Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.
Molecular Pharmacology Fast Forward. Published on February 1, 2005 as doi:10.1124/mol.104.009001

The repertoire of G-protein coupled receptors in fully sequenced genomes

Robert Fredriksson and Helgi B. Schiöth

Department of Neuroscience, Uppsala University, BMC, Box 593, 751 24, Uppsala, Sweden.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Running Title Page

Running title: Repertoire of GPCRs

Author for correspondence: Helgi B. Schiöth, Department of Neuroscience, Biomedical Center, Box 593, 75 124 Uppsala, Sweden, Fax: + 46 18 51 15 40, email; helgis@bmc.uu.se

Document statistics

Number of text pages: 29

Number of tables: 4

Number of figures: 3

Number of references: 39

Number of words in Abstract: 225

Number of words in Introduction: 748

Number of words in Discussion: 1498

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Abstract

The super family of G-protein coupled receptors (GPCRs) is one of the largest and most studied families of proteins. We created Hidden Markov Models based on sorted groups of GPCRs from our previous detailed phylogenetic classification of human GPCRs and added several other models based on receptors not found in mammals. We used these models to search entire Genscan datasets from 13 species whose genomes are nearly completely sequenced. We found over 5000 unique GPCRs that were divided into 15 main groups, while the largest one, the *Rhodopsin* family, was subdivided into 13 subclasses. The results show that the main families in the human genome; *Glutamate*, *Rhodopsin*, *Adhesion*, *Frizzled* and *Secretin* arose prior the split of nematodes from the chordate lineage. Moreover, several of the subgroups of the *Rhodopsin* family arose prior to the split of the linage leading to vertebrates. We also searched EST databases and identified over 20 000 sequences that match GPCRs. While the GPCRs represent typically 1-2% of the Genscan predictions, the ESTs that match GPCRs are typically only 0.01-0.001%, indicating that GPCRs in most of the groups are expressed at low levels. We also provide searchable datasets that may be used for annotation and further detailed analysis of the GPCR family. This study provides an extensive overview of the expansion of the gene repertoire for families and subgroups of GPCRs.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Introduction

Tremendous amount of primary sequence information has been made available from the recent sequencing projects, providing a near to full coverage of the entire genomes from a diversity of animal species. The fully sequenced genomes include the mammals mouse and human, two species from the bony fish line (pufferfish; *Takifugu rubripes* and zebrafish; *Danio rerio*), two protochordates from the tunicate linage (*Ciona intestinalis* and *Ciona savignyi*) together with two nematodes (*Caenorhabditis elegans* and *Caenorhabditis briggsae*) and the insects, fruitfly (*Drosophila melanogaster*) and mosquito (*Anopheles gambiae*). Moreover, the plants thale cress (*Arabidopsis thaliana*) and rice (*Oryza sativa*) are sequenced as well as several unicellular species of yeast from the fungi linage such as the bakers yeast (*Schizosaccharomyces pombe*) and budding yeast (*Saccharomyces cerevisiae*). The quality of these genomes is constantly being improved with the most recent assembly of the human genome having only 341 gaps (International Human Genome Sequencing Consortium, 2004) and the results of all analyses based on the genomic data, including gene predictions, are dependent on the current gene assembly. Other genomes, such as those of fugu and zebrafish, will however need considerable amount of work to reach the same quality. While only a small fraction of the genes from these genomes are actually annotated all the genomes mentioned above have gene prediction data sets constructed using Genscan (Burge and Karlin 1997).

The super family of G protein-coupled receptors (GPCRs) is one of the largest and most diverse families of proteins in mammals (Bockaert and Pin 1999). GPCRs are the group of proteins that draws most attention in the pharmaceutical industry and it is estimated that 40-50% of all current drug targets are GPCRs. The large number of proteins in this gene family and the complex

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

structure of GPCRs have, until recently, made it difficult to systematically study their overall evolution. Structurally, the common feature of all GPCRs is a seven α-helical transmembrane region (7TM) that anchor the receptor to the plasma membrane of the cell, with the N-termini exposed to the extracellular space. In addition to the 7TM region, some families of GPCRs have long N-termini containing different kinds of functional-, or ligand binding-domains.

GPCRs can be found in almost any eukaryotic organism, including insects (Hill et al., 2002) and plants (Josefsson 1999) indicating that these proteins are of ancient origin. There is also a light sensing 7TM protein found in bacteria, the bacterial rhodopsin, but it is presently unclear whether this protein has a common origin with GPCRs in eukaryotic organisms, since it does not signal through G-proteins and lacks significant sequence homology to GPCRs (Okada and Palczewski 2001). The human repertoire of GPCRs has recently been described in details (Joost and Methner 2002, Vassilatis et al., 2003, Fredriksson et al., 2003) while there are still additional new human GPCR being annotated (Fredriksson et al., 2003b, Fredriksson et al., 2003c). Also the entire repertoire of GPCRs in mouse (Vassilatis et al., 2003) and malaria mosquito (Hill et al 2002) have been described, while other genomes lack such a whole genome description of the GPCR superfamily. These studies have provided a good overview over the mammalian genomes but there exists considerable confusion about the relationship of GPCR subgroups among different eukaryotes. Several classification systems for GPCRs have been proposed, for examples the A-F system (Kolakowski, 1994) and the 1-5 system (Bockaert and Pin, 1999). These systems attempt to cover the entire GPCR repertoire in several developmental lineages but do not include some of the more recently discovered families. We have previously described a classification system for the GPCR superfamily in the human genome (Fredriksson et al., 2003) where we divided the

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

receptors into five families using a phylogenetic approach. Here, we use the terminology *Rhodopsin* (also known as A or 1), *Secretin* (B or 2), *Adhesion* (previously included in B or 2), *Frizzled* (F or 5) and *Glutamate* (C or 3), which forms the GRAFS classification system.

In this paper we investigated the origin of the human GPCRs by searching the Genscan datasets for GPCRs from 13 species where a complete genomic sequence is available. We used Hidden Markov Models (HMMs) based on our recent GRAFS classification system for GPCRs (Fredriksson et al., 2003) as well as groups of GPCRs that are not found in mammals, previously identified in other classification systems. The aims was to identify "all" GPCRs in these genomes, group these in families, and determine the relationship of GPCRs in distantly related species and thus reveal the origin and expansion of each group.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Materials and Methods

1. Description of the original datasets

1.1 Human: We used the NCBI build 33 of the Genscan dataset. This genome is largely contiguous, i.e. free of gaps, and includes more than 99% of the genetic material (http://genome.ucsc.edu/). The predicted gene set from this assembly contains around 55 000 genes while the manually reviewed RefSeq dataset contains nearly 20 000 protein sequences (http://www.ncbi.nlm.nih.gov/).

1.2 Mouse: The current assembly of the mouse genome (NCBI build 30) consists of 38 000 contigs with a predicted gene set of 110 000 proteins (http://www.ncbi.nlm.nih.gov/). Approximately 90-95% of the genetic material is present in the assembly (http://genome.ucsc.edu/). The mouse RefSeq dataset currently has around 16 200 protein sequences.

1.3 Fugu: The genome of fugu (*Takifugu rubripes)* used in this study was Ensembl release 17.2.1 which consists of 8 597 contigs, covering almost 320 Mbp i.e. around 95% of the non-repetitive DNA (Aparicio et al., 2003) and has 29 600 Genscan predicted genes (http://www.ensembl.org/Fugu_rubripes/). Very few genes have been manually annotated from this species and the non-redundant protein database at NCBI has less then 50 GPCRs from fugu.

1.4 Zebrafish: The genome of the zebrafish (*Danio rerio*) used here was the Ensemble 17.2.1 release with 1.56 Gbp in 85 700 contigs. The Genscan predicted protein dataset has around 60 000 gene predictions (http://www.ensembl.org/Danio_rerio/). Also from this species, very few genes have been manually annotated, the RefSeq dataset has 1 170 proteins and contains in total 72 GPCRs from zebrafish (http://www.ncbi.nlm.nih.gov/).

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

1.5 Ciona: The draft genome sequence of the Urochordate *Ciona intestinalis* was published late 2002 and is an 8.2x whole genome shotgun assembly. The sequence contains 2 500 contigs and covers 116 Mbp of non-repetitive sequence, around 90% of the total non-repetitive material (Dehal et al., 2002) and an annotation project is ongoing at (http://genome.jgi-psf.org). Currently the genes are mainly automatically annotated. The current Genscan dataset contains 15 800 genes (http://www.ncbi.nlm.nih.gov/).

1.6 Drosophila: The *Drosophila melanogaster* genome was sequenced in 2000 and is thought to contain around 98% of the 120Mbp of the Drosophila genome (Adams et al., 2000). For this study we used the NCBI Genscan dataset consisting of 14 300 predicted genes. There is a large annotation project at Flybase (http://www.flybase.org/), which lists 13 500 genes and a total of 193 GPCRs.

1.7 A. gambiae: The genomic sequence of the mosquito *Anopheles gambiae* was published as about 10x whole genome shotgun in 2002 (Holt et al., 2002) and current assembly contains 278 Mbp in 18 634 contigs (http://www.ensembl.org/Anopheles_gambiae/). The Genscan dataset contains 16 000 predicted genes and there are almost no manually annotated genes for this specie.

1.8 C. elegans: The genomic sequence of the nematode *Caenorhabditis elegans* was published in 1998 (The C. elegans Sequencing Consortium). The most current assembly contains 103 Mbp of genomic sequence in 3 266 contigs. The current Genscan dataset contains 20 200 predicted sequences (http://www.ncbi.nlm.nih.gov/). An annotation project is underway (http://www.wormbase.org/) and the project lists 4 609 confirmed genes but it provides no classification of these.

1.9 O. sativa: The genomic sequence of rice (*Oryza sativa*) is currently in progress (http://rgp.dna.affrc.go.jp/) and the current Genscan dataset contains 2 400 predicted proteins

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

(http://www.ncbi.nlm.nih.gov/). Very few genes are annotated in this species. The annotations are currently almost exclusively automated or semi-automated.

1.10 A. thaliana: The only completed plant genome is the genome of *Arabidopsis thaliana* (The Arabidopsis Initiative 2000) with a Genscan dataset of 6 600 predicted proteins. (http://www.ncbi.nlm.nih.gov/). The annotations for this specie are currently almost exclusively automated or semi-automated.

1.11 P. falciparum: The genome of *Plasmodium falciparum* was sequenced in 2002 and the current assembly contains 23.1 Mb. The current Genscan dataset contains 5 200 predicted proteins. An annotation project is ongoing at http://plasmodb.org/publications.shtml and the current database contains domain and GO annotations of the predicted protein set, but no verified proteins.

1.12 S. pombe: The fission yeast *Schizosaccharomyces pombe* genome was sequenced in 1998 and the current assembly from NCBI consists of 12.6 Mb. The Genscan dataset contains 5 000 predicted proteins. There are several large scale genomics and proteomics projects ongoing aiming at annotating the entire genome of fungi, for example the YPD at https://www.incyte.com/proteome/ and the *Schizosaccharomyces pombe* geneDB at http://www.genedb.org/genedb/pombe/index.jsp. These databases contain annotation information of various qualities from biochemically well characterized proteins to annotations based only on similarity and computer predictions.

1.13: S. cerevisiae: The budding yeast (*Saccharomyces cerevisiae*) genome project is at a similar state as the genome project of *S. pombe* with a current assembly from NCBI consisting of 10.3 Mb with a Genscan dataset of 6 300 predicted proteins. Annotations are available at for example https://www.incyte.com/proteome/ and at http://www.yeastgenome.org/ and vary in quality as the *S. pombe* data.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

2. Construction of HMM models

The overall HMM models were constructed from receptors according to Table 1. The accession numbers of each receptor and information regarding which HMM-model each receptor belong to can be found in supplementary data Table 1. We removed the long N- and C-terminals from some of the receptor sequences, as identified by RPS-BLAST searches at http://www.ncbi.nlm.nih.gov/Structure/cdd/wrpsb.cgi. The receptor sequences were subsequently aligned using ClustalW 1.81 (Thompson et al., 1994) using default settings. From the alignments, Hidden Markov Models (HMMs) was constructed using the HMMER 2.2 package (Eddy, 1998). The models were constructed using HMMbuild with default settings and calibrated using HMMcalibrate.

3. Identification of GPCR sequences in the Genscan data-sets

Fasta files containing the protein versions of the Genscan predicted gene-sets were downloaded from ftp.ncbi.nlm.nih.gov/genomes/ (*H. sapiens*, *C. elegans*, *D. melanogaster*, *S. pombe*, *S. cerevisiae*, *P. falciparum*) ftp.ensembl.org/pub/ (*M. musculus*, *T. rubripes*, *D. rerio*, *C. intestinalis*, *A. gambiae*). These predicted protein sets were searched against the HMM-models using HMMsearch from HMMER 2.2 with a cut of at E=10. All hits with an E-value below 0.01 were considered correct and all hits with E-values between 0.01 and 10 were manually inspected to verify that they are true GPCRs using BLASTP searches against the NCBI GenPept dataset. Protein sequences from the list of Fasta tags that were to be manually checked, were extracted using the fastacmd program from the NCBI BLAST-suite. For each predicted protein, the top five hits were manually inspected and a minimum of four of these had to be a GPCR for inclusion in the particular dataset, all other predicted proteins were excluded from further analysis. The

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

criteria used for the rhodopsin family were presence of conserved amino acids, identified from pair wise alignments with the closest known human GPCR, such as for example the NPxxY motif at the end of TM7, the DRY motif at the end of TM3 the conserved N early in TM1. For the other families, which have less established recognisable motifs, we used multiple alignments of the protein(s) of interest together with a selection of the human family members that allowed for identification of conserved residues and motifs

4. Collection of datasets for each species

Lists containing the ID numbers from all significant hits from each species were extracted from the HMMER output files and imported into Microsoft Excel. Here, all predicted proteins that hit more than one model were manually inspected and the hit with the lowest E-value was kept in the dataset. Further, lists containing the "true" GPCR dataset were collected in Microsoft Excel and statistics were calculated. All calculations and graph plotting were performed in Microsoft Excel. The sequence names and the classification of the receptors can be found in supplementary data Table 2. The sequences in Fasta format are available as supplementary file 1.

5. Subdivision of the Rhodopsin GPCRs

A dataset consisting of 614 human *Rhodopsin* GPCRs were divided into 13 groups according to (Fredriksson et al., 2003) and subsequently used to subdivide the *Rhodopsin* GPCRs found in the HMM-searches. The human GPCRs were divided as follows with the group name in bold and the number of receptors in parenthesis: Olfactory receptors, **OLF** (347); Serotonin/Dopamine/Adrenergic/Trace amines, **AMIN** (42); Neuropeptide/Peptide, **PEP** (35); Chemokine like, **CHEM** (42); Purine like, **PUR** (42); Somatostatin/Opioid/Galanin **SOG** (15); Opsin like, **OPN** (9); Glycoprotein binding, **LGR** (8); Prostaglandin, **PTGER** (15);

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Melanocortin/EDG/Adenosin/Cannabinoid, **MECA** (22); MRG receptors, **MRG** (8); melatonin, **MTN** (3); melanocyte concentrating hormone receptor, **MCHR** (2). A table listing the accession numbers, names and exact grouping is provided in supplementary data, Table 1. A BLAST database was constructed from the 614 human GPCRs and the *Rhodopsin* GPCRs from the other species were searched against this database. A cut-off value of E=1e-9 was used and the five top hits were manually inspected for each receptor, to elucidate which human GPCR from the database it was most similar to. The requirement for being placed in a given group was to have at least four of the five best hits from that specific group. The receptors that did not match these criteria were grouped as unclassified (**UC**). The sequence names and the classification of the receptors into subgroups can be found in supplementary data Table 3. The sequences in FASTA format are available as supplementary file 1.

6. Expression levels by EST-matches.

The entire gbest was downloaded from ftp://ftp.ncbi.nlm.nih.gov/genebank and entered into an SQL-database using custom made software. From this database FASTA-files containing all high-quality ESTs from each species were extracted, one file per species. The NCBI-BLAST package was used to construct a searchable database for each specie, and all Genscan GPCRs found in a given specie was searched against its EST-database using TBLASTX with a cut-off at E=-40. The blast results were automatically extracted and converted into tables. Since it is likely that a given EST will be hit by several GPCRs, all hits, but the one with the highest E-value, were removed from the tables using custom made software to obtain a non-redundant list. The results were extracted and converted into tables readable by Microsoft EXCEL using custom made

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

software. Data were analyzed and graphs were plotted using Microsoft EXCEL. The software used can be made available from the authors upon request as C++ source code and bash scripts.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Results

Our strategy was to create Hidden Markov Models (HMMs) based on well characterized groups of GPCRs from our phylogenetic classification of the entire set of GPCRs in the human genome (Fredriksson et al., 2003). These main families are *Adhesion* (ADH), *Secretin* (SEC), *Frizzled* (FZD), *Glutamate* (GLR) and *Rhodopsin* (RHOD). Moreover, we also created HMMs of groups of GPCRs that we did not find in the human genome, such as the cAMP binding receptors from slime molds (Dictyostelium), nematode chemoreceptors (Robertson, 1998), the gustatory receptors from insects (Hill et al., 2002) the odorant receptors from drosophila (Hill et al., 2002) MLO receptors in plants (Devoto et al., 2003) and STE2 (Marsh and Herskowitz, 1998) and STE3 (Hagen et al., 1986) from yeast. Some of these families lack significant sequence homology with the mammalian GPCRs. There are also some atypical GPCRs with uncertain relation to other GPCRs, like the ocular albinism gene (OA1) (Shen et al., 2001) and the Vomeronasal receptors found in vertebrates (Lane et al., 2002). A summary of the receptors used to construct the HMMs can be seen in Table 1. Tables with the accession numbers and which HMM model the different GPCRs belong to, are available as supplementary data Table 1.

These HMMs were subsequently used to extract and classify GPCRs from the 13 species, including the human Genscan dataset in order to evaluate the quality of the Genscan datasets regarding GPCRs. During our pilot studies, we found that the HMMs for the *Adhesion* and the *Secretin* families did not easily distinguish between the receptors that hit these models in some species, in particular in fish. We therefore decided to merge them and subsequently separated these based upon the presence of a GPS domain in the N-terminus close to TM1. The GPS domain is found in almost all *Adhesion* GPCRs while it is not found in any *Secretin* GPCR in the

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

human and mouse genomes (Harmar 2001, Bjarnadottir et al., 2003). The overall results of the HMM searches are displayed in Table 2 and a detailed description of the results is available as supplementary table 2a-l. All hits with an E-value better (lower) than 0.01 were in principal considered to be correct although, the 10 “worst” of these hits were manually controlled using BLASTP searches against the protein database at NCBI and only few errors were found. The hits between 0.01 and 10 were however all manually controlled using BLASTP, and the results of these can be seen in supplementary data Table 4. From this Table, it is evident that the number of positives found for this E-value range was highly dependent on the HMM model. The specificity of the HMMs at high E-values can be seen in supplementary Table 4.

The *Rhodopsin* GPCRs were further subdivided into 13 classes as defined in the Materials and Methods section and as summarized in Table 3. This comparison used BLASTP against a database of all human GPCRs. The results of this subdivision of the *Rhodopsin* family can be seen in Table 4. A detailed description of the results is available as supplementary Table 3a-h.

Our results for the human genome are in good agreement with what we, and others, have published earlier. These earlier published numbers for the human genome are shown in brackets in Table 2 and Table 4. The numbers of GPCRs in the different genomes are also displayed graphically in Figure 1. All previously published numbers are from (Fredriksson et al., 2003) with the exception of olfactory receptors which are from Zozulya et al (Zozulya et al., 2001), the Vomeronasal which are from Kouros-Mehr et al (Kouros-Mehr et al., 2001) and the taste receptors type 2 (TAS2) which are from our own unpublished studies. The main discrepancies are in the olfactory and the vomeronasal groups. This is likely to be related to the number of

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

pseudogenes in the Genscan predictions. It is fairly well established that there are a number of olfactory (Zozulya et al., 2001) and vomeronasal pseudogenes in the Genscan set. The vomeronasal receptors in humans have been shown to be non-functional pseudogenes (Kouros-Mehr et al., 2001). It is also not clear how many functional olfactory receptors there are in the human genome. We also noticed that a number of the human olfactory receptors were longer than 400 bases and when these were investigated further, they were found to correspond to two or three olfactory receptors. These are likely to be erroneously predicted by Genscan due to the small intergenic distance for these genes. If these proteins are counted separately, the number of olfactory receptors increases from 494 to 545. Also in the group of TAS2, we find fewer proteins than have been reported in Genbank. BLAST searches with all known TAS2 receptors against the entire Genscan dataset showed that many of these proteins are not present in the Genscan dataset. This is likely to reflect the inability of Genscan to predict these proteins, since the sequence of these genes is present in the human genome assembly (data not shown). Considering these exceptions, the overall results indicate that the numbers of GPCRs that we identified are in good agreement with previous data.

The results for the mouse genome are similar to that of the human genome with only few exceptions. It is well known that there are much fewer olfactory receptors in the human genome as compared with the mouse genome. This has been studied in a recent paper (Young et al., 2002) but we emphasize that it is still large uncertainties regarding the exact numbers in each genome. It is noteworthy that these receptors lie in large blocks on the chromosomes which cause problems with the assembly of the genomes as such, since many of these receptors are very similar and it is in many cases difficult to distinguish between what is polymorphism and what is truly a unique gene during the assembly of the shotgun data. We also know that we underestimate

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

the number of TAS2 receptors in mouse, most likely for the same reasons as discussed for the human genome. The GLR HMM picks up a considerably higher number of predicted proteins in the mouse genome than the human. This is not related to a large expansion of classical glutamate receptors (mGluRs) as these are found in similar numbers in mouse and human. This is rather related to pheromone receptors that are not found in the human genome. They show similarity to TAS1 receptors (three copies in humans) and have expanded in mouse resulting in at least 80 receptors that are fairly similar but found on at least 11 chromosomal segments (unpublished data). Also for the mouse, the number of olfactory receptors is underestimated due to multiple proteins joined together by Genscan and the number of olfactory receptors is increased from 789 to 827 when these are considered. In a recent paper, the number of GPCRs for endogenous ligands in mouse was determined to be 392 (Vassilatis et al., 2003), which is in agreement with the dataset presented here, which is 391 *Rhodopsin* GPCRs excluding the olfactory receptors.

The fish species have not previously been analysed with regards to the GPCR repertoire except that it has been estimated from the genome sequencing projects that there are in total about 457 *Rhodopsin* GPCRs in fugu (Aparicio et al., 2003). This is significantly higher (twice the number) of what we find in the current Genscan dataset. The GPCRs described by Aparicio et al (Aparicio et al., 2003) was found in a set of 27 779 predicted proteins while the Genscan dataset used in our study has 29 625 proteins. The reason for the large difference in number of GPCRs could be due to differences in the "gene-building pipeline" used by the fugu genome sequencing group and the Genscan program. We know however that the number of GPCRs in the Genscan dataset is similar to the published (manually verified) numbers for mouse and human and we find it likely that the Genscan sets we used are providing good estimate of the GPCR numbers also in fugu. It is notable that zebrafish has two to three fold as many GPCRs in the main families as fugu. When

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

compared to mammals, the zebrafish has up to twice the number of receptors while fugu has about half the number. The *Frizzled* family is an exception, as it has approximately the same numbers in all mammals and fish. Among the subgroups of *Rhodopsin* GPCRs the picture is similar with zebrafish having about two to three fold more GPCRs than fugu, while the mammalian numbers are in between these. An exception to this is the olfactory receptors, which have a very small number in both fish species, and the MRG receptors that seem to be missing in fish. We have performed detailed separate searches in the fish genomes with the human MRG receptors as baits using TBLSTX and PSI-BLAST without finding any MRG-like sequence in fish (data not shown).

The ciona genome has likewise not been investigated with regards to GPCRs. The main groups, which are all present in ciona, contain three to four fold fewer receptors than the mammalian counterparts, again with the exception of the *Frizzled* family, which has similar numbers in ciona and the vertebrate genomes. Within the *Rhodopsin* family there seems to be several subgroups missing. It is notable that the ciona does not seem to have any receptors that match the olfactory receptors in vertebrates, but also melanocyte concentrating hormone (MCH) and purine (PUR) receptors seem to be absent. It is notable that ciona has fewer members in the GLR group and this is partly explained by the fact that there seems to be no TAS1 genes in ciona (unpublished data).

The two insect species have the same five main families of GPCRs as mammals, fish and ciona. The main difference is that these species also have a large number of gustatory receptors (GUST) and odorant (DMOD) receptors, as previously reported (Hill et al., 2002) and several of the *Rhodopsin* subgroups are missing. Like for ciona, the insects seem to be lacking OLF, MCH and PUR receptors but also chemokine (CHEM) and prostaglandin (PTGER) binding receptors. In a

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

previous analysis, it was described that *A. gambiae* has 276 GPCRs and *D. melanogaster* has 270 (Hill et al., 2002) which fits with the numbers presented here, 260 and 210, respectively. The difference in the number of receptors found in *D. melanogaster* is related to that we find 40 fewer gustatory GPCRs as compared with what was reported by Hill and collegues (Hill et al., 2002). In another paper, it was found that *D. melanogaster* has in total 211 GPCRs (Adams et al., 2000).

The pattern of GPCRs in *C. elegans* shows that the five main families of GPCRs, ADH, SEC, FZD, GLR and RHOD are present, as they are in mammals, ciona, insects and fish. They do have one additional group, namely the nematode chemosensory (NCHM) receptors. These do not show any significant similarities to the olfactory receptors found in vertebrates but also not to the gustatory or the DMOD found in the arthropods. It is notably that these groups are absent in *C. elegans*. It has previously been reported that *C. elegans* has over 800 GPCRs of the chemosensory type, of which 550 seems to be functional (Robertson, 1998). In our searches, we find about 1000 GPCRs of this type. It should be noted that some of the receptors belonging to chemosensory GPCRs can also be detected by the RHOD HMM as well. These were removed from the RHOD dataset manually using BLASTP against a database of known nematode chemosensory receptors and the entire human *Rhodopsin* dataset. Most of the subgroups of the *Rhodopsin* family are absent or only represented by one member. Only the AMIN, PEP and SOG groups have several members in *C. elegans*.

All the GPCR hits from species that do not belong to bilateria, i.e. plants, yeast and *P. falciparum* were individually investigated by additional manual inspection, to verify their identity as GPCRs and also to assure as accurate classification as possible. In this process 7 putative GPCRs from *S. pombe*, originally identified at low scores in the HMM-searches, were removed since BLASTP

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

searches against the nr database at NCBI indicated that these proteins most likely are membrane transporters. That left only two GPCRs, which are the well-known pheromone GPCRs STE2 and STE3. One putative GPCR from *S. cerevisiae*, tentatively placed in the ADH group, were found to correspond to a protein previously shown to be able to bind G-proteins in a yeast two hybrid system (Yun et al., 1997). This protein does seem to have very low, if any, similarity to the regular 7TM receptors. It consists of a 930 amino acid long open reading frame and seems to have between 12 and 14 hydrophobic segments in a Kyle Doolitle hydrophobicity plot (data not shown). We left this protein in the dataset, but will not discuss it further in relation to 7TM GPCRs. Apart from this GPCR, we only identify the two STE2 and STE3 GPCRs from *S. cervisa.* No GPCRs were found in the malaria parasite *P. falciparum.* In plants, we found GPCRs of the MLO-family (Devoto et al., 2003) but also one GPCR that matched the ADH/SEC model in *A. thaliana*. This GPCR was previously reported (Josefsson and Rask 1997) but its relationship to vertebrate GPCRs has not been clearly elucidated in terms of the overall classification of GPCRs.

To more clearly visualize the results, we display the distribution of GPCRs in percentages between the different subfamilies of GPCRs in Fig. 1 (top panel of each diagram). The figure shows that certain families like *Frizzled* receptors have approximately the same percentages of the total number of GPCRs in all species while others, like *Rhodopsin* GPCRs in mammals and *Glutamate* in mouse, has expanded in some lineages. The figure also shows the same kind of analysis of the different groups of the *Rhodopsin* family (lower panel of each diagram). The database of GPCR-predictions can be obtained from the authors upon request.

The *Rhodopsin* family can be divided into four groups with in total 13 main branches, or clusters, termed α, β, γ and δ. The largest of the four main groups (α) contains the large AMIN cluster that

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

includes many receptors that bind monoamines such as adrenalin, serotonin, dopamine and histamine. The amine cluster (Fig. 1) is highly represented ranging from 18 to 57 members in bilateral species with the exception of zebrafish whose trace amine receptors have undergone large expansion (unpublished data). The other branches in the α-group, such as and the MECA branch, that includes peptide and lipid binding receptors, and the opsin branch are also found in all bilateria, albeit not in as high numbers as the receptors in the amine branch. The prostaglandin receptors also belong to the α-group but these were only found in vertebrates, suggesting that these arose later in the evolution than the other branches of the α-group. The β-group contains many peptide receptors and several of these are receptors for neuropeptides such as NPFF, NPY, orexin, neurotensin, and TRH. This group contains only one branch, and it is found in fairly similar numbers in all the bilateria species. This may indicate that the ancestors of the receptors that bind peptides, which regulate many "higher" functions, did not arise later than for example the amine receptors, whose ligands are considerably less complex than the peptide ligands of the β-group. There are three branches within the γ-group. Only one of those is found in all bilateria species. This is the SOG branch that contains receptors that bind several peptides such as opioids, RF-peptides, neuropeptide W (GPR7 and 8) and somatostatins. This provides further evidence for high representation of receptors that possibly bind complex neuropeptides among pre-vertebrates. Indeed there are examples of GPCRs in pre-vertebrates that bind, albeit with low affinity, peptides of mammalian origin, for example the NPY-binding receptor in drosophila (Li et al., 1992). This “NPY-receptor” is found in our PEP group as expected. It is very difficult to track the origin of most mammalian peptides that bind GPCRs in pre-vertebrates due to fact that their conserved motifs are very short and not well preserved in the primary structure. This analysis shows however that it is indeed possible to track the ancestors to the mammalian GPCR that bind

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

peptides. The other branches in the γ-group appear for the "first time" in *C. elegans,* while the MCH receptors are only found in vertebrates. This may suggest that the SOG branch includes the ancestors to the entire receptor repertoire in this group. The δ-group has four main branches but only one of them, the LRG, are found in all bilateria species investigated. This group in mammals includes the LH and FSH receptors that have, unlike most other *Rhodopsin* GPCRs, long N-termini in addition to the 7TM regions. Indeed many of the GPCRs that we predict to be the ancestral genes in the invertebrates species, do have long N-terminal stretches that show similarities to the mammalian counterparts, even though they do not show recognizable "domains" in for example RPS-BLAST (data not shown). The other branches in this group were only found in vertebrates and it is particularly interesting that the purine and the olfactory receptor branches appears for the "first time" in fish, while the MRG group are only found in mammals. In order to further verify the nature of the sequences classified as purine and olfactory GPCRs from fish, we calculated phylogenetic trees using the neighbour-joining method. All the sequences classified as purine receptors from fugu were aligned together with the entire delta-group of human rhodopsin GPCRs for this calculation. This tree shows that all the purine sequences from fugu place inside the purine cluster and it is also clear that most of the fugu sequences have a clear ortholog in the human genome. We took a similar approach for the olfactory receptors and combined all the fugu and zebrafish sequences classified as olfactory with 20 randomly selected human olfactory sequences and the entire human delta-group and calculated a phylogenetic tree. This tree shows that all the olfactory receptors from fugu place on the same main branch as the human olfactory receptors, although the fugu receptors seem to form clusters of their own, distinct from the human receptors. This phylogenetic analysis strongly supports the conclusion that both olfactory and purine GPCRs are present in teleost fish. These

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

trees are available from the authors upon request. Taken together it seems evident that the ancestors of many of the peptide and amine receptors that are found in mammals have a long evolutionary history involving multiple members. It does not appear that the gene repertoire for these has taken any drastic changes during the evolution of bilateria, rather it seems that the numbers have undergone gradually increase in "higher" species.

EST data

In order to investigate the level of expression for the different classes of GPCRs, we used the Genscan GPCRs from each species to search against an internal BLAST-database containing all ESTs from that particular species. These EST data are collected from hundreds of cDNA projects and the tissue sampling is highly different between species. We do thus not discuss the tissue origin of the ESTs in any detail but rather focus on the number of ESTs for certain families, as displayed in Fig. 2 and 3. The large numerical range of the results makes it difficult to display these data. In Fig. 2, we show the percentage of GPCRs in the Genscan dataset. This percentage is multiplied by a constant (10000) and the logarithm of that number is plotted as a striped bar. The non-striped bar represents the percentage of GPCRs in the EST dataset, again multiplied by 10000 and converted to logarithms. This means that when the striped bar is higher than the non-striped bar, the number of GPCRs found in the EST dataset is lower than expected as compared with the number of predicted GPCR genes found in the Genscan set. As this is the case for most of the GPCRs in all species investigated, this indicates that GPCRs are generally expressed in low numbers, which is a known fact for many well-studied proteins of this family. Here, we can see that this is a general feature for most groups of GPCRs in most lineages. There are few exceptions to this, as *Rhodopsin* GPCRs in insects seems to be relatively highly expressed. In order to see the relationship of the expression level of GPCRs between the different families, we

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

plotted the number of ESTs containing GPCRs from each family as a fraction of the total number of GPCR-ESTs, as can be seen in Fig. 3. This analysis shows that the majority of the GPCR-ESTs are from the *Rhodopsin* family with two exceptions, the chemosensory receptors in *C. elegans,* which constitutes almost 75% of all GPCR-ESTs in this species and the vomeronasal (VR) receptors in humans. It was a surprise to us to see that there is such a high expression of VR in humans since these are considered pseudogenes as their mRNA does not contain a full-length open reading frame. It is in particular notable that the expression is much higher in humans as compared with mouse, which has VR receptors that are clearly functional. Further investigation showed that these ESTs originates from 186 different libraries and are found in numerous tissues (data not shown).

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Discussion

This analysis highlights the tremendous success of GPCRs through evolution of "higher" species. It is evident that all major GPCR families in the human genome, according to our previously published GRAFS system, the *Glutamate*, *Rhodopsin*, *Adhesion*, *Frizzled* and *Secretin*, arose prior the split of nematodes from the chordate lineage. Moreover, the majority of the GPCRs in each of the vertebrate species belong to these five families. The overall similarity of GPCR-repertoire between the lineage leading to arthropods and chordates are also remarkable, not only for the main families but also for several of the subgroups within the large *Rhodopsin* family. There are only few of the groups that are clearly lineage specific in bilateral species. These are the chemosensory receptors in the nematodes that are not found in any other species and represent about 87% percent of the GPCRs in *C. elegans*. The gustatory receptors are only found in the two species of insects where they represent about 20% and 28% of the repertoire in the fruitfly and mosquito, respectively. There are only two families, the VR and the TAS2 genes that have arisen after the split of ciona from the lineage leading to vertebrates. Both these groups are found in fish. No new *families* of GPCRs seem to have arisen during the last 450 million years in the vertebrate linage.

The *Rhodopsin* family has had the largest evolutionary success, representing about 60% of the entire GPCR repertoire in the bilateria species. The *Rhodopsin* family can be divided in four main groups (α-, β- γ- and δ) with 13 main branches (Fredriksson et al., 2003). Members within each of the four main groups are clearly found in all eight bilateria species, while the representation of each of the main branches is more variable. The four other main families are also found in all the

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

bilateria species. The *Frizzled* receptors are found in fairly constant numbers ranging from 5-14 members. The *Frizzled* receptors control cell fate, proliferation, and polarity that are basic functions within metazoan development (Gho and Schweisguth, 1998) and that could contribute to the evolutionary pressure that keeps their numbers relatively constant. The *Adhesion* GPCRs were discovered rather recently and comparatively little is known about their functional role. The long N-termini of these receptors are likely to interact with other membrane bound proteins, perhaps enabling cell-to-cell communications without soluble ligands (Kwakkenbos et al., 2004). The results show that these receptors arose early, having multiple members in nematodes and they have at least 5 members in each of the bilateral species. It seems thus likely that GPCRs evolved the ability of this type of N-terminal based cell-to-cell interactions long before the presence of vertebrates. The *Secretin* GPCRs have hormone-binding domains in their N-termini that interact with rather large peptides. These peptides act in most cases in a paracrine manner while the *Glutamate* GPCRs, which also have a ligand-binding domain in the long N-termini, interacts with small molecules such as the neurotransmitter glutamate, GABA, Ca^{2+} ions and taste molecules. Our preliminary analyses of the GPCRs in pre-vertebrate species, indicates that the characteristic "ligand" domain within the N-termini of these four main groups of GPCRs are indeed present in all of these families, at least in some of these proteins (unpublished data). This suggests that not only the 7TM domains but also the specific functional domains within all these groups of GPCRs appeared in pre-vertebrates and that their principle functions have been maintained.

There are several groups of GPCRs that have undergone seemingly rapid expansions that are species specific. These include the olfactory receptor group (in the *Rhodopsin* family) in human and mouse, the chemosensory receptors in C. elegans, the gustatory receptors in insects and the

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

pheromone receptor group in mouse (in the *Glutamate* family). These groups share little inter-relationships, considering their amino acid identity or functional motifs. They do however share some general structural features such as absence of any functional domains beyond the 7TM regions (according to for example RPS-BlAST searches), they have short N-termini, and they do not show clear motifs within their groups in the TM regions that can easily earmark them (data not shown). Another common feature for these groups of GPCRs that seem to have very "dynamic" gene repertoire is that they bind small ligands such as odor, taste and chemosensory molecules. Moreover, it is interesting to note that these ligands chemically belong to groups with many structurally similar members within the organism. It is possible that the number of interaction points and the structural constraints of the ligand binding pocket of the receptors for these small molecules are fewer than for receptors that bind large ligands. Therefore, constraints on the 3D structure of these receptors that binds a variety of small ligands is likely to be relatively low. A duplicated/mutated copy of such relatively "promiscuous" receptors in an environment of multiple ligands that play an important physiological role may affect the ability of these genes to survive after duplication events. It is possible that this could be the reason for the unusual evolution of these groups of GPCRs.

There is only minor sequence homology between the GPCRs in plants and fungi and those in the bilateria. There is obviously a very large evolutionary difference between those species as it is estimated that they diverged more than 1000 million year ago. It is however very interesting that there is a sequence in *A. thaliana* that shows resemblance to the ADH/SEC model. This sequence in *A. thaliana* does not have a long N-terminal and is therefore missing all the domains that are specific for the *Adhesion* receptors in mammals (Bjarnadottir et al., 2004). It is tempting to speculate that this is the only sequence that links the GPCR repertoire in bilateria with more

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

evolutionary distant species, thus providing evidence for common ancestor of all eukaryotic GPCRs.

Our analysis of the expression pattern using the growing EST databases shows that the relative number or percentage of EST sequences is lower than the percentage of gene predictions, with the exception of the *Rhodopsin* GPCRs in insects. This indicates that GPCRs are in general expressed at low levels, at least when considering the mRNA. Remarkably, despite the high diversity within the GPCR gene family this phenomenon of relative low expression level is found for all families in all the species with only a few exceptions. The representation of GPCRs in the EST database correlates fairly well with the relative number of predicted GPCRs, i.e. the larger the number of predicted proteins, the higher is the number of ESTs in the database. Another important observation from these data is that the expression level of most of the main families of GPCRs seems to be conserved between the species, even though they are separated by more than 500 million years. One could speculate that the subdivision of the functional roles between the main families of GPCRs have been similar through the evolution, even if the number of GPCRs in the different families have changed several fold. This notion correlates well to the conservation of functional domains within the five main families that we mentioned earlier.

The EST pattern for human and mouse was fairly similar except for the VR genes that had over 1800 hits in the human EST database. The high copy number of human VR ESTs is quite remarkable considering the fact that the human VR genes are thought to be pseudogenes (Kouros-Mehr et al., 2001). These VR ESTs are found in 186 different libraries and are found in large variety of tissues. It seems that these genes have been pseudogenized rather recently and that the promotor has not yet mutated to become non-functional. The relative high expression of

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

the VR pseudogenes in humans as compared with the VR expression in mouse can possibly be related to lack of negative feedback from a functional VR protein that subsequently down regulates the expression. There are also some examples that the expression of certain genes or entire groups seems to be very low or non-existing. It was for example highly surprising that ESTs for the gustatory and odorant receptors from the mosquito seem to be completely missing in the databases. Since the total number of ESTs is approximately the same in the two species, this could indicate a much lower expression of gustatory and odorant receptors in the mosquito. It was also surprising that the TAS2 receptors in both mammals did only match very few ESTs. This could be due to the fact that these receptors have a very restricted expression pattern and that these "specific" tissues or cells are not represented in the EST databases.

In summary, this analysis provides extensive overview of the expansion of the repertoire of GPCRs in many important genomes. The analysis covers a larger number of genes than has previously been simultaneously analysed in evolutionary perspective for GPCRs and perhaps any protein family. The databases we generated will provide tremendously valuable source for further detailed analysis, assembly and annotation of individual GPCR genes.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Acknowledgments

We thank Christian A. Murray, Uppsala University for assistance with handling the EST data. We thank Thóra K. Bjarnadóttir and David E. Gloriam, both Uppsala University, for providing insight into their preliminary results regarding detailed analysis, assembly and annotation of several subgroups of GPCRs.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

REFERENCES

Adams, M.D., Celniker, S.E., Holt, R.A., Evans, C.A., Gocayne, J.D., Amanatides, P.G., Scherer, S.E., Li, P.W., Hoskins, R.A., Galle, R.F., et al (2000) The genome sequence of Drosophila melanogaster. *Science*. **287(5461)**:2185-2195.

Aparicio, S., Chapman, J., Stupka, E., Putnam, N., Chia, J.M., Dehal, P., Christoffels, A., Rash, S., Hoon, S., Smit, A., Gelpke, M.D., et al. (2002) Whole-genome shotgun assembly and analysis of the genome of Fugu rubripes. *Science*. **23;297(5585):**1301-1310

Bjarnadottir, T.K., Fredrisson, R., Hoglund, P.J., Gloriam, D., Lagerström, M.C., Schiöth, H.B. (2004) Identification of G-protein coupled receptors in mouse belonging to adhesion family; expression pattern, phylogeny and domains. *(In press Genomics)*

Bockaert, J. and Pin, J..P., (1999) Molecular tinkering of G protein-coupled receptors: an evolutionary success. *EMBO J*. **18**:1723-1729.

Burge, C., and Karlin, S. (1997) Prediction of complete gene structures in human genomic *DNA. J Mol Biol*. **268**:78-94.

Dehal, P., Satou, Y., Campbell, R.K., Chapman, J., Degnan, B., De Tomaso, A., Davidson, B., Di Gregorio, A., Gelpke, M., Goodstein, D.M., et al. (2002) The draft genome of Ciona intestinalis: insights into chordate and vertebrate origins. *Science*. **13;298(5601)**:2157-2167.

Devoto, A., Hartmann, H.A., Piffanelli, P., Elliott, C., Simmons, C., Taramino, G., Goh, C.S., Cohen, F.E., Emerson, B.C., Schulze-Lefert, P., Panstruga, R. (2003) Molecular phylogeny and evolution of the plant-specific seven-transmembrane MLO family. *J Mol Evol.* **56(1)**:77-88

Eddy, S.R.. (1998) Profile hidden Markov models. *Bioinformatics*.;**14(9)**:755-763.

Fredriksson, R., Lagerström M.C. Höglund P.J. and Schiöth, H.B. (2002) Novel human G protein-coupled receptors with long N-terminals containing GPS domains and Ser/Thr-rich regions *FEBS Letters*, **531**:407-414.

Fredriksson, R., Lagerström M.C., Lundin L.G., Schiöth, H.B. (2003a) The G-protein-coupled receptors in the human genome form five main families. Phylogenetic analysis, paralogon groups, and fingerprints. *Mol. Pharmacol*., **63**:1256-1272

Fredriksson, R., Hoglund, P.J., Gloriam, D.E., Lagerstrom, M.C., Schioth, H.B. (2003b) Seven evolutionarily conserved human rhodopsin G protein-coupled receptors lacking close relatives. *FEBS Lett*. **20;554(3)**:381-388.

Fredriksson, R., Gloriam, D.E. Höglund, P.J. Lagerström, M.C., Schiöth, H.B. (2003c) Novel human G protein-coupled receptors with long N-terminals containing GPS domains and Ser/Thr-rich regions. *Biochem. Biophys. Res. Commun*. **301**:725-734.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Gho, M., Schweisguth, F. (1998) Frizzled signalling controls orientation of asymmetric sense organ precursor cell divisions in Drosophila. *Nature.***14;393(6681)**:178-181.

Hedges, B.S. and Kumar, S. (2003) Genomic clocks and evolutionary timescales. *TRENDS in genetics* **19:4**:200-206

Hagen, D.C., McCaffrey, G., Sprague, G.F. Jr., (1986) Evidence the yeast STE3 gene encodes a receptor for the peptide pheromone a factor: gene sequence and implications for the structure of the presumed receptor. *Proc Natl Acad Sci U S A.* **83(5)**:1418-1422.

Harmar, A.J. (2001) Family-B G-protein-coupled receptors. *Genome Biol*.,**2(12)**

Hill, C.A., Fox, A.N., Pitts, R.J., Kent, L.B., Tan, P.L., Chrystal, M.A., Cravchik, A., Collins, F.H., Robertson, H.M., Zwiebel, L.J. (2002) G protein-coupled receptors in Anopheles gambiae. *Science*. **4;298(5591):**176-178.

Holt, R.A., Subramanian, G.M., Halpern, A., Sutton, G.G., Charlab, R., Nusskern, D.R., Wincker, P., Clark, A.G., Ribeiro, J.M., Wides, R., Weissenbach, J. et al., (2002) The genome sequence of the malaria mosquito Anopheles gambiae. *Science.* **4;298(5591):**129-149.

International Human Genome Sequencing Consortium. (2004) Finishing the euchromatic sequence of the human genome. *Nature,* **21;431(7011)**: 931-45.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Joost, P., Methner, A. (2002) Phylogenetic analysis of 277 human G-protein-coupled receptors as a tool for the prediction of orphan receptor ligands. *Genome Biol*. **17;3** (11).

Josefsson, L.G., Rask, L. (1997) Cloning of a putative G-protein-coupled receptor from Arabidopsis thaliana. *Eur J Biochem.* **15;249(2)**:415-420.

Josefsson, L.G., Evidence for kinship between diverse G-protein coupled receptors. (1999) *Gene*. **1;239(2)**:333-340.

Kolakowski LF Jr. (1994) GCRDb: a G-protein-coupled receptor database. *Receptors Chanels*, **2(1)**:1-7

Kouros-Mehr, H., Pintchovski, S., Melnyk, J., Chen, Y.J., Friedman, C., Trask, B., Shizuya, H. (2001) Identification of non-functional human VNO receptor genes provides evidence for vestigiality of the human VNO. *Chem Senses*. **26(9)**:1167-1174.

Kwakkenbos, M.J., Kop, E.N., Stacey, M., Matmati, M., Gordon ,S., Lin, H.H., Hamann, J. (2004) The EGF-TM7 family: a postgenomic view. *Immunogenetics*., **55(10)**:655-666.

Lane, R.P., Cutforth, T., Axel, R., Hood, L., Trask, B.J. (2002) Sequence analysis of mouse vomeronasal receptor gene clusters reveals common promoter motifs and a history of recent expansion. *Proc Natl Acad Sci U S A.* **8;99(1)**:291-6.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Li, X.J., Wu, Y.N., North, R.A., Forte, M. (1992) Cloning, functional expression, and developmental regulation of a neuropeptide Y receptor from Drosophila melanogaster. *J Biol Chem.* Jan **5;267(1):**9-12.

Marsh, L., Herskowitz, I,. (1988) STE2 protein of Saccharomyces kluyveri is a member of the rhodopsin/beta-adrenergic receptor family and is responsible for recognition of the peptide ligand alpha factor. *Proc Natl Acad Sci U S A*. **85(11)**:3855-3859.

Okada, T., Palczewski, K. (2001) Crystal structure of rhodopsin: implications for vision and beyond. *Curr Opin Struct Biol*. **11(4)**:420-426.

Robertson HM. (1998) Two large families of chemoreceptor genes in the nematodes Caenorhabditis elegans and Caenorhabditis briggsae reveal extensive gene duplication, diversification, movement, and intron loss. *Genome Res*.**May;8(5):**449-63.

Shen, B., Samaraweera, P., Rosenberg, B., Orlow, S.J. (2001) Ocular albinism type 1: more than meets the eye. *Pigment Cell Res*. **14(4)**:243-248.

Springer, M.S., Murphy, W.J., Eizirik, E., O'Brien, S.J.. (2003) Placental mammal diversification and the Cretaceous-Tertiary boundary. *Proc Natl Acad Sci U S A*. **4;100(3)**:1056-1061

The Arabidopsis Initiative, Analysis of the genome sequence of the flowering plant Arabidopsis thaliana. (2000) *Nature*. **14;408(6814)**:796-815.

The C. elegans Sequencing Consortium. Genome sequence of the nematode C. elegans: a platform for investigating biology. (1998) *Science*. **11;282(5396)**:2012-2018.

Thompson, J.D., Higgins, D.G., and Gibson, T.J. (1994) CLUSTAL W: improving the sensitivity of progressive multiple sequence alignment through sequence weighting, position-specific gap penalties and weight matrix choice. *Nucleic Acids Res*. **11;22(22)**:4673-4680.

Vassilatis, D.K., Hohmann, J.G., Zeng, H., Li. F., Ranchalis, J.E., Mortrud, M.T., Brown, A., Rodriguez, S.S., Weller, J.R., Wright, A.C., Bergmann, J.E., Gaitanaris, G.A. (2003) The G protein-coupled receptor repertoires of human and mouse. *Proc Natl Acad Sci U S A*.**15;100(8)**:4903-8.

Young, J.M., Friedman, C., Williams, E.M., Ross, J.A., Tonnes-Priddy, L., Trask, B.J. (2002) Different evolutionary processes shaped the mouse and human olfactory receptor gene families. *Hum Mol Genet*. **1;11(5)**:535-546

Yun, C.W., Tamaki, H., Nakayama, R., Yamamoto, K., Kumagai, H. (1997) G-protein coupled receptor from yeast Saccharomyces cerevisiae. *Biochem Biophys Res Commun.* **17;240(2)**:287-292.

Zozulya, S., Echeverri, F., Nguyen, T. (2001) The human olfactory receptor repertoire. *Genome Biol*.;**2(6)**

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Footnotes

The studies were supported by the Swedish Research Council (VR, medicine), the Swedish Society for Medical Research (SSMF), Svenska Läkaresällskapet, Åke Wikberg Foundation, The Novo Nordisk Foundation, Thurings Foundation, and Magnus Bergwall Foundation.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Legends for figures

Fig 1.

Evolutionary tree with the number of GPCRs in different species indicated in graphs. The graph displays the logarithm of the number of GPCRs at the Y-axis, with the main class above the X-axis and the subdivision of *Rhodopsin* GPCRs below the X-axis (striped). The numbers at the nodes indicates the time in million years since the split at that node occurred, based on fossil data according to Hedges and Kumar 2003, *Dehal et al., 2002, **Springer et al., 2003.

Fig 2.

Bar graphs representing the relative number of Genscan proteins containing GPCRs (striped) and the relative number of ESTs containing GPCRs (non-striped) in the seven genomes where significant amount of EST-data is available. The number of GPCRs was calculated as the percentage of GPCRs in the respective dataset, EST or Genscan dataset, multiplied by 10000 (to obtain a number greater than 1) and then we used the natural logarithm of that number to display the relative number of GPCRs. In all cases but two, the striped graph is higher than the non-striped graph, i.e. the relative number of GPCRs in the Genscan dataset is higher than the relative number of GPCRs in the EST dataset. This would indicate that GPCRs are frequenlty expressed in low numbers.

Fig 3.

Circle graphs representing the absolute number of ESTs containing GPCRs in the seven genomes where significant amount of EST-data is available. One circle represents the total number of GPCRs in that genome (100%) and the different classes are fractions of that total.

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001

Table 1. Description of the dataset used to build the Hidden Markov Models (HMMs) used for mining and classification into the 15 main families of GPCRs in the genomes investigated. The source of the dataset is indicated in parenthesis.

Model Name	Number of GPCRs	Description
ADHSEC	46	13 human secretin like GPCRs (Fredriksson et al., 2003) 33 Adhesion like GPCRs (Fredriksson et al., 2002; Fredriksson et al., 2003b; Fredriksson et al., 2003c)
CAMP	4	cAMP binding GPCRs from *Dictyostelium* (source: http://www.gpcr.org/7tm/)
DMODOR	39	Drosophila odorant receptors (source: http://www.gpcr.org/7tm/)
FZD	11	Human Frizzled 1-10 and Smoothened (Fredriksson et al., 2003)
GUST	72	Gustatory receptors from *Anopheles Gambiae* (Hill et al., 2002)
GLR	18	8 mGluRs, 3 Taste receptors type 1, 2 GABA receptors, CASR, 4 Orphan GPCRs (Fredriksson et al., 2003)
MLO	16	Plant GPCRs of the MLO type (Devoto et al., 2003)
NCHM	34	Nematode chemokine receptors (source: http://www.gpcr.org/7tm/)
OA1	2	Ocular albinism genes from mouse and human (Fredriksson et al., 2003)
RHOD	260	Human *Rhodopsin* receptors(Fredriksson et al., 2003)
STE2	4	Yeast pheromone receptors of the STE2 type (source: http://www.gpcr.org/7tm/)
STE3	4	Yeast pheromone receptors of the STE2 type (source: http://www.gpcr.org/7tm/)
TAS2	13	Human taste receptors, type 2 (Fredriksson et al., 2003)
VR	42	Vomeronasal receptors from mouse and rat (source: http://www.gpcr.org/7tm/)

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Table 2. The number of GPCRs in the different main classes in the genomes investigated. --- indicates that no GPCRs of this class was found. The last row indicates the percent of total predicted genes.

	H.sapiens	*M.musculus*	*D.reiro*	*T.rubripes*	*C.intestinalis*	*D.melanogaster*	*A.gambiae*	*C.elegans*	*A.thaliana*	*O.sativa*	*S.cerevisiae*	*S.pombe*
ADH	27(31)	13	22	6	48	5	13	5	---	---	1	---
CAMP	---	---	---	---	---	---	---	---	---	---	---	1
DMODOR	---	---	---	---	---	58	85	---	---	---	---	---
FZD	10 (11)	11	14	10	7	7	7	5	---	---	---	1
GLR	24 (18)	112	52	26	8	9	8	6	---	---	---	2
MLO	---	---	---	---	---	---	---	---	5	1	---	2
NCHM	---	---	---	---	---	---	---	1006	---	---	---	---
OA1	1 (1)	1	---	1	---	---	1	---	---	---	---	---
RHOD	752 (614)	1106	591	224	139	76	77	124	---	---	---	1
SEC	20(15)	28	55	18	6	13	1	5	1	---	---	---
STE2	---	---	---	---	---	---	---	---	---	---	1	1
STE3	---	---	---	---	---	---	---	---	---	---	1	1
TAS2	13 (25)	3	2	---	---	---	---	---	---	---	---	---
VR	18 (25)	44	1	1	---	---	---	---	---	---	---	---
GUST	---	---	---	---	---	42	76	---	---	---	---	---
Total	865	1318	737	286	208	210	268	1149	6	1	3	9
% of total	1.60	1.19	1.23	0.97	1.31	1.47	1.66	5.69	0.09	0.04	0.05	0.18

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Table 3. Description of the human dataset used for sub classification of *Rhodopsin* GPCRs. The classification is based on (Fredriksson et al., 2003) except for OLF, which are from (Zozulya et al., 2001).

Model Name	Number of GPCRs	Description
AMIN (α-group)	42	Bioamine GPCRs binding 5-HT, Dopamine, Histamine, Trace amines, Adrenalin and Acetylcholine
MEC (α-group)	22	Receptors for phospholipids (EDG), melanocortin, cannabinoids and somatostatin receptors together with 3 orphan GPCRs
MTN (α-group)	3	Melatonin and orphan receptor GPR50
OPN (α-group)	9	Opsin/putative opsin receptors and orphan receptors GPR21 and GPR52
PTGR (α-group)	15	Prostaglandin receptors and orphan receptors SREB 1-3, GPR26, GPR61, GPR62 and GPR78
PEP (β-group)	35	Receptors for NPY, Tachykinins, Neurotensin, orexin, neuromedin, NPFF, PrRP, GnRH, CCK etc.
CHEM (γ-group)	42	Bradykinin receptors and receptors/putative receptors for chemokines
MCHR (γ-group)	2	Receptors for melanocyte concentrating hormone
SOG (γ-group)	15	Somatostatin, Opsin and Galanin receptors
LGR (δ-group)	8	Orphan LGR receptors and receptors for Relaxin, FSH, TSH and LH
MRG (δ-group)	8	MRG and MAS receptors
OLF (δ-group)	347	Olfactory receptors according to (Zozulya et al., 2001).
PUR (δ-group)	42	Purin/putative purin receptors, formyl-peptide receptors, retinoic acid receptors and orphan gPCRs

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Table 4. Subdivision of *Rhodopsin* GPCRs. The classification is according to Fredriksson et al. 2003. The numbers in parenthesis in the human column shows the number of GPCRs from each group as published in Fredriksson et al. 2003.

	H.sapiens	*M.musculus*	*D.reiro*	*T.rubripes*	*C.intestinalis*	*C.elegans*	*D.melanogaster*	*A.gambiae*
AMIN (α-group)	44(42)	57	122	28	23	20	21	18
MEC (α-group)	18(22)	23	35	11	17	1	1	2
MTN (α-group)	3(3)	2	6	3	3	-	2	2
OPN (α-group)	11(9)	6	31	21	3	1	8	12
PTGER (α-group)	13(15)	11	22	13	2	-	-	-
PEP (β-group)	43(35)	43	67	32	16	31	21	29
CHEM (γ-group)	43(42)	51	77	23	7	-	-	-
MCHR (γ-group)	1(2)	1	4	-	-	-	-	-
SOG (γ-group)	10(15)	15	34	9	18	10	5	3
LGR (δ-group)	7(8)	8	8	3	36	1	4	3
MRG (δ-group)	7(8)	22	-	-	-	-	-	-
OLF (δ-group)	494(347)	789	31	20	-	-	-	-
PUR (δ-group)	35(42)	49	80	26	-	-	-	-
Unclassified (UC)	20(17)	32	74	35	26	60	17	8
Total	749(607)	1109	591	224	151	124	79	77

Molecular Pharmacology Fast Forward. Published on February 1, 2005 as DOI: 10.1124/mol.104.009001
This article has not been copyedited and formatted. The final version may differ from this version.

Supplementary Table 1. Accession numbers of the sequences belonging to each HMM. (Hill et al., 2002) indicates that these sequences are available from Hill et al 2002 (Hill et al., 2002), supporting table S1. NA indicates that this information is not available.

Supplementary Table 2a-l. Results from the HMM-searches in the different genomes. Each species is placed in a separate sub-table, with receptors from each family placed in separate columns. The contents of the tables are as follows: Supplementary Table 2a, *H. sapiens*; Supplementary Table 2b, *M. musculus*; Supplementary Table 2c, *D. rerio*; Supplementary Table 2d, *T. rubripes*; Supplementary Table 2e, *C. intestinalis*; Supplementary Table 2f, *D. melanogaster*; Supplementary Table 2g, *A. gambiae*; Supplementary Table 2h, *C. elegans*; Supplementary Table 2i, *S. cerevisiae*; Supplementary Table 2j, *S. pombe*; Supplementary Table 2k, *A. thaliana*; Supplementary Table 2l, *O. sativa*. The sequence names match the names in the FASTA file in supplementary file 1.

Supplementary Table 3a-h. Results from the subdivision of the *Rhodopsin* family. Each species is placed in a separate sub-table, with receptors from each sub-group placed in separate columns. The contents of the tables are as follows: Supplementary Table 3a, *H. sapiens*; Supplementary Table 3b, *M. musculus*; Supplementary Table 3c, *D. rerio*; Supplementary Table 3d, *T. rubripes*; Supplementary Table 3e, *C. intestinalis*; Supplementary Table 3f, *D. melanogaster*; Supplementary Table 3g, *A. gambiae*; Supplementary Table 3h, *C. elegans*; The sequence names match the names in the FASTA file in supplementary file 1.

