012050	21.80692396	3.863565512	15.79796074	0.267118495	0	0.166087392
ENSRNOP00000036731	0.975598741	0.200408999	0.421007117	0.271324591	1	0.135247802
ENSRNOP00000008503	3.06478947	0.227349663	1.204856846	1.128058948	0	0.130685731
ENSRNOP00000008238	1.061658394	0.36114051	0.346063441	0.223025972	0	0.108627152
ENSRNOP00000022632	0.219482431	0.016047094	0.122500877	0.059817077	0	0.155245004

ENSRNOP00000022221	1.022794696	0.167223936	0.50925282	0.277724184	0	0.148244779
ENSRNOP00000040087	4.984441333	0.513432906	4.209769596	0.277472507	12	0.242688031
ENSRNOP00000021970	1.056929215	0.230246307	0.56460946	0.210973266	0	0.255292783
ENSRNOP00000049879	12.62088467	0.756730386	10.15301938	1.693847062	0	0.277122053
ENSRNOP00000026854	0.804669613	0.273721588	0.287162007	0.156605581	0	0.113361353
ENSRNOP00000009777	9.230159032	0.313251785	6.902769355	1.643210513	0	0.201305436
ENSRNOP00000004942	8.650259408	2.620281453	4.183622485	1.06413268	1	0.226461405
ENSRNOP00000006314	9.081248994	3.37969661	3.238870675	1.343696759	0	0.132125841
ENSRNOP00000046328	3.333054107	0.682849685	1.367225874	1.107555636	0	0.147241197
ENSRNOP00000005665	7.751000819	1.223511978	6.064318382	0.214494075	0	0.262959376
ENSRNOP00000032903	11.72470286	5.230926799	3.397275258	1.091518702	0	0.40331
ENSRNOP00000018795	18.86758096	0.790250955	15.22827832	2.905700813	2	0.313726332
ENSRNOP00000028929	0.78287444	0.163388042	0.433714864	0.179933475	0	0.196312652
ENSRNOP00000014837	5.610159305	0.495373839	5.098009583	0.128188043	0	0.411698001
ENSRNOP00000020480	1.887618125	0.158733937	1.430079204	0.330227884	1	0.240866081
ENSRNOP00000003436	3.257747531	0.750806094	2.235237482	0.149853053	5	0.217494299
ENSRNOP00000015852	1.150820412	0.208004827	0.772466243	0.196482014	0	0.218686496
ENSRNOP00000011358	0.395239281	0.021779811	0.266060135	0.09941664	10	0.322559905
ENSRNOP00000009398	4.471029406	1.36051272	2.576025705	0.102325042	1	0.301010617
ENSRNOP00000044376	13.24763781	5.092781854	5.487594744	1.908100701	1	0.214114894
ENSRNOP00000049998	23.94679463	2.035747198	20.98643105	2.004083695	0	0.358339605
ENSRNOP00000006567	7.759372654	1.539701593	5.77556795	0.158815125	0	0.337902814
ENSRNOP00000007766	0.236252418	0.055569439	0.157843757	0.020380617	0	0.273523174
ENSRNOP00000028445	2.201412551	0.210498504	1.958843319	0.117679153	10	0.373225684
ENSRNOP00000026200	5.342328867	1.194376963	3.786536352	0.150409016	0	0.231824953
ENSRNOP00000001961	34.37488038	0.478019598	35.0503587	0.789113876	1	0.513481653
ENSRNOP00000011816	0.9034359	0.29251903	0.367612207	0.260305556	0	0.168122387
ENSRNOP00000020625	18.26883761	4.077174361	13.01998295	0.62899142	0	0.357768075
ENSRNOP00000004864	28.61653448	3.013283884	22.25361984	4.462540891	0	0.267586393
ENSRNOP00000018695	3.008602859	0.336539523	2.395340802	0.407898994	1	0.284335752
ENSRNOP00000015043	5.226902511	1.3493438	2.254123413	1.769584102	0	0.164073741
ENSRNOP00000045800	3.0313774	0.253021933	2.757795905	0.167054166	15	0.427755865
ENSRNOP00000018821	0.448180158	0.120229744	0.210503558	0.135662295	12	0.175308705
ENSRNOP00000023806	2.59004251	0.683336271	1.466075483	0.541912024	0	0.213398224
ENSRNOP00000058595	8.740964075	1.210301252	7.446453189	0.20476071	0	0.3533568
ENSRNOP00000000541	2.25967252	0.707707998	1.249123838	0.345271664	7	0.209817791
ENSRNOP00000003687	0.463459742	0.069429152	0.218580534	0.181396742	0	0.164855617
ENSRNOP00000008522	15.06999932	2.049929945	12.49936056	1.192681512	0	0.33969091
ENSRNOP00000010375	0.975394578	0.214722709	0.709450146	0.062062916	1	0.27574463
ENSRNOP00000027351	2.93872455	0.623831254	1.502229939	0.968135471	0	0.192044455
ENSRNOP00000010631	2.139992974	0.918900172	0.949014485	0.026095763	3	0.247058611
ENSRNOP00000002194	4.545491554	1.74366796	2.269529866	0.442026668	0	0.321552079
ENSRNOP00000026918	5.294788993	0.939101459	4.176168696	0.365332515	0	0.364665165
ENSRNOP00000027061	1.091207985	0.333099451	0.671107125	0.086733784	0	0.391322944
ENSRNOP00000018796	7.692593848	1.851101109	5.18344268	1.097705174	1	0.318920206
ENSRNOP00000000674	1.419760301	0.220664183	1.156690548	0.121263592	0	0.390668836
ENSRNOP00000036391	6.715251722	0.66153612	4.310341923	2.016623316	0	0.356013796
ENSRNOP00000014914	0.97105368	0.220948945	0.459348679	0.360608525	0	0.18249687
ENSRNOP00000058727	0.202891286	0.102537724	0.062801062	0.040473122	0	0.158367568
ENSRNOP00000020380	5.802125571	0.793251527	5.035320169	0.020490989	0	0.44742578
ENSRNOP00000016851	5.76478031	1.100402449	4.505919625	0.36963156	0	0.410468357
ENSRNOP00000027083	1.346408308	0.559660137	0.599360211	0.22154419	1	0.207840365
ENSRNOP00000050589	7.948801193	1.654415352	4.727552706	2.245021231	0	0.346963115
ENSRNOP00000015102	1.231820515	0.437683031	0.518666828	0.390250671	0	0.193283271
ENSRNOP00000027064	1.01300147	0.105997524	0.520595169	0.408689662	0	0.176786244

ENSRNOP00000046415	1.879684647	0.352016987	1.469360499	0.161262618	0	0.388225177
ENSRNOP00000042002	1.580411911	0.213666283	1.182228901	0.306864904	0	0.300370671
ENSRNOP00000055224	2.22608037	0.369302272	1.838707993	0.115353181	0	0.451493005
ENSRNOP00000025224	1.26942437	0.097387	1.183103048	0.067841389	0	0.5072906
ENSRNOP00000024827	4.295868756	1.324672209	2.781927566	0.038718719	0	0.286173058
ENSRNOP00000050252	19.51985548	2.547056543	12.37903662	6.110057179	1	0.366170632
ENSRNOP00000012806	12.58372266	1.210166275	11.64234855	0.344196526	1	0.552285137
ENSRNOP00000045180	3.446929181	0.472662246	2.29775841	0.981333209	0	0.363093744
ENSRNOP00000040516	0.628621284	0.086512013	0.308723896	0.276421275	1	0.168827668
ENSRNOP00000027782	3.025462525	0.166719261	2.964791547	0.081525098	1	0.790026532
ENSRNOP00000003791	7.259209316	0.472606121	6.337837835	1.002537435	1	0.442125591
ENSRNOP00000015961	9.388998691	0.342935261	4.608242665	4.527067686	1	0.149816361
ENSRNOP00000013262	6.959830608	0.608959492	6.383155902	0.560072215	0	0.536417777
ENSRNOP00000024609	7.334295564	1.024248548	6.492431271	0.145673788	0	0.550810905
ENSRNOP00000006473	1.101196118	0.434048652	0.629329536	0.081258355	0	0.510069916
ENSRNOP00000007645	1.356702435	0.2950948	0.876955133	0.374532497	1	0.379624802
ENSRNOP00000023215	2.62114246	0.234225244	2.402032931	0.209095592	7	0.529529533
ENSRNOP00000008987	0.681074212	0.268174312	0.378668814	0.092579952	1	0.348585137
ENSRNOP00000026710	1.024734624	0.534287708	0.423625787	0.134214993	0	0.327095465
ENSRNOP00000052875	37.51922766	1.097421952	33.10770506	5.7471356	2	0.464713085
ENSRNOP00000032893	1.372394955	0.320221092	1.006620592	0.20257169	6	0.387361344
ENSRNOP00000004385	8.676950264	1.173226902	7.444066174	0.941881847	0	0.494653092
ENSRNOP00000020265	2.588124551	1.192830178	1.248734792	0.466605106	2	0.330369491
ENSRNOP00000012878	45.96510134	3.163486839	44.04759633	2.485826681	0	0.665246957
ENSRNOP00000053116	2.921455452	1.169521665	1.582650219	0.585002063	1	0.36709154
ENSRNOP00000028404	2.150991943	0.211872349	1.793662338	0.369410428	1	0.390130298
ENSRNOP00000054178	11.54256588	0.342463887	10.23082489	1.796814333	0	0.479606443
ENSRNOP00000016137	1.016891531	0.26722011	0.635399735	0.292597158	0	0.375375826
ENSRNOP00000019104	0.967895522	0.29254231	0.661221502	0.126258589	0	0.404802895
ENSRNOP00000023080	1.60816803	0.334678071	1.297846004	0.136061861	0	0.466382698
ENSRNOP00000026445	3.809657593	1.795530203	1.974815966	0.354115517	2	0.970203034
ENSRNOP00000023914	2.21810085	0.198801511	1.986448339	0.264454113	0	0.479288878
ENSRNOP00000032635	8.203386488	0.119101532	5.786890256	2.780875171	0	0.389668718
ENSRNOP00000023977	1.292768716	0.289915407	1.029205837	0.107898519	0	0.523206051
ENSRNOP00000019174	2.034321459	0.663034335	1.387566072	0.209285245	0	0.419368233
ENSRNOP00000011937	1.372802337	0.15128185	1.024411177	0.38278383	0	0.41107665
ENSRNOP00000041521	2.183409403	0.240610168	1.629301586	0.608808567	0	0.411076659
ENSRNOP00000056518	0.684991651	0.181037022	0.510908943	0.0770599	0	0.454247264
ENSRNOP00000025796	12.36823359	0.515002703	11.77814751	1.106578877	0	0.607721449
ENSRNOP00000025904	3.208048695	1.20180572	2.093846747	0.057576075	1	0.441981963
ENSRNOP00000016561	3.028482767	0.397816443	2.767737968	0.060346716	1	0.624234073
ENSRNOP00000020325	5.743818795	0.831651048	5.158125915	0.187777463	0	0.628761296
ENSRNOP00000039338	20.87384968	5.248133146	16.46268028	0.153592879	0	0.643009285
ENSRNOP00000017391	0.561698977	0.096880591	0.333362623	0.236053486	0	0.233024432
ENSRNOP00000013759	2.581401998	0.14871127	2.38713043	0.293999083	0	0.530588211
ENSRNOP00000007554	6.172439469	0.887206517	5.55686872	0.334611743	1	0.587546505
ENSRNOP00000046842	3.925982347	0.403563803	3.61218889	0.351591884	0	0.581615341
ENSRNOP00000018083	0.697297335	0.063718965	0.411076218	0.333002608	12	0.211730389
ENSRNOP00000022703	7.574320922	1.218231562	6.661319883	0.558773562	0	0.615543089
ENSRNOP00000008364	2.269795337	0.418399645	1.94737887	0.192180462	1	0.551339726
ENSRNOP000000045242	0.442693735	0.0341607	0.393335598	0.07053125	1	0.489128137
ENSRNOP00000032108	0.941489992	0.5693201	0.432326786	0.109965243	0	0.955413602
ENSRNOP00000039545	3.34280499	0.79953341	2.77171524	0.019491282	2	0.635922504
ENSRNOP00000023211	1.625709654	0.156374414	1.182179074	0.571785397	5	0.315951419
ENSRNOP00000007110	1.525363235	0.593630526	1.041733598	0.128299953	2	0.557263391

ENSRNOP00000000821	0.656707925	0.084004899	0.478105912	0.230249114	1	0.410354438
ENSRNOP00000017879	1.139357022	0.262012375	0.8427422	0.314900983	0	0.45588433
ENSRNOP00000009402	4.295277124	0.796351745	3.811874847	0.104817983	2	0.682453593
ENSRNOP000000027511	5.748159577	1.495714167	4.141676956	1.588944296	0	0.436628674
ENSRNOP000000052490	4.550333932	0.159161412	4.349656402	0.51974543	11	0.678132426
ENSRNOP000000005623	0.690662268	0.32096093	0.441043371	0.0121277	0	0.885660391
ENSRNOP000000007498	1.576066779	0.42157174	1.118718562	0.464118101	0	0.403901112
ENSRNOP000000005755	5.187150199	0.893257422	4.14464776	1.286520613	0	0.447095769
ENSRNOP000000002407	4.159771741	1.03116475	3.297551237	0.76533989	1	0.595853058
ENSRNOP000000021155	1.518428558	0.33027168	0.914853627	0.759223451	1	0.239794579
ENSRNOP000000001958	7.544286792	0.715054137	7.031890822	0.89419752	0	0.656435281
ENSRNOP00000011069	1.389467922	0.196862617	1.213884249	0.231788156	0	0.568557734
ENSRNOP000000011969	1.159554939	0.3194592	0.952968712	0.026204496	8	0.774525853
ENSRNOP000000026576	13.91207054	2.529160738	12.24826513	1.482830314	0	0.687210656
ENSRNOP000000011521	5.816039281	0.555428069	5.67174185	0.092568146	1	0.886484603
ENSRNOP000000005459	7.619958094	0.471539416	7.645871851	0.096599033	0	0.91684969
ENSRNOP000000013629	0.626780766	0.160106298	0.529093039	0.014548868	0	0.718296269
ENSRNOP000000045196	9.962721835	0.715953351	8.542005171	2.466214832	1	0.520966767
ENSRNOP000000038602	3.769239474	0.479128805	2.267670314	2.142669481	0	0.194035519
ENSRNOP000000006087	2.521583916	0.163540967	2.470625734	0.176979367	2	0.834421879
ENSRNOP000000057452	5.304985497	0.578560887	5.109112341	0.257065195	0	0.831930776
ENSRNOP000000023526	3.686838635	0.373659782	2.869700984	1.317803853	0	0.374249933
ENSRNOP00000015684	17.9807083	2.719798278	16.75288303	1.400677178	4	0.751632815
ENSRNOP000000054120	0.251385183	0.008133819	0.173046544	0.130202138	1	0.266173549
ENSRNOP000000018248	3.750980679	1.235035129	3.023698545	0.372398838	0	0.885683311
ENSRNOP000000056567	5.253658068	0.964623503	4.850050851	0.011784249	0	0.794850114
ENSRNOP000000001717	1.266618749	0.139580494	0.889580921	0.629910683	0	0.290508286
ENSRNOP000000011880	29.95221235	1.251960332	29.48877578	3.006430855	1	0.83962214
ENSRNOP000000025845	1.129244355	0.185791214	0.904478386	0.397797295	0	0.478613162
ENSRNOP000000055259	16.12729784	1.929632019	12.79698097	6.226955322	0	0.4368278
ENSRNOP000000002037	25.85836509	1.815202016	26.06941553	0.023422198	0	0.864065952
ENSRNOP000000027048	0.868669067	0.238772374	0.737635191	0.118330779	10	0.711623523
ENSRNOP0000000028196	11.19667524	1.094241096	10.11284052	2.414297082	1	0.613413411
ENSRNOP000000048877	1.465447236	0.160274211	1.263099655	0.40018081	0	0.503385692
ENSRNOP000000027809	3.021707084	0.855172259	2.595571394	0.20719959	0	0.897983659
ENSRNOP000000038745	2.241686813	0.645144317	1.436906519	1.333153068	0	0.231685046
ENSRNOP000000034321	2.740444233	0.689313308	2.446622686	0.127528308	1	0.907607598
ENSRNOP000000002484	2.54170783	0.365651071	2.412693906	0.223953844	0	0.846723405
ENSRNOP000000025939	29.62421379	3.94702098	28.41909308	2.411387738	0	0.861720965
ENSRNOP000000013632	0.748316973	0.692994678	0.353496895	0.009720369	0	0.628149229
ENSRNOP000000022628	3.511702653	0.443144998	3.427041411	0.108112741	0	0.958060403
ENSRNOP000000016965	4.283482252	0.280654658	4.146333893	0.591600917	0	0.775816692
ENSRNOP000000023685	11.23096372	1.817077356	10.51317922	1.269350357	0	0.787656499
ENSRNOP000000016176	0.884189802	0.543076971	0.600688889	0.077632942	6	0.768210585
ENSRNOP000000006160	5.873897922	1.295888393	5.378880225	0.565595164	0	0.874062754
ENSRNOP000000037032	2.198578507	0.242558632	2.128499063	0.232085127	0	0.851661355
ENSRNOP000000053135	1.457534364	0.196098036	1.307807508	0.36149248	0	0.609624478
ENSRNOP000000000686	1.595163865	0.704710463	1.287990419	0.141357214	0	0.912597981
ENSRNOP000000022275	4.556210767	0.667170037	4.400184219	0.383033518	0	0.896818484
ENSRNOP000000025906	1.300541083	0.036189271	1.079809071	0.559894103	0	0.417168019
ENSRNOP0000000024033	41.43252249	2.233638597	38.98123209	9.131514609	1	0.677057875
ENSRNOP000000022650	1.568256077	0.348552365	1.130013731	0.955938497	1	0.291838079
ENSRNOP000000022496	1.521211448	0.22119564	1.38485828	0.369134422	0	0.666707369
ENSRNOP000000004494	1.383406887	0.315125331	0.983562099	0.886853636	0	0.262643567
ENSRNOP000000037647	7.734644861	1.735559552	7.001151152	1.452503083	3	0.775170782

ENSRNOP00000023072	7.197657997	1.422926546	6.823371562	0.552062237	0	0.951880784
ENSRNOP00000039718	4.284565581	0.629421367	4.199467232	0.088727649	8	0.997900928
ENSRNOP00000031599	22.49687111	4.046269242	20.46116401	5.163892307	0	0.708052789
ENSRNOP00000057271	6.124068833	0.46499634	6.213974449	0.180493138	0	0.82535141
ENSRNOP00000042986	4.506100824	0.507734024	4.301095373	0.780829012	1	0.766476294
ENSRNOP00000001291	9.311773147	0.616863164	9.528627807	0.091189642	2	0.699751538
ENSRNOP00000036519	19.59526553	6.38021603	17.0122776	4.10169778	1	0.804951413
ENSRNOP00000013691	4.171569968	0.712428332	3.715242259	1.287996043	3	0.634837611
ENSRNOP00000031121	8.648982687	2.188355062	8.043900961	0.659860784	0	0.986023525
ENSRNOP00000012725	2.981621866	0.484506903	2.779595911	0.619213799	1	0.742604928
ENSRNOP00000033476	0.927099683	0.448389495	0.735309766	0.27179583	0	0.829028756
ENSRNOP00000047905	0.411312586	0.117780045	0.346586203	0.1550325	6	0.668007157
ENSRNOP00000022022	2.418210717	0.558784087	2.296484341	0.01258185	0	0.974151151
ENSRNOP00000016167	0.702813843	0.138639847	0.645693093	0.167599142	12	0.776168068
ENSRNOP00000024863	1.328178399	0.552594866	1.106237542	0.408903519	0	0.816163781
ENSRNOP00000053174	1.163777155	0.581990605	0.968547077	0.155373458	0	0.972966418
ENSRNOP00000014051	3.572576155	1.075594511	3.280472185	0.403874411	0	0.950290005
ENSRNOP00000011158	4.12310473	1.33666433	3.788253908	0.312878659	0	0.979043115
ENSRNOP00000029276	1.323200957	0.411156084	0.995361186	0.920160685	0	0.277238721
ENSRNOP00000010602	1.50445485	0.031381553	1.474389614	0.296705232	1	0.778548793
ENSRNOP00000046028	1.550054563	0.235551566	1.265547059	0.952211638	0	0.367588758
ENSRNOP00000009998	2.569670059	0.4850433	2.524748275	0.069424898	0	0.933058574
ENSRNOP00000019874	1.13610166	0.416308235	0.960786167	0.469151093	0	0.660505171
ENSRNOP00000050986	2.431540844	0.734597529	2.257077111	0.37020323	0	0.950099548
ENSRNOP00000007100	4.215288004	1.049776391	3.953591239	0.820237035	0	0.886570215
ENSRNOP00000004799	1.475345963	0.672579897	1.300658601	0.113782012	0	0.713680513
ENSRNOP00000014785	3.123681759	0.567979019	3.080453101	0.158916883	1	0.920995784
ENSRNOP00000016292	0.683649395	0.09197881	0.643659883	0.199795436	0	0.703304241
ENSRNOP00000012781	1.577460782	0.244966003	1.456258014	0.538283149	1	0.660401631
ENSRNOP00000013831	0.56598932	0.101045023	0.530839721	0.168182984	0	0.738312291
ENSRNOP00000035430	0.595468723	0.262952688	0.472266953	0.382571699	0	0.433413601
ENSRNOP00000003284	1.11769209	0.569881351	0.984886324	0.027082158	0	0.813591389
ENSRNOP00000016937	2.690072386	0.398910994	2.210896431	1.870314452	3	0.323668882
ENSRNOP00000025196	0.803470849	0.178575217	0.7716342	0.147341617	1	0.947629999
ENSRNOP00000019620	4.789342698	2.306049067	4.210182516	1.092814813	3	0.638248521
ENSRNOP00000025657	0.693631703	0.167430854	0.664907652	0.169123759	0	0.893778256
ENSRNOP00000019914	6.222734472	2.387761063	5.912295681	0.16257483	0	0.811964261
ENSRNOP00000020174	1.126335112	0.228804518	1.105030499	0.211002805	1	0.982338055
ENSRNOP00000023796	1.273483582	0.470680214	1.213859965	0.094804897	1	0.832885004
ENSRNOP00000008465	0.719854548	0.029019376	0.738726912	0.076032694	0	0.877560437
ENSRNOP00000054078	4.595462024	0.434666152	4.626919922	0.785237365	1	0.935371239
ENSRNOP00000015506	0.09569906	0.03255362	0.081753513	0.066226485	0	0.417126433
ENSRNOP00000019231	1.427098826	0.460411824	1.341940726	0.425159586	1	0.996913656
ENSRNOP00000021816	0.192456411	0.028866315	0.195815489	0.005384485	0	0.808352868
ENSRNOP00000036992	0.864630694	0.194056448	0.820153511	0.334240147	1	0.654694562
ENSRNOP00000015866	12.94997687	1.633223027	12.79569563	3.377693961	11	0.835639031
ENSRNOP00000010680	0.4464126	0.100192171	0.39610502	0.310959525	0	0.410123102
ENSRNOP00000027160	0.766058678	0.169088731	0.735309766	0.27179583	0	0.786564211
ENSRNOP00000019192	3.840988027	0.409461995	3.872009726	0.727622586	1	0.957114232
ENSRNOP00000017301	7.614009303	2.198717599	7.214648683	3.026501971	1	0.858578679
ENSRNOP00000018646	3.157133628	0.606029252	3.175069844	0.41034555	0	0.911384817
ENSRNOP00000042148	0.291634637	0.145566955	0.274057589	0.069708402	8	0.682051671
ENSRNOP00000031520	7.954766867	4.262194689	7.522102259	0.341498934	0	0.528022203
ENSRNOP00000011822	0.526575819	0.143305283	0.522703274	0.078838828	0	0.879676095
ENSRNOP00000052113	1.24506738	0.37210009	1.184794184	0.566419409	6	0.566786321

ENSRNOP00000053979	2.566982196	0.633623209	2.464320593	1.13480249	0	0.601679951
ENSRNOP00000003052	4.78589223	0.620682619	4.901527042	0.506458806	2	0.873427508
ENSRNOP00000027552	1.654358925	0.512797203	1.60156055	0.54669068	0	0.914824511
ENSRNOP00000007825	3.179708889	1.528534281	3.065506304	0.079298616	7	0.704140823
ENSRNOP00000007331	3.01541762	1.126444518	2.973800853	0.012101737	0	0.759813321
ENSRNOP00000022150	2.503631277	0.342815813	2.571655372	0.193663353	1	0.806967002
ENSRNOP00000020932	26.69950639	1.474588324	27.55882083	3.59986903	0	0.923318181
ENSRNOP00000010573	7.635112048	0.754080099	7.907845515	0.480909295	0	0.733701753
ENSRNOP00000017692	18.85081017	9.369296136	18.30717041	0.812609587	0	0.683661957
ENSRNOP00000004797	24.00729799	2.036098791	24.6487438	4.056145524	0	0.993098267
ENSRNOP00000008728	0.963811302	0.279058976	0.877861457	0.804766102	0	0.352512245
ENSRNOP00000058269	3.671526561	0.927061348	3.725986158	0.289863407	0	0.79615497
ENSRNOP00000045936	2.637667929	0.231259492	2.598268805	1.275383382	0	0.505013678
ENSRNOP00000018850	77.69811628	12.36307113	80.14623898	0.893163234	0	0.751262643
ENSRNOP000000056294	0.61326514	0.305120812	0.601750688	0.034505534	0	0.678074549
ENSRNOP00000048864	0.747472302	0.368077036	0.733704852	0.064184725	0	0.624590501
ENSRNOP00000042628	26.11385804	1.625864592	27.04878058	3.626202668	0	0.911348045
ENSRNOP00000039176	0.619071388	0.226125205	0.577719065	0.496403644	0	0.429276004
ENSRNOP00000017245	0.597026142	0.128127189	0.599275504	0.189865111	6	0.942689695
ENSRNOP00000006971	8.786511717	0.845566969	9.170813889	0.071626293	0	0.610551161
ENSRNOP00000009221	0.682342363	0.144847364	0.65294956	0.52893818	0	0.435871384
ENSRNOP00000002325	0.929505256	0.331730412	0.946396514	0.026023775	0	0.705798281
ENSRNOP00000026327	0.284589985	0.015682439	0.27711969	0.22448776	1	0.407868623
ENSRNOP00000042132	2.533922894	0.35082954	2.604925629	0.587424114	0	0.996877996
ENSRNOP00000022401	0.427277971	0.045549233	0.44398744	0.05738087	0	0.843937436
ENSRNOP00000042159	15.23134252	0.45933946	16.00912969	0.676240817	0	0.392428349
ENSRNOP00000045702	0.949593558	0.551851577	0.949014485	0.026095763	0	0.569413772
ENSRNOP00000025213	1.535919782	0.892592164	1.53498316	0.042208584	0	0.569413767
ENSRNOP00000039311	24.68674566	1.473873586	25.0529814	12.45830957	0	0.481966972
ENSRNOP00000046867	6.378590179	1.289664715	6.622235032	0.092095644	0	0.726036791
ENSRNOP00000050010	0.855827801	0.295779747	0.846203799	0.771953699	0	0.420724071
ENSRNOP00000021637	1.399988589	0.342885239	1.43762379	0.478433727	1	0.988333396
ENSRNOP000000035601	1.379318537	0.603116527	1.412508675	0.244240856	0	0.701937828
ENSRNOP00000015456	0.827918169	0.24100099	0.855555885	0.351653892	0	0.938408922
ENSRNOP00000024952	2.193900627	0.433956559	2.299459653	0.129770036	0	0.709380247
ENSRNOP00000047674	4.6845943	0.271203793	4.938523063	0.224205987	0	0.493775339
ENSRNOP00000048479	6.263579422	2.359689355	6.577689581	2.811113967	0	0.953447533
ENSRNOP00000042700	0.252843058	0.043609794	0.266867022	0.047853448	1	0.832905535
ENSRNOP00000020581	0.185415357	0.09924782	0.195815489	0.005384485	0	0.542318381
ENSRNOP00000052656	1.355442876	0.669996444	1.440114053	0.348385519	0	0.500824951
ENSRNOP00000022254	1.365761201	0.746892904	1.459481368	0.146644448	12	0.553348553
ENSRNOP00000001379	0.317586153	0.225740198	0.341996804	0.030752617	0	0.447354494
ENSRNOP00000050338	0.359007833	0.061312015	0.382019669	0.097169287	0	0.907419135
ENSRNOP00000009985	5.895273295	0.169762927	6.26209039	1.122891151	1	0.861926488
ENSRNOP00000010429	17.39522463	7.874826584	18.65532088	0.638534414	0	0.575261378
ENSRNOP00000015019	2.021942309	0.361435613	2.162741053	0.719748984	0	0.997832341
ENSRNOP00000043782	0.593792217	0.289695589	0.639170346	0.114613281	3	0.573428796
ENSRNOP00000004878	1.451961115	0.430518405	1.563926089	0.542180153	0	0.910736538
ENSRNOP00000017268	6.943447543	0.627397391	7.380580354	0.222486795	1	0.509038157
ENSRNOP00000023370	0.354248269	0.183017239	0.388135748	0.098724953	0	0.574799205
ENSRNOP000000030340	2.031932604	0.278227321	2.168901877	0.011882858	0	0.559702804
ENSRNOP00000057501	3.476544792	0.452048189	3.726715695	0.42569037	0	0.680709895
ENSRNOP00000048711	31.58984652	2.283132332	33.89117963	4.809475176	2	0.77414937
ENSRNOP00000030371	11.85994718	0.629938692	13.16835833	6.441043867	0	0.556662122
ENSRNOP00000006356	0.548100353	0.184318808	0.598979156	0.037910224	0	0.60663123

ENSRNOP00000000345	1.730622609	0.277647728	1.859192346	0.065759368	3	0.608984174
ENSRNOP00000015247	1.4093221	0.237552358	1.525897638	0.23014966	6	0.712660028
ENSRNOP00000011230	8.296281943	1.216945544	9.044352638	1.998764913	0	0.814675956
ENSRNOP00000000178	1.563102504	0.75665236	1.808263378	1.073883486	0	0.678195111
ENSRNOP00000028779	4.312416975	0.365074796	4.839255998	2.248092818	0	0.643745554
ENSRNOP00000044430	2.002760172	0.762217819	2.253199212	0.83286008	2	0.775625035
ENSRNOP00000005912	3.030835337	0.399798339	3.297172083	0.629586748	4	0.774066646
ENSRNOP00000020306	19.92478501	1.575819983	21.38715299	1.904113426	2	0.607611803
ENSRNOP00000052583	0.559185707	0.246930464	0.625475626	0.035865967	0	0.523119273
ENSRNOP00000042597	3.281042827	0.620899347	3.587793791	0.480373292	0	0.680935261
ENSRNOP00000009407	16.10837363	0.929636346	17.22037536	0.834623155	0	0.421161592
ENSRNOP00000015844	4.459294167	0.651768099	4.838092825	0.318681382	0	0.59283604
ENSRNOP00000026738	0.58655559	0.138782168	0.678588414	0.328213343	0	0.972187597
ENSRNOP00000033466	0.316471435	0.134452031	0.358677441	0.031377212	1	0.535508227
ENSRNOP00000010640	0.749118836	0.075519722	0.806542789	0.022178112	1	0.458385793
ENSRNOP00000025652	15.8260487	1.203658897	18.49681286	9.207703204	1	0.517953578
ENSRNOP00000018973	6.333009219	2.049748334	7.162283231	1.200591608	0	0.599282578
ENSRNOP00000029333	7.934568977	0.807682479	8.561473211	0.258084682	0	0.482188668
ENSRNOP00000000975	1.532849303	0.257351104	1.796429302	0.767224145	0	0.791812962
ENSRNOP00000014637	6.511738652	0.664286829	7.058792628	0.429274823	0	0.513094208
ENSRNOP00000026794	2.53112497	0.374183228	2.814629846	0.445226252	1	0.688432032
ENSRNOP00000016083	0.710155506	0.252729404	0.815166231	0.061387629	0	0.536772454
ENSRNOP00000048475	0.176470797	0.071186181	0.204390072	0.005620267	8	0.518243192
ENSRNOP00000017163	0.611077975	0.037333798	0.699154755	0.221509297	2	0.879584843
ENSRNOP00000032890	1.470362986	0.047000498	1.565522743	0.003803777	0	0.118821567
ENSRNOP00000020302	3.143186082	0.232270856	3.521139555	0.798199504	1	0.762146271
ENSRNOP00000016329	6.113411445	1.49883465	6.847515456	0.260350436	0	0.539280512
ENSRNOP00000011784	5.63483761	0.389824576	6.073147115	0.269455766	0	0.398056338
ENSRNOP00000041995	1.922566457	0.938233215	2.354539273	0.870318859	0	0.53523055
ENSRNOP00000013582	11.70623374	1.748813081	13.05317491	2.076128121	0	0.635361345
ENSRNOP00000002550	1.244142905	0.720170441	1.562723594	0.648320615	0	0.535096106
ENSRNOP00000026040	0.74280297	0.173318321	0.868646817	0.27520852	0	0.762067629
ENSRNOP00000002255	0.58985037	0.096438808	0.649751394	0.017866702	1	0.48866905
ENSRNOP00000054880	1.331129063	0.143912625	1.532821957	0.452731197	7	0.811702927
ENSRNOP00000002738	3.682677827	0.08287313	4.106629234	0.801289894	1	0.705297876
ENSRNOP00000026928	8.374791898	2.348706723	9.596441355	1.210493396	0	0.537162021
ENSRNOP00000028699	6.168204512	0.548643475	7.132209364	2.144168247	6	0.959218498
ENSRNOP00000004609	2.366507209	1.281714497	2.996130172	0.822645278	0	0.506767014
ENSRNOP00000020192	1.162976602	0.746992993	1.544692168	0.640839993	0	0.484573586
ENSRNOP00000049419	7.023355697	1.07618253	7.866362458	0.804739085	0	0.517987683
ENSRNOP00000015152	0.246588275	0.040316475	0.362355947	0.306536098	0	0.627761671
ENSRNOP00000026427	3.242729006	1.387845155	5.133589267	4.910838968	0	0.535005185
ENSRNOP00000014658	6.350194259	0.663728149	7.241598518	1.403980019	0	0.632565177
ENSRNOP00000010318	3.587258831	0.827333279	4.292143585	1.186396025	0	0.659181437
ENSRNOP00000026528	5.589678308	1.353623973	6.453283955	0.693441682	0	0.50898779
ENSRNOP00000014118	3.760936382	0.825773039	4.457761564	1.053533281	0	0.619754469
ENSRNOP00000010210	1.351525172	0.19379794	1.539040844	0.232132037	0	0.552724716
ENSRNOP00000019302	4.081013875	0.169453782	4.379082351	0.007614722	1	0.156230748
ENSRNOP00000021862	7.739270148	0.812833046	8.545815819	0.280197311	0	0.37365182
ENSRNOP00000015732	0.917361317	0.237108738	1.27313205	0.69431046	0	0.834090918
ENSRNOP00000012413	45.44045938	2.546925869	49.42178332	1.944172178	1	0.283075392
ENSRNOP00000013785	5.896531186	0.76610238	6.795452584	1.024951521	0	0.513036476
ENSRNOP00000025828	15.34822409	2.136587314	17.30443885	1.105301909	0	0.426329989
ENSRNOP00000015057	5.224816962	0.624957669	6.058494503	1.04051115	1	0.603785035
ENSRNOP00000036690	11.86328449	3.604348122	14.48614701	2.346993314	0	0.508006397

ENSRNOP00000012376	0.638942375	0.090621696	0.756108242	0.155998294	0	0.651899399
ENSRNOP00000027685	0.566995243	0.125150345	0.719861255	0.239566085	1	0.644128196
ENSRNOP00000045817	0.318237339	0.247380527	0.452896021	0.012453622	0	0.270566848
ENSRNOP00000004023	1.663170657	0.291245278	2.051192829	0.566972416	4	0.607681818
ENSRNOP00000001666	3.316089162	0.370176259	3.746708038	0.348754955	0	0.453741195
ENSRNOP00000005258	3.239925616	1.043162452	4.346571004	1.606642438	0	0.584333985
ENSRNOP00000006924	1.298578438	0.462849487	1.616670183	0.129055745	0	0.429042828
ENSRNOP00000025388	0.670539289	0.318726331	0.930386717	0.309627865	1	0.467368471
ENSRNOP00000045630	1.491239068	0.506702978	1.9677137	0.564630763	1	0.603061979
ENSRNOP00000047647	0.393889542	0.331158819	0.61867651	0.196011824	0	0.271083393
ENSRNOP00000010260	3.542968587	0.682683767	4.124886608	0.190939732	0	0.377829129
ENSRNOP00000025824	1.884892122	0.311148827	2.590122084	1.124057272	0	0.706784872
ENSRNOP00000015810	15.64409955	3.712934613	18.63287881	1.213182454	11	0.387002084
ENSRNOP00000021512	5.77252279	1.058125116	7.014850248	1.350317406	0	0.504044209
ENSRNOP00000014630	2.422724708	0.351550197	2.908429406	0.547922613	0	0.493936986
ENSRNOP00000021650	2.689363606	0.958564017	3.978777159	1.861498446	0	0.921119194
ENSRNOP00000030807	0.568386166	0.271201546	0.788893362	0.192874899	1	0.430311665
ENSRNOP00000025844	4.887861437	0.211262846	5.487004672	0.52825606	0	0.347681717
ENSRNOP00000030562	0.778408324	0.452368158	1.089107099	0.029947995	0	0.340733698
ENSRNOP00000004673	4.844117115	0.326550077	5.925621017	1.35987632	0	0.518015121
ENSRNOP00000004323	0.442799117	0.186199598	0.581120666	0.015979511	1	0.423562996
ENSRNOP00000003921	3.834090233	0.88008105	5.123453907	1.60191986	0	0.694506644
ENSRNOP00000000528	16.70541552	1.652554047	21.11279109	5.62289434	0	0.691741798
ENSRNOP00000001437	0.248637031	0.191400148	0.385524555	0.033725806	4	0.243505439
ENSRNOP00000037786	16.15826152	1.512592889	18.03326123	0.037649853	0	0.290333629
ENSRNOP00000032156	0.216792873	0.076988817	0.308627781	0.100059924	0	0.447729425
ENSRNOP00000001160	0.613110047	0.199042707	0.987796116	0.50782434	0	0.589949785
ENSRNOP000000054810	2.364421873	0.461887345	3.10032146	0.816371309	1	0.601244333
ENSRNOP000000058241	4.293026223	1.473546748	5.615686272	0.59049558	0	0.350250457
ENSRNOP000000054903	1.022219363	0.467842354	1.447157379	0.276331076	0	0.404240135
ENSRNOP00000000134	1.343357004	0.270049913	1.701469555	0.324891348	0	0.434622638
ENSRNOP00000015886	1.059554771	0.292132248	1.569283596	0.613639522	0	0.509839773
ENSRNOP000000034945	0.740988552	0.403371809	1.064958383	0.02928396	0	0.277993575
ENSRNOP00000019350	0.628886337	0.30681707	0.893222958	0.115440001	0	0.378901853
ENSRNOP00000045033	1.090266431	0.2922411	1.43558966	0.290410545	0	0.46560725
ENSRNOP000000052895	1.012432971	0.49523831	1.439200321	0.170725965	1	0.392682844
ENSRNOP00000031375	0.387289214	0.284785117	0.613170217	0.016860802	0	0.234059117
ENSRNOP00000021545	4.612403899	1.168518207	8.127873273	4.61084304	2	0.604680798
ENSRNOP00000024020	1.045238582	0.182757171	1.413128823	0.408090682	0	0.469108959
ENSRNOP00000024564	0.348893837	0.071826169	0.607943359	0.33734811	13	0.610837301
ENSRNOP00000005608	0.523279359	0.120335976	0.659229808	0.085119046	1	0.369657169
ENSRNOP00000000603	2.565766211	0.627152053	4.253832611	2.027315236	0	0.886710286
ENSRNOP000000053245	1.096551502	0.158232015	1.369435084	0.23821637	0	0.379357764
ENSRNOP00000020002	3.693598062	0.486866775	4.411496558	0.462300138	1	0.345806882
ENSRNOP00000028392	6.407326803	2.322526329	8.600792798	0.366372311	0	0.290646143
ENSRNOP00000017468	42.43189605	3.571826118	48.46637251	3.205658883	0	0.277306095
ENSRNOP00000013780	0.963882131	0.12393316	1.179284739	0.169319942	0	0.341121561
ENSRNOP00000040136	3.080524666	0.263081111	4.227768223	1.260971051	1	0.444082143
ENSRNOP00000000673	4.019834777	0.653617079	4.826066674	0.315935646	0	0.32149457
ENSRNOP00000019772	0.101983122	0.086547247	0.177836252	0.007064022	0	0.19777061
ENSRNOP000000022519	5.437602458	1.049717991	6.621773189	0.251767455	1	0.283194743
ENSRNOP00000041174	47.84692409	1.943416831	54.09412181	4.189997039	2	0.262041576
ENSRNOP00000009566	2.146625412	0.681312784	2.868506039	0.27616264	2	0.293736598
ENSRNOP00000024067	0.526281561	0.219455678	0.737782228	0.020287352	0	0.370882308
ENSRNOP00000052152	0.768567124	0.223549488	1.039007514	0.169571971	1	0.396194617

ENSRNOP00000024659	0.333353615	0.147300351	0.532483188	0.168703675	1	0.386985344
ENSRNOP00000018122	0.980866684	0.2286878	1.316023377	0.251291367	1	0.350127633
ENSRNOP00000054548	0.530889881	0.158443833	0.695879789	0.019135129	1	0.310683497
ENSRNOP00000015545	23.64855275	0.987929233	25.98037605	0.714401894	1	0.135582454
ENSRNOP00000027262	0.558967067	0.411728547	0.941203666	0.025880983	0	0.212949933
ENSRNOP00000015177	2.852525492	0.398455591	3.494696568	0.42199621	0	0.335131617
ENSRNOP00000025045	26.33614782	1.422615081	29.66165467	1.701171372	2	0.218165402
ENSRNOP00000051848	1.210185025	0.066687705	1.976072232	0.84394656	0	0.912895445
ENSRNOP00000018043	0.710438898	0.417329619	1.119794822	0.081235335	9	0.313250979
ENSRNOP00000009779	0.104106333	0.023365476	0.181849546	0.082567093	0	0.423224073
ENSRNOP00000014810	3.045338297	0.845841485	4.01991159	0.361473557	1	0.357582851
ENSRNOP00000035006	0.25821481	0.168152942	0.483709798	0.178795811	9	0.289349041
ENSRNOP00000019108	2.87802882	0.620000671	3.968989727	0.885769191	0	0.3335514
ENSRNOP00000023017	4.62754373	1.925725547	6.734530428	0.81012123	1	0.265136932
ENSRNOP00000011834	1.019865159	0.411173518	1.463240926	0.128004764	4	0.362939063
ENSRNOP00000019141	7.890407335	4.223725527	12.18166126	0.687472214	1	0.240103195
ENSRNOP00000000687	3.753682317	1.835229092	6.40128145	2.069705236	0	0.407503121
ENSRNOP00000007430	23.8983934	4.076733287	31.14441653	5.108271911	0	0.326203577
ENSRNOP00000013607	7.080295758	1.146921507	8.607569681	0.428031802	2	0.282422837
ENSRNOP00000023163	0.17904148	0.074254871	0.270906637	0.048577814	7	0.363166857
ENSRNOP00000008329	4.709056544	1.532698353	9.598965308	4.934812098	0	0.37625324
ENSRNOP00000005127	2.148134058	0.318879669	2.590248572	0.130328462	0	0.242488163
ENSRNOP00000026428	3.473651973	1.169131083	4.855016977	0.479125772	0	0.280761018
ENSRNOP00000040756	0.499046533	0.132457445	0.794812127	0.262114594	10	0.329844509
ENSRNOP00000015161	0.320713756	0.162489504	0.494033588	0.009878234	0	0.337889865
ENSRNOP00000021066	0.456670889	0.233388418	0.740683387	0.144259749	0	0.32363413
ENSRNOP00000025523	1.449317576	0.772486104	2.292555516	0.200553458	1	0.330370249
ENSRNOP00000039303	9.866444623	5.14244313	15.78505085	2.242587782	0	0.354786181
ENSRNOP00000055814	0.299707173	0.220383519	0.534295442	0.046740329	0	0.197961449
ENSRNOP00000009989	1.364862368	0.180167707	2.528833666	1.153609359	1	0.369522519
ENSRNOP00000027756	1.876171685	0.659656266	3.141152231	1.016138075	3	0.291356731
ENSRNOP00000028510	3.479132818	0.20258544	5.414627353	1.839120776	0	0.614830192
ENSRNOP00000010197	14.99474072	4.486636802	21.3814895	3.486874912	0	0.26204518
ENSRNOP00000038094	1.488054261	1.156733023	2.918205808	0.742265388	0	0.198951671
ENSRNOP00000017409	1.256854407	0.534222899	1.908249048	0.246621821	0	0.353085206
ENSRNOP00000018259	4.564732633	2.315803801	7.348159097	1.064694792	0	0.22841383
ENSRNOP00000048358	30.72353502	8.223461177	47.95818288	13.86070044	2	0.430724777
ENSRNOP00000044296	18.18939478	1.09662138	20.3304091	0.15160925	0	0.125250395
ENSRNOP00000030481	4.132002879	0.621907378	5.14216425	0.480522945	0	0.246063533
ENSRNOP00000048417	0.926412861	0.49142584	1.726413389	0.58930904	1	0.320805965
ENSRNOP00000015218	0.656696623	0.297590877	1.035911438	0.16990902	0	0.353427098
ENSRNOP00000002727	0.630302388	0.452644557	1.150606361	0.160324239	0	0.233785416
ENSRNOP00000015692	0.573269362	0.238810221	0.850232308	0.023379476	6	0.313381724
ENSRNOP00000005901	3.559993264	0.467154863	4.244423057	0.039132093	0	0.234224312
ENSRNOP00000012501	1.437524007	0.732955098	3.9423111	2.351531272	0	0.286853578
ENSRNOP00000028075	2.031697978	0.191702544	2.68207503	0.504011743	1	0.270825126
ENSRNOP00000027987	1.339301609	0.125072946	2.145923087	0.725478685	5	0.569306737
ENSRNOP00000019642	1.39947551	0.228029257	1.74819032	0.126822185	0	0.274379195
ENSRNOP00000011724	23.75733091	3.416037851	39.10151089	13.56149067	0	0.56387158
ENSRNOP00000012289	1.409797861	0.490116744	2.10184059	0.317018577	1	0.307913003
ENSRNOP00000015526	0.712890932	0.287571632	1.345855782	0.497474679	0	0.322702942
ENSRNOP00000017227	1.71398805	0.954664069	2.838038207	0.078039666	1	0.304332667
ENSRNOP00000024388	0.675160692	0.519736986	1.515455494	0.560164577	0	0.194196924
ENSRNOP00000023592	2.258065689	1.215847643	4.02425567	0.94685422	0	0.302116525
ENSRNOP00000041873	1.900928149	0.968742089	3.118314801	0.347785004	1	0.336429443

ENSRNOP00000015723	1.91308917	0.502924858	3.446069384	1.273786005	0	0.280413435
ENSRNOP00000001954	1.009957275	0.117385453	1.538763397	0.437855163	0	0.278950085
ENSRNOP00000004770	16.40408395	0.319887131	20.23071493	2.752756534	0	0.213613106
ENSRNOP000000031063	0.433075117	0.097198752	0.622226115	0.121188331	4	0.301778381
ENSRNOP00000003413	2.190457222	0.382768787	4.545175383	2.100072389	0	0.284482446
ENSRNOP000000051613	1.886309435	1.802276131	4.02534227	0.409933582	0	0.152198868
ENSRNOP000000027088	3.556133898	1.162584951	6.287237998	2.073416824	1	0.299424731
ENSRNOP000000006519	2.611112336	1.711029951	4.7567671	0.568391554	0	0.263327493
ENSRNOP000000007287	2.481315699	1.124441476	4.278955396	1.006781702	0	0.332037868
ENSRNOP000000018167	2.35593503	0.680991177	3.2808963	0.194478996	1	0.263656308
ENSRNOP000000006570	0.561363602	0.120425865	1.318836501	0.667347012	0	0.273238162
ENSRNOP000000013612	0.416086819	0.068028979	0.804849627	0.333904606	0	0.267424912
ENSRNOP000000049600	0.48668036	0.242291947	1.062486676	0.440789413	1	0.266035946
ENSRNOP000000022985	7.790059078	0.82529416	9.580657864	0.881704921	1	0.196426036
ENSRNOP000000021075	0.460060125	0.338295719	0.911937309	0.163524681	0	0.179827114
ENSRNOP000000004941	5.932646599	0.925779869	7.411177791	0.396691889	1	0.240486904
ENSRNOP000000008084	0.856131655	0.659047924	2.515843815	1.304495539	0	0.184258235
ENSRNOP000000017101	72.59171024	14.40977447	102.1395748	17.53901133	1	0.250939034
ENSRNOP000000014178	1.016791186	0.143237393	1.836463308	0.678820128	0	0.253274763
ENSRNOP000000006330	7.055113549	0.583640885	9.099055758	1.350355506	0	0.215664897
ENSRNOP000000012663	0.617227173	0.42509811	1.149308999	0.031603412	0	0.177046578
ENSRNOP000000006582	0.912480991	0.180418738	1.403673963	0.34686219	2	0.253968865
ENSRNOP00000002410	3.177775298	0.477384802	4.010389912	0.299838897	0	0.234155956
ENSRNOP000000036115	1.079830394	0.940287341	2.362251973	0.475378091	0	0.161875525
ENSRNOP000000012853	2.051225017	0.522238722	3.190719009	0.732241095	0	0.226901283
ENSRNOP000000021017	1.108786216	0.622345615	1.966548822	0.274016775	0	0.28234405
ENSRNOP000000023395	1.712849724	0.169475203	2.379252174	0.472945771	0	0.221971475
ENSRNOP000000012036	1.941948017	0.44596048	3.02050024	0.721571884	0	0.239352929
ENSRNOP000000021612	2.490274118	0.473394515	3.726884065	0.828436706	1	0.227323346
ENSRNOP000000047214	1.827389286	1.421040673	4.024336405	1.086816838	0	0.200410374
ENSRNOP000000056732	0.366623143	0.152879229	0.578720007	0.050626603	0	0.306905761
ENSRNOP000000030913	4.138482169	0.256523139	4.73383355	0.177774799	0	0.137331223
ENSRNOP000000016916	1.101846653	0.90061237	2.746962485	1.015372002	1	0.167895236
ENSRNOP000000023935	17.61586984	2.488643969	23.69572983	3.576056898	0	0.250997276
ENSRNOP000000028060	7.127062847	0.452028237	17.38547509	8.533815274	0	0.912461337
ENSRNOP000000027234	5.249654155	0.298879501	6.990089812	1.186407434	11	0.194405693
ENSRNOP000000056519	0.234552078	0.10848051	0.512191239	0.189323533	1	0.269456711
ENSRNOP000000050220	0.36603417	0.030360252	0.467703973	0.060389435	6	0.225351498
ENSRNOP000000023227	0.639146341	0.031991162	0.951664459	0.227344566	0	0.198550408
ENSRNOP000000019133	5.945399986	2.531969977	9.499739141	0.267534924	0	0.181544819
ENSRNOP000000034921	0.602453321	0.371627351	1.316325898	0.408594529	0	0.221690236
ENSRNOP000000012270	1.426518513	0.571938567	2.235535624	0.0614722	0	0.188575114
ENSRNOP000000056413	0.324653885	0.215806718	0.677429812	0.15939029	1	0.214473918
ENSRNOP000000028188	0.189177245	0.097655352	0.634222837	0.345877358	0	0.19973659
ENSRNOP000000039102	0.410928408	0.174598538	0.887623932	0.328096395	0	0.24850962
ENSRNOP000000025217	6.93742594	0.626604157	12.54129354	4.247120639	0	0.198297942
ENSRNOP000000007062	0.682620456	0.355514934	1.568192186	0.579657876	12	0.255103523
ENSRNOP000000025900	0.58738063	0.226724675	1.266120175	0.468001651	0	0.186399927
ENSRNOP000000018598	0.508063905	0.298635549	1.824323337	0.994906047	0	0.181874106
ENSRNOP0000000050137	18.62987061	10.65293785	38.72716184	10.40037383	0	0.309472921
ENSRNOP0000000019362	2.25287038	0.58528956	3.714697542	0.87401928	0	0.197000788
ENSRNOP000000026581	1.877773722	0.507740803	3.331100441	0.941655307	0	0.313500194
ENSRNOP000000001809	10.89517007	1.114508411	14.52906955	2.136857868	0	0.231448763
ENSRNOP000000038874	0.31267521	0.235176804	0.764409199	0.242183498	1	0.158524415
ENSRNOP000000008374	1.713104386	0.512911778	2.633008756	0.370961607	0	0.207581545

ENSRNOP00000006361	0.488604947	0.219195381	0.881821581	0.177457217	0	0.300418435
ENSRNOP00000052882	0.319778216	0.137402222	0.72529582	0.268094331	0	0.237945042
ENSRNOP00000013559	0.522852085	0.209725674	1.144416012	0.4094893	0	0.173743785
ENSRNOP00000005702	1.071987144	0.455474429	1.809811025	0.233680859	0	0.270578401
ENSRNOP00000020646	1.030127132	0.444044198	3.123115914	1.502415462	0	0.213065729
ENSRNOP00000019933	1.009248391	0.803687129	2.651101935	0.882272948	0	0.148692987
ENSRNOP00000006607	1.391470528	0.364722921	2.253459029	0.464107009	0	0.18844228
ENSRNOP00000026588	1.415717213	0.495413084	2.175327646	0.00885239	0	0.170906568
ENSRNOP00000026820	0.720938814	0.409762981	1.724066669	0.59769751	0	0.224370689
ENSRNOP00000021840	0.8864694	0.213894038	1.231722054	0.00674829	1	0.182669693
ENSRNOP00000001518	1.608680726	0.40153114	2.255379762	0.031390255	0	0.234513198
ENSRNOP00000043972	2.856074444	0.351656203	3.91783743	0.573545878	0	0.1699426
ENSRNOP00000024083	11.80637521	4.616969331	20.61822743	3.845566696	0	0.171396599
ENSRNOP00000017643	1.846692725	1.289767185	4.177542885	1.015703643	1	0.157166503
ENSRNOP00000043915	0.743874615	0.243495683	1.139202011	0.082643226	2	0.215995699
ENSRNOP00000025612	1.655075662	0.426553845	2.681582268	0.553257106	1	0.223388073
ENSRNOP00000023900	2.531954117	0.75060801	3.961400145	0.568771918	0	0.193196719
ENSRNOP00000046414	11.12281502	1.548736914	14.20233796	0.9123003	2	0.159109462
ENSRNOP00000008698	0.317957661	0.132453507	0.530990522	0.046451213	0	0.252526998
ENSRNOP00000056213	0.239898878	0.165223682	0.953268945	0.494281513	0	0.123214836
ENSRNOP00000034249	0.25862997	0.11286819	0.709522412	0.297640408	0	0.213381768
ENSRNOP00000003255	0.045327524	0.033330684	0.355233852	0.222506266	1	0.077428068
ENSRNOP00000000072	53.85446556	10.69505811	72.87230355	3.254965033	0	0.184544658
ENSRNOP00000015420	3.705493974	1.104566543	5.631519957	0.48024241	0	0.191616145
ENSRNOP00000050206	1.882098966	0.974489249	3.488807649	0.389105994	0	0.286907894
ENSRNOP00000037902	0.245932139	0.091870837	0.441888284	0.09013004	0	0.160237246
ENSRNOP00000026799	4.284693117	0.119572187	5.713465125	0.844510923	0	0.132807619
ENSRNOP00000026324	0.23443426	0.129984523	0.776224424	0.358650072	1	0.163942073
ENSRNOP00000018328	0.36868826	0.061899321	0.676803277	0.197208245	0	0.148998562
ENSRNOP00000004570	1.669030371	0.195586034	2.050057939	0.011231743	0	0.15476681
ENSRNOP00000013100	0.334681764	0.230502783	0.701717719	0.061386481	0	0.148002436
ENSRNOP00000028855	0.072465001	0.049908276	0.151935341	0.01329135	1	0.148002402
ENSRNOP00000006542	3.005659602	0.600206684	4.961307558	1.112646687	0	0.162486246
ENSRNOP00000003066	0.259554469	0.099391147	0.630798734	0.233164951	5	0.201391058
ENSRNOP00000056595	2.168338122	2.10651403	6.783963893	2.319340024	0	0.12564232
ENSRNOP00000027346	0.187459965	0.144306205	0.621603594	0.250269292	1	0.122575133
ENSRNOP00000015843	0.34304251	0.213438748	1.654487119	0.857871642	0	0.089811338
ENSRNOP00000021111	0.932754251	0.122684358	1.17960597	0.03243651	1	0.123364782
ENSRNOP00000008525	1.47887633	0.397113195	3.613897438	1.335821038	0	0.140666293
ENSRNOP00000009187	1.733060615	0.902593749	4.565375834	1.599336658	11	0.209039439
ENSRNOP00000012448	1.551989697	0.409886132	3.18301019	0.956913774	2	0.233879827
ENSRNOP00000022573	0.403129928	0.310328398	0.987017533	0.188468525	0	0.13539046
ENSRNOP00000008018	1.028655889	0.454243547	1.908452267	0.27291024	0	0.14436094
ENSRNOP00000029074	0.260328427	0.20040016	0.772891787	0.25721437	8	0.125146772
ENSRNOP00000040955	10.56887044	4.772870768	19.61208678	2.532291616	0	0.218858915
ENSRNOP00000009511	6.836360557	2.697909601	11.62953747	0.645768723	0	0.149732536
ENSRNOP00000007763	0.329370069	0.139945391	1.106028047	0.478161268	0	0.140127217
ENSRNOP00000013409	2.985190575	0.587462699	4.09618492	0.059768053	12	0.168830352
ENSRNOP00000022582	0.760925905	0.22557953	1.546534276	0.427479203	0	0.138573474
ENSRNOP00000022949	10.96616316	1.151847743	15.3669881	2.155457334	0	0.121210654
ENSRNOP00000001115	0.286981784	0.197650776	0.80370126	0.254632182	0	0.124756688
ENSRNOP00000039714	0.207480092	0.142896141	0.483696478	0.086734375	0	0.134762212
ENSRNOP00000012425	5.756063871	0.256070903	7.393309247	0.806144174	0	0.099833677
ENSRNOP00000003674	8.387609813	2.564071291	14.16952806	2.225930064	1	0.192079904
ENSRNOP00000001098	2.736840384	0.960634885	4.897016827	0.833905654	0	0.145414552

ENSRNOP00000017454	0.279903556	0.121225593	0.516630452	0.06670677	0	0.223528716
ENSRNOP00000019374	2.532446084	0.642848115	3.727166517	0.102488694	1	0.179553821
ENSRNOP00000012233	5.898665859	2.034003501	14.4109354	4.844499995	3	0.14111033
ENSRNOP00000050691	2.972121096	1.461123898	5.572565873	0.33793388	0	0.303286679
ENSRNOP00000030030	1.299270463	0.236816877	1.768847482	0.057824871	0	0.127720654
ENSRNOP00000011855	0.156251497	0.073859528	0.632594804	0.292286825	0	0.118750217
ENSRNOP00000003645	1.92438288	0.474849291	2.958359386	0.317892366	0	0.140269422
ENSRNOP00000026462	1.981776949	0.889535085	3.711344417	0.440260364	0	0.168412061
ENSRNOP00000005491	1.118502873	0.242863895	2.671104709	0.915131167	7	0.105494995
ENSRNOP00000039553	0.73930874	0.419963383	1.535471917	0.189108785	0	0.207984221
ENSRNOP00000026438	0.09493202	0.059066069	0.403787876	0.183336126	0	0.086870256
ENSRNOP00000054740	3.349056943	1.088442561	7.6767965	2.36371763	0	0.126640377
ENSRNOP00000041138	4.103925471	0.375343283	6.916055298	1.579366365	2	0.103385902
ENSRNOP00000012533	1.875805596	0.417117212	3.999396691	1.177431723	0	0.101156248
ENSRNOP00000017965	0.691561467	0.577086603	1.765332983	0.217418483	0	0.127111145
ENSRNOP00000019767	5.523487417	0.509670826	6.952034285	0.457925049	0	0.118340918
ENSRNOP00000015601	8.065027927	0.386062339	9.183480003	0.07834692	0	0.05498309
ENSRNOP00000009681	1.177360368	0.38656817	2.455840732	0.624659703	0	0.117254864
ENSRNOP00000002169	1.050341888	0.21309591	1.833028665	0.380291716	0	0.131259414
ENSRNOP00000025446	3.146939619	0.401031215	4.937039915	0.885288792	0	0.105001551
ENSRNOP00000028624	4.279058993	0.679886613	7.199465436	1.485375058	1	0.16810315
ENSRNOP00000001556	4.55092784	0.994137981	7.999406041	1.650416731	0	0.163491301
ENSRNOP00000054924	7.462271408	0.352957802	9.300204403	0.760122137	0	0.078201946
ENSRNOP00000035176	0.716553096	0.221205494	1.359667469	0.280027813	1	0.169948019
ENSRNOP00000010467	1.630018815	0.098403299	2.145252461	0.230519451	0	0.08768524
ENSRNOP00000025510	0.306244639	0.185603871	1.489404415	0.676250209	0	0.069734527
ENSRNOP00000019625	0.264146683	0.1819237	1.814948743	0.905265264	0	0.055927289
ENSRNOP00000009662	0.156187633	0.080625727	0.464707511	0.158627325	1	0.145343107
ENSRNOP00000006995	3.502305429	0.198599509	6.605953733	1.71888652	1	0.079916749
ENSRNOP00000019529	0.295971558	0.203842228	0.702119458	0.090656912	0	0.126076815
ENSRNOP000000006197	1.257613637	0.281612618	4.269308405	1.718903818	0	0.065241296
ENSRNOP00000002504	2.911275628	1.40912119	5.588450001	0.153669803	0	0.278962044
ENSRNOP00000023860	0.127547469	0.087844774	0.601826268	0.260183286	0	0.075759773
ENSRNOP00000006053	1.846486555	0.611403677	3.767234024	0.85158185	0	0.166088245
ENSRNOP00000014718	0.376302432	0.151711814	0.671273558	0.018458513	0	0.237886398
ENSRNOP00000020093	1.837045611	0.230191019	2.967720769	0.546492522	0	0.094512862
ENSRNOP00000018175	0.089401005	0.04644373	0.748328576	0.378663192	8	0.033435895
ENSRNOP00000035020	0.48798453	0.234539306	0.950995638	0.054531907	0	0.191714058
ENSRNOP00000026057	0.246170677	0.104429979	0.450348083	0.012383559	1	0.222160648
ENSRNOP00000001689	0.355490309	0.162385286	0.863175495	0.224049899	0	0.212518747
ENSRNOP00000047366	0.183753222	0.148322315	0.493204178	0.074389508	0	0.119349516
ENSRNOP00000048572	0.076676703	0.056382623	0.185252335	0.010622723	2	0.121573323
ENSRNOP00000038092	0.401274653	0.295069044	0.96948722	0.05559225	2	0.121573298
ENSRNOP00000000707	0.63906406	0.257790756	1.316023377	0.251291367	0	0.211447921
ENSRNOP00000022786	0.241284705	0.085140702	0.641761454	0.203325698	15	0.13247484
ENSRNOP00000013961	0.910559807	0.847879395	2.585575055	0.265263625	0	0.119259547
ENSRNOP00000009556	4.80233399	0.662874695	6.518152807	0.42670708	0	0.116697369
ENSRNOP00000043608	16.76045985	1.394684826	28.31130718	5.80157871	0	0.076306104
ENSRNOP00000004278	12.65683954	0.72932245	16.05526345	1.345615943	0	0.088998322
ENSRNOP000000025203	5.191053148	0.801116129	10.35479521	2.643079032	0	0.146690987
ENSRNOP000000002116	18.08927702	2.311211179	31.07951954	6.27379877	0	0.089045327
ENSRNOP00000018545	0.064030937	0.003528449	0.860800177	0.446335334	0	0.008292724
ENSRNOP00000016954	0.39378811	0.231465242	1.027469533	0.241750014	0	0.155120401
ENSRNOP00000037051	4.682177426	1.043799358	8.787555169	1.860953304	1	0.145695624
ENSRNOP00000000801	3.361036288	0.652575621	6.224561973	1.332351139	0	0.13846051

ENSRNOP00000043510	15.55535133	2.397175781	21.83276576	1.667390962	0	0.120023847
ENSRNOP00000010209	22.09912794	0.652453538	29.79565349	3.571556135	3	0.09862314
ENSRNOP00000000200	0.657970353	0.097595105	1.119590502	0.213340701	1	0.124599404
ENSRNOP00000029808	0.829640445	0.111746672	2.688476333	0.993753505	0	0.042906901
ENSRNOP00000012775	1.144316194	0.19229273	1.608898657	0.090798217	0	0.132156795
ENSRNOP00000012222	0.481669049	0.060000744	1.566395174	0.578993639	4	0.041038269
ENSRNOP00000040177	8.113709324	1.672876725	12.10935662	0.814707798	0	0.144836867
ENSRNOP00000025070	0.991453748	0.17991799	1.833732133	0.384383273	0	0.096257087
ENSRNOP00000036616	0.336204484	0.209184134	0.759842162	0.02089395	0	0.115101058
ENSRNOP00000050013	0.306056921	0.225052652	1.482757637	0.586565227	6	0.071148389
ENSRNOP00000024772	2.990402567	1.461141978	6.129497827	0.489460281	2	0.111454456
ENSRNOP00000026339	1.308989683	0.403854811	2.180534233	0.077125185	6	0.135452356
ENSRNOP00000012328	0.08144002	0.042308006	0.622698678	0.285951297	1	0.030894399
ENSRNOP00000026748	0.087921415	0.054704103	0.298856767	0.094685121	1	0.084129144
ENSRNOP00000030885	2.021740219	0.780380281	3.66500154	0.020079605	0	0.11075749
ENSRNOP00000039600	0.189407348	0.04808005	0.342625556	0.056197055	0	0.116222519
ENSRNOP00000054783	0.829265364	0.251221584	1.37854104	0.037906777	4	0.104468974
ENSRNOP00000003691	2.12098717	0.434662059	4.358068492	1.02133227	0	0.073005932
ENSRNOP00000013151	11.1903387	0.902865301	15.89196557	1.911702506	0	0.072542453
ENSRNOP00000015232	0.646408941	0.125020716	1.290759375	0.292599449	0	0.086661839
ENSRNOP00000007092	2.894582252	0.174786059	4.721347789	0.868997842	0	0.106491486
ENSRNOP00000002977	0.226941719	0.170692844	0.65588907	0.125240375	0	0.105469406
ENSRNOP00000023187	0.306465895	0.108140819	0.541972727	0.014903031	11	0.198182752
ENSRNOP00000057917	0.45062228	0.159008431	0.796907633	0.021913167	0	0.198182696
ENSRNOP00000015344	0.104759335	0.065180567	0.570125035	0.229543056	0	0.051048059
ENSRNOP00000000749	33.78780472	2.383563086	48.02118553	5.80794147	1	0.064996886
ENSRNOP00000001738	12.57954518	1.72654736	20.0589209	3.041333187	7	0.109250554
ENSRNOP00000019519	2.112156152	0.228351973	2.864341012	0.215704596	1	0.080564938
ENSRNOP00000027272	0.414188372	0.31884113	1.457830315	0.402960445	0	0.09141166
ENSRNOP00000023342	0.078083296	0.040564211	0.568752401	0.245884695	0	0.029594626
ENSRNOP00000046512	1.429477759	0.265176518	2.91227584	0.660177506	0	0.06486585
ENSRNOP000000009749	0.389492891	0.167357214	0.758761818	0.020864243	0	0.204891461
ENSRNOP00000041379	1.112382653	0.213264302	2.405919588	0.582973213	1	0.071179387
ENSRNOP00000006533	6.216584718	0.459045628	7.530053756	0.094043129	0	0.054249371
ENSRNOP00000021407	9.500211501	0.576616055	12.37186287	0.994491641	0	0.055180402
ENSRNOP00000011006	1.271589752	0.105625196	3.941323987	1.318036107	12	0.1111103412
ENSRNOP00000024779	1.518329752	0.66261979	2.998063363	0.095935635	5	0.170300388
ENSRNOP00000012240	0.934710773	0.35559626	1.825920698	0.194504876	2	0.148086013
ENSRNOP00000016981	1.573874122	0.341954681	3.120162394	0.636406013	0	0.070163825
ENSRNOP00000016883	7.991353474	0.624530795	9.800771235	0.209437668	1	0.066327943
ENSRNOP00000017199	1.514089766	0.72814741	3.762548769	0.767430781	0	0.183438633
ENSRNOP00000021729	0.294292147	0.199404161	0.772890119	0.099794743	0	0.105578196
ENSRNOP00000016962	0.212952272	0.14429052	0.559269818	0.072212319	1	0.105578181
ENSRNOP00000004283	0.174488754	0.090646758	1.661178573	0.733540814	0	0.02091443
ENSRNOP00000026929	0.20829029	0.108206594	0.975921601	0.360734257	7	0.0468624
ENSRNOP00000036881	0.175257464	0.091046071	0.821149893	0.3035253	0	0.046862396
ENSRNOP00000026783	0.20297672	0.10544623	0.951025642	0.351531852	0	0.046862399
ENSRNOP00000001348	0.2456251	0.152826294	0.764966571	0.194574422	1	0.084743303
ENSRNOP00000002687	0.315257127	0.196150879	0.981826253	0.249734149	5	0.0847433
ENSRNOP000000008913	0.243849488	0.15172152	0.759436692	0.19316786	0	0.084743298
ENSRNOP000000017722	0.562208573	0.349802359	1.750923485	0.445359233	0	0.084743291
ENSRNOP00000024719	0.878872829	0.141917823	1.30674812	0.117503801	0	0.08319775
ENSRNOP00000057301	0.506824636	0.373321016	1.409825789	0.182205674	0	0.10331906
ENSRNOP00000028934	19.09297701	9.538921149	40.76843889	1.882231317	0	0.301279388
ENSRNOP00000015217	6.192150365	1.826716383	11.15333509	1.216126068	0	0.088596759

ENSRNOP00000003334	3.030270269	0.644273332	16.89038806	6.756644527	0	0.103096137
ENSRNOP00000049807	1.100800968	0.466979356	2.195065404	0.125869244	0	0.1909298
ENSRNOP00000010252	0.539685024	0.248733229	1.709950402	0.493808359	0	0.063759897
ENSRNOP00000002478	0.048086846	0.002649844	0.805796833	0.37003234	0	0.00349415
ENSRNOP000000028900	0.571489834	0.242819144	1.34652723	0.257116001	3	0.153274756
ENSRNOP000000003072	0.282259072	0.16683897	0.830251143	0.190535113	0	0.149432453
ENSRNOP00000009666	20.94925298	3.386423533	33.86058848	4.542106549	0	0.09214394
ENSRNOP000000036514	18.15223276	1.173921948	21.88685862	0.501804517	0	0.051764962
ENSRNOP000000026706	1.078281319	0.23489776	2.179316635	0.4385643	1	0.080380286
ENSRNOP00000047683	2.183131129	0.205416198	3.250036138	0.411220154	9	0.082736927
ENSRNOP000000025525	43.88204144	2.362002115	56.79278529	4.319833253	0	0.049245323
ENSRNOP00000043466	29.36370288	3.103337719	48.78139897	8.084326613	1	0.087598294
ENSRNOP000000039610	0.547071711	0.257340775	1.900640449	0.581112942	0	0.149903072
ENSRNOP000000024471	1.064676506	0.819585254	3.008450691	0.296894175	0	0.102854296
ENSRNOP000000001517	0.784208405	0.198363396	1.661420018	0.342174704	0	0.064612374
ENSRNOP000000025323	1.740896822	0.855067819	3.712087547	0.102074057	0	0.249071749
ENSRNOP000000005005	8.561005589	0.829607947	13.9811189	2.242838621	2	0.082273222
ENSRNOP00000010053	1.39910379	1.206688004	4.4635862	0.673238376	0	0.102203999
ENSRNOP00000015647	0.807067706	0.684912194	2.376272513	0.12386136	0	0.105379255
ENSRNOP000000023418	0.046877598	0.027400241	0.187355196	0.0593587	0	0.060332812
ENSRNOP000000022828	3.450253692	0.474666229	4.847436101	0.277961248	1	0.084064608
ENSRNOP000000025804	0.707430166	0.076384072	1.149898938	0.173438141	0	0.054873459
ENSRNOP000000020376	0.704448697	0.299311772	2.503705585	0.777163472	1	0.093379725
ENSRNOP000000026734	0.502989043	0.319723	1.274902985	0.111528903	9	0.150223638
ENSRNOP000000008325	1.916824582	0.797178768	6.325092904	1.868166664	0	0.120685055
ENSRNOP000000025627	1.35609568	0.099958258	1.69017486	0.059781243	8	0.053632676
ENSRNOP00000013244	1.082980046	0.190609834	1.584176563	0.057670685	0	0.108599143
ENSRNOP00000019039	12.58476557	0.544186137	21.58503311	3.936642374	0	0.076731473
ENSRNOP000000004814	0.039561177	0.024614705	0.412720512	0.173860438	0	0.022393443
ENSRNOP000000038110	1.380750686	0.678700649	2.970029324	0.002056791	0	0.275114213
ENSRNOP000000027076	1.000546686	0.055135505	1.487532722	0.192248506	0	0.04670899
ENSRNOP000000007612	0.674880277	0.464805089	1.759326852	0.048377531	2	0.099920479
ENSRNOP000000057590	0.739928954	0.50960559	1.928900525	0.053040425	0	0.09992048
ENSRNOP00000047376	0.12891409	0.080209459	0.364774924	0.065409873	6	0.087512777
ENSRNOP00000048476	0.788922596	0.155932815	1.209218526	0.060157253	0	0.073538935
ENSRNOP00000010243	0.832062783	0.288911995	2.581941234	0.732539498	1	0.059547988
ENSRNOP00000008045	0.47732529	0.223925431	2.714578045	1.003401597	1	0.059349683
ENSRNOP000000028009	0.505279308	0.104142628	0.916669406	0.143019355	1	0.101801496
ENSRNOP00000019265	0.842040659	0.714591709	2.575304029	0.225288384	0	0.101923065
ENSRNOP00000002680	4.205859616	1.509697884	8.362354058	0.874168606	0	0.092844594
ENSRNOP00000016356	2.861724532	0.599630694	6.227202338	1.337573167	1	0.066567195
ENSRNOP000000031061	0.043584087	0.002401718	0.695748735	0.300788121	0	0.002885947
ENSRNOP000000037928	3.259780326	0.323282971	5.661718199	0.961686896	0	0.046142475
ENSRNOP000000005014	0.736728678	0.30061137	2.035795034	0.486334163	0	0.141670644
ENSRNOP00000012769	1.435884698	0.367475756	2.42940436	0.163448376	9	0.077277391
ENSRNOP00000018190	0.265459684	0.119089139	0.78889829	0.197480583	0	0.162102813
ENSRNOP000000024430	1.674358834	0.237226562	4.370224499	1.157972886	0	0.033497373
ENSRNOP00000045686	0.35520928	0.184530885	3.124382165	1.235976728	0	0.019292344
ENSRNOP00000018737	0.735253145	0.037849862	2.066013825	0.58261524	0	0.021852888
ENSRNOP000000027040	3.767697637	0.204329098	5.826206417	0.821480578	1	0.063848414
ENSRNOP000000021030	1.539073557	0.649569386	3.578680848	0.55476365	0	0.089836911
ENSRNOP000000024973	4.450701397	0.08543945	5.74144674	0.472880415	0	0.048834282
ENSRNOP000000000201	1.79257655	0.256332558	4.420230014	1.118527439	0	0.069192472
ENSRNOP000000020020	0.967687587	0.366123629	2.671241944	0.642882708	0	0.132420199
ENSRNOP000000027760	3.412165439	1.199885421	7.107536662	0.933766736	4	0.139534755

ENSRNOP00000014464	0.478483324	0.096187679	3.000195348	1.108975596	0	0.012448135
ENSRNOP00000003498	12.42741067	2.868228965	25.10720656	4.474460268	2	0.086675429
ENSRNOP00000027995	2.741381316	0.348834618	3.870676242	0.239216643	0	0.062047247
ENSRNOP00000003277	0.407114958	0.064862677	1.141417625	0.308252534	0	0.030160996
ENSRNOP00000020558	0.500936062	0.135394565	0.888047013	0.070913434	1	0.094878421
ENSRNOP00000043843	0.265328685	0.125419941	0.719882694	0.142009993	0	0.127515468
ENSRNOP00000043115	0.229706303	0.155642577	0.733015857	0.142766377	0	0.08698915
ENSRNOP00000036480	1.161782354	0.212110533	6.953651302	2.528868031	4	0.048962966
ENSRNOP00000028495	0.186621384	0.065851979	0.371616743	0.032509146	0	0.156200971
ENSRNOP00000002576	1.909089448	0.395140447	3.300484041	0.387353567	0	0.075409848
ENSRNOP00000039779	0.506280306	0.080096043	0.894501405	0.131477137	1	0.0494001
ENSRNOP00000020079	1.964455517	0.343479801	2.919733925	0.080286114	1	0.087375671
ENSRNOP00000014062	1.622138768	0.292661628	2.965096547	0.447222636	0	0.059304984
ENSRNOP00000027773	0.475161138	0.156782774	1.043391813	0.166327794	0	0.093426068
ENSRNOP00000012436	0.349261894	0.178495467	1.366421897	0.388815385	0	0.089942973
ENSRNOP00000001932	0.047707671	0.002628949	0.723706681	0.291377914	1	0.00230422
ENSRNOP00000026224	2.102808728	0.313483986	4.594209702	0.966668762	1	0.034552818
ENSRNOP00000047809	0.211416548	0.081003004	0.828819437	0.249169399	1	0.102006213
ENSRNOP00000001301	3.2887221	1.66344274	7.582110867	0.266664518	2	0.25683659
ENSRNOP00000023628	0.094722459	0.049208231	0.798861539	0.295286756	0	0.018487994
ENSRNOP00000010385	1.382697021	0.644072756	5.86149133	1.757238639	1	0.042248625
ENSRNOP00000056912	0.195898238	0.134919493	0.648566545	0.123842157	0	0.077798348
ENSRNOP00000022747	5.522861607	3.002011076	14.31087716	1.721507614	1	0.158956405
ENSRNOP00000011237	0.786457731	0.327279849	1.689767507	0.122583912	6	0.079576147
ENSRNOP00000013043	0.312416905	0.119633762	1.553011587	0.500051416	0	0.052815868
ENSRNOP00000003020	11.83714339	1.082517367	21.51273014	3.587685835	1	0.033656291
ENSRNOP00000011327	0.750839523	0.302879621	2.003627878	0.395252147	4	0.136080058
ENSRNOP00000037053	0.25027985	0.100959865	0.667875959	0.131750716	0	0.136080026
ENSRNOP00000013324	0.966728158	0.145731886	1.754000774	0.264554235	0	0.049702485
ENSRNOP00000010627	0.06740647	0.040852662	0.174190777	0.004789855	1	0.08660527
ENSRNOP00000012549	0.076827008	0.046562081	0.198535148	0.00545927	1	0.086605219
ENSRNOP00000032963	0.203459052	0.123309237	0.525775841	0.014457653	9	0.086605206
ENSRNOP00000008986	1.122072921	0.554011572	3.720658423	0.895443771	0	0.149075967
ENSRNOP00000012847	1.235887381	0.147853184	2.31003705	0.393134957	0	0.053480091
ENSRNOP00000028484	10.66065057	1.730047101	18.60542821	2.404562752	0	0.058922062
ENSRNOP00000025433	0.851618321	0.278763911	2.239025147	0.467187949	0	0.063075764
ENSRNOP00000015814	1.35547788	0.278444339	2.73645632	0.448830465	1	0.044534275
ENSRNOP00000051958	0.442750612	0.024397941	2.317411253	0.761651761	0	0.007012144
ENSRNOP00000017121	1.666593381	0.781841281	3.977273794	0.392504164	0	0.148697052
ENSRNOP00000006004	2.42721571	0.10127547	3.871810145	0.521113458	0	0.028340213
ENSRNOP00000001171	0.173977622	0.11982229	0.535174662	0.069165893	12	0.081235955
ENSRNOP00000039493	3.862661808	1.009851033	8.526309042	1.497454453	3	0.067186804
ENSRNOP00000049003	2.387454775	0.426806388	9.084689602	2.665388705	0	0.040339578
ENSRNOP00000023554	2.260657154	0.61393281	8.000529552	2.213000055	0	0.060066226
ENSRNOP00000005280	0.321990055	0.256407896	1.365999762	0.317965337	0	0.070867442
ENSRNOP00000024310	12.49899836	0.480906523	16.16869927	1.130027212	0	0.036417356
ENSRNOP00000003282	0.275397988	0.105458113	0.73007401	0.139405803	0	0.118505843
ENSRNOP00000010593	0.688725514	0.325558141	1.664249318	0.164239331	0	0.140069525
ENSRNOP00000024832	2.530235174	1.207284272	8.362771597	1.91918029	0	0.130814496
ENSRNOP00000010867	3.88332159	0.997952618	12.49582685	3.221517583	0	0.036813515
ENSRNOP00000023152	9.066195341	1.036985914	14.10893796	1.499046029	0	0.048261613
ENSRNOP00000003251	0.415674637	0.192422199	0.975255311	0.073443438	1	0.207258819
ENSRNOP00000002055	0.916697911	0.394048984	3.39586738	0.881447339	0	0.09778651
ENSRNOP00000018336	0.880413241	0.085316818	2.554418742	0.643261433	0	0.015762953
ENSRNOP00000057305	0.245517347	0.211287469	0.984468006	0.184999834	0	0.080943808

ENSRNOP00000053659	1.433721359	0.619094575	3.352273627	0.330824938	0	0.154027817
ENSRNOP00000058419	6.467960371	1.102114333	13.74166464	2.477126807	0	0.032144755
ENSRNOP00000014028	0.259514899	0.199773903	1.011339126	0.203521245	0	0.072550961
ENSRNOP00000015438	0.217031731	0.02816346	0.584839924	0.137605112	0	0.020739607
ENSRNOP00000028555	7.100364961	1.383822543	11.85880084	0.959466455	0	0.055744671
ENSRNOP00000057446	3.602835381	0.662900841	7.504700823	1.28091508	0	0.036489027
ENSRNOP00000009198	0.122410597	0.063592183	0.484871119	0.123330249	0	0.042973126
ENSRNOP00000002327	0.353290147	0.182349422	1.041949276	0.180166386	0	0.123472849
ENSRNOP00000025655	6.242888388	1.018060296	9.390843993	0.258227083	0	0.061921589
ENSRNOP00000002996	10.10006665	1.868250392	20.71930111	3.446851873	0	0.052008567
ENSRNOP00000035090	2.20781745	0.420225513	3.750442761	0.32808988	0	0.06632351
ENSRNOP00000007914	0.48969108	0.360084266	1.688597355	0.254689501	2	0.076327102
ENSRNOP00000001409	1.11765047	0.210961464	4.137025999	1.128175934	0	0.015439122
ENSRNOP00000008200	0.388349929	0.168697082	0.967832978	0.122503608	0	0.065178097
ENSRNOP00000048171	1.768912747	0.236479211	2.512654796	0.010225126	0	0.058819222
ENSRNOP00000002257	0.194282779	0.113559434	0.516281018	0.014196567	0	0.078259809
ENSRNOP00000003077	0.079105955	0.046237884	0.210213686	0.005780403	3	0.078259787
ENSRNOP00000012102	0.203468714	0.118928656	0.540691468	0.014867799	0	0.078259789
ENSRNOP00000003542	1.702702054	0.331080427	4.782175977	1.092068753	0	0.024971919
ENSRNOP00000009611	1.158943455	0.161109668	1.835133513	0.160538041	0	0.05248865
ENSRNOP00000019184	0.263535243	0.163969864	1.134034208	0.277257667	0	0.048449872
ENSRNOP00000010637	0.42990607	0.0988634	1.53382114	0.398125843	0	0.017684295
ENSRNOP00000039792	1.079178765	0.124750487	1.560426524	0.089477838	10	0.041851643
ENSRNOP00000020752	0.28150514	0.138621273	0.730800657	0.075216893	14	0.146753
ENSRNOP00000003252	0.866992536	0.449922684	2.252683172	0.172748587	0	0.224125658
ENSRNOP00000050343	0.366243739	0.214071592	2.306586858	0.693433135	4	0.040061615
ENSRNOP00000019795	3.475826898	0.273184744	4.436817818	0.01078021	1	0.034977348
ENSRNOP00000047579	1.134512221	0.147824109	3.834139017	0.975239196	0	0.012364718
ENSRNOP00000046992	1.507832095	0.742500221	11.67220777	3.72444656	0	0.056237932
ENSRNOP00000029144	2.151576655	0.103859371	3.559702891	0.477503509	0	0.034098323
ENSRNOP00000006335	0.148169239	0.076973763	0.86459413	0.251927107	0	0.024553073
ENSRNOP00000012883	0.327609401	0.260882734	1.424961432	0.297563138	3	0.070633643
ENSRNOP00000008679	0.25505676	0.154580756	0.742162545	0.064924606	0	0.071828092
ENSRNOP00000004006	0.115240499	0.069843109	0.335326046	0.029334425	0	0.071828064
ENSRNOP00000041663	0.472347706	0.204413495	1.170709991	0.128485663	0	0.172105224
ENSRNOP00000021958	0.508389683	0.125296514	1.556673055	0.352878845	8	0.022103497
ENSRNOP00000039474	0.338311163	0.248770156	1.110888917	0.09989199	1	0.078431047
ENSRNOP00000027537	2.518212629	1.24282563	13.96053757	4.005943026	0	0.128007992
ENSRNOP00000049797	0.222414249	0.130733138	0.779388753	0.148514428	0	0.100528525
ENSRNOP00000018711	0.988008453	0.269464808	2.198343751	0.31436496	0	0.049103455
ENSRNOP00000052489	0.125730154	0.096786759	0.424529375	0.033156595	0	0.079561951
ENSRNOP00000051835	1.068448198	0.315830869	2.138802488	0.161066551	0	0.057668297
ENSRNOP00000055387	0.287773288	0.211970402	1.055373347	0.159180938	1	0.070561221
ENSRNOP00000024106	8.162795205	0.733169333	16.50631138	2.752763555	0	0.01905618
ENSRNOP00000056968	0.53035997	0.029225688	2.56898791	0.739135067	0	0.01735204
ENSRNOP00000024362	0.977825361	0.493139082	3.253404622	0.611375191	0	0.122743705
ENSRNOP00000045076	2.462054466	0.402752885	5.344654638	0.891993404	0	0.029867707
ENSRNOP00000010601	0.2512328	0.184738876	1.435123084	0.37250731	1	0.044251539
ENSRNOP00000023753	0.49790725	0.081406368	1.978886746	0.513649169	1	0.009338241
ENSRNOP00000021524	0.365131705	0.268951697	1.184140848	0.047036511	0	0.078416017
ENSRNOP00000001816	9.936726568	0.117948724	13.98187626	1.213005128	0	0.016647675
ENSRNOP00000024232	2.219345861	0.235158609	3.047154302	0.042376877	5	0.035731006
ENSRNOP00000023516	4.424146937	0.019749831	6.030143054	0.470966263	0	0.015883362
ENSRNOP00000036054	0.634606839	0.264361941	1.575574367	0.165177979	5	0.116154609
ENSRNOP00000019021	51.71271513	0.818353874	72.60718311	6.482338831	0	0.025574378

ENSRNOP00000026760	0.424829881	0.067486619	1.150081422	0.236862904	0	0.015963441
ENSRNOP00000022532	0.93403457	0.088504193	2.18184675	0.410009552	0	0.014083997
ENSRNOP00000056095	0.218710414	0.152162312	0.730657579	0.076599712	0	0.071770956
ENSRNOP00000019059	1.346817147	0.561427089	5.615607088	1.352304354	0	0.042637091
ENSRNOP00000029816	3.317479241	0.604115777	6.384412626	0.807806139	3	0.039173617
ENSRNOP00000019162	10.77678975	0.883352273	18.73191887	2.456746976	0	0.029566736
ENSRNOP00000018761	8.689869065	0.751865704	12.48034399	0.863966119	3	0.034173452
ENSRNOP00000010061	0.543705941	0.280666894	2.056682369	0.429480297	0	0.08647955
ENSRNOP00000015282	0.925826664	0.313307057	1.971598354	0.111267179	0	0.07298501
ENSRNOP00000025090	2.128810879	2.062888236	9.113115128	1.014024213	0	0.089550887
ENSRNOP00000026316	11.28856139	0.512891858	15.720194	1.236625365	0	0.025623934
ENSRNOP00000023701	1.295693644	0.213176641	2.232922569	0.195336749	0	0.036806745
ENSRNOP00000043179	1.024801664	0.164437088	2.235569446	0.364857724	7	0.034946031
ENSRNOP00000012924	0.146622288	0.085701577	0.438723003	0.038379623	0	0.064720041
ENSRNOP00000046668	0.342506571	0.201008568	1.020826803	0.081516331	1	0.064392909
ENSRNOP00000014780	0.367696023	0.105513103	2.356143664	0.674054857	0	0.015890523
ENSRNOP00000008211	0.47194404	0.20286843	1.127087695	0.031741432	0	0.15734709
ENSRNOP00000010054	0.226439732	0.077027177	0.847680241	0.191617803	0	0.021468665
ENSRNOP00000010545	2.041968762	0.033430248	4.242970952	0.708128468	0	0.01103132
ENSRNOP00000027220	1.318728114	0.971359532	4.605335608	0.414115338	0	0.072428914
ENSRNOP00000005658	1.141478482	0.341561387	2.353599018	0.15407699	6	0.098518249
ENSRNOP00000045650	5.807833633	2.897504312	16.24799694	1.665801117	7	0.249644889
ENSRNOP00000019624	20.91984559	2.146282657	59.62633409	12.74346644	0	0.02128497
ENSRNOP00000020785	0.103152351	0.062516916	0.412641794	0.080368485	0	0.051729682
ENSRNOP00000011654	0.237915852	0.144192257	0.951738331	0.185366022	0	0.051729689
ENSRNOP00000042839	0.184182568	0.095682696	0.662843322	0.118858217	0	0.042268801
ENSRNOP00000009377	1.440359511	0.197421006	2.554700655	0.271127942	0	0.027771511
ENSRNOP00000024306	0.366840867	0.051454457	0.558221817	0.015720835	0	0.041402881
ENSRNOP00000000106	0.871818795	0.122284522	1.326646863	0.037361486	7	0.041402867
ENSRNOP00000008841	29.2927592	3.810806782	48.06202594	4.119424379	0	0.038850933
ENSRNOP000000022113	0.896367554	0.32791421	3.883440978	0.912509353	0	0.053344438
ENSRNOP00000025769	0.229299353	0.119120814	1.254954282	0.306821165	5	0.023532692
ENSRNOP00000003977	0.057187572	0.033426471	0.23524695	0.045818047	16	0.046867386
ENSRNOP00000023984	0.368792285	0.020322439	0.464652916	0.01277691	0	0.020613482
ENSRNOP00000054931	1.192536507	0.354371643	3.333099719	0.556275974	0	0.040617736
ENSRNOP00000004836	41.24888824	4.119681467	63.34474718	4.858715182	0	0.029904518
ENSRNOP00000050947	0.464485293	0.200821364	1.153981327	0.032498819	0	0.155749057
ENSRNOP00000018683	0.172479504	0.100815281	0.583927004	0.075396029	0	0.055433101
ENSRNOP00000011330	3.286853752	0.448550457	4.951114209	0.040634009	0	0.031422632
ENSRNOP00000034525	0.307821723	0.166652879	1.773762686	0.427142955	0	0.082608401
ENSRNOP00000017911	16.73921477	3.661003494	38.25026637	5.382860319	0	0.030549927
ENSRNOP00000001863	0.502823325	0.084419349	1.229501249	0.201661402	1	0.01589715
ENSRNOP00000019285	0.759519968	0.127516314	1.236283734	0.033995021	0	0.034861392
ENSRNOP00000048250	20.42233607	1.359836529	26.87605053	0.940461709	0	0.021669373
ENSRNOP00000045539	0.265287714	0.18270954	1.075888164	0.162275168	0	0.054240187
ENSRNOP00000009053	4.530566907	1.403540233	9.643623715	0.427872067	0	0.045770744
ENSRNOP00000022055	0.267736102	0.148449063	1.104112575	0.203317398	5	0.072545373
ENSRNOP00000035966	17.01449539	0.715081452	26.05204493	2.370420087	1	0.012321267
ENSRNOP00000012255	1.503924593	0.805010088	5.965589898	1.069723957	0	0.082079405
ENSRNOP00000009900	0.069983022	0.024694489	0.426236466	0.107858003	1	0.030718713
ENSRNOP00000055824	3.301180706	3.246480723	15.118579	1.220585752	0	0.088202506
ENSRNOP00000058613	1.280278023	0.31819028	6.276059044	1.483263962	0	0.012318502
ENSRNOP00000035497	5.656143536	0.673843755	15.38581581	2.865164946	1	0.016885818
ENSRNOP00000006359	5.512802259	0.865706302	12.77272359	1.926497507	0	0.015864846
ENSRNOP00000025649	22.2358653	3.2142944	40.9576053	4.293859193	0	0.032445737

ENSRNOP00000019862	0.290849392	0.051924814	0.521268486	0.037815338	0	0.035186755
ENSRNOP00000020478	8.30244045	0.845142915	13.22406327	1.060345711	1	0.024482907
ENSRNOP00000010383	11.3261455	1.626776179	33.08457924	6.304347264	0	0.015590579
ENSRNOP00000023615	0.271841447	0.1389286	0.848202008	0.087300304	11	0.101012409
ENSRNOP00000039373	0.278205887	0.144527693	0.799694024	0.021989787	0	0.053784852
ENSRNOP00000002752	0.641668365	0.333346128	1.844455571	0.050718379	0	0.05378485
ENSRNOP00000055805	0.523466313	0.271940249	1.504687439	0.04137552	0	0.053784845
ENSRNOP00000025327	14.71186865	0.994623085	23.87759755	2.235592994	1	0.013330049
ENSRNOP00000000662	2.577335447	1.400938499	7.722860744	0.28114459	1	0.125505533
ENSRNOP00000019923	0.394757311	0.186600411	1.081271122	0.03045113	0	0.108667461
ENSRNOP00000027700	9.482988624	0.615233408	12.57679964	0.376370113	0	0.0176644
ENSRNOP00000050605	0.696710541	0.637154503	4.775883215	1.007644429	0	0.05682265
ENSRNOP00000051113	0.044711301	0.002463833	0.71993837	0.198998939	0	0.000481489
ENSRNOP00000011326	0.03095099	0.001705566	0.498371659	0.137755446	0	0.000481488
ENSRNOP000000021934	1.26149868	0.187114974	2.327137384	0.216012218	0	0.021909552
ENSRNOP00000004686	25.79628897	1.309695296	47.33829546	5.902172462	0	0.014854917
ENSRNOP00000016447	1.169792463	0.805662151	4.469698169	0.441099917	0	0.056386268
ENSRNOP00000035203	0.187583523	0.102883756	0.585460951	0.039250018	0	0.103589185
ENSRNOP00000039971	0.52148483	0.087552452	0.978040346	0.087946144	0	0.025772831
ENSRNOP00000019527	0.966271609	0.456753229	2.815097333	0.224723934	1	0.100457051
ENSRNOP00000003910	14.635813	1.397127875	21.20590777	0.864581744	0	0.02327919
ENSRNOP00000020744	0.541093424	0.372663125	1.940530377	0.07708186	0	0.060082968
ENSRNOP00000000434	4.892052859	0.837563843	12.53470744	1.989694935	0	0.019163714
ENSRNOP00000045886	22.85996691	1.755150632	30.58251919	0.268709357	1	0.019567134
ENSRNOP00000000527	0.860606442	0.102612776	1.318269259	0.047990542	5	0.021935273
ENSRNOP00000008477	85.47418593	4.964824159	147.3414202	15.45759895	0	0.009783101
ENSRNOP000000054947	1.425994762	1.390900298	6.975728936	0.627262938	8	0.082420031
ENSRNOP00000009462	0.622853937	0.283946314	1.90382541	0.200189333	0	0.127717364
ENSRNOP00000025887	3.287364116	0.30987551	4.597570063	0.010304735	0	0.025577198
ENSRNOP00000022836	0.364019929	0.226490749	1.255451076	0.071989964	0	0.053800637
ENSRNOP00000013789	27.48481996	1.726032521	36.10379165	0.811442543	0	0.0142709
ENSRNOP00000020670	1.024907282	0.581535579	4.354315097	0.71518853	0	0.113513346
ENSRNOP000000209068	13.6968167	2.08094272	28.21736297	3.208914876	0	0.015555782
ENSRNOP00000045567	6.879419903	6.808953095	32.89587718	1.429155039	2	0.087898034
ENSRNOP00000053926	1.677530425	0.251610845	4.615217376	0.756982725	1	0.008595966
ENSRNOP00000058718	0.056792928	0.029503874	0.183818989	0.016080541	0	0.044171688
ENSRNOP00000031360	0.128333693	0.066669215	0.415371618	0.036336836	8	0.044171658
ENSRNOP00000021657	0.85531679	0.501964089	3.269618574	0.402686359	0	0.042885478
ENSRNOP00000001397	4.469616829	1.236588975	12.10470286	1.582244729	2	0.020835828
ENSRNOP00000040859	13.87237556	7.026816551	41.72785125	1.407786204	1	0.243709966
ENSRNOP00000002499	4.415575117	0.269803959	13.32093229	2.42358953	1	0.007682393
ENSRNOP00000014167	0.122066693	0.054065991	0.486941717	0.08287045	0	0.097165417
ENSRNOP00000002462	0.222253843	0.115460668	1.135897272	0.216896738	1	0.022807889
ENSRNOP00000042136	0.126071341	0.100393427	1.253693453	0.292992476	7	0.029223582
ENSRNOP00000009111	57.4468536	10.443248	104.3016822	5.064432174	0	0.024985232
ENSRNOP00000001508	0.294692145	0.153092289	1.079183611	0.139343031	0	0.038053851
ENSRNOP00000057867	0.065649221	0.03410472	0.240412191	0.031041764	0	0.038053857
ENSRNOP00000001285	3.822770632	0.724988784	7.414521753	0.51105528	2	0.033524118
ENSRNOP00000007398	0.519762421	0.130208295	2.571851444	0.533572561	0	0.005992115
ENSRNOP00000030323	2.613424768	0.36549999	4.802964777	0.396685443	0	0.020872838
ENSRNOP00000040223	2.047904374	0.312328496	3.402827984	0.074193979	0	0.033114725
ENSRNOP00000056788	0.098656411	0.005436499	5.746409224	1.531707236	0	9.19447E-05
ENSRNOP00000033950	1.506171609	0.272364915	2.659810057	0.038809691	0	0.036744061
ENSRNOP00000039357	0.403447778	0.273364969	1.497027213	0.041164881	0	0.055660712
ENSRNOP00000016060	3.824658099	2.071457772	12.8171376	0.950630987	0	0.121035746