Figure 1

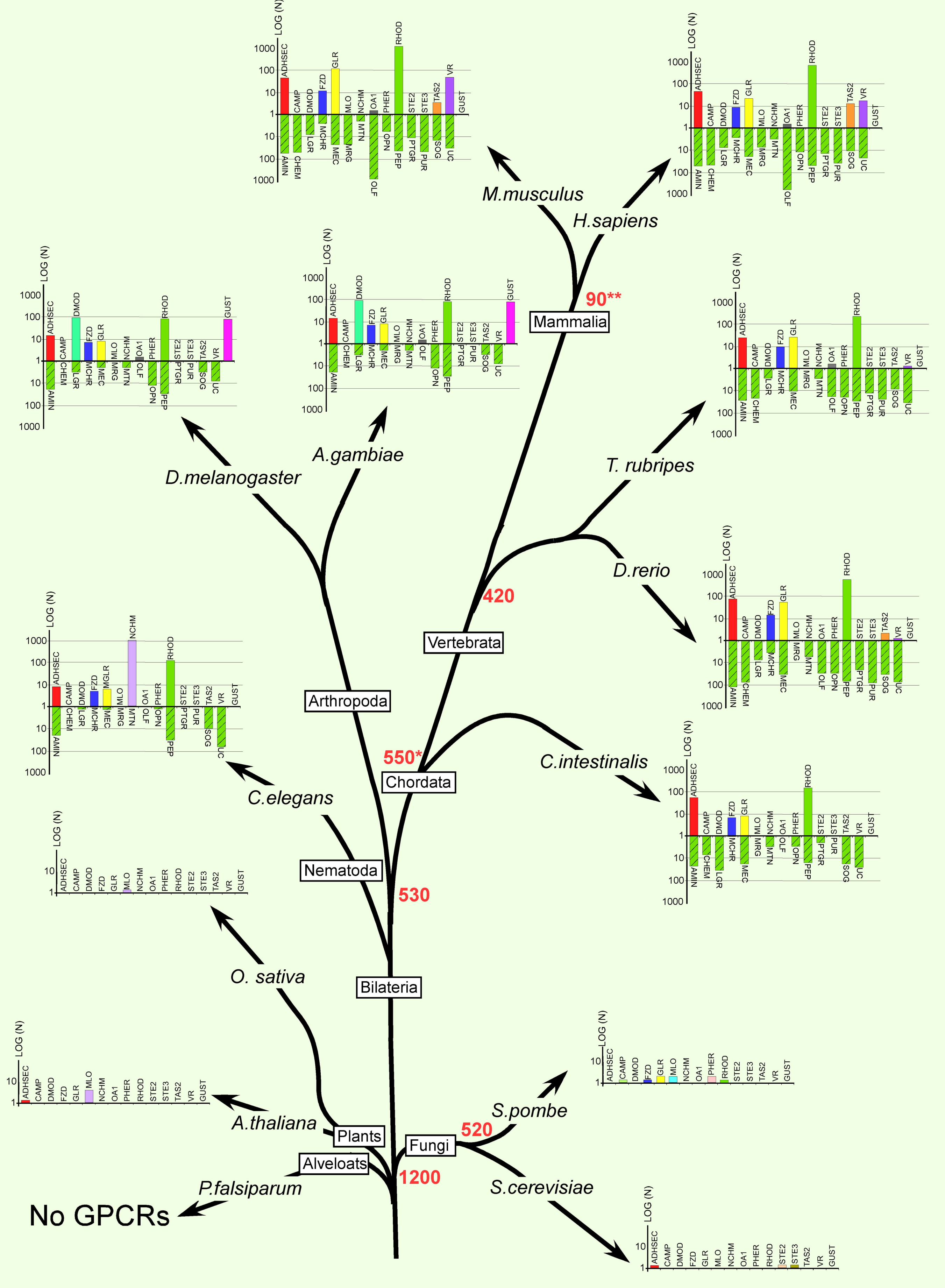

M.musculus
H.sapiens
90**
Mammalia
D.melanogaster
A.gambiae
T. rubripes
D.rerio
420
Vertebrata
Arthropoda
550*
Chordata
C.intestinalis
C.elegans
Nematoda
530
O. sativa
Bilateria
A.thaliana
Plants
Fungi
520
S.pombe
Alveloats
1200
P.falsiparum
S.cerevisiae
No GPCRs

Figure 2

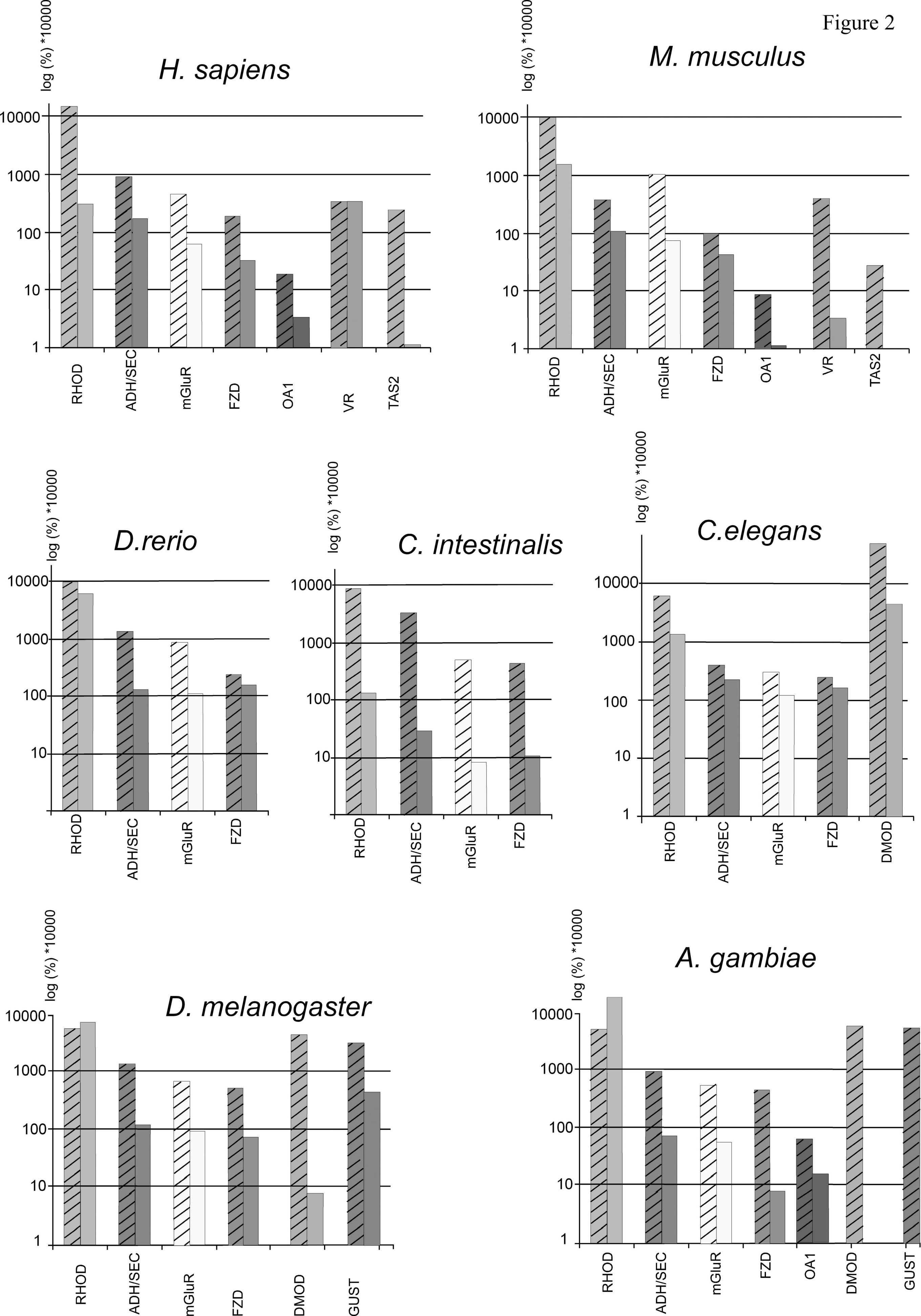
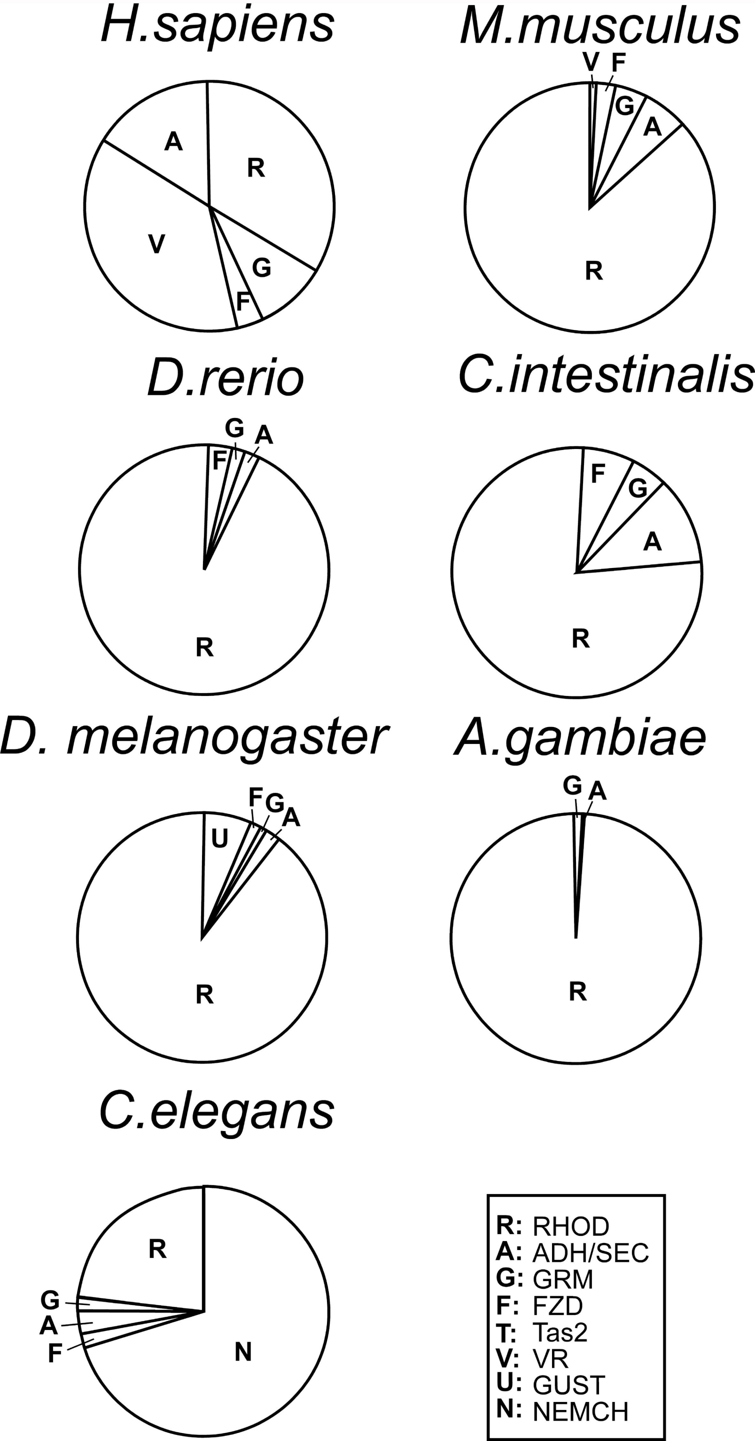

H. sapiens
M. musculus
D.rerio
C. intestinalis
C.elegans
D. melanogaster
A. gambiae
log (%) *10000
10000
1000
100
10
1
RHOD
ADH/SEC
mGluR
FZD
OA1
VR
TAS2
DMOD
GUST

Figure 3



H.sapiens
A
R
V
G
F
M.musculus
V
F
G
A
R
D.rerio
G
A
F
R
C.intestinalis
F
G
A
R
D. melanogaster
F
G
A
U
R
A.gambiae
G
A
R
C.elegans
R
G
A
F
N
R: RHOD
A: ADH/SEC
G: GRM
F: FZD
T: Tas2
V: VR
U: GUST
N: NEMCH

NAME	Access code	Family HMM	Group
BAI1	NP_001693.1	ADH/SEC	AHD
BAI1	NP_001694.1	ADH/SEC	AHD
BAI2	NP_001695.1	ADH/SEC	AHD
CD97	NP_001775.1	ADH/SEC	AHD
CELSR1	NP_055061.1	ADH/SEC	AHD
CELSR2	NP_001399.1	ADH/SEC	AHD
CELSR3	NP_001398.1	ADH/SEC	AHD
EMR1	NP_001965.1	ADH/SEC	AHD
EMR2	NP_038475.1	ADH/SEC	AHD
EMR3	NP_115960.1	ADH/SEC	AHD
ETL	NP_071442.1	ADH/SEC	AHD
GPR110	AY140915	ADH/SEC	AHD
GPR111	AY140953	ADH/SEC	AHD
GPR112	AY140954	ADH/SEC	AHD
GPR113	AY140955	ADH/SEC	AHD
GPR114	AY140956	ADH/SEC	AHD
GPR115	AY140957	ADH/SEC	AHD
GPR116	AY140958	ADH/SEC	AHD
GPR56	NP_005673.1	ADH/SEC	AHD
GPR97	AY140956	ADH/SEC	AHD
HE6	NP_005747.1	ADH/SEC	AHD
LEC1	NP_036434.1	ADH/SEC	AHD
LEC2	NP_055736.1	ADH/SEC	AHD
LEC3	NP_056051.1	ADH/SEC	AHD
CALCR	NP_001733.1	ADH/SEC	SEC
CALCRL	NP_005786.1	ADH/SEC	SEC
CRHR1	NP_004373.1	ADH/SEC	SEC
CRHR2	NP_001874.1	ADH/SEC	SEC
GCGR	NP_000151.1	ADH/SEC	SEC
GHRHR	NP_000814.1	ADH/SEC	SEC
GIPR	NP_000155.1	ADH/SEC	SEC
GLP1R	NP_002053.1	ADH/SEC	SEC
GLP2R	NP_004237.1	ADH/SEC	SEC
PACAP	NP_001109.1	ADH/SEC	SEC
PTHR1	NP_000307.1	ADH/SEC	SEC
PTHR2	NP_005039.1	ADH/SEC	SEC
SCTR	NP_002971.1	ADH/SEC	SEC
VIPR1	NP_004615.1	ADH/SEC	SEC
VIPR2	NP_003373.1	ADH/SEC	SEC
ADRA1A	NP_000671.1	RHOD	AMIN
ADRA1B	NP_000670.1	RHOD	AMIN
ADRA1D	NP_000669.1	RHOD	AMIN
ADRA2A	NP_000672.1	RHOD	AMIN
ADRA2B	NP_000673.1	RHOD	AMIN
ADRA2C	NP_000674.1	RHOD	AMIN
ADRB1	NP_000675.1	RHOD	AMIN
ADRB2	NP_000015.1	RHOD	AMIN
ADRB3	NP_000016.1	RHOD	AMIN
CHRM1	NP_000729.1	RHOD	AMIN
CHRM2	NP_000730.1	RHOD	AMIN
CHRM3	NP_000732.1	RHOD	AMIN
CHRM4	NP_036257.1	RHOD	AMIN
CHRM5	NP_036257.1	RHOD	AMIN
DRD1	NP_000785.1	RHOD	AMIN
DRD2	NP_000786.1	RHOD	AMIN
DRD3	NP_000787.1	RHOD	AMIN
DRD4	NP_000788.1	RHOD	AMIN
DRD5	NP_000789.1	RHOD	AMIN
GPR57	NP_055441.1	RHOD	AMIN
GPR58	NP_005275.1	RHOD	AMIN
HRH2	NP_071640.1	RHOD	AMIN
HRH4	NP_067630.1	RHOD	AMIN
HTR1A	NP_000515.1	RHOD	AMIN
HTR1B	NP_000854.1	RHOD	AMIN
HTR1D	NP_008555.1	RHOD	AMIN
HTR1E	NP_000856.1	RHOD	AMIN
HTR1F	NP_000857.1	RHOD	AMIN
HTR2A	NP_000612.1	RHOD	AMIN
HTR2B	NP_000858.1	RHOD	AMIN
HTR2C	NP_000859.1	RHOD	AMIN
HTR4	NP_000861.1	RHOD	AMIN
HTR5	NP_076917.1	RHOD	AMIN

HTR7	NP_000863.1	RHOD	AMIN
TA1	AAK71236	RHOD	AMIN
TA3	AAK71240	RHOD	AMIN
TA4	AAK71243	RHOD	AMIN
TAR5	NP_444508.1	RHOD	AMIN
AVPR1A	NP_000697.1	RHOD	PEP
AVPR1B	NP_000698.1	RHOD	PEP
AVPR2	NP_000045.1	RHOD	PEP
BRS3	NP_001718.1	RHOD	PEP
CCKAR	NP_000721.1	RHOD	PEP
CCKBR	NP_000722.1	RHOD	PEP
EDNRA	NP_001948.1	RHOD	PEP
EDNRB	NP_000106.1	RHOD	PEP
ETBRLP1	NP_001498.1	RHOD	PEP
ETBRLP2	NP_004758.1	RHOD	PEP
Ghrelin	NP_001499.1	RHOD	PEP
GHSR	NP_004113.2	RHOD	PEP
GNRHR	NP_000397.1	RHOD	PEP
GNRHRII	AA02700	RHOD	PEP
GPR72	NP_057624.1	RHOD	PEP
GRPR	NP_005302.1	RHOD	PEP
HCRTR1	NP_001516.1	RHOD	PEP
HCRTR2	NP_001517.1	RHOD	PEP
NMBR	NP_002502.1	RHOD	PEP
NMU1R	NP_005276.1	RHOD	PEP
NMU2R	NP_064552.1	RHOD	PEP
NPFF1	NP_071429.1	RHOD	PEP
NPFF2	NP_004876.1	RHOD	PEP
NPY1R	NP_000900.1	RHOD	PEP
NPY2R	NP_000901.1	RHOD	PEP
NPY5R	NP_006165.1	RHOD	PEP
NTSR1	NP_002522.1	RHOD	PEP
NTSR2	NP_036476.1	RHOD	PEP
OXTR	NP_000907.1	RHOD	PEP
PPYR1	NP_005963.1	RHOD	PEP
PrRP	NP_004239.1	RHOD	PEP
TAC3RL	NP_006670.1	RHOD	PEP
TACR1	NP_001049.1	RHOD	PEP
TACR2	NP_001048.1	RHOD	PEP
TACR3	NP_001050.1	RHOD	PEP
ADMR	NP_009195.1	RHOD	CHEM
AGTR1	NP_000676.1	RHOD	CHEM
AGTR2	NP_000677.1	RHOD	CHEM
AGTRL1	NP_005152.1	RHOD	CHEM
BDKRB1	NP_000701.1	RHOD	CHEM
BDKRB2	NP_000614.1	RHOD	CHEM
BLTR	NP_000743.1	RHOD	CHEM
BLTR2	NP_062813.1	RHOD	CHEM
C5L2	NP_060955.1	RHOD	CHEM
C5R1	NP_001727.1	RHOD	CHEM
CCBP2	NP_001287.2	RHOD	CHEM
CCR1	NP_001286.1	RHOD	CHEM
CCR10	NP_057686.1	RHOD	CHEM
CCR11	NP_057641.1	RHOD	CHEM
CCR2	NP_000639.1	RHOD	CHEM
CCR3	NP_001828.1	RHOD	CHEM
CCR4	NP_005499.1	RHOD	CHEM
CCR5	NP_000570.1	RHOD	CHEM
CCR6	NP_004358.1	RHOD	CHEM
CCR7	NP_001829.1	RHOD	CHEM
CCR8	NP_005192.1	RHOD	CHEM
CCR9	NP_006632.2	RHOD	CHEM
CCRL2	NP_003956.1	RHOD	CHEM
CCXCR1	NP_005274.1	RHOD	CHEM
CMKLR1	NP_004063.1	RHOD	CHEM
CRTH2	NP_009158.1	RHOD	CHEM
CXC3R1	NP_001328.1	RHOD	CHEM
CXCR2	NP_001548.1	RHOD	CHEM
CXCR3	NP_001495.1	RHOD	CHEM
CXCR4	NP_003458.1	RHOD	CHEM
CXCR5	NP_001707.1	RHOD	CHEM
CXCR6	NP_006555.1	RHOD	CHEM
FPR1	NP_002020.1	RHOD	CHEM

FPRL1	NP_001453.1	RHOD	CHEM
FPRL2	NP_002021.1	RHOD	CHEM
GPR1	NP_005270.1	RHOD	CHEM
GPR15	NP_005281.1	RHOD	CHEM
GPR25	NP_005289.1	RHOD	CHEM
GPR32	NP_005291.1	RHOD	CHEM
RDC1	XP_051522.1	RHOD	CHEM
SALPR	NP_057652.1	RHOD	CHEM
VLGR1	XP_057299	RHOD	CHEM
XP066648	NA	RHOD	CHEM
FSHR	NP_000136.1	RHOD	LGR
LGR4	NP_003658.1	RHOD	LGR
LGR5	NP_004215.1	RHOD	LGR
LGR6	XP_046692.1	RHOD	LGR
LGR7	NP_067647.1	RHOD	LGR
LGR8	NP_570718.1	RHOD	LGR
LHCGR	NP_000224.1	RHOD	LGR
TSHR	NP_000360.1	RHOD	LGR
MCHR1	NP_005288.1	RHOD	MCHR
MCHR2	NP_115892.1	RHOD	MCHR
ADORA1	NP_000665.1	RHOD	MECA
ADORA2A	NP_000666.1	RHOD	MECA
ADORA2B	NP_000667.1	RHOD	MECA
ADORA3	NP_000668.1	RHOD	MECA
CNR1	NP_001831.1	RHOD	MECA
CNR2	NP_001832.1	RHOD	MECA
EDG1	NP_001391.1	RHOD	MECA
EDG2	NP_001392.1	RHOD	MECA
EDG3	NP_005217.1	RHOD	MECA
EDG4	NP_004711.1	RHOD	MECA
EDG5	NP_004221.1	RHOD	MECA
EDG6	NP_003766.1	RHOD	MECA
EDG7	NP_036284.1	RHOD	MECA
EDG8	NP_110387.1	RHOD	MECA
GPR12	NP_005279.1	RHOD	MECA
GPR3	NP_005272.1	RHOD	MECA
GPR50	NP_005675.1	RHOD	MECA
GPR6	NP_114142.1	RHOD	MECA
MC1R	NP_002377.1	RHOD	MECA
MC2R	NP_000520.1	RHOD	MECA
MC3R	NP_063941.1	RHOD	MECA
MC4R	NP_005903.1	RHOD	MECA
MC5R	NP_005904.1	RHOD	MECA
MTNR1A	NP_005949.1	RHOD	MECA
MTNR1B	NP_005950.1	RHOD	MECA
MAS	NP_002368.1	RHOD	MRG
MRG	NP_443199.1	RHOD	MRG
MRGD	XP_089955.1	RHOD	MRG
MRGX2	NP_473371.1	RHOD	MRG
MRGX3	NP_473372.1	RHOD	MRG
MRGX4	NP_473373.1	RHOD	MRG
GPR21	NP_005285.1	RHOD	OPSIN
GPR52	NP_115940.1	RHOD	OPSIN
OPN1LW	NP_064445.1	RHOD	OPSIN
OPN1MW	NP_000504.1	RHOD	OPSIN
OPN1SW	NP_001699.1	RHOD	OPSIN
OPN3	NP_055137.1	RHOD	OPSIN
OPN4	NP_150598.1	RHOD	OPSIN
RHO	NP_000530.1	RHOD	OPSIN
RRH	NP_006574.1	RHOD	OPSIN
GPR26	NT_008926.6	RHOD	PTGER
GPR61	NT_005975.6	RHOD	PTGER
GPR62	NP_110411.1	RHOD	PTGER
GPR78	NT_006307.5	RHOD	PTGER
PTGDR	XP_051711.1	RHOD	PTGER
PTGER1	NP_000946.1	RHOD	PTGER
PTGER2	NP_000947.1	RHOD	PTGER
PTGER3	NP_000948.1	RHOD	PTGER
PTGER4	NP_000949.1	RHOD	PTGER
PTGFR	NP_000950.1	RHOD	PTGER
PTGIR	NP_000951.1	RHOD	PTGER
SREB1	NP_061844.1	RHOD	PTGER
SREB2	NP_061843.1	RHOD	PTGER

SREB3	NP_061842.1	RHOD	PTGER
TBXA2R	NP_001051.1	RHOD	PTGER
C3AR	NP_004045.1	RHOD	PUR
CYSLT1	NP_006630.1	RHOD	PUR
CYSLT2	NP_065110.1	RHOD	PUR
EBI2	NP_004942.1	RHOD	PUR
F2R	NP_001983.1	RHOD	PUR
F2RL1	NP_005233.1	RHOD	PUR
F2RL2	NP_004092.1	RHOD	PUR
F2RL3	NP_003941.1	RHOD	PUR
FKSG77	NP_076403.1	RHOD	PUR
FKSG80	NP_115943.1	RHOD	PUR
G2A	NP_037477.1	RHOD	PUR
GPR101	NP_473362.1	RHOD	PUR
GPR103	NT_006337.5	RHOD	PUR
GPR105	NP_055694.1	RHOD	PUR
GPR17	NP_005282.1	RHOD	PUR
GPR18	NP_005283.1	RHOD	PUR
GPR35	NP_005293.1	RHOD	PUR
GPR4	NP_005294.1	RHOD	PUR
GPR55	NP_055442.1	RHOD	PUR
GPR65	NP_006047.1	RHOD	PUR
GPR80	XP_062888.1	RHOD	PUR
GPR84	NP_065103.1	RHOD	PUR
GPR88	NP_071332.1	RHOD	PUR
GPR92	NP_065133.1	RHOD	PUR
H963	NP_037440.1	RHOD	PUR
HGPCR19	BAB89314	RHOD	PUR
OGR1	NP_003476.1	RHOD	PUR
P2Y1	NP_002554.1	RHOD	PUR
P2Y10	NP_055314.1	RHOD	PUR
P2Y11	NP_002557.1	RHOD	PUR
P2Y12	NP_073625.1	RHOD	PUR
P2Y2	NP_002555.1	RHOD	PUR
P2Y3L	CAC87811	RHOD	PUR
P2Y5	NP_005758.1	RHOD	PUR
P2Y6	NP_004145.1	RHOD	PUR
P2Y9	NP_005287.1	RHOD	PUR
PTAFR	NP_000943.1	RHOD	PUR
RE2	NP_031395.1	RHOD	PUR
RGR	NP_002912.1	RHOD	PUR
GALR1	NP_001471.1	RHOD	SOG
GALR2	NP_003848.1	RHOD	SOG
GALR3	NP_003605.1	RHOD	SOG
GPR54	NP_005674.1	RHOD	SOG
GPR7	NP_057624.1	RHOD	SOG
GPR8	NP_005277.1	RHOD	SOG
OPRD1	NP_000902.1	RHOD	SOG
OPRK1	NP_000903.1	RHOD	SOG
OPRL1	NP_000904.1	RHOD	SOG
OPRM1	NP_000905.1	RHOD	SOG
SSTR1	NP_001040.1	RHOD	SOG
SSTR2	NP_001041.1	RHOD	SOG
SSTR3	NP_001042.1	RHOD	SOG
SSTR4	NP_001043.1	RHOD	SOG
SSTR5	NP_001044.1	RHOD	SOG
CCK2	NP_795344	RHOD	PEP
HRH1	NP_000852.1	RHOD	AMIN
GPR142	NP_861455	RHOD	PUR
CMKLR2	NP_001496.1	RHOD	CHEM
GPR82	NP_543007.1	RHOD	PUR
GPR91	NP_149039.1	RHOD	PUR
HM74	NP_006009.1	RHOD	PUR
HTR6	NP_000862.1	RHOD	PUR
P2Y4	NP_002556.1	RHOD	PUR
PNR	NP_003958.1	RHOD	PUR
TRHR	NP_003292.1	RHOD	LGR
GPR59	Not Yet Published	TAS2	NA
GPR60	Not Yet Published	TAS3	NA
TAS2R1	NP_062545	TAS4	NA
TAS2R10	NP_076410.1	TAS5	NA
TAS2R13	NP_076409	TAS6	NA
TAS2R14	NP_076411.1	TAS7	NA

TAS2R16	NP_58641.1	TAS8	NA
TAS2R3	NP_058639.1	TAS9	NA
TAS2R4	NP_058640.1	TAS10	NA
TAS2R5	NP_061853.1	TAS11	NA
TAS2R7	NP_076408.1	TAS12	NA
TAS2R8	NP_76407	TAS13	NA
TAS2R9	NP_076406.1	TAS14	NA
FZD1	NP_003496.1	FZD	NA
FZD10	NP_009128.1	FZD	NA
FZD2	NP_001457.1	FZD	NA
FZD3	NP_059108.1	FZD	NA
FZD4	NP_036325.1	FZD	NA
FZD5	NP_003459.1	FZD	NA
FZD6	NP_003497.1	FZD	NA
FZD7	NP_003498.1	FZD	NA
FZD8	NP_114072.1	FZD	NA
FZD9	NP_003459.1	FZD	NA
SMOH	NP_005622.1	FZD	NA
CASR	NP_000379.1	mGluR	NA
GABBR1	NP_001461.1	mGluR	NA
GABBR2	NP_005449.1	mGluR	NA
GPRC5B	AAH34467	mGluR	NA
GPRC5C	NP_071319	mGluR	NA
GPRC5D	NP_061124	mGluR	NA
GPRC6A	NP_683766.1	mGluR	NA
GRM1	NP_000829.1	mGluR	NA
GRM2	NP_000830.1	mGluR	NA
GRM3	NP_000831.1	mGluR	NA
GRM4	NP_000832.1	mGluR	NA
GRM5	NP_000833.1	mGluR	NA
GRM6	NP_000834.1	mGluR	NA
GRM7	NP_000835.1	mGluR	NA
GRM8	NP_000836.1	mGluR	NA
TAS1R1	NP_619642.1	mGluR	NA
TAS1R2	NP_689418.1	mGluR	NA
TAS1R3	XP_060177.1	mGluR	NA
DDCAR1_2	DDCAR1_2	cAMP	NA
S55234_2	S55234_2	cAMP	NA
S55235_2	S55235_2	cAMP	NA
AB045712_2	AB045712_2	cAMP	NA
AE003461_21	AE003461_21	DMODOR	NA
AE003586_53	AE003586_53	DMODOR	NA
AF127923_2	AF127923_2	DMODOR	NA
AE003586_55	AE003586_55	DMODOR	NA
AF127924_2	AF127924_2	DMODOR	NA
AE003584_38	AE003584_38	DMODOR	NA
AE003582_31	AE003582_31	DMODOR	NA
AF127925_2	AF127925_2	DMODOR	NA
AE003577_13	AE003577_13	DMODOR	NA
AE003623_61	AE003623_61	DMODOR	NA
AE003634_19	AE003634_19	DMODOR	NA
AE003634_21	AE003634_21	DMODOR	NA
AE003634_23	AE003634_23	DMODOR	NA
AE003842_73	AE003842_73	DMODOR	NA
AF127926_2	AF127926_2	DMODOR	NA
AE003839_49	AE003839_49	DMODOR	NA
AE003830_17	AE003830_17	DMODOR	NA
AE003830_19	AE003830_19	DMODOR	NA
AE003826_40	AE003826_40	DMODOR	NA
AF156880_2	AF156880_2	DMODOR	NA
AE003826_93	AE003826_93	DMODOR	NA
AE003822_54	AE003822_54	DMODOR	NA
AE003820_5	AE003820_5	DMODOR	NA
AE003794_7	AE003794_7	DMODOR	NA
AE003460_72	AE003460_72	DMODOR	NA
AE003551_19	AE003551_19	DMODOR	NA
AE003549_27	AE003549_27	DMODOR	NA
AE003600_5	AE003600_5	DMODOR	NA
AE003679_5	AE003679_5	DMODOR	NA
AE003679_7	AE003679_7	DMODOR	NA
AE003679_25	AE003679_25	DMODOR	NA
AF127922_2	AF127922_2	DMODOR	NA
AE003682_58	AE003682_58	DMODOR	NA

AE003703_17	AE003703_17	DMODOR	NA
AE003730_42	AE003730_42	DMODOR	NA
AE003500_117	AE003500_117	DMODOR	NA
DMC62D9_18	DMC62D9_18	DMODOR	NA
AE003423_102	AE003423_102	DMODOR	NA
DMC30B8_5	DMC30B8_5	DMODOR	NA
GPRgr1	Hill et.al 2002	GUST	NA
GPRgr2	Hill et.al 2002	GUST	NA
GPRgr3	Hill et.al 2002	GUST	NA
GPRgr4	Hill et.al 2002	GUST	NA
GPRgr5	Hill et.al 2002	GUST	NA
GPRgr6	Hill et.al 2002	GUST	NA
GPRgr7	Hill et.al 2002	GUST	NA
GPRgr8	Hill et.al 2002	GUST	NA
GPRgr9a	Hill et.al 2002	GUST	NA
GPRgr9b	Hill et.al 2002	GUST	NA
GPRgr9c	Hill et.al 2002	GUST	NA
GPRgr9d	Hill et.al 2002	GUST	NA
GPRgr9e	Hill et.al 2002	GUST	NA
GPRgr9f	Hill et.al 2002	GUST	NA
GPRgr9g	Hill et.al 2002	GUST	NA
GPRgr9h	Hill et.al 2002	GUST	NA
GPRgr9i	Hill et.al 2002	GUST	NA
GPRgr9j	Hill et.al 2002	GUST	NA
GPRgr9k	Hill et.al 2002	GUST	NA
GPRgr9l	Hill et.al 2002	GUST	NA
GPRgr9m	Hill et.al 2002	GUST	NA
GPRgr9n	Hill et.al 2002	GUST	NA
GPRgr10	Hill et.al 2002	GUST	NA
GPRgr11	Hill et.al 2002	GUST	NA
GPRgr12	Hill et.al 2002	GUST	NA
GPRgr13	Hill et.al 2002	GUST	NA
GPRgr14	Hill et.al 2002	GUST	NA
GPRgr15	Hill et.al 2002	GUST	NA
GPRgr16	Hill et.al 2002	GUST	NA
GPRgr17	Hill et.al 2002	GUST	NA
GPRgr18	Hill et.al 2002	GUST	NA
GPRgr19	Hill et.al 2002	GUST	NA
GPRgr20	Hill et.al 2002	GUST	NA
GPRgr21	Hill et.al 2002	GUST	NA
GPRgr22	Hill et.al 2002	GUST	NA
GPRgr23	Hill et.al 2002	GUST	NA
GPRgr24	Hill et.al 2002	GUST	NA
GPRgr25	Hill et.al 2002	GUST	NA
GPRgr26	Hill et.al 2002	GUST	NA
GPRgr27	Hill et.al 2002	GUST	NA
GPRgr28	Hill et.al 2002	GUST	NA
GPRgr29	Hill et.al 2002	GUST	NA
GPRgr30	Hill et.al 2002	GUST	NA
GPRgr31	Hill et.al 2002	GUST	NA
GPRgr32a	Hill et.al 2002	GUST	NA
GPRgr32b	Hill et.al 2002	GUST	NA
GPRgr33	Hill et.al 2002	GUST	NA
GPRgr34	Hill et.al 2002	GUST	NA
GPRgr35	Hill et.al 2002	GUST	NA
GPRgr36	Hill et.al 2002	GUST	NA
GPRgr37a	Hill et.al 2002	GUST	NA
GPRgr37b	Hill et.al 2002	GUST	NA
GPRgr37c	Hill et.al 2002	GUST	NA
GPRgr37d	Hill et.al 2002	GUST	NA
GPRgr37e	Hill et.al 2002	GUST	NA
GPRgr37f	Hill et.al 2002	GUST	NA
GPRgr38	Hill et.al 2002	GUST	NA
GPRgr39	Hill et.al 2002	GUST	NA
GPRgr40	Hill et.al 2002	GUST	NA
GPRgr41	Hill et.al 2002	GUST	NA
GPRgr42	Hill et.al 2002	GUST	NA
GPRgr43	Hill et.al 2002	GUST	NA
GPRgr44	Hill et.al 2002	GUST	NA
GPRgr45	Hill et.al 2002	GUST	NA
GPRgr46	Hill et.al 2002	GUST	NA
GPRgr47	Hill et.al 2002	GUST	NA
GPRgr48	Hill et.al 2002	GUST	NA

GPRgr49a	Hill et.al 2002	GUST	NA
GPRgr49b	Hill et.al 2002	GUST	NA
GPRgr50	Hill et.al 2002	GUST	NA
GPRgr51	Hill et.al 2002	GUST	NA
GPRgr52	Hill et.al 2002	GUST	NA
AC004697_63	AC004697_63	MLO	NA
AC004005_63	AC004005_63	MLO	NA
HVMLOH1_2	HVMLOH1_2	MLO	NA
OSMLOH1_2	OSMLOH1_2	MLO	NA
ATAC2330_36	ATAC2330_36	MLO	NA
ATCHRIV6_521	ATCHRIV6_521	MLO	NA
ATMLOH1_4	ATMLOH1_4	MLO	NA
AF369566_2	AF369566_2	MLO	NA
ATU78721_6	ATU78721_6	MLO	NA
HVCH4H_3	HVCH4H_3	MLO	NA
HVMLO_4	HVMLO_4	MLO	NA
AF369571_2	AF369571_2	MLO	NA
ATCHRIV61_117	ATCHRIV61_117	MLO	NA
ATT22A6_66	ATT22A6_66	MLO	NA
ATAC2329_49	ATAC2329_49	MLO	NA
ATU95973_28	ATU95973_28	MLO	NA
CEUC03G6_14	CEUC03G6_14	NemCh	NA
CEUC04E6_5	CEUC04E6_5	NemCh	NA
CEUC04E6_7	CEUC04E6_7	NemCh	NA
CEUF21F8_9	CEUF21F8_9	NemCh	NA
AF016432_6	AF016432_6	NemCh	NA
AF016432_7	AF016432_7	NemCh	NA
AF016432_9	AF016432_9	NemCh	NA
AF016449_7	AF016449_7	NemCh	NA
AF016676_8	AF016676_8	NemCh	NA
AF016685_6	AF016685_6	NemCh	NA
AF022980_7	AF022980_7	NemCh	NA
AF022980_8	AF022980_8	NemCh	NA
AF022980_9	AF022980_9	NemCh	NA
CEF44G3_2	CEF44G3_2	NemCh	NA
CEF49C5_11	CEF49C5_11	NemCh	NA
CEF57A10_3	CEF57A10_3	NemCh	NA
AF038623_9	AF038623_9	NemCh	NA
AF039037_5	AF039037_5	NemCh	NA
AF039046_9	AF039046_9	NemCh	NA
AF068710_6	AF068710_6	NemCh	NA
AF068713_3	AF068713_3	NemCh	NA
AF068720_3	AF068720_3	NemCh	NA
CEF07B10_3	CEF07B10_3	NemCh	NA
CEF28H7_8	CEF28H7_8	NemCh	NA
CEF40F9_9	CEF40F9_9	NemCh	NA
AC024750_7	AC024750_7	NemCh	NA
AC024750_6	AC024750_6	NemCh	NA
AC006769_5	AC006769_5	NemCh	NA
AF125958_2	AF125958_2	NemCh	NA
AF125961_3	AF125961_3	NemCh	NA
AF125962_2	AF125962_2	NemCh	NA
CEY102A5C_29	CEY102A5C_29	NemCh	NA
CEY68A4A_7	CEY68A4A_7	NemCh	NA
CEF33H1_5	CEF33H1_5	NemCh	NA
SVBAR1_2	SVBAR1_2	Pher	NA
SCU76688_2	SCU76688_2	Pher	NA
SCU74495_3	SCU74495_3	Pher	NA
SPMAMPR_2	SPMAMPR_2	Pher	NA
SPAC3F10_29	SPAC3F10_29	Pher	NA
SPMFACR_7	SPMFACR_7	Pher	NA
AB003086_2	AB003086_2	Pher	NA
CCY11080_2	CCY11080_2	Pher	NA
CCY11081_2	CCY11081_2	Pher	NA
CCY11082_2	CCY11082_2	Pher	NA
UHPRA1_2	UHPRA1_2	Pher	NA
UM37795_5	UM37795_5	Pher	NA
UMPRA1A_2	UMPRA1A_2	Pher	NA
UM37796_3	UM37796_3	Pher	NA
AF250141_3	AF250141_3	Pher	NA
AY007236_3	AY007236_3	Pher	NA
AF309805_6	AF309805_6	Pher	NA
AF259519_3	AF259519_3	Pher	NA

AF184070_3	AF184070_3	Pher	NA
AF186385_3	AF186385_3	Pher	NA
AF186384_3	AF186384_3	Pher	NA
AF186383_3	AF186383_3	Pher	NA
AF148501_2	AF148501_2	Pher	NA
SKRBARFA_2	gi|134963	STE2	NA
SCCHRVI_49	gi|24940484	STE2	NA
SCMSTE2A_2	gi|14318493	STE2	NA
SCSTE2_8	gi|134964	STE2	NA
SCPEKGA_21	gi|6322671	STE3	NA
SCSTE3_4	gi|24940496	STE3	NA
SCSTE3PA_7	gi|24940496	STE3	NA
SCYKL178C_1	gi|24940506	STE3	NA
RN36785_2	RN36785_2	VR	NA
RN36786_2	RN36786_2	VR	NA
RN36895_2	RN36895_2	VR	NA
RN36897_2	RN36897_2	VR	NA
RN36898_2	RN36898_2	VR	NA
RN36899_2	RN36899_2	VR	NA
AF291489_3	AF291489_3	VR	NA
AF291486_3	AF291486_3	VR	NA
AF291491_3	AF291491_3	VR	NA
AF291481_3	AF291481_3	VR	NA
AF291488_3	AF291488_3	VR	NA
AF324873_2	AF324873_2	VR	NA
AF324872_2	AF324872_2	VR	NA
AF324871_2	AF324871_2	VR	NA
AF324870_2	AF324870_2	VR	NA
AF324869_2	AF324869_2	VR	NA
AF324868_2	AF324868_2	VR	NA
AF324867_2	AF324867_2	VR	NA
AF324866_2	AF324866_2	VR	NA
AF291505_3	AF291505_3	VR	NA
AF291504_3	AF291504_3	VR	NA
AF291503_3	AF291503_3	VR	NA
AF291502_3	AF291502_3	VR	NA
AF291501_3	AF291501_3	VR	NA
AF291500_3	AF291500_3	VR	NA
AF291499_3	AF291499_3	VR	NA
AF291498_3	AF291498_3	VR	NA
AF291497_3	AF291497_3	VR	NA
AF291495_3	AF291495_3	VR	NA
AF291494_3	AF291494_3	VR	NA
AF291493_3	AF291493_3	VR	NA
AF291492_3	AF291492_3	VR	NA
AF291487_3	AF291487_3	VR	NA
AF291485_3	AF291485_3	VR	NA
AF291484_3	AF291484_3	VR	NA
AF291483_3	AF291483_3	VR	NA
AF291482_3	AF291482_3	VR	NA
AF255342_2	AF255342_2	VR	NA
AF291490_3	AF291490_3	VR	NA
MMU17567_2	MMU17567_2	VR	NA
MMPHEREC1_2	MMPHEREC1_2	VR	NA
MMPHEREC2_2	MMPHEREC2_2	VR	NA

Supplementary Table 2a

<table>
<tr><th>ADH</th><th>FZD</th><th>mGluR</th><th>RHOD</th><th>SEC</th><th>TAS2</th><th>VR</th></tr>
<tr><td>Hs19_11308_28_11_2</td><td>lcl|Hs7_17324_28_45_1</td><td>lcl|Hs3_6132_28_3_1</td><td>lcl|Hs7_23796_28_46_14</td><td>Hs3_5982_28_23_1</td><td>lcl|Hs7_23796_28_31_3</td><td>lcl|Hs19_11261_28_52_1</td></tr>
<tr><td>Hs1_4668_28_45_2</td><td>lcl|Hs17_10922_28_2_1</td><td>lcl|Hs5_6959_28_2_1</td><td>lcl|Hs7_23796_28_50_3</td><td>Hs3_30204_28_2_1</td><td>lcl|Hs3_6084_28_163_13</td><td>lcl|Hs19_11305_28_31_3</td></tr>
<tr><td>Hs19_11308_28_9_1</td><td>lcl|Hs2_5386_28_37_1</td><td>lcl|Hs7_17324_28_76_1</td><td>lcl|Hs11_9110_28_5_1</td><td>Hs7_7976_28_62_1</td><td>lcl|Hs7_23796_28_4_1</td><td>lcl|Hs16_24929_28_4_2</td></tr>
<tr><td>Hs3_6147_28_5_1</td><td>lcl|Hs12_9639_28_3_1</td><td>lcl|Hs11_9141_28_5_3</td><td>lcl|Hs9_29525_28_42_2</td><td>Hs6_7749_28_21_1</td><td>lcl|Hs12_9858_28_7_1</td><td>lcl|Hs3_6084_28_41_2</td></tr>
<tr><td>Hs22_11680_28_10_1</td><td>lcl|Hs7_8024_28_24_1</td><td>lcl|Hs3_22568_28_4_3</td><td>lcl|Hs6_7749_28_261_2</td><td>Hs17_10875_28_78_1</td><td>lcl|Hs7_23796_28_2_1</td><td>lcl|Hs21_29649_28_6_3</td></tr>
<tr><td>Hs1_4640_28_14_1</td><td>lcl|Hs8_8145_28_21_1</td><td>lcl|Hs6_19585_28_41_5</td><td>lcl|Hs11_9482_28_5_2</td><td>Hs7_28392_28_2_5</td><td>lcl|Hs7_23796_28_41_5</td><td>lcl|Hs7_30256_28_7_7</td></tr>
<tr><td>HsX_11876_28_18_4</td><td>lcl|Hs11_30361_28_165_1</td><td>lcl|Hs6_7749_28_478_2</td><td>lcl|Hs11_30361_28_106_1</td><td>Hs7_7976_28_64_1</td><td>lcl|Hs7_23796_28_31_1</td><td>lcl|Hs19_11305_28_29_2</td></tr>
<tr><td>Hs2_30849_28_3_1</td><td>lcl|Hs10_8740_28_13_1</td><td>lcl|Hs6_7749_28_281_1</td><td>lcl|Hs14_19739_28_112_14</td><td>Hs17_10990_28_27_1</td><td>lcl|Hs7_23796_28_7_1</td><td>lcl|Hs16_24935_28_18_2</td></tr>
<tr><td>Hs19_11302_28_17_1</td><td>lcl|Hs7_7816_28_27_1</td><td>lcl|Hs7_8090_28_26_1</td><td>lcl|Hs1_30125_28_1_21</td><td>Hs7_7976_28_70_1</td><td>lcl|Hs2_30169_28_2_1</td><td>lcl|Hs19_11305_28_31_2</td></tr>
<tr><td>Hs19_11302_28_16_4</td><td>lcl|Hs8_8135_28_8_1</td><td>lcl|Hs3_6084_28_128_9</td><td>lcl|Hs9_8627_28_15_9</td><td>Hs19_11347_28_212_1</td><td>lcl|Hs12_9858_28_36_1</td><td>lcl|Hs3_30200_28_1_2</td></tr>
<tr><td>Hs19_25311_28_1_1</td><td></td><td>lcl|Hs6_7391_28_26_9</td><td>lcl|Hs4_6326_28_10_1</td><td>Hs2_5269_28_14_1</td><td>lcl|Hs3_6084_28_163_12</td><td>lcl|Hs19_11305_28_33_2</td></tr>
<tr><td>Hs19_25311_28_3_1</td><td></td><td>lcl|Hs17_10829_28_13_1</td><td>lcl|Hs9_8578_28_24_5</td><td>Hs1_30115_28_32_1</td><td>lcl|Hs12_9858_28_21_1</td><td>lcl|Hs3_6084_28_41_1</td></tr>
<tr><td>Hs12_9639_28_9_11</td><td></td><td>lcl|Hs16_10741_28_19_1</td><td>lcl|Hs1_4640_28_6_1</td><td>Hs2_22317_28_5_3</td><td>lcl|Hs12_9858_28_42_2</td><td>lcl|Hs19_11407_28_31_4</td></tr>
<tr><td>Hs6_7559_28_29_2</td><td></td><td>lcl|Hs9_8633_28_10_4</td><td>lcl|Hs11_9453_28_8_1</td><td>Hs1_4640_28_18_3</td><td></td><td>lcl|Hs1_30125_28_1_17</td></tr>
<tr><td>Hs7_17324_28_22_1</td><td></td><td>lcl|Hs12_24566_28_14_1</td><td>lcl|Hs14_19739_28_112_8</td><td>Hs6_7315_28_22_1</td><td></td><td>lcl|Hs22_11676_28_10_13</td></tr>
<tr><td>Hs6_7559_28_29_4</td><td></td><td>lcl|Hs1_28213_28_21_1</td><td>lcl|Hs11_9453_28_48_12</td><td>Hs6_7559_28_36_2</td><td></td><td>lcl|Hs2_30169_28_2_1</td></tr>
<tr><td>Hs18_25149_28_3_5</td><td></td><td>lcl|Hs3_30192_28_3_3</td><td>lcl|Hs6_7749_28_537_2</td><td>Hs6_7559_28_36_1</td><td></td><td>lcl|Hs18_28543_28_1_2</td></tr>
<tr><td>Hs16_10563_28_28_1</td><td></td><td>lcl|Hs1_25791_28_24_1</td><td>lcl|Hs11_29576_28_1_1</td><td>Hs16_10563_28_29_3</td><td></td><td>lcl|Hs1_30125_28_1_20</td></tr>
<tr><td>Hs16_10563_28_27_2</td><td></td><td>lcl|Hs12_24566_28_12_1</td><td>lcl|Hs14_19739_28_62_4</td><td>Hs2_5344_28_16_1</td><td></td><td></td></tr>
<tr><td>Hs9_29525_28_24_1</td><td></td><td>lcl|Hs19_11261_28_31_3</td><td>lcl|Hs7_23796_28_46_6</td><td>Hs4_30208_28_1_2</td><td></td><td></td></tr>
<tr><td>Hs8_26516_28_5_1</td><td></td><td>lcl|Hs19_11376_28_7_3</td><td>lcl|Hs9_8627_28_15_6</td><td>Hs3_6020_28_23_2</td><td></td><td></td></tr>
<tr><td>Hs9_29518_28_10_1</td><td></td><td>lcl|Hs3_29416_28_1_1</td><td>lcl|Hs11_9453_28_48_14</td><td>Hs17_11002_28_14_4</td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Hs10_8766_28_51_8</td><td>lcl|Hs19_11447_28_3_1</td><td>Hs10_32035_28_1_3</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs9_8627_28_15_7</td><td>Hs4_23010_28_2_2</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs9_8595_28_27_4</td><td>Hs2_5344_28_16_3</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs7_31980_28_24_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs11_9372_28_32_11</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs1_4828_28_10_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs1_31898_28_1_7</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs14_19739_28_112_10</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_8</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs7_7976_28_43_6</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs19_25311_28_4_2</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs11_9482_28_5_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs14_26048_28_124_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs2_26406_28_8_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs11_9372_28_34_3</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs11_9372_28_32_3</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs1_31898_28_1_3</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs19_11458_28_2_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs9_29525_28_35_2</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_6</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs9_29525_28_42_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs11_9453_28_1_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs11_9453_28_7_21</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs11_9114_28_1_9</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs1_27103_28_22_1</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|Hs14_19739_28_68_1</td><td></td><td></td><td></td></tr>
</table>

lcl|Hs11_9453_28_7_15
lcl|Hs11_9372_28_32_8
lcl|Hs11_9372_28_32_9
lcl|Hs1_30125_28_1_9
lcl|HsX_11950_28_13_4
lcl|Hs1_5139_28_14_4
lcl|Hs7_23796_28_46_2
lcl|Hs1_31898_28_1_17
lcl|Hs11_9453_28_48_15
lcl|Hs11_9482_28_11_3
lcl|Hs11_9482_28_7_1
lcl|Hs1_31898_28_1_19
lcl|Hs6_7749_28_261_4
lcl|Hs17_10808_28_25_4
lcl|Hs11_9482_28_5_3
lcl|Hs14_19739_28_112_12
lcl|Hs14_19739_28_112_7
lcl|Hs1_30125_28_1_3
lcl|Hs1_30125_28_1_7
lcl|Hs1_30125_28_1_17
lcl|Hs9_8627_28_15_5
lcl|Hs11_30361_28_106_2
lcl|Hs6_31975_28_3_1
lcl|Hs13_10109_28_107_1
lcl|Hs14_19739_28_112_20
lcl|Hs12_9720_28_58_7
lcl|Hs5_7011_28_1_6
lcl|Hs17_30417_28_22_1
lcl|Hs14_19739_28_101_2
lcl|Hs6_7749_28_269_1
lcl|Hs1_30125_28_1_18
lcl|Hs14_19739_28_112_13
lcl|Hs14_19739_28_67_16
lcl|Hs11_9453_28_47_1
lcl|Hs1_5139_28_12_4
lcl|Hs1_30125_28_1_12
lcl|Hs11_9453_28_35_9
lcl|Hs1_30125_28_2_3
lcl|Hs19_11287_28_58_13
lcl|Hs13_9956_28_26_5
lcl|Hs1_31901_28_1_3
lcl|Hs11_9453_28_14_13
lcl|Hs12_9615_28_67_4
lcl|Hs9_29525_28_42_7
lcl|Hs6_7749_28_275_4
lcl|Hs6_29476_28_1_2
lcl|Hs15_10431_28_1_3
lcl|Hs19_11287_28_58_7
lcl|Hs11_9114_28_1_5
lcl|Hs11_24499_28_1_4

lcl|Hs14_19739_28_112_22
lcl|Hs11_9482_28_31_10
lcl|Hs14_19739_28_112_17
lcl|Hs14_19739_28_1_1
lcl|Hs9_8578_28_23_1
lcl|Hs9_29525_28_42_8
lcl|Hs1_30125_28_1_20
lcl|Hs19_25311_28_6_1
lcl|Hs7_23796_28_50_2
lcl|Hs7_23796_28_46_15
lcl|Hs6_7749_28_235_3
lcl|Hs9_8578_28_20_2
lcl|Hs1_31901_28_1_9
lcl|Hs19_11287_28_58_15
lcl|Hs10_24220_28_6_1
lcl|Hs1_31898_28_1_6
lcl|Hs1_5139_28_12_3
lcl|Hs1_4928_28_2_3
lcl|Hs11_9453_28_48_11
lcl|Hs1_31901_28_1_5
lcl|Hs11_9453_28_14_10
lcl|Hs11_9372_28_32_1
lcl|Hs1_30125_28_1_2
lcl|Hs19_25289_28_1_1
lcl|Hs19_25289_28_3_5
lcl|Hs16_15516_28_1_1
lcl|Hs11_9453_28_50_2
lcl|Hs1_31898_28_1_8
lcl|Hs11_9482_28_5_4
lcl|Hs11_24499_28_1_5
lcl|Hs1_31901_28_1_14
lcl|Hs11_9114_28_1_6
lcl|Hs5_31972_28_2_2
lcl|Hs11_9453_28_47_10
lcl|Hs11_9372_28_34_24
lcl|Hs11_9372_28_32_5
lcl|Hs9_8627_28_15_3
lcl|Hs15_10431_28_1_4
lcl|Hs19_11287_28_58_5
lcl|Hs11_9372_28_32_6
lcl|Hs19_11287_28_58_14
lcl|Hs6_25897_28_30_1
lcl|Hs1_31898_28_1_13
lcl|Hs7_8125_28_6_4
lcl|Hs11_9114_28_1_10
lcl|Hs11_9453_28_14_16
lcl|HsX_11943_28_38_8
lcl|Hs11_9453_28_35_5
lcl|Hs11_24316_28_2_4
lcl|Hs9_29525_28_42_6
lcl|HsX_11826_28_6_3

lcl|Hs11_9372_28_32_10
lcl|Hs2_22406_28_1_11
lcl|Hs1_4682_28_56_3
lcl|Hs1_5139_28_14_8
lcl|Hs6_25897_28_18_2
lcl|Hs6_29465_28_3_3
lcl|Hs17_30417_28_8_2
lcl|Hs11_9372_28_34_10
lcl|Hs11_9453_28_47_4
lcl|Hs14_26048_28_125_2
lcl|Hs7_23796_28_44_5
lcl|Hs11_9453_28_7_19
lcl|Hs17_30417_28_8_1
lcl|Hs11_24316_28_1_1
lcl|Hs19_11287_28_58_10
lcl|Hs6_7749_28_263_1
lcl|Hs9_29525_28_42_9
lcl|Hs1_5139_28_14_9
lcl|Hs12_9683_28_46_5
lcl|Hs6_7749_28_278_1
lcl|Hs11_9453_28_3_10
lcl|Hs12_9615_28_67_1
lcl|Hs7_23796_28_27_3
lcl|Hs11_9482_28_31_3
lcl|Hs11_9453_28_14_14
lcl|Hs11_24364_28_3_10
lcl|Hs19_30427_28_1_1
lcl|Hs11_9453_28_47_2
lcl|Hs2_22406_28_1_13
lcl|Hs14_19739_28_67_17
lcl|Hs12_9615_28_67_2
lcl|Hs11_9453_28_47_11
lcl|Hs11_9453_28_47_14
lcl|Hs11_9453_28_14_7
lcl|Hs11_9453_28_14_8
lcl|Hs11_9372_28_32_4
lcl|Hs11_9453_28_47_8
lcl|Hs17_10808_28_25_6
lcl|Hs11_24364_28_3_7
lcl|Hs17_30417_28_19_1
lcl|Hs7_23796_28_45_1
lcl|Hs14_30392_28_7_1
lcl|Hs1_31901_28_1_10
lcl|Hs11_27278_28_3_2
lcl|Hs1_5139_28_12_9
lcl|Hs11_9453_28_47_16
lcl|Hs11_24364_28_1_6
lcl|Hs1_31901_28_1_15
lcl|Hs1_4563_28_1_3
lcl|Hs11_9372_28_34_14
lcl|Hs10_30317_28_1_1

lcl|Hs11_9453_28_48_10
lcl|Hs12_9720_28_58_4
lcl|Hs11_31058_28_5_9
lcl|Hs17_30417_28_29_1
lcl|Hs9_29525_28_42_4
lcl|Hs11_9372_28_25_6
lcl|Hs1_30125_28_1_15
lcl|Hs11_9453_28_14_9
lcl|HsX_28564_28_10_1
lcl|Hs11_9453_28_7_14
lcl|Hs9_29525_28_42_10
lcl|Hs6_7749_28_261_5
lcl|Hs6_7749_28_537_4
lcl|Hs9_8578_28_24_6
lcl|Hs11_9453_28_3_25
lcl|Hs11_9453_28_8_2
lcl|Hs11_9482_28_31_8
lcl|Hs11_9453_28_3_5
lcl|Hs11_9372_28_25_7
lcl|Hs11_9453_28_14_12
lcl|Hs11_9372_28_34_15
lcl|Hs19_11287_28_58_12
lcl|Hs11_24364_28_3_4
lcl|Hs19_25311_28_8_2
lcl|Hs19_25311_28_6_2
lcl|Hs7_23796_28_46_10
lcl|Hs11_9372_28_34_4
lcl|Hs12_9888_28_18_1
lcl|Hs17_29632_28_4_1
lcl|Hs17_30417_28_25_1
lcl|Hs11_9453_28_48_7
lcl|Hs7_23796_28_5_7
lcl|Hs2_30169_28_1_3
lcl|Hs11_9453_28_47_12
lcl|Hs3_22567_28_3_1
lcl|Hs11_9453_28_3_22
lcl|Hs11_31058_28_7_7
lcl|Hs11_31058_28_7_2
lcl|Hs11_9453_28_3_29
lcl|Hs11_31058_28_5_12
lcl|Hs11_9372_28_34_23
lcl|Hs1_31898_28_1_2
lcl|Hs11_9453_28_3_8
lcl|Hs11_9453_28_3_24
lcl|Hs19_25285_28_6_1
lcl|Hs11_9482_28_31_15
lcl|Hs17_30417_28_14_1
lcl|Hs11_9453_28_12_9
lcl|Hs6_7749_28_235_9
lcl|Hs11_28469_28_4_4
lcl|Hs7_7976_28_27_2

lcl|Hs14_19739_28_112_21
lcl|Hs11_24499_28_1_3
lcl|Hs11_28469_28_8_2
lcl|Hs11_9453_28_3_13
lcl|Hs11_28469_28_4_8
lcl|Hs11_31058_28_5_5
lcl|Hs1_4825_28_58_2
lcl|Hs11_9482_28_38_2
lcl|Hs1_4682_28_56_2
lcl|Hs11_24364_28_3_3
lcl|Hs18_28543_28_1_3
lcl|Hs17_30417_28_22_3
lcl|Hs5_7011_28_1_5
lcl|Hs11_24364_28_3_12
lcl|Hs11_9453_28_7_7
lcl|Hs11_27278_28_1_4
lcl|Hs11_9453_28_14_2
lcl|Hs11_28469_28_4_9
lcl|Hs15_10519_28_10_3
lcl|Hs6_7749_28_263_3
lcl|Hs3_6084_28_122_1
lcl|Hs11_24364_28_3_2
lcl|Hs7_23796_28_46_9
lcl|Hs11_9453_28_7_13
lcl|Hs1_5139_28_12_8
lcl|Hs14_19739_28_67_19
lcl|Hs1_5139_28_12_5
lcl|Hs3_22771_28_1_6
lcl|Hs11_24364_28_1_9
lcl|Hs11_9453_28_7_9
lcl|Hs1_30125_28_1_10
lcl|Hs11_9453_28_12_3
lcl|Hs14_19739_28_77_2
lcl|Hs12_9683_28_44_1
lcl|Hs6_7749_28_235_1
lcl|Hs11_24499_28_1_1
lcl|Hs11_9372_28_34_18
lcl|Hs11_9372_28_34_11
lcl|Hs11_28469_28_4_6
lcl|Hs11_24438_28_1_1
lcl|Hs11_27278_28_2_2
lcl|Hs11_24364_28_1_5
lcl|Hs11_9372_28_34_17
lcl|Hs11_9372_28_32_13
lcl|Hs12_9683_28_44_3
lcl|Hs11_9372_28_25_2
lcl|Hs7_31982_28_1_1
lcl|Hs11_9482_28_31_2
lcl|Hs11_9482_28_31_11
lcl|Hs19_25311_28_5_1
lcl|Hs11_28469_28_2_1

lcl|Hs22_28554_28_1_7
lcl|Hs1_5139_28_14_2
lcl|Hs11_9482_28_31_16
lcl|Hs1_5139_28_14_1
lcl|Hs1_31886_28_1_1
lcl|Hs5_6811_28_22_2
lcl|Hs17_30417_28_7_1
lcl|Hs11_9453_28_3_28
lcl|Hs3_22821_28_5_2
lcl|Hs11_28469_28_7_1
lcl|Hs11_9453_28_7_10
lcl|Hs11_9372_28_34_8
lcl|Hs11_9453_28_14_3
lcl|Hs10_25990_28_1_2
lcl|Hs11_28469_28_4_3
lcl|Hs11_9453_28_1_4
lcl|Hs1_30125_28_1_1
lcl|Hs11_9453_28_3_20
lcl|Hs11_9453_28_3_12
lcl|Hs11_9453_28_3_17
lcl|Hs17_30417_28_26_2
lcl|Hs3_5926_28_7_1
lcl|Hs14_19739_28_113_2
lcl|Hs9_8627_28_15_2
lcl|Hs11_9482_28_39_1
lcl|Hs11_9453_28_47_13
lcl|Hs1_30818_28_6_1
lcl|Hs11_9453_28_7_8
lcl|Hs11_9453_28_7_24
lcl|Hs11_9482_28_33_1
lcl|Hs11_9482_28_39_2
lcl|Hs11_31058_28_5_10
lcl|Hs11_9453_28_12_4
lcl|Hs1_5139_28_1_3
lcl|Hs1_30125_28_1_11
lcl|Hs11_28469_28_8_3
lcl|Hs11_24364_28_3_5
lcl|Hs1_4819_28_14_3
lcl|Hs11_9453_28_35_2
lcl|Hs11_9453_28_47_17
lcl|Hs20_11490_28_4_3
lcl|Hs6_7749_28_263_2
lcl|Hs11_9114_28_1_1
lcl|Hs17_30417_28_22_2
lcl|Hs6_7749_28_259_5
lcl|Hs11_28469_28_4_5
lcl|Hs11_24364_28_1_3
lcl|Hs2_22296_28_8_5
lcl|Hs11_24364_28_3_14
lcl|Hs11_24364_28_3_13
lcl|Hs6_7749_28_235_7

lcl|Hs11_9482_28_31_14
lcl|Hs11_9453_28_3_27
lcl|Hs11_9453_28_7_23
lcl|Hs11_9453_28_12_7
lcl|Hs11_31058_28_5_3
lcl|Hs11_31058_28_7_3
lcl|Hs7_23796_28_41_4
lcl|Hs14_10321_28_35_1
lcl|Hs11_9453_28_14_15
lcl|Hs1_5139_28_1_2
lcl|Hs12_24566_28_17_1
lcl|Hs3_22771_28_1_2
lcl|Hs11_24364_28_1_4
lcl|Hs11_28469_28_2_2
lcl|Hs1_31901_28_1_8
lcl|Hs7_23796_28_46_1
lcl|Hs1_5139_28_14_11
lcl|Hs11_9453_28_1_3
lcl|Hs4_28324_28_4_4
lcl|Hs11_9453_28_47_3
lcl|Hs11_9482_28_31_7
lcl|Hs11_9453_28_14_11
lcl|Hs11_31058_28_5_11
lcl|Hs11_9453_28_35_8
lcl|Hs1_4819_28_14_1
lcl|Hs14_19739_28_113_1
lcl|Hs11_24499_28_1_2
lcl|Hs11_9453_28_5_1
lcl|Hs11_9453_28_12_10
lcl|Hs12_9720_28_58_2
lcl|Hs11_9097_28_2_2
lcl|Hs12_9683_28_42_1
lcl|Hs1_31898_28_1_14
lcl|Hs11_28469_28_8_1
lcl|Hs6_7749_28_537_3
lcl|Hs6_7749_28_530_1
lcl|HsX_11943_28_38_9
lcl|Hs1_4563_28_3_1
lcl|Hs11_9453_28_48_9
lcl|Hs2_5577_28_29_4
lcl|Hs11_9453_28_3_19
lcl|Hs6_7749_28_235_8
lcl|Hs11_24364_28_3_9
lcl|Hs1_31901_28_1_16
lcl|Hs11_24325_28_1_4
lcl|Hs3_22603_28_7_1
lcl|Hs3_22771_28_1_5
lcl|Hs11_9372_28_34_5
lcl|Hs7_23796_28_5_4
lcl|Hs2_30169_28_1_1
lcl|Hs9_8627_28_15_12

lcl|Hs11_9482_28_31_18
lcl|Hs15_10519_28_10_2
lcl|Hs1_5139_28_14_12
lcl|Hs6_25897_28_26_3
lcl|Hs19_26076_28_3_6
lcl|Hs11_9453_28_14_17
lcl|Hs9_19655_28_1_9
lcl|Hs5_31972_28_2_1
lcl|Hs9_8578_28_20_3
lcl|Hs11_28469_28_4_2
lcl|Hs2_5585_28_35_4
lcl|Hs1_5139_28_12_7
lcl|Hs11_9482_28_31_13
lcl|Hs1_31901_28_1_13
lcl|Hs6_7749_28_261_3
lcl|Hs6_7749_28_537_5
lcl|Hs1_31886_28_1_2
lcl|Hs7_7973_28_1_2
lcl|Hs1_31874_28_7_1
lcl|Hs13_10067_28_29_1
lcl|Hs11_9372_28_32_12
lcl|HsX_11754_28_15_1
lcl|Hs4_28329_28_1_7
lcl|Hs11_30361_28_19_3
lcl|Hs11_9482_28_7_2
lcl|Hs5_6676_28_7_5
lcl|Hs17_29632_28_5_1
lcl|Hs11_9453_28_48_8
lcl|Hs5_6676_28_7_4
lcl|Hs11_31058_28_5_8
lcl|Hs11_9453_28_48_13
lcl|Hs11_9453_28_7_16
lcl|Hs11_31058_28_5_6
lcl|Hs11_9453_28_3_26
lcl|Hs11_9453_28_3_2
lcl|Hs14_19739_28_112_3
lcl|Hs9_29525_28_42_5
lcl|Hs11_28469_28_4_1
lcl|Hs8_8318_28_1_7
lcl|Hs8_19639_28_36_8
lcl|Hs11_9372_28_34_7
lcl|Hs14_26048_28_54_3
lcl|Hs12_9683_28_46_2
lcl|Hs11_31058_28_7_4
lcl|HsX_11943_28_38_2
lcl|Hs21_11669_28_3_4
lcl|Hs2_5446_28_66_1
lcl|Hs11_9097_28_1_7
lcl|Hs11_9372_28_34_1
lcl|HsX_11943_28_36_1
lcl|Hs7_8001_28_47_1

lcl|Hs14_19739_28_113_3
lcl|Hs1_5139_28_12_1
lcl|Hs12_9859_28_16_10
lcl|Hs11_9114_28_1_3
lcl|Hs14_19739_28_112_16
lcl|Hs14_19739_28_112_19
lcl|Hs9_8578_28_20_1
lcl|Hs1_5139_28_3_1
lcl|Hs9_8627_28_15_8
lcl|Hs1_5139_28_14_3
lcl|Hs11_24438_28_1_3
lcl|Hs6_7749_28_537_6
lcl|Hs8_19639_28_17_4
lcl|Hs8_19639_28_34_10
lcl|Hs11_9482_28_5_5
lcl|Hs11_9097_28_28_3
lcl|Hs6_7569_28_36_2
lcl|Hs3_22603_28_7_2
lcl|Hs3_22771_28_1_4
lcl|Hs13_10109_28_41_4
lcl|Hs7_23717_28_3_3
lcl|Hs12_9859_28_16_4
lcl|Hs1_4640_28_18_3
lcl|Hs11_9482_28_38_3
lcl|Hs14_26048_28_128_7
lcl|Hs6_7749_28_235_5
lcl|Hs11_9482_28_31_5
lcl|Hs9_31994_28_1_2
lcl|Hs9_19655_28_4_3
lcl|Hs18_25230_28_1_5
lcl|Hs19_11287_28_58_4
lcl|Hs11_31058_28_5_2
lcl|Hs11_9453_28_3_14
lcl|Hs4_6494_28_5_5
lcl|Hs11_30361_28_166_3
lcl|Hs11_9372_28_34_12
lcl|Hs1_4825_28_58_1
lcl|Hs15_10519_28_10_6
lcl|Hs11_31058_28_4_1
lcl|Hs11_24364_28_3_8
lcl|Hs1_22033_28_12_1
lcl|Hs11_9453_28_7_20
lcl|Hs5_31972_28_5_1
lcl|Hs11_9149_28_162_4
lcl|Hs3_5835_28_4_2
lcl|Hs13_24680_28_8_6
lcl|Hs19_11447_28_6_1
lcl|Hs11_9453_28_14_6
lcl|Hs1_31898_28_1_16
lcl|Hs11_31058_28_5_7
lcl|Hs11_9453_28_7_25

lcl|Hs2_5494_28_14_4
lcl|Hs14_19739_28_62_2
lcl|Hs11_24364_28_1_1
lcl|Hs11_9453_28_47_5
lcl|Hs11_9453_28_3_30
lcl|Hs3_22567_28_3_2
lcl|Hs15_10431_28_1_5
lcl|Hs11_9219_28_14_2
lcl|Hs2_5168_28_6_5
lcl|Hs17_30417_28_26_1
lcl|Hs2_22406_28_1_7
lcl|Hs7_23796_28_27_2
lcl|Hs17_30417_28_16_1
lcl|Hs11_9453_28_48_5
lcl|Hs11_31058_28_3_1
lcl|Hs11_9453_28_14_19
lcl|Hs5_23400_28_1_4
lcl|Hs2_5585_28_35_1
lcl|Hs14_26048_28_128_6
lcl|Hs7_8001_28_49_1
lcl|Hs11_9453_28_7_12
lcl|Hs11_9463_28_11_1
lcl|Hs6_7749_28_266_1
lcl|Hs15_10519_28_10_5
lcl|Hs6_7749_28_260_1
lcl|Hs19_11287_28_58_9
lcl|Hs15_10431_28_1_6
lcl|Hs21_11669_28_106_2
lcl|Hs15_10519_28_10_19
lcl|Hs15_10519_28_10_15

Supplementary Table 2b

<table>
<tr><th>ADH</th><th>FZD</th><th>mGluR</th><th>RHOD</th><th>SEC</th><th>TAS2</th><th>VR</th></tr>
<tr><td>3.149000001-150000000.369689.407987</td><td>lcl|11.103000001-104000000.389890.391602</td><td>lcl|17.26000001-27000000.605841.632662</td><td>lcl|10.24000001-25000000.36539.45195</td><td>9.123000001-124000000.86058.96425</td><td>lcl|6.13000001-14000000.47503.48375</td><td>lcl|Un.134000001-135000000.850503.853556</td></tr>
<tr><td>8.83000001-84000000.621773.631278</td><td>lcl|1.60000001-61000000.96778.98496</td><td>lcl|11.51000001-52000000.270112.283628</td><td>lcl|17.24000001-25000000.683664.684752</td><td>17.30000001-31000000.135614.153166</td><td>lcl|6.42000001-43000000.603784.604665</td><td>lcl|6.57000001-58000000.641420.644706</td></tr>
<tr><td>3.108000001-109000000.888497.909083</td><td>lcl|1.65000001-66000000.380565.404714</td><td>lcl|9.107000001-108000000.508704.514971</td><td>lcl|2.86000001-87000000.41191.42324</td><td>6.55000001-56000000.865280.902213</td><td>lcl|6.40000001-41000000.692077.692595</td><td>lcl|6.57000001-58000000.369878.370714</td></tr>
<tr><td>17.56000001-57000000.494491.503337</td><td>lcl|5.133000001-134000000.852146.853924</td><td>lcl|5.4000001-5000000.351877.363465</td><td>lcl|13.29000001-30000000.876000.877079</td><td>X.137000001-138000000.573467.595198</td><td></td><td>lcl|6.58000001-59000000.396344.402276</td></tr>
<tr><td>4.127000001-128000000.515820.545478</td><td>lcl|7.79000001-80000000.150934.154607</td><td>lcl|7.77000001-78000000.804399.806261</td><td>lcl|12.52000001-53000000.677467.686121</td><td>10.14000001-15000000.296750.342149</td><td></td><td>lcl|1.183000001-184000000.555057.555977</td></tr>
<tr><td>3.152000001-153000000.78827.87245</td><td>lcl|6.29000001-30000000.754296.761052</td><td>lcl|10.10000001-11000000.584318.607939</td><td>lcl|3.20000001-21000000.52674.53753</td><td>11.121000001-122000000.469043.472983</td><td></td><td>lcl|7.16000001-17000000.124465.125379</td></tr>
<tr><td>5.28000001-29000000.704003.705379</td><td>lcl|5.126000001-127000000.868470.869445</td><td>lcl|6.27000001-28000000.335243.336995</td><td>lcl|2.149000001-150000000.429390.430547</td><td>6.55000001-56000000.493222.519716</td><td></td><td>lcl|7.16000001-17000000.159328.160299</td></tr>
<tr><td>5.127000001-128000000.430808.450188</td><td>lcl|5.9000001-10000000.125267.130265</td><td>lcl|6.112000001-113000000.205216.216158</td><td>lcl|1.5000001-6000000.596308.610577</td><td>15.75000001-76000000.29035.50998</td><td></td><td>lcl|6.57000001-58000000.588438.623241</td></tr>
<tr><td>17.42000001-43000000.307778.315184</td><td>lcl|18.9000001-10000000.74213.76270</td><td>lcl|17.36000001-37000000.158041.176944</td><td>lcl|13.102000001-103000000.842654.860964</td><td>7.14000001-15000000.198334.204461</td><td></td><td>lcl|7.16000001-17000000.265527.286110</td></tr>
<tr><td>17.42000001-43000000.431896.454527</td><td>lcl|14.56000001-57000000.335746.346111</td><td>lcl|10.51000001-52000000.759493.765738</td><td>lcl|2.180000001-180335396.41704.51776</td><td>17.41000001-42000000.699594.714979</td><td></td><td>lcl|Un.76000001-77000000.800124.802667</td></tr>
<tr><td>17.41000001-42000000.662725.676110</td><td>lcl|15.39000001-40000000.205340.211506</td><td>lcl|4.137000001-138000000.304921.305817</td><td>lcl|19.56000001-57000000.756167.757567</td><td>8.25000001-26000000.850520.862120</td><td></td><td>lcl|6.57000001-58000000.570781.571425</td></tr>
<tr><td>9.109000001-110000000.689173.695026</td><td></td><td>lcl|11.115000001-116000000.770877.776053</td><td>lcl|9.125000001-125583845.450829.451908</td><td>6.3000001-4000000.387623.441691</td><td></td><td>lcl|Un.100000001-101000000.306171.315154</td></tr>
<tr><td>8.83000001-84000000.416414.418570</td><td></td><td>lcl|7.108000001-109000000.616659.641097</td><td>lcl|19.8000001-9000000.38608.39990</td><td>5.81000001-82000000.256469.259460</td><td></td><td>lcl|Un.56000001-57000000.998471.999124</td></tr>
<tr><td></td><td></td><td>lcl|16.36000001-37000000.302838.326122</td><td>lcl|9.125000001-125583845.477062.529111</td><td>9.111000001-112000000.825473.828483</td><td></td><td>lcl|6.67000001-68000000.263940.264593</td></tr>
<tr><td></td><td></td><td>lcl|4.147000001-148000000.433730.444058</td><td>lcl|9.125000001-125583845.547025.548089</td><td>8.94000001-95000000.740886.745793</td><td></td><td>lcl|6.67000001-68000000.150240.171845</td></tr>
<tr><td></td><td></td><td>lcl|Un.60000001-61000000.384470.386919</td><td>lcl|18.82000001-83000000.945695.958151</td><td>8.94000001-95000000.811788.816403</td><td></td><td>lcl|Un.89000001-90000000.458658.459404</td></tr>
<tr><td></td><td></td><td>lcl|Un.48000001-49000000.426167.428622</td><td>lcl|9.115000001-116000000.675654.676736</td><td>11.104000001-105000000.937076.954693</td><td></td><td>lcl|Un.111000001-112000000.716209.716943</td></tr>
<tr><td></td><td></td><td>lcl|Un.35000001-36000000.127328.128230</td><td>lcl|2.128000001-129000000.343572.344918</td><td>16.56000001-57000000.924122.947247</td><td></td><td>lcl|6.57000001-58000000.693356.695999</td></tr>
<tr><td></td><td></td><td>lcl|3.64000001-65000000.909817.912329</td><td>lcl|5.37000001-38000000.220641.222077</td><td>17.54000001-55000000.878820.885422</td><td></td><td>lcl|6.67000001-68000000.205972.213128</td></tr>
<tr><td></td><td></td><td>lcl|3.64000001-65000000.770707.794819</td><td>lcl|2.113000001-114000000.413556.415154</td><td>5.48000001-49000000.956522.957993</td><td></td><td>lcl|6.58000001-59000000.341871.347323</td></tr>
<tr><td></td><td></td><td>lcl|Un.54000001-55000000.323354.324256</td><td>lcl|13.9000001-10000000.816974.818761</td><td>2.85000001-86000000.222077.237140</td><td></td><td>lcl|7.7000001-8000000.345348.397727</td></tr>
<tr><td></td><td></td><td>lcl|Un.94000001-95000000.403958.404860</td><td>lcl|5.33000001-34000000.987191.989835</td><td>7.130000001-131000000.76531.78767</td><td></td><td>lcl|7.4000001-5000000.578895.581367</td></tr>
<tr><td></td><td></td><td>lcl|5.150000001-151000000.778359.781574</td><td>lcl|6.36000001-37000000.705499.715754</td><td>8.94000001-95000000.843034.843554</td><td></td><td>lcl|17.20000001-21000000.370997.371713</td></tr>
<tr><td></td><td></td><td>lcl|5.107000001-108000000.76414.77316</td><td>lcl|13.53000001-54000000.338528.339868</td><td>1.120000001-121000000.771710.773958</td><td></td><td>lcl|7.5000001-6000000.362252.373841</td></tr>
<tr><td></td><td></td><td>lcl|6.135000001-136000000.438656.457173</td><td>lcl|1.74000001-75000000.907973.909028</td><td>13.78000001-79000000.252023.286791</td><td></td><td>lcl|6.67000001-68000000.85047.88947</td></tr>
<tr><td></td><td></td><td>lcl|Un.100000001-101000000.162921.163808</td><td>lcl|18.62000001-63000000.480619.484018</td><td>1.65000001-66000000.990116.992232</td><td></td><td>lcl|Un.48000001-49000000.235637.236230</td></tr>
<tr><td></td><td></td><td>lcl|7.8000001-9000000.605602.642549</td><td>lcl|8.25000001-26000000.968103.969269</td><td>1.25000001-26000000.449536.513337</td><td></td><td>lcl|6.67000001-68000000.248833.249350</td></tr>
<tr><td></td><td></td><td>lcl|Un.54000001-55000000.386374.387303</td><td>lcl|X.84000001-85000000.585599.587898</td><td></td><td></td><td>lcl|6.57000001-58000000.449385.449884</td></tr>
<tr><td></td><td></td><td>lcl|Un.65000001-66000000.662854.663756</td><td>lcl|15.79000001-80000000.250763.254124</td><td></td><td></td><td>lcl|6.57000001-58000000.785842.786340</td></tr>
<tr><td></td><td></td><td>lcl|17.18000001-19000000.363076.446527</td><td>lcl|9.125000001-125583845.385618.386685</td><td></td><td></td><td>lcl|13.21000001-22000000.673603.675110</td></tr>
<tr><td></td><td></td><td>lcl|Un.87000001-88000000.370681.378151</td><td>lcl|17.7000001-8000000.615203.616306</td><td></td><td></td><td>lcl|6.57000001-58000000.416234.416732</td></tr>
<tr><td></td><td></td><td>lcl|Un.53000001-54000000.581175.590902</td><td>lcl|1.74000001-75000000.876579.877658</td><td></td><td></td><td>lcl|6.57000001-58000000.670662.671102</td></tr>
<tr><td></td><td></td><td>lcl|17.56000001-57000000.561876.562777</td><td>lcl|11.99000001-100000000.919849.923976</td><td></td><td></td><td>lcl|Un.95000001-96000000.778631.779123</td></tr>
<tr><td></td><td></td><td>lcl|17.17000001-18000000.327585.328516</td><td>lcl|2.92000001-93000000.901127.902566</td><td></td><td></td><td>lcl|Un.78000001-79000000.692024.692422</td></tr>
<tr><td></td><td></td><td>lcl|17.17000001-18000000.690238.691163</td><td>lcl|9.125000001-125583845.218157.222584</td><td></td><td></td><td>lcl|6.90000001-91000000.566178.566546</td></tr>
<tr><td></td><td></td><td>lcl|5.106000001-107000000.689596.700497</td><td>lcl|13.53000001-54000000.499780.513895</td><td></td><td></td><td>lcl|13.21000001-22000000.616154.616789</td></tr>
<tr><td></td><td></td><td>lcl|17.17000001-18000000.268132.269063</td><td>lcl|16.65000001-66000000.246883.247983</td><td></td><td></td><td>lcl|6.58000001-59000000.712672.713079</td></tr>
<tr><td></td><td></td><td>lcl|17.19000001-20000000.331723.349572</td><td>lcl|X.83000001-84000000.431640.432725</td><td></td><td></td><td>lcl|Un.65000001-66000000.698440.698922</td></tr>
<tr><td></td><td></td><td>lcl|17.18000001-19000000.152689.168050</td><td>lcl|10.61000001-62000000.627840.640270</td><td></td><td></td><td>lcl|6.58000001-59000000.520585.520941</td></tr>
<tr><td></td><td></td><td>lcl|5.107000001-108000000.173138.174040</td><td>lcl|11.117000001-118000000.177379.182240</td><td></td><td></td><td>lcl|6.58000001-59000000.858600.876279</td></tr>
<tr><td></td><td></td><td>lcl|17.18000001-19000000.851857.873753</td><td>lcl|X.18000001-19000000.665987.668356</td><td></td><td></td><td>lcl|6.57000001-58000000.485713.486042</td></tr>
<tr><td></td><td></td><td>lcl|17.21000001-22000000.605719.670778</td><td>lcl|19.54000001-55000000.62173.63570</td><td></td><td></td><td>lcl|7.16000001-17000000.232054.235180</td></tr>
<tr><td></td><td></td><td>lcl|10.131000001-131187037.42570.50839</td><td>lcl|4.134000001-135000000.31541.32665</td><td></td><td></td><td>lcl|7.5000001-6000000.302315.310878</td></tr>
<tr><td></td><td></td><td>lcl|Un.115000001-116000000.14849.20659</td><td>lcl|15.11000001-12000000.62928.64346</td><td></td><td></td><td>lcl|7.5000001-6000000.49478.59124</td></tr>
<tr><td></td><td></td><td>lcl|17.19000001-20000000.50467.112991</td><td>lcl|3.61000001-62000000.588940.591302</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.91000001-92000000.684143.695695</td><td>lcl|9.44000001-45000000.766976.780120</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|6.124000001-125000000.994707.995597</td><td>lcl|5.111000001-112000000.517281.543354</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|17.17000001-18000000.528816.541304</td><td>lcl|6.115000001-116000000.396435.398310</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.75000001-76000000.674030.721077</td><td>lcl|7.90000001-91000000.814794.820481</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.75000001-76000000.458691.471580</td><td>lcl|4.127000001-128000000.639616.646442</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.76000001-77000000.761086.762005</td><td>lcl|17.16000001-17000000.998089.999144</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|5.106000001-107000000.796444.803689</td><td>lcl|10.80000001-81000000.376008.379338</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.75000001-76000000.873649.891310</td><td>lcl|7.95000001-96000000.192571.201967</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|5.106000001-107000000.465725.484433</td><td>lcl|9.121000001-122000000.352638.353687</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.83000001-84000000.230019.241412</td><td>lcl|18.32000001-33000000.122029.123048</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.31000001-32000000.784299.785987</td><td>lcl|9.125000001-125583845.252652.253707</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|4.151000001-151730910.318655.321803</td><td>lcl|X.89000001-90000000.770002.771114</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|10.131000001-131187037.128569.131102</td><td>lcl|3.83000001-84000000.233348.234521</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.86000001-87000000.90006.90944</td><td>lcl|9.123000001-124000000.335133.336269</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|5.150000001-151000000.699604.725494</td><td>lcl|9.104000001-105000000.861043.867836</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|8.3000001-4000000.39056.44298</td><td>lcl|9.14000001-15000000.828112.837080</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.49000001-50000000.328431.336202</td><td>lcl|1.63000001-64000000.805209.806270</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|10.131000001-131187037.76513.110658</td><td>lcl|13.92000001-93000000.857192.869146</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.8000001-9000000.760994.770993</td><td>lcl|19.60000001-61000000.523102.524214</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.46000001-47000000.817650.822820</td><td>lcl|12.99000001-100000000.820202.821309</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.121000001-122000000.935680.936426</td><td>lcl|1.86000001-87000000.493378.504917</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.74000001-75000000.930121.930925</td><td>lcl|14.113000001-114000000.209259.215904</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.92000001-93000000.30688.45781</td><td>lcl|8.66000001-67000000.96769.98027</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.76000001-77000000.675416.676192</td><td>lcl|14.64000001-65000000.160047.164402</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|10.79000001-80000000.653643.734509</td><td>lcl|4.129000001-130000000.659901.678139</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.31000001-32000000.338558.344624</td><td>lcl|X.40000001-41000000.108549.112661</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.75000001-76000000.337694.343711</td><td>lcl|7.11000001-12000000.380870.381871</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.31000001-32000000.318090.326271</td><td>lcl|16.58000001-59000000.986831.987913</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.31000001-32000000.533585.561452</td><td>lcl|7.90000001-91000000.754697.755683</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.31000001-32000000.608646.609347</td><td>lcl|15.81000001-82000000.986511.988874</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.8000001-9000000.735881.739159</td><td>lcl|17.19000001-20000000.683004.684035</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.97000001-98000000.134491.135192</td><td>lcl|1.90000001-91000000.638576.639690</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|7.32000001-33000000.28168.28764</td><td>lcl|1.5000001-6000000.923780.925431</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>lcl|Un.77000001-78000000.407285.407986</td><td>lcl|3.27000001-28000000.196102.199227</td><td></td><td></td><td></td></tr>
</table>

lcl|Un.119000001-120000000.271044.274489
lcl|3.64000001-65000000.755982.759837
lcl|5.106000001-107000000.740169.754111
lcl|Un.49000001-50000000.676734.677408
lcl|17.16000001-17000000.817101.838887
lcl|2.180000001-180335396.312221.332083
lcl|Un.58000001-59000000.519737.522948
lcl|7.8000001-9000000.807629.808223
lcl|5.106000001-107000000.925656.931358
lcl|7.31000001-32000000.892959.895193
lcl|17.18000001-19000000.540587.541250
lcl|7.75000001-76000000.116751.130186
lcl|4.45000001-46000000.512667.522603
lcl|7.74000001-75000000.705980.718405
lcl|Un.95000001-96000000.726399.729660
lcl|Un.98000001-99000000.343262.346521
lcl|7.6000001-7000000.861740.879978
lcl|7.75000001-76000000.579122.579577
lcl|17.18000001-19000000.611216.622354
lcl|7.30000001-31000000.979508.983381
lcl|7.32000001-33000000.580551.611543
lcl|1.196000001-196842934.780828.782590
lcl|4.45000001-46000000.553670.570108
lcl|17.19000001-20000000.633603.640010
lcl|17.19000001-20000000.572954.614622
lcl|5.150000001-151000000.828634.853525
lcl|17.22000001-23000000.431513.432006
lcl|7.75000001-76000000.309133.309588
lcl|8.4000001-5000000.444011.444376
lcl|5.107000001-108000000.294008.294508
lcl|17.17000001-18000000.168391.180171
lcl|17.18000001-19000000.34972.120193
lcl|17.17000001-18000000.803703.818293
lcl|10.23000001-24000000.920184.921221
lcl|7.14000001-15000000.263283.264380
lcl|10.23000001-24000000.927980.929011
lcl|17.19000001-20000000.176861.177877
lcl|9.125000001-125583845.298399.299415
lcl|8.122000001-123000000.426451.430039
lcl|9.125000001-125583845.399175.400245
lcl|10.23000001-24000000.856213.857211
lcl|14.29000001-30000000.256057.257243
lcl|6.125000001-126000000.968528.969682
lcl|5.52000001-53000000.762676.770277
lcl|10.122000001-123000000.716601.724954
lcl|3.59000001-60000000.771011.778750
lcl|13.92000001-93000000.949502.964142
lcl|14.111000001-112000000.280882.281895
lcl|10.128000001-129000000.404678.411284
lcl|14.46000001-47000000.854962.857337
lcl|Un.43000001-44000000.340562.341638
lcl|19.10000001-11000000.274443.278555
lcl|10.23000001-24000000.973206.986182
lcl|3.68000001-69000000.218388.219448
lcl|5.121000001-122000000.964846.965928
lcl|X.79000001-80000000.901307.903461
lcl|3.59000001-60000000.668822.709056
lcl|10.23000001-24000000.892815.907200
lcl|11.122000001-122883361.87707.101691
lcl|17.17000001-18000000.75824.76878
lcl|10.6000001-7000000.680903.682520
lcl|12.92000001-93000000.418422.419435
lcl|3.59000001-60000000.732808.733887
lcl|X.90000001-91000000.8058.9116
lcl|2.178000001-179000000.426057.430537
lcl|10.23000001-24000000.875168.877133
lcl|11.101000001-102000000.950796.951737
lcl|3.89000001-90000000.443829.447655
lcl|8.66000001-67000000.73578.81107
lcl|18.44000001-45000000.452019.452993
lcl|17.17000001-18000000.127578.128549
lcl|6.123000001-124000000.903150.904430
lcl|11.62000001-63000000.677873.698611
lcl|6.135000001-136000000.207221.208468
lcl|10.23000001-24000000.885039.886070
lcl|15.74000001-75000000.151046.152185
lcl|12.16000001-17000000.746564.754669
lcl|X.57000001-58000000.105218.107303
lcl|X.89000001-90000000.939839.940825
lcl|6.116000001-117000000.711433.723896
lcl|5.121000001-122000000.978969.980000
lcl|1.43000001-44000000.551030.552151
lcl|12.95000001-96000000.58339.59887
lcl|X.90000001-91000000.126614.127621
lcl|3.116000001-117000000.47291.48439
lcl|5.138000001-139000000.315923.317050
lcl|4.24000001-25000000.615001.616110
lcl|8.72000001-73000000.291757.293086
lcl|14.29000001-30000000.670089.716003
lcl|7.23000001-24000000.131484.132443
lcl|12.107000001-108000000.131193.134979
lcl|14.113000001-114000000.172484.173479
lcl|14.57000001-58000000.773603.783098
lcl|3.60000001-61000000.660023.671888
lcl|13.93000001-94000000.43031.47525
lcl|14.46000001-47000000.850890.851972
lcl|7.23000001-24000000.95323.96315
lcl|1.166000001-167000000.506662.519393
lcl|1.93000001-94000000.432287.433210
lcl|14.63000001-64000000.955023.968719
lcl|13.50000001-51000000.682395.683531
lcl|6.88000001-89000000.448602.456243
lcl|12.99000001-100000000.832806.833810
lcl|3.108000001-109000000.641748.643097
lcl|18.68000001-69000000.675235.676212
lcl|17.88000001-89000000.322793.323962
lcl|12.66000001-67000000.714310.715683
lcl|7.11000001-12000000.369754.370788
lcl|18.67000001-68000000.193234.203078
lcl|9.21000001-22000000.317366.318643
lcl|Un.74000001-75000000.857684.858664
lcl|12.85000001-86000000.645525.673287
lcl|2.173000001-174000000.464605.465576
lcl|9.21000001-22000000.34047.35145
lcl|1.86000001-87000000.332682.333665

lcl|X.79000001-80000000.540177.543666
lcl|11.44000001-45000000.196511.197459
lcl|4.33000001-34000000.584070.595101
lcl|17.88000001-89000000.79789.80932
lcl|6.25000001-26000000.625840.645895
lcl|12.46000001-47000000.463066.464085
lcl|15.104000001-104633288.287989.289091
lcl|2.132000001-133000000.561205.568610
lcl|4.130000001-131000000.780201.781193
lcl|8.123000001-124000000.480810.481757
lcl|5.145000001-146000000.533653.534657
lcl|10.41000001-42000000.157005.158096
lcl|10.24000001-25000000.10063.13869
lcl|10.81000001-82000000.973272.974432
lcl|X.40000001-41000000.572022.593105
lcl|4.133000001-134000000.503959.510312
lcl|6.29000001-30000000.367411.369056
lcl|6.113000001-114000000.391096.392295
lcl|7.131000001-132000000.545752.548575
lcl|17.12000001-13000000.282315.283289
lcl|X.54000001-55000000.895715.897279
lcl|15.5000001-6000000.55104.69764
lcl|X.129000001-130000000.354839.355960
lcl|1.132000001-133000000.438922.439908
lcl|4.130000001-131000000.144971.145996
lcl|X.57000001-58000000.343882.354853
lcl|X.34000001-35000000.322400.323407
lcl|X.89000001-90000000.409727.418438
lcl|12.25000001-26000000.808424.809692
lcl|3.59000001-60000000.739568.764130
lcl|9.15000001-16000000.843564.844480
lcl|10.23000001-24000000.935516.936594
lcl|13.21000001-22000000.82651.103168
lcl|10.23000001-24000000.949049.963888
lcl|11.56000001-57000000.531897.533228
lcl|8.83000001-84000000.359263.361114
lcl|3.106000001-107000000.389205.392300
lcl|1.136000001-137000000.25145.41025
lcl|5.26000001-27000000.325761.327773
lcl|7.12000001-13000000.46401.48730
lcl|9.121000001-122000000.313060.313776
lcl|6.13000001-14000000.625048.661694
lcl|19.6000001-7000000.670083.681343
lcl|2.37000001-38000000.904628.953696
lcl|7.23000001-24000000.137262.138164
lcl|2.110000001-111000000.905741.968101
lcl|1.86000001-87000000.787605.790344
lcl|6.43000001-44000000.423189.424130
lcl|6.43000001-44000000.438548.439495
lcl|13.73000001-74000000.140369.141650
lcl|17.12000001-13000000.292397.318531
lcl|7.38000001-39000000.70731.72795
lcl|7.38000001-39000000.172964.173980
lcl|6.43000001-44000000.114721.115590
lcl|Un.25000001-26000000.435285.436238
lcl|15.44000001-45000000.377287.395558
lcl|3.80000001-81000000.318026.326859
lcl|11.49000001-50000000.914948.929936
lcl|8.77000001-78000000.228479.258499
lcl|10.81000001-82000000.807267.809495
lcl|10.115000001-116000000.668694.674563
lcl|4.136000001-137000000.700978.701697
lcl|Un.41000001-42000000.562545.563333
lcl|7.121000001-122000000.944762.954395
lcl|4.42000001-43000000.530963.541244
lcl|7.36000001-37000000.830537.831478
lcl|17.37000001-38000000.183052.188328
lcl|19.11000001-12000000.543018.558779
lcl|1.135000001-136000000.855409.862502
lcl|14.36000001-37000000.785221.813194
lcl|17.17000001-18000000.25613.26482
lcl|7.38000001-39000000.105630.106677
lcl|11.59000001-60000000.3433.13977
lcl|Un.12000001-13000000.22950.23888
lcl|7.37000001-38000000.188463.189395
lcl|Un.47000001-48000000.915177.916118
lcl|7.37000001-38000000.595603.596544
lcl|7.135000001-135793178.775849.776760
lcl|19.11000001-12000000.572073.572942
lcl|9.112000001-113000000.165335.166209
lcl|7.38000001-39000000.299709.300686
lcl|17.36000001-37000000.254535.255473

lcl|4.116000001-117000000.756043.795938
lcl|6.43000001-44000000.395847.396716
lcl|7.37000001-38000000.166827.167768
lcl|18.42000001-43000000.733848.735270
lcl|1.122000001-123000000.261353.262036
lcl|11.49000001-50000000.669883.704738
lcl|18.62000001-63000000.732729.769926
lcl|11.59000001-60000000.316713.317810
lcl|16.19000001-20000000.309843.310787
lcl|14.9000001-10000000.631766.632719
lcl|2.112000001-113000000.222490.223431
lcl|7.36000001-37000000.905661.917515
lcl|2.90000001-91000000.398517.399461
lcl|11.49000001-50000000.525038.525991
lcl|6.43000001-44000000.388857.389789
lcl|11.59000001-60000000.64636.74987
lcl|13.21000001-22000000.127286.128227
lcl|7.108000001-109000000.792064.819566
lcl|11.49000001-50000000.489466.490458
lcl|1.126000001-127000000.465046.465901
lcl|6.43000001-44000000.68520.100518
lcl|10.130000001-131000000.635206.640905
lcl|7.89000001-90000000.531346.532296
lcl|11.74000001-75000000.543140.544117
lcl|17.37000001-38000000.214755.215699
lcl|17.17000001-18000000.95933.96673
lcl|4.42000001-43000000.633958.656317
lcl|2.113000001-114000000.76355.77341
lcl|14.32000001-33000000.143475.154158
lcl|7.134000001-135000000.223169.243847
lcl|7.96000001-97000000.484839.485792
lcl|2.91000001-92000000.304766.319980
lcl|11.115000001-116000000.705944.713765
lcl|17.36000001-37000000.618927.620069
lcl|11.51000001-52000000.444791.445751
lcl|17.36000001-37000000.962921.963883
lcl|7.135000001-135793178.762096.763079
lcl|2.112000001-113000000.951516.973401
lcl|14.42000001-43000000.929402.935866
lcl|14.42000001-43000000.379532.380508
lcl|7.96000001-97000000.700727.701671
lcl|13.20000001-21000000.556353.557306
lcl|7.96000001-97000000.233733.250289
lcl|8.84000001-85000000.928554.940538
lcl|11.59000001-60000000.48363.49310
lcl|14.44000001-45000000.232291.236425
lcl|10.79000001-80000000.64188.65143
lcl|7.96000001-97000000.497325.498278
lcl|4.51000001-52000000.788922.789875
lcl|13.20000001-21000000.496221.497099
lcl|2.89000001-90000000.944670.950282
lcl|11.59000001-60000000.186097.187080
lcl|10.130000001-131000000.321417.322373
lcl|7.98000001-99000000.430900.431869
lcl|16.19000001-20000000.352133.353074
lcl|11.74000001-75000000.979988.980926
lcl|14.44000001-45000000.356933.357874
lcl|9.39000001-40000000.122926.147331
lcl|7.96000001-97000000.669130.670035
lcl|2.112000001-113000000.592940.613326
lcl|17.36000001-37000000.330278.331219
lcl|9.40000001-41000000.269080.287714
lcl|17.37000001-38000000.414807.415745
lcl|6.43000001-44000000.40334.41269
lcl|11.74000001-75000000.390443.391378
lcl|2.90000001-91000000.332954.333871
lcl|14.44000001-45000000.329996.330928
lcl|14.42000001-43000000.242295.263886
lcl|19.13000001-14000000.340807.341754
lcl|11.58000001-59000000.958333.971764
lcl|7.98000001-99000000.454074.455042
lcl|4.116000001-117000000.710870.711829
lcl|11.59000001-60000000.145127.146098
lcl|4.51000001-52000000.733132.734085
lcl|11.74000001-75000000.879520.880491
lcl|11.74000001-75000000.814844.815785
lcl|13.20000001-21000000.539424.540377
lcl|17.36000001-37000000.188491.189424
lcl|11.73000001-74000000.996155.997099
lcl|11.74000001-75000000.902028.902999
lcl|7.97000001-98000000.387490.388410
lcl|2.91000001-92000000.23494.24423

lcl|Un.130000001-131000000.751222.752151
lcl|19.13000001-14000000.309083.310030
lcl|19.11000001-12000000.354067.358542
lcl|11.49000001-50000000.510971.511918
lcl|19.12000001-13000000.484577.486296
lcl|7.98000001-99000000.412777.413709
lcl|10.130000001-131000000.31381.32340
lcl|9.38000001-39000000.297297.309507
lcl|11.59000001-60000000.262641.263624
lcl|11.30000001-31000000.858140.859762
lcl|2.91000001-92000000.229652.230607
lcl|3.97000001-98000000.726447.743990
lcl|4.57000001-58000000.698294.699235
lcl|10.79000001-80000000.473897.474869
lcl|1.93000001-94000000.65648.79802
lcl|3.152000001-153000000.402892.421057
lcl|2.36000001-37000000.878314.879252
lcl|Un.29000001-30000000.141245.142198
lcl|2.91000001-92000000.10181.11056
lcl|7.96000001-97000000.416204.417163
lcl|1.175000001-176000000.760196.761173
lcl|3.107000001-108000000.315506.316453
lcl|11.73000001-74000000.971703.976774
lcl|10.79000001-80000000.426429.441153
lcl|7.74000001-75000000.627057.628004
lcl|2.36000001-37000000.846443.847372
lcl|11.60000001-61000000.106882.107838
lcl|7.98000001-99000000.466241.467242
lcl|15.99000001-100000000.222667.223626
lcl|7.130000001-131000000.690429.691391
lcl|2.91000001-92000000.57004.57936
lcl|7.130000001-131000000.616890.617804
lcl|19.13000001-14000000.328767.329726
lcl|11.59000001-60000000.117480.118446
lcl|11.74000001-75000000.490211.495669
lcl|9.40000001-41000000.216199.217131
lcl|7.36000001-37000000.790117.808316
lcl|4.116000001-117000000.655478.656425
lcl|7.130000001-131000000.371623.372561
lcl|9.20000001-21000000.235913.236848
lcl|7.95000001-96000000.96889.97836
lcl|11.49000001-50000000.904862.905818
lcl|X.36000001-37000000.9666.10610
lcl|6.42000001-43000000.946777.947730
lcl|7.74000001-75000000.567013.567966
lcl|11.73000001-74000000.955071.956015
lcl|6.43000001-44000000.456611.457408
lcl|11.49000001-50000000.536955.537929
lcl|10.79000001-80000000.303030.303996
lcl|13.20000001-21000000.565586.566530
lcl|17.36000001-37000000.933382.934329
lcl|7.96000001-97000000.719091.720035
lcl|7.130000001-131000000.386895.387755
lcl|7.98000001-99000000.342568.343497
lcl|4.42000001-43000000.689275.690234
lcl|7.130000001-131000000.551903.552817
lcl|17.36000001-37000000.315593.316462
lcl|2.87000001-88000000.103739.104683
lcl|4.116000001-117000000.587842.588789
lcl|2.36000001-37000000.953738.954676
lcl|7.5000001-6000000.889964.890917
lcl|19.12000001-13000000.392663.393622
lcl|1.93000001-94000000.34269.43305
lcl|1.175000001-176000000.377863.378897
lcl|2.86000001-87000000.312043.312972
lcl|8.71000001-72000000.441064.442008
lcl|7.96000001-97000000.457272.458222
lcl|2.36000001-37000000.905283.906224
lcl|9.40000001-41000000.193731.194597
lcl|14.41000001-42000000.993832.994835
lcl|6.42000001-43000000.992316.993269
lcl|2.90000001-91000000.962391.963320
lcl|8.71000001-72000000.487117.488061
lcl|2.89000001-90000000.886989.887918
lcl|6.42000001-43000000.663218.664159
lcl|7.130000001-131000000.412627.413583
lcl|14.41000001-42000000.943853.973389
lcl|2.86000001-87000000.925998.926930
lcl|9.40000001-41000000.187281.188147
lcl|13.21000001-22000000.34494.35420
lcl|7.96000001-97000000.444697.445647
lcl|2.37000001-38000000.119816.120745

lcl|6.117000001-118000000.276166.284969
lcl|2.90000001-91000000.452493.453410
lcl|2.112000001-113000000.493519.494484
lcl|11.74000001-75000000.564080.565027
lcl|2.90000001-91000000.188942.189877
lcl|16.19000001-20000000.228573.229511
lcl|6.42000001-43000000.689399.690337
lcl|4.116000001-117000000.563810.564757
lcl|1.93000001-94000000.18979.19950
lcl|9.19000001-20000000.357018.357956
lcl|1.175000001-176000000.445160.446134
lcl|19.11000001-12000000.592819.593763
lcl|5.138000001-139000000.282400.305219
lcl|16.3000001-4000000.287084.288022
lcl|10.129000001-130000000.823906.824841
lcl|4.42000001-43000000.670496.671452
lcl|14.45000001-46000000.372361.373302
lcl|19.13000001-14000000.257453.287193
lcl|1.176000001-177000000.977590.986820
lcl|15.99000001-100000000.250104.253331
lcl|2.37000001-38000000.704343.705284
lcl|9.40000001-41000000.146385.147248
lcl|11.59000001-60000000.224382.225302
lcl|2.88000001-89000000.897828.911458
lcl|4.42000001-43000000.594368.605958
lcl|7.96000001-97000000.324262.325197
lcl|7.5000001-6000000.813946.815884
lcl|15.99000001-100000000.117625.128402
lcl|1.175000001-176000000.425533.429892
lcl|9.37000001-38000000.910485.911414
lcl|2.87000001-88000000.149721.150671
lcl|9.40000001-41000000.152537.153406
lcl|Un.49000001-50000000.616875.618522
lcl|14.42000001-43000000.130976.131902
lcl|17.36000001-37000000.196192.202811
lcl|9.40000001-41000000.170427.171296
lcl|2.37000001-38000000.68595.69530
lcl|19.13000001-14000000.178464.179411
lcl|10.130000001-131000000.151466.152434
lcl|7.97000001-98000000.682751.698948
lcl|2.91000001-92000000.113615.115874
lcl|2.86000001-87000000.326414.327358
lcl|2.37000001-38000000.633520.634458
lcl|15.99000001-100000000.97023.99437
lcl|14.41000001-42000000.740298.741224
lcl|7.98000001-99000000.210099.211049
lcl|2.37000001-38000000.345693.346646
lcl|11.88000001-89000000.576751.577692
lcl|11.74000001-75000000.194540.195478
lcl|7.97000001-98000000.667815.669254
lcl|9.49000001-50000000.689237.694533
lcl|11.74000001-75000000.653306.654241
lcl|2.88000001-89000000.595338.622315
lcl|8.71000001-72000000.496863.497804
lcl|4.57000001-58000000.396149.400310
lcl|17.36000001-37000000.880911.924610
lcl|X.35000001-36000000.301060.302049
lcl|15.99000001-100000000.136793.142862
lcl|11.74000001-75000000.720901.725517
lcl|19.12000001-13000000.466620.467564
lcl|7.130000001-131000000.589165.602788
lcl|5.142000001-143000000.263831.264934
lcl|Un.127000001-128000000.735298.736215
lcl|7.130000001-131000000.939134.940066
lcl|2.91000001-92000000.268885.269802
lcl|9.39000001-40000000.167859.168785
lcl|2.37000001-38000000.165848.166786
lcl|2.90000001-91000000.924827.925732
lcl|2.112000001-113000000.236423.237364
lcl|15.99000001-100000000.361343.368236
lcl|10.130000001-131000000.259144.260076
lcl|11.51000001-52000000.404469.405392
lcl|11.59000001-60000000.206548.207468
lcl|9.38000001-39000000.147922.174913
lcl|11.74000001-75000000.747984.748931
lcl|7.5000001-6000000.855765.856676
lcl|11.74000001-75000000.583136.586729
lcl|2.37000001-38000000.583379.584302
lcl|2.86000001-87000000.738677.739612
lcl|10.130000001-131000000.595813.611835
lcl|17.37000001-38000000.199757.200665
lcl|8.69000001-70000000.221781.222522

lcl|2.36000001-37000000.994690.995613
lcl|2.89000001-90000000.864848.867071
lcl|Un.69000001-70000000.57803.58735
lcl|7.97000001-98000000.889845.928984
lcl|17.37000001-38000000.80358.81329
lcl|17.36000001-37000000.301157.305245
lcl|19.11000001-12000000.950348.951304
lcl|14.42000001-43000000.148042.148968
lcl|1.175000001-176000000.397688.398626
lcl|2.112000001-113000000.373547.379175
lcl|Un.49000001-50000000.386108.387040
lcl|14.44000001-45000000.253322.254278
lcl|15.99000001-100000000.287462.288391
lcl|2.87000001-88000000.676532.677467
lcl|9.38000001-39000000.242799.243728
lcl|7.130000001-131000000.900683.901618
lcl|9.76000001-77000000.917501.929959
lcl|2.86000001-87000000.961923.962855
lcl|10.130000001-131000000.733183.734121
lcl|14.44000001-45000000.273428.274384
lcl|13.20000001-21000000.960622.964902
lcl|2.91000001-92000000.196502.199837
lcl|7.5000001-6000000.943078.944004
lcl|7.93000001-94000000.11799.12737
lcl|7.76000001-77000000.193101.194093
lcl|19.13000001-14000000.3584.4560
lcl|2.89000001-90000000.899648.900571
lcl|7.93000001-94000000.723600.724559
lcl|2.87000001-88000000.17929.33753
lcl|Un.48000001-49000000.380224.381156
lcl|7.92000001-93000000.997911.998884
lcl|7.130000001-131000000.640057.640973
lcl|11.114000001-115000000.537142.537846
lcl|2.89000001-90000000.763699.791702
lcl|17.36000001-37000000.782715.783623
lcl|10.130000001-131000000.441273.442211
lcl|11.51000001-52000000.426410.427333
lcl|15.99000001-100000000.410024.410956
lcl|9.39000001-40000000.9161.22207
lcl|16.3000001-4000000.39119.40060
lcl|2.37000001-38000000.220919.221860
lcl|9.39000001-40000000.48234.49160
lcl|11.51000001-52000000.386341.389729
lcl|1.93000001-94000000.53652.54620
lcl|11.60000001-61000000.125228.126187
lcl|2.37000001-38000000.288719.289657
lcl|19.13000001-14000000.145749.146696
lcl|Un.114000001-115000000.793811.794758
lcl|15.99000001-100000000.346214.347140
lcl|Un.42000001-43000000.48462.49382
lcl|16.59000001-60000000.585730.586650
lcl|11.88000001-89000000.555037.555972
lcl|2.87000001-88000000.383961.384902
lcl|9.38000001-39000000.290200.291129
lcl|7.5000001-6000000.876856.877767
lcl|19.13000001-14000000.61676.89822
lcl|2.112000001-113000000.245704.246621
lcl|11.74000001-75000000.643809.644756
lcl|2.86000001-87000000.838193.844108
lcl|10.79000001-80000000.491526.492344
lcl|9.19000001-20000000.371544.372482
lcl|7.96000001-97000000.376947.377897
lcl|7.94000001-95000000.758626.759564
lcl|10.129000001-130000000.713249.714896
lcl|7.95000001-96000000.104408.105376
lcl|11.74000001-75000000.961952.970387
lcl|2.91000001-92000000.348025.348980
lcl|7.97000001-98000000.639615.640553
lcl|2.90000001-91000000.375636.376553
lcl|19.12000001-13000000.211299.212237
lcl|4.51000001-52000000.813610.814461
lcl|11.59000001-60000000.364675.365601
lcl|2.87000001-88000000.63652.64611
lcl|13.20000001-21000000.996979.997923
lcl|2.87000001-88000000.114030.114989
lcl|1.175000001-176000000.467009.468096
lcl|Un.116000001-117000000.19211.20167
lcl|7.98000001-99000000.112072.117460
lcl|7.98000001-99000000.301211.302038
lcl|19.12000001-13000000.574768.575691
lcl|2.86000001-87000000.871160.872008
lcl|11.59000001-60000000.347518.348444

lcl|2.90000001-91000000.528961.529881
lcl|7.97000001-98000000.605588.608996
lcl|7.93000001-94000000.284840.285811
lcl|2.89000001-90000000.363380.368513
lcl|19.11000001-12000000.711979.712971
lcl|2.88000001-89000000.86830.87768
lcl|Un.51000001-52000000.608361.609317
lcl|9.39000001-40000000.515545.516510
lcl|9.39000001-40000000.174292.175224
lcl|10.130000001-131000000.78395.79333
lcl|7.130000001-131000000.719740.720672
lcl|9.39000001-40000000.41286.42212
lcl|19.13000001-14000000.447525.448486
lcl|2.87000001-88000000.288865.289806
lcl|2.87000001-88000000.72217.79599
lcl|6.43000001-44000000.159873.160757
lcl|10.130000001-131000000.374297.375232
lcl|Un.49000001-50000000.632113.633042
lcl|2.86000001-87000000.685236.692936
lcl|2.86000001-87000000.674768.675703
lcl|7.93000001-94000000.305841.306812
lcl|7.130000001-131000000.952482.953417
lcl|10.130000001-131000000.356571.357515
lcl|13.20000001-21000000.978496.979476
lcl|2.37000001-38000000.766237.767220
lcl|19.12000001-13000000.205414.206334
lcl|7.130000001-131000000.915499.916458
lcl|7.94000001-95000000.946996.947991
lcl|2.89000001-90000000.425462.447298
lcl|11.74000001-75000000.417708.418646
lcl|17.36000001-37000000.467446.468374
lcl|Un.92000001-93000000.701478.702413
lcl|2.37000001-38000000.441930.442856
lcl|2.87000001-88000000.953439.954413
lcl|7.92000001-93000000.499600.500574
lcl|Un.81000001-82000000.891888.892844
lcl|7.94000001-95000000.335472.336466
lcl|14.41000001-42000000.929537.930599
lcl|7.98000001-99000000.200346.201319
lcl|9.19000001-20000000.315782.316715
lcl|9.39000001-40000000.475103.480598
lcl|2.90000001-91000000.600090.601007
lcl|7.98000001-99000000.4006.4950
lcl|10.130000001-131000000.113257.114195
lcl|9.38000001-39000000.447976.454744
lcl|14.65000001-66000000.560481.563926
lcl|7.93000001-94000000.850702.860929
lcl|2.91000001-92000000.99291.100097
lcl|2.90000001-91000000.46871.57617
lcl|10.130000001-131000000.497537.498358
lcl|1.92000001-93000000.955477.956415
lcl|9.39000001-40000000.448512.449471
lcl|10.129000001-130000000.666349.667278
lcl|2.88000001-89000000.322583.323617
lcl|7.96000001-97000000.526787.542906
lcl|10.129000001-130000000.729255.730184
lcl|9.20000001-21000000.364691.365650
lcl|10.130000001-131000000.333693.350417
lcl|9.38000001-39000000.228700.229629
lcl|19.12000001-13000000.451247.452191
lcl|11.74000001-75000000.509330.510268
lcl|1.175000001-176000000.359018.359956
lcl|9.39000001-40000000.374137.379209
lcl|17.36000001-37000000.419911.443349
lcl|1.175000001-176000000.350595.351539
lcl|9.40000001-41000000.199490.200320
lcl|7.75000001-76000000.996104.997102
lcl|17.37000001-38000000.51034.51960
lcl|9.38000001-39000000.266332.267261
lcl|1.74000001-75000000.994843.995829
lcl|11.59000001-60000000.361574.362500
lcl|9.39000001-40000000.918015.918953
lcl|2.87000001-88000000.493650.494591
lcl|9.38000001-39000000.622716.623651
lcl|4.116000001-117000000.636413.637360
lcl|9.39000001-40000000.584725.591984
lcl|7.93000001-94000000.354772.355728
lcl|6.43000001-44000000.19886.20818
lcl|9.38000001-39000000.595258.596202
lcl|7.93000001-94000000.114684.115628
lcl|Un.130000001-131000000.606545.607375
lcl|9.38000001-39000000.207284.208213

lcl|9.39000001-40000000.884815.901553
lcl|7.98000001-99000000.255869.256842
lcl|Un.77000001-78000000.832066.833016
lcl|7.92000001-93000000.444120.445079
lcl|2.91000001-92000000.80423.81337
lcl|9.39000001-40000000.406399.407334
lcl|10.130000001-131000000.176928.177767
lcl|19.12000001-13000000.418943.422278
lcl|2.90000001-91000000.441129.441968
lcl|2.86000001-87000000.342462.356316
lcl|11.49000001-50000000.937776.938711
lcl|2.87000001-88000000.361568.362515
lcl|11.59000001-60000000.308849.309646
lcl|9.39000001-40000000.709464.710399
lcl|2.36000001-37000000.733566.734417
lcl|7.97000001-98000000.949209.950153
lcl|19.13000001-14000000.398476.409817
lcl|2.87000001-88000000.984749.987306
lcl|9.38000001-39000000.73619.100162
lcl|9.19000001-20000000.584741.585679
lcl|Un.60000001-61000000.980925.981869
lcl|7.96000001-97000000.361900.362815
lcl|X.35000001-36000000.348905.349933
lcl|2.87000001-88000000.703104.704045
lcl|7.93000001-94000000.504397.511851
lcl|9.40000001-41000000.72505.73449
lcl|1.174000001-175000000.516254.517195
lcl|7.92000001-93000000.527666.539654
lcl|7.93000001-94000000.657090.658025
lcl|7.94000001-95000000.673321.674190
lcl|14.95000001-96000000.8535.36393
lcl|7.93000001-94000000.979575.980525
lcl|19.12000001-13000000.960322.961251
lcl|7.98000001-99000000.479123.480076
lcl|2.37000001-38000000.366042.378816
lcl|11.74000001-75000000.949598.950431
lcl|9.40000001-41000000.10447.20058
lcl|2.88000001-89000000.778003.778947
lcl|19.13000001-14000000.354852.375779
lcl|2.88000001-89000000.998837.999781
lcl|2.87000001-88000000.92295.93236
lcl|9.39000001-40000000.682870.683814
lcl|1.174000001-175000000.257480.258409
lcl|3.36000001-37000000.55540.65196
lcl|2.88000001-89000000.58923.59861
lcl|2.88000001-89000000.922275.923231
lcl|7.94000001-95000000.822192.832475
lcl|14.36000001-37000000.667384.668236
lcl|9.39000001-40000000.428279.429214
lcl|19.13000001-14000000.213847.214812
lcl|7.93000001-94000000.869166.870110
lcl|2.86000001-87000000.700946.701884
lcl|3.146000001-147000000.776375.777131
lcl|9.39000001-40000000.186814.187740
lcl|1.175000001-176000000.408106.409053
lcl|2.86000001-87000000.764393.767517
lcl|19.12000001-13000000.913878.925137
lcl|7.97000001-98000000.792170.793143
lcl|7.92000001-93000000.570666.582310
lcl|7.93000001-94000000.106802.107749
lcl|6.42000001-43000000.674391.679742
lcl|6.40000001-41000000.770894.772602
lcl|11.59000001-60000000.62998.63816
lcl|11.74000001-75000000.438331.451343
lcl|4.147000001-148000000.687727.692191
lcl|7.97000001-98000000.835345.836289
lcl|10.130000001-131000000.221380.222231
lcl|7.92000001-93000000.794493.795404
lcl|7.94000001-95000000.300127.301068
lcl|2.90000001-91000000.896960.897832
lcl|7.94000001-95000000.366480.367445
lcl|7.130000001-131000000.730628.731439
lcl|7.92000001-93000000.302901.309574
lcl|7.130000001-131000000.560548.562016
lcl|7.92000001-93000000.738232.739200
lcl|13.19000001-20000000.157110.172851
lcl|7.93000001-94000000.885213.886238
lcl|19.12000001-13000000.415655.416599
lcl|7.98000001-99000000.50560.51561
lcl|7.93000001-94000000.668598.669521
lcl|1.174000001-175000000.571385.572317
lcl|16.19000001-20000000.24602.25419