ENSRNOP00000000107	2.475010856	0.374445152	4.12648256	0.113468987	0	0.029593137
ENSRNOP00000028077	0.095748373	0.049741182	0.958336776	0.223073154	0	0.009008991
ENSRNOP00000039448	2.626020358	0.519074618	5.10650171	0.308897144	0	0.024418198
ENSRNOP00000009649	2.880964509	0.52724161	8.252459087	1.292591686	0	0.012707792
ENSRNOP00000018922	0.413190398	0.145800057	1.022995167	0.028130066	0	0.091179957
ENSRNOP00000030374	19.23055451	1.799273192	28.11351146	0.884795388	1	0.019002223
ENSRNOP00000035783	0.144852224	0.087789712	0.618385125	0.079920001	2	0.03842334
ENSRNOP00000048893	0.570415705	0.20867269	1.657422387	0.173758654	4	0.076152066
ENSRNOP00000027271	0.206558411	0.093604721	1.134646484	0.218412773	1	0.075890106
ENSRNOP00000006578	0.63677325	0.082631866	1.754235361	0.273696938	0	0.010718045
ENSRNOP00000015562	0.485789796	0.224678149	1.570307335	0.137370966	8	0.112478245
ENSRNOP00000013488	1.055032858	0.583247631	3.661154029	0.239675318	2	0.09345392
ENSRNOP00000014819	8.633174729	1.379886463	14.93722639	0.36507717	1	0.030202849
ENSRNOP000000022626	0.73159393	0.578628447	3.13576923	0.043643469	0	0.059989389
ENSRNOP00000019713	1.290590781	0.092264108	2.673343076	0.317126858	1	0.005752818
ENSRNOP000000023122	0.293604689	0.152527388	1.944480192	0.383584187	0	0.015077723
ENSRNOP000000025284	0.067486738	0.035059309	0.44695007	0.088169054	0	0.015077727
ENSRNOP00000016876	4.302099785	0.839902571	9.027955304	0.713820535	0	0.027966785
ENSRNOP00000031588	0.076911696	0.031986412	0.215659076	0.004312117	0	0.117643647
ENSRNOP00000016410	1.171501728	0.251490242	2.396907777	0.121103161	7	0.033849803
ENSRNOP00000027360	6.832271599	0.490643886	11.43195405	0.909495944	0	0.007887608
ENSRNOP00000026831	0.968880704	0.28073706	3.469807112	0.549956525	11	0.029493371
ENSRNOP00000006369	1.039494637	0.395151699	2.992098973	0.227374687	0	0.031087272
ENSRNOP00000020335	0.373338033	0.257126225	1.792161751	0.220722716	0	0.04110136
ENSRNOP00000048184	1.336724505	0.905727316	5.307233682	0.210814243	0	0.050304727
ENSRNOP000000031020	1.47508624	0.45911843	4.116823347	0.431594075	0	0.050473785
ENSRNOP000000041287	0.160341422	0.039682016	0.337721013	0.004700383	1	0.037472463
ENSRNOP00000020446	117.633958	5.581405774	193.9754475	16.82446564	1	0.008514845
ENSRNOP00000021389	0.329233337	0.064106359	0.937773256	0.129241319	0	0.013518214
ENSRNOP00000027641	0.916373572	0.388741967	2.634384711	0.072439653	0	0.096749441
ENSRNOP000000042710	0.24041137	0.140521855	1.244501831	0.199641874	6	0.028905322
ENSRNOP000000034828	0.794569846	0.093381095	1.238771706	0.011421041	0	0.016320058
ENSRNOP000000035110	0.64862505	0.170195292	2.056581611	0.293434055	8	0.017177165
ENSRNOP000000023425	1.403794794	0.084246081	1.913616518	0.053891927	6	0.008689383
ENSRNOP00000036810	1.993192751	0.305608491	6.94415301	1.125066636	1	0.004315411
ENSRNOP00000008119	0.988867118	0.054491898	3.289186042	0.551306483	1	0.003931326
ENSRNOP000000051714	1.553254706	0.537603185	4.232467794	0.271767276	0	0.04848517
ENSRNOP00000034210	1.412289512	0.166351099	2.99344327	0.315097604	1	0.007766289
ENSRNOP00000017396	7.906409047	1.046849279	26.4821174	4.317330326	0	0.006284752
ENSRNOP00000002343	0.186001453	0.078905116	0.754435839	0.10512227	0	0.058461588
ENSRNOP00000025570	0.372782913	0.184803723	1.210945724	0.033298283	1	0.133080097
ENSRNOP00000014173	2.545801446	0.250024846	6.068582383	0.758450869	0	0.004736183
ENSRNOP00000039430	3.014333844	0.339205583	5.899293917	0.535127769	9	0.009429105
ENSRNOP00000015213	0.727803134	0.080203389	1.48989939	0.147033306	0	0.007856874
ENSRNOP00000028175	0.122075442	0.073985553	0.528089064	0.055363102	0	0.036946999
ENSRNOP00000033290	0.421150751	0.068856904	0.951964113	0.09394623	0	0.010483071
ENSRNOP00000001227	1.084098992	0.223718262	2.651515863	0.261669443	0	0.012863416
ENSRNOP00000010419	0.796955867	0.4175613	3.252421937	0.353337213	0	0.102905133
ENSRNOP00000009249	0.472918172	0.235440488	1.85086541	0.20313286	0	0.062990819
ENSRNOP000000046233	0.159383852	0.093160796	0.592958309	0.01630502	0	0.04159471
ENSRNOP000000029702	1.41308437	0.200880008	2.861326007	0.234420302	0	0.010089188
ENSRNOP000000031191	0.666750767	0.093248296	1.126891086	0.002738026	0	0.021279275
ENSRNOP000000021638	17.18204825	1.989310681	34.48194066	3.104636786	1	0.008106278
ENSRNOP000000044560	1.226707551	0.347102707	2.956378494	0.117433437	1	0.038808422
ENSRNOP00000023632	0.132073327	0.090961874	0.603014305	0.047096626	1	0.042581882

ENSRNOP00000045670	17.1642293	1.537064525	26.7012121	1.1803299	1	0.01264906
ENSRNOP00000002531	0.268428506	0.167014403	1.959527949	0.3388275	0	0.01912019
ENSRNOP00000004911	0.167157303	0.086838076	0.935990873	0.150150821	0	0.019401591
ENSRNOP000000025104	10.36214323	5.528495172	43.07710202	4.601100475	0	0.164018312
ENSRNOP000000025051	1.840185112	0.558468591	5.581722316	0.580655959	0	0.029038266
ENSRNOP000000026398	0.376986232	0.161983353	1.154053853	0.031733885	0	0.092604468
ENSRNOP000000005329	2.265529274	0.413339121	4.665945097	0.276394244	0	0.02390954
ENSRNOP000000001211	7.741094447	1.553473982	16.63712273	1.003971484	0	0.015803627
ENSRNOP000000015179	0.668050934	0.257862809	2.133994921	0.185763036	0	0.024314675
ENSRNOP000000017212	0.328929342	0.151549333	1.046157162	0.007356796	1	0.141330444
ENSRNOP000000050968	11.23059179	1.933709485	20.85650803	0.286028383	0	0.016360265
ENSRNOP000000043537	6.9503969	6.782690457	43.49274498	4.185457534	0	0.069935096
ENSRNOP000000025819	0.589520909	0.132311224	3.42521908	0.614195573	0	0.002685948
ENSRNOP000000028828	0.691332108	0.26487982	2.346591539	0.231577457	0	0.068797646
ENSRNOP000000018942	3.170247043	0.717765288	7.402610928	0.500467085	0	0.016480965
ENSRNOP000000025534	0.072808652	0.05014495	0.315344038	0.008880827	0	0.044976543
ENSRNOP000000018622	1.761406445	0.980533048	7.830434945	0.873326787	0	0.070421456
ENSRNOP000000056642	0.960269218	0.194031963	1.929283208	0.017787315	0	0.019062085
ENSRNOP000000004917	7.059599973	0.404812962	12.40461391	1.002171141	0	0.004388933
ENSRNOP000000002209	0.145398786	0.090466134	0.674307913	0.066545246	1	0.034003023
ENSRNOP000000035540	0.124908744	0.064889999	0.593144916	0.07665796	0	0.022646305
ENSRNOP000000016846	0.121106359	0.062914642	0.575088754	0.074324384	1	0.022646292
ENSRNOP000000030517	0.46804043	0.243146595	2.222548891	0.287241885	0	0.022646295
ENSRNOP000000012260	0.22163477	0.115139039	1.052460477	0.136019834	0	0.022646285
ENSRNOP0000000024517	2.408251515	0.319726889	4.971640362	0.41848505	0	0.009885925
ENSRNOP000000000052	0.567516031	0.21471913	1.656016525	0.065780384	4	0.07818274
ENSRNOP000000011483	1.093875353	1.055793857	6.136786041	0.071770857	0	0.071346917
ENSRNOP000000016450	1.764757719	0.355412994	3.55270289	0.029307322	0	0.017502733
ENSRNOP000000007552	6.317610148	0.592665113	12.24036008	1.034266956	0	0.006487373
ENSRNOP000000020596	0.630915355	0.284815084	2.600291007	0.307912014	0	0.098389641
ENSRNOP000000015223	0.116185484	0.072289815	0.472654975	0.012996948	7	0.040104912
ENSRNOP000000020374	0.665773328	0.414239651	2.708437391	0.074475935	0	0.040104911
ENSRNOP000000017472	59.23255292	2.903335956	78.46444915	1.860502338	0	0.006590117
ENSRNOP000000022635	0.222282688	0.102434399	0.833754974	0.077608443	11	0.080584379
ENSRNOP000000026696	2.093963138	0.466535688	5.596890957	0.543838168	0	0.011579183
ENSRNOP000000026821	0.259351656	0.190708903	1.654779227	0.220299297	0	0.032728374
ENSRNOP000000013496	0.323086962	0.168786169	1.482077127	0.175499339	1	0.068508121
ENSRNOP000000024648	0.777663048	0.336804105	2.762577852	0.215762869	4	0.06156484
ENSRNOP000000013238	5.770357564	0.425073733	9.030067951	0.459306527	0	0.008270569
ENSRNOP000000006340	0.396700057	0.161867676	1.817972445	0.242025066	6	0.055369878
ENSRNOP000000051412	2.961395388	0.428237146	5.621575744	0.292578228	12	0.011461179
ENSRNOP000000010185	2.001083649	0.984286754	7.056023652	0.194024777	4	0.031151753
ENSRNOP000000015946	14.86311639	0.335055176	20.46017236	0.906607166	0	0.002893525
ENSRNOP000000007288	0.19574375	0.143936123	1.046871557	0.091580644	0	0.039644328
ENSRNOP000000003965	12.7853388	0.738267349	21.46956998	1.541925651	0	0.005422071
ENSRNOP000000012075	15.46981331	1.778996745	27.16128306	1.265479716	0	0.008692965
ENSRNOP000000013997	3.047491385	0.384007149	6.752092207	0.616583378	0	0.007458033
ENSRNOP000000006615	0.31369282	0.231062449	2.128665195	0.283387318	1	0.030703306
ENSRNOP000000004520	1.158658147	0.362374085	5.017479974	0.703321885	0	0.020272481
ENSRNOP000000005262	0.577301413	0.077526679	1.220907048	0.095355288	1	0.009409655
ENSRNOP000000010421	0.099958416	0.051928295	0.928067885	0.160474833	0	0.008517218
ENSRNOP000000007087	0.059511526	0.030916163	0.552537051	0.095540739	0	0.008517209
ENSRNOP000000027345	1.660048484	0.792080678	5.871498846	0.151884121	2	0.104343288
ENSRNOP000000033324	1.435459983	0.673410738	5.008302718	0.137717058	0	0.076307218
ENSRNOP000000013321	0.198038264	0.123218045	0.862035999	0.034241844	1	0.036043464

ENSRNOP00000015757	0.082139274	0.004526316	3.30443323	0.646044483	0	4.35994E-05
ENSRNOP00000025426	0.649612915	0.107311402	1.39149278	0.084383489	1	0.009241899
ENSRNOP00000025064	19.15713399	1.771850207	29.92846959	0.535308154	0	0.007603156
ENSRNOP00000042368	0.329063484	0.241970066	1.694244412	0.088311175	0	0.040939216
ENSRNOP00000011183	9.23229621	2.212464866	25.39164326	2.047116992	1	0.016057302
ENSRNOP00000052539	1.210982957	0.091797245	3.590968735	0.445278496	1	0.001610756
ENSRNOP00000025863	0.522580102	0.169838396	1.747153344	0.152841509	0	0.020870039
ENSRNOP00000044696	9.311965885	0.28348171	17.39454683	1.434023908	0	0.001890413
ENSRNOP00000028173	1.001253128	0.230253278	4.451475348	0.635138646	1	0.004814447
ENSRNOP00000013299	5.570675805	3.027272928	32.6470586	4.281759015	0	0.105242984
ENSRNOP00000024287	11.93603595	1.251084645	38.00603152	4.907298039	0	0.002924183
ENSRNOP00000029575	0.025730397	0.001417883	0.779341433	0.146452739	0	5.21939E-05
ENSRNOP00000014684	0.920879705	0.245984014	2.754685965	0.239793836	0	0.012185696
ENSRNOP00000023924	0.112744844	0.068330582	0.597857717	0.059000626	0	0.026099384
ENSRNOP00000005204	0.75885731	0.364728528	3.273691563	0.286383539	1	0.048671377
ENSRNOP00000029515	4.846286468	0.116187342	9.074718931	0.780185494	0	0.002693289
ENSRNOP00000022341	0.850846053	0.30023301	3.879086949	0.477748509	2	0.02926192
ENSRNOP00000032768	0.611518873	0.132125967	1.490839279	0.088371256	0	0.019381664
ENSRNOP00000021400	0.258585716	0.178093724	2.44698494	0.369076365	0	0.017239378
ENSRNOP00000051641	0.060308238	0.003323308	5.479987187	1.029791434	0	1.70835E-05
ENSRNOP00000009183	9.625225406	0.412937242	13.15069898	0.396450311	0	0.004223646
ENSRNOP00000019386	0.866472084	0.367572851	3.229150002	0.204377395	1	0.062738542
ENSRNOP00000007623	1.664880411	0.342002296	3.729008002	0.102539331	0	0.012578093
ENSRNOP00000011166	0.171610614	0.087704137	0.963038467	0.113190041	11	0.043093601
ENSRNOP00000022089	0.224132078	0.116436399	0.901964752	0.024802002	0	0.027217459
ENSRNOP00000000481	0.065975858	0.034274377	0.265503721	0.007300755	0	0.027217423
ENSRNOP00000001679	0.459924131	0.238930185	3.104142496	0.427672955	0	0.01330187
ENSRNOP00000020748	3.901508503	3.728584571	38.61151059	5.210037573	0	0.046691263
ENSRNOP00000021215	6.368121707	2.024149396	23.44816415	2.227873617	0	0.016692761
ENSRNOP00000005604	0.495185712	0.226745922	1.832414615	0.05038728	0	0.099953854
ENSRNOP00000048878	5.527251386	1.164047877	33.02230507	4.964249517	0	0.002178328
ENSRNOP00000021257	2.159110614	0.280180348	4.869488502	0.388722123	0	0.007162134
ENSRNOP00000001876	1.699344933	0.206275956	3.065506304	0.079298616	0	0.008731823
ENSRNOP00000029070	4.604001079	2.352913545	34.58904757	4.928628796	0	0.078778574
ENSRNOP00000011823	9.766756789	0.800209472	16.46988183	0.714847453	0	0.004542583
ENSRNOP00000035156	13.75949329	0.287010559	21.81346245	1.250825616	0	0.001549849
ENSRNOP00000007548	0.107522817	0.055857984	0.471642431	0.027044878	1	0.023627496
ENSRNOP00000000025	1.844274218	0.355693158	4.092749835	0.112541413	0	0.010485699
ENSRNOP00000021170	0.659257415	0.154816305	1.596948516	0.011230077	1	0.013074184
ENSRNOP00000023385	0.909415004	0.093360959	2.522437669	0.270450222	0	0.002892171
ENSRNOP00000007116	2.035979241	0.348839179	4.807948945	0.316695828	1	0.012034074
ENSRNOP00000034511	5.543601499	3.15042217	53.45525406	7.953914415	0	0.01546046
ENSRNOP00000022892	27.58772344	3.788682595	53.83223526	1.732431382	0	0.007742385
ENSRNOP00000022270	0.032766775	0.001805626	0.558158058	0.091548452	1	6.81412E-05
ENSRNOP00000021152	0.47288573	0.294226282	2.620576187	0.204672254	0	0.025284987
ENSRNOP00000053220	0.484645229	0.235030098	3.082088545	0.386127961	0	0.037499333
ENSRNOP00000001664	2.97992211	0.289963624	5.039427763	0.138572926	0	0.006436231
ENSRNOP00000001500	5.368513375	0.438852547	18.60764874	2.253452905	0	0.001303904
ENSRNOP00000020770	0.093388325	0.04851517	0.833244278	0.116103352	0	0.008365976
ENSRNOP00000043009	0.581819747	0.032061398	1.504225345	0.148447088	0	0.001019962
ENSRNOP000000024711	2.680960848	0.880955377	10.02221067	0.821091217	0	0.027975105
ENSRNOP00000043388	0.462089232	0.287508798	2.58371947	0.206253473	0	0.025123166
ENSRNOP00000049629	0.43986496	0.091996811	1.902122076	0.225640324	0	0.004932109
ENSRNOP00000042382	0.058414437	0.042953824	0.495343684	0.058219867	0	0.022808518
ENSRNOP00000046637	0.422090066	0.290702851	3.068364664	0.322641915	1	0.022891036

ENSRNOP00000014817	0.939641504	0.228139229	3.196299327	0.279613243	0	0.013171686
ENSRNOP00000011333	7.616279635	0.24916601	11.97322106	0.586547367	0	0.001504888
ENSRNOP00000026653	0.146176756	0.099045274	0.783468348	0.021543617	0	0.032158447
ENSRNOP00000001048	1.40384553	0.165658536	2.532249252	0.020782279	2	0.008493659
ENSRNOP00000012616	4.530500341	0.558644099	16.69472715	1.947855236	0	0.001643954
ENSRNOP00000030360	2.853433348	0.308096666	5.849420099	0.335416925	0	0.003694477
ENSRNOP00000005489	0.049206501	0.025562712	0.290240141	0.028642852	12	0.014789079
ENSRNOP00000039050	28.95941773	1.918708242	43.34207376	0.438120154	0	0.003423199
ENSRNOP00000008966	1.197859785	0.122467118	2.301379728	0.10448126	0	0.003936559
ENSRNOP00000009634	3.112704836	0.159842067	4.401300143	0.07659928	0	0.002794942
ENSRNOP00000009586	2.036716628	0.894143337	16.92810446	2.220171341	1	0.034023852
ENSRNOP00000011930	0.156485967	0.091466965	0.80090981	0.031813786	0	0.024276106
ENSRNOP00000016205	3.954322418	0.36588172	7.525707121	0.387124577	0	0.003308458
ENSRNOP000000048364	11.18819801	1.23582184	27.46769728	2.192694692	1	0.002869181
ENSRNOP00000015336	53.47886381	0.274083498	78.25116638	3.304721907	0	0.000815306
ENSRNOP000000051841	4.304859124	0.635522131	10.99438058	0.744803517	0	0.003663228
ENSRNOP00000048088	1.717610378	0.248667254	3.862745924	0.180503117	0	0.00610294
ENSRNOP00000002358	0.094787757	0.055403989	0.882609164	0.106172276	0	0.010829708
ENSRNOP00000012192	0.780938545	0.080466327	1.880590802	0.137612448	0	0.002459712
ENSRNOP00000025813	14.49749679	3.292925545	37.88039129	0.6790503	3	0.0090579
ENSRNOP00000008518	0.677565371	0.04523516	1.350973856	0.08380856	0	0.001513071
ENSRNOP00000025281	3.921353186	0.454316507	9.034463994	0.571803793	0	0.002924078
ENSRNOP00000054026	0.673105325	0.048527519	1.202361867	0.053771626	0	0.002185445
ENSRNOP00000022373	0.149561818	0.077697207	0.891634526	0.080176466	0	0.01451859
ENSRNOP00000012681	28.9693542	0.880095205	37.93378031	0.719483643	0	0.001739726
ENSRNOP00000008932	5.285354337	0.21766215	7.268959546	0.128184367	1	0.001990758
ENSRNOP00000044589	0.366646908	0.269606223	2.352140328	0.085627794	2	0.030635803
ENSRNOP00000005844	5.994028996	0.65563645	10.9206443	0.026534072	0	0.006229507
ENSRNOP00000000219	4.949860462	0.556920514	9.132527378	0.030880691	1	0.006383047
ENSRNOP00000013829	8.599388342	0.32736779	11.51977543	0.10224713	0	0.001711801
ENSRNOP000000043148	7.517489521	0.022764059	10.46013059	0.399790386	1	0.001096851
ENSRNOP000000045431	0.239435533	0.101572795	0.978051142	0.013612464	0	0.052904889
ENSRNOP000000000083	2.942563617	0.726439859	8.786747947	0.338979344	1	0.008978895
ENSRNOP00000017805	0.549278647	0.089805437	2.146750372	0.215699242	1	0.001906369
ENSRNOP000000031294	1.723558355	0.660001945	6.681488495	0.183725902	1	0.04961291
ENSRNOP00000028687	0.031680223	0.001745751	0.468600918	0.06456145	0	7.61713E-05
ENSRNOP00000057971	0.042068983	0.002318227	0.437813802	0.05658299	0	6.62857E-05
ENSRNOP00000006802	2.163724205	0.358903549	5.037720062	0.138525968	2	0.007158001
ENSRNOP00000022540	2.477905241	0.554275379	6.785859556	0.146527785	1	0.007301069
ENSRNOP00000007298	5.489630226	1.09421366	19.57556744	1.647041044	0	0.005636948
ENSRNOP00000016353	1.08444999	0.175932821	2.799267323	0.15342019	1	0.006517241
ENSRNOP00000044411	0.809259166	0.163518861	4.35475793	0.47793558	0	0.001646919
ENSRNOP00000024264	0.524027325	0.120126264	1.666859659	0.098805071	0	0.00656414
ENSRNOP00000007695	0.129230158	0.075535775	1.818709907	0.227850283	0	0.006607564
ENSRNOP00000021893	2.196954976	0.405764312	8.321922239	0.74831368	1	0.003262912
ENSRNOP00000025881	0.08980459	0.046653402	0.768742904	0.079122059	1	0.00831419
ENSRNOP00000011332	0.717713054	0.44655623	4.217393447	0.115968832	0	0.022474887
ENSRNOP00000005705	0.475105845	0.295607639	2.791795662	0.0767681	0	0.022474885
ENSRNOP00000050213	12.18935968	0.53180791	19.19536461	0.705669137	0	0.001436665
ENSRNOP00000010984	7.421764087	0.541632022	27.90752915	2.59966835	0	0.000346002
ENSRNOP000000006119	1.57105065	0.102614308	3.444562864	0.204651596	1	0.000829459
ENSRNOP00000018001	6.122973002	1.215763694	18.52471091	0.925474874	0	0.007230824
ENSRNOP00000004991	19.01152409	1.722104332	51.95299778	3.932947062	0	0.001107151
ENSRNOP00000040121	4.595255132	0.309284304	9.523840804	0.507691701	0	0.001025563
ENSRNOP00000041867	0.076506599	0.039745118	0.423558073	0.016824598	0	0.015412724

ENSRNOP00000022209	0.780067449	0.405244315	4.318631329	0.171544923	0	0.015412717
ENSRNOP00000028066	0.641466641	0.089974491	1.709678072	0.101343183	2	0.003229355
ENSRNOP00000026920	7.884672969	0.559958126	12.98480494	0.193460075	0	0.002605374
ENSRNOP00000026574	12.47575126	0.33721673	27.5774175	1.916982112	1	0.000515199
ENSRNOP00000006950	24.92116028	1.290361916	53.17224849	3.367732603	0	0.000831198
ENSRNOP000000031241	0.240383316	0.124878912	1.694269801	0.132325868	1	0.010778863
ENSRNOP00000009587	1.179743391	0.187408942	3.351707012	0.198676384	3	0.002869331
ENSRNOP000000024775	2.45932651	0.066921658	9.541438751	0.914578104	0	0.000214087
ENSRNOP00000004091	1.160176726	0.247745411	4.773275993	0.366996662	0	0.002730881
ENSRNOP000000032218	0.040884624	0.002252963	0.902487749	0.108563543	9	1.74343E-05
ENSRNOP00000018723	4.69011689	0.135947704	6.115746363	0.002994705	6	0.000821403
ENSRNOP00000053094	0.313694652	0.120123044	1.403144115	0.038583307	0	0.038742517
ENSRNOP00000020544	6.274835938	0.426699224	10.37379584	0.070424594	0	0.001606033
ENSRNOP000000023606	1.141252909	0.155326256	2.558191958	0.014015679	0	0.003138452
ENSRNOP00000010980	0.947885428	0.073144064	3.193901852	0.262003547	1	0.000493711
ENSRNOP00000014073	1.624009914	0.174298697	3.761171109	0.174261851	0	0.001926207
ENSRNOP00000001589	0.463009195	0.34046428	3.464408237	0.000373745	0	0.025181876
ENSRNOP00000016432	14.41747257	1.027498167	24.47997476	0.1851284	0	0.001555719
ENSRNOP00000020304	0.08127361	0.042221576	0.789163645	0.069036277	0	0.006773378
ENSRNOP00000005194	0.773456084	0.129856064	2.098279732	0.057697972	0	0.003311584
ENSRNOP00000032041	1.365680663	0.147458044	4.126608586	0.271816473	0	0.000899498
ENSRNOP00000024712	0.050848101	0.002802004	1.008384656	0.110670424	0	2.16358E-05
ENSRNOP00000025689	0.166539222	0.009177207	17.22057478	1.967626538	0	4.30661E-06
ENSRNOP00000009813	0.075794443	0.004176682	3.190517394	0.344986965	0	5.90892E-06
ENSRNOP000000036381	0.420988788	0.218703269	3.477881271	0.252302337	0	0.008454323
ENSRNOP000000042421	0.331790167	0.024258288	0.583401353	0.004102601	0	0.001353648
ENSRNOP000000058260	44.94982685	1.070416033	80.41616831	3.607977311	0	0.00035775
ENSRNOP00000014235	32.22304521	1.767851118	51.36641168	0.197264375	1	0.001026207
ENSRNOP00000010251	2.607226274	0.37076238	7.063464231	0.272563572	7	0.002484148
ENSRNOP00000016646	0.225401943	0.117096082	1.425403625	0.039195393	0	0.012267772
ENSRNOP000000008150	0.112382603	0.058382638	0.710688531	0.019542336	1	0.012267765
ENSRNOP000000033706	11.75691677	0.472179136	48.20272646	3.742971044	0	7.87074E-05
ENSRNOP000000056615	0.387930547	0.262850918	3.240361152	0.117962765	0	0.017744206
ENSRNOP000000030928	6.621459048	1.02178067	17.75815147	0.286831374	0	0.002334462
ENSRNOP000000049473	0.024597228	0.00135544	0.953898999	0.094137178	1	4.94142E-06
ENSRNOP00000016495	0.352065817	0.18289789	3.823346041	0.287924276	0	0.005705446
ENSRNOP00000023835	3.174821333	0.096319092	12.10187955	0.862674307	0	5.96917E-05
ENSRNOP00000029234	0.41030235	0.176251033	3.061491775	0.195084254	0	0.027294356
ENSRNOP00000019144	1.131475973	0.280022729	4.212884542	0.017144128	0	0.006410974
ENSRNOP00000027980	25.35778626	1.396679614	47.19102213	1.169883029	1	0.000543544
ENSRNOP00000014407	37.49940614	2.811651669	139.7433064	9.297161359	1	0.000193839
ENSRNOP00000010512	22.56749345	1.52764789	41.42679891	0.148268395	1	0.00077048
ENSRNOP00000008319	0.214401567	0.133399206	1.841329375	0.050632415	2	0.013136293
ENSRNOP000000034118	0.17681529	0.091855391	1.321449947	0.036336901	2	0.009416609
ENSRNOP00000015853	0.114815143	0.059646351	1.212539037	0.076069847	0	0.005869108
ENSRNOP00000042556	0.544204271	0.082337374	1.606714521	0.025326879	10	0.001663204
ENSRNOP00000005853	2.912090766	0.745701208	15.73122605	0.761724509	1	0.002641896
ENSRNOP000000052593	1.329771634	0.108951546	3.123201909	0.087956687	0	0.0005183
ENSRNOP000000043164	0.820303177	0.314118576	4.801739985	0.026307504	0	0.024886674
ENSRNOP000000010663	9.521031149	0.559694668	17.41867191	0.124360291	0	0.000568526
ENSRNOP000000020322	12.10538874	0.572286037	21.90557479	0.459309024	0	0.000307185
ENSRNOP000000014182	0.157870756	0.082013734	1.361383874	0.037434994	0	0.007593024
ENSRNOP00000018325	12.03917903	1.055957345	31.70721761	0.869908595	0	0.000441121
ENSRNOP00000018447	1.793506194	0.131178497	5.896695479	0.251406531	4	0.000157702
ENSRNOP00000019040	0.126500154	0.006970839	12.40784944	0.85704739	1	9.41229E-07

ENSRNOP00000011049	0.035420058	0.001951836	0.340502829	0.019525083	13	8.99661E-06
ENSRNOP00000019912	5.602921557	0.237749214	15.5141354	0.503564395	0	4.5315E-05
ENSRNOP00000005611	10.42564553	0.444520641	18.90280468	0.048555802	0	0.000165557
ENSRNOP00000017339	0.175257464	0.091046071	2.242793581	0.068770318	1	0.004404801
ENSRNOP00000028680	1.140473786	0.070337195	2.698958222	0.049824577	0	0.000184637
ENSRNOP00000048890	0.059811433	0.003295932	1.225326683	0.063869202	0	2.38719E-06
ENSRNOP00000015851	5.09997859	0.212442578	9.659406975	0.10269426	0	0.000126558
ENSRNOP000000031961	0.091246385	0.047402434	1.23955891	0.000133725	0	0.00404421
ENSRNOP00000008504	3.665646833	0.08961607	6.956039731	0.097719982	0	2.2033E-05
ENSRNOP00000037388	1.562800731	0.150498517	6.686803241	0.102218508	1	0.000142746
ENSRNOP00000051758	1.095811999	0.076214895	5.493584338	0.15106121	1	2.47842E-05
ENSRNOP00000034299	3.189998346	0.237849027	10.1720829	0.037002828	0	0.000112351
ENSRNOP00000015006	0.246976564	0.013609737	34.01126824	1.079076518	1	1.7529E-07
ENSRNOP00000007888	0.039808745	0.002193676	0.351093736	0.009654288	0	4.13452E-06
ENSRNOP00000035840	0.062380704	0.003437512	1.228445678	0.017097441	0	8.56356E-07
ENSRNOP00000050029	0.061954864	0.003414046	0.363560664	0.023313654	0	3.32005E-05
ENSRNOP00000002752	0.641668365	0.333346128	1.844455571	0.050718379	0	0.05378485
ENSRNOP00000018691	0.183361364	0.010104198	1.987403468	0.522497287	0	0.002225182
ENSRNOP00000026728	0.278815179	0.136660907	0.58664445	0.017870386	11	0.191207417
ENSRNOP00000026466	0.208901149	0.122103946	1.767266962	0.317278896	0	0.0146782
ENSRNOP00000007403	0.490615541	0.027035556	7.468594059	1.986084145	0	0.000458291
ENSRNOP00000031561	0.374284021	0.020625063	2.816491356	0.446206589	1	0.000405297

Supplementary Table 5:

Liver Membrane Protein Identifications from Control and Tumor Bearing Mice

Rep = Replication

NR = Non-Redundant Peptide Counts

Log(E) = X!Tandem Protein Score

Accession Number	Mouse - Controls						Mouse - Tumors					
	Rep1		Rep 2		Rep 3		Rep 1		Rep 2		Rep 3	
	NR	Log(E)	NR	Log(E)	NR	Log(E)	NR	Log(E)	NR	Log(E)	NR	Log(E)
ENSMUSP00000000001	12	-46.3	8	-18.4	13	-28.9	14	-41.7	14	-47.9	14	-43.1
ENSMUSP00000000058											1	-2
ENSMUSP00000000090	74	-154	70	-140	84	-174	65	-127	82	-157	67	-174
ENSMUSP00000000096:reversed											1	-1.4
ENSMUSP00000000102									9	-13.4		
ENSMUSP00000000127:reversed			1	-1.9								
ENSMUSP00000000128			1	-1.6								
ENSMUSP00000000129	1	-1.6										
ENSMUSP00000000137	3	-11.1	2	-12.5	2	-2	3	-11.1	5	-29.6		
ENSMUSP00000000153	7	-22	2	-10	4	-12.1	8	-18.1	7	-28.2	7	-18
ENSMUSP00000000175	1	-3.5	1	-3.8			3	-3.4	2	-3.5	1	-2
ENSMUSP00000000299							7	-50.5	7	-39	8	-52.9
ENSMUSP00000000312	1	-2.2			1	-2.1	1	-2.5	1	-3.3		
ENSMUSP00000000335	67	-159	51	-144	67	-172	77	-131	71	-178	69	-137
ENSMUSP00000000394									3	-15.7		
ENSMUSP00000000426:reversed					1	-3.1						
ENSMUSP00000000430			1	-5.5			2	-3.9	6	-25.1	9	-24.5
ENSMUSP00000000466			1	-2.4								
ENSMUSP00000000500:reversed									1	-1.9		
ENSMUSP00000000505									1	-1.4		
ENSMUSP00000000619											2	-1.6
ENSMUSP00000000631									1	-2.1		
ENSMUSP00000000641					1	-1.4						
ENSMUSP00000000642:reversed					1	-2						
ENSMUSP00000000646:reversed									1	-1.9		
ENSMUSP00000000687	9	-26.5	14	-32.5	4	-10.2	7	-17.6	15	-31.9	11	-29.9
ENSMUSP00000000700									5	-14.1		
ENSMUSP00000000727	18	-48.1	26	-34.8	6	-18.7	33	-38.9	16	-30.8	20	-38.3
ENSMUSP00000000754	2	-10.5	6	-29.6	1	-1.5	7	-23	11	-50.1	12	-27.4
ENSMUSP00000000756	48	-60.8	51	-75.2	27	-70.9	97	-81.8	42	-123	74	-123
ENSMUSP00000000769			1	-6.8								
ENSMUSP00000000804	4	-27.5							2	-20.2	5	-29.7
ENSMUSP00000000821									2	-9.5		
ENSMUSP00000000840:reversed			1	-1.4								
ENSMUSP00000000939					1	-2.2						
ENSMUSP00000000985			3	-9.2	4	-8.7			4	-11.5	3	-10.3
ENSMUSP00000001002:reversed									1	-1.8		
ENSMUSP00000001027	2	-2.3	4	-22.3	5	-5.7	5	-17.6	4	-23.2	7	-34.6
ENSMUSP00000001036									3	-17.9	1	-2.2
ENSMUSP00000001042			3	-14.6								
ENSMUSP00000001055											1	-2.7
ENSMUSP00000001059											1	-1.6
ENSMUSP00000001079											1	-3.5
ENSMUSP00000001079:reversed							1	-1.6				
ENSMUSP00000001108:reversed	2	-10.7										
ENSMUSP00000001126			4	-15					3	-14.4	4	-8.5

ENSMUSP00000001127			1	-2.5								
ENSMUSP00000001147	1	-2.2										
ENSMUSP00000001155			1	-2.2					1	-2.4	3	-12.3
ENSMUSP00000001166	1	-2.7	1	-6.2	2	-2.9			1	-3.2		
ENSMUSP00000001171	3	-4.9	3	-8	1	-2.2	1	-1.6	4	-10.2	2	-16.6
ENSMUSP00000001178									1	-2.4		
ENSMUSP00000001179:reversed											1	-1.5
ENSMUSP00000001181					2	-10.4						
ENSMUSP00000001183	35	-103	42	-138	60	-160	39	-124	39	-121	37	-95.5
ENSMUSP00000001187	1	-4.5	1	-1.6					1	-1.8	1	-1.6
ENSMUSP00000001240	16	-67.4	19	-84.2	35	-31.1	11	-45.5	19	-89.6	15	-44.4
ENSMUSP00000001242							1	-1.5				
ENSMUSP00000001254					1	-4.9						
ENSMUSP00000001279	8	-28.4	20	-33.6	7	-34.1	17	-36.9	26	-54.4	12	-36.7
ENSMUSP00000001319									1	-1.5		
ENSMUSP00000001331	3	-3.6	2	-8.5	1	-1.6					2	-2.2
ENSMUSP00000001412:reversed					1	-1.9						
ENSMUSP00000001452			13	-21.1	3	-10.6	7	-6	2	-4.4	4	-28.3
ENSMUSP00000001453					2	-2.1						
ENSMUSP00000001455:reversed	1	-2										
ENSMUSP00000001460	10	-21.2	5	-22.5	5	-17.6	11	-53.6	12	-76.8	13	-61.4
ENSMUSP00000001460:reversed									1	-1.4		
ENSMUSP00000001479	2	-2.7	3	-13.6	2	-10	6	-37.6	6	-27.8	7	-30
ENSMUSP00000001485											2	-9.8
ENSMUSP00000001497			8	-20.8	4	-19.6						
ENSMUSP00000001507	36	-125	35	-126	40	-211	75	-215	50	-180	51	-243
ENSMUSP00000001513			25	-97.1	18	-72.5			29	-108	25	-133
ENSMUSP00000001520	3	-11.4	6	-23.7	2	-11.1	3	-15	5	-33.6	3	-8.5
ENSMUSP00000001536:reversed									1	-1.9		
ENSMUSP00000001544					4	-3.4						
ENSMUSP00000001547					1	-1.5						
ENSMUSP00000001547:reversed	2	-8.4			3	-3.9			1	-1.8		
ENSMUSP00000001548	1	-10.9	2	-12.2			2	-7.8	1	-2.2	1	-1.9
ENSMUSP00000001565:reversed			1	-1.3								
ENSMUSP00000001566	68	-214	61	-174	58	-170	64	-184	81	-181	75	-213
ENSMUSP00000001569	1	-8.7	3	-21	2	-7.7			4	-22.6		
ENSMUSP00000001592			5	-18	4	-8.7	1	-3.6	4	-18.6	3	-14.8
ENSMUSP00000001599							1	-1.8			1	-2.1
ENSMUSP00000001599:reversed							1	-1.6				
ENSMUSP00000001611:reversed			1	-1.7	1	-1.3			1	-1.4	1	-1.5
ENSMUSP00000001619	12	-39.3	13	-59.1	10	-20.3	11	-38.5	20	-78.7	22	-55.9
ENSMUSP00000001677			2	-8.2							1	-1.8
ENSMUSP00000001700:reversed									1	-2.4		
ENSMUSP00000001713	13	-43.3	20	-68.2	16	-38.3	9	-39.3	19	-94.5	20	-79.1
ENSMUSP00000001715	3	-17.3	11	-40.8	8	-34.3	2	-4	4	-11.8	4	-9.7
ENSMUSP00000001716			1	-2	1	-4.3			3	-14.4		
ENSMUSP00000001746	1	-4.1	2	-4.5	1	-1.9	1	-1.6			2	-12.3
ENSMUSP00000001757					1	-2.1						
ENSMUSP00000001801	15	-78.7	13	-59.6	10	-39.2	30	-84.9	22	-92.9	17	-94.9
ENSMUSP00000001802	2	-8.9	2	-10.3	5	-10.1	1	-2.5	2	-9.5	4	-17.3
ENSMUSP00000001806	4	-30	4	-15.4	1	-6.8	2	-9.4	3	-14.6	2	-7.6
ENSMUSP00000001809			2	-2			4	-12.5	4	-11.5	14	-22.5
ENSMUSP00000001826	2	-4.9	4	-17.7	2	-3.8	4	-21.8	2	-9.3		
ENSMUSP00000001834									3	-8.9	2	-3.2
ENSMUSP00000001845:reversed					1	-2						
ENSMUSP00000001884					1	-2.4						
ENSMUSP00000001963:reversed									1	-1.7		
ENSMUSP00000001965:reversed	1	-1.4										

ENSMUSP00000001989			7	-23								
ENSMUSP00000002011	2	-8	2	-12.1	2	-8.9			1	-3.5		
ENSMUSP00000002029	2	-13.1	12	-51.6	7	-32	10	-42.9	10	-48.9	11	-58.7
ENSMUSP00000002043	18	-75.5	24	-72.1	14	-63.8	38	-116	27	-99.4	33	-97.1
ENSMUSP00000002048			1	-2.4								
ENSMUSP00000002064	2	-3.2									2	-9.8
ENSMUSP00000002084			3	-14.6	2	-2.2	1	-2.1	5	-27.1	2	-8.3
ENSMUSP00000002090	32	-61.1	35	-77.3	23	-75.3	58	-75.8	49	-89.3	64	-90.1
ENSMUSP00000002091	26	-67.2	21	-102	48	-110	24	-64	46	-99	29	-63.3
ENSMUSP00000002095											2	-8.3
ENSMUSP00000002095:reversed			1	-1.6								
ENSMUSP00000002099:reversed	1	-1.8										
ENSMUSP00000002100					2	-9.1			1	-2.1		
ENSMUSP00000002128:reversed									1	-1.7		
ENSMUSP00000002171	4	-24.1	4	-16.9	2	-7.6	3	-13.4	5	-24.2	4	-30.3
ENSMUSP00000002274			1	-3.2								
ENSMUSP00000002297			2	-5.4	1	-3.1	2	-1.4	3	-13.9	1	-1.4
ENSMUSP00000002368					1	-1.7						
ENSMUSP00000002389	8	-40.4	29	-82.6	9	-36.3	20	-35.6	22	-49.6	14	-55.2
ENSMUSP00000002391	22	-36.6	18	-53.8	9	-36.6	22	-62.6	24	-64.9	24	-87.3
ENSMUSP00000002403	17	-108	24	-96.7	32	-108	13	-60.9	23	-83.2	22	-91
ENSMUSP00000002403:reversed			1	-1.6								
ENSMUSP00000002413			1	-1.7								
ENSMUSP00000002452			5	-24.2	34	-21.6			3	-8.9	7	-22
ENSMUSP00000002456:reversed			2	-2.5								
ENSMUSP00000002457:reversed											1	-1.7
ENSMUSP00000002487					5	-24.8						
ENSMUSP00000002490			3	-7.8	4	-9	4	-9.3			3	-9.3
ENSMUSP00000002490:reversed			1	-1.7								
ENSMUSP00000002502:reversed			1	-1.4								
ENSMUSP00000002549	3	-12.6	14	-41.1	4	-10.5	9	-34.2	24	-69.1	13	-33.4
ENSMUSP00000002551	8	-33.7	10	-32.3	6	-25	10	-34.4	8	-18.2	10	-30.1
ENSMUSP00000002572:reversed	1	-1.6										
ENSMUSP00000002625:reversed					1	-1.4						
ENSMUSP00000002663	35	-97.8	27	-112	23	-105	19	-93.8	31	-114	17	-119
ENSMUSP00000002677											2	-2.5
ENSMUSP00000002735			6	-4.2	2	-6.5			4	-7		
ENSMUSP00000002757	1	-1.9										
ENSMUSP00000002790	1	-7.2	3	-14.2	5	-11.7	5	-12.6	5	-13.3	4	-13
ENSMUSP00000002790:reversed									1	-1.9		
ENSMUSP00000002837	11	-36.8	6	-44.2	4	-18.5	9	-48.8	13	-57.9	7	-26
ENSMUSP00000002840	2	-15.3	3	-15.5	3	-14.5	4	-23	5	-25		
ENSMUSP00000002844			1	-2.7			1	-4.9				
ENSMUSP00000002846	26	-94.8	25	-77.5	22	-73.9	27	-94.2	23	-66	19	-89.6
ENSMUSP00000002848									2	-8.1		
ENSMUSP00000002850	18	-111	45	-184	35	-166	19	-85.1	33	-127	25	-128
ENSMUSP00000002855	8	-32.6	9	-45.9	9	-42.2	5	-29.8	13	-49.7	10	-41.6
ENSMUSP00000002868			1	-1.5								
ENSMUSP00000002889					1	-1.6						
ENSMUSP00000002908:reversed									1	-1.5		
ENSMUSP00000002925	3	-20.5	7	-29	18	-54.6	9	-27.3	12	-55.8	16	-50.5
ENSMUSP00000002980	5	-9.2	5	-31.6	9	-6.5	3	-15.9	10	-17.6	4	-18.5
ENSMUSP00000002987											1	-1.7
ENSMUSP00000003017					1	-1.7	1	-3.4	3	-2.9	1	-2.2
ENSMUSP00000003038			3	-12	3	-15.2	3	-21.2	4	-25.8	4	-19.5
ENSMUSP00000003066	27	-83.1	24	-67.3	31	-88.2	77	-120	48	-115	39	-106
ENSMUSP00000003071	2	-4.3			4	-4.4			3	-4.8	1	-4.2
ENSMUSP00000003074	1	-1.7	2	-1.7			1	-2.2			1	-1.7

ENSMUSP00000003079									3	-10.8		
ENSMUSP00000003100	271	-428	362	-467	314	-529	375	-418	407	-541	284	-442
ENSMUSP00000003117			1	-5.1	1	-3.7	1	-2.6				
ENSMUSP00000003137	416	-537	608	-605	540	-758	689	-560	652	-622	589	-570
ENSMUSP00000003156	3	-16.7	2	-16.2	2	-7.3	6	-37.3	8	-25.7	1	-3.8
ENSMUSP00000003191			1	-1.4								
ENSMUSP00000003207									2	-8.8		
ENSMUSP00000003219:reversed	1	-1.4										
ENSMUSP00000003238:reversed			1	-1.7							1	-1.7
ENSMUSP00000003268:reversed					2	-9.4						
ENSMUSP00000003313:reversed									1	-1.7		
ENSMUSP00000003319			1	-2.5							1	-3.6
ENSMUSP00000003320	1	-1.5										
ENSMUSP00000003351	1	-1.8										
ENSMUSP00000003386			1	-2.3	3	-12.2			2	-5.2	1	-3.8
ENSMUSP00000003397									1	-2	1	-1.5
ENSMUSP00000003404	13	-29.4	8	-39.7	14	-39.6	19	-74.9	18	-99.4	10	-50.5
ENSMUSP00000003445	2	-15.7	4	-15.4	4	-18.6	8	-24.9	5	-25.7	6	-16.3
ENSMUSP00000003453					1	-2.2			2	-4.8		
ENSMUSP00000003459:reversed	1	-1.8									1	-1.4
ENSMUSP00000003461							2	-12	2	-10.1	2	-11.2
ENSMUSP00000003468							1	-2.7				
ENSMUSP00000003468:reversed					1	-1.8			1	-1.5	1	-3.3
ENSMUSP00000003502									20	-22.5		
ENSMUSP00000003512	17	-21.4	6	-11.6	9	-38.9	11	-24.2	8	-14.2	4	-13.2
ENSMUSP00000003518	30	-37.7					42	-35.7				
ENSMUSP00000003527	1	-1.6					1	-1.6				
ENSMUSP00000003544			2	-9								
ENSMUSP00000003550			9	-36.8	3	-13.4	9	-39.3	7	-52.3	6	-22.8
ENSMUSP00000003569	6	-42.4	13	-68.4	12	-32.8	1	-5.6	7	-21.9	2	-11.8
ENSMUSP00000003572					1	-5			1	-5.9		
ENSMUSP00000003620	20	-88.9	38	-145	38	-139	27	-90.1	33	-121	19	-66.5
ENSMUSP00000003621:reversed			1	-1.7					1	-1.6		
ENSMUSP00000003622	25	-86	30	-95.5	50	-72.8	38	-85.8	44	-98.4	51	-118
ENSMUSP00000003628	1	-1.7									1	-2.2
ENSMUSP00000003655:reversed					1	-1.7						
ENSMUSP00000003681	16	-72	16	-70.6	14	-87.5	9	-20	19	-66.1	4	-20.4
ENSMUSP00000003717	9	-44.3	14	-59.3	13	-50.9	2	-13.3	8	-21.5	7	-29.7
ENSMUSP00000003717:reversed							1	-1.5	1	-1.4		
ENSMUSP00000003720											3	-13.5
ENSMUSP00000003757	1	-1.4										
ENSMUSP00000003843	63	-199	63	-228	67	-215	108	-262	121	-348	86	-306
ENSMUSP00000003857							2	-1.7				
ENSMUSP00000003907	4	-18.8			6	-18.1	1	-7.8			2	-12.2
ENSMUSP00000003912	2	-6.8			1	-2.4	1	-3.3			2	-6.8
ENSMUSP00000003947:reversed			1	-1.5								
ENSMUSP00000003961:reversed			1	-2.1								
ENSMUSP00000003964					1	-1.4						
ENSMUSP00000003981			1	-1.6								
ENSMUSP00000004057	21	-44	15	-31.2	5	-26.4	23	-30.1	13	-34.9	15	-25.8
ENSMUSP00000004072	17	-27.5	22	-32.7	8	-34.9	23	-32.2	11	-24.6	13	-24
ENSMUSP00000004097	2	-9.3					6	-48.3	7	-27.3	12	-73.5
ENSMUSP00000004136	3	-24.4	7	-34.1			13	-41.6	9	-35.6	7	-26.2
ENSMUSP00000004140	25	-108	32	-105	47	-129	43	-126	45	-129	40	-120
ENSMUSP00000004143:reversed									1	-2.8		
ENSMUSP00000004172	21	-72.6	27	-89.8	25	-83.7	22	-59.8	24	-78.6	26	-80
ENSMUSP00000004192	15	-59.8	15	-73.3	20	-85.5	15	-57.1	20	-90.4	21	-86.2
ENSMUSP00000004201							2	-1.5				

ENSMUSP00000004201:reversed			1	-1.6								
ENSMUSP00000004202:reversed					1	-2.4			1	-1.4		
ENSMUSP00000004214			1	-1.5								
ENSMUSP00000004232	58	-71	25	-93.2	33	-107	50	-87.3	28	-86.3	22	-66.7
ENSMUSP00000004330					1	-1.9						
ENSMUSP00000004375	87	-166	122	-238	94	-231	125	-211	161	-238	153	-237
ENSMUSP00000004381	24	-51.7	22	-57.8	15	-59.7	22	-73.3	19	-66.9	19	-55.5
ENSMUSP00000004396					1	-2.3						
ENSMUSP00000004428					4	-16.6	1	-2.9			1	-5.3
ENSMUSP00000004430							2	-8				
ENSMUSP00000004470	1	-1.6										
ENSMUSP00000004478	1	-1.6										
ENSMUSP00000004494:reversed											1	-1.6
ENSMUSP00000004505									1	-1.6	4	-8.6
ENSMUSP00000004508	17	-45.5	22	-48.6	18	-41	17	-56.4	31	-71.4	20	-68
ENSMUSP00000004554	10	-46.9	25	-63	5	-19.7	7	-32.3	17	-61	11	-57.2
ENSMUSP00000004560			1	-4.1	1	-2.9					2	-3.9
ENSMUSP00000004565	7	-38.1			12	-15.3	4	-34.7	6	-19.7	8	-23.1
ENSMUSP00000004574	1	-3.8					3	-20.6	2	-2.1		
ENSMUSP00000004673	5	-34.7	6	-35.4	10	-35.7	4	-23.1	10	-55.6	5	-25.2
ENSMUSP00000004681	1	-7.7	6	-38.4	8	-28.8	2	-2.4			4	-21.3
ENSMUSP00000004683	2	-2.9			2	-10.4					1	-4.7
ENSMUSP00000004686			4	-4.3								
ENSMUSP00000004715	7	-27.3	6	-23.2	11	-47.8	5	-34.4	5	-21.3	4	-30.6
ENSMUSP00000004729	21	-54.8	16	-60.3	9	-34	4	-15.8	15	-32.3	11	-21.6
ENSMUSP00000004774	21	-42.1	18	-31	10	-29.5	18	-37.3	10	-46.2	22	-38
ENSMUSP00000004827											2	-11.1
ENSMUSP00000004850									1	-3		
ENSMUSP00000004868	11	-66.9	14	-63.3	20	-90.5	16	-65	13	-60.5	8	-43.7
ENSMUSP00000004892	30	-65.8			22	-97.2	61	-142	66	-126	58	-153
ENSMUSP00000004911	15	-56.6	16	-58.4	26	-80.4	53	-70	26	-71.1	37	-89.7
ENSMUSP00000004971					2	-7.4	2	-9.1			1	-11
ENSMUSP00000004990			2	-3.5								
ENSMUSP00000005003			3	-8.8					4	-19.7	4	-24.4
ENSMUSP00000005019:reversed							1	-2.4				
ENSMUSP00000005041			1	-3.4					3	-9.4	1	-1.9
ENSMUSP00000005053					2	-3.6	1	-8.1			3	-15.7
ENSMUSP00000005066			1	-2.1								
ENSMUSP00000005120:reversed											1	-1.7
ENSMUSP00000005122											1	-2.1
ENSMUSP00000005218									1	-3	2	-4.2
ENSMUSP00000005234			1	-3					1	-6.5		
ENSMUSP00000005238					2	-12.6			4	-11.9	1	-4.1
ENSMUSP00000005256	1	-1.3										
ENSMUSP00000005292			1	-1.5			1	-3.6	1	-1.7	2	-4.7
ENSMUSP00000005334									1	-1.5		
ENSMUSP00000005336									1	-1.9		
ENSMUSP00000005366	34	-214					25	-122				
ENSMUSP00000005394	1	-2.2			1	-2.6						
ENSMUSP00000005400							2	-2.5				
ENSMUSP00000005431	31	-147	43	-174	43	-178	50	-203	33	-212	53	-226
ENSMUSP00000005452			4	-9							2	-8.5
ENSMUSP00000005477							32	-111				
ENSMUSP00000005503									1	-2.9	1	-2
ENSMUSP00000005507					1	-1.5						
ENSMUSP00000005508	33	-101	34	-98.9	17	-88.5	19	-61.1	28	-117	28	-112
ENSMUSP00000005545					1	-1.9						
ENSMUSP00000005548	1	-5.8	1	-2.3			2	-16.2	10	-60	9	-44.4

ENSMUSP00000005578									1	-1.3		
ENSMUSP00000005601					1	-1.7						
ENSMUSP00000005606									2	-4		
ENSMUSP00000005616:reversed							1	-1.5				
ENSMUSP00000005630											1	-1.5
ENSMUSP00000005647							20	-80.3	19	-61.9	35	-63.4
ENSMUSP00000005651	493	-492	307	-517	296	-496	455	-464	322	-426	326	-500
ENSMUSP00000005669			25	-84.2	43	-46.4						
ENSMUSP00000005671					1	-1.6						
ENSMUSP00000005685	141	-302	129	-256	165	-305	134	-251	94	-281	85	-226
ENSMUSP00000005692					7	-38.4						
ENSMUSP00000005705:reversed					1	-1.3						
ENSMUSP00000005719					2	-5.2						
ENSMUSP00000005750	1	-1.9					2	-2.3				
ENSMUSP00000005787:reversed									1	-1.9		
ENSMUSP00000005817			2	-2.9	1	-4.5	1	-4.2				
ENSMUSP00000005824	3	-12.9	3	-9.7	2	-3.1	2	-2.5	7	-26.2		
ENSMUSP00000005826			4	-16.8	4	-29.6	4	-1.9	2	-5.1	6	-38.6
ENSMUSP00000005829:reversed	2	-9.5	1	-1.8							1	-1.7
ENSMUSP00000005923	33	-81	33	-87	24	-89.2	42	-81.2	37	-77.7	40	-145
ENSMUSP00000005953	29	-88.9	32	-84.9	45	-107	59	-146	74	-180	49	-181
ENSMUSP00000005964			2	-9.1	2	-10.2	2	-3.7	5	-19.4	5	-24
ENSMUSP00000005975	2	-5.7	1	-2.3			2	-11.8	2	-4.2	2	-5.6
ENSMUSP00000005976			3	-8.7			1	-1.6	1	-2		
ENSMUSP00000006027	3	-3.4	2	-5.7					2	-4.5		
ENSMUSP00000006037:reversed	1	-3.4										
ENSMUSP00000006047					1	-2						
ENSMUSP00000006061	1	-7.2	4	-24.8	4	-19.9	2	-5.7	3	-10.2	3	-19
ENSMUSP00000006094	224	-302	274	-290	196	-379	268	-288	294	-366	272	-364
ENSMUSP00000006105									1	-1.4		
ENSMUSP00000006112									1	-4.9		
ENSMUSP00000006112:reversed									1	-1.8		
ENSMUSP00000006128											1	-2
ENSMUSP00000006137	3	-14.6	6	-38.1	3	-27.1	3	-11	3	-15.5	2	-7
ENSMUSP00000006137:reversed					1	-2.2						
ENSMUSP00000006151			2	-8.9								
ENSMUSP00000006164:reversed	1	-1.6										
ENSMUSP00000006171:reversed									1	-2.1		
ENSMUSP00000006175:reversed									1	-1.4		
ENSMUSP00000006205					1	-1.6						
ENSMUSP00000006235	2	-13.6	1	-2.4			3	-22.8	7	-41.6	2	-10.1
ENSMUSP00000006344:reversed									1	-1.8		
ENSMUSP00000006367									1	-1.8		
ENSMUSP00000006435									1	-1.7		
ENSMUSP00000006444:reversed											2	-8
ENSMUSP00000006452					1	-3						
ENSMUSP00000006470	1	-1.8							1	-1.3		
ENSMUSP00000006478	3	-11.7	3	-11.3	4	-20.2						
ENSMUSP00000006496	10	-35.1	17	-45.5	22	-61.6	22	-47.4	15	-41.4	11	-44.6
ENSMUSP00000006525:reversed			1	-1.5								
ENSMUSP00000006544	6	-16.7	7	-44	5	-19.1	2	-13.7	5	-24.2	2	-11.7
ENSMUSP00000006562	3	-15.2			1	-4.7	2	-4.3			1	-1.8
ENSMUSP00000006611					2	-3.3						
ENSMUSP00000006614			1	-5.1			2	-2.9	3	-10.1		
ENSMUSP00000006627					1	-3.4						
ENSMUSP00000006667			1	-1.5			5	-30.7	5	-11.1	3	-9.9
ENSMUSP00000006692					1	-1.3						
ENSMUSP00000006697			1	-7.1	2	-3.4	5	-27.2	1	-3.1	4	-20.3

ENSMUSP00000006703	1	-3					2	-10.3	5	-21.6	7	-32.7
ENSMUSP00000006704			3	-5.9			2	-5.5	4	-13.4	1	-6
ENSMUSP00000006704:reversed					1	-1.8						
ENSMUSP00000006742	6	-20	19	-94.8	6	-32.8	23	-87	39	-178	13	-70.8
ENSMUSP00000006749	2	-10.8	4	-25	2	-7.9	26	-108	23	-85.4	18	-68.7
ENSMUSP00000006754:reversed			1	-1.5								
ENSMUSP00000006764									1	-2		
ENSMUSP00000006786					6	-8.4						
ENSMUSP00000006814	2	-12.7	6	-17.3	12	-20.9	5	-26.9	2	-3.5	5	-20.5
ENSMUSP00000006828:reversed			1	-3.3								
ENSMUSP00000006838	2	-10			3	-17.3	3	-21.9	3	-12.7	2	-9.4
ENSMUSP00000006838:reversed			1	-1.9								
ENSMUSP00000006853											1	-1.5
ENSMUSP00000006854	4	-13.8	1	-3.7	6	-31	4	-15.3	8	-31.2	1	-1.5
ENSMUSP00000006856									1	-1.6		
ENSMUSP00000006911											2	-8.3
ENSMUSP00000006949							1	-1.4				
ENSMUSP00000006952					1	-1.8					3	-17.8
ENSMUSP00000006961							2	-3.1				
ENSMUSP00000006963:reversed											1	-1.6
ENSMUSP00000007005	9	-31.9			14	-57			14	-58.3	10	-29.6
ENSMUSP00000007012									2	-4		
ENSMUSP00000007042:reversed									1	-1.9		
ENSMUSP00000007130	2	-5.5			4	-5.7			3	-4.5		
ENSMUSP00000007207	3	-12.1	6	-23	9	-29.2	1	-2.8	10	-54.3	12	-39.4
ENSMUSP00000007216	2	-8.9	11	-55.5	4	-5.4	5	-14.4	8	-32.2	4	-31.3
ENSMUSP00000007248											9	-37.8
ENSMUSP00000007251	8	-32.6	4	-19.2	3	-9.9	6	-24.9	7	-18.7	9	-20
ENSMUSP00000007272			3	-9.4					4	-17.7		
ENSMUSP00000007273			3	-9.2								
ENSMUSP00000007275							2	-10	3	-9.9		
ENSMUSP00000007317					7	-10.8					7	-19.5
ENSMUSP00000007340	7	-16.1	11	-27.5	6	-26.8			9	-19.1		
ENSMUSP00000007346							27	-80			29	-98.3
ENSMUSP00000007533:reversed									1	-2.3		
ENSMUSP00000007555											1	-1.3
ENSMUSP00000007555:reversed									1	-1.9		
ENSMUSP00000007559:reversed											1	-2.8
ENSMUSP00000007602	72	-52.2	28	-79.1	20	-61.8	25	-45.5	22	-50.4	36	-59.1
ENSMUSP00000007620							1	-2.5	3	-13.3		
ENSMUSP00000007708							1	-2.4	1	-2		
ENSMUSP00000007708:reversed			2	-2								
ENSMUSP00000007714:reversed									1	-1.6		
ENSMUSP00000007757											1	-2.4
ENSMUSP00000007797			2	-9.4								
ENSMUSP00000007799			1	-2.4								
ENSMUSP00000007959	11	-37.9	15	-25.9	22	-42.9	16	-28.2	13	-63.9	23	-32.1
ENSMUSP00000007971:reversed			1	-1.4								
ENSMUSP00000007977	18	-68.9	19	-63.7	7	-45.4	12	-43	13	-68	11	-35.6
ENSMUSP00000008004			1	-2.1								
ENSMUSP00000008036			1	-6.4					4	-7.9		
ENSMUSP00000008090:reversed					1	-1.5						
ENSMUSP00000008284	1	-4.9	4	-4			2	-3.3	3	-3.9		
ENSMUSP00000008297							1	-2.1				
ENSMUSP00000008445:reversed											1	-1.7
ENSMUSP00000008477			3	-6.2	1	-3.9	2	-5.4	1	-3.7	3	-7.7
ENSMUSP00000008517:reversed											1	-1.9
ENSMUSP00000008542:reversed									1	-1.4		

ENSMUSP00000008684	969	-335	1296	-464	1010	-496	1108	-355	1306	-434	1328	-388
ENSMUSP00000008801	11	-43.4	13	-59.9	30	-87.7	29	-47.7	37	-60.7	21	-56.1
ENSMUSP00000008812			36	-72.5	68	-118			51	-127	70	-149
ENSMUSP00000008893							1	-10.7				
ENSMUSP00000008907	5	-41.1	21	-74.5	14	-45.8	33	-105	54	-130	32	-137
ENSMUSP00000008991	2	-15.1	2	-1.8	6	-34.9	2	-17.2	2	-3	4	-20.1
ENSMUSP00000008999:reversed					1	-1.4						
ENSMUSP00000009003	11	-36.4	4	-21.3	8	-28.1					4	-30.6
ENSMUSP00000009036	89	-144					135	-141	111	-198		
ENSMUSP00000009076									1	-1.5		
ENSMUSP00000009097	14	-47.3	28	-88.3			11	-49.9				
ENSMUSP00000009214					1	-1.7						
ENSMUSP00000009220											1	-1.9
ENSMUSP00000009241							1	-1.4				
ENSMUSP00000009256	6	-35.4	14	-68.2	8	-50.1	4	-20.1	11	-55.7	3	-15.5
ENSMUSP00000009344					1	-2						
ENSMUSP00000009356:reversed									1	-1.9		
ENSMUSP00000009435									2	-3	2	-3.4
ENSMUSP00000009437			2	-2.2	1	-4.8			1	-1.9		
ENSMUSP00000009538:reversed					1	-2.1						
ENSMUSP00000009631					1	-1.5						
ENSMUSP00000009705	6	-39	2	-12.3	2	-6.7	5	-19.4	2	-5	5	-22.3
ENSMUSP00000009707							1	-2.7				
ENSMUSP00000009713:reversed			2	-9.6								
ENSMUSP00000009732:reversed											1	-1.7
ENSMUSP00000009791					1	-3			1	-2.9	1	-2.6
ENSMUSP00000010007			2	-5.5	1	-3.6			1	-2.8	2	-7.5
ENSMUSP00000010038	1	-1.4	2	-15.7			1	-2.6	3	-11		
ENSMUSP00000010049	4	-29.7	16	-29.7	22	-46.1	4	-9.9	9	-24.4	10	-29.2
ENSMUSP00000010127:reversed			1	-2.1								
ENSMUSP00000010189	3	-4.9			2	-4	6	-26.3	2	-9.4	3	-15.6
ENSMUSP00000010191	2	-6.9	3	-6.2	3	-2.2	1	-1.3	2	-4.8	1	-3.3
ENSMUSP00000010224			1	-2.6			1	-1.5				
ENSMUSP00000010239	10	-69.7	11	-46.2	13	-26.8	11	-43.4	14	-54.5	8	-40.5
ENSMUSP00000010248	2	-12.4			1	-2.6	1	-3.5				
ENSMUSP00000010249			1	-1.7					3	-3.1		
ENSMUSP00000010250	1	-2.6										
ENSMUSP00000010434					1	-1.3						
ENSMUSP00000010502					1	-3.6						
ENSMUSP00000010536	1	-5.2	6	-33.7	4	-16	8	-27.1	21	-73.5	6	-22.4
ENSMUSP00000010597					3	-10.8						
ENSMUSP00000010597:reversed					1	-1.4						
ENSMUSP00000010753	1	-8.1					4	-7.7			5	-19.7
ENSMUSP00000010795	14	-56.9	14	-62.8	9	-60.9	4	-15.9	5	-14.6	4	-28.3
ENSMUSP00000010807	38	-145	29	-122	27	-105	42	-137	28	-126	35	-114
ENSMUSP00000010899			1	-1.5								
ENSMUSP00000010974			3	-21.8	3	-19.7	2	-9.5	7	-30	5	-22.3
ENSMUSP00000011302					1	-1.4						
ENSMUSP00000011420			2	-4			3	-3.8			3	-4.2
ENSMUSP00000011420:reversed											1	-2.4
ENSMUSP00000011492	4	-11.6	6	-27.1	8	-31	4	-13.5	10	-32.1	5	-12.2
ENSMUSP00000011492:reversed					1	-1.8						
ENSMUSP00000011526	3	-15	4	-14.9	2	-11.9	1	-9.9	6	-30.7	5	-12.2
ENSMUSP00000011623									1	-2.2		
ENSMUSP00000011877											1	-1.8
ENSMUSP00000011895					1	-1.4						
ENSMUSP00000011895:reversed			1	-2.1	1	-2						
ENSMUSP00000011896			2	-12.3	5	-15.9			1	-5.1	3	-16.1

ENSMUSP00000012161	1	-1.6											
ENSMUSP00000012314:reversed	1	-2											
ENSMUSP00000012348			10	-35.4							7	-33.4	
ENSMUSP00000012566	3	-3.7					2	-4.1			3	-10.8	
ENSMUSP00000012572	10	-53.1	16	-47.4	11	-46.6	21	-57.5	24	-35.8	19	-76.2	
ENSMUSP00000012723							1	-1.5					
ENSMUSP00000012798									1	-1.4			
ENSMUSP00000012944:reversed	1	-1.4							1	-1.5			
ENSMUSP00000013130											2	-9.2	
ENSMUSP00000013220									1	-2.2			
ENSMUSP00000013304	4	-17.9	4	-22.3	4	-11.8			8	-13.8	4	-24.6	
ENSMUSP00000013338:reversed											1	-2.1	
ENSMUSP00000013458			3	-5	4	-6.5	2	-4.2			1	-5.1	
ENSMUSP00000013615:reversed	1	-1.6											
ENSMUSP00000013737	5	-24			1	-3.3	31	-101	35	-98.2	22	-93.9	
ENSMUSP00000013773	3	-9.3	3	-14.8	4	-10.5	5	-24.3	7	-43.4	7	-29.4	
ENSMUSP00000013845			7	-14.9	4	-24.7			12	-45.8	20	-63.9	
ENSMUSP00000013995					1	-1.4							
ENSMUSP00000014022											2	-2.4	
ENSMUSP00000014141	2	-10.3	2	-5.1	3	-11	2	-5.8	4	-13.2	4	-13.5	
ENSMUSP00000014221	10	-62.5	4	-22.2	5	-22.3	7	-52.7	9	-38	2	-13.9	
ENSMUSP00000014263	199	-262	247	-350	192	-359	228	-281	147	-312	133	-263	
ENSMUSP00000014290					1	-2							
ENSMUSP00000014321	2	-13.3	2	-5.7	1	-5.4			7	-5.1	11	-7.4	
ENSMUSP00000014421									1	-1.5			
ENSMUSP00000014421:reversed					2	-7.9							
ENSMUSP00000014438					2	-4.7	1	-6.8	2	-7.8	2	-4.2	
ENSMUSP00000014445			19	-44.1	10	-31.3			8	-32	13	-39.4	
ENSMUSP00000014457	25	-33.1	39	-62.1	20	-30.3	18	-38.3	17	-31.4	26	-39.5	
ENSMUSP00000014498									1	-1.8			
ENSMUSP00000014525	79	-241	84	-222	103	-306	118	-245	94	-267	98	-230	
ENSMUSP00000014640					1	-1.5							
ENSMUSP00000014684			1	-3.9									
ENSMUSP00000014686	2	-9.9	4	-16.4	4	-27.9	21	-80.6	14	-67.3	17	-76.1	
ENSMUSP00000014695					1	-1.9							
ENSMUSP00000014750	73	-164	80	-196	107	-148	118	-184	102	-178	121	-179	
ENSMUSP00000014891											1	-2.1	
ENSMUSP00000014892					1	-1.6							
ENSMUSP00000014913	63	-164	54	-160	51	-158	77	-124	67	-161	51	-109	
ENSMUSP00000014922	1	-1.6											
ENSMUSP00000014981					1	-1.7							
ENSMUSP00000014981:reversed					1	-1.7							
ENSMUSP00000015011	47	-49.4	45	-46.6	24	-14.8	57	-48.7	53	-59.8	49	-45.8	
ENSMUSP00000015138:reversed			2	-8									
ENSMUSP00000015146	15	-55.4	24	-51.5	18	-58.9	10	-25.6	17	-51.7	20	-79.6	
ENSMUSP00000015146:reversed	1	-1.8											
ENSMUSP00000015227							2	-3.8					
ENSMUSP00000015256	312	-494	324	-511	417	-596	374	-535	335	-576	390	-576	
ENSMUSP00000015277					1	-2.4							
ENSMUSP00000015320	1	-2.2			1	-2							
ENSMUSP00000015320:reversed					1	-2.3							
ENSMUSP00000015333							3	-4.7	3	-2.9	2	-2.7	
ENSMUSP00000015391			4	-29.6	5	-23.9	3	-9.6	4	-18.8	4	-22.4	
ENSMUSP00000015427			1	-3.6	2	-11.7	5	-27.4			1	-8.7	
ENSMUSP00000015434							1	-5.1	1	-1.8			
ENSMUSP00000015435	3	-22.9									6	-39.8	
ENSMUSP00000015456	1	-2.2											
ENSMUSP00000015481			2	-8.1							1	-1.4	

ENSMUSP00000015484	2	-3.8			1	-2.4	8	-29.8	15	-43.8	7	-51.8
ENSMUSP00000015501			1	-2.6								
ENSMUSP00000015511					1	-5.9						
ENSMUSP00000015545:reversed					1	-1.3						
ENSMUSP00000015594:reversed									1	-3		
ENSMUSP00000015595			6	-33.2			12	-45.2			25	-64
ENSMUSP00000015612	1	-1.8										
ENSMUSP00000015632	1	-2.5	1	-1.7	2	-12.3	3	-8.8	3	-16.3	4	-21.5
ENSMUSP00000015666	1	-2										
ENSMUSP00000015667			1	-1.6					1	-4.1		
ENSMUSP00000015725			7	-33	10	-28.3	1	-3.2	4	-19.9	3	-10.9
ENSMUSP00000015741:reversed											1	-1.6
ENSMUSP00000015791:reversed					1	-2.1						
ENSMUSP00000015800	110	-216	132	-294	76	-214	160	-293	165	-360	154	-348
ENSMUSP00000015815	35	-108	56	-135	68	-111	44	-111	67	-143	57	-147
ENSMUSP00000015829	1	-1.9	1	-6.4	2	-3.1						
ENSMUSP00000015841:reversed											1	-1.6
ENSMUSP00000015858	18	-66.4	30	-77.3	18	-69.7	26	-59.4	39	-77.1	43	-76
ENSMUSP00000015877	1	-1.7			2	-6			1	-4.8		
ENSMUSP00000015889:reversed					1	-1.9						
ENSMUSP00000015891	11	-52.4	14	-60.1	7	-41.9	16	-48.4	13	-71.5	10	-50.4
ENSMUSP00000015892	1	-1.7										
ENSMUSP00000015894			2	-7.1								
ENSMUSP00000015934	5	-33.1	6	-36	3	-18.9	5	-22.5	2	-10.3	8	-55.5
ENSMUSP00000015941	15	-40.6	9	-18.1	11	-39.7	21	-27.4	10	-35.2	20	-51.1
ENSMUSP00000015950	14	-46.1	19	-64.1	10	-35.1	13	-36	10	-36.1	8	-23.6
ENSMUSP00000016031	14	-82.8	15	-70.8	23	-116	12	-64.8	17	-94.5	17	-112
ENSMUSP00000016033			2	-3.5					2	-3.3		
ENSMUSP00000016034	9	-41.2	15	-73.4	11	-61.3	11	-37.7	11	-61.4	7	-21.1
ENSMUSP00000016072	2	-6.2	3	-22.9	3	-27.6	5	-27.6	5	-22.4	2	-13.6
ENSMUSP00000016076	1	-1.9										
ENSMUSP00000016081							6	-12.1	5	-25.6	2	-3.4
ENSMUSP00000016094:reversed	1	-1.5										
ENSMUSP00000016106:reversed											1	-1.5
ENSMUSP00000016115					1	-1.4						
ENSMUSP00000016144			1	-2.1	2	-13.1			4	-23.7		
ENSMUSP00000016309									1	-1.8		
ENSMUSP00000016323:reversed			1	-1.7								
ENSMUSP00000016338	172	-178	163	-198	130	-227	235	-210	214	-230	179	-212
ENSMUSP00000016399									8	-21.4		
ENSMUSP00000016400	2	-4.5	1	-2.2			2	-6.2	1	-3.7		
ENSMUSP00000016463	277	-243	354	-316	254	-370	484	-289	383	-361	380	-348
ENSMUSP00000016498									1	-1.4		
ENSMUSP00000016569:reversed									1	-1.4		
ENSMUSP00000016571	4	-3.6	3	-4.2					1	-3.6		
ENSMUSP00000016589			1	-1.4								
ENSMUSP00000016637:reversed	1	-1.3										
ENSMUSP00000016696											1	-1.5
ENSMUSP00000016763:reversed					1	-1.6						
ENSMUSP00000016768									1	-2		
ENSMUSP00000016771			2	-10.5	2	-10.9			4	-18.8	2	-9.1
ENSMUSP00000016897	4	-1.5	5	-1.6					4	-1.4	2	-1.7
ENSMUSP00000016901:reversed			1	-2	1	-2						
ENSMUSP00000017078											1	-2.5
ENSMUSP00000017086	8	-30.8	4	-10.9	1	-4.3	11	-38.8	2	-4.9	6	-26
ENSMUSP00000017153	4	-19.7	2	-8.3	1	-2.1	4	-11.5	5	-30.8	2	-7
ENSMUSP00000017188			2	-7.9			1	-1.5	2	-9.3		
ENSMUSP00000017276									1	-1.4		

ENSMUSP00000017316			23	-25.5	25	-28	8	-11	15	-13	17	-16.2
ENSMUSP00000017316:reversed			1	-2								
ENSMUSP00000017332	6	-3.4	9	-42.7	1	-1.9	10	-16.7	6	-18.7	6	-12.2
ENSMUSP00000017365	10	-42.4	6	-18.9	11	-40.3	6	-42.8	10	-44.4	10	-61.4
ENSMUSP00000017430	7	-26.2	2	-5.2	6	-23.2	1	-2.5	1	-2.9	2	-4.2
ENSMUSP00000017453									1	-1.5	1	-4.1
ENSMUSP00000017488	1	-8.4					4	-20.5	2	-7.8	2	-14.2
ENSMUSP00000017548			17	-49.4	44	-96.2			33	-96.5	44	-35.5
ENSMUSP00000017549											1	-2.1
ENSMUSP00000017572					1	-1.5			2	-3.6		
ENSMUSP00000017597	3	-7.4	4	-4.6	1	-3.2	1	-3	1	-1.4	2	-2.6
ENSMUSP00000017620	8	-38.1	4	-12.8	6	-11.9	9	-59.5	18	-97.8	18	-84.8
ENSMUSP00000017637:reversed					1	-1.6						
ENSMUSP00000017692											1	-2.3
ENSMUSP00000017694											1	-1.4
ENSMUSP00000017732					1	-1.5						
ENSMUSP00000017808									1	-2.2	2	-6
ENSMUSP00000017808:reversed											1	-1.4
ENSMUSP00000017831	10	-50.7	11	-51.7	7	-34.7	12	-57.4	10	-42.6	6	-25.5
ENSMUSP00000017832:reversed					1	-1.4						
ENSMUSP00000017841:reversed									1	-1.6		
ENSMUSP00000017865	4	-23.1					2	-5.1				
ENSMUSP00000017868:reversed											1	-1.7
ENSMUSP00000017891	2	-10	6	-13.4			3	-3.3				
ENSMUSP00000017900			6	-28	5	-29.4	5	-27.2	6	-32.8	4	-26.4
ENSMUSP00000017904			2	-4.1			1	-5.2	1	-2.4	2	-5
ENSMUSP00000017922	113	-71.7	65	-59.4	74	-85.3	186	-68.1	146	-68.2	132	-70.3
ENSMUSP00000017946	3	-22.3	1	-2.8			5	-22.1	3	-20.1	3	-18.3
ENSMUSP00000017975	24	-60.5	32	-39	8	-41.1	38	-52.8	23	-44	26	-72.2
ENSMUSP00000018050:reversed									1	-1.5		
ENSMUSP00000018073			4	-16	3	-8.4	4	-12.5	3	-12.6		
ENSMUSP00000018143	1	-1.8										
ENSMUSP00000018143:reversed											1	-1.4
ENSMUSP00000018315	4	-9.6	8	-30	9	-28	8	-19.9	6	-27.3	5	-32.9
ENSMUSP00000018337											1	-2.3
ENSMUSP00000018430	25	-48.9	19	-65.2	3	-15.6	21	-36.1	14	-60.3	22	-39.6
ENSMUSP00000018437	15	-62.5	18	-54.7	24	-50.4	25	-85.5	27	-58.4	22	-45.7
ENSMUSP00000018449	1	-3.3					3	-17.2				
ENSMUSP00000018470							1	-3				
ENSMUSP00000018470:reversed	1	-2.6										
ENSMUSP00000018484					1	-2.7	1	-2.8			2	-10.3
ENSMUSP00000018572			3	-12.4	3	-14.9	2	-8.6	5	-30.1		
ENSMUSP00000018586	6	-20.3	2	-2.4	9	-28.6	7	-18.9	9	-20.2	9	-33.3
ENSMUSP00000018640											1	-1.4
ENSMUSP00000018645:reversed	1	-1.4										
ENSMUSP00000018653					3	-24.3						
ENSMUSP00000018691			2	-7.7								
ENSMUSP00000018699	37	-94.6	34	-62.7	75	-101	46	-76.3	48	-77.3	45	-90.4
ENSMUSP00000018702	13	-33.9					55	-38.5				
ENSMUSP00000018703							2	-11.8	1	-2.8		
ENSMUSP00000018711					2	-11						
ENSMUSP00000018718	4	-23.2					6	-20.7				
ENSMUSP00000018743	2	-1.8	3	-1.6	1	-1.6			1	-1.6	1	-2
ENSMUSP00000018744	6	-32.7	6	-19.8	10	-36.8	5	-25.3	5	-32.8	7	-44.1
ENSMUSP00000018803	1	-3.3										
ENSMUSP00000018805			1	-1.7								
ENSMUSP00000018851	11	-76.9	29	-120	19	-84.8	54	-273	51	-268	38	-212
ENSMUSP00000018872											1	-1.9

ENSMUSP00000018875	1	-5.6			5	-16.3			4	-14	3	-8.1
ENSMUSP00000018877			3	-19.4	1	-2.2	1	-10	1	-2.6		
ENSMUSP00000018884							2	-14.9				
ENSMUSP00000018887:reversed	1	-2.1										
ENSMUSP00000018905	7	-25.6	17	-34.2	12	-28.6			13	-32.6	7	-29.6
ENSMUSP00000018918									1	-1.4		
ENSMUSP00000018965:reversed									1	-1.5		
ENSMUSP00000018966			1	-1.7								
ENSMUSP00000018966:reversed	1	-1.4										
ENSMUSP00000018989											1	-1.9
ENSMUSP00000018992									3	-12	6	-30.5
ENSMUSP00000019007:reversed			3	-8.7								
ENSMUSP00000019043											1	-1.4
ENSMUSP00000019076							2	-5				
ENSMUSP00000019109									1	-1.7		
ENSMUSP00000019117:reversed			1	-1.5								
ENSMUSP00000019118									1	-1.7		
ENSMUSP00000019118:reversed			1	-1.3					1	-1.9		
ENSMUSP00000019130							1	-1.8				
ENSMUSP00000019143	2	-5.7			2	-1.7			2	-5.7	3	-6.5
ENSMUSP00000019169	1	-7.2	11	-11.5	2	-3.1	12	-25.7	7	-12.6	5	-13.9
ENSMUSP00000019198	3	-2.9			2	-9.2	3	-10.8	1	-4.9	5	-6.2
ENSMUSP00000019210					16	-40.8						
ENSMUSP00000019224	4	-16.1	3	-6.1	6	-14.7	5	-6.7	7	-18.8	2	-7.1
ENSMUSP00000019226	23	-89.8	26	-75.5	14	-76.4	36	-85.9	30	-68.6	40	-130
ENSMUSP00000019231	5	-16.9	3	-13.7	2	-1.7	3	-3.6	1	-3.3	3	-17.4
ENSMUSP00000019283					2	-8.8	3	-22.3	3	-20.2	4	-18
ENSMUSP00000019283:reversed			1	-1.4								
ENSMUSP00000019291:reversed									1	-1.4		
ENSMUSP00000019302					1	-2.3					2	-4.6
ENSMUSP00000019317	23	-54.6	33	-50.5	19	-63.6	45	-50	33	-76.1	29	-62.6
ENSMUSP00000019323	9	-56.5	19	-64.4	11	-54.3	16	-65.4	12	-54.8	12	-47.6
ENSMUSP00000019323:reversed			1	-1.5								
ENSMUSP00000019354					1	-2.1						
ENSMUSP00000019382	14	-42.2	15	-41.8	12	-31.1	20	-55.7	10	-23.3	20	-57.2
ENSMUSP00000019386											1	-1.5
ENSMUSP00000019416											1	-1.5
ENSMUSP00000019422					1	-1.5						
ENSMUSP00000019439	5	-25.8	4	-15.2			7	-29.9	6	-21		
ENSMUSP00000019441									1	-2.7	1	-4.1
ENSMUSP00000019445:reversed			1	-1.9	1	-1.4						
ENSMUSP00000019469	11	-20										
ENSMUSP00000019482:reversed					1	-1.5						
ENSMUSP00000019512	1	-1.4	3	-3.6	4	-9.6	4	-16.9	7	-23.3	8	-47.5
ENSMUSP00000019514	6	-34.1					10	-37.3				
ENSMUSP00000019605			2	-4.8	2	-5					3	-18.7
ENSMUSP00000019615			1	-1.7								
ENSMUSP00000019622	50	-47.7	40	-33.6	17	-48	37	-71.6	29	-47	20	-60.8
ENSMUSP00000019625									1	-1.5		
ENSMUSP00000019638									1	-2.1		
ENSMUSP00000019679									1	-2		
ENSMUSP00000019701:reversed											1	-1.7
ENSMUSP00000019726			2	-7.4	1	-4.9	2	-7.9	4	-23.9	1	-2.6
ENSMUSP00000019829	10	-48.2	9	-29					9	-33.5		
ENSMUSP00000019833			1	-4.6	1	-1.7			1	-3.1		
ENSMUSP00000019833:reversed			1	-2								
ENSMUSP00000019859			1	-1.8								
ENSMUSP00000019862					1	-1.8						

ENSMUSP00000019896	29	-99.8	33	-66.7	37	-107	43	-88.9	31	-81.1	27	-86.6
ENSMUSP00000019907			1	-2.3	1	-1.6						
ENSMUSP00000019913									2	-8.5		
ENSMUSP00000019937	20	-93.8	45	-132	31	-121	34	-130	57	-180	25	-130
ENSMUSP00000019942									2	-2.3		
ENSMUSP00000019944:reversed	1	-1.8										
ENSMUSP00000019945	2	-4.3	2	-4.4	1	-1.7			1	-4.7	1	-4.7
ENSMUSP00000019965	5	-29	6	-33.9	1	-1.9	4	-11.6	6	-20.9	5	-30.3
ENSMUSP00000019974	3	-25.9	4	-23.3	2	-10.7	2	-19.2	9	-47.5	7	-46.5
ENSMUSP00000019986									1	-1.4		
ENSMUSP00000019986:reversed			1	-1.3								
ENSMUSP00000019987:reversed									1	-1.5		
ENSMUSP00000020001:reversed											1	-1.4
ENSMUSP00000020012	1	-1.5							1	-1.8		
ENSMUSP00000020015					1	-3.2						
ENSMUSP00000020023	1	-5.1	9	-28.6	16	-21.4	7	-19	6	-16.5	9	-38.9
ENSMUSP00000020027					1	-2	2	-10.5			1	-4.3
ENSMUSP00000020034	1	-1.9	1	-2.9	2	-10.1			1	-1.4	1	-1.4
ENSMUSP00000020042			2	-8.5			2	-4.8				
ENSMUSP00000020042:reversed	1	-2.8			1	-2.7						
ENSMUSP00000020045	1	-1.6			2	-7.8						
ENSMUSP00000020107	3	-12.3	5	-34.6	7	-31.2	2	-18	9	-64.4	8	-43.6
ENSMUSP00000020112			1	-1.4								
ENSMUSP00000020161	35	-112	36	-120	46	-176	54	-147	41	-175	73	-174
ENSMUSP00000020169	1	-1.9	8	-29.3	3	-20.9	8	-51.6	14	-65.4	11	-56.9
ENSMUSP00000020173											1	-1.7
ENSMUSP00000020174	6	-29.6	1	-4.1	7	-31.1	9	-43.2	6	-21.6	4	-7.3
ENSMUSP00000020182					1	-1.5						
ENSMUSP00000020188:reversed									1	-1.7		
ENSMUSP00000020209	3	-15.6	4	-18	2	-7.3	14	-26.5	15	-75.7	15	-38.5
ENSMUSP00000020212:reversed			1	-1.5								
ENSMUSP00000020223			1	-2.1								
ENSMUSP00000020238	9	-40.6	10	-39.4	12	-46.2	9	-26.6	19	-99.6	14	-94.6
ENSMUSP00000020241	13	-53	10	-36.1	3	-13.3	9	-49	10	-41.1	8	-31.2
ENSMUSP00000020253	2	-2.8	1	-6.4			2	-3.9	6	-7.2		
ENSMUSP00000020262					16	-88.7			16	-53.3		
ENSMUSP00000020268											1	-1.4
ENSMUSP00000020277											1	-1.9
ENSMUSP00000020285					2	-8.4			11	-32.1		
ENSMUSP00000020286	1	-1.4	3	-11.6			8	-10.1	6	-18.2	2	-2.2
ENSMUSP00000020298	6	-23	7	-28.1	10	-30.3			8	-29.3	4	-24.5
ENSMUSP00000020309	5	-17.9	7	-20.5			2	-5.5	3	-14.9	6	-31.8
ENSMUSP00000020312			3	-12.1	2	-2.6	1	-1.7				
ENSMUSP00000020315	4	-29.4	11	-52.1	8	-49.3	7	-39.9	8	-62.6	9	-52.4
ENSMUSP00000020329	49	-148	50	-160	49	-122	96	-212	100	-192	121	-215
ENSMUSP00000020334:reversed			1	-1.6								
ENSMUSP00000020339									1	-4.8		
ENSMUSP00000020343	9	-42	10	-47.5	11	-35	9	-43.8	13	-42.9	9	-48.6
ENSMUSP00000020349:reversed											1	-1.7
ENSMUSP00000020358	100	-146	82	-146	76	-178	108	-159	51	-147	62	-162
ENSMUSP00000020359	4	-16.9	1	-11	4	-12.3	2	-13.9	2	-6.4	4	-17
ENSMUSP00000020361	1	-6.9	3	-14.6	4	-7.2	6	-17.6	10	-26.7	9	-17.7
ENSMUSP00000020372	73	-26.6	28	-28.6	10	-23.2	29	-25	34	-24.5	41	-28.2
ENSMUSP00000020381:reversed									1	-1.5		
ENSMUSP00000020383:reversed			1	-2.3								
ENSMUSP00000020397	2	-4.1	1	-3.2			2	-4.8	1	-3.3	1	-5.4
ENSMUSP00000020420							1	-2.6	1	-2.4	1	-2.3
ENSMUSP00000020440							1	-8.6	5	-17.6		

ENSMUSP00000020444			1	-2.3								
ENSMUSP00000020457											1	-1.8
ENSMUSP00000020463	33	-148	30	-75.7	24	-78.1	23	-91.5	37	-102	22	-88.3
ENSMUSP00000020484			1	-1.5	4	-8.6			1	-4.5	2	-2.8
ENSMUSP00000020499			2	-4.6	3	-10.8	4	-13.4	1	-2.7		
ENSMUSP00000020504	7	-7.8			2	-3.7	8	-7.9	9	-20.9	4	-5.1
ENSMUSP00000020512:reversed	1	-1.5							2	-1.7	1	-2.3
ENSMUSP00000020515:reversed	1	-1.7										
ENSMUSP00000020520					1	-1.3						
ENSMUSP00000020522					1	-3.4						
ENSMUSP00000020523	1	-4.7	3	-10	3	-15	6	-10	1	-3.2	1	-4.4
ENSMUSP00000020529			1	-1.9								
ENSMUSP00000020537:reversed							1	-1.8				
ENSMUSP00000020538									4	-30.5	1	-7.3
ENSMUSP00000020551:reversed									1	-1.6		
ENSMUSP00000020562	6	-39.4	4	-22	8	-47.9	1	-2.5	5	-33	2	-22.6
ENSMUSP00000020570	21	-33.8					34	-51.7				
ENSMUSP00000020579					1	-1.7						
ENSMUSP00000020608									1	-2.3		
ENSMUSP00000020617			4	-18.1	1	-1.6	2	-10.9	4	-18.8		
ENSMUSP00000020617:reversed	1	-1.3									1	-1.4
ENSMUSP00000020625:reversed			1	-1.5								
ENSMUSP00000020629									1	-7.4		
ENSMUSP00000020634			1	-3.5								
ENSMUSP00000020637	114	-268	111	-337	87	-271	126	-201	111	-391	73	-278
ENSMUSP00000020640	19	-49.1	12	-51.9	16	-65.6	19	-70.4	19	-54.9	20	-78.1
ENSMUSP00000020653	14	-33.5	16	-46.2	4	-14	10	-21.7	19	-47.5	13	-29.7
ENSMUSP00000020664:reversed	1	-1.4										
ENSMUSP00000020673	139	-307					255	-320				
ENSMUSP00000020673:reversed	1	-1.8										
ENSMUSP00000020704					1	-1.7						
ENSMUSP00000020717			15	-54.2			17	-56.1			21	-89.3
ENSMUSP00000020734	1	-2.3	1	-1.4	1	-2.1					1	-1.5
ENSMUSP00000020749:reversed							1	-1.8				
ENSMUSP00000020751			19	-60.5	6	-40.2			12	-37	13	-46.5
ENSMUSP00000020753									1	-2.2		
ENSMUSP00000020773											1	-1.6
ENSMUSP00000020779			1	-1.9			3	-11.2				
ENSMUSP00000020804							1	-1.6				
ENSMUSP00000020827									2	-3.6	2	-4.4
ENSMUSP00000020835:reversed			2	-8.8								
ENSMUSP00000020843	15	-83.9					27	-155				
ENSMUSP00000020846	2	-6	2	-8.9	3	-3.5	2	-11	2	-10.7	2	-8.7
ENSMUSP00000020851							1	-4.5				
ENSMUSP00000020878									1	-1.5		
ENSMUSP00000020899									1	-1.4		
ENSMUSP00000020909			3	-6.4								
ENSMUSP00000020930					5	-12.7					6	-12.3
ENSMUSP00000020932									1	-2		
ENSMUSP00000020938					1	-3			5	-20.5	2	-11.7
ENSMUSP00000020939:reversed			1	-1.5								
ENSMUSP00000020947	2	-8.1	12	-56.8	1	-2.6	7	-27.8	8	-35.1	6	-38.5
ENSMUSP00000020948	6	-29.4	12	-28.9	11	-48	27	-143	18	-87.3	19	-85.8
ENSMUSP00000020958			6	-4	2	-9.6			1	-2.7	6	-2.6
ENSMUSP00000020979			6	-17.8	1	-1.4						
ENSMUSP00000021001	57	-97.9	63	-125	58	-160	47	-127	43	-117	28	-102
ENSMUSP00000021022:reversed			1	-1.7								
ENSMUSP00000021028							2	-3.5				

ENSMUSP00000021040									2	-2.4		
ENSMUSP00000021040:reversed			1	-1.7								
ENSMUSP00000021045:reversed			1	-1.4								
ENSMUSP00000021049	2	-15	6	-11.9			7	-26.7	9	-28.4	7	-23.5
ENSMUSP00000021056									1	-1.5		
ENSMUSP00000021056:reversed							3	-1.8				
ENSMUSP00000021062							3	-16.4			3	-19.4
ENSMUSP00000021063			2	-4.7	1	-4.4					2	-6.3
ENSMUSP00000021077			1	-4.8							1	-1.6
ENSMUSP00000021078					1	-2.5						
ENSMUSP00000021082					3	-14			1	-1.5		
ENSMUSP00000021083:reversed			1	-1.7								
ENSMUSP00000021085:reversed							1	-1.5				
ENSMUSP00000021097			1	-1.9								
ENSMUSP00000021097:reversed											1	-1.6
ENSMUSP00000021114							2	-2.4	1	-2.6		
ENSMUSP00000021116:reversed											1	-1.4
ENSMUSP00000021133	1	-2	1	-1.6	1	-1.6			1	-1.8		
ENSMUSP00000021133:reversed	1	-1.8										
ENSMUSP00000021139							1	-2.7				
ENSMUSP00000021142			1	-1.5							1	-1.6
ENSMUSP00000021153	1	-1.5					1	-2.3	2	-10.5		
ENSMUSP00000021161:reversed									1	-2		
ENSMUSP00000021187			5	-10.3			6	-24.4	7	-25.8	4	-15.8
ENSMUSP00000021201	16	-50.4	8	-43.3	13	-53.2	19	-69.3	20	-91.8	23	-105
ENSMUSP00000021203	6	-16	4	-15.5	6	-20.1	4	-17.8	3	-15.3	5	-20.4
ENSMUSP00000021209:reversed	1	-1.8										
ENSMUSP00000021217	3	-10.9	10	-22.5			8	-21.3	11	-28.5	10	-23.6
ENSMUSP00000021220			8	-25.2								
ENSMUSP00000021231	29	-187	33	-149	27	-134	9	-44.1	19	-107	16	-60.9
ENSMUSP00000021231:reversed			3	-7.9								
ENSMUSP00000021234					1	-2						
ENSMUSP00000021234:reversed	2	-8.5							1	-2.1		
ENSMUSP00000021239	23	-94.7	23	-76.1	24	-82.4	49	-98.2	34	-81.5	36	-62.2
ENSMUSP00000021241	1	-1.7										
ENSMUSP00000021243			1	-1.9								
ENSMUSP00000021259	1	-1.8										
ENSMUSP00000021259:reversed			1	-1.6								
ENSMUSP00000021273	6	-41.4			9	-25.5	11	-31.4				
ENSMUSP00000021285					7	-44.7	2	-9.4	3	-2.3	6	-32.4
ENSMUSP00000021286			1	-1.7								
ENSMUSP00000021288			1	-2								
ENSMUSP00000021311					1	-2.5						
ENSMUSP00000021313	11	-50.4	21	-68.4	10	-29	19	-73.3	19	-77.8	27	-79.7
ENSMUSP00000021314	1	-2.1										
ENSMUSP00000021324					1	-2.7						
ENSMUSP00000021329	14	-65.5	32	-82.5	15	-50.6	32	-86.1	57	-110	49	-75.6
ENSMUSP00000021331							1	-1.6				
ENSMUSP00000021335	2	-11.5	2	-4.4	2	-6.7			1	-5.8	4	-13.9
ENSMUSP00000021346									1	-1.7		
ENSMUSP00000021347	19	-97.2	22	-91.5	39	-138	29	-100	35	-138	54	-191
ENSMUSP00000021370			2	-2	3	-1.8					2	-2
ENSMUSP00000021375	4	-19.6	9	-45.5	1	-1.5	4	-17.9	7	-30.5	4	-22.7
ENSMUSP00000021381:reversed									1	-1.5		
ENSMUSP00000021384	2	-1.8	3	-16	4	-35.8	7	-38.2	8	-41.4	8	-38.6
ENSMUSP00000021411			1	-3.2								
ENSMUSP00000021412	22	-65.8	47	-80.8	8	-45.7	31	-63.5	20	-34.6	22	-99.2
ENSMUSP00000021424	2	-18.8	3	-18.4	5	-16.8	8	-42.5	7	-26.1	4	-31.6