lcl|7.97000001-98000000.674411.677945
lcl|2.89000001-90000000.346441.347374
lcl|7.76000001-77000000.312059.312988
lcl|19.11000001-12000000.519885.520682
lcl|7.33000001-34000000.819053.835374
lcl|6.100000001-101000000.527583.528488
lcl|7.95000001-96000000.132482.136571
lcl|10.129000001-130000000.977998.978876
lcl|2.87000001-88000000.130683.131575
lcl|19.11000001-12000000.582921.583721
lcl|19.11000001-12000000.755096.756034
lcl|2.89000001-90000000.802328.803227
lcl|7.93000001-94000000.214889.219285
lcl|10.79000001-80000000.335142.335972
lcl|7.93000001-94000000.309558.323240
lcl|2.89000001-90000000.19589.20539
lcl|7.92000001-93000000.784028.784963
lcl|3.158000001-159000000.178344.179171
lcl|2.90000001-91000000.474125.474961
lcl|9.39000001-40000000.210926.211861
lcl|7.92000001-93000000.470655.471503
lcl|2.90000001-91000000.283587.284399
lcl|7.93000001-94000000.227213.228177
lcl|7.92000001-93000000.489130.490077
lcl|19.11000001-12000000.819641.822464
lcl|4.116000001-117000000.680531.684491
lcl|7.93000001-94000000.806492.807442
lcl|Un.68000001-69000000.643478.644515
lcl|7.93000001-94000000.36952.45254
lcl|19.11000001-12000000.287367.339916
lcl|7.92000001-93000000.310157.311161
lcl|7.93000001-94000000.816113.820314
lcl|2.86000001-87000000.901984.910768
lcl|1.174000001-175000000.500891.504900
lcl|2.86000001-87000000.589677.590615
lcl|8.83000001-84000000.224703.237060
lcl|9.38000001-39000000.891107.892054
lcl|16.19000001-20000000.149988.150805
lcl|2.89000001-90000000.852241.853055
lcl|2.86000001-87000000.714766.715695
lcl|7.92000001-93000000.542895.546730
lcl|7.92000001-93000000.552972.553928
lcl|7.94000001-95000000.909343.910326
lcl|7.76000001-77000000.122646.140712
lcl|7.93000001-94000000.97206.98165
lcl|Un.44000001-45000000.890452.891411
lcl|9.38000001-39000000.865963.866901
lcl|7.94000001-95000000.394191.397146
lcl|7.92000001-93000000.434469.435422
lcl|Un.135000001-136000000.735890.736701
lcl|7.134000001-135000000.207022.207891
lcl|7.76000001-77000000.390112.391005
lcl|9.39000001-40000000.660035.660949
lcl|2.86000001-87000000.578940.579893
lcl|9.39000001-40000000.249544.268228
lcl|9.40000001-41000000.106668.107591
lcl|7.130000001-131000000.529664.539665
lcl|7.93000001-94000000.525238.526197
lcl|9.39000001-40000000.922747.950109
lcl|2.88000001-89000000.584977.585903
lcl|7.93000001-94000000.89130.90077
lcl|19.11000001-12000000.649709.657896
lcl|7.92000001-93000000.912001.912960
lcl|1.174000001-175000000.433197.434129
lcl|7.92000001-93000000.813238.814179
lcl|2.86000001-87000000.562825.563778
lcl|7.95000001-96000000.81642.82604
lcl|7.94000001-95000000.385464.386427
lcl|7.93000001-94000000.441027.441953
lcl|19.37000001-38000000.744355.745007
lcl|10.129000001-130000000.837096.837965
lcl|2.89000001-90000000.931877.932803
lcl|19.13000001-14000000.11379.13355
lcl|16.59000001-60000000.92944.93870
lcl|16.59000001-60000000.423957.424883
lcl|5.149000001-150000000.315952.320459
lcl|7.94000001-95000000.681814.682770
lcl|4.42000001-43000000.616438.617277
lcl|7.94000001-95000000.311519.312466
lcl|9.40000001-41000000.38853.39749
lcl|2.88000001-89000000.578624.579553
lcl|9.39000001-40000000.970706.971590

lcl|2.90000001-91000000.224120.224932
lcl|16.59000001-60000000.465343.481576
lcl|7.94000001-95000000.327333.328743
lcl|7.92000001-93000000.319254.320716
lcl|7.92000001-93000000.924234.925181
lcl|7.94000001-95000000.440080.441039
lcl|7.94000001-95000000.455633.456667
lcl|2.90000001-91000000.88199.88993
lcl|7.93000001-94000000.536948.537898
lcl|7.95000001-96000000.53333.54298
lcl|1.175000001-176000000.558509.561991
lcl|6.117000001-118000000.372457.373389
lcl|16.59000001-60000000.141841.159727
lcl|11.49000001-50000000.844802.855939
lcl|7.93000001-94000000.381929.382870
lcl|Un.91000001-92000000.976593.977405
lcl|2.90000001-91000000.201717.202532
lcl|7.93000001-94000000.750772.751800
lcl|2.88000001-89000000.489329.498515
lcl|7.92000001-93000000.716543.717382
lcl|7.94000001-95000000.637739.638689
lcl|7.95000001-96000000.40806.41698
lcl|7.93000001-94000000.772202.773149
lcl|1.174000001-175000000.484054.484986
lcl|7.92000001-93000000.756993.757949
lcl|6.41000001-42000000.963226.964047
lcl|7.37000001-38000000.803422.819549
lcl|7.92000001-93000000.603116.604060
lcl|2.88000001-89000000.483360.484283
lcl|7.98000001-99000000.148208.149168
lcl|Un.51000001-52000000.617445.618295
lcl|2.91000001-92000000.71521.72330
lcl|7.96000001-97000000.260587.286337
lcl|7.94000001-95000000.797870.798823
lcl|2.90000001-91000000.682869.694931
lcl|7.93000001-94000000.795784.796731
lcl|4.116000001-117000000.818638.822622
lcl|7.94000001-95000000.843197.848632
lcl|10.130000001-131000000.864108.864885
lcl|11.51000001-52000000.465853.466777
lcl|7.96000001-97000000.301266.313743
lcl|Un.41000001-42000000.882787.883568
lcl|4.116000001-117000000.835786.836734
lcl|7.93000001-94000000.487202.503491
lcl|7.93000001-94000000.126613.127608
lcl|7.97000001-98000000.752157.753082
lcl|1.135000001-136000000.69314.70745
lcl|7.93000001-94000000.209164.210159
lcl|11.51000001-52000000.407052.412464
lcl|17.36000001-37000000.487921.500743
lcl|7.98000001-99000000.218417.219211
lcl|7.93000001-94000000.840983.841921
lcl|9.39000001-40000000.238678.239481
lcl|11.49000001-50000000.886963.887742
lcl|4.116000001-117000000.628314.629078
lcl|11.74000001-75000000.375457.380827
lcl|10.129000001-130000000.956619.967678
lcl|10.62000001-63000000.277682.284787
lcl|16.59000001-60000000.536734.537506
lcl|2.88000001-89000000.22687.23470
lcl|4.116000001-117000000.570902.571826
lcl|2.86000001-87000000.243417.244295
lcl|13.19000001-20000000.134432.135331
lcl|2.86000001-87000000.636751.637581
lcl|7.94000001-95000000.879379.880200
lcl|6.125000001-126000000.748128.748994
lcl|4.145000001-146000000.480594.495248
lcl|11.88000001-89000000.559616.560443
lcl|1.92000001-93000000.923678.924618
lcl|2.86000001-87000000.265532.266332
lcl|10.130000001-131000000.822853.824256
lcl|2.90000001-91000000.339252.343728
lcl|7.93000001-94000000.732286.733096
lcl|4.116000001-117000000.607748.612766
lcl|2.37000001-38000000.518734.523168
lcl|2.87000001-88000000.756982.757752
lcl|2.112000001-113000000.418277.438242
lcl|17.36000001-37000000.580147.587664
lcl|2.91000001-92000000.188451.189221
lcl|5.89000001-90000000.220623.221448
lcl|14.42000001-43000000.519191.520145
lcl|7.92000001-93000000.706584.707399

lcl|2.87000001-88000000.188138.209395
lcl|10.129000001-130000000.658896.659690
lcl|14.42000001-43000000.551680.576748
lcl|19.35000001-36000000.680631.688813
lcl|7.97000001-98000000.654753.658312
lcl|7.92000001-93000000.868072.878730
lcl|11.74000001-75000000.268165.268836
lcl|7.94000001-95000000.923128.923946
lcl|6.43000001-44000000.337532.338257
lcl|7.94000001-95000000.712371.722990
lcl|7.92000001-93000000.417993.418808
lcl|10.130000001-131000000.276772.277505
lcl|2.91000001-92000000.92966.93887
lcl|Un.83000001-84000000.950109.955628
lcl|2.87000001-88000000.310851.311723
lcl|Un.120000001-121000000.733957.734870
lcl|Un.138000001-139000000.130549.131462
lcl|2.89000001-90000000.415342.416111
lcl|11.49000001-50000000.651835.658426
lcl|1.92000001-93000000.934820.935766
lcl|10.14000001-15000000.659700.663558
lcl|Un.73000001-74000000.971576.972489
lcl|11.49000001-50000000.716918.717679
lcl|1.175000001-176000000.450884.460766
lcl|7.94000001-95000000.852673.854812
lcl|19.11000001-12000000.715536.716357
lcl|Un.142000001-143000000.746333.747223
lcl|10.129000001-130000000.809920.810674
lcl|10.75000001-76000000.729591.730478
lcl|2.178000001-179000000.854167.869474
lcl|7.130000001-131000000.765169.765939
lcl|7.97000001-98000000.628960.629814
lcl|17.36000001-37000000.336768.337517
lcl|Un.73000001-74000000.57389.58302
lcl|Un.132000001-133000000.238597.239361
lcl|X.140000001-141000000.677396.683785
lcl|11.59000001-60000000.101035.102234
lcl|Un.41000001-42000000.345720.346633
lcl|19.13000001-14000000.28035.28790
lcl|2.89000001-90000000.521640.522390
lcl|3.63000001-64000000.157359.167007
lcl|1.175000001-176000000.737882.742954
lcl|2.86000001-87000000.776155.781552
lcl|15.99000001-100000000.382333.384475
lcl|2.90000001-91000000.126574.145139
lcl|10.130000001-131000000.299029.312444
lcl|7.93000001-94000000.331175.331921
lcl|14.9000001-10000000.711076.711843
lcl|9.19000001-20000000.538653.539274
lcl|3.59000001-60000000.652008.652651
lcl|17.36000001-37000000.733407.736404
lcl|19.35000001-36000000.600600.601295
lcl|17.36000001-37000000.712968.713644
lcl|6.43000001-44000000.3117.3716
lcl|7.94000001-95000000.687350.696490
lcl|Un.12000001-13000000.625214.625952
lcl|17.19000001-20000000.246243.246746
lcl|10.130000001-131000000.839990.840732
lcl|2.112000001-113000000.251847.259562
lcl|6.83000001-84000000.284494.295338
lcl|19.11000001-12000000.691137.693864
lcl|11.59000001-60000000.17577.18296
lcl|7.37000001-38000000.358277.359264
lcl|2.37000001-38000000.542179.543936
lcl|2.87000001-88000000.161480.169701
lcl|7.76000001-77000000.48552.86185
lcl|2.89000001-90000000.717606.718223
lcl|2.87000001-88000000.620485.621175
lcl|2.89000001-90000000.964589.965287
lcl|7.89000001-90000000.563985.564695
lcl|2.90000001-91000000.864919.865574
lcl|10.129000001-130000000.743257.762403
lcl|2.88000001-89000000.791403.813888
lcl|2.113000001-114000000.64285.64983
lcl|11.74000001-75000000.849684.850271
lcl|6.42000001-43000000.741549.763762
lcl|2.89000001-90000000.479573.480305
lcl|9.20000001-21000000.276968.277516
lcl|1.177000001-178000000.1210.7252
lcl|19.13000001-14000000.387701.389043
lcl|7.93000001-94000000.431217.434842
lcl|9.49000001-50000000.695386.700715

lcl|7.97000001-98000000.541541.542282
lcl|11.49000001-50000000.804685.813082
lcl|7.94000001-95000000.884260.886253
lcl|17.37000001-38000000.262875.287405
lcl|9.40000001-41000000.383271.384016
lcl|2.112000001-113000000.683700.684398
lcl|2.112000001-113000000.205804.206489
lcl|11.52000001-53000000.572782.573399
lcl|18.13000001-14000000.39141.39929
lcl|2.112000001-113000000.573757.578012
lcl|7.94000001-95000000.343939.344691
lcl|10.62000001-63000000.272338.272811
lcl|11.74000001-75000000.531024.531728
lcl|7.93000001-94000000.273354.274094
lcl|3.135000001-136000000.308680.309451
lcl|7.96000001-97000000.677536.678243
lcl|2.87000001-88000000.735126.735858
lcl|17.36000001-37000000.647495.650943
lcl|14.65000001-66000000.616918.624780
lcl|7.130000001-131000000.886591.887319
lcl|14.44000001-45000000.212472.213288
lcl|2.87000001-88000000.229747.231736
lcl|7.94000001-95000000.891911.893887
lcl|3.130000001-131000000.306809.321395
lcl|17.36000001-37000000.502034.511712
lcl|2.112000001-113000000.297188.297879
lcl|Un.109000001-110000000.563870.564561
lcl|X.126000001-127000000.459880.460706
lcl|14.44000001-45000000.314634.315320
lcl|2.86000001-87000000.494932.506970
lcl|5.85000001-86000000.768688.769209
lcl|2.91000001-92000000.163354.164064
lcl|9.76000001-77000000.895828.911773
lcl|19.13000001-14000000.422166.439221
lcl|7.94000001-95000000.6091.6804
lcl|14.42000001-43000000.168424.169133
lcl|2.37000001-38000000.298487.327834
lcl|2.86000001-87000000.803525.804220
lcl|19.11000001-12000000.769828.784906
lcl|2.112000001-113000000.550124.555563
lcl|19.12000001-13000000.563159.564083
lcl|7.93000001-94000000.721823.722377
lcl|11.109000001-110000000.495311.500727
lcl|2.86000001-87000000.967324.968022
lcl|2.37000001-38000000.328640.329281
lcl|2.87000001-88000000.8094.8792
lcl|11.74000001-75000000.911517.914063
lcl|X.57000001-58000000.783269.783958
lcl|11.74000001-75000000.402406.403113
lcl|19.11000001-12000000.603940.623052
lcl|10.14000001-15000000.653290.656466
lcl|9.38000001-39000000.515828.516520
lcl|16.43000001-44000000.655223.661096
lcl|9.39000001-40000000.561446.562168
lcl|11.59000001-60000000.287712.288392
lcl|17.41000001-42000000.590216.596050
lcl|X.10000001-11000000.740239.740893
lcl|17.36000001-37000000.379490.384584
lcl|7.92000001-93000000.980711.981484
lcl|2.112000001-113000000.307571.308266
lcl|11.74000001-75000000.803911.804612
lcl|2.90000001-91000000.361727.362222
lcl|2.112000001-113000000.265494.266185
lcl|9.40000001-41000000.295340.296044
lcl|8.71000001-72000000.469302.483895
lcl|2.88000001-89000000.339243.339947
lcl|10.130000001-131000000.405133.405813
lcl|17.42000001-43000000.307778.315184
lcl|6.83000001-84000000.403595.439503
lcl|2.87000001-88000000.929575.930090
lcl|18.53000001-54000000.102746.103519
lcl|19.13000001-14000000.479043.479622
lcl|17.37000001-38000000.437208.437852
lcl|6.65000001-66000000.988478.992046
lcl|10.79000001-80000000.411555.411990
lcl|9.39000001-40000000.994408.995103
lcl|7.37000001-38000000.681917.736660
lcl|7.94000001-95000000.818482.819174
lcl|10.129000001-130000000.833690.834627
lcl|7.92000001-93000000.408940.409647
lcl|7.93000001-94000000.967452.972616
lcl|17.37000001-38000000.315854.320169

lcl|Un.127000001-128000000.689959.690651
lcl|2.88000001-89000000.43933.44631
lcl|Un.80000001-81000000.324049.324725
lcl|7.93000001-94000000.409711.410429
lcl|10.130000001-131000000.452188.452831
lcl|X.35000001-36000000.634050.637772
lcl|9.39000001-40000000.668387.669091
lcl|2.86000001-87000000.517244.549146
lcl|7.93000001-94000000.259113.259835
lcl|9.40000001-41000000.139050.139742
lcl|9.39000001-40000000.771042.771743
lcl|Un.60000001-61000000.106673.107783
lcl|2.87000001-88000000.534045.535155
lcl|7.97000001-98000000.508271.508963
lcl|19.13000001-14000000.482044.482732
lcl|7.94000001-95000000.969398.970105
lcl|Un.64000001-65000000.278178.278827
lcl|7.8000001-9000000.605602.642549
lcl|7.98000001-99000000.125328.136840
lcl|4.51000001-52000000.699201.704034
lcl|2.87000001-88000000.248568.249108
lcl|2.88000001-89000000.841777.842483
lcl|9.38000001-39000000.796748.797458
lcl|7.96000001-97000000.395004.395638
lcl|9.19000001-20000000.119661.136278
lcl|2.119000001-120000000.202915.216102
lcl|9.39000001-40000000.623948.624652
lcl|2.87000001-88000000.583658.584762
lcl|Un.44000001-45000000.598836.599410
lcl|1.174000001-175000000.632585.636216
lcl|1.135000001-136000000.98577.102583
lcl|Un.39000001-40000000.793430.794071
lcl|7.94000001-95000000.486027.486721
lcl|1.137000001-138000000.132063.132509
lcl|7.5000001-6000000.836278.836919
lcl|17.36000001-37000000.214770.215199
lcl|6.135000001-136000000.438656.457173
lcl|10.130000001-131000000.426841.427457
lcl|7.92000001-93000000.730002.730670
lcl|9.18000001-19000000.754130.754744
lcl|17.36000001-37000000.828810.829779

Supplementary Table 2c

ADH	FZD	mGluR	RHOD	SEC	TAS2	VR
lcl|ctg25749.3.205582.242858	lcl|ctg25299.1.138021.139685	lcl|ctg25655.3.18599.128539	lcl|ctg30054.1.101714.148624	lcl|ctg9520.1.1318.16316	lcl|ctg25661.2.178944.182734	lcl|NA2231.1.1796.2773
lcl|ctg9449.2.99502.108958	lcl|ctg30294.2.137744.141876	lcl|ctg11117.2.54636.74321	lcl|ctg21883.1.114937.124303	lcl|ctg9413.9.197005.229474	lcl|ctg13622.1.15011.15985	
lcl|ctg25749.4.9969.42858	lcl|ctg9476.6.178479.180131	lcl|ctg15465.4.44282.83164	lcl|ctg30069.3.91873.93315	lcl|ctg9413.10.4383.21981		
lcl|ctg10787.2.134545.144608	lcl|ctg10121.2.55679.57421	lcl|ctg25821.2.71494.135154	lcl|ctg13567.3.74987.76087	lcl|ctg9796.2.105444.140485		
lcl|ctg9684.12.34267.130416	lcl|ctg30247.2.84444.86189	lcl|ctg10483.1.126.53670	lcl|ctg10579.1.236120.237196	lcl|ctg24784.1.2960.30792		
lcl|ctg13593.1.15199.42774	lcl|ctg10722.1.19928.21673	lcl|ctg10561.1.149806.229368	lcl|ctg14058.1.136904.223970	lcl|ctg10486.2.116060.171628		
lcl|ctg9559.1.52375.206901	lcl|ctg9684.14.37819.71243	lcl|NA5711.1.51295.79988	lcl|ctg9597.1.178239.193381	lcl|NA18031.1.1160.7054		
lcl|ctg9684.12.10909.21205	lcl|ctg14908.1.51403.53143	lcl|ctg9328.2.127559.212013	lcl|NA17534.1.54413.55552	lcl|NA14509.1.7393.11636		
lcl|ctg11314.1.4312.63010	lcl|ctg25079.1.84068.89023	lcl|ctg9331.1.36237.175911	lcl|ctg20760.1.15580.42330	lcl|ctg600.3.14615.64621		
lcl|NA9570.1.7236.17793	lcl|ctg10851.1.66984.68668	lcl|ctg25655.2.172304.200494	lcl|ctg969.4.38784.132508	lcl|ctg10018.1.161632.180082		
lcl|ctg9449.1.123787.140274	lcl|NA6755.1.3460.9245	lcl|NA6832.1.6927.19716	lcl|ctg9658.2.92343.93707	lcl|ctg9604.1.15344.51012		
lcl|ctg9684.10.108222.203531	lcl|NA26322.1.59.592	lcl|ctg10326.1.88843.119079	lcl|ctg15395.1.98369.99709	lcl|ctg10018.1.187601.202561		
lcl|ctg9684.11.234267.242417	lcl|NA9471.1.479.13000	lcl|ctg30261.3.6581.57566	lcl|ctg10100.1.6901.18886	lcl|ctg12563.1.28521.52510		
lcl|ctg9590.2.61311.123003	lcl|ctg12792.7.110501.118012	lcl|ctg30261.2.181398.224433	lcl|ctg25457.1.56262.57551	lcl|ctg9418.10.128124.143245		
lcl|ctg9684.10.237841.246730		lcl|ctg25655.2.51304.72654	lcl|ctg11158.1.209465.245492	lcl|ctg12351.1.127321.185112		
lcl|ctg128.2.240124.249794		lcl|ctg10382.2.120424.246493	lcl|ctg14296.1.8283.9803	lcl|ctg10769.2.234903.249533		
lcl|ctg128.3.40124.78475		lcl|NA16325.1.608.9607	lcl|ctg12669.1.78355.79698	lcl|ctg10769.3.34903.88478		
lcl|ctg9684.11.37841.221205		lcl|ctg24778.2.54527.64936	lcl|ctg27023.1.159410.171097	lcl|ctg11006.1.134780.176879		
lcl|ctg24981.1.186915.278304		lcl|ctg26079.3.179330.200093	lcl|ctg17.1.114251.115351	lcl|ctg9992.2.11925.161467		
lcl|ctg25660.1.85720.97084		lcl|ctg26079.4.98.20861	lcl|ctg25471.1.179777.204355	lcl|ctg9603.1.89426.123068		
lcl|ctg9396.1.51744.140065		lcl|ctg30261.1.210574.213414	lcl|ctg9495.1.235363.236559	lcl|ctg10514.3.771.121552		
lcl|ctg9449.2.160476.223852		lcl|ctg30261.2.10574.13414	lcl|ctg9487.3.153230.191637	lcl|ctg10221.2.12109.67614		
		lcl|ctg25655.1.143605.159763	lcl|ctg9547.1.193334.194395	lcl|ctg11752.3.5082.38017		
		lcl|ctg25655.1.135779.141646	lcl|ctg12201.6.108350.202219	lcl|ctg12032.1.232873.287394		
		lcl|ctg30261.2.96251.100910	lcl|NA24656.1.1132.2216	lcl|ctg13255.1.5888.194932		
		lcl|ctg10379.1.42902.43882	lcl|ctg9983.1.61053.86054	lcl|ctg14880.1.203745.207066		
		lcl|ctg11893.1.88155.96083	lcl|ctg25668.2.85408.86637	lcl|ctg14880.2.3745.7066		
		lcl|ctg30086.1.80396.82375	lcl|ctg25249.7.203358.204875	lcl|ctg14298.1.63446.94267		
		lcl|ctg10435.1.240635.243466	lcl|NA1456.1.2223.3271	lcl|ctg25281.1.50527.107215		
		lcl|ctg25655.1.120058.133965	lcl|ctg10324.6.124043.125284	lcl|ctg9573.1.31804.95913		
		lcl|NA17026.1.1181.2290	lcl|ctg25311.1.60280.61596	lcl|NA7437.1.989.24738		
		lcl|ctg12810.1.96913.111895	lcl|NA15742.1.3172.4665	lcl|ctg9449.2.109815.116361		
		lcl|NA9517.1.14288.40695	lcl|ctg15346.1.3291.20406	lcl|ctg10630.1.138311.209669		
		lcl|ctg25655.1.214686.245946	lcl|ctg12971.1.30051.31127	lcl|NA18092.1.10473.36180		
		lcl|ctg25655.2.14686.45946	lcl|ctg26074.4.74402.75511	lcl|ctg13863.1.52073.64062		
		lcl|ctg14586.1.9802.44994	lcl|ctg30335.2.70798.71958	lcl|ctg42.1.10594.41123		
		lcl|ctg9763.1.38242.45793	lcl|ctg11364.2.179643.180965	lcl|NA5910.1.15957.20769		
		lcl|NA10420.1.13856.33488	lcl|ctg11051.1.5533.57271	lcl|ctg24086.6.22342.53966		
		lcl|ctg25655.3.134764.147634	lcl|ctg30054.1.64769.88885	lcl|ctg10221.1.204513.242339		
		lcl|ctg12573.1.186030.203448	lcl|ctg9430.2.185562.188338	lcl|ctg30.1.155854.184255		
		lcl|ctg25261.1.57613.195382	lcl|ctg25777.2.101565.164382	lcl|ctg26549.6.62627.118053		
		lcl|ctg12454.1.34372.59344	lcl|ctg10131.1.41235.44461	lcl|NA13830.1.27211.32279		
		lcl|ctg24510.5.143654.208937	lcl|ctg11601.1.28699.30030	lcl|ctg26537.1.74970.176520		
		lcl|ctg22799.1.4267.17002	lcl|NA16832.1.8379.9515	lcl|ctg10090.2.91380.135780		
		lcl|ctg9469.2.158629.178811	lcl|ctg30033.1.16230.48979	lcl|ctg24510.1.55117.243781		
		lcl|ctg9451.4.133450.162244	lcl|ctg27023.1.66830.72348	lcl|ctg10526.1.65115.96215		
		lcl|ctg24778.2.18911.51174	lcl|NA5280.1.18237.19235	lcl|ctg24086.5.222342.233005		
		lcl|ctg24778.1.218911.243968	lcl|NA13948.1.2490.3614	lcl|ctg11898.3.87993.95618		
		lcl|ctg11893.1.167997.189385	lcl|ctg11160.1.233113.234177	lcl|ctg15604.1.17764.22321		
		lcl|ctg10129.2.176185.182956	lcl|ctg11160.2.33113.34177	lcl|ctg9796.2.5026.97624		
		lcl|ctg24510.6.48975.101725	lcl|ctg12330.2.44811.45950	lcl|ctg10221.2.120966.153608		
		lcl|ctg11893.2.106651.141824	lcl|ctg12330.1.232531.233670	lcl|ctg13242.1.686.14125		
			lcl|ctg9956.1.226655.249325	lcl|ctg30074.3.50419.61606		
			lcl|ctg9956.2.26655.106780	lcl|NA3628.1.1990.8763		
			lcl|ctg9868.1.180967.182055	lcl|ctg529.1.146041.185569		
			lcl|ctg47.9.132179.133240	lcl|ctg11136.1.38532.47270		

lcl|ctg9774.6.21552.59544
lcl|ctg9774.5.221552.249502
lcl|ctg24346.2.37805.96639
lcl|ctg9804.1.107325.133123
lcl|ctg568.2.105478.106671
lcl|NA2621.1.9334.10353
lcl|ctg14444.1.164580.228683
lcl|ctg11111.1.81985.91787
lcl|NA315.1.26471.58973
lcl|NA17534.1.25726.26763
lcl|NA22412.1.1594.2634
lcl|ctg10433.1.84813.85841
lcl|ctg9945.2.120446.121426
lcl|ctg47.9.136751.143090
lcl|ctg9339.2.149133.151929
lcl|ctg10241.1.79155.80975
lcl|ctg12023.1.174728.193778
lcl|ctg11026.1.106562.107677
lcl|ctg16068.1.38209.77814
lcl|ctg9339.2.190581.191612
lcl|ctg13964.1.162339.164771
lcl|ctg11041.5.83997.161701
lcl|ctg9917.3.147893.149026
lcl|NA17350.1.1987.48568
lcl|ctg11091.1.31418.40670
lcl|ctg14823.1.7074.8045
lcl|ctg25104.1.56734.108122
lcl|NA17470.1.15457.16551
lcl|ctg14823.1.29954.30943
lcl|ctg21883.1.131375.132483
lcl|ctg30034.1.76172.77272
lcl|ctg24086.7.128594.216104
lcl|ctg9630.1.24700.29373
lcl|NA2339.1.3125.4204
lcl|ctg9714.1.201590.202582
lcl|ctg9301.3.71223.84081
lcl|ctg604.1.124031.125056
lcl|NA5489.1.35426.39767
lcl|ctg10221.1.141828.179975
lcl|ctg9.6.71054.72082
lcl|ctg9471.2.29495.50514
lcl|ctg26800.1.65788.81730
lcl|ctg26161.1.82192.83221
lcl|ctg5.1.48127.49146
lcl|ctg10867.1.34110.44346
lcl|ctg604.1.127949.128974
lcl|NA9046.1.34692.35645
lcl|ctg9404.3.117273.121318
lcl|ctg9487.1.133050.151098
lcl|ctg10033.1.181400.188195
lcl|ctg26923.1.69486.90455
lcl|ctg14180.1.3458.205504
lcl|ctg10673.2.179987.197854
lcl|ctg10717.1.231384.234348
lcl|ctg11693.1.4852.108595
lcl|ctg30284.3.91857.191667
lcl|ctg24807.1.51878.73962
lcl|ctg9465.1.22903.108027
lcl|ctg13671.1.24192.31287
lcl|ctg25396.2.126626.138182

lcl|ctg15234.1.164495.171945
lcl|ctg10407.1.128278.131436
lcl|ctg30335.1.52139.53236
lcl|NA3919.1.48652.49638
lcl|ctg11165.1.128428.131843
lcl|ctg11165.1.140663.188507
lcl|NA18661.1.5808.6794
lcl|ctg25641.1.128253.135927
lcl|ctg604.2.29431.30408
lcl|ctg604.1.229431.230408
lcl|ctg606.1.213946.215016
lcl|ctg604.3.65893.66921
lcl|ctg10033.3.59105.93877
lcl|NA4066.1.6132.25801
lcl|NA17425.1.28673.36790
lcl|ctg11817.1.98881.119045
lcl|ctg30049.1.100683.124545
lcl|ctg11371.1.50564.72327
lcl|ctg26292.3.230871.231908
lcl|ctg26292.4.30871.31908
lcl|ctg10324.2.197971.245022
lcl|ctg10324.3.22423.45022
lcl|ctg10298.2.212108.235594
lcl|ctg10298.3.12108.35594
lcl|ctg15562.1.17507.36459
lcl|ctg15465.2.139063.183815
lcl|ctg12773.6.4280.5569
lcl|ctg12773.5.204280.205569
lcl|NA4709.1.4616.5671
lcl|ctg12201.6.42217.43230
lcl|ctg12201.5.242217.243230
lcl|ctg19445.1.10524.16429
lcl|ctg26015.3.116269.117752
lcl|ctg24086.8.5434.16104
lcl|ctg11657.1.113382.132839
lcl|ctg10959.1.192025.193182
lcl|ctg25325.1.87434.122411
lcl|ctg10302.2.111324.112316
lcl|ctg11996.1.197371.198758
lcl|ctg30259.3.32858.36240
lcl|ctg30259.2.192898.196280
lcl|ctg9714.1.190570.191496
lcl|NA8032.1.23304.24335
lcl|ctg25501.1.103195.113293
lcl|NA45655.1.107.1090
lcl|ctg13236.2.167031.171061
lcl|ctg11735.4.10878.12075
lcl|ctg11735.3.162396.163593
lcl|NA14414.1.16201.17265
lcl|ctg9476.5.147438.180126
lcl|ctg30047.1.159439.161095
lcl|ctg25874.2.226379.227458
lcl|ctg9406.2.68931.69992
lcl|ctg13710.1.17241.30831
lcl|ctg10669.1.41968.43035
lcl|ctg604.2.47019.48032
lcl|ctg604.1.247019.248032
lcl|NA7888.1.60337.88758
lcl|ctg11613.2.90359.109468
lcl|ctg26015.3.165900.207867

lcl|NA19410.1.4193.11195
lcl|ctg11219.1.2674.3846
lcl|ctg10991.1.129382.139444
lcl|ctg756.1.23441.24424
lcl|ctg9942.1.18749.35545
lcl|ctg11858.1.103220.173281
lcl|ctg26768.2.49968.51576
lcl|NA6900.1.12686.13715
lcl|ctg25304.3.136431.137630
lcl|ctg10788.2.736.169350
lcl|ctg25798.1.37899.49779
lcl|ctg30054.1.1175.44149
lcl|ctg9404.3.138072.139109
lcl|ctg30054.1.93725.94741
lcl|ctg12118.1.26556.60595
lcl|ctg15465.4.28124.29389
lcl|ctg15465.3.228124.229389
lcl|ctg15575.1.55786.56727
lcl|ctg10928.2.137094.138101
lcl|ctg11160.1.181766.182683
lcl|ctg11056.1.63222.142555
lcl|ctg9982.3.174753.178854
lcl|ctg12587.1.6720.7691
lcl|ctg13538.2.98214.145005
lcl|ctg10326.1.141124.142437
lcl|ctg25004.4.49468.50529
lcl|ctg26810.1.17803.28686
lcl|NA3695.1.1164.2186
lcl|ctg10019.1.151993.206578
lcl|ctg10308.1.54163.129695
lcl|ctg9833.3.59913.92132
lcl|ctg12317.1.180557.181618
lcl|NA15897.1.6648.7562
lcl|ctg30010.2.120113.121432
lcl|ctg10004.1.91514.101888
lcl|ctg12118.1.91365.131206
lcl|NA13952.1.6303.7182
lcl|NA16978.1.34682.35755
lcl|NA17295.1.35419.37855
lcl|ctg14130.1.282613.283587
lcl|ctg9355.1.8964.12996
lcl|ctg12317.1.186465.187472
lcl|ctg9424.1.132022.133020
lcl|ctg10562.1.266135.281319
lcl|ctg604.2.20651.26097
lcl|ctg604.1.220651.226097
lcl|ctg10047.2.171412.172374
lcl|ctg10728.1.163282.164244
lcl|ctg9339.2.133505.134464
lcl|ctg12940.2.182139.192152
lcl|ctg10131.1.9915.25560
lcl|ctg26402.1.182265.241786
lcl|ctg11638.1.178932.179876
lcl|ctg9992.1.2354.31831
lcl|ctg12317.1.44321.82783
lcl|ctg10945.2.80493.101095
lcl|ctg9812.3.177450.178835
lcl|ctg13452.1.59912.60868
lcl|ctg11095.1.30611.31582
lcl|ctg10367.1.115040.127645

lcl|ctg9473.1.49775.51692
lcl|ctg10845.2.74286.75200
lcl|NA16930.1.4113.5031
lcl|ctg9597.1.198406.200684
lcl|ctg26768.2.59208.60638
lcl|ctg11431.1.19054.93244
lcl|ctg26025.1.20956.56571
lcl|ctg9705.5.147373.166188
lcl|ctg14029.1.4622.5608
lcl|ctg12118.1.139266.140183
lcl|ctg30197.1.45461.46492
lcl|ctg10226.1.149122.149928
lcl|ctg11633.2.57257.130856
lcl|ctg25411.2.136922.139472
lcl|ctg11007.1.59876.65000
lcl|ctg9597.2.217066.268028
lcl|ctg9.1.218704.247941
lcl|ctg9.2.18704.55403
lcl|ctg10286.3.40956.50768
lcl|ctg25325.2.52519.53493
lcl|ctg14170.1.115907.136575
lcl|ctg10135.1.110809.137252
lcl|ctg11508.6.40065.53366
lcl|ctg24865.6.204211.231899
lcl|ctg11912.1.10935.27914
lcl|ctg11156.1.40024.46559
lcl|ctg12118.1.17450.18400
lcl|ctg9424.1.77131.78132
lcl|NA4550.1.1865.4096
lcl|ctg9424.1.56140.57195
lcl|NA13433.1.1220.2311
lcl|ctg10019.14.79589.82640
lcl|ctg10666.1.118079.119194
lcl|ctg10167.2.25002.31060
lcl|ctg10167.1.225002.231060
lcl|ctg12162.1.40979.59497
lcl|ctg604.1.48925.54233
lcl|ctg10286.2.240956.247981
lcl|ctg14531.1.211481.223141
lcl|ctg14531.2.11481.23141
lcl|NA4283.1.5238.6479
lcl|ctg15810.1.157761.167032
lcl|ctg604.1.59165.97791
lcl|ctg9714.2.1797.2582
lcl|NA5048.1.7296.8183
lcl|NA5048.1.6016.6879
lcl|ctg13027.1.41387.48582
lcl|NA4356.1.3785.6683
lcl|ctg9509.2.92027.191807
lcl|ctg26768.2.54004.56532
lcl|ctg26436.1.126937.255730
lcl|ctg25249.6.119601.133616
lcl|ctg9717.3.196526.197608
lcl|ctg13710.1.59183.65689
lcl|NA14884.1.11432.13035
lcl|ctg11102.5.72279.140903
lcl|ctg11571.1.163687.164652
lcl|ctg26375.2.126383.136866
lcl|ctg27004.1.163832.166769
lcl|ctg9424.3.31080.43744

lcl|ctg9424.2.182769.195433
lcl|ctg10131.1.148688.202437
lcl|ctg13054.1.118142.155575
lcl|ctg11508.5.196493.197446
lcl|ctg604.1.33476.43818
lcl|ctg12778.1.29725.39446
lcl|ctg9424.3.52002.58922
lcl|ctg10170.1.203072.219574
lcl|ctg10170.2.19982.36484
lcl|ctg15276.3.148162.149177
lcl|ctg10460.1.126591.127307
lcl|ctg11508.6.31923.32906
lcl|ctg11508.5.188351.189334
lcl|ctg11898.2.148658.187187
lcl|ctg13654.2.68637.70101
lcl|ctg10152.3.42534.46987
lcl|ctg10152.2.242534.246987
lcl|ctg25874.2.218337.221959
lcl|ctg11194.1.33902.37465
lcl|ctg14500.1.27372.123399
lcl|ctg26239.1.157128.158225
lcl|NA3648.1.6404.7222
lcl|ctg25905.1.154414.177181
lcl|ctg10613.1.91111.129892
lcl|ctg14063.1.10732.25832
lcl|ctg9763.1.17593.27548
lcl|NA16527.1.37745.54501
lcl|ctg9597.2.4587.23899
lcl|ctg9597.1.204587.223899
lcl|ctg12457.1.122914.152951
lcl|ctg11508.5.183663.185470
lcl|ctg11508.6.27235.29042
lcl|ctg9487.1.154423.155301
lcl|ctg9717.2.112782.113819
lcl|NA2463.1.26429.27505
lcl|ctg9662.1.64632.75846
lcl|ctg25411.1.19970.57476
lcl|NA1955.1.82286.101867
lcl|NA32659.1.566.1499
lcl|ctg26038.2.82839.83606
lcl|ctg21117.1.45043.104387
lcl|ctg9485.1.112488.128129
lcl|NA10075.1.7959.23081
lcl|ctg30252.15.82561.83394
lcl|ctg11007.1.111745.158074
lcl|NA49053.1.432.1052
lcl|ctg9836.1.65854.99415
lcl|NA10954.1.12177.20778
lcl|ctg25086.1.10823.16525
lcl|ctg9471.1.188624.209105
lcl|ctg24012.1.27165.79243
lcl|ctg30275.1.150132.157738
lcl|ctg11503.1.67075.81926
lcl|ctg10689.1.187876.247073
lcl|NA8494.1.2404.5967
lcl|ctg9393.2.155156.155920
lcl|ctg47.9.190347.191348
lcl|ctg47.10.29088.30089
lcl|ctg12644.1.23064.52034
lcl|ctg10845.2.66859.70040

lcl|ctg22363.1.23661.85396
lcl|ctg30312.1.99550.121514
lcl|ctg9424.1.236849.241235
lcl|ctg9424.2.36849.41235
lcl|ctg11726.1.47827.97899
lcl|ctg11930.2.160567.205693
lcl|ctg9847.1.233307.234537
lcl|ctg26.5.49782.54156
lcl|ctg11194.1.39733.82277
lcl|ctg9424.1.78674.94511
lcl|ctg9698.2.236114.240936
lcl|ctg9698.3.36114.40936
lcl|ctg24697.1.123710.124909
lcl|ctg9970.2.217301.240223
lcl|ctg9970.3.17301.40223
lcl|ctg9706.1.162992.205133
lcl|ctg30028.4.27872.41381
lcl|ctg30028.3.187963.192265
lcl|ctg11040.1.164449.165473
lcl|ctg15412.1.44691.66122
lcl|ctg47.10.18649.19671
lcl|ctg47.9.179908.180930
lcl|ctg30094.1.48166.85653
lcl|NA8584.1.8445.28709
lcl|ctg10961.1.151087.153591
lcl|ctg9406.2.101874.174702
lcl|ctg30089.2.232432.235714
lcl|ctg30001.1.229511.242205
lcl|ctg30001.2.29511.42205
lcl|ctg15504.2.10824.18559
lcl|NA12942.1.8889.16498
lcl|ctg13880.3.135182.136018
lcl|ctg10431.2.225346.245734
lcl|ctg10689.2.7470.83827
lcl|ctg10611.1.87684.176824
lcl|ctg9688.2.43724.92034
lcl|ctg10361.2.54759.55697
lcl|NA5719.1.5358.6581
lcl|ctg26768.2.132916.134109
lcl|ctg26.5.168575.169552
lcl|ctg24921.3.97907.98933
lcl|ctg26.6.8597.9544
lcl|ctg26.5.208597.209544
lcl|ctg15504.1.192898.218559
lcl|ctg12062.1.135370.142064
lcl|ctg9756.1.32363.56899
lcl|ctg15460.1.28501.46294
lcl|ctg13462.1.72791.73690
lcl|ctg26313.1.48817.68862
lcl|ctg10949.1.117214.152725
lcl|ctg25764.2.39533.40273
lcl|ctg27006.1.72316.93957
lcl|ctg26.5.116066.165616
lcl|ctg9573.1.116115.189125
lcl|ctg9424.3.925.27014
lcl|ctg9424.2.152614.178703
lcl|ctg10361.2.44343.45281
lcl|ctg10361.1.244343.245281
lcl|ctg14481.1.10976.20096
lcl|ctg10534.1.100615.101577

lcl|ctg9401.2.188975.200842
lcl|ctg9838.2.86961.91125
lcl|ctg20605.1.85390.96250
lcl|ctg24770.1.48055.82819
lcl|ctg24911.1.28892.45282
lcl|NA12703.1.16464.30728
lcl|NA4303.1.30.581
lcl|ctg26810.1.16066.17076
lcl|NA14967.1.21066.22037
lcl|NA3274.1.24741.28472
lcl|ctg30275.1.94787.119676
lcl|NA10306.1.2190.5081
lcl|NA19230.1.12121.18491
lcl|ctg24825.1.254424.255536
lcl|NA5112.1.17332.23796
lcl|NA15155.1.13977.37349
lcl|ctg24876.2.100374.101018
lcl|ctg10447.1.131852.159952
lcl|NA4463.1.3582.4565
lcl|ctg9945.2.106995.113904
lcl|ctg10361.2.61516.65845
lcl|NA35766.1.702.1535
lcl|NA1427.1.7847.16636
lcl|ctg9912.2.145786.148661
lcl|ctg9967.1.125551.150815
lcl|ctg9424.1.104888.111879
lcl|ctg12310.1.113871.132469
lcl|ctg11493.1.54653.75133
lcl|NA20360.1.2390.3241
lcl|ctg10784.1.133033.139208
lcl|ctg9889.1.17018.60389
lcl|ctg12622.2.61392.111342
lcl|ctg26.5.69643.97825
lcl|ctg9807.3.59515.118550
lcl|NA4144.1.6037.6528
lcl|ctg9913.1.20080.104341
lcl|ctg12183.1.98190.99110
lcl|ctg13856.1.64795.79920
lcl|ctg14036.4.143603.170025
lcl|ctg12183.1.83578.84501
lcl|ctg9424.3.141841.142817
lcl|NA67721.1.284.1057
lcl|ctg7.3.179818.194698
lcl|ctg7.4.19287.34167
lcl|ctg9424.2.71925.115695
lcl|ctg12183.2.122283.123230
lcl|ctg26075.1.136098.147502
lcl|ctg25075.1.145813.191322
lcl|ctg25426.2.29396.64697
lcl|ctg25849.1.126383.155142
lcl|ctg9345.3.118644.136454
lcl|ctg24784.1.73418.74368
lcl|ctg12317.1.112975.136477
lcl|ctg12167.4.69774.113727
lcl|ctg10361.2.48862.49668
lcl|NA19837.1.1286.2128
lcl|ctg9993.2.90539.162065
lcl|ctg10788.3.123400.189566
lcl|NA3041.1.704.17735
lcl|ctg10083.2.220303.221283

lcl|ctg10083.3.20303.21283
lcl|ctg11890.2.170886.203049
lcl|ctg11890.3.2210.3049
lcl|NA8666.1.4378.10543
lcl|ctg10538.1.54875.87287
lcl|NA15423.1.6340.7176
lcl|ctg11796.2.154258.161891
lcl|ctg14823.1.29068.29576
lcl|ctg14090.1.75231.76088
lcl|NA12317.1.27497.28399
lcl|ctg9838.2.67366.71782
lcl|ctg10848.1.198082.282687
lcl|ctg25381.1.146393.147505
lcl|NA4387.1.2863.7339
lcl|ctg13054.1.96722.99239
lcl|NA1678.1.1674.2542
lcl|NA16839.1.2977.3768
lcl|NA14152.1.15844.25882
lcl|ctg10021.1.172420.197682
lcl|ctg10021.2.18711.43973
lcl|ctg9317.1.12924.23210
lcl|ctg10041.1.156891.158233
lcl|ctg14090.1.79302.80120
lcl|ctg11764.1.51342.53251
lcl|ctg30270.1.5101.8359
lcl|ctg9300.7.49151.50044
lcl|ctg10985.1.29323.70259
lcl|ctg25386.2.70452.83876
lcl|NA10901.1.1720.6732
lcl|ctg26293.2.13158.223104
lcl|ctg13462.1.18362.68428
lcl|ctg24784.1.93431.94381
lcl|ctg11362.1.27458.28300
lcl|ctg11926.1.168487.169232
lcl|ctg13452.1.24801.50884
lcl|ctg10422.1.79045.113524
lcl|ctg30271.2.153166.156554
lcl|ctg20579.1.113155.159884
lcl|ctg10459.1.60521.135058
lcl|NA8142.1.1370.2093
lcl|ctg9300.6.249151.249993
lcl|NA9343.1.56703.62790
lcl|ctg10947.1.4000.8931
lcl|ctg10985.1.74500.81259
lcl|ctg12745.1.46810.58279
lcl|ctg10985.1.103501.104304
lcl|ctg10784.1.139531.164631
lcl|ctg9654.1.24998.35818
lcl|ctg15060.1.5232.32246
lcl|ctg25765.1.68238.144822
lcl|ctg14090.1.4157.9175
lcl|ctg12317.1.163870.164421
lcl|NA1949.1.1327.2448
lcl|ctg13737.1.157333.162427
lcl|NA4387.1.7756.8574
lcl|ctg10212.1.87515.93635
lcl|ctg10666.1.14244.50768
lcl|ctg10361.1.248862.249600
lcl|ctg969.3.238784.248126
lcl|ctg7.3.158153.167325

lcl|ctg10738.1.158189.180158
lcl|ctg10536.2.6054.6774
lcl|ctg10324.5.84887.130776
lcl|ctg24921.1.69040.154367
lcl|NA13684.1.33458.56919
lcl|ctg11503.1.31149.37420
lcl|ctg10215.1.169745.170452
lcl|ctg14603.1.10352.57837
lcl|ctg9424.1.142525.163825
lcl|ctg9476.5.204626.205552
lcl|ctg9476.6.4626.5552
lcl|ctg10514.2.96671.105204
lcl|ctg10025.3.103405.113094
lcl|ctg12032.1.79243.89708
lcl|ctg12002.2.4293.118584
lcl|NA2098.1.4136.49385
lcl|ctg25459.8.75489.93102
lcl|ctg10238.1.143312.172222
lcl|ctg9599.1.170061.174729
lcl|NA25219.1.286.906
lcl|NA15731.1.3335.3864
lcl|ctg10536.1.206088.206774
lcl|ctg10536.1.206088.206774
lcl|NA47015.1.873.1268
lcl|ctg128.3.40124.78475
lcl|ctg10738.1.198313.236283
lcl|NA64223.1.233.676
lcl|ctg14090.1.34645.61504
lcl|ctg11227.1.154297.203809
lcl|ctg10029.2.59548.84803
lcl|ctg9401.3.171.842
lcl|ctg14481.1.24078.24521
lcl|ctg26770.2.161860.165749
lcl|ctg13622.1.15011.15985
lcl|ctg9650.1.112520.193049
lcl|NA14510.1.4013.4663
lcl|NA15667.1.21572.22283
lcl|ctg604.2.3250.9924
lcl|ctg604.1.203250.209924
lcl|NA17026.1.1181.2290
lcl|ctg24346.1.231683.232880
lcl|NA13300.1.8079.8593
lcl|ctg9662.3.180960.181856
lcl|ctg10514.2.164058.164822
lcl|ctg23943.1.3176.41299
lcl|ctg12971.1.4777.8351
lcl|ctg604.1.24213.24635
lcl|ctg11578.1.95067.116787
lcl|NA21842.1.1421.1933
lcl|ctg9684.9.38232.42936
lcl|ctg9684.8.238232.242767
lcl|NA16956.1.16286.24415
lcl|NA3363.1.28973.30785
lcl|ctg12853.1.148295.187880
lcl|ctg12853.1.148295.187880

Supplementary Table 2d

ADH	FZD	mGluR	RHOD	SEC	VR
lcl|scaffold_1036.50710.87582	lcl|scaffold_300.214923.216626	lcl|scaffold_5.526199.553219	lcl|scaffold_98.44573.47700	lcl|scaffold_1762.575.15524	lcl|scaffold_108.279174.280449
lcl|scaffold_536.134609.153089	lcl|scaffold_1549.10885.12627	lcl|scaffold_951.30076.85361	lcl|scaffold_1015.1544.11099	lcl|scaffold_2507.519.12421	
lcl|scaffold_1862.32246.37594	lcl|scaffold_536.20133.21884	lcl|scaffold_40.185361.211228	lcl|scaffold_1197.24379.31655	lcl|scaffold_1374.24076.45535	
lcl|scaffold_1674.454.42373	lcl|scaffold_2461.12412.14142	lcl|scaffold_1713.534.13408	lcl|scaffold_239.125398.138533	lcl|scaffold_77.170574.186970	
lcl|scaffold_648.2052.27961	lcl|scaffold_74.265266.266879	lcl|scaffold_3.247111.257494	lcl|scaffold_2503.2465.20067	lcl|scaffold_833.91666.96954	
lcl|scaffold_611.62641.85179	lcl|scaffold_1909.3949.8009	lcl|scaffold_612.127029.138484	lcl|scaffold_63.186848.187939	lcl|scaffold_446.102592.111294	
	lcl|scaffold_43.402294.403766	lcl|scaffold_190.132729.142032	lcl|scaffold_3083.4123.15846	lcl|scaffold_1441.18741.40683	
	lcl|scaffold_6516.7.1682	lcl|scaffold_297.292.5312	lcl|scaffold_435.149000.153922	lcl|scaffold_887.43042.71325	
	lcl|scaffold_849.34084.38418	lcl|scaffold_3975.135.1043	lcl|scaffold_98.39840.40970	lcl|scaffold_6.528224.548591	
	lcl|scaffold_3606.3197.10767	lcl|scaffold_6513.1677.3194	lcl|scaffold_339.77202.79642	lcl|scaffold_2822.3960.18760	
		lcl|scaffold_2574.21061.24459	lcl|scaffold_234.190897.192480	lcl|scaffold_2532.1240.9911	
		lcl|scaffold_2574.74.6435	lcl|scaffold_96.200715.201785	lcl|scaffold_5985.70.5195	
		lcl|scaffold_3975.1567.4870	lcl|scaffold_333.15136.16527	lcl|scaffold_461.52254.61120	
		lcl|scaffold_2212.71.5869	lcl|scaffold_456.97250.102152	lcl|scaffold_3050.9895.14636	
		lcl|scaffold_6.379276.382533	lcl|scaffold_2360.23276.24613	lcl|scaffold_1531.30321.35359	
		lcl|scaffold_2574.12451.15387	lcl|scaffold_501.117650.149825	lcl|scaffold_4415.1753.8016	
		lcl|scaffold_612.118926.126338	lcl|scaffold_48.231832.233103	lcl|scaffold_86.187585.205238	
		lcl|scaffold_492.19014.29410	lcl|scaffold_58.83165.84697	lcl|scaffold_5541.817.5514	
		lcl|scaffold_803.47224.80702	lcl|scaffold_4655.7353.8603		
		lcl|scaffold_1251.54532.57728	lcl|scaffold_566.105680.107239		
		lcl|scaffold_140.111538.132703	lcl|scaffold_815.12492.18456		
		lcl|scaffold_646.75984.99364	lcl|scaffold_460.32958.56409		
		lcl|scaffold_1183.38777.39397	lcl|scaffold_1393.36845.38080		
		lcl|scaffold_1262.33410.37337	lcl|scaffold_299.155508.156659		
		lcl|scaffold_646.112962.125352	lcl|scaffold_3097.16211.18657		
		lcl|scaffold_2428.7140.10489	lcl|scaffold_5764.4272.5552		
			lcl|scaffold_2900.989.14286		
			lcl|scaffold_1414.35660.36850		
			lcl|scaffold_458.24173.25210		
			lcl|scaffold_4.668320.678469		
			lcl|scaffold_335.27744.40910		
			lcl|scaffold_169.118943.129472		
			lcl|scaffold_134.113580.150508		
			lcl|scaffold_134.11898.14998		
			lcl|scaffold_2168.6773.8472		
			lcl|scaffold_243.166760.167986		
			lcl|scaffold_733.103757.117043		
			lcl|scaffold_601.250.4995		
			lcl|scaffold_7.505324.506460		
			lcl|scaffold_2770.888.4754		
			lcl|scaffold_254.43323.46396		
			lcl|scaffold_572.71094.72449		
			lcl|scaffold_260.202015.217947		
			lcl|scaffold_1026.17580.19510		
			lcl|scaffold_444.79644.82581		
			lcl|scaffold_3323.7815.9919		
			lcl|scaffold_119.190635.191711		
			lcl|scaffold_2468.4003.8134		
			lcl|scaffold_100.112582.113583		
			lcl|scaffold_539.48258.51501		
			lcl|scaffold_169.133261.134361		
			lcl|scaffold_711.9940.14212		
			lcl|scaffold_352.30346.32221		
			lcl|scaffold_697.38378.39957		
			lcl|scaffold_2922.4199.13880		
			lcl|scaffold_104.244099.246829		

lcl|scaffold_2762.5002.6393
lcl|scaffold_405.15398.21665
lcl|scaffold_884.20177.27857
lcl|scaffold_470.34653.36386
lcl|scaffold_238.12958.14619
lcl|scaffold_68.318285.337733
lcl|scaffold_2745.6404.17086
lcl|scaffold_1924.35346.36428
lcl|scaffold_1266.52828.54009
lcl|scaffold_784.18160.24737
lcl|scaffold_470.31632.33180
lcl|scaffold_176.215423.227911
lcl|scaffold_52.325772.331304
lcl|scaffold_4262.1937.9584
lcl|scaffold_143.159277.163617
lcl|scaffold_767.98269.99516
lcl|scaffold_5862.1103.5043
lcl|scaffold_1066.20035.21868
lcl|scaffold_511.109082.110233
lcl|scaffold_710.106139.109777
lcl|scaffold_1393.41549.44355
lcl|scaffold_200.126775.129223
lcl|scaffold_1144.54122.60617
lcl|scaffold_643.17436.25071
lcl|scaffold_323.34584.37544
lcl|scaffold_95.274256.276541
lcl|scaffold_1371.16841.19704
lcl|scaffold_3906.1500.5481
lcl|scaffold_1688.2854.32664
lcl|scaffold_102.102891.104426
lcl|scaffold_68.108048.135005
lcl|scaffold_49.124516.131471
lcl|scaffold_157.185955.187025
lcl|scaffold_1642.6125.7261
lcl|scaffold_193.163922.164875
lcl|scaffold_1041.47500.63459
lcl|scaffold_167.156078.188636
lcl|scaffold_93.156195.157223
lcl|scaffold_5982.2402.3713
lcl|scaffold_92.247412.248626
lcl|scaffold_2650.9002.10441
lcl|scaffold_516.20964.33280
lcl|scaffold_476.54523.72972
lcl|scaffold_593.4943.5947
lcl|scaffold_5.496111.503530
lcl|scaffold_1572.6089.7558
lcl|scaffold_299.98476.99852
lcl|scaffold_951.86682.87968
lcl|scaffold_322.117956.121301
lcl|scaffold_1204.16350.17909
lcl|scaffold_5.491152.493240
lcl|scaffold_50.84406.89649
lcl|scaffold_146.114331.115356
lcl|scaffold_34.376298.391205
lcl|scaffold_1221.67075.68757
lcl|scaffold_18.374552.376796
lcl|scaffold_169.136279.138535
lcl|scaffold_239.64420.79248
lcl|scaffold_2272.17036.17965
lcl|scaffold_986.5824.11841

lcl|scaffold_1348.10841.17294
lcl|scaffold_2255.14090.17405
lcl|scaffold_207.49201.62186
lcl|scaffold_1210.2059.6205
lcl|scaffold_998.485.16450
lcl|scaffold_44.66013.91123
lcl|scaffold_160.40187.41464
lcl|scaffold_2384.6207.11456
lcl|scaffold_2010.16806.27309
lcl|scaffold_265.194297.195412
lcl|scaffold_972.66036.69193
lcl|scaffold_1045.76221.85362
lcl|scaffold_1161.55218.64349
lcl|scaffold_463.50830.52312
lcl|scaffold_1131.7455.22109
lcl|scaffold_180.255340.256242
lcl|scaffold_204.4435.6490
lcl|scaffold_467.103765.112426
lcl|scaffold_92.11175.12207
lcl|scaffold_256.104560.105552
lcl|scaffold_155.120379.121242
lcl|scaffold_119.194247.195235
lcl|scaffold_7045.942.1711
lcl|scaffold_3546.5539.7508
lcl|scaffold_109.44301.50030
lcl|scaffold_1993.11106.25106
lcl|scaffold_6783.393.1167
lcl|scaffold_193.161071.162205
lcl|scaffold_37.31834.43667
lcl|scaffold_224.201938.203987
lcl|scaffold_135.212423.215610
lcl|scaffold_1949.1173.3306
lcl|scaffold_4120.1466.5525
lcl|scaffold_177.28190.53315
lcl|scaffold_5322.1539.5675
lcl|scaffold_343.94499.109850
lcl|scaffold_37.341946.347460
lcl|scaffold_3299.659.8293
lcl|scaffold_25.372579.378555
lcl|scaffold_522.86284.87336
lcl|scaffold_263.151842.154008
lcl|scaffold_291.206085.207415
lcl|scaffold_3260.853.6668
lcl|scaffold_2815.2264.7641
lcl|scaffold_632.102995.106132
lcl|scaffold_715.37817.43256
lcl|scaffold_2471.275.21120
lcl|scaffold_54.136055.166191
lcl|scaffold_544.38299.39618
lcl|scaffold_385.74996.88850
lcl|scaffold_6660.86.2467
lcl|scaffold_142.118748.119713
lcl|scaffold_710.100107.102969
lcl|scaffold_905.32709.34334
lcl|scaffold_401.175281.178212
lcl|scaffold_239.122027.122845
lcl|scaffold_1887.28308.38136
lcl|scaffold_142.120730.121689
lcl|scaffold_101.241360.259580
lcl|scaffold_4479.6570.7541

lcl|scaffold_4429.4755.5705
lcl|scaffold_218.57828.58886
lcl|scaffold_6269.1619.2590
lcl|scaffold_271.45530.52438
lcl|scaffold_1395.12194.18226
lcl|scaffold_142.98531.100366
lcl|scaffold_3905.7962.12144
lcl|scaffold_18.100394.101347
lcl|scaffold_403.51691.62826
lcl|scaffold_126.189405.190433
lcl|scaffold_1167.20651.28983
lcl|scaffold_7743.39.965
lcl|scaffold_3058.6866.16357
lcl|scaffold_142.101784.113254
lcl|scaffold_4563.5006.5959
lcl|scaffold_128.245081.248002
lcl|scaffold_240.80045.89550
lcl|scaffold_328.4718.5593
lcl|scaffold_457.128783.138394
lcl|scaffold_6031.3463.4596
lcl|scaffold_2150.57.992
lcl|scaffold_119.137360.138322
lcl|scaffold_1026.69937.75591
lcl|scaffold_2798.877.18766
lcl|scaffold_5359.5335.7500
lcl|scaffold_6054.1315.2463
lcl|scaffold_155.51076.52041
lcl|scaffold_844.98737.99558
lcl|scaffold_26.228718.251712
lcl|scaffold_1187.17311.71735
lcl|scaffold_1026.80121.80816
lcl|scaffold_2346.10262.15595
lcl|scaffold_844.59831.60673
lcl|scaffold_593.6.698
lcl|scaffold_6818.953.1738
lcl|scaffold_7903.3039.3865
lcl|scaffold_7573.17.1841
lcl|scaffold_563.59981.64264
lcl|scaffold_26.221960.225708
lcl|scaffold_5846.427.5392
lcl|scaffold_1131.57799.58713
lcl|scaffold_2051.30766.31251
lcl|scaffold_301.134606.135435
lcl|scaffold_4368.57.10499
lcl|scaffold_4479.62.3901
lcl|scaffold_5287.104.772
lcl|scaffold_1093.6.2264
lcl|scaffold_465.559.4205

Supplementary Table 2e

ADH	FZD	mGluR	RHOD	SEC
ci0100130008	lcl|ci0100145264	lcl|ci0100130340	lcl|ci0100140881	ci0100137028
ci0100148371	lcl|ci0100140006	lcl|ci0100150802	lcl|ci0100137935	ci0100151327
ci0100131580	lcl|ci0100133368	lcl|ci0100147063	lcl|ci0100139179	ci0100140016
ci0100139945	lcl|ci0100150136	lcl|ci0100143048	lcl|ci0100143330	ci0100145281
ci0100139465	lcl|ci0100150930	lcl|ci0100133026	lcl|ci0100145437	ci0100145252
ci0100130038	lcl|ci0100153324	lcl|ci0100152670	lcl|ci0100151600	ci0100147570
	lcl|ci0100152761	lcl|ci0100131489	lcl|ci0100130320	ci0100130945
		lcl|ci0100137774	lcl|ci0100137823	ci0100141310
			lcl|ci0100133550	ci0100145494
			lcl|ci0100149471	ci0100153483
			lcl|ci0100134273	ci0100141557
			lcl|ci0100143568	ci0100145584
			lcl|ci0100137803	ci0100145837
			lcl|ci0100131140	ci0100139268
			lcl|ci0100144874	ci0100142971
			lcl|ci0100138913	ci0100132112
			lcl|ci0100146266	ci0100132869
			lcl|ci0100132133	ci0100131605
			lcl|ci0100144199	ci0100135442
			lcl|ci0100150689	ci0100144493
			lcl|ci0100133606	ci0100150579
			lcl|ci0100134145	ci0100133766
			lcl|ci0100141702	ci0100144441
			lcl|ci0100147526	ci0100131249
			lcl|ci0100132620	ci0100135674
			lcl|ci0100139176	ci0100130804
			lcl|ci0100140366	ci0100152766
			lcl|ci0100143990	ci0100137512
			lcl|ci0100153785	ci0100130776
			lcl|ci0100143362	ci0100152008
			lcl|ci0100133065	ci0100134612
			lcl|ci0100146328	ci0100148347
			lcl|ci0100130986	ci0100152579
			lcl|ci0100152622	ci0100150391
			lcl|ci0100138509	ci0100130529
			lcl|ci0100154135	ci0100141991
			lcl|ci0100153146	ci0100134765
			lcl|ci0100141751	ci0100130163
			lcl|ci0100150840	ci0100146845
			lcl|ci0100133186	ci0100132129
			lcl|ci0100136041	ci0100140631
			lcl|ci0100148288	ci0100136913
			lcl|ci0100154445	ci0100140631
			lcl|ci0100145358	ci0100136890
			lcl|ci0100136887	ci0100136913
			lcl|ci0100145160	ci0100140631
			lcl|ci0100154093	ci0100136890
			lcl|ci0100149551	ci0100136913

lcl|ci0100133821
lcl|ci0100154530
lcl|ci0100131758
lcl|ci0100134424
lcl|ci0100149095
lcl|ci0100142526
lcl|ci0100154507
lcl|ci0100142069
lcl|ci0100143261
lcl|ci0100151424
lcl|ci0100137355
lcl|ci0100141547
lcl|ci0100153844
lcl|ci0100143923
lcl|ci0100148112
lcl|ci0100130858
lcl|ci0100141745
lcl|ci0100132083
lcl|ci0100153810
lcl|ci0100134571
lcl|ci0100141384
lcl|ci0100130612
lcl|ci0100144360
lcl|ci0100135689
lcl|ci0100147271
lcl|ci0100148350
lcl|ci0100144925
lcl|ci0100146763
lcl|ci0100142353
lcl|ci0100137752
lcl|ci0100153351
lcl|ci0100148400
lcl|ci0100138955
lcl|ci0100144368
lcl|ci0100147431
lcl|ci0100143219
lcl|ci0100151225
lcl|ci0100154142
lcl|ci0100143057
lcl|ci0100130259
lcl|ci0100154564
lcl|ci0100131120
lcl|ci0100150116
lcl|ci0100147407
lcl|ci0100130034
lcl|ci0100130090
lcl|ci0100143146
lcl|ci0100143040
lcl|ci0100148454
lcl|ci0100145235
lcl|ci0100148961

lcl|ci0100153327
lcl|ci0100149830
lcl|ci0100131416
lcl|ci0100152713
lcl|ci0100143701
lcl|ci0100131681
lcl|ci0100144713
lcl|ci0100148475
lcl|ci0100146193
lcl|ci0100132478
lcl|ci0100131826
lcl|ci0100142029
lcl|ci0100143300
lcl|ci0100151346
lcl|ci0100152581
lcl|ci0100147236
lcl|ci0100141602
lcl|ci0100130111
lcl|ci0100131351
lcl|ci0100139291
lcl|ci0100132380
lcl|ci0100142144
lcl|ci0100134756
lcl|ci0100147669
lcl|ci0100130574
lcl|ci0100141764
lcl|ci0100150268
lcl|ci0100143093
lcl|ci0100142337
lcl|ci0100131137
lcl|ci0100136241
lcl|ci0100144205
lcl|ci0100130445
lcl|ci0100146152
lcl|ci0100153613
lcl|ci0100141514
lcl|ci0100135081
lcl|ci0100131828
lcl|ci0100137389
lcl|ci0100153326

Supplementary Table 2f

<table>
<tr><th>ADH</th><th>DMODOR</th><th>FZD</th><th>GUST</th><th>mGluR</th><th>RHOD</th><th>SEC</th></tr>
<tr><td>gi|7304025|gb|AAF59067.1| CG8639</td><td>gi|7291580|gb|AAF47004.1| Or59a</td><td>gi|7293818|gb|AAF49184.1| fz2</td><td>gi|7292420|gb|AAF47824.1| CG14986</td><td>gi|7304372|gb|AAF59402.1| Glu-RA</td><td>gi|7300647|gb|AAF55796.1| Oamb [alt 2]</td><td>gi|7303186|gb|AAF58250.1| CG8422</td></tr>
<tr><td>gi|10727655|gb|AAF58763.2| stan</td><td>gi|7290298|gb|AAF45759.1| Or2a</td><td>gi|10727932|gb|AAF49746.2| fz</td><td>gi|7292422|gb|AAF47826.1| CG14988</td><td>gi|7304043|gb|AAF59082.1| CG8692</td><td>gi|10726848|gb|AAF56908.2| CG18741</td><td>gi|7303445|gb|AAF58501.1| CG12370</td></tr>
<tr><td>gi|7302011|gb|AAF57115.1| CG11318</td><td>gi|7297885|gb|AAF53131.1| Or33a</td><td>gi|10727423|gb|AAF51518.2| smo</td><td>gi|7290160|gb|AAF45624.1| EG:BACN32G11.1</td><td>gi|7300772|gb|AAF55916.1| BcDNA:GH07312</td><td>gi|7300648|gb|AAF55797.1| Oamb [alt 1]</td><td>gi|7290328|gb|AAF45788.1| EG:BACR25B3.3</td></tr>
<tr><td>gi|7292855|gb|AAF48247.1| CG15744</td><td>gi|7297886|gb|AAF53132.1| Or33b</td><td>gi|10728360|gb|AAG22363.1| fz3 [alt 1]</td><td>gi|7292398|gb|AAF47803.1| CG14979</td><td>gi|10727404|gb|AAF51465.2| CG3022</td><td>gi|7302000|gb|AAF57104.1| 5-HT7</td><td>gi|7303329|gb|AAF58388.1| CG17415</td></tr>
<tr><td>gi|7302014|gb|AAF57118.1| CG15556</td><td>gi|7296068|gb|AAF51363.1| Or22b</td><td>gi|7290081|gb|AAF45547.1| fz3 [alt 2]</td><td>gi|10727204|gb|AAF47421.2| CG13888</td><td>gi|7298197|gb|AAF53431.1| BG:DS00929.6</td><td>gi|7300302|gb|AAF55463.1| CG7431</td><td>gi|7292823|gb|AAF48216.1| CG4395</td></tr>
<tr><td></td><td>gi|7296069|gb|AAF51364.1| Or22a</td><td>gi|7290800|gb|AAF46245.1| fz4</td><td>gi|7290611|gb|AAF46060.1| CG15779</td><td>gi|7301413|gb|AAF56539.1| boss</td><td>gi|7296517|gb|AAF51802.1| TyrR</td><td>gi|7295445|gb|AAF50761.1| CG17795</td></tr>
<tr><td></td><td>gi|7295931|gb|AAF51230.1| Or23a</td><td>gi|7294398|gb|AAF49744.1| fz</td><td>gi|7294679|gb|AAF50017.1| CG7303</td><td>gi|7296481|gb|AAF51767.1| CG7155</td><td>gi|7302520|gb|AAF57603.1| 5-HT1A</td><td>gi|7293254|gb|AAF48635.1| CG4521</td></tr>
<tr><td></td><td>gi|7304136|gb|AAF59173.1| Or43b</td><td></td><td>gi|7295122|gb|AAF50447.1| CG7189</td><td>gi|7295661|gb|AAF50967.1| CG11923</td><td>gi|7299647|gb|AAF54831.1| CG7078</td><td>gi|7291963|gb|AAF47379.1| mth</td></tr>
<tr><td></td><td>gi|7297887|gb|AAF53133.1| Or33c</td><td></td><td>gi|7296168|gb|AAF51461.1| CG13948</td><td></td><td>gi|7300301|gb|AAF55462.1| CG16766</td><td>gi|7291962|gb|AAF47378.1| CG17061</td></tr>
<tr><td></td><td>gi|7299170|gb|AAF54368.1| Or85f</td><td></td><td>gi|7297256|gb|AAF52520.1| CG13788</td><td></td><td>gi|7300871|gb|AAF56012.1| CG6919</td><td>gi|7299527|gb|AAF54714.1| CG6965</td></tr>
<tr><td></td><td>gi|7299043|gb|AAF54244.1| Or85b</td><td></td><td>gi|10727777|gb|AAF59268.2| CG1712</td><td></td><td>gi|10727804|gb|AAF49074.2| CG7395</td><td>gi|7293962|gb|AAF49321.1|</td></tr>
<tr><td></td><td>gi|7299044|gb|AAF54245.1| Or85c</td><td></td><td>gi|7302338|gb|AAF57427.1| CG13441</td><td></td><td>gi|7299352|gb|AAF54544.1| Takr86C</td><td>gi|7295150|gb|AAF50475.1|</td></tr>
<tr><td></td><td>gi|7303643|gb|AAF58695.1| Or47a</td><td></td><td>gi|7297255|gb|AAF52519.1| CG13787</td><td></td><td>gi|7291777|gb|AAF47197.1| mAcR-60C</td><td>gi|10727490|gb|AAF57864.2|</td></tr>
<tr><td></td><td>gi|7303785|gb|AAF58833.1| Or46b</td><td></td><td>gi|7291030|gb|AAF46468.1| CG15371</td><td></td><td>gi|7295460|gb|AAF50775.1| CG10626</td><td></td></tr>
<tr><td></td><td>gi|7303786|gb|AAF58834.1| Or46a</td><td></td><td>gi|7291533|gb|AAF46958.1| CG13543</td><td></td><td>gi|7301534|gb|AAF56655.1| NepYr</td><td></td></tr>
<tr><td></td><td>gi|7303615|gb|AAF58667.1| Or47b</td><td></td><td>gi|7297928|gb|AAF53173.1| CG17213</td><td></td><td>gi|7301870|gb|AAF56979.1| Takr99D</td><td></td></tr>
<tr><td></td><td>gi|7303394|gb|AAF58452.1| Or49b</td><td></td><td>gi|7291352|gb|AAF46781.1| CG13495</td><td></td><td>gi|7296837|gb|AAF52113.1| 5-HT2</td><td></td></tr>
<tr><td></td><td>gi|7304246|gb|AAF59280.1| Or43a</td><td></td><td>gi|7295928|gb|AAF51227.1| CG15396</td><td></td><td>gi|7299839|gb|AAF55016.1| CG9918</td><td></td></tr>
<tr><td></td><td>gi|7295736|gb|AAF51040.1| Or24a</td><td></td><td>gi|7297822|gb|AAF53071.1| CG14916</td><td></td><td>gi|7293500|gb|AAF48875.1| CG6857</td><td></td></tr>
<tr><td></td><td>gi|7291598|gb|AAF47021.1| CG15872</td><td></td><td>gi|7292643|gb|AAF48041.1| CG12622</td><td></td><td>gi|7290247|gb|AAF45709.1| EG:22E5.11</td><td></td></tr>
<tr><td></td><td>gi|7299841|gb|AAF55018.1| Or88a</td><td></td><td>gi|7301598|gb|AAF56717.1| CG12884</td><td></td><td>gi|7290248|gb|AAF45710.1| EG:22E5.10</td><td></td></tr>
<tr><td></td><td>gi|7291584|gb|AAF47008.1| Or59b</td><td></td><td>gi|7300781|gb|AAF55925.1| CG13411</td><td></td><td>gi|10726374|gb|AAF54188.2| CG7918</td><td></td></tr>
<tr><td></td><td>gi|7299048|gb|AAF54249.1| Or85d</td><td></td><td>gi|7300779|gb|AAF55923.1| CG13417</td><td></td><td>gi|7301695|gb|AAF56809.1| CG10001</td><td></td></tr>
<tr><td></td><td>gi|7299055|gb|AAF54256.1| Or85e</td><td></td><td>gi|7291351|gb|AAF46780.1| CG13491</td><td></td><td>gi|7301410|gb|AAF56536.1| CG6111</td><td></td></tr>
<tr><td></td><td>gi|7291585|gb|AAF47009.1| Or59c</td><td></td><td>gi|7292292|gb|AAF47700.1| CG2114</td><td></td><td>gi|7293895|gb|AAF49259.1| CG7285</td><td></td></tr>
<tr><td></td><td>gi|7290901|gb|AAF46342.1| Or7a</td><td></td><td>gi|7303756|gb|AAF58804.1| CG12906</td><td></td><td>gi|7299748|gb|AAF54929.1| CG8795</td><td></td></tr>
<tr><td></td><td>gi|7302210|gb|AAF57305.1| Or42b</td><td></td><td>gi|10726880|gb|AAF57074.2| CG15541</td><td></td><td>gi|10726863|gb|AAF57012.2| CG9753</td><td></td></tr>
<tr><td></td><td>gi|7302212|gb|AAF57307.1| Or42a</td><td></td><td>gi|7291360|gb|AAF46788.1| CG13500</td><td></td><td>gi|7300441|gb|AAF55598.1| CG18208</td><td></td></tr>
<tr><td></td><td>gi|7303883|gb|AAF58928.1| Or45b</td><td></td><td>gi|10729261|gb|AAG22450.1| CG18859</td><td></td><td>gi|7299749|gb|AAF54930.1| CG8784</td><td></td></tr>
<tr><td></td><td>gi|7299023|gb|AAF54225.1| Or85a</td><td></td><td>gi|10727764|gb|AAF59215.2| CG1339</td><td></td><td>gi|7290762|gb|AAF46208.1| CG12796</td><td></td></tr>
<tr><td></td><td>gi|7300937|gb|AAF56076.1| Or94a</td><td></td><td>gi|7299468|gb|AAF54656.1| CG14709</td><td></td><td>gi|10728448|gb|AAF45884.2| AlstR [alt 2]</td><td></td></tr>
<tr><td></td><td>gi|7294831|gb|AAF50163.1| Or67c</td><td></td><td>gi|7294681|gb|AAF50018.1| CG7308</td><td></td><td>gi|7297159|gb|AAF52426.1| GRHR</td><td></td></tr>
<tr><td></td><td>gi|7291155|gb|AAF46589.1| Or9a</td><td></td><td>gi|7295825|gb|AAF51126.1| CG8837</td><td></td><td>gi|7296628|gb|AAF51909.1| CG1147</td><td></td></tr>
<tr><td></td><td>gi|7300938|gb|AAF56077.1| Or94b</td><td></td><td>gi|7297356|gb|AAF52616.1| CG8451</td><td></td><td>gi|7290610|gb|AAF46059.1| Tre</td><td></td></tr>
<tr><td></td><td>gi|10729261|gb|AAG22450.1| CG18859</td><td></td><td>gi|10727404|gb|AAF51465.2| CG3022</td><td></td><td>gi|7300560|gb|AAF55712.1| ninaE</td><td></td></tr>
<tr><td></td><td>gi|7301635|gb|AAF56753.1| Or98a</td><td></td><td>gi|7298704|gb|AAF53917.1| CG9318</td><td></td><td>gi|7294610|gb|AAF49949.1| CG5638</td><td></td></tr>
<tr><td></td><td>gi|7303463|gb|AAF58519.1| Or49a</td><td></td><td>gi|7301747|gb|AAF56859.1| CG11880</td><td></td><td>gi|10728777|gb|AAF53367.2| rk</td><td></td></tr>
<tr><td></td><td>gi|7296012|gb|AAF51309.1| Or22c</td><td></td><td>gi|7301180|gb|AAF56312.1| CG5789</td><td></td><td>gi|7300299|gb|AAF55460.1| Fsh</td><td></td></tr>
<tr><td></td><td>gi|7302431|gb|AAF57517.1| Or56a</td><td></td><td>gi|7292689|gb|AAF48086.1| CG15221</td><td></td><td>gi|7294045|gb|AAF49400.1| Rh4</td><td></td></tr>
<tr><td></td><td>gi|7292644|gb|AAF48042.1| Or10a</td><td></td><td>gi|7294296|gb|AAF49646.1| CG7255 [alt 1]</td><td></td><td>gi|7300445|gb|AAF55601.1| Rh2</td><td></td></tr>
<tr><td></td><td>gi|7294918|gb|AAF50248.1| Or67a</td><td></td><td>gi|7294297|gb|AAF49647.1| CG7255 [alt 2]</td><td></td><td>gi|7294588|gb|AAF49928.1| CG10698</td><td></td></tr>
<tr><td></td><td>gi|7294322|gb|AAF49671.1| Or71a</td><td></td><td>gi|7298040|gb|AAF53281.1| CG15639</td><td></td><td>gi|7302527|gb|AAF57610.1| 5-HT1B</td><td></td></tr>
<tr><td></td><td>gi|7303906|gb|AAF58951.1| Or45a</td><td></td><td></td><td></td><td>gi|7300726|gb|AAF55872.1| CG5911</td><td></td></tr>
<tr><td></td><td>gi|7292289|gb|AAF47697.1| Or63a</td><td></td><td></td><td></td><td>gi|7302742|gb|AAF57820.1| CG18192</td><td></td></tr>
<tr><td></td><td>gi|7293165|gb|AAF48549.1| Or13a</td><td></td><td></td><td></td><td>gi|10728449|gb|AAG22404.1| AlstR [alt 1]</td><td></td></tr>
<tr><td></td><td>gi|7300619|gb|AAF55769.1| Or92a</td><td></td><td></td><td></td><td>gi|7299650|gb|AAF54834.1| CG6989</td><td></td></tr>
<tr><td></td><td>gi|7296640|gb|AAF51921.1| Or83c</td><td></td><td></td><td></td><td>gi|7300031|gb|AAF55202.1| Rh6</td><td></td></tr>
<tr><td></td><td>gi|7296755|gb|AAF52033.1| Or83a</td><td></td><td></td><td></td><td>gi|10726639|gb|AAG22157.1| Rh3</td><td></td></tr>
<tr><td></td><td>gi|7296753|gb|AAF52031.1| Or83b</td><td></td><td></td><td></td><td>gi|7301363|gb|AAF56490.1| CG5042</td><td></td></tr>
<tr><td></td><td>gi|7301673|gb|AAF56788.1| Or98b</td><td></td><td></td><td></td><td>gi|7297899|gb|AAF53145.1| Rh5</td><td></td></tr>
<tr><td></td><td>gi|7290028|gb|AAF45495.1| Or1a</td><td></td><td></td><td></td><td>gi|10726392|gb|AAF54255.2| CG8007</td><td></td></tr>
<tr><td></td><td>gi|7294001|gb|AAF49358.1| Or74a</td><td></td><td></td><td></td><td>gi|7293896|gb|AAF49260.1| CG13702</td><td></td></tr>
<tr><td></td><td>gi|7294522|gb|AAF49864.1| Or69b</td><td></td><td></td><td></td><td>gi|7291767|gb|AAF47188.1| CG13575</td><td></td></tr>
<tr><td></td><td>gi|10728684|gb|AAF52748.2| Or30a</td><td></td><td></td><td></td><td>gi|7292844|gb|AAF48237.1| CG4187</td><td></td></tr>
<tr><td></td><td>gi|7298241|gb|AAF53473.1| Or35a</td><td></td><td></td><td></td><td>gi|7292490|gb|AAF47893.1| CG18314</td><td></td></tr>
<tr><td></td><td>gi|7294829|gb|AAF50161.1| CG14157</td><td></td><td></td><td></td><td>gi|7297064|gb|AAF52333.1| CG13995</td><td></td></tr>
<tr><td></td><td>gi|7292420|gb|AAF47824.1| CG14986</td><td></td><td></td><td></td><td>gi|7291790|gb|AAF47210.1| CG13579</td><td></td></tr>
<tr><td></td><td>gi|7294906|gb|AAF50236.1| Or67b</td><td></td><td></td><td></td><td>gi|7292292|gb|AAF47700.1| CG2114</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7292225|gb|AAF47635.1| CG8985</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7292223|gb|AAF47633.1| CG13803</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7289287|gb|AAF45375.1| CG17004</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7301453|gb|AAF56578.1| CG12290</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|10728149|gb|AAF57285.2| CG14593</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7293505|gb|AAF48879.1| CG6881</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7297023|gb|AAF52293.1| CG14003</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7303666|gb|AAF58717.1| CG13229</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7293961|gb|AAF49320.1| CG7497</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7290528|gb|AAF45980.1| CG6986</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>gi|7293436|gb|AAF48812.1| CG5936</td><td></td></tr>
</table>

gi|7294899|gb|AAF50229.1| CG16726
gi|7300732|gb|AAF55878.1| CG10823
gi|7302858|gb|AAF57931.1| CG15614
gi|7299053|gb|AAF54254.1| CG7994
gi|10727189|gb|AAF47323.2| CG13406
gi|7291961|gb|AAF47377.1| CG17084
gi|7291031|gb|AAF46469.1| CG12121

Supplementary Table 2g

ADH
Translation:ENSANGP00000014164 Database:core Gene:ENSANGG00000011675 Clone:AAAB01008960 Contig:AAAB01008960_77 Chr:2L Basepair:15270996 Status:known
Translation:ENSANGP00000020176 Database:core Gene:ENSANGG00000017687 Clone:AAAB01008888 Contig:AAAB01008888_84 Chr:2R Basepair:42989807 Status:known
Translation:ENSANGP00000014363 Database:core Gene:ENSANGG00000011874 Clone:AAAB01008980 Contig:AAAB01008980_262 Chr:3R Basepair:43376363 Status:known
Translation:ENSANGP00000004125 Database:core Gene:ENSANGG00000003275 Clone:AAAB01008987 Contig:AAAB01008987_620 Chr:2R Basepair:713772 Status:known
Translation:ENSANGP00000004035 Database:core Gene:ENSANGG00000003206 Clone:AAAB01008797 Contig:AAAB01008797_38 Chr:3R Basepair:34190608 Status:known
Translation:ENSANGP00000020602 Database:core Gene:ENSANGG00000018113 Clone:AAAB01008960 Contig:AAAB01008960_581 Chr:2L Basepair:27899352 Status:known
Translation:ENSANGP00000018168 Database:core Gene:ENSANGG00000015679 Clone:AAAB01008987 Contig:AAAB01008987_398 Chr:2R Basepair:6270232 Status:known
Translation:ENSANGP00000020544 Database:core Gene:ENSANGG00000018055 Clone:AAAB01008960 Contig:AAAB01008960_581 Chr:2L Basepair:27895555 Status:known
Translation:ENSANGP00000020503 Database:core Gene:ENSANGG00000018014 Clone:AAAB01008960 Contig:AAAB01008960_581 Chr:2L Basepair:27907213 Status:known
Translation:ENSANGP00000014178 Database:core Gene:ENSANGG00000011689 Clone:AAAB01008960 Contig:AAAB01008960_80 Chr:2L Basepair:15364009 Status:novel
Translation:ENSANGP00000014235 Database:core Gene:ENSANGG00000011746 Clone:AAAB01008978 Contig:AAAB01008978_76 Chr:2R Basepair:49728967 Status:known
Translation:ENSANGP00000014832 Database:core Gene:ENSANGG00000012343 Clone:AAAB01008978 Contig:AAAB01008978_76 Chr:2R Basepair:49746205 Status:known
Translation:ENSANGP00000014114 Database:core Gene:ENSANGG00000011625 Clone:AAAB01008960 Contig:AAAB01008960_79 Chr:2L Basepair:15346509 Status:novel

FZD

Translation:ENSANGP00000024916 Database:core Gene:ENSANGG00000019964 Clone:AAAB01008849 Contig:AAAB01008849_30 Chr:3L Basepair:729741 Status:known
Translation:ENSANGP00000013048 Database:core Gene:ENSANGG00000010559 Clone:AAAB01008944 Contig:AAAB01008944_67 Chr:3R Basepair:14073205 Status:known
Translation:ENSANGP00000011388 Database:core Gene:ENSANGG00000008899 Clone:AAAB01008966 Contig:AAAB01008966_117 Chr:3L Basepair:21949652 Status:known
Translation:ENSANGP00000011362 Database:core Gene:ENSANGG00000008873 Clone:AAAB01008966 Contig:AAAB01008966_110 Chr:3L Basepair:22120465 Status:known
Translation:ENSANGP00000013910 Database:core Gene:ENSANGG00000011421 Clone:AAAB01008984 Contig:AAAB01008984_56 Chr:3R Basepair:20476829 Status:known
Translation:ENSANGP00000019989 Database:core Gene:ENSANGG00000017500 Clone:AAAB01008846 Contig:AAAB01008846_337 Chr:X Basepair:2892774 Status:known
Translation:ENSANGP00000001848 Database:core Gene:ENSANGG00000001559 Clone:AAAB01007669 Contig:AAAB01007669_2 Chr:UNKN Basepair:51431911 Status:novel

GUST

Translation:ENSANGP00000003178 Database:core Gene:ENSANGG00000002573 Clone:AAAB01008879 Contig:AAAB01008879_36 Chr:2R Basepair:32427076 Status:known
Translation:ENSANGP00000004099 Database:core Gene:ENSANGG00000003253 Clone:AAAB01008794 Contig:AAAB01008794_10 Chr:2R Basepair:34698804 Status:novel
Translation:ENSANGP00000022948 Database:core Gene:ENSANGG00000021575 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44383264 Status:novel
Translation:ENSANGP00000024767 Database:core Gene:ENSANGG00000020779 Clone:AAAB01008807 Contig:AAAB01008807_402 Chr:2L Basepair:38739738 Status:known
Translation:ENSANGP00000023329 Database:core Gene:ENSANGG00000020045 Clone:AAAB01008987 Contig:AAAB01008987_621 Chr:2R Basepair:691958 Status:known
Translation:ENSANGP00000025155 Database:core Gene:ENSANGG00000020053 Clone:AAAB01008987 Contig:AAAB01008987_621 Chr:2R Basepair:690556 Status:known
Translation:ENSANGP00000022840 Database:core Gene:ENSANGG00000021303 Clone:AAAB01008987 Contig:AAAB01008987_634 Chr:2R Basepair:355690 Status:known
Translation:ENSANGP00000023114 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:novel
Translation:ENSANGP00000023537 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:known
Translation:ENSANGP00000022506 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:novel
Translation:ENSANGP00000024822 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:novel
Translation:ENSANGP00000024751 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:novel
Translation:ENSANGP00000004101 Database:core Gene:ENSANGG00000003255 Clone:AAAB01008794 Contig:AAAB01008794_10 Chr:2R Basepair:34713893 Status:known
Translation:ENSANGP00000025389 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:known
Translation:ENSANGP00000023947 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:novel
Translation:ENSANGP00000023231 Database:core Gene:ENSANGG00000020587 Clone:AAAB01008960 Contig:AAAB01008960_104 Chr:2L Basepair:15968748 Status:known
Translation:ENSANGP00000024504 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:novel
Translation:ENSANGP00000023754 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:novel
Translation:ENSANGP00000023475 Database:core Gene:ENSANGG00000019932 Clone:AAAB01008980 Contig:AAAB01008980_302 Chr:3R Basepair:44365461 Status:novel
Translation:ENSANGP00000022749 Database:core Gene:ENSANGG00000021322 Clone:AAAB01008987 Contig:AAAB01008987_635 Chr:2R Basepair:346604 Status:known
Translation:ENSANGP00000024195 Database:core Gene:ENSANGG00000019937 Clone:AAAB01008980 Contig:AAAB01008980_301 Chr:3R Basepair:44359901 Status:known
Translation:ENSANGP00000023700 Database:core Gene:ENSANGG00000003253 Clone:AAAB01008794 Contig:AAAB01008794_10 Chr:2R Basepair:34698804 Status:known
Translation:ENSANGP00000024184 Database:core Gene:ENSANGG00000020468 Clone:AAAB01008984 Contig:AAAB01008984_448 Chr:3R Basepair:30313186 Status:novel
Translation:ENSANGP00000004263 Database:core Gene:ENSANGG00000003364 Clone:AAAB01008960 Contig:AAAB01008960_686 Chr:2L Basepair:30516964 Status:known
Translation:ENSANGP00000022902 Database:core Gene:ENSANGG00000003253 Clone:AAAB01008794 Contig:AAAB01008794_10 Chr:2R Basepair:34698804 Status:known
Translation:ENSANGP00000023884 Database:core Gene:ENSANGG00000020468 Clone:AAAB01008984 Contig:AAAB01008984_448 Chr:3R Basepair:30313186 Status:known
Translation:ENSANGP00000023560 Database:core Gene:ENSANGG00000003253 Clone:AAAB01008794 Contig:AAAB01008794_10 Chr:2R Basepair:34698804 Status:known
Translation:ENSANGP00000023859 Database:core Gene:ENSANGG00000019955 Clone:AAAB01008980 Contig:AAAB01008980_301 Chr:3R Basepair:44357913 Status:known
Translation:ENSANGP00000024208 Database:core Gene:ENSANGG00000020468 Clone:AAAB01008984 Contig:AAAB01008984_448 Chr:3R Basepair:30313186 Status:known
Translation:ENSANGP00000024480 Database:core Gene:ENSANGG00000020468 Clone:AAAB01008984 Contig:AAAB01008984_448 Chr:3R Basepair:30313186 Status:novel
Translation:ENSANGP00000024727 Database:core Gene:ENSANGG00000003253 Clone:AAAB01008794 Contig:AAAB01008794_10 Chr:2R Basepair:34698804 Status:known
Translation:ENSANGP00000023831 Database:core Gene:ENSANGG00000020468 Clone:AAAB01008984 Contig:AAAB01008984_448 Chr:3R Basepair:30313186 Status:known
Translation:ENSANGP00000024321 Database:core Gene:ENSANGG00000003253 Clone:AAAB01008794 Contig:AAAB01008794_10 Chr:2R Basepair:34698804 Status:known
Translation:ENSANGP00000025261 Database:core Gene:ENSANGG00000019957 Clone:AAAB01008980 Contig:AAAB01008980_301 Chr:3R Basepair:44356307 Status:known
Translation:ENSANGP00000011853 Database:core Gene:ENSANGG00000009364 Clone:AAAB01008980 Contig:AAAB01008980_452 Chr:3R Basepair:48123857 Status:known
Translation:ENSANGP00000024005 Database:core Gene:ENSANGG00000020815 Clone:AAAB01008964 Contig:AAAB01008964_483 Chr:3R Basepair:315199 Status:known
Translation:ENSANGP00000022783 Database:core Gene:ENSANGG00000020823 Clone:AAAB01008880 Contig:AAAB01008880_23 Chr:2R Basepair:51962182 Status:known
Translation:ENSANGP00000024345 Database:core Gene:ENSANGG00000020093 Clone:AAAB01008987 Contig:AAAB01008987_621 Chr:2R Basepair:685940 Status:known
Translation:ENSANGP00000023173 Database:core Gene:ENSANGG00000020824 Clone:AAAB01008964 Contig:AAAB01008964_483 Chr:3R Basepair:307782 Status:known
Translation:ENSANGP00000023036 Database:core Gene:ENSANGG00000020093 Clone:AAAB01008987 Contig:AAAB01008987_621 Chr:2R Basepair:685940 Status:known
Translation:ENSANGP00000024055 Database:core Gene:ENSANGG00000020093 Clone:AAAB01008987 Contig:AAAB01008987_621 Chr:2R Basepair:685940 Status:known
Translation:ENSANGP00000025206 Database:core Gene:ENSANGG00000021406 Clone:AAAB01008794 Contig:AAAB01008794_10 Chr:2R Basepair:34702039 Status:known
Translation:ENSANGP00000025251 Database:core Gene:ENSANGG00000020703 Clone:AAAB01008980 Contig:AAAB01008980_329 Chr:3R Basepair:45048445 Status:known
Translation:ENSANGP00000023012 Database:core Gene:ENSANGG00000021596 Clone:AAAB01008807 Contig:AAAB01008807_489 Chr:2L Basepair:36581121 Status:known
Translation:ENSANGP00000022755 Database:core Gene:ENSANGG00000020742 Clone:AAAB01008980 Contig:AAAB01008980_329 Chr:3R Basepair:45046879 Status:known
Translation:ENSANGP00000011937 Database:core Gene:ENSANGG00000009448 Clone:AAAB01006832 Contig:AAAB01006832_1 Chr:UNKN Basepair:39051699 Status:known
Translation:ENSANGP00000022361 Database:core Gene:ENSANGG00000019942 Clone:AAAB01008807 Contig:AAAB01008807_489 Chr:2L Basepair:36579438 Status:known
Translation:ENSANGP00000022740 Database:core Gene:ENSANGG00000021007 Clone:AAAB01008987 Contig:AAAB01008987_631 Chr:2R Basepair:449460 Status:known
Translation:ENSANGP00000023707 Database:core Gene:ENSANGG00000021019 Clone:AAAB01008987 Contig:AAAB01008987_631 Chr:2R Basepair:446998 Status:known
Translation:ENSANGP00000024983 Database:core Gene:ENSANGG00000020521 Clone:AAAB01008859 Contig:AAAB01008859_269 Chr:2R Basepair:24811171 Status:known
Translation:ENSANGP00000025112 Database:core Gene:ENSANGG00000021508 Clone:AAAB01008960 Contig:AAAB01008960_732 Chr:2L Basepair:31686528 Status:known
Translation:ENSANGP00000023351 Database:core Gene:ENSANGG00000021031 Clone:AAAB01008987 Contig:AAAB01008987_631 Chr:2R Basepair:443781 Status:known
Translation:ENSANGP00000025382 Database:core Gene:ENSANGG00000020759 Clone:AAAB01008980 Contig:AAAB01008980_329 Chr:3R Basepair:45045165 Status:known
Translation:ENSANGP00000024311 Database:core Gene:ENSANGG00000020025 Clone:AAAB01008807 Contig:AAAB01008807_489 Chr:2L Basepair:36567059 Status:known
Translation:ENSANGP00000024257 Database:core Gene:ENSANGG00000021044 Clone:AAAB01008987 Contig:AAAB01008987_631 Chr:2R Basepair:439782 Status:known
Translation:ENSANGP00000024487 Database:core Gene:ENSANGG00000020777 Clone:AAAB01008980 Contig:AAAB01008980_329 Chr:3R Basepair:45043422 Status:known
Translation:ENSANGP00000017595 Database:core Gene:ENSANGG00000015106 Clone:AAAB01008968 Contig:AAAB01008968_49 Chr:2L Basepair:2294115 Status:known
Translation:ENSANGP00000022642 Database:core Gene:ENSANGG00000020795 Clone:AAAB01008980 Contig:AAAB01008980_328 Chr:3R Basepair:45039970 Status:known
Translation:ENSANGP00000022858 Database:core Gene:ENSANGG00000021334 Clone:AAAB01008986 Contig:AAAB01008986_280 Chr:3L Basepair:34271092 Status:known
Translation:ENSANGP00000024358 Database:core Gene:ENSANGG00000020819 Clone:AAAB01008980 Contig:AAAB01008980_328 Chr:3R Basepair:45038130 Status:known
Translation:ENSANGP00000023775 Database:core Gene:ENSANGG00000021094 Clone:AAAB01008987 Contig:AAAB01008987_633 Chr:2R Basepair:377330 Status:known
Translation:ENSANGP00000024057 Database:core Gene:ENSANGG00000021094 Clone:AAAB01008987 Contig:AAAB01008987_633 Chr:2R Basepair:377330 Status:novel
Translation:ENSANGP00000022543 Database:core Gene:ENSANGG00000021094 Clone:AAAB01008987 Contig:AAAB01008987_633 Chr:2R Basepair:377330 Status:novel
Translation:ENSANGP00000024121 Database:core Gene:ENSANGG00000021094 Clone:AAAB01008987 Contig:AAAB01008987_633 Chr:2R Basepair:377330 Status:novel
Translation:ENSANGP00000022763 Database:core Gene:ENSANGG00000021094 Clone:AAAB01008987 Contig:AAAB01008987_633 Chr:2R Basepair:377330 Status:novel
Translation:ENSANGP00000022677 Database:core Gene:ENSANGG00000021094 Clone:AAAB01008987 Contig:AAAB01008987_633 Chr:2R Basepair:377330 Status:novel
Translation:ENSANGP00000024805 Database:core Gene:ENSANGG00000020913 Clone:AAAB01008980 Contig:AAAB01008980_571 Chr:3R Basepair:51106391 Status:known
Translation:ENSANGP00000020131 Database:core Gene:ENSANGG00000017642 Clone:AAAB01008987 Contig:AAAB01008987_168 Chr:2R Basepair:12028902 Status:known
Translation:ENSANGP00000024077 Database:core Gene:ENSANGG00000020761 Clone:AAAB01008807 Contig:AAAB01008807_402 Chr:2L Basepair:38745325 Status:known
Translation:ENSANGP00000024768 Database:core Gene:ENSANGG00000020761 Clone:AAAB01008807 Contig:AAAB01008807_402 Chr:2L Basepair:38745325 Status:known

Translation:ENSANGP00000022369 Database:core Gene:ENSANGG00000020764 Clone:AAAB01008807 Contig:AAAB01008807_402 Chr:2L Basepair:38743331 Status:known
Translation:ENSANGP00000025254 Database:core Gene:ENSANGG00000020769 Clone:AAAB01008807 Contig:AAAB01008807_402 Chr:2L Basepair:38741506 Status:known
Translation:ENSANGP00000022400 Database:core Gene:ENSANGG00000020024 Clone:AAAB01008987 Contig:AAAB01008987_621 Chr:2R Basepair:693555 Status:known
Translation:ENSANGP00000021675 Database:core Gene:ENSANGG00000019186 Clone:AAAB01008799 Contig:AAAB01008799_20 Chr:2R Basepair:18508138 Status:known
Translation:ENSANGP00000021785 Database:core Gene:ENSANGG00000019296 Clone:AAAB01008900 Contig:AAAB01008900_11 Chr:2L Basepair:8225925 Status:known

mGluR

Translation:ENSANGP00000003355 Database:core Gene:ENSANGG00000002695 Clone:AAAB01008900 Contig:AAAB01008900_5 Chr:2L Basepair:8074963 Status:known
Translation:ENSANGP00000002916 Database:core Gene:ENSANGG00000002398 Clone:AAAB01008980 Contig:AAAB01008980_635 Chr:3R Basepair:52690599 Status:known
Translation:ENSANGP00000022961 Database:core Gene:ENSANGG00000004204 Clone:AAAB01008839 Contig:AAAB01008839_49 Chr:3R Basepair:35614152 Status:known
Translation:ENSANGP00000005469 Database:core Gene:ENSANGG00000004204 Clone:AAAB01008839 Contig:AAAB01008839_49 Chr:3R Basepair:35614152 Status:novel
Translation:ENSANGP00000013038 Database:core Gene:ENSANGG00000010549 Clone:AAAB01008944 Contig:AAAB01008944_72 Chr:3R Basepair:14209996 Status:known
Translation:ENSANGP00000013404 Database:core Gene:ENSANGG00000010915 Clone:AAAB01008880 Contig:AAAB01008880_158 Chr:2R Basepair:55322533 Status:known
Translation:ENSANGP00000017114 Database:core Gene:ENSANGG00000014625 Clone:AAAB01008960 Contig:AAAB01008960_534 Chr:2L Basepair:26739352 Status:known
Translation:ENSANGP00000013665 Database:core Gene:ENSANGG00000011176 Clone:AAAB01007982 Contig:AAAB01007982_1 Chr:UNKN Basepair:54480985 Status:known
Translation:ENSANGP00000013666 Database:core Gene:ENSANGG00000011177 Clone:AAAB01008045 Contig:AAAB01008045_1 Chr:UNKN Basepair:56550801 Status:novel

RHOD

Translation:ENSANGP00000000343 Database:core Gene:ENSANGG00000000327 Clone:AAAB01008897 Contig:AAAB01008897_5 Chr:UNKN Basepair:24715556 Status:known
Translation:ENSANGP00000001159 Database:core Gene:ENSANGG00000000998 Clone:AAAB01008859 Contig:AAAB01008859_403 Chr:2R Basepair:21458419 Status:known
Translation:ENSANGP00000004047 Database:core Gene:ENSANGG00000003214 Clone:AAAB01008817 Contig:AAAB01008817_8 Chr:2R Basepair:49964183 Status:known
Translation:ENSANGP00000004049 Database:core Gene:ENSANGG00000003215 Clone:AAAB01008817 Contig:AAAB01008817_10 Chr:2R Basepair:50036512 Status:known
Translation:ENSANGP00000004093 Database:core Gene:ENSANGG00000003249 Clone:AAAB01008794 Contig:AAAB01008794_7 Chr:2R Basepair:34621479 Status:known
Translation:ENSANGP00000004731 Database:core Gene:ENSANGG00000003695 Clone:AAAB01008846 Contig:AAAB01008846_423 Chr:X Basepair:696886 Status:known
Translation:ENSANGP00000004842 Database:core Gene:ENSANGG00000003778 Clone:AAAB01008966 Contig:AAAB01008966_22 Chr:3L Basepair:24312828 Status:known
Translation:ENSANGP00000005403 Database:core Gene:ENSANGG00000004159 Clone:AAAB01008811 Contig:AAAB01008811_94 Chr:X Basepair:19630208 Status:known
Translation:ENSANGP00000006270 Database:core Gene:ENSANGG00000004772 Clone:AAAB01008799 Contig:AAAB01008799_48 Chr:2R Basepair:17802760 Status:novel
Translation:ENSANGP00000006676 Database:core Gene:ENSANGG00000005043 Clone:AAAB01008964 Contig:AAAB01008964_112 Chr:3R Basepair:9552552 Status:known
Translation:ENSANGP00000009053 Database:core Gene:ENSANGG00000006798 Clone:AAAB01008986 Contig:AAAB01008986_95 Chr:3L Basepair:38926892 Status:known
Translation:ENSANGP00000010052 Database:core Gene:ENSANGG00000007563 Clone:AAAB01008846 Contig:AAAB01008846_181 Chr:X Basepair:6791096 Status:known
Translation:ENSANGP00000001269 Database:core Gene:ENSANGG00000001088 Clone:AAAB01008905 Contig:AAAB01008905_36 Chr:2L Basepair:3641780 Status:known
Translation:ENSANGP00000010731 Database:core Gene:ENSANGG00000008242 Clone:AAAB01008807 Contig:AAAB01008807_76 Chr:2L Basepair:46910822 Status:known
Translation:ENSANGP00000010810 Database:core Gene:ENSANGG00000008321 Clone:AAAB01008859 Contig:AAAB01008859_238 Chr:2R Basepair:25576317 Status:novel
Translation:ENSANGP00000010871 Database:core Gene:ENSANGG00000008382 Clone:AAAB01008968 Contig:AAAB01008968_22 Chr:2L Basepair:2972326 Status:known
Translation:ENSANGP00000010994 Database:core Gene:ENSANGG00000008505 Clone:AAAB01008817 Contig:AAAB01008817_8 Chr:2R Basepair:49972037 Status:known
Translation:ENSANGP00000011036 Database:core Gene:ENSANGG00000008547 Clone:AAAB01008944 Contig:AAAB01008944_142 Chr:3R Basepair:15955416 Status:known
Translation:ENSANGP00000011301 Database:core Gene:ENSANGG00000008812 Clone:AAAB01008888 Contig:AAAB01008888_70 Chr:2R Basepair:42652175 Status:known
Translation:ENSANGP00000011477 Database:core Gene:ENSANGG00000008988 Clone:AAAB01008987 Contig:AAAB01008987_422 Chr:2R Basepair:5668632 Status:known
Translation:ENSANGP00000011483 Database:core Gene:ENSANGG00000008994 Clone:AAAB01008948 Contig:AAAB01008948_107 Chr:2L Basepair:7244794 Status:known
Translation:ENSANGP00000011656 Database:core Gene:ENSANGG00000009167 Clone:AAAB01008987 Contig:AAAB01008987_422 Chr:2R Basepair:5680747 Status:known
Translation:ENSANGP00000011679 Database:core Gene:ENSANGG00000009190 Clone:AAAB01008987 Contig:AAAB01008987_413 Chr:2R Basepair:5890401 Status:known
Translation:ENSANGP00000001444 Database:core Gene:ENSANGG00000001231 Clone:AAAB01008952 Contig:AAAB01008952_26 Chr:2R Basepair:60206736 Status:known
Translation:ENSANGP00000011806 Database:core Gene:ENSANGG00000009317 Clone:AAAB01008986 Contig:AAAB01008986_27 Chr:3L Basepair:40629452 Status:known
Translation:ENSANGP00000011949 Database:core Gene:ENSANGG00000009460 Clone:AAAB01008987 Contig:AAAB01008987_622 Chr:2R Basepair:671587 Status:known
Translation:ENSANGP00000012077 Database:core Gene:ENSANGG00000009588 Clone:AAAB01008987 Contig:AAAB01008987_622 Chr:2R Basepair:665867 Status:known
Translation:ENSANGP00000012116 Database:core Gene:ENSANGG00000009627 Clone:AAAB01008987 Contig:AAAB01008987_622 Chr:2R Basepair:669077 Status:known
Translation:ENSANGP00000012131 Database:core Gene:ENSANGG00000009642 Clone:AAAB01008987 Contig:AAAB01008987_619 Chr:2R Basepair:736041 Status:known
Translation:ENSANGP00000012908 Database:core Gene:ENSANGG00000010419 Clone:AAAB01008880 Contig:AAAB01008880_103 Chr:2R Basepair:53949904 Status:known
Translation:ENSANGP00000012916 Database:core Gene:ENSANGG00000010427 Clone:AAAB01008880 Contig:AAAB01008880_99 Chr:2R Basepair:53860017 Status:known
Translation:ENSANGP00000013359 Database:core Gene:ENSANGG00000010870 Clone:AAAB01008986 Contig:AAAB01008986_149 Chr:3L Basepair:37561676 Status:novel
Translation:ENSANGP00000013461 Database:core Gene:ENSANGG00000010972 Clone:AAAB01008799 Contig:AAAB01008799_46 Chr:2R Basepair:17848581 Status:known
Translation:ENSANGP00000014481 Database:core Gene:ENSANGG00000011992 Clone:AAAB01008966 Contig:AAAB01008966_35 Chr:3L Basepair:24001145 Status:known
Translation:ENSANGP00000001526 Database:core Gene:ENSANGG00000001292 Clone:AAAB01008847 Contig:AAAB01008847_17 Chr:X Basepair:11723906 Status:known
Translation:ENSANGP00000014535 Database:core Gene:ENSANGG00000012046 Clone:AAAB01008904 Contig:AAAB01008904_36 Chr:2R Basepair:37339533 Status:known
Translation:ENSANGP00000014846 Database:core Gene:ENSANGG00000012357 Clone:AAAB01008859 Contig:AAAB01008859_402 Chr:2R Basepair:21477526 Status:novel
Translation:ENSANGP00000015288 Database:core Gene:ENSANGG00000012799 Clone:AAAB01008986 Contig:AAAB01008986_261 Chr:3L Basepair:34749314 Status:known
Translation:ENSANGP00000015565 Database:core Gene:ENSANGG00000013076 Clone:AAAB01008846 Contig:AAAB01008846_205 Chr:X Basepair:6187880 Status:known
Translation:ENSANGP00000016187 Database:core Gene:ENSANGG00000013698 Clone:AAAB01008859 Contig:AAAB01008859_141 Chr:2R Basepair:28001678 Status:known
Translation:ENSANGP00000017410 Database:core Gene:ENSANGG00000014921 Clone:AAAB01008987 Contig:AAAB01008987_398 Chr:2R Basepair:6265512 Status:novel
Translation:ENSANGP00000017431 Database:core Gene:ENSANGG00000014942 Clone:AAAB01008987 Contig:AAAB01008987_487 Chr:2R Basepair:4041609 Status:novel
Translation:ENSANGP00000017708 Database:core Gene:ENSANGG00000015219 Clone:AAAB01008960 Contig:AAAB01008960_523 Chr:2L Basepair:26445195 Status:known
Translation:ENSANGP00000018071 Database:core Gene:ENSANGG00000015582 Clone:AAAB01008795 Contig:AAAB01008795_4 Chr:3L Basepair:3329391 Status:known
Translation:ENSANGP00000018143 Database:core Gene:ENSANGG00000015654 Clone:AAAB01008987 Contig:AAAB01008987_388 Chr:2R Basepair:6527327 Status:known
Translation:ENSANGP00000001531 Database:core Gene:ENSANGG00000001296 Clone:AAAB01008847 Contig:AAAB01008847_20 Chr:X Basepair:11817967 Status:known
Translation:ENSANGP00000018165 Database:core Gene:ENSANGG00000015676 Clone:AAAB01008987 Contig:AAAB01008987_400 Chr:2R Basepair:6215421 Status:known
Translation:ENSANGP00000018201 Database:core Gene:ENSANGG00000015712 Clone:AAAB01008823 Contig:AAAB01008823_106 Chr:3L Basepair:10950109 Status:known
Translation:ENSANGP00000018362 Database:core Gene:ENSANGG00000015873 Clone:AAAB01008987 Contig:AAAB01008987_217 Chr:2R Basepair:10797178 Status:known
Translation:ENSANGP00000018402 Database:core Gene:ENSANGG00000015913 Clone:AAAB01008987 Contig:AAAB01008987_133 Chr:2R Basepair:12913824 Status:known
Translation:ENSANGP00000018409 Database:core Gene:ENSANGG00000015920 Clone:AAAB01008987 Contig:AAAB01008987_133 Chr:2R Basepair:12906983 Status:known
Translation:ENSANGP00000018662 Database:core Gene:ENSANGG00000016173 Clone:AAAB01008859 Contig:AAAB01008859_108 Chr:2R Basepair:28844683 Status:known
Translation:ENSANGP00000018708 Database:core Gene:ENSANGG00000016219 Clone:AAAB01008859 Contig:AAAB01008859_117 Chr:2R Basepair:28618034 Status:known
Translation:ENSANGP00000018804 Database:core Gene:ENSANGG00000016315 Clone:AAAB01008859 Contig:AAAB01008859_109 Chr:2R Basepair:28808262 Status:known
Translation:ENSANGP00000018839 Database:core Gene:ENSANGG00000016350 Clone:AAAB01008807 Contig:AAAB01008807_236 Chr:2L Basepair:42888095 Status:known
Translation:ENSANGP00000019217 Database:core Gene:ENSANGG00000016728 Clone:AAAB01008980 Contig:AAAB01008980_506 Chr:3R Basepair:49494485 Status:known
Translation:ENSANGP00000002978 Database:core Gene:ENSANGG00000002442 Clone:AAAB01008859 Contig:AAAB01008859_343 Chr:2R Basepair:22968001 Status:known
Translation:ENSANGP00000019254 Database:core Gene:ENSANGG00000016765 Clone:AAAB01008846 Contig:AAAB01008846_9 Chr:X Basepair:11100586 Status:known
Translation:ENSANGP00000019362 Database:core Gene:ENSANGG00000016873 Clone:AAAB01008799 Contig:AAAB01008799_97 Chr:2R Basepair:16572531 Status:known
Translation:ENSANGP00000019629 Database:core Gene:ENSANGG00000017140 Clone:AAAB01008888 Contig:AAAB01008888_92 Chr:2R Basepair:43175570 Status:known
Translation:ENSANGP00000020010 Database:core Gene:ENSANGG00000017521 Clone:AAAB01008846 Contig:AAAB01008846_378 Chr:X Basepair:1865162 Status:known
Translation:ENSANGP00000020410 Database:core Gene:ENSANGG00000017921 Clone:AAAB01008879 Contig:AAAB01008879_28 Chr:2R Basepair:32221803 Status:known
Translation:ENSANGP00000020441 Database:core Gene:ENSANGG00000017952 Clone:AAAB01008880 Contig:AAAB01008880_31 Chr:2R Basepair:52146392 Status:known
Translation:ENSANGP00000020598 Database:core Gene:ENSANGG00000018109 Clone:AAAB01008933 Contig:AAAB01008933_20 Chr:3L Basepair:4092018 Status:known
Translation:ENSANGP00000020742 Database:core Gene:ENSANGG00000018253 Clone:AAAB01008846 Contig:AAAB01008846_139 Chr:X Basepair:7834243 Status:known
Translation:ENSANGP00000020874 Database:core Gene:ENSANGG00000018385 Clone:AAAB01008987 Contig:AAAB01008987_188 Chr:2R Basepair:11516580 Status:known
Translation:ENSANGP00000021668 Database:core Gene:ENSANGG00000019179 Clone:AAAB01008960 Contig:AAAB01008960_190 Chr:2L Basepair:18124141 Status:known
Translation:ENSANGP00000003015 Database:core Gene:ENSANGG00000002474 Clone:AAAB01008859 Contig:AAAB01008859_373 Chr:2R Basepair:22204378 Status:known
Translation:ENSANGP00000021941 Database:core Gene:ENSANGG00000019452 Clone:AAAB01008816 Contig:AAAB01008816_144 Chr:3L Basepair:17417308 Status:known
Translation:ENSANGP00000021995 Database:core Gene:ENSANGG00000019506 Clone:AAAB01008859 Contig:AAAB01008859_389 Chr:2R Basepair:21814020 Status:known

Translation:ENSANGP00000022270 Database:core Gene:ENSANGG00000019781 Clone:AAAB01008948 Contig:AAAB01008948_42 Chr:2L Basepair:5603671 Status:novel
Translation:ENSANGP00000023070 Database:core Gene:ENSANGG00000020639 Clone:AAAB01008900 Contig:AAAB01008900_161 Chr:2L Basepair:11980150 Status:novel
Translation:ENSANGP00000024963 Database:core Gene:ENSANGG00000014921 Clone:AAAB01008987 Contig:AAAB01008987_398 Chr:2R Basepair:6265512 Status:known
Translation:ENSANGP00000022942 Database:core Gene:ENSANGG00000002658 Clone:AAAB01008879 Contig:AAAB01008879_115 Chr:2R Basepair:34406219 Status:known
Translation:ENSANGP00000023076 Database:core Gene:ENSANGG00000020270 Clone:AAAB01008987 Contig:AAAB01008987_622 Chr:2R Basepair:673806 Status:known
Translation:ENSANGP00000003295 Database:core Gene:ENSANGG00000002658 Clone:AAAB01008879 Contig:AAAB01008879_115 Chr:2R Basepair:34406219 Status:known
Translation:ENSANGP00000003840 Database:core Gene:ENSANGG00000003066 Clone:AAAB01008898 Contig:AAAB01008898_106 Chr:2R Basepair:58279518 Status:known

SEC

Translation:ENSANGP00000001238 Database:core Gene:ENSANGG00000001056 Clone:AAAB01008905 Contig:AAAB01008905_25 Chr:2L Basepair:3930221 Status:known