ENSMUSP00000021425					1	-3.8							
ENSMUSP00000021428									1	-3.4			
ENSMUSP00000021443	15	-77.7	12	-64	15	-80.8	16	-52.6	14	-56.3	11	-52.8	
ENSMUSP00000021450							1	-3.6			2	-4.4	
ENSMUSP00000021459	44	-21.7					28	-36.5			14	-20	
ENSMUSP00000021466	1	-5.8	2	-7.5			5	-12.1	2	-13.8	4	-6.4	
ENSMUSP00000021471	1	-3.5	5	-26.2			2	-1.5	4	-20.1	4	-23.7	
ENSMUSP00000021506			12	-25.7									
ENSMUSP00000021512	6	-15.7	14	-56.7	15	-38.2	23	-32.1	9	-37	12	-54	
ENSMUSP00000021514			2	-10.4					3	-11.4			
ENSMUSP00000021535:reversed					1	-2.3							
ENSMUSP00000021536	1	-2.5			2	-13.9	2	-17.9			1	-1.6	
ENSMUSP00000021547	2	-2.9			2	-3.2			2	-1.8	2	-5.5	
ENSMUSP00000021554											1	-3.9	
ENSMUSP00000021595	2	-9.2	13	-37.3	3	-14.7	8	-18.4	6	-19.4	7	-22.1	
ENSMUSP00000021603	1	-1.5											
ENSMUSP00000021609	10	-38.7	15	-66.6	5	-27.3	30	-103	48	-144	42	-151	
ENSMUSP00000021611	4	-18.7			1	-1.4							
ENSMUSP00000021614			2	-11									
ENSMUSP00000021614:reversed			1	-1.6									
ENSMUSP00000021617:reversed			1	-1.5									
ENSMUSP00000021630	14	-91.9	17	-84.1	42	-92.5	22	-82.5	20	-90.1	24	-108	
ENSMUSP00000021634	1	-1.4			2	-8.2			1	-1.6			
ENSMUSP00000021649					2	-4.9							
ENSMUSP00000021652									1	-2.3			
ENSMUSP00000021661	1	-2.3			3	-6.5					1	-4.5	
ENSMUSP00000021662			1	-1.4									
ENSMUSP00000021666	5	-40.4			5	-39.8	4	-31.8	4	-28.3	1	-7.4	
ENSMUSP00000021667									1	-2.6			
ENSMUSP00000021676	8	-24.2	15	-33.3	4	-12.9	7	-14.7	5	-21.4	18	-28.9	
ENSMUSP00000021684			1	-1.5									
ENSMUSP00000021684:reversed											1	-2.6	
ENSMUSP00000021693									2	-2.3	1	-4.3	
ENSMUSP00000021693:reversed									1	-1.5			
ENSMUSP00000021698	14	-61.7	15	-61	36	-86.9	18	-68.4	16	-62.4	16	-68.8	
ENSMUSP00000021719	5	-2.3	24	-18.3	1	-1.8	36	-17.6	10	-2.1	11	-2	
ENSMUSP00000021772											1	-1.9	
ENSMUSP00000021772:reversed					1	-1.5							
ENSMUSP00000021773			1	-2.7							2	-4.7	
ENSMUSP00000021790	137	-103	153	-87.8	202	-142	235	-100	187	-105	197	-110	
ENSMUSP00000021790:reversed											1	-1.6	
ENSMUSP00000021793	15	-24	12	-33.2	13	-14.1	10	-22.4	13	-38.1	15	-36.1	
ENSMUSP00000021800			1	-1.8	2	-3.9	2	-7.5	2	-10.1			
ENSMUSP00000021806	2	-10.3	1	-1.5	2	-9.4	3	-16.7	5	-26.9	3	-24.3	
ENSMUSP00000021810:reversed					1	-1.4							
ENSMUSP00000021824											2	-1.7	
ENSMUSP00000021854	1	-2.9	5	-12.8	1	-5	6	-21.1	1	-3.9	2	-8.7	
ENSMUSP00000021864	11	-49.2			11	-43.6	29	-55.8			21	-45.7	
ENSMUSP00000021870									1	-1.9			
ENSMUSP00000021920					1	-3.5	2	-2.9	2	-3.4			
ENSMUSP00000021930	83	-184	84	-140	120	-173	171	-190	69	-174	86	-187	
ENSMUSP00000021940	61	-147	36	-104	39	-144	125	-183	84	-144	78	-179	
ENSMUSP00000021948											1	-1.4	
ENSMUSP00000021956:reversed					1	-1.5					1	-1.4	
ENSMUSP00000021957	2	-8.9											
ENSMUSP00000021959	4	-20.1	17	-85.8	14	-43.6	6	-26.5	16	-94.8	4	-32.5	
ENSMUSP00000021959:reversed	1	-2											
ENSMUSP00000021963	2	-10.7	1	-1.9	2	-6.6	1	-6.5	4	-8.7	2	-10.2	

ENSMUSP00000021990	3	-8.3	2	-5.6	4	-13.8	1	-4.7	3	-7	2	-5.6
ENSMUSP00000021993	90	-108	88	-81.8	44	-95.6	172	-112	129	-112	86	-130
ENSMUSP00000022013:reversed	1	-1.5										
ENSMUSP00000022028											1	-1.3
ENSMUSP00000022034:reversed											1	-1.7
ENSMUSP00000022049					1	-1.5			2	-1.9		
ENSMUSP00000022060									1	-5.3		
ENSMUSP00000022062	3	-15			1	-2.6			3	-16.8	1	-3.3
ENSMUSP00000022063			2	-8.4	2	-13.3			6	-20.6		
ENSMUSP00000022070	2	-12.1	6	-28.2	3	-2.1	3	-16	4	-14.7	1	-6.3
ENSMUSP00000022087:reversed			1	-1.4	1	-1.7			1	-2.4		
ENSMUSP00000022095									1	-2		
ENSMUSP00000022102	5	-26.8	2	-10	2	-2.6	13	-34.1	4	-16.9	5	-13
ENSMUSP00000022114			1	-1.8								
ENSMUSP00000022115			1	-1.3								
ENSMUSP00000022120					2	-8.5						
ENSMUSP00000022124											5	-13.7
ENSMUSP00000022136:reversed									1	-2		
ENSMUSP00000022140					1	-1.5					1	-1.9
ENSMUSP00000022148	1	-3	5	-24.2	3	-18.5					2	-11.5
ENSMUSP00000022176	1	-2.4					3	-11.3	5	-28.3	5	-17.3
ENSMUSP00000022176:reversed	2	-2.7	3	-2.3	1	-1.4			1	-1.4	1	-2.1
ENSMUSP00000022189									1	-1.4		
ENSMUSP00000022189:reversed											1	-1.4
ENSMUSP00000022196							1	-4.6	4	-2.2	2	-1.7
ENSMUSP00000022206	1	-5.5	2	-9	4	-30.4	8	-29.3	3	-11	2	-4.1
ENSMUSP00000022210											16	-25.6
ENSMUSP00000022217											1	-1.7
ENSMUSP00000022218	1	-2					1	-6	2	-7.1	1	-5.3
ENSMUSP00000022220:reversed									1	-1.6		
ENSMUSP00000022221:reversed	1	-1.8										
ENSMUSP00000022245											2	-2
ENSMUSP00000022245:reversed											1	-1.3
ENSMUSP00000022256	1	-5.5	1	-2.2	1	-2.2			2	-6.9	1	-1.6
ENSMUSP00000022257											1	-1.4
ENSMUSP00000022268	3	-16.3			2	-9.9	1	-4	2	-5.9	1	-1.4
ENSMUSP00000022271	2	-17.6	1	-1.4	6	-19.5	2	-2.7	2	-14.3	5	-21
ENSMUSP00000022286							3	-5.3	4	-15.8	4	-31
ENSMUSP00000022293	29	-70.4	33	-80	56	-86.6	33	-70.9	42	-83.8	47	-102
ENSMUSP00000022295	4	-5.8	5	-4.8	9	-17.1	3	-6.7	3	-14.7	9	-20.2
ENSMUSP00000022310											1	-1.8
ENSMUSP00000022311			1	-3.2								
ENSMUSP00000022317	8	-41.2	15	-83	10	-60.5	18	-74.6	36	-127	22	-62.7
ENSMUSP00000022322	95	-245	95	-263	114	-258	60	-185	75	-248	70	-260
ENSMUSP00000022355					1	-1.4			1	-1.8		
ENSMUSP00000022358			1	-1.3					1	-1.7	1	-1.6
ENSMUSP00000022369									3	-11		
ENSMUSP00000022371									1	-3.5		
ENSMUSP00000022380	6	-12.6	4	-13.7	2	-15.8	4	-18.1	7	-30.1	6	-22.6
ENSMUSP00000022386:reversed	1	-1.4										
ENSMUSP00000022388			1	-1.4							1	-1.4
ENSMUSP00000022429	16	-54.9	18	-66.9	27	-93	25	-89.1	33	-117	35	-144
ENSMUSP00000022437	4	-22.5	5	-20.1	2	-3.6	3	-20.6	4	-14.5	10	-38.8
ENSMUSP00000022462			1	-6.5	2	-8.7			4	-11.7		
ENSMUSP00000022469					2	-8.6						
ENSMUSP00000022478	9	-30	9	-19.2	15	-36.5	12	-34.1	10	-30.1	14	-30.3
ENSMUSP00000022497	2	-9.7	7	-30	3	-8.7	4	-9.6	5	-19.2	3	-7.2
ENSMUSP00000022517					1	-1.7						

ENSMUSP00000022521:reversed					1	-1.6							
ENSMUSP00000022529	20	-92.6	21	-60	33	-84.6	23	-113	21	-85.4	20	-84.9	
ENSMUSP00000022531	1	-1.4	2	-2.6							2	-2.4	
ENSMUSP00000022538			2	-1.7	2	-1.8							
ENSMUSP00000022567									1	-1.4			
ENSMUSP00000022573	6	-19	4	-7.8	6	-7.4	5	-19	8	-23	3	-18.4	
ENSMUSP00000022574	2	-9.3											
ENSMUSP00000022575			2	-7.4					2	-5.4	1	-6.4	
ENSMUSP00000022590	1	-1.3											
ENSMUSP00000022591:reversed	1	-1.9											
ENSMUSP00000022593											1	-1.9	
ENSMUSP00000022596:reversed			3	-3									
ENSMUSP00000022601			1	-1.8									
ENSMUSP00000022610					1	-1.6							
ENSMUSP00000022616					2	-3.9			1	-1.4	2	-3.5	
ENSMUSP00000022618					1	-1.4							
ENSMUSP00000022629					1	-1.5							
ENSMUSP00000022641:reversed					1	-1.6							
ENSMUSP00000022642											2	-2.2	
ENSMUSP00000022660:reversed											1	-1.8	
ENSMUSP00000022666:reversed											2	-8.7	
ENSMUSP00000022696			1	-2					2	-10.7	1	-2.8	
ENSMUSP00000022696:reversed	2	-3.2	1	-2.9	5	-3.1			3	-2.2	1	-1.4	
ENSMUSP00000022704	3	-10.7	10	-29.3	7	-23.5	5	-25	3	-6.1	6	-23.2	
ENSMUSP00000022706	6	-27.1	1	-3.1	3	-10.5	1	-2	1	-2	2	-4.4	
ENSMUSP00000022728	2	-4.9	2	-3.1	1	-3.6	2	-4.4	2	-5.3			
ENSMUSP00000022742							1	-1.3					
ENSMUSP00000022749	1	-1.4			1	-1.5			2	-13.8	1	-2.9	
ENSMUSP00000022765											32	-84.2	
ENSMUSP00000022781	7	-13.3	17	-15.4	11	-29.3	31	-15.2	2	-15.6	7	-32.5	
ENSMUSP00000022783			1	-2									
ENSMUSP00000022793			1	-2.4							1	-1.6	
ENSMUSP00000022793:reversed							1	-1.6					
ENSMUSP00000022803	18	-89	50	-109	21	-79.6	30	-77.2	34	-92.9	27	-57.9	
ENSMUSP00000022821			2	-8.5	3	-12.6			1	-2.6	1	-5.5	
ENSMUSP00000022842	2	-14.6			2	-5.8	2	-10.6	1	-4.5	2	-4.6	
ENSMUSP00000022842:reversed									1	-1.5			
ENSMUSP00000022849			1	-3.6	1	-3.6	1	-2.7	2	-11.3	3	-14.7	
ENSMUSP00000022849:reversed			1	-1.5									
ENSMUSP00000022858	3	-12.6	2	-12.8	5	-25.9			2	-13	3	-34.4	
ENSMUSP00000022861	27	-122	50	-173	53	-129	31	-117	34	-120	33	-118	
ENSMUSP00000022861:reversed	1	-2.1											
ENSMUSP00000022865	23	-77	13	-69.9	28	-87.5	14	-78.9	11	-47.8	20	-96.5	
ENSMUSP00000022875					5	-25.7	2	-12.5	4	-21.9	4	-24.9	
ENSMUSP00000022894	1	-2.1	3	-12.1	1	-2.4	3	-9.1	1	-4.6			
ENSMUSP00000022899:reversed			3	-7.9	3	-14.8	2	-1.9					
ENSMUSP00000022904:reversed	1	-2.8	2	-1.5	1	-1.8					1	-2.5	
ENSMUSP00000022908	7	-42.6	3	-20.4	6	-25.7	4	-21.8	8	-30.3	8	-33	
ENSMUSP00000022915	2	-13.3	1	-4.1	1	-12.1			1	-1.7	2	-2.4	
ENSMUSP00000022923:reversed									1	-2.7			
ENSMUSP00000022946	14	-64.2	27	-33.3	7	-35.2	24	-46.7	17	-67.3	18	-59.8	
ENSMUSP00000022960	3	-13.1	3	-14.5			3	-22.2	3	-12.6	5	-23.6	
ENSMUSP00000022962:reversed	1	-1.7											
ENSMUSP00000022971			2	-1.7									
ENSMUSP00000022977	3	-12.3	4	-10.1	2	-9.1	11	-63.1	13	-76.6	9	-38.7	
ENSMUSP00000022980	15	-37.7	14	-36.9	14	-35.7	16	-35.7	13	-38.1	14	-54.2	
ENSMUSP00000022990			1	-1.8									
ENSMUSP00000022993	25	-45.9	33	-56.1	37	-50.9	42	-50.1	39	-55.6	28	-54.6	

ENSMUSP00000023000:reversed												1	-1.6
ENSMUSP00000023040			1	-1.4	4	-12.5	1	-4.3	8	-29.3	6	-16.7	
ENSMUSP00000023043			3	-14.4							2	-3.2	
ENSMUSP00000023048			1	-3.8					1	-1.8			
ENSMUSP00000023048:reversed					1	-2.6							
ENSMUSP00000023053:reversed	1	-1.8											
ENSMUSP00000023062	23	-72.7	18	-78.7	24	-85.2	22	-89.5	22	-65.5	24	-114	
ENSMUSP00000023071	24	-99.4	24	-82.6	30	-76.3	28	-94.6	36	-103	34	-104	
ENSMUSP00000023083	266	-309	317	-302	231	-404	375	-315	296	-429	312	-320	
ENSMUSP00000023085	1	-3.7	2	-3.2					7	-30.1	6	-10.9	
ENSMUSP00000023086			4	-4.9	3	-5.6	2	-11.5	2	-3.9	3	-3.9	
ENSMUSP00000023088	2	-3.4					1	-2.1	1	-1.8	1	-3.1	
ENSMUSP00000023101	4	-21.1	8	-37.3	4	-25.9	20	-26.8	12	-29	10	-41.2	
ENSMUSP00000023116	6	-45.1	11	-54.3	11	-52.4	6	-44.7	12	-57.7	9	-40.4	
ENSMUSP00000023128	10	-53.7	18	-81.6	16	-64.5	13	-52.6	11	-51	18	-97.9	
ENSMUSP00000023132									1	-1.5			
ENSMUSP00000023156					2	-2.4					4	-12.9	
ENSMUSP00000023176:reversed							1	-1.4			1	-1.5	
ENSMUSP00000023203	13	-41.4	4	-12.8	9	-27.4	3	-11.2	3	-14.3	3	-16.8	
ENSMUSP00000023209	5	-26.8	10	-53.2	14	-65.3	8	-41.8	18	-80.5	10	-30.6	
ENSMUSP00000023210	70	-108	56	-118	94	-119	105	-111	89	-125	134	-157	
ENSMUSP00000023213									2	-1.6	1	-3	
ENSMUSP00000023214	4	-39.7	8	-43.1	9	-49.8	1	-1.4	5	-39.4	5	-31.9	
ENSMUSP00000023221	8	-35.7	10	-30.8	4	-22.8	10	-38.9	5	-39.3	8	-40.5	
ENSMUSP00000023222	12	-49.6	14	-50.6	15	-61.3	12	-70.5	11	-50.3	13	-62.8	
ENSMUSP00000023226									5	-31.3			
ENSMUSP00000023237	9	-54	7	-22.2	17	-74.4	12	-67.4	11	-38	17	-85.7	
ENSMUSP00000023269	7	-24.4	6	-15.6	8	-24.9	14	-31.7	24	-33.9	17	-32.7	
ENSMUSP00000023283	6	-31.9	11	-52.2	12	-47.8	6	-34.7	14	-78.6	12	-66.3	
ENSMUSP00000023285			1	-2	1	-1.5			1	-1.6			
ENSMUSP00000023312	2	-11.3	5	-11.8	13	-66.3	8	-36.3	7	-36.1	8	-51.6	
ENSMUSP00000023327:reversed									1	-1.9			
ENSMUSP00000023352:reversed			1	-1.7									
ENSMUSP00000023357							1	-1.4					
ENSMUSP00000023360	8	-21.4	10	-23.7	6	-15.9	12	-26.5	12	-30.5	7	-17.3	
ENSMUSP00000023365			1	-1.9	2	-12.1			1	-1.9	2	-2	
ENSMUSP00000023370					1	-1.4							
ENSMUSP00000023385:reversed					1	-1.7							
ENSMUSP00000023393	5	-15.6	2	-10.2	3	-8.8	3	-10.5	6	-34.3	2	-8.5	
ENSMUSP00000023393:reversed					1	-2.2							
ENSMUSP00000023396									2	-2.9			
ENSMUSP00000023426			1	-1.7	2	-3.1	1	-1.4					
ENSMUSP00000023432	3	-13.5	4	-16.2	14	-43	3	-13.9	5	-18.2	4	-5.8	
ENSMUSP00000023433	30	-126	56	-169	69	-184	40	-132	77	-229	73	-192	
ENSMUSP00000023437	1	-2.2			1	-1.3							
ENSMUSP00000023437:reversed											1	-1.7	
ENSMUSP00000023442:reversed	1	-1.7											
ENSMUSP00000023449	1	-3.7	5	-15.9					2	-2.2			
ENSMUSP00000023453			2	-4.1	4	-5.6	2	-6.2	3	-4.5	2	-3.9	
ENSMUSP00000023455:reversed					1	-1.4							
ENSMUSP00000023464:reversed			1	-2.3									
ENSMUSP00000023465:reversed									1	-1.6			
ENSMUSP00000023477											5	-33.1	
ENSMUSP00000023486	5	-32.2	4	-32.2	12	-48.1	4	-18.8	13	-64.9	19	-97.6	
ENSMUSP00000023489							1	-5.3	1	-2.7			
ENSMUSP00000023501:reversed			1	-1.4									
ENSMUSP00000023507:reversed											1	-2.2	
ENSMUSP00000023510	1	-2.5	1	-9.1	3	-10.6	1	-8.7					

ENSMUSP00000023513					1	-1.9			1	-1.4		
ENSMUSP00000023514	9	-24.4	12	-31.1	9	-33.7	37	-73.8	21	-62.9	17	-61.2
ENSMUSP00000023519	7	-22.4	2	-4.7	7	-30.7	2	-13	4	-28.1	6	-22.2
ENSMUSP00000023520:reversed									1	-2.1		
ENSMUSP00000023524:reversed									1	-1.8		
ENSMUSP00000023531:reversed					1	-1.7					1	-1.5
ENSMUSP00000023532:reversed					1	-1.4						
ENSMUSP00000023538:reversed			1	-1.7								
ENSMUSP00000023554			1	-10.5								
ENSMUSP00000023555									1	-1.4		
ENSMUSP00000023559	13	-52.9	25	-83.2	29	-136	9	-51.5	11	-64.1	8	-38.9
ENSMUSP00000023562	1	-2	1	-1.4	2	-3.3			2	-3.2		
ENSMUSP00000023572	3	-20.1	2	-13.4	7	-13.9	7	-16.8	13	-35.9	9	-26
ENSMUSP00000023583									6	-20.1	2	-7.2
ENSMUSP00000023590							1	-8.8			1	-1.5
ENSMUSP00000023598					1	-1.6						
ENSMUSP00000023599			10	-51.3			8	-38.5			16	-48.9
ENSMUSP00000023601	1	-12.9	11	-31.9	2	-6.6	13	-43.1	23	-47.1	21	-68.2
ENSMUSP00000023608	13	-36.4	6	-24.6	19	-57	11	-40.7	13	-44	24	-38.6
ENSMUSP00000023610:reversed					1	-1.3						
ENSMUSP00000023615							1	-2.2				
ENSMUSP00000023677	3	-22.4	9	-37.4	8	-27.1	8	-44.1	4	-20.3	1	-1.5
ENSMUSP00000023683			1	-4.6			2	-3.3	4	-27.8	1	-1.7
ENSMUSP00000023683:reversed	1	-1.7	1	-2.3								
ENSMUSP00000023684:reversed									1	-1.5		
ENSMUSP00000023693											1	-2
ENSMUSP00000023696									1	-1.5		
ENSMUSP00000023707			1	-1.5			1	-1.6	6	-38.1	2	-4.9
ENSMUSP00000023707:reversed											1	-1.5
ENSMUSP00000023709							3	-19.8	6	-19.8		
ENSMUSP00000023710							9	-21.6	12	-23.8	8	-22.8
ENSMUSP00000023712			13	-46.8					4	-21		
ENSMUSP00000023713:reversed	1	-2										
ENSMUSP00000023714			13	-24			2	-3.3				
ENSMUSP00000023720			8	-18.2								
ENSMUSP00000023720:reversed					1	-2.2			1	-2.4		
ENSMUSP00000023741	1	-1.8	2	-8					3	-10.4		
ENSMUSP00000023741:reversed					2	-7.8					2	-9
ENSMUSP00000023749	1	-1.9	4	-2.9	1	-3.1	1	-2.3	3	-2.7	1	-2.9
ENSMUSP00000023758:reversed					2	-9.1						
ENSMUSP00000023760	1	-3.4	8	-21.2	8	-36.2	4	-24.4	6	-23.1	2	-8.6
ENSMUSP00000023776:reversed											1	-1.4
ENSMUSP00000023779:reversed	1	-1.5										
ENSMUSP00000023788											8	-26
ENSMUSP00000023790			32	-59.8	9	-44.3						
ENSMUSP00000023803	50	-194	73	-215	65	-230	42	-156	40	-144	37	-171
ENSMUSP00000023805	5	-11.1	9	-31	6	-25	1	-7.6	3	-15.9	3	-17.1
ENSMUSP00000023806	11	-41.4	9	-36.1	6	-36.7	4	-19.8	3	-14.4	12	-30.1
ENSMUSP00000023830			1	-1.6								
ENSMUSP00000023832	16	-59.9	9	-57.4	15	-45	17	-63.8	10	-48.5	17	-68.9
ENSMUSP00000023851							9	-27.1	8	-17.5	12	-27
ENSMUSP00000023882									2	-9.4		
ENSMUSP00000023882:reversed									2	-9.1		
ENSMUSP00000023911			6	-25.1	1	-5.1	6	-27.5	9	-32.7	7	-26.3
ENSMUSP00000023934	6	-44.1	4	-31.5	12	-40.3	13	-50.6	13	-66.2	12	-40.6
ENSMUSP00000023952	101	-238	68	-252	93	-258	31	-150	40	-182	35	-170
ENSMUSP00000023953	1	-1.4										
ENSMUSP00000023978:reversed									1	-1.5		

ENSMUSP00000023994	2	-8.1	2	-10.8	4	-3.2	8	-22.7	8	-28.3	10	-29.5
ENSMUSP00000024031			1	-1.5			1	-2.6				
ENSMUSP00000024078	14	-35.5	22	-39.2	20	-30.6	12	-24.3	25	-46.4	10	-20.6
ENSMUSP00000024223	3	-23.6	16	-63.5	10	-34.1	4	-17.8	15	-72.4	9	-54.1
ENSMUSP00000024238	2	-8.2									1	-1.8
ENSMUSP00000024486									1	-1.8		
ENSMUSP00000024492					2	-8.5	3	-16.5			1	-2
ENSMUSP00000024596	15	-44.1	14	-67.9	10	-53.8	17	-41.4	19	-58.8	13	-32.1
ENSMUSP00000024599	16	-61.6	15	-83.3	15	-51.5	28	-117	40	-151	30	-112
ENSMUSP00000024706	1	-1.6										
ENSMUSP00000024715	3	-3.8	1	-2.5	6	-25.1			4	-21.9	1	-3.2
ENSMUSP00000024727									1	-2.7		
ENSMUSP00000024738:reversed					1	-2.5						
ENSMUSP00000024739	24	-114	18	-92.9	51	-130	34	-141	27	-117	25	-131
ENSMUSP00000024756											1	-4.1
ENSMUSP00000024757	1	-3	3	-12.4	3	-15.6	3	-13.9	5	-13.1	2	-5.5
ENSMUSP00000024760	3	-5.7	4	-10	9	-36.6	3	-10.3	6	-23.6	2	-4
ENSMUSP00000024783					2	-2.7						
ENSMUSP00000024786					1	-1.4						
ENSMUSP00000024797							1	-3.1				
ENSMUSP00000024797:reversed			1	-1.7								
ENSMUSP00000024805:reversed			1	-1.6								
ENSMUSP00000024808:reversed	1	-2.8										
ENSMUSP00000024815	1	-2			1	-7	1	-4			1	-8
ENSMUSP00000024823	2	-2			3	-15.9	2	-1.9	2	-11.4	2	-14.9
ENSMUSP00000024848:reversed			1	-2.6								
ENSMUSP00000024850:reversed	1	-1.8										
ENSMUSP00000024866	21	-130	35	-150	42	-163	31	-140	33	-195	28	-144
ENSMUSP00000024866:reversed			2	-1.8	1	-2.2					1	-1.5
ENSMUSP00000024868									4	-4.2	2	-2.8
ENSMUSP00000024870	1	-5.5	2	-6.3			1	-4.5	3	-13.6	2	-10.9
ENSMUSP00000024873	1	-1.6							1	-3.6	1	-2.2
ENSMUSP00000024876:reversed							1	-1.7				
ENSMUSP00000024879							1	-1.6				
ENSMUSP00000024880:reversed									1	-1.3		
ENSMUSP00000024897	27	-82.9	31	-70.9	25	-94.8	19	-61.8	38	-64.5	22	-67.7
ENSMUSP00000024897:reversed			1	-1.4								
ENSMUSP00000024909					1	-5.2	12	-55.7	9	-52.8	13	-81.2
ENSMUSP00000024932			24	-19	26	-22.6			46	-29.1	77	-35.8
ENSMUSP00000024934	1	-6.6					2	-10.3	2	-4.6		
ENSMUSP00000024934:reversed											1	-2.2
ENSMUSP00000024944			3	-7.3					2	-12.8	2	-4.7
ENSMUSP00000024946	10	-46.3	9	-44.4	13	-43.1	5	-26.3	8	-55.2	13	-30.3
ENSMUSP00000024958:reversed	1	-1.4										
ENSMUSP00000024974			3	-10.8					3	-12		
ENSMUSP00000024978	6	-13.6	9	-44.4	7	-22.5	12	-33.8	8	-35.9	5	-20
ENSMUSP00000024987	1	-1.4										
ENSMUSP00000024987:reversed			1	-1.4	1	-1.7					2	-1.9
ENSMUSP00000024988	9	-38.5	16	-82.2	8	-56.3	42	-224	52	-319	35	-223
ENSMUSP00000025014									1	-1.4		
ENSMUSP00000025019	1	-1.7										
ENSMUSP00000025024			1	-1.7								
ENSMUSP00000025025					1	-1.9						
ENSMUSP00000025027					2	-2.8					1	-2.5
ENSMUSP00000025036:reversed									1	-1.6		
ENSMUSP00000025052			1	-7.8	1	-2.3			2	-2.3		
ENSMUSP00000025058					1	-1.4						
ENSMUSP00000025058:reversed			1	-1.6								

ENSMUSP00000025586:reversed			1	-1.6								
ENSMUSP00000025598	16	-66	24	-82.9	16	-52.8	20	-66.3	28	-88.2	20	-74.5
ENSMUSP00000025602							4	-23.8			9	-41.3
ENSMUSP00000025618	1	-1.4							1	-2.6		
ENSMUSP00000025649	2	-11.9	6	-16			4	-18.8	5	-29.1	3	-20.3
ENSMUSP00000025656	30	-113	43	-164	32	-112	48	-190	47	-189	47	-164
ENSMUSP00000025666							2	-2.1				
ENSMUSP00000025668	60	-196	76	-233	85	-205	76	-203	86	-210	74	-204
ENSMUSP00000025668:reversed									1	-1.5		
ENSMUSP00000025679			1	-1.8								
ENSMUSP00000025681:reversed	1	-2.8										
ENSMUSP00000025682	1	-1.5	2	-2.1	1	-2.1			2	-2.5		
ENSMUSP00000025696	1	-2.7	4	-19.8	4	-21.6						
ENSMUSP00000025707	1	-3.8			3	-11.1	3	-6.6	3	-14.5	4	-5
ENSMUSP00000025711:reversed			1	-1.6								
ENSMUSP00000025713	27	-88.3	32	-87.7	21	-69.1	38	-88.2	33	-84	45	-88.1
ENSMUSP00000025723			10	-40					8	-26.5		
ENSMUSP00000025730											1	-1.5
ENSMUSP00000025732	12	-51.6	22	-68.7	7	-25	24	-56.7	20	-55.9	24	-63
ENSMUSP00000025743							2	-8.9				
ENSMUSP00000025745	2	-2.1	2	-5.7					3	-13.6		
ENSMUSP00000025755:reversed					2	-8.9						
ENSMUSP00000025774:reversed									1	-1.7		
ENSMUSP00000025778							4	-2.7	2	-9.9	5	-30.2
ENSMUSP00000025779			1	-1.7								
ENSMUSP00000025786	1	-1.9										
ENSMUSP00000025786:reversed	3	-3.4	2	-8.4								
ENSMUSP00000025791							1	-1.6				
ENSMUSP00000025797									2	-4.9		
ENSMUSP00000025798									1	-1.5		
ENSMUSP00000025804	91	-116	80	-153	59	-142	81	-150	57	-140	52	-170
ENSMUSP00000025811	2	-11.4	6	-31.9	5	-17.9	9	-23.7	7	-32.1	6	-39.7
ENSMUSP00000025831:reversed	2	-9.3			2	-8.2			1	-1.5		
ENSMUSP00000025833	2	-4.5	7	-31	6	-25	4	-19	6	-21.6	4	-27
ENSMUSP00000025835	92	-259	107	-261	120	-241	108	-266	125	-261	122	-256
ENSMUSP00000025836:reversed					1	-1.6	2	-1.5			1	-2.6
ENSMUSP00000025842:reversed					1	-1.7						
ENSMUSP00000025851					3	-17.5			3	-15	1	-5.6
ENSMUSP00000025856:reversed									1	-1.6		
ENSMUSP00000025903									1	-2.9		
ENSMUSP00000025910									1	-7.1	1	-2.3
ENSMUSP00000025915	1	-1.5	2	-2.9							1	-1.6
ENSMUSP00000025915:reversed											1	-1.6
ENSMUSP00000025924			1	-1.4								
ENSMUSP00000025930:reversed							1	-1.4	1	-1.7		
ENSMUSP00000025946							1	-2.4	2	-3.7		
ENSMUSP00000025955	2	-15.2	6	-39.8			5	-19.5	6	-36.3	5	-43.7
ENSMUSP00000025956:reversed					1	-1.6						
ENSMUSP00000025961			3	-4.5			6	-5.9	6	-4.8	1	-1.7
ENSMUSP00000025966	15	-35.1	13	-24.6	28	-38.1	10	-24.6	16	-45.8	8	-29.6
ENSMUSP00000025968	58	-150	88	-175	102	-197	83	-160	93	-178	95	-227
ENSMUSP00000025969					101	-216	229	-213				
ENSMUSP00000025973:reversed									2	-8.2		
ENSMUSP00000025986			1	-1.8	1	-2			2	-2.4		
ENSMUSP00000026012	2	-6.6	1	-7.1	2	-8.6			4	-8.2	3	-9.8
ENSMUSP00000026013	6	-32.9	10	-47.4	11	-44.3	8	-53.5	8	-40.2	9	-49.1
ENSMUSP00000026021	4	-10.6	4	-5.8	1	-4.5	1	-1.9	9	-19.5	9	-22.8
ENSMUSP00000026045							2	-9.5	2	-10.2		

ENSMUSP00000026050	1	-4.7	3	-3.8	3	-5.8	3	-2.7				
ENSMUSP00000026076			1	-6								
ENSMUSP00000026084	1	-3.6										
ENSMUSP00000026119									3	-11.3		
ENSMUSP00000026122	5	-24	3	-12.7	13	-32	11	-67.9	11	-75.3	18	-100
ENSMUSP00000026129							1	-3.6	2	-4.1		
ENSMUSP00000026135:reversed											1	-1.5
ENSMUSP00000026139							1	-1.4				
ENSMUSP00000026144	5	-39.7	13	-44.2	4	-7.2	5	-30.1	13	-40.6	13	-42.7
ENSMUSP00000026156							1	-8.6				
ENSMUSP00000026169			2	-8.7					1	-4		
ENSMUSP00000026196	16	-61.7	17	-60.4	3	-16.6	18	-51	13	-66.1	15	-53.2
ENSMUSP00000026208	27	-162	47	-212	26	-136	16	-112	26	-127	16	-88.2
ENSMUSP00000026211	61	-193	58	-231	67	-251	78	-264	71	-252	88	-250
ENSMUSP00000026217			1	-2.8								
ENSMUSP00000026218:reversed									1	-1.4		
ENSMUSP00000026220			6	-30			5	-30.6	5	-27.3	1	-4.8
ENSMUSP00000026221:reversed									1	-1.4		
ENSMUSP00000026222	41	-82.3	32	-72.3	48	-83.8	34	-66.1	25	-59.8	41	-104
ENSMUSP00000026234											1	-1.7
ENSMUSP00000026254									4	-13.9	4	-21.2
ENSMUSP00000026256					2	-6			1	-2.1	2	-3.5
ENSMUSP00000026259							1	-1.6				
ENSMUSP00000026262					1	-2.3						
ENSMUSP00000026266					2	-7.8	1	-3.2	4	-11.5	2	-12.6
ENSMUSP00000026269:reversed					1	-1.4						
ENSMUSP00000026270	93	-229	88	-293	76	-191	109	-233	104	-298	63	-238
ENSMUSP00000026289	10	-67.8	11	-52.8	19	-65	6	-39.6	9	-71.1	14	-68.9
ENSMUSP00000026289:reversed									1	-1.8		
ENSMUSP00000026292					4	-13.3			4	-25.4	7	-31
ENSMUSP00000026292:reversed					1	-1.6					1	-2.3
ENSMUSP00000026313	9	-34.6	17	-58.2	16	-60.5	12	-49.4	18	-46.6	13	-68.8
ENSMUSP00000026313:reversed											1	-1.5
ENSMUSP00000026328			2	-9								
ENSMUSP00000026328:reversed			1	-1.6	1	-1.6						
ENSMUSP00000026357									1	-2.1		
ENSMUSP00000026357:reversed							1	-1.4				
ENSMUSP00000026398	67	-67.8	64	-69.8	90	-107	71	-67.4	92	-96	70	-71.3
ENSMUSP00000026406	2	-4.2	4	-11.4	4	-5.9			6	-22	2	-8.7
ENSMUSP00000026409	4	-9.7	5	-21.4	2	-8.7	11	-34.3	4	-23.8	5	-21.9
ENSMUSP00000026416											2	-8.6
ENSMUSP00000026420			4	-2.9					8	-10.9	5	-15.1
ENSMUSP00000026425	1	-2.6							2	-2.4	1	-2.8
ENSMUSP00000026427	32	-163	17	-116	26	-151	26	-153	23	-143	22	-151
ENSMUSP00000026428			1	-1.4								
ENSMUSP00000026434			3	-5.8					2	-6.5	2	-6.9
ENSMUSP00000026436	3	-1.9										
ENSMUSP00000026448	1	-1.5										
ENSMUSP00000026459	8	-69.6	30	-81.6	13	-69.1	12	-71	19	-100	21	-122
ENSMUSP00000026462	95	-184	82	-236	69	-183	88	-199	50	-186	74	-213
ENSMUSP00000026469:reversed									1	-1.8		
ENSMUSP00000026470	9	-32.4	13	-39.5	16	-64.6	17	-43.2	17	-86.5	14	-66.7
ENSMUSP00000026474:reversed			2	-7.8					1	-1.4		
ENSMUSP00000026486:reversed							1	-1.6				
ENSMUSP00000026487							3	-19.8	4	-26.2	4	-22.9
ENSMUSP00000026495	100	-218	44	-164	63	-240	33	-156	38	-180	28	-147
ENSMUSP00000026538					3	-9						
ENSMUSP00000026552	292	-443	367	-439	378	-529	291	-450	273	-415	335	-476

ENSMUSP00000026554	1	-6.6	1	-7.5	6	-17.9	4	-7.8	8	-16.3	4	-12.5
ENSMUSP00000026555			1	-1.7								
ENSMUSP00000026555:reversed					1	-1.4						
ENSMUSP00000026560	2	-1.9	1	-4.1			1	-1.9	1	-2	1	-5.9
ENSMUSP00000026565	20	-44.7	23	-63.4	23	-56.7	49	-55.2	38	-66.6	38	-70.1
ENSMUSP00000026572											1	-2
ENSMUSP00000026576			4	-11.7	1	-2.7			6	-26.3	2	-2.6
ENSMUSP00000026577			1	-1.5					1	-2		
ENSMUSP00000026585	1	-7.4	1	-5.2							2	-6.2
ENSMUSP00000026595							2	-2.1				
ENSMUSP00000026599	29	-67.8	38	-73	29	-83.7	31	-79.1	58	-108	39	-113
ENSMUSP00000026610	55	-152	54	-150	35	-119	64	-138	28	-142	27	-136
ENSMUSP00000026613			1	-1.4	1	-2.1	3	-15.7	5	-17.6	3	-9.8
ENSMUSP00000026617									1	-1.5		
ENSMUSP00000026624	20	-65.7	32	-85.7	22	-54.6	39	-92.6	38	-95.5	35	-83.4
ENSMUSP00000026625	1	-4.2										
ENSMUSP00000026635					1	-3.3					1	-2.3
ENSMUSP00000026649	2	-3.7	6	-4.2					4	-4.3	4	-4
ENSMUSP00000026658									1	-1.5		
ENSMUSP00000026658:reversed							1	-1.4				
ENSMUSP00000026665:reversed			1	-1.4								
ENSMUSP00000026666	3	-16.9	2	-16.7	6	-18.1	4	-22.1	5	-25.3	1	-12.2
ENSMUSP00000026672											1	-3.1
ENSMUSP00000026698			2	-10.7					2	-9.7	3	-18.4
ENSMUSP00000026704			3	-10.9			4	-8.7	3	-15.4	2	-9.6
ENSMUSP00000026723:reversed	1	-1.5	1	-1.6							1	-1.7
ENSMUSP00000026735	3	-12.6	8	-38.2	3	-2.9	16	-58.8	10	-48.5	20	-63
ENSMUSP00000026740			2	-9.4	2	-8.3			3	-15.3	1	-1.5
ENSMUSP00000026740:reversed	1	-1.6	2	-9							3	-15.5
ENSMUSP00000026743	254	-276	134	-228	158	-254	338	-305	226	-293	192	-304
ENSMUSP00000026817:reversed			1	-1.4								
ENSMUSP00000026818	20	-61.1	12	-59	16	-46.7	32	-77.9	13	-47.4	16	-45.2
ENSMUSP00000026827	1	-6.8	2	-10.1			2	-8.7	3	-19.9	2	-8.4
ENSMUSP00000026841	14	-50.2	14	-52.8	9	-45.6	4	-19.7	9	-46.5	4	-13.4
ENSMUSP00000026843	37	-182	47	-124	19	-95.1	29	-118	35	-113	22	-86.1
ENSMUSP00000026858:reversed			1	-1.4								
ENSMUSP00000026859					3	-17.7					1	-4.9
ENSMUSP00000026876:reversed									1	-1.7		
ENSMUSP00000026887	22	-95.3	22	-63.4	35	-144	37	-88.6	33	-121	43	-119
ENSMUSP00000026892							2	-4			2	-3.9
ENSMUSP00000026892:reversed			1	-2.5								
ENSMUSP00000026893			1	-1.9								
ENSMUSP00000026899	28	-89.7	58	-121	20	-62.5	56	-103	64	-122	52	-99.8
ENSMUSP00000026907:reversed					1	-2.1						
ENSMUSP00000026917	3	-14.5	6	-20.9	4	-7.3	2	-5.9	3	-4.5		
ENSMUSP00000026924			8	-14.7								
ENSMUSP00000026926							52	-36.7				
ENSMUSP00000026972	1	-1.5	1	-2.1			2	-14.8	4	-11.4	4	-21.5
ENSMUSP00000026986	4	-10.1	7	-13	7	-11.2	5	-13.4	10	-12	6	-5.1
ENSMUSP00000026987					1	-3.4						
ENSMUSP00000026989:reversed									1	-1.5		
ENSMUSP00000026991	23	-85.3	22	-80.9	19	-61.6	30	-92.6	18	-83	23	-69.7
ENSMUSP00000026999:reversed			1	-1.4					1	-1.3		
ENSMUSP00000027036	6	-29.5	8	-36.5	13	-39.4	6	-27.6	10	-27.9	8	-14.7
ENSMUSP00000027040	1	-1.9							1	-1.3		
ENSMUSP00000027044	2	-10.9			3	-9.4			1	-1.8		
ENSMUSP00000027044:reversed	1	-1.4										
ENSMUSP00000027053			2	-4.4			1	-2.9	3	-11.4	2	-4.1

ENSMUSP00000027064			2	-13.9								
ENSMUSP00000027065							1	-1.4			1	-2
ENSMUSP00000027067	4	-30.9	18	-40.1	13	-58.2	26	-46.3	17	-31.4	12	-37.6
ENSMUSP00000027068	10	-45.1	2	-10.6	5	-19.9	5	-29.2	7	-38.3	9	-42.3
ENSMUSP00000027071	1	-2.1	2	-8.7							1	-1.3
ENSMUSP00000027087	20	-109	31	-133	31	-145	31	-101	23	-115	24	-92
ENSMUSP00000027103									1	-2.6		
ENSMUSP00000027111	1	-1.6	3	-9.8	6	-21.1	28	-161	53	-208	38	-179
ENSMUSP00000027114	1	-2.8	3	-17.1	1	-4			4	-9.1	2	-3.5
ENSMUSP00000027123	5	-38.2					13	-63.1				
ENSMUSP00000027127					2	-4.9			2	-13.7		
ENSMUSP00000027128									2	-8.8		
ENSMUSP00000027128:reversed					1	-1.9						
ENSMUSP00000027137			1	-2.6					3	-9.5	3	-11.3
ENSMUSP00000027139:reversed			1	-1.5	1	-1.4						
ENSMUSP00000027144	414	-710	293	-666	427	-896	312	-657	286	-709	315	-727
ENSMUSP00000027144	414	-710	293	-666	427	-896	312	-657	286	-709	315	-727
ENSMUSP00000027153	13	-59.8	22	-88.8	12	-52.8	17	-56.9	15	-36.8	9	-55
ENSMUSP00000027157:reversed	1	-3.7										
ENSMUSP00000027165:reversed											1	-2.5
ENSMUSP00000027171											1	-1.4
ENSMUSP00000027178					1	-1.9			2	-2	2	-2.9
ENSMUSP00000027193	8	-17.4	8	-8.6	6	-8.4	10	-10.6	8	-9.7	10	-19.2
ENSMUSP00000027233:reversed									1	-1.5		
ENSMUSP00000027243									1	-1.7		
ENSMUSP00000027251:reversed											1	-2
ENSMUSP00000027254:reversed					2	-2.5						
ENSMUSP00000027266	2	-6.6	7	-21.1	4	-13	8	-21	3	-16.9	5	-22.1
ENSMUSP00000027271							1	-1.6				
ENSMUSP00000027273:reversed			1	-2								
ENSMUSP00000027277	1	-2.7										
ENSMUSP00000027279											2	-8.2
ENSMUSP00000027290			3	-15			1	-1.9				
ENSMUSP00000027302					1	-1.6						
ENSMUSP00000027315	2	-8.3	2	-7.9								
ENSMUSP00000027322					2	-9.1	1	-14.7	2	-2	2	-13.8
ENSMUSP00000027356	53	-181	54	-212	58	-228	53	-150	54	-213	50	-207
ENSMUSP00000027358	8	-53.4	13	-82.3	13	-56.1	14	-67.7	22	-122	24	-111
ENSMUSP00000027367			1	-4.8	6	-14.5	5	-18.6			2	-14.8
ENSMUSP00000027370			2	-4.9								
ENSMUSP00000027370:reversed											1	-1.7
ENSMUSP00000027384					1	-4.9						
ENSMUSP00000027396	20	-98.8	13	-61.2	13	-29	17	-55.4	14	-63.9	17	-61.9
ENSMUSP00000027401	3	-17.9	1	-2.2	2	-5.5	5	-38.8			1	-2.7
ENSMUSP00000027415	1	-1.7										
ENSMUSP00000027422:reversed									1	-1.4		
ENSMUSP00000027426:reversed											1	-1.4
ENSMUSP00000027429			1	-6.8	2	-7.8	3	-5.7	2	-10.3		
ENSMUSP00000027432							1	-2			1	-1.4
ENSMUSP00000027451					2	-7.9						
ENSMUSP00000027463	1	-1.8	1	-1.6								
ENSMUSP00000027464	1	-4.5			3	-14.1			6	-40.8	2	-5.6
ENSMUSP00000027475									1	-3.5		
ENSMUSP00000027477									1	-1.6		
ENSMUSP00000027478	2	-1.7	8	-3.2			2	-2.8	9	-38.7	8	-40.1
ENSMUSP00000027491	6	-42	8	-52.9	7	-40.6	3	-6.4	9	-46.3	7	-36.7
ENSMUSP00000027495			1	-1.6	2	-5.2						
ENSMUSP00000027502					1	-2.4						

ENSMUSP00000027512									1	-8.1		
ENSMUSP00000027528:reversed	1	-1.8										
ENSMUSP00000027529	9	-34	12	-31.9	10	-33.8	20	-45	19	-42	14	-46.2
ENSMUSP00000027532									2	-9.4		
ENSMUSP00000027532:reversed			1	-1.5								
ENSMUSP00000027554					3	-12.5						
ENSMUSP00000027560:reversed											1	-1.6
ENSMUSP00000027566:reversed	1	-1.6										
ENSMUSP00000027579	2	-12.1	4	-14.4					4	-14.8	5	-21.1
ENSMUSP00000027592	17	-68	19	-58.7	40	-51.3	35	-65.6	27	-65.4	19	-56.2
ENSMUSP00000027601			1	-2								
ENSMUSP00000027602	2	-3.9	4	-19.6	4	-22.4	7	-34.3	5	-20	10	-37.5
ENSMUSP00000027634	13	-20	3	-3.4	4	-12.9	13	-23.3	6	-3.4	12	-31.9
ENSMUSP00000027638	6	-30.6	8	-27.5	12	-26.7	9	-24				
ENSMUSP00000027639			1	-1.5					1	-6.3	2	-16.1
ENSMUSP00000027639:reversed			1	-1.5								
ENSMUSP00000027645	2	-2.4	2	-8.4			3	-10.7	2	-4.4		
ENSMUSP00000027661			2	-8.7					2	-9.2	1	-2.4
ENSMUSP00000027675	51	-106	21	-93.5	44	-104	87	-116	25	-102	28	-91.7
ENSMUSP00000027684			18	-46.6	14	-63.5	26	-44.8			20	-69
ENSMUSP00000027693	2	-12.5	1	-1.6							1	-2.5
ENSMUSP00000027726			4	-8.7	1	-7.2	8	-19	4	-11.9	4	-15.9
ENSMUSP00000027738	1	-2.4					2	-8.6	1	-1.9	2	-7.2
ENSMUSP00000027743	2	-1.7	6	-26.3	2	-6	7	-26.1	4	-22.4	4	-24.7
ENSMUSP00000027753:reversed									2	-8.3		
ENSMUSP00000027766	2	-23.9	3	-22	16	-66.5	1	-2.6	2	-14.2	3	-22.4
ENSMUSP00000027780:reversed					2	-8.7	4	-2.1				
ENSMUSP00000027781	2	-5.7	7	-20.3	5	-19.3			12	-20.8	7	-22
ENSMUSP00000027800	2	-7.6	2	-5.3	1	-5.2	6	-24.7	4	-21.2	3	-27.3
ENSMUSP00000027810	11	-59.6	11	-52.6	16	-67	13	-66.1	12	-85.5	10	-80
ENSMUSP00000027812					1	-1.4						
ENSMUSP00000027817			1	-1.6								
ENSMUSP00000027824									2	-9.2	2	-3.9
ENSMUSP00000027826					2	-2.7						
ENSMUSP00000027833	3	-11.8					5	-15.4				
ENSMUSP00000027833:reversed											1	-1.4
ENSMUSP00000027853	23	-53.5	44	-81.3	26	-49.5	20	-37.8	20	-42.9	27	-58.1
ENSMUSP00000027863	10	-21.9	13	-44.4	14	-44.7	12	-32	19	-41.7	14	-39.8
ENSMUSP00000027916	3	-16	5	-31.2	3	-15.6	6	-30.8	10	-47.6	7	-31.6
ENSMUSP00000027918	1	-13	13	-43.4	4	-2.4	13	-40.6	8	-33.5	6	-27.6
ENSMUSP00000027921			2	-4.5	1	-4						
ENSMUSP00000027932	8	-37.6	14	-86.2	12	-55.6	12	-37.7	9	-54.1	12	-61.1
ENSMUSP00000027940											1	-1.6
ENSMUSP00000027975	2	-3.2			1	-1.9	2	-3.6				
ENSMUSP00000027986			1	-1.8								
ENSMUSP00000027989	22	-74.6	39	-84.6	8	-40	37	-107	57	-98.5	48	-80.7
ENSMUSP00000027991:reversed											1	-2
ENSMUSP00000028004	16	-20.7	9	-28.3	6	-20.3	13	-23.5	20	-41	19	-31.2
ENSMUSP00000028004:reversed	1	-1.9							1	-1.5		
ENSMUSP00000028005	5	-29.5	9	-18.7	17	-29.9	4	-2.9	11	-45.8	15	-30.1
ENSMUSP00000028010			3	-10.2	4	-20.8			3	-12.5	14	-30.6
ENSMUSP00000028014	4	-11.7	6	-21.7	5	-17.2	11	-39.6	8	-26.8	14	-41.6
ENSMUSP00000028034:reversed									1	-1.4		
ENSMUSP00000028045	60	-259	78	-308	74	-260	93	-313	96	-354	85	-329
ENSMUSP00000028046			1	-2.6			2	-5.8	3	-12.3	2	-5
ENSMUSP00000028062			4	-4.6			4	-7.3	1	-2.5		
ENSMUSP00000028063							1	-1.6				
ENSMUSP00000028068:reversed											1	-1.9

ENSMUSP00000028072	1	-4.5			1	-8.5	1	-2.2			2	-6.5
ENSMUSP00000028081:reversed			1	-2.1								
ENSMUSP00000028083	7	-32.9	13	-44.7	7	-35	11	-40.4	7	-38.3	12	-56.5
ENSMUSP00000028100:reversed			1	-1.9								
ENSMUSP00000028102									1	-1.7		
ENSMUSP00000028106			4	-17			2	-3			1	-2
ENSMUSP00000028113:reversed	1	-1.5										
ENSMUSP00000028117	8	-51.9	10	-69.5	10	-50.1	9	-61.1	6	-29	12	-64.6
ENSMUSP00000028121	39	-32.2	14	-21.8	14	-47.1	32	-37.5	7	-30.2	10	-31.1
ENSMUSP00000028123:reversed			1	-2								
ENSMUSP00000028129			2	-6			1	-2.2	5	-24.1	3	-9.6
ENSMUSP00000028137	1	-4.3			2	-4.5	1	-2			2	-5.4
ENSMUSP00000028148					1	-1.7						
ENSMUSP00000028160	4	-32.6	9	-24.2	2	-11.6	8	-38.6	8	-47.6	6	-29.6
ENSMUSP00000028161:reversed			1	-1.7								
ENSMUSP00000028162			1	-7.3	1	-1.6	1	-6.6	1	-7.6		
ENSMUSP00000028162:reversed	1	-1.6			1	-1.4						
ENSMUSP00000028167	91	-295	54	-271	65	-271	119	-314	107	-334	137	-388
ENSMUSP00000028187:reversed									1	-1.8		
ENSMUSP00000028190			1	-1.3								
ENSMUSP00000028190:reversed					1	-1.7						
ENSMUSP00000028205									1	-1.5		
ENSMUSP00000028209	3	-9.8	1	-6.8	2	-7.1	2	-7.8	1	-8.7		
ENSMUSP00000028222	179	-324	139	-363	146	-340	377	-378	176	-405	215	-426
ENSMUSP00000028223			1	-2.2							1	-1.7
ENSMUSP00000028228			4	-4.3			8	-11.8	7	-11.7	6	-3.7
ENSMUSP00000028228:reversed					1	-1.4						
ENSMUSP00000028238	74	-170	87	-141	80	-152	70	-204	71	-184	62	-171
ENSMUSP00000028239			1	-2								
ENSMUSP00000028241	9	-44.7	8	-52.8	10	-40.5	17	-32.3	16	-57.7	20	-71.8
ENSMUSP00000028252:reversed					1	-1.6						
ENSMUSP00000028259									1	-1.4		
ENSMUSP00000028278	1	-5.1					1	-1.4				
ENSMUSP00000028280					2	-8.5						
ENSMUSP00000028282											1	-1.8
ENSMUSP00000028286	47	-99					36	-85				
ENSMUSP00000028290:reversed			1	-1.5								
ENSMUSP00000028308									1	-3.8		
ENSMUSP00000028328	1	-2.1										
ENSMUSP00000028341									2	-8.4		
ENSMUSP00000028356	8	-17.7	2	-13.4	3	-18.2	9	-25.4	2	-11.9	10	-27.3
ENSMUSP00000028362			1	-5.8					1	-9.5	2	-8.4
ENSMUSP00000028362:reversed											1	-1.3
ENSMUSP00000028368											1	-1.7
ENSMUSP00000028369:reversed					1	-2.1						
ENSMUSP00000028386			1	-1.4								
ENSMUSP00000028396	74	-255					106	-245				
ENSMUSP00000028406:reversed					2	-9.7						
ENSMUSP00000028408:reversed					1	-1.8						
ENSMUSP00000028467									2	-2.2	2	-5.4
ENSMUSP00000028469	1	-5.2	3	-5.2	3	-15.4	5	-13.2	2	-6.8		
ENSMUSP00000028499	2	-9.1	2	-15.3	5	-20.6	3	-21.3	7	-30.9	3	-13.9
ENSMUSP00000028509											2	-3.9
ENSMUSP00000028517	2	-4.6			1	-5	2	-8.9	2	-9.2		
ENSMUSP00000028549:reversed									1	-1.4		
ENSMUSP00000028551	3	-15.4	3	-17.5	3	-15.7	3	-10.2	5	-19	2	-7.2
ENSMUSP00000028584:reversed									1	-2		
ENSMUSP00000028588:reversed			2	-8								

ENSMUSP00000028592									2	-4.2	1	-4
ENSMUSP00000028608					1	-3.5					2	-2.1
ENSMUSP00000028610	6	-31.9	10	-42.4	6	-25.7	5	-20.5	6	-57.9	7	-42.5
ENSMUSP00000028612:reversed			1	-1.4								
ENSMUSP00000028619	49	-123	77	-162	91	-135	81	-181	66	-175	84	-173
ENSMUSP00000028623					3	-14.9	4	-16.1	1	-3.3	3	-10
ENSMUSP00000028630									2	-2.5	3	-2.4
ENSMUSP00000028638	1	-1.9										
ENSMUSP00000028649:reversed			2	-2								
ENSMUSP00000028650	1	-3.9	4	-14.4	3	-10.7			8	-36.8	4	-25.3
ENSMUSP00000028652					1	-2.2						
ENSMUSP00000028657	14	-55.2	19	-77	23	-50.5	11	-39.4	17	-70.8	19	-63.8
ENSMUSP00000028667									1	-1.7		
ENSMUSP00000028683	5	-9.9	8	-18.1	6	-19.3	15	-53.4	12	-44.3	16	-53.6
ENSMUSP00000028683:reversed					1	-1.6						
ENSMUSP00000028689											1	-3.1
ENSMUSP00000028689:reversed			1	-1.9								
ENSMUSP00000028702					1	-1.5						
ENSMUSP00000028704	5	-30.4	7	-32.6	1	-2.7	1	-3.1	2	-8.5	4	-32
ENSMUSP00000028718									1	-1.6		
ENSMUSP00000028726:reversed											1	-1.4
ENSMUSP00000028727	1	-2.1										
ENSMUSP00000028743	2	-4.6	7	-53.9	4	-15.9			9	-50.4	3	-28
ENSMUSP00000028746					1	-1.5					1	-1.8
ENSMUSP00000028746:reversed											1	-1.5
ENSMUSP00000028762					1	-1.4						
ENSMUSP00000028769											2	-8.6
ENSMUSP00000028781	1	-2.8	9	-27	2	-3.4			1	-7.5	2	-2.8
ENSMUSP00000028794							6	-22.8	11	-69.2	10	-58.8
ENSMUSP00000028807	8	-26.6	14	-39.9	4	-16.3	11	-29.2	13	-49.2	9	-32.8
ENSMUSP00000028810									1	-1.4		
ENSMUSP00000028815			2	-9.1								
ENSMUSP00000028825			1	-3.7								
ENSMUSP00000028825:reversed			2	-8.6								
ENSMUSP00000028831:reversed									1	-1.6		
ENSMUSP00000028835			2	-28.1			1	-9.4	1	-9.3	1	-9.3
ENSMUSP00000028836:reversed									1	-1.6		
ENSMUSP00000028841							1	-1.7				
ENSMUSP00000028844											1	-2
ENSMUSP00000028846			1	-1.8								
ENSMUSP00000028848							1	-4.4				
ENSMUSP00000028852			4	-26.7	1	-4.6			2	-6.2		
ENSMUSP00000028864			1	-1.7								
ENSMUSP00000028890	1	-6.5					1	-4.7				
ENSMUSP00000028892			2	-8.1					3	-11.2	5	-21.1
ENSMUSP00000028900:reversed					1	-1.5						
ENSMUSP00000028905:reversed					1	-2.4						
ENSMUSP00000028915	2	-5										
ENSMUSP00000028916	3	-2.8	3	-12.8			3	-13.2	4	-14.3	3	-17
ENSMUSP00000028921:reversed									1	-1.5		
ENSMUSP00000028970:reversed					1	-1.6						
ENSMUSP00000028975									1	-2		
ENSMUSP00000028991			1	-1.6								
ENSMUSP00000028995			2	-12					1	-4.7	1	-4.1
ENSMUSP00000028997:reversed											1	-1.5
ENSMUSP00000029017	11	-46.7	10	-42.2	13	-76	13	-87.4	23	-121	15	-92.6
ENSMUSP00000029017:reversed									2	-8.6		
ENSMUSP00000029024					3	-17.7			2	-5.5		

ENSMUSP00000029025	1	-1.3	1	-1.5								
ENSMUSP00000029038:reversed	1	-1.8									1	-2.2
ENSMUSP00000029046							2	-4.6	4	-4.9	2	-2.1
ENSMUSP00000029053							3	-14.3				
ENSMUSP00000029060	10	-21.4	13	-90.2	7	-53	7	-38.2	32	-139	18	-83.4
ENSMUSP00000029076	40	-118	40	-108	57	-83.3	41	-113	35	-159	45	-138
ENSMUSP00000029078:reversed									1	-1.6		
ENSMUSP00000029082	42	-128	49	-96.6	19	-86.9	58	-95.6	33	-86.5	29	-91.9
ENSMUSP00000029102									1	-1.4	1	-2.1
ENSMUSP00000029120			3	-13.4					1	-1.8		
ENSMUSP00000029125									1	-3.3		
ENSMUSP00000029131									1	-1.4		
ENSMUSP00000029131:reversed	1	-1.4									1	-1.7
ENSMUSP00000029135	2	-16.7					2	-10.8				
ENSMUSP00000029149	4	-25.9	2	-9.1	6	-27.3	2	-15.7	3	-20.6	2	-10.5
ENSMUSP00000029165	1	-1.6	3	-10.7					3	-11.9		
ENSMUSP00000029171	126	-462					135	-426				
ENSMUSP00000029194:reversed					2	-3.1						
ENSMUSP00000029208							2	-13.4	2	-3		
ENSMUSP00000029217	20	-30.7	23	-61	11	-39.5	30	-55	26	-50.8	19	-56.2
ENSMUSP00000029230:reversed					1	-2.2						
ENSMUSP00000029240	95	-107	69	-117	63	-128	80	-93.4	76	-131	50	-118
ENSMUSP00000029256	1	-1.5	7	-17.2			3	-2.5	7	-18.7	4	-16.8
ENSMUSP00000029257	3	-17	3	-9.2	3	-14.6	4	-17.3	2	-9.9	5	-29.8
ENSMUSP00000029259	1	-4.8	4	-17.9	5	-28.2						
ENSMUSP00000029271:reversed	1	-2.1										
ENSMUSP00000029309					1	-1.4					1	-7.5
ENSMUSP00000029325	36	-187	37	-162	59	-219	53	-224	48	-190	42	-193
ENSMUSP00000029336:reversed									1	-1.8		
ENSMUSP00000029355			2	-2.3							1	-3.2
ENSMUSP00000029374											1	-1.6
ENSMUSP00000029382			1	-1.9								
ENSMUSP00000029386	70	-188	70	-148	61	-159	108	-198	84	-207	83	-229
ENSMUSP00000029400	1	-1.6	3	-19.2			1	-5.2				
ENSMUSP00000029404:reversed									1	-2		
ENSMUSP00000029414	8	-8.2	15	-27.4	11	-15.1	8	-15.3	13	-25.5	15	-24.6
ENSMUSP00000029421											1	-1.3
ENSMUSP00000029422:reversed					1	-1.6						
ENSMUSP00000029435:reversed											1	-2.4
ENSMUSP00000029459:reversed			1	-1.6								
ENSMUSP00000029463					23	-67.1						
ENSMUSP00000029465									12	-29.5		
ENSMUSP00000029476	35	-126	56	-120	58	-146	48	-122	42	-154	47	-114
ENSMUSP00000029477											1	-2
ENSMUSP00000029480	3	-14.4	1	-9.8	4	-19.4						
ENSMUSP00000029483	3	-17.1	10	-42.5	6	-4.1	3	-7.5	10	-51.7	6	-29.3
ENSMUSP00000029499									1	-1.5		
ENSMUSP00000029502			1	-1.5								
ENSMUSP00000029540	1	-7	1	-2.7	1	-1.7	1	-2.9			2	-4.2
ENSMUSP00000029541:reversed									1	-1.6		
ENSMUSP00000029542:reversed	1	-1.7	1	-1.8								
ENSMUSP00000029548					1	-1.4						
ENSMUSP00000029565	1	-5					3	-13.3	2	-2	1	-1.9
ENSMUSP00000029569	11	-34	15	-41.2	3	-9	8	-36.8	16	-43.6	8	-30.4
ENSMUSP00000029575							1	-4	2	-5.2		
ENSMUSP00000029596											2	-8.2
ENSMUSP00000029610	10	-56	6	-25.7	10	-59.2	6	-29.5	3	-17.3	1	-4.6
ENSMUSP00000029610:reversed	1	-1.6										

ENSMUSP00000029630	1	-2.1					9	-34.9	13	-66.9	6	-18.7
ENSMUSP00000029632	1	-1.7	2	-2			3	-13.2	1	-1.7	2	-13.7
ENSMUSP00000029643	1	-2										
ENSMUSP00000029645	2	-5.4	1	-2.5	8	-19.9			1	-8.9		
ENSMUSP00000029658	13	-71.8	16	-74.8	10	-50.5	17	-84.1	14	-86.8	18	-107
ENSMUSP00000029663									3	-4.8		
ENSMUSP00000029684	24	-81.3	15	-76.6	24	-66.5	46	-110	33	-110	54	-95.8
ENSMUSP00000029696:reversed											1	-2
ENSMUSP00000029708			1	-6.9	3	-15			1	-7	1	-6.1
ENSMUSP00000029711:reversed			4	-1.9	1	-1.5			2	-1.9	2	-1.7
ENSMUSP00000029717	12	-35.3	15	-49.3	6	-31.8	6	-25.2	9	-38.4	7	-30
ENSMUSP00000029719					2	-8.4						
ENSMUSP00000029729	292	-318	335	-392	301	-406	329	-317	339	-372	339	-397
ENSMUSP00000029738	5	-32.3	1	-3.1	4	-20	7	-41.6	5	-32.6	7	-41.5
ENSMUSP00000029741									1	-1.7		
ENSMUSP00000029741:reversed			1	-2.1								
ENSMUSP00000029752					1	-2.9						
ENSMUSP00000029769	1	-8.2	8	-14.4	1	-3.2			1	-10.1	1	-2.9
ENSMUSP00000029770	70	-223	95	-252	93	-271	81	-236	86	-265	77	-253
ENSMUSP00000029777	4	-14.3	9	-49.9	5	-18	4	-14.8	3	-17.2	2	-7.1
ENSMUSP00000029783									1	-5.4		
ENSMUSP00000029805	27	-90.2	23	-83.9	22	-90.5	25	-77.1	20	-73	17	-70.8
ENSMUSP00000029812:reversed									1	-2.7		
ENSMUSP00000029815	2	-5	3	-22.8	4	-12.4	3	-4.4	3	-24.5	2	-21.1
ENSMUSP00000029830	5	-32.3	6	-24.2	10	-40.4	10	-34.7	5	-18.9	3	-25.5
ENSMUSP00000029837	4	-13.3	12	-52.2	9	-37	8	-37.9	19	-88.4	8	-33.3
ENSMUSP00000029848							3	-14.9				
ENSMUSP00000029848:reversed											2	-9.5
ENSMUSP00000029850	3	-17.3										
ENSMUSP00000029872:reversed	1	-1.4							1	-1.9		
ENSMUSP00000029875	2	-8.6	2	-8.1			3	-11.5	3	-9.8	4	-10
ENSMUSP00000029877	8	-48.2	14	-44	10	-46.5	9	-37.9	20	-44.4	13	-48
ENSMUSP00000029888			1	-2								
ENSMUSP00000029893	3	-14.9					4	-5.7				
ENSMUSP00000029905	9	-49.1	12	-46.1	9	-40.5	5	-20.3	21	-66.9	16	-60.4
ENSMUSP00000029910											1	-1.4
ENSMUSP00000029919:reversed	1	-1.5										
ENSMUSP00000029925	1	-3.7	4	-13					3	-5.1	2	-4.8
ENSMUSP00000029935	1	-1.6										
ENSMUSP00000029936							2	-3.1	10	-21.4	5	-3.4
ENSMUSP00000029937	1	-5.3			4	-3.3	3	-7.8	4	-13.2	3	-18.7
ENSMUSP00000029944	1	-4.2	3	-4.6	4	-14.5			2	-9.5	6	-29.6
ENSMUSP00000029950:reversed											2	-8.7
ENSMUSP00000029968	1	-2.3										
ENSMUSP00000029970	5	-22.2	16	-31.9	2	-9	23	-33.7	14	-33.5	21	-37.8
ENSMUSP00000029987	86	-116	79	-132	72	-138	68	-119	56	-139	61	-141
ENSMUSP00000029999:reversed					1	-2.2			1	-1.9		
ENSMUSP00000030003:reversed							1	-2.1				
ENSMUSP00000030010	11	-62.1	10	-50.2	18	-88.9	14	-64.1	15	-111	9	-74.6
ENSMUSP00000030011			8	-35.6	6	-23.7			15	-55.4	2	-3.9
ENSMUSP00000030021					1	-1.4						
ENSMUSP00000030025:reversed											1	-1.4
ENSMUSP00000030028			2	-7.9	2	-4			5	-15.6	3	-27.4
ENSMUSP00000030042:reversed					1	-1.5						
ENSMUSP00000030044									1	-2		
ENSMUSP00000030045	2	-9.7	5	-19.4	11	-22.8	2	-3.9	6	-25	1	-1.9
ENSMUSP00000030051					2	-3.8	1	-3.1				
ENSMUSP00000030056									1	-1.6		

ENSMUSP00000030074									1	-3.8	2	-3.2
ENSMUSP00000030078					1	-3						
ENSMUSP00000030090	58	-110	49	-119	48	-139	60	-138	63	-154	56	-163
ENSMUSP00000030103			2	-8.3	2	-7.6						
ENSMUSP00000030112	30	-147					30	-114				
ENSMUSP00000030121	9	-50.4	12	-53.4	12	-54.4	15	-48.6	26	-81.8	18	-88.7
ENSMUSP00000030122					1	-1.6						
ENSMUSP00000030127	11	-25.9	5	-5.3	7	-4.3	6	-16.2	4	-15.7	6	-6.1
ENSMUSP00000030133									2	-9.5		
ENSMUSP00000030142			8	-25			7	-19.6	5	-19.6		
ENSMUSP00000030164	4	-20	12	-52	15	-60.1	10	-45.4	19	-102	18	-102
ENSMUSP00000030169	18	-63.4	23	-78.6	33	-93	24	-116	14	-85.6	27	-102
ENSMUSP00000030170					1	-1.4			1	-1.9		
ENSMUSP00000030187					2	-10.4	1	-3.6	4	-20.7	3	-9.9
ENSMUSP00000030189			2	-3.9								
ENSMUSP00000030191					1	-1.6						
ENSMUSP00000030191:reversed					1	-1.4						
ENSMUSP00000030192					3	-11.5						
ENSMUSP00000030216:reversed											1	-1.6
ENSMUSP00000030252	6	-28.6										
ENSMUSP00000030255	2	-7.1					1	-3.9				
ENSMUSP00000030257							2	-2.3				
ENSMUSP00000030263	6	-16.8	6	-7.6	5	-21.6	9	-17	1	-7.3	9	-23.9
ENSMUSP00000030299	90	-324	156	-300	95	-250	105	-248	119	-301	117	-260
ENSMUSP00000030303	6	-28.5	24	-73.4	13	-47.2	16	-59.3	19	-78.2	19	-70
ENSMUSP00000030311:reversed	1	-1.8										
ENSMUSP00000030317:reversed					1	-1.6						
ENSMUSP00000030320:reversed			1	-1.5								
ENSMUSP00000030324											1	-1.4
ENSMUSP00000030340	21	-70.8	37	-157	17	-58.3	23	-76	29	-101	29	-103
ENSMUSP00000030345	3	-15.6	1	-2.3	4	-7.4	1	-8.3	2	-7.5	5	-21.7
ENSMUSP00000030356:reversed			1	-1.6								
ENSMUSP00000030357					3	-10.8	1	-3.4	4	-21.5	3	-13.4
ENSMUSP00000030361	1	-8.3	2	-4.9					2	-10.3		
ENSMUSP00000030398			4	-4	4	-13.9	2	-3.7	2	-3.7	1	-6.4
ENSMUSP00000030404:reversed			1	-1.4								
ENSMUSP00000030412			1	-5.3			1	-5	3	-14.3		
ENSMUSP00000030432			3	-16.6	6	-24			1	-6.2		
ENSMUSP00000030439	1	-1.5										
ENSMUSP00000030446					1	-2.4			1	-2.9	2	-5.4
ENSMUSP00000030454	15	-56.4	16	-54.7	17	-44.3	19	-53.8	19	-57.8	8	-53.4
ENSMUSP00000030455	2	-13.1	17	-40.6	9	-42.2	8	-32.2	4	-24.6	6	-37.9
ENSMUSP00000030471					1	-2.3						
ENSMUSP00000030478:reversed			1	-1.3								
ENSMUSP00000030480					10	-36.5						
ENSMUSP00000030482	3	-22.8					4	-20.1				
ENSMUSP00000030486			42	-89.2					29	-88	19	-72.8
ENSMUSP00000030487	24	-82.3	35	-123	42	-112						
ENSMUSP00000030491			2	-4.7					3	-4.1		
ENSMUSP00000030508							1	-2.8				
ENSMUSP00000030518	1	-3.2										
ENSMUSP00000030533	2	-9.5										
ENSMUSP00000030538	126	-169	56	-163	80	-161	109	-163	58	-188	87	-196
ENSMUSP00000030541			1	-2.1	2	-5.2						
ENSMUSP00000030547:reversed							1	-2				
ENSMUSP00000030551					1	-3.5						
ENSMUSP00000030556:reversed			1	-1.5								
ENSMUSP00000030571									1	-1.7	1	-1.4

ENSMUSP00000030581:reversed	1	-1.6											
ENSMUSP00000030583							1	-3.7					
ENSMUSP00000030623:reversed			1	-1.6	1	-1.4							
ENSMUSP00000030627									1	-3	2	-9.5	
ENSMUSP00000030628					1	-1.4							
ENSMUSP00000030642	20	-82.4	39	-103	19	-46.3	33	-114	32	-81.2	30	-93.8	
ENSMUSP00000030643									1	-5.8			
ENSMUSP00000030669					2	-10							
ENSMUSP00000030691:reversed					1	-1.5							
ENSMUSP00000030698	12	-42	16	-49	9	-22.5	17	-59.4	14	-44.5	7	-33.1	
ENSMUSP00000030742	2	-11.6	2	-7.3	2	-13	2	-11.7	2	-13.8	2	-10.9	
ENSMUSP00000030768:reversed					1	-1.4							
ENSMUSP00000030769	1	-2.6			5	-12.2	1	-6.7	3	-18.7	5	-19.4	
ENSMUSP00000030776							7	-4.9					
ENSMUSP00000030791					1	-1.8							
ENSMUSP00000030797	11	-57.2	6	-26.7	13	-36.1	13	-41.2	7	-48.4	13	-53.5	
ENSMUSP00000030805	2	-2.3	3	-15.7	6	-13.7	1	-6.6	2	-9.2	7	-15.5	
ENSMUSP00000030819	3	-14.1					6	-36.3					
ENSMUSP00000030830	1	-1.5											
ENSMUSP00000030841:reversed	1	-1.4											
ENSMUSP00000030845:reversed											1	-1.8	
ENSMUSP00000030851	3	-16.6	11	-16.3	5	-16.4	10	-16.3	8	-10.9	9	-14.6	
ENSMUSP00000030858	3	-10.7					1	-5.2			2	-5.9	
ENSMUSP00000030879					1	-5.8							
ENSMUSP00000030884	16	-89	20	-98	29	-88.5	9	-19.2	8	-52.5	16	-84.5	
ENSMUSP00000030884:reversed											1	-2.8	
ENSMUSP00000030903	33	-158	61	-173	41	-153	81	-203	80	-224	62	-200	
ENSMUSP00000030903:reversed											1	-2.7	
ENSMUSP00000030905	1	-1.5											
ENSMUSP00000030914	43	-25.4	25	-30.4	36	-50.7	20	-27.8	26	-52.2	28	-56	
ENSMUSP00000030964	4	-4.1	5	-14.3	3	-23.3	5	-25.5	4	-13	1	-4.5	
ENSMUSP00000030964:reversed					1	-2.4							
ENSMUSP00000030971:reversed											1	-1.5	
ENSMUSP00000031002									1	-1.6			
ENSMUSP00000031008	1	-4.6					4	-8.5	1	-2	1	-1.9	
ENSMUSP00000031016:reversed											2	-9.7	
ENSMUSP00000031032					4	-7.8			2	-3.6	1	-1.5	
ENSMUSP00000031038	18	-64.7	21	-50.5	24	-69	20	-79.2	29	-73.4	28	-87.3	
ENSMUSP00000031053	2	-3.2	6	-7.2			2	-7.6	4	-22.8	3	-7	
ENSMUSP00000031069:reversed			1	-1.7									
ENSMUSP00000031081									1	-2.4			
ENSMUSP00000031084:reversed	2	-1.6	2	-9.4			3	-1.6	3	-1.5			
ENSMUSP00000031089									1	-1.6			
ENSMUSP00000031092:reversed									1	-1.6			
ENSMUSP00000031096					1	-4.8			1	-4.5			
ENSMUSP00000031103	1	-2.4	2	-2.1	1	-1.9	8	-30	9	-34.5	7	-36.8	
ENSMUSP00000031103:reversed					1	-1.4							
ENSMUSP00000031104									1	-1.9			
ENSMUSP00000031129	2	-3.6	3	-3.6	2	-10.2	2	-2.3	3	-2.8	2	-4	
ENSMUSP00000031143			3	-11	5	-9.1			3	-14.4	1	-2.3	
ENSMUSP00000031144	2	-9.2					3	-22.7	2	-8.7	4	-21.4	
ENSMUSP00000031160					2	-2.7			1	-2.3	1	-1.5	
ENSMUSP00000031161:reversed			1	-1.9									
ENSMUSP00000031181	210	-267	169	-283	176	-324	257	-209	107	-287	153	-207	
ENSMUSP00000031183	265	-286	260	-358	221	-428	243	-344	171	-311	190	-346	
ENSMUSP00000031186	33	-193	85	-158	69	-203	54	-191	66	-189	55	-144	
ENSMUSP00000031189			2	-9.7					1	-1.6	1	-4.5	
ENSMUSP00000031195	135	-195	133	-218	132	-311	168	-197	97	-214	110	-192	

ENSMUSP00000031198					1	-5.7	2	-6.3	1	-7.4	2	-7.2
ENSMUSP00000031199	1	-2.1										
ENSMUSP00000031215					1	-1.6						
ENSMUSP00000031235									1	-2	2	-1.9
ENSMUSP00000031235:reversed	1	-1.5										
ENSMUSP00000031239					1	-1.7						
ENSMUSP00000031239:reversed									1	-1.6		
ENSMUSP00000031251	28	-92.8	59	-108	45	-113	23	-52	30	-89.4	31	-103
ENSMUSP00000031255	4	-12.1	7	-43.6	13	-45	7	-37.1	3	-11.4	5	-30.8
ENSMUSP00000031273											1	-2
ENSMUSP00000031277:reversed					1	-1.4						
ENSMUSP00000031281									2	-9.7		
ENSMUSP00000031288:reversed			1	-1.4								
ENSMUSP00000031314	9	-47.2	13	-63.4	4	-19.3	38	-89.1	30	-86.4	40	-101
ENSMUSP00000031327									1	-1.7		
ENSMUSP00000031334					2	-2.5					1	-3
ENSMUSP00000031344									3	-8.8		
ENSMUSP00000031351	1	-2.7										
ENSMUSP00000031354	2	-9										
ENSMUSP00000031354:reversed			1	-1.6								
ENSMUSP00000031355	1	-2.2	2	-3.4	1	-2.8	6	-3	1	-2.5	4	-10.9
ENSMUSP00000031355:reversed	1	-1.7										
ENSMUSP00000031366	1	-1.6										
ENSMUSP00000031366:reversed			1	-1.6								
ENSMUSP00000031367	2	-4.2							1	-3.3	1	-3.1
ENSMUSP00000031377	21	-75.1	15	-63.9	15	-49.8	22	-85	18	-77.6	21	-77
ENSMUSP00000031378	1	-3.4	1	-1.8	1	-8.6			1	-2.3	1	-7.7
ENSMUSP00000031382	1	-1.8							1	-1.5		
ENSMUSP00000031383	6	-14.9	2	-6.1	5	-5.4	7	-15.2	12	-24.6	2	-13.9
ENSMUSP00000031386	1	-3.8					1	-5.5				
ENSMUSP00000031386:reversed					1	-1.4						
ENSMUSP00000031398	27	-113	26	-116	36	-71	24	-75.1	31	-97.8	32	-87.6
ENSMUSP00000031402	4	-4.8	1	-2.3			2	-5.3				
ENSMUSP00000031411	26	-138	30	-117	32	-119	34	-143	45	-136	44	-105
ENSMUSP00000031411:reversed			1	-1.7	1	-1.6						
ENSMUSP00000031412:reversed									1	-1.7		
ENSMUSP00000031418									1	-2.4		
ENSMUSP00000031429	3	-2.7	8	-17.7	8	-38.1	8	-40	5	-21.5	13	-28.7
ENSMUSP00000031445					1	-1.9						
ENSMUSP00000031455	1	-2.2	2	-8.3	5	-4.2	8	-6.6	3	-4.7	6	-4.8
ENSMUSP00000031472	25	-74.6	35	-53.4	42	-106	40	-85.7	32	-76.1	41	-94.6
ENSMUSP00000031474	2	-6.9	1	-3	4	-19.1			3	-17.9	1	-2.9
ENSMUSP00000031477:reversed			1	-1.6	2	-8.2						
ENSMUSP00000031492	44	-31.6					29	-50.7				
ENSMUSP00000031513:reversed									1	-1.5		
ENSMUSP00000031524	19	-63.9	14	-29.1	15	-54.1	10	-34.7	13	-55.3	19	-49.4
ENSMUSP00000031524:reversed	1	-1.5										
ENSMUSP00000031530	2	-7.7	2	-4.6	2	-9.8	3	-10.3	2	-6.7	4	-7.1
ENSMUSP00000031534:reversed									1	-2.5		
ENSMUSP00000031549					3	-19.3	2	-3.7	3	-11.8	2	-4.2
ENSMUSP00000031554	2	-17					6	-27	5	-16.8	6	-17.9
ENSMUSP00000031556	1	-2.1	1	-9.1	4	-11.8	2	-4.8	2	-20.6	2	-11.3
ENSMUSP00000031564	44	-147					80	-168				
ENSMUSP00000031583	9	-68.4					25	-129				
ENSMUSP00000031588	1	-4	4	-5.8					8	-4.4	9	-3.5
ENSMUSP00000031590:reversed									1	-1.3	1	-1.5
ENSMUSP00000031597	1	-2.2	1	-4					1	-4.1	1	-2
ENSMUSP00000031607					1	-2.1					1	-1.8

ENSMUSP00000031617	14	-55.2	22	-82.1	16	-36	10	-46.4	28	-73.8		
ENSMUSP00000031625			1	-1.4								
ENSMUSP00000031633							46	-143				
ENSMUSP00000031637	36	-83.5	77	-112	48	-106	53	-105	81	-129	70	-123
ENSMUSP00000031655	15	-39.2	13	-44.9	16	-50.5	20	-59.1	17	-39	20	-57.8
ENSMUSP00000031655:reversed	1	-1.5			1	-1.5						
ENSMUSP00000031668			1	-1.7	1	-1.8	2	-9.3			2	-9.2
ENSMUSP00000031668:reversed	2	-8.9									4	-23
ENSMUSP00000031693:reversed					1	-1.4						
ENSMUSP00000031707	27	-98.9	34	-125	31	-104	32	-106	42	-126	41	-130
ENSMUSP00000031707:reversed	1	-1.6										
ENSMUSP00000031726			1	-2.2	2	-4			1	-4.6		
ENSMUSP00000031727											1	-2.2
ENSMUSP00000031727:reversed											1	-1.4
ENSMUSP00000031729	65	-185	80	-227	56	-126	64	-181	84	-226	57	-171
ENSMUSP00000031731					1	-1.4						
ENSMUSP00000031734					1	-1.6						
ENSMUSP00000031741	13	-70.4	22	-79.1	32	-130	32	-125	42	-170	38	-144
ENSMUSP00000031773	13	-35.1	39	-115	13	-58.3	46	-67	50	-95.7	53	-104
ENSMUSP00000031788	2	-11.2			5	-15.1						
ENSMUSP00000031793					4	-17.6						
ENSMUSP00000031822	19	-95.6	15	-76.9	20	-102	11	-57.8	15	-75.3	12	-73.7
ENSMUSP00000031833	1	-1.7	2	-3.5			3	-15.5	2	-13.8	1	-3.7
ENSMUSP00000031838			1	-1.5								
ENSMUSP00000031841:reversed	2	-1.5	2	-8.7			3	-1.6				
ENSMUSP00000031868:reversed			1	-1.7	1	-1.4						
ENSMUSP00000031890:reversed			1	-1.6								
ENSMUSP00000031897	5	-37.2	16	-62.5	9	-31.8	4	-25.1	5	-26.4	3	-10.2
ENSMUSP00000031931			2	-5.8					2	-2.3		
ENSMUSP00000031967:reversed									1	-1.7		
ENSMUSP00000031977	3	-18.4	5	-16.9	1	-6.9	7	-28.4	7	-34.8	4	-20.6
ENSMUSP00000031986							2	-8.4				
ENSMUSP00000032065	34	-118	44	-121	56	-121	75	-138	82	-158	77	-163
ENSMUSP00000032071:reversed	1	-1.7	1	-1.5								
ENSMUSP00000032073	1	-4.3			7	-18.8	3	-20.6	3	-19.9	4	-11.1
ENSMUSP00000032074			3	-15.8	1	-4.4			3	-11.7		
ENSMUSP00000032078	2	-1.9	2	-9.4	2	-6.9	1	-2.6	5	-12.2	3	-13
ENSMUSP00000032106	1	-1.7										
ENSMUSP00000032114	44	-243	46	-243	54	-221	53	-238	51	-222	44	-215
ENSMUSP00000032116			1	-1.4					1	-1.6		
ENSMUSP00000032134							11	-48.7			2	-15
ENSMUSP00000032135			1	-1.5	1	-3			2	-3.2		
ENSMUSP00000032139			3	-12.7			1	-1.6	8	-44.3		
ENSMUSP00000032139:reversed	1	-1.5							1	-1.5		
ENSMUSP00000032143	123	-301	136	-364	144	-389	148	-316	136	-364	130	-381
ENSMUSP00000032172:reversed							1	-1.6				
ENSMUSP00000032175	125	-334	91	-304	77	-328	103	-364	112	-371	105	-369
ENSMUSP00000032179			1	-1.6	1	-3.5			3	-15.2	3	-18.4
ENSMUSP00000032183	9	-34.7	12	-19	2	-2.6	11	-37	19	-60.7	8	-36.3
ENSMUSP00000032185			1	-3.6								
ENSMUSP00000032191					1	-1.8			1	-1.7	1	-1.4
ENSMUSP00000032192	7	-35	9	-44.3	18	-64.6	10	-31.2	15	-73.2	4	-24.1
ENSMUSP00000032192:reversed					1	-2						
ENSMUSP00000032196	19	-34.7	23	-58.9	22	-92.2	31	-73.3	23	-85.9	25	-97.4
ENSMUSP00000032200	8	-25	3	-12.7	4	-12.2	3	-17.3	3	-11.9	2	-11.2
ENSMUSP00000032206			5	-38.4								
ENSMUSP00000032218:reversed					1	-1.6						
ENSMUSP00000032228	1	-4.7	13	-79.3	9	-45.1	11	-67	20	-95.1	22	-118

ENSMUSP00000032237	1	-1.4										
ENSMUSP00000032260	11	-50.1	6	-20.3	8	-41.6	7	-49.8	7	-34.7	9	-42.4
ENSMUSP00000032262									1	-2.8	4	-11.4
ENSMUSP00000032264			4	-23.4			3	-14.4	4	-29.4	3	-19.7
ENSMUSP00000032269:reversed	1	-1.4			2	-1.9			1	-1.8		
ENSMUSP00000032272									1	-3.2		
ENSMUSP00000032306			1	-1.5	1	-1.5						
ENSMUSP00000032309							2	-3.3				
ENSMUSP00000032322			1	-1.8							2	-2.2
ENSMUSP00000032335:reversed											1	-1.4
ENSMUSP00000032336					2	-10.4						
ENSMUSP00000032364	11	-29.8	11	-41.3	26	-89.3	4	-15.9	3	-16.2	11	-54.7
ENSMUSP00000032371			4	-19.2	2	-10.3			2	-8.7	1	-5.6
ENSMUSP00000032372	1	-8.2	3	-7.6					3	-5.2	3	-16.7
ENSMUSP00000032373							1	-1.4				
ENSMUSP00000032412	5	-12.8					2	-4.5				
ENSMUSP00000032419			1	-2								
ENSMUSP00000032422	1	-4	2	-7.2	2	-6.5	2	-3.7	5	-14	1	-3.5
ENSMUSP00000032425	3	-15			13	-29.4	5	-34.2	7	-32.8	6	-29.6
ENSMUSP00000032427											1	-1.4
ENSMUSP00000032440	1	-3.9			2	-3.2	2	-2.7			1	-3.5
ENSMUSP00000032446	3	-13.4	6	-37.8	3	-9.5	4	-18.4	7	-37.1	5	-23.5
ENSMUSP00000032457											1	-1.4
ENSMUSP00000032473	3	-20.7	3	-17.8	3	-2.9	4	-12.6	14	-59.6	7	-28.2
ENSMUSP00000032485:reversed									1	-1.8		
ENSMUSP00000032492			1	-3.4								
ENSMUSP00000032495			1	-1.6								
ENSMUSP00000032503	2	-8.4	2	-5.9	4	-13.9	1	-5.1	2	-7.4		
ENSMUSP00000032510	13	-89.5	12	-66.5	18	-82.4	37	-167	63	-260	56	-234
ENSMUSP00000032539	131	-299	156	-268	159	-319	159	-321	136	-262	158	-278
ENSMUSP00000032555	14	-56	16	-57	18	-66.3	15	-56.8	22	-82.7	14	-65.9
ENSMUSP00000032566	2	-3.4	11	-11.1	2	-10.8	4	-14.5	7	-13	9	-12.4
ENSMUSP00000032568:reversed			1	-2.1								
ENSMUSP00000032594	1	-2.3							1	-1.9		
ENSMUSP00000032597	13	-45.4	8	-53.6	14	-43.7	21	-60.7	11	-31.9	12	-27
ENSMUSP00000032662							2	-2.2	3	-11.6		
ENSMUSP00000032717			1	-1.6								
ENSMUSP00000032723	1	-1.4	3	-15.2	2	-9.5			1	-1.4		
ENSMUSP00000032728:reversed									1	-1.6		
ENSMUSP00000032729	1	-1.4										
ENSMUSP00000032744	2	-2			2	-2.8	1	-1.6	3	-12.9	5	-16.3
ENSMUSP00000032749							1	-1.8				
ENSMUSP00000032751:reversed	1	-1.5										
ENSMUSP00000032761	1	-1.6	3	-10.3			5	-14.7			7	-9.2
ENSMUSP00000032774					1	-1.5						
ENSMUSP00000032776:reversed									1	-1.6		
ENSMUSP00000032779	2	-14.9	5	-13.3			8	-20.3	4	-17.8	4	-16.9
ENSMUSP00000032779:reversed											1	-1.4
ENSMUSP00000032796			1	-3								
ENSMUSP00000032802					1	-1.6						
ENSMUSP00000032809	11	-54.4	15	-40.2	19	-57.6	17	-63.9	33	-99.1	27	-92.8
ENSMUSP00000032813			4	-8.5								
ENSMUSP00000032813:reversed					3	-14.6						
ENSMUSP00000032824	2	-10.9							1	-5.3	1	-2
ENSMUSP00000032825					1	-3.9						
ENSMUSP00000032839					1	-1.6						
ENSMUSP00000032841:reversed											1	-2.1
ENSMUSP00000032842									4	-15.3		

ENSMUSP00000032843			2	-8.7			1	-6.8				
ENSMUSP00000032844	31	-63.8	28	-57	27	-51.5	32	-57.8	41	-54.6	46	-47.1
ENSMUSP00000032846	1	-1.4										
ENSMUSP00000032865	36	-109	55	-123	46	-132	43	-117	47	-138	45	-151
ENSMUSP00000032882	9	-19.1	6	-16	19	-41.3	6	-22	8	-26	9	-16.7
ENSMUSP00000032884			1	-1.6								
ENSMUSP00000032888							4	-24.4	2	-8.8	6	-31.2
ENSMUSP00000032891											1	-1.7
ENSMUSP00000032898:reversed			1	-1.9								
ENSMUSP00000032909	6	-38.1	6	-38.1	1	-2	4	-18.4	4	-21.5	1	-2.2
ENSMUSP00000032912	6	-13.1	9	-38.8	2	-8	6	-26.2	9	-30.7	4	-15.9
ENSMUSP00000032919	15	-57.7	17	-49.5	17	-83.4	23	-92.7	23	-76.7	26	-108
ENSMUSP00000032919:reversed			1	-1.5					1	-1.6		
ENSMUSP00000032920	9	-35	11	-45.3	23	-32.2	14	-41.9	12	-38	10	-26.2
ENSMUSP00000032921:reversed									1	-1.9		
ENSMUSP00000032926							2	-4			1	-3.7
ENSMUSP00000032927	2	-5.5	4	-29.5			5	-31.6	1	-6.4	1	-7
ENSMUSP00000032946			61	-100	27	-80.5	53	-93.2	36	-99.4		
ENSMUSP00000032958									4	-1.8	2	-2.5
ENSMUSP00000032974	33	-124	34	-90.4	21	-101			54	-123		
ENSMUSP00000032978					1	-1.5						
ENSMUSP00000032985	6	-32.1	11	-55.8	11	-35.8	5	-13.9	8	-32.4	7	-19.8
ENSMUSP00000032992			2	-8.9			1	-1.9	2	-11	3	-10.9
ENSMUSP00000032994	7	-26.3	6	-7.7	11	-48.9	8	-16.4	6	-22.5	10	-23.4
ENSMUSP00000032997											1	-2.5
ENSMUSP00000032998	16	-74.2	9	-43.3	19	-63.7	36	-82	33	-96.9	18	-84.7
ENSMUSP00000033001	2	-10.6	4	-17.7	1	-2	1	-3	3	-20.3	2	-13
ENSMUSP00000033008	51	-95.9	34	-102	43	-92.2	33	-77.8	43	-150	65	-111
ENSMUSP00000033012			1	-1.4	3	-11.9	5	-21.3	5	-34.6	3	-14.4
ENSMUSP00000033018									1	-3.8		
ENSMUSP00000033020	3	-7.7	1	-5.8	6	-23.5	3	-6.9	3	-5.5	2	-6.1
ENSMUSP00000033044	5	-23.8	1	-3	4	-11.5	1	-6.1	11	-55.4		
ENSMUSP00000033051											1	-1.4
ENSMUSP00000033058:reversed					1	-1.8						
ENSMUSP00000033074:reversed			2	-1.9								
ENSMUSP00000033075	1	-5.2	5	-22.9	5	-22.9			8	-41.2	4	-30.9
ENSMUSP00000033076:reversed									1	-1.4		
ENSMUSP00000033096					1	-1.5	9	-38.8	15	-63.3	17	-95
ENSMUSP00000033117	1	-1.8	1	-1.7	2	-6.5	3	-18.7	6	-38.3	7	-41.3
ENSMUSP00000033121	7	-37.3	10	-53.2	8	-30.3	14	-67.7	17	-84.4	14	-70.6
ENSMUSP00000033124									1	-2.2		
ENSMUSP00000033131	2	-15.3					16	-47.7			7	-37.2
ENSMUSP00000033149					1	-1.6			1	-1.6		
ENSMUSP00000033149:reversed					1	-1.3						
ENSMUSP00000033157			2	-2.9					1	-2.8		
ENSMUSP00000033159			1	-1.3								
ENSMUSP00000033159:reversed			1	-1.4							1	-3.3
ENSMUSP00000033163									2	-8.8		
ENSMUSP00000033176	189	-304	236	-327	116	-278	244	-314	183	-304	155	-349
ENSMUSP00000033176:reversed	1	-1.7										
ENSMUSP00000033182									1	-1.7		
ENSMUSP00000033184	2	-12.2	5	-19.2	2	-8.7	2	-16.5	2	-11.1	3	-20.9
ENSMUSP00000033185							4	-22.1	5	-25.3	4	-13.8
ENSMUSP00000033185:reversed									1	-1.6		
ENSMUSP00000033187	1	-1.8										
ENSMUSP00000033230			1	-7.6								
ENSMUSP00000033265	1	-1.4										
ENSMUSP00000033267			1	-1.8								