Supplementary Table 2h

<table>
<tr><th>ADH</th><th>FZD</th><th>mGluR</th><th>NEMCHEM</th><th>RHOD</th><th>SEC</th></tr>
<tr><td>gi|17531273|ref|NP_494770.1| B0286.2.p</td><td>gi|17560282|ref|NP_503965.1| transmembrane receptor</td><td>gi|17569063|ref|NP_509674.1| metatrophic glutamate receptor</td><td>gi|17563626|ref|NP_503982.1| chemoreceptor</td><td>gi|17505777|ref|NP_491990.1| seven trans-membrane receptor</td><td>gi|17550550|ref|NP_510496.1| 7 transmembrane receptor (Secretin family)</td></tr>
<tr><td>gi|17531351|ref|NP_495894.1| G-protein coupled receptor protein</td><td>gi|17560280|ref|NP_503964.1| F27E11.3b.p</td><td>gi|17542870|ref|NP_500810.1| glutamate receptor</td><td>gi|17563628|ref|NP_503980.1| chemoreceptor</td><td>gi|17506669|ref|NP_492672.1| 7TM receptor</td><td>gi|17552156|ref|NP_498465.1| G-protein coupled receptor</td></tr>
<tr><td>gi|17533587|ref|NP_494739.1| F31D5.5.p</td><td>gi|17508443|ref|NP_492635.1| Drosophila tissue polarity protein like</td><td>gi|17508431|ref|NP_492720.1| metabotropic glutamate receptor</td><td>gi|17563624|ref|NP_503981.1| chemoreceptor</td><td>gi|17506683|ref|NP_492273.1| 7 transmembrane receptor (rhodopsin family) (2 domains)</td><td>gi|17557021|ref|NP_498978.1| Calcitonin receptor family</td></tr>
<tr><td>gi|17533585|ref|NP_494738.1| F31D5.4.p</td><td>gi|17510513|ref|NP_491029.1| Y71F9B.5b.p</td><td>gi|17570391|ref|NP_508508.1| glutamate receptor</td><td>gi|17534203|ref|NP_496681.1| F49C5.6.p</td><td>gi|17507589|ref|NP_491453.1| seven-transmemebrane receptor</td><td></td></tr>
<tr><td>gi|17559712|ref|NP_506256.1| cadherin protein like</td><td>gi|17510515|ref|NP_491028.1| Y71F9B.5a.p</td><td>gi|17540172|ref|NP_501400.1| F35H10.10.p</td><td>gi|17563560|ref|NP_504025.1| chemoreceptor</td><td>gi|17508713|ref|NP_491954.1| seven trans-membrane receptor</td><td></td></tr>
<tr><td></td><td></td><td>gi|17544534|ref|NP_500579.1| ZK180.1.p</td><td>gi|17563622|ref|NP_503979.1| chemoreceptor</td><td>gi|17508933|ref|NP_493193.1| conopressin receptor like</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542116|ref|NP_500663.1| chemoreceptor</td><td>gi|17509189|ref|NP_491918.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563440|ref|NP_503539.1| chemoreceptor</td><td>gi|17509597|ref|NP_493283.1| 7 transmembrane receptor (rhodopsin family) (2 domains)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542984|ref|NP_500660.1| chemoreceptor</td><td>gi|17509807|ref|NP_490992.1| Y23H5B.4.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563646|ref|NP_503619.1| chemoreceptor</td><td>gi|17531423|ref|NP_494751.1| C01F1.4.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563434|ref|NP_503963.1| T20C4.1.p</td><td>gi|17532169|ref|NP_495241.1| C30B5.5.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17560972|ref|NP_507058.1| 7TM receptor</td><td>gi|17532555|ref|NP_494987.1| C54A12.2.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563442|ref|NP_503537.1| chemoreceptor</td><td>gi|17534961|ref|NP_493779.1| K07E8.5.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17560330|ref|NP_505739.1| F28H7.1.p</td><td>gi|17535039|ref|NP_493666.1| seven trans-membrane receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17560794|ref|NP_505504.1| F40F9.4.p</td><td>gi|17535601|ref|NP_494720.1| R11F4.2.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563640|ref|NP_503436.1| chemoreceptor</td><td>gi|17535609|ref|NP_495204.1| thyrotropin-releasing hormone receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563466|ref|NP_503769.1| chemoreceptor</td><td>gi|17535863|ref|NP_495564.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563568|ref|NP_503164.1| chemoreceptor</td><td>gi|17536095|ref|NP_495888.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17557358|ref|NP_506882.1| B0391.4.p</td><td>gi|17536107|ref|NP_495481.1| T07F8.2.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563450|ref|NP_503419.1| chemoreceptor</td><td>gi|17536363|ref|NP_496667.1| adenosine A1 receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17559310|ref|NP_505860.1| 7TM receptor</td><td>gi|17537225|ref|NP_496818.1| Y48C3A.11.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563650|ref|NP_503985.1| chemoreceptor</td><td>gi|17537509|ref|NP_497057.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563468|ref|NP_503768.1| chemoreceptor</td><td>gi|17538176|ref|NP_500725.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563620|ref|NP_503369.1| chemoreceptor</td><td>gi|17538428|ref|NP_500342.1| C04C3.6.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563438|ref|NP_504884.1| C03G6.3.p</td><td>gi|17538650|ref|NP_502162.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17565784|ref|NP_503693.1| chemoreceptor</td><td>gi|17539298|ref|NP_500930.1| seven trans-smembrane receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563580|ref|NP_505137.1| F21F8.9.p</td><td>gi|17539372|ref|NP_501270.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563436|ref|NP_504896.1| chemoreceptor</td><td>gi|17540388|ref|NP_501164.1| G protein-coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17564836|ref|NP_503891.1| T28A11.9.p</td><td>gi|17540778|ref|NP_501332.1| seven trans-membrane receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563470|ref|NP_503770.1| chemoreceptor</td><td>gi|17540944|ref|NP_502147.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563544|ref|NP_505319.1| chemoreceptor</td><td>gi|17541212|ref|NP_500092.1| K03H6.1.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563564|ref|NP_503666.1| chemoreceptor</td><td>gi|17541220|ref|NP_500093.1| K03H6.5.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17566410|ref|NP_507300.1| chemoreceptor (str family)</td><td>gi|17541940|ref|NP_501055.1| R13H7.2.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17564842|ref|NP_503888.1| T28A11.12.p</td><td>gi|17542148|ref|NP_503107.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17561530|ref|NP_506926.1| F57A10.1.p</td><td>gi|17542182|ref|NP_501701.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542906|ref|NP_500683.1| Y9C9A.2.p</td><td>gi|17542514|ref|NP_501071.1| seven transmembrane receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17565756|ref|NP_503773.1| Y45G12A.1.p</td><td>gi|17543070|ref|NP_500401.1| Y37E11AL.1.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563478|ref|NP_503772.1| chemoreceptor</td><td>gi|17543236|ref|NP_501174.1| Y40C5A.4.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563720|ref|NP_506732.1| 7TM receptor</td><td>gi|17543276|ref|NP_500135.1| Y41D4A.8.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542976|ref|NP_500659.1| Y17G9A.1.p</td><td>gi|17543832|ref|NP_501460.1| Y59H11AL.1.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563608|ref|NP_504817.1| chemoreceptor</td><td>gi|17544326|ref|NP_502887.1| Y105C5A.23.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563520|ref|NP_503837.1| chemoreceptor</td><td>gi|17544404|ref|NP_503056.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542118|ref|NP_500561.1| R08C7.7.p</td><td>gi|17548212|ref|NP_508414.1| transmembrane domain of family 1 of G-protein coupled receptors</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563452|ref|NP_503309.1| chemoreceptor</td><td>gi|17550004|ref|NP_509541.1| B0563.6.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542908|ref|NP_500682.1| Y9C9A.3.p</td><td>gi|17550060|ref|NP_508147.1| C02H7.2.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563460|ref|NP_503349.1| chemoreceptor</td><td>gi|17550264|ref|NP_508474.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17541558|ref|NP_502071.1| M7.13.p</td><td>gi|17550484|ref|NP_510101.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563476|ref|NP_503774.1| chemoreceptor</td><td>gi|17550512|ref|NP_509379.1| C17H11.1.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542114|ref|NP_500664.1| chemoreceptor</td><td>gi|17550596|ref|NP_508739.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17564838|ref|NP_503890.1| T28A11.10.p</td><td>gi|17550602|ref|NP_508741.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17559312|ref|NP_505861.1| 7TM receptor</td><td>gi|17550622|ref|NP_509115.1| alpha adrenergic receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563454|ref|NP_503308.1| chemoreceptor</td><td>gi|17550642|ref|NP_508234.1| G-protein coupled receptor (family 1)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17540004|ref|NP_503063.1| F26D10.8.p</td><td>gi|17550890|ref|NP_509754.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542986|ref|NP_500661.1| chemoreceptor</td><td>gi|17550966|ref|NP_509629.1| G protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563474|ref|NP_503297.1| chemoreceptor</td><td>gi|17551076|ref|NP_509515.1| family 1 of G-protein coupled receptors</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563606|ref|NP_503220.1| chemoreceptor</td><td>gi|17551118|ref|NP_508238.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17544160|ref|NP_502840.1| 7tm receptor protein</td><td>gi|17551140|ref|NP_510163.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17559942|ref|NP_507418.1| F20E11.4.p</td><td>gi|17551206|ref|NP_509248.1| G-protein coupled receptors (family 1)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17559476|ref|NP_507067.1| F10A3.9.p</td><td>gi|17551400|ref|NP_509184.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17566164|ref|NP_507353.1| Y68A4A.3.p</td><td>gi|17551438|ref|NP_508769.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542914|ref|NP_500679.1| Y9C9A.6.p</td><td>gi|17551646|ref|NP_509865.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542120|ref|NP_501129.1| chemoreceptor</td><td>gi|17551648|ref|NP_509866.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17557676|ref|NP_506453.1| C06B3.9.p</td><td>gi|17551692|ref|NP_508947.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563432|ref|NP_503280.1| chemoreceptor</td><td>gi|17551698|ref|NP_510477.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563618|ref|NP_503464.1| chemoreceptor</td><td>gi|17551742|ref|NP_498241.1| B0244.6.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563652|ref|NP_503314.1| chemoreceptor</td><td>gi|17551744|ref|NP_498239.1| B0244.7.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563616|ref|NP_503465.1| chemoreceptor</td><td>gi|17552076|ref|NP_498743.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542910|ref|NP_500681.1| Y9C9A.4.p</td><td>gi|17553482|ref|NP_498383.1| F47D12.1.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17557426|ref|NP_503686.1| chemoreceptor</td><td>gi|17553786|ref|NP_498999.1| possible G protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17535777|ref|NP_496195.1| F33H1.5.p</td><td>gi|17553872|ref|NP_497125.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17558758|ref|NP_505536.1| C50C10.6.p</td><td>gi|17555304|ref|NP_497744.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563600|ref|NP_505383.1| chemoreceptor</td><td>gi|17555370|ref|NP_499064.1| G protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563430|ref|NP_503279.1| chemoreceptor</td><td>gi|17555606|ref|NP_497452.1| Y22D7AR.13.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563648|ref|NP_503223.1| chemoreceptor</td><td>gi|17555760|ref|NP_497491.1| 7 transmembrane receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563110|ref|NP_506176.1| 7TM receptor</td><td>gi|17556795|ref|NP_499038.1| probable G protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17569971|ref|NP_510134.1| T22H6.3.p</td><td>gi|17556933|ref|NP_498545.1| ZK418.6.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563642|ref|NP_503437.1| chemoreceptor</td><td>gi|17556935|ref|NP_498546.1| ZK418.7.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563612|ref|NP_504594.1| chemoreceptor</td><td>gi|17558004|ref|NP_506566.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17561428|ref|NP_506425.1| 7TM receptor</td><td>gi|17558266|ref|NP_505004.1| C26F1.6.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563300|ref|NP_504536.1| chemoreceptor</td><td>gi|17558314|ref|NP_506809.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563458|ref|NP_503275.1| chemoreceptor</td><td>gi|17558810|ref|NP_505548.1| steroid hormone receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563472|ref|NP_503767.1| chemoreceptor</td><td>gi|17559008|ref|NP_506353.1| 7tm receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563590|ref|NP_505082.1| chemoreceptor</td><td>gi|17559080|ref|NP_505101.1| D1014.2.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563614|ref|NP_504329.1| chemoreceptor</td><td>gi|17560000|ref|NP_505360.1| F21C10.9.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563014|ref|NP_506822.1| 7TM receptor</td><td>gi|17560622|ref|NP_505436.1| F36D4.4.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17560270|ref|NP_504331.1| chemoreceptor</td><td>gi|17560716|ref|NP_505153.1| F38E1.8.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563462|ref|NP_504141.1| chemoreceptor</td><td>gi|17561862|ref|NP_505724.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17560266|ref|NP_504334.1| chemoreceptor</td><td>gi|17561920|ref|NP_504228.1| H22D07.1.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563578|ref|NP_505138.1| F21F8.10.p</td><td>gi|17562246|ref|NP_505301.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17559470|ref|NP_507070.1| F10A3.6.p</td><td>gi|17562248|ref|NP_505300.1| transmemebrane protein</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563644|ref|NP_503833.1| chemoreceptor</td><td>gi|17562444|ref|NP_505478.1| dopamine receptor like</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17564618|ref|NP_506925.1| 7TM receptor</td><td>gi|17562462|ref|NP_506168.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17542108|ref|NP_500472.1| chemoreceptor</td><td>gi|17562622|ref|NP_506777.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17558734|ref|NP_506307.1| 7TM receptor</td><td>gi|17562626|ref|NP_506776.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563464|ref|NP_504140.1| chemoreceptor</td><td>gi|17563758|ref|NP_505883.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17564036|ref|NP_505557.1| T07C12.1.p</td><td>gi|17563762|ref|NP_505884.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17559670|ref|NP_507046.1| 7TM receptor</td><td>gi|17564262|ref|NP_505903.1| G-protein coupled receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17561132|ref|NP_505878.1| F47G9.2.p</td><td>gi|17564438|ref|NP_504747.1| T19F4.1a.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17535865|ref|NP_493898.1| chemoreceptor</td><td>gi|17564728|ref|NP_506944.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563558|ref|NP_504809.1| chemoreceptor</td><td>gi|17564730|ref|NP_506945.1| 7 transmembrane receptor (rhodopsin family)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17569125|ref|NP_509157.1| chemoreceptor</td><td>gi|17565624|ref|NP_506608.1| muscarinic acetylcholine receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563572|ref|NP_505087.1| chemoreceptor</td><td>gi|17566044|ref|NP_503168.1| seven trans-membrane receptor</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563556|ref|NP_505395.1| chemoreceptor</td><td>gi|17566248|ref|NP_503405.1| Y75B7AL.1.p</td><td></td></tr>
<tr><td></td><td></td><td></td><td>gi|17563634|ref|NP_503319.1| chemoreceptor</td><td>gi|17566676|ref|NP_506659.1| G-protein coupled receptor</td><td></td></tr>
</table>

gi|17560268|ref|NP_504332.1| chemoreceptor
gi|17563786|ref|NP_507193.1| T03E6.1.p
gi|17563588|ref|NP_505081.1| chemoreceptor
gi|17563298|ref|NP_504538.1| chemoreceptor
gi|17564290|ref|NP_507108.1| 7TM receptor
gi|17539146|ref|NP_501130.1| chemoreceptor
gi|17564226|ref|NP_506789.1| 7TM receptor
gi|17563562|ref|NP_504023.1| chemoreceptor
gi|17563716|ref|NP_506730.1| T01G5.3.p
gi|17563604|ref|NP_504923.1| chemoreceptor
gi|17563570|ref|NP_505088.1| chemoreceptor
gi|17563610|ref|NP_504326.1| chemoreceptor
gi|17542916|ref|NP_500677.1| Y9C9A.7.p
gi|17557356|ref|NP_506883.1| B0391.3.p
gi|17560054|ref|NP_507052.1| 7TM receptor
gi|17565356|ref|NP_507192.1| Y32B12B.5.p
gi|17542112|ref|NP_500696.1| chemoreceptor
gi|17557678|ref|NP_506454.1| C06B3.10.p
gi|17563448|ref|NP_503704.1| chemoreceptor
gi|17558346|ref|NP_507122.1| C31A11.9.p
gi|17507053|ref|NP_493595.1| F32A7.7.p
gi|17563552|ref|NP_505092.1| chemoreceptor
gi|17558658|ref|NP_503587.1| chemoreceptor
gi|17557422|ref|NP_503689.1| chemoreceptor
gi|17542110|ref|NP_500668.1| chemoreceptor
gi|17563574|ref|NP_505084.1| chemoreceptor
gi|17560348|ref|NP_505740.1| F28H7.11.p
gi|17563546|ref|NP_505321.1| chemoreceptor
gi|17555522|ref|NP_499426.1| W09D6.3.p
gi|17559474|ref|NP_507068.1| F10A3.8.p
gi|17563592|ref|NP_505090.1| chemoreceptor
gi|17542912|ref|NP_500680.1| Y9C9A.5.p
gi|17559468|ref|NP_507071.1| F10A3.5.p
gi|17558968|ref|NP_506888.1| C55A1.3.p
gi|17562200|ref|NP_507077.1| 7TM receptor
gi|17563792|ref|NP_507196.1| T03E6.4.p
gi|17563550|ref|NP_505322.1| chemoreceptor
gi|17563548|ref|NP_505320.1| chemoreceptor
gi|17542922|ref|NP_500674.1| Y9C9A.10.p
gi|17542988|ref|NP_500662.1| Y17G9A.7.p
gi|17563444|ref|NP_503756.1| chemoreceptor
gi|17559482|ref|NP_507074.1| F10A3.13.p
gi|17563506|ref|NP_503316.1| chemoreceptor
gi|17558972|ref|NP_506891.1| C55A1.5.p
gi|17563586|ref|NP_505080.1| chemoreceptor
gi|17562992|ref|NP_506821.1| olfactory receptor ODR-10 like
gi|17563602|ref|NP_504690.1| chemoreceptor
gi|17557252|ref|NP_504098.1| chemoreceptor
gi|17563522|ref|NP_504899.1| chemoreceptor
gi|17558286|ref|NP_506051.1| C27A7.7.p
gi|17565228|ref|NP_506908.1| Y6E2A.2.p
gi|17563446|ref|NP_503703.1| chemoreceptor
gi|17563456|ref|NP_504856.1| chemoreceptor
gi|17563598|ref|NP_503493.1| chemoreceptor
gi|17563632|ref|NP_503438.1| chemoreceptor
gi|17550730|ref|NP_510330.1| C31E10.1.p
gi|17563096|ref|NP_507571.1| R10E8.5.p
gi|17569973|ref|NP_510135.1| T22H6.4.p
gi|17563582|ref|NP_505078.1| chemoreceptor
gi|17559480|ref|NP_507073.1| F10A3.12.p
gi|17563502|ref|NP_503740.1| chemoreceptor
gi|17557346|ref|NP_506268.1| B0365.2.p
gi|17563516|ref|NP_503741.1| chemoreceptor
gi|17565276|ref|NP_503659.1| Y19D10A.2.p
gi|17563518|ref|NP_503782.1| chemoreceptor
gi|17563594|ref|NP_505089.1| chemoreceptor
gi|17563566|ref|NP_503667.1| C13B7.2.p
gi|17564092|ref|NP_507162.1| T08G3.1.p
gi|17563894|ref|NP_507323.1| T05E12.1.p
gi|17563112|ref|NP_506177.1| 7TM receptor
gi|17563576|ref|NP_503312.1| chemoreceptor
gi|17563512|ref|NP_504932.1| chemoreceptor
gi|17563584|ref|NP_505077.1| chemoreceptor
gi|17563504|ref|NP_503887.1| chemoreceptor
gi|17564604|ref|NP_506916.1| 7TM receptor
gi|17566840|ref|NP_507604.1| ZK262.10.p
gi|17565096|ref|NP_507481.1| W06D12.4.p
gi|17563596|ref|NP_503699.1| chemoreceptor
gi|17564094|ref|NP_507161.1| T08G3.2.p
gi|17564608|ref|NP_506919.1| 7TM receptor
gi|17564338|ref|NP_506518.1| T16A9.2.p
gi|17564620|ref|NP_506924.1| 7TM receptor
gi|17564616|ref|NP_506922.1| 7TM receptor
gi|17542106|ref|NP_501116.1| chemoreceptor
gi|17564746|ref|NP_507737.1| T26H2.6.p
gi|17563524|ref|NP_503788.1| chemoreceptor
gi|17561684|ref|NP_507473.1| F59A1.3.p
gi|17561686|ref|NP_507472.1| F59A1.4.p
gi|17542920|ref|NP_500675.1| Y9C9A.9.p
gi|17563514|ref|NP_504306.1| T19H12.7.p
gi|17564156|ref|NP_506742.1| T09F5.3.p
gi|17563630|ref|NP_504078.1| chemoreceptor
gi|17560988|ref|NP_507057.1| 7TM receptor
gi|17560048|ref|NP_507048.1| 7TM receptor
gi|17569223|ref|NP_510171.1| R03G8.5.p
gi|17542104|ref|NP_501131.1| chemoreceptor
gi|17542936|ref|NP_500672.1| Y9C9A.17.p
gi|17544684|ref|NP_502270.1| ZK829.8.p
gi|17565422|ref|NP_507575.1| Y37H2C.4.p
gi|17563978|ref|NP_506973.1| 7TM receptor
gi|17557836|ref|NP_505631.1| C12D8.12.p
gi|17557700|ref|NP_507018.1| 7TM receptor
gi|17563534|ref|NP_503851.1| chemoreceptor
gi|17558964|ref|NP_506885.1| C55A1.1.p
gi|17559484|ref|NP_507075.1| F10A3.15.p
gi|17560810|ref|NP_505505.1| F40F9.11.p
gi|17558652|ref|NP_503579.1| chemoreceptor
gi|17564614|ref|NP_506923.1| 7TM receptor

gi|17567403|ref|NP_510612.1| 7 transmembrane receptor (rhodopsin family)
gi|17567483|ref|NP_509570.1| G-protein coupled receptor
gi|17567639|ref|NP_509725.1| neurokinin receptor like
gi|17567665|ref|NP_510455.1| G-protein coupled receptor
gi|17568131|ref|NP_510432.1| 7 transmembrane receptor (rhodopsin family)
gi|17568191|ref|NP_509416.1| F55E10.7.p
gi|17568295|ref|NP_510580.1| G-protein coupled receptor (gastrin/cholecystokinin)
gi|17568377|ref|NP_509093.1| Muscarinic acetycholine receptor
gi|17568989|ref|NP_508839.1| G-protein coupled receptor
gi|17569121|ref|NP_508816.1| G-protein coupled receptor
gi|17569195|ref|NP_510555.1| steroid hormone receptor
gi|17569395|ref|NP_510833.1| G-protein coupled receptor
gi|17569447|ref|NP_510684.1| G-protein coupled receptor, family 1
gi|17569449|ref|NP_510535.1| octopamine receptor
gi|17569797|ref|NP_509626.1| possible G protein coupled receptor
gi|17569809|ref|NP_509106.1| G-protein coupled receptor (family 1)
gi|17569983|ref|NP_510779.1| G-protein coupled receptor
gi|17570185|ref|NP_508606.1| G-protein coupled receptor
gi|17570603|ref|NP_509685.1| hormone receptor
gi|17570665|ref|NP_509896.1| G-protein coupled receptor

gi|17564192|ref|NP_507021.1| 7TM receptor
gi|17564602|ref|NP_506918.1| 7TM receptor
gi|17560050|ref|NP_507050.1| F22B8.3.p
gi|17563532|ref|NP_503371.1| chemoreceptor
gi|17564194|ref|NP_507020.1| 7TM receptor
gi|17563530|ref|NP_503849.1| chemoreceptor
gi|17561520|ref|NP_505581.1| F57A8.3.p
gi|17565226|ref|NP_506907.1| Y6E2A.1.p
gi|17543240|ref|NP_502828.1| Y40H7A.1.p
gi|17563508|ref|NP_504921.1| chemoreceptor
gi|17557702|ref|NP_507017.1| 7TM receptor
gi|17563962|ref|NP_506965.1| 7TM receptor
gi|17550422|ref|NP_509720.1| C14H10.4.p
gi|17535779|ref|NP_496196.1| R05H5.1.p
gi|17560206|ref|NP_507149.1| F26D2.7.p
gi|17564610|ref|NP_506920.1| 7TM receptor
gi|17564626|ref|NP_506847.1| T23F1.4.p
gi|17563964|ref|NP_506966.1| 7TM receptor
gi|17560198|ref|NP_507153.1| F26D2.1.p
gi|17563510|ref|NP_504034.1| chemoreceptor
gi|17564942|ref|NP_506052.1| VC27A7L.1.p
gi|17563526|ref|NP_503931.1| chemoreceptor
gi|17559328|ref|NP_504980.1| chemoreceptor
gi|17542924|ref|NP_500673.1| Y9C9A.11.p
gi|17557698|ref|NP_507019.1| 7TM receptor
gi|17563528|ref|NP_503907.1| chemoreceptor
gi|17563536|ref|NP_503850.1| chemoreceptor
gi|17563960|ref|NP_506975.1| 7TM receptor
gi|17566844|ref|NP_507035.1| ZK285.1.p
gi|17563538|ref|NP_503687.1| chemoreceptor
gi|17565298|ref|NP_503660.1| Y19D10A.13.p
gi|17559638|ref|NP_507218.1| F14F8.1.p
gi|17561492|ref|NP_503672.1| F56A4.7.p
gi|17563306|ref|NP_506331.1| 7TM chemoreceptor (srd-family)
gi|17563302|ref|NP_506332.1| 7TM chemoreceptor (srd-family)
gi|17542078|ref|NP_500838.1| chemoreceptor
gi|17558738|ref|NP_506304.1| C50B6.12.p
gi|17535041|ref|NP_493667.1| chemoreceptor
gi|17565776|ref|NP_503694.1| chemoreceptor
gi|17564624|ref|NP_506846.1| T23F1.3.p
gi|17563542|ref|NP_504106.1| chemoreceptor
gi|17563540|ref|NP_504105.1| chemoreceptor
gi|17563308|ref|NP_504569.1| chemoreceptor
gi|17563304|ref|NP_506330.1| 7TM chemoreceptor (srd-family)
gi|17555520|ref|NP_499425.1| W09D6.2.p
gi|17557354|ref|NP_506884.1| B0391.1.p
gi|17542076|ref|NP_500836.1| chemoreceptor
gi|17563294|ref|NP_504426.1| chemoreceptor
gi|17569503|ref|NP_508363.1| chemoreceptor
gi|17557664|ref|NP_506447.1| G-protein coupled receptor
gi|17563296|ref|NP_506374.1| 7TM chemoreceptor (srd-family)
gi|17560606|ref|NP_507183.1| 7TM receptor
gi|17544474|ref|NP_503040.1| Y116A8C.40.p
gi|17557690|ref|NP_506857.1| 7tm receptor
gi|17542072|ref|NP_500839.1| chemoreceptor
gi|17563292|ref|NP_506057.1| 7TM chemoreceptor (srd-family)
gi|17542074|ref|NP_502614.1| 7TM chemoreceptor (srd-family)
gi|17542070|ref|NP_502001.1| 7TM chemoreceptor (srd-family)
gi|17542938|ref|NP_500671.1| Y9C9A.18.p
gi|17559472|ref|NP_507069.1| F10A3.7.p
gi|17563322|ref|NP_504304.1| chemoreceptor
gi|17564612|ref|NP_506921.1| 7TM receptor
gi|17542918|ref|NP_500676.1| Y9C9A.8.p
gi|17563320|ref|NP_504303.1| chemoreceptor
gi|17542440|ref|NP_500845.1| T19E7.5.p
gi|17564042|ref|NP_505559.1| T07C12.5.p
gi|17542082|ref|NP_500701.1| chemoreceptor
gi|17562360|ref|NP_503886.1| K08D9.1.p
gi|17563788|ref|NP_507195.1| T03E6.2.p
gi|17567009|ref|NP_510252.1| F15A2.3.p
gi|17535781|ref|NP_495553.1| chemoreceptor
gi|17563312|ref|NP_504973.1| chemoreceptor
gi|17543248|ref|NP_502832.1| Y40H7A.5.p
gi|17552288|ref|NP_499525.1| C24H11.4.p
gi|17563316|ref|NP_504972.1| chemoreceptor
gi|17563314|ref|NP_504975.1| chemoreceptor
gi|17561088|ref|NP_506554.1| F47B8.7.p
gi|17563746|ref|NP_506505.1| T02B5.4.p
gi|17562612|ref|NP_506773.1| M01B2.2.p
gi|17563310|ref|NP_507207.1| 7TM chemoreceptor (srd-family)
gi|17567089|ref|NP_510062.1| F17A2.12.p
gi|17560656|ref|NP_507002.1| F36G9.8.p
gi|17563318|ref|NP_504974.1| chemoreceptor
gi|17562882|ref|NP_505594.1| R04B5.8.p
gi|17561092|ref|NP_506555.1| F47B8.9.p
gi|17562386|ref|NP_506962.1| K08G2.8.p
gi|17563420|ref|NP_503776.1| chemoreceptor
gi|17532201|ref|NP_493874.1| chemoreceptor
gi|17535785|ref|NP_495498.1| chemoreceptor
gi|17564724|ref|NP_506942.1| T26E4.12.p
gi|17535635|ref|NP_494186.1| chemoreceptor
gi|17562078|ref|NP_507925.1| chemoreceptor
gi|17565782|ref|NP_503692.1| Y45G12C.9.p
gi|17565474|ref|NP_507955.1| Y38H6C.12.p
gi|17557558|ref|NP_504876.1| chemoreceptor
gi|17566908|ref|NP_503497.1| chemoreceptor
gi|17558056|ref|NP_504079.1| chemoreceptor
gi|17558934|ref|NP_504942.1| chemoreceptor
gi|17506659|ref|NP_493070.1| F15H9.3.p
gi|17542080|ref|NP_500702.1| chemoreceptor
gi|17540468|ref|NP_500451.1| chemoreceptor
gi|17559656|ref|NP_504379.1| chemoreceptor
gi|17559954|ref|NP_507417.1| F20E11.10.p
gi|17560658|ref|NP_507001.1| F36G9.9.p
gi|17566108|ref|NP_507864.1| Y60A3A.6.p
gi|17569261|ref|NP_510211.1| R04D3.12.p
gi|17566304|ref|NP_507497.1| Y94A7B.4.p
gi|17563394|ref|NP_503786.1| chemoreceptor

gi|17566412|ref|NP_507301.1| Y102A5C.29.p
gi|17567077|ref|NP_510063.1| F17A2.6.p
gi|17563480|ref|NP_504607.1| chemoreceptor
gi|17535787|ref|NP_495499.1| chemoreceptor
gi|17562870|ref|NP_505331.1| chemoreceptor
gi|17532473|ref|NP_494681.1| chemoreceptor
gi|17566298|ref|NP_507494.1| Y94A7B.1.p
gi|17559128|ref|NP_504137.1| chemoreceptor
gi|17508345|ref|NP_493068.1| M01G12.1.p
gi|17559220|ref|NP_504171.1| chemoreceptor
gi|17561594|ref|NP_507123.1| F57G8.1.p
gi|17559114|ref|NP_505760.1| D1054.12.p
gi|17569251|ref|NP_510212.1| R04D3.6.p
gi|17566300|ref|NP_507495.1| Y94A7B.3.p
gi|17506657|ref|NP_493072.1| F15H9.2.p
gi|17566066|ref|NP_507523.1| Y59A8B.4.p
gi|17506603|ref|NP_492061.1| F13G3.2.p
gi|17566064|ref|NP_507522.1| Y59A8B.3.p
gi|17567011|ref|NP_510251.1| F15A2.4.p
gi|17535899|ref|NP_496206.1| 7tm receptor
gi|17566220|ref|NP_507229.1| Y70C5C.4.p
gi|17565236|ref|NP_506913.1| Y6E2A.6.p
gi|17539064|ref|NP_502947.1| C35D6.2.p
gi|17539062|ref|NP_502946.1| C35D6.1.p
gi|17564794|ref|NP_507404.1| T27C5.5.p
gi|17564554|ref|NP_504011.1| chemoreceptor
gi|17566054|ref|NP_507505.1| Y59A8A.4.p
gi|17559126|ref|NP_504135.1| chemoreceptor
gi|17569257|ref|NP_510215.1| R04D3.9.p
gi|17566434|ref|NP_507872.1| Y113G7A.1.p
gi|17559364|ref|NP_507423.1| F08E10.1.p
gi|17506661|ref|NP_493071.1| F15H9.4.p
gi|17567081|ref|NP_510068.1| F17A2.8.p
gi|17559958|ref|NP_507412.1| F20E11.12.p
gi|17564022|ref|NP_506834.1| T06E6.9.p
gi|17559346|ref|NP_504982.1| chemoreceptor
gi|17566818|ref|NP_507618.1| ZK228.7.p
gi|17561562|ref|NP_507171.1| F57E7.3.p
gi|17566816|ref|NP_507617.1| ZK228.6.p
gi|17560604|ref|NP_507177.1| F36D3.6.p
gi|17560762|ref|NP_507348.1| F40D4.1.p
gi|17564462|ref|NP_507248.1| T20B3.3.p
gi|17563380|ref|NP_503144.1| chemoreceptor
gi|17559530|ref|NP_507081.1| F11A5.1.p
gi|17563324|ref|NP_503663.1| chemoreceptor
gi|17559940|ref|NP_507414.1| F20E11.3.p
gi|17566414|ref|NP_507302.1| Y102A5C.31.p
gi|17565778|ref|NP_503691.1| Y45G12C.7.p
gi|17561164|ref|NP_507935.1| F48F5.4.p
gi|17563378|ref|NP_503157.1| chemoreceptor
gi|17566306|ref|NP_507498.1| Y94A7B.5.p
gi|17569255|ref|NP_510213.1| R04D3.8.p
gi|17564426|ref|NP_507362.1| T19C9.3.p
gi|17564552|ref|NP_504010.1| chemoreceptor
gi|17566160|ref|NP_507352.1| Y68A4A.1.p
gi|17559372|ref|NP_507427.1| F08E10.5.p
gi|17537177|ref|NP_494338.1| Y47G7B.1.p
gi|17566464|ref|NP_507894.1| Y113G7B.2.p
gi|17566312|ref|NP_507500.1| Y94A7B.8.p
gi|17560204|ref|NP_507148.1| F26D2.5.p
gi|17540476|ref|NP_500452.1| chemoreceptor
gi|17565014|ref|NP_503718.1| chemoreceptor
gi|17540464|ref|NP_500453.1| chemoreceptor
gi|17566820|ref|NP_507619.1| ZK228.8.p
gi|17563218|ref|NP_506244.1| R186.2.p
gi|17562996|ref|NP_506819.1| R08H2.4.p
gi|17566170|ref|NP_507359.1| Y68A4A.7.p
gi|17560476|ref|NP_505705.1| F32G8.1.p
gi|17566068|ref|NP_507524.1| Y59A8B.5.p
gi|17560202|ref|NP_507147.1| F26D2.4.p
gi|17563396|ref|NP_504131.1| chemoreceptor
gi|17566974|ref|NP_506801.1| ZK1037.8.p
gi|17566386|ref|NP_507287.1| Y102A5C.15.p
gi|17560766|ref|NP_507350.1| F40D4.3.p
gi|17564756|ref|NP_506842.1| T26H5.3.p
gi|17557562|ref|NP_504872.1| chemoreceptor
gi|17564466|ref|NP_507246.1| T20B3.5.p
gi|17559532|ref|NP_507082.1| F11A5.2.p
gi|17561854|ref|NP_503803.1| chemoreceptor
gi|17562380|ref|NP_506959.1| K08G2.5.p
gi|17508367|ref|NP_493069.1| M01G12.13.p
gi|17563374|ref|NP_503156.1| chemoreceptor
gi|17560764|ref|NP_507349.1| F40D4.2.p
gi|17544066|ref|NP_502043.1| Y69E1A.6.p
gi|17557566|ref|NP_504875.1| chemoreceptor
gi|17564164|ref|NP_506743.1| T09F5.8.p
gi|17566102|ref|NP_507867.1| Y60A3A.3.p
gi|17535831|ref|NP_494457.1| chemoreceptor
gi|17562138|ref|NP_507434.1| K03D7.4.p
gi|17564100|ref|NP_507159.1| T08G3.5.p
gi|17563346|ref|NP_504323.1| chemoreceptor
gi|17563398|ref|NP_503836.1| chemoreceptor
gi|17535857|ref|NP_494310.1| chemoreceptor
gi|17535819|ref|NP_494463.1| chemoreceptor
gi|17535797|ref|NP_494589.1| chemoreceptor
gi|17536375|ref|NP_496670.1| 7TM receptor
gi|17563412|ref|NP_503282.1| chemoreceptor
gi|17566778|ref|NP_504995.1| ZK105.2.p
gi|17564464|ref|NP_507247.1| T20B3.4.p
gi|17569485|ref|NP_509405.1| chemoreceptor
gi|17558928|ref|NP_507674.1| RNA dependant RNA polymerase
gi|17559416|ref|NP_507271.1| F09C6.7.p
gi|17561598|ref|NP_507128.1| F57G8.3.p
gi|17508745|ref|NP_491816.1| chemoreceptor
gi|17563402|ref|NP_504931.1| chemoreceptor
gi|17563342|ref|NP_504324.1| chemoreceptor
gi|17535783|ref|NP_495497.1| chemoreceptor
gi|17559344|ref|NP_504983.1| chemoreceptor

gi|17558666|ref|NP_507488.1| C47A10.2.p
gi|17558578|ref|NP_506759.1| C41G6.14.p
gi|17566570|ref|NP_504190.1| chemoreceptor
gi|17566842|ref|NP_507600.1| ZK262.11.p
gi|17558588|ref|NP_507762.1| C43D7.6.p
gi|17561128|ref|NP_504184.1| chemoreceptor
gi|17563416|ref|NP_503285.1| F31F4.6.p
gi|17563406|ref|NP_503778.1| chemoreceptor
gi|17564020|ref|NP_506833.1| T06E6.8.p
gi|17557580|ref|NP_504882.1| chemoreceptor
gi|17563358|ref|NP_503205.1| chemoreceptor
gi|17537569|ref|NP_496974.1| Y54G11A.12.p
gi|17563356|ref|NP_503204.1| chemoreceptor
gi|17563414|ref|NP_503796.1| chemoreceptor
gi|17560646|ref|NP_506998.1| F36G9.2.p
gi|17566822|ref|NP_507601.1| ZK262.1.p
gi|17566314|ref|NP_507501.1| Y94A7B.9.p
gi|17563408|ref|NP_503779.1| chemoreceptor
gi|17566310|ref|NP_507502.1| Y94A7B.7.p
gi|17535823|ref|NP_494311.1| chemoreceptor
gi|17505538|ref|NP_491817.1| chemoreceptor
gi|17535855|ref|NP_494498.1| chemoreceptor
gi|17559972|ref|NP_506863.1| F21A3.1.p
gi|17563404|ref|NP_503777.1| chemoreceptor
gi|17535861|ref|NP_494304.1| chemoreceptor
gi|17508747|ref|NP_491818.1| chemoreceptor
gi|17563384|ref|NP_503800.1| chemoreceptor
gi|17562206|ref|NP_507079.1| K05D4.6.p
gi|17535833|ref|NP_494458.1| chemoreceptor
gi|17561126|ref|NP_504183.1| chemoreceptor
gi|17536367|ref|NP_496669.1| 7TM receptor
gi|17531309|ref|NP_496460.1| B0334.7.p
gi|17566104|ref|NP_507866.1| Y60A3A.4.p
gi|17559668|ref|NP_504376.1| chemoreceptor
gi|17558630|ref|NP_505813.1| C45B11.4.p
gi|17564012|ref|NP_506828.1| T06E6.4.p
gi|17535859|ref|NP_494299.1| chemoreceptor
gi|17558574|ref|NP_506756.1| C41G6.12.p
gi|17566278|ref|NP_506755.1| Y75B12B.9.p
gi|17562140|ref|NP_507433.1| K03D7.6.p
gi|17554830|ref|NP_497542.1| chemoreceptor
gi|17565102|ref|NP_507479.1| W06D12.7.p
gi|17563426|ref|NP_503490.1| chemoreceptor
gi|17563336|ref|NP_504118.1| chemoreceptor
gi|17563794|ref|NP_507198.1| T03E6.5.p
gi|17563326|ref|NP_503685.1| chemoreceptor
gi|17567087|ref|NP_510066.1| F17A2.11.p
gi|17535813|ref|NP_494434.1| chemoreceptor
gi|17558912|ref|NP_506119.1| C54D10.6.p
gi|17535817|ref|NP_494462.1| chemoreceptor
gi|17562994|ref|NP_506823.1| R08H2.3.p
gi|17564096|ref|NP_507163.1| T08G3.3.p
gi|17560042|ref|NP_507099.1| 7TM receptor
gi|17558724|ref|NP_506301.1| C50B6.5.p
gi|17535801|ref|NP_494021.1| chemoreceptor
gi|17535847|ref|NP_494456.1| chemoreceptor
gi|17562498|ref|NP_507376.1| K10G4.7.p
gi|17563410|ref|NP_503281.1| chemoreceptor
gi|17563390|ref|NP_504918.1| chemoreceptor
gi|17563422|ref|NP_503313.1| chemoreceptor
gi|17559952|ref|NP_507416.1| F20E11.9.p
gi|17536373|ref|NP_496673.1| 7TM receptor
gi|17554826|ref|NP_497487.1| chemoreceptor
gi|17566814|ref|NP_507616.1| ZK228.5.p
gi|17535807|ref|NP_494433.1| chemoreceptor
gi|17560046|ref|NP_507100.1| F21H7.11.p
gi|17554856|ref|NP_498459.1| chemoreceptor
gi|17563400|ref|NP_504869.1| chemoreceptor
gi|17558570|ref|NP_506760.1| C41G6.10.p
gi|17563906|ref|NP_507328.1| T05E12.7.p
gi|17566106|ref|NP_507865.1| Y60A3A.5.p
gi|17535811|ref|NP_494432.1| chemoreceptor
gi|17535821|ref|NP_494300.1| chemoreceptor
gi|17538430|ref|NP_500344.1| C04C3.7.p
gi|17563330|ref|NP_503481.1| chemoreceptor
gi|17559950|ref|NP_507415.1| F20E11.8.p
gi|17569253|ref|NP_510214.1| R04D3.7.p
gi|17563332|ref|NP_504119.1| chemoreceptor
gi|17542578|ref|NP_502760.1| T27E7.2.p
gi|17554828|ref|NP_497521.1| chemoreceptor
gi|17531923|ref|NP_494484.1| chemoreceptor
gi|17535809|ref|NP_494431.1| chemoreceptor
gi|17563002|ref|NP_506816.1| R08H2.7.p
gi|17563348|ref|NP_504322.1| chemoreceptor
gi|17531557|ref|NP_495632.1| chemoreceptor
gi|17563344|ref|NP_504325.1| chemoreceptor
gi|17566308|ref|NP_507499.1| Y94A7B.6.p
gi|17535825|ref|NP_494305.1| chemoreceptor
gi|17567079|ref|NP_510064.1| F17A2.7.p
gi|17563334|ref|NP_503482.1| chemoreceptor
gi|17563382|ref|NP_504819.1| chemoreceptor
gi|17565336|ref|NP_507477.1| Y26G10.2.p
gi|17563340|ref|NP_504571.1| chemoreceptor
gi|17534969|ref|NP_493785.1| K07E8.11.p
gi|17567085|ref|NP_510065.1| F17A2.10.p
gi|17532437|ref|NP_494626.1| chemoreceptor
gi|17542464|ref|NP_499894.1| chemoreceptor
gi|17563386|ref|NP_503807.1| chemoreceptor
gi|17563354|ref|NP_503203.1| chemoreceptor
gi|17563370|ref|NP_504524.1| chemoreceptor
gi|17538320|ref|NP_500337.1| B0546.5.p
gi|17564424|ref|NP_507363.1| T19C9.2.p
gi|17535795|ref|NP_494588.1| chemoreceptor
gi|17563376|ref|NP_504930.1| chemoreceptor
gi|17557694|ref|NP_506858.1| C06B8.6.p
gi|17559602|ref|NP_507139.1| F13A7.6.p
gi|17563362|ref|NP_503228.1| chemoreceptor
gi|17535851|ref|NP_494336.1| chemoreceptor

gi|17559374|ref|NP_507428.1| F08E10.6.p
gi|17536365|ref|NP_496668.1| 7TM receptor
gi|17507157|ref|NP_492991.1| F35E2.1.p
gi|17562470|ref|NP_503368.1| K10C9.4.p
gi|17509167|ref|NP_492980.1| T22H2.1.p
gi|17566154|ref|NP_507372.1| Y61B8A.2.p
gi|17563364|ref|NP_503793.1| chemnoreceptor
gi|17570421|ref|NP_509982.1| Y62H9A.1.p
gi|17557470|ref|NP_506723.1| C01G10.14.p
gi|17532431|ref|NP_494627.1| chemoreceptor
gi|17563360|ref|NP_503764.1| chemoreceptor
gi|17563368|ref|NP_503190.1| chemoreceptor
gi|17563392|ref|NP_504922.1| chemoreceptor
gi|17506681|ref|NP_492272.1| F16D3.6.p
gi|17563366|ref|NP_503755.1| chemoreceptor
gi|17535853|ref|NP_494335.1| chemoreceptor
gi|17558348|ref|NP_503795.1| C31B8.1.p
gi|17554824|ref|NP_497514.1| chemoreceptor
gi|17563428|ref|NP_503247.1| chemoreceptor
gi|17559956|ref|NP_507411.1| F20E11.11.p
gi|17533419|ref|NP_494323.1| F22E5.4.p
gi|17566416|ref|NP_507303.1| Y102A5C.32.p
gi|17559550|ref|NP_507091.1| F11A5.11.p
gi|17563802|ref|NP_505872.1| T03F7.2.p
gi|17535815|ref|NP_494461.1| chemoreceptor
gi|17558726|ref|NP_506302.1| RNA binding protein
gi|17535799|ref|NP_494453.1| chemoreceptor
gi|17566152|ref|NP_507371.1| Y61B8A.1.p
gi|17535841|ref|NP_494472.1| chemoreceptor
gi|17559596|ref|NP_507143.1| 7TM receptor
gi|17564150|ref|NP_506280.1| T09E8.5.p
gi|17563424|ref|NP_503994.1| chemoreceptor
gi|17558572|ref|NP_506758.1| C41G6.11.p
gi|17563338|ref|NP_504117.1| chemoreceptor
gi|17562496|ref|NP_507375.1| K10G4.6.p
gi|17535835|ref|NP_493782.1| chemoreceptor
gi|17535839|ref|NP_494470.1| chemoreceptor
gi|17542286|ref|NP_500670.1| chemoreceptor
gi|17566058|ref|NP_507503.1| Y59A8A.7.p
gi|17558668|ref|NP_507489.1| C47A10.3.p
gi|17564158|ref|NP_506739.1| T09F5.5.p
gi|17562920|ref|NP_505539.1| R07B5.5.p
gi|17558568|ref|NP_506761.1| C41G6.9.p
gi|17560782|ref|NP_507341.1| F40D4.11.p
gi|17535827|ref|NP_494301.1| chemoreceptor
gi|17560274|ref|NP_504336.1| F26G5.10.p
gi|17533441|ref|NP_494326.1| F22E5.15.p
gi|17564040|ref|NP_505556.1| T07C12.3.p
gi|17561648|ref|NP_506481.1| F58E10.6.p
gi|17542514|ref|NP_501071.1| seven transmembrane receptor
gi|17566172|ref|NP_507358.1| Y68A4A.9.p
gi|17563372|ref|NP_503158.1| chemoreceptor
gi|17558680|ref|NP_506622.1| C47E8.2.p
gi|17564428|ref|NP_507361.1| T19C9.4.p
gi|17536543|ref|NP_493749.1| chemoreceptor
gi|17569487|ref|NP_508266.1| chemoreceptor
gi|17535885|ref|NP_493678.1| T01D1.5.p
gi|17567083|ref|NP_510067.1| F17A2.9.p
gi|17561208|ref|NP_507308.1| F49H6.4.p
gi|17506863|ref|NP_491823.1| F26B1.6.p
gi|17564028|ref|NP_506836.1| T06E6.12.p
gi|17559606|ref|NP_507140.1| F13A7.8.p
gi|17562378|ref|NP_506958.1| K08G2.2.p
gi|17565324|ref|NP_505640.1| Y22F5A.2.p
gi|17551534|ref|NP_510513.1| F09B12.4.p
gi|17565122|ref|NP_507208.1| W06G6.13.p
gi|17536369|ref|NP_496671.1| 7TM receptor
gi|17560772|ref|NP_507346.1| F40D4.6.p
gi|17535829|ref|NP_494465.1| chemoreceptor
gi|17559848|ref|NP_504906.1| F18E3.6.p
gi|17563328|ref|NP_503307.1| chemoreceptor
gi|17566156|ref|NP_507380.1| Y61B8B.1.p
gi|17563804|ref|NP_505871.1| T03F7.3.p
gi|17563350|ref|NP_504715.1| chemoreceptor
gi|17563816|ref|NP_505814.1| T04C12.2.p
gi|17564622|ref|NP_506845.1| T23F1.1.p
gi|17558160|ref|NP_503737.1| C24B9.5.p
gi|17531569|ref|NP_495999.1| C06C3.6.p
gi|17535805|ref|NP_494591.1| chemoreceptor
gi|17535793|ref|NP_494590.1| chemoreceptor
gi|17558982|ref|NP_506889.1| C55A1.10.p
gi|17564018|ref|NP_506830.1| T06E6.7.p
gi|17536987|ref|NP_494467.1| Y27F2A.2.p
gi|17506973|ref|NP_492876.1| F28D9.2.p
gi|17566056|ref|NP_507504.1| Y59A8A.5.p
gi|17564752|ref|NP_506841.1| T26H5.1.p
gi|17558834|ref|NP_503834.1| C50H11.10.p
gi|17541608|ref|NP_502823.1| M199.1.p
gi|17559368|ref|NP_507424.1| F08E10.3.p
gi|17562586|ref|NP_505993.1| G-protein coupled receptor
gi|17565442|ref|NP_503129.1| Y38C9B.2.p
gi|17560302|ref|NP_507321.1| F28B1.6.p
gi|17562902|ref|NP_503750.1| R05D8.6.p
gi|17566714|ref|NP_506196.1| ZC455.7.p
gi|17555596|ref|NP_497445.1| Y22D7AR.8.p
gi|17557380|ref|NP_507587.1| B0462.2.p
gi|17554854|ref|NP_497953.1| 7tm receptor
gi|17533443|ref|NP_494328.1| F22E5.16.p
gi|17560774|ref|NP_507345.1| F40D4.7.p
gi|17540846|ref|NP_501712.1| F58G6.2.p
gi|17557884|ref|NP_504338.1| C13D9.4.p
gi|17562382|ref|NP_506960.1| K08G2.6.p
gi|17566396|ref|NP_507292.1| Y102A5C.21.p
gi|17561172|ref|NP_503268.1| F48G7.6.p
gi|17561110|ref|NP_504182.1| F47D2.1.p
gi|17557071|ref|NP_499189.1| ZK757.1.p
gi|17558896|ref|NP_506606.1| C53A5.10.p
gi|17538286|ref|NP_501183.1| B0496.5.p

gi|17566210|ref|NP_507204.1| Y70C5A.2.p
gi|17566590|ref|NP_505235.1| ZC190.6.p
gi|17562978|ref|NP_504050.1| R08F11.2.p
gi|17554834|ref|NP_498372.1| C18F10.6.p
gi|17561448|ref|NP_506084.1| F55C5.9.p
gi|17533335|ref|NP_495328.1| F18C5.1.p
gi|17566478|ref|NP_507900.1| Y113G7B.9.p
gi|17538758|ref|NP_501865.1| ABC transporters
gi|17558836|ref|NP_503835.1| C50H11.11.p
gi|17560826|ref|NP_506535.1| F40G12.8.p
gi|17507199|ref|NP_492897.1| F36D1.2.p
gi|17535843|ref|NP_494469.1| chemoreceptor
gi|17565072|ref|NP_506167.1| W05B10.5.p
gi|17558158|ref|NP_503735.1| C24B9.4.p
gi|17563074|ref|NP_506466.1| R10D12.11.p
gi|17533447|ref|NP_494327.1| F22E5.18.p
gi|17563418|ref|NP_503775.1| chemoreceptor
gi|17557730|ref|NP_503975.1| C07G3.7.p
gi|17564198|ref|NP_507023.1| T10C6.4.p
gi|17561878|ref|NP_505938.1| H12C20.5.p
gi|17564160|ref|NP_506740.1| T09F5.6.p
gi|17566878|ref|NP_503260.1| ZK488.8.p
gi|17555092|ref|NP_499243.1| T16H12.8.p
gi|17535751|ref|NP_496052.1| AH6.10.p
gi|17563806|ref|NP_505870.1| T03F7.4.p
gi|17558750|ref|NP_505532.1| C50C10.2.p
gi|17561378|ref|NP_506956.1| F54B8.12.p
gi|17544310|ref|NP_502879.1| Y105C5A.11.p
gi|17558648|ref|NP_503582.1| C45H4.10.p
gi|17555608|ref|NP_498145.1| Y32H12A.1.p
gi|17564140|ref|NP_504424.1| T09D3.5.p
gi|17557476|ref|NP_503970.1| C02A12.3.p
gi|17542338|ref|NP_502227.1| T12A7.7.p
gi|17557480|ref|NP_503973.1| C02A12.5.p
gi|17563010|ref|NP_506812.1| R08H2.11.p
gi|17557860|ref|NP_503665.1| C13B7.4.p
gi|17533221|ref|NP_496651.1| F15A4.1.p
gi|17565454|ref|NP_507946.1| Y38H6C.2.p
gi|17558646|ref|NP_503583.1| C45H4.9.p
gi|17561398|ref|NP_503763.1| F54E2.6.p
gi|17536733|ref|NP_496650.1| W05H5.7.p
gi|17563172|ref|NP_504897.1| R13D7.10.p
gi|17563388|ref|NP_504919.1| chemoreceptor
gi|17566244|ref|NP_503856.1| Y73C8C.9.p
gi|17566182|ref|NP_507637.1| Y69H2.1.p
gi|17536371|ref|NP_496672.1| 7TM receptor
gi|17566904|ref|NP_503494.1| ZK697.7.p
gi|17559856|ref|NP_504903.1| F18E3.10.p
gi|17561122|ref|NP_504180.1| F47D2.7.p
gi|17562632|ref|NP_503213.1| M02H5.2.p
gi|17564722|ref|NP_506941.1| 7 transmembrane receptor (rhodopsin family), Zinc finger, C4 type (two domains)
gi|17535767|ref|NP_494964.1| C27D6.9.p
gi|17558752|ref|NP_505533.1| C50C10.3.p
gi|17557786|ref|NP_504422.1| C10G8.1.p
gi|17543354|ref|NP_502821.1| Y41E3.15.p
gi|17557952|ref|NP_503244.1| C14C6.9.p
gi|17541354|ref|NP_502287.1| K08E4.5.p
gi|17565866|ref|NP_503300.1| Y49C4A.3.p
gi|17532267|ref|NP_494205.1| C33C12.6.p
gi|17538592|ref|NP_500709.1| C09B9.1.p
gi|17565038|ref|NP_506129.1| W04D2.2.p
gi|17557324|ref|NP_507941.1| B0250.9.p
gi|17557318|ref|NP_507942.1| B0250.6.p
gi|17562646|ref|NP_503212.1| M02H5.12.p
gi|17562688|ref|NP_507834.1| M162.3.p
gi|17554846|ref|NP_498365.1| seven-transmembrane receptor
gi|17563050|ref|NP_503323.1| R09E12.2.p
gi|17537751|ref|NP_494020.1| ZC204.4.p
gi|17561368|ref|NP_506952.1| F54B8.7.p
gi|17563000|ref|NP_506817.1| R08H2.6.p
gi|17566718|ref|NP_506198.1| ZC455.9.p
gi|17543038|ref|NP_502675.1| Sugar (and other) transporters
gi|17506959|ref|NP_493212.1| 7tm receptor protein
gi|17506961|ref|NP_493214.1| 7tm receptor protein
gi|17506965|ref|NP_493216.1| 7tm receptor protein
gi|17506967|ref|NP_493217.1| 7tm receptor protein
gi|17506971|ref|NP_493218.1| 7tm receptor protein
gi|17506973|ref|NP_492876.1| F28D9.2.p
gi|17507041|ref|NP_493588.1| F32A7.1.p
gi|17507043|ref|NP_493589.1| G-protein coupled receptor
gi|17507201|ref|NP_492898.1| F36D1.3.p
gi|17507771|ref|NP_491456.1| F57C9.6.p
gi|17508349|ref|NP_493065.1| M01G12.3.p
gi|17508351|ref|NP_493064.1| M01G12.4.p
gi|17508355|ref|NP_493062.1| M01G12.6.p
gi|17508411|ref|NP_492031.1| M05B5.6.p
gi|17508911|ref|NP_493219.1| 7tm receptor protein
gi|17508913|ref|NP_493220.1| 7tm receptor protein
gi|17508923|ref|NP_493226.1| G-protein coupled receptor
gi|17509193|ref|NP_491920.1| T23B3.6.p
gi|17509269|ref|NP_493211.1| 7tm receptor protein
gi|17509839|ref|NP_490815.1| Y34D9A.2.p
gi|17531213|ref|NP_495193.1| B0034.5.p
gi|17531307|ref|NP_496459.1| Gonadotropin-releasing hormone receptor like protein
gi|17531309|ref|NP_496460.1| B0334.7.p
gi|17531317|ref|NP_493699.1| B0432.1.p
gi|17531457|ref|NP_497033.1| C01G12.7.p
gi|17532123|ref|NP_495491.1| C27H5.6.p
gi|17532173|ref|NP_495243.1| C30B5.7.p
gi|17532429|ref|NP_494624.1| C46E10.6.p
gi|17532567|ref|NP_495332.1| C56C10.5.p
gi|17532671|ref|NP_493716.1| D1069.4.p
gi|17532775|ref|NP_496241.1| E04D5.2.p
gi|17533217|ref|NP_495752.1| potassium channel
gi|17533233|ref|NP_496659.1| 7TM receptor
gi|17533343|ref|NP_495329.1| F18C5.6.p
gi|17533363|ref|NP_494609.1| F19B10.7.p
gi|17533365|ref|NP_494610.1| F19B10.8.p

gi|17533505|ref|NP_496185.1| F27E5.5.p
gi|17533673|ref|NP_496738.1| F35C5.2.p
gi|17533859|ref|NP_494622.1| F40H7.2.p
gi|17533861|ref|NP_494616.1| F40H7.3.p
gi|17533863|ref|NP_494615.1| F40H7.4.p
gi|17533867|ref|NP_494618.1| F40H7.7.p
gi|17533869|ref|NP_494619.1| F40H7.8.p
gi|17533871|ref|NP_494620.1| F40H7.9.p
gi|17534195|ref|NP_496677.1| F49C5.2.p
gi|17534215|ref|NP_495770.1| F49E12.5.p
gi|17534491|ref|NP_494956.1| F58A6.6.p
gi|17534495|ref|NP_494957.1| F58A6.10.p
gi|17535595|ref|NP_495569.1| R10H1.2.p
gi|17535741|ref|NP_496042.1| AH6.4.p
gi|17535743|ref|NP_496044.1| AH6.6.p
gi|17535745|ref|NP_496048.1| AH6.7.p
gi|17535753|ref|NP_496050.1| AH6.11.p
gi|17535765|ref|NP_494965.1| C27D6.10.p
gi|17535773|ref|NP_494961.1| C27D6.6.p
gi|17535775|ref|NP_496199.1| R05H5.6.p
gi|17535849|ref|NP_494337.1| chemoreceptor
gi|17536205|ref|NP_494412.1| T11F1.1.p
gi|17536333|ref|NP_495352.1| 7TM receptor protein
gi|17536979|ref|NP_494443.1| chemoreceptor
gi|17536981|ref|NP_494444.1| chemoreceptor
gi|17536983|ref|NP_494445.1| chemoreceptor
gi|17537049|ref|NP_496762.1| Y38F1A.4.p
gi|17537365|ref|NP_493984.1| Y51H7BR.6.p
gi|17537405|ref|NP_494759.1| Y52E8A.5.p
gi|17537571|ref|NP_497004.1| Y54G11B.1.p
gi|17537655|ref|NP_496641.1| 7 transmembrane receptor (rhodopsin family)
gi|17537657|ref|NP_496640.1| 7 transmembrane receptor (rhodopsin family)
gi|17537659|ref|NP_496642.1| Y57A10C.9.p
gi|17537661|ref|NP_496643.1| Y57A10C.10.p
gi|17537669|ref|NP_493936.1| Y57G7A.4.p
gi|17537771|ref|NP_494034.1| ZC204.15.p
gi|17538131|ref|NP_496074.1| 7 transmembrane receptor (rhodopsin family)
gi|17538954|ref|NP_501677.1| 7TM receptor
gi|17538956|ref|NP_501679.1| 7TM receptor
gi|17538976|ref|NP_501518.1| C33D9.4.p
gi|17539106|ref|NP_500835.1| C39H7.5.p
gi|17539176|ref|NP_500040.1| seven transmembrane receptor
gi|17539430|ref|NP_501568.1| angiotensin receptor like
gi|17540348|ref|NP_500330.1| F42A6.1.p
gi|17540602|ref|NP_502397.1| F53B2.4.p
gi|17540700|ref|NP_499946.1| F56A11.4.p
gi|17540828|ref|NP_500067.1| F58F6.6.p
gi|17540970|ref|NP_500880.1| H04M03.8.p
gi|17540972|ref|NP_500881.1| H04M03.9.p
gi|17540980|ref|NP_500652.1| H06H21.1.p
gi|17541046|ref|NP_501495.1| 7tm_1
gi|17541056|ref|NP_502922.1| H25K10.3.p
gi|17541064|ref|NP_502926.1| H25K10.7.p
gi|17541542|ref|NP_499935.1| M04G7.3.p
gi|17541938|ref|NP_501056.1| R13H7.1.p
gi|17542122|ref|NP_501437.1| T01B11.1.p
gi|17542142|ref|NP_503103.1| T02D1.3.p
gi|17542164|ref|NP_502392.1| 7TM receptor
gi|17542194|ref|NP_501057.1| T05A12.1.p
gi|17542380|ref|NP_500948.1| T13A10.6.p
gi|17542392|ref|NP_500955.1| T13A10.12.p
gi|17542394|ref|NP_500956.1| T13A10.13.p
gi|17543060|ref|NP_502686.1| Transposase
gi|17543250|ref|NP_502833.1| Y40H7A.6.p
gi|17543324|ref|NP_500122.1| Y41D4B.24.p
gi|17543376|ref|NP_501097.1| Y43B11AL.2.p
gi|17543446|ref|NP_502618.1| Y45F10B.6.p
gi|17543452|ref|NP_502620.1| Y45F10B.11.p
gi|17543640|ref|NP_500029.1| Y55F3AM.2.p
gi|17543716|ref|NP_500331.1| Y55H10A.2.p
gi|17543856|ref|NP_502569.1| Y62E10A.4.p
gi|17544020|ref|NP_500218.1| Y69A2AR.15.p
gi|17544104|ref|NP_500957.1| Y73B6BL.10.p
gi|17544106|ref|NP_500959.1| Y73B6BL.11.p
gi|17550460|ref|NP_509026.1| C15H9.3.p
gi|17550952|ref|NP_508965.1| G-protein coupled receptor
gi|17551054|ref|NP_508992.1| C46F4.1.p
gi|17551080|ref|NP_509514.1| C48C5.3.p
gi|17551568|ref|NP_510813.1| F10D7.1.p
gi|17551750|ref|NP_498240.1| B0244.10.p
gi|17554852|ref|NP_498489.1| R13F6.3.p
gi|17555984|ref|NP_499413.1| Y48A6B.1.p
gi|17556851|ref|NP_499658.1| ZC482.6.p
gi|17557516|ref|NP_504380.1| C03A7.5.p
gi|17557518|ref|NP_504381.1| C03A7.6.p
gi|17557524|ref|NP_504386.1| C03A7.9.p
gi|17557550|ref|NP_504885.1| C03G6.2.p
gi|17557576|ref|NP_504887.1| 7 transmembrane receptor
gi|17557582|ref|NP_504543.1| C04E6.2.p
gi|17557680|ref|NP_506455.1| C06B3.11.p
gi|17557886|ref|NP_504339.1| C13D9.5.p
gi|17557888|ref|NP_504340.1| C13D9.6.p
gi|17558174|ref|NP_503746.1| C24B9.13.p
gi|17558376|ref|NP_504776.1| C33G8.1.p
gi|17558422|ref|NP_505697.1| transmembranous domains
gi|17558428|ref|NP_504431.1| C35A11.1.p
gi|17558558|ref|NP_506766.1| C41G6.3.p
gi|17558564|ref|NP_506763.1| C41G6.7.p
gi|17558566|ref|NP_506764.1| C41G6.8.p
gi|17558594|ref|NP_503810.1| C44C3.1.p
gi|17558596|ref|NP_503809.1| C44C3.2.p
gi|17558598|ref|NP_503806.1| C44C3.3.p
gi|17558600|ref|NP_503811.1| C44C3.5.p
gi|17558602|ref|NP_503812.1| C44C3.6.p
gi|17558604|ref|NP_503813.1| C44C3.7.p
gi|17558676|ref|NP_507493.1| C47A10.8.p
gi|17558838|ref|NP_503838.1| C50H11.13.p
gi|17558846|ref|NP_505608.1| olfactory receptor