ENSMUSP00000033275:reversed							1	-2					
ENSMUSP00000033282											2	-5	
ENSMUSP00000033283							2	-2.5					
ENSMUSP00000033283:reversed	1	-2.5											
ENSMUSP00000033289	10	-41	13	-60.2	7	-29.3	14	-62.9	24	-88.7	20	-79.3	
ENSMUSP00000033310:reversed											1	-2.4	
ENSMUSP00000033313			4	-19.1	2	-9.3	3	-18.1	4	-25.8	3	-15.4	
ENSMUSP00000033333											1	-2.5	
ENSMUSP00000033342			4	-11.9	9	-49.6			5	-30.9	3	-17	
ENSMUSP00000033373	18	-63.4	22	-68.7	26	-77.5	38	-74.7	23	-69.9	47	-77.4	
ENSMUSP00000033378											1	-2.6	
ENSMUSP00000033380	4	-9.5											
ENSMUSP00000033415									2	-8.4			
ENSMUSP00000033419					1	-1.9							
ENSMUSP00000033419:reversed			1	-2.8									
ENSMUSP00000033429					1	-1.4							
ENSMUSP00000033442											2	-1.9	
ENSMUSP00000033450	1	-1.6	4	-9.7					3	-12.6	3	-12.8	
ENSMUSP00000033463	1	-1.6	1	-3.2			3	-11.8	2	-6.6			
ENSMUSP00000033483			1	-1.7									
ENSMUSP00000033489							1	-2.6	1	-2.4			
ENSMUSP00000033494:reversed			1	-1.7									
ENSMUSP00000033496:reversed	1	-1.4											
ENSMUSP00000033498	9	-39.5	14	-48.6	10	-31.7	19	-39	15	-39.5	24	-36	
ENSMUSP00000033505:reversed											2	-8.5	
ENSMUSP00000033509	4	-13.9	16	-26.8	8	-21.5	6	-7.2	12	-26.1	2	-12.1	
ENSMUSP00000033541									1	-1.4			
ENSMUSP00000033545			44	-24.3	16	-32							
ENSMUSP00000033562			3	-5.1	2	-4.2	1	-6.8	4	-4.5	2	-4.2	
ENSMUSP00000033583	7	-24.1	10	-38.2	5	-25.2	3	-16.8	3	-11.8	7	-28.9	
ENSMUSP00000033585:reversed					1	-1.4							
ENSMUSP00000033608:reversed									1	-1.9			
ENSMUSP00000033629:reversed	1	-1.7											
ENSMUSP00000033643					2	-2.9	1	-5.3					
ENSMUSP00000033652	1	-1.4											
ENSMUSP00000033662							2	-2.2	1	-5.5	1	-3.4	
ENSMUSP00000033683	16	-66.9	34	-122	28	-95.4	51	-94.5	54	-84.9	41	-87.3	
ENSMUSP00000033699:reversed			1	-1.7									
ENSMUSP00000033715	27	-69.2	23	-63.3	26	-81.9	48	-86	37	-117	38	-113	
ENSMUSP00000033717			1	-1.6									
ENSMUSP00000033725:reversed			4	-8.1									
ENSMUSP00000033741			1	-1.8			2	-1.8	6	-9.4	2	-1.8	
ENSMUSP00000033770									1	-1.8			
ENSMUSP00000033776			2	-3.7					1	-2.7			
ENSMUSP00000033806:reversed					1	-1.4							
ENSMUSP00000033818							3	-9.2					
ENSMUSP00000033824	8	-27.5	22	-33.7	24	-42	24	-32.3	27	-53	26	-41.8	
ENSMUSP00000033842:reversed	1	-1.7											
ENSMUSP00000033847	1	-5.7	1	-2.5	3	-2.7	4	-4.4	4	-13	2	-2.8	
ENSMUSP00000033871	53	-102	64	-121	88	-144	75	-114	98	-138	63	-108	
ENSMUSP00000033873	20	-79.4	19	-74.6	24	-68.8	16	-74.7	18	-82.5	26	-45.2	
ENSMUSP00000033876			1	-2									
ENSMUSP00000033877					1	-3							
ENSMUSP00000033878									1	-2			
ENSMUSP00000033882:reversed	1	-1.7											
ENSMUSP00000033886					2	-8.5							
ENSMUSP00000033898											1	-1.9	
ENSMUSP00000033899											1	-1.5	

ENSMUSP00000033899:reversed					2	-8.3							
ENSMUSP00000033901			6	-32	8	-26.2	2	-7.3	3	-18.4	5	-32.8	
ENSMUSP00000033915									2	-4.7			
ENSMUSP00000033918:reversed					1	-1.7							
ENSMUSP00000033919											1	-1.5	
ENSMUSP00000033933			4	-9.9							1	-2.2	
ENSMUSP00000033949	1	-1.8	6	-32.2	5	-11	8	-23.1	4	-23.3	4	-8.7	
ENSMUSP00000033953	1	-1.8											
ENSMUSP00000033965	3	-11.2											
ENSMUSP00000033967	1	-1.6											
ENSMUSP00000033967:reversed											1	-1.7	
ENSMUSP00000033974:reversed					1	-1.4							
ENSMUSP00000033992			2	-5.2			1	-1.7			2	-9.6	
ENSMUSP00000034000					2	-17.6			2	-21.9	4	-6.8	
ENSMUSP00000034003									1	-5	2	-6	
ENSMUSP00000034015	2	-5.2	1	-1.4	1	-6.1			2	-7.8	1	-1.7	
ENSMUSP00000034017:reversed	1	-1.6											
ENSMUSP00000034026	1	-4.7	5	-5.8					2	-5.2			
ENSMUSP00000034046	242	-433	276	-461	309	-436	188	-395	147	-355	168	-412	
ENSMUSP00000034049	42	-61.5			70	-152	62	-97			50	-95.9	
ENSMUSP00000034056							2	-5	1	-2.7			
ENSMUSP00000034058	1	-3.8					2	-3					
ENSMUSP00000034081:reversed									1	-1.6			
ENSMUSP00000034086									1	-2.1			
ENSMUSP00000034093			1	-1.6					1	-3.6	2	-13.4	
ENSMUSP00000034096											2	-9.3	
ENSMUSP00000034097	23	-99	32	-89.5	34	-86.1	32	-108	26	-111	27	-94.3	
ENSMUSP00000034131	3	-4.4	2	-3.6	3	-24.7	2	-5	12	-44	6	-20.6	
ENSMUSP00000034133:reversed					1	-1.4							
ENSMUSP00000034136			4	-25.2	5	-17.6	2	-3.7	1	-2.3			
ENSMUSP00000034138			2	-8.5									
ENSMUSP00000034140	6	-47.1	11	-50.5	12	-66.9	9	-46.5	13	-61.2	18	-84.8	
ENSMUSP00000034163	1	-1.5											
ENSMUSP00000034172	27	-95.7	16	-55.6	13	-58.8	15	-66.1	18	-92.5	22	-89.3	
ENSMUSP00000034173	3	-24.2			5	-23.9			9	-50.5	3	-21.1	
ENSMUSP00000034175:reversed			3	-8.3									
ENSMUSP00000034178	6	-30.6	9	-50.2	6	-28.4	3	-22.3	8	-37.9	5	-17.4	
ENSMUSP00000034189	2	-5.5	4	-9.2	2	-2.4	4	-20.4	5	-17.7	5	-22.9	
ENSMUSP00000034190			2	-1.7					3	-15.5			
ENSMUSP00000034190:reversed			1	-1.4									
ENSMUSP00000034220	1	-1.7	6	-28.4	3	-11.4	4	-13.1	1	-1.6	3	-12.3	
ENSMUSP00000034227	4	-4.8	3	-6	7	-7.1	2	-5.8	4	-5.5	3	-17.8	
ENSMUSP00000034233	1	-2											
ENSMUSP00000034264	7	-47.1	3	-17.6	11	-30.5	4	-25.1	7	-37.6	9	-29.7	
ENSMUSP00000034267					2	-11			2	-8.8	1	-3.9	
ENSMUSP00000034276	130	-218	101	-206	200	-208	239	-221	94	-241	111	-242	
ENSMUSP00000034279:reversed							1	-1.8					
ENSMUSP00000034280	1	-9.5	2	-8.9	2	-5.5			8	-27.4	2	-6.4	
ENSMUSP00000034282											1	-1.7	
ENSMUSP00000034283					2	-3.5	1	-6.1	1	-2.4			
ENSMUSP00000034301			46	-34									
ENSMUSP00000034302:reversed	2	-3.1							1	-1.7	1	-1.4	
ENSMUSP00000034304	53	-172	76	-191	79	-194	121	-160	94	-249	73	-199	
ENSMUSP00000034313			1	-2.3									
ENSMUSP00000034313:reversed	2	-1.8											
ENSMUSP00000034314									1	-1.5			
ENSMUSP00000034326	23	-57.4	26	-131	19	-97.6	22	-92.2	31	-153	13	-66.6	
ENSMUSP00000034326:reversed			1	-1.5									

ENSMUSP00000034328			1	-1.6								
ENSMUSP00000034343									1	-2		
ENSMUSP00000034346			10	-26.2	7	-28.3	13	-56.5	7	-36	1	-2.1
ENSMUSP00000034355	7	-27.9	4	-21	2	-10.7	4	-19.9	4	-17.6	6	-25.7
ENSMUSP00000034365:reversed					1	-1.5						
ENSMUSP00000034369	1	-15.2	3	-9.3			9	-35.2	7	-32.2	5	-27.6
ENSMUSP00000034369:reversed											1	-2.2
ENSMUSP00000034370			6	-12.5	2	-9.8	6	-18.9	8	-19.1	4	-19.7
ENSMUSP00000034400	128	-106	84	-101	83	-111	94	-94.9	101	-109	122	-111
ENSMUSP00000034411:reversed									2	-8.4		
ENSMUSP00000034412:reversed					2	-1.6					1	-1.9
ENSMUSP00000034414	1	-3.6	3	-11.9	2	-14	2	-7.9				
ENSMUSP00000034426:reversed					1	-1.4						
ENSMUSP00000034441	9	-35.4	7	-32.8	9	-23.8	8	-24.2	11	-28.6	7	-25.5
ENSMUSP00000034453	30	-88	44	-121					36	-85.6	34	-136
ENSMUSP00000034458	5	-24.1	7	-47.4			10	-53.7	22	-114	23	-106
ENSMUSP00000034460:reversed					1	-1.5						
ENSMUSP00000034466									1	-2.2	2	-11.2
ENSMUSP00000034467:reversed			1	-1.8								
ENSMUSP00000034469			1	-2								
ENSMUSP00000034470									1	-1.9		
ENSMUSP00000034499:reversed					1	-1.6						
ENSMUSP00000034509			6	-14.3	2	-9.6	6	-24.9	5	-13.6	8	-12.2
ENSMUSP00000034510			3	-2.5					1	-1.9		
ENSMUSP00000034510:reversed									1	-1.5		
ENSMUSP00000034513									1	-2.3	1	-1.7
ENSMUSP00000034521					1	-1.6						
ENSMUSP00000034537	7	-30	1	-5.8	7	-11.2	15	-53.6	11	-45.4	18	-72.5
ENSMUSP00000034541	31	-101	45	-115	25	-88	44	-90.8	42	-98.9	27	-97.7
ENSMUSP00000034547	19	-41.2	19	-67.3	34	-73.1	15	-39.9	14	-57.1	6	-38
ENSMUSP00000034561	4	-16.5	6	-35	9	-38	6	-24	10	-28	14	-33.8
ENSMUSP00000034567	12	-67.2	13	-45.2	21	-70.4	19	-58	8	-45.7	20	-84.8
ENSMUSP00000034584	2	-5.3	2	-16.9	1	-8.3	2	-10.5	1	-1.6	4	-25.5
ENSMUSP00000034585	1	-1.8										
ENSMUSP00000034585:reversed	1	-2.1										
ENSMUSP00000034586							4	-33.1				
ENSMUSP00000034588	1	-3.5	2	-10.3	1	-1.7	4	-2.5	7	-23.2	11	-28.3
ENSMUSP00000034607			1	-1.4					3	-13.3	3	-10.1
ENSMUSP00000034608	2	-3.3			1	-9.5						
ENSMUSP00000034611											1	-2.1
ENSMUSP00000034621	8	-48.7	2	-9.3	13	-48.8	14	-74.2	19	-70.1	14	-55.6
ENSMUSP00000034624	50	-111	39	-97.4	35	-89.1	38	-87.5	45	-98.1	36	-97.2
ENSMUSP00000034644					1	-1.7						
ENSMUSP00000034644:reversed									1	-1.6		
ENSMUSP00000034650			2	-2.2	1	-3.5						
ENSMUSP00000034698					3	-2.6			1	-6.2	3	-17.8
ENSMUSP00000034703					1	-1.5						
ENSMUSP00000034709					1	-1.9						
ENSMUSP00000034713	17	-89.1	19	-85.5	28	-109	29	-120	22	-103	21	-112
ENSMUSP00000034722							3	-9.1	3	-10.1	1	-2
ENSMUSP00000034728			2	-9.7								
ENSMUSP00000034731	1	-1.5			1	-4.3						
ENSMUSP00000034745:reversed					1	-1.6						
ENSMUSP00000034755:reversed			1	-2.5								
ENSMUSP00000034756							1	-1.4	2	-5.1		
ENSMUSP00000034761:reversed									2	-9		
ENSMUSP00000034771:reversed	1	-1.4										
ENSMUSP00000034785	2	-16.6	2	-10.5	1	-2.6	12	-72.8	20	-105	16	-82.3

ENSMUSP00000034787	1	-1.4			1	-2						
ENSMUSP00000034791	2	-10.8										
ENSMUSP00000034792	1	-2										
ENSMUSP00000034801	2	-3.9	5	-18.1			1	-5.3	3	-18.8	3	-15.1
ENSMUSP00000034808									1	-2		
ENSMUSP00000034818					3	-14.6			1	-2	1	-2.2
ENSMUSP00000034820			1	-1.6								
ENSMUSP00000034834									1	-2		
ENSMUSP00000034842:reversed											1	-2
ENSMUSP00000034848	6	-34.9	8	-35.7	6	-15.8	13	-37.8	13	-39	21	-29.8
ENSMUSP00000034860	194	-424	193	-407	335	-505	169	-365	159	-382	137	-375
ENSMUSP00000034863					1	-1.5						
ENSMUSP00000034866					2	-10.4	2	-3.8				
ENSMUSP00000034878	17	-41.3	26	-114	38	-106	23	-54.2	46	-122	19	-64.5
ENSMUSP00000034881	101	-75.1	101	-86.8	72	-85.5	178	-89.4	133	-104	117	-112
ENSMUSP00000034883							1	-2.3				
ENSMUSP00000034887	13	-4.1	10	-10	4	-10.5	6	-13.9	6	-11	12	-3.7
ENSMUSP00000034889					2	-2.5						
ENSMUSP00000034900:reversed					1	-1.4						
ENSMUSP00000034903			1	-5.1								
ENSMUSP00000034904			1	-7.9	7	-18.6			5	-20.2		
ENSMUSP00000034905			2	-2.1	1	-1.7					2	-3.9
ENSMUSP00000034912:reversed									1	-2.2		
ENSMUSP00000034932			1	-3.8							1	-5.7
ENSMUSP00000034945	1	-1.8									2	-2.3
ENSMUSP00000034947	2	-14.9	9	-24.7	7	-30.4	6	-31	12	-32.4	13	-48.4
ENSMUSP00000034949:reversed											1	-1.5
ENSMUSP00000034955:reversed	1	-2.2										
ENSMUSP00000034961					1	-1.6						
ENSMUSP00000034966	29	-127	31	-98.7	46	-113	33	-118	30	-106	29	-89
ENSMUSP00000034974:reversed											1	-1.7
ENSMUSP00000034983	4	-16.1	8	-21.6	7	-35.9	12	-39.8	9	-36.6	6	-33
ENSMUSP00000034984			1	-1.6								
ENSMUSP00000034987											1	-4.5
ENSMUSP00000034989	25	-104	25	-93.8	25	-109	21	-104	21	-69.2	12	-61.5
ENSMUSP00000034992	5	-11	2	-5.7	3	-22.8	3	-13.7	4	-20.3	4	-23.3
ENSMUSP00000034995	1	-2	1	-1.4	4	-15	2	-6.4			1	-3.2
ENSMUSP00000035007			2	-13.3	2	-13.6	1	-1.4				
ENSMUSP00000035010	15	-57.1	29	-104	28	-66.7	21	-89.9	25	-95.4	33	-91
ENSMUSP00000035020:reversed											1	-1.7
ENSMUSP00000035033			3	-11.7			5	-2.8	5	-17.4	1	-3.6
ENSMUSP00000035034	2	-3.4	2	-4.2	1	-2.4			5	-4.4	2	-2
ENSMUSP00000035048:reversed			1	-1.5								
ENSMUSP00000035055	1	-1.4	1	-1.4								
ENSMUSP00000035081:reversed									1	-1.7		
ENSMUSP00000035086			1	-5.8	2	-11.9	1	-4.1	2	-1.9	1	-4.6
ENSMUSP00000035089					1	-1.8						
ENSMUSP00000035100					1	-1.6						
ENSMUSP00000035105			8	-25.9	4	-24.8	4	-20.3	5	-29.5	1	-1.7
ENSMUSP00000035116					3	-11.2	1	-4.1	3	-10	1	-2.1
ENSMUSP00000035128	1	-2.4										
ENSMUSP00000035148	4	-13.2	5	-27.7	6	-19.1	4	-5.3	9	-27.7	7	-14.7
ENSMUSP00000035157	25	-97.3	28	-94.2	18	-73	21	-86.1	29	-89.9	30	-130
ENSMUSP00000035158			3	-9.7	6	-19.6	12	-64.7	11	-44.4	13	-63.2
ENSMUSP00000035164:reversed	1	-1.8										
ENSMUSP00000035167:reversed			1	-1.8								
ENSMUSP00000035170							1	-1.5				
ENSMUSP00000035194					1	-1.4						

ENSMUSP00000035201			1	-1.5									
ENSMUSP00000035202					1	-1.4							
ENSMUSP00000035203	1	-1.9	1	-1.4			2	-1.6					
ENSMUSP00000035208									2	-8.3	3	-14.4	
ENSMUSP00000035216			1	-1.5					2	-10.1			
ENSMUSP00000035220	5	-28	4	-22.3	3	-15.5	13	-77.5	8	-39.6	4	-18.3	
ENSMUSP00000035222	116	-114	111	-111	71	-85	223	-125	95	-134	151	-140	
ENSMUSP00000035230	3	-16.4	1	-6.8	3	-7.8	2	-2.2	8	-24.5	3	-9.3	
ENSMUSP00000035246	7	-37.8	8	-31.6	18	-56.4	6	-27.1	10	-36.5	7	-20.2	
ENSMUSP00000035260									1	-5.5			
ENSMUSP00000035260:reversed					2	-9.1							
ENSMUSP00000035274							5	-19	3	-24.4	6	-21	
ENSMUSP00000035338											1	-1.9	
ENSMUSP00000035338:reversed											1	-2	
ENSMUSP00000035366							1	-1.4					
ENSMUSP00000035367							2	-4.8					
ENSMUSP00000035404			1	-2	1	-2.9			2	-10.2			
ENSMUSP00000035417	8	-60.5	10	-64	19	-72.2	2	-13.5	12	-79.6	9	-57.9	
ENSMUSP00000035434											1	-1.7	
ENSMUSP00000035434:reversed					1	-1.7							
ENSMUSP00000035452:reversed	1	-1.8											
ENSMUSP00000035456											1	-1.4	
ENSMUSP00000035458	63	-276	121	-328	84	-318	120	-305	132	-296	106	-271	
ENSMUSP00000035475:reversed									1	-1.4			
ENSMUSP00000035506:reversed											1	-1.5	
ENSMUSP00000035512			1	-1.3									
ENSMUSP00000035516					1	-1.6					1	-3.5	
ENSMUSP00000035520:reversed					1	-2.1							
ENSMUSP00000035597			1	-1.8									
ENSMUSP00000035610					2	-4.6					1	-1.8	
ENSMUSP00000035614			1	-2			1	-1.8	6	-9.9	1	-3.6	
ENSMUSP00000035649											1	-2	
ENSMUSP00000035658							2	-3.3	1	-2.4	1	-2.1	
ENSMUSP00000035658:reversed	1	-1.7			1	-1.5							
ENSMUSP00000035709			1	-1.5									
ENSMUSP00000035726	1	-1.6			2	-9.3	1	-2.5			1	-3.2	
ENSMUSP00000035727					1	-3.6							
ENSMUSP00000035734											1	-1.6	
ENSMUSP00000035743			2	-8.7									
ENSMUSP00000035761			24	-126			18	-86	26	-183	17	-108	
ENSMUSP00000035761:reversed			1	-1.9	3	-8.1							
ENSMUSP00000035785:reversed											1	-1.4	
ENSMUSP00000035802					1	-1.6							
ENSMUSP00000035802:reversed					1	-1.6							
ENSMUSP00000035804	34	-93.9	37	-95.2	47	-123	38	-86.7	37	-75.7	36	-134	
ENSMUSP00000035823					2	-2.4	2	-2.7					
ENSMUSP00000035829							1	-2					
ENSMUSP00000035879	5	-20.5	3	-10.6	13	-24.4	9	-23.8	8	-50.4	8	-55.1	
ENSMUSP00000035891	2	-1.9					1	-2.3					
ENSMUSP00000035898	2	-5.3	1	-1.6			2	-1.7			4	-9.3	
ENSMUSP00000035908:reversed					1	-1.7							
ENSMUSP00000035929					1	-2							
ENSMUSP00000035943	30	-160	60	-231	41	-201	27	-145	42	-262	46	-197	
ENSMUSP00000035964	1	-2.1	3	-16.1	1	-1.8	6	-22.1	2	-13.6	6	-37.9	
ENSMUSP00000036003:reversed					1	-3							
ENSMUSP00000036013:reversed											1	-1.4	
ENSMUSP00000036035:reversed	1	-2.8											
ENSMUSP00000036052			2	-5.9	2	-5.8			5	-12.4			

ENSMUSP00000036069									2	-9		
ENSMUSP00000036082					2	-3.2	1	-2.7	5	-18.5	3	-7.7
ENSMUSP00000036099	1	-1.5										
ENSMUSP00000036140	8	-46	4	-16	3	-9.5	9	-27.4	10	-48.7	7	-28
ENSMUSP00000036162			1	-2.2								
ENSMUSP00000036178:reversed			1	-2.2					3	-10.2		
ENSMUSP00000036198:reversed	2	-10.1										
ENSMUSP00000036206							1	-1.7				
ENSMUSP00000036220	1	-1.5			1	-1.7						
ENSMUSP00000036226					1	-2.5					1	-1.4
ENSMUSP00000036227:reversed					1	-1.8			1	-1.7		
ENSMUSP00000036240					1	-2.3						
ENSMUSP00000036245	43	-77.4	46	-78	41	-86.7	41	-67.5	50	-90.1	49	-78.8
ENSMUSP00000036253			1	-1.5								
ENSMUSP00000036316											1	-1.3
ENSMUSP00000036337	1	-6.4	3	-11	3	-10.5	2	-4.1			1	-2.2
ENSMUSP00000036338			11	-27.9								
ENSMUSP00000036353:reversed									1	-1.7		
ENSMUSP00000036357					1	-1.6						
ENSMUSP00000036378			2	-8.3							2	-8.4
ENSMUSP00000036386	24	-73.3	12	-69.9	21	-84.9	25	-76.4	27	-113	32	-101
ENSMUSP00000036389:reversed					1	-1.5						
ENSMUSP00000036434							1	-1.5				
ENSMUSP00000036441:reversed									1	-1.3		
ENSMUSP00000036442:reversed			1	-2.7								
ENSMUSP00000036453	36	-109	40	-98.6	41	-103	48	-119	31	-125	101	-173
ENSMUSP00000036477											1	-1.6
ENSMUSP00000036482											2	-2.4
ENSMUSP00000036541			2	-2.5	1	-2.4			4	-23.4		
ENSMUSP00000036585											1	-1.9
ENSMUSP00000036585:reversed							1	-1.6				
ENSMUSP00000036604			1	-2.3	1	-2.4			1	-2.1	1	-2
ENSMUSP00000036730	1	-1.6			2	-8.2	1	-7.2	8	-29.6	4	-5.3
ENSMUSP00000036739					2	-4.7						
ENSMUSP00000036740			1	-5.1	2	-8.2	4	-12.2	2	-2.6		
ENSMUSP00000036761							1	-1.5	1	-1.5		
ENSMUSP00000036762:reversed									1	-1.5		
ENSMUSP00000036817:reversed			1	-1.7								
ENSMUSP00000036836					1	-1.5						
ENSMUSP00000036847					1	-1.4						
ENSMUSP00000036861					3	-14.7						
ENSMUSP00000036861:reversed									1	-2.6		
ENSMUSP00000036898	2	-5.7			2	-14.9	1	-1.5			3	-19.3
ENSMUSP00000036907	2	-10.5					4	-13.1				
ENSMUSP00000036913:reversed											1	-1.6
ENSMUSP00000036924							1	-2.8				
ENSMUSP00000036936					4	-16.2						
ENSMUSP00000036971					2	-2.4			2	-3.2		
ENSMUSP00000036981:reversed					1	-1.9						
ENSMUSP00000036983	5	-24.4	5	-15.7			4	-9.8	6	-25.9	3	-4.2
ENSMUSP00000036988:reversed									1	-2.2		
ENSMUSP00000036993											2	-3.2
ENSMUSP00000036996	3	-14.4	3	-20.4	1	-3.4	14	-78.2	22	-121	17	-78.2
ENSMUSP00000037018	1	-1.6	1	-3.1			7	-14.2	7	-28.7	18	-65.4
ENSMUSP00000037022	80	-139	118	-193	99	-212	80	-132	107	-208	74	-99.3
ENSMUSP00000037025					1	-1.7	1	-1.5				
ENSMUSP00000037025:reversed									2	-8.5		
ENSMUSP00000037028:reversed			1	-1.8								

ENSMUSP00000037039	93	-63.2	133	-42.4	85	-40.3	165	-76.2	164	-63.9	160	-64.6
ENSMUSP00000037054					1	-2.1						
ENSMUSP00000037107	19	-63.5	12	-43	12	-25.1	14	-47.3	18	-42.5	13	-27.9
ENSMUSP00000037109											1	-1.6
ENSMUSP00000037109:reversed					1	-1.7						
ENSMUSP00000037113:reversed			1	-2.5								
ENSMUSP00000037126	1	-1.5										
ENSMUSP00000037128							6	-36.6				
ENSMUSP00000037173									1	-1.9		
ENSMUSP00000037257	1	-2.2										
ENSMUSP00000037259	91	-233	88	-283	99	-199	98	-243	94	-245	72	-227
ENSMUSP00000037266			3	-1.6	1	-2.1			2	-2.5	6	-3.2
ENSMUSP00000037268:reversed									1	-1.5		
ENSMUSP00000037293											10	-39.1
ENSMUSP00000037298											1	-3.4
ENSMUSP00000037298:reversed			1	-1.7	1	-1.3						
ENSMUSP00000037317									1	-2.5		
ENSMUSP00000037328:reversed	1	-1.7										
ENSMUSP00000037331			2	-16.3	1	-1.6	1	-3	2	-9.6	3	-19
ENSMUSP00000037341	52	-52.8	6	-14.6	12	-67.9	16	-41.7	5	-32.1	8	-30.2
ENSMUSP00000037348	204	-374	188	-353	174	-374	80	-254	51	-186	78	-267
ENSMUSP00000037354									1	-3.5		
ENSMUSP00000037398:reversed			1	-1.4			1	-1.5	2	-2.1		
ENSMUSP00000037409					1	-3						
ENSMUSP00000037409:reversed					1	-1.4						
ENSMUSP00000037416:reversed					1	-1.4						
ENSMUSP00000037422	7	-37.8	2	-6.8	6	-18	5	-20.9	3	-25	4	-21.4
ENSMUSP00000037427:reversed									1	-2.4		
ENSMUSP00000037441			1	-1.4					1	-1.5	1	-1.6
ENSMUSP00000037443:reversed			1	-1.7	2	-2.4	1	-2.3				
ENSMUSP00000037446	2	-3.7	1	-2	4	-16.8	2	-2	4	-9.9	1	-2.4
ENSMUSP00000037447											3	-4.3
ENSMUSP00000037473							1	-1.7				
ENSMUSP00000037479:reversed	2	-3	1	-2.8			2	-2.3	2	-1.4		
ENSMUSP00000037484	11	-69.4	10	-44.1	16	-85.2	12	-63	16	-73.3	22	-89
ENSMUSP00000037487	99	-236	91	-233	91	-158	206	-268	125	-268	103	-242
ENSMUSP00000037497									1	-3.1		
ENSMUSP00000037517:reversed											1	-1.4
ENSMUSP00000037532:reversed	1	-1.4	1	-2			1	-1.7			1	-1.8
ENSMUSP00000037543					2	-3.5			2	-5.3	1	-4.1
ENSMUSP00000037543:reversed					1	-1.6						
ENSMUSP00000037546	6	-26	5	-23.3	4	-16.6	7	-27.3	2	-12	7	-29.4
ENSMUSP00000037555	3	-15.9	6	-11.5	1	-1.8	5	-10			3	-6.5
ENSMUSP00000037561					1	-5.2						
ENSMUSP00000037583	36	-106	29	-105	39	-100	59	-142	48	-130	47	-114
ENSMUSP00000037600									1	-2		
ENSMUSP00000037609	3	-10.5	2	-12.2	2	-3.1	1	-8.3	2	-11.8	1	-9.4
ENSMUSP00000037613	1	-1.6			2	-9.5						
ENSMUSP00000037617	59	-145	59	-170	48	-160	47	-124	60	-143	44	-114
ENSMUSP00000037628:reversed									2	-9.1		
ENSMUSP00000037629	18	-35.4	13	-14.7	22	-33.4	11	-28.6	13	-15	14	-24.3
ENSMUSP00000037631									1	-2.8		
ENSMUSP00000037655			4	-14.2	3	-14.8	3	-15.5	10	-44.1	5	-22.4
ENSMUSP00000037665	326	-496	286	-496	226	-516	373	-495	257	-477	267	-484
ENSMUSP00000037675:reversed	1	-1.4										
ENSMUSP00000037702:reversed			1	-2.5								
ENSMUSP00000037703					1	-1.7						
ENSMUSP00000037774:reversed			1	-1.9								

ENSMUSP00000037783												1	-2.1
ENSMUSP00000037821	2	-3.4	2	-3.7			1	-2	1	-3.8	4	-11.8	
ENSMUSP00000037834	6	-3.5	1	-2.6	2	-2.6	26	-14.5	8	-29.8	7	-4.3	
ENSMUSP00000037884											1	-2.7	
ENSMUSP00000037890			1	-1.5									
ENSMUSP00000037915											1	-2.2	
ENSMUSP00000037936					2	-8.2							
ENSMUSP00000037936:reversed											1	-1.8	
ENSMUSP00000037955			2	-2.7					2	-1.6			
ENSMUSP00000037962	3	-13.6	7	-20.1	2	-6.5	5	-2.9	3	-14.1	10	-35.5	
ENSMUSP00000037982:reversed											1	-1.8	
ENSMUSP00000038013	1	-1.9							1	-1.6	1	-2.1	
ENSMUSP00000038013:reversed					1	-1.3							
ENSMUSP00000038015	1	-1.6			1	-1.7							
ENSMUSP00000038015:reversed			1	-2.4									
ENSMUSP00000038028							1	-1.6					
ENSMUSP00000038041	1	-3.9	2	-9.1	3	-6.9	1	-8.2			3	-13.1	
ENSMUSP00000038061:reversed			1	-2.2									
ENSMUSP00000038063	25	-73.9	20	-56.1	29	-61.2	21	-58.3	32	-98.1	20	-72.5	
ENSMUSP00000038069									1	-1.6			
ENSMUSP00000038069:reversed					1	-1.4							
ENSMUSP00000038075	1	-2.4											
ENSMUSP00000038091	1	-1.8											
ENSMUSP00000038098	2	-2.1	1	-1.7					3	-2.6			
ENSMUSP00000038106	2	-12.4	1	-1.7	2	-9.7	1	-2.3			2	-12.7	
ENSMUSP00000038106:reversed					1	-1.7							
ENSMUSP00000038113			3	-15.1					4	-12.5	5	-22	
ENSMUSP00000038135			4	-8.3	5	-14.5	5	-18.5	8	-16.7	4	-8.4	
ENSMUSP00000038149	3	-14.2	4	-13.5	3	-9.5	1	-5.5	5	-19.8			
ENSMUSP00000038150					2	-7.6							
ENSMUSP00000038150:reversed					1	-1.5							
ENSMUSP00000038167:reversed									1	-1.5			
ENSMUSP00000038181:reversed					1	-1.6							
ENSMUSP00000038214	3	-15.3	1	-1.5	6	-27.8	1	-1.3					
ENSMUSP00000038229					1	-1.6							
ENSMUSP00000038232:reversed											1	-1.6	
ENSMUSP00000038275									1	-1.8	1	-4.4	
ENSMUSP00000038276	2	-4.6	2	-6			3	-15.9	2	-5.2	4	-7.3	
ENSMUSP00000038301	1	-2.2											
ENSMUSP00000038318:reversed											1	-2	
ENSMUSP00000038321					2	-8.7							
ENSMUSP00000038339	7	-31.1	31	-84.6	4	-32	17	-53.4	17	-69.8	16	-60.1	
ENSMUSP00000038350	5	-25.4	3	-22.9	10	-14.8	6	-30.3	9	-29.4	6	-38.2	
ENSMUSP00000038351					1	-1.6							
ENSMUSP00000038359							3	-17.4	2	-3.9	5	-18.3	
ENSMUSP00000038368					4	-13.1			4	-12.9	3	-15.5	
ENSMUSP00000038373	2	-2											
ENSMUSP00000038387			5	-5.3			2	-3.4	3	-7.1	1	-3.4	
ENSMUSP00000038430									1	-4.6	1	-1.9	
ENSMUSP00000038479					1	-1.7							
ENSMUSP00000038484									1	-1.4			
ENSMUSP00000038490:reversed									1	-1.6			
ENSMUSP00000038505									1	-1.5			
ENSMUSP00000038506									2	-8.3			
ENSMUSP00000038540			2	-3.1					1	-1.6	1	-8.4	
ENSMUSP00000038559							2	-3.2					
ENSMUSP00000038568	1	-2.1											
ENSMUSP00000038573			2	-15.9			3	-3.2			1	-1.6	

ENSMUSP00000038612			4	-21.8	1	-1.7			4	-23.3	5	-39.4
ENSMUSP00000038625	1	-3.7			3	-11.9			1	-4		
ENSMUSP00000038671			1	-2.4	3	-2.9	5	-24.7	8	-47.4	7	-42.7
ENSMUSP00000038674:reversed	1	-1.4										
ENSMUSP00000038722					2	-9.5			3	-15.6	1	-3.7
ENSMUSP00000038755	4	-21	6	-20	7	-19.5	6	-38	8	-33.5	6	-17.8
ENSMUSP00000038763	5	-38.2	11	-59.5	16	-83.1			1	-3.4	1	-2.3
ENSMUSP00000038772:reversed			1	-1.5								
ENSMUSP00000038775	2	-9.8			2	-3.3			3	-13.6	2	-2.8
ENSMUSP00000038801:reversed							1	-1.5				
ENSMUSP00000038834:reversed	3	-2	5	-3	4	-2.8			4	-3	4	-10
ENSMUSP00000038838	7	-25.2	4	-12	5	-27.5	10	-65.1	9	-40.3	7	-41.9
ENSMUSP00000038839							2	-6			2	-2
ENSMUSP00000038878	31	-94.8	21	-67.3	30	-64.5	22	-61.9	37	-80.2	30	-80.5
ENSMUSP00000038878:reversed					1	-1.7						
ENSMUSP00000038914	162	-257	175	-288	120	-304	219	-293	176	-295	183	-312
ENSMUSP00000038915:reversed					1	-2.9						
ENSMUSP00000038961			14	-25.8	9	-6.8			26	-20.5	58	-74.9
ENSMUSP00000038971:reversed			1	-1.4								
ENSMUSP00000039035	1	-2.7										
ENSMUSP00000039046											1	-4.7
ENSMUSP00000039062			2	-9.5	5	-24.5			3	-26.6	3	-12.2
ENSMUSP00000039088:reversed					1	-1.8						
ENSMUSP00000039109									1	-1.9		
ENSMUSP00000039127			1	-1.4					2	-8.5	3	-16.7
ENSMUSP00000039134									2	-9.3	2	-11.5
ENSMUSP00000039164:reversed			1	-2.1	1	-2.2						
ENSMUSP00000039202	10	-20.6	2	-5.8	1	-5.3	5	-18.7	4	-16.3	2	-4
ENSMUSP00000039205			2	-3.8			3	-7			4	-2.8
ENSMUSP00000039243			2	-2.3								
ENSMUSP00000039248					1	-1.5						
ENSMUSP00000039252	125	-288	189	-345	89	-329	126	-309	89	-293	130	-287
ENSMUSP00000039264	1	-5.2	7	-26.4	12	-50.2	19	-78.8	35	-187	31	-161
ENSMUSP00000039269			1	-3.7								
ENSMUSP00000039271					2	-3.9			2	-2.7		
ENSMUSP00000039289	29	-91	31	-90.4	9	-22.8	31	-80.3	31	-94.2	20	-56.9
ENSMUSP00000039298:reversed									1	-1.7		
ENSMUSP00000039301:reversed	1	-1.3										
ENSMUSP00000039322	2	-8.6										
ENSMUSP00000039353:reversed					1	-1.8						
ENSMUSP00000039360:reversed					1	-1.5					1	-1.5
ENSMUSP00000039368	7	-35.8	9	-36	8	-51.5	12	-50.4	10	-59.4	7	-30
ENSMUSP00000039376:reversed											1	-1.8
ENSMUSP00000039378			2	-8.7								
ENSMUSP00000039397:reversed							1	-3.7	1	-2.8		
ENSMUSP00000039429	35	-207	32	-156	54	-252	48	-225	46	-222	44	-219
ENSMUSP00000039435:reversed							1	-1.4				
ENSMUSP00000039438:reversed							1	-2.1				
ENSMUSP00000039472	2	-6.7	1	-1.5	1	-5.4	10	-29.6	11	-36.9	8	-52.1
ENSMUSP00000039482	1	-2										
ENSMUSP00000039482:reversed			1	-1.7								
ENSMUSP00000039487			1	-4.6					1	-4.1	1	-1.4
ENSMUSP00000039507	1	-6.4										
ENSMUSP00000039528:reversed	1	-1.4										
ENSMUSP00000039529	3	-5.4			2	-6	4	-4.3	1	-3.9	7	-5.1
ENSMUSP00000039543					4	-18.9					5	-37.7
ENSMUSP00000039568					2	-2.1						
ENSMUSP00000039576:reversed					1	-1.4						

ENSMUSP00000039577:reversed					1	-1.5							
ENSMUSP00000039580			1	-1.3									
ENSMUSP00000039604									2	-1.8			
ENSMUSP00000039628:reversed					1	-1.4							
ENSMUSP00000039632:reversed	1	-1.8											
ENSMUSP00000039648									2	-9.6			
ENSMUSP00000039650					2	-1.6							
ENSMUSP00000039657	134	-381	130	-382	111	-368	99	-318	101	-373	130	-378	
ENSMUSP00000039660:reversed	1	-2.2											
ENSMUSP00000039663	28	-164	30	-166	41	-145	31	-163	29	-205	40	-218	
ENSMUSP00000039687:reversed	1	-1.7	3	-2.2	5	-2.2			5	-1.8	4	-1.7	
ENSMUSP00000039692	1	-2.3	1	-5			2	-4.2	2	-5.2	3	-3.5	
ENSMUSP00000039704			1	-1.9							1	-1.4	
ENSMUSP00000039704:reversed									1	-1.9			
ENSMUSP00000039724	1	-1.6											
ENSMUSP00000039726	8	-34	16	-25.2	25	-17.4	11	-17	19	-26.8	17	-34.5	
ENSMUSP00000039737	4	-32.2	8	-31.8	5	-40.5	12	-75.6	18	-86.8	16	-74.9	
ENSMUSP00000039757											1	-1.3	
ENSMUSP00000039776									1	-1.3	2	-9.3	
ENSMUSP00000039784	3	-21.6	4	-19.2	4	-8	6	-26	3	-17.1	7	-30.3	
ENSMUSP00000039825					1	-7.4			3	-12.8			
ENSMUSP00000039844			2	-11.8	2	-1.8			2	-13.6	2	-9.4	
ENSMUSP00000039853	1	-2.5	3	-12.4			1	-5.5	2	-8.3	2	-7.9	
ENSMUSP00000039889:reversed									3	-8.5			
ENSMUSP00000039943:reversed			2	-1.4			3	-1.9	2	-2.1			
ENSMUSP00000039951:reversed					1	-1.4							
ENSMUSP00000039966:reversed					1	-1.4	2	-3.1					
ENSMUSP00000039990	2	-8			3	-8.4			1	-2.8			
ENSMUSP00000040005:reversed									1	-1.7			
ENSMUSP00000040029	2	-6.8	3	-4.4	2	-5.8	1	-6.6	4	-11.4	1	-5.8	
ENSMUSP00000040057:reversed					1	-2.2							
ENSMUSP00000040073	1	-2.9							1	-1.5			
ENSMUSP00000040074											1	-2.5	
ENSMUSP00000040078			1	-2									
ENSMUSP00000040093	4	-15.9	3	-12.5	4	-15.2	4	-24.4	9	-28.6	2	-7.3	
ENSMUSP00000040094							1	-1.6					
ENSMUSP00000040098:reversed			1	-1.5									
ENSMUSP00000040128:reversed											1	-1.7	
ENSMUSP00000040140	134	-229	77	-194	79	-235	166	-235	125	-323	124	-284	
ENSMUSP00000040162							1	-1.5	1	-2.7	2	-8.3	
ENSMUSP00000040198	8	-47.2	22	-91.6	8	-41.5	16	-86.1	25	-114	20	-94.6	
ENSMUSP00000040217											1	-2.3	
ENSMUSP00000040222	34	-162	38	-137	43	-164	53	-194	56	-202	48	-177	
ENSMUSP00000040227	2	-8.7					1	-2.5			2	-8.3	
ENSMUSP00000040262:reversed					1	-1.7							
ENSMUSP00000040282	1	-2.7											
ENSMUSP00000040287			1	-2.1									
ENSMUSP00000040307					1	-3.3							
ENSMUSP00000040309					1	-1.4							
ENSMUSP00000040315									1	-1.9			
ENSMUSP00000040356	6	-12.2	3	-16.5	2	-3.6	4	-13.8	10	-43.3	4	-5.1	
ENSMUSP00000040360			1	-3.1									
ENSMUSP00000040367			1	-1.3									
ENSMUSP00000040424	38	-133	64	-207	78	-151	49	-143	69	-214	70	-223	
ENSMUSP00000040424:reversed											2	-9	
ENSMUSP00000040433			1	-1.5									
ENSMUSP00000040447	2	-13.5	1	-2.7	8	-28	1	-4.1	4	-21.7	4	-15.7	
ENSMUSP00000040465			2	-9.4									

ENSMUSP00000040486	1	-2										
ENSMUSP00000040488:reversed			1	-2.2								
ENSMUSP00000040522:reversed	1	-1.7										
ENSMUSP00000040550	144	-214	142	-246	148	-196	137	-188	103	-270	157	-264
ENSMUSP00000040580	4	-14.1	6	-28	6	-18.7	2	-2.6	3	-20	2	-14.3
ENSMUSP00000040591	4	-18.3	9	-44	6	-25.6	2	-4.6	5	-19.3	2	-9.9
ENSMUSP00000040601							4	-20.5				
ENSMUSP00000040606											1	-1.4
ENSMUSP00000040611					1	-2						
ENSMUSP00000040611:reversed									1	-1.7		
ENSMUSP00000040639									1	-2.5		
ENSMUSP00000040647:reversed			1	-1.7								
ENSMUSP00000040756	1	-2.2	1	-1.5					2	-3.5		
ENSMUSP00000040757											1	-1.8
ENSMUSP00000040771	1	-1.6										
ENSMUSP00000040771:reversed									1	-2.5		
ENSMUSP00000040799											1	-1.9
ENSMUSP00000040823			1	-1.9								
ENSMUSP00000040825:reversed									1	-1.7		
ENSMUSP00000040828	1	-8.3										
ENSMUSP00000040840	34	-129					68	-170				
ENSMUSP00000040853			2	-13.6	5	-9.4	1	-7.2	2	-2.9	3	-6.1
ENSMUSP00000040853:reversed			1	-1.9								
ENSMUSP00000040860									2	-2.1	1	-2.5
ENSMUSP00000040900					3	-10			1	-2.3	2	-5.7
ENSMUSP00000040920:reversed											1	-1.4
ENSMUSP00000040935							1	-1.5				
ENSMUSP00000040944:reversed					1	-1.6						
ENSMUSP00000040945	1	-1.7										
ENSMUSP00000040954	1	-1.7									2	-8.4
ENSMUSP00000040961									1	-4.1		
ENSMUSP00000040977:reversed											1	-1.6
ENSMUSP00000040995					11	-35.4			10	-20.3		
ENSMUSP00000041002			2	-7.9			3	-5.1			2	-8.9
ENSMUSP00000041008	3	-10.5					8	-26.8	4	-2	8	-25.7
ENSMUSP00000041035:reversed	1	-1.9										
ENSMUSP00000041053:reversed					2	-7.7						
ENSMUSP00000041069			1	-1.9								
ENSMUSP00000041104	18	-72.2	10	-48	17	-72.5	25	-70.5	35	-86.1	21	-77
ENSMUSP00000041152	11	-41.6	15	-43.6	18	-56.8	11	-30.5	9	-52.6	15	-43.3
ENSMUSP00000041157:reversed											1	-1.6
ENSMUSP00000041199:reversed			1	-2								
ENSMUSP00000041202:reversed			1	-1.5								
ENSMUSP00000041204					1	-1.3					3	-17.3
ENSMUSP00000041234			1	-2.7	1	-2.6	2	-10.2				
ENSMUSP00000041244	1	-3.2	2	-3	3	-3.7	2	-13.5			1	-3.2
ENSMUSP00000041247					1	-2.2						
ENSMUSP00000041260	3	-18.8	8	-8.8	6	-35.9	5	-38.8	7	-34.3	3	-19.4
ENSMUSP00000041282											2	-11.3
ENSMUSP00000041294			3	-12.8			2	-3.1			2	-4.8
ENSMUSP00000041299	1	-1.7			1	-2.2			2	-5.3	2	-8.4
ENSMUSP00000041308:reversed											1	-1.7
ENSMUSP00000041312									1	-1.4		
ENSMUSP00000041343	2	-4.1			2	-3	6	-26	6	-15	6	-24.4
ENSMUSP00000041361:reversed			2	-1.5	1	-1.5			1	-1.8	4	-10.7
ENSMUSP00000041363											1	-1.4
ENSMUSP00000041431:reversed			1	-1.5								
ENSMUSP00000041442	47	-95.2	34	-98.4	66	-143	49	-132	62	-160	135	-164

ENSMUSP00000041449							3	-3.2	2	-2.6	2	-5.7
ENSMUSP00000041495					1	-2.5	1	-2.2	6	-33.1	5	-23.3
ENSMUSP00000041503	35	-50.1	5	-25	10	-46.8	2	-10.7	7	-31.4	5	-24.5
ENSMUSP00000041523:reversed			1	-1.6	1	-1.7						
ENSMUSP00000041543	38	-115	35	-130	46	-173	63	-113	55	-135	62	-152
ENSMUSP00000041591:reversed									1	-1.3		
ENSMUSP00000041622			1	-2								
ENSMUSP00000041623											1	-1.7
ENSMUSP00000041675	2	-14	4	-15			1	-1.7	1	-5.6	1	-5.6
ENSMUSP00000041712			2	-8.5								
ENSMUSP00000041716:reversed									1	-1.4		
ENSMUSP00000041732	1	-1.4										
ENSMUSP00000041735					2	-8.3			1	-2.4		
ENSMUSP00000041744	1	-1.4										
ENSMUSP00000041751:reversed			1	-1.7								
ENSMUSP00000041793:reversed					1	-1.6						
ENSMUSP00000041814					1	-1.4	1	-3.6			1	-3.3
ENSMUSP00000041820	10	-47.7	4	-14.7	2	-6.4	9	-12.1	9	-24.8	4	-17.1
ENSMUSP00000041825			1	-1.9								
ENSMUSP00000041828			1	-1.8								
ENSMUSP00000041839									3	-14.3	2	-10.1
ENSMUSP00000041851							1	-1.5				
ENSMUSP00000041851:reversed									2	-8.2		
ENSMUSP00000041857	45	-34.3										
ENSMUSP00000041872	34	-47.2	25	-59.2	25	-25.4	31	-43.8	27	-50.1	26	-32.6
ENSMUSP00000041897	1	-2.7										
ENSMUSP00000041907	1	-9.1	5	-16.8	9	-19.8	3	-15.7	5	-16.6	8	-20.7
ENSMUSP00000041968	1	-7	2	-2.7	1	-2.1	2	-2.5	5	-17.1	3	-19.1
ENSMUSP00000041975			1	-2.6			4	-17.8	3	-2.5	1	-1.8
ENSMUSP00000041983			1	-3.9			1	-9.7	2	-4.4	1	-6.9
ENSMUSP00000041985	3	-13.1	7	-24.4	8	-25.6	10	-26.7	9	-19.6	3	-10.8
ENSMUSP00000041985:reversed									2	-8.6		
ENSMUSP00000042001					1	-1.7						
ENSMUSP00000042026			1	-1.4								
ENSMUSP00000042095	6	-28.8	12	-21.8	4	-11.2	2	-12.2	4	-29.8	8	-30.7
ENSMUSP00000042118	1	-8.7			3	-18.9	2	-11.5	2	-17.5	1	-6.4
ENSMUSP00000042150	5	-34.6	10	-19.4	3	-26	8	-37.9	12	-18.3	10	-39.2
ENSMUSP00000042155									1	-4		
ENSMUSP00000042167			3	-2.4	1	-1.4			6	-2.1		
ENSMUSP00000042173							1	-1.4				
ENSMUSP00000042181:reversed											1	-1.6
ENSMUSP00000042183			3	-13.4							2	-2.4
ENSMUSP00000042186			2	-1.5					1	-3.5	2	-10.6
ENSMUSP00000042186:reversed			1	-1.4								
ENSMUSP00000042188	1	-2.8	4	-12.6	5	-23.5	6	-27.7	14	-43.5	17	-37.1
ENSMUSP00000042215	1	-4.7					1	-3.5	4	-19.6	8	-37.1
ENSMUSP00000042229:reversed									2	-8.7		
ENSMUSP00000042232	8	-52.5	7	-34	12	-63.2	6	-46.3	10	-65.2	5	-37.6
ENSMUSP00000042260					1	-2.1						
ENSMUSP00000042277			4	-13			1	-3.3	6	-20.6	1	-2.3
ENSMUSP00000042285	1	-1.9			1	-3.4						
ENSMUSP00000042291					1	-1.5						
ENSMUSP00000042291:reversed	1	-1.5										
ENSMUSP00000042342	78	-292			74	-206	70	-199	81	-213	78	-262
ENSMUSP00000042351	12	-55.9	12	-42.4	7	-54	3	-19.3	9	-46.2	16	-40.8
ENSMUSP00000042367							1	-1.4				
ENSMUSP00000042406					1	-1.5						
ENSMUSP00000042410			2	-4.2	3	-11.2						

ENSMUSP00000042416			7	-34.7	2	-2.7	1	-1.6	3	-4.5	5	-13
ENSMUSP00000042432									2	-3.1	4	-19.1
ENSMUSP00000042432:reversed					1	-2.4						
ENSMUSP00000042457	18	-82.6	40	-86	27	-31.6	39	-92.9	52	-146	38	-102
ENSMUSP00000042509											1	-1.8
ENSMUSP00000042569					1	-1.5					1	-1.4
ENSMUSP00000042582					1	-1.9						
ENSMUSP00000042590							40	-50.8				
ENSMUSP00000042602:reversed									1	-1.5		
ENSMUSP00000042617							2	-2.1				
ENSMUSP00000042617:reversed	1	-1.4										
ENSMUSP00000042677									1	-1.7		
ENSMUSP00000042677:reversed											1	-2
ENSMUSP00000042700	30	-68.3	50	-115	23	-101	62	-142	67	-142	59	-150
ENSMUSP00000042702			1	-1.6								
ENSMUSP00000042705											1	-4.3
ENSMUSP00000042742									1	-1.9		
ENSMUSP00000042783	3	-19.2	10	-39.5	6	-21.5	4	-22.3	8	-39.7	12	-50.3
ENSMUSP00000042796:reversed											1	-2.3
ENSMUSP00000042808	1	-4.2	1	-2.3			3	-3.2	2	-3.1	2	-9.7
ENSMUSP00000042835					1	-1.3						
ENSMUSP00000042852	7	-27.9	10	-29.2	19	-28.8	5	-6.9	11	-42.9	7	-33.1
ENSMUSP00000042857	1	-1.7			1	-1.9						
ENSMUSP00000042860	2	-11.9			2	-7.4	2	-12.9	2	-12.7	2	-11.7
ENSMUSP00000042875							1	-2.6	1	-2.1		
ENSMUSP00000042905			1	-1.8	1	-3.6	2	-4.6	2	-12.9	1	-1.8
ENSMUSP00000042918					2	-4.5	1	-2.6				
ENSMUSP00000042958	5	-12	10	-40.9	14	-30.6	5	-20.9	11	-38.4	6	-32.9
ENSMUSP00000042967	1	-3.5	2	-2.6			7	-41.8	13	-63.4	6	-28.1
ENSMUSP00000042987			1	-1.5	1	-1.3			1	-1.5	1	-1.5
ENSMUSP00000042988			1	-2.1								
ENSMUSP00000043040:reversed	1	-1.6										
ENSMUSP00000043047					1	-2.1						
ENSMUSP00000043061	1	-2.7			3	-11.2	2	-2.2	1	-3.2		
ENSMUSP00000043066	5	-10.6	2	-13.7	2	-6.4	6	-8.2	6	-12	10	-5.7
ENSMUSP00000043088	5	-12.5	9	-28.1	3	-17.6	12	-34.4	7	-25	10	-30.6
ENSMUSP00000043092	6	-20.9			2	-8.5	2	-5.2			7	-25
ENSMUSP00000043115:reversed	2	-10.4	1	-1.5					6	-9.4	1	-2.4
ENSMUSP00000043190	9	-76.9			9	-59.7			8	-35.4	6	-30.3
ENSMUSP00000043220	3	-19.2									4	-6.3
ENSMUSP00000043222:reversed	1	-2.1										
ENSMUSP00000043240											4	-17.9
ENSMUSP00000043240:reversed									2	-8.7		
ENSMUSP00000043245	5	-22.8	12	-46.2	11	-34.6	5	-21.3	14	-33.5	2	-8.5
ENSMUSP00000043262:reversed			1	-1.5								
ENSMUSP00000043279	2	-1.9	1	-3.3	3	-11.8	1	-2.6	5	-30.7	3	-13
ENSMUSP00000043308	4	-29.3	5	-27.5	8	-38.3	5	-20.5	7	-20.2	3	-10.1
ENSMUSP00000043346							2	-2.3				
ENSMUSP00000043370	10	-51.1	20	-79.4	21	-42	14	-41.1	19	-46.6	21	-29.3
ENSMUSP00000043378					1	-1.8						
ENSMUSP00000043390	4	-5.4	2	-3.3	1	-2			5	-15.9	6	-7.1
ENSMUSP00000043402:reversed					1	-2.4						
ENSMUSP00000043410					1	-2						
ENSMUSP00000043424	4	-19.9	3	-12.9	2	-4.2			3	-14.9		
ENSMUSP00000043437:reversed	1	-1.7							1	-1.7		
ENSMUSP00000043439					1	-1.8			2	-8.6		
ENSMUSP00000043460	1	-2.4			2	-3.2					1	-1.4
ENSMUSP00000043466			1	-2.1							1	-1.9

ENSMUSP00000043467	1	-4.8	1	-4.4	1	-2.7							
ENSMUSP00000043478:reversed					1	-1.9							
ENSMUSP00000043482			2	-8.7									
ENSMUSP00000043519:reversed	1	-1.6											
ENSMUSP00000043537			1	-6.1									
ENSMUSP00000043540	1	-9.4			6	-18.8	4	-11	7	-21.5	6	-17.8	
ENSMUSP00000043543	40	-76	26	-61.2	55	-89.6	63	-73.4	39	-70.7	31	-70.4	
ENSMUSP00000043545:reversed											1	-1.4	
ENSMUSP00000043546:reversed			1	-1.3									
ENSMUSP00000043547							1	-2.6					
ENSMUSP00000043555									1	-1.4			
ENSMUSP00000043559	64	-72.8	63	-99.8	31	-53.9	55	-44.9	37	-66.7	55	-63.2	
ENSMUSP00000043570					1	-1.6							
ENSMUSP00000043580	5	-30.1	2	-9.5	5	-24.3	3	-17.1	7	-44.1	8	-44.8	
ENSMUSP00000043583:reversed	2	-1.9							1	-3.4	1	-1.4	
ENSMUSP00000043643			2	-7.9					1	-2.5			
ENSMUSP00000043643:reversed	1	-1.5											
ENSMUSP00000043660	16	-48.8	35	-64.2	11	-44.8	47	-70	35	-89	70	-70.7	
ENSMUSP00000043671:reversed											1	-1.9	
ENSMUSP00000043706			1	-2.8									
ENSMUSP00000043709:reversed	1	-1.6											
ENSMUSP00000043722	29	-36.7	24	-38.2	23	-62.1	31	-30.1	34	-56	35	-35.6	
ENSMUSP00000043768	8	-9.5	6	-10.9	13	-9.3	9	-9.3	4	-14	4	-9.8	
ENSMUSP00000043795:reversed			1	-1.8									
ENSMUSP00000043802:reversed			1	-1.7									
ENSMUSP00000043816	1	-1.6											
ENSMUSP00000043816:reversed			1	-1.6	1	-2.6			1	-2.7			
ENSMUSP00000043884			1	-1.9									
ENSMUSP00000043893:reversed					1	-1.8							
ENSMUSP00000043901:reversed											1	-1.3	
ENSMUSP00000043910			1	-2.1			2	-2.7	1	-1.8			
ENSMUSP00000043920					1	-1.3					1	-1.4	
ENSMUSP00000043953			1	-1.6	1	-1.8							
ENSMUSP00000043953:reversed											1	-1.7	
ENSMUSP00000043957:reversed									1	-1.4			
ENSMUSP00000043977:reversed			2	-1.9									
ENSMUSP00000043996:reversed							1	-1.3					
ENSMUSP00000044004	47	-240	93	-336	65	-303	135	-431	151	-566	140	-477	
ENSMUSP00000044012	2	-3.8			2	-3.3	4	-4.7	2	-14.8			
ENSMUSP00000044048									2	-3.2			
ENSMUSP00000044050	61	-176					71	-171					
ENSMUSP00000044078	4	-32.7	12	-45.5	3	-14.5	8	-32.1	7	-58.3	7	-28	
ENSMUSP00000044144	1	-7.6					1	-3.3	2	-2	1	-4.3	
ENSMUSP00000044165:reversed											1	-2.3	
ENSMUSP00000044185									2	-2.3			
ENSMUSP00000044217	1	-1.4											
ENSMUSP00000044222:reversed	1	-1.3											
ENSMUSP00000044227	2	-8.5			2	-1.7			1	-1.9			
ENSMUSP00000044234	3	-14.1	2	-8.7	2	-7.9			3	-14.1	1	-4.5	
ENSMUSP00000044234:reversed					1	-1.6							
ENSMUSP00000044288	20	-41.5	21	-78.4	22	-13.7	15	-54.5	25	-103	32	-86.4	
ENSMUSP00000044290	3	-11.8	1	-3.4	6	-21.9	3	-3.1	2	-12.5	4	-17.4	
ENSMUSP00000044292											1	-1.5	
ENSMUSP00000044293							1	-2.1					
ENSMUSP00000044326	57	-104	73	-125	86	-124	56	-93.8	94	-122	65	-95.8	
ENSMUSP00000044367	34	-121	42	-147	50	-84.7	40	-130	55	-175	39	-142	
ENSMUSP00000044370			2	-7.8			5	-29	1	-3.6	4	-24.2	
ENSMUSP00000044371			2	-9.9					4	-18.8			

ENSMUSP00000044395			1	-1.6							3	-4
ENSMUSP00000044405	1	-3.5	4	-23.7	2	-2.6	5	-16.3	2	-13.7	2	-4.5
ENSMUSP00000044417									3	-6	1	-3.4
ENSMUSP00000044420:reversed	1	-1.8							1	-2.2		
ENSMUSP00000044430:reversed									1	-1.6		
ENSMUSP00000044457	4	-29	3	-16.3	4	-18.6	5	-37.8	2	-3.9	6	-29.5
ENSMUSP00000044494					1	-1.6						
ENSMUSP00000044509							1	-1.5			1	-2.1
ENSMUSP00000044543	7	-26.2	8	-35.1	14	-47.3	3	-25	13	-48.8	7	-27.5
ENSMUSP00000044550:reversed					1	-3.5			1	-1.9		
ENSMUSP00000044554	1	-2.4	1	-2.7			3	-10.5	1	-1.4	1	-1.6
ENSMUSP00000044556	37	-130	36	-139	33	-107	37	-127	39	-119	36	-141
ENSMUSP00000044587	71	-156	90	-173	69	-149	92	-170	105	-221	144	-187
ENSMUSP00000044604					1	-1.5						
ENSMUSP00000044612:reversed					2	-7.8					1	-1.6
ENSMUSP00000044616	1	-1.5										
ENSMUSP00000044616:reversed									1	-1.5		
ENSMUSP00000044624:reversed			1	-1.7								
ENSMUSP00000044639	4	-13.2	5	-11.3	4	-24.2	4	-20.3	7	-19.3	7	-32.1
ENSMUSP00000044641:reversed			1	-1.5								
ENSMUSP00000044654	4	-27			5	-26.6						
ENSMUSP00000044722	132	-150	278	-179	177	-206	190	-150	256	-177	251	-209
ENSMUSP00000044731:reversed											1	-2.3
ENSMUSP00000044769:reversed							1	-1.5				
ENSMUSP00000044785:reversed					1	-1.9						
ENSMUSP00000044797											3	-10.1
ENSMUSP00000044827									8	-32.8	3	-13.2
ENSMUSP00000044838	18	-65.5					27	-121				
ENSMUSP00000044861			1	-1.4								
ENSMUSP00000044871	15	-89.4	15	-64.7	22	-96.7	17	-88.4	19	-107	17	-91
ENSMUSP00000044877	7	-22.9	10	-13.2	6	-26.3	9	-14.7	6	-20.2	6	-20.4
ENSMUSP00000044924	10	-48.3	11	-64.8	10	-61.2	7	-46.1	20	-93.9	11	-53.5
ENSMUSP00000044936	1	-1.7										
ENSMUSP00000044936:reversed	1	-2.3										
ENSMUSP00000044945			4	-7	4	-7.2	1	-6.1	2	-5.2	4	-18.3
ENSMUSP00000044955	18	-83.4	17	-88.7	39	-117	14	-55.6	20	-106	22	-118
ENSMUSP00000045009	1	-1.5										
ENSMUSP00000045016:reversed					1	-1.4						
ENSMUSP00000045036			5	-15.1	4	-10.2	11	-42.3	9	-25.4	5	-8.7
ENSMUSP00000045039											2	-9.1
ENSMUSP00000045048							2	-5				
ENSMUSP00000045073			2	-16.4							1	-1.9
ENSMUSP00000045073:reversed											1	-1.5
ENSMUSP00000045089			1	-1.9								
ENSMUSP00000045089:reversed	1	-1.6										
ENSMUSP00000045099											1	-1.4
ENSMUSP00000045099:reversed											1	-1.3
ENSMUSP00000045110:reversed									2	-10.2		
ENSMUSP00000045111	3	-5	6	-29.5	4	-26	4	-19.7	5	-14.1	6	-36.6
ENSMUSP00000045127	2	-5.5	10	-36.9	4	-15.1	7	-29	7	-36.1	3	-12.4
ENSMUSP00000045141			1	-1.5								
ENSMUSP00000045154	1	-2	4	-18.4	6	-14.4	2	-3.3	1	-2	3	-11.6
ENSMUSP00000045156					1	-1.6						
ENSMUSP00000045177											1	-1.9
ENSMUSP00000045196	2	-9.5										
ENSMUSP00000045207	1	-2.3										
ENSMUSP00000045214			2	-5.5	1	-2.1	1	-2	2	-4	1	-3.1
ENSMUSP00000045216	8	-41	22	-76.4	9	-40.6	10	-44.6	33	-67.9	18	-50.8

ENSMUSP00000045221:reversed			1	-1.8								
ENSMUSP00000045239	11	-70.5	29	-155	28	-174	64	-350	80	-445	69	-466
ENSMUSP00000045247											1	-1.3
ENSMUSP00000045252					1	-5.4	1	-1.9	1	-1.9		
ENSMUSP00000045252:reversed											1	-1.4
ENSMUSP00000045263							2	-1.8				
ENSMUSP00000045263:reversed			1	-1.3								
ENSMUSP00000045269					1	-1.4						
ENSMUSP00000045272			2	-6.2			4	-7.6	2	-8.2	5	-20.2
ENSMUSP00000045281:reversed					1	-1.8						
ENSMUSP00000045283							1	0				
ENSMUSP00000045284	266	-184	129	-223	172	-226	424	-203	264	-260	302	-252
ENSMUSP00000045285	7	-52.9	14	-84.7	4	-32.1	14	-43.2	16	-100	12	-71.3
ENSMUSP00000045285:reversed									1	-1.5		
ENSMUSP00000045291	3	-16.4	8	-44.3	4	-3.3	11	-58	10	-66.5	7	-41.2
ENSMUSP00000045305			1	-1.3								
ENSMUSP00000045361	8	-23.8	6	-25.9	6	-20.5	3	-9.8	8	-26.8	3	-17.5
ENSMUSP00000045362	181	-243	289	-303	184	-308	188	-207	259	-275	226	-248
ENSMUSP00000045391							1	-1.4				
ENSMUSP00000045394			6	-50.5	8	-31.7			1	-1.6	1	-1.6
ENSMUSP00000045402:reversed					4	-21.5			1	-1.5		
ENSMUSP00000045445:reversed	1	-2.9			4	-10.1			1	-3.3		
ENSMUSP00000045460	1	-1.8									2	-9.6
ENSMUSP00000045478			1	-2.2								
ENSMUSP00000045480:reversed											1	-2.2
ENSMUSP00000045490					1	-7.9	1	-3.8				
ENSMUSP00000045490:reversed											1	-2.1
ENSMUSP00000045559:reversed			1	-2.3								
ENSMUSP00000045571	2	-3.5					1	-3			1	-2.7
ENSMUSP00000045588:reversed	1	-1.6										
ENSMUSP00000045598									1	-1.3		
ENSMUSP00000045606	2	-24	4	-35	7	-35.2	3	-14.1	5	-21.9	5	-19.1
ENSMUSP00000045621	1	-3.4					2	-4.5				
ENSMUSP00000045629					1	-2.4						
ENSMUSP00000045630	6	-1.7	7	-1.7	5	-1.7	7	-1.9	9	-15.8	9	-8.2
ENSMUSP00000045654											1	-2.4
ENSMUSP00000045663									1	-1.4		
ENSMUSP00000045668:reversed									2	-8.6		
ENSMUSP00000045669	1	-2.2	2	-3.7							1	-1.4
ENSMUSP00000045693									1	-1.4		
ENSMUSP00000045721			1	-3.7					1	-6.9	1	-7.4
ENSMUSP00000045724			1	-1.3								
ENSMUSP00000045792:reversed					2	-7.8						
ENSMUSP00000045808			2	-9.5								
ENSMUSP00000045815:reversed									1	-1.8		
ENSMUSP00000045816									4	-21.5		
ENSMUSP00000045841	5	-44.1	1	-6	1	-1.9	8	-51.6	6	-37.8	3	-22.3
ENSMUSP00000045864	8	-52.8	15	-69.7	16	-86.9	14	-57.5	20	-95.3	16	-74.2
ENSMUSP00000045912	21	-75.6	21	-61.6	25	-79.8	19	-64.7	33	-95.6	25	-67
ENSMUSP00000045927	4	-17.9	13	-34.4	13	-23.9	8	-26.8	13	-32	14	-35.4
ENSMUSP00000045930			1	-1.9	1	-1.4			1	-2.2		
ENSMUSP00000045930:reversed			1	-2.1								
ENSMUSP00000045945	1	-2.6	2	-10.8								
ENSMUSP00000045955									1	-1.8		
ENSMUSP00000046016	2	-10			3	-7.5	2	-8.4			3	-10
ENSMUSP00000046045			1	-1.6			1	-1.9				
ENSMUSP00000046059									2	-10.1		
ENSMUSP00000046079	68	-261	99	-258	76	-180	100	-262	106	-299	86	-261

ENSMUSP00000046090	1	-2.1			3	-14.8						
ENSMUSP00000046101	8	-32.1	16	-75.3	13	-78.6	33	-115	30	-98.4	24	-93.3
ENSMUSP00000046114			2	-5.7							3	-8.3
ENSMUSP00000046129:reversed					1	-3.3						
ENSMUSP00000046152											1	-1.7
ENSMUSP00000046159					1	-1.3					1	-1.6
ENSMUSP00000046168	6	-36.9	7	-41.1	12	-42.2	5	-17.4	7	-41.5	7	-38.7
ENSMUSP00000046172:reversed					1	-1.4						
ENSMUSP00000046188			3	-21	4	-11.9	4	-14.1	4	-25.9	3	-10.8
ENSMUSP00000046191											1	-1.7
ENSMUSP00000046199							1	-1.8				
ENSMUSP00000046204			1	-1.3					1	-1.7		
ENSMUSP00000046204:reversed	2	-9.4			2	-7.8						
ENSMUSP00000046212	7	-38.9	10	-33.9	8	-32.6	9	-44.8	10	-50.8	11	-57.7
ENSMUSP00000046218									2	-11.3		
ENSMUSP00000046243			1	-1.4								
ENSMUSP00000046249:reversed											3	-15.5
ENSMUSP00000046251											1	-2
ENSMUSP00000046255									1	-1.7		
ENSMUSP00000046263											1	-1.4
ENSMUSP00000046263:reversed									1	-1.4		
ENSMUSP00000046302									2	-2.3		
ENSMUSP00000046324	2	-11.9	4	-16.2	6	-21.6	2	-4.7	4	-15.4	3	-12
ENSMUSP00000046356	1	-1.7							1	-1.3		
ENSMUSP00000046371									1	-2.5		
ENSMUSP00000046381:reversed	1	-1.7										
ENSMUSP00000046390:reversed	1	-1.8										
ENSMUSP00000046397			2	-8.1								
ENSMUSP00000046412:reversed					2	-3.4					2	-3
ENSMUSP00000046465:reversed											1	-2.1
ENSMUSP00000046467			2	-7.9	2	-6.9			1	-5.6	1	-2.8
ENSMUSP00000046496:reversed			1	-1.5								
ENSMUSP00000046497	1	-4.7										
ENSMUSP00000046503:reversed	2	-1.8	2	-1.5	1	-1.4			1	-1.5	2	-1.8
ENSMUSP00000046514	3	-2.2										
ENSMUSP00000046526					1	-2.3						
ENSMUSP00000046530							1	-4.8				
ENSMUSP00000046544:reversed											1	-1.8
ENSMUSP00000046557			1	-2.5								
ENSMUSP00000046585	148	-278	124	-233	175	-310	176	-261	148	-273	159	-311
ENSMUSP00000046612							2	-8.6				
ENSMUSP00000046638											1	-2.1
ENSMUSP00000046677											1	-3.2
ENSMUSP00000046677:reversed			1	-1.5								
ENSMUSP00000046718			2	-1.7								
ENSMUSP00000046719											3	-8.3
ENSMUSP00000046766							2	-2				
ENSMUSP00000046766:reversed			1	-1.7	1	-2.3						
ENSMUSP00000046772			5	-10.7	3	-16.7	2	-9.4	8	-19.4	1	-3.1
ENSMUSP00000046774:reversed					1	-3.1						
ENSMUSP00000046789:reversed					1	-2.2						
ENSMUSP00000046801			1	-1.4								
ENSMUSP00000046830:reversed					1	-1.4						
ENSMUSP00000046856	6	-20.5	6	-29	13	-46.6	17	-78.3	28	-108	19	-55.4
ENSMUSP00000046905			1	-1.3								
ENSMUSP00000046908	1	-2.7	2	-4.2	2	-3	3	-11.2	3	-10.4	2	-5
ENSMUSP00000046911					1	-1.7						
ENSMUSP00000046927:reversed	1	-1.4	1	-1.4								

ENSMUSP00000046951:reversed											2	-8.2
ENSMUSP00000046956	7	-29.1					11	-37.5	14	-52.7		
ENSMUSP00000046991					1	-2						
ENSMUSP00000047061			38	-118					50	-181	46	-141
ENSMUSP00000047077			1	-5.4								
ENSMUSP00000047105	4	-25.8	10	-60.1	4	-2.4	10	-40.9	11	-41.9	10	-45.5
ENSMUSP00000047113:reversed									1	-1.5		
ENSMUSP00000047128					1	-1.6						
ENSMUSP00000047218	9	-20.6	23	-49.9	11	-32.2	15	-50.5	19	-57.5	9	-47.5
ENSMUSP00000047231									1	-1.4		
ENSMUSP00000047231:reversed											4	-21.3
ENSMUSP00000047244:reversed			2	-8.1								
ENSMUSP00000047254	21	-67	20	-60.6	18	-59	17	-56.7	13	-72.9	23	-80.2
ENSMUSP00000047262					4	-22.2	1	-3.3				
ENSMUSP00000047267:reversed											1	-1.5
ENSMUSP00000047268	6	-55.6	12	-59.7	13	-54	10	-62.6	7	-35.1	9	-17.5
ENSMUSP00000047273			1	-1.6								
ENSMUSP00000047281			3	-8.8					2	-2.5	1	-2.3
ENSMUSP00000047283:reversed			1	-1.8								
ENSMUSP00000047308:reversed									2	-10.7		
ENSMUSP00000047318			1	-1.9	1	-2.7	1	-1.7				
ENSMUSP00000047325	2	-1.8	2	-2.9	2	-4.4	3	-15	2	-4.9	2	-3.4
ENSMUSP00000047326							1	-5.1				
ENSMUSP00000047329:reversed									2	-8.3	2	-2.6
ENSMUSP00000047343:reversed	1	-1.5	1	-1.8	1	-2.1	1	-1.7				
ENSMUSP00000047356	10	-48	19	-120	24	-90.2	32	-160	56	-214	60	-227
ENSMUSP00000047376	1	-1.5			1	-2					1	-2.1
ENSMUSP00000047384	16	-27.4	17	-44.8	15	-50.9	11	-39.9	12	-40.4	18	-48.7
ENSMUSP00000047384:reversed			1	-2.4								
ENSMUSP00000047385					1	-1.6						
ENSMUSP00000047387											1	-1.3
ENSMUSP00000047398											1	-1.5
ENSMUSP00000047398:reversed					2	-9.4						
ENSMUSP00000047536	256	-280	229	-284	224	-240	312	-254	331	-293	316	-267
ENSMUSP00000047541:reversed			1	-1.8								
ENSMUSP00000047551	118	-296	165	-367	156	-340	177	-276	185	-335	149	-304
ENSMUSP00000047554							1	-1.4				
ENSMUSP00000047556									1	-2.2		
ENSMUSP00000047562:reversed											1	-1.4
ENSMUSP00000047569									1	-1.8	1	-1.4
ENSMUSP00000047571	6	-38.8	13	-49.4	19	-56.7	16	-48.7	13	-45.7	19	-83.3
ENSMUSP00000047573:reversed							2	-1.6				
ENSMUSP00000047589:reversed									1	-1.3		
ENSMUSP00000047615:reversed									1	-2.2		
ENSMUSP00000047616:reversed	3	-2.1	3	-1.6	2	-2.3	1	-1.7	1	-3.3	1	-1.5
ENSMUSP00000047623											1	-1.4
ENSMUSP00000047639					2	-10.3						
ENSMUSP00000047640:reversed									1	-1.4		
ENSMUSP00000047641							3	-2				
ENSMUSP00000047661	13	-18.8	14	-20.1	15	-11.7	17	-19.5	24	-27.3	19	-21.8
ENSMUSP00000047665	14	-31.1	24	-47.3	15	-41	23	-53.3	35	-63.6	35	-66.9
ENSMUSP00000047667									1	-1.4		
ENSMUSP00000047678	1	-4.3							1	-4	1	-2.3
ENSMUSP00000047697					1	-1.8						
ENSMUSP00000047705:reversed			2	-9.1							1	-1.4
ENSMUSP00000047712									1	-1.3		
ENSMUSP00000047720:reversed											1	-1.4
ENSMUSP00000047761	3	-19.4			1	-1.7	2	-8.7	2	-8.7	2	-9.3

ENSMUSP00000047763:reversed	1	-1.6											
ENSMUSP00000047776			1	-4.6	6	-10.4			1	-3.6			
ENSMUSP00000047776:reversed									1	-2			
ENSMUSP00000047790	19	-68.2	26	-78.5	14	-58.3	41	-102	41	-137	48	-127	
ENSMUSP00000047872:reversed			1	-1.4									
ENSMUSP00000047881:reversed			1	-1.4									
ENSMUSP00000047898							2	-3.2					
ENSMUSP00000047898:reversed			1	-1.5									
ENSMUSP00000047923							1	-1.5					
ENSMUSP00000047931	4	-18.2	4	-12.5			15	-36.1	17	-35.4	21	-43.5	
ENSMUSP00000047960	7	-29.4			10	-45.1	27	-38.9	28	-44.5			
ENSMUSP00000047978			4	-37	6	-37	2	-22.6	7	-48.7	4	-29.3	
ENSMUSP00000048053			2	-5			4	-13.7			3	-18.8	
ENSMUSP00000048062			1	-1.6									
ENSMUSP00000048078	1	-1.8	1	-3.5	1	-3.3			2	-4.8	3	-2.3	
ENSMUSP00000048096					1	-2	3	-8.5	2	-9.9	2	-9.2	
ENSMUSP00000048111	4	-22.3	8	-32.1	9	-38	2	-17.5	10	-33.3	10	-30.9	
ENSMUSP00000048158:reversed									1	-2			
ENSMUSP00000048198			2	-9.3			1	-4.4	1	-2.1	2	-6.5	
ENSMUSP00000048222			1	-6.4					1	-4.7			
ENSMUSP00000048229			1	-4.1									
ENSMUSP00000048238											1	-2.8	
ENSMUSP00000048248:reversed											1	-2	
ENSMUSP00000048263:reversed			1	-1.6									
ENSMUSP00000048278:reversed			1	-1.3									
ENSMUSP00000048284	161	-386	210	-421	234	-378	192	-319	213	-403	157	-340	
ENSMUSP00000048309	20	-103	14	-104	23	-109	25	-149	36	-184	37	-180	
ENSMUSP00000048350			2	-12.1					2	-9.7	1	-2.5	
ENSMUSP00000048360							2	-3.3					
ENSMUSP00000048363			3	-12	4	-4.1			3	-16.5	8	-35.3	
ENSMUSP00000048373	2	-1.7											
ENSMUSP00000048377:reversed					1	-1.6							
ENSMUSP00000048388							4	-18.3	2	-9.3	4	-33.5	
ENSMUSP00000048425	4	-15.4					3	-16.7					
ENSMUSP00000048427											1	-1.3	
ENSMUSP00000048430:reversed					2	-8.4			1	-2			
ENSMUSP00000048441					2	-3.7			7	-25.2	4	-23.3	
ENSMUSP00000048459	5	-20.3	8	-15	6	-14.9	8	-25.5	1	-4.3	8	-23.3	
ENSMUSP00000048460	4	-3	4	-12.5	3	-5	3	-4.5	3	-5.1	1	-2	
ENSMUSP00000048469			6	-27.6	6	-20.7			16	-65.4	17	-54.8	
ENSMUSP00000048470									1	-2.8			
ENSMUSP00000048472	2	-6.2	1	-6.5	6	-17.6	2	-3.8			1	-3.8	
ENSMUSP00000048489			1	-2.2					1	-4.6			
ENSMUSP00000048491	10	-33.7					8	-20.8	13	-51.1			
ENSMUSP00000048519	3	-23.5	1	-5	9	-31.2	6	-38	3	-5.8	3	-18.2	
ENSMUSP00000048555:reversed	1	-1.4			1	-1.7							
ENSMUSP00000048557:reversed			1	-1.5									
ENSMUSP00000048558:reversed					1	-1.4							
ENSMUSP00000048562	1	-2.9											
ENSMUSP00000048568									1	-2.8			
ENSMUSP00000048573	2	-6.6					1	-2.3			1	-7.3	
ENSMUSP00000048643			1	-1.5									
ENSMUSP00000048650					1	-3.3	1	-9			2	-5.4	
ENSMUSP00000048667:reversed											1	-2	
ENSMUSP00000048675							6	-40.9					
ENSMUSP00000048714	2	-5.5	4	-23.9	2	-10.2	2	-12.1	2	-14.4			
ENSMUSP00000048765			1	-1.9							1	-1.7	
ENSMUSP00000048780					1	-3.7							

ENSMUSP00000048796										1	-2		
ENSMUSP00000048809										1	-3.2		
ENSMUSP00000048814			1	-1.5									
ENSMUSP00000048825					1	-1.5							
ENSMUSP00000048827:reversed	1	-1.6											
ENSMUSP00000048830										3	-12.6		
ENSMUSP00000048832	7	-35.6	31	-42.1	12	-21.9	10	-26.7	14	-43.2	56	-36.8	
ENSMUSP00000048836:reversed					1	-1.4					1	-1.5	
ENSMUSP00000048857			6	-28.9	7	-35.2				2	-17.3	3	-16.4
ENSMUSP00000048903										2	-3.6		
ENSMUSP00000048904:reversed	2	-8.8											
ENSMUSP00000048914										1	-1.9		
ENSMUSP00000048914:reversed	1	-1.5											
ENSMUSP00000048925					2	-10.9							
ENSMUSP00000048972	1	-1.6											
ENSMUSP00000048997	10	-39.8	39	-120	22	-87.9	47	-104	63	-128	46	-134	
ENSMUSP00000048997:reversed	1	-1.7											
ENSMUSP00000049000									2	-8.9			
ENSMUSP00000049022							2	-3.5					
ENSMUSP00000049025									2	-3	5	-3	
ENSMUSP00000049034	40	-172	45	-212	36	-151	30	-144	57	-236	33	-163	
ENSMUSP00000049039:reversed									2	-2.7			
ENSMUSP00000049060									2	-10			
ENSMUSP00000049070							3	-1.7					
ENSMUSP00000049070:reversed											1	-1.6	
ENSMUSP00000049128:reversed					2	-7.9	1	-1.5					
ENSMUSP00000049146									2	-3.9			
ENSMUSP00000049252									2	-8.6	1	-1.8	
ENSMUSP00000049285									2	-9.4			
ENSMUSP00000049296											2	-8.3	
ENSMUSP00000049315	1	-2.6	3	-8.6	1	-1.8	2	-9			2	-1.8	
ENSMUSP00000049327:reversed					1	-2.1							
ENSMUSP00000049331	1	-4.1					2	-3.5			1	-2.7	
ENSMUSP00000049335											1	-1.7	
ENSMUSP00000049335:reversed			1	-1.6	1	-1.4			1	-2.1			
ENSMUSP00000049338	5	-28.5	18	-42.1	5	-27.5	16	-22.8	14	-43.9	8	-36.1	
ENSMUSP00000049342	2	-9.9	3	-14.9	2	-11.3	2	-17.7	4	-31.2	3	-16.6	
ENSMUSP00000049345			1	-2.1									
ENSMUSP00000049355	15	-102	17	-61.5	13	-64.3	8	-39.9	23	-108	20	-121	
ENSMUSP00000049381	3	-14.4	2	-7.7	5	-20.9	4	-17.8			3	-11.3	
ENSMUSP00000049381:reversed					2	-8.4							
ENSMUSP00000049391	106	-271	111	-313	97	-328	173	-291	113	-352	143	-416	
ENSMUSP00000049391:reversed							1	-1.9					
ENSMUSP00000049394	5	-15.2	12	-50.5	5	-4.9	1	-4.3	1	-1.9	1	-1.7	
ENSMUSP00000049394:reversed									1	-1.9			
ENSMUSP00000049407	1	-1.4							2	-8.4	3	-12.9	
ENSMUSP00000049407:reversed	1	-1.9											
ENSMUSP00000049422					1	-1.6							
ENSMUSP00000049494											30	-77.9	
ENSMUSP00000049542			2	-8.7									
ENSMUSP00000049542:reversed					1	-1.6							
ENSMUSP00000049571:reversed									1	-1.6			
ENSMUSP00000049581									2	-5			
ENSMUSP00000049581:reversed					1	-2.6							
ENSMUSP00000049584	10	-54.1	23	-134	16	-53.5	25	-121	30	-177	25	-112	
ENSMUSP00000049584:reversed	1	-2.1											
ENSMUSP00000049605	1	-5.1	3	-5.9			3	-4.5	2	-6.4			
ENSMUSP00000049625			1	-1.7									

ENSMUSP00000049633:reversed	2	-8.5	2	-7.8									
ENSMUSP00000049659:reversed					1	-1.6							
ENSMUSP00000049668	1	-1.4											
ENSMUSP00000049674:reversed	1	-1.6											
ENSMUSP00000049686							1	-6.8				3	-5
ENSMUSP00000049694									1	-1.6			
ENSMUSP00000049707			2	-3.6					1	-4			
ENSMUSP00000049732	7	-42	15	-51.8	10	-45	28	-78.6	28	-92.2	26	-69.3	
ENSMUSP00000049739	2	-7.5	2	-3.7	4	-15.8	3	-13.1	1	-7.5	3	-5.9	
ENSMUSP00000049743	36	-76.8			47	-83.3					117	-88.6	
ENSMUSP00000049749			3	-3.9					2	-5.7	1	-2.3	
ENSMUSP00000049764					1	-1.7							
ENSMUSP00000049805											1	-1.5	
ENSMUSP00000049808	2	-12.1							1	-2			
ENSMUSP00000049845	17	-44.2					20	-42.2					
ENSMUSP00000049881					1	-1.4							
ENSMUSP00000049948	1	-1.5											
ENSMUSP00000049948:reversed					1	-2.1			1	-1.4			
ENSMUSP00000049949									1	-4.8			
ENSMUSP00000049982	1	-2											
ENSMUSP00000049985			4	-19.7	7	-24.6			3	-14.1	2	-9.5	
ENSMUSP00000050001					2	-4.3	1	-3.3	1	-4.3	1	-2.7	
ENSMUSP00000050056	6	-26.5	3	-9.5			5	-3.6	2	-3.4	5	-3.2	
ENSMUSP00000050056:reversed											1	-1.7	
ENSMUSP00000050077:reversed			1	-2									
ENSMUSP00000050087:reversed									1	-2.5			
ENSMUSP00000050096	2	-5.3	5	-21.1	6	-20.3	4	-10.5	2	-14.6	1	-9.9	
ENSMUSP00000050123											1	-2	
ENSMUSP00000050142:reversed									1	-2.1			
ENSMUSP00000050172					1	-1.4							
ENSMUSP00000050181	1	-1.3											
ENSMUSP00000050191	2	-1.7					1	-3.9	4	-12.7	3	-10.4	
ENSMUSP00000050220	20	-133					48	-255					
ENSMUSP00000050237:reversed	1	-2.4											
ENSMUSP00000050256	1	-3.1			1	-2.6							
ENSMUSP00000050258	1	-3	1	-1.8	2	-11.1	1	-2.6					
ENSMUSP00000050275	1	-1.5											
ENSMUSP00000050279											1	-3.7	
ENSMUSP00000050300							2	-1.7					
ENSMUSP00000050300:reversed			2	-8.3									
ENSMUSP00000050313											1	-1.6	
ENSMUSP00000050336	5	-24.1	6	-26.3	5	-42.1	4	-18.5	10	-71.4	8	-39.3	
ENSMUSP00000050349											2	-9	
ENSMUSP00000050386											1	-2	
ENSMUSP00000050388	2	-4.1	4	-5.7	3	-6.9			6	-7.8	2	-8.7	
ENSMUSP00000050398:reversed			1	-3.1	1	-1.9							
ENSMUSP00000050408	1	-1.4											
ENSMUSP00000050446	27	-116	23	-98.1	20	-127	50	-199	47	-167	64	-216	
ENSMUSP00000050464							7	-28.5			12	-42.6	
ENSMUSP00000050478	21	-97.9	27	-129	39	-141	36	-127	27	-148	43	-159	
ENSMUSP00000050521							1	-2.1					
ENSMUSP00000050535:reversed	1	-1.6											
ENSMUSP00000050563					2	-3.1							
ENSMUSP00000050586											1	-1.7	
ENSMUSP00000050586:reversed											1	-1.3	
ENSMUSP00000050612:reversed	1	-1.7											
ENSMUSP00000050618:reversed					1	-2.9							
ENSMUSP00000050629	1	-1.4							3	-16.1			

ENSMUSP00000050634	2	-11	4	-16.6	4	-4.6							
ENSMUSP00000050646:reversed			1	-1.7									
ENSMUSP00000050657					1	-2.3							
ENSMUSP00000050659					1	-2.1							
ENSMUSP00000050667			2	-8.4									
ENSMUSP00000050669					1	-1.5	1	-1.5			1	-2.6	
ENSMUSP00000050680:reversed	2	-8.8											
ENSMUSP00000050683					1	-1.9							
ENSMUSP00000050687:reversed			1	-2.6									
ENSMUSP00000050689			14	-50.7	23	-53.1	19	-68.7			22	-85.8	
ENSMUSP00000050729			2	-2.1									
ENSMUSP00000050771	1	-1.3											
ENSMUSP00000050788					1	-2.4							
ENSMUSP00000050792	1	-1.7											
ENSMUSP00000050795							1	-1.3					
ENSMUSP00000050818											1	-1.6	
ENSMUSP00000050820							1	-1.6					
ENSMUSP00000050823	9	-31.3	11	-24.6	6	-28.4	14	-53.1	13	-71.8	9	-44.2	
ENSMUSP00000050823:reversed					1	-1.4							
ENSMUSP00000050824					4	-14.8					1	-1.4	
ENSMUSP00000050854											1	-1.7	
ENSMUSP00000050864									3	-7.3	2	-7.9	
ENSMUSP00000050946											1	-2.1	
ENSMUSP00000050971							1	-2					
ENSMUSP00000050972					3	-8.6							
ENSMUSP00000050999					4	-22					1	-5.1	
ENSMUSP00000051093					4	-14.6	1	-6.1	6	-42.6	5	-13.4	
ENSMUSP00000051178:reversed	1	-1.5											
ENSMUSP00000051222	16	-32.2	15	-27.4	25	-28.6	33	-27.2	38	-31	28	-21	
ENSMUSP00000051223					1	-4.4					2	-9.2	
ENSMUSP00000051250									10	-15			
ENSMUSP00000051263			1	-1.7	1	-1.4							
ENSMUSP00000051268	5	-15.6	9	-35.3	10	-38.3	4	-20.3	3	-14.1	5	-36.6	
ENSMUSP00000051282:reversed											1	-1.5	
ENSMUSP00000051293	20	-92.1	20	-89	23	-98.7	16	-63.8	18	-106	27	-108	
ENSMUSP00000051366			1	-1.5									
ENSMUSP00000051432			8	-35									
ENSMUSP00000051438	2	-10.5			1	-1.9			5	-17.9			
ENSMUSP00000051441	5	-36.9	3	-33			3	-10	11	-33.7	3	-29.2	
ENSMUSP00000051479:reversed	1	-1.3											
ENSMUSP00000051512:reversed			1	-2									
ENSMUSP00000051521			4	-9.9			1	-9.2	12	-19.3	13	-20.8	
ENSMUSP00000051561	25	-106	33	-128	37	-100	25	-110	43	-146	45	-130	
ENSMUSP00000051579					2	-8.3	1	-2.4					
ENSMUSP00000051579:reversed	1	-1.7					1	-1.5					
ENSMUSP00000051593:reversed	1	-1.7											
ENSMUSP00000051621			7	-23.4	2	-5.2	3	-12.9	6	-15.6	5	-16.5	
ENSMUSP00000051622	3	-3.5	1	-4.5	2	-10.8	2	-2.9			2	-10.5	
ENSMUSP00000051643	18	-70	23	-133	44	-149	31	-136	35	-138	33	-129	
ENSMUSP00000051645	4	-11.5	2	-3.6			2	-3.8	1	-2.1	1	-1.4	
ENSMUSP00000051652			1	-3.2					2	-3.4			
ENSMUSP00000051678:reversed											1	-1.5	
ENSMUSP00000051731	29	-159	31	-107	17	-72	15	-76.7	25	-142	25	-120	
ENSMUSP00000051762											1	-1.6	
ENSMUSP00000051767	6	-20.9					14	-20.5					
ENSMUSP00000051805:reversed									1	-1.5			
ENSMUSP00000051814									23	-94.5			
ENSMUSP00000051821			1	-1.3									

ENSMUSP00000051825:reversed									1	-1.6		
ENSMUSP00000051838:reversed	1	-1.7										
ENSMUSP00000051845:reversed							1	-1.7	3	-8.8		
ENSMUSP00000051853			1	-1.6								
ENSMUSP00000051853:reversed					1	-2.2						
ENSMUSP00000051871					1	-1.5						
ENSMUSP00000051883							1	-1.8				
ENSMUSP00000051921	3	-10.6	8	-19.4	3	-13.4	1	-1.5	10	-29.2	6	-22.6
ENSMUSP00000051922:reversed							1	-1.6				
ENSMUSP00000051964					1	-1.7						
ENSMUSP00000051964:reversed	1	-1.9							3	-2.4	1	-1.4
ENSMUSP00000052020:reversed					1	-1.5			2	-8.6		
ENSMUSP00000052026					1	-1.8						
ENSMUSP00000052055			1	-1.9	1	-1.7	2	-2.2				
ENSMUSP00000052055:reversed									2	-8.4		
ENSMUSP00000052067							2	-4.8	2	-1.9		
ENSMUSP00000052086	14	-68.5	22	-72.4								
ENSMUSP00000052088:reversed					1	-3.1						
ENSMUSP00000052109:reversed					1	-2.1						
ENSMUSP00000052126:reversed			1	-1.6								
ENSMUSP00000052172											1	-2.6
ENSMUSP00000052177											2	-8.5
ENSMUSP00000052245			1	-3.6								
ENSMUSP00000052258	9	-47.9	18	-71.3	15	-61.2	23	-72.5	22	-71.4	21	-67.2
ENSMUSP00000052262	5	-27.6	5	-27.9	10	-35.6	4	-19.6	6	-17.3	6	-22.9
ENSMUSP00000052272			1	-2.2	1	-1.4						
ENSMUSP00000052276	41	-117	58	-121	57	-122	45	-93.5	56	-152	38	-95.3
ENSMUSP00000052283							13	-40				
ENSMUSP00000052287	7	-26.4	6	-40.7			6	-22.4	9	-33.4	6	-33.5
ENSMUSP00000052484:reversed					1	-1.5						
ENSMUSP00000052486					1	-2						
ENSMUSP00000052492					1	-1.8						
ENSMUSP00000052510									1	-2.2		
ENSMUSP00000052521			1	-3.6	3	-10.7						
ENSMUSP00000052544					3	-11.9			2	-6.8		
ENSMUSP00000052641									1	-1.5		
ENSMUSP00000052644									4	-15.4		
ENSMUSP00000052804			1	-1.6								
ENSMUSP00000052826									1	-2.3		
ENSMUSP00000052872	188	-576	201	-586	129	-539	226	-509	205	-642	168	-533
ENSMUSP00000052904	2	-2.3										
ENSMUSP00000052905			1	-2.2					2	-3.5		
ENSMUSP00000052908	1	-4.8	1	-5.2			1	-5.4	1	-7.7		
ENSMUSP00000052912			1	-4.3	3	-5.7	2	-4.2	7	-29.5	5	-23.7
ENSMUSP00000052945			1	-1.7								
ENSMUSP00000052946:reversed	1	-3.2										
ENSMUSP00000052989	32	-93.2	41	-132	32	-99.8	47	-103	37	-136	26	-92
ENSMUSP00000053023:reversed					1	-1.4						
ENSMUSP00000053056	2	-5.6	7	-23.5	4	-19.7			6	-17.6	7	-15.2
ENSMUSP00000053101:reversed									1	-1.8		
ENSMUSP00000053109	3	-16.3					5	-17.7	5	-22.3	3	-17.5
ENSMUSP00000053145	34	-37.7	36	-66.3	30	-40.4	39	-53.7	60	-79.6	53	-77.8
ENSMUSP00000053168					5	-19.6	1	-2.3	3	-10.4	4	-18.9
ENSMUSP00000053175									2	-3		
ENSMUSP00000053175:reversed					1	-1.6						
ENSMUSP00000053176:reversed									1	-1.4		
ENSMUSP00000053181:reversed	1	-1.4										
ENSMUSP00000053190							4	-7.8				

ENSMUSP00000053190:reversed												1	-1.4
ENSMUSP00000053206										1	-1.7		
ENSMUSP00000053235							1	-1.7		1	-1.6		
ENSMUSP00000053255			1	-1.5									
ENSMUSP00000053270	6	-29.1	7	-28.3	8	-16.2	6	-24.3	17	-19.4	9	-25.9	
ENSMUSP00000053273	4	-20.7	2	-11	1	-4.3	2	-10.5			2	-6.7	
ENSMUSP00000053276	9	-46.8			10	-65.2	5	-27.2					
ENSMUSP00000053288:reversed			1	-1.4									
ENSMUSP00000053316							1	-3.3	3	-3.2			
ENSMUSP00000053325	11	-49.4	17	-33.6			25	-51.2	11	-42.6	11	-38.3	
ENSMUSP00000053392:reversed			1	-1.5									
ENSMUSP00000053426:reversed	2	-9.1											
ENSMUSP00000053474			1	-1.6									
ENSMUSP00000053483			1	-1.5									
ENSMUSP00000053483:reversed					1	-1.4							
ENSMUSP00000053486	52	-40.4					94	-58.4					
ENSMUSP00000053540	40	-120	45	-140	50	-158	42	-131	44	-139	44	-121	
ENSMUSP00000053553:reversed					1	-2.2							
ENSMUSP00000053558	5	-23.9			6	-24.2	13	-66.3	11	-72.1	5	-32.3	
ENSMUSP00000053567:reversed	1	-1.5											
ENSMUSP00000053649	1	-1.8							1	-1.4			
ENSMUSP00000053733			3	-8	1	-4.4	2	-7.6	2	-9.1	3	-12.6	
ENSMUSP00000053795	1	-1.5											
ENSMUSP00000053795:reversed									1	-1.6			
ENSMUSP00000053834	1	-1.5											
ENSMUSP00000053862	2	-5.9			2	-4.2	1	-2.9	1	-5.3	1	-2.3	
ENSMUSP00000053869:reversed	1	-2.3											
ENSMUSP00000053871					2	-3.1	2	-10.5	1	-6.3	2	-10.2	
ENSMUSP00000053877	2	-6.9	1	-4.4	1	-2.8	4	-15.2	1	-1.9	3	-4.5	
ENSMUSP00000053900	14	-63.6	25	-63.9	22	-59.1	23	-83.5	28	-94.6	21	-80.4	
ENSMUSP00000053909:reversed	1	-1.7											
ENSMUSP00000053980:reversed			1	-1.4									
ENSMUSP00000053998									1	-1.9			
ENSMUSP00000054012	1	-1.3											
ENSMUSP00000054022											1	-1.5	
ENSMUSP00000054033					1	-1.4			1	-1.6			
ENSMUSP00000054064	8	-38	4	-23.4	2	-7.8	16	-69.4	1	-1.6	16	-90.5	
ENSMUSP00000054112:reversed							2	-1.5					
ENSMUSP00000054141											1	-5.1	
ENSMUSP00000054150									1	-2.5			
ENSMUSP00000054154:reversed					1	-1.5							
ENSMUSP00000054164	1	-1.7											
ENSMUSP00000054208:reversed					1	-1.9							
ENSMUSP00000054219					1	-2.1			2	-9.9	2	-5.9	
ENSMUSP00000054249:reversed					2	-1.5							
ENSMUSP00000054269:reversed											1	-1.5	
ENSMUSP00000054275											1	-2.7	
ENSMUSP00000054309:reversed									1	-1.6			
ENSMUSP00000054322	23	-93.7	24	-113	19	-61.6	14	-44.8	32	-109	28	-89.2	
ENSMUSP00000054338	1	-1.5											
ENSMUSP00000054343	2	-5	2	-8.8	3	-7.5			1	-7.8	2	-6.8	
ENSMUSP00000054351	1	-1.6											
ENSMUSP00000054359									1	-1.6			
ENSMUSP00000054370			2	-6.8	1	-8.2							
ENSMUSP00000054380					1	-1.4							
ENSMUSP00000054391					2	-3.7							
ENSMUSP00000054424			1	-1.6									
ENSMUSP00000054428:reversed					1	-1.9							

ENSMUSP00000054490			3	-7.3	3	-5.6			4	-7.6	4	-7.4
ENSMUSP00000054499					2	-5	5	-29.5	3	-17.3	5	-26.1
ENSMUSP00000054526									2	-10.1		
ENSMUSP00000054591:reversed			1	-1.6								
ENSMUSP00000054595	1	-1.4										
ENSMUSP00000054621:reversed					1	-1.8						
ENSMUSP00000054634	14	-53	10	-28.5	14	-38.3	19	-51.2	15	-38.4	25	-65.8
ENSMUSP00000054651:reversed			1	-2								
ENSMUSP00000054702					1	-1.4						
ENSMUSP00000054747							1	-1.9	2	-6.1		
ENSMUSP00000054763											1	-1.5
ENSMUSP00000054767:reversed	1	-2.1										
ENSMUSP00000054797:reversed											1	-1.6
ENSMUSP00000054834	5	-15.6					13	-39.8				
ENSMUSP00000054856	2	-14	1	-2.5	10	-15.9	8	-18.7	5	-18.8	14	-22.2
ENSMUSP00000054863			2	-12.6	5	-22.4	4	-32.8	7	-29.6	2	-8
ENSMUSP00000054881	9	-17.8	15	-33	12	-25.8	12	-16	10	-7.9	9	-20.4
ENSMUSP00000054960:reversed									1	-1.4		
ENSMUSP00000055037:reversed			1	-2.4			1	-1.5				
ENSMUSP00000055073	1	-1.3										
ENSMUSP00000055094:reversed					1	-1.5			1	-2.1		
ENSMUSP00000055104:reversed											1	-1.6
ENSMUSP00000055107	1	-2.1										
ENSMUSP00000055199	1	-1.8	2	-10.4	5	-34			7	-26.5		
ENSMUSP00000055199:reversed			1	-1.6								
ENSMUSP00000055208			1	-2.5			2	-5.9			1	-1.8
ENSMUSP00000055231									1	-1.5		
ENSMUSP00000055243									1	-1.9		
ENSMUSP00000055254			6	-23.2	2	-5.9					4	-5.8
ENSMUSP00000055288	1	-2										
ENSMUSP00000055295			1	-2.6								
ENSMUSP00000055313	1	-1.5	1	-1.5	1	-1.8	3	-3.6	6	-32.4	10	-41.5
ENSMUSP00000055338			1	-5.3								
ENSMUSP00000055382			2	-13.4					3	-20.6	2	-11.8
ENSMUSP00000055447			1	-1.4								
ENSMUSP00000055455	2	-11.6	2	-14.8			5	-17.7	7	-24.4	3	-19.4
ENSMUSP00000055473	175	-276	220	-295	191	-306	216	-242	161	-310	154	-281
ENSMUSP00000055482	3	-13.4	3	-20.5	4	-20.2			6	-32.4	7	-38.7
ENSMUSP00000055535					1	-2.3						
ENSMUSP00000055604:reversed			1	-2	2	-8.8						
ENSMUSP00000055608:reversed									1	-1.7		
ENSMUSP00000055619	1	-3.1			3	-5	1	-1.7	2	-7.6	1	-3.5
ENSMUSP00000055645:reversed					2	-8.4						
ENSMUSP00000055652:reversed									1	-2.1		
ENSMUSP00000055703	1	-2.5					2	-2.4				
ENSMUSP00000055721:reversed					1	-1.5						
ENSMUSP00000055725:reversed	1	-2.2										
ENSMUSP00000055743	36	-82.7	20	-71.3	29	-89.5	32	-37.4	22	-63.5	20	-61.3
ENSMUSP00000055752					1	-2.1						
ENSMUSP00000055772					1	-1.4						
ENSMUSP00000055776	75	-66.9	19	-76.7	18	-34	28	-55.3	31	-74.6	32	-71.6
ENSMUSP00000055803									1	-3.8		
ENSMUSP00000055805	36	-133					24	-110				
ENSMUSP00000055818	38	-20.1					60	-18.5				
ENSMUSP00000055825											1	-1.5
ENSMUSP00000055827	5	-15.7	1	-6.1	5	-14.9	5	-15.6	4	-11.4	5	-6.6
ENSMUSP00000055844									1	-1.3		
ENSMUSP00000055862	6	-23.7	8	-41.9	22	-47.8	4	-21.8	9	-38.4	14	-45.7

ENSMUSP00000055941					1	-3.9							
ENSMUSP00000055941:reversed					1	-1.4							
ENSMUSP00000056001					6	-28.4	12	-57.5					
ENSMUSP00000056027	18	-55.6	25	-62.7	16	-46.4	9	-39.3	15	-37.3	16	-35.8	
ENSMUSP00000056039									1	-2.4	1	-1.9	
ENSMUSP00000056057					1	-1.7							
ENSMUSP00000056082	8	-47.3	17	-47	24	-41.2	8	-26.2	21	-62.5	12	-19.1	
ENSMUSP00000056086:reversed									1	-1.8			
ENSMUSP00000056099			2	-3	5	-22	2	-11.5	1	-4			
ENSMUSP00000056121:reversed					1	-1.4							
ENSMUSP00000056145:reversed	1	-2.3	1	-1.4			1	-1.4					
ENSMUSP00000056147											1	-1.7	
ENSMUSP00000056147:reversed	37	-3.1	4	-1.8	1	-1.4	28	-2.2	12	-2.1	4	-9	
ENSMUSP00000056152	55	-152	74	-169	43	-122	72	-118	65	-140	66	-155	
ENSMUSP00000056182	1	-3	3	-10.1			2	-3.8	3	-15.6	4	-12	
ENSMUSP00000056195	2	-13	7	-16.4	3	-14.6	6	-26	5	-23.2	10	-41	
ENSMUSP00000056197:reversed	1	-1.6											
ENSMUSP00000056212:reversed	1	-1.6											
ENSMUSP00000056227:reversed							1	-1.3					
ENSMUSP00000056248									6	-37.7	11	-44.6	
ENSMUSP00000056282	2	-4	2	-4.7	2	-12.4	1	-3	4	-13.1	2	-3.9	
ENSMUSP00000056324	31	-135					49	-101					
ENSMUSP00000056353:reversed									1	-1.3			
ENSMUSP00000056358									1	-1.5			
ENSMUSP00000056377:reversed									1	-1.4			
ENSMUSP00000056433	3	-7	2	-10.1	1	-6	4	-13.4	3	-13.1	5	-5.4	
ENSMUSP00000056485	2	-6	1	-3	1	-1.8			1	-2.1	1	-1.7	
ENSMUSP00000056502					1	-3.6			1	-1.4			
ENSMUSP00000056509:reversed											1	-1.7	
ENSMUSP00000056530:reversed	1	-1.6							2	-8.7			
ENSMUSP00000056571:reversed			1	-1.7									
ENSMUSP00000056576					1	-1.5							
ENSMUSP00000056642:reversed											1	-1.7	
ENSMUSP00000056643	9	-28.2	9	-43.8	23	-47.7	10	-37.1	8	-35.2	4	-16.3	
ENSMUSP00000056643:reversed									1	-2.1			
ENSMUSP00000056644:reversed					1	-1.5							
ENSMUSP00000056646:reversed									1	-1.6			
ENSMUSP00000056669					1	-2.1							
ENSMUSP00000056682					1	-1.4							
ENSMUSP00000056693					1	-1.6							
ENSMUSP00000056739					2	-8.8							
ENSMUSP00000056766			1	-1.6									
ENSMUSP00000056787			1	-2.6	1	-2.4							
ENSMUSP00000056792			2	-3.9	2	-11.2	1	-3.4	3	-20.2	5	-26	
ENSMUSP00000056792:reversed	2	-8.6											
ENSMUSP00000056809:reversed	1	-1.6											
ENSMUSP00000056814:reversed											1	-1.9	
ENSMUSP00000056822:reversed											1	-2.1	
ENSMUSP00000056855			1	-3.3					1	-3.3			
ENSMUSP00000056958:reversed	1	-2.2											
ENSMUSP00000056967:reversed	2	-3			1	-2.2					1	-1.4	
ENSMUSP00000056972							1	-4.6					
ENSMUSP00000056972:reversed											1	-1.6	
ENSMUSP00000056977											1	-1.4	
ENSMUSP00000056990			1	-1.5									
ENSMUSP00000057005									1	-1.4			
ENSMUSP00000057062									1	-1.4	1	-7.6	
ENSMUSP00000057062:reversed											1	-1.9	

ENSMUSP00000057069	4	-34.1	15	-90.1	12	-39.9	7	-42.9	18	-84	2	-11.4
ENSMUSP00000057084:reversed					1	-1.5						
ENSMUSP00000057094:reversed											1	-1.9
ENSMUSP00000057096	1	-2.3			4	-9.3			1	-2.1		
ENSMUSP00000057131	1	-4.7	1	-3.7			2	-8.1				
ENSMUSP00000057176:reversed									1	-1.8	1	-1.8
ENSMUSP00000057197					1	-2.2			1	-1.4	1	-1.3
ENSMUSP00000057245							4	-19.2	7	-39.1	2	-9.3
ENSMUSP00000057245:reversed											1	-1.5
ENSMUSP00000057282			2	-8.3	1	-1.6	1	-1.5	3	-9		
ENSMUSP00000057291									1	-1.9		
ENSMUSP00000057293			3	-12	3	-15.5			2	-4.1	1	-2.6
ENSMUSP00000057294											1	-2.1
ENSMUSP00000057308	1	-1.9	2	-4.5			3	-11.3	3	-14.9	2	-3.3
ENSMUSP00000057354	2	-6.5	1	-2.1	2	-5.1	2	-3.7	4	-4.4	2	-10.2
ENSMUSP00000057355									1	-2.2		
ENSMUSP00000057371	2	-3.8					7	-27.9				
ENSMUSP00000057398									1	-1.5		
ENSMUSP00000057406:reversed									1	-1.5		
ENSMUSP00000057416											1	-2.1
ENSMUSP00000057462	4	-29.8	4	-17.5	4	-24.7	5	-24.1	8	-26	9	-35.5
ENSMUSP00000057482	1	-1.6										
ENSMUSP00000057494							1	-1.8				
ENSMUSP00000057498	3	-15.7			4	-26.1	5	-31	2	-8.2	3	-20
ENSMUSP00000057521	2	-6.6	1	-3.4	1	-2.8			8	-33.1	2	-10.2
ENSMUSP00000057527									1	-2.2		
ENSMUSP00000057543	18	-66.1	10	-17.9	31	-57.7	25	-72.6	19	-64.2	28	-78.9
ENSMUSP00000057595	365	-513	267	-501	266	-437	315	-494	249	-551	231	-485
ENSMUSP00000057645:reversed	1	-1.7										
ENSMUSP00000057654	6	-30.3	17	-58.2	8	-48.4	16	-61.2	13	-47.4	16	-53.2
ENSMUSP00000057664	36	-79.2	53	-128	57	-135	127	-137	62	-143	76	-167
ENSMUSP00000057669									6	-34.1		
ENSMUSP00000057680			1	-1.8								
ENSMUSP00000057714											2	-2.5
ENSMUSP00000057732	47	-142	101	-170	66	-192	43	-113	53	-167	72	-140
ENSMUSP00000057794:reversed	1	-1.4										
ENSMUSP00000057815:reversed			1	-2.2								
ENSMUSP00000057817							1	-1.5				
ENSMUSP00000057822							1	-1.7	2	-2.1		
ENSMUSP00000057828									1	-1.3		
ENSMUSP00000057871	9	-29.5	8	-25.2	13	-43.2	8	-21.8	8	-42.7	14	-50.6
ENSMUSP00000057894											1	-1.6
ENSMUSP00000057897									1	-1.6		
ENSMUSP00000057905	6	-18.6	7	-33.5	7	-16.8	17	-67.8	24	-78.7	15	-83.4
ENSMUSP00000057905:reversed									1	-2.4		
ENSMUSP00000057956			1	-2.1								
ENSMUSP00000057971					12	-19.9	7	-24			9	-26
ENSMUSP00000058007									1	-1.3		
ENSMUSP00000058025:reversed			1	-1.4								
ENSMUSP00000058028	1	-3.2	1	-5.9								
ENSMUSP00000058077							1	-5.8	1	-1.6	1	-6.4
ENSMUSP00000058169	1	-2.7										
ENSMUSP00000058182					1	-1.7						
ENSMUSP00000058221			1	-4.9							1	-1.5
ENSMUSP00000058222									1	-1.7		
ENSMUSP00000058230:reversed					1	-2.6						
ENSMUSP00000058253							1	-1.4				
ENSMUSP00000058275	2	-9.1										

ENSMUSP00000058283	1	-3.4					2	-15.7			1	-6.2
ENSMUSP00000058344									2	-6.6	1	-4.2
ENSMUSP00000058368			12	-19.8	13	-18.6			14	-26.8	5	-28.2
ENSMUSP00000058371:reversed			1	-1.3								
ENSMUSP00000058373:reversed					1	-1.5						
ENSMUSP00000058375	1	-3.6					3	-3.6				
ENSMUSP00000058386			1	-1.8								
ENSMUSP00000058412	1	-5.7	6	-16.3	7	-5.5			7	-23	5	-15.8
ENSMUSP00000058424	9	-14	9	-29.9	17	-32.3	11	-21.2	18	-24.9	16	-5.9
ENSMUSP00000058447:reversed			1	-1.6								
ENSMUSP00000058463:reversed											1	-2.1
ENSMUSP00000058466	9	-40.3	10	-29.4			11	-60.1	10	-37.7	6	-20.7
ENSMUSP00000058502							1	-1.8				
ENSMUSP00000058511:reversed											1	-1.8
ENSMUSP00000058525	2	-1.6										
ENSMUSP00000058569	8	-36.7	11	-59.6	7	-34.4	19	-57.8	22	-93.7	15	-37.3
ENSMUSP00000058580:reversed					1	-1.7						
ENSMUSP00000058599			1	-1.6								
ENSMUSP00000058630									1	-3		
ENSMUSP00000058663									1	-1.9	1	-1.7
ENSMUSP00000058663:reversed			1	-1.4							1	-1.7
ENSMUSP00000058664:reversed											1	-1.9
ENSMUSP00000058669	2	-2	9	-25.5			3	-11.1	4	-17.1	4	-22.4
ENSMUSP00000058680	2	-15.5	13	-26.4	8	-22.1	36	-24.9	14	-26.6	6	-20.5
ENSMUSP00000058683					168	-308					128	-222
ENSMUSP00000058686											1	-1.5
ENSMUSP00000058687			2	-6.6			4	-9.7	1	-1.7	1	-3.2
ENSMUSP00000058691:reversed	1	-1.4										
ENSMUSP00000058704	4	-22.4					5	-33.1				
ENSMUSP00000058783	3	-10.2	7	-15.4	10	-22.7	8	-15.6	14	-8.2	9	-7.9
ENSMUSP00000058840			2	-12.3								
ENSMUSP00000058866	2	-12.5	6	-16.4	13	-47.2						
ENSMUSP00000058882:reversed									1	-1.4		
ENSMUSP00000058901:reversed			1	-2	1	-2.1						
ENSMUSP00000058919			7	-12	2	-10.8	6	-14.1	6	-12.4	9	-11.8
ENSMUSP00000058929									1	-2.1		
ENSMUSP00000058936	8	-20.1	5	-9.5	2	-10.9	9	-30.3	3	-16.9	6	-22.1
ENSMUSP00000058941					1	-1.7						
ENSMUSP00000058958									2	-9.1		
ENSMUSP00000058966	12	-55.1	5	-16.4	11	-60	10	-52	3	-16	9	-56.4
ENSMUSP00000059000:reversed					1	-2.1						
ENSMUSP00000059038	3	-14.3	10	-35.7	8	-38.3	2	-3.8	6	-29.4	1	-5
ENSMUSP00000059044			1	-1.4								
ENSMUSP00000059091					1	-2.3	3	-17.5			1	-3.2
ENSMUSP00000059100	13	-58.6	18	-52.7	13	-47.9						
ENSMUSP00000059101											2	-8
ENSMUSP00000059101:reversed					1	-1.4						
ENSMUSP00000059102			1	-1.6								
ENSMUSP00000059105							14	-25.7				
ENSMUSP00000059106:reversed											1	-1.5
ENSMUSP00000059122	1	-3.4	2	-12.8	2	-2.8					4	-3.6
ENSMUSP00000059135					1	-1.3						
ENSMUSP00000059137	17	-53.9	14	-47.2	14	-37	15	-54.7	8	-56.8	20	-34.5
ENSMUSP00000059166:reversed			1	-2.2								
ENSMUSP00000059224					1	-6.1	4	-21.1	4	-21.2	3	-15.4
ENSMUSP00000059231:reversed									2	-10.5		
ENSMUSP00000059240:reversed	1	-1.4										
ENSMUSP00000059276											2	-8.7

ENSMUSP00000059302:reversed	1	-1.6											
ENSMUSP00000059303					1	-1.4							
ENSMUSP00000059330:reversed									1	-1.8			
ENSMUSP00000059332					2	-8.3							
ENSMUSP00000059373					1	-2.1	2	-9.9	1	-3.3	2	-3.3	
ENSMUSP00000059385											2	-8.6	
ENSMUSP00000059385:reversed									1	-1.5	1	-2.2	
ENSMUSP00000059389:reversed	1	-1.4											
ENSMUSP00000059395							5	-11					
ENSMUSP00000059419:reversed			1	-1.6							1	-1.5	
ENSMUSP00000059466			5	-2.2	2	-1.5			1	-1.4			
ENSMUSP00000059471									1	-4.2			
ENSMUSP00000059501	9	-28.3	11	-29.1	11	-49.6	24	-43.7	16	-32.4	8	-21.6	
ENSMUSP00000059505	1	-5.4			2	-3.9							
ENSMUSP00000059505:reversed											1	-1.7	
ENSMUSP00000059554					1	-1.7							
ENSMUSP00000059574	11	-29.6	26	-54.5	2	-1.9	21	-26.3	15	-46.4	14	-57.8	
ENSMUSP00000059643:reversed									1	-1.3			
ENSMUSP00000059678									2	-9.5	1	-2	
ENSMUSP00000059732			1	-1.7									
ENSMUSP00000059745									1	-2.3			
ENSMUSP00000059757:reversed											1	-2.2	
ENSMUSP00000059766			1	-2									
ENSMUSP00000059801	1	-1.8											
ENSMUSP00000059809					1	-1.5							
ENSMUSP00000059839	1	-2	2	-9.1			2	-2					
ENSMUSP00000059849					1	-2.5							
ENSMUSP00000059943	3	-11	2	-6.6	1	-5.4	4	-6.8	4	-13.8	13	-16.7	
ENSMUSP00000059947:reversed									1	-1.5	1	-1.6	
ENSMUSP00000059977	7	-24.6	1	-4.8	5	-18.2	16	-67.2	12	-48.2	18	-60.7	
ENSMUSP00000060021:reversed											1	-1.4	
ENSMUSP00000060054:reversed									2	-2.3			
ENSMUSP00000060085			1	-2.5	1	-2.3							
ENSMUSP00000060110					1	-1.5							
ENSMUSP00000060162	1	-1.5											
ENSMUSP00000060199					2	-5.9							
ENSMUSP00000060199:reversed					2	-7.7							
ENSMUSP00000060229	1	-1.4											
ENSMUSP00000060237			3	-5.2	1	-7	2	-7.4	1	-1.8	2	-3.2	
ENSMUSP00000060246	65	-215	65	-202	71	-158	64	-195	69	-179	70	-239	
ENSMUSP00000060247							2	-5.6	2	-11.2	1	-4.4	
ENSMUSP00000060305:reversed											1	-1.9	
ENSMUSP00000060307:reversed			1	-1.4									
ENSMUSP00000060344					1	-2.8							
ENSMUSP00000060454			1	-1.4									
ENSMUSP00000060457					3	-7.8							
ENSMUSP00000060462	4	-21.3	5	-24.8					6	-30	2	-10	
ENSMUSP00000060495			1	-1.7									
ENSMUSP00000060523			5	-14.8					4	-16.4			
ENSMUSP00000060524							114	-61.9					
ENSMUSP00000060538					1	-1.7							
ENSMUSP00000060584	127	-309	124	-280	135	-294	156	-329	128	-326	112	-300	
ENSMUSP00000060613	1	-2.3											
ENSMUSP00000060640	1	-1.5							1	-1.5			
ENSMUSP00000060857			3	-1.6	1	-1.4							
ENSMUSP00000060889									6	-38.7			
ENSMUSP00000060891			1	-6.6			1	-3.9	1	-2.7	2	-10.5	
ENSMUSP00000060892							2	-3.6	3	-10.7			

ENSMUSP00000060907			2	-8.8								
ENSMUSP00000060912	94	-204	122	-218	173	-204	108	-210	97	-222	92	-221
ENSMUSP00000060953:reversed									1	-1.7		
ENSMUSP00000061045	1	-3.7	1	-2.6							3	-3
ENSMUSP00000061074:reversed	1	-1.7							3	-2.3	2	-1.6
ENSMUSP00000061076:reversed			1	-3								
ENSMUSP00000061087					1	-1.6						
ENSMUSP00000061092			3	-8.9					1	-1.6		
ENSMUSP00000061094:reversed			2	-1.9								
ENSMUSP00000061126	61	-106	51	-114	26	-74.7	28	-61.4	30	-91.6	28	-85.1
ENSMUSP00000061152	30	-88.7	44	-92.8	67	-83.6	39	-56.3	34	-89.7	42	-88.6
ENSMUSP00000061221											1	-1.9
ENSMUSP00000061227	15	-109					26	-91.1				
ENSMUSP00000061244			1	-1.3								
ENSMUSP00000061264			1	-1.7	1	-2.6	2	-12.2			2	-5.3
ENSMUSP00000061273:reversed			1	-1.8								
ENSMUSP00000061282	1	-1.8										
ENSMUSP00000061312:reversed											1	-1.6
ENSMUSP00000061324									1	-1.9		
ENSMUSP00000061331											1	-2
ENSMUSP00000061470					1	-2.5	1	-7.2	3	-5.4		
ENSMUSP00000061489			1	-1.8			1	-3.3				
ENSMUSP00000061493	2	-6	3	-17.6			1	-2.7	3	-12.5	3	-15.5
ENSMUSP00000061511									1	-2		
ENSMUSP00000061519:reversed							1	-1.5				
ENSMUSP00000061523			3	-2.1			3	-2.2				
ENSMUSP00000061532:reversed	1	-1.4							3	-9.2		
ENSMUSP00000061636			1	-4					1	-2.7		
ENSMUSP00000061679:reversed			1	-1.8								
ENSMUSP00000061700:reversed			1	-3								
ENSMUSP00000061753:reversed									1	-1.4		
ENSMUSP00000061769	1	-1.5										
ENSMUSP00000061835:reversed			3	-2								
ENSMUSP00000061836	1	-1.8										
ENSMUSP00000061836:reversed											2	-8.2
ENSMUSP00000061923	1	-1.7										
ENSMUSP00000061991	1	-2.1	1	-1.4	2	-1.6			1	-2.2		
ENSMUSP00000061997			1	-5.6								
ENSMUSP00000062011									1	-1.9		
ENSMUSP00000062016	1	-1.8			5	-18.1	5	-16.8	6	-21.6	5	-29.5
ENSMUSP00000062045:reversed											2	-1.7
ENSMUSP00000062098			1	-2.8								
ENSMUSP00000062110	6	-35.6	7	-26.8	4	-15.6	4	-16.8	3	-15.3	3	-25.9
ENSMUSP00000062110:reversed											1	-2.1
ENSMUSP00000062113:reversed					1	-1.7						
ENSMUSP00000062174	1	-2									1	-1.4
ENSMUSP00000062188			11	-24.2	14	-24.4			6	-24.3		
ENSMUSP00000062188:reversed			1	-2.9								
ENSMUSP00000062205									1	-1.8		
ENSMUSP00000062209	5	-24.1					19	-47.8				
ENSMUSP00000062214	5	-25	7	-35.9	7	-35	6	-18.4	4	-18.2	2	-13.3
ENSMUSP00000062277:reversed					1	-1.3						
ENSMUSP00000062326					2	-2.6						
ENSMUSP00000062337:reversed											1	-1.3
ENSMUSP00000062341:reversed					1	-1.9						
ENSMUSP00000062345			1	-1.5								
ENSMUSP00000062349:reversed											1	-2.6
ENSMUSP00000062392:reversed	1	-1.6										

ENSMUSP00000062395										1	-1.7	1	-1.7
ENSMUSP00000062395:reversed												1	-1.4
ENSMUSP00000062429												1	-1.9
ENSMUSP00000062473			1	-2									
ENSMUSP00000062497:reversed												1	-1.4
ENSMUSP00000062556:reversed			1	-1.5									
ENSMUSP00000062584:reversed												1	-1.9
ENSMUSP00000062608			7	-10.6	4	-20.5			7	-12.1	5	-28.7	
ENSMUSP00000062610:reversed									1	-1.6			
ENSMUSP00000062622	1	-1.7											
ENSMUSP00000062642:reversed												1	-1.4
ENSMUSP00000062670	14	-31.3	24	-53.8	21	-36.4	15	-52.1	24	-80.1	30	-74.1	
ENSMUSP00000062705									1	-1.3			
ENSMUSP00000062723	6	-9.8	12	-26.7	3	-18.5	5	-4.9	10	-29.2	6	-22.6	
ENSMUSP00000062816:reversed												1	-2
ENSMUSP00000062886	1	-3.5			1	-8.4			2	-8.7	1	-2.7	
ENSMUSP00000062886:reversed					1	-1.9							
ENSMUSP00000062947:reversed					1	-1.5							
ENSMUSP00000062983	1	-9.1	4	-3.1	1	-2.6			8	-24.3			
ENSMUSP00000062987:reversed					1	-1.5							
ENSMUSP00000062996	5	-29.3	3	-18	4	-23.4	7	-48.5	6	-41.6	8	-51.4	
ENSMUSP00000063013	1	-9			1	-3.9	1	-8.1			2	-6.6	
ENSMUSP00000063050									2	-8.9			
ENSMUSP00000063054	40	-24.3	45	-26.3	17	-32.2			19	-20.2	14	-25	
ENSMUSP00000063066:reversed	1	-2										1	-2.5
ENSMUSP00000063096	7	-33.9	5	-21.3			3	-22.2	3	-18.9	6	-19.5	
ENSMUSP00000063108:reversed			1	-1.7									
ENSMUSP00000063159:reversed	1	-2.1											
ENSMUSP00000063201:reversed	1	-1.5											
ENSMUSP00000063293	2	-9.6	5	-11.2	1	-1.5	11	-26.8	9	-42.3	2	-7.9	
ENSMUSP00000063296	32	-110					33	-84.5					
ENSMUSP00000063302:reversed			1	-1.9	1	-2.2			2	-1.7			
ENSMUSP00000063325	8	-63.1	15	-86.8			11	-67.9	16	-97	12	-95.6	
ENSMUSP00000063325:reversed					1	-2							
ENSMUSP00000063352	8	-39.7	6	-29.7			3	-16.2					
ENSMUSP00000063397					1	-1.4	1	-1.6					
ENSMUSP00000063466									2	-9.4			
ENSMUSP00000063469	1	-2.2											
ENSMUSP00000063504					1	-3.2			2	-6.7			
ENSMUSP00000063512									1	-1.7			
ENSMUSP00000063538:reversed									1	-1.5			
ENSMUSP00000063548	12	-75	12	-55.7	24	-99.6	9	-35.9	11	-43	10	-50.2	
ENSMUSP00000063590:reversed									1	-2			
ENSMUSP00000063601:reversed											1	-1.8	
ENSMUSP00000063656	1	-3.4							2	-10.9	1	-1.8	
ENSMUSP00000063719:reversed									1	-1.6			
ENSMUSP00000063744									1	-2.3			
ENSMUSP00000063786					1	-3.2							
ENSMUSP00000063795:reversed									2	-9.3			
ENSMUSP00000063808:reversed			1	-1.5									
ENSMUSP00000063825	86	-289	61	-294	73	-247	43	-166	54	-218	61	-256	
ENSMUSP00000063825:reversed											1	-1.8	
ENSMUSP00000063839			1	-2.5	1	-2.1			3	-1.9			
ENSMUSP00000063894	1	-1.3											
ENSMUSP00000063904	4	-18.5	5	-30.4	3	-2.2	4	-19.6	2	-4.1	4	-19	
ENSMUSP00000063957	1	-2.1											
ENSMUSP00000063998	26	-41.1	22	-52.9			44	-44.3	26	-55.1	22	-42.3	
ENSMUSP00000063999	4	-20.7	3	-12.7	3	-9.6	1	-1.3	5	-21.5	2	-3	

ENSMUSP00000064046									1	-1.3		
ENSMUSP00000064048			3	-11.9					6	-18.7	7	-18.4
ENSMUSP00000064080			1	-2.4								
ENSMUSP00000064080:reversed											1	-1.3
ENSMUSP00000064082:reversed									4	-2.1		
ENSMUSP00000064153			3	-9.5	4	-11.2			4	-12	2	-11.4
ENSMUSP00000064163:reversed	1	-1.9										
ENSMUSP00000064204	1	-2.2	1	-6.4	2	-4.7						
ENSMUSP00000064205	1	-9.1	5	-22.6			4	-18.4	4	-16.4	3	-18.1
ENSMUSP00000064239	2	-2			1	-2.2	3	-2.9			2	-7.6
ENSMUSP00000064310	1	-10.1	6	-28.3	5	-19.8	5	-27.6	5	-32.6	4	-24
ENSMUSP00000064315:reversed					1	-2			1	-2.5		
ENSMUSP00000064330									4	-20		
ENSMUSP00000064336					2	-8.5						
ENSMUSP00000064404:reversed									1	-2	1	-1.4
ENSMUSP00000064466:reversed									1	-1.4		
ENSMUSP00000064474					1	-2.1						
ENSMUSP00000064479:reversed			1	-1.4			1	-1.3				
ENSMUSP00000064518	1	-3.7	2	-4.4	2	-10.6	2	-2.1	1	-2.5		
ENSMUSP00000064539:reversed	1	-2.1										
ENSMUSP00000064551	1	-4.9			4	-19.7	1	-3.4	2	-9.7	2	-10.3
ENSMUSP00000064557											2	-3.8
ENSMUSP00000064594	1	-2	2	-8.8								
ENSMUSP00000064615:reversed	1	-2.2										
ENSMUSP00000064655	37	-53.8	33	-59.5	34	-59.8	58	-55.8	27	-65.8	42	-67.4
ENSMUSP00000064668:reversed			1	-1.6								
ENSMUSP00000064673	15	-53.8	14	-56	20	-62.4	12	-71.5	19	-75.7	15	-56.3
ENSMUSP00000064699	12	-44.9	18	-61.9	38	-58.3	17	-48.9	19	-65.7	17	-55.8
ENSMUSP00000064714					2	-8.5	2	-4	2	-3.4	2	-3.7
ENSMUSP00000064739:reversed	1	-1.7	1	-1.4								
ENSMUSP00000064758	17	-75.1	13	-56.1	41	-135	25	-76.2	37	-125	28	-96.7
ENSMUSP00000064761			1	-1.8								
ENSMUSP00000064792	2	-11					4	-9.4	4	-10.9		
ENSMUSP00000064801	42	-125	46	-184	46	-149	112	-128	47	-178	50	-193
ENSMUSP00000064833	7	-20.6	9	-29.8			7	-14	11	-28.4	6	-22.7
ENSMUSP00000064839	1	-2.1										
ENSMUSP00000064840:reversed									1	-2.2		
ENSMUSP00000064849	1	-3.6	7	-32.8			9	-34	3	-11.4	3	-15.1
ENSMUSP00000064849:reversed					1	-1.5			1	-1.4		
ENSMUSP00000064897					1	-2.9			2	-4.3		
ENSMUSP00000064900	1	-1.9										
ENSMUSP00000064934							3	-8.8			1	-1.8
ENSMUSP00000064947							1	-1.7				
ENSMUSP00000065041									1	-2.8		
ENSMUSP00000065046							2	-2.4	3	-23.5	1	-2.9
ENSMUSP00000065081					1	-1.7			8	-31.3		
ENSMUSP00000065089	15	-89.1	13	-41.8	17	-70.9	23	-107	13	-60.2	16	-69.4
ENSMUSP00000065096									2	-12.2	2	-8.4
ENSMUSP00000065113	1	-5.5	10	-25	3	-11.2	4	-17.9	5	-12.3	5	-24.8
ENSMUSP00000065113:reversed									1	-1.7		
ENSMUSP00000065146:reversed					1	-1.3						
ENSMUSP00000065205			1	-1.4			1	-3.8				
ENSMUSP00000065213:reversed	1	-2.1			3	-8.6					2	-1.6
ENSMUSP00000065233	1	-4.2	1	-3.1			2	-2.7				
ENSMUSP00000065254	2	-1.8	2	-2.6	4	-2.4	1	-5.5	5	-11.7	3	-5.6
ENSMUSP00000065270:reversed			1	-1.5							1	-1.8
ENSMUSP00000065271	33	-62.5	59	-98.4	22	-74.9	50	-76.3	62	-84.6	40	-66.3
ENSMUSP00000065337:reversed			1	-2								

ENSMUSP00000065349					6	-22.7							
ENSMUSP00000065352	8	-23.6	10	-25.9			23	-31.1	12	-29.4	7	-24.1	
ENSMUSP00000065425	4	-18.8	6	-25.8	4	-16.3	3	-6.5	4	-18.6	2	-14.5	
ENSMUSP00000065450									4	-20.9			
ENSMUSP00000065466									1	-1.5			
ENSMUSP00000065489									1	-3			
ENSMUSP00000065493:reversed							1	-1.5					
ENSMUSP00000065542			1	-2.5					5	-18	2	-4.8	
ENSMUSP00000065568			1	-1.7									
ENSMUSP00000065569:reversed			2	-8.2					1	-2			
ENSMUSP00000065571:reversed									1	-1.4			
ENSMUSP00000065585	34	-142	40	-128	24	-101	33	-140	60	-170	48	-159	
ENSMUSP00000065643									1	-1.6			
ENSMUSP00000065695									1	-2			
ENSMUSP00000065712:reversed					1	-1.8			1	-1.5			
ENSMUSP00000065719	1	-7.7	4	-18.8			3	-8.4	3	-13.4	3	-16	
ENSMUSP00000065743	1	-3.9	8	-18.5	7	-13	2	-5.5	2	-3.8	1	-2.4	
ENSMUSP00000065754	3	-12.8	5	-11.2	2	-11.5			4	-12.4	4	-10	
ENSMUSP00000065764			4	-19.3			4	-13.6	12	-27.1	3	-17.3	
ENSMUSP00000065772:reversed					1	-1.9							
ENSMUSP00000065786:reversed					2	-7.8							
ENSMUSP00000065796	198	-262	139	-297	125	-292	244	-272	140	-250	128	-282	
ENSMUSP00000065810	3	-5.1	3	-11.1	1	-4.5	10	-11.6	5	-13.7	3	-11.7	
ENSMUSP00000065811									1	-1.4			
ENSMUSP00000065813											27	-94.1	
ENSMUSP00000065821			4	-10.3	2	-2.7	3	-6.9	3	-5.1	5	-5.9	
ENSMUSP00000065832:reversed											1	-2	
ENSMUSP00000065836					1	-1.9							
ENSMUSP00000065903	25	-58.4	40	-108	36	-55.7	21	-61.6	31	-92.6	28	-75.9	
ENSMUSP00000065935	1	-5.1	2	-11.9	2	-5.4	1	-1.7	10	-25.3	7	-22.5	
ENSMUSP00000065949											1	-1.9	
ENSMUSP00000066015											1	-3.8	
ENSMUSP00000066038			1	-2.8	2	-2			1	-1.8			
ENSMUSP00000066068			2	-2.7	1	-2.3			2	-2.7			
ENSMUSP00000066092	3	-18.6	4	-24.6	9	-51.1	3	-18.3	2	-11	8	-47.3	
ENSMUSP00000066108									3	-17.4	3	-4.6	
ENSMUSP00000066130											1	-1.5	
ENSMUSP00000066177:reversed	1	-1.8											
ENSMUSP00000066181			105	-284	63	-226	204	-261			148	-362	
ENSMUSP00000066210			1	-1.4							1	-1.6	
ENSMUSP00000066214											1	-1.7	
ENSMUSP00000066238			11	-55.7					11	-60.8	15	-53.7	
ENSMUSP00000066256							1	-1.5					
ENSMUSP00000066256:reversed											1	-1.5	
ENSMUSP00000066280:reversed					1	-1.8							
ENSMUSP00000066325			2	-4.8			4	-10	2	-3.2			
ENSMUSP00000066325:reversed	1	-1.7											
ENSMUSP00000066336:reversed									1	-1.8			
ENSMUSP00000066345:reversed			1	-1.5									
ENSMUSP00000066353							1	-10.4	2	-4	3	-11.7	
ENSMUSP00000066359					1	-1.6	1	-2.6			1	-2	
ENSMUSP00000066419							3	-20.3	11	-47.7			
ENSMUSP00000066449									1	-1.6			
ENSMUSP00000066490	1	-1.6	1	-1.6			2	-1.9					
ENSMUSP00000066493											1	-1.4	
ENSMUSP00000066538:reversed									1	-1.6			
ENSMUSP00000066634			1	-6.7	1	-1.9	3	-9	3	-13.6			
ENSMUSP00000066677							2	-1.9	3	-12.3			

ENSMUSP0000006682	8	-51	11	-33.6	9	-41.2	21	-73.1	20	-40.2	15	-33.5
ENSMUSP00000066715	23	-75.5	49	-91.6	28	-87.3	39	-71.8	27	-74.1	42	-98.4
ENSMUSP00000066779	4	-3.8	7	-12.5	5	-14.1	4	-3.3	6	-12.2	4	-3
ENSMUSP00000066783	1	-1.8							2	-9.5		
ENSMUSP00000066789					1	-1.7						
ENSMUSP00000066797:reversed									1	-1.8	1	-1.6
ENSMUSP00000066802					1	-1.4						
ENSMUSP00000066803					1	-1.4						
ENSMUSP00000066834									1	-1.5		
ENSMUSP00000066860	1	-1.6										
ENSMUSP00000066880											1	-1.8
ENSMUSP00000066886									1	-1.4		
ENSMUSP00000066891	1	-1.4	4	-19.6	1	-1.7	2	-8.2	1	-7.1	3	-20
ENSMUSP00000066897	6	-41.4	8	-39.2	13	-44.6	4	-30.9	15	-40.8	8	-24.8
ENSMUSP00000066915	3	-18.9	4	-4.7	5	-24.3	6	-19.4	4	-4.7	3	-12.5
ENSMUSP00000066948			3	-14.7								
ENSMUSP00000066948:reversed							1	-2.6				
ENSMUSP00000066958	12	-36.2	16	-60.1	3	-8	46	-65.1	36	-155	32	-95.2
ENSMUSP00000066990	2	-11	3	-11.2	1	-4.1			5	-7.2	5	-18.5
ENSMUSP00000066991:reversed											2	-9.6
ENSMUSP00000067022:reversed											1	-1.5
ENSMUSP00000067027:reversed									1	-1.4		
ENSMUSP00000067049			2	-2.4								
ENSMUSP00000067114	13	-28	18	-68.1								
ENSMUSP00000067218							2	-3.8			1	-1.7
ENSMUSP00000067241					1	-2.3						
ENSMUSP00000067241:reversed					2	-8.3						
ENSMUSP00000067384											2	-4.7
ENSMUSP00000067397	1	-4.1					2	-7.9			1	-2.5
ENSMUSP00000067421			1	-1.8								
ENSMUSP00000067477	1	-1.7										
ENSMUSP00000067521:reversed					1	-1.5						
ENSMUSP00000067540					1	-7.6						
ENSMUSP00000067550:reversed									1	-1.5		
ENSMUSP00000067564					2	-5.5	1	-4.3				
ENSMUSP00000067591:reversed			1	-1.5								
ENSMUSP00000067594											1	-1.5
ENSMUSP00000067685	8	-36.7	12	-68	8	-44.1	12	-55.7	7	-31.8	11	-66.6
ENSMUSP00000067713							1	-1.5				
ENSMUSP00000067767	166	-266	126	-245	111	-263	120	-185	81	-210	136	-203
ENSMUSP00000067786:reversed					1	-2.1						
ENSMUSP00000067845	1	-1.6										
ENSMUSP00000067884					3	-11.5					1	-4.2
ENSMUSP00000067961									9	-38.2	15	-103
ENSMUSP00000068011			1	-1.5								
ENSMUSP00000068013	118	-182	226	-243	120	-232	256	-207	214	-240	207	-237
ENSMUSP00000068056:reversed			1	-2								
ENSMUSP00000068072	2	-12.7			1	-2.4	2	-5	2	-5.3	3	-5.3
ENSMUSP00000068086			2	-15.4			2	-5.1	2	-11.3	3	-38.1
ENSMUSP00000068086:reversed			1	-2.5								
ENSMUSP00000068087	8	-50.8	5	-27.9	11	-44.8	4	-14.1	8	-20.3	4	-19.6
ENSMUSP00000068103					1	-3						
ENSMUSP00000068142			1	-1.7								
ENSMUSP00000068148									1	-1.5		
ENSMUSP00000068174					1	-3.8						
ENSMUSP00000068184									1	-1.5		
ENSMUSP00000068209	1	-1.5										
ENSMUSP00000068209:reversed	1	-1.7										

ENSMUSP00000068236:reversed			1	-1.6									
ENSMUSP00000068253									1	-1.5			
ENSMUSP00000068258							1	-3.3					
ENSMUSP00000068260									3	-22.5			
ENSMUSP00000068282	316	-450	347	-483	288	-532	367	-468	333	-535	295	-501	
ENSMUSP00000068283					1	-2							
ENSMUSP00000068292							1	-1.5					
ENSMUSP00000068318							1	-1.9	2	-9	1	-1.9	
ENSMUSP00000068321					1	-2.8			1	-3.2			
ENSMUSP00000068374:reversed	1	-1.5									1	-1.6	
ENSMUSP00000068487	1	-4.5	5	-31.8	2	-12.1	2	-9.8	8	-48.5	7	-20.1	
ENSMUSP00000068487:reversed	1	-1.9											
ENSMUSP00000068525			3	-15.2	1	-5.4							
ENSMUSP00000068532									1	-4.3			
ENSMUSP00000068567											1	-1.7	
ENSMUSP00000068567:reversed					1	-1.6							
ENSMUSP00000068568	70	-258	65	-238	85	-278	37	-188	47	-213	50	-224	
ENSMUSP00000068587:reversed			2	-8.5	2	-8.7							
ENSMUSP00000068594	1	-1.7							4	-12.4			
ENSMUSP00000068610	3	-13.5	13	-33.7			5	-31.5	4	-13.9	5	-21.1	
ENSMUSP00000068651			1	-1.5									
ENSMUSP00000068664			4	-12.4									
ENSMUSP00000068687	9	-36	3	-16.5	3	-9.5	15	-76.1	27	-142	25	-95.3	
ENSMUSP00000068690	9	-36.1	9	-34.3	5	-15.5	11	-40	12	-34.9	10	-35.7	
ENSMUSP00000068713:reversed			1	-1.4									
ENSMUSP00000068716	2	-2	4	-2.4	2	-7.8	1	-3.9	2	-8.7	5	-2.5	
ENSMUSP00000068738			2	-8.5									
ENSMUSP00000068745:reversed			1	-1.4									
ENSMUSP00000068789									2	-1.4			
ENSMUSP00000068790	4	-24.5	2	-10.5			3	-19.3	2	-13.5	10	-25.2	
ENSMUSP00000068790:reversed											1	-1.4	
ENSMUSP00000068863:reversed									1	-1.5			
ENSMUSP00000068913:reversed					1	-1.6			1	-1.9			
ENSMUSP00000068939					1	-3.2							
ENSMUSP00000068961							1	-1.8					
ENSMUSP00000068965											1	-1.9	
ENSMUSP00000068965:reversed											1	-3.3	
ENSMUSP00000068975	57	-200									68	-212	
ENSMUSP00000069004	10	-32.7	10	-19.8	10	-39.1	12	-24.6	9	-13.7	8	-34.3	
ENSMUSP00000069076:reversed	1	-1.8											
ENSMUSP00000069080	1	-1.3											
ENSMUSP00000069081	2	-2.6	2	-2.4	1	-1.7	1	-1.9					
ENSMUSP00000069112									1	-1.4			
ENSMUSP00000069167:reversed	1	-2											
ENSMUSP00000069209	42	-225	46	-169	42	-197	44	-134	40	-158	38	-160	
ENSMUSP00000069259			1	-1.6							2	-2	
ENSMUSP00000069272	1	-1.7	3	-8.9							2	-9.7	
ENSMUSP00000069275					1	-1.6					1	-1.4	
ENSMUSP00000069284	10	-57.8	6	-26.4	4	-16.9	21	-79.3	15	-89.6	13	-84.2	
ENSMUSP00000069286:reversed									1	-1.8			
ENSMUSP00000069312:reversed									1	-1.4			
ENSMUSP00000069316:reversed							2	-1.3					
ENSMUSP00000069318									1	-4.1			
ENSMUSP00000069359:reversed			2	-1.6			3	-2.1					
ENSMUSP00000069410					19	-71.8					12	-54.5	
ENSMUSP00000069416	4	-7.6	12	-26.3	3	-5.6	12	-29.7	7	-17.8	5	-4.6	
ENSMUSP00000069418	4	-15.2			11	-56.1	16	-67.1	25	-136	32	-92.6	
ENSMUSP00000069432	7	-41.2					7	-42.7					

ENSMUSP00000069452	1	-2.7	1	-2.4			4	-14.8			4	-21.5
ENSMUSP00000069457					1	-2.2	2	-3.3	7	-3.6	6	-3.1
ENSMUSP00000069460	1	-1.6										
ENSMUSP00000069478	8	-35.3	10	-34.3	10	-60.2	8	-36	8	-41.4	12	-49.3
ENSMUSP00000069495	10	-38.9	19	-55	9	-28.9	19	-37	17	-76.6	14	-28.8
ENSMUSP00000069557	3	-17.6	4	-26.3	8	-46.7	5	-41.2	10	-55.3	9	-61.5
ENSMUSP00000069557:reversed											1	-1.5
ENSMUSP00000069571:reversed									2	-1.9		
ENSMUSP00000069615:reversed					1	-1.6						
ENSMUSP00000069624:reversed	1	-1.3	4	-2	2	-2			5	-2.1	5	-1.9
ENSMUSP00000069650	1	-2.4	1	-3.1					9	-32.7		
ENSMUSP00000069674:reversed	1	-1.4										
ENSMUSP00000069688	1	-1.5										
ENSMUSP00000069749	3	-9.5	1	-1.5	3	-10.5			3	-9.9	1	-1.8
ENSMUSP00000069751:reversed	1	-1.4										
ENSMUSP00000069752	3	-20.2	2	-8.2					2	-11.8		
ENSMUSP00000069754					1	-1.4						
ENSMUSP00000069764	2	-12.9	1	-8.9	3	-14.7	4	-14.4	4	-16.2	4	-14.9
ENSMUSP00000069850			1	-1.7								
ENSMUSP00000069906									1	-1.7		
ENSMUSP00000069922:reversed			1	-1.5								
ENSMUSP00000069932	80	-169	91	-151	84	-192	93	-180	84	-174	149	-204
ENSMUSP00000069937									1	-2		
ENSMUSP00000069956			1	-1.4								
ENSMUSP00000069962	4	-28.4	2	-2.6	9	-4.9	3	-23.3	6	-32.3	2	-19.1
ENSMUSP00000069965	3	-16.9	2	-5.5	1	-3.2	4	-17.8	3	-25.5	5	-19.1
ENSMUSP00000069969									1	-2.1	1	-1.4
ENSMUSP00000070109	14	-71.7	15	-62.8	30	-62.9	16	-64.6	16	-64.6	16	-59.1
ENSMUSP00000070119					1	-1.8						
ENSMUSP00000070132			1	-1.5								
ENSMUSP00000070134	37	-12.6					24	-26.2	17	-11.1		
ENSMUSP00000070142					1	-2						
ENSMUSP00000070149	5	-32.9	15	-67.9	10	-44.3	24	-56.9	24	-70.1	19	-61.1
ENSMUSP00000070165:reversed	1	-1.5										
ENSMUSP00000070173			7	-28.5			3	-20.9	11	-49.4		
ENSMUSP00000070229									1	-2.9		
ENSMUSP00000070239:reversed	1	-1.6										
ENSMUSP00000070259:reversed									1	-1.6		
ENSMUSP00000070267	6	-36.3	6	-26.5	16	-53	14	-53.7	20	-61.6	14	-49.7
ENSMUSP00000070270					1	-1.6						
ENSMUSP00000070270:reversed	2	-10.1										
ENSMUSP00000070291					1	-1.9						
ENSMUSP00000070303	19	-90	19	-67.9	18	-60.1	17	-65.4	23	-81.4	25	-112
ENSMUSP00000070314			1	-3.8	2	-3.1			2	-4.8	4	-11.2
ENSMUSP00000070339:reversed											1	-1.7
ENSMUSP00000070345							1	-3.8				
ENSMUSP00000070382:reversed											2	-8.2
ENSMUSP00000070405	1	-4.3										
ENSMUSP00000070414	7	-38	3	-18.6	8	-25	6	-40.4	13	-41.8	5	-30.9
ENSMUSP00000070425			1	-2.9								
ENSMUSP00000070449	11	-28.8	12	-32.9	14	-30.6	17	-38.9	10	-15.9	10	-31.1
ENSMUSP00000070485					1	-2						
ENSMUSP00000070497			2	-2.6					1	-1.5		
ENSMUSP00000070504:reversed	1	-1.8										
ENSMUSP00000070548			1	-2.1								
ENSMUSP00000070561:reversed					1	-1.4						
ENSMUSP00000070564	99	-291	126	-296	141	-268	113	-244	103	-278	133	-276
ENSMUSP00000070564:reversed									2	-8.4		

ENSMUSP00000070572	31	-102			32	-132	62	-133				
ENSMUSP00000070588	6	-13	2	-11.2	13	-11	9	-18.3			6	-11.2
ENSMUSP00000070598	2	-8.5	5	-19.3	2	-8.8	5	-15.2	4	-9.2	4	-18.8
ENSMUSP00000070639									2	-2.5		
ENSMUSP00000070717			1	-1.6								
ENSMUSP00000070751	20	-15.6	18	-46.7	12	-32.6	16	-18.8	11	-22.1	16	-25.7
ENSMUSP00000070771					4	-23.4						
ENSMUSP00000070778									1	-2.2		
ENSMUSP00000070821	21	-70.6	22	-94.7	22	-80.3	32	-72.3	22	-103	19	-66.6
ENSMUSP00000070842									1	-2.9		
ENSMUSP00000070842:reversed											1	-1.7
ENSMUSP00000070847:reversed									1	-1.3		
ENSMUSP00000070915									1	-1.4		
ENSMUSP00000070927:reversed	1	-2.7										
ENSMUSP00000070944:reversed					1	-1.5						
ENSMUSP00000070975			3	-9	1	-2			6	-39.6	4	-15.6
ENSMUSP00000070975:reversed	7	-37.7	5	-29	11	-64.5					2	-8.9
ENSMUSP00000070982	1	-2					2	-6.4	1	-2.8	4	-16.6
ENSMUSP00000070983									1	-1.9	1	-1.7
ENSMUSP00000070993	3	-6.1	5	-19.6	3	-13.4	3	-6.4			8	-26.1
ENSMUSP00000071011:reversed											1	-1.7
ENSMUSP00000071048	2	-4.1	1	-4.7							1	-5.4
ENSMUSP00000071050	5	-18.9	6	-25.9	7	-31.3	4	-15.7	9	-34	7	-22.6
ENSMUSP00000071064	53	-130									107	-155
ENSMUSP00000071100					1	-1.7						
ENSMUSP00000071121					20	-30.6						
ENSMUSP00000071125							3	-2.3	1	-1.4		
ENSMUSP00000071125:reversed									1	-2.1		
ENSMUSP00000071134			34	-109	23	-73.9			41	-98.8		
ENSMUSP00000071135	63	-205	53	-125	58	-162	58	-147	63	-141	55	-186
ENSMUSP00000071152					1	-2.3					1	-1.6
ENSMUSP00000071160:reversed			1	-1.6								
ENSMUSP00000071163			1	-1.5								
ENSMUSP00000071175:reversed											1	-1.5
ENSMUSP00000071200:reversed			1	-1.6								
ENSMUSP00000071202:reversed			1	-1.5								
ENSMUSP00000071214									2	-3.6	1	-2.3
ENSMUSP00000071231	27	-138	25	-127	51	-190	32	-158	28	-149	19	-103
ENSMUSP00000071237											1	-1.8
ENSMUSP00000071246:reversed			1	-1.8								
ENSMUSP00000071265	1	-1.6										
ENSMUSP00000071289:reversed	1	-1.7										
ENSMUSP00000071292	7	-41.8	6	-20.8	10	-55.7	4	-27.2	10	-38.8	8	-30.3
ENSMUSP00000071351	1	-5.9	2	-2.7	1	-1.8						
ENSMUSP00000071370	1	-1.8										
ENSMUSP00000071377			2	-8	1	-1.7	1	-1.5			1	-1.6
ENSMUSP00000071399	1	-6.3	4	-21.7	3	-12.9	11	-65.5	3	-18.8	10	-30.6
ENSMUSP00000071402									22	-33.2	15	-29.7
ENSMUSP00000071439:reversed			1	-1.4								
ENSMUSP00000071449			10	-32.9	5	-22.1			8	-35.1	8	-31.7
ENSMUSP00000071454	13	-29.6	26	-58.2	11	-54.6	21	-35.9	35	-53.7	33	-57.3
ENSMUSP00000071464:reversed	1	-2.1	1	-2.1								
ENSMUSP00000071470	1	-6.6	6	-20.1	2	-22.3	3	-12.8	4	-9	8	-17.6
ENSMUSP00000071474									1	-1.6		
ENSMUSP00000071486			72	-185					65	-158	56	-215
ENSMUSP00000071501					2	-6.3						
ENSMUSP00000071519:reversed					1	-1.5						
ENSMUSP00000071569					2	-7.8						

ENSMUSP00000071569:reversed					1	-1.5							
ENSMUSP00000071573			109	-171			43	-124	48	-149	66	-142	
ENSMUSP00000071589	1	-4.5	2	-10.8	1	-1.6	1	-1.4	3	-9.8	1	-4.1	
ENSMUSP00000071613									1	-1.6			
ENSMUSP00000071616	29	-72.1	47	-115	99	-148	60	-91.9	40	-115	41	-89.9	
ENSMUSP00000071623:reversed											1	-2.1	
ENSMUSP00000071624	20	-52.7	27	-102	15	-68.1	18	-79.6	20	-81.2	14	-53.9	
ENSMUSP00000071627									1	-1.5			
ENSMUSP00000071636	5	-29.8	7	-36.9	4	-20.7	6	-28.8	7	-39.7	8	-37.6	
ENSMUSP00000071658	10	-37.9					42	-49.2					
ENSMUSP00000071686	8	-29.2					6	-17.3					
ENSMUSP00000071719							2	-2.9	2	-10.2			
ENSMUSP00000071726			1	-7	1	-3.6			3	-10.1			
ENSMUSP00000071729									1	-1.5			
ENSMUSP00000071763	30	-23.1	19	-34.2			38	-22.1	56	-39.5	14	-39.4	
ENSMUSP00000071770							2	-6.2			2	-6.4	
ENSMUSP00000071789	5	-23.6					5	-26.5					
ENSMUSP00000071815			1	-2									
ENSMUSP00000071843									8	-25.3	12	-28.3	
ENSMUSP00000071855			1	-1.8									
ENSMUSP00000071869											1	-1.4	
ENSMUSP00000071889											154	-348	
ENSMUSP00000071896:reversed			1	-1.4									
ENSMUSP00000071899	1	-1.7											
ENSMUSP00000071904			4	-8.7	1	-1.5							
ENSMUSP00000071966	2	-15.7			1	-1.6	3	-7.7	5	-26	3	-10.7	
ENSMUSP00000071994											1	-1.4	
ENSMUSP00000072008:reversed									1	-1.6			
ENSMUSP00000072019:reversed					1	-1.7							
ENSMUSP00000072020					1	-1.5							
ENSMUSP00000072026									5	-16.6			
ENSMUSP00000072029			7	-34.5									
ENSMUSP00000072074	4	-8.8	8	-23.5	3	-14	4	-9.4	7	-36.7	2	-19.7	
ENSMUSP00000072084			2	-2.2	6	-28.9			6	-24.3	5	-22.4	
ENSMUSP00000072092	6	-35.3	13	-32.6	4	-10.7	10	-25	10	-60.6	9	-43.4	
ENSMUSP00000072144											1	-3.1	
ENSMUSP00000072154			4	-10.2			1	-4.9	4	-12.1	4	-22.3	
ENSMUSP00000072175	2	-19.2	3	-13.9			7	-20.2	4	-17.4	2	-5.8	
ENSMUSP00000072199			1	-1.8							2	-9.4	
ENSMUSP00000072236	93	-213	137	-236	104	-184	103	-198	103	-202	106	-177	
ENSMUSP00000072256	3	-11.4					2	-2.7					
ENSMUSP00000072259	11	-78.4	24	-125	16	-80.5	18	-91.6	26	-190			
ENSMUSP00000072264	75	-180	92	-231	98	-180			56	-152	40	-133	
ENSMUSP00000072274									2	-5.6			
ENSMUSP00000072275							1	-1.6					
ENSMUSP00000072320			47	-47	19	-40.2			29	-32.6	71	-64.3	
ENSMUSP00000072336:reversed											1	-1.4	
ENSMUSP00000072344			2	-17.2									
ENSMUSP00000072345							9	-21.2			18	-35.5	
ENSMUSP00000072382	1	-3.2	9	-27.6	1	-2.1	4	-16.1	12	-18.9	9	-18.6	
ENSMUSP00000072387			2	-2.8			1	-2.2			2	-3.5	
ENSMUSP00000072388	1	-2											
ENSMUSP00000072388:reversed			1	-1.8							2	-8.2	
ENSMUSP00000072394									1	-1.7			
ENSMUSP00000072401									2	-7.1	3	-11.8	
ENSMUSP00000072406											1	-1.4	
ENSMUSP00000072431	1	-1.6											
ENSMUSP00000072431:reversed					1	-1.8							

ENSMUSP00000072456	31	-75.6	50	-98.4	31	-69.6	39	-87.8	39	-82.8	44	-68.4
ENSMUSP00000072466			14	-56.7								
ENSMUSP00000072483	6	-31.2	7	-31.2	6	-36.9	3	-15.2	5	-31.3	4	-20.6
ENSMUSP00000072496											1	-2.1
ENSMUSP00000072500			111	-282	150	-362						
ENSMUSP00000072506					2	-4.9						
ENSMUSP00000072510									1	-1.9		
ENSMUSP00000072527:reversed			1	-1.4								
ENSMUSP00000072555	326	-612	434	-585	427	-735	423	-551	376	-615	427	-684
ENSMUSP00000072558					4	-23.1						
ENSMUSP00000072590:reversed									1	-1.7		
ENSMUSP00000072598			230	-307			247	-284			196	-307
ENSMUSP00000072615					1	-1.9						
ENSMUSP00000072616			1	-1.7	1	-1.7						
ENSMUSP00000072710:reversed			1	-1.7								
ENSMUSP00000072717					13	-81.6						
ENSMUSP00000072732			1	-4.1			2	-8.2	1	-1.7	1	-5.9
ENSMUSP00000072748					1	-7.3			4	-25.8		
ENSMUSP00000072764	9	-33.3	13	-46.5	8	-38.3	18	-30.6	21	-42.7	18	-49.3
ENSMUSP00000072781:reversed											1	-1.4
ENSMUSP00000072784											1	-1.6
ENSMUSP00000072803	242	-234	273	-346	239	-409	255	-256	205	-317	179	-272
ENSMUSP00000072826	6	-21.8	10	-44.5	14	-51	10	-33	19	-83.4	16	-70.1
ENSMUSP00000072829			1	-1.5							1	-1.8
ENSMUSP00000072835:reversed	1	-2.2	1	-1.7	2	-1.7						
ENSMUSP00000072836:reversed									1	-2.2		
ENSMUSP00000072840:reversed									1	-2.6		
ENSMUSP00000072848:reversed					1	-1.5						
ENSMUSP00000072853			1	-3.3	1	-2.2			1	-3.7		
ENSMUSP00000072858					4	-21.7			6	-21.2		
ENSMUSP00000072859					2	-8.9						
ENSMUSP00000072868			1	-1.6					2	-10.3		
ENSMUSP00000072875:reversed											1	-1.7
ENSMUSP00000072897					2	-2.6						
ENSMUSP00000072899:reversed					1	-1.5						
ENSMUSP00000072929							2	-5.9				
ENSMUSP00000072932	45	-180					54	-193			48	-231
ENSMUSP00000072937:reversed							1	-1.5				
ENSMUSP00000072942	3	-19.6			5	-26.5	4	-26.2			16	-24.2
ENSMUSP00000072969											1	-1.5
ENSMUSP00000073008	16	-52.8	26	-50.9	13	-41.4	17	-46.4	15	-42.8	21	-58.9
ENSMUSP00000073018			1	-2.9								
ENSMUSP00000073041					1	-1.5						
ENSMUSP00000073061	236	-131	142	-138	89	-168	246	-148	147	-113	99	-175
ENSMUSP00000073084			10	-22.1					10	-31.5	10	-25.3
ENSMUSP00000073094:reversed					1	-2.3						
ENSMUSP00000073134									1	-3.3	1	-2.4
ENSMUSP00000073136	8	-38.3	19	-70.6	19	-65.2	41	-69.1	16	-59	21	-59.5
ENSMUSP00000073175			23	-38.3					34	-43.7		
ENSMUSP00000073177	1	-2.8					2	-3				
ENSMUSP00000073179	9	-21.1					10	-12.3				
ENSMUSP00000073213	4	-19.9	4	-18.2	2	-12.1	9	-34.4	1	-5.7	2	-7.8
ENSMUSP00000073220			1	-1.6								
ENSMUSP00000073220:reversed			1	-1.5								
ENSMUSP00000073221:reversed											1	-1.3
ENSMUSP00000073228									1	-1.5		
ENSMUSP00000073261	23	-55.1	36	-106	31	-79.7	26	-72.6	35	-172	42	-125
ENSMUSP00000073289	8	-36.1					9	-56				

ENSMUSP00000073322	69	-177	125	-194	71	-196	65	-190	60	-181	93	-192
ENSMUSP00000073444	245	-300	305	-402	243	-465	270	-337	204	-375	186	-351
ENSMUSP00000073459	8	-30.8	17	-80.7	19	-43.5	9	-33.2	8	-47.9	2	-10.1
ENSMUSP00000073462			1	-1.5								
ENSMUSP00000073472							2	-1.5	3	-13.1	4	-13.9
ENSMUSP00000073482			2	-10.7								
ENSMUSP00000073541	6	-31	6	-22.7	12	-34.7	6	-35.7	5	-23.7	2	-8
ENSMUSP00000073579:reversed			1	-2.3								
ENSMUSP00000073601	4	-3.5	6	-3.2	4	-3.6	4	-3.1	5	-3.4	5	-3.5
ENSMUSP00000073606			8	-27.3	7	-20.4			6	-30.4	6	-43.3
ENSMUSP00000073616					2	-8.7						
ENSMUSP00000073616:reversed											1	-1.7
ENSMUSP00000073617:reversed			1	-1.6								
ENSMUSP00000073686			1	-1.6								
ENSMUSP00000073687:reversed											1	-1.5
ENSMUSP00000073695	10	-61.3					26	-68.7				
ENSMUSP00000073734			1	-1.4								
ENSMUSP00000073756			1	-1.8								
ENSMUSP00000073783	1	-2.1										
ENSMUSP00000073826	1	-2.1					2	-3.5			1	-1.4
ENSMUSP00000073829									1	-1.4	1	-1.4
ENSMUSP00000073832			4	-9.8					3	-9.4		
ENSMUSP00000073864	6	-29.1					11	-26.7				
ENSMUSP00000073867					1	-1.4						
ENSMUSP00000073873			1	-1.8					2	-2.5		
ENSMUSP00000073880	10	-61.3	16	-66.2	7	-33.3	13	-36.8	11	-61.1	6	-28.9
ENSMUSP00000073939	30	-40.3	13	-25.6	24	-20.1	13	-31	13	-14.6	23	-10
ENSMUSP00000073967:reversed									1	-1.7		
ENSMUSP00000073970:reversed					1	-1.4						
ENSMUSP00000073983			1	-1.4								
ENSMUSP00000073991					1	-1.4						
ENSMUSP00000073998					9	-29.3						
ENSMUSP00000074004	15	-57.5	30	-95.2	19	-83.9	20	-64	42	-115	28	-87.4
ENSMUSP00000074009:reversed									1	-2.3		
ENSMUSP00000074025									1	-1.8		
ENSMUSP00000074025:reversed			1	-1.8					1	-1.6		
ENSMUSP00000074029:reversed					1	-1.4						
ENSMUSP00000074047									2	-9.1		
ENSMUSP00000074095											1	-1.4
ENSMUSP00000074112	15	-41	32	-65.8	18	-63.4	29	-47	23	-34.1	21	-57.7
ENSMUSP00000074142							14	-33.3				
ENSMUSP00000074216									1	-1.4		
ENSMUSP00000074252			1	-1.4					1	-1.7		
ENSMUSP00000074267:reversed									1	-2.5		
ENSMUSP00000074346	10	-27.2	30	-31.3	14	-35.8	35	-34.7	42	-36.2	45	-52.7
ENSMUSP00000074346:reversed	1	-1.6							1	-2		
ENSMUSP00000074347									1	-1.6		
ENSMUSP00000074352											5	-19.6
ENSMUSP00000074360					1	-1.5						
ENSMUSP00000074380											27	-48
ENSMUSP00000074381							1	-1.6				
ENSMUSP00000074387	8	-28.5	26	-54.1	21	-93	20	-75.4	8	-53.5	12	-51.1
ENSMUSP00000074397									1	-1.5		
ENSMUSP00000074436	1	-1.3					4	-1.7	1	-6.3	1	-1.5
ENSMUSP00000074442:reversed											1	-1.7
ENSMUSP00000074448	8	-38	9	-27.6	12	-19.1			9	-28.6	8	-22
ENSMUSP00000074448:reversed	1	-1.8							1	-1.8		
ENSMUSP00000074481					1	-4.4			1	-6.3		

ENSMUSP00000074481:reversed	1	-3.6	1	-2.1			1	-1.7				
ENSMUSP00000074499			1	-1.9								
ENSMUSP00000074511					2	-8.8						
ENSMUSP00000074511:reversed					1	-1.6						
ENSMUSP00000074560	22	-29.4										
ENSMUSP00000074563:reversed			2	-9.1							1	-1.5
ENSMUSP00000074586	4	-20.7					6	-15.3				
ENSMUSP00000074600	1	-7.6	2	-11.3	3	-16.1	10	-22.7	7	-34.4	7	-18.1
ENSMUSP00000074658					15	-66.1						
ENSMUSP00000074670							1	-1.8			1	-1.7
ENSMUSP00000074707:reversed									1	-1.4		
ENSMUSP00000074729											1	-1.5
ENSMUSP00000074733	10	-29	11	-67.7	18	-26.6	2	-12.4	11	-38.7	7	-38.7
ENSMUSP00000074783	4	-3.8	1	-2.1			3	-3.5				
ENSMUSP00000074788:reversed					2	-8.3			2	-8.6		
ENSMUSP00000074792:reversed			1	-1.8								
ENSMUSP00000074864			1	-1.4								
ENSMUSP00000074878:reversed									1	-1.8		
ENSMUSP00000074886	3	-21.5					19	-72				
ENSMUSP00000074895									1	-1.3		
ENSMUSP00000074898	4	-22.9	8	-28.2	8	-18.2	3	-15.5	5	-24.6	2	-6.4
ENSMUSP00000074914:reversed			1	-1.8								
ENSMUSP00000074935	72	-59.4	15	-44.1	16	-30.1	21	-47.3	17	-34.4	23	-71.8
ENSMUSP00000074990	503	-500	450	-541	443	-664	514	-511	430	-689	410	-624
ENSMUSP00000075011	19	-110	18	-79.4	22	-87.9	19	-100	25	-130	25	-140
ENSMUSP00000075021					1	-1.3						
ENSMUSP00000075032			1	-2.6								
ENSMUSP00000075067					1	-2.7						
ENSMUSP00000075089			2	-8.4			8	-26.8	6	-20	2	-11.6
ENSMUSP00000075113	1	-3.3			2	-5.4	3	-9.3	2	-2.4	1	-4.5
ENSMUSP00000075150	2	-3.1	2	-6.2			2	-4.6	6	-14.4	5	-5.8
ENSMUSP00000075174											1	-1.8
ENSMUSP00000075174:reversed			1	-2.1					1	-1.4		
ENSMUSP00000075190	74	-81.9	158	-110	53	-114	119	-82.5	132	-178	116	-89.9
ENSMUSP00000075198	2	-13.7	4	-19.3	6	-19.9	1	-1.5			2	-3.7
ENSMUSP00000075234			142	-223	106	-216	131	-215	150	-224	169	-234
ENSMUSP00000075255	180	-235	255	-292	208	-337	207	-226	240	-315	216	-288
ENSMUSP00000075321	2	-12.2			6	-26.8	7	-29.2	5	-25.6	4	-29.6
ENSMUSP00000075326			1	-1.4								
ENSMUSP00000075345	89	-88.9	59	-87.2	75	-80.5	180	-98.1	156	-110	133	-87.3
ENSMUSP00000075351	4	-4.5	1	-2.3	3	-4.8	5	-5.2	2	-3.7	3	-5.8
ENSMUSP00000075363					1	-1.5						
ENSMUSP00000075376:reversed	1	-1.7										
ENSMUSP00000075377:reversed					1	-1.7						
ENSMUSP00000075420	1	-1.4										
ENSMUSP00000075423:reversed					1	-1.8						
ENSMUSP00000075443											1	-4.4
ENSMUSP00000075513	28	-126	24	-65.9	25	-86.7	13	-80.7	18	-84.4	19	-104
ENSMUSP00000075513:reversed	1	-1.7										
ENSMUSP00000075579	1	-1.5										
ENSMUSP00000075579:reversed									1	-2.5		
ENSMUSP00000075587							1	-1.6				
ENSMUSP00000075624	1	-1.5										
ENSMUSP00000075643			4	-20.1	4	-4.3			6	-32.3		
ENSMUSP00000075658									1	-1.5		
ENSMUSP00000075683					2	-4.1						
ENSMUSP00000075692	1	-4.2			1	-8.3					2	-11.2
ENSMUSP00000075701	14	-25.6	2	-9.3	8	-26.7	10	-41.2	12	-45.6	10	-37

ENSMUSP00000075710					3	-17.4							
ENSMUSP00000075722	10	-22.7											
ENSMUSP00000075762	1	-3.5	1	-2.8									
ENSMUSP00000075770	4	-11.3	4	-22.8	2	-3.1	1	-5.3				1	-2.5
ENSMUSP00000075773									1	-6.3		7	-35.7
ENSMUSP00000075779	14	-47	17	-76.3	5	-25.4	15	-51.6	18	-59.8		15	-58.6
ENSMUSP00000075788	1	-5.9			2	-6.5							
ENSMUSP00000075807:reversed	1	-1.5											
ENSMUSP00000075825					3	-12.6	3	-21.4	1	-1.9		5	-12.1
ENSMUSP00000075907	2	-9.8	3	-18.8	3	-22.4	7	-28.8	9	-33.7			
ENSMUSP00000075912					1	-5.2	3	-13.2	2	-7		1	-3.7
ENSMUSP00000075916									1	-2			
ENSMUSP00000075924:reversed			1	-3.1									
ENSMUSP00000075946	20	-97.8	28	-83.4	21	-54.6	23	-81.8	29	-89.1		21	-54.3
ENSMUSP00000075953	1	-1.5	2	-1.6					1	-1.5			
ENSMUSP00000075987	252	-153	249	-197	182	-233	297	-184	182	-206		214	-195
ENSMUSP00000075990			14	-27.4	2	-6.1	3	-6.1	10	-8.9		6	-7.3
ENSMUSP00000076024					1	-1.5							
ENSMUSP00000076053			2	-8									
ENSMUSP00000076085:reversed									1	-1.8			
ENSMUSP00000076088	1	-1.6			1	-1.4			1	-1.6			
ENSMUSP00000076090							4	-12.5	2	-5.5		1	-1.5
ENSMUSP00000076093			1	-1.3	1	-1.6							
ENSMUSP00000076157							1	-1.3					
ENSMUSP00000076187	1	-1.4											
ENSMUSP00000076193	2	-2.6	7	-28.4	4	-22.5							
ENSMUSP00000076193:reversed	2	-9.2											
ENSMUSP00000076227	1	-3.2					4	-4.7	2	-14.7		3	-11.9
ENSMUSP00000076235	1	-3.2	4	-21.7	1	-1.9	3	-12.1	6	-17.3		5	-3.7
ENSMUSP00000076259									3	-14.5		1	-3
ENSMUSP00000076267									1	-1.4			
ENSMUSP00000076399:reversed	1	-1.4											
ENSMUSP00000076406									29	-81.2			
ENSMUSP00000076418			3	-14.5									
ENSMUSP00000076424									1	-1.5			
ENSMUSP00000076424:reversed					1	-4							
ENSMUSP00000076433	2	-2.6											
ENSMUSP00000076472	4	-19.5	11	-55.8	1	-5.5	13	-49.6	14	-47.8		9	-51.4
ENSMUSP00000076503												2	-9.1
ENSMUSP00000076514									1	-3			
ENSMUSP00000076521					1	-1.9	3	-26.9	3	-12.5		2	-11.1
ENSMUSP00000076533							1	-2.5	2	-3.6			
ENSMUSP00000076538	38	-15.8					41	-11.1				15	-25
ENSMUSP00000076564							1	-2.2					
ENSMUSP00000076575			2	-6.8									
ENSMUSP00000076652:reversed	1	-1.8											
ENSMUSP00000076673									1	-4.4			
ENSMUSP00000076686			1	-2.5									
ENSMUSP00000076688:reversed									1	-1.4			
ENSMUSP00000076693:reversed												1	-1.7
ENSMUSP00000076704												5	-17.9
ENSMUSP00000076708	1	-1.8											
ENSMUSP00000076735	64	-170	113	-191	57	-180	58	-180	54	-177		94	-186
ENSMUSP00000076777	39	-152	52	-156	67	-156	40	-136	47	-151		34	-148
ENSMUSP00000076801			2	-8.7			1	-5.2				2	-5
ENSMUSP00000076837			2	-3.2			1	-1.6	1	-1.9		2	-2
ENSMUSP00000076871:reversed	1	-1.6											
ENSMUSP00000076875	1	-1.8			4	-6.4	2	-10.5	1	-4		3	-12.7

ENSMUSP00000076909					2	-10.6	42	-34.4			20	-19.8
ENSMUSP00000076922	4	-24.5	7	-40.6	3	-25.3	4	-26.4	6	-25.5	8	-38.7
ENSMUSP00000076933	1	-3.8	2	-6.2					2	-5.7		
ENSMUSP00000076939			4	-10.2	2	-5.2	4	-16	2	-1.8		
ENSMUSP00000076941:reversed					1	-1.9						
ENSMUSP00000076944							1	-1.9				
ENSMUSP00000076949:reversed											2	-1.5
ENSMUSP00000076989									5	-19.7		
ENSMUSP00000076993					1	-1.5						
ENSMUSP00000077021					36	-40	7	-45.2				
ENSMUSP00000077036					3	-4.5			3	-21.1	2	-6
ENSMUSP00000077040	2	-9.6	2	-10.9					5	-18		
ENSMUSP00000077040:reversed									1	-1.7		
ENSMUSP00000077043:reversed									1	-2.4		
ENSMUSP00000077073			1	-1.6								
ENSMUSP00000077085					1	-1.8						
ENSMUSP00000077089:reversed					2	-2.7					2	-2
ENSMUSP00000077099					1	-2						
ENSMUSP00000077102					1	-1.9	1	-6				
ENSMUSP00000077118	10	-42	20	-47.7	10	-44.7	18	-50	12	-45.2	18	-66.2
ENSMUSP00000077119:reversed	1	-1.4										
ENSMUSP00000077127					3	-13.6	2	-10.9	5	-18.6	4	-15.8
ENSMUSP00000077132	11	-48.4	21	-64	4	-29.1	1	-2.2	9	-40.9	11	-58.4
ENSMUSP00000077148											3	-16
ENSMUSP00000077166:reversed							1	-1.7				
ENSMUSP00000077181	12	-42.2	12	-48.2	7	-41.3	13	-59.1	13	-56	11	-57.8
ENSMUSP00000077205:reversed									1	-2.5		
ENSMUSP00000077208									1	-1.5		
ENSMUSP00000077208:reversed	3	-3.8	3	-2.6	4	-3.4			1	-2.4	1	-3.1
ENSMUSP00000077226											1	-1.6
ENSMUSP00000077226:reversed	1	-2.6										
ENSMUSP00000077273	15	-66.8	21	-87.5	12	-71.6	28	-108	21	-98.3	10	-39.8
ENSMUSP00000077273:reversed					1	-1.9			1	-1.4		
ENSMUSP00000077289:reversed	1	-1.5										
ENSMUSP00000077335					13	-63.7	29	-33.8	44	-75.1	43	-56
ENSMUSP00000077341:reversed			1	-1.5								
ENSMUSP00000077342:reversed							1	-1.4				
ENSMUSP00000077350:reversed					1	-1.6						
ENSMUSP00000077373			7	-9.7			13	-23.6			6	-10.8
ENSMUSP00000077378:reversed			1	-1.4								
ENSMUSP00000077391			3	-9.4								
ENSMUSP00000077423									1	-1.7		
ENSMUSP00000077437	4	-8.8	2	-8.4	1	-1.5	4	-12.2	5	-23.4	5	-14.3
ENSMUSP00000077439	11	-50.8	13	-48.1	6	-38.4	5	-26.7	12	-57.2	5	-26.2
ENSMUSP00000077446	5	-4.1	2	-8			3	-2.8	1	-3.1		
ENSMUSP00000077482	1	-1.6							1	-1.5		
ENSMUSP00000077491					1	-5.8					1	-2.9
ENSMUSP00000077509							2	-11.8	1	-1.9		
ENSMUSP00000077521	344	-260	220	-261			286	-227				
ENSMUSP00000077546									2	-2.9	1	-2.3
ENSMUSP00000077571							1	-1.7	1	-3.4	2	-3.9
ENSMUSP00000077584			1	-1.6	1	-1.6						
ENSMUSP00000077594									3	-11.7		
ENSMUSP00000077597	11	-30.6	14	-35.2	16	-47.2	10	-31.5	13	-46.8	24	-70.7
ENSMUSP00000077606									1	-1.6		
ENSMUSP00000077612	3	-16.8	2	-6.4	4	-23.8	5	-16.5			3	-22.7
ENSMUSP00000077678	4	-14.7	6	-19	1	-4.1						
ENSMUSP00000077716	42	-42.4	47	-56.6	17	-45.2	32	-75	27	-60.4	17	-60.1

ENSMUSP00000077726:reversed									1	-1.8		
ENSMUSP00000077748:reversed									1	-1.5		
ENSMUSP00000077757	2	-2.7					2	-8.3	1	-2	1	-2.1
ENSMUSP00000077780			1	-1.9								
ENSMUSP00000077808			6	-19.4			5	-19.2	10	-30	10	-33.5
ENSMUSP00000077825	12	-33.6										
ENSMUSP00000077841					1	-1.5						
ENSMUSP00000077841:reversed	1	-1.8										
ENSMUSP00000077864	5	-29.8	6	-13	1	-2.4	6	-15.9	3	-11.8	6	-14.3
ENSMUSP00000077875	6	-12.1					19	-16.5	16	-36.2	6	-34.7
ENSMUSP00000077881			2	-9.9			4	-7.8	4	-16.9		
ENSMUSP00000077899:reversed											1	-1.6
ENSMUSP00000077909			8	-44	7	-32.8	26	-73.7				
ENSMUSP00000077914:reversed									1	-1.5		
ENSMUSP00000077917	1	-5.1					2	-4.4	2	-3.7		
ENSMUSP00000077969					1	-1.5						
ENSMUSP00000077989	33	-54.1	43	-104	34	-91.9	46	-83.9	70	-116	60	-85.8
ENSMUSP00000077990					1	-1.7						
ENSMUSP00000078001			7	-34.1	9	-33.1			9	-50.8	9	-25.1
ENSMUSP00000078015	16	-81.6										
ENSMUSP00000078022					1	-1.9						
ENSMUSP00000078050											1	-2.1
ENSMUSP00000078065											2	-8.3
ENSMUSP00000078066:reversed									1	-1.6		
ENSMUSP00000078076:reversed					1	-1.4						
ENSMUSP00000078123					1	-1.4						
ENSMUSP00000078123:reversed			1	-1.5								
ENSMUSP00000078128					1	-1.7						
ENSMUSP00000078134					2	-7.2						
ENSMUSP00000078158											2	-8.6
ENSMUSP00000078216							1	-2.1	1	-4		
ENSMUSP00000078236	4	-24.9	8	-49.9	14	-71.8	6	-32.5	6	-37	4	-36.2
ENSMUSP00000078251	18	-61										
ENSMUSP00000078254			1	-2.4								
ENSMUSP00000078261:reversed	1	-1.4										
ENSMUSP00000078264:reversed			1	-1.8								
ENSMUSP00000078269					1	-1.4						
ENSMUSP00000078337									1	-1.4		
ENSMUSP00000078337:reversed									1	-1.6	1	-2.3
ENSMUSP00000078369	1	-3.5							1	-3.2	1	-3.8
ENSMUSP00000078388	12	-42.1					25	-53.5				
ENSMUSP00000078429	33	-148	41	-153	70	-178	28	-112	37	-128	37	-138
ENSMUSP00000078436	5	-26.4	4	-22.5	4	-27.6	9	-48	8	-35.5	7	-54.1
ENSMUSP00000078460:reversed	1	-1.5							1	-1.4		
ENSMUSP00000078469:reversed	1	-1.5										
ENSMUSP00000078488	1	-9.1					5	-7.1				
ENSMUSP00000078492					166	-77.2	157	-61.7			201	-75.4
ENSMUSP00000078503					1	-1.8						
ENSMUSP00000078514:reversed									1	-1.4		
ENSMUSP00000078515					2	-2.3	1	-5.5	3	-12.9	3	-16.9
ENSMUSP00000078515:reversed					1	-2.1						
ENSMUSP00000078547			1	-2.3			1	-2			1	-1.4
ENSMUSP00000078555:reversed	1	-1.4										
ENSMUSP00000078572											1	-1.5
ENSMUSP00000078623	1	-3.3	1	-1.9	9	-15.6	2	-1.5	2	-10.7		
ENSMUSP00000078630			1	-2.5	1	-1.5			3	-22.7	1	-1.5
ENSMUSP00000078632:reversed			1	-1.5								
ENSMUSP00000078636	31	-33.5					66	-61.6				

ENSMUSP00000078661	3	-20.5	2	-3.1	2	-4.9	4	-15				
ENSMUSP00000078670	4	-20.9					6	-17.6				
ENSMUSP00000078706:reversed	2	-2.6							1	-2.8		
ENSMUSP00000078721:reversed											1	-1.3
ENSMUSP00000078738	1	-2.4							1	-1.8		
ENSMUSP00000078740			40	-44.8	47	-75.5			30	-39.6	35	-54.1
ENSMUSP00000078741	2	-4.4					2	-1.7	1	-6.1	2	-2.9
ENSMUSP00000078774	7	-36.5	5	-29.9	9	-55.1			4	-29	3	-21.2
ENSMUSP00000078795			1	-1.6					4	-25.2		
ENSMUSP00000078808	5	-5.4	11	-7.2			17	-7.8	10	-6.6	3	-7.7
ENSMUSP00000078875											1	-5.6
ENSMUSP00000078901					2	-2.8						
ENSMUSP00000078914					1	-5.3			3	-4.5	2	-4.7
ENSMUSP00000078942	1	-4.6			3	-11.1			2	-6.7		
ENSMUSP00000078945	1	-1.5							1	-1.7		
ENSMUSP00000078966					1	-1.6						
ENSMUSP00000078968							13	-30.8				
ENSMUSP00000078971	10	-77.8	18	-78.5	21	-64.3	11	-42	13	-51.2	6	-35.1
ENSMUSP00000078984:reversed					1	-1.8						
ENSMUSP00000079050	33	-70.3					28	-61.1				
ENSMUSP00000079053							3	-19.9				
ENSMUSP00000079055							1	-2.2			1	-1.4
ENSMUSP00000079065	238	-360	281	-366	230	-400	284	-340	265	-384	209	-348
ENSMUSP00000079100	12	-27.8	14	-15.7	9	-23.4	8	-27.7	9	-26.1	13	-15.6
ENSMUSP00000079107			4	-18.1								
ENSMUSP00000079164			1	-1.4								
ENSMUSP00000079176			1	-2.3								
ENSMUSP00000079180			15	-19.3	6	-17.6			13	-27.1	11	-20.8
ENSMUSP00000079188											8	-32.4
ENSMUSP00000079232									5	-10.6		
ENSMUSP00000079246	3	-12.6	3	-11.9	6	-18.4	1	-5.1	4	-21.9	3	-14.1
ENSMUSP00000079291			1	-4.7								
ENSMUSP00000079306	37	-77.2									27	-99.4
ENSMUSP00000079324	1	-7	2	-6.9	4	-22.6	1	-9.1	4	-25.3	2	-8.5
ENSMUSP00000079324:reversed									1	-1.5		
ENSMUSP00000079340			26	-46.7	7	-26.3			35	-54.3	25	-44.4
ENSMUSP00000079341	8	-14.4			6	-24.9	12	-34.4	6	-19.2	10	-31.9
ENSMUSP00000079341:reversed									1	-1.6		
ENSMUSP00000079356:reversed									1	-1.6		
ENSMUSP00000079379			1	-5.6					2	-19.6		
ENSMUSP00000079380			7	-29.2	1	-2.7	19	-26.2	11	-25.3	15	-25
ENSMUSP00000079398	2	-12.8	2	-2.9	3	-10.2	4	-16.8	3	-17.7	6	-22.5
ENSMUSP00000079403	4	-27.6	6	-28.7	1	-2.3	7	-28.8	15	-43.8	10	-34.2
ENSMUSP00000079454			1	-2.3								
ENSMUSP00000079484											1	-3.5
ENSMUSP00000079494											1	-1.5
ENSMUSP00000079494:reversed	1	-2.3	1	-1.4								
ENSMUSP00000079503:reversed			1	-1.4								
ENSMUSP00000079546											1	-1.5
ENSMUSP00000079585									5	-18.6		
ENSMUSP00000079585:reversed											1	-1.7
ENSMUSP00000079619	1	-2.2										
ENSMUSP00000079628	21	-59.2	17	-44.5	19	-37.7	15	-37.2	11	-32.8	16	-34.1
ENSMUSP00000079631			2	-8.1	1	-1.5			2	-1.5	2	-1.6
ENSMUSP00000079664									1	-2.6		
ENSMUSP00000079667			2	-1.8							1	-1.7
ENSMUSP00000079675							3	-2.4			3	-14.7
ENSMUSP00000079676			6	-21.4					21	-23.3	20	-21

ENSMUSP00000079691	43	-172											
ENSMUSP00000079692			2	-8.7			3	-15.8					
ENSMUSP00000079699					7	-9.4							
ENSMUSP00000079699:reversed									1	-1.6			
ENSMUSP00000079752	1	-1.5											
ENSMUSP00000079872											19	-15	
ENSMUSP00000079882	4	-17.8	9	-27.2	6	-25	4	-11	10	-29	6	-31	
ENSMUSP00000079883	6	-18.8	10	-16.1	9	-16.1	8	-10.9	7	-4.8	15	-10.1	
ENSMUSP00000079897									1	-1.7			
ENSMUSP00000079900			1	-3.5							1	-1.5	
ENSMUSP00000079908:reversed	1	-1.7											
ENSMUSP00000079917							3	-2.2					
ENSMUSP00000079926:reversed			2	-1.6							1	-1.4	
ENSMUSP00000079944	18	-19.9					80	-47					
ENSMUSP00000079961			27	-67.1					29	-65.4	19	-48	
ENSMUSP00000079961:reversed			1	-2.6									
ENSMUSP00000079984	1	-1.3											
ENSMUSP00000079984:reversed					1	-2.2							
ENSMUSP00000080038:reversed			1	-1.6									
ENSMUSP00000080040	8	-55.1	11	-52.9	13	-61.8	28	-84.8	21	-80.5	31	-104	
ENSMUSP00000080058					2	-10.1							
ENSMUSP00000080060:reversed											1	-1.5	
ENSMUSP00000080062:reversed	1	-1.6											
ENSMUSP00000080085:reversed							1	-1.5			1	-2	
ENSMUSP00000080092:reversed					1	-1.6							
ENSMUSP00000080116					12	-53.9							
ENSMUSP00000080179	1	-1.5											
ENSMUSP00000080222:reversed					1	-1.6							
ENSMUSP00000080240	3	-8.8	1	-2.3	2	-4.3	1	-3.6	1	-3	2	-3.6	
ENSMUSP00000080243:reversed	1	-2.3											
ENSMUSP00000080257:reversed	1	-1.6											
ENSMUSP00000080266											1	-2	
ENSMUSP00000080267					1	-3.1							
ENSMUSP00000080273	12	-26.7	16	-24.6	5	-16.3	9	-17	19	-13.8	7	-2.8	
ENSMUSP00000080280			1	-1.5									
ENSMUSP00000080280:reversed					1	-1.4							
ENSMUSP00000080302	8	-46.9					17	-53.3					
ENSMUSP00000080344:reversed	1	-2.1											
ENSMUSP00000080354			35	-122	18	-72.5			38	-139	39	-149	
ENSMUSP00000080358					2	-7.9					3	-9.5	
ENSMUSP00000080358:reversed											1	-1.7	
ENSMUSP00000080362:reversed			1	-1.4									
ENSMUSP00000080402	12	-21.5											
ENSMUSP00000080403	8	-40.3	5	-17.4	13	-59	9	-52.4	9	-40.1	8	-45.7	
ENSMUSP00000080403:reversed									1	-2			
ENSMUSP00000080414	6	-25.2	4	-33.2	11	-41.5	7	-32.3	3	-33.6	5	-22.6	
ENSMUSP00000080442:reversed					1	-1.7							
ENSMUSP00000080468											1	-1.6	
ENSMUSP00000080484	5	-33	10	-54.5	10	-46.3	35	-92.3	34	-126	34	-110	
ENSMUSP00000080518:reversed									1	-1.9			
ENSMUSP00000080523	6	-6.5	10	-13.6	3	-5.8	22	-17.1	31	-32.4	28	-14	
ENSMUSP00000080531	5	-14.7	5	-23.3	4	-19.3	9	-21	11	-38.7	9	-36.5	
ENSMUSP00000080538:reversed							1	-1.4					
ENSMUSP00000080579	2	-14.9	9	-47.3	15	-51.4	11	-70.6	14	-89.8	14	-82.6	
ENSMUSP00000080601:reversed			1	-1.7									
ENSMUSP00000080614	4	-25.8	5	-22.3	1	-5.4	5	-6.1	10	-59.6	6	-4.6	
ENSMUSP00000080622					1	-1.4							
ENSMUSP00000080629							2	-10.4					