gi|17558848|ref|NP_505609.1| opoid receptor
gi|17558850|ref|NP_505610.1| somatostatin receptor
gi|17558852|ref|NP_505611.1| thyrotropin-releasing hormone receptor
gi|17558910|ref|NP_506118.1| C54D10.5.p
gi|17559194|ref|NP_505423.1| E02C12.2.p
gi|17559196|ref|NP_505422.1| E02C12.3.p
gi|17559222|ref|NP_504172.1| E03D2.4.p
gi|17559436|ref|NP_506434.1| G-protein coupled receptor
gi|17559620|ref|NP_504623.1| F13H6.5.p
gi|17559646|ref|NP_507225.1| F14F8.5.p
gi|17559648|ref|NP_507223.1| F14F8.6.p
gi|17559838|ref|NP_506194.1| F18E2.4.p
gi|17559846|ref|NP_504905.1| F18E3.5.p
gi|17559854|ref|NP_504907.1| F18E3.9.p
gi|17559900|ref|NP_504784.1| F20A1.2.p
gi|17559902|ref|NP_504778.1| F20A1.3.p
gi|17559946|ref|NP_507422.1| F20E11.6.p
gi|17560212|ref|NP_507151.1| F26D2.11.p
gi|17560404|ref|NP_503292.1| F31F4.3.p
gi|17560406|ref|NP_503291.1| F31F4.4.p
gi|17560468|ref|NP_505783.1| F32D8.10.p
gi|17560510|ref|NP_505940.1| 7 transmembrane receptor (rhodopsin family)
gi|17560644|ref|NP_506997.1| F36G9.1.p
gi|17560686|ref|NP_503785.1| F37B4.8.p
gi|17560754|ref|NP_505034.1| F40A3.7.p
gi|17560770|ref|NP_507347.1| F40D4.5.p
gi|17560776|ref|NP_507344.1| F40D4.8.p
gi|17560892|ref|NP_503336.1| F41H8.1.p
gi|17561116|ref|NP_504176.1| F47D2.4.p
gi|17561120|ref|NP_504178.1| F47D2.6.p
gi|17561200|ref|NP_507264.1| F49A5.8.p
gi|17561258|ref|NP_503444.1| F52F10.5.p
gi|17561260|ref|NP_505802.1| G-protein coupled receptor
gi|17561396|ref|NP_503762.1| F54E2.5.p
gi|17561432|ref|NP_506427.1| G-protein coupled receptor
gi|17561522|ref|NP_505583.1| 7 transmembrane receptor (rhodopsin family)
gi|17561552|ref|NP_505899.1| G-protein coupled receptor
gi|17561600|ref|NP_507129.1| F57G8.4.p
gi|17561622|ref|NP_504544.1| F58D7.1.p
gi|17561728|ref|NP_504017.1| F59B1.5.p
gi|17561732|ref|NP_504021.1| F59B1.7.p
gi|17561744|ref|NP_503828.1| F59D6.5.p
gi|17561856|ref|NP_503804.1| H05B21.3.p
gi|17561858|ref|NP_503805.1| H05B21.4.p
gi|17561868|ref|NP_504054.1| H10D18.3.p
gi|17561932|ref|NP_506996.1| H24D24.1.p
gi|17561934|ref|NP_506995.1| H24D24.2.p
gi|17561958|ref|NP_503801.1| H27D07.1.p
gi|17561960|ref|NP_503797.1| H27D07.2.p
gi|17561962|ref|NP_503798.1| H27D07.3.p
gi|17561966|ref|NP_503802.1| H27D07.5.p
gi|17561968|ref|NP_504726.1| H34P18.1.p
gi|17562136|ref|NP_507435.1| K03D7.2.p
gi|17562174|ref|NP_503478.1| K04F1.2.p
gi|17562254|ref|NP_505299.1| K06C4.17.p
gi|17562316|ref|NP_504090.1| K07C6.6.p
gi|17562320|ref|NP_504086.1| K07C6.8.p
gi|17562322|ref|NP_504085.1| K07C6.9.p
gi|17562324|ref|NP_504084.1| seven-transmembrane receptor
gi|17562326|ref|NP_504082.1| seven-transmembrane receptor
gi|17562430|ref|NP_504114.1| K09D9.10.p
gi|17562488|ref|NP_507373.1| K10G4.2.p
gi|17562556|ref|NP_503815.1| K12D9.4.p
gi|17562558|ref|NP_503816.1| K12D9.5.p
gi|17562562|ref|NP_503818.1| K12D9.7.p
gi|17562564|ref|NP_503819.1| K12D9.8.p
gi|17562566|ref|NP_503820.1| K12D9.9.p
gi|17562568|ref|NP_503821.1| K12D9.10.p
gi|17562618|ref|NP_506772.1| M01B2.5.p
gi|17562844|ref|NP_506596.1| R02D5.6.p
gi|17562858|ref|NP_505330.1| R03H4.2.p
gi|17562898|ref|NP_503747.1| R05D8.4.p
gi|17562920|ref|NP_505539.1| R07B5.5.p
gi|17562984|ref|NP_504053.1| R08F11.5.p
gi|17563134|ref|NP_503227.1| R11G11.8.p
gi|17563176|ref|NP_503331.1| R13D11.3.p
gi|17563294|ref|NP_504426.1| chemoreceptor
gi|17563352|ref|NP_504714.1| chemoreceptor
gi|17563410|ref|NP_503281.1| chemoreceptor
gi|17563688|ref|NP_504803.1| T01C4.3.p
gi|17563694|ref|NP_504807.1| T01C4.6.p
gi|17563704|ref|NP_506392.1| somatostatin receptor
gi|17563796|ref|NP_507197.1| T03E6.6.p
gi|17563856|ref|NP_504142.1| T05B4.5.p
gi|17563860|ref|NP_504143.1| T05B4.7.p
gi|17563912|ref|NP_506991.1| T05G11.3.p
gi|17563916|ref|NP_506993.1| T05G11.6.p
gi|17563918|ref|NP_506994.1| T05G11.7.p
gi|17564010|ref|NP_506827.1| 7 transmembrane receptor (rhodopsin family)
gi|17564068|ref|NP_504763.1| T07H8.1.p
gi|17564072|ref|NP_504761.1| seven transmembrane receptor
gi|17564110|ref|NP_507166.1| T08G3.10.p
gi|17564196|ref|NP_507022.1| T10C6.3.p
gi|17564232|ref|NP_506782.1| T10H4.5.p
gi|17564234|ref|NP_506783.1| T10H4.6.p
gi|17564236|ref|NP_506784.1| T10H4.7.p
gi|17564240|ref|NP_506786.1| 7 transmembrane receptor (rhodopsin family)
gi|17564246|ref|NP_504686.1| T10H9.1.p
gi|17564322|ref|NP_504729.1| T15B7.11.p
gi|17564324|ref|NP_504730.1| T15B7.12.p
gi|17564326|ref|NP_504734.1| T15B7.13.p
gi|17564406|ref|NP_505858.1| GABA receptor like
gi|17564440|ref|NP_504746.1| T19F4.1b.p
gi|17564478|ref|NP_504081.1| T20C7.1.p
gi|17564568|ref|NP_506442.1| 7 transmembrane receptor (rhodopsin family)
gi|17564658|ref|NP_503993.1| T24A6.14.p
gi|17564724|ref|NP_506942.1| T26E4.12.p
gi|17564760|ref|NP_506844.1| T26H5.5.p

gi|17564764|ref|NP_506793.1| 7 transmembrane receptor (rhodopsin family)
gi|17565112|ref|NP_507211.1| W06G6.8.p
gi|17565362|ref|NP_507202.1| Y32B12C.2.p
gi|17565642|ref|NP_507772.1| Y43F8A.4.p
gi|17565708|ref|NP_507988.1| Y44A6B.1.p
gi|17565790|ref|NP_503509.1| Y46H3A.1.p
gi|17565800|ref|NP_503488.1| Y46H3C.1.p
gi|17565802|ref|NP_503487.1| Y46H3C.2.p
gi|17565804|ref|NP_503486.1| Y46H3C.3.p
gi|17565870|ref|NP_503296.1| Y49C4A.5.p
gi|17565960|ref|NP_507594.1| Y51A2B.2.p
gi|17566274|ref|NP_506753.1| Y75B12B.7.p
gi|17566340|ref|NP_505038.1| Y97E10B.2.p
gi|17566342|ref|NP_505037.1| Y97E10B.3.p
gi|17566346|ref|NP_505035.1| Y97E10B.6.p
gi|17566352|ref|NP_505041.1| Y97E10B.9.p
gi|17566354|ref|NP_505042.1| Y97E10B.10.p
gi|17566398|ref|NP_507293.1| 7 transmembrane receptor (rhodopsin family)
gi|17566520|ref|NP_507842.1| Y116F11B.5.p
gi|17566588|ref|NP_505234.1| ZC190.5.p
gi|17566616|ref|NP_505246.1| ZC196.9.p
gi|17566668|ref|NP_504724.1| ZC404.10.p
gi|17566670|ref|NP_504725.1| ZC404.11.p
gi|17566672|ref|NP_504723.1| ZC404.13.p
gi|17566830|ref|NP_507606.1| ZK262.6.p
gi|17566900|ref|NP_503489.1| ZK697.5.p
gi|17566972|ref|NP_506800.1| ZK1037.7.p
gi|17566976|ref|NP_506802.1| 7 transmembrane receptor (rhodopsin family)
gi|17566980|ref|NP_506794.1| ZK1037.11.p
gi|17567317|ref|NP_508157.1| F25E2.1.p
gi|17568003|ref|NP_509940.1| F52D10.4.p
gi|17568175|ref|NP_508809.1| olfactory receptor-like protein (weak)
gi|17569259|ref|NP_510216.1| R04D3.10.p
gi|17569757|ref|NP_509057.1| G-protein receptor
gi|17569799|ref|NP_510400.1| 7 transmembrane receptor (rhodopsin family)
gi|17570439|ref|NP_509991.1| Y62H9A.10.p
gi|17570453|ref|NP_510476.1| 7 transmembrane receptor (rhodopsin family)

Supplementary Table 2i

ADH	STE2	STE3
gi|6320170|ref|NP_010249.1|	gi|6323421|ref|NP_013493.1|	gi|6322671|ref|NP_012743.1|

Supplementary Table 2j

STE2	STE3
gi|19114854|ref|NP_593942.1|	gi|19115634|ref|NP_594722.1

Supplementary Table 2k

ADH	MLO
gi|15221138|ref|NP_175261.1|	gi|15220529|ref|NP_176350.1|
	gi|15220339|ref|NP_172598.1|
	gi|15217453|ref|NP_174980.1|
	gi|15220263|ref|NP_172569.1|
	gi|15223324|ref|NP_173992.1|

Supplementary Table 2l

MLO
lcl|382.t00016 putative Mlo

Supplementary Table 3a

<table>
<tr><th>Unclassified</th><th>Amin</th><th>CHEMO</th><th>LGR</th><th>MCHR</th><th>MEC</th><th>MRG</th><th>MTN</th><th>OLF</th></tr>
<tr><td>lcl|Hs2_22296_28_8_5</td><td>lcl|Hs8_8296_28_4_4</td><td>lcl|Hs12_9642_28_11_1</td><td>lcl|Hs2_15276_28_11_1</td><td>lcl|Hs6_19580_28_28_1</td><td>lcl|Hs1_4819_28_14_3</td><td>lcl|Hs6_30246_28_12_1</td><td>lcl|HsX_11794_28_4_1</td><td>lcl|Hs1_30125_28_1_11</td></tr>
<tr><td>lcl|Hs12_9888_28_18_1</td><td>lcl|Hs8_8296_28_6_2</td><td>lcl|Hs3_5773_28_2_1</td><td>lcl|Hs11_31047_28_2_1</td><td></td><td>lcl|Hs1_4819_28_14_1</td><td>lcl|Hs11_9097_28_3_1</td><td>lcl|Hs4_6326_28_10_1</td><td>lcl|Hs1_31901_28_1_10</td></tr>
<tr><td>lcl|Hs1_30818_28_6_1</td><td>lcl|Hs8_8296_28_5_2</td><td>lcl|HsX_25421_28_2_1</td><td>lcl|Hs12_9685_28_2_3</td><td></td><td>lcl|Hs22_11677_28_95_1</td><td>lcl|Hs11_9097_28_1_7</td><td>lcl|Hs11_9141_28_50_1</td><td>lcl|Hs1_31901_28_1_15</td></tr>
<tr><td>lcl|Hs1_5015_28_1_1</td><td>lcl|Hs20_11544_28_104_1</td><td>lcl|Hs11_9453_28_9_1</td><td>lcl|Hs1_31853_28_11_1</td><td></td><td>lcl|Hs1_22033_28_12_1</td><td>lcl|Hs11_9097_28_2_2</td><td></td><td>lcl|Hs1_30125_28_2_3</td></tr>
<tr><td>lcl|Hs5_23241_28_2_1</td><td>lcl|Hs10_32037_28_7_1</td><td>lcl|Hs14_10193_28_11_1</td><td>lcl|Hs13_10141_28_23_4</td><td></td><td>lcl|Hs17_27348_28_14_1</td><td>lcl|Hs11_24438_28_1_2</td><td></td><td>lcl|Hs1_31898_28_1_2</td></tr>
<tr><td>lcl|HsX_11943_28_29_1</td><td>lcl|Hs2_27130_28_6_1</td><td>lcl|Hs14_10193_28_13_1</td><td>lcl|Hs2_15276_28_9_1</td><td></td><td>lcl|Hs17_31103_28_1_2</td><td>lcl|Hs11_24438_28_1_3</td><td></td><td>lcl|Hs1_31898_28_1_16</td></tr>
<tr><td>lcl|Hs17_10829_28_15_3</td><td>lcl|Hs10_8837_28_21_1</td><td>lcl|Hs14_30391_28_25_1</td><td>lcl|Hs14_26604_28_110_4</td><td></td><td>lcl|Hs1_5123_28_46_1</td><td>lcl|Hs11_24438_28_1_1</td><td></td><td>lcl|Hs1_31898_28_1_4</td></tr>
<tr><td>lcl|Hs7_30265_28_19_2</td><td>lcl|Hs5_31972_28_6_1</td><td>lcl|Hs19_11347_28_184_1</td><td></td><td></td><td>lcl|Hs6_7456_28_33_1</td><td></td><td></td><td>lcl|Hs1_31898_28_1_17</td></tr>
<tr><td>lcl|Hs2_26406_28_8_1</td><td>lcl|Hs8_26516_28_2_3</td><td>lcl|Hs3_5982_28_10_1</td><td></td><td></td><td>lcl|Hs1_4516_28_34_1</td><td></td><td></td><td>lcl|Hs1_31898_28_1_18</td></tr>
<tr><td>lcl|Hs5_6811_28_22_2</td><td>lcl|Hs8_8408_28_11_1</td><td>lcl|Hs7_7976_28_27_2</td><td></td><td></td><td>lcl|Hs1_4465_28_2_1</td><td></td><td></td><td>lcl|Hs1_31898_28_1_19</td></tr>
<tr><td>lcl|Hs12_9859_28_6_1</td><td>lcl|Hs1_4928_28_15_1</td><td>lcl|Hs3_6154_28_19_1</td><td></td><td></td><td>lcl|Hs9_8595_28_26_1</td><td></td><td></td><td>lcl|Hs1_31898_28_1_6</td></tr>
<tr><td>lcl|Hs13_10109_28_41_4</td><td>lcl|Hs11_9335_28_2_2</td><td>lcl|Hs17_10928_28_29_1</td><td></td><td></td><td>lcl|Hs9_8595_28_25_1</td><td></td><td></td><td>lcl|Hs1_30125_28_1_2</td></tr>
<tr><td>lcl|Hs6_7749_28_530_1</td><td>lcl|Hs5_7085_28_4_1</td><td>lcl|Hs6_25897_28_92_1</td><td></td><td></td><td>lcl|Hs19_11452_28_8_1</td><td></td><td></td><td>lcl|Hs1_30125_28_1_6</td></tr>
<tr><td>lcl|HsX_11876_28_12_1</td><td>lcl|Hs11_9308_28_120_1</td><td>lcl|Hs3_22549_28_5_2</td><td></td><td></td><td>lcl|Hs19_11287_28_33_1</td><td></td><td></td><td>lcl|Hs1_30125_28_1_10</td></tr>
<tr><td>lcl|Hs1_4825_28_58_2</td><td>lcl|Hs3_5952_28_9_1</td><td>lcl|Hs3_6154_28_14_1</td><td></td><td></td><td>lcl|Hs2_5446_28_66_1</td><td></td><td></td><td>lcl|Hs1_30125_28_1_5</td></tr>
<tr><td>lcl|Hs3_5835_28_4_2</td><td>lcl|Hs11_9110_28_5_1</td><td>lcl|Hs3_6154_28_17_1</td><td></td><td></td><td>lcl|Hs1_27103_28_22_1</td><td></td><td></td><td>lcl|Hs1_30125_28_1_3</td></tr>
<tr><td>lcl|Hs10_30339_28_19_1</td><td>lcl|Hs1_4828_28_10_1</td><td>lcl|Hs3_6154_28_12_1</td><td></td><td></td><td>lcl|Hs16_10699_28_24_1</td><td></td><td></td><td>lcl|Hs1_30125_28_1_7</td></tr>
<tr><td>lcl|Hs5_7016_28_10_1</td><td>lcl|Hs1_4828_28_1_2</td><td>lcl|Hs6_7579_28_32_1</td><td></td><td></td><td>lcl|Hs20_11519_28_229_1</td><td></td><td></td><td>lcl|Hs1_30125_28_1_8</td></tr>
<tr><td>lcl|Hs1_31907_28_3_1</td><td>lcl|Hs1_4828_28_10_4</td><td>lcl|Hs6_7579_28_31_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31898_28_1_3</td></tr>
<tr><td>lcl|Hs16_24932_28_1_4</td><td>lcl|Hs4_6507_28_6_1</td><td>lcl|Hs17_25057_28_12_3</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_1</td></tr>
<tr><td></td><td>lcl|Hs3_6084_28_72_1</td><td>lcl|Hs17_25057_28_13_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_9</td></tr>
<tr><td></td><td>lcl|Hs5_7085_28_11_1</td><td>lcl|Hs7_8125_28_6_2</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_19</td></tr>
<tr><td></td><td>lcl|Hs20_31127_28_10_1</td><td>lcl|Hs3_5655_28_8_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_13</td></tr>
<tr><td></td><td>lcl|Hs11_29576_28_1_1</td><td>lcl|Hs3_6154_28_25_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_15</td></tr>
<tr><td></td><td>lcl|Hs18_11201_28_14_1</td><td>lcl|Hs3_6154_28_10_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_20</td></tr>
<tr><td></td><td>lcl|Hs6_23555_28_49_1</td><td>lcl|Hs12_9817_28_11_3</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_12</td></tr>
<tr><td></td><td>lcl|Hs1_4516_28_11_1</td><td>lcl|Hs11_9097_28_46_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_21</td></tr>
<tr><td></td><td>lcl|Hs6_23555_28_5_1</td><td>lcl|Hs14_10321_28_35_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31898_28_1_7</td></tr>
<tr><td></td><td>lcl|Hs13_9956_28_14_1</td><td>lcl|Hs11_9453_28_79_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_18</td></tr>
<tr><td></td><td>lcl|Hs2_5560_28_15_2</td><td>lcl|Hs3_5655_28_6_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_30125_28_1_17</td></tr>
<tr><td></td><td>lcl|HsX_28564_28_10_1</td><td>lcl|Hs7_8125_28_6_4</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31901_28_1_5</td></tr>
<tr><td></td><td>lcl|Hs6_19580_28_7_1</td><td>lcl|Hs2_5494_28_14_4</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs6_7749_28_537_6</td></tr>
<tr><td></td><td>lcl|Hs5_31972_28_2_1</td><td>lcl|HsX_19852_28_3_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31901_28_1_16</td></tr>
<tr><td></td><td>lcl|Hs5_31972_28_5_1</td><td>lcl|Hs11_9308_28_216_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs6_7749_28_263_2</td></tr>
<tr><td></td><td>lcl|Hs5_31972_28_2_2</td><td>lcl|Hs3_6154_28_23_2</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31901_28_1_9</td></tr>
<tr><td></td><td>lcl|Hs2_28244_28_4_1</td><td>lcl|Hs19_11248_28_30_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31901_28_1_8</td></tr>
<tr><td></td><td>lcl|Hs7_7823_28_3_1</td><td>lcl|Hs19_11248_28_32_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31901_28_1_13</td></tr>
<tr><td></td><td>lcl|Hs1_29377_28_15_1</td><td>lcl|Hs2_5527_28_8_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31886_28_1_1</td></tr>
<tr><td></td><td>lcl|Hs12_24566_28_17_1</td><td>lcl|Hs1_31858_28_6_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_14_1</td></tr>
<tr><td></td><td>lcl|Hs10_8926_28_19_1</td><td>lcl|Hs19_11347_28_29_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_4563_28_3_1</td></tr>
<tr><td></td><td>lcl|Hs6_25897_28_34_1</td><td>lcl|Hs19_11347_28_28_1</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_4563_28_1_3</td></tr>
<tr><td></td><td>lcl|Hs6_25897_28_26_3</td><td>lcl|Hs2_30161_28_1_6</td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_3_1</td></tr>
<tr><td></td><td>lcl|Hs6_25897_28_30_1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_1_3</td></tr>
<tr><td></td><td>lcl|Hs6_25897_28_27_1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_1_2</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_14_9</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_14_11</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_14_2</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_14_8</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs19_11447_28_6_1</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs11_9114_28_1_1</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_14_12</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_12_4</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs11_30361_28_106_2</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_12_3</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_12_9</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_12_8</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_12_5</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_12_7</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31901_28_1_14</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_14_3</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_5139_28_14_4</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs1_31898_28_1_13</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs3_22603_28_7_1</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs3_22603_28_7_2</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>lcl|Hs3_22771_28_1_5</td></tr>
</table>

lcl|Hs3_22771_28_1_4
lcl|Hs3_22771_28_1_2
lcl|Hs3_22771_28_1_6
lcl|Hs5_7011_28_1_5
lcl|Hs13_10109_28_107_1
lcl|Hs5_7011_28_1_6
lcl|Hs6_7749_28_275_4
lcl|Hs6_29476_28_1_2
lcl|Hs5_6676_28_7_5
lcl|Hs6_7749_28_263_4
lcl|Hs6_7749_28_261_5
lcl|Hs6_7749_28_537_4
lcl|Hs6_7749_28_261_2
lcl|Hs6_7749_28_235_3
lcl|Hs6_7749_28_263_3
lcl|Hs6_7749_28_537_5
lcl|Hs6_7749_28_278_1
lcl|Hs6_7749_28_273_1
lcl|Hs6_31975_28_7_1
lcl|Hs6_7749_28_537_2
lcl|Hs5_6676_28_7_4
lcl|Hs6_7749_28_537_3
lcl|Hs6_7749_28_263_1
lcl|Hs6_7749_28_261_3
lcl|Hs6_7749_28_261_4
lcl|Hs6_7749_28_260_1
lcl|Hs6_7749_28_259_5
lcl|Hs6_7749_28_235_5
lcl|Hs1_31901_28_1_3
lcl|Hs6_7749_28_235_1
lcl|Hs1_31898_28_1_8
lcl|Hs6_7749_28_235_7
lcl|Hs6_7749_28_235_8
lcl|Hs6_7749_28_235_9
lcl|HsX_11943_28_36_1
lcl|Hs7_31982_28_1_1
lcl|Hs1_5139_28_12_1
lcl|Hs12_9683_28_42_1
lcl|Hs6_7749_28_266_1
lcl|Hs6_31975_28_3_1
lcl|Hs6_7749_28_269_1
lcl|Hs7_23717_28_3_3
lcl|Hs15_10431_28_1_6
lcl|Hs1_4682_28_56_3
lcl|Hs6_7569_28_36_2
lcl|Hs15_10431_28_1_5
lcl|Hs15_10431_28_1_4
lcl|Hs15_10431_28_1_3
lcl|Hs7_23796_28_46_5
lcl|Hs6_25897_28_18_2
lcl|Hs6_29465_28_3_3
lcl|Hs7_23796_28_50_2
lcl|Hs7_23796_28_46_15
lcl|Hs7_23796_28_46_4
lcl|Hs7_23796_28_46_14
lcl|Hs7_23796_28_50_3
lcl|Hs7_23796_28_46_10
lcl|Hs7_23796_28_46_6
lcl|Hs7_23796_28_46_9
lcl|Hs7_23796_28_46_7
lcl|Hs7_31980_28_24_1
lcl|Hs7_23796_28_46_1
lcl|Hs7_23796_28_41_4
lcl|Hs7_23796_28_45_1
lcl|Hs7_23796_28_44_5
lcl|Hs7_23796_28_27_3
lcl|Hs7_23796_28_27_2
lcl|Hs7_23796_28_5_4

lcl|Hs2_30169_28_1_1
lcl|Hs7_23796_28_5_7
lcl|Hs2_30169_28_1_3
lcl|Hs9_8578_28_24_5
lcl|Hs9_8595_28_27_4
lcl|Hs9_8627_28_15_12
lcl|HsX_11943_28_38_9
lcl|Hs9_8627_28_15_2
lcl|Hs9_8627_28_15_3
lcl|Hs9_8627_28_15_7
lcl|Hs9_8627_28_15_6
lcl|Hs9_8627_28_15_8
lcl|Hs9_8627_28_15_5
lcl|Hs9_8627_28_15_9
lcl|Hs9_8578_28_24_6
lcl|Hs9_8578_28_20_1
lcl|Hs9_8578_28_20_3
lcl|Hs9_8578_28_20_2
lcl|Hs9_8578_28_23_1
lcl|Hs9_29525_28_42_1
lcl|Hs9_29525_28_42_4
lcl|Hs9_29525_28_42_5
lcl|Hs9_29525_28_42_2
lcl|Hs9_29525_28_42_6
lcl|Hs9_29525_28_42_3
lcl|Hs9_29525_28_42_11
lcl|Hs9_29525_28_42_9
lcl|Hs9_29525_28_42_10
lcl|Hs17_30417_28_16_1
lcl|Hs9_29525_28_42_8
lcl|Hs9_29525_28_42_7
lcl|HsX_11943_28_38_8
lcl|Hs10_30317_28_1_1
lcl|Hs11_9482_28_31_5
lcl|Hs11_9482_28_31_7
lcl|Hs11_9482_28_33_1
lcl|Hs11_9482_28_39_2
lcl|Hs11_9482_28_31_11
lcl|Hs11_9482_28_31_8
lcl|Hs11_28469_28_4_9
lcl|Hs11_28469_28_4_8
lcl|Hs11_24364_28_3_10
lcl|Hs11_31058_28_3_1
lcl|Hs11_31058_28_4_1
lcl|Hs11_31058_28_5_2
lcl|Hs11_31058_28_5_3
lcl|Hs11_24364_28_3_7
lcl|Hs11_28469_28_8_2
lcl|Hs11_28469_28_7_1
lcl|Hs11_28469_28_8_3
lcl|Hs11_24364_28_3_8
lcl|Hs11_24364_28_3_9
lcl|Hs11_31058_28_5_5
lcl|Hs11_31058_28_5_11
lcl|Hs11_28469_28_8_1
lcl|Hs11_31058_28_5_10
lcl|Hs11_31058_28_5_9
lcl|Hs11_24364_28_3_14
lcl|Hs11_24364_28_3_12
lcl|Hs11_31058_28_5_7
lcl|Hs11_31058_28_5_8
lcl|Hs11_24364_28_1_9
lcl|Hs11_28469_28_4_1
lcl|Hs11_31058_28_5_6
lcl|Hs11_24364_28_3_4
lcl|Hs11_24364_28_3_5
lcl|Hs11_24364_28_3_3
lcl|Hs11_24364_28_3_2

lcl|Hs11_9482_28_31_2
lcl|Hs11_28469_28_2_2
lcl|Hs11_9482_28_31_3
lcl|Hs11_31058_28_7_3
lcl|Hs11_31058_28_7_2
lcl|Hs11_31058_28_7_7
lcl|Hs11_31058_28_7_4
lcl|Hs11_28469_28_2_1
lcl|Hs11_24364_28_1_3
lcl|Hs11_31058_28_5_12
lcl|Hs11_24364_28_1_1
lcl|Hs11_24364_28_1_6
lcl|Hs11_9482_28_31_14
lcl|Hs11_9482_28_31_16
lcl|Hs11_24364_28_1_4
lcl|Hs11_24364_28_1_5
lcl|Hs11_9482_28_38_3
lcl|Hs11_9482_28_39_1
lcl|Hs11_9482_28_31_13
lcl|Hs11_9482_28_31_15
lcl|Hs11_9482_28_31_18
lcl|Hs11_28469_28_4_3
lcl|Hs11_28469_28_4_4
lcl|Hs11_24364_28_3_13
lcl|Hs11_28469_28_4_5
lcl|Hs11_28469_28_4_6
lcl|Hs11_28469_28_4_2
lcl|Hs11_9482_28_38_2
lcl|Hs11_9482_28_31_10
lcl|Hs11_9482_28_7_2
lcl|Hs11_9482_28_11_3
lcl|Hs11_9482_28_7_1
lcl|Hs11_9482_28_5_2
lcl|Hs11_9482_28_5_1
lcl|Hs11_9453_28_35_8
lcl|Hs11_9453_28_35_9
lcl|Hs11_9453_28_12_9
lcl|Hs11_9453_28_12_10
lcl|Hs11_9453_28_35_2
lcl|Hs11_9453_28_47_17
lcl|Hs11_9453_28_47_16
lcl|Hs11_9453_28_47_13
lcl|Hs11_9453_28_47_14
lcl|Hs11_9453_28_48_5
lcl|Hs11_9453_28_48_7
lcl|Hs11_9453_28_48_8
lcl|Hs11_9453_28_48_10
lcl|Hs11_9453_28_48_9
lcl|Hs11_9453_28_12_7
lcl|Hs11_9453_28_3_26
lcl|Hs11_9453_28_3_17
lcl|Hs11_9114_28_1_3
lcl|Hs11_9114_28_1_6
lcl|Hs11_9114_28_1_5
lcl|Hs11_9453_28_12_4
lcl|Hs11_9453_28_12_3
lcl|Hs17_30417_28_26_1
lcl|Hs17_29632_28_5_1
lcl|Hs11_9453_28_3_28
lcl|Hs11_9453_28_3_29
lcl|Hs11_9453_28_3_25
lcl|Hs11_9453_28_8_2
lcl|Hs11_9453_28_3_10
lcl|Hs11_9453_28_3_24
lcl|Hs11_9453_28_3_22
lcl|Hs11_9453_28_7_10
lcl|Hs11_9453_28_7_8
lcl|Hs11_9453_28_7_12

lcl|Hs11_9453_28_7_14
lcl|Hs11_9453_28_7_13
lcl|Hs1_31886_28_1_2
lcl|Hs11_9453_28_7_9
lcl|Hs11_9453_28_7_7
lcl|Hs11_9453_28_47_1
lcl|Hs11_9453_28_47_2
lcl|Hs11_9453_28_47_4
lcl|Hs11_9453_28_47_5
lcl|Hs11_9453_28_47_3
lcl|Hs2_22406_28_1_7
lcl|Hs11_9453_28_14_3
lcl|Hs11_9453_28_3_13
lcl|Hs11_9453_28_3_12
lcl|Hs11_9453_28_3_27
lcl|Hs11_9453_28_14_2
lcl|Hs11_9453_28_5_1
lcl|Hs11_9372_28_34_10
lcl|Hs11_9372_28_34_11
lcl|Hs11_9372_28_34_24
lcl|Hs11_9372_28_34_7
lcl|Hs11_9372_28_34_5
lcl|Hs11_9372_28_34_4
lcl|Hs11_9372_28_25_2
lcl|Hs11_9372_28_34_8
lcl|Hs11_9372_28_34_17
lcl|Hs11_9372_28_25_7
lcl|Hs11_9372_28_34_15
lcl|Hs11_9372_28_25_6
lcl|Hs11_9372_28_34_14
lcl|Hs11_9372_28_34_23
lcl|Hs11_9372_28_34_12
lcl|Hs11_9372_28_34_18
lcl|Hs11_9453_28_3_2
lcl|Hs11_9453_28_3_14
lcl|Hs11_9453_28_3_20
lcl|Hs11_9453_28_14_19
lcl|Hs11_9453_28_14_17
lcl|Hs11_9453_28_14_16
lcl|Hs11_9453_28_3_5
lcl|Hs11_9453_28_3_8
lcl|Hs11_9453_28_3_19
lcl|Hs11_9453_28_14_10
lcl|Hs11_9453_28_14_9
lcl|Hs11_9453_28_14_7
lcl|Hs11_9453_28_14_6
lcl|Hs11_9453_28_14_8
lcl|Hs11_9453_28_14_11
lcl|Hs11_9453_28_14_12
lcl|Hs11_9453_28_14_14
lcl|Hs11_9453_28_14_13
lcl|Hs11_9453_28_14_15
lcl|Hs11_9453_28_47_11
lcl|Hs11_9453_28_47_12
lcl|Hs11_9114_28_1_10
lcl|Hs11_9114_28_1_9
lcl|Hs11_9482_28_5_4
lcl|Hs11_9482_28_5_5
lcl|Hs11_9482_28_5_3
lcl|Hs11_9453_28_50_2
lcl|Hs11_9453_28_47_10
lcl|Hs11_9453_28_47_8
lcl|Hs11_9372_28_32_1
lcl|Hs11_9372_28_32_4
lcl|Hs11_9453_28_35_5
lcl|Hs2_22406_28_1_13
lcl|Hs2_22406_28_1_11
lcl|Hs7_23796_28_46_2

lcl|Hs11_9372_28_32_10
lcl|Hs11_9372_28_32_11
lcl|Hs11_9372_28_32_9
lcl|Hs11_9372_28_32_8
lcl|Hs11_9372_28_32_5
lcl|Hs11_9372_28_32_6
lcl|Hs11_9372_28_34_3
lcl|Hs11_9372_28_32_12
lcl|Hs11_9372_28_34_1
lcl|Hs11_9372_28_32_13
lcl|Hs14_19739_28_113_2
lcl|Hs11_9453_28_7_16
lcl|Hs11_9453_28_7_19
lcl|Hs11_9453_28_7_20
lcl|Hs11_27278_28_3_2
lcl|Hs11_27278_28_1_4
lcl|Hs11_27278_28_2_2
lcl|Hs11_9453_28_7_24
lcl|Hs11_9453_28_1_4
lcl|Hs11_9453_28_8_1
lcl|Hs11_9453_28_7_25
lcl|Hs11_24325_28_1_4
lcl|Hs11_9453_28_1_1
lcl|Hs11_9453_28_7_21
lcl|Hs11_24499_28_1_2
lcl|Hs11_24316_28_2_4
lcl|Hs11_24499_28_1_1
lcl|Hs11_24316_28_1_1
lcl|Hs11_9453_28_1_3
lcl|Hs11_9453_28_7_23
lcl|Hs11_9453_28_7_15
lcl|Hs11_9372_28_32_3
lcl|Hs11_9453_28_48_11
lcl|Hs11_9453_28_48_15
lcl|Hs11_9453_28_48_13
lcl|Hs11_9453_28_48_12
lcl|Hs11_9453_28_48_14
lcl|Hs12_9683_28_46_5
lcl|Hs12_9720_28_58_2
lcl|Hs12_9720_28_58_4
lcl|HsX_11943_28_38_2
lcl|Hs12_9720_28_58_7
lcl|Hs12_9615_28_67_4
lcl|Hs12_9615_28_67_1
lcl|Hs14_19739_28_62_2
lcl|Hs12_9615_28_67_2
lcl|Hs14_19739_28_77_2
lcl|Hs1_31898_28_1_14
lcl|Hs14_19739_28_62_4
lcl|Hs14_19739_28_101_2
lcl|Hs14_19739_28_112_3
lcl|Hs15_10519_28_10_15
lcl|Hs15_10519_28_10_19
lcl|Hs14_19739_28_113_3
lcl|Hs15_10519_28_10_6
lcl|Hs14_19739_28_67_19
lcl|Hs14_19739_28_68_1
lcl|Hs15_10519_28_10_5
lcl|Hs14_19739_28_67_16
lcl|Hs14_19739_28_67_17
lcl|Hs14_19739_28_113_1
lcl|Hs14_19739_28_112_7
lcl|Hs15_10519_28_10_2
lcl|Hs14_19739_28_112_22
lcl|Hs14_19739_28_112_10
lcl|Hs14_19739_28_112_8
lcl|Hs14_19739_28_112_16
lcl|Hs14_19739_28_1_1

lcl|Hs14_19739_28_112_12
lcl|Hs14_19739_28_112_13
lcl|Hs14_19739_28_112_20
lcl|Hs14_19739_28_112_21
lcl|Hs14_19739_28_112_19
lcl|Hs18_28543_28_1_3
lcl|Hs14_19739_28_112_14
lcl|Hs21_11669_28_3_4
lcl|Hs14_19739_28_112_17
lcl|Hs12_9683_28_46_2
lcl|Hs12_9683_28_44_1
lcl|Hs12_9683_28_44_3
lcl|Hs15_10519_28_10_3
lcl|Hs16_15516_28_1_1
lcl|Hs11_24499_28_1_5
lcl|Hs11_24499_28_1_4
lcl|Hs11_24499_28_1_3
lcl|Hs17_30417_28_26_2
lcl|Hs17_30417_28_8_1
lcl|Hs17_30417_28_29_1
lcl|Hs17_30417_28_19_1
lcl|Hs17_30417_28_14_1
lcl|Hs17_29632_28_4_1
lcl|Hs17_30417_28_25_1
lcl|Hs17_30417_28_8_2
lcl|Hs17_30417_28_7_1
lcl|Hs17_30417_28_22_3
lcl|Hs5_23400_28_1_4
lcl|Hs17_30417_28_22_1
lcl|Hs17_30417_28_22_2
lcl|Hs17_10808_28_25_4
lcl|Hs17_10808_28_25_6
lcl|Hs19_25289_28_1_1
lcl|Hs19_25289_28_3_5
lcl|Hs19_11287_28_58_15
lcl|Hs19_11447_28_3_1
lcl|Hs19_11287_28_58_9
lcl|Hs19_11287_28_58_4
lcl|Hs2_5577_28_29_4
lcl|Hs21_11669_28_106_2
lcl|Hs11_9463_28_11_1
lcl|Hs11_9219_28_14_2
lcl|Hs9_19655_28_1_9
lcl|Hs9_31994_28_1_2
lcl|Hs9_19655_28_4_3
lcl|Hs4_28324_28_4_4
lcl|Hs4_28329_28_1_7
lcl|Hs3_22567_28_3_2
lcl|Hs14_26048_28_128_6
lcl|Hs7_8001_28_49_1
lcl|Hs11_9453_28_3_30
lcl|Hs12_9859_28_16_10
lcl|Hs11_30361_28_19_3
lcl|Hs12_9859_28_16_4
lcl|Hs7_8001_28_47_1
lcl|Hs13_24680_28_8_6
lcl|Hs11_9149_28_162_4
lcl|Hs14_26048_28_128_7
lcl|Hs13_10067_28_29_1
lcl|Hs11_30361_28_166_3
lcl|Hs8_8318_28_1_7
lcl|Hs8_19639_28_36_8
lcl|Hs11_9097_28_28_3
lcl|Hs18_25230_28_1_5
lcl|Hs8_19639_28_34_10
lcl|Hs8_19639_28_17_4
lcl|Hs7_7973_28_1_2
lcl|Hs3_22567_28_3_1

lcl|Hs3_22821_28_5_2
lcl|Hs19_11287_28_58_5
lcl|Hs19_11287_28_58_14
lcl|Hs19_11287_28_58_13
lcl|Hs19_11287_28_58_12
lcl|Hs19_11287_28_58_7
lcl|Hs3_6084_28_122_1
lcl|Hs19_11287_28_58_10
lcl|Hs19_11458_28_2_1
lcl|Hs11_30361_28_106_1
lcl|Hs19_25311_28_4_2
lcl|Hs19_25311_28_5_1
lcl|Hs19_25311_28_8_2
lcl|Hs19_25311_28_6_2
lcl|Hs19_25311_28_6_1
lcl|Hs19_25285_28_6_1
lcl|Hs19_30427_28_1_1
lcl|Hs19_26076_28_3_6
lcl|Hs1_4682_28_56_2
lcl|Hs10_25990_28_1_2
lcl|Hs22_28554_28_1_7

OPN	PEPTIDE	PTGER	Purin	SOG
lcl|Hs9_29525_28_35_2	lcl|Hs12_9868_28_13_2	lcl|Hs10_9083_28_1_9	lcl|Hs13_9956_28_30_1	lcl|Hs18_25136_28_2_1
lcl|HsX_26121_28_44_1	lcl|HsX_26121_28_55_1	lcl|Hs1_30115_28_52_1	lcl|Hs13_10109_28_40_1	lcl|Hs17_10798_28_14_2
lcl|HsX_29666_28_2_1	lcl|HsX_11876_28_19_1	lcl|Hs3_6132_28_11_1	lcl|Hs19_11453_28_6_1	lcl|Hs22_11677_28_325_1
lcl|HsX_29666_28_4_1	lcl|Hs4_6481_28_6_1	lcl|Hs4_6464_28_9_2	lcl|Hs5_6870_28_5_1	lcl|Hs19_11434_28_6_1
lcl|Hs7_7816_28_39_1	lcl|Hs4_6481_28_5_2	lcl|Hs14_26048_28_125_2	lcl|Hs5_6870_28_7_2	lcl|Hs1_4695_28_17_1
lcl|Hs1_4928_28_2_3	lcl|Hs11_9482_28_28_1	lcl|Hs19_11308_28_5_2	lcl|Hs5_30955_28_2_2	lcl|Hs8_23883_28_2_2
lcl|Hs10_30340_28_30_1	lcl|Hs4_30205_28_6_2	lcl|Hs14_26048_28_124_1	lcl|Hs5_6870_28_3_1	lcl|Hs20_25374_28_1_1
lcl|Hs3_6182_28_6_5	lcl|Hs13_24680_28_52_1	lcl|Hs1_4621_28_7_1	lcl|Hs5_6870_28_2_2	lcl|Hs6_23607_28_13_2
lcl|Hs3_6182_28_5_1	lcl|Hs7_30259_28_54_1	lcl|Hs1_4640_28_6_1	lcl|Hs19_11298_28_2_2	lcl|Hs17_30414_28_6_1
lcl|Hs6_7559_28_36_4	lcl|Hs1_31853_28_14_1	lcl|Hs19_11347_28_208_1	lcl|Hs3_5946_28_19_1	lcl|Hs20_11544_28_234_1
lcl|Hs10_24220_28_6_1	lcl|Hs13_9956_28_34_1	lcl|Hs3_5926_28_7_1	lcl|HsX_11754_28_14_1	
	lcl|Hs4_6460_28_6_1	lcl|Hs7_23788_28_7_1	lcl|Hs12_9621_28_21_1	
	lcl|Hs14_26048_28_54_3	lcl|Hs19_11428_28_13_2	lcl|Hs14_10327_28_2_1	
	lcl|Hs1_31862_28_7_3		lcl|HsX_11950_28_13_3	
	lcl|Hs12_24566_28_6_1		lcl|Hs3_5946_28_15_1	
	lcl|HsX_11826_28_6_3		lcl|Hs2_5566_28_11_4	
	lcl|Hs11_9141_28_34_1		lcl|Hs13_10109_28_38_1	
	lcl|HsX_11927_28_4_1		lcl|Hs19_11266_28_3_1	
	lcl|Hs15_31084_28_89_4		lcl|Hs19_11451_28_23_1	
	lcl|Hs1_4668_28_50_1		lcl|Hs2_5560_28_18_1	
	lcl|Hs6_29475_28_8_1		lcl|Hs14_30392_28_7_1	
	lcl|Hs6_19585_28_9_1		lcl|Hs13_10109_28_6_7	
	lcl|Hs2_5560_28_8_1		lcl|HsX_11950_28_13_4	
	lcl|Hs2_30864_28_4_1		lcl|Hs3_5946_28_17_1	
	lcl|Hs10_31034_28_2_1		lcl|Hs2_31924_28_5_6	
	lcl|Hs4_22989_28_2_1		lcl|Hs12_9621_28_18_3	
	lcl|Hs5_25876_28_3_3		lcl|Hs3_5814_28_4_1	
	lcl|Hs4_6573_28_2_1		lcl|HsX_11754_28_15_1	
	lcl|Hs20_11544_28_120_2		lcl|Hs19_11287_28_38_1	
	lcl|Hs4_6286_28_4_1		lcl|Hs11_30361_28_6_1	
	lcl|Hs4_6573_28_4_1		lcl|HsX_19852_28_42_1	
	lcl|Hs2_5168_28_6_5		lcl|Hs13_9956_28_26_5	
	lcl|Hs20_11490_28_4_3		lcl|Hs11_30361_28_119_1	
	lcl|Hs20_11490_28_4_1		lcl|HsX_11754_28_18_1	
	lcl|Hs3_6084_28_120_1		lcl|Hs1_28212_28_8_1	
	lcl|Hs7_7976_28_43_6			
	lcl|Hs2_5585_28_35_1			
	lcl|Hs2_5585_28_35_4			
	lcl|Hs10_24245_28_10_1			
	lcl|Hs4_6540_28_16_1			
	lcl|Hs8_8205_28_2_1			
	lcl|Hs4_6494_28_5_5			
	lcl|Hs4_6494_28_5_4			

Supplementary Table 3b

Unclassified	Amin	CHEMO	LGR	MCHR	MEC	MRG	MTN
lcl|11.30000001-31000000.858140.859762	lcl|15.104000001-104633288.287989.289091	lcl|10.128000001-129000000.404678.411284	lcl|17.88000001-89000000.322793.323962	lcl|15.81000001-82000000.986511.988874	lcl|1.135000001-136000000.98577.102583	lcl|17.12000001-13000000.292397.318531	lcl|X.54000001-55000000.895715.897279
lcl|13.19000001-20000000.134432.135331	lcl|14.57000001-58000000.773603.783098	lcl|13.29000001-30000000.876000.877079	lcl|2.110000001-111000000.905741.968101		lcl|1.135000001-136000000.69314.70745	lcl|17.12000001-13000000.282315.283289	lcl|9.15000001-16000000.843564.844480
lcl|13.19000001-20000000.157110.172851	lcl|11.44000001-45000000.196511.197459	lcl|3.20000001-21000000.52674.53753	lcl|10.115000001-116000000.668694.674563		lcl|10.75000001-76000000.729591.730478	lcl|7.135000001-135793178.775849.776760	
lcl|14.46000001-47000000.854962.857337	lcl|2.132000001-133000000.561205.568610	lcl|X.18000001-19000000.665987.668356	lcl|1.135000001-136000000.855409.862502		lcl|11.62000001-63000000.677873.698611	lcl|7.135000001-135793178.762096.763079	
lcl|14.46000001-47000000.850890.851972	lcl|19.54000001-55000000.62173.63570	lcl|2.86000001-87000000.41191.42324	lcl|3.80000001-81000000.318026.326859		lcl|3.106000001-107000000.389205.392300	lcl|7.36000001-37000000.905661.917515	
lcl|3.89000001-90000000.443829.447655	lcl|2.128000001-129000000.343572.344918	lcl|12.99000001-100000000.832806.833810	lcl|5.149000001-150000000.315952.320459		lcl|4.33000001-34000000.584070.595101	lcl|7.36000001-37000000.830537.831478	
lcl|1.74000001-75000000.994843.995829	lcl|5.33000001-34000000.987191.989835	lcl|12.99000001-100000000.820202.821309	lcl|17.88000001-89000000.79789.80932		lcl|4.133000001-134000000.503959.510312	lcl|7.134000001-135000000.207022.207891	
lcl|3.63000001-64000000.157359.167007	lcl|19.56000001-57000000.756167.757567	lcl|7.11000001-12000000.380870.381871	lcl|12.85000001-86000000.645525.673287		lcl|3.116000001-117000000.47291.48439	lcl|7.37000001-38000000.358277.359264	
lcl|4.145000001-146000000.480594.495248	lcl|18.62000001-63000000.480619.484018	lcl|7.11000001-12000000.369754.370788			lcl|4.57000001-58000000.396149.400310	lcl|7.37000001-38000000.681917.736660	
lcl|Un.120000001-121000000.733957.734870	lcl|8.25000001-26000000.968103.969269	lcl|9.123000001-124000000.335133.336269			lcl|13.50000001-51000000.682395.683531	lcl|7.36000001-37000000.790117.808316	
lcl|Un.142000001-143000000.746333.747223	lcl|19.8000001-9000000.38608.39990	lcl|9.125000001-125583845.399175.400245			lcl|8.69000001-70000000.221781.222522	lcl|Un.47000001-48000000.915177.916118	
lcl|2.37000001-38000000.904628.953696	lcl|6.36000001-37000000.705499.715754	lcl|9.125000001-125583845.385618.386685			lcl|9.21000001-22000000.34047.35145	lcl|7.37000001-38000000.595603.596544	
lcl|1.177000001-178000000.1210.7252	lcl|13.9000001-10000000.816974.818761	lcl|11.101000001-102000000.950796.951737			lcl|10.81000001-82000000.973272.974432	lcl|7.37000001-38000000.188463.189395	
lcl|17.41000001-42000000.590216.596050	lcl|2.92000001-93000000.901127.902566	lcl|9.104000001-105000000.861043.867836			lcl|3.146000001-147000000.776375.777131	lcl|7.38000001-39000000.172964.173980	
lcl|2.119000001-120000000.202915.216102	lcl|2.113000001-114000000.413556.415154	lcl|9.125000001-125583845.450829.451908			lcl|9.21000001-22000000.317366.318643	lcl|7.37000001-38000000.166827.167768	
lcl|13.73000001-74000000.140369.141650	lcl|13.53000001-54000000.338528.339868	lcl|9.115000001-116000000.675654.676736			lcl|5.145000001-146000000.533653.534657	lcl|7.38000001-39000000.299709.300686	
lcl|11.115000001-116000000.705944.713765	lcl|9.49000001-50000000.689237.694533	lcl|9.125000001-125583845.477062.529111			lcl|4.130000001-131000000.780201.781193	lcl|7.38000001-39000000.70731.72795	
lcl|12.25000001-26000000.808424.809692	lcl|9.49000001-50000000.695386.700715	lcl|9.125000001-125583845.547025.548089			lcl|10.41000001-42000000.157005.158096	lcl|7.38000001-39000000.105630.106677	
lcl|18.53000001-54000000.102746.103519	lcl|16.43000001-44000000.655223.661096	lcl|5.138000001-139000000.282400.305219			lcl|8.123000001-124000000.480810.481757	lcl|7.37000001-38000000.803422.819549	
lcl|7.121000001-122000000.944762.954395	lcl|7.131000001-132000000.545752.548575	lcl|17.7000001-8000000.615203.616306			lcl|2.173000001-174000000.464605.465576	lcl|7.134000001-135000000.223169.243847	
lcl|3.108000001-109000000.641748.643097	lcl|5.37000001-38000000.220641.222077	lcl|11.99000001-100000000.919849.923976			lcl|18.67000001-68000000.193234.203078	lcl|Un.25000001-26000000.435285.436238	
lcl|Un.73000001-74000000.971576.972489	lcl|10.23000001-24000000.885039.886070	lcl|5.138000001-139000000.315923.317050			lcl|18.68000001-69000000.675235.676212		
lcl|Un.138000001-139000000.130549.131462	lcl|10.23000001-24000000.875168.877133	lcl|9.121000001-122000000.352638.353687					
lcl|Un.83000001-84000000.950109.955628	lcl|6.115000001-116000000.396435.398310	lcl|9.125000001-125583845.218157.222584					
lcl|Un.73000001-74000000.57389.58302	lcl|13.53000001-54000000.499780.513895	lcl|9.112000001-113000000.165335.166209					
lcl|X.10000001-11000000.740239.740893	lcl|2.178000001-179000000.426057.430537	lcl|12.46000001-47000000.463066.464085					
lcl|7.8000001-9000000.605602.642549	lcl|18.13000001-14000000.39141.39929	lcl|5.111000001-112000000.517281.543354					
lcl|1.174000001-175000000.632585.636216	lcl|13.102000001-103000000.842654.860964	lcl|19.6000001-7000000.670083.681343					
lcl|19.37000001-38000000.744355.745007	lcl|4.134000001-135000000.31541.32665	lcl|7.33000001-34000000.819053.835374					
lcl|12.66000001-67000000.714310.715683	lcl|6.125000001-126000000.748128.748994	lcl|19.10000001-11000000.274443.278555					
lcl|18.42000001-43000000.733848.735270	lcl|4.147000001-148000000.687727.692191	lcl|9.121000001-122000000.313060.313776					
lcl|7.108000001-109000000.792064.819566	lcl|16.65000001-66000000.246883.247983	lcl|1.74000001-75000000.907973.909028					
	lcl|14.65000001-66000000.560481.563926	lcl|1.74000001-75000000.876579.877658					
	lcl|14.65000001-66000000.616918.624780	lcl|X.84000001-85000000.585599.587898					
	lcl|1.86000001-87000000.493378.504917	lcl|9.44000001-45000000.766976.780120					
	lcl|X.126000001-127000000.459880.460706	lcl|9.125000001-125583845.252652.253707					
	lcl|X.34000001-35000000.322400.323407	lcl|17.19000001-20000000.246243.246746					
	lcl|4.24000001-25000000.615001.616110	lcl|17.17000001-18000000.95933.96673					
	lcl|1.43000001-44000000.551030.552151	lcl|17.17000001-18000000.25613.26482					
	lcl|18.62000001-63000000.732729.769926	lcl|17.17000001-18000000.127578.128549					
	lcl|1.122000001-123000000.261353.262036	lcl|17.19000001-20000000.176861.177877					
	lcl|5.26000001-27000000.325761.327773	lcl|17.19000001-20000000.683004.684035					
	lcl|4.136000001-137000000.700978.701697	lcl|17.17000001-18000000.75824.76878					
	lcl|19.35000001-36000000.680631.688813	lcl|17.16000001-17000000.998089.999144					
	lcl|19.35000001-36000000.600600.601295	lcl|1.63000001-64000000.805209.806270					
	lcl|10.23000001-24000000.892815.907200	lcl|16.58000001-59000000.986831.987913					
	lcl|10.23000001-24000000.856213.857211	lcl|1.137000001-138000000.132063.132509					
	lcl|Un.41000001-42000000.562545.563333	lcl|1.90000001-91000000.638576.639690					
	lcl|10.23000001-24000000.949049.963888	lcl|15.11000001-12000000.62928.64346					
	lcl|10.23000001-24000000.935516.936594	lcl|9.125000001-125583845.298399.299415					
	lcl|10.23000001-24000000.973206.986182						
	lcl|10.23000001-24000000.927980.929011						
	lcl|Un.43000001-44000000.340562.341638						
	lcl|10.23000001-24000000.920184.921221						
	lcl|Un.44000001-45000000.598836.599410						
	lcl|10.24000001-25000000.10063.13869						
	lcl|10.24000001-25000000.36539.45195						

OLF

lcl|7.76000001-77000000.390112.391005
lcl|7.76000001-77000000.312059.312988
lcl|7.76000001-77000000.193101.194093
lcl|7.75000001-76000000.996104.997102
lcl|7.76000001-77000000.122646.140712
lcl|11.59000001-60000000.287712.288392
lcl|16.19000001-20000000.352133.353074
lcl|11.59000001-60000000.206548.207468
lcl|16.19000001-20000000.228573.229511
lcl|11.49000001-50000000.536955.537929
lcl|16.19000001-20000000.149988.150805
lcl|16.19000001-20000000.24602.25419
lcl|11.59000001-60000000.308849.309646
lcl|11.59000001-60000000.316713.317810
lcl|11.59000001-60000000.48363.49310
lcl|11.59000001-60000000.17577.18296
lcl|11.59000001-60000000.101035.102234
lcl|11.59000001-60000000.62998.63816
lcl|11.59000001-60000000.64636.74987
lcl|11.58000001-59000000.958333.971764
lcl|14.9000001-10000000.631766.632719
lcl|11.59000001-60000000.224382.225302
lcl|16.19000001-20000000.309843.310787
lcl|11.59000001-60000000.3433.13977
lcl|11.49000001-50000000.525038.525991
lcl|14.9000001-10000000.711076.711843
lcl|17.36000001-37000000.880911.924610
lcl|17.36000001-37000000.782715.783623
lcl|17.37000001-38000000.199757.200665
lcl|7.130000001-131000000.616890.617804
lcl|7.130000001-131000000.551903.552817
lcl|7.97000001-98000000.628960.629814
lcl|1.175000001-176000000.558509.561991
lcl|1.174000001-175000000.257480.258409
lcl|1.174000001-175000000.516254.517195
lcl|1.174000001-175000000.433197.434129
lcl|1.174000001-175000000.500891.504900
lcl|1.174000001-175000000.484054.484986
lcl|1.174000001-175000000.571385.572317
lcl|8.83000001-84000000.224703.237060
lcl|1.175000001-176000000.350595.351539
lcl|1.175000001-176000000.397688.398626
lcl|7.89000001-90000000.563985.564695
lcl|1.175000001-176000000.359018.359956
lcl|1.175000001-176000000.377863.378897
lcl|1.175000001-176000000.467009.468096
lcl|1.175000001-176000000.450884.460766
lcl|1.175000001-176000000.408106.409053
lcl|1.175000001-176000000.425533.429892
lcl|1.175000001-176000000.445160.446134
lcl|7.76000001-77000000.48552.86185
lcl|7.130000001-131000000.386895.387755
lcl|1.92000001-93000000.934820.935766
lcl|1.175000001-176000000.737882.742954
lcl|7.89000001-90000000.531346.532296
lcl|1.175000001-176000000.760196.761173
lcl|11.59000001-60000000.145127.146098
lcl|16.59000001-60000000.423957.424883
lcl|16.59000001-60000000.92944.93870
lcl|16.59000001-60000000.141841.159727
lcl|16.59000001-60000000.536734.537506
lcl|16.59000001-60000000.465343.481576
lcl|Un.42000001-43000000.48462.49382
lcl|16.59000001-60000000.585730.586650
lcl|11.49000001-50000000.510971.511918
lcl|11.49000001-50000000.489466.490458
lcl|11.49000001-50000000.651835.658426
lcl|17.36000001-37000000.301157.305245
lcl|11.52000001-53000000.572782.573399
lcl|11.49000001-50000000.804685.813082
lcl|11.49000001-50000000.716918.717679
lcl|Un.41000001-42000000.882787.883568
lcl|11.49000001-50000000.844802.855939
lcl|Un.68000001-69000000.643478.644515
lcl|11.49000001-50000000.886963.887742
lcl|11.49000001-50000000.904862.905818
lcl|Un.92000001-93000000.701478.702413
lcl|11.49000001-50000000.937776.938711
lcl|11.49000001-50000000.914948.929936
lcl|11.49000001-50000000.669883.704738
lcl|17.36000001-37000000.712968.713644
lcl|17.36000001-37000000.733407.736404
lcl|17.37000001-38000000.51034.51960
lcl|17.37000001-38000000.80358.81329
lcl|17.36000001-37000000.962921.963883
lcl|17.37000001-38000000.315854.320169
lcl|17.37000001-38000000.414807.415745
lcl|4.116000001-117000000.563810.564757
lcl|4.116000001-117000000.636413.637360
lcl|11.60000001-61000000.106882.107838
lcl|17.36000001-37000000.933382.934329
lcl|13.21000001-22000000.82651.103168
lcl|13.21000001-22000000.127286.128227
lcl|17.37000001-38000000.262875.287405
lcl|17.36000001-37000000.188491.189424