ENSMUSP00000080654			21	-84.5	11	-36.8			25	-76	18	-54.5
ENSMUSP00000080695			55	-89.1					82	-113	88	-124
ENSMUSP00000080711	1	-1.8	2	-9.1								
ENSMUSP00000080711:reversed								1	-1.4			
ENSMUSP00000080716			1	-2.9	1	-3.3			2	-6.3		
ENSMUSP00000080737					1	-2.2						
ENSMUSP00000080739					2	-8.9						
ENSMUSP00000080743	1	-5					2	-7	1	-1.6	2	-6.5
ENSMUSP00000080766:reversed									2	-8.3		
ENSMUSP00000080772	25	-114					33	-127				
ENSMUSP00000080788:reversed									1	-2		
ENSMUSP00000080796	1	-8.7			1	-5.9						
ENSMUSP00000080814			1	-1.6								
ENSMUSP00000080846	18	-63.4	25	-101	45	-50.3			11	-45.7	13	-45.2
ENSMUSP00000080888:reversed			1	-1.5								
ENSMUSP00000080908											19	-10.1
ENSMUSP00000080914					1	-2						
ENSMUSP00000080938			1	-1.5								
ENSMUSP00000080944									1	-1.7		
ENSMUSP00000080944:reversed									2	-2.1		
ENSMUSP00000080974	3	-31.4	1	-5.1	3	-18.7	6	-31.4	2	-11.9		
ENSMUSP00000080979:reversed			1	-1.9								
ENSMUSP00000080987					1	-1.5						
ENSMUSP00000080991	17	-24.1	16	-27.3	23	-41.4	23	-36.6	20	-37.1	17	-27
ENSMUSP00000080991:reversed			1	-1.5								
ENSMUSP00000080992	20	-36.9	30	-64.4	35	-38.5	38	-34	39	-45.9	43	-32
ENSMUSP00000080993	10	-28.2	13	-28	30	-26.3	8	-6.6	17	-18.5	7	-21.4
ENSMUSP00000080994	58	-66.7	54	-81.5	71	-84.4	62	-82.2	52	-76.9	54	-90
ENSMUSP00000080995	6	-23.9	13	-25.2	9	-13.4	21	-25.6	40	-40.1	30	-29.2
ENSMUSP00000080996	2	-2.9	5	-9.8			4	-8.4	3	-17.6	2	-3.8
ENSMUSP00000080997	1	-1.5	14	-5.9	7	-4.6	4	-3.1	6	-3.7	1	-2.3
ENSMUSP00000081000	62	-71.5	67	-104	54	-43.5	64	-65.6	81	-83.1	57	-65.9
ENSMUSP00000081001	9	-28.8	15	-69.5	17	-62.6	9	-34.2	18	-68.1	17	-65.2
ENSMUSP00000081003	2	-2	1	-2.2			1	-2.2	1	-1.6	2	-2.1
ENSMUSP00000081007	3	-13.3	1	-4	9	-6.3	4	-5.8	4	-7.1	2	-4.3
ENSMUSP00000081009	6	-19.4	1	-7.3	4	-16	3	-19.7	3	-19.3	6	-30
ENSMUSP00000081010	20	-101	20	-72	18	-49.3	20	-73.7	14	-31.2	20	-69.9
ENSMUSP00000081017	13	-26.2	18	-30.2	26	-16.8	19	-27.7	25	-24.2	19	-27.2
ENSMUSP00000081019	13	-36.4	15	-23.9	6	-19.7	21	-33.5	23	-34.8	17	-24.3
ENSMUSP00000081023			5	-11.2								
ENSMUSP00000081029									1	-1.8		
ENSMUSP00000081030					11	-29.1						
ENSMUSP00000081041:reversed					1	-1.4						
ENSMUSP00000081045:reversed			1	-1.4								
ENSMUSP00000081114			3	-3.2					1	-2.8	1	-1.9
ENSMUSP00000081132:reversed					1	-1.7	1	-1.6	1	-1.5		
ENSMUSP00000081133	1	-4.6										
ENSMUSP00000081134							2	-21.3				
ENSMUSP00000081137:reversed											1	-1.7
ENSMUSP00000081141			3	-8.9					3	-9.4	1	-1.5
ENSMUSP00000081200	2	-2.2	7	-20	18	-41.2	3	-16.2	14	-48.2	5	-12.3
ENSMUSP00000081225:reversed					1	-1.6						
ENSMUSP00000081334	1	-1.5										
ENSMUSP00000081369			36	-78.4					15	-59.2	77	-77.6
ENSMUSP00000081370	178	-359	165	-372	149	-362	128	-294	123	-320	151	-300
ENSMUSP00000081421									1	-1.5		
ENSMUSP00000081426:reversed	1	-1.7					5	-16.4			2	-1.9
ENSMUSP00000081442					25	-69.8						

ENSMUSP00000081472												2	-2.6
ENSMUSP00000081474	1	-8.8											
ENSMUSP00000081535	2	-1.8				3	-2.1						
ENSMUSP00000081544			2	-10.4	1	-3.7			1	-4.2	1	-2.9	
ENSMUSP00000081557:reversed					1	-1.6							
ENSMUSP00000081574					3	-4.3	5	-4.2	4	-3.2	12	-7.1	
ENSMUSP00000081575					1	-1.4							
ENSMUSP00000081579									1	-2.6			
ENSMUSP00000081611:reversed			2	-7.7									
ENSMUSP00000081680	2	-3.3	3	-11.3	5	-29	1	-4.3	4	-9	1	-9.5	
ENSMUSP00000081690			1	-1.8	1	-1.7							
ENSMUSP00000081710			1	-2.3	2	-4.4			1	-3.6	1	-4.5	
ENSMUSP00000081714											1	-1.6	
ENSMUSP00000081714:reversed			2	-9.8									
ENSMUSP00000081728:reversed					1	-2.8							
ENSMUSP00000081757:reversed					1	-1.6							
ENSMUSP00000081782									1	-2.7			
ENSMUSP00000081845:reversed											1	-1.7	
ENSMUSP00000081856			3	-11.5	2	-8					2	-9.1	
ENSMUSP00000081872			1	-2.3									
ENSMUSP00000081884			1	-2.5									
ENSMUSP00000081906											2	-7.9	
ENSMUSP00000081937	1	-11.6											
ENSMUSP00000081941:reversed					1	-1.4							
ENSMUSP00000081954									1	-1.3			
ENSMUSP00000082005:reversed											1	-1.6	
ENSMUSP00000082013	1	-2.5	4	-24.7	2	-3.6	3	-11.2	6	-39.4			
ENSMUSP00000082023	1	-1.9	5	-23.3	3	-11.6	3	-11.2	4	-15.2	5	-21.8	
ENSMUSP00000082041									1	-2.1			
ENSMUSP00000082046									2	-8.8			
ENSMUSP00000082051:reversed	2	-2.3											
ENSMUSP00000082090	2	-4.9	2	-2.5			1	-5.3			1	-2.8	
ENSMUSP00000082124	14	-75.5					11	-37.3					
ENSMUSP00000082125	14	-36.1	22	-34.9	15	-36.6	11	-24.1	8	-46.7	12	-40.2	
ENSMUSP00000082130	2	-11.8											
ENSMUSP00000082132									25	-109	7	-51.5	
ENSMUSP00000082168			1	-1.5									
ENSMUSP00000082168:reversed			1	-2.5									
ENSMUSP00000082197:reversed			2	-8.5									
ENSMUSP00000082205					22	-30.4							
ENSMUSP00000082220					1	-3	2	-4.3	2	-8.9			
ENSMUSP00000082254:reversed											1	-1.5	
ENSMUSP00000082288	76	-148	29	-125	45	-136	33	-65.5	28	-106	25	-92	
ENSMUSP00000082302											2	-3.4	
ENSMUSP00000082305	1	-2.6											
ENSMUSP00000082326					1	-1.7							
ENSMUSP00000082340	2	-6.1					5	-6.2	4	-7.6	2	-5.8	
ENSMUSP00000082343	2	-4.5	5	-7.5	3	-3.6	6	-8.1	5	-21.6	2	-9.7	
ENSMUSP00000082352	11	-50.8	35	-42.9	12	-20.5	35	-78.6	44	-91.7	33	-78.3	
ENSMUSP00000082354			2	-2.2					1	-1.8			
ENSMUSP00000082366			1	-1.9									
ENSMUSP00000082374							2	-4.6					
ENSMUSP00000082395	1	-1.3									1	-2.2	
ENSMUSP00000082405			11	-62.4	7	-24.8			13	-65.7	12	-63.6	
ENSMUSP00000082406			5	-14.9					3	-9.4	2	-10.9	
ENSMUSP00000082428	1	-1.8											
ENSMUSP00000082452	41	-45.3					48	-36.6					
ENSMUSP00000082477	35	-63.5											

ENSMUSP00000082501			1	-1.5									
ENSMUSP00000082543:reversed									1	-1.6			
ENSMUSP00000082666	1	-1.8											
ENSMUSP00000082686			13	-33.4			13	-30	14	-49.5	10	-27.7	
ENSMUSP00000082689:reversed									3	-2.1			
ENSMUSP00000082693	1	-2.2											
ENSMUSP00000082822			3	-7.2			1	-1.5					
ENSMUSP00000082856:reversed			2	-2.8							2	-1.9	
ENSMUSP00000082857:reversed									1	-1.5			
ENSMUSP00000082884			19	-81.3	38	-85.1			13	-65.9	19	-91.5	
ENSMUSP00000082888:reversed			1	-1.5									
ENSMUSP00000082931					2	-15.1							
ENSMUSP00000082941	1	-1.6											
ENSMUSP00000082941:reversed											1	-1.6	
ENSMUSP00000082965:reversed					1	-1.4	2	-2.2					
ENSMUSP00000082976	2	-2.2	2	-2.5	2	-2.1			4	-2.2			
ENSMUSP00000083077			57	-157	40	-169	35	-134	35	-177	50	-179	
ENSMUSP00000083083	13	-40.7					21	-45.1					
ENSMUSP00000083087	2	-11.8											
ENSMUSP00000083124											1	-1.5	
ENSMUSP00000083132											1	-1.6	
ENSMUSP00000083161	1	-1.9											
ENSMUSP00000083177	235	-21.2					234	-29.9					
ENSMUSP00000083204							1	-2.7					
ENSMUSP00000083205			1	-1.5									
ENSMUSP00000083242	20	-88.9	30	-95.9	18	-67.3	18	-75.4	25	-68.9	12	-53.1	
ENSMUSP00000083259					1	-2.8			1	-1.7	2	-1.8	
ENSMUSP00000083271	35	-140	46	-152	42	-139	58	-146	41	-111	39	-116	
ENSMUSP00000083281			1	-1.4					2	-11.8			
ENSMUSP00000083293			1	-1.6									
ENSMUSP00000083322	2	-4	5	-19.5	4	-21.2	6	-41.7	6	-35.7	6	-31.2	
ENSMUSP00000083341:reversed	1	-1.3			2	-8							
ENSMUSP00000083374	1	-2.4	1	-1.6	1	-2.1			3	-1.6			
ENSMUSP00000083375	5	-15.2					8	-30.4					
ENSMUSP00000083406											1	-2.8	
ENSMUSP00000083429	10	-47.4	18	-62	10	-17.8	22	-55.3	22	-43.9	14	-46.3	
ENSMUSP00000083429:reversed			1	-2	1	-2							
ENSMUSP00000083563:reversed					1	-2.7							
ENSMUSP00000083587	1	-1.9	1	-2			2	-10.1	4	-15.8	5	-24.1	
ENSMUSP00000083620									2	-9.4			
ENSMUSP00000083620:reversed	2	-9.1	1	-1.7					1	-1.5			
ENSMUSP00000083705			6	-37.4	3	-28.3	2	-14.6	7	-39.5	3	-39	
ENSMUSP00000083722	3	-14.6					3	-15					
ENSMUSP00000083792			1	-1.6									
ENSMUSP00000083806											1	-1.5	
ENSMUSP00000083835			2	-3.3			1	-1.5					
ENSMUSP00000083840			2	-8.7									
ENSMUSP00000083840:reversed									1	-1.4			
ENSMUSP00000083845	1	-1.6											
ENSMUSP00000083852:reversed									1	-1.9			
ENSMUSP00000083856:reversed									1	-1.6			
ENSMUSP00000083928	89	-391	109	-412	149	-437	249	-556	230	-562	251	-644	
ENSMUSP00000083944:reversed									1	-1.7			
ENSMUSP00000083946	5	-21.6											
ENSMUSP00000083977	5	-10.2					10	-27.6					
ENSMUSP00000084014	7	-18.9	11	-33.1	10	-17.3	18	-22.9			4	-22.8	
ENSMUSP00000084024:reversed									1	-1.8			
ENSMUSP00000084029			1	-1.8									

ENSMUSP00000084041												1	-2
ENSMUSP00000084053			11	-34.5					25	-58.7			
ENSMUSP00000084081	14	-58.4	28	-122	18	-104	25	-91.6	45	-156	30	-142	
ENSMUSP00000084095											1	-1.4	
ENSMUSP00000084097			1	-1.8									
ENSMUSP00000084114					1	-1.5							
ENSMUSP00000084136			289	-233	219	-295			325	-299	322	-270	
ENSMUSP00000084177											15	-54.8	
ENSMUSP00000084234	17	-55.7	17	-73.9	16	-50	16	-52	8	-43.6	21	-42.3	
ENSMUSP00000084251							41	-93.3					
ENSMUSP00000084253	2	-10.4											
ENSMUSP00000084257									1	-4.5	2	-8.4	
ENSMUSP00000084297	122	-122					165	-140			109	-150	
ENSMUSP00000084361			1	-1.3									
ENSMUSP00000084423:reversed			1	-2.4	1	-2.6							
ENSMUSP00000084445	17	-32.8	11	-33.2	14	-26.8	16	-35.5	20	-28.2	15	-25.2	
ENSMUSP00000084454:reversed			1	-1.4	1	-1.7							
ENSMUSP00000084458											4	-10.3	
ENSMUSP00000084461:reversed							2	-1.8					
ENSMUSP00000084467:reversed							1	-1.5					
ENSMUSP00000084487			17	-31.9							14	-42	
ENSMUSP00000084489	17	-46			15	-19.1							
ENSMUSP00000084519	1	-1.9											
ENSMUSP00000084519:reversed									1	-2			
ENSMUSP00000084572	7	-50.6	2	-2.8	5	-32.1	12	-55.7	8	-33.3	7	-19.5	
ENSMUSP00000084589	22	-41.2	11	-53.7	14	-48.1			12	-95.9	14	-78.4	
ENSMUSP00000084616			1	-1.5									
ENSMUSP00000084616:reversed											1	-1.8	
ENSMUSP00000084633	3	-12.4	4	-13.5	2	-4.6	4	-11.7	5	-18.8	3	-22.4	
ENSMUSP00000084643:reversed									1	-2			
ENSMUSP00000084661:reversed									1	-1.6			
ENSMUSP00000084722	13	-20.9					13	-9.8					
ENSMUSP00000084761	2	-12			3	-14	4	-19.5	4	-26.7			
ENSMUSP00000084767:reversed									1	-2.4			
ENSMUSP00000084784									9	-15.6	9	-12.8	
ENSMUSP00000084794:reversed	1	-1.9											
ENSMUSP00000084821:reversed											1	-1.6	
ENSMUSP00000084825					1	-1.3							
ENSMUSP00000084826:reversed									1	-1.3			
ENSMUSP00000084864	10	-72.1	4	-13.9	4	-25.3	7	-39.7	11	-53.9	13	-53.1	
ENSMUSP00000084918	72	-269	98	-250	89	-256	88	-260	88	-284	97	-289	
ENSMUSP00000084938	4	-24.7	5	-27.6	11	-26			2	-9	2	-4.4	
ENSMUSP00000084959	3	-22.1	4	-16.7	4	-12.9	4	-14.1	2	-11.2	3	-14.3	
ENSMUSP00000084962									24	-62.5			
ENSMUSP00000084962:reversed					1	-1.7							
ENSMUSP00000084991					1	-2.3							
ENSMUSP00000085006	78	-102					115	-131					
ENSMUSP00000085033							1	-1.4					
ENSMUSP00000085168			4	-10.9							2	-3.4	
ENSMUSP00000085192							2	-2.2					
ENSMUSP00000085207:reversed											1	-1.5	
ENSMUSP00000085220					1	-1.9							
ENSMUSP00000085251			13	-11.3	1	-3.3			8	-12.1	5	-18.3	
ENSMUSP00000085264									1	-1.6			
ENSMUSP00000085269	1	-2											
ENSMUSP00000085286	2	-6.7	9	-44.2	7	-17.3	4	-14.9	4	-14.5	4	-20.7	
ENSMUSP00000085311			25	-52.8							9	-28	
ENSMUSP00000085335					5	-15.1							

ENSMUSP00000085357	2	-6.6							1	-1.8	2	-5.8
ENSMUSP00000085380:reversed											1	-1.8
ENSMUSP00000085399:reversed					1	-1.7						
ENSMUSP00000085416			2	-8								
ENSMUSP00000085435:reversed											1	-1.7
ENSMUSP00000085458	7	-29.3	15	-75.8	8	-22.2	11	-42.1	5	-14.3	8	-68.7
ENSMUSP00000085466	37	-84.8										
ENSMUSP00000085523	16	-83.3	34	-78.9	22	-81.1	60	-145	68	-155	41	-125
ENSMUSP00000085580	33	-127	48	-156					36	-129		
ENSMUSP00000085587											2	-9.2
ENSMUSP00000085587:reversed					1	-1.4			1	-1.4		
ENSMUSP00000085623			3	-17.4					2	-10.3		
ENSMUSP00000085650:reversed											1	-2.2
ENSMUSP00000085671	2	-5.3	6	-15.8	3	-12.2	2	-4.9	3	-7.8	2	-4.3
ENSMUSP00000085692					4	-21.6					2	-9.3
ENSMUSP00000085712									1	-1.5		
ENSMUSP00000085712:reversed			1	-1.4								
ENSMUSP00000085850			23	-63.1								
ENSMUSP00000085867			1	-1.7			2	-17.9	2	-9.7	2	-13
ENSMUSP00000085867:reversed	1	-1.8										
ENSMUSP00000085900									1	-1.5		
ENSMUSP00000085921					2	-5.1			2	-12		
ENSMUSP00000085945:reversed											1	-1.5
ENSMUSP00000085977					26	-39.1						
ENSMUSP00000085981			8	-18.3	8	-11.2			6	-24.2	3	-10.5
ENSMUSP00000085986	2	-4.3										
ENSMUSP00000085986:reversed	1	-2.6										
ENSMUSP00000085993	1	-2.1									2	-8
ENSMUSP00000085993:reversed									2	-10.5		
ENSMUSP00000086021			1	-5.7	3	-8.8			2	-10.1	1	-1.6
ENSMUSP00000086022					4	-9.7						
ENSMUSP00000086025	1	-3	1	-6.9	1	-1.6	4	-9.7	2	-5.3	5	-5.2
ENSMUSP00000086042											1	-1.5
ENSMUSP00000086112					1	-1.8						
ENSMUSP00000086125					1	-1.5						
ENSMUSP00000086136									2	-9.2		
ENSMUSP00000086152									2	-8.7		
ENSMUSP00000086222	1	-1.5										
ENSMUSP00000086262:reversed							1	-1.4				
ENSMUSP00000086285			3	-8.7					3	-4.7	1	-1.9
ENSMUSP00000086297	7	-34.9	7	-26.6	10	-44.8	9	-36.5	7	-25.6	7	-29.4
ENSMUSP00000086325	3	-2.7										
ENSMUSP00000086353:reversed					1	-1.8						
ENSMUSP00000086354											1	-1.4
ENSMUSP00000086411	5	-24.6	7	-28	7	-27.5	7	-32.6	14	-62.9	8	-42.1
ENSMUSP00000086418	2	-13.5	2	-9.7	2	-5.9	3	-7.7	2	-13	1	-1.9
ENSMUSP00000086422	13	-52.8	14	-31.9	26	-71.5	41	-112	21	-78.2	22	-88.7
ENSMUSP00000086448	1	-2					1	-1.6				
ENSMUSP00000086454	2	-6.4	2	-6.2			2	-4.5				
ENSMUSP00000086459									1	-2		
ENSMUSP00000086459:reversed	1	-1.4	2	-7.8								
ENSMUSP00000086460					7	-42	5	-30.4	5	-32.2		
ENSMUSP00000086519					1	-3.3			3	-6.4		
ENSMUSP00000086528			290	-294	262	-315			311	-394	286	-312
ENSMUSP00000086529:reversed											1	-1.6
ENSMUSP00000086530	254	-424	276	-419	259	-624	335	-429	307	-510	338	-522
ENSMUSP00000086565											1	-2.7
ENSMUSP00000086586			303	-28.4	320	-64.5					356	-40

ENSMUSP00000086589									1	-2.9	3	-4.2
ENSMUSP00000086594:reversed					1	-1.8						
ENSMUSP00000086626	6	-48.5	9	-41.2	6	-32.4	4	-23.2	7	-60.9	12	-52.3
ENSMUSP00000086630					1	-1.6						
ENSMUSP00000086634:reversed					2	-8.3						
ENSMUSP00000086638					1	-1.8						
ENSMUSP00000086638:reversed					1	-1.4					1	-1.4
ENSMUSP00000086662									2	-1.6		
ENSMUSP00000086724			8	-40.2			2	-6.6	8	-25.9	4	-11.6
ENSMUSP00000086745			1	-1.9					3	-18.3		
ENSMUSP00000086779:reversed					1	-1.3						
ENSMUSP00000086814:reversed									2	-1.6	1	-1.6
ENSMUSP00000086843	2	-2.9										
ENSMUSP00000086886	8	-45.1					13	-49.8				
ENSMUSP00000086909:reversed									2	-9.4		
ENSMUSP00000086943:reversed	1	-1.9										
ENSMUSP00000086984:reversed					1	-1.4						
ENSMUSP00000086988	12	-35.3	14	-81.3	10	-47.2	13	-75.2	14	-93.8	18	-102
ENSMUSP00000087007											3	-8.3
ENSMUSP00000087037	4	-20	7	-27.9	2	-9.8	1	-1.6				
ENSMUSP00000087037:reversed					1	-2.2						
ENSMUSP00000087046					2	-6.9			1	-3.2		
ENSMUSP00000087073					2	-3.9			2	-9.4	2	-14.5
ENSMUSP00000087117:reversed	1	-1.5										
ENSMUSP00000087173			1	-1.7								
ENSMUSP00000087192	6	-40.6	14	-40.5	10	-28.9	10	-32.2	8	-40.3	8	-38.7
ENSMUSP00000087213	6	-8.7	6	-18.8	7	-19	8	-18.1	4	-13.1	7	-21.7
ENSMUSP00000087345	1	-3.8	4	-16.8			2	-3.2	1	-2.9	3	-11.7
ENSMUSP00000087345:reversed			1	-1.8	1	-2.1						
ENSMUSP00000087396			2	-2.1					1	-1.6		
ENSMUSP00000087453							2	-10.5	2	-5.7	2	-11.3
ENSMUSP00000087453:reversed	1	-1.8										
ENSMUSP00000087461			1	-1.6	2	-3.4						
ENSMUSP00000087482			1	-1.8								
ENSMUSP00000087496	1	-1.8										
ENSMUSP00000087500					1	-2.1					2	-3.5
ENSMUSP00000087524			1	-2.1			2	-2.6	1	-2.8	4	-11.4
ENSMUSP00000087538	3	-2.6					2	-2.6				
ENSMUSP00000087608					2	-13.2						
ENSMUSP00000087620							1	-5.7	3	-10		
ENSMUSP00000087632			47	-117	34	-74.1			35	-88.5	58	-71.4
ENSMUSP00000087686			1	-2.1								
ENSMUSP00000087694	2	-11.6	10	-55.7	6	-42.2	3	-17.5	11	-61.7	4	-28.4
ENSMUSP00000087709							1	-3				
ENSMUSP00000087711	11	-47.4			15	-50.7	16	-47.8				
ENSMUSP00000087717	9	-42.9	15	-57.1	15	-45.3	6	-23.5	5	-19.1	5	-26.2
ENSMUSP00000087727											3	-9.1
ENSMUSP00000087736							40	-81.6				
ENSMUSP00000087742									1	-2	1	-1.5
ENSMUSP00000087756									2	-10.2		
ENSMUSP00000087770			2	-8.9								
ENSMUSP00000087858	2	-8	7	-23.9	2	-5.2	7	-35.5	6	-21.8	7	-49.8
ENSMUSP00000087879	1	-2.2	1	-1.5	1	-1.3						
ENSMUSP00000087888:reversed	1	-1.6										
ENSMUSP00000087894			6	-26.2	12	-21.9	5	-28.4	6	-30.2	9	-31.4
ENSMUSP00000087937:reversed									1	-1.6		
ENSMUSP00000087947:reversed			2	-1.7								
ENSMUSP00000087974	84	-151	54	-129	77	-178	129	-137	82	-185	73	-175

ENSMUSP00000088029									272	-34.1		
ENSMUSP00000088041											2	-4.7
ENSMUSP00000088052	1	-7.1					5	-13.8				
ENSMUSP00000088052:reversed	1	-1.6										
ENSMUSP00000088057	23	-93.8	22	-70.2	14	-32	23	-71.2	19	-63.7	20	-42.9
ENSMUSP00000088166	1	-1.4										
ENSMUSP00000088234	3	-12.8	9	-23.2	21	-46.6	12	-44.4	9	-16.4	10	-40.8
ENSMUSP00000088246	21	-75.7	18	-58.2	25	-80.4	24	-90.7	27	-102	24	-67.3
ENSMUSP00000088249	54	-135	50	-154	22	-79.7	41	-82.6	33	-119	43	-115
ENSMUSP00000088252			12	-38.4	15	-44			14	-35.3	15	-54.5
ENSMUSP00000088276:reversed			1	-1.8	1	-1.6						
ENSMUSP00000088285			13	-40.2	12	-22.2			8	-25.4	15	-51.3
ENSMUSP00000088303									2	-9	5	-9.8
ENSMUSP00000088322	1	-1.6										
ENSMUSP00000088334:reversed									1	-1.6		
ENSMUSP00000088349	36	-59.4	8	-37.1	18	-39.2	34	-90.2	20	-115	15	-93.6
ENSMUSP00000088357:reversed			1	-1.5								
ENSMUSP00000088358			4	-26.6	14	-39.5	30	-81.7	25	-133	19	-104
ENSMUSP00000088365									1	-4.6		
ENSMUSP00000088369			1	-1.7								
ENSMUSP00000088372	384	-277					338	-240	225	-302		
ENSMUSP00000088412							1	-1.3				
ENSMUSP00000088443:reversed											1	-1.6
ENSMUSP00000088456	2	-5.1			1	-3.5	1	-3.6				
ENSMUSP00000088581					2	-9.2					3	-9.3
ENSMUSP00000088613									1	-1.8		
ENSMUSP00000088727			2	-8.5					1	-4.6		
ENSMUSP00000088727:reversed											1	-1.3
ENSMUSP00000088729			3	-16.9	3	-12.5						
ENSMUSP00000088736			7	-24.1					2	-2.8		
ENSMUSP00000088736:reversed	2	-10.1										
ENSMUSP00000088765					21	-76.3			11	-69.2		
ENSMUSP00000088779											4	-20.2
ENSMUSP00000088801	6	-51.7	14	-79.4	8	-45.1	5	-29.2	10	-52.7	10	-74.8
ENSMUSP00000088807											5	-30.9
ENSMUSP00000088837	4	-34.1	4	-24.8	3	-12.3	3	-17.8	8	-53.6	4	-14.5
ENSMUSP00000088857							2	-1.5	2	-8.9	3	-13.3
ENSMUSP00000088870									1	-1.4		
ENSMUSP00000088875											1	-1.5
ENSMUSP00000088922	57	-133					72	-142				
ENSMUSP00000088927	5	-16.3					10	-16.8				
ENSMUSP00000088957:reversed											1	-1.6
ENSMUSP00000089051:reversed			1	-1.4								
ENSMUSP00000089055:reversed	1	-1.6	1	-1.5								
ENSMUSP00000089089:reversed			1	-1.5								
ENSMUSP00000089097	1	-1.6	3	-14.5	5	-9.8	4	-2.5	2	-9.4	1	-2.2
ENSMUSP00000089111:reversed					1	-1.5						
ENSMUSP00000089143			1	-1.4								
ENSMUSP00000089143:reversed					1	-1.4						
ENSMUSP00000089147	2	-2.5	2	-2	4	-9.9	7	-27.9	5	-18.9	8	-32.4
ENSMUSP00000089179							2	-2.3			2	-2.8
ENSMUSP00000089290							1	-2.3				
ENSMUSP00000089298			1	-5.1			8	-29.5	7	-32.1		
ENSMUSP00000089350	11	-18.4	10	-17.4	6	-11.4			7	-17.4	6	-6.9
ENSMUSP00000089362			1	-1.7								
ENSMUSP00000089374	88	-156	79	-172	127	-188	128	-189	73	-152	154	-227
ENSMUSP00000089402	1	-4.5	1	-2.8			2	-7.2	2	-8	1	-6.5
ENSMUSP00000089425:reversed	1	-2.3										

ENSMUSP00000089463:reversed					1	-1.6							
ENSMUSP00000089464					1	-1.6							
ENSMUSP00000089519	1	-7.8					1	-6.9					
ENSMUSP00000089551	5	-21.5	8	-11.5	5	-12.8	8	-37.4	9	-28.5	6	-20	
ENSMUSP00000089555	1	-2.6											
ENSMUSP00000089571									1	-1.5			
ENSMUSP00000089637					1	-1.9							
ENSMUSP00000089648			4	-11.1			1	-2.4			3	-3.8	
ENSMUSP00000089680			1	-1.4					3	-16.4	2	-9.7	
ENSMUSP00000089680:reversed			1	-1.5									
ENSMUSP00000089691	17	-55.9	36	-138	48	-131	26	-74.4	44	-144	51	-171	
ENSMUSP00000089746:reversed											1	-1.7	
ENSMUSP00000089769			14	-45	6	-15.9			21	-62.3	8	-39.5	
ENSMUSP00000089808	3	-19.8	7	-31.9	6	-24	8	-37.6	13	-41.7	18	-55.1	
ENSMUSP00000089874			2	-2.4					1	-2.5			
ENSMUSP00000089948					1	-1.6							
ENSMUSP00000089978			3	-11.3	2	-3.4	3	-16.1	3	-13.9			
ENSMUSP00000089979							1	-1.7					
ENSMUSP00000090059	1	-2	2	-9.5	1	-10.3					1	-6	
ENSMUSP00000090059:reversed			1	-2.5									
ENSMUSP00000090076									2	-9.6			
ENSMUSP00000090076:reversed					1	-1.5					1	-2.2	
ENSMUSP00000090088:reversed					1	-1.8							
ENSMUSP00000090111	29	-124	18	-67.3	38	-158	23	-111	24	-93.6	22	-81.9	
ENSMUSP00000090115					1	-1.8							
ENSMUSP00000090130			1	-1.3					2	-6.7	2	-14	
ENSMUSP00000090130:reversed			1	-1.5	1	-1.6							
ENSMUSP00000090155	21	-71.7	44	-151	31	-138	39	-84.1	54	-170	38	-134	
ENSMUSP00000090166											1	-1.9	
ENSMUSP00000090220	1	-2											
ENSMUSP00000090227	3	-18	4	-4.3			7	-24.9	5	-3.9	2	-8.9	
ENSMUSP00000090228					1	-1.7							
ENSMUSP00000090237					4	-17.7							
ENSMUSP00000090245							2	-7.4	2	-5.5	2	-12.4	
ENSMUSP00000090274:reversed			1	-1.5									
ENSMUSP00000090281	8	-37.8	9	-29.1	12	-38.9	8	-26.3	12	-50	9	-41	
ENSMUSP00000090283			303	-339	419	-330			238	-294	355	-306	
ENSMUSP00000090284	13	-34.5					15	-34.9					
ENSMUSP00000090307	15	-47.7	22	-53.8	8	-16	125	-110	81	-113	72	-148	
ENSMUSP00000090314			1	-1.5			1	-1.3	1	-1.4	1	-1.6	
ENSMUSP00000090314:reversed	1	-1.4									1	-1.7	
ENSMUSP00000090342							2	-12.6					
ENSMUSP00000090354					1	-1.5							
ENSMUSP00000090375			1	-2.2							1	-1.4	
ENSMUSP00000090387					1	-2.2							
ENSMUSP00000090387:reversed			1	-1.4	1	-1.4							
ENSMUSP00000090398									1	-1.4	2	-9.1	
ENSMUSP00000090426	8	-22					9	-20.6					
ENSMUSP00000090450:reversed					1	-1.3							
ENSMUSP00000090483					1	-1.5							
ENSMUSP00000090556	3	-12.5	3	-10.2			3	-9.8	8	-18.7	6	-19.2	
ENSMUSP00000090564	40	-121	52	-139	45	-99	51	-124	40	-155	32	-118	
ENSMUSP00000090564:reversed											1	-1.8	
ENSMUSP00000090571:reversed	2	-9.4											
ENSMUSP00000090572:reversed			2	-8.5									
ENSMUSP00000090593					1	-1.6	1	-1.7	5	-23.9	6	-38.8	
ENSMUSP00000090594											1	-2.5	
ENSMUSP00000090594:reversed					1	-2							

ENSMUSP00000090632					1	-1.3							
ENSMUSP00000090632:reversed	4	-16.3	2	-7.9					1	-1.6	3	-17.3	
ENSMUSP00000090673	1	-4	3	-15.1	14	-5.9	6	-27.7	10	-25.9	8	-17.4	
ENSMUSP00000090681									1	-1.4			
ENSMUSP00000090727	37	-14.7	38	-23.2	15	-30.7	25	-60.8	22	-35	13	-33.2	
ENSMUSP00000090789:reversed					1	-1.7							
ENSMUSP00000090791											1	-1.3	
ENSMUSP00000090795	1	-3.5											
ENSMUSP00000090795:reversed	1	-1.4											
ENSMUSP00000090820:reversed					1	-1.8							
ENSMUSP00000090825:reversed											1	-2.3	
ENSMUSP00000090844			4	-11.3	4	-21	2	-4.2	4	-15.6	3	-3.9	
ENSMUSP00000090884									1	-2.2			
ENSMUSP00000090896	5	-3	9	-21.3	3	-16	31	-20.6	22	-42.9	16	-41.6	
ENSMUSP00000090910	31	-95.2	39	-127	23	-94.3	36	-96.8	55	-143	36	-118	
ENSMUSP00000090991:reversed											1	-1.3	
ENSMUSP00000091012:reversed									1	-2.8			
ENSMUSP00000091015	17	-21.5	33	-57.8			21	-30.1					
ENSMUSP00000091035			13	-33.3	8	-20.4			9	-53.5	5	-15.3	
ENSMUSP00000091061			1	-2.1									
ENSMUSP00000091079			1	-1.4									
ENSMUSP00000091159:reversed											1	-1.8	
ENSMUSP00000091177			2	-1.8									
ENSMUSP00000091179:reversed									2	-8.9			
ENSMUSP00000091180			14	-32.2	5	-28.5			18	-45	14	-28.9	
ENSMUSP00000091202			7	-19.7	8	-42.1			4	-11	4	-10.2	
ENSMUSP00000091215	100	-182					102	-176	97	-160			
ENSMUSP00000091221									1	-1.6			
ENSMUSP00000091289			1	-2.7	1	-1.7							
ENSMUSP00000091303	2	-9.7			1	-1.3							
ENSMUSP00000091318							2	-10.5			3	-14.8	
ENSMUSP00000091328:reversed									1	-1.8			
ENSMUSP00000091330	1	-3.7	1	-2.2	2	-9							
ENSMUSP00000091331									1	-1.9			
ENSMUSP00000091343			35	-84.2			20	-62.9					
ENSMUSP00000091348			2	-3.6					4	-11.4	2	-2.1	
ENSMUSP00000091353									1	-3.5			
ENSMUSP00000091429					1	-2	4	-21.2	3	-19	3	-10.9	
ENSMUSP00000091434:reversed			2	-8									
ENSMUSP00000091470			1	-1.5	1	-1.4							
ENSMUSP00000091477					1	-1.6							
ENSMUSP00000091488:reversed			1	-1.4									
ENSMUSP00000091496									2	-9.1			
ENSMUSP00000091508:reversed					1	-1.5							
ENSMUSP00000091515									3	-10.8			
ENSMUSP00000091541	8	-37.4	6	-23.4	7	-20.3	10	-21.1			6	-29.3	
ENSMUSP00000091565	1	-2.4											
ENSMUSP00000091568			1	-3.7	2	-10.7					1	-2.8	
ENSMUSP00000091572:reversed			1	-1.6									
ENSMUSP00000091608	2	-10.9	7	-20.1	6	-10.8	3	-17	5	-18.3	6	-15.6	
ENSMUSP00000091616			10	-16.6			3	-12.3					
ENSMUSP00000091619:reversed									1	-1.7			
ENSMUSP00000091641							4	-19.2					
ENSMUSP00000091673	3	-4	1	-5.9	2	-4	4	-6.1	4	-15	3	-15.1	
ENSMUSP00000091721			4	-32.5					12	-54	11	-48.2	
ENSMUSP00000091722									3	-9.7			
ENSMUSP00000091736	25	-65.4	33	-70.3	40	-65.6	78	-63.5	18	-45.3	21	-41.2	
ENSMUSP00000091742			1	-5.7	1	-3.3							

ENSMUSP00000091748	1	-1.9											
ENSMUSP00000091756			1	-1.4	7	-35.3							
ENSMUSP00000091756:reversed					1	-2.6							
ENSMUSP00000091768	1	-1.4											
ENSMUSP00000091795	1	-1.7											
ENSMUSP00000091799			1	-4.1	1	-6.1							
ENSMUSP00000091824									2	-9.1			
ENSMUSP00000091836	7	-46.5	6	-30			10	-58.3	7	-39			
ENSMUSP00000091864									1	-1.5	1	-1.9	
ENSMUSP00000091883:reversed											1	-1.5	
ENSMUSP00000091889:reversed			1	-1.9									
ENSMUSP00000091921							1	-1.5					
ENSMUSP00000091941:reversed											1	-1.5	
ENSMUSP00000091979:reversed											1	-1.9	
ENSMUSP00000092002	409	-331					366	-274					
ENSMUSP00000092019	1	-1.5											
ENSMUSP00000092036:reversed					1	-1.5							
ENSMUSP00000092038	1	-1.5					3	-2.7					
ENSMUSP00000092048	1	-1.5											
ENSMUSP00000092050	3	-25.4	5	-21	22	-52.5	15	-56.4	21	-57.1	17	-34.8	
ENSMUSP00000092099:reversed	3	-2.3	1	-1.8	2	-2.1					1	-2.2	
ENSMUSP00000092157									4	-15.9			
ENSMUSP00000092184											1	-1.4	
ENSMUSP00000092200:reversed	1	-1.8											
ENSMUSP00000092223											1	-1.4	
ENSMUSP00000092230									2	-5.6			
ENSMUSP00000092233	218	-349	247	-395	285	-481	274	-371	289	-500	241	-440	
ENSMUSP00000092283	12	-68.3	18	-86	9	-51.6	21	-63.8	19	-68.5	17	-75.7	
ENSMUSP00000092283:reversed					1	-1.9							
ENSMUSP00000092302					2	-5.3					1	-4.1	
ENSMUSP00000092345	24	-31.8											
ENSMUSP00000092346:reversed	1	-1.7											
ENSMUSP00000092349					1	-1.6							
ENSMUSP00000092417	3	-14.3	3	-10.4	1	-7	5	-23.4	4	-18.5	1	-5.3	
ENSMUSP00000092440:reversed			2	-8.5									
ENSMUSP00000092487	137	-214	144	-272	117	-236	88	-180	89	-209	128	-210	
ENSMUSP00000092494							1	-2.1					
ENSMUSP00000092499											1	-1.6	
ENSMUSP00000092509			10	-42.5							4	-18	
ENSMUSP00000092521			1	-1.4									
ENSMUSP00000092538			2	-1.9	1	-1.7			2	-2.3			
ENSMUSP00000092557	7	-33.6	12	-49.4	12	-48.2	4	-15.6	12	-40.7	8	-30.5	
ENSMUSP00000092559			1	-1.4									
ENSMUSP00000092559:reversed									1	-1.4			
ENSMUSP00000092563:reversed	1	-1.9											
ENSMUSP00000092571					1	-2.2							
ENSMUSP00000092571:reversed	1	-1.7											
ENSMUSP00000092624											2	-8.7	
ENSMUSP00000092655							2	-25.7	3	-16.3	2	-3.8	
ENSMUSP00000092680	1	-1.9	2	-5.7					2	-3.9	7	-9.9	
ENSMUSP00000092687	4	-15.2									1	-1.8	
ENSMUSP00000092697			4	-20.2	2	-10.8			4	-18.8	1	-1.5	
ENSMUSP00000092717	6	-15.1					6	-21.3					
ENSMUSP00000092742	1	-1.4					1	-5.5					
ENSMUSP00000092745									1	-1.6			
ENSMUSP00000092746	11	-42	12	-34.2	6	-15.3	11	-45.5	19	-58.3	13	-39.7	
ENSMUSP00000092753:reversed			1	-1.6									
ENSMUSP00000092754:reversed					1	-1.4							

ENSMUSP00000092769	15	-70.5	20	-83.7	16	-70.6	22	-98.5	23	-112	23	-96.6
ENSMUSP00000092769:reversed									1	-1.5		
ENSMUSP00000092801:reversed									1	-2.4		
ENSMUSP00000092805					1	-2.4						
ENSMUSP00000092811							1	-1.7				
ENSMUSP00000092836					1	-2						
ENSMUSP00000092845:reversed	1	-1.9										
ENSMUSP00000092849:reversed			2	-8.5								
ENSMUSP00000092862:reversed					1	-1.5						
ENSMUSP00000092877	2	-18.7										
ENSMUSP00000092888	3	-14			2	-3.1	5	-21	3	-18.6	2	-13.5
ENSMUSP00000092895									3	-21.9		
ENSMUSP00000092897	1	-4.1	2	-14.4	3	-11.4	2	-11.6	4	-7.5	7	-24.3
ENSMUSP00000092918	10	-11.6										
ENSMUSP00000092919:reversed									1	-1.6		
ENSMUSP00000092921			9	-18.6			10	-29.8	12	-24.2	19	-39.7
ENSMUSP00000092951:reversed					1	-1.4						
ENSMUSP00000092958							5	-29.5				
ENSMUSP00000092966	91	-218	86	-260	71	-239	71	-233	83	-268	64	-223
ENSMUSP00000092992	1	-1.7					3	-4.4			2	-2.5
ENSMUSP00000093034									2	-6.1	1	-5
ENSMUSP00000093077	11	-62.9	17	-58.4	12	-39.4	10	-44.4	10	-36	13	-36
ENSMUSP00000093091					1	-2.1						
ENSMUSP00000093101			7	-34.5			26	-58.3			6	-53.3
ENSMUSP00000093108					1	-2						
ENSMUSP00000093113					1	-1.6						
ENSMUSP00000093117									1	-1.4		
ENSMUSP00000093130:reversed							1	-1.4				
ENSMUSP00000093173					1	-1.4						
ENSMUSP00000093197			6	-18.4					4	-24.3		
ENSMUSP00000093197:reversed	1	-1.3										
ENSMUSP00000093203:reversed									1	-2.3		
ENSMUSP00000093229	12	-25.2	50	-57	23	-30.6	36	-28.2	38	-42	48	-19.4
ENSMUSP00000093245			1	-3.8					1	-1.4		
ENSMUSP00000093267:reversed			1	-2.5								
ENSMUSP00000093316:reversed			1	-2					1	-1.7		
ENSMUSP00000093319:reversed	1	-1.3										
ENSMUSP00000093340:reversed					1	-1.5						
ENSMUSP00000093341	2	-8.8									2	-2
ENSMUSP00000093356:reversed			1	-1.6								
ENSMUSP00000093376:reversed					1	-1.6						
ENSMUSP00000093390					3	-6.5						
ENSMUSP00000093403:reversed			1	-2								
ENSMUSP00000093405:reversed											1	-1.3
ENSMUSP00000093410									3	-9.6	2	-2
ENSMUSP00000093430			1	-6.9			2	-7.8	2	-9	2	-7.6
ENSMUSP00000093460							3	-21.2	1	-2.5	1	-3.7
ENSMUSP00000093500									1	-1.7		
ENSMUSP00000093512:reversed			1	-1.4								
ENSMUSP00000093525			3	-9.8	2	-6.5	3	-14.6	5	-20.7	3	-13
ENSMUSP00000093526	11	-21.1					19	-38.8				
ENSMUSP00000093587							1	-1.7				
ENSMUSP00000093622			1	-1.7								
ENSMUSP00000093633:reversed	1	-1.7			1	-1.5						
ENSMUSP00000093644	1	-1.9			5	-21.5	3	-8.1			1	-2.6
ENSMUSP00000093650:reversed									1	-1.5		
ENSMUSP00000093701									1	-1.5		
ENSMUSP00000093713	9	-12.6	16	-17.1	5	-16.3	17	-15.9	23	-30.5	30	-15.8

ENSMUSP00000093719	3	-21.2					3	-10.2				
ENSMUSP00000093721					1	-1.9						
ENSMUSP00000093729			3	-1.6	1	-1.5			6	-1.6	4	-1.7
ENSMUSP00000093732			1	-1.7								
ENSMUSP00000093745:reversed	1	-1.9										
ENSMUSP00000093787:reversed											1	-1.5
ENSMUSP00000093818			6	-11.1	1	-1.6						
ENSMUSP00000093830			3	-4.5							2	-9.8
ENSMUSP00000093831									1	-1.5		
ENSMUSP00000093844			2	-8								
ENSMUSP00000093852:reversed											1	-2.3
ENSMUSP00000093906	1	-1.4	1	-1.6								
ENSMUSP00000093908	2	-6.8	1	-1.8	2	-4.7	4	-18.8	3	-17.6	3	-9.3
ENSMUSP00000093914:reversed			1	-4.4								
ENSMUSP00000093939							1	-1.5				
ENSMUSP00000093945			1	-1.4	1	-1.5			2	-2.4		
ENSMUSP00000093951									6	-23.7		
ENSMUSP00000093955			12	-24.8	4	-27.8			7	-20.7	3	-15.3
ENSMUSP00000093962	7	-36.4	6	-31.6	7	-25.8	7	-34.6	11	-42.2	14	-44.8
ENSMUSP00000093965					23	-119						
ENSMUSP00000093966	14	-66	21	-124			25	-114	28	-139	20	-109
ENSMUSP00000093968					1	-1.8						
ENSMUSP00000093972:reversed	1	-1.9										
ENSMUSP00000093974											1	-1.4
ENSMUSP00000093988					19	-79.7			5	-38.3		
ENSMUSP00000093999			1	-6.2					2	-7.5		
ENSMUSP00000094000					1	-1.7						
ENSMUSP00000094000:reversed											1	-1.6
ENSMUSP00000094027:reversed					1	-2.1						
ENSMUSP00000094042							1	-4.4				
ENSMUSP00000094042:reversed	1	-5.2										
ENSMUSP00000094078			1	-1.7								
ENSMUSP00000094084:reversed	1	-2.8										
ENSMUSP00000094092											2	-10.1
ENSMUSP00000094106	1	-3.1										
ENSMUSP00000094154					1	-3						
ENSMUSP00000094167	1	-5										
ENSMUSP00000094176											1	-2
ENSMUSP00000094184							40	-24.8	28	-36.8	18	-32.3
ENSMUSP00000094239	1	-1.4										
ENSMUSP00000094250			5	-18.3								
ENSMUSP00000094318									1	-2.5		
ENSMUSP00000094332											1	-1.4
ENSMUSP00000094396							7	-32.4	3	-17.8	6	-25.9
ENSMUSP00000094432	1	-1.4										
ENSMUSP00000094505	1	-1.6	12	-24.9	1	-11.1	3	-6.3	5	-20.2	7	-25.3
ENSMUSP00000094515					1	-5.3						
ENSMUSP00000094663							2	-3.5				
ENSMUSP00000094778					64	-149			43	-146		
ENSMUSP00000094798					4	-2.9					2	-1.6
ENSMUSP00000094882	2	-15.8	4	-20.4			3	-25.5	4	-17.1	7	-44.2
ENSMUSP00000094886			2	-8.4					1	-1.5		
ENSMUSP00000094895			2	-3.7	1	-3.5			3	-3.9		
ENSMUSP00000094897							1	-4.2	2	-2.9	3	-16.5
ENSMUSP00000094923					8	-26.5						
ENSMUSP00000094942:reversed					1	-1.8						
ENSMUSP00000094977:reversed											1	-1.5
ENSMUSP00000095001	10	-45.2	8	-27.2	13	-49.8	16	-87.3	22	-131	18	-91.5

ENSMUSP00000095013:reversed					1	-1.5								
ENSMUSP00000095016:reversed	1	-2.4							1	-1.7				
ENSMUSP00000095025	1	-2.2												
ENSMUSP00000095040					1	-2.7						1	-3.1	
ENSMUSP00000095048			3	-2										
ENSMUSP00000095061:reversed					2	-9								
ENSMUSP00000095073			2	-9.6	4	-26			9	-47	10	-37.4		
ENSMUSP00000095081	6	-22.8	20	-21.4	4	-9.8	9	-20.8	8	-11.7	7	-25		
ENSMUSP00000095098:reversed									1	-1.5				
ENSMUSP00000095112					2	-3.4			1	-3.9				
ENSMUSP00000095129	1	-9.2	12	-32	4	-36.3								
ENSMUSP00000095149			2	-9.1										
ENSMUSP00000095169:reversed							1	-1.5						
ENSMUSP00000095170									1	-1.4				
ENSMUSP00000095181:reversed									1	-1.4				
ENSMUSP00000095197											1	-5.6		
ENSMUSP00000095210									1	-1.4				
ENSMUSP00000095223									1	-1.8				
ENSMUSP00000095226	1	-2.2												
ENSMUSP00000095243					3	-11								
ENSMUSP00000095245											1	-1.7		
ENSMUSP00000095253:reversed			1	-1.9										
ENSMUSP00000095263	172	-142			162	-277					121	-185		
ENSMUSP00000095270:reversed					1	-1.7								
ENSMUSP00000095285	28	-88.7	28	-93.7	37	-89.7	41	-81.5	23	-97.8	29	-66.1		
ENSMUSP00000095287	10	-22.2	11	-34.3	10	-20.4	12	-41.3	10	-22.7	20	-27.6		
ENSMUSP00000095293					1	-1.9			2	-9.5				
ENSMUSP00000095294							1	-2.9	2	-8.5	1	-7.3		
ENSMUSP00000095294:reversed					1	-2.1					1	-1.5		
ENSMUSP00000095300			1	-3	1	-1.3								
ENSMUSP00000095336									1	-1.9				
ENSMUSP00000095343			42	-52.6			71	-47.5						
ENSMUSP00000095373							2	-3.8	3	-18.9	1	-7.9		
ENSMUSP00000095387	3	-3.8	5	-27.3	2	-11.4	4	-20.9	12	-42.9	5	-23.6		
ENSMUSP00000095387:reversed			1	-1.4										
ENSMUSP00000095392											2	-8.1		
ENSMUSP00000095393									2	-8.9				
ENSMUSP00000095395			1	-2										
ENSMUSP00000095404									1	-1.6				
ENSMUSP00000095410											1	-1.5		
ENSMUSP00000095434:reversed											1	-1.9		
ENSMUSP00000095461											2	-8.3		
ENSMUSP00000095463	1	-1.5			1	-1.7			1	-2.5				
ENSMUSP00000095470									1	-2				
ENSMUSP00000095477	1	-1.7												
ENSMUSP00000095506	1	-1.4					1	-1.3			2	-1.9		
ENSMUSP00000095532:reversed									2	-9.8				
ENSMUSP00000095536	1	-1.5												
ENSMUSP00000095548									1	-1.5				
ENSMUSP00000095556:reversed											1	-1.6		
ENSMUSP00000095571	3	-17.3	6	-17	6	-32.5	14	-47.2	7	-43	12	-34.3		
ENSMUSP00000095584:reversed	1	-1.9												
ENSMUSP00000095625							2	-2.6	3	-21.8	1	-2		
ENSMUSP00000095625:reversed											1	-1.5		
ENSMUSP00000095640:reversed					1	-1.4								
ENSMUSP00000095655	28	-25.5	12	-63.7	7	-30.5	63	-56.8	18	-91.4	30	-43.1		
ENSMUSP00000095656	24	-63.7					10	-41.6						
ENSMUSP00000095660					5	-15.9					25	-34.7		

ENSMUSP00000095662							1	-2.6				
ENSMUSP00000095687					1	-1.6						
ENSMUSP00000095688	9	-21.8	10	-17.2	10	-22.9	7	-24.3	12	-25.8	5	-13
ENSMUSP00000095691:reversed									1	-1.5		
ENSMUSP00000095695									3	-13.7	2	-5.1
ENSMUSP00000095752					1	-1.7						
ENSMUSP00000095768:reversed	1	-1.6										
ENSMUSP00000095792									2	-3.8		
ENSMUSP00000095832							1	-1.4	2	-11.1	3	-10.3
ENSMUSP00000095846			1	-4	2	-4.7	1	-2.9	1	-1.4		
ENSMUSP00000095852	38	-32.5					53	-102			25	-72.3
ENSMUSP00000095862											1	-2.2
ENSMUSP00000095865	1	-2.2										
ENSMUSP00000095865:reversed											1	-1.8
ENSMUSP00000095873									1	-1.9		
ENSMUSP00000095885:reversed			1	-1.5								
ENSMUSP00000095922	12	-38.4	30	-88.9	28	-57.2			29	-67.2	21	-58.9
ENSMUSP00000095927											1	-1.5
ENSMUSP00000095933:reversed											1	-1.4
ENSMUSP00000095948:reversed											1	-1.9
ENSMUSP00000095949					1	-3.8						
ENSMUSP00000095955					1	-3.2						
ENSMUSP00000095965					1	-2.3			5	-11.9	1	-2.2
ENSMUSP00000095965:reversed											1	-1.5
ENSMUSP00000095970	2	-14.7	3	-17.6					1	-2.3		
ENSMUSP00000095975											1	-1.6
ENSMUSP00000095978			1	-2.7								
ENSMUSP00000095996			3	-14.7	2	-8.5						
ENSMUSP00000096002	4	-19.8										
ENSMUSP00000096002:reversed	1	-2										
ENSMUSP00000096014:reversed					1	-1.4						
ENSMUSP00000096028			6	-28.6			3	-18.8	6	-36.5	5	-19.9
ENSMUSP00000096052									1	-1.4		
ENSMUSP00000096062											1	-2.7
ENSMUSP00000096073	3	-13.4			3	-9	2	-6.4	3	-10.5	3	-3.7
ENSMUSP00000096073:reversed											2	-9.4
ENSMUSP00000096127			1	-1.5								
ENSMUSP00000096139											5	-13.1
ENSMUSP00000096147									1	-3.5		
ENSMUSP00000096160									2	-1.5		
ENSMUSP00000096164							2	-3.1				
ENSMUSP00000096166					1	-1.3						
ENSMUSP00000096193					1	-2.7						
ENSMUSP00000096204	1	-3.9	2	-4.8	2	-5.7	4	-5.8	4	-12.2	4	-13.7
ENSMUSP00000096209			1	-1.7								
ENSMUSP00000096211:reversed									1	-2.6		
ENSMUSP00000096218:reversed			1	-2.2								
ENSMUSP00000096232	50	-41.1	48	-47.6	33	-50.2	37	-83	26	-63.1	24	-57
ENSMUSP00000096235:reversed	1	-1.6										
ENSMUSP00000096238:reversed			1	-2.5								
ENSMUSP00000096241	1	-1.7									2	-11.3
ENSMUSP00000096241:reversed									1	-1.6		
ENSMUSP00000096242									1	-1.5		
ENSMUSP00000096251									1	-1.9		
ENSMUSP00000096253	1	-1.8										
ENSMUSP00000096254					122	-225			70	-210		
ENSMUSP00000096261					1	-3.6						
ENSMUSP00000096266			6	-21	13	-28.9			2	-4.1	5	-25.7

ENSMUSP00000096269	4	-21.1					4	-14.4				
ENSMUSP00000096280:reversed			1	-1.6								
ENSMUSP00000096283:reversed			1	-1.6								
ENSMUSP00000096346:reversed							1	-1.5				
ENSMUSP00000096369:reversed					1	-2						
ENSMUSP00000096376									1	-1.5		
ENSMUSP00000096376:reversed											1	-2.8
ENSMUSP00000096389							1	-4				
ENSMUSP00000096394									1	-1.5		
ENSMUSP00000096409	1	-1.6										
ENSMUSP00000096414							7	-33.3	6	-34.9	5	-25.5
ENSMUSP00000096481											1	-1.6
ENSMUSP00000096485											5	-16.7
ENSMUSP00000096506											1	-2.4
ENSMUSP00000096547					1	-1.4						
ENSMUSP00000096564	2	-9.8					4	-14.5				
ENSMUSP00000096588											1	-6.2
ENSMUSP00000096665			2	-3	1	-1.4			1	-3.1		
ENSMUSP00000096671	1	-1.4	2	-6.2	2	-10.3			2	-2.1	2	-5.1
ENSMUSP00000096677							1	-1.5				
ENSMUSP00000096678			1	-1.7					4	-12.9	2	-2.6
ENSMUSP00000096685			6	-16.9								
ENSMUSP00000096687					1	-2.3						
ENSMUSP00000096726					3	-12.1	11	-23.7				
ENSMUSP00000096734:reversed									1	-1.4		
ENSMUSP00000096740:reversed					1	-1.6						
ENSMUSP00000096747									4	-19.8		
ENSMUSP00000096751	1	-7.4	1	-5.3	2	-5.9	1	-3	2	-4.1		
ENSMUSP00000096753			26	-116	25	-88.8			17	-85.4		
ENSMUSP00000096766:reversed											1	-1.5
ENSMUSP00000096770					6	-21.2	2	-2.1	2	-3.4		
ENSMUSP00000096784			11	-40					8	-26.5	2	-3.4
ENSMUSP00000096789	2	-12.2	5	-28.1	1	-7.5	9	-28.7	15	-38.8	14	-38.9
ENSMUSP00000096790	3	-12.6	2	-2.6			3	-2.2	2	-10	2	-1.6
ENSMUSP00000096830:reversed							1	-1.6				
ENSMUSP00000096839:reversed					1	-1.7						
ENSMUSP00000096854			2	-7.2								
ENSMUSP00000096860					1	-2.2						
ENSMUSP00000096880					1	-1.5			2	-3.1		
ENSMUSP00000096909	7	-41.9	21	-76.7	7	-29	22	-87.5	20	-46.9	29	-69.7
ENSMUSP00000096919:reversed					1	-1.5						
ENSMUSP00000096923:reversed											1	-1.4
ENSMUSP00000096928									4	-10.4		
ENSMUSP00000096930					1	-2.3						
ENSMUSP00000096947					1	-6.7			2	-8.5		
ENSMUSP00000096956:reversed	1	-2.6			3	-3.9						
ENSMUSP00000096966	1	-1.4										
ENSMUSP00000096974											1	-1.4
ENSMUSP00000096976	17	-82	17	-73.6	21	-59.6	25	-75.8	30	-84.5	30	-78.8
ENSMUSP00000096980					2	-11.5	2	-2.1	1	-3.7		
ENSMUSP00000096990:reversed									1	-1.7		
ENSMUSP00000097007	6	-31.3	10	-43.3	14	-39.5	18	-59.4	12	-64.3	30	-59.3
ENSMUSP00000097042					1	-2						
ENSMUSP00000097047					11	-26						
ENSMUSP00000097071	167	-213	115	-253	95	-250	220	-188	113	-228	103	-214
ENSMUSP00000097078			1	-2.2	1	-1.5						
ENSMUSP00000097078:reversed			1	-1.9					3	-2.1	1	-3.1
ENSMUSP00000097104					1	-1.5						

ENSMUSP00000097106									1	-1.6		
ENSMUSP00000097122			2	-14.4	3	-13.6						
ENSMUSP00000097144	1	-2.2	2	-9.5	5	-5	1	-1.6	2	-7	2	-9.2
ENSMUSP00000097163					4	-17						
ENSMUSP00000097164:reversed			1	-2.2							1	-1.4
ENSMUSP00000097178:reversed									1	-1.5		
ENSMUSP00000097180							1	-4.2				
ENSMUSP00000097180:reversed									1	-1.6		
ENSMUSP00000097287	1	-2.4	6	-11.3	4	-20.1	1	-1.6	3	-4.1	5	-14.4
ENSMUSP00000097310	1	-6.8	5	-12.9	3	-5.9	5	-12.9	10	-32.8	5	-21.9
ENSMUSP00000097315			1	-1.4								
ENSMUSP00000097325			114	-150	51	-168					86	-179
ENSMUSP00000097330							23	-89.7	39	-143		
ENSMUSP00000097337			1	-3.7	1	-6.3						
ENSMUSP00000097338			1	-2.3			2	-2.1				
ENSMUSP00000097371:reversed											1	-1.7
ENSMUSP00000097378:reversed									1	-1.4		
ENSMUSP00000097383											1	-1.4
ENSMUSP00000097395	3	-11.8	2	-5.3			1	-5.9			4	-10.1
ENSMUSP00000097409	3	-18.3	4	-14.7	2	-5.8	8	-25.2	12	-35.8	10	-41.9
ENSMUSP00000097422:reversed									1	-1.5		
ENSMUSP00000097444							1	-9.2				
ENSMUSP00000097451			1	-1.4								
ENSMUSP00000097469:reversed					1	-1.8						
ENSMUSP00000097527			1	-2.3					1	-1.4		
ENSMUSP00000097544:reversed			1	-2.5					1	-1.9		
ENSMUSP00000097560							1	-1.4				
ENSMUSP00000097566:reversed							1	-1.9				
ENSMUSP00000097568			1	-4.5	6	-18.1			3	-3.4	5	-29.1
ENSMUSP00000097580:reversed			1	-2.1	1	-1.5						
ENSMUSP00000097582	1	-1.7										
ENSMUSP00000097616:reversed	1	-1.6										
ENSMUSP00000097619:reversed											1	-1.6
ENSMUSP00000097621											1	-1.4
ENSMUSP00000097629:reversed											1	-1.6
ENSMUSP00000097632	5	-21.2					5	-21.9				
ENSMUSP00000097692:reversed									1	-1.9		
ENSMUSP00000097709							26	-64.4				
ENSMUSP00000097743					1	-2					1	-1.5
ENSMUSP00000097754			7	-11.8								
ENSMUSP00000097754:reversed									1	-1.6		
ENSMUSP00000097770									1	-2	1	-2.5
ENSMUSP00000097777:reversed											1	-1.4
ENSMUSP00000097782:reversed							2	-2.9				
ENSMUSP00000097792	2	-3.4	1	-3.8	6	-16.4	4	-25.2	6	-14.1	3	-12.4
ENSMUSP00000097792:reversed	1	-1.8										
ENSMUSP00000097851					7	-18.4					4	-18.4
ENSMUSP00000097859									4	-34.8	4	-17.5
ENSMUSP00000097878:reversed											2	-2.3
ENSMUSP00000097882	2	-8.6	1	-2	4	-19.4	4	-12.3			3	-11.2
ENSMUSP00000097908			1	-1.3								
ENSMUSP00000097936:reversed	1	-1.6										
ENSMUSP00000097941											1	-1.5
ENSMUSP00000097943	190	-302	224	-317	198	-315	232	-274	164	-340	163	-324
ENSMUSP00000097951									371	-597		
ENSMUSP00000097954			1	-1.4								
ENSMUSP00000097962			2	-8					2	-8.9		
ENSMUSP00000097973			1	-1.4								

ENSMUSP00000098000	1	-4.9	1	-8.1	1	-3.4			2	-2.4		
ENSMUSP00000098025	6	-18.8	5	-25	13	-56.9	14	-77.5	14	-82.5	10	-53.6
ENSMUSP00000098037			1	-1.9							1	-1.9
ENSMUSP00000098052	1	-4.4	2	-4.9			2	-5.9	2	-4.9	5	-26.5
ENSMUSP00000098053					2	-11.2	1	-5.2			1	-1.5
ENSMUSP00000098054			1	-2.2								
ENSMUSP00000098057:reversed							1	-1.4				
ENSMUSP00000098064:reversed			1	-2	1	-2.1						
ENSMUSP00000098066			72	-184	41	-154						
ENSMUSP00000098071:reversed											1	-2.3
ENSMUSP00000098076			3	-10.7	3	-11.6	1	-8.7	4	-11	9	-49.6
ENSMUSP00000098076:reversed									1	-1.6		
ENSMUSP00000098079			25	-54.6	28	-66.5			34	-80.5	18	-68.6
ENSMUSP00000098082							1	-1.4				
ENSMUSP00000098084							2	-3.3				
ENSMUSP00000098096			1	-2.3	1	-4.3	1	-2.2	2	-11.9	2	-9.2
ENSMUSP00000098102	5	-12.1					9	-14.1	13	-25.6	10	-15.5
ENSMUSP00000098104									1	-1.5		
ENSMUSP00000098108:reversed	1	-1.4							1	-1.5		
ENSMUSP00000098149									1	-1.7		
ENSMUSP00000098149:reversed									1	-2.1		
ENSMUSP00000098179			14	-29.3	10	-36.9					20	-50.6
ENSMUSP00000098230	1	-1.8	4	-15.3	7	-47.5	7	-26	5	-19	7	-33.5
ENSMUSP00000098233	1	-1.6										
ENSMUSP00000098239	10	-48.9			25	-51.2	12	-51.8	18	-66.1		
ENSMUSP00000098253					1	-6.2			2	-2.4		
ENSMUSP00000098274					1	-1.5						
ENSMUSP00000098293:reversed					1	-2						
ENSMUSP00000098306	132	-324	102	-312	104	-300	145	-304	116	-324	155	-337
ENSMUSP00000098321											1	-1.3
ENSMUSP00000098349	5	-23.1	14	-45.4	5	-28.6	4	-21.7	11	-51.1	12	-59.4
ENSMUSP00000098351:reversed	1	-1.9										
ENSMUSP00000098355					1	-1.7						
ENSMUSP00000098379									1	-1.8		
ENSMUSP00000098390			1	-2.6	1	-1.6	1	-8.1	6	-31.6	4	-17.4
ENSMUSP00000098391:reversed									1	-1.5		
ENSMUSP00000098401			1	-1.7								
ENSMUSP00000098406:reversed									1	-1.9		
ENSMUSP00000098409:reversed	2	-2	1	-1.6	1	-1.6					1	-1.8
ENSMUSP00000098418					2	-9.2						
ENSMUSP00000098418:reversed			1	-1.4								
ENSMUSP00000098444	1	-1.6										
ENSMUSP00000098502									1	-1.5		
ENSMUSP00000098508					1	-1.8						
ENSMUSP00000098524					2	-2.5						
ENSMUSP00000098525:reversed					1	-2.5						
ENSMUSP00000098538					1	-2						
ENSMUSP00000098558	2	-8.4										
ENSMUSP00000098570:reversed			1	-1.7								
ENSMUSP00000098571:reversed											1	-1.6
ENSMUSP00000098580									3	-16.9		
ENSMUSP00000098596					3	-9.9						
ENSMUSP00000098610											1	-1.6
ENSMUSP00000098613			2	-8.5								
ENSMUSP00000098616:reversed			1	-1.6								
ENSMUSP00000098631	8	-44.8	10	-43.9	9	-52	7	-28.4	11	-35	13	-35.2
ENSMUSP00000098635					1	-1.6						
ENSMUSP00000098640									5	-39.7		

ENSMUSP00000098644									1	-1.6	1	-1.6
ENSMUSP00000098656	1	-1.7										
ENSMUSP00000098684:reversed									1	-1.3		
ENSMUSP00000098747	109	-86.3	111	-145	152	-159	123	-111	120	-130	145	-128
ENSMUSP00000098765:reversed											1	-1.9
ENSMUSP00000098777			3	-9.7								
ENSMUSP00000098789											1	-1.7
ENSMUSP00000098791											2	-8
ENSMUSP00000098842	1	-1.5	6	-3					9	-2.7	5	-2.2
ENSMUSP00000098843					1	-5.7						
ENSMUSP00000098844	1	-1.7										
ENSMUSP00000098859	155	-300			64	-232			162	-432		
ENSMUSP00000098860									3	-26.2	2	-6.8
ENSMUSP00000098860:reversed					1	-3.1					1	-2.8
ENSMUSP00000098862:reversed	1	-1.4										
ENSMUSP00000098867	29	-113	38	-125	29	-112	34	-136	41	-182	36	-113
ENSMUSP00000098904							1	-2				
ENSMUSP00000098914											1	-1.6
ENSMUSP00000098918	7	-33.3	2	-10.2			8	-30	9	-21.6	8	-19.8
ENSMUSP00000098969							1	-3.8	2	-10.2	4	-3.7
ENSMUSP00000098996					1	-2.1						
ENSMUSP00000099007:reversed											3	-14.7
ENSMUSP00000099031									1	-4.1		
ENSMUSP00000099035	1	-4	5	-10.5	1	-5	4	-4.1	3	-4.7	5	-12.8
ENSMUSP00000099043:reversed									1	-1.4		
ENSMUSP00000099066							102	-296				
ENSMUSP00000099067	78	-297	95	-316	104	-318	102	-300	87	-306	78	-317
ENSMUSP00000099068									3	-14.3		
ENSMUSP00000099087			1	-2.9			3	-6.3	3	-18.1	2	-3.3
ENSMUSP00000099135:reversed											1	-1.9
ENSMUSP00000099136	13	-79.8	15	-85.5								
ENSMUSP00000099147									1	-1.3		
ENSMUSP00000099155			42	-53.2	11	-31.8			75	-50.7	36	-38.9
ENSMUSP00000099174:reversed					1	-1.3						
ENSMUSP00000099178	1	-1.4										
ENSMUSP00000099186:reversed									1	-1.4		
ENSMUSP00000099301	4	-11.5	12	-29.9	11	-42.3	19	-18.7	10	-30.3	16	-32.5
ENSMUSP00000099306					1	-1.8						
ENSMUSP00000099307									6	-30.5	4	-22.6
ENSMUSP00000099307:reversed											1	-2
ENSMUSP00000099310					1	-1.8						
ENSMUSP00000099320:reversed									1	-1.5		
ENSMUSP00000099321					3	-2.6						
ENSMUSP00000099331:reversed											1	-1.7
ENSMUSP00000099341									1	-1.9		
ENSMUSP00000099348					2	-7.8						
ENSMUSP00000099367									3	-12.7	3	-15.7
ENSMUSP00000099374:reversed			1	-2.2					1	-1.5		
ENSMUSP00000099375									3	-4.4	2	-9.9
ENSMUSP00000099388:reversed			1	-1.6								
ENSMUSP00000099390									2	-3.2	3	-23.8
ENSMUSP00000099393:reversed									1	-1.7		
ENSMUSP00000099399			30	-131	23	-80			25	-114	28	-105
ENSMUSP00000099403									2	-5.7	2	-7.4
ENSMUSP00000099411			1	-2.1					3	-12.6	4	-11.2
ENSMUSP00000099417			146	-517	213	-467			164	-522	149	-465
ENSMUSP00000099420									8	-31.7	3	-15.9
ENSMUSP00000099422					1	-1.6						

ENSMUSP00000099431			1	-9.2					1	-8.6		
ENSMUSP00000099435			13	-39.9	17	-21.9			26	-40.6	25	-33.5
ENSMUSP00000099436			47	-103	58	-117			49	-104	39	-72.7
ENSMUSP00000099441			1	-5.8								
ENSMUSP00000099441:reversed			1	-1.6								
ENSMUSP00000099450			2	-3.3	1	-2.1					1	-4.5
ENSMUSP00000099452			51	-184	54	-128			59	-156	34	-125
ENSMUSP00000099453			5	-30.1					4	-23.4	8	-36.3
ENSMUSP00000099465:reversed									1	-1.7		
ENSMUSP00000099469											1	-2.2
ENSMUSP00000099470			13	-33	13	-45.5			11	-42.5	10	-56.7
ENSMUSP00000099475			22	-118	27	-138			43	-170	38	-186
ENSMUSP00000099478			1	-4.4	2	-13.5			4	-25.7	3	-15.4
ENSMUSP00000099481			3	-2.7					3	-4	1	-1.8
ENSMUSP00000099486			1	-1.6							2	-8.3
ENSMUSP00000099490					20	-121			38	-242	32	-194
ENSMUSP00000099496			2	-11.6	1	-1.9			7	-31.9	3	-24.7
ENSMUSP00000099503:reversed									1	-1.3		
ENSMUSP00000099506			6	-34.9	4	-12.3			6	-31.3	9	-23.2
ENSMUSP00000099510									1	-2.7		
ENSMUSP00000099519			1	-1.4								
ENSMUSP00000099522			1	-1.9	2	-5.1			6	-19.7	4	-12.1
ENSMUSP00000099534			5	-11.5	3	-12.3			10	-12.2	4	-16.3
ENSMUSP00000099538			1	-3.4								
ENSMUSP00000099541			7	-17.1	3	-11.7			1	-1.7		
ENSMUSP00000099542					2	-8.5					3	-7
ENSMUSP00000099546					1	-1.5						
ENSMUSP00000099563			4	-12.5	2	-4.3			4	-16.4	5	-21.3
ENSMUSP00000099564			1	-1.3								
ENSMUSP00000099566			3	-14.1	3	-4.5					2	-3
ENSMUSP00000099567									1	-3		
ENSMUSP00000099568			4	-19					4	-21.7	3	-9.9
ENSMUSP00000099572:reversed					1	-2						
ENSMUSP00000099574			3	-14.5	6	-8.2			6	-34.7	11	-37.8
ENSMUSP00000099576			43	-178	50	-233			26	-181		
ENSMUSP00000099584									1	-2.3		
ENSMUSP00000099592:reversed									2	-11.9		
ENSMUSP00000099598											1	-1.9
ENSMUSP00000099614			1	-1.4								
ENSMUSP00000099615									1	-1.6		
ENSMUSP00000099622			40	-36	27	-43.6			24	-48.6	15	-32.1
ENSMUSP00000099626			3	-10.9	6	-34.8			6	-37.7	4	-20.7
ENSMUSP00000099632			35	-38.1	30	-35.7			60	-39.5	47	-36.4
ENSMUSP00000099634			17	-79.3	16	-66			9	-46.2	13	-64.2
ENSMUSP00000099635:reversed									1	-1.6		
ENSMUSP00000099642			13	-72.1	11	-71.4			25	-129	27	-172
ENSMUSP00000099649			17	-69.5					21	-99.1	27	-99.4
ENSMUSP00000099653									1	-3.4		
ENSMUSP00000099664									3	-4.2	1	-2.4
ENSMUSP00000099666			3	-4.9	2	-5.2			5	-21.2	3	-8.6
ENSMUSP00000099668			3	-10.6					1	-2.3		
ENSMUSP00000099671:reversed			1	-2.4								
ENSMUSP00000099677			1	-4.2					2	-2.3	3	-21
ENSMUSP00000099683					2	-8.5						
ENSMUSP00000099692			11	-38.4	6	-5.5			16	-37.2	5	-25.1
ENSMUSP00000099698											1	-2.3
ENSMUSP00000099699:reversed					1	-1.4						
ENSMUSP00000099715:reversed											1	-1.4

ENSMUSP00000099716												1	-1.5
ENSMUSP00000099730			21	-51	24	-53				60	-57.4	18	-52.7
ENSMUSP00000099732			1	-1.8									
ENSMUSP00000099735			1	-3									
ENSMUSP00000099751:reversed					1	-2.1							
ENSMUSP00000099755			1	-3.8	1	-4.7						1	-3.6
ENSMUSP00000099761			78	-205	103	-256				105	-252	115	-309
ENSMUSP00000099768			3	-22.6	2	-15.4				3	-13.7	8	-34.6
ENSMUSP00000099769			2	-4.3	2	-7.5				2	-4.9	3	-3.2
ENSMUSP00000099771			45	-138	64	-230				38	-132	31	-120
ENSMUSP00000099787										1	-1.7		
ENSMUSP00000099788			1	-4.3									
ENSMUSP00000099795			93	-228	51	-187				70	-197	50	-169
ENSMUSP00000099796			2	-9.8	1	-1.9							
ENSMUSP00000099815:reversed										1	-3.1		
ENSMUSP00000099818										1	-3.7		
ENSMUSP00000099819			165	-328	148	-336				166	-346	229	-433
ENSMUSP00000099834										4	-27.9	2	-19.1
ENSMUSP00000099841			2	-9.5						2	-10.8	3	-9.8
ENSMUSP00000099842			1	-2.9	2	-3.5							
ENSMUSP00000099843			4	-13.7	1	-1.5				2	-4.2		
ENSMUSP00000099844			19	-115	37	-173				29	-143	11	-68.6
ENSMUSP00000099845												1	-2.8
ENSMUSP00000099852					1	-1.3							
ENSMUSP00000099853			5	-22	5	-17.4				5	-20.5	4	-8.6
ENSMUSP00000099859					1	-1.5							
ENSMUSP00000099894:reversed												1	-2.2
ENSMUSP00000099898					8	-34.7							
ENSMUSP00000099904			52	-208	58	-201				60	-172	31	-165
ENSMUSP00000099907			16	-30.2								6	-33.9
ENSMUSP00000099910					3	-11.9				3	-12	1	-1.7
ENSMUSP00000099922			58	-168	41	-177						51	-188
ENSMUSP00000099928:reversed			1	-1.5									
ENSMUSP00000099938			38	-77	29	-100				37	-60	39	-77.1
ENSMUSP00000099939			50	-121	43	-137				32	-143	32	-132
ENSMUSP00000099946												2	-9
ENSMUSP00000099946:reversed			1	-1.5								4	-23.1
ENSMUSP00000099949					1	-1.5							
ENSMUSP00000099950			43	-119	38	-121				30	-123	19	-86.1
ENSMUSP00000099953										2	-9.5	1	-1.9
ENSMUSP00000099965			49	-93.6	44	-101				47	-136	37	-91.6
ENSMUSP00000099975					6	-3.8							
ENSMUSP00000099977					1	-4.9				5	-40.2		
ENSMUSP00000099983			6	-27.6	5	-17.8				7	-21.7	5	-28.6
ENSMUSP00000099984			2	-11									
ENSMUSP00000099991					1	-1.3							
ENSMUSP00000100001					3	-19.8				3	-15.7	3	-16.5
ENSMUSP00000100003:reversed			2	-7.8									
ENSMUSP00000100006					1	-1.4							
ENSMUSP00000100021			17	-58.9	4	-18.8						16	-80.4
ENSMUSP00000100038			40	-177	32	-121				31	-152	32	-131
ENSMUSP00000100046			56	-52.6						54	-53.9		
ENSMUSP00000100049					62	-129							
ENSMUSP00000100056:reversed										1	-1.8		
ENSMUSP00000100067										1	-1.3	1	-6.6
ENSMUSP00000100074			2	-5.8	5	-22.6				6	-16.5	4	-14.4
ENSMUSP00000100077			19	-78.9	13	-43.3				29	-112	38	-55.7
ENSMUSP00000100086					1	-1.6							

ENSMUSP00000100133									1	-1.4		
ENSMUSP00000100206									1	-1.8		
ENSMUSP00000100207											1	-4.2
ENSMUSP00000100221									1	-3		
ENSMUSP00000100229:reversed			1	-1.5								
ENSMUSP00000100232											1	-1.5
ENSMUSP00000100232:reversed					1	-1.3						
ENSMUSP00000100271									1	-1.3		
sp ALBU_HUMAN					1	-1.7						
sp ANT3_HUMAN :reversed					1	-2.5						
sp B2MG_HUMAN :reversed					1	-1.4						
sp BID_HUMAN :reversed							1	-3.5				
sp CAH1_HUMAN :reversed			1	-1.8							1	-1.5
sp CAS1_BOVIN					1	-5.2			1	-3.9	2	-5.1
sp CAS2_BOVIN							7	-31			1	-2.1
sp CASB_BOVIN							1	-8.8				
sp CASK_BOVIN							3	-18.6				
sp CATG_HUMAN			1	-1.3								
sp CTRB_BOVIN :reversed			1	-1.7								
sp HBA_HUMAN							3	-3.3				
sp K1C10_HUMAN	26	-86.2	52	-175	14	-78	14	-71.1	28	-98	28	-130
sp K1C15_SHEEP	14	-17.2									6	-26.5
sp K1C9_HUMAN	11	-61.1	44	-174	38	-115	7	-35.4	31	-137	23	-90.7
sp K1H2_HUMAN					1	-1.7						
sp K22E_HUMAN	21	-120	47	-231	34	-189	13	-66.2	31	-106	20	-87.2
sp K2C1_HUMAN	55	-192	99	-301	68	-254	18	-94.1	64	-289	48	-168
sp KRHB4_HUMAN											2	-10.5
sp KRUC_SHEEP :reversed											1	-1.5
sp TRFL_HUMAN :reversed									1	-1.6		
sp TRYP_PIG	26	-63.7	90	-99.9	69	-91.6	25	-48.4	68	-133	72	-107

Supplementary Table 6:
Label-free Quantification of Identified Liver Membrane Proteins in Control or Tumor-Bearing Mice

Ave = Average

NSAF = Normalised Spectral Abundance Factor

SE = Standard Error of the Mean

Prob. = Probability (Student T-test)

TM = Transmembrane Segments

Ensemble Accession	Controls		Tumors		Prob.	TM	Protein Description
	Ave NSAF	SE	Ave NSAF	SE			
ENSMUSP000000000001	3.062	0.487	3.211	0.077	0.690		0 guanine nucleotide binding protein, alpha inhibiting 3
ENSMUSP000000000090	50.314	3.814	39.342	3.553	0.101		0 cytochrome c oxidase, subunit Va
ENSMUSP000000000137	0.616	0.093	0.577	0.301	0.527		0 ARP2 actin-related protein 2 homolog (yeast)
ENSMUSP000000000153	0.640	0.232	0.605	0.149	0.961		0 guanine nucleotide binding protein, alpha 12
ENSMUSP000000000175	0.498	0.195	1.066	0.260	0.218		0 succinate dehydrogenase complex, subunit D, integral membrane protein
ENSMUSP000000000299	0.022	0.001	0.783	0.048	0.000		1 integrin beta-2 precursor (Cell surface adhesion glycoproteins LFA- 1/CR3/p150,95 subunit beta) 1 (Complement receptor C3 subunit beta) (CD18 antigen).
ENSMUSP000000000335	22.566	2.511	21.900	0.220	0.897		1 catechol-O-methyltransferase
ENSMUSP000000000430	0.085	0.053	0.851	0.305	0.029		Polypeptide N-acetylgalactosaminyltransferase 1 (EC 2.4.1.41) (Protein-UDP acetylgalactosaminyltransferase 1) (UDP- GalNAc:polypeptide N-acetylgalactosaminyltransferase 1) 1 (Polypeptide GalNAc transferase 1) (GalNAc-T1) (pp-GaNTase 1)
ENSMUSP000000000687	3.054	0.890	3.171	0.705	0.845		0 3-hydroxyanthranilate 3,4-dioxygenase
ENSMUSP000000000727	7.428	2.423	8.554	1.672	0.610		0 RAB5B, member RAS oncogene family
ENSMUSP000000000754	0.382	0.173	1.052	0.178	0.074		2 spastic paraplegia 7 homolog (human)
ENSMUSP000000000756	19.131	3.217	26.814	5.520	0.339		0 ribosomal protein L13
ENSMUSP000000001027	0.277	0.064	0.332	0.057	0.514		0 aldehyde oxidase 1
ENSMUSP000000001166	0.205	0.048	0.059	0.039	0.072		5 cyclin M3
ENSMUSP000000001171	0.692	0.180	0.588	0.213	0.687		1 lectin, mannose-binding 2-like
ENSMUSP000000001183	8.169	1.414	5.704	0.120	0.115		0 formiminotransferase cyclodeaminase
ENSMUSP000000001240	6.044	1.596	3.256	0.552	0.125		3 1-acylglycerol-3-phosphate O-acyltransferase 3
ENSMUSP000000001279	1.882	0.604	2.501	0.574	0.427		1 lipolysis stimulated lipoprotein receptor
ENSMUSP000000001331	0.553	0.152	0.182	0.145	0.119		0 melanocyte proliferating gene 1
ENSMUSP000000001460	0.729	0.191	1.075	0.074	0.152		0 staphylococcal nuclease and tudor domain containing 1

ENSMUSP00000001479	0.274	0.028	0.597	0.040	0.003	0	karyopherin (importin) beta 1
ENSMUSP00000001507	2.914	0.429	2.241	0.821	0.426	1	cytochrome P450, family 51
ENSMUSP00000001520	0.461	0.130	0.392	0.073	0.744	0	AFG3(ATPase family gene 3)-like 1 (yeast)
ENSMUSP00000001548	0.105	0.050	0.114	0.022	0.587	2	integrin alpha 3
ENSMUSP00000001566	2.167	0.958	2.102	0.530	0.712	0	tubulin, beta 5
ENSMUSP00000001569	0.484	0.116	0.289	0.256	0.229	0	flotillin 1
ENSMUSP00000001592	0.403	0.191	0.311	0.100	0.818	0	
ENSMUSP00000001619	3.919	0.228	4.978	1.033	0.482	2	endoplasmic reticulum-golgi intermediate compartment (ERGIC) 1
ENSMUSP00000001713	6.579	0.633	5.461	1.276	0.452	0	glutathione S-transferase, theta 1
ENSMUSP00000001715	2.957	0.861	1.179	0.245	0.117	0	glutathione S-transferase, theta 3
ENSMUSP00000001746	0.280	0.053	0.185	0.093	0.350	1	
ENSMUSP00000001801	1.482	0.175	2.211	0.308	0.098	8	T-cell, immune regulator 1, ATPase, H+ transporting, lysosomal V0 protein A3
ENSMUSP00000001802	0.417	0.137	0.276	0.101	0.403	0	alpha-N-acetylglucosaminidase (Sanfilippo disease IIIB)
ENSMUSP00000001806	0.539	0.167	0.359	0.052	0.545	0	Coenzyme A synthase
ENSMUSP00000001809	0.122	0.094	0.958	0.438	0.049	0	Polyadenylate-binding protein 1 (Poly(A)-binding protein 1) (PABP 1).
ENSMUSP00000001826	0.347	0.070	0.219	0.113	0.351	1	N-acetylated alpha-linked acidic dipeptidase 2
ENSMUSP00000002011	0.456	0.092	0.106	0.070	0.053	1	endothelial cell-specific adhesion molecule
ENSMUSP00000002029	2.614	0.994	3.257	0.161	0.440	1	emerin
ENSMUSP00000002043	3.726	0.477	5.431	0.425	0.065	0	coiled-coil domain containing 47
ENSMUSP00000002084	0.236	0.110	0.314	0.136	0.573	0	
ENSMUSP00000002090	16.811	1.758	26.643	2.144	0.027	1	signal sequence receptor, delta
ENSMUSP00000002091	12.617	3.482	10.923	2.351	0.749	2	B-cell receptor-associated protein 31
ENSMUSP00000002171	0.746	0.136	0.747	0.117	0.957	0	proteasome (prosome, macropain) 26S subunit, ATPase 3
ENSMUSP00000002297	0.110	0.052	0.174	0.047	0.379	0	Putative helicase MOV-10 (EC 3.6.1.-) (Moloney leukemia virus 10 protein).
ENSMUSP00000002389	1.786	0.734	1.850	0.231	0.689	0	transglutaminase 1, K polypeptide
ENSMUSP00000002391	2.617	0.619	3.115	0.161	0.428	9	transmembrane 9 superfamily member 1
ENSMUSP00000002403	7.535	1.380	5.036	0.914	0.209	0	dehydrogenase/reductase (SDR family) member 1
ENSMUSP00000002549	1.635	0.753	3.054	0.923	0.237	1	abhydrolase domain containing 3
ENSMUSP00000002551	6.571	0.774	6.399	0.412	0.914	0	small nuclear ribonucleoprotein D1
ENSMUSP00000002663	7.742	1.055	5.099	1.048	0.131	0	paraoxonase 1
ENSMUSP00000002790	0.315	0.117	0.399	0.024	0.406	0	chromosome segregation 1-like (S. cerevisiae)
ENSMUSP00000002837	3.032	0.925	3.451	0.647	0.619	2	transmembrane emp24 protein transport domain containing 5
ENSMUSP00000002840	0.278	0.030	0.258	0.125	0.520	0	peroxisomal biogenesis factor 6
ENSMUSP00000002846	8.046	0.420	6.315	0.495	0.062	0	glycine N-methyltransferase
ENSMUSP00000002850	2.087	0.458	1.391	0.242	0.286	14	ATP-binding cassette, sub-family C (CFTR/MRP), member 6
ENSMUSP00000002855	4.011	0.134	3.636	0.945	0.586	4	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention

ENSMUSP00000002925	3.229	1.569	3.543	0.639	0.597	3	RIKEN cDNA 4930455C21 gene
ENSMUSP00000002980	1.238	0.272	0.930	0.359	0.415	0	dihydrolipoamide dehydrogenase
ENSMUSP00000003017	0.094	0.062	0.280	0.104	0.126	1	Thromboxane-A synthase (EC 5.3.99.5) (TXA synthase) (TXS) (TS) (Cytochrome P450 5A1).
ENSMUSP00000003038	0.220	0.101	0.330	0.036	0.370	0	
ENSMUSP00000003066	8.541	0.819	13.996	2.559	0.080	0	apolipoprotein E
ENSMUSP00000003100	59.716	4.449	55.427	6.027	0.573	1	cytochrome P450, family 2, subfamily f, polypeptide 2
ENSMUSP00000003137	100.390	8.105	105.087	3.115	0.595	0	cytochrome P450, family 2, subfamily c, polypeptide 29
ENSMUSP00000003156	1.445	0.218	2.458	1.000	0.676	0	ATP synthase, H+ transporting, mitochondrial F1 complex, delta subunit
ENSMUSP00000003404	0.979	0.175	1.075	0.181	0.739	1	golgi apparatus protein 1
ENSMUSP00000003445	1.672	0.302	2.582	0.288	0.118	1	FK506 binding protein 11
ENSMUSP00000003461	0.017	0.000	0.171	0.004	0.000	0	oxoglutarate dehydrogenase (lipoamide)
ENSMUSP00000003512	2.865	0.917	1.686	0.403	0.305	1	Fc receptor, IgG, alpha chain transporter
ENSMUSP00000003550	0.549	0.337	0.846	0.079	0.335	1	Nicastrin precursor.
ENSMUSP00000003569	2.856	0.321	1.083	0.581	0.088	0	indolethylamine N-methyltransferase
ENSMUSP00000003620	5.140	0.910	3.545	0.551	0.228	0	proline dehydrogenase
ENSMUSP00000003622	10.921	2.508	11.514	1.206	0.726	0	solute carrier family 25 (mitochondrial carrier, citrate transporter), member 1
ENSMUSP00000003681	3.700	0.150	2.163	0.904	0.177	0	SEC14-like 2 (S. cerevisiae)
ENSMUSP00000003717	0.914	0.100	0.373	0.123	0.085	10	ATP-binding cassette, sub-family B (MDR/TAP), member 4
ENSMUSP00000003843	9.332	0.286	12.860	1.256	0.038	2	mannosidase 1, alpha
ENSMUSP00000004057	8.583	2.965	8.811	1.338	0.738	1	RIKEN cDNA 2310056P07 gene
ENSMUSP00000004072	5.870	1.409	4.888	1.015	0.681	0	ribosomal protein L8
ENSMUSP00000004097	0.059	0.047	0.482	0.113	0.033	0	cut-like 1 (Drosophila)
ENSMUSP00000004136	0.370	0.145	0.685	0.136	0.263	0	glutathione S-transferase, mu 3
ENSMUSP00000004140	15.405	3.025	15.751	0.612	0.780	0	glutathione S-transferase, mu 1
ENSMUSP00000004172	7.464	0.398	6.166	0.427	0.097	1	heme oxygenase (decycling) 2
ENSMUSP00000004192	2.037	0.234	1.902	0.228	0.695	1	integrin beta 1 (fibronectin receptor beta)
ENSMUSP00000004232	10.073	2.765	7.077	1.610	0.397	0	alcohol dehydrogenase 1 (class I)
ENSMUSP00000004375	32.371	2.454	39.416	3.780	0.199	0	prohibitin 2
ENSMUSP00000004381	4.046	0.536	3.314	0.081	0.263	7	membrane bound O-acyltransferase domain containing 5
ENSMUSP00000004508	7.682	0.310	6.676	0.874	0.310	2	transmembrane emp24 protein transport domain containing 4
ENSMUSP00000004554	6.222	2.593	4.697	1.220	0.757	0	ribosomal protein S5
ENSMUSP00000004565	3.123	1.669	2.424	0.497	0.644	0	v-ral simian leukemia viral oncogene homolog B (ras related)
ENSMUSP00000004673	1.868	0.421	1.419	0.423	0.427	0	N-myc downstream regulated gene 2
ENSMUSP00000004681	0.373	0.152	0.132	0.072	0.286	1	patatin-like phospholipase domain containing 6
ENSMUSP00000004715	1.529	0.311	0.749	0.045	0.031	1	motile sperm domain containing 2
ENSMUSP00000004729	5.851	1.354	3.245	1.062	0.230	0	electron transferring flavoprotein, beta polypeptide

ENSMUSP00000004774	5.894	1.183	5.013	1.066	0.625	6	aquaporin 1
ENSMUSP00000004868	8.811	1.621	5.998	1.009	0.205	0	RIKEN cDNA 1700020C11 gene
ENSMUSP00000004892	0.538	0.266	7.920	7.121	0.224	0	RAB11a, member RAS oncogene family
ENSMUSP00000004911	4.081	0.804	6.800	1.217	0.120	0	dihydroliipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex)
ENSMUSP00000005292	0.240	0.150	0.616	0.145	0.116	0	Peroxiredoxin-2 (EC 1.11.1.15) (Thioredoxin peroxidase 1) (Thioredoxin-dependent peroxide reductase 1) (Thiol-specific antioxidant protein) (TSA).
ENSMUSP00000005431	5.093	0.470	4.933	0.661	0.817	1	leucine zipper-EF-hand containing transmembrane protein 1
ENSMUSP00000005508	6.102	1.140	4.593	0.641	0.369	1	transducin (beta)-like 2
ENSMUSP00000005548	0.279	0.109	2.025	0.729	0.064	1	heme oxygenase (decycling) 1
ENSMUSP00000005647	0.066	0.002	7.611	1.698	0.000	0	NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial precursor (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase 30 kDa subunit) (Complex I-30kD) (CI-30kD).
ENSMUSP00000005651	51.789	10.323	43.371	4.007	0.511	1	P450 (cytochrome) oxidoreductase
ENSMUSP00000005685	23.231	1.756	15.706	2.012	0.049	1	cytochrome P450, family 2, subfamily a, polypeptide 5
ENSMUSP00000005824	2.678	0.294	2.514	1.681	0.469	0	apolipoprotein A-II
ENSMUSP00000005826	0.582	0.272	0.723	0.206	0.509	0	
ENSMUSP00000005923	10.973	1.015	12.083	0.290	0.350	0	proteasome (prosome, macropain) subunit, beta type 4
ENSMUSP00000005953	7.611	1.147	10.843	1.363	0.127	0	sulfide quinone reductase-like (yeast)
ENSMUSP00000005964	0.384	0.169	0.906	0.231	0.233	0	Alcohol dehydrogenase class-3 (EC 1.1.1.1) (Alcohol dehydrogenase class-III) (Alcohol dehydrogenase 2) (S-(hydroxymethyl)glutathione dehydrogenase) (EC 1.1.1.284) (Glutathione-dependent formaldehyde dehydrogenase) (FDH) (FALDH) (Alcohol dehydrogenase-B2)
ENSMUSP00000005975	0.084	0.052	0.307	0.007	0.048	7	G protein-coupled receptor 108
ENSMUSP00000006061	0.244	0.075	0.184	0.025	0.731	0	PEX1_MOUSE Isoform 2 of Q5BL07 - Mus musculus (Mouse)
ENSMUSP00000006094	25.643	2.830	25.393	1.506	0.997	3	cytochrome P450, family 2, subfamily d, polypeptide 26
ENSMUSP00000006137	0.562	0.117	0.322	0.035	0.078	0	TNF receptor-associated protein 1
ENSMUSP00000006235	0.335	0.169	0.993	0.375	0.171	0	cathepsin B
ENSMUSP00000006478	1.513	0.167	0.064	0.002	0.000	6	transmembrane protein 147
ENSMUSP00000006496	8.176	1.754	6.625	1.154	0.536	0	ribosomal protein S9
ENSMUSP00000006544	1.423	0.101	0.617	0.202	0.040	0	glycine C-acetyltransferase (2-amino-3-ketobutyrate-coenzyme A ligase)
ENSMUSP00000006667	0.020	0.012	0.148	0.021	0.018	0	very large inducible GTPase 1
ENSMUSP00000006697	0.128	0.064	0.315	0.104	0.253	0	Inter-alpha-trypsin inhibitor heavy chain H3 precursor (ITI heavy chain H3) (ITI-HC3) (Inter-alpha-inhibitor heavy chain 3).
ENSMUSP00000006703	0.053	0.035	0.418	0.131	0.034	0	inter alpha-trypsin inhibitor, heavy chain 4
ENSMUSP00000006704	0.119	0.099	0.222	0.080	0.243	0	Inter-alpha-trypsin inhibitor heavy chain H1 precursor (ITI heavy chain H1) (Inter-alpha-inhibitor heavy chain 1).
ENSMUSP00000006742	0.676	0.258	1.382	0.428	0.186	7	ATPase, Cu++ transporting, beta polypeptide
ENSMUSP00000006749	0.291	0.059	1.935	0.165	0.001	12	solute carrier family 4 (anion exchanger), member 1
ENSMUSP00000006814	1.605	0.702	0.811	0.190	0.407	2	abhydrolase domain containing 1
ENSMUSP00000006838	0.235	0.113	0.294	0.032	0.454	0	glutamyl-tRNA synthetase
ENSMUSP00000006854	0.277	0.108	0.266	0.123	0.914	1	ubiquitin specific peptidase 19

ENSMUSP00000007207	0.654	0.188	0.707	0.309	0.777	11	chloride channel 2
ENSMUSP00000007216	1.260	0.553	1.080	0.233	0.997	0	adaptor protein complex AP-2, mu1
ENSMUSP00000007251	0.899	0.280	1.084	0.148	0.466	2	HLA-B associated transcript 5
ENSMUSP00000007340	0.753	0.118	0.251	0.238	0.117	8	ATPase, H+/K+ transporting, nongastric, alpha polypeptide
ENSMUSP00000007602	14.041	5.887	8.051	1.333	0.377	1	mannose-6-phosphate receptor, cation dependent
ENSMUSP00000007959	8.076	1.680	7.291	1.316	0.746	0	ras homolog gene family, member A
ENSMUSP00000007977	1.768	0.443	1.217	0.064	0.398	0	aldehyde dehydrogenase 16 family, member A1
ENSMUSP00000008477	0.627	0.352	0.777	0.213	0.497	0	
ENSMUSP00000008684	648.846	21.805	646.920	50.885	0.929	2	microsomal glutathione S-transferase 1
ENSMUSP00000008801	1.602	0.326	2.950	0.994	0.207	0	cytochrome P450, family 4, subfamily f, polypeptide 15
ENSMUSP00000008907	1.995	0.642	5.001	0.962	0.079	1	mannosidase, alpha, class 1A, member 2
ENSMUSP00000008991	0.143	0.056	0.096	0.024	0.506	0	spectrin beta 3
ENSMUSP00000009003	3.715	1.027	0.603	0.533	0.063	0	v-ral simian leukemia viral oncogene homolog A (
ENSMUSP00000009256	2.080	0.462	1.149	0.482	0.187	1	BCL2-like 13 (apoptosis facilitator)
ENSMUSP00000010049	4.089	1.551	1.916	0.484	0.343	1	follicular lymphoma variant translocation 1
ENSMUSP00000010189	0.521	0.251	0.868	0.249	0.363	8	transmembrane protein 115
ENSMUSP00000010191	0.577	0.062	0.258	0.060	0.026	0	hyaluronoglucosaminidase 2
ENSMUSP00000010239	2.107	0.182	1.703	0.271	0.265	1	solute carrier family 3 (activators of dibasic and neutral amino acid transport), member 2
ENSMUSP00000010536	1.454	0.522	3.823	1.564	0.176	1	golgi SNAP receptor complex member 1
ENSMUSP00000010795	2.681	0.414	0.477	0.069	0.001	0	acetyl-Coenzyme A acyltransferase 1B
ENSMUSP00000010807	6.800	0.836	6.280	0.596	0.650	4	fatty acid desaturase 1
ENSMUSP00000010974	0.966	0.443	1.839	0.574	0.346	5	ER lumen protein retaining receptor 3 (KDEL receptor 3) (KDEL endoplasmic reticulum protein retention receptor 3).
ENSMUSP00000011492	0.951	0.183	0.842	0.251	0.650	0	acyl-Coenzyme A dehydrogenase family, member 9
ENSMUSP00000011526	0.911	0.144	1.023	0.383	0.878	0	dihydrodiol dehydrogenase (dimeric)
ENSMUSP00000012572	2.525	0.297	3.647	0.271	0.049	5	STEAP family member 4
ENSMUSP00000013304	1.146	0.032	0.976	0.540	0.449	0	ATPase, H+ transporting, lysosomal V0 subunit D1
ENSMUSP00000013737	0.466	0.328	5.101	0.659	0.035	0	NADH dehydrogenase (ubiquinone) Fe-S protein 2
ENSMUSP00000013773	0.152	0.017	0.236	0.029	0.065	0	carbamoyl-phosphate synthetase 2, aspartate transcarbamylase, and dihydroorotase
ENSMUSP00000014141	0.754	0.112	0.883	0.183	0.676	0	nitrilase 1
ENSMUSP00000014221	3.249	0.984	2.528	0.859	0.567	0	RIKEN cDNA 1500003O03 gene
ENSMUSP00000014263	5.811	0.280	3.528	0.665	0.071	1	UDP glucuronosyltransferase 1 family, polypeptide a6
ENSMUSP00000014321	0.863	0.150	2.474	1.291	0.926	4	
ENSMUSP00000014438	0.839	0.666	1.508	0.299	0.219	0	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2 (NADH- ubiquinone oxidoreductase B8 subunit) (Complex I-B8) (CI-B8).
ENSMUSP00000014457	35.296	6.080	21.703	3.321	0.097	1	cytochrome c oxidase, subunit VIc
ENSMUSP00000014525	11.814	1.634	11.917	1.063	0.909	2	cytochrome P450, family 2, subfamily d, polypeptide 13

ENSMUSP00000014686	0.498	0.053	2.549	0.240	0.000	1	C-type lectin domain family 4, member f
ENSMUSP00000014750	26.662	3.505	29.041	1.482	0.503	0	solute carrier family 25 (mitochondrial carrier oxoglutarate carrier), member 11
ENSMUSP00000014913	22.552	1.787	21.670	2.114	0.748	0	proteasome (prosome, macropain) subunit, beta type 1
ENSMUSP00000015011	13.841	2.563	15.818	0.388	0.453	5	surfeit gene 4
ENSMUSP00000015146	2.237	0.245	1.565	0.321	0.197	0	RIKEN cDNA C920006C10 gene
ENSMUSP00000015256	48.641	4.574	43.769	2.092	0.390	0	solute carrier family 25 (mitochondrial carrier, adenine nucleotide translocator), member 13
ENSMUSP00000015333	0.022	0.001	0.285	0.031	0.000	12	CAS1 domain-containing protein 1 precursor
ENSMUSP00000015391	1.226	0.597	1.254	0.136	0.550	0	
ENSMUSP00000015484	0.204	0.101	1.438	0.372	0.045	4	cytochrome b-245, beta polypeptide
ENSMUSP00000015632	0.856	0.201	1.651	0.183	0.046	3	RIKEN cDNA 5930434B04 gene
ENSMUSP00000015725	2.448	1.266	1.015	0.326	0.931	1	
ENSMUSP00000015800	15.713	2.096	19.833	0.592	0.160	0	heat shock protein 8
ENSMUSP00000015815	20.757	3.797	18.398	2.527	0.681	0	proteasome (prosome, macropain) subunit, alpha type 2
ENSMUSP00000015829	0.339	0.080	0.033	0.001	0.001	0	acyl-Coenzyme A dehydrogenase, short/branched chain
ENSMUSP00000015858	5.560	0.827	7.684	1.241	0.237	6	longevity assurance homolog 2 (S. cerevisiae)
ENSMUSP00000015891	1.816	0.301	1.843	0.203	0.885	0	vacuolar protein sorting 45 (yeast)
ENSMUSP00000015934	1.508	0.247	1.354	0.466	0.640	2	surfeit gene 1
ENSMUSP00000015941	1.115	0.177	1.376	0.362	0.603	0	betaine-homocysteine methyltransferase 2
ENSMUSP00000015950	5.744	0.885	3.475	0.398	0.068	0	quinoid dihydropteridine reductase
ENSMUSP00000016031	2.573	0.454	1.903	0.244	0.248	0	histidine ammonia lyase
ENSMUSP00000016034	2.654	0.319	1.846	0.234	0.113	0	amidohydrolase domain containing 1
ENSMUSP00000016072	0.186	0.020	0.227	0.053	0.657	1	ribosome binding protein 1
ENSMUSP00000016081	0.047	0.001	0.963	0.243	0.001	0	H2A histone family, member Y
ENSMUSP00000016338	50.637	4.483	57.339	3.448	0.302	1	hydroxysteroid 11-beta dehydrogenase 1
ENSMUSP00000016463	94.282	6.516	111.418	6.277	0.127	2	solute carrier family 25 (mitochondrial carrier, adenine nucleotide translocator), member 5
ENSMUSP00000017086	0.545	0.254	0.643	0.244	0.742	1	transmembrane serine protease 6
ENSMUSP00000017153	1.227	0.449	1.553	0.358	0.525	1	syndecan 4
ENSMUSP00000017316	0.996	0.497	0.709	0.156	0.642	4	
ENSMUSP00000017332	4.825	1.964	5.529	0.832	0.555	1	coiled-coil domain containing 56
ENSMUSP00000017365	1.682	0.315	1.348	0.229	0.495	0	proteasome (prosome, macropain) 26S subunit, non-ATPase, 3
ENSMUSP00000017430	1.700	0.527	0.409	0.096	0.044	0	glyoxalase domain containing 4
ENSMUSP00000017488	0.105	0.070	0.472	0.098	0.047	0	vitronectin
ENSMUSP00000017597	0.694	0.203	0.313	0.074	0.163	0	pipecolic acid oxidase
ENSMUSP00000017620	1.489	0.309	3.048	0.655	0.103	0	calcium activated nucleotidase 1
ENSMUSP00000017831	1.374	0.153	1.142	0.192	0.408	1	ras homolog gene family, member T1
ENSMUSP00000017865	0.257	0.228	0.347	0.051	0.265	1	GPI transamidase component PIG-T

ENSMUSP00000017900	0.336	0.160	0.383	0.044	0.490	11	Solute carrier family 12 member 7 (Electroneutral potassium-chloride cotransporter 4) (K-Cl cotransporter 4).
ENSMUSP00000017904	0.158	0.122	0.248	0.058	0.268	0	Lysosomal protective protein precursor (EC 3.4.16.5) (Cathepsin A) (Carboxypeptidase C) (Protective protein for beta-galactosidase) [Contains: Lysosomal protective protein 32 kDa chain; Lysosomal protective protein 20 kDa chain].
ENSMUSP00000017922	129.447	25.206	196.053	15.551	0.094	1	cytochrome c oxidase, subunit VIIc
ENSMUSP00000017946	0.315	0.189	0.656	0.096	0.210	2	RIKEN cDNA 1300010M03 gene
ENSMUSP00000017975	9.502	2.959	10.800	1.417	0.586	0	RAB5A, member RAS oncogene family
ENSMUSP00000018315	1.694	0.356	1.278	0.142	0.402	6	transmembrane protein 49
ENSMUSP00000018430	6.378	2.691	6.446	0.823	0.664	0	proteasome (prosome, macropain) subunit, beta type 6
ENSMUSP00000018437	13.196	1.944	14.220	0.864	0.581	0	profilin 1
ENSMUSP00000018586	2.394	0.859	2.866	0.287	0.500	4	Der1-like domain family, member 2
ENSMUSP00000018699	16.677	4.755	13.130	0.430	0.571	1	asialoglycoprotein receptor 1
ENSMUSP00000018718	1.815	0.592	1.173	0.270	0.551	0	Very long-chain specific acyl-CoA dehydrogenase, mitochondrial
ENSMUSP00000018743	0.456	0.110	0.152	0.061	0.129	1	Smith-Magenis syndrome chromosome region, candidate 7 homolog
ENSMUSP00000018744	1.123	0.266	0.648	0.122	0.195	0	serine hydroxymethyltransferase 1 (soluble)
ENSMUSP00000018851	0.354	0.057	0.823	0.073	0.013	0	dynein cytoplasmic 1 heavy chain 1
ENSMUSP00000018905	4.689	0.995	2.273	1.247	0.293	5	mannose-P-dolichol utilization defect 1
ENSMUSP00000018905	4.689	0.995	2.582	0.983	0.293	5	Mannose-P-dolichol utilization defect 1 protein
ENSMUSP00000019169	1.664	1.054	2.400	0.549	0.341	1	unconventional SNARE in the ER 1 homolog (S. cerevisiae)
ENSMUSP00000019198	0.547	0.434	1.679	0.627	0.149	1	fission 1 (mitochondrial outer membrane) homolog (yeast)
ENSMUSP00000019224	1.062	0.226	0.941	0.287	0.672	8	major facilitator superfamily domain containing 3
ENSMUSP00000019226	6.271	0.973	8.812	0.757	0.133	1	solute carrier family 25 (mitochondrial carrier, glutamate), member 22
ENSMUSP00000019231	0.733	0.194	0.433	0.113	0.251	2	ATPase, H+ transporting, lysosomal accessory protein 1
ENSMUSP00000019283	0.204	0.102	0.507	0.056	0.152	0	myo-inositol 1-phosphate synthase A1
ENSMUSP00000019317	7.862	2.964	6.505	2.554	0.830	0	RAB5C, member RAS oncogene family
ENSMUSP00000019323	3.704	0.744	3.190	0.231	0.601	0	malate dehydrogenase 2, NAD (mitochondrial)
ENSMUSP00000019382	3.671	0.178	3.714	0.712	0.901	3	glycoprotein, synaptic 2
ENSMUSP00000019512	0.677	0.212	1.307	0.265	0.170	0	SEC14-like 4 (S. cerevisiae)
ENSMUSP00000019622	3.635	1.395	5.164	0.423	0.256	0	RAB4A, member RAS oncogene family
ENSMUSP00000019726	0.253	0.119	0.462	0.167	0.348	0	Mannose-6-phosphate receptor-binding protein 1 (Cargo selection protein TIP47).
ENSMUSP00000019829	9.576	1.001	6.462	0.647	0.058	1	COX16-like protein C14orf112 homolog, mitochondrial
ENSMUSP00000019896	11.200	0.843	9.456	1.100	0.261	1	iodotyrosine deiodinase
ENSMUSP00000019937	4.027	0.799	4.107	1.048	0.999	3	SEC63-like (S. cerevisiae)
ENSMUSP00000019945	0.476	0.083	0.186	0.074	0.147	0	peroxisomal biogenesis factor 3
ENSMUSP00000019965	0.948	0.337	0.995	0.129	0.674	2	sphingomyelin phosphodiesterase 2, neutral
ENSMUSP00000019974	1.361	0.215	2.256	0.783	0.519	0	RAB32, member RAS oncogene family

ENSMUSP00000020023	3.396	1.708	2.412	0.308	0.907	3	receptor accessory protein 3
ENSMUSP00000020034	0.455	0.107	0.215	0.086	0.214	0	enoyl Coenzyme A hydratase domain containing 1
ENSMUSP00000020107	0.330	0.047	0.414	0.171	0.896	7	ATPase, Ca++ transporting, plasma membrane 1
ENSMUSP00000020161	11.275	1.175	13.461	2.350	0.468	0	arginase 1, liver
ENSMUSP00000020169	0.448	0.211	1.032	0.178	0.132	1	ectonucleotide pyrophosphatase/phosphodiesterase 3
ENSMUSP00000020174	1.824	0.715	1.980	0.395	0.643	1	syntaxin 7
ENSMUSP00000020209	2.036	0.322	7.996	0.368	0.001	0	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 12
ENSMUSP00000020238	1.275	0.119	1.443	0.317	0.769	0	heat shock protein 90kDa beta (Grp94), member 1
ENSMUSP00000020241	1.873	0.639	1.624	0.110	0.979	0	phenylalanine hydroxylase
ENSMUSP00000020286	0.489	0.274	1.511	0.460	0.170	0	pyrophosphatase (inorganic) 1
ENSMUSP00000020298	7.345	1.208	3.326	1.839	0.253	0	plein 4 alpha carbinolamine dehydratase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1) 1
ENSMUSP00000020329	3.675	0.188	7.029	0.640	0.003	2	epidermal growth factor receptor
ENSMUSP00000020343	4.412	0.279	3.807	0.533	0.332	0	RAB21, member RAS oncogene family
ENSMUSP00000020358	26.381	8.145	19.548	6.941	0.618	0	RAB1, member RAS oncogene family
ENSMUSP00000020359	1.236	0.405	0.911	0.227	0.720	0	guanidinoacetate methyltransferase
ENSMUSP00000020361	1.218	0.382	3.066	0.491	0.069	0	NADH dehydrogenase (ubiquinone) Fe-S protein 7
ENSMUSP00000020372	64.424	33.574	50.085	5.989	0.947	1	ubiquinol-cytochrome c reductase (6.4kD) subunit
ENSMUSP00000020397	0.903	0.456	0.953	0.184	0.593	0	small nuclear ribonucleoprotein D3
ENSMUSP00000020420	0.014	0.000	0.079	0.002	0.000	0	AP-3 complex subunit delta-1 (Adapter-related protein complex 3 subunit delta-1) (AP-3 complex subunit delta) (Delta-adaptin) (mBLVR1).
ENSMUSP00000020463	4.958	0.466	3.910	0.736	0.260	2	nicalin homolog (zebrafish)
ENSMUSP00000020504	2.496	1.642	4.550	0.956	0.289	0	histidine triad nucleotide binding protein 1
ENSMUSP00000020523	0.592	0.153	0.548	0.308	0.660	0	peroxisomal biogenesis factor 13
ENSMUSP00000020562	1.113	0.229	0.429	0.185	0.092	0	chaperonin subunit 4 (delta)
ENSMUSP00000020637	16.935	1.334	13.962	1.904	0.285	1	calnexin
ENSMUSP00000020640	4.437	0.670	4.523	0.165	0.808	1	Guanine nucleotide-binding protein subunit beta-2-like 1 (Receptor of activated protein kinase C 1) (RACK1) (Receptor for activated C kinase) (p205) (12-3)
ENSMUSP00000020653	5.537	1.729	5.778	1.168	0.768	0	SAR1 gene homolog B (S. cerevisiae)
ENSMUSP00000020673	48.906	1.193	58.489	6.282	0.227	0	Voltage Dependent Anion Channel 1
ENSMUSP00000020843	0.499	0.253	1.116	0.130	0.279	0	Acetyl-CoA carboxylase 1a
ENSMUSP00000020846	0.214	0.032	0.154	0.004	0.097	2	sterol regulatory element binding factor 1
ENSMUSP00000020947	1.436	0.942	1.723	0.146	0.402	1	retinol dehydrogenase 14 (all-trans and 9-cis)
ENSMUSP00000020948	0.562	0.093	1.058	0.112	0.036	13	ATP-binding cassette, sub-family A (ABC1), member 8b
ENSMUSP00000021001	10.702	3.141	6.746	1.298	0.289	0	RAB10, member RAS oncogene family
ENSMUSP00000021049	0.653	0.391	1.552	0.153	0.202	0	protease (prosome, macropain) 26S subunit, ATPase 5
ENSMUSP00000021187	0.449	0.401	1.244	0.187	0.123	0	Dehydrogenase/reductase SDR family member 13 precursor
ENSMUSP00000021201	0.883	0.183	1.216	0.093	0.208	1	carboxypeptidase D

ENSMUSP00000021203	2.753	0.398	1.728	0.250	0.096	2	translocase of inner mitochondrial membrane 22 homolog
ENSMUSP00000021217	2.759	1.756	5.214	0.573	0.272	0	expressed in non-metastatic cells 2, protein
ENSMUSP00000021231	1.841	0.042	0.789	0.171	0.022	14	ATP-binding cassette, sub-family C (CFTR/MRP), member 3
ENSMUSP00000021239	7.373	0.269	10.346	0.953	0.026	1	leucine rich repeat containing 59
ENSMUSP00000021285	1.049	0.976	1.321	0.432	0.292	1	
ENSMUSP00000021313	5.826	1.258	7.606	1.046	0.293	1	dephospho-CoA kinase domain containing
ENSMUSP00000021329	9.162	2.317	17.587	3.125	0.092	1	golgi SNAP receptor complex member 2
ENSMUSP00000021335	0.331	0.009	0.239	0.157	0.345	0	sec1 family domain containing 1
ENSMUSP00000021347	3.284	0.805	4.036	0.838	0.511	0	sel-1 suppressor of lin-12-like (C. elegans)
ENSMUSP00000021384	0.592	0.111	1.219	0.080	0.019	0	melanoma inhibitory activity 2
ENSMUSP00000021412	9.882	4.109	7.936	0.891	0.971	0	proteasome (prosome, macropain) subunit, alpha type 6
ENSMUSP00000021424	0.605	0.158	0.926	0.157	0.220	0	serine palmitoyltransferase, long chain base subunit 2
ENSMUSP00000021443	1.465	0.141	1.182	0.102	0.192	0	methylenetetrahydrofolate dehydrogenase (NADP+ dependent), methylenetetrahydrofolate cyclohydrolase, formyltetrahydrofolate synthase
ENSMUSP00000021466	0.199	0.093	0.548	0.117	0.153	2	spastic paraplegia 3A homolog (human)
ENSMUSP00000021471	0.726	0.494	1.022	0.212	0.366	3	thioredoxin domain containing 1
ENSMUSP00000021512	3.352	0.789	3.474	0.905	0.920	1	dehydrogenase/reductase (SDR family) member 7
ENSMUSP00000021595	1.311	0.711	0.581	0.014	0.365	0	protease (prosome, macropain) 26S subunit, ATPase 1
ENSMUSP00000021609	1.243	0.281	4.444	0.670	0.013	1	golgi autoantigen, golgin subfamily a, 5
ENSMUSP00000021630	7.356	2.766	5.505	0.329	0.662	0	aldo-keto reductase family 1, member C6
ENSMUSP00000021666	0.573	0.273	0.417	0.129	0.817	2	ATP-binding cassette, sub-family D (ALD), member 4
ENSMUSP00000021676	6.197	2.003	5.876	2.418	0.865	4	RIKEN cDNA 0610007P14 gene
ENSMUSP00000021698	0.676	0.124	0.457	0.011	0.167	0	heat shock protein 90kDa alpha (cytosolic), class A member 1
ENSMUSP00000021719	16.246	10.992	25.944	10.834	0.376	1	RIKEN cDNA 2010107E04 gene
ENSMUSP00000021790	131.141	12.832	144.734	6.728	0.370	4	transmembrane protein 14C
ENSMUSP00000021793	4.482	0.396	3.557	0.475	0.219	7	elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 2
ENSMUSP00000021806	0.748	0.151	1.290	0.240	0.126	0	thiopurine methyltransferase
ENSMUSP00000021854	0.655	0.329	0.696	0.318	0.908	0	peroxisomal delta3, delta2-enoyl-Coenzyme A isomerase
ENSMUSP00000021864	3.762	0.105	7.059	0.694	0.003	1	Translocon-associated protein subunit alpha
ENSMUSP00000021930	28.730	4.080	26.727	7.035	0.699	4	sideroflexin 1
ENSMUSP00000021940	12.309	2.368	21.302	2.714	0.061	1	lectin, mannose-binding 2
ENSMUSP00000021959	3.269	1.041	2.074	0.895	0.461	1	thioredoxin domain containing 15
ENSMUSP00000021963	0.611	0.123	0.694	0.251	0.943	0	calcium modulating ligand
ENSMUSP00000021990	0.652	0.131	0.373	0.104	0.185	9	phosphatidylserine synthase 1
ENSMUSP00000021993	62.346	12.519	92.518	15.787	0.228	0	ubiquinol-cytochrome c reductase binding protein
ENSMUSP00000022070	0.391	0.110	0.244	0.077	0.330	0	type 1 tumor necrosis factor receptor shedding aminopeptidase

ENSMUSP00000022102	0.573	0.190	1.097	0.387	0.230	5	CLPTM1-like
ENSMUSP00000022148	0.529	0.180	0.122	0.097	0.094	0	methylcrotonyl-Coenzyme A carboxylase 2 (beta)
ENSMUSP00000022176	0.122	0.102	0.411	0.069	0.096	5	3-hydroxy-3-methylglutaryl-Coenzyme A reductase
ENSMUSP00000022196	0.016	0.000	0.185	0.067	0.004	0	AP-3 complex subunit beta-1 (Adapter-related protein complex 3 beta-1 subunit) (Beta3A-adaptin) (Adaptor protein complex AP-3 beta-1 subunit) (Clathrin assembly protein complex 3 beta-1 large chain).
ENSMUSP00000022206	1.443	0.524	2.111	0.814	0.514	0	Ndufa12-like
ENSMUSP00000022218	0.269	0.178	0.652	0.152	0.133	0	dihydrofolate reductase
ENSMUSP00000022256	0.292	0.008	0.248	0.122	0.478	0	proteasome (prosome, macropain) 26S subunit, non-ATPase, 6
ENSMUSP00000022268	0.508	0.245	0.340	0.079	0.911	0	pyruvate dehydrogenase (lipoamide) beta
ENSMUSP00000022271	0.456	0.224	0.377	0.124	0.953	0	acyl-Coenzyme A oxidase 2, branched chain
ENSMUSP00000022286	0.099	0.003	1.769	0.191	0.000	0	NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial precursor (NADH-ubiquinone oxidoreductase 18 kDa subunit) (Complex I- 18 kDa) (CI-18 kDa) (Complex I-AQDQ) (CI-AQDQ).
ENSMUSP00000022293	12.938	2.926	11.151	1.351	0.657	0	voltage-dependent anion channel 2
ENSMUSP00000022295	2.278	0.592	1.601	0.641	0.377	1	catechol-O-methyltransferase domain containing 1
ENSMUSP00000022317	4.885	0.764	9.442	2.155	0.079	1	RIKEN cDNA 5730469M10 gene
ENSMUSP00000022322	17.003	0.896	9.871	0.844	0.006	0	glutamate dehydrogenase 1
ENSMUSP00000022380	1.035	0.297	1.213	0.205	0.577	0	proteasome (prosome, macropain) 26S subunit, ATPase, 6
ENSMUSP00000022429	10.996	1.951	13.951	1.663	0.296	0	ADP-ribosylation factor 4. Source: Uniprot/SWISSPROT P61750
ENSMUSP00000022478	10.595	2.055	9.575	0.970	0.731	2	signal peptidase complex subunit 1 homolog (S. cerevisiae)
ENSMUSP00000022497	2.010	0.674	1.709	0.243	0.844	0	RIKEN cDNA 6330409N04 gene
ENSMUSP00000022529	3.852	0.702	2.763	0.051	0.154	0	transketolase
ENSMUSP00000022573	1.881	0.272	1.557	0.423	0.490	0	esterase D/formylglutathione hydrolase
ENSMUSP00000022704	2.442	0.670	1.459	0.270	0.292	1	integral membrane protein 2B
ENSMUSP00000022706	0.744	0.317	0.264	0.062	0.195	0	succinate-Coenzyme A ligase, ADP-forming, beta subunit
ENSMUSP00000022728	0.401	0.070	0.272	0.119	0.390	7	G protein-coupled receptor 180
ENSMUSP00000022781	9.958	2.170	9.287	5.977	0.536	3	defender against cell death 1
ENSMUSP00000022803	10.670	3.313	9.266	0.673	0.853	0	proteasome (prosome, macropain) subunit, beta type 5
ENSMUSP00000022842	0.154	0.122	0.273	0.047	0.215	0	chaperonin subunit 5 (epsilon)
ENSMUSP00000022849	0.111	0.044	0.245	0.069	0.227	0	Threonyl-tRNA synthetase, cytoplasmic (EC 6.1.1.3) (Threonine--tRNA ligase) (ThrRS
ENSMUSP00000022858	0.631	0.169	0.280	0.135	0.248	0	alanine-glyoxylate aminotransferase 2
ENSMUSP00000022861	5.161	0.892	3.500	0.072	0.136	2	UDP-glucuronosyltransferase 3A1
ENSMUSP00000022865	3.613	0.809	2.106	0.390	0.174	1	Metadherin
ENSMUSP00000022875	0.369	0.335	0.578	0.120	0.233	8	Progressive ankylosis protein (Fn54 protein).
ENSMUSP00000022894	0.711	0.234	0.059	0.001	0.001		14-3-3 protein zeta/delta (Protein kinase C inhibitor protein 1) (KCIP-1) (SEZ-2).
ENSMUSP00000022908	1.699	0.404	1.753	0.372	0.909	0	solute carrier family 25, member 32
ENSMUSP00000022915	0.282	0.067	0.186	0.092	0.372	0	dihydropyrimidinase

ENSMUSP00000022946	11.318	3.792	11.723	0.990	0.702	0	heat-responsive protein 12
ENSMUSP00000022960	0.466	0.214	0.696	0.131	0.385	0	eukaryotic translation initiation factor 3, subunit E
ENSMUSP00000022977	0.367	0.101	1.566	0.168	0.008	1	squalene epoxidase
ENSMUSP00000022980	7.808	0.351	6.482	0.251	0.036	1	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 9
ENSMUSP00000022993	12.191	1.349	11.615	1.189	0.775	5	Der1-like domain family, member 1
ENSMUSP00000023040	0.583	0.389	1.377	0.563	0.332	5	Peroxisomal membrane protein PMP34 (34 kDa peroxisomal membrane protein) (Solute carrier family 25 member 17).
ENSMUSP00000023062	14.873	1.631	12.907	0.607	0.357	1	translocase of outer mitochondrial membrane 22 homolog (yeast)
ENSMUSP00000023071	5.463	0.506	5.718	0.541	0.758	0	sorting and assembly machinery component 50 homolog (S. cerevisiae)
ENSMUSP00000023083	36.781	2.168	34.079	3.204	0.500	1	cytochrome P450, family 2, subfamily d, polypeptide 22
ENSMUSP00000023086	2.216	1.040	1.890	0.280	0.688	1	
ENSMUSP00000023088	0.201	0.160	0.228	0.005	0.364	0	N-acetyl galactosaminidase, alpha
ENSMUSP00000023101	0.957	0.201	2.057	0.388	0.044	11	solute carrier family 38, member 4
ENSMUSP00000023116	1.167	0.193	0.951	0.195	0.485	0	aconitase 2, mitochondrial
ENSMUSP00000023128	1.348	0.195	1.082	0.171	0.372	1	integrin alpha 5 (fibronectin receptor alpha)
ENSMUSP00000023203	1.742	0.542	0.514	0.012	0.040	0	glutamic pyruvic transaminase 1, soluble
ENSMUSP00000023209	2.056	0.556	2.138	0.565	0.898	0	kaarF domain containing kinase 5
ENSMUSP00000023210	21.903	3.727	27.046	3.521	0.352	1	cytochrome c-1
ENSMUSP00000023214	1.381	0.290	0.630	0.224	0.171	8	diacylglycerol O-acyltransferase 1
ENSMUSP00000023221	1.150	0.249	1.003	0.168	0.738	7	GPI anchor attachment protein 1
ENSMUSP00000023222	1.034	0.067	0.758	0.042	0.021	0	5-oxoprolinase (ATP-hydrolysing)
ENSMUSP00000023237	2.018	0.583	2.019	0.304	0.859	0	nicotinate phosphoribosyltransferase domain containing 1
ENSMUSP00000023269	4.417	0.455	9.503	1.671	0.022	0	ribosomal protein L24
ENSMUSP00000023283	1.344	0.247	1.251	0.297	0.779	7	transmembrane protein 112B
ENSMUSP00000023312	1.136	0.561	1.078	0.042	0.710	1	activated leukocyte cell adhesion molecule
ENSMUSP00000023360	4.031	0.475	4.326	0.648	0.784	0	Mpv17 transgene, kidney disease mutant-like
ENSMUSP00000023393	0.481	0.130	0.436	0.141	0.780	0	glucan (1,4-alpha-), branching enzyme 1
ENSMUSP00000023432	2.538	1.276	1.225	0.191	0.355	0	nitrilase family, member 2
ENSMUSP00000023433	8.140	1.813	8.406	1.700	0.916	0	translocase of outer mitochondrial membrane 70 homolog A (yeast)
ENSMUSP00000023453	0.935	0.509	0.902	0.131	0.592	0	
ENSMUSP00000023486	0.915	0.334	1.300	0.480	0.661	1	transferrin receptor
ENSMUSP00000023510	0.373	0.140	0.083	0.052	0.064	0	uridine monophosphate synthetase
ENSMUSP00000023514	7.552	0.513	15.465	3.341	0.035	1	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 4
ENSMUSP00000023519	1.226	0.388	0.771	0.225	0.485	0	homogentisate 1, 2-dioxygenase
ENSMUSP00000023559	3.005	0.638	1.063	0.107	0.017	0	enoyl-Coenzyme A, hydratase/3-hydroxyacyl Coenzyme A dehydrogenase
ENSMUSP00000023562	0.555	0.130	0.261	0.207	0.174	5	transmembrane protein 41a

ENSMUSP00000023572	1.116	0.423	2.176	0.424	0.141	1	coxsackievirus and adenovirus receptor
ENSMUSP00000023601	0.733	0.443	3.844	0.683	0.031	1	beta galactoside alpha 2,6 sialyltransferase 1
ENSMUSP00000023608	11.607	3.565	12.105	3.216	0.844	0	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit F
ENSMUSP00000023677	3.061	0.791	1.664	0.715	0.289	0	ATP synthase, H+ transporting, mitochondrial F1 complex, O subunit
ENSMUSP00000023683	0.020	0.012	0.084	0.030	0.073	0	SON protein
ENSMUSP00000023707	0.299	0.187	1.626	0.795	0.079	0	V-set and immunoglobulin domain containing 4
ENSMUSP00000023710	0.033	0.001	0.181	0.004	0.000	0	Keratin, type II cytoskeletal 71 (Cytokeratin-71) (Keratin-71) (Type II keratin-34) (Type II inner root sheath-specific keratin-K6irs1) (mK6irs1/Krt2-6g) (mK6irs) (Cytokeratin-6G) (CK 6G) (K6g keratin)
ENSMUSP00000023749	0.889	0.381	0.649	0.242	0.627	6	testis enhanced gene transcript
ENSMUSP00000023760	1.592	0.631	0.959	0.271	0.694	0	glycerol-3-phosphate dehydrogenase 1 (soluble)
ENSMUSP00000023803	13.929	1.092	7.540	0.162	0.002	0	keratin 18
ENSMUSP00000023805	1.323	0.192	0.414	0.116	0.031	0	cysteine sulfinic acid decarboxylase
ENSMUSP00000023806	1.621	0.275	1.004	0.454	0.233	8	sterol O-acetyltransferase 2
ENSMUSP00000023832	4.388	0.806	3.967	0.597	0.760	0	regucalcin
ENSMUSP00000023851	0.149	0.004	6.818	0.914	0.000	0	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5 (NADH- ubiquinone oxidoreductase 13 kDa-B subunit) (Complex I-13kD-B) (CI- 13kD-B) (Complex I subunit B13).
ENSMUSP00000023911	0.449	0.323	1.170	0.157	0.161	2	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase precursor (EC 3.1.4.45) (Phosphodiester alpha-GlcNAcase) (Mannose 6- phosphate-uncovering enzyme)
ENSMUSP00000023934	4.976	1.663	7.001	0.172	0.248	0	hemoglobin, beta adult major chain
ENSMUSP00000023952	16.964	2.370	5.826	0.539	0.004	0	keratin 8
ENSMUSP00000023994	0.361	0.174	1.410	0.129	0.109	0	serine (or cysteine) peptidase inhibitor, clade G, member 1
ENSMUSP00000024078	6.489	0.715	4.591	1.417	0.245	4	membrane-associated ring finger (C3HC4) 5
ENSMUSP00000024223	3.734	1.347	3.102	1.072	0.821	0	triosephosphate isomerase 1
ENSMUSP00000024596	2.277	0.261	2.378	0.253	0.789	12	solute carrier family 22 (organic cation transporter), member 1
ENSMUSP00000024599	0.602	0.026	1.064	0.136	0.014	1	insulin-like growth factor 2 receptor
ENSMUSP00000024715	0.460	0.195	0.202	0.132	0.299	0	
ENSMUSP00000024739	4.189	1.424	3.180	0.220	0.640	0	heat shock protein 90kDa alpha (cytosolic), class B member 1
ENSMUSP00000024757	0.526	0.136	0.619	0.161	0.671	1	ectonucleotide pyrophosphatase/phosphodiesterase 4
ENSMUSP00000024760	1.135	0.398	0.658	0.213	0.301	0	cytochrome P450, family 39, subfamily a, polypeptide 1
ENSMUSP00000024823	0.990	0.476	0.950	0.023	0.604	0	glyoxalase 1
ENSMUSP00000024866	2.316	0.446	1.813	0.113	0.367	0	xanthine dehydrogenase
ENSMUSP00000024870	0.242	0.114	0.385	0.107	0.385	6	solute carrier family 30 (zinc transporter), member 6
ENSMUSP00000024897	10.726	0.407	8.588	2.029	0.298	1	vesicle-associated membrane protein, associated protein A
ENSMUSP00000024909	0.202	0.133	3.717	0.387	0.007	0	NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial precursor (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase 24 kDa subunit).
ENSMUSP00000024946	3.626	0.470	2.479	0.693	0.234	0	dodecenoyl-Coenzyme A delta isomerase (3,2 trans-enoyl-Coenzyme A isomerase)
ENSMUSP00000024978	4.251	0.378	3.995	0.860	0.692	0	expressed in non-metastatic cells 3
ENSMUSP00000024988	0.564	0.085	2.079	0.250	0.002	1	complement component 3

ENSMUSP00000025161	1.605	0.381	2.743	0.290	0.114	1	TAP binding protein
ENSMUSP00000025166	1.199	0.346	0.935	0.126	0.583	1	cadherin 2
ENSMUSP00000025181	1.486	0.455	2.715	0.730	0.288	1	histocompatibility 2, K1, K region
ENSMUSP00000025186	1.533	0.328	1.985	0.151	0.266	7	solute carrier family 39 (zinc transporter), member 7
ENSMUSP00000025196	5.398	2.346	7.178	0.672	0.392	0	proteasome (prosome, macropain) subunit, beta type 8 (large multifunctional peptidase 7)
ENSMUSP00000025197	0.985	0.167	2.191	0.212	0.013	5	transporter 2, ATP-binding cassette, sub-family B (MDR/TAP)
ENSMUSP00000025212	0.828	0.110	0.466	0.051	0.031	11	solute carrier family 23 (nucleobase transporters), member 1
ENSMUSP00000025217	1.081	0.388	1.357	0.068	0.414	0	heat shock protein 9
ENSMUSP00000025229	0.149	0.075	0.337	0.166	0.325	0	complement factor B
ENSMUSP00000025279	1.023	0.158	1.000	0.164	0.910	12	Niemann Pick type C1
ENSMUSP00000025356	1.577	0.397	1.759	0.141	0.553	4	mal, T-cell differentiation protein 2
ENSMUSP00000025385	2.093	0.388	2.589	0.563	0.578	0	hydroxysteroid (17-beta) dehydrogenase 4
ENSMUSP00000025408	2.786	0.585	3.365	0.419	0.431	2	AFG3(ATPase family gene 3)-like 2 (yeast)
ENSMUSP00000025458	0.997	0.306	0.954	0.205	0.991	10	ATPase, class II, type 9B
ENSMUSP00000025482	0.168	0.005	0.099	0.044	0.302	10	ATPase, class I, type 8B, member 1
ENSMUSP00000025503	1.030	0.029	0.760	0.224	0.319	1	isochorismatase domain containing 1
ENSMUSP00000025511	3.284	0.291	3.084	0.977	0.663	0	ribosomal protein S14
ENSMUSP00000025513	0.657	0.368	0.804	0.197	0.495	1	CD74 antigen (invariant polypeptide of major histocompatibility complex, class II antigen-associated)
ENSMUSP00000025523	0.018	0.000	0.317	0.034	0.000	1	colony stimulating factor 1 receptor
ENSMUSP00000025541	1.655	0.319	0.922	0.441	0.325	0	guanine nucleotide binding protein, alpha q polypeptide
ENSMUSP00000025547	1.389	0.154	0.604	0.105	0.018	1	RIKEN cDNA 1700034H14 gene
ENSMUSP00000025549	163.378	39.723	146.639	45.482	0.759	1	cytochrome b-5
ENSMUSP00000025563	25.617	3.071	22.299	2.651	0.445	0	ferritin heavy chain 1
ENSMUSP00000025567	8.664	0.660	6.583	0.685	0.100	4	fatty acid desaturase 2
ENSMUSP00000025598	6.099	0.673	6.224	0.809	0.927	0	kidney expressed gene 1
ENSMUSP00000025649	0.232	0.139	0.294	0.042	0.420	0	damage specific DNA binding protein 1
ENSMUSP00000025656	1.423	0.307	2.701	0.303	0.044	0	aldehyde dehydrogenase family 1, subfamily A7
ENSMUSP00000025668	13.119	1.308	11.691	0.696	0.397	2	RIKEN cDNA 5730596K20 gene
ENSMUSP00000025682	0.360	0.068	0.173	0.137	0.171	0	lipase, family member N
ENSMUSP00000025696	0.912	0.219	0.064	0.002	0.001	0	adenylate kinase 3
ENSMUSP00000025707	0.481	0.282	0.911	0.101	0.243	1	zinc finger like protein 1
ENSMUSP00000025713	6.440	0.624	7.810	0.767	0.236	6	transmembrane 7 superfamily member 2
ENSMUSP00000025723	0.685	0.416	0.595	0.252	0.923	5	E3 ubiquitin-protein ligase synoviolin
ENSMUSP00000025732	4.550	1.322	6.351	0.339	0.243	0	solute carrier family 25, member 45
ENSMUSP00000025778	0.017	0.000	0.300	0.070	0.000	0	Glycine dehydrogenase [decarboxylating], mitochondrial precursor (EC 1.4.4.2) (Glycine decarboxylase) (Glycine cleavage system P- protein)

ENSMUSP00000025804	17.227	9.558	11.234	3.624	0.734	0	RAB1B, member RAS oncogene family
ENSMUSP00000025811	1.466	0.367	2.044	0.190	0.270	5	Yip1 interacting factor homolog A (S. cerevisiae)
ENSMUSP00000025833	0.792	0.223	0.626	0.094	0.724	0	3'-phosphoadenosine 5'-phosphosulfate synthase 2
ENSMUSP00000025835	13.254	1.065	12.316	0.822	0.529	2	carbamoyltransferase 1a, liver
ENSMUSP00000025955	0.197	0.118	0.329	0.025	0.301	0	eukaryotic translation initiation factor 3, subunit A
ENSMUSP00000025961	0.421	0.352	1.394	0.510	0.161	0	Thioredoxin-dependent peroxide reductase, mitochondrial precursor (EC 1.11.1.15) (Perioredoxin-3) (PRX III) (Antioxidant protein 1) (AOP-1) (Protein MER5).
ENSMUSP00000025966	1.100	0.492	0.631	0.204	0.477	0	cytochrome P450, family 2, subfamily c, polypeptide 55
ENSMUSP00000025968	9.957	1.332	10.319	1.020	0.813	0	cytochrome P450, family 2, subfamily c, polypeptide 39
ENSMUSP00000026012	0.354	0.071	0.406	0.195	0.682	0	cytochrome P450, family 17, subfamily a, polypeptide 1
ENSMUSP00000026013	1.673	0.272	1.299	0.073	0.281	0	monoamine oxidase A
ENSMUSP00000026021	0.667	0.207	1.170	0.486	0.697	1	macrophage scavenger receptor 1
ENSMUSP00000026050	0.999	0.258	0.378	0.316	0.147	0	glutathione S-transferase omega 1
ENSMUSP00000026122	1.377	0.602	2.138	0.402	0.273	0	prolyl 4-hydroxylase, beta polypeptide
ENSMUSP00000026144	2.901	1.010	3.496	0.938	0.690	0	dicarbonyl L-xylulose reductase
ENSMUSP00000026196	2.808	1.025	2.999	0.215	0.624	0	glutamate oxaloacetate transaminase 1, soluble
ENSMUSP00000026208	1.966	0.291	1.018	0.187	0.040	16	ATP-binding cassette, sub-family C (CFTR/MRP), member 2
ENSMUSP00000026211	11.932	0.794	12.692	0.832	0.536	1	cytochrome P450, family 2, subfamily c, polypeptide 44
ENSMUSP00000026220	0.554	0.505	0.851	0.291	0.294	4	stearoyl-coenzyme A desaturase 3
ENSMUSP00000026222	21.077	2.874	14.442	2.069	0.135	1	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 8
ENSMUSP00000026266	0.168	0.133	0.411	0.149	0.183	0	ADP-dependent glucokinase (EC 2.7.1.147) (ADPGK) (ADP-GK).
ENSMUSP00000026270	14.017	0.872	12.485	1.832	0.473	2	SAC1 (suppressor of actin mutations 1, homolog)-like (S. cerevisiae)
ENSMUSP00000026289	5.003	1.123	3.053	0.774	0.198	0	hydroxysteroid (17-beta) dehydrogenase 10
ENSMUSP00000026313	4.035	0.663	3.475	0.496	0.582	1	abhydrolase domain containing 6
ENSMUSP00000026398	29.221	3.751	25.622	2.691	0.476	1	methyltransferase like 7B
ENSMUSP00000026406	1.057	0.191	0.733	0.455	0.370	0	retinol dehydrogenase 5
ENSMUSP00000026409	2.397	0.507	3.533	1.033	0.379	2	ORM1-like 2 (S. cerevisiae)
ENSMUSP00000026427	2.239	0.436	1.746	0.046	0.389	1	membrane bound C2 domain containing protein
ENSMUSP00000026459	3.058	1.095	2.674	0.468	0.921	0	ATP synthase, H+ transporting mitochondrial F1 complex, beta subunit
ENSMUSP00000026462	11.996	2.195	7.283	1.895	0.170	0	hydroxysteroid (17-beta) dehydrogenase 6
ENSMUSP00000026470	2.450	0.394	2.569	0.139	0.700	0	serine hydroxymethyltransferase 2 (mitochondrial)
ENSMUSP00000026487	0.211	0.006	3.776	0.409	0.000	1	haloacid dehalogenase-like hydrolase domain containing 2
ENSMUSP00000026495	12.166	3.125	4.809	0.437	0.035	0	ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit, isoform 1
ENSMUSP00000026552	66.926	4.700	48.797	3.573	0.034	1	cytochrome P450, family 2, subfamily e, polypeptide 1
ENSMUSP00000026554	2.356	1.406	3.765	0.958	0.286	0	RIKEN cDNA 119003J15 gene
ENSMUSP00000026560	0.302	0.153	0.252	0.006	0.764	0	proteasome (prosome, macropain) 26S subunit, non-ATPase, 13

ENSMUSP00000026565	13.473	0.579	24.382	1.504	0.001	2	interferon induced transmembrane protein 3
ENSMUSP00000026599	11.624	0.732	13.041	2.636	0.728	0	apolipoprotein O-like
ENSMUSP00000026610	9.983	1.290	6.797	1.890	0.208	0	argininosuccinate lyase
ENSMUSP00000026613	0.124	0.048	0.478	0.089	0.066	1	Beta-glucuronidase precursor
ENSMUSP00000026624	3.582	0.425	4.537	0.102	0.099	9	transmembrane 9 superfamily member 2
ENSMUSP00000026666	0.393	0.128	0.294	0.101	0.559	1	glucosidase, alpha, acid
ENSMUSP00000026704	0.197	0.164	0.460	0.074	0.147	0	T-complex protein 1 subunit theta (TCP-1-theta) (CCT-theta).
ENSMUSP00000026735	1.127	0.352	3.061	0.588	0.040	1	coiled-coil domain containing 51
ENSMUSP00000026743	36.810	8.123	41.764	6.214	0.588	0	ubiquinol-cytochrome c reductase core protein 1
ENSMUSP00000026818	8.760	1.446	9.062	2.363	0.998	1	SEC11 homolog A (S. cerevisiae)
ENSMUSP00000026827	0.544	0.256	0.990	0.144	0.259	0	RIKEN cDNA 0610011F06 gene
ENSMUSP00000026841	2.516	0.317	0.989	0.294	0.031	0	hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase (trifunctional protein), beta subunit
ENSMUSP00000026843	4.310	0.943	3.029	0.403	0.333	0	hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase (trifunctional protein), alpha subunit
ENSMUSP00000026887	8.626	1.540	10.221	0.878	0.364	0	ATP synthase, H+ transporting, mitochondrial F1 complex, gamma polypeptide 1
ENSMUSP00000026899	11.697	3.455	16.070	1.123	0.248	0	solute carrier family 25 (mitochondrial carrier, dicarboxylate transporter), member 10
ENSMUSP00000026917	0.466	0.077	0.159	0.078	0.156	1	neuropilin 1
ENSMUSP00000026972	0.139	0.055	0.491	0.102	0.087	1	cDNA sequence BC004044
ENSMUSP00000026986	5.582	0.849	5.464	1.240	0.879	2	HIG1 domain family, member 2A
ENSMUSP00000026991	4.618	0.269	4.240	0.524	0.520	1	UBX domain containing 8
ENSMUSP00000027036	3.850	0.916	2.867	0.456	0.392	0	lysophospholipase 1
ENSMUSP00000027053	0.228	0.176	0.518	0.144	0.179	2	Retinol dehydrogenase 10
ENSMUSP00000027067	5.077	1.665	6.647	1.308	0.460	0	glutathione S-transferase, alpha 3
ENSMUSP00000027068	1.532	0.632	1.550	0.278	0.741	8	translocating chain-associating membrane protein 1
ENSMUSP00000027087	6.263	0.772	4.962	0.350	0.211	0	isocitrate dehydrogenase 1 (NADP+), soluble
ENSMUSP00000027111	0.250	0.163	4.423	0.877	0.022	0	NADH dehydrogenase (ubiquinone) Fe-S protein 1
ENSMUSP00000027114	0.598	0.197	0.613	0.326	0.644	0	RIKEN cDNA 9430016H08 gene
ENSMUSP00000027144	28.277	3.863	18.840	0.599	0.064	0	carbamoyl-phosphate synthetase 1
ENSMUSP00000027153	3.507	0.594	2.565	0.407	0.256	0	acyl-Coenzyme A dehydrogenase, long-chain
ENSMUSP00000027193	6.936	0.570	7.322	0.471	0.624	0	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 3
ENSMUSP00000027266	2.395	0.503	1.680	0.553	0.360	2	ORM1-like 1 (S. cerevisiae)
ENSMUSP00000027322	0.264	0.209	0.474	0.094	0.219	3	Rhomboid domain-containing protein 1
ENSMUSP00000027356	9.724	0.343	7.895	0.219	0.010	0	cytochrome P450, family 27, subfamily a, polypeptide 1
ENSMUSP00000027358	2.639	0.356	3.898	0.666	0.190	0	BCS1-like (yeast)
ENSMUSP00000027396	1.781	0.300	1.538	0.087	0.507	9	ATP-binding cassette, sub-family B (MDR/TAP), member 6
ENSMUSP00000027401	0.697	0.197	0.554	0.379	0.444	0	serine/threonine kinase 16

ENSMUSP00000027478	0.917	0.610	1.494	0.517	0.401	0	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex 10
ENSMUSP00000027491	1.662	0.094	1.276	0.363	0.354	0	alanine-glyoxylate aminotransferase
ENSMUSP00000027529	4.706	0.264	6.663	0.607	0.037	0	RAB17, member RAS oncogene family
ENSMUSP00000027592	4.881	1.476	4.274	0.634	0.828	0	UBX domain containing 2
ENSMUSP00000027602	0.671	0.121	1.204	0.245	0.109	0	aspartyl-tRNA synthetase
ENSMUSP00000027634	7.696	3.689	9.632	1.907	0.481	0	diazepam binding inhibitor
ENSMUSP00000027638	1.662	0.348	0.474	0.446	0.104	5	STEAP family member 3
ENSMUSP00000027675	4.911	1.237	4.770	1.931	0.849	1	polymeric immunoglobulin receptor
ENSMUSP00000027726	0.562	0.354	1.432	0.307	0.173	1	NADH-cytochrome b5 reductase 1 (EC 1.6.2.2) (b5R.1) (NAD(P)H:quinone oxidoreductase type 3 polypeptide A2).
ENSMUSP00000027738	0.097	0.064	0.284	0.049	0.092	1	torsin A interacting protein 1
ENSMUSP00000027743	1.298	0.452	1.613	0.268	0.444	1	syntaxin 6
ENSMUSP00000027766	1.086	0.695	0.274	0.077	0.205	0	chaperone, ABC1 activity of bc1 complex like (S. pombe)
ENSMUSP00000027781	3.930	1.098	4.564	2.440	0.628	0	RIKEN cDNA 2310005N03 gene
ENSMUSP00000027800	0.220	0.038	0.446	0.076	0.051	11	transmembrane protein 63a
ENSMUSP00000027810	2.446	0.355	1.868	0.108	0.168	0	fumarate hydratase 1
ENSMUSP00000027853	23.347	4.177	14.249	1.700	0.080	0	brain protein 44
ENSMUSP00000027863	3.877	0.362	3.943	0.604	0.990	1	ATPase, Na+/K+ transporting, beta 1 polypeptide
ENSMUSP00000027916	1.190	0.169	2.052	0.346	0.066	0	bisphosphate 3'-nucleotidase 1
ENSMUSP00000027918	1.194	0.669	1.510	0.304	0.445	1	complement receptor related protein
ENSMUSP00000027932	2.501	0.333	2.033	0.169	0.310	3	lysophosphatidylglycerol acyltransferase 1
ENSMUSP00000027989	6.495	2.358	11.359	1.594	0.200	1	hydroxysteroid (17-beta) dehydrogenase 7
ENSMUSP00000028004	1.962	0.582	2.726	0.395	0.299	0	aldehyde dehydrogenase 9, subfamily A1
ENSMUSP00000028005	6.628	2.305	5.411	1.778	0.692	4	microsomal glutathione S-transferase 3
ENSMUSP00000028014	0.885	0.077	1.601	0.259	0.035	0	flavin containing monooxygenase 4
ENSMUSP00000028045	4.668	0.287	5.036	0.188	0.345	1	mannose receptor, C type 1
ENSMUSP00000028046	0.102	0.064	0.435	0.063	0.042	0	serine (or cysteine) peptidase inhibitor, clade C (antithrombin), member 1
ENSMUSP00000028083	3.150	0.586	2.940	0.437	0.808	0	proteasome (prosome, macropain) subunit, beta type 7
ENSMUSP00000028117	1.278	0.078	1.030	0.202	0.292	0	YME1-like 1 (S. cerevisiae)
ENSMUSP00000028121	4.339	1.680	2.562	1.159	0.353	1	acyl-Coenzyme A binding domain containing 5
ENSMUSP00000028129	0.163	0.126	0.542	0.202	0.142	12	Solute carrier family 2, facilitated glucose transporter member 8 (Glucose transporter type 8) (GLUT-8) (Glucose transporter type X1).
ENSMUSP00000028160	0.949	0.355	1.169	0.093	0.431	0	solute carrier family 25 (mitochondrial carrier, phosphate carrier), member 25
ENSMUSP00000028167	9.352	1.657	13.370	1.085	0.118	1	glycerol phosphate dehydrogenase 2, mitochondrial
ENSMUSP00000028209	0.893	0.253	0.389	0.184	0.226	4	dolichyl pyrophosphate phosphatase 1
ENSMUSP00000028222	22.818	2.297	30.999	6.628	0.296	0	heat shock protein 5
ENSMUSP00000028228	0.887	0.773	3.677	0.219	0.075	2	RIKEN cDNA D730039F16 gene (D730039F16Rik), mRNA

ENSMUSP00000028238	34.774	0.280	25.273	0.976	0.001	0	RAB14, member RAS oncogene family
ENSMUSP00000028241	3.120	0.269	5.043	0.402	0.015	1	stomatin
ENSMUSP00000028286	16.194	0.340	11.537	0.710	0.006	3	1-acyl-sn-glycerol-3-phosphate acyltransferase beta
ENSMUSP00000028356	2.014	0.859	2.613	0.917	0.723	1	CD302 antigen
ENSMUSP00000028469	0.425	0.110	0.348	0.195	0.498	12	solute carrier family 43, member 1
ENSMUSP00000028499	0.295	0.097	0.349	0.107	0.690	1	integrin alpha V
ENSMUSP00000028551	1.672	0.047	1.541	0.401	0.597	2	transmembrane protein 85
ENSMUSP00000028610	1.358	0.198	0.944	0.107	0.119	0	catalase
ENSMUSP00000028619	22.312	3.809	19.809	1.394	0.651	1	hydroxysteroid (17-beta) dehydrogenase 12
ENSMUSP00000028623	0.162	0.138	0.314	0.093	0.224	1	Exostosin-2 (EC 2.4.1.224) (EC 2.4.1.225) (Glucuronosyl-N- acetylglucosaminyl-proteoglycan/N- acetylglucosaminyl-proteoglycan 4- alpha-N-acetylglucosaminyltransferase) (Multiple exostosins protein 2 homolog).
ENSMUSP00000028650	0.804	0.235	1.019	0.564	0.714	0	peroxisome biogenesis factor 16
ENSMUSP00000028657	5.075	0.718	3.584	0.613	0.199	0	sorbitol dehydrogenase
ENSMUSP00000028683	1.232	0.132	2.302	0.191	0.010	0	protein disulfide isomerase associated 3
ENSMUSP00000028704	1.155	0.434	0.552	0.201	0.382	0	hydroxyacid oxidase 1, liver
ENSMUSP00000028743	2.033	0.600	1.631	1.033	0.456	0	synaptosomal-associated protein 23
ENSMUSP00000028781	0.272	0.157	0.068	0.033	0.198	1	atractin
ENSMUSP00000028794	0.010	0.000	0.438	0.081	0.000	1	Sialoadhesin precursor (Sialic acid-binding Ig-like lectin 1) (Siglec- 1) (Sheep erythrocyte receptor) (SER) (CD169 antigen).
ENSMUSP00000028807	1.975	0.597	2.113	0.226	0.670	0	isovaleryl coenzyme A dehydrogenase
ENSMUSP00000028835	0.257	0.198	0.312	0.008	0.341	3	
ENSMUSP00000028916	0.270	0.124	0.368	0.040	0.414	0	SEC23B (S. cerevisiae)
ENSMUSP00000029017	1.787	0.174	2.226	0.428	0.410	0	phosphoenolpyruvate carboxykinase 1, cytosolic
ENSMUSP00000029046	0.134	0.004	1.778	0.439	0.000	0	Fatty acid-binding protein, epidermal (E-FABP) (Psoriasis-associated fatty acid-binding protein homolog) (PA-FABP) (Keratinocyte lipid- binding protein).
ENSMUSP00000029060	0.928	0.136	1.490	0.576	0.559	10	ATPase, class II, type 9A
ENSMUSP00000029076	17.021	2.366	12.488	0.950	0.123	0	carbonic anhydrase 3
ENSMUSP00000029082	14.172	3.288	12.846	2.553	0.852	0	proteasome (prosome, macropain) subunit, alpha type 7
ENSMUSP00000029149	0.769	0.224	0.381	0.056	0.158	0	RNA binding motif protein 39
ENSMUSP00000029171	24.736	4.310	19.036	1.448	0.257	0	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 63 kDa subunit precursor (EC 2.4.1.119) (Ribophorin II) (RPN-II).
ENSMUSP00000029217	9.189	1.685	10.626	1.164	0.509	1	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 5
ENSMUSP00000029240	13.942	2.021	10.467	1.303	0.213	11	solute carrier family 2 (facilitated glucose transporter), member 2
ENSMUSP00000029256	0.659	0.495	0.984	0.258	0.327	2	translocation protein 1
ENSMUSP00000029257	0.154	0.031	0.195	0.022	0.353	7	ATPase, class VI, type 11B
ENSMUSP00000029259	0.468	0.162	0.020	0.000	0.003	0	methylcrotonoyl-Coenzyme A carboxylase 1 (alpha)
ENSMUSP00000029325	10.724	1.978	9.610	0.452	0.677	0	arylacetamide deacetylase (esterase)
ENSMUSP00000029386	10.483	0.439	11.901	0.750	0.167	0	electron transferring flavoprotein, dehydrogenase

ENSMUSP00000029414	5.934	0.886	5.320	1.008	0.651	4	signal sequence receptor, gamma
ENSMUSP00000029476	22.221	3.114	17.074	0.574	0.189	1	SEC22 vesicle trafficking protein homolog B (S. cerevisiae)
ENSMUSP00000029480	0.392	0.111	0.027	0.001	0.001	0	PRP38 pre-mRNA processing factor 38 (yeast) domain containing B
ENSMUSP00000029483	1.144	0.326	0.980	0.317	0.721	3	chloride channel CLIC-like 1
ENSMUSP00000029565	0.228	0.151	0.782	0.191	0.083	5	recombination activating gene 1 activating protein 1
ENSMUSP00000029569	2.865	0.981	2.681	0.693	0.929	8	solute carrier family 35 (UDP-N-acetylglucosamine (UDP-GlcNAc) transporter), member 3
ENSMUSP00000029610	2.734	0.473	0.880	0.345	0.062	0	hydroxyacyl-Coenzyme A dehydrogenase
ENSMUSP00000029630	0.090	0.060	1.369	0.301	0.010	0	fibrinogen, alpha polypeptide
ENSMUSP00000029632	0.480	0.226	0.748	0.183	0.377	1	lecithin-retinol acyltransferase (phosphatidylcholine-retinol-O-acyltransferase)
ENSMUSP00000029645	0.928	0.535	0.103	0.068	0.058	0	tryptophan 2,3-dioxygenase
ENSMUSP00000029658	1.334	0.144	1.400	0.102	0.702	1	glutamyl aminopeptidase
ENSMUSP00000029684	5.869	0.965	10.190	1.437	0.073	4	secretory carrier membrane protein 3
ENSMUSP00000029717	3.171	0.694	1.800	0.242	0.140	1	CD1d1 antigen
ENSMUSP00000029729	55.748	0.793	50.534	1.707	0.056	1	flavin containing monooxygenase 5
ENSMUSP00000029738	0.757	0.269	1.145	0.110	0.297	9	G protein-coupled receptor 89
ENSMUSP00000029769	1.188	0.762	0.252	0.101	0.180	0	glutamate-cysteine ligase , modifier subunit
ENSMUSP00000029770	12.544	1.018	9.915	0.404	0.069	3	ATP-binding cassette, sub-family D (ALD), member 3
ENSMUSP00000029777	2.125	0.459	0.916	0.147	0.037	6	transmembrane protein 56
ENSMUSP00000029805	2.606	0.207	1.860	0.164	0.044	0	microsomal triglyceride transfer protein
ENSMUSP00000029815	2.265	0.424	1.685	0.182	0.279	1	CDGSH iron sulfur domain 2
ENSMUSP00000029830	1.742	0.392	1.225	0.382	0.346	0	cystathionase (cystathionine gamma-lyase)
ENSMUSP00000029837	2.670	0.678	3.155	1.016	0.733	0	urate oxidase
ENSMUSP00000029875	0.303	0.234	1.099	0.121	0.074	2	transmembrane protein 55A
ENSMUSP00000029877	3.088	0.413	3.421	0.826	0.842	0	2,4-dienoyl CoA reductase 1, mitochondrial
ENSMUSP00000029905	1.937	0.131	2.294	0.789	1.000	1	cytochrome P450, family 7, subfamily a, polypeptide 1
ENSMUSP00000029936	0.029	0.001	0.807	0.330	0.003	0	Interferon-induced guanylate-binding protein 1 (GTP-binding protein 1) (Guanine nucleotide-binding protein 1) (GBP-1) (mGBP1) (mGBP-1) (Interferon-gamma-inducible protein MAG-1).
ENSMUSP00000029944	0.858	0.269	0.735	0.457	0.518	1	ubiquitin-conjugating enzyme E2, J1
ENSMUSP00000029970	2.181	1.126	4.636	0.590	0.146	8	solute carrier family 35 (CMP-sialic acid transporter), member 1
ENSMUSP00000029987	20.512	1.494	13.587	0.492	0.007	0	aldolase 2, B isoform
ENSMUSP00000030010	0.564	0.117	0.454	0.063	0.468	13	ATP-binding cassette, sub-family A (ABC1), member 1
ENSMUSP00000030045	0.847	0.374	0.364	0.180	0.266	10	solute carrier family 44, member 2
ENSMUSP00000030090	15.143	1.199	14.534	0.574	0.694	0	aminolevulinate, delta-, dehydratase
ENSMUSP00000030112	3.681	0.220	2.814	0.116	0.021	0	Cytoplasmic aconitate hydratase
ENSMUSP00000030121	2.689	0.215	4.009	0.725	0.130	1	UDP-Gal:betaGlcNAc beta 1,4- galactosyltransferase, polypeptide 1
ENSMUSP00000030127	2.612	0.638	1.510	0.172	0.143	0	transmembrane protein 38B

ENSMUSP00000030142	0.743	0.398	0.676	0.255	0.731	0	Band 4.1-like protein 4B
ENSMUSP00000030164	1.248	0.393	1.590	0.314	0.509	0	valosin containing protein
ENSMUSP00000030169	6.782	1.269	4.951	0.890	0.295	0	stomatin (Epb7.2)-like 2
ENSMUSP00000030187	0.033	0.026	0.091	0.029	0.159	0	Talin-1.
ENSMUSP00000030263	1.502	0.079	1.384	0.564	0.575	1	ST3 beta-galactoside alpha-2,3-sialyltransferase 3
ENSMUSP00000030299	21.243	3.547	17.390	1.004	0.350	1	cytochrome P450, family 2, subfamily j, polypeptide 5
ENSMUSP00000030303	1.325	0.902	1.258	0.124	0.561	2	cytochrome P450, family 2, subfamily j, polypeptide 6
ENSMUSP00000030340	4.371	0.927	3.997	0.382	0.816	0	sterol carrier protein 2, liver
ENSMUSP00000030345	0.423	0.137	0.352	0.153	0.718	0	carntine palmitoyltransferase 2
ENSMUSP00000030357	0.172	0.147	0.344	0.111	0.229	5	Nucleoporin NDC1 (Transmembrane protein 48).
ENSMUSP00000030398	0.549	0.257	0.299	0.052	0.993	12	
ENSMUSP00000030454	7.823	0.351	6.210	1.423	0.344	0	peroxiredoxin 1
ENSMUSP00000030455	2.751	1.194	1.513	0.252	0.605	0	aldo-keto reductase family 1, member A4 (aldehyde reductase)
ENSMUSP00000030482	0.534	0.059	0.817	0.252	0.324	1	Cytochrome P450 4B1 (EC 1.14.14.1) (CYP1B1).
ENSMUSP00000030487	6.040	0.846	0.028	0.001	0.000	2	cytochrome P450, family 4, subfamily a, polypeptide 14
ENSMUSP00000030538	19.297	4.900	15.320	2.381	0.569	2	dolichyl-di-phosphooligosaccharide-protein glycotransferase
ENSMUSP00000030642	12.360	2.678	12.687	0.224	0.751	0	proteasome (prosome, macropain) subunit, beta type 2
ENSMUSP00000030698	4.360	0.595	3.726	0.801	0.534	1	syntaxin 12
ENSMUSP00000030742	0.481	0.097	0.469	0.011	0.929	0	mitochondrial trans-2-enoyl-CoA reductase
ENSMUSP00000030769	0.452	0.318	0.545	0.204	0.519	0	proteasome (prosome, macropain) 26S subunit, ATPase 2
ENSMUSP00000030797	9.613	2.149	8.667	1.495	0.821	1	vesicle-associated membrane protein 3
ENSMUSP00000030805	1.966	0.639	1.516	0.816	0.504	0	Parkinson disease (autosomal recessive, early onset) 7
ENSMUSP00000030851	11.164	3.792	13.346	0.593	0.442	1	translocase of outer mitochondrial membrane 7 homolog (yeast)
ENSMUSP00000030884	2.781	0.518	1.190	0.285	0.038	1	mitofusin 2
ENSMUSP00000030903	7.282	1.126	10.083	0.736	0.113	0	ATPase family, AAA domain containing 3A
ENSMUSP00000030914	17.244	2.979	10.209	1.204	0.087	3	RER1 retention in endoplasmic reticulum 1 homolog (S. cerevisiae)
ENSMUSP00000030964	1.315	0.151	0.915	0.302	0.329	1	CD38 antigen
ENSMUSP00000031008	0.151	0.100	0.512	0.222	0.119	1	syntaxin 18
ENSMUSP00000031038	8.249	0.718	8.432	1.102	0.954	0	OClA domain containing 1
ENSMUSP00000031053	0.872	0.522	0.845	0.167	0.573	0	ketoheokinase
ENSMUSP00000031103	0.292	0.055	1.330	0.100	0.001	0	UDP-glucose dehydrogenase
ENSMUSP00000031129	0.406	0.041	0.342	0.050	0.342	5	solute carrier family 30 (zinc transporter), member 9
ENSMUSP00000031144	0.258	0.206	0.790	0.149	0.104	7	transmembrane protein 165
ENSMUSP00000031181	28.068	2.392	21.567	5.073	0.278	1	UDP glucuronosyltransferase 2 family, polypeptide B34
ENSMUSP00000031183	38.985	5.108	26.152	3.488	0.092	1	UDP glucuronosyltransferase 2 family, polypeptide B1
ENSMUSP00000031186	4.963	0.584	3.852	0.282	0.157	1	UDP glucuronosyltransferase 2 family, polypeptide B35

ENSMUSP00000031195	12.329	0.288	9.507	1.342	0.111	2	UDP glucuronosyltransferase 2 family, polypeptide A3
ENSMUSP00000031198	0.122	0.080	0.358	0.062	0.091	1	Protein FAM69A
ENSMUSP00000031251	14.125	2.534	7.613	0.844	0.059	0	hydroxysteroid (17-beta) dehydrogenase 11
ENSMUSP00000031255	1.801	0.604	0.939	0.190	0.215	2	RIKEN cDNA A230097K15 gene
ENSMUSP00000031314	1.282	0.306	4.765	0.396	0.010	0	albumin
ENSMUSP00000031355	0.150	0.028	0.316	0.114	0.319	0	USO1 homolog, vesicle docking protein (yeast)
ENSMUSP00000031377	3.471	0.468	3.434	0.162	0.978	2	scavenger receptor class B, member 2
ENSMUSP00000031378	0.393	0.011	0.239	0.096	0.282	1	syntaxin 2
ENSMUSP00000031383	2.040	0.578	2.662	1.095	0.816	0	RAN, member RAS oncogene family
ENSMUSP00000031398	7.350	0.908	5.992	0.646	0.290	0	4-hydroxyphenylpyruvic acid dioxygenase
ENSMUSP00000031411	5.468	0.334	6.386	0.682	0.318	0	aldehyde dehydrogenase 2, mitochondrial
ENSMUSP00000031429	1.603	0.398	1.832	0.504	0.749	2	purinergic receptor P2X, ligand-gated ion channel 4
ENSMUSP00000031455	0.534	0.233	0.900	0.208	0.269	9	major facilitator superfamily domain containing 7
ENSMUSP00000031472	17.020	2.498	15.699	1.130	0.715	3	peroxisomal membrane protein 2
ENSMUSP00000031474	0.254	0.093	0.128	0.075	0.309	1	ANK repeat and LEM domain-containing protein KIAA0692. Source: Uniprot/SWISSPROT Q6P1H6
ENSMUSP00000031524	3.793	0.438	2.779	0.567	0.220	0	acyl-Coenzyme A dehydrogenase, short chain
ENSMUSP00000031530	0.546	0.015	0.664	0.125	0.449	9	signal peptide peptidase 3
ENSMUSP00000031549	0.286	0.244	0.498	0.073	0.206	0	predicted gene, EG240327 (EG240327), mRNA
ENSMUSP00000031554	0.120	0.095	0.672	0.035	0.044	9	transmembrane protein 168
ENSMUSP00000031556	0.772	0.364	0.635	0.015	0.983	1	transmembrane protein 106B
ENSMUSP00000031564	13.563	2.805	5.464	5.425	0.133	0	Actin, cytoplasmic 1 (Beta-actin).
ENSMUSP00000031583	0.437	0.034	0.847	0.037	0.002	1	acetyl-Coenzyme A carboxylase beta
ENSMUSP00000031617	5.650	0.607	3.491	2.278	0.328	0	ribosomal protein L6
ENSMUSP00000031637	60.162	10.586	66.996	9.282	0.634	1	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 4
ENSMUSP00000031655	3.115	0.262	3.339	0.159	0.498	11	solute carrier family 46, member 3
ENSMUSP00000031707	3.195	0.142	3.347	0.348	0.775	0	aminoadipate-semialdehyde synthase
ENSMUSP00000031729	8.068	0.631	6.899	0.878	0.317	1	transferrin receptor 2
ENSMUSP00000031741	4.185	1.105	5.252	0.561	0.369	0	cytochrome P450, family 3, subfamily a, polypeptide 13
ENSMUSP00000031773	5.807	2.124	11.308	0.711	0.083	0	paraoxonase 3
ENSMUSP00000031822	2.675	0.291	1.572	0.173	0.029	6	ATP-binding cassette, sub-family G (WHITE), member 2
ENSMUSP00000031833	0.422	0.198	0.657	0.160	0.377	4	transmembrane protein 176B
ENSMUSP00000031897	4.261	1.228	1.482	0.211	0.042	0	glutathione S-transferase kappa 1
ENSMUSP00000031977	0.714	0.243	1.172	0.180	0.239	0	acylglycerol kinase
ENSMUSP00000032065	8.545	1.266	12.421	0.574	0.060	1	prenylcysteine oxidase 1
ENSMUSP00000032073	1.236	0.951	1.244	0.138	0.445	1	camello-like 4

ENSMUSP00000032114	5.564	0.427	4.750	0.201	0.147	1	glucosidase 1
ENSMUSP00000032143	21.279	1.059	18.186	0.293	0.039	1	ribophorin I
ENSMUSP00000032175	10.463	1.665	9.503	0.423	0.660	0	aldehyde dehydrogenase 1 family, member L1
ENSMUSP00000032183	1.860	0.676	2.581	0.686	0.455	4	transmembrane protein 43
ENSMUSP00000032192	0.325	0.164	0.171	0.087	0.395	6	inositol 1,4,5-trisphosphate receptor type 1
ENSMUSP00000032196	11.104	0.456	11.379	0.755	0.793	0	ADP-ribosylation factor-like 8B
ENSMUSP00000032200	0.821	0.257	0.370	0.040	0.092	12	solute carrier family 6 (neurotransmitter transporter, betaine/GABA), member 12
ENSMUSP00000032228	0.501	0.219	0.978	0.203	0.263	0	murinoglobulin 1
ENSMUSP00000032260	3.989	0.765	3.045	0.307	0.333	1	C-type lectin domain family 2, member d
ENSMUSP00000032264	1.144	0.997	2.332	0.253	0.166	0	Gamma-aminobutyric acid receptor-associated protein-like 1 (GABA(A) receptor-associated protein-like 1) (Glandular epithelial cell protein 1) (GEC-1)
ENSMUSP00000032364	2.244	0.659	0.670	0.354	0.073	11	solute carrier organic anion transporter family, member 1a4
ENSMUSP00000032422	0.421	0.072	0.546	0.237	0.833	2	cysteine-rich with EGF-like domains 1
ENSMUSP00000032425	2.084	1.486	1.905	0.214	0.501	2	transmembrane protein 111
ENSMUSP00000032446	1.053	0.218	1.179	0.207	0.667	0	ERGIC and golgi 2
ENSMUSP00000032473	0.741	0.021	1.672	0.601	0.144	0	interferon inducible GTPase 1
ENSMUSP00000032503	1.153	0.287	0.395	0.198	0.139	4	tetraspanin 9
ENSMUSP00000032510	0.938	0.136	2.817	0.472	0.009	0	pregnancy zone protein
ENSMUSP00000032539	20.756	1.130	17.569	0.781	0.078	3	solute carrier family 27 (fatty acid transporter), member 5
ENSMUSP00000032555	4.348	0.335	3.856	0.609	0.456	0	translocase of outer mitochondrial membrane 40 homolog (yeast)
ENSMUSP00000032566	1.259	0.696	1.447	0.332	0.560	1	glutaminy-peptide cyclotransferase-like
ENSMUSP00000032597	8.392	1.497	8.598	1.609	0.918	0	ribosomal protein L28
ENSMUSP00000032723	0.812	0.195	0.164	0.108	0.046	0	small nuclear ribonucleoprotein polypeptide
ENSMUSP00000032744	0.188	0.084	0.326	0.122	0.428	2	furin (paired basic amino acid cleaving enzyme)
ENSMUSP00000032779	0.508	0.284	0.945	0.203	0.288	0	cathepsin C
ENSMUSP00000032809	4.695	0.738	6.715	1.327	0.275	5	Yip1 interacting factor homolog B (S. cerevisiae)
ENSMUSP00000032844	14.173	0.823	16.374	2.023	0.408	3	transmembrane protein 126A
ENSMUSP00000032865	10.467	1.002	8.653	0.407	0.173	0	fumarylacetoacetate hydrolase
ENSMUSP00000032882	9.345	3.319	5.269	0.701	0.287	1	NADH dehydrogenase (ubiquinone) 1, subcomplex unknown, 2
ENSMUSP00000032888	0.085	0.002	1.652	0.471	0.001	4	ADP-ribosylation factor-like protein 6-interacting protein 1 (ARL-6- interacting protein 1) (Aip-1) (Protein TBX2).
ENSMUSP00000032909	0.392	0.143	0.230	0.071	0.549	5	phosphodiesterase 3B, cGMP-inhibited
ENSMUSP00000032912	1.859	0.608	1.753	0.404	0.945	0	quinolinate phosphoribosyltransferase
ENSMUSP00000032919	1.682	0.105	2.230	0.130	0.030	0	major vault protein
ENSMUSP00000032920	6.593	2.076	4.565	0.336	0.399	3	CDP-diacylglycerol--inositol 3-phosphatidyltransferase
ENSMUSP00000032927	0.703	0.360	0.675	0.342	0.782	0	START domain containing 10
ENSMUSP00000032946	19.273	4.027	14.572	2.761	0.395	0	Ras-related protein Rab-6A

ENSMUSP00000032974	2.846	0.376	1.498	1.483	0.155	7	ATPase, Ca++ transporting, cardiac muscle, fast twitch 1
ENSMUSP00000032985	1.333	0.221	0.808	0.120	0.112	12	solute carrier organic anion transporter family, member 2b1
ENSMUSP00000032992	0.085	0.066	0.194	0.054	0.179	0	Eukaryotic translation initiation factor 3 subunit C (Eukaryotic translation initiation factor 3 subunit 8) (eIF3 p110) (eIF3c).
ENSMUSP00000032994	1.500	0.306	1.242	0.184	0.527	12	spinster homolog 1 (Drosophila)
ENSMUSP00000032998	5.941	1.300	9.566	1.706	0.197	0	ribosomal protein S3
ENSMUSP00000033001	0.612	0.198	0.455	0.127	0.586	1	diacylglycerol O-acyltransferase 2
ENSMUSP00000033008	15.829	2.183	14.544	3.163	0.690	0	proteasome (prosome, macropain) subunit, alpha type 1
ENSMUSP00000033012	0.153	0.092	0.378	0.053	0.167	0	Coatamer subunit beta (Beta-coat protein) (Beta-COP).
ENSMUSP00000033020	1.289	0.546	0.852	0.092	0.721	7	phytoceramidase, alkaline
ENSMUSP00000033044	0.739	0.262	0.730	0.619	0.492	0	cDNA sequence BC017158
ENSMUSP00000033075	1.229	0.420	1.149	0.636	0.603	1	syntaxin 4A (placental)
ENSMUSP00000033096	0.109	0.072	2.438	0.468	0.007	0	Nucleobindin-1 precursor (CALNUC).
ENSMUSP00000033117	0.098	0.003	0.384	0.090	0.009	1	integrin alpha L
ENSMUSP00000033121	0.386	0.102	1.004	0.080	0.017	0	nodal modulator 1
ENSMUSP00000033176	38.035	6.474	34.144	3.771	0.708	0	ubiquinol cytochrome c reductase core protein 2
ENSMUSP00000033184	0.535	0.151	0.360	0.053	0.308	0	tripeptidyl peptidase I
ENSMUSP00000033185	0.038	0.001	0.788	0.069	0.000	1	Hemopexin precursor
ENSMUSP00000033289	1.419	0.208	2.298	0.384	0.116	1	stromal interaction molecule 1
ENSMUSP00000033313	0.583	0.299	0.806	0.087	0.394	3	
ENSMUSP00000033373	14.130	1.541	19.191	3.792	0.303	1	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 11
ENSMUSP00000033498	6.207	0.660	9.101	1.287	0.095	1	translocase of inner mitochondrial membrane 17b
ENSMUSP00000033509	3.900	1.339	2.389	1.041	0.395	5	phenylalkylamine Ca2+ antagonist (emopamil) binding protein
ENSMUSP00000033562	0.321	0.149	0.376	0.136	0.608	6	
ENSMUSP00000033583	2.137	0.357	1.088	0.338	0.093	5	RIKEN cDNA 2610529C04 gene
ENSMUSP00000033662	0.044	0.001	0.308	0.059	0.000	0	Pyruvate dehydrogenase E1 component subunit alpha, somatic form, mitochondrial precursor (EC 1.2.4.1) (PDHE1-A type I).
ENSMUSP00000033683	9.529	1.739	14.925	1.156	0.092	0	ribosomal protein S4, X-linked
ENSMUSP00000033715	6.534	0.544	9.082	0.542	0.032	1	NAD(P) dependent steroid dehydrogenase-like
ENSMUSP00000033741	0.129	0.081	0.770	0.301	0.044	0	Biglycan precursor (Bone/cartilage proteoglycan I) (PG-S1).
ENSMUSP00000033824	4.279	1.170	5.111	0.288	0.467	1	lysosomal-associated membrane protein 1
ENSMUSP00000033847	0.491	0.184	0.768	0.139	0.253	2	1-acylglycerol-3-phosphate O-acyltransferase 5 (lysophosphatidic acid acyltransferase, epsilon)
ENSMUSP00000033871	21.931	3.524	21.014	2.897	0.865	0	solute carrier family 25 (mitochondrial carrier ornithine transporter), member 15
ENSMUSP00000033873	6.009	0.549	4.782	0.806	0.256	0	ER lipid raft associated 2
ENSMUSP00000033901	1.347	0.680	0.829	0.221	0.836	1	
ENSMUSP00000033949	0.869	0.308	0.958	0.205	0.657	3	1-acylglycerol-3-phosphate O-acyltransferase 6 (lysophosphatidic acid acyltransferase, zeta)
ENSMUSP00000034015	0.500	0.119	0.329	0.162	0.372	3	sterol-C4-methyl oxidase-like

ENSMUSP00000034046	37.320	2.467	19.194	0.998	0.001	0	acyl-CoA synthetase long-chain family member 1
ENSMUSP00000034097	6.662	0.723	5.299	0.215	0.140	0	glutamate oxaloacetate transaminase 2, mitochondrial
ENSMUSP00000034131	0.347	0.049	0.701	0.303	0.422	0	vacuolar protein sorting 35
ENSMUSP00000034140	1.541	0.284	1.784	0.375	0.668	1	integrin alpha FG-GAP repeat containing 1
ENSMUSP00000034172	3.225	0.778	2.638	0.341	0.563	0	carboxylesterase 3
ENSMUSP00000034178	1.222	0.132	0.653	0.183	0.117	0	expressed sequence AU018778
ENSMUSP00000034189	0.488	0.099	0.559	0.106	0.615	0	esterase 1
ENSMUSP00000034220	0.846	0.329	0.577	0.170	0.623	0	homocysteine-inducible, endoplasmic reticulum stress-inducible, ubiquitin-like domain member 1
ENSMUSP00000034227	2.586	0.683	1.411	0.280	0.159	4	plasma membrane proteolipid
ENSMUSP00000034264	2.729	0.915	2.156	0.495	0.755	0	6-phosphogluconolactonase
ENSMUSP00000034276	78.850	14.879	69.253	19.521	0.637	1	cytochrome c oxidase subunit IV isoform 1
ENSMUSP00000034280	0.574	0.098	0.934	0.640	0.766	4	zinc finger, DHHC domain containing 7
ENSMUSP00000034304	17.412	1.939	20.001	2.432	0.467	2	hydroxysteroid (17-beta) dehydrogenase 2
ENSMUSP00000034326	1.825	0.126	1.481	0.355	0.363	6	ATPase type 13A1
ENSMUSP00000034355	0.779	0.262	0.561	0.218	0.525	0	carboxylesterase 5
ENSMUSP00000034369	0.295	0.116	2.094	0.292	0.024	0	proteasome (prosome, macropain) subunit, beta type 10
ENSMUSP00000034370	0.244	0.146	0.456	0.087	0.279	12	Solute carrier family 12 member 4 (Electroneutral potassium-chloride cotransporter 1) (Erythroid K-Cl cotransporter 1) (mKCC1)
ENSMUSP00000034400	64.114	11.499	58.278	5.719	0.718	1	cytochrome b5 type B
ENSMUSP00000034414	0.657	0.158	0.207	0.160	0.106	0	RIKEN cDNA 4931406C07 gene
ENSMUSP00000034441	0.850	0.088	0.734	0.107	0.429	0	alananyl-tRNA synthetase
ENSMUSP00000034458	0.692	0.338	2.632	0.636	0.165	1	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 2
ENSMUSP00000034509	1.634	0.981	3.228	0.471	0.255	0	Thy-1 membrane glycoprotein precursor (Thy-1 antigen) (CD90 antigen).
ENSMUSP00000034537	1.430	0.561	3.573	0.505	0.132	1	ST3 beta-galactoside alpha-2,3-sialyltransferase 4
ENSMUSP00000034541	5.074	0.743	4.749	0.618	0.769	0	signal recognition particle receptor ('docking protein')
ENSMUSP00000034547	5.516	1.223	2.223	0.512	0.054	0	acetyl-Coenzyme A acetyltransferase 1
ENSMUSP00000034561	1.027	0.238	1.349	0.329	0.499	8	asparagine-linked glycosylation 9 homolog (yeast, alpha 1,2 mannosyltransferase)
ENSMUSP00000034567	2.334	0.460	1.970	0.472	0.575	0	dihydrolipoamide S-acetyltransferase (E2 component of pyruvate dehydrogenase complex)
ENSMUSP00000034584	0.481	0.083	0.550	0.200	0.938	0	apolipoprotein A-V
ENSMUSP00000034588	0.545	0.103	2.307	0.658	0.017	0	apolipoprotein A-I
ENSMUSP00000034621	0.790	0.327	1.306	0.155	0.263	0	NLR family member X1
ENSMUSP00000034624	9.330	1.138	7.452	0.588	0.194	11	solute carrier family 37 (glucose-6-phosphate transporter), member 4
ENSMUSP00000034713	2.408	0.409	2.237	0.175	0.781	1	low density lipoprotein receptor
ENSMUSP00000034722	0.078	0.002	0.905	0.234	0.002	0	Ras-related protein Rab-27A
ENSMUSP00000034785	0.237	0.057	2.111	0.339	0.001	1	glucuronyl C5-epimerase
ENSMUSP00000034801	0.729	0.407	0.634	0.177	0.718	0	branched chain ketoacid dehydrogenase E1, beta polypeptide

ENSMUSP00000034848	2.520	0.169	4.907	0.901	0.026	0	proteasome (prosome, macropain) subunit, alpha type 4
ENSMUSP00000034860	42.441	7.593	24.193	1.098	0.039	1	cytochrome P450, family 1, subfamily a, polypeptide 2
ENSMUSP00000034878	7.187	1.668	6.528	1.937	0.749	2	transmembrane protein 30A
ENSMUSP00000034881	103.533	11.344	137.127	14.044	0.136	1	cytochrome c oxidase, subunit VIIa 2
ENSMUSP00000034887	3.137	0.923	2.349	0.610	0.590	1	neuroplastin
ENSMUSP00000034947	2.714	0.873	3.941	0.886	0.409	1	peptidylprolyl isomerase B
ENSMUSP00000034966	8.200	1.350	5.905	0.090	0.123	0	ribosomal protein L4
ENSMUSP00000034983	2.237	0.375	2.626	0.439	0.562	1	ATPase, Na+/K+ transporting, beta 3 polypeptide
ENSMUSP00000034989	4.179	0.106	2.537	0.397	0.039	0	malic enzyme 1, NADP(+)-dependent, cytosolic
ENSMUSP00000034992	0.593	0.160	0.538	0.058	0.907	15	5' nucleotidase, ecto
ENSMUSP00000034995	0.226	0.107	0.099	0.047	0.296	2	sorting nexin 14
ENSMUSP00000035010	2.809	0.492	2.596	0.393	0.803	10	STT3, subunit of the oligosaccharyltransferase complex, homolog B (S. cerevisiae)
ENSMUSP00000035033	0.120	0.100	0.338	0.116	0.174	0	Coatomer subunit beta' (Beta'-coat protein) (Beta'-COP) (p102).
ENSMUSP00000035034	0.493	0.086	0.573	0.332	0.645	0	mitochondrial ribosomal protein S22
ENSMUSP00000035086	0.055	0.034	0.140	0.033	0.116	0	Programmed cell death 6-interacting protein (ALG-2-interacting protein X) (ALG-2-interacting protein 1) (E2F1-inducible protein) (Eig2).
ENSMUSP00000035105	1.326	0.711	0.949	0.327	0.826	0	
ENSMUSP00000035116	0.032	0.001	0.276	0.103	0.004	0	Propionyl-CoA carboxylase beta chain, mitochondrial precursor (EC 6.4.1.3) (PCCase subunit beta) (Propanoyl-CoA:carbon dioxide ligase subunit beta).
ENSMUSP00000035148	0.775	0.090	0.861	0.196	0.845	11	solute carrier organic anion transporter family, member 2a1
ENSMUSP00000035157	8.489	0.914	8.041	1.022	0.756	1	signal recognition particle receptor, B subunit
ENSMUSP00000035158	0.438	0.245	1.401	0.078	0.153	0	Serotransferrin precursor (Transferrin) (Siderophilin) (Beta-1-metal- binding globulin).
ENSMUSP00000035220	1.001	0.146	1.675	0.475	0.267	0	protein kinase, cAMP dependent regulatory, type II alpha
ENSMUSP00000035222	31.723	4.415	41.266	8.855	0.436	3	solute carrier family 25 (mitochondrial carnitine/acylcarnitine translocase), member 20
ENSMUSP00000035230	0.609	0.172	0.908	0.383	0.570	0	aminomethyltransferase
ENSMUSP00000035246	1.609	0.528	0.939	0.158	0.244	6	ATP-binding cassette, sub-family G (WHITE), member 8
ENSMUSP00000035274	0.094	0.003	2.109	0.390	0.000	0	cathelicidin antimicrobial peptide
ENSMUSP00000035417	2.107	0.597	1.115	0.430	0.259	0	pyruvate kinase liver and red blood cell
ENSMUSP00000035458	5.250	0.845	5.897	0.392	0.474	15	ATP-binding cassette, sub-family A (ABC1), member 6
ENSMUSP00000035614	0.129	0.081	0.625	0.372	0.120	0	
ENSMUSP00000035658	0.023	0.001	0.160	0.031	0.000	2	Sulfhydryl oxidase 1 precursor (EC 1.8.3.2) (Quiescin Q6) (Skin sulfhydryl oxidase) (mSOx).
ENSMUSP00000035761	0.011	0.007	0.132	0.093	0.084	0	apolipoprotein B precursor
ENSMUSP00000035804	10.547	1.173	8.250	0.106	0.094	0	MOCO sulphurase C-terminal domain containing 1
ENSMUSP00000035879	2.163	0.946	2.102	0.030	0.727	1	asparagine-linked glycosylation 5 homolog (yeast, dolichyl-phosphate
ENSMUSP00000035943	4.321	0.741	3.219	0.546	0.310	1	alanyl (membrane) aminopeptidase
ENSMUSP00000035964	0.217	0.071	0.481	0.130	0.154	11	chloride channel 7
ENSMUSP00000036082	0.045	0.035	0.139	0.052	0.153	0	4933425L03Rik protein.

ENSMUSP00000036140	0.875	0.272	1.236	0.123	0.239	0	acyl-CoA synthetase medium-chain family member 1
ENSMUSP00000036245	11.328	0.174	10.206	0.847	0.276	2	hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 7
ENSMUSP00000036337	0.956	0.246	0.369	0.175	0.189	0	haloacid dehalogenase-like hydrolase domain containing 3
ENSMUSP00000036386	5.617	1.173	6.822	0.634	0.405	0	lactate dehydrogenase A
ENSMUSP00000036453	26.160	1.032	33.692	12.269	0.734	1	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 13
ENSMUSP00000036730	0.345	0.170	1.092	0.498	0.252	2	abhydrolase domain containing 13
ENSMUSP00000036983	0.991	0.471	1.075	0.219	0.535	1	carbonic anhydrase 14
ENSMUSP00000036996	0.365	0.095	2.184	0.323	0.006	1	mannosidase, alpha, class 1B, member 1
ENSMUSP00000037018	0.182	0.071	1.980	0.699	0.021	0	fibrinogen, gamma polypeptide
ENSMUSP00000037022	14.102	1.213	10.401	1.321	0.106	11	solute carrier organic anion transporter family, member 1a1
ENSMUSP00000037039	56.142	4.522	77.376	1.473	0.016	5	translocator protein
ENSMUSP00000037107	2.967	0.531	2.576	0.286	0.569	5	leukocyte receptor cluster (LRC) member 4
ENSMUSP00000037259	16.816	0.967	13.248	1.049	0.075	1	flavin containing monooxygenase 1
ENSMUSP00000037331	0.298	0.140	0.475	0.133	0.384	7	Zinc transporter ZIP11 (Zrt- and Irt-like protein 11) (ZIP-11) (Solute carrier family 39 member 11).
ENSMUSP00000037341	16.883	10.536	5.674	1.749	0.349	0	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 7
ENSMUSP00000037348	43.915	3.645	14.057	1.764	0.002	0	acetyl-Coenzyme A acyltransferase 2
ENSMUSP00000037422	3.248	1.007	2.136	0.252	0.522	1	transmembrane protein 166
ENSMUSP00000037446	0.272	0.099	0.224	0.081	0.750	0	methionine-tRNA synthetase
ENSMUSP00000037484	1.761	0.291	1.979	0.377	0.697	0	RIKEN cDNA 1110039B18 gene
ENSMUSP00000037487	17.827	0.887	22.665	4.301	0.332	3	cytochrome P450, family 7, subfamily b, polypeptide 1
ENSMUSP00000037546	1.385	0.166	1.220	0.363	0.584	1	LETM1 domain containing 1
ENSMUSP00000037555	0.586	0.228	0.396	0.197	0.486	0	carboxylesterase 1
ENSMUSP00000037583	15.380	1.678	18.788	0.919	0.167	2	transmembrane emp24-like trafficking protein 10 (yeast)
ENSMUSP00000037609	0.960	0.145	0.482	0.112	0.051	4	Bri3 binding protein
ENSMUSP00000037617	17.428	1.057	13.250	1.429	0.079	6	solute carrier family 35 (UDP-glucuronic acid/UDP-N-acetylgalactosamine dual transporter), member D1
ENSMUSP00000037629	3.173	0.529	1.896	0.172	0.070	11	solute carrier family 16 (monocarboxylic acid transporters), member 2
ENSMUSP00000037655	0.895	0.420	1.890	0.659	0.305	6	Solute carrier family 35 member E1.
ENSMUSP00000037665	51.665	6.581	47.302	4.627	0.629	2	cytochrome P450, family 3, subfamily a, polypeptide 11
ENSMUSP00000037821	0.271	0.119	0.332	0.157	0.648	5	tweety homolog 2 (Drosophila)
ENSMUSP00000037834	0.725	0.358	2.526	1.061	0.103	9	solute carrier family 35, member B2
ENSMUSP00000037962	1.522	0.510	1.922	0.673	0.662	1	peroxisomal biogenesis factor 11b
ENSMUSP00000038041	0.137	0.037	0.080	0.048	0.317	17	ATP-binding cassette, sub-family C (CFTR/MRP), member 10
ENSMUSP00000038063	4.657	0.592	3.819	0.645	0.373	2	24-dehydrocholesterol reductase
ENSMUSP00000038106	0.196	0.040	0.104	0.052	0.264	11	solute carrier family 12 (potassium/chloride transporters), member 9
ENSMUSP00000038135	0.219	0.107	0.340	0.073	0.374	0	ATP-dependent RNA helicase A (EC 3.6.1.-) (Nuclear DNA helicase II) (NDH II) (DEAH box protein 9) (mHEL-5).

ENSMUSP00000038149	0.756	0.049	0.396	0.283	0.223	1	hepsin
ENSMUSP00000038214	0.330	0.140	0.038	0.024	0.042	0	RIKEN cDNA 1300010F03 gene
ENSMUSP00000038276	0.507	0.223	0.898	0.170	0.303	2	transmembrane protein 55b
ENSMUSP00000038339	2.622	1.514	2.683	0.058	0.564	1	RIKEN cDNA D430028G21 gene
ENSMUSP00000038350	1.831	0.642	1.755	0.267	0.878	4	secretory carrier membrane protein 2
ENSMUSP00000038359	0.023	0.001	0.382	0.100	0.000	1	mannoside acetylglucosaminyltransferase 5
ENSMUSP00000038387	0.778	0.695	0.805	0.218	0.380	3	
ENSMUSP00000038671	0.317	0.190	1.195	0.177	0.095	1	Glycoprotein endo-alpha-1,2-mannosidase (EC 3.2.1.130) (mEndo).
ENSMUSP00000038755	2.673	0.404	2.619	0.290	0.966	0	abhydrolase domain containing 14b
ENSMUSP00000038763	1.439	0.432	0.096	0.038	0.016	0	propionyl-Coenzyme A carboxylase, alpha polypeptide
ENSMUSP00000038838	1.088	0.197	1.439	0.119	0.204	0	Yamaguchi sarcoma viral (v-yes-1) oncogene homolog
ENSMUSP00000038878	5.472	0.764	4.942	0.806	0.662	0	aldehyde dehydrogenase 8 family, member A1
ENSMUSP00000038914	30.519	2.887	32.168	1.426	0.610	2	kynurenine 3-monooxygenase (kynurenine 3-hydroxylase)
ENSMUSP00000039202	1.538	0.994	1.065	0.226	0.985	0	RIKEN cDNA 0610012D14 gene
ENSMUSP00000039252	37.982	6.232	29.159	3.180	0.299	0	retinol dehydrogenase 7
ENSMUSP00000039264	0.907	0.432	3.182	0.594	0.094	7	transporter 1, ATP-binding cassette, sub-family B (MDR/TAP)
ENSMUSP00000039289	7.419	2.191	7.375	0.917	0.814	0	solute carrier family 25 (mitochondrial oxodicarboxylate carrier), member 21
ENSMUSP00000039368	0.344	0.089	0.333	0.056	0.937	1	protein tyrosine phosphatase, receptor type, F
ENSMUSP00000039429	3.824	0.713	3.608	0.043	0.895	0	dihydropyrimidine dehydrogenase
ENSMUSP00000039472	0.305	0.073	1.639	0.146	0.002	0	fibrinogen, B beta polypeptide
ENSMUSP00000039529	0.750	0.362	1.380	0.588	0.433	5	transmembrane protein 109
ENSMUSP00000039657	11.764	0.669	8.656	0.930	0.056	10	ATPase, Na+/K+ transporting, alpha 1 polypeptide
ENSMUSP00000039663	3.682	0.497	3.097	0.354	0.374	0	dimethylglycine dehydrogenase precursor
ENSMUSP00000039692	0.714	0.280	1.789	0.265	0.134	0	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 7 (B14.5a)
ENSMUSP00000039726	18.050	5.528	14.536	2.476	0.711	1	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit f, isoform 2
ENSMUSP00000039737	0.650	0.114	1.460	0.195	0.021	6	ATPase, H+ transporting, lysosomal V0 subunit A2
ENSMUSP00000039784	2.529	0.195	3.020	0.661	0.644	0	mitochondrial ribosomal protein L23
ENSMUSP00000039853	0.109	0.061	0.115	0.023	0.573	0	ribosomal RNA processing 12 homolog (S. cerevisiae)
ENSMUSP00000040029	0.210	0.021	0.154	0.073	0.323	7	G protein-coupled receptor 116
ENSMUSP00000040093	0.622	0.069	0.697	0.288	0.920	12	unc-93 homolog B1 (C. elegans)
ENSMUSP00000040140	18.138	3.830	21.373	1.576	0.396	1	lectin, mannose-binding, 1
ENSMUSP00000040162	0.067	0.002	0.475	0.112	0.001	2	Receptor expression-enhancing protein 4.
ENSMUSP00000040198	2.593	0.861	3.538	0.512	0.315	0	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 23
ENSMUSP00000040222	7.141	0.535	8.107	0.383	0.205	0	leucine aminopeptidase 3
ENSMUSP00000040356	0.568	0.186	0.760	0.255	0.542	12	heparan-alpha-glucosaminide N-acetyltransferase
ENSMUSP00000040424	8.136	1.596	7.133	0.925	0.685	0	urocanase domain containing 1

ENSMUSP00000040447	0.340	0.196	0.234	0.076	0.811	0	myosin IB
ENSMUSP00000040550	27.614	1.035	21.023	2.566	0.090	0	monoamine oxidase B
ENSMUSP00000040580	1.280	0.273	0.591	0.086	0.044	0	galactose mutarotase
ENSMUSP00000040591	1.184	0.232	0.491	0.160	0.061	0	aldehyde dehydrogenase family 5, subfamily A1
ENSMUSP00000040840	10.750	1.378	10.331	1.794	0.820	1	Adipocyte plasma membrane-associated protein
ENSMUSP00000040853	0.677	0.402	0.494	0.138	0.801	0	
ENSMUSP00000041008	0.470	0.401	2.204	0.416	0.070	1	histocompatibility 2, class II antigen A, beta 1
ENSMUSP00000041104	2.409	0.452	3.565	0.578	0.194	0	apoptosis-inducing factor, mitochondrion-associated 1
ENSMUSP00000041152	6.287	0.877	4.191	0.668	0.118	0	signal peptidase complex subunit 2 homolog (S. cerevisiae)
ENSMUSP00000041244	1.048	0.285	0.464	0.219	0.222	0	mitochondrial ribosomal protein S26
ENSMUSP00000041260	1.071	0.243	0.800	0.183	0.460	0	aldehyde dehydrogenase 1 family, member B1
ENSMUSP00000041343	0.458	0.204	1.520	0.037	0.121	1	UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 1
ENSMUSP00000041442	12.791	2.652	17.844	6.077	0.527	3	beta-hydroxysteroid dehydrogenase type 5 (3 beta-hydroxysteroid dehydrogenase type V) (3-beta-HSD V) (NADPH-dependent 3-beta-hydroxy-Delta(5)-steroid dehydrogenase) (EC 1.1.1.-) (3-beta-hydroxy-5-ene steroid dehydrogenase) (Progesterone reductase). Sou
ENSMUSP00000041449	0.043	0.001	0.494	0.052	0.000	8	Solute carrier family 35 member E2.
ENSMUSP00000041495	0.042	0.027	0.282	0.106	0.066	1	Fibronectin type III domain-containing protein 3B (Factor for adipocyte differentiation 104) (HCV NS5A-binding protein 37).
ENSMUSP00000041503	8.802	4.948	2.093	0.653	0.153	4	ADP-ribosylation factor-like 6 interacting protein 5
ENSMUSP00000041543	6.643	0.680	8.323	0.298	0.097	1	fatty acid amide hydrolase
ENSMUSP00000041675	0.487	0.249	0.225	0.005	0.856	0	cysteine conjugate-beta lyase 2
ENSMUSP00000041820	1.295	0.586	1.450	0.311	0.638	7	COX15 homolog, cytochrome c oxidase assembly protein (yeast)
ENSMUSP00000041872	7.955	0.993	6.588	0.194	0.230	5	sideroflexin 5
ENSMUSP00000041907	1.659	0.760	1.489	0.416	0.878	1	F11 receptor
ENSMUSP00000041968	0.448	0.084	0.885	0.235	0.118	0	proteasome (prosome, macropain) 26S subunit, non-ATPase, 7
ENSMUSP00000041975	0.113	0.071	0.537	0.158	0.060	0	interferon gamma inducible protein 47
ENSMUSP00000041983	0.113	0.071	0.290	0.068	0.116	0	Bile acid-CoA:amino acid N-acyltransferase (EC 2.3.1.65) (BAT) (BACAT) (Glycine N-choleoyltransferase) (Long-chain fatty-acyl-CoA hydrolase) (EC 3.1.2.2).
ENSMUSP00000041985	0.522	0.128	0.526	0.148	0.955	2	testis expressed gene 2
ENSMUSP00000042095	1.700	0.493	0.942	0.355	0.252	0	serine (or cysteine) peptidase inhibitor, clade A, member 3K
ENSMUSP00000042118	0.146	0.124	0.185	0.032	0.310	0	RIKEN cDNA 1810074P20 gene
ENSMUSP00000042150	2.679	0.825	3.760	0.496	0.288	0	Harvey rat sarcoma oncogene, subgroup R
ENSMUSP00000042188	0.429	0.148	1.297	0.360	0.105	10	two pore channel 1
ENSMUSP00000042215	0.044	0.029	0.321	0.147	0.071	8	ATPase, aminophospholipid transporter (APLT), class I, type 8A,
ENSMUSP00000042232	4.676	0.859	3.038	0.679	0.181	0	heme binding protein 1
ENSMUSP00000042277	0.740	0.645	1.236	0.736	0.361	1	Uncharacterized protein C17orf62 homolog
ENSMUSP00000042342	11.303	5.640	13.810	0.899	0.420	0	tubulin, beta 2c
ENSMUSP00000042351	2.377	0.360	1.828	0.742	0.438	0	acetyl-Coenzyme A acyltransferase 1A

ENSMUSP00000042416	0.949	0.603	0.832	0.312	0.711	0	Transmembrane protein 177
ENSMUSP00000042457	5.794	1.139	7.411	0.866	0.304	0	eukaryotic translation elongation factor 1 alpha 1
ENSMUSP00000042700	14.742	3.308	16.203	7.209	0.728	0	Ras-related protein Rab-11B [Rab11b]
ENSMUSP00000042783	1.346	0.384	1.449	0.431	0.899	5	transmembrane protein 135
ENSMUSP00000042808	0.154	0.060	0.382	0.041	0.130	0	aminopeptidase-like 1
ENSMUSP00000042852	4.762	1.470	2.566	0.614	0.197	3	transmembrane protein 33
ENSMUSP00000042860	0.811	0.361	0.950	0.023	0.493	0	glucosamine-phosphate N-acetyltransferase 1
ENSMUSP00000042905	0.095	0.037	0.174	0.030	0.254	1	Desmocollin-2 precursor (Epithelial type 2 desmocollin).
ENSMUSP00000042958	3.051	0.825	1.956	0.510	0.326	6	RIKEN cDNA 2010305C02 gene
ENSMUSP00000042967	0.239	0.112	1.534	0.397	0.046	0	NADH dehydrogenase (ubiquinone) flavoprotein 1
ENSMUSP00000043066	0.868	0.288	1.700	0.328	0.106	0	heparan sulfate 2-O-sulfotransferase 1
ENSMUSP00000043088	0.943	0.258	1.337	0.174	0.264	2	diacylglycerol lipase, beta
ENSMUSP00000043245	2.631	0.571	1.677	0.864	0.321	4	ubiquitin associated domain containing 2
ENSMUSP00000043279	0.331	0.093	0.403	0.150	0.858	6	zinc finger, DHHC domain containing 17
ENSMUSP00000043308	1.906	0.414	1.402	0.320	0.365	0	glycine-N-acyltransferase
ENSMUSP00000043370	4.952	0.981	4.413	0.596	0.755	0	solute carrier family 25 (mitochondrial carrier, Graves disease autoantigen), member 16
ENSMUSP00000043390	0.856	0.313	1.111	0.538	0.767	4	isoprenylcysteine carboxyl methyltransferase
ENSMUSP00000043424	0.393	0.075	0.124	0.105	0.105	0	nephronophthisis 3 (adolescent)
ENSMUSP00000043467	0.437	0.012	0.055	0.001	0.000	1	cDNA sequence BC022224
ENSMUSP00000043540	0.976	0.898	2.145	0.363	0.157	4	keratinocyte associated protein 2
ENSMUSP00000043543	22.362	5.029	20.067	3.811	0.788	MP	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 10
ENSMUSP00000043559	46.856	9.340	36.406	4.199	0.443	1	CDGSH iron sulfur domain 1
ENSMUSP00000043580	0.982	0.253	1.208	0.317	0.673	0	asparagine-linked glycosylation 2 homolog (yeast, alpha-1,3-mannosyltransferase)
ENSMUSP00000043660	8.785	2.816	18.238	3.883	0.103	1	No description available.Protein Family: TRANSMEMBRANE EMP24 DOMAIN CONTAINING PRECURSOR
ENSMUSP00000043722	12.235	1.091	13.388	0.788	0.422	3	receptor accessory protein 6
ENSMUSP00000043768	3.775	0.919	1.959	0.505	0.125	4	CD81 antigen
ENSMUSP00000044004	1.394	0.218	2.510	0.132	0.022	1	low density lipoprotein receptor-related protein 1
ENSMUSP00000044050	8.589	1.332	6.714	0.652	0.271	1	Dipeptidyl peptidase 4
ENSMUSP00000044078	0.429	0.175	0.421	0.008	0.739	1	patatin-like phospholipase domain containing 7
ENSMUSP00000044144	0.152	0.101	0.368	0.086	0.133	2	COX18 cytochrome c oxidase assembly homolog (S. cerevisiae)
ENSMUSP00000044234	0.323	0.049	0.165	0.096	0.237	0	phospholipase A2, group VI
ENSMUSP00000044288	5.146	0.198	4.940	1.094	0.719	0	methionine adenosyltransferase I, alpha
ENSMUSP00000044290	0.414	0.175	0.307	0.058	0.851	9	SID1 transmembrane family, member 2
ENSMUSP00000044326	10.073	1.204	8.400	1.469	0.396	12	solute carrier organic anion transporter family, member 1b2
ENSMUSP00000044367	6.420	0.734	5.701	0.729	0.503	1	ilvB (bacterial acetolactate synthase)-like

ENSMUSP00000044370	0.079	0.061	0.283	0.094	0.125	0	Protein transport protein Sec24A (SEC24-related protein A).
ENSMUSP00000044405	0.443	0.143	0.469	0.135	0.838	1	flavin containing monooxygenase 2
ENSMUSP00000044457	0.944	0.105	0.916	0.246	0.768	1	RIKEN cDNA 4632417N05 gene
ENSMUSP00000044543	2.320	0.546	1.555	0.592	0.343	1	expressed sequence AW061290
ENSMUSP00000044554	0.119	0.046	0.214	0.071	0.322	0	pleckstrin homology domain containing, family C (with FERM domain) member 1
ENSMUSP00000044556	5.920	0.236	5.212	0.188	0.075	0	dihydroxyacetone kinase 2 homolog (yeast)
ENSMUSP00000044587	30.920	1.773	38.531	5.973	0.285	2	camello-like 2
ENSMUSP00000044639	0.690	0.030	0.796	0.144	0.637	1	ras homolog gene family, member T2
ENSMUSP00000044722	37.129	6.520	38.204	4.299	0.841	0	cytochrome P450, family 2, subfamily c, polypeptide 38
ENSMUSP00000044838	2.714	0.323	2.564	0.100	0.748	8	Vacuolar proton translocating ATPase 116 kDa subunit a isoform 1
ENSMUSP00000044871	3.047	0.453	2.580	0.136	0.381	2	phosphatidylinositol glycan anchor biosynthesis, class S
ENSMUSP00000044877	6.346	0.786	4.845	0.546	0.175	1	blocked early in transport 1 homolog (S. cerevisiae)
ENSMUSP00000044924	3.127	0.010	3.220	1.005	0.835	1	dehydrogenase/reductase (SDR family) member 7B
ENSMUSP00000044945	0.771	0.361	0.583	0.213	0.847	0	
ENSMUSP00000044955	6.656	2.019	4.199	0.620	0.283	5	protein tyrosine phosphatase-like A domain containing 1
ENSMUSP00000045036	0.145	0.068	0.326	0.062	0.253	0	Myoferlin (Fer-1-like protein 3).
ENSMUSP00000045111	1.971	0.328	1.914	0.252	0.931	0	mitochondrial ribosomal protein S34
ENSMUSP00000045127	2.249	1.176	2.191	0.475	0.764	0	RAB9, member RAS oncogene family
ENSMUSP00000045154	1.101	0.425	0.522	0.143	0.336	1	thioredoxin domain containing 13
ENSMUSP00000045214	0.168	0.079	0.185	0.043	0.591	8	
ENSMUSP00000045216	2.523	0.784	3.374	1.149	0.613	11	solute carrier family 16 (monocarboxylic acid transporters), member 1
ENSMUSP00000045239	0.638	0.154	1.772	0.149	0.021	1	golgi autoantigen, golgin subfamily b, macrogolgin 1
ENSMUSP00000045272	0.177	0.137	0.701	0.163	0.078		Dolichyl-P-Man:Man(5)GlcNAc(2)-PP-dolichyl mannosyltransferase (EC 2.4.1.-) (Dol-P-Man-dependent alpha(1-3)-mannosyltransferase) (Not56-like protein).
ENSMUSP00000045284	65.879	16.009	95.944	11.598	0.191	0	ubiquinol-cytochrome c reductase, Rieske iron-sulfur polypeptide 1
ENSMUSP00000045285	0.472	0.151	0.667	0.057	0.260	9	ATP-binding cassette, sub-family A (ABC1), member 3
ENSMUSP00000045291	0.681	0.180	1.054	0.117	0.155	1	acyl-CoA synthetase long-chain family member 3
ENSMUSP00000045361	1.753	0.203	1.038	0.370	0.144	6	presenilin associated, rhomboid-like
ENSMUSP00000045362	9.322	1.746	7.790	1.672	0.583	0	cytochrome P450, family 2, subfamily c, polypeptide 37
ENSMUSP00000045606	1.129	0.376	0.946	0.158	0.822	0	3-hydroxyisobutyryl-Coenzyme A hydrolase
ENSMUSP00000045630	0.353	0.025	0.408	0.041	0.339	0	alpha-kinase 3
ENSMUSP00000045841	0.162	0.089	0.306	0.071	0.211	0	glutamyl-prolyl-tRNA synthetase
ENSMUSP00000045864	3.094	0.573	3.322	0.405	0.709	1	arylacetamide deacetylase-like 1
ENSMUSP00000045912	5.465	0.416	5.250	0.912	0.751	0	acetyl-Coenzyme A acetyltransferase 3
ENSMUSP00000045927	3.556	1.024	3.505	0.616	0.883	1	RIKEN cDNA 4933403F05 gene
ENSMUSP00000046079	15.432	1.312	15.528	0.936	0.930	0	RIKEN cDNA 4732466D17 gene

ENSMUSP00000046101	1.249	0.151	2.720	0.200	0.006	0	eukaryotic translation elongation factor 2
ENSMUSP00000046168	2.750	0.635	1.755	0.216	0.174	0	biphenyl hydrolase-like (serine hydrolase, breast epithelial mucin-associated antigen)
ENSMUSP00000046188	1.181	0.574	1.516	0.118	0.434	0	
ENSMUSP00000046212	2.354	0.178	2.364	0.185	0.975	6	growth hormone inducible transmembrane protein
ENSMUSP00000046324	1.647	0.468	1.052	0.208	0.332	0	glutathione S-transferase, theta 2
ENSMUSP00000046585	19.123	1.958	18.095	0.649	0.710	1	acyl-CoA synthetase long-chain family member 5
ENSMUSP00000046772	0.473	0.208	0.940	0.632	0.551	0	
ENSMUSP00000046856	1.125	0.325	2.363	0.407	0.066	0	lanosterol synthase
ENSMUSP00000046908	0.209	0.036	0.269	0.029	0.285	0	matrin 3
ENSMUSP00000046956	1.059	0.407	1.320	0.166	0.437	1	Sarcolemmal membrane-associated protein
ENSMUSP00000047105	1.295	0.378	1.870	0.089	0.180	1	TAP binding protein-like
ENSMUSP00000047218	4.186	1.130	3.541	0.718	0.686	0	glyoxylate reductase/hydroxypyruvate reductase
ENSMUSP00000047254	3.465	0.175	2.600	0.448	0.147	0	xylulokinase homolog (H. influenzae)
ENSMUSP00000047268	1.188	0.241	0.834	0.070	0.271	1	oxysterol binding protein-like 8
ENSMUSP00000047325	0.239	0.007	0.228	0.024	0.620	7	leucine-rich repeat-containing G protein-coupled receptor 4
ENSMUSP00000047356	4.048	0.939	9.463	1.845	0.062	0	interferon gamma induced GTPase
ENSMUSP00000047384	9.900	0.199	7.105	1.240	0.099	0	ribosomal protein S16
ENSMUSP00000047536	83.171	5.279	94.313	3.571	0.154	0	prohibitin
ENSMUSP00000047551	30.868	2.564	30.008	1.841	0.828	0	epoxide hydrolase 1, microsomal
ENSMUSP00000047571	1.799	0.539	1.891	0.215	0.709	0	heterogeneous nuclear ribonucleoprotein U
ENSMUSP00000047661	12.181	0.596	14.492	1.737	0.277	1	cytochrome c oxidase, subunit VI a, polypeptide 1
ENSMUSP00000047665	4.710	0.691	6.966	1.034	0.146	0	adenosine kinase
ENSMUSP00000047761	0.286	0.168	0.334	0.008	0.450	0	RIKEN cDNA 6230410P16 gene
ENSMUSP00000047790	8.294	0.817	16.633	1.166	0.005	0	glutathione S-transferase, pi 1
ENSMUSP00000047931	0.495	0.331	3.956	0.466	0.041	1	core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase, 1
ENSMUSP00000047978	0.279	0.143	0.304	0.101	0.581	7	
ENSMUSP00000048078	0.451	0.013	0.057	0.001	0.000	0	39S ribosomal protein L47, mitochondrial precursor (L47mt) (MRP-L47).
ENSMUSP00000048096	0.040	0.026	0.159	0.017	0.049	0	Isoleucyl-tRNA synthetase, cytoplasmic (EC 6.1.1.5) (Isoleucine--tRNA ligase) (IleRS) (IRS).
ENSMUSP00000048111	2.625	0.551	2.338	0.852	0.645	0	sepiapterin reductase
ENSMUSP00000048198	0.109	0.084	0.171	0.040	0.268	4	Probable palmitoyltransferase ZDHHC5 (EC 2.3.1.-) (Zinc finger DHHC domain-containing protein 5) (DHHC-5).
ENSMUSP00000048284	27.241	2.007	16.237	5.056	0.115	0	cytochrome P450, family 2, subfamily c, polypeptide 54
ENSMUSP00000048309	0.726	0.116	1.034	0.142	0.191	1	stabilin 2
ENSMUSP00000048388	0.020	0.001	0.320	0.059	0.000	0	ring finger protein 213 [
ENSMUSP00000048459	8.408	0.898	6.279	2.494	0.417	0	prickle homolog 4 (Drosophila)
ENSMUSP00000048460	3.356	0.680	2.175	0.562	0.281	1	FXYD domain-containing ion transport regulator 1

ENSMUSP00000048472	1.054	0.517	0.314	0.149	0.201	0	mitochondrial ribosomal protein L15
ENSMUSP00000048519	1.371	0.740	1.025	0.217	0.981	6	degenerative spermatocyte homolog 1 (Drosophila)
ENSMUSP00000048714	0.350	0.071	0.155	0.068	0.217	1	DnaJ (Hsp40) homolog, subfamily C, member 16
ENSMUSP00000048832	8.371	3.391	11.571	6.470	0.802	4	RAB3D, member RAS oncogene family
ENSMUSP00000048857	4.212	0.289	2.722	1.256	0.227	0	Calmodulin
ENSMUSP00000048997	3.439	1.125	6.399	0.756	0.129	1	golgi integral membrane protein 4
ENSMUSP00000049034	3.910	0.163	3.258	0.737	0.355	1	RIKEN cDNA C230096C10 gene
ENSMUSP00000049315	0.311	0.102	0.215	0.094	0.451	0	RIKEN cDNA 2210023G05 gene
ENSMUSP00000049338	3.141	1.337	3.602	0.621	0.573	0	4-nitrophenylphosphatase domain and non-neuronal SNAP25-like protein homolog 1 (C. elegans)
ENSMUSP00000049342	0.611	0.062	0.653	0.129	0.889	0	ureidopropionase, beta
ENSMUSP00000049355	2.608	0.142	2.499	0.701	0.701	0	glucose phosphate isomerase 1
ENSMUSP00000049381	0.558	0.149	0.324	0.152	0.352	0	SEC31 homolog A (S. cerevisiae)
ENSMUSP00000049391	7.545	0.205	8.555	0.863	0.344	0	aldehyde oxidase 3
ENSMUSP00000049394	2.118	0.459	0.341	0.008	0.001	0	carbonyl reductase 1
ENSMUSP00000049584	0.581	0.117	0.797	0.061	0.193	6	inositol 1,4,5-triphosphate receptor 2
ENSMUSP00000049732	3.026	0.439	6.866	0.162	0.005	1	RIKEN cDNA C730027E14 gene
ENSMUSP00000049739	1.044	0.029	0.870	0.238	0.418	0	RAB9B, member RAS oncogene family
ENSMUSP00000050001	0.244	0.193	0.277	0.007	0.363	0	
ENSMUSP00000050056	0.964	0.541	1.048	0.245	0.536	0	aspartoacylase (aminoacylase) 3
ENSMUSP00000050096	1.390	0.370	0.637	0.208	0.157	0	RIKEN cDNA 2310014G06 gene
ENSMUSP00000050191	0.143	0.114	0.398	0.128	0.160	0	ubiquilin 1
ENSMUSP00000050220	1.333	0.134	2.067	0.153	0.021	0	Clathrin heavy chain 1
ENSMUSP00000050336	0.920	0.028	1.058	0.264	0.836	1	cytoskeleton-associated protein 4
ENSMUSP00000050388	0.770	0.121	0.592	0.367	0.405	1	ring finger protein 149
ENSMUSP00000050446	5.536	0.534	10.574	1.169	0.010	0	immunity-related GTPase family, M
ENSMUSP00000050478	5.366	1.025	5.432	0.735	0.906	0	cytochrome P450, family 4, subfamily f, polypeptide 14
ENSMUSP00000050823	1.830	0.263	2.104	0.235	0.488	1	cytochrome P450, family 20, subfamily A, polypeptide 1
ENSMUSP00000051093	0.334	0.296	0.766	0.286	0.229	0	serine (or cysteine) peptidase inhibitor, clade A, member 3H
ENSMUSP00000051222	47.963	8.869	69.977	6.366	0.112	0	ATP synthase, H+ transporting, mitochondrial F1F0 complex, subunit e
ENSMUSP00000051268	2.649	0.486	1.132	0.164	0.028	0	enoyl Coenzyme A hydratase domain containing 2
ENSMUSP00000051293	3.073	0.199	2.490	0.453	0.272	5	cleft lip and palate associated transmembrane protein 1
ENSMUSP00000051441	0.612	0.321	1.059	0.495	0.411	5	RIKEN cDNA A530016O06 gene
ENSMUSP00000051521	0.494	0.431	2.586	1.136	0.163	1	Protein-tyrosine sulfotransferase 1 (EC 2.8.2.20) (Tyrosylprotein sulfotransferase-1) (TPST-1)
ENSMUSP00000051561	4.346	0.481	4.344	0.811	0.907	9	solute carrier family 26 (sulfate transporter), member 1
ENSMUSP00000051621	2.252	1.431	2.990	0.595	0.404	2	

ENSMUSP00000051622	0.215	0.061	0.122	0.054	0.348	1	Eph receptor B4
ENSMUSP00000051643	4.930	1.442	4.765	0.266	0.890	0	DnaJ (Hsp40) homolog, subfamily C, member 11
ENSMUSP00000051645	0.172	0.094	0.098	0.019	0.982	10	ATPase type 13A3
ENSMUSP00000051731	1.343	0.212	0.958	0.164	0.257	0	plexin B2
ENSMUSP00000051921	2.659	0.830	2.776	1.252	0.780	1	bone marrow stromal cell antigen 2
ENSMUSP00000052258	2.118	0.353	2.779	0.034	0.176	5	autocrine motility factor receptor
ENSMUSP00000052262	3.013	0.778	2.021	0.285	0.273	1	synaptobrevin like 1
ENSMUSP00000052276	11.582	1.089	8.634	1.029	0.120	0	Adenosylhomocysteinase (EC 3.3.1.1) (S-adenosyl-L-homocysteine hydrolase) (AdoHcyase) (Liver copper-binding protein) (CUBP)
ENSMUSP00000052287	1.469	0.720	1.970	0.300	0.420	0	ELMO domain containing 2
ENSMUSP00000052872	6.614	0.764	6.377	0.428	0.860	0	fatty acid synthase
ENSMUSP00000052912	0.107	0.067	0.884	0.276	0.029	1	Protein disulfide-isomerase A6 precursor (EC 5.3.4.1) (Thioredoxin domain-containing protein 7).
ENSMUSP00000052989	6.738	0.372	5.866	0.842	0.381	1	cytochrome P450, family 8, subfamily b, polypeptide 1
ENSMUSP00000053056	2.790	0.824	2.420	1.176	0.525	2	ORM1-like 3 (S. cerevisiae)
ENSMUSP00000053109	0.793	0.677	2.452	0.341	0.105	0	ubiquitin-conjugating enzyme E2 variant 1
ENSMUSP00000053145	39.245	1.514	49.976	7.035	0.228	0	ubiquinol-cytochrome c reductase, complex III subunit VII
ENSMUSP00000053168	0.340	0.308	0.433	0.140	0.331	0	
ENSMUSP00000053270	1.740	0.149	2.212	0.698	0.677	0	lysosomal acid lipase A
ENSMUSP00000053273	0.519	0.190	0.257	0.113	0.318	0	isocitrate dehydrogenase 2 (NADP+), mitochondrial
ENSMUSP00000053325	2.143	1.096	2.996	0.800	0.416	2	solute carrier family 25, member 46
ENSMUSP00000053540	20.123	1.406	16.160	0.631	0.052	0	glutathione transferase zeta 1 (maleylacetoacetate isomerase)
ENSMUSP00000053558	0.957	0.463	1.971	0.453	0.298	1	abhydrolase domain containing 12
ENSMUSP00000053733	0.815	0.458	1.169	0.173	0.363	4	
ENSMUSP00000053862	0.691	0.308	0.438	0.011	0.969	2	transmembrane protein 186
ENSMUSP00000053871	0.257	0.204	0.457	0.080	0.215	8	Non-imprinted in Prader-Willi/Angelman syndrome region protein 1 homolog
ENSMUSP00000053877	0.355	0.085	0.547	0.161	0.445	0	cDNA sequence BC010304
ENSMUSP00000053900	4.128	0.586	4.084	0.388	0.985	7	zinc metalloproteinase, STE24 homolog (S. cerevisiae)
ENSMUSP00000054064	0.610	0.231	1.154	0.515	0.773	0	gephyrin
ENSMUSP00000054322	6.300	0.362	5.953	1.402	0.688	1	starch binding domain 1
ENSMUSP00000054343	1.074	0.159	0.427	0.212	0.163	4	gap junction protein, beta 2
ENSMUSP00000054499	0.034	0.027	0.146	0.021	0.064	0	Fibronectin precursor (FN).
ENSMUSP00000054634	6.510	0.834	8.340	1.297	0.302	0	cell division cycle 42 homolog (S. cerevisiae)
ENSMUSP00000054856	6.915	4.415	11.537	3.466	0.299	1	RIKEN cDNA 1110020P15 gene
ENSMUSP00000054863	0.681	0.405	1.017	0.337	0.408	0	
ENSMUSP00000054881	11.754	1.379	8.480	0.508	0.081	2	HIG1 domain family, member 1A
ENSMUSP00000055199	0.265	0.116	0.198	0.184	0.308	1	protocadherin 1

ENSMUSP00000055313	0.273	0.008	1.271	0.414	0.017	0	farnesyl diphosphate farnesyl transferase 1
ENSMUSP00000055455	0.325	0.143	0.937	0.214	0.162	0	coproporphyrinogen oxidase
ENSMUSP00000055473	2.833	0.417	2.189	0.844	0.389	0	cytochrome b5 reductase 3
ENSMUSP00000055482	1.000	0.111	1.092	0.531	0.582	6	RIKEN cDNA 2810451A06 gene
ENSMUSP00000055743	9.316	1.717	6.658	0.819	0.246	0	thiosulfate sulfurtransferase, mitochondrial
ENSMUSP00000055776	12.593	6.518	8.421	0.525	0.762	1	RIKEN cDNA 2410014A08 gene
ENSMUSP00000055827	1.662	0.595	1.709	0.108	0.673	0	fumarylacetoacetate hydrolase domain containing 1
ENSMUSP00000055862	6.751	2.884	4.262	1.399	0.484	0	ADP-ribosylation factor 6
ENSMUSP00000056001	0.850	0.436	2.402	0.062	0.184	0	interferon inducible GTPase 2
ENSMUSP00000056027	8.229	0.663	4.895	0.885	0.065	1	opioid receptor, sigma 1
ENSMUSP00000056082	3.868	1.109	2.733	0.795	0.473	10	solute carrier family 22 (organic cation transporter), member 18
ENSMUSP00000056152	15.510	2.022	15.340	0.139	0.965	0	ornithine transcarbamylase
ENSMUSP00000056182	0.285	0.160	0.519	0.104	0.276	11	solute carrier family 17 (anion/sugar transporter), member 5
ENSMUSP00000056195	0.722	0.242	1.058	0.239	0.315	0	sulfite oxidase
ENSMUSP00000056282	0.512	0.014	0.497	0.180	0.683	10	dolichyl-phosphate (UDP-N-acetylglucosamine)
ENSMUSP00000056324	7.815	0.880	5.996	0.990	0.232	0	UDP-glucose pyrophosphorylase
ENSMUSP00000056433	1.147	0.316	1.832	0.265	0.176	0	RAS related protein 2a
ENSMUSP00000056643	6.279	2.205	2.789	0.608	0.137	1	progesterone receptor membrane component 2
ENSMUSP00000056792	0.250	0.110	0.451	0.169	0.411	4	Membralin.
ENSMUSP00000057069	1.112	0.330	0.823	0.434	0.513	8	endoplasmic reticulum metalloproteinase 1
ENSMUSP00000057245	0.020	0.001	0.419	0.139	0.001	1	xylosyltransferase II
ENSMUSP00000057308	0.356	0.274	1.039	0.112	0.100	0	histone cluster 1, H1e
ENSMUSP00000057354	0.600	0.121	0.767	0.189	0.505	3	sterol-C5-desaturase (fungal ERG3, delta-5-desaturase) homolog (S. cerevisiae)
ENSMUSP00000057462	1.734	0.049	2.616	0.468	0.135	1	vesicle transport through interaction with t-SNAREs 1B homolog
ENSMUSP00000057498	0.628	0.302	0.705	0.160	0.534	1	phosphatidylinositol glycan anchor biosynthesis, class K
ENSMUSP00000057521	0.451	0.107	0.885	0.606	0.895	1	
ENSMUSP00000057543	5.450	1.759	5.456	0.608	0.791	0	guanine nucleotide binding protein, alpha inhibiting 2
ENSMUSP00000057595	45.888	6.369	34.128	2.418	0.132	2	solute carrier family 27 (fatty acid transporter), member 2
ENSMUSP00000057654	1.184	0.344	1.448	0.087	0.384	5	autophagy-related 9A (yeast)
ENSMUSP00000057664	22.107	2.814	33.121	6.525	0.173	0	RAB2, member RAS oncogene family
ENSMUSP00000057732	8.050	3.225	4.465	1.109	#N/A	0	Phenazine biosynthesis-like domain-containing protein 1
ENSMUSP00000057871	2.957	0.496	2.463	0.522	0.486	2	solute carrier family 25, member 44
ENSMUSP00000057905	1.488	0.063	3.424	0.530	0.006	1	mannoside acetylglucosaminyltransferase 2
ENSMUSP00000058077	0.124	0.003	0.676	0.016	0.000	1	Coiled-coil domain-containing protein 126 precursor.
ENSMUSP00000058412	1.298	0.499	0.963	0.480	0.548	4	transmembrane protein 82

ENSMUSP00000058424	12.068	2.895	12.889	2.013	0.762	2	No description available. Protein Family: HIG1 DOMAIN FAMILY MEMBER 1A HYPOXIA INDUCIBLE GENE 1
ENSMUSP00000058466	0.324	0.158	0.384	0.059	0.468	1	protein tyrosine phosphatase, receptor type, D
ENSMUSP00000058569	1.903	0.203	3.400	0.373	0.019	1	RIKEN cDNA 1190002N15 gene
ENSMUSP00000058669	0.416	0.391	0.445	0.048	0.292	1	RIKEN cDNA 5830404H04 gene
ENSMUSP00000058680	1.990	0.767	3.970	1.798	0.390	9	RIKEN cDNA 4930471M23 gene
ENSMUSP00000058687	0.764	0.589	1.675	0.726	0.224	0	CPN10-like prot
ENSMUSP00000058783	1.922	0.581	2.476	0.473	0.446	4	Usher syndrome 1G homolog (human)
ENSMUSP00000058866	1.054	0.487	0.022	0.001	0.002	14	solute carrier family 7 (cationic amino acid transporter, y+ system), member 2
ENSMUSP00000058919	3.242	2.060	6.348	0.982	0.255	0	60S ribosomal protein L37a
ENSMUSP00000058936	0.961	0.333	0.944	0.245	0.937	0	PDZ domain containing 1
ENSMUSP00000058966	1.268	0.315	0.817	0.231	0.372	0	erythrocyte protein band 4.1-like 5
ENSMUSP00000059038	0.950	0.260	0.357	0.176	0.132	1	expressed sequence AI464131
ENSMUSP00000059100	5.421	0.355	0.062	0.001	0.000	0	Unknown
ENSMUSP00000059122	0.782	0.134	0.549	0.486	0.257	0	
ENSMUSP00000059137	7.468	0.635	5.933	1.459	0.354	1	Apolipoprotein O (Protein FAM121B)
ENSMUSP00000059224	0.159	0.105	0.974	0.076	0.025	1	C1GALT1-specific chaperone 1 (Core 1 beta3-galactosyltransferase- specific molecular chaperone) (Beta1,3-galactosyltransferase 2) (C1GalT2) (C1Gal-T2) (mC1Gal-T2).
ENSMUSP00000059373	0.276	0.182	0.810	0.141	0.091	0	39S ribosomal protein L43, mitochondrial precursor (L43mt) (MRP-L43) (Mitochondrial ribosomal protein bMRP36a)
ENSMUSP00000059501	10.097	0.556	12.811	3.390	0.625	1	vesicle-associated membrane protein 8
ENSMUSP00000059574	4.198	2.135	4.565	0.472	0.545	1	C-type lectin domain family 4, member g
ENSMUSP00000059943	2.957	0.814	8.196	3.540	0.131	2	RIKEN cDNA 9130011J15 gene
ENSMUSP00000059977	0.737	0.296	2.064	0.239	0.097	0	prostaglandin-endoperoxide synthase 1
ENSMUSP00000060237	0.624	0.350	0.652	0.114	0.568	6	Transmembrane Protein 86B
ENSMUSP00000060246	5.571	3.910	1.478	0.204	0.457	0	tubulin, beta 2a
ENSMUSP00000060247	0.044	0.001	0.371	0.064	0.000	0	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 2 (EC 2.4.1.-) (Beta3Gn-T1) (BGnT-1) (Beta-1,3-galactosyltransferase 7) (Beta-1,3-GalTase 7) (Beta3Gal-T7) (b3Gal-T7) (UDP-galactose:beta-N- acetylglucosamine beta-1,3-galactosyltransferase 7)
ENSMUSP00000060584	25.276	1.226	21.483	1.580	0.135	1	cytochrome P450, family 2, subfamily c, polypeptide 70
ENSMUSP00000060891	0.156	0.098	0.400	0.094	0.116	1	T-cell immunoglobulin and mucin domain-containing protein 2 precursor (TIMD-2) (T-cell membrane protein 2) (TIM-2).
ENSMUSP00000060912	28.492	5.337	18.070	0.441	0.080	0	gulonolactone (L-) oxidase
ENSMUSP00000061126	5.316	2.038	1.388	0.115	0.028	2	cytochrome P450, family 4, subfamily a, polypeptide 10
ENSMUSP00000061152	14.999	3.571	10.186	0.659	0.235	0	mitochondrial carrier homolog 2 (C. elegans)
ENSMUSP00000061227	4.102	1.218	3.141	0.757	0.550	0	Phosphoglucosmutase-1
ENSMUSP00000061493	0.124	0.057	0.145	0.040	0.582	0	early endosome antigen 1
ENSMUSP00000061991	0.118	0.028	0.034	0.022	0.072	0	phosphorylase kinase alpha 1
ENSMUSP00000062016	0.518	0.364	1.066	0.080	0.211	1	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 1

ENSMUSP00000062110	0.991	0.132	0.497	0.034	0.013	5	transmembrane anterior posterior transformation 1
ENSMUSP00000062209	8.694	2.856	8.581	1.833	0.901	0	Mitochondrial import inner membrane translocase subunit Tim16
ENSMUSP00000062214	1.370	0.127	0.726	0.185	0.080	0	proline dehydrogenase (oxidase) 2
ENSMUSP00000062670	5.360	0.699	5.294	1.091	0.883	0	paraoxonase 2
ENSMUSP00000062723	2.395	0.817	2.047	0.464	0.861	4	gap junction protein, beta 1
ENSMUSP00000062983	1.492	0.640	1.700	1.595	0.418	0	golgi autoantigen, golgin subfamily a, 7
ENSMUSP00000062996	0.910	0.146	1.294	0.113	0.119	0	guanosine diphosphate (GDP) dissociation inhibitor 2
ENSMUSP00000063054	12.354	2.970	3.474	1.767	0.209	0	RAB33B, member of RAS oncogene family
ENSMUSP00000063096	0.874	0.444	0.736	0.187	0.662	10	solute carrier family 29 (nucleoside transporters), member 1
ENSMUSP00000063293	0.636	0.250	1.413	0.498	0.304	1	synaptotagmin I
ENSMUSP00000063325	1.114	0.597	1.604	0.211	0.383	0	acyl-Coenzyme A oxidase 1, palmitoyl
ENSMUSP00000063352	1.272	0.416	0.547	0.171	0.202	10	solute carrier family 2, member 9 isoform 4
ENSMUSP00000063548	3.133	0.821	1.636	0.126	0.081	0	4-aminobutyrate aminotransferase
ENSMUSP00000063825	6.034	0.735	3.612	0.433	0.045	0	pyruvate carboxylase
ENSMUSP00000063904	0.975	0.112	0.684	0.126	0.188	1	cathepsin D
ENSMUSP00000063998	11.871	6.008	18.821	3.625	0.369	0	ribosomal protein S15a
ENSMUSP00000063999	0.200	0.023	0.137	0.059	0.286	4	RIKEN cDNA C330002119 gene
ENSMUSP00000064204	0.634	0.149	0.062	0.002	0.001	0	lysophospholipase 2
ENSMUSP00000064205	0.220	0.150	0.335	0.026	0.303	1	interleukin 6 signal transducer
ENSMUSP00000064310	0.617	0.218	0.603	0.037	0.742	5	transmembrane protein 62
ENSMUSP00000064518	0.188	0.032	0.099	0.047	0.252	0	catenin (cadherin associated protein), delta 1
ENSMUSP00000064551	0.167	0.109	0.137	0.027	0.678	1	leukemia inhibitory factor receptor
ENSMUSP00000064655	26.441	1.533	26.603	5.043	0.895	0	fatty acid binding protein 1, liver
ENSMUSP00000064673	1.077	0.306	0.620	0.199	0.295	0	hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 2
ENSMUSP00000064699	8.163	2.888	5.570	0.492	0.473	1	vesicle-associated membrane protein, associated protein B and C
ENSMUSP00000064714	0.141	0.112	0.297	0.007	0.155	13	Sodium/potassium/calcium exchanger 6 precursor (Na(+)/K(+)/Ca(2+)- exchange protein 6) (Solute carrier family 24 member 6).
ENSMUSP00000064758	3.201	0.997	3.613	0.388	0.567	2	ADP-ribosylation factor-like 6 interacting protein 2
ENSMUSP00000064801	4.277	0.121	5.474	1.511	0.525	1	melanoma inhibitory activity 3
ENSMUSP00000064833	2.962	1.444	3.735	0.737	0.450	2	general transcription factor IIIC, polypeptide 2, beta
ENSMUSP00000064849	0.802	0.603	1.246	0.448	0.338	0	serine dehydratase
ENSMUSP00000065046	0.028	0.001	0.285	0.077	0.001	2	Ectonucleoside triphosphate diphosphohydrolase 4 (EC 3.6.1.6) (NTPDase 4) (Uridine-diphosphatase) (UDPase) (Lysosomal apyrase-like protein of 70 kDa).
ENSMUSP00000065089	2.869	0.284	2.726	0.394	0.745	0	aldehyde dehydrogenase family 7, member A1
ENSMUSP00000065113	1.357	0.730	1.171	0.106	0.785	0	succinate-CoA ligase, GDP-forming, alpha subunit
ENSMUSP00000065254	0.729	0.181	0.684	0.255	0.730	6	solute carrier family 30 (zinc transporter), member 7
ENSMUSP00000065271	14.829	3.831	16.704	2.174	0.588	1	methyltransferase like 7A

ENSMUSP00000065352	3.399	1.659	6.506	2.008	0.337	0	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 8
ENSMUSP00000065425	1.137	0.127	0.779	0.145	0.146	0	acid phosphatase 5, tartrate resistant
ENSMUSP00000065585	6.246	0.767	7.571	1.385	0.506	2	cytochrome P450, family 3, subfamily a, polypeptide 25
ENSMUSP00000065719	0.550	0.346	0.817	0.020	0.319	6	phosphatidic acid phosphatase type 2B
ENSMUSP00000065743	1.257	0.488	0.354	0.061	0.185	8	choline/ethanolaminephosphotransferase 1
ENSMUSP00000065754	1.432	0.319	1.001	0.471	0.416	0	methionine sulfoxide reductase A
ENSMUSP00000065764	0.182	0.159	0.691	0.311	0.119	15	Zinc transporter 5 (ZnT-5) (Solute carrier family 30 member 5).
ENSMUSP00000065796	30.312	4.866	27.603	5.200	0.682	0	cytochrome P450, family 2, subfamily c, polypeptide 67
ENSMUSP00000065810	0.249	0.065	0.506	0.158	0.194	3	reticulon 3
ENSMUSP00000065821	0.833	0.427	1.264	0.239	0.366	5	Transmembrane protein 69
ENSMUSP00000065903	10.185	1.168	6.801	0.886	0.093	1	solute carrier family 25, member 42
ENSMUSP00000065935	0.269	0.046	0.770	0.334	0.367	9	solute carrier family 20, member 2
ENSMUSP00000066092	1.632	0.572	1.115	0.475	0.444	0	enoyl coenzyme A hydratase 1, peroxisomal
ENSMUSP00000066353	0.044	0.001	0.447	0.125	0.002	1	Beta-1,4-galactosyltransferase 3 (EC 2.4.1.-) (Beta-1,4-GalTase 3) (Beta4Gal-T3) (b4Gal-T3) (UDP-galactose:beta-N-acetylglucosamine beta- 1,4-galactosyltransferase 3) (UDP-Gal:beta-GlcNAc beta-1,4-galactosyltransferase 3)
ENSMUSP00000066682	1.534	0.061	2.624	0.225	0.006	5	transmembrane protein 112
ENSMUSP00000066715	9.415	1.945	8.566	1.072	0.780	1	MOCO sulphurase C-terminal domain containing 2
ENSMUSP00000066779	0.874	0.115	0.647	0.097	0.192	12	solute carrier family 6 (neurotransmitter transporter, GABA), member 13
ENSMUSP00000066891	0.480	0.206	0.411	0.112	0.894	2	limb and neural patterns
ENSMUSP00000066897	3.140	0.747	2.642	0.955	0.589	0	RIKEN cDNA 2810007J24 gene
ENSMUSP00000066915	1.055	0.151	0.941	0.160	0.605	0	alpha-methylacyl-CoA racemase
ENSMUSP00000066958	1.544	0.505	5.187	0.436	0.040	9	transmembrane 9 superfamily member 3
ENSMUSP00000066990	2.381	0.575	3.311	1.577	0.776	0	mitochondrial ribosomal protein S21
ENSMUSP00000067685	0.632	0.069	0.565	0.078	0.543	0	IQ motif containing GTPase activating protein 2
ENSMUSP00000067767	24.382	3.313	16.932	2.477	0.137	1	aldehyde dehydrogenase family 3, subfamily A2
ENSMUSP00000068013	52.986	8.710	70.489	2.985	0.127	0	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit b, isoform 1
ENSMUSP00000068072	0.182	0.090	0.317	0.047	0.283	0	SUMO1 activating enzyme subunit 2
ENSMUSP00000068086	0.161	0.124	0.418	0.062	0.120	0	Probable D-lactate dehydrogenase, mitochondrial precursor (EC 1.1.2.4) (Lactate dehydrogenase D) (DLD).
ENSMUSP00000068087	2.641	0.607	1.476	0.376	0.165	2	syntaxin 17
ENSMUSP00000068282	57.154	1.765	50.058	2.153	0.069	1	UDP glucuronosyltransferase 2 family, polypeptide B5
ENSMUSP00000068318	0.038	0.001	0.270	0.063	0.001	0	UPF0465 protein C5orf33 homolog
ENSMUSP00000068487	0.758	0.298	1.348	0.443	0.395	1	trans-golgi network protein
ENSMUSP00000068568	11.110	0.727	5.928	0.647	0.009	1	retinol saturase (all trans retinol 13,14 reductase)
ENSMUSP00000068610	2.117	1.469	1.610	0.102	0.595	1	RIKEN cDNA 2900064A13 gene
ENSMUSP00000068687	0.569	0.229	2.053	0.376	0.030	1	N-deacetylase/N-sulfotransferase (heparan glucosaminyl) 1

ENSMUSP00000068690	1.994	0.325	2.377	0.135	0.342	4	lysocardiolipin acyltransferase
ENSMUSP00000068716	0.085	0.017	0.073	0.032	0.553	0	vacuolar protein sorting 13A (yeast)
ENSMUSP00000068790	0.073	0.040	0.145	0.073	0.370	0	zinc finger, ZZ-type with EF hand domain 1
ENSMUSP00000069004	6.803	0.191	5.450	0.526	0.080	0	ribosomal protein S15
ENSMUSP00000069081	0.507	0.121	0.138	0.087	0.063	0	glucosamine-6-phosphate deaminase 1
ENSMUSP00000069209	7.431	0.065	5.898	0.121	0.000	0	epoxide hydrolase 2, cytoplasmic
ENSMUSP00000069284	1.380	0.375	2.744	0.329	0.061	0	phosphatidylinositol 4-kinase type 2 alpha
ENSMUSP00000069416	0.749	0.305	0.794	0.182	0.736	1	integrin beta 5
ENSMUSP00000069418	0.294	0.183	1.140	0.236	0.154	0	complement component 4B (Chido blood group)
ENSMUSP00000069457	0.077	0.051	0.648	0.199	0.032	1	Growth hormone receptor precursor (GH receptor) (Somatotropin receptor) [Contains: Growth hormone-binding protein (GH-binding protein) (GHP) (Serum-binding protein)].
ENSMUSP00000069478	1.081	0.066	0.906	0.141	0.289	2	Extended synaptotagmin-2 (E-Syt2) (Protein FAM62B)
ENSMUSP00000069495	1.870	0.404	2.064	0.140	0.557	6	ATP-binding cassette, sub-family G (WHITE), member 5
ENSMUSP00000069557	0.097	0.030	0.128	0.026	0.443	0	ubiquitin protein ligase E3 component n-recognin 4
ENSMUSP00000069749	0.225	0.063	0.113	0.066	0.290	12	phosphatidylinositol glycan anchor biosynthesis, class O
ENSMUSP00000069764	0.817	0.229	1.289	0.031	0.158	1	transmembrane protein 106C
ENSMUSP00000069932	1.125	0.194	1.480	0.447	0.678	2	cytochrome P450, family 3, subfamily a, polypeptide 44
ENSMUSP00000069962	1.402	0.580	0.857	0.277	0.492	0	ATPase family, AAA domain containing 1
ENSMUSP00000069965	1.173	0.323	1.873	0.271	0.176	0	optic atrophy 3 (human)
ENSMUSP00000070109	2.537	0.698	1.713	0.041	0.271	5	gamma-glutamyl carboxylase
ENSMUSP00000070149	4.254	1.103	7.935	0.521	0.080	0	coiled-coil-helix-coiled-coil-helix domain containing 3
ENSMUSP00000070267	4.912	1.791	6.918	0.946	0.283	1	signal peptidase complex subunit 3 homolog (S. cerevisiae)
ENSMUSP00000070303	4.509	0.118	4.379	0.573	0.756	1	dihydroorotate dehydrogenase
ENSMUSP00000070414	1.456	0.385	1.592	0.509	0.848	1	ST3 beta-galactoside alpha-2,3-sialyltransferase 5
ENSMUSP00000070449	8.605	0.693	7.101	1.131	0.283	1	RIKEN cDNA 1600014C10 gene
ENSMUSP00000070564	16.286	1.648	12.966	1.119	0.160	5	nicotinamide nucleotide transhydrogenase
ENSMUSP00000070572	4.186	0.330	5.415	0.357	0.062	1	Cutaneous T-cell lymphoma-associated antigen 5 homolog
ENSMUSP00000070588	0.562	0.016	0.595	0.262	0.652	0	RAB13, member RAS oncogene family
ENSMUSP00000070598	0.315	0.089	0.378	0.018	0.395	0	adaptor protein complex AP-1, beta 1 subunit
ENSMUSP00000070751	4.160	0.595	2.983	0.323	0.160	1	basigin
ENSMUSP00000070821	4.442	0.106	4.123	0.554	0.528	0	aspartyl aminopeptidase
ENSMUSP00000070982	0.080	0.053	0.322	0.117	0.084	0	clathrin interactor 1
ENSMUSP00000070993	1.437	0.204	1.216	0.757	0.439	0	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation
ENSMUSP00000071050	0.551	0.054	0.513	0.117	0.678	9	solute carrier family 4 (anion exchanger), member 4
ENSMUSP00000071135	0.398	0.069	0.394	0.009	0.915	0	tubulin, beta 4
ENSMUSP00000071231	3.934	1.012	2.487	0.319	0.209	0	liver glycogen phosphorylase

ENSMUSP00000071292	1.702	0.291	1.365	0.341	0.469	0	branched chain ketoacid dehydrogenase E1, alpha polypeptide
ENSMUSP00000071351	0.539	0.102	0.054	0.001	0.000	6	ELOVL family member 6, elongation of long chain fatty acids (yeast)
ENSMUSP00000071399	0.693	0.202	1.668	0.500	0.182	0	protein-tyrosine sulfotransferase 2
ENSMUSP00000071449	5.542	1.394	5.053	0.983	0.873	0	60S ribosomal protein L12
ENSMUSP00000071454	5.374	1.331	8.112	1.343	0.216	0	ribosomal protein L5
ENSMUSP00000071470	2.068	0.936	2.912	0.903	0.448	2	interferon induced transmembrane protein 2
ENSMUSP00000071573	1.201	1.145	1.811	0.680	0.265	0	
ENSMUSP00000071616	20.943	7.790	13.915	1.549	0.485	0	ribosomal protein L7
ENSMUSP00000071624	7.802	1.100	5.499	0.551	0.127	0	proteasome (prosome, macropain) subunit, alpha type 3
ENSMUSP00000071636	2.349	0.310	2.578	0.261	0.584	0	peroxiredoxin 6
ENSMUSP00000071686	6.942	1.211	5.858	1.499	0.565	0	Peptidyl-prolyl cis-trans isomerase A
ENSMUSP00000071763	0.872	0.426	1.111	0.230	0.463	0	No other features on this peptide
ENSMUSP00000071966	0.055	0.027	0.146	0.027	0.156	0	plexin B1
ENSMUSP00000072074	0.856	0.226	0.632	0.209	0.456	1	gamma-glutamyltransferase-like activity 1
ENSMUSP00000072092	1.639	0.521	1.745	0.052	0.635	1	thymopoietin
ENSMUSP00000072154	0.256	0.223	0.478	0.156	0.251	0	Proto-oncogene tyrosine-protein kinase Yes (EC 2.7.10.2) (p61-Yes) (c- Yes).
ENSMUSP00000072175	0.880	0.409	1.801	0.538	0.294	0	DnaJ (Hsp40) homolog, subfamily C, member 5
ENSMUSP00000072236	20.383	1.814	15.972	0.486	0.063	1	UDP glucuronosyltransferase 3 family, polypeptide A2
ENSMUSP00000072259	0.440	0.085	0.319	0.168	0.404	0	Apob protein (Fragment) [Apob]
ENSMUSP00000072264	16.304	1.108	7.035	1.271	0.011	1	cytochrome P450, family 2, subfamily b, polypeptide 10
ENSMUSP00000072382	0.723	0.486	1.404	0.404	0.241	2	asparagine-linked glycosylation 11 homolog (yeast, alpha-1,2-mannosyltransferase)
ENSMUSP00000072456	7.081	0.973	6.491	0.375	0.636	11	Sodium-coupled neutral amino acid transporter 3 (Na(+)-coupled neutral amino acid transporter 3) (System N amino acid transporter 1) (N-system amino acid transporter 1) (Solute carrier family 38 member 3) (mNAT) [Slc38a3]
ENSMUSP00000072483	1.406	0.100	0.800	0.125	0.031	0	acyl-Coenzyme A dehydrogenase, medium chain
ENSMUSP00000072555	74.041	5.161	64.979	2.526	0.193	2	cytochrome P450, family 2, subfamily d, polypeptide 10
ENSMUSP00000072732	0.122	0.077	0.309	0.060	0.111	0	NAD-dependent deacetylase sirtuin-2 (EC 3.5.1.-) (SIR2-like protein 2) (mSIR2L2).
ENSMUSP00000072764	2.752	0.331	4.360	0.291	0.025	0	lectin, galactose binding, soluble 9
ENSMUSP00000072803	12.785	1.185	10.103	1.512	0.226	2	UDP glucuronosyltransferase 1 family, polypeptide a1
ENSMUSP00000072826	1.365	0.319	1.710	0.328	0.496	4	ATP-binding cassette, sub-family B (MDR/TAP), member 8
ENSMUSP00000072932	5.789	0.386	4.440	0.828	0.246	1	Endothelin-converting enzyme 1
ENSMUSP00000073008	14.089	2.567	11.458	1.251	0.417	0	Histone H2A type 2-A (H2A.2) (H2a-614) (H2a-615) [Hist2h2aa1]
ENSMUSP00000073061	73.877	23.450	66.664	15.912	0.872	1	progesterone receptor membrane component 1
ENSMUSP00000073136	4.923	1.123	6.877	1.825	0.420	1	syntaxin 5A
ENSMUSP00000073179	2.082	0.463	1.700	0.439	0.531	5	Leukocyte surface antigen CD47
ENSMUSP00000073213	1.426	0.261	1.379	0.801	0.611	0	nudix (nucleoside diphosphate linked moiety X)-type motif 7
ENSMUSP00000073261	9.108	0.947	8.780	1.350	0.809	1	metaxin 1

ENSMUSP00000073322	4.685	0.594	2.660	0.244	0.027	0	retinol dehydrogenase 1 (all trans)
ENSMUSP00000073444	45.183	0.931	31.044	3.498	0.025	1	UDP glucuronosyltransferase 1 family, polypeptide a9
ENSMUSP00000073459	3.873	0.871	1.408	0.460	0.096	0	aldo-keto reductase family 7, member A5 (aflatoxin aldehyde reductase)
ENSMUSP00000073472	0.062	0.002	0.914	0.183	0.000	0	Elongation factor 1-delta (EF-1-delta).
ENSMUSP00000073541	1.681	0.436	0.761	0.192	0.104	6	7-dehydrocholesterol reductase
ENSMUSP00000073601	2.629	0.280	2.215	0.201	0.292	4	vitamin K epoxide reductase complex, subunit 1-like 1
ENSMUSP00000073880	5.477	1.141	4.175	0.788	0.420	0	ribosomal protein S7
ENSMUSP00000073939	9.874	2.376	5.995	1.302	0.239	1	camello-like 1
ENSMUSP00000074004	1.142	0.134	1.657	0.107	0.051	1	predicted gene, EG13909
ENSMUSP00000074112	15.713	3.277	14.817	1.080	0.918	0	ribosomal protein S24
ENSMUSP00000074346	10.729	3.279	20.534	1.938	0.079	0	Unknown
ENSMUSP00000074387	4.220	1.154	2.567	0.608	0.336	2	prolactin regulatory element binding
ENSMUSP00000074436	0.146	0.096	0.494	0.214	0.119	0	haptoglobin
ENSMUSP00000074448	2.281	0.304	1.153	0.563	0.296	1	lysosomal-associated membrane protein 2
ENSMUSP00000074600	0.678	0.128	3.075	0.295	0.002	0	NADH dehydrogenase (ubiquinone) Fe-S protein 8
ENSMUSP00000074733	2.434	0.498	1.066	0.415	0.139	1	cytochrome P450, family 4, subfamily f, polypeptide 13
ENSMUSP00000074898	1.236	0.229	0.532	0.138	0.057	1	poliovirus receptor-related 2
ENSMUSP00000074935	8.404	4.706	4.088	0.361	0.466	1	FK506 binding protein 8
ENSMUSP00000074990	91.142	5.414	73.316	3.328	0.043	1	cytochrome P450, family 2, subfamily a, polypeptide 12
ENSMUSP00000075011	2.677	0.217	2.610	0.281	0.834	5	ATP-binding cassette, sub-family B (MDR/TAP), member 10
ENSMUSP00000075089	0.069	0.053	0.388	0.118	0.064	0	Regulator of nonsense transcripts 1 (EC 3.6.1.-) (ATP-dependent helicase RENT1) (Nonsense mRNA reducing factor 1) (NORF1) (Up- frameshift suppressor 1 homolog) (mUpf1).
ENSMUSP00000075113	0.380	0.187	0.565	0.138	0.400	5	Yip1 domain family, member 1
ENSMUSP00000075150	1.675	0.737	4.259	1.193	0.222	0	cytochrome c oxidase, subunit VIb polypeptide 1
ENSMUSP00000075190	0.426	0.080	0.361	0.084	0.549	1	No description available.Protein Family: CYTOCHROME P450
ENSMUSP00000075198	1.207	0.343	0.284	0.143	0.091	0	heterogeneous nuclear ribonucleoprotein C
ENSMUSP00000075234	0.520	0.391	0.672	0.171	0.395	2	Cytochrome P450 3A41
ENSMUSP00000075255	0.587	0.220	0.488	0.159	0.812	1	UDP glucuronosyltransferase 2 family, polypeptide B37
ENSMUSP00000075321	0.965	0.599	1.507	0.204	0.329	0	sulfotransferase family 1A, phenol-preferring, member 1
ENSMUSP00000075345	26.093	4.136	46.639	3.054	0.028	1	transmembrane emp24 protein transport domain containing 9
ENSMUSP00000075351	2.004	0.651	2.003	0.454	0.852	3	cornichon homolog 4 (Drosophila)
ENSMUSP00000075513	5.451	0.527	3.128	0.410	0.030	0	enolase 1, alpha non-neuron
ENSMUSP00000075701	3.756	1.630	4.068	0.308	0.580	0	ribosomal protein 10
ENSMUSP00000075770	1.092	0.200	0.218	0.086	0.046	0	sulfotransferase family 1D, member 1
ENSMUSP00000075779	2.977	0.284	3.280	0.733	0.871	0	cDNA sequence BC021614
ENSMUSP00000075825	0.200	0.170	0.439	0.164	0.215	0	Probable oxidoreductase C10orf33 homolog

ENSMUSP00000075907	1.246	0.133	2.001	1.003	0.774	0	proteasome (prosome, macropain) subunit, beta type 9 (large multifunctional peptidase 2)
ENSMUSP00000075912	0.063	0.042	0.218	0.053	0.082	0	RIKEN cDNA A430107O13 gene (A430107O13Rik), mRNA
ENSMUSP00000075946	4.031	0.315	3.577	0.385	0.385	9	Acetyl-coenzyme A transporter 1 (AT-1) (Acetyl-CoA transporter) (Solute carrier family 33 member 1)
ENSMUSP00000075987	60.671	5.807	51.558	6.365	0.342	2	solute carrier family 25 (mitochondrial carrier, phosphate carrier), member 3
ENSMUSP00000075990	1.943	1.512	2.024	0.655	0.477	3	
ENSMUSP00000076090	0.070	0.002	0.796	0.260	0.003	0	syntaxin 18
ENSMUSP00000076193	0.173	0.049	0.024	0.016	0.027	1	Collagen alpha-2(XI) chain precursor
ENSMUSP00000076227	0.272	0.180	1.368	0.220	0.038	2	Rab acceptor 1 (prenylated)
ENSMUSP00000076235	0.725	0.311	1.389	0.277	0.163	0	purine-nucleoside phosphorylase 1
ENSMUSP00000076472	1.713	0.879	3.236	0.393	0.207	0	dehydrogenase/reductase (SDR family) X chromosome
ENSMUSP00000076521	0.078	0.052	0.355	0.038	0.041	0	Protein disulfide-isomerase A4 precursor (EC 5.3.4.1) (Protein ERp-72) (ERp72).
ENSMUSP00000076735	1.560	0.291	1.663	0.541	0.971	0	retinol dehydrogenase similar
ENSMUSP00000076777	11.299	1.799	7.217	0.704	0.076	0	tubulin, alpha 1C
ENSMUSP00000076837	0.177	0.137	0.277	0.065	0.268	8	G-protein coupled receptor family C group 5 member C precursor (Retinoic acid-induced gene 3 protein) (RAIG-3).
ENSMUSP00000076875	0.284	0.251	0.334	0.091	0.342	0	eukaryotic translation initiation factor 2B, subunit 4 delta
ENSMUSP00000076922	0.654	0.143	0.709	0.145	0.800	12	solute carrier family 9 (sodium/hydrogen exchanger), isoform 6
ENSMUSP00000077118	5.937	1.275	5.989	0.700	0.886	0	ribosomal protein L14
ENSMUSP00000077127	0.196	0.167	0.525	0.129	0.140	0	Protein FAM73B
ENSMUSP00000077132	0.974	0.371	0.498	0.215	0.367	2	integrin alpha 1
ENSMUSP00000077181	5.248	0.794	5.217	0.240	0.923	0	60S ribosomal protein L9 [Rpl9]
ENSMUSP00000077273	2.078	0.282	2.119	0.521	0.915	1	aspartate-beta-hydroxylase
ENSMUSP00000077335	0.328	0.279	0.499	0.139	0.279	1	16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130027C03 product:histocompatibility 2, Q region locus 4, full insert sequence.
ENSMUSP00000077437	0.487	0.178	0.781	0.071	0.191	9	transmembrane protein 175
ENSMUSP00000077439	1.729	0.326	1.079	0.348	0.225	0	
ENSMUSP00000077571	0.036	0.001	0.254	0.060	0.001	1	Acid phosphatase-like protein 2 precursor
ENSMUSP00000077597	2.433	0.260	2.344	0.666	0.742	0	cystathionine beta-synthase
ENSMUSP00000077612	1.106	0.222	0.802	0.399	0.423	0	complement component 1, q subcomponent binding protein
ENSMUSP00000077678	1.087	0.391	0.043	0.001	0.003	0	
ENSMUSP00000077716	3.540	0.875	4.006	0.222	0.501	0	RAB43, member RAS oncogene family
ENSMUSP00000077808	0.459	0.417	1.587	0.338	0.106	9	Sodium/bile acid cotransporter 5 precursor (Na(+)/bile acid cotransporter 5) (Solute carrier family 10 member 5)
ENSMUSP00000077864	2.739	0.973	2.852	0.533	0.727	1	translocase of outer mitochondrial membrane 20 homolog (yeast)
ENSMUSP00000077875	0.606	0.558	3.087	0.837	0.082	2	reticulon 4
ENSMUSP00000077989	9.588	0.539	12.883	1.768	0.147	1	histocompatibility 2, D region locus 1
ENSMUSP00000078236	2.254	0.765	1.165	0.130	0.210	7	histocompatibility 13

ENSMUSP00000078429	10.406	2.557	6.155	0.673	0.134	0	tubulin, alpha 4A
ENSMUSP00000078436	1.024	0.095	1.538	0.077	0.016	0	aminoadipate aminotransferase
ENSMUSP00000078515	0.126	0.100	0.309	0.086	0.171	0	Protein O-linked-mannose beta-1,2-N-acetylglucosaminyltransferase 1 (EC 2.4.1.-) (POMGnT1).
ENSMUSP00000078623	1.432	1.006	0.456	0.200	0.370	1	cytochrome b5 domain containing 2
ENSMUSP00000078661	0.867	0.131	0.415	0.362	0.165	0	HCLS1 associated X-1
ENSMUSP00000078741	0.034	0.027	0.060	0.010	0.216	2	Notch gene homolog 2 (Drosophila)
ENSMUSP00000078774	1.608	0.291	0.476	0.228	0.155	0	succinate-Coenzyme A ligase, GDP-forming, beta subunit
ENSMUSP00000078808	2.242	1.252	3.487	1.319	0.442	4	secretory carrier membrane protein 4
ENSMUSP00000078971	2.463	0.488	1.265	0.258	0.096	4	solute carrier family 27 (fatty acid transporter), member 4
ENSMUSP00000079065	22.757	4.141	18.156	2.543	0.381	0	cytochrome P450, family 2, subfamily c, polypeptide 50
ENSMUSP00000079100	1.982	0.204	1.434	0.240	0.157	9	solute carrier family 1 (glial high affinity glutamate transporter), member 2
ENSMUSP00000079180	8.789	1.963	8.013	0.369	0.911	0	40S ribosomal protein S25
ENSMUSP00000079246	2.199	0.559	1.257	0.404	0.244	0	ADP-ribosylation factor-like 1
ENSMUSP00000079324	0.176	0.064	0.148	0.054	0.748	1	Hepatocyte growth factor receptor precursor (EC 2.7.10.1) (HGF receptor) (Scatter factor receptor) (SF receptor) (HGF/SF receptor) (Met proto-oncogene tyrosine kinase) (c-Met). Source: Uniprot/SWISSPROT P16056
ENSMUSP00000079341	0.190	0.101	0.317	0.080	0.360	0	GNAS (guanine nucleotide binding protein, alpha stimulating) complex locus
ENSMUSP00000079380	1.365	1.027	6.299	0.830	0.086	0	Ras-related C3 botulinum toxin substrate 1 precursor (p21-Rac1).
ENSMUSP00000079398	0.403	0.060	0.602	0.124	0.191	0	peroxisome biogenesis factor 5
ENSMUSP00000079403	3.139	1.129	7.554	1.739	0.131	1	DnaJ (Hsp40) homolog, subfamily C, member 19
ENSMUSP00000079628	13.129	1.116	8.050	0.855	0.024	0	ribosomal protein S17
ENSMUSP00000079691	4.485	0.371	1.395	1.381	0.112	10	Sodium/potassium-transporting ATPase subunit alpha-3 (EC 3.6.3.9) (Sodium pump subunit alpha-3) (Na(+)/K(+) ATPase alpha-3 subunit) (Na(+)/K(+) ATPase alpha(III) subunit).
ENSMUSP00000079882	2.031	0.397	1.816	0.493	0.689	1	Fc receptor, IgG, low affinity IIb
ENSMUSP00000079883	4.763	0.590	4.798	1.255	0.898	1	translocase of inner mitochondrial membrane 17a
ENSMUSP00000079944	10.409	2.032	33.982	9.123	0.039	0	Cytochrome c oxidase subunit 5B, mitochondrial
ENSMUSP00000080040	4.612	0.627	9.514	1.061	0.015	1	Protein FAM3C precursor.
ENSMUSP00000080240	0.616	0.174	0.354	0.083	0.253	6	progesterone and adiponectin receptor family member VII
ENSMUSP00000080273	6.521	1.756	5.853	1.902	0.814	2	succinate dehydrogenase complex, subunit C, integral membrane protein
ENSMUSP00000080403	2.289	0.640	1.884	0.061	0.723	0	TraB domain containing (TraBd), mRNA Source: RefSeq_dna NM_026485
ENSMUSP00000080414	2.176	0.664	1.282	0.259	0.273	0	RIKEN cDNA 0610010D20 gene
ENSMUSP00000080484	1.465	0.160	6.186	0.091	0.000	1	mannoside acetylglucosaminyltransferase 1
ENSMUSP00000080523	3.879	1.177	16.209	1.904	0.019	0	ribosomal protein L32
ENSMUSP00000080531	1.147	0.184	2.239	0.183	0.021	0	farnesyl diphosphate synthetase
ENSMUSP00000080579	0.401	0.175	0.501	0.049	0.452	1	dysferlin
ENSMUSP00000080614	0.946	0.311	1.641	0.372	0.251	1	translocase of inner mitochondrial membrane 50 homolog (yeast)
ENSMUSP00000080743	0.074	0.049	0.215	0.037	0.092	0	pentatricopeptide repeat domain 3

ENSMUSP00000080846	5.803	1.662	1.367	0.677	0.174	1	cytochrome P450, family 2, subfamily b, polypeptide 9
ENSMUSP00000080974	0.520	0.146	0.470	0.283	0.549	2	CD36 antigen
ENSMUSP00000080991	5.724	0.764	5.068	0.329	0.497	7	NADH dehydrogenase 1, mitochondrial
ENSMUSP00000080992	7.936	1.229	9.348	0.536	0.335	10	NADH dehydrogenase 2, mitochondrial
ENSMUSP00000080993	3.362	1.220	1.700	0.519	0.214	12	cytochrome c oxidase I, mitochondrial
ENSMUSP00000080994	26.012	2.687	19.789	0.603	0.070	2	cytochrome c oxidase II, mitochondrial
ENSMUSP00000080995	13.512	2.517	36.767	7.218	0.025	1	ATP synthase 8, mitochondrial
ENSMUSP00000080996	1.039	0.580	1.119	0.179	0.522	6	ATP synthase 6, mitochondrial
ENSMUSP00000080997	2.699	1.295	1.178	0.453	0.504	7	cytochrome c oxidase III, mitochondrial
ENSMUSP00000081000	12.792	0.576	11.801	1.347	0.486	12	predicted gene, ENSMUSG00000064363 NADH UBIQUINONE OXIDOREDUCTASE CHAIN 4 EC_1.6.5.3 NADH DEHYDROGENASE SUBUNIT 4
ENSMUSP00000081001	2.188	0.375	1.979	0.414	0.708	MP	NADH dehydrogenase 5, mitochondrial
ENSMUSP00000081003	0.299	0.151	0.320	0.075	0.598	9	cytochrome b, mitochondrial
ENSMUSP00000081007	1.723	0.930	1.090	0.198	0.830	1	deiodinase, iodothyronine, type I
ENSMUSP00000081009	0.835	0.325	0.746	0.190	0.926	0	selenophosphate synthetase 2
ENSMUSP00000081010	9.334	0.318	7.233	0.748	0.080	0	glutathione peroxidase 1
ENSMUSP00000081017	4.595	0.947	4.232	0.457	0.827	10	Ethanolaminephosphotransferase 1 (EC 2.7.8.1) (Selenoprotein I).
ENSMUSP00000081019	5.605	1.252	8.381	0.717	0.174	0	RIKEN cDNA 2810407C02 gene
ENSMUSP00000081200	2.938	1.557	2.020	0.929	0.761	1	dehydrogenase/reductase (SDR family) member 3
ENSMUSP00000081370	30.294	2.254	21.200	1.653	0.027	0	cytochrome P450, family 4, subfamily a, polypeptide 12a
ENSMUSP00000081574	0.088	0.002	2.959	1.080	0.001	3	High affinity copper uptake protein 1 (CTR1) (Copper transporter 1) (Solute carrier family 31 member 1)
ENSMUSP00000081680	1.137	0.297	0.592	0.278	0.191	0	mitochondrial carrier triple repeat 1
ENSMUSP00000082013	0.666	0.215	0.041	0.001	0.001		Inositol monophosphatase 3 (EC 3.1.3.25) (IMPase 3) (IMP 3) (Inositol- 1(or 4)-monophosphatase 3) (Myo-inositol monophosphatase A3) (Inositol monophosphatase domain-containing protein 1).
ENSMUSP00000082023	0.235	0.080	0.264	0.042	0.619	7	SREBF chaperone
ENSMUSP00000082125	3.932	0.454	2.019	0.230	0.014	0	serine (or cysteine) peptidase inhibitor, clade A, member 3C
ENSMUSP00000082288	9.137	2.678	4.306	0.248	0.097	1	aldehyde dehydrogenase family 6, subfamily A1
ENSMUSP00000082340	0.258	0.206	0.946	0.201	0.087	2	RIKEN cDNA 4933426M11 gene
ENSMUSP00000082343	1.083	0.241	1.164	0.294	0.923	7	solute carrier family 39 (zinc transporter), member 9
ENSMUSP00000082352	5.754	2.134	9.439	0.953	0.160	0	retinol dehydrogenase 11
ENSMUSP00000082686	3.637	3.479	8.863	0.827	0.136	1	Cox7a2l protein
ENSMUSP00000082976	0.262	0.007	0.155	0.137	0.199	0	RIKEN cDNA A230107C01 gene
ENSMUSP00000083077	0.171	0.079	0.118	0.023	0.906	8	
ENSMUSP00000083242	4.281	0.565	2.915	0.609	0.168	2	scavenger receptor class B, member 1
ENSMUSP00000083271	5.244	0.305	4.885	0.508	0.542	12	STT3, subunit of the oligosaccharyltransferase complex, homolog A (S. cerevisiae)
ENSMUSP00000083322	0.896	0.188	1.211	0.029	0.216	1	RIKEN cDNA C530043G21 gene

ENSMUSP00000083429	2.213	0.389	2.823	0.361	0.302	8	dpy-19-like 1 (C. elegans)
ENSMUSP00000083587	0.094	0.062	0.580	0.143	0.036	1	intercellular adhesion molecule
ENSMUSP00000083705	0.939	0.496	1.068	0.403	0.569	0	
ENSMUSP00000083928	9.108	1.053	16.966	0.504	0.005	1	mannosidase 2, alpha 1
ENSMUSP00000084014	1.106	0.208	0.518	0.203	0.189	0	Unknown
ENSMUSP00000084081	2.322	0.410	3.267	0.635	0.264	0	glycerol-3-phosphate acyltransferase, mitochondrial
ENSMUSP00000084234	3.001	0.080	2.251	0.574	0.269	12	solute carrier family 22 (organic anion transporter), member 7
ENSMUSP00000084297	67.125	13.973	73.541	15.625	0.814	2	Predicted
ENSMUSP00000084445	8.915	1.294	8.953	0.890	0.928	0	OCIA domain containing 2
ENSMUSP00000084572	0.374	0.118	0.576	0.081	0.252	0	valyl-tRNA synthetase
ENSMUSP00000084589	2.396	0.544	1.131	0.560	0.298	0	heat shock protein 1B
ENSMUSP00000084633	0.366	0.058	0.404	0.057	0.653	1	a disintegrin and metallopeptidase domain 23
ENSMUSP00000084864	0.870	0.297	1.231	0.230	0.333	0	heterogeneous nuclear ribonucleoprotein M
ENSMUSP00000084918	16.551	1.132	14.602	0.736	0.230	0	aldehyde dehydrogenase family 1, subfamily A1
ENSMUSP00000084938	2.919	0.972	0.546	0.243	0.086	2	camello-like 3
ENSMUSP00000084959	1.161	0.090	0.796	0.128	0.101	0	2-deoxyribose-5-phosphate aldolase homolog (C. elegans)
ENSMUSP00000085286	0.426	0.137	0.243	0.006	0.392	0	
ENSMUSP00000085458	1.731	0.373	1.165	0.223	0.244	1	integrin alpha FG-GAP repeat containing 3
ENSMUSP00000085523	6.099	1.158	11.993	1.684	0.045	0	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 9
ENSMUSP00000085671	1.388	0.392	0.771	0.112	0.163	5	RIKEN cDNA D930001122 gene
ENSMUSP00000085867	0.165	0.109	0.573	0.014	0.059	0	RNA-binding protein with serine-rich domain 1
ENSMUSP00000086025	0.288	0.008	0.781	0.182	0.022	2	ERGIC and golgi 3
ENSMUSP00000086297	1.618	0.223	1.284	0.076	0.206	11	asparagine-linked glycosylation 12 homolog (yeast, alpha-1,6-mannosyltransferase)
ENSMUSP00000086411	0.522	0.048	0.663	0.156	0.465	1	fibronectin type III domain containing 3a
ENSMUSP00000086418	0.377	0.011	0.311	0.076	0.389	0	t-complex protein 1
ENSMUSP00000086422	2.684	0.666	3.474	0.707	0.407	9	transmembrane 9 superfamily protein member 4
ENSMUSP00000086530	37.206	4.262	43.218	2.244	0.268	0	cytochrome P450, family 2, subfamily d, polypeptide 9
ENSMUSP00000086626	0.648	0.070	0.602	0.188	0.652	0	ubiquitin-activating enzyme E1, Chr X
ENSMUSP00000086724	0.371	0.346	0.563	0.211	0.264	1	Protein unc-84 homolog B (Sad1/unc-84 protein-like 2).
ENSMUSP00000086886	2.484	0.335	2.071	0.109	0.348	6	Phosphatidate cytidyltransferase 2
ENSMUSP00000086988	3.716	0.269	3.888	0.461	0.801	1	RIKEN cDNA 2600009E05 gene
ENSMUSP00000087037	0.079	0.040	0.009	0.005	0.226	0	plectin 1
ENSMUSP00000087192	2.823	0.571	2.060	0.102	0.290	0	3-hydroxybutyrate dehydrogenase, type 1
ENSMUSP00000087213	5.364	0.368	4.437	0.760	0.341	0	60S ribosomal protein L34 [Rpl34]
ENSMUSP00000087345	0.138	0.087	0.140	0.038	0.584	1	kinectin 1
ENSMUSP00000087453	0.143	0.095	0.496	0.012	0.059	0	Heterogeneous nuclear ribonucleoproteins A2/B1 (hnRNP A2 / hnRNP B1).

ENSMUSP00000087524	0.145	0.091	0.617	0.224	0.073	0	GTPase IMAP family member 4 (Immunity-associated protein 4) (Immunity-associated nucleotide 1 protein).
ENSMUSP00000087694	0.646	0.227	0.555	0.232	0.804	14	membrane-associated ring finger (C3HC4) 6
ENSMUSP00000087717	3.313	0.470	1.157	0.041	0.003	1	cytochrome P450, family 2, subfamily u, polypeptide 1
ENSMUSP00000087858	0.557	0.224	0.845	0.038	0.205	8	LMBR1 domain containing 2
ENSMUSP00000087894	1.339	0.796	1.884	0.799	0.538	0	
ENSMUSP00000087974	43.511	6.513	47.101	7.363	0.731	0	No description available. Protein Family: ATP SYNTHASE D CHAIN MITOCHONDRIAL EC_3.6.3.14
ENSMUSP00000088029	202.093	17.524	170.262	24.486	0.334	2	ATP synthase lipid-binding protein, mitochondrial
ENSMUSP00000088052	0.704	0.315	0.867	0.370	0.648	1	Sortin
ENSMUSP00000088057	7.902	1.103	6.916	0.237	0.499	0	proteasome (prosome, macropain) subunit, alpha type 5
ENSMUSP00000088234	3.659	1.785	2.846	0.174	0.971	2	thioredoxin domain containing 14
ENSMUSP00000088246	4.520	0.182	4.541	0.268	0.974	0	hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 3
ENSMUSP00000088249	7.953	1.881	6.176	0.475	0.545	0	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 2
ENSMUSP00000088349	4.308	1.753	3.875	0.850	0.941	0	selenium binding protein 1
ENSMUSP00000088358	1.074	0.943	2.737	1.150	0.257	0	Selenium-binding protein 2 (56 kDa acetaminophen-binding protein) (AP56).
ENSMUSP00000088801	1.218	0.271	0.930	0.198	0.446	0	mitofusin 1
ENSMUSP00000088837	0.269	0.022	0.305	0.094	0.900	2	insulin receptor
ENSMUSP00000088857	0.016	0.000	0.191	0.028	0.000	0	Ceruloplasmin precursor (EC 1.16.3.1) (Ferroxidase)
ENSMUSP00000089097	1.199	0.447	0.777	0.254	0.527	4	steroid 5 alpha-reductase 1
ENSMUSP00000089147	0.845	0.210	1.682	0.220	0.053	8	solute carrier family 35, member D2
ENSMUSP00000089350	6.993	1.157	2.937	1.426	0.249	0	histone cluster 1, H2bn
ENSMUSP00000089374	23.330	3.906	23.309	4.760	0.946	0	betaine-homocysteine methyltransferase
ENSMUSP00000089402	0.298	0.117	0.544	0.094	0.256	4	PQ loop repeat containing 1
ENSMUSP00000089551	3.203	0.418	3.414	0.382	0.709	0	No description available. Protein Family: 60S RIBOSOMAL L17
ENSMUSP00000089691	3.121	0.933	3.986	0.159	0.366	0	cDNA sequence BC089597
ENSMUSP00000089808	1.565	0.315	3.174	0.749	0.114	6	transmembrane protein 19
ENSMUSP00000090059	0.651	0.123	0.189	0.125	0.069	0	splicing factor, arginine/serine-rich 2 (SC-35)
ENSMUSP00000090111	9.621	2.131	6.451	0.220	0.232	0	
ENSMUSP00000090155	5.403	0.974	6.213	0.810	0.521	1	sphingosine phosphate lyase 1
ENSMUSP00000090227	0.464	0.218	0.750	0.211	0.397	12	solute carrier family 16 (monocarboxylic acid transporters), member 10
ENSMUSP00000090245	0.056	0.002	0.566	0.014	0.000	0	Myristoylated alanine-rich C-kinase substrate (MARCKS).
ENSMUSP00000090281	2.162	0.288	1.805	0.249	0.382	1	ancient ubiquitous protein
ENSMUSP00000090307	4.011	0.833	21.898	3.279	0.003	1	ST3 beta-galactoside alpha-2,3-sialyltransferase 1
ENSMUSP00000090314	0.052	0.032	0.103	0.002	0.148	0	Band 4.1-like protein 2 (Generally expressed protein 4.1) (4.1G).
ENSMUSP00000090556	0.840	0.385	1.918	0.504	0.257	7	TLC domain containing 1
ENSMUSP00000090564	13.001	0.651	9.708	1.074	0.071	0	fructose biphosphatase 1

ENSMUSP00000090593	0.037	0.024	0.252	0.094	0.066	0	RIKEN cDNA 1300001I01 gene (1300001I01Rik), mRNA
ENSMUSP00000090673	2.046	1.366	2.243	0.356	0.483	0	SCO cytochrome oxidase deficient homolog 1 (yeast)
ENSMUSP00000090727	0.817	0.269	1.839	0.366	0.083	0	RAB4B, member RAS oncogene family
ENSMUSP00000090844	0.168	0.146	0.311	0.062	0.198	0	AP-1 complex subunit gamma-1 (Adapter-related protein complex 1 subunit gamma-1) (Gamma1-adaptin) (Gamma-adaptin) (Adaptor protein complex AP-1 subunit gamma-1) (Golgi adaptor HA1/AP1 adaptin subunit gamma-1) (Clathrin assembly protein complex 1 gamma-1)
ENSMUSP00000090896	3.956	1.082	13.159	2.162	0.019	0	hemoglobin alpha, adult chain 2
ENSMUSP00000090910	5.378	0.671	6.171	1.000	0.555	0	esterase 31
ENSMUSP00000091202	0.646	0.312	0.374	0.078	0.856	12	Chloride channel protein 3
ENSMUSP00000091429	0.020	0.013	0.110	0.008	0.029	0	Novel protein containing a zinc finger C3HC4 type (RING finger) domain (D11End759e: DNA segment, Chr 11, ERATO Doi 759, expressed) (Fragment).
ENSMUSP00000091541	1.511	0.158	0.944	0.486	0.349	1	RIKEN cDNA 1300007F04 gene
ENSMUSP00000091608	4.360	1.228	3.467	0.694	0.714	2	RIKEN cDNA 1810027O10 gene
ENSMUSP00000091673	0.274	0.077	0.396	0.031	0.234	2	lemur tyrosine kinase 2
ENSMUSP00000091736	15.185	2.064	14.739	6.979	0.658	0	40S ribosomal protein S8 [Rps8]
ENSMUSP00000091836	1.724	0.266	1.831	0.311	0.825	1	Syntaxin-16
ENSMUSP00000092002	199.417	24.490	139.657	16.653	0.126	0	Ferritin Light Chain 1
ENSMUSP00000092050	2.228	1.348	3.226	0.375	0.296	0	cDNA sequence BC003331
ENSMUSP00000092233	29.605	2.128	28.396	1.374	0.670	1	UDP glucuronosyltransferase 2 family, polypeptide B36
ENSMUSP00000092283	2.670	0.461	3.263	0.131	0.269	1	RIKEN cDNA 1200015F23 gene
ENSMUSP00000092417	0.563	0.146	0.652	0.215	0.903	0	GDP-mannose pyrophosphorylase A
ENSMUSP00000092487	24.035	1.377	16.128	2.340	0.049	0	cytochrome P450, family 4, subfamily a, polypeptide 12B
ENSMUSP00000092557	1.292	0.192	0.851	0.252	0.253	4	RIKEN cDNA D230012E17 gene
ENSMUSP00000092655	0.055	0.002	0.646	0.094	0.000	0	Alpha-N-acetylgalactosaminide alpha-2,6-sialyltransferase 6 (EC 2.4.99.-) (GalNAc alpha-2,6-sialyltransferase VI) (ST6GalNAc VI) (Sialyltransferase 7F).
ENSMUSP00000092717	1.055	0.071	1.017	0.511	0.596	10	Mus musculus RIKEN cDNA 1300002K09 gene
ENSMUSP00000092746	7.357	1.297	9.136	1.653	0.453	1	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 6
ENSMUSP00000092769	1.794	0.106	1.999	0.077	0.192	0	dehydrogenase E1 and transketolase domain containing 1
ENSMUSP00000092888	0.741	0.357	1.132	0.256	0.383	0	ribosomal protein L7-like 1
ENSMUSP00000092897	0.604	0.164	1.056	0.355	0.333	5	Yip1 domain family, member 3
ENSMUSP00000092921	0.135	0.004	1.365	0.033	0.000	0	60S ribosomal protein L21
ENSMUSP00000092966	15.171	1.120	11.127	0.929	0.046	1	cytochrome P450, family 4, subfamily v, polypeptide 3
ENSMUSP00000093077	3.317	0.354	2.309	0.243	0.067	2	mitochondrial carrier homolog 1 (C. elegans)
ENSMUSP00000093229	7.415	2.727	9.072	0.984	0.449	7	solute carrier family 10 (sodium/bile acid cotransporter family), member 1
ENSMUSP00000093430	0.077	0.002	0.773	0.019	0.000	3	RIKEN cDNA 1700019G17 gene (1700019G17Rik), mRNA
ENSMUSP00000093460	0.028	0.001	0.237	0.079	0.003	0	DBH-like monooxygenase protein 1 precursor (EC 1.14.17.-) (Monooxygenase X) (DBH-related protein).
ENSMUSP00000093525	0.550	0.256	0.979	0.182	0.303	0	Amigios
ENSMUSP00000093713	16.617	4.794	32.716	5.835	0.109	1	upregulated during skeletal muscle growth 5

ENSMUSP00000093908	0.130	0.026	0.203	0.014	0.113	1	transmembrane protein 2
ENSMUSP00000093962	1.972	0.148	2.617	0.536	0.364	1	beta-1,3-glucuronyltransferase 3 (glucuronosyltransferase I)
ENSMUSP00000093966	1.182	0.603	2.080	0.199	0.330	1	alpha glucosidase 2 alpha neutral subunit
ENSMUSP00000094184	0.171	0.005	0.937	0.023	0.000	0	60S ribosomal protein L36
ENSMUSP00000094396	0.053	0.001	1.342	0.275	0.000	6	ring finger protein 121
ENSMUSP00000094505	1.396	1.031	1.310	0.314	0.589	8	myeloid-associated differentiation marker
ENSMUSP00000094882	0.099	0.051	0.189	0.050	0.296	0	HEAT repeat containing 5B
ENSMUSP00000094897	0.095	0.003	0.971	0.272	0.002	0	Unknown
ENSMUSP00000095001	0.999	0.158	1.487	0.165	0.104	1	leucyl/cystinyl aminopeptidase
ENSMUSP00000095081	4.788	2.231	3.285	0.164	0.722	2	transmembrane and coiled-coil domains 1
ENSMUSP00000095129	1.439	0.774	0.038	0.001	0.007	0	haloacid dehalogenase-like hydrolase domain containing 2
ENSMUSP00000095285	14.600	1.636	12.041	1.753	0.328	0	RAB18, member RAS oncogene family
ENSMUSP00000095287	7.426	0.024	8.391	1.920	0.746	0	ribosomal protein L27
ENSMUSP00000095294	0.029	0.001	0.207	0.048	0.001	0	phenylalanyl-tRNA synthetase, beta subunit
ENSMUSP00000095343	17.311	10.130	47.137	9.342	0.119	0	Novel
ENSMUSP00000095373	0.014	0.000	0.140	0.038	0.001	0	Tripeptidyl-peptidase 2 (EC 3.4.14.10) (Tripeptidyl-peptidase II) (TPP-II) (Tripeptidyl aminopeptidase).
ENSMUSP00000095387	0.215	0.048	0.374	0.136	0.305	0	UDP-glucose ceramide glucosyltransferase-like 1
ENSMUSP00000095571	1.214	0.223	2.183	0.375	0.104	1	single immunoglobulin and toll-interleukin 1 receptor (TIR) domain
ENSMUSP00000095625	0.014	0.000	0.142	0.038	0.001	0	Integrin alpha-M precursor (Cell surface glycoprotein MAC-1 subunit alpha) (CR-3 alpha chain) (Leukocyte adhesion receptor MO1) (CD11b antigen).
ENSMUSP00000095655	0.813	0.191	0.667	0.129	0.555	0	major urinary protein 1
ENSMUSP00000095688	9.963	0.307	6.918	1.829	0.166	1	Protein transport protein Sec61 subunit beta [Sec61b]
ENSMUSP00000095832	0.091	0.003	0.925	0.259	0.002	0	Rho-related GTP-binding protein RhoG precursor (Sid 10750).
ENSMUSP00000095922	7.656	1.767	4.717	2.421	0.373	0	No description available. Protein Family: 40S RIBOSOMAL S2
ENSMUSP00000096028	0.732	0.666	1.440	0.287	0.181	1	testis expressed gene 264
ENSMUSP00000096073	0.091	0.042	0.097	0.013	0.551	0	
ENSMUSP00000096204	0.701	0.120	1.330	0.032	0.025	1	serine protease inhibitor, Kunitz type 2
ENSMUSP00000096232	2.556	0.369	2.361	0.174	0.746	0	RAB8A, member RAS oncogene family
ENSMUSP00000096269	1.456	0.526	0.591	0.138	0.120	1	Carcinoembryonic antigen-related cell adhesion molecule 1
ENSMUSP00000096414	0.026	0.001	0.750	0.054	0.000	14	solute carrier family 7 (cationic amino acid transporter, y+ system), member 2
ENSMUSP00000096671	0.563	0.132	0.055	0.001	0.001		Dolichol-phosphate mannosyltransferase (EC 2.4.1.83) (Dolichol- phosphate mannose synthase) (Dolichyl-phosphate beta-D- mannosyltransferase) (Mannose-P-dolichol synthase) (MPD synthase) (DPM synthase).
ENSMUSP00000096751	0.681	0.160	0.439	0.220	0.355	2	predicted gene, EG633640
ENSMUSP00000096789	0.518	0.289	2.289	0.374	0.104	0	Unknown
ENSMUSP00000096790	1.807	0.883	2.043	0.217	0.510	0	No description available. Protein Family: NAALADL2
ENSMUSP00000096909	3.473	1.260	5.967	0.757	0.142	4	secretory carrier membrane protein 1

ENSMUSP00000096976	5.543	0.490	7.118	0.576	0.107	2	sideroflexin 2
ENSMUSP00000097007	1.908	0.512	4.232	1.511	0.164	1	ER lipid raft associated 1
ENSMUSP00000097071	1.587	0.248	1.240	0.311	0.412	0	cytochrome P450, family 2, subfamily c, polypeptide 68
ENSMUSP00000097144	0.690	0.301	0.374	0.074	0.388	3	expressed sequence C78339
ENSMUSP00000097287	1.367	0.491	0.973	0.365	0.643	4	CD82 antigen
ENSMUSP00000097310	0.738	0.251	1.356	0.347	0.216	1	acid phosphatase 2, lysosomal
ENSMUSP00000097409	0.747	0.351	2.578	0.340	0.141	0	lectin, galactose binding, soluble 8
ENSMUSP00000097792	0.582	0.286	0.678	0.138	0.537	12	dolichol kinase
ENSMUSP00000097882	0.517	0.188	0.419	0.197	0.557	10	asparagine-linked glycosylation 10 homolog B (yeast, alpha-1,2-glucosyltransferase)
ENSMUSP00000097943	63.779	0.476	49.543	4.754	0.048	0	NADH-cytochrome b5 reductase 3 (EC 1.6.2.2) (Cytochrome b5 reductase) (B5R) (Diaphorase-1) [Contains: NADH-cytochrome b5 reductase 3 membrane-bound form; NADH-cytochrome b5 reductase 3 soluble form] [Cyb5r3]
ENSMUSP00000098000	0.638	0.018	0.388	0.308	0.218	0	parahox cluster neighbor
ENSMUSP00000098025	0.722	0.233	0.933	0.088	0.343	0	ATP citrate lyase
ENSMUSP00000098052	0.396	0.186	0.918	0.302	0.223	0	JTV1 gene
ENSMUSP00000098076	0.258	0.118	0.493	0.241	0.475	0	Eukaryotic translation initiation factor 3 subunit B (Eukaryotic translation initiation factor 3 subunit 9) (eIF-3-eta) (eIF3 p116).
ENSMUSP00000098096	0.145	0.057	0.269	0.053	0.261	0	Poly(U)-binding-splicing factor PUF60 (60 kDa poly(U)-binding-splicing factor).
ENSMUSP00000098102	1.226	1.111	5.856	0.744	0.071	0	cell death-inducing DNA fragmentation factor, alpha subunit-like effector B
ENSMUSP00000098230	2.219	0.945	2.878	0.276	0.412	1	peptidyl-tRNA hydrolase 2
ENSMUSP00000098306	10.879	1.146	11.109	0.938	0.863	7	ATPase, Ca++ transporting, cardiac muscle, slow twitch 2
ENSMUSP00000098349	1.691	0.567	1.635	0.471	0.925	0	flotillin 2
ENSMUSP00000098390	0.052	0.020	0.203	0.078	0.153	12	ATP-binding cassette transporter sub-family C member 9 (Sulfonylurea receptor 2).
ENSMUSP00000098631	4.812	0.191	4.641	0.866	0.741	3	jagunal homolog 1 (Drosophila)
ENSMUSP00000098747	25.169	3.215	21.840	1.650	0.407	10	Sec61 alpha 1 subunit (S. cerevisiae)
ENSMUSP00000098859	13.773	3.503	18.078	1.318	0.281	1	Mitochondrial inner membrane protein
ENSMUSP00000098867	4.439	0.280	4.302	0.318	0.750	5	ATP-binding cassette, sub-family B (MDR/TAP), member 7
ENSMUSP00000098918	1.042	0.701	2.300	0.125	0.211	0	5'-nucleotidase, cytosolic III
ENSMUSP00000098969	0.072	0.002	0.847	0.309	0.004	4	Transmembrane protein 176A
ENSMUSP00000099035	2.827	1.421	4.039	0.585	0.306	1	RIKEN cDNA 2610030H06 gene
ENSMUSP00000099067	8.033	0.667	6.435	0.356	0.092	8	Probable phospholipid-transporting ATPase 11C (EC 3.6.3.1) [Atp11c]
ENSMUSP00000099087	0.056	0.035	0.269	0.029	0.034	1	ADAM 17 precursor (EC 3.4.24.86) (A disintegrin and metalloproteinase domain 17) (TNF-alpha-converting enzyme) (TNF-alpha convertase) (CD156b antigen).
ENSMUSP00000099301	4.603	1.211	6.366	1.009	0.353	1	histocompatibility 47
ENSMUSP00000099568	0.077	0.048	0.126	0.014	0.285	0	Pre-mRNA-processing-splicing factor 8
ENSMUSP00000099622	17.767	2.451	9.048	1.460	0.040	0	Ras-related protein Rab-35
ENSMUSP00000099632	8.284	1.981	14.420	1.027	0.103	1	Asialoglycoprotein receptor 2 (ASGP-R 2) (ASGPR 2) (Hepatic lectin 2) (MHL-2).
ENSMUSP00000099730	11.992	1.526	15.684	4.468	0.641	0	60S ribosomal protein L13a

ENSMUSP00000099761	12.131	1.456	12.898	0.601	0.588	6	Solute carrier family 25 member 12
ENSMUSP00000099771	3.489	0.670	1.921	0.264	0.067	12	ATP-binding cassette sub-family B member 11
ENSMUSP00000099907	0.603	0.363	0.946	0.256	0.379	2	Reticulon-4
ENSMUSP00000099938	8.431	1.185	8.859	0.548	0.698	0	Malate dehydrogenase, cytoplasmic
ENSMUSP00000099950	3.947	0.242	2.395	0.368	0.041	0	Sarcosine dehydrogenase, mitochondrial
ENSMUSP00000099983	0.163	0.058	0.151	0.060	0.872	13	ATP-binding cassette sub-family A member 2