OPN

lcl|X.57000001-58000000.343882.354853
lcl|6.29000001-30000000.367411.369056
lcl|1.176000001-177000000.977590.986820
lcl|14.29000001-30000000.670089.716003
lcl|6.116000001-117000000.711433.723896
lcl|3.130000001-131000000.306809.321395

PEPTIDE

lcl|10.122000001-123000000.716601.724954
lcl|1.132000001-133000000.438922.439908
lcl|X.57000001-58000000.105218.107303
lcl|X.40000001-41000000.108549.112661
lcl|5.52000001-53000000.762676.770277
lcl|7.95000001-96000000.192571.201967
lcl|8.77000001-78000000.228479.258499
lcl|14.95000001-96000000.8535.36393
lcl|6.25000001-26000000.625840.645895
lcl|1.136000001-137000000.25145.41025
lcl|3.27000001-28000000.196102.199227
lcl|5.85000001-86000000.768688.769209
lcl|6.135000001-136000000.207221.208468
lcl|X.79000001-80000000.540177.543666
lcl|X.79000001-80000000.901307.903461
lcl|9.14000001-15000000.828112.837080
lcl|X.140000001-141000000.677396.683785
lcl|4.127000001-128000000.639616.646442
lcl|9.76000001-77000000.917501.929959
lcl|9.76000001-77000000.895828.911773
lcl|10.14000001-15000000.653290.656466
lcl|10.14000001-15000000.659700.663558
lcl|1.86000001-87000000.787605.790344
lcl|11.56000001-57000000.531897.533228
lcl|10.61000001-62000000.627840.640270
lcl|5.89000001-90000000.220623.221448
lcl|18.44000001-45000000.452019.452993
lcl|8.66000001-67000000.96769.98027
lcl|6.88000001-89000000.448602.456243
lcl|3.83000001-84000000.233348.234521
lcl|8.66000001-67000000.73578.81107
lcl|1.126000001-127000000.465046.465901
lcl|2.178000001-179000000.854167.869474
lcl|12.16000001-17000000.746564.754669
lcl|6.113000001-114000000.391096.392295
lcl|14.29000001-30000000.256057.257243
lcl|19.60000001-61000000.523102.524214
lcl|6.83000001-84000000.284494.295338
lcl|6.83000001-84000000.403595.439503
lcl|10.62000001-63000000.272338.272811
lcl|10.62000001-63000000.277682.284787
lcl|3.135000001-136000000.308680.309451

PTGER

lcl|14.36000001-37000000.667384.668236
lcl|8.83000001-84000000.359263.361114
lcl|14.36000001-37000000.785221.813194
lcl|3.158000001-159000000.178344.179171
lcl|15.5000001-6000000.55104.69764
lcl|3.152000001-153000000.402892.421057
lcl|7.12000001-13000000.46401.48730
lcl|6.100000001-101000000.527583.528488
lcl|6.13000001-14000000.625048.661694
lcl|X.129000001-130000000.354839.355960
lcl|10.81000001-82000000.807267.809495

Purin

lcl|6.123000001-124000000.903150.904430
lcl|X.89000001-90000000.409727.418438
lcl|14.63000001-64000000.955023.968719
lcl|14.113000001-114000000.209259.215904
lcl|7.23000001-24000000.131484.132443
lcl|13.92000001-93000000.949502.964142
lcl|13.92000001-93000000.857192.869146
lcl|13.93000001-94000000.43031.47525
lcl|8.72000001-73000000.291757.293086
lcl|3.59000001-60000000.739568.764130
lcl|X.90000001-91000000.126614.127621
lcl|5.121000001-122000000.978969.980000
lcl|12.107000001-108000000.131193.134979
lcl|X.40000001-41000000.572022.593105
lcl|6.65000001-66000000.988478.992046
lcl|3.36000001-37000000.55540.65196
lcl|3.59000001-60000000.668822.709056
lcl|7.23000001-24000000.95323.96315
lcl|18.32000001-33000000.122029.123048
lcl|14.113000001-114000000.172484.173479
lcl|1.93000001-94000000.432287.433210
lcl|7.14000001-15000000.263283.264380
lcl|7.23000001-24000000.137262.138164
lcl|1.86000001-87000000.332682.333665
lcl|12.92000001-93000000.418422.419435
lcl|14.111000001-112000000.280882.281895
lcl|3.59000001-60000000.732808.733887
lcl|3.60000001-61000000.660023.671888
lcl|6.125000001-126000000.968528.969682
lcl|3.59000001-60000000.652008.652651
lcl|Un.74000001-75000000.857684.858664
lcl|5.121000001-122000000.964846.965928
lcl|12.95000001-96000000.58339.59887
lcl|3.59000001-60000000.771011.778750
lcl|3.61000001-62000000.588940.591302
lcl|X.90000001-91000000.8058.9116
lcl|X.89000001-90000000.939839.940825
lcl|3.68000001-69000000.218388.219448
lcl|7.90000001-91000000.814794.820481
lcl|X.83000001-84000000.431640.432725
lcl|15.74000001-75000000.151046.152185
lcl|14.64000001-65000000.160047.164402
lcl|7.90000001-91000000.754697.755683
lcl|X.89000001-90000000.770002.771114
lcl|4.130000001-131000000.144971.145996
lcl|1.166000001-167000000.506662.519393
lcl|14.32000001-33000000.143475.154158
lcl|8.122000001-123000000.426451.430039
lcl|15.44000001-45000000.377287.395558

SOG

lcl|18.82000001-83000000.945695.958151
lcl|11.117000001-118000000.177379.182240
lcl|10.80000001-81000000.376008.379338
lcl|1.5000001-6000000.923780.925431
lcl|4.129000001-130000000.659901.678139
lcl|1.5000001-6000000.596308.610577
lcl|2.180000001-180335396.41704.51776
lcl|10.6000001-7000000.680903.682520
lcl|12.52000001-53000000.677467.686121
lcl|11.114000001-115000000.537142.537846
lcl|15.79000001-80000000.250763.254124
lcl|11.122000001-122883361.87707.101691
lcl|2.149000001-150000000.429390.430547
lcl|17.24000001-25000000.683664.684752

lcl|17.36000001-37000000.214770.215199
lcl|Un.12000001-13000000.22950.23888
lcl|17.36000001-37000000.196192.202811
lcl|17.36000001-37000000.254535.255473
lcl|17.37000001-38000000.437208.437852
lcl|11.60000001-61000000.125228.126187
lcl|11.59000001-60000000.262641.263624
lcl|11.59000001-60000000.186097.187080
lcl|13.20000001-21000000.996979.997923
lcl|13.20000001-21000000.565586.566530
lcl|13.21000001-22000000.34494.35420
lcl|13.20000001-21000000.539424.540377
lcl|13.20000001-21000000.556353.557306
lcl|13.20000001-21000000.978496.979476
lcl|17.37000001-38000000.214755.215699
lcl|13.20000001-21000000.960622.964902
lcl|3.97000001-98000000.726447.743990
lcl|7.74000001-75000000.627057.628004
lcl|7.74000001-75000000.567013.567966
lcl|17.36000001-37000000.647495.650943
lcl|7.5000001-6000000.943078.944004
lcl|17.36000001-37000000.618927.620069
lcl|17.37000001-38000000.183052.188328
lcl|17.36000001-37000000.315593.316462
lcl|15.99000001-100000000.410024.410956
lcl|3.107000001-108000000.315506.316453
lcl|17.36000001-37000000.330278.331219
lcl|17.36000001-37000000.580147.587664
lcl|17.36000001-37000000.487921.500743
lcl|17.36000001-37000000.467446.468374
lcl|17.36000001-37000000.419911.443349
lcl|2.113000001-114000000.64285.64983
lcl|2.112000001-113000000.236423.237364
lcl|2.113000001-114000000.76355.77341
lcl|2.112000001-113000000.307571.308266
lcl|2.112000001-113000000.222490.223431
lcl|2.112000001-113000000.951516.973401
lcl|6.43000001-44000000.114721.115590
lcl|6.43000001-44000000.395847.396716
lcl|4.116000001-117000000.607748.612766
lcl|7.5000001-6000000.813946.815884
lcl|6.43000001-44000000.456611.457408
lcl|6.43000001-44000000.423189.424130
lcl|6.43000001-44000000.438548.439495
lcl|6.43000001-44000000.388857.389789
lcl|4.116000001-117000000.680531.684491
lcl|4.116000001-117000000.818638.822622
lcl|Un.91000001-92000000.976593.977405
lcl|4.116000001-117000000.587842.588789
lcl|4.116000001-117000000.655478.656425
lcl|6.43000001-44000000.337532.338257
lcl|6.43000001-44000000.159873.160757
lcl|6.43000001-44000000.68520.100518
lcl|6.42000001-43000000.674391.679742
lcl|6.42000001-43000000.663218.664159
lcl|6.42000001-43000000.689399.690337
lcl|6.42000001-43000000.992316.993269
lcl|6.42000001-43000000.946777.947730
lcl|6.43000001-44000000.19886.20818
lcl|6.41000001-42000000.963226.964047
lcl|6.40000001-41000000.770894.772602
lcl|4.42000001-43000000.530963.541244
lcl|4.57000001-58000000.698294.699235
lcl|4.51000001-52000000.699201.704034
lcl|6.43000001-44000000.3117.3716
lcl|4.51000001-52000000.813610.814461
lcl|4.51000001-52000000.733132.734085
lcl|Un.41000001-42000000.345720.346633
lcl|4.51000001-52000000.788922.789875
lcl|4.42000001-43000000.616438.617277
lcl|4.42000001-43000000.633958.656317
lcl|4.42000001-43000000.594368.605958
lcl|4.42000001-43000000.689275.690234
lcl|4.42000001-43000000.670496.671452
lcl|2.37000001-38000000.766237.767220
lcl|2.37000001-38000000.542179.543936
lcl|2.37000001-38000000.441930.442856
lcl|Un.130000001-131000000.751222.752151
lcl|11.74000001-75000000.583136.586729
lcl|2.37000001-38000000.633520.634458
lcl|2.37000001-38000000.583379.584302
lcl|2.37000001-38000000.366042.378816
lcl|2.37000001-38000000.518734.523168
lcl|2.37000001-38000000.165848.166786
lcl|2.36000001-37000000.733566.734417
lcl|2.36000001-37000000.905283.906224
lcl|2.37000001-38000000.220919.221860
lcl|2.36000001-37000000.878314.879252
lcl|2.37000001-38000000.68595.69530
lcl|2.36000001-37000000.953738.954676
lcl|2.37000001-38000000.288719.289657
lcl|11.51000001-52000000.407052.412464
lcl|2.36000001-37000000.846443.847372
lcl|2.37000001-38000000.119816.120745
lcl|2.36000001-37000000.994690.995613
lcl|2.37000001-38000000.298487.327834
lcl|2.37000001-38000000.328640.329281
lcl|2.37000001-38000000.704343.705284

lcl|11.74000001-75000000.879520.880491
lcl|11.74000001-75000000.902028.902999
lcl|11.74000001-75000000.849684.850271
lcl|2.37000001-38000000.345693.346646
lcl|7.130000001-131000000.529664.539665
lcl|Un.39000001-40000000.793430.794071
lcl|7.130000001-131000000.640057.640973
lcl|7.130000001-131000000.589165.602788
lcl|7.130000001-131000000.730628.731439
lcl|7.130000001-131000000.690429.691391
lcl|7.130000001-131000000.765169.765939
lcl|7.130000001-131000000.886591.887319
lcl|7.130000001-131000000.560548.562016
lcl|7.130000001-131000000.939134.940066
lcl|7.130000001-131000000.952482.953417
lcl|7.130000001-131000000.719740.720672
lcl|7.130000001-131000000.900683.901618
lcl|7.130000001-131000000.915499.916458
lcl|Un.69000001-70000000.57803.58735
lcl|Un.48000001-49000000.380224.381156
lcl|6.117000001-118000000.276166.284969
lcl|7.95000001-96000000.40806.41698
lcl|7.95000001-96000000.81642.82604
lcl|7.95000001-96000000.53333.54298
lcl|7.98000001-99000000.148208.149168
lcl|7.94000001-95000000.385464.386427
lcl|7.94000001-95000000.455633.456667
lcl|7.94000001-95000000.440080.441039
lcl|7.94000001-95000000.843197.848632
lcl|7.94000001-95000000.879379.880200
lcl|7.94000001-95000000.891911.893887
lcl|7.94000001-95000000.884260.886253
lcl|7.94000001-95000000.852673.854812
lcl|7.94000001-95000000.923128.923946
lcl|7.94000001-95000000.909343.910326
lcl|7.92000001-93000000.499600.500574
lcl|7.92000001-93000000.738232.739200
lcl|7.93000001-94000000.431217.434842
lcl|7.93000001-94000000.668598.669521
lcl|7.93000001-94000000.657090.658025
lcl|7.92000001-93000000.527666.539654
lcl|7.92000001-93000000.570666.582310
lcl|7.92000001-93000000.756993.757949
lcl|7.92000001-93000000.489130.490077
lcl|7.93000001-94000000.723600.724559
lcl|7.93000001-94000000.721823.722377
lcl|7.93000001-94000000.850702.860929
lcl|7.93000001-94000000.806492.807442
lcl|7.93000001-94000000.869166.870110
lcl|7.93000001-94000000.885213.886238
lcl|7.93000001-94000000.840983.841921
lcl|7.93000001-94000000.331175.331921
lcl|7.93000001-94000000.816113.820314
lcl|7.92000001-93000000.924234.925181
lcl|7.92000001-93000000.603116.604060
lcl|7.92000001-93000000.706584.707399
lcl|11.109000001-110000000.495311.500727
lcl|7.93000001-94000000.795784.796731
lcl|7.93000001-94000000.772202.773149
lcl|7.92000001-93000000.408940.409647
lcl|7.93000001-94000000.732286.733096
lcl|7.93000001-94000000.441027.441953
lcl|7.93000001-94000000.381929.382870
lcl|7.93000001-94000000.214889.219285
lcl|7.93000001-94000000.273354.274094
lcl|7.93000001-94000000.259113.259835
lcl|7.92000001-93000000.542895.546730
lcl|7.92000001-93000000.552972.553928
lcl|7.93000001-94000000.284840.285811
lcl|7.93000001-94000000.305841.306812
lcl|7.93000001-94000000.525238.526197
lcl|7.93000001-94000000.309558.323240
lcl|7.92000001-93000000.813238.814179
lcl|7.92000001-93000000.730002.730670
lcl|7.92000001-93000000.784028.784963
lcl|7.92000001-93000000.794493.795404
lcl|7.93000001-94000000.750772.751800
lcl|7.95000001-96000000.132482.136571
lcl|7.93000001-94000000.967452.972616
lcl|7.93000001-94000000.354772.355728
lcl|7.95000001-96000000.96889.97836
lcl|7.95000001-96000000.104408.105376
lcl|7.94000001-95000000.311519.312466
lcl|7.94000001-95000000.300127.301068
lcl|7.93000001-94000000.979575.980525
lcl|7.94000001-95000000.6091.6804
lcl|7.93000001-94000000.227213.228177
lcl|7.93000001-94000000.36952.45254
lcl|7.94000001-95000000.327333.328743
lcl|7.92000001-93000000.997911.998884
lcl|7.93000001-94000000.11799.12737
lcl|7.92000001-93000000.302901.309574
lcl|Un.12000001-13000000.625214.625952
lcl|7.94000001-95000000.758626.759564
lcl|7.94000001-95000000.797870.798823
lcl|7.94000001-95000000.712371.722990
lcl|7.94000001-95000000.818482.819174
lcl|7.94000001-95000000.822192.832475

lcl|7.92000001-93000000.980711.981484
lcl|7.93000001-94000000.89130.90077
lcl|7.93000001-94000000.97206.98165
lcl|Un.44000001-45000000.890452.891411
lcl|7.93000001-94000000.106802.107749
lcl|7.93000001-94000000.487202.503491
lcl|7.93000001-94000000.536948.537898
lcl|7.94000001-95000000.687350.696490
lcl|7.94000001-95000000.969398.970105
lcl|7.98000001-99000000.125328.136840
lcl|7.94000001-95000000.335472.336466
lcl|7.94000001-95000000.394191.397146
lcl|7.94000001-95000000.637739.638689
lcl|7.94000001-95000000.673321.674190
lcl|7.94000001-95000000.681814.682770
lcl|7.94000001-95000000.486027.486721
lcl|7.92000001-93000000.434469.435422
lcl|7.92000001-93000000.319254.320716
lcl|7.92000001-93000000.310157.311161
lcl|7.92000001-93000000.868072.878730
lcl|7.92000001-93000000.716543.717382
lcl|7.92000001-93000000.912001.912960
lcl|7.93000001-94000000.126613.127608
lcl|7.93000001-94000000.209164.210159
lcl|7.92000001-93000000.444120.445079
lcl|7.92000001-93000000.470655.471503
lcl|7.94000001-95000000.343939.344691
lcl|7.93000001-94000000.114684.115628
lcl|7.93000001-94000000.409711.410429
lcl|7.92000001-93000000.417993.418808
lcl|7.93000001-94000000.504397.511851
lcl|7.94000001-95000000.366480.367445
lcl|7.94000001-95000000.946996.947991
lcl|7.96000001-97000000.301266.313743
lcl|7.96000001-97000000.260587.286337
lcl|7.96000001-97000000.233733.250289
lcl|7.96000001-97000000.361900.362815
lcl|7.96000001-97000000.416204.417163
lcl|7.96000001-97000000.324262.325197
lcl|7.96000001-97000000.376947.377897
lcl|7.96000001-97000000.457272.458222
lcl|7.96000001-97000000.444697.445647
lcl|4.116000001-117000000.570902.571826
lcl|7.96000001-97000000.677536.678243
lcl|7.96000001-97000000.700727.701671
lcl|4.116000001-117000000.835786.836734
lcl|4.116000001-117000000.756043.795938
lcl|4.116000001-117000000.710870.711829
lcl|7.96000001-97000000.395004.395638
lcl|7.96000001-97000000.719091.720035
lcl|7.96000001-97000000.497325.498278
lcl|7.96000001-97000000.484839.485792
lcl|2.86000001-87000000.700946.701884
lcl|2.86000001-87000000.589677.590615
lcl|2.86000001-87000000.674768.675703
lcl|2.86000001-87000000.685236.692936
lcl|2.86000001-87000000.714766.715695
lcl|19.13000001-14000000.479043.479622
lcl|19.13000001-14000000.422166.439221
lcl|19.13000001-14000000.447525.448486
lcl|19.13000001-14000000.482044.482732
lcl|19.13000001-14000000.398476.409817
lcl|19.13000001-14000000.387701.389043
lcl|19.13000001-14000000.354852.375779
lcl|19.11000001-12000000.769828.784906
lcl|19.11000001-12000000.691137.693864
lcl|19.11000001-12000000.755096.756034
lcl|19.11000001-12000000.715536.716357
lcl|19.11000001-12000000.711979.712971
lcl|19.11000001-12000000.950348.951304
lcl|19.11000001-12000000.603940.623052
lcl|15.99000001-100000000.382333.384475
lcl|11.59000001-60000000.364675.365601
lcl|11.59000001-60000000.361574.362500
lcl|11.59000001-60000000.347518.348444
lcl|19.11000001-12000000.649709.657896
lcl|19.11000001-12000000.819641.822464
lcl|2.86000001-87000000.517244.549146
lcl|1.93000001-94000000.53652.54620
lcl|2.86000001-87000000.636751.637581
lcl|2.86000001-87000000.494932.506970
lcl|2.86000001-87000000.578940.579893
lcl|2.86000001-87000000.562825.563778
lcl|2.87000001-88000000.984749.987306
lcl|2.88000001-89000000.43933.44631
lcl|2.88000001-89000000.22687.23470
lcl|2.88000001-89000000.58923.59861
lcl|2.88000001-89000000.86830.87768
lcl|2.87000001-88000000.229747.231736
lcl|Un.127000001-128000000.689959.690651
lcl|7.97000001-98000000.508271.508963
lcl|7.97000001-98000000.541541.542282
lcl|7.97000001-98000000.654753.658312
lcl|Un.127000001-128000000.735298.736215
lcl|7.97000001-98000000.387490.388410
lcl|7.98000001-99000000.218417.219211
lcl|7.97000001-98000000.639615.640553
lcl|7.97000001-98000000.752157.753082

lcl|7.97000001-98000000.792170.793143
lcl|7.98000001-99000000.255869.256842
lcl|7.97000001-98000000.889845.928984
lcl|7.98000001-99000000.50560.51561
lcl|Un.60000001-61000000.980925.981869
lcl|7.97000001-98000000.949209.950153
lcl|7.98000001-99000000.4006.4950
lcl|7.98000001-99000000.200346.201319
lcl|7.97000001-98000000.835345.836289
lcl|7.98000001-99000000.210099.211049
lcl|7.97000001-98000000.605588.608996
lcl|7.97000001-98000000.667815.669254
lcl|7.97000001-98000000.674411.677945
lcl|7.98000001-99000000.112072.117460
lcl|7.97000001-98000000.682751.698948
lcl|2.86000001-87000000.265532.266332
lcl|2.86000001-87000000.312043.312972
lcl|2.86000001-87000000.243417.244295
lcl|2.86000001-87000000.342462.356316
lcl|2.86000001-87000000.326414.327358
lcl|2.87000001-88000000.929575.930090
lcl|2.88000001-89000000.897828.911458
lcl|2.89000001-90000000.363380.368513
lcl|2.89000001-90000000.346441.347374
lcl|2.89000001-90000000.19589.20539
lcl|2.88000001-89000000.998837.999781
lcl|2.88000001-89000000.922275.923231
lcl|19.13000001-14000000.11379.13355
lcl|19.13000001-14000000.3584.4560
lcl|19.12000001-13000000.392663.393622
lcl|19.12000001-13000000.484577.486296
lcl|19.13000001-14000000.61676.89822
lcl|Un.114000001-115000000.793811.794758
lcl|19.13000001-14000000.145749.146696
lcl|19.13000001-14000000.178464.179411
lcl|19.12000001-13000000.415655.416599
lcl|19.12000001-13000000.451247.452191
lcl|19.12000001-13000000.563159.564083
lcl|19.12000001-13000000.913878.925137
lcl|19.12000001-13000000.418943.422278
lcl|19.12000001-13000000.574768.575691
lcl|19.12000001-13000000.466620.467564
lcl|19.12000001-13000000.211299.212237
lcl|19.12000001-13000000.205414.206334
lcl|19.12000001-13000000.960322.961251
lcl|19.13000001-14000000.28035.28790
lcl|2.86000001-87000000.776155.781552
lcl|2.86000001-87000000.764393.767517
lcl|2.87000001-88000000.620485.621175
lcl|2.87000001-88000000.756982.757752
lcl|2.87000001-88000000.735126.735858
lcl|2.87000001-88000000.953439.954413
lcl|4.116000001-117000000.628314.629078
lcl|X.35000001-36000000.634050.637772
lcl|1.93000001-94000000.34269.43305
lcl|1.93000001-94000000.65648.79802
lcl|1.93000001-94000000.18979.19950
lcl|2.88000001-89000000.841777.842483
lcl|2.88000001-89000000.489329.498515
lcl|2.88000001-89000000.791403.813888
lcl|2.88000001-89000000.595338.622315
lcl|2.88000001-89000000.483360.484283
lcl|2.88000001-89000000.578624.579553
lcl|2.88000001-89000000.584977.585903
lcl|9.39000001-40000000.122926.147331
lcl|9.39000001-40000000.48234.49160
lcl|9.39000001-40000000.167859.168785
lcl|9.39000001-40000000.41286.42212
lcl|9.37000001-38000000.910485.911414
lcl|9.39000001-40000000.561446.562168
lcl|9.39000001-40000000.623948.624652
lcl|9.39000001-40000000.668387.669091
lcl|9.39000001-40000000.994408.995103
lcl|9.39000001-40000000.238678.239481
lcl|9.39000001-40000000.374137.379209
lcl|9.39000001-40000000.970706.971590
lcl|9.39000001-40000000.475103.480598
lcl|9.39000001-40000000.406399.407334
lcl|9.39000001-40000000.448512.449471
lcl|9.39000001-40000000.660035.660949
lcl|9.40000001-41000000.38853.39749
lcl|9.39000001-40000000.210926.211861
lcl|9.39000001-40000000.918015.918953
lcl|9.39000001-40000000.584725.591984
lcl|9.39000001-40000000.428279.429214
lcl|9.39000001-40000000.709464.710399
lcl|9.40000001-41000000.106668.107591
lcl|9.40000001-41000000.10447.20058
lcl|9.39000001-40000000.186814.187740
lcl|9.40000001-41000000.72505.73449
lcl|9.39000001-40000000.515545.516510
lcl|9.39000001-40000000.922747.950109
lcl|9.39000001-40000000.249544.268228
lcl|9.39000001-40000000.682870.683814
lcl|9.38000001-39000000.73619.100162
lcl|9.40000001-41000000.139050.139742
lcl|9.38000001-39000000.147922.174913
lcl|9.38000001-39000000.891107.892054

lcl|9.38000001-39000000.622716.623651
lcl|9.38000001-39000000.266332.267261
lcl|9.38000001-39000000.228700.229629
lcl|9.38000001-39000000.297297.309507
lcl|9.38000001-39000000.290200.291129
lcl|9.38000001-39000000.242799.243728
lcl|9.38000001-39000000.207284.208213
lcl|9.39000001-40000000.9161.22207
lcl|9.38000001-39000000.865963.866901
lcl|9.38000001-39000000.595258.596202
lcl|9.38000001-39000000.515828.516520
lcl|9.38000001-39000000.796748.797458
lcl|9.38000001-39000000.447976.454744
lcl|2.87000001-88000000.130683.131575
lcl|2.87000001-88000000.310851.311723
lcl|2.87000001-88000000.361568.362515
lcl|2.87000001-88000000.114030.114989
lcl|2.87000001-88000000.103739.104683
lcl|7.98000001-99000000.342568.343497
lcl|2.87000001-88000000.72217.79599
lcl|2.87000001-88000000.92295.93236
lcl|2.87000001-88000000.63652.64611
lcl|2.87000001-88000000.17929.33753
lcl|2.87000001-88000000.149721.150671
lcl|2.87000001-88000000.583658.584762
lcl|Un.60000001-61000000.106673.107783
lcl|2.87000001-88000000.534045.535155
lcl|2.87000001-88000000.676532.677467
lcl|2.87000001-88000000.288865.289806
lcl|2.87000001-88000000.383961.384902
lcl|2.87000001-88000000.493650.494591
lcl|2.87000001-88000000.703104.704045
lcl|2.87000001-88000000.161480.169701
lcl|2.87000001-88000000.188138.209395
lcl|2.87000001-88000000.248568.249108
lcl|2.86000001-87000000.871160.872008
lcl|2.86000001-87000000.803525.804220
lcl|2.86000001-87000000.838193.844108
lcl|2.86000001-87000000.901984.910768
lcl|2.87000001-88000000.8094.8792
lcl|2.86000001-87000000.967324.968022
lcl|2.86000001-87000000.961923.962855
lcl|2.86000001-87000000.925998.926930
lcl|19.13000001-14000000.340807.341754
lcl|7.98000001-99000000.479123.480076
lcl|7.98000001-99000000.301211.302038
lcl|7.98000001-99000000.412777.413709
lcl|7.98000001-99000000.454074.455042
lcl|7.98000001-99000000.430900.431869
lcl|7.98000001-99000000.466241.467242
lcl|X.35000001-36000000.348905.349933
lcl|10.130000001-131000000.635206.640905
lcl|Un.135000001-136000000.735890.736701
lcl|7.96000001-97000000.669130.670035
lcl|2.88000001-89000000.339243.339947
lcl|2.88000001-89000000.778003.778947
lcl|2.88000001-89000000.322583.323617
lcl|19.11000001-12000000.354067.358542
lcl|19.11000001-12000000.287367.339916
lcl|19.13000001-14000000.257453.287193
lcl|19.13000001-14000000.328767.329726
lcl|19.13000001-14000000.309083.310030
lcl|6.42000001-43000000.741549.763762
lcl|5.142000001-143000000.263831.264934
lcl|X.57000001-58000000.783269.783958
lcl|19.13000001-14000000.213847.214812
lcl|9.40000001-41000000.383271.384016
lcl|6.117000001-118000000.372457.373389
lcl|Un.64000001-65000000.278178.278827
lcl|1.92000001-93000000.923678.924618
lcl|1.92000001-93000000.955477.956415
lcl|7.5000001-6000000.876856.877767
lcl|7.96000001-97000000.526787.542906
lcl|6.43000001-44000000.40334.41269
lcl|7.5000001-6000000.836278.836919
lcl|7.5000001-6000000.855765.856676
lcl|7.130000001-131000000.371623.372561
lcl|7.130000001-131000000.412627.413583
lcl|9.40000001-41000000.187281.188147
lcl|9.40000001-41000000.199490.200320
lcl|9.40000001-41000000.193731.194597
lcl|9.40000001-41000000.269080.287714
lcl|9.40000001-41000000.216199.217131
lcl|9.40000001-41000000.170427.171296
lcl|9.40000001-41000000.152537.153406
lcl|9.40000001-41000000.146385.147248
lcl|9.39000001-40000000.771042.771743
lcl|9.39000001-40000000.174292.175224
lcl|9.39000001-40000000.884815.901553
lcl|2.89000001-90000000.802328.803227
lcl|2.89000001-90000000.479573.480305
lcl|2.89000001-90000000.931877.932803
lcl|2.89000001-90000000.763699.791702
lcl|2.89000001-90000000.521640.522390
lcl|2.89000001-90000000.415342.416111
lcl|2.89000001-90000000.425462.447298
lcl|2.89000001-90000000.864848.867071
lcl|2.89000001-90000000.899648.900571

lcl|2.89000001-90000000.717606.718223
lcl|2.89000001-90000000.944670.950282
lcl|17.42000001-43000000.307778.315184
lcl|2.91000001-92000000.304766.319980
lcl|2.91000001-92000000.268885.269802
lcl|2.91000001-92000000.229652.230607
lcl|2.91000001-92000000.163354.164064
lcl|Un.130000001-131000000.606545.607375
lcl|2.91000001-92000000.348025.348980
lcl|2.91000001-92000000.113615.115874
lcl|2.91000001-92000000.196502.199837
lcl|2.91000001-92000000.188451.189221
lcl|2.90000001-91000000.452493.453410
lcl|2.90000001-91000000.398517.399461
lcl|2.90000001-91000000.682869.694931
lcl|2.90000001-91000000.864919.865574
lcl|2.90000001-91000000.474125.474961
lcl|2.90000001-91000000.441129.441968
lcl|2.90000001-91000000.528961.529881
lcl|2.90000001-91000000.600090.601007
lcl|2.90000001-91000000.126574.145139
lcl|2.90000001-91000000.361727.362222
lcl|2.90000001-91000000.88199.88993
lcl|2.90000001-91000000.283587.284399
lcl|2.90000001-91000000.46871.57617
lcl|2.90000001-91000000.224120.224932
lcl|2.90000001-91000000.201717.202532
lcl|Un.132000001-133000000.238597.239361
lcl|2.89000001-90000000.964589.965287
lcl|2.90000001-91000000.188942.189877
lcl|2.91000001-92000000.92966.93887
lcl|2.90000001-91000000.375636.376553
lcl|2.90000001-91000000.924827.925732
lcl|2.90000001-91000000.896960.897832
lcl|2.91000001-92000000.23494.24423
lcl|2.89000001-90000000.852241.853055
lcl|2.89000001-90000000.886989.887918
lcl|2.91000001-92000000.10181.11056
lcl|2.90000001-91000000.962391.963320
lcl|2.90000001-91000000.339252.343728
lcl|2.90000001-91000000.332954.333871
lcl|9.40000001-41000000.295340.296044
lcl|19.11000001-12000000.592819.593763
lcl|19.11000001-12000000.543018.558779
lcl|19.11000001-12000000.572073.572942
lcl|19.11000001-12000000.582921.583721
lcl|19.11000001-12000000.519885.520682
lcl|15.99000001-100000000.136793.142862
lcl|15.99000001-100000000.117625.128402
lcl|15.99000001-100000000.97023.99437
lcl|10.130000001-131000000.864108.864885
lcl|10.130000001-131000000.839990.840732
lcl|10.130000001-131000000.822853.824256
lcl|17.36000001-37000000.828810.829779
lcl|2.86000001-87000000.738677.739612
lcl|11.59000001-60000000.117480.118446
lcl|X.35000001-36000000.301060.302049
lcl|7.5000001-6000000.889964.890917
lcl|10.129000001-130000000.658896.659690
lcl|10.129000001-130000000.666349.667278
lcl|10.130000001-131000000.259144.260076
lcl|10.129000001-130000000.833690.834627
lcl|10.130000001-131000000.426841.427457
lcl|10.129000001-130000000.743257.762403
lcl|10.129000001-130000000.956619.967678
lcl|10.130000001-131000000.299029.312444
lcl|10.129000001-130000000.809920.810674
lcl|10.130000001-131000000.276772.277505
lcl|10.129000001-130000000.977998.978876
lcl|10.130000001-131000000.374297.375232
lcl|10.129000001-130000000.837096.837965
lcl|10.130000001-131000000.595813.611835
lcl|10.130000001-131000000.221380.222231
lcl|10.130000001-131000000.31381.32340
lcl|10.130000001-131000000.321417.322373
lcl|10.130000001-131000000.733183.734121
lcl|Un.49000001-50000000.386108.387040
lcl|10.130000001-131000000.113257.114195
lcl|10.130000001-131000000.356571.357515
lcl|10.129000001-130000000.823906.824841
lcl|10.130000001-131000000.441273.442211
lcl|10.130000001-131000000.176928.177767
lcl|10.130000001-131000000.78395.79333
lcl|10.130000001-131000000.333693.350417
lcl|Un.49000001-50000000.616875.618522
lcl|10.129000001-130000000.713249.714896
lcl|10.130000001-131000000.452188.452831
lcl|10.130000001-131000000.405133.405813
lcl|10.130000001-131000000.497537.498358
lcl|14.45000001-46000000.372361.373302
lcl|10.130000001-131000000.151466.152434
lcl|10.129000001-130000000.729255.730184
lcl|Un.49000001-50000000.632113.633042
lcl|14.42000001-43000000.929402.935866
lcl|14.42000001-43000000.519191.520145
lcl|14.42000001-43000000.551680.576748
lcl|14.42000001-43000000.379532.380508
lcl|14.42000001-43000000.242295.263886

lcl|14.44000001-45000000.253322.254278
lcl|14.44000001-45000000.273428.274384
lcl|14.44000001-45000000.212472.213288
lcl|14.44000001-45000000.232291.236425
lcl|14.44000001-45000000.329996.330928
lcl|14.44000001-45000000.356933.357874
lcl|14.44000001-45000000.314634.315320
lcl|14.42000001-43000000.168424.169133
lcl|14.41000001-42000000.740298.741224
lcl|2.112000001-113000000.265494.266185
lcl|2.112000001-113000000.251847.259562
lcl|2.112000001-113000000.550124.555563
lcl|Un.80000001-81000000.324049.324725
lcl|2.112000001-113000000.683700.684398
lcl|2.112000001-113000000.297188.297879
lcl|Un.109000001-110000000.563870.564561
lcl|2.112000001-113000000.205804.206489
lcl|2.112000001-113000000.373547.379175
lcl|2.112000001-113000000.573757.578012
lcl|2.112000001-113000000.418277.438242
lcl|2.112000001-113000000.592940.613326
lcl|2.112000001-113000000.493519.494484
lcl|14.41000001-42000000.929537.930599
lcl|14.41000001-42000000.943853.973389
lcl|2.112000001-113000000.245704.246621
lcl|14.41000001-42000000.993832.994835
lcl|15.99000001-100000000.250104.253331
lcl|15.99000001-100000000.222667.223626
lcl|15.99000001-100000000.287462.288391
lcl|15.99000001-100000000.346214.347140
lcl|15.99000001-100000000.361343.368236
lcl|14.42000001-43000000.130976.131902
lcl|14.42000001-43000000.148042.148968
lcl|13.20000001-21000000.496221.497099
lcl|16.3000001-4000000.287084.288022
lcl|11.51000001-52000000.386341.389729
lcl|11.51000001-52000000.426410.427333
lcl|11.51000001-52000000.404469.405392
lcl|8.71000001-72000000.496863.497804
lcl|16.3000001-4000000.39119.40060
lcl|2.91000001-92000000.99291.100097
lcl|2.91000001-92000000.71521.72330
lcl|2.91000001-92000000.80423.81337
lcl|2.91000001-92000000.57004.57936
lcl|11.74000001-75000000.653306.654241
lcl|11.74000001-75000000.961952.970387
lcl|11.74000001-75000000.949598.950431
lcl|11.74000001-75000000.720901.725517
lcl|11.74000001-75000000.747984.748931
lcl|11.74000001-75000000.643809.644756
lcl|11.74000001-75000000.911517.914063
lcl|11.74000001-75000000.803911.804612
lcl|11.74000001-75000000.814844.815785
lcl|11.74000001-75000000.438331.451343
lcl|11.74000001-75000000.375457.380827
lcl|11.74000001-75000000.268165.268836
lcl|11.74000001-75000000.531024.531728
lcl|X.36000001-37000000.9666.10610
lcl|11.74000001-75000000.402406.403113
lcl|11.74000001-75000000.417708.418646
lcl|11.74000001-75000000.509330.510268
lcl|11.74000001-75000000.490211.495669
lcl|11.74000001-75000000.390443.391378
lcl|11.74000001-75000000.564080.565027
lcl|11.74000001-75000000.543140.544117
lcl|11.73000001-74000000.955071.956015
lcl|11.73000001-74000000.971703.976774
lcl|11.74000001-75000000.194540.195478
lcl|Un.29000001-30000000.141245.142198
lcl|11.73000001-74000000.996155.997099
lcl|6.135000001-136000000.438656.457173
lcl|11.51000001-52000000.465853.466777
lcl|11.51000001-52000000.444791.445751
lcl|11.74000001-75000000.979988.980926
lcl|17.36000001-37000000.336768.337517
lcl|11.88000001-89000000.576751.577692
lcl|11.88000001-89000000.559616.560443
lcl|11.88000001-89000000.555037.555972
lcl|8.71000001-72000000.469302.483895
lcl|8.71000001-72000000.487117.488061
lcl|8.71000001-72000000.441064.442008
lcl|9.18000001-19000000.754130.754744
lcl|10.79000001-80000000.64188.65143
lcl|9.20000001-21000000.364691.365650
lcl|9.19000001-20000000.119661.136278
lcl|9.19000001-20000000.538653.539274
lcl|9.19000001-20000000.371544.372482
lcl|9.19000001-20000000.315782.316715
lcl|9.19000001-20000000.584741.585679
lcl|9.19000001-20000000.357018.357956
lcl|17.36000001-37000000.379490.384584
lcl|17.36000001-37000000.502034.511712
lcl|9.20000001-21000000.235913.236848
lcl|10.79000001-80000000.303030.303996
lcl|8.84000001-85000000.928554.940538
lcl|9.20000001-21000000.276968.277516
lcl|10.79000001-80000000.473897.474869
lcl|10.79000001-80000000.411555.411990

lcl|10.79000001-80000000.335142.335972
lcl|10.79000001-80000000.491526.492344
lcl|10.79000001-80000000.426429.441153
lcl|Un.51000001-52000000.617445.618295
lcl|Un.116000001-117000000.19211.20167
lcl|Un.51000001-52000000.608361.609317
lcl|Un.81000001-82000000.891888.892844
lcl|Un.77000001-78000000.832066.833016

Supplementary Table 3c

Unclassified

lcl|pep.Genscan:ctg9654.1.24998.35818
lcl|pep.Genscan:ctg9300.6.249151.249993
lcl|pep.Genscan:ctg9300.7.49151.50044
lcl|pep.Genscan:ctg10848.1.198082.282687
lcl|pep.Genscan:ctg13880.3.135182.136018
lcl|pep.Genscan:ctg11508.6.27235.29042
lcl|pep.Genscan:ctg26075.1.136098.147502
lcl|pep.Genscan:NA8494.1.2404.5967
lcl|pep.Genscan:ctg9487.1.133050.151098
lcl|pep.Genscan:ctg9317.1.12924.23210
lcl|pep.Genscan:NA16839.1.2977.3768
lcl|pep.Genscan:ctg14090.1.4157.9175
lcl|pep.Genscan:ctg10985.1.29323.70259
lcl|pep.Genscan:ctg12167.4.69774.113727
lcl|pep.Genscan:ctg9476.5.204626.205552
lcl|pep.Genscan:ctg9476.6.4626.5552
lcl|pep.Genscan:ctg10212.1.87515.93635
lcl|pep.Genscan:ctg14090.1.34645.61504
lcl|pep.Genscan:NA8142.1.1370.2093
lcl|pep.Genscan:ctg10985.1.74500.81259
lcl|pep.Genscan:NA1427.1.7847.16636
lcl|pep.Genscan:NA1678.1.1674.2542
lcl|pep.Genscan:NA10901.1.1720.6732
lcl|pep.Genscan:NA14152.1.15844.25882
lcl|pep.Genscan:NA19230.1.12121.18491
lcl|pep.Genscan:NA17026.1.1181.2290
lcl|pep.Genscan:ctg7.3.158153.167325
lcl|pep.Genscan:ctg9717.2.112782.113819
lcl|pep.Genscan:ctg25386.2.70452.83876
lcl|pep.Genscan:ctg13622.1.15011.15985
lcl|pep.Genscan:ctg10021.1.172420.197682
lcl|pep.Genscan:ctg10021.2.18711.43973
lcl|pep.Genscan:NA20360.1.2390.3241
lcl|pep.Genscan:ctg128.3.40124.78475
lcl|pep.Genscan:ctg24770.1.48055.82819
lcl|pep.Genscan:ctg10991.1.129382.139444
lcl|pep.Genscan:ctg9424.2.71925.115695
lcl|pep.Genscan:ctg14170.1.115907.136575
lcl|pep.Genscan:ctg9993.2.90539.162065
lcl|pep.Genscan:NA4283.1.5238.6479
lcl|pep.Genscan:ctg10738.1.198313.236283
lcl|pep.Genscan:NA3363.1.28973.30785
lcl|pep.Genscan:NA12317.1.27497.28399
lcl|pep.Genscan:ctg10431.2.225346.245734
lcl|pep.Genscan:ctg25381.1.146393.147505
lcl|pep.Genscan:ctg24784.1.93431.94381
lcl|pep.Genscan:ctg11926.1.168487.169232
lcl|pep.Genscan:ctg13710.1.59183.65689
lcl|pep.Genscan:ctg27006.1.72316.93957
lcl|pep.Genscan:NA14510.1.4013.4663
lcl|pep.Genscan:NA8666.1.4378.10543
lcl|pep.Genscan:ctg7.3.179818.194698
lcl|pep.Genscan:ctg7.4.19287.34167
lcl|pep.Genscan:ctg10788.3.123400.189566
lcl|pep.Genscan:ctg14090.1.79302.80120
lcl|pep.Genscan:ctg14090.1.75231.76088
lcl|pep.Genscan:NA3041.1.704.17735
lcl|pep.Genscan:ctg30271.2.153166.156554
lcl|pep.Genscan:ctg14603.1.10352.57837
lcl|pep.Genscan:NA15423.1.6340.7176
lcl|pep.Genscan:ctg11890.2.170886.203049
lcl|pep.Genscan:ctg11890.3.2210.3049
lcl|pep.Genscan:ctg9688.2.43724.92034
lcl|pep.Genscan:ctg9.2.18704.55403
lcl|pep.Genscan:ctg9.1.218704.247941
lcl|pep.Genscan:NA12942.1.8889.16498
lcl|pep.Genscan:ctg24697.1.123710.124909
lcl|pep.Genscan:ctg10514.2.96671.105204
lcl|pep.Genscan:ctg26025.1.20956.56571
lcl|pep.Genscan:ctg10738.1.158189.180158
lcl|pep.Genscan:ctg13856.1.64795.79920
lcl|pep.Genscan:ctg11508.5.188351.189334
lcl|pep.Genscan:ctg11508.6.31923.32906
lcl|pep.Genscan:NA19837.1.1286.2128

Amin

lcl|pep.Genscan:NA16930.1.4113.5031
lcl|pep.Genscan:NA13952.1.6303.7182
lcl|pep.Genscan:ctg25086.1.10823.16525
lcl|pep.Genscan:ctg9599.1.170061.174729
lcl|pep.Genscan:ctg11158.1.209465.245492
lcl|pep.Genscan:ctg23943.1.3176.41299
lcl|pep.Genscan:ctg14058.1.136904.223970
lcl|pep.Genscan:ctg24825.1.254424.255536
lcl|pep.Genscan:ctg10788.2.736.169350
lcl|pep.Genscan:ctg9658.2.92343.93707
lcl|pep.Genscan:ctg15575.1.55786.56727
lcl|pep.Genscan:ctg25311.1.60280.61596
lcl|pep.Genscan:ctg11638.1.178932.179876
lcl|pep.Genscan:ctg25668.2.85408.86637
lcl|pep.Genscan:ctg11026.1.106562.107677
lcl|pep.Genscan:ctg13654.2.68637.70101
lcl|pep.Genscan:NA15742.1.3172.4665
lcl|pep.Genscan:ctg27023.1.66830.72348
lcl|pep.Genscan:ctg10460.1.126591.127307
lcl|pep.Genscan:ctg10407.1.128278.131436
lcl|pep.Genscan:ctg10100.1.6901.18886
lcl|pep.Genscan:NA315.1.26471.58973
lcl|pep.Genscan:ctg9983.1.61053.86054
lcl|pep.Genscan:ctg9662.3.180960.181856
lcl|pep.Genscan:ctg14296.1.8283.9803
lcl|pep.Genscan:ctg25249.7.203358.204875
lcl|pep.Genscan:ctg27023.1.159410.171097
lcl|pep.Genscan:ctg15395.1.98369.99709
lcl|pep.Genscan:ctg12853.1.148295.187880
lcl|pep.Genscan:ctg12853.1.148295.187880
lcl|pep.Genscan:ctg25471.1.179777.204355
lcl|pep.Genscan:ctg11194.1.33902.37465
lcl|pep.Genscan:ctg9992.1.2354.31831
lcl|pep.Genscan:NA8584.1.8445.28709
lcl|pep.Genscan:ctg11111.1.81985.91787
lcl|pep.Genscan:ctg11601.1.28699.30030
lcl|pep.Genscan:ctg9495.1.235363.236559
lcl|pep.Genscan:ctg12669.1.78355.79698
lcl|pep.Genscan:ctg25849.1.126383.155142
lcl|pep.Genscan:ctg604.1.127949.128974
lcl|pep.Genscan:ctg604.1.124031.125056
lcl|pep.Genscan:NA14884.1.11432.13035
lcl|pep.Genscan:ctg30259.2.192898.196280
lcl|pep.Genscan:ctg30259.3.32858.36240
lcl|pep.Genscan:ctg26074.4.74402.75511
lcl|pep.Genscan:ctg30312.1.99550.121514
lcl|pep.Genscan:NA15155.1.13977.37349
lcl|pep.Genscan:ctg27004.1.163832.166769
lcl|pep.Genscan:ctg10215.1.169745.170452
lcl|pep.Genscan:ctg10324.6.124043.125284
lcl|pep.Genscan:ctg13027.1.41387.48582
lcl|pep.Genscan:ctg10367.1.115040.127645
lcl|pep.Genscan:ctg30335.2.70798.71958
lcl|pep.Genscan:NA16832.1.8379.9515
lcl|pep.Genscan:ctg10298.2.212108.235594
lcl|pep.Genscan:ctg10298.3.12108.35594
lcl|pep.Genscan:ctg11160.1.233113.234177
lcl|pep.Genscan:ctg11160.2.33113.34177
lcl|pep.Genscan:ctg9401.3.171.842
lcl|pep.Genscan:ctg9401.2.188975.200842
lcl|pep.Genscan:ctg11227.1.154297.203809
lcl|pep.Genscan:ctg25325.1.87434.122411
lcl|pep.Genscan:ctg10959.1.192025.193182
lcl|pep.Genscan:ctg9547.1.193334.194395
lcl|pep.Genscan:ctg969.3.238784.248126
lcl|pep.Genscan:ctg10324.3.22423.45022
lcl|pep.Genscan:ctg10324.2.197971.245022
lcl|pep.Genscan:ctg969.4.38784.132508
lcl|pep.Genscan:ctg10167.1.225002.231060
lcl|pep.Genscan:ctg10167.2.25002.31060
lcl|pep.Genscan:ctg14531.1.211481.223141
lcl|pep.Genscan:ctg14531.2.11481.23141
lcl|pep.Genscan:ctg9630.1.24700.29373
lcl|pep.Genscan:ctg11657.1.113382.132839
lcl|pep.Genscan:ctg12745.1.46810.58279
lcl|pep.Genscan:ctg9838.2.67366.71782
lcl|pep.Genscan:ctg13737.1.157333.162427
lcl|pep.Genscan:ctg9838.2.86961.91125
lcl|pep.Genscan:ctg11898.2.148658.187187

CHEMO

lcl|pep.Genscan:ctg12622.2.61392.111342
lcl|pep.Genscan:NA13300.1.8079.8593
lcl|pep.Genscan:ctg9393.2.155156.155920
lcl|pep.Genscan:ctg26038.2.82839.83606
lcl|pep.Genscan:NA10954.1.12177.20778
lcl|pep.Genscan:ctg25396.2.126626.138182
lcl|pep.Genscan:ctg15234.1.164495.171945
lcl|pep.Genscan:NA2339.1.3125.4204
lcl|pep.Genscan:ctg14444.1.164580.228683
lcl|pep.Genscan:ctg11508.5.183663.185470
lcl|pep.Genscan:ctg9662.1.64632.75846
lcl|pep.Genscan:NA5048.1.6016.6879
lcl|pep.Genscan:NA5048.1.7296.8183
lcl|pep.Genscan:ctg9487.1.154423.155301
lcl|pep.Genscan:NA13433.1.1220.2311
lcl|pep.Genscan:ctg10047.2.171412.172374
lcl|pep.Genscan:ctg11165.1.128428.131843
lcl|pep.Genscan:ctg13964.1.162339.164771
lcl|pep.Genscan:ctg11091.1.31418.40670
lcl|pep.Genscan:NA47015.1.873.1268
lcl|pep.Genscan:ctg11165.1.140663.188507
lcl|pep.Genscan:ctg9301.3.71223.84081
lcl|pep.Genscan:ctg11364.2.179643.180965
lcl|pep.Genscan:ctg12971.1.30051.31127
lcl|pep.Genscan:NA1456.1.2223.3271
lcl|pep.Genscan:NA8032.1.23304.24335
lcl|pep.Genscan:ctg14063.1.10732.25832
lcl|pep.Genscan:ctg11041.5.83997.161701
lcl|pep.Genscan:ctg9774.5.221552.249502
lcl|pep.Genscan:ctg9774.6.21552.59544
lcl|pep.Genscan:ctg11508.6.40065.53366
lcl|pep.Genscan:ctg11508.5.196493.197446
lcl|pep.Genscan:ctg30284.3.91857.191667
lcl|pep.Genscan:ctg11578.1.95067.116787
lcl|pep.Genscan:ctg26015.3.165900.207867
lcl|pep.Genscan:ctg9597.2.217066.268028
lcl|pep.Genscan:ctg47.9.132179.133240
lcl|pep.Genscan:ctg47.9.136751.143090
lcl|pep.Genscan:NA5280.1.18237.19235
lcl|pep.Genscan:ctg10433.1.84813.85841
lcl|pep.Genscan:ctg47.10.18649.19671
lcl|pep.Genscan:ctg47.9.179908.180930
lcl|pep.Genscan:NA21842.1.1421.1933
lcl|pep.Genscan:ctg47.9.190347.191348
lcl|pep.Genscan:ctg47.10.29088.30089
lcl|pep.Genscan:ctg9597.1.198406.200684
lcl|pep.Genscan:ctg11102.5.72279.140903
lcl|pep.Genscan:ctg9597.1.204587.223899
lcl|pep.Genscan:ctg9597.2.4587.23899
lcl|pep.Genscan:ctg9471.1.188624.209105
lcl|pep.Genscan:ctg9471.2.29495.50514
lcl|pep.Genscan:ctg12971.1.4777.8351
lcl|pep.Genscan:ctg9406.2.68931.69992
lcl|pep.Genscan:ctg10226.1.149122.149928
lcl|pep.Genscan:ctg9889.1.17018.60389
lcl|pep.Genscan:ctg10131.1.9915.25560
lcl|pep.Genscan:ctg10131.1.41235.44461
lcl|pep.Genscan:ctg10131.1.148688.202437
lcl|pep.Genscan:NA2463.1.26429.27505
lcl|pep.Genscan:ctg9956.2.26655.106780
lcl|pep.Genscan:ctg9956.1.226655.249325
lcl|pep.Genscan:ctg26161.1.82192.83221
lcl|pep.Genscan:ctg21883.1.114937.124303
lcl|pep.Genscan:ctg9597.1.178239.193381
lcl|pep.Genscan:NA22412.1.1594.2634
lcl|pep.Genscan:ctg21883.1.131375.132483
lcl|pep.Genscan:ctg9345.3.118644.136454
lcl|pep.Genscan:ctg9917.3.147893.149026
lcl|pep.Genscan:ctg25905.1.154414.177181
lcl|pep.Genscan:ctg9868.1.180967.182055
lcl|pep.Genscan:ctg9714.2.1797.2582
lcl|pep.Genscan:NA4709.1.4616.5671
lcl|pep.Genscan:NA3648.1.6404.7222
lcl|pep.Genscan:ctg9714.1.190570.191496
lcl|pep.Genscan:ctg9714.1.201590.202582
lcl|pep.Genscan:ctg5.1.48127.49146
lcl|pep.Genscan:ctg568.2.105478.106671

LGR

lcl|pep.Genscan:ctg30252.15.82561.83394
lcl|pep.Genscan:ctg12002.2.4293.118584
lcl|pep.Genscan:ctg10324.5.84887.130776
lcl|pep.Genscan:ctg11930.2.160567.205693
lcl|pep.Genscan:ctg9807.3.59515.118550
lcl|pep.Genscan:ctg9509.2.92027.191807
lcl|pep.Genscan:ctg10945.2.80493.101095
lcl|pep.Genscan:NA16956.1.16286.24415

MCHR

lcl|pep.Genscan:ctg11996.1.197371.198758
lcl|pep.Genscan:ctg25641.1.128253.135927
lcl|pep.Genscan:ctg10949.1.117214.152725
lcl|pep.Genscan:ctg25411.1.19970.57476

MEC

lcl|pep.Genscan:NA1949.1.1327.2448
lcl|pep.Genscan:ctg11156.1.40024.46559
lcl|pep.Genscan:ctg26313.1.48817.68862
lcl|pep.Genscan:ctg10286.2.240956.247981
lcl|pep.Genscan:ctg10538.1.54875.87287
lcl|pep.Genscan:ctg10286.3.40956.50768
lcl|pep.Genscan:ctg25798.1.37899.49779
lcl|pep.Genscan:ctg9833.3.59913.92132
lcl|pep.Genscan:NA5719.1.5358.6581
lcl|pep.Genscan:ctg10867.1.34110.44346
lcl|pep.Genscan:ctg11817.1.98881.119045
lcl|pep.Genscan:ctg25411.2.136922.139472
lcl|pep.Genscan:ctg15504.2.10824.18559
lcl|pep.Genscan:ctg15504.1.192898.218559
lcl|pep.Genscan:ctg25304.3.136431.137630
lcl|pep.Genscan:ctg9717.3.196526.197608
lcl|pep.Genscan:ctg9706.1.162992.205133
lcl|pep.Genscan:NA19410.1.4193.11195
lcl|pep.Genscan:ctg24921.3.97907.98933
lcl|pep.Genscan:ctg13538.2.98214.145005
lcl|pep.Genscan:ctg10669.1.41968.43035
lcl|pep.Genscan:ctg9847.1.233307.234537
lcl|pep.Genscan:NA12703.1.16464.30728
lcl|pep.Genscan:NA16978.1.34682.35755
lcl|pep.Genscan:ctg24911.1.28892.45282
lcl|pep.Genscan:ctg11040.1.164449.165473
lcl|pep.Genscan:ctg25325.2.52519.53493
lcl|pep.Genscan:ctg24865.6.204211.231899
lcl|pep.Genscan:ctg11095.1.30611.31582
lcl|pep.Genscan:ctg10845.2.74286.75200
lcl|pep.Genscan:NA35766.1.702.1535
lcl|pep.Genscan:ctg756.1.23441.24424
lcl|pep.Genscan:ctg25501.1.103195.113293
lcl|pep.Genscan:ctg10845.2.66859.70040
lcl|pep.Genscan:ctg30049.1.100683.124545

MTN

lcl|pep.Genscan:ctg9982.3.174753.178854
lcl|pep.Genscan:ctg11912.1.10935.27914
lcl|pep.Genscan:ctg26375.2.126383.136866
lcl|pep.Genscan:ctg9476.5.147438.180126
lcl|pep.Genscan:ctg9705.5.147373.166188
lcl|pep.Genscan:ctg10004.1.91514.101888

lcl|pep.Genscan:ctg9430.2.185562.188338
lcl|pep.Genscan:ctg604.2.3250.9924
lcl|pep.Genscan:ctg604.1.203250.209924
lcl|pep.Genscan:ctg604.2.20651.26097
lcl|pep.Genscan:ctg604.1.220651.226097
lcl|pep.Genscan:ctg12201.5.242217.243230
lcl|pep.Genscan:ctg12201.6.42217.43230
lcl|pep.Genscan:ctg604.2.29431.30408
lcl|pep.Genscan:ctg604.1.229431.230408
lcl|pep.Genscan:ctg604.1.24213.24635
lcl|pep.Genscan:ctg9424.1.78674.94511
lcl|pep.Genscan:ctg14481.1.10976.20096
lcl|pep.Genscan:NA64223.1.233.676
lcl|pep.Genscan:ctg14481.1.24078.24521
lcl|pep.Genscan:ctg604.1.33476.43818
lcl|pep.Genscan:ctg604.1.48925.54233
lcl|pep.Genscan:ctg14029.1.4622.5608
lcl|pep.Genscan:ctg604.1.59165.97791
lcl|pep.Genscan:ctg604.2.47019.48032
lcl|pep.Genscan:ctg604.1.247019.248032
lcl|pep.Genscan:ctg604.3.65893.66921
lcl|pep.Genscan:ctg9424.2.152614.178703
lcl|pep.Genscan:ctg9424.3.925.27014
lcl|pep.Genscan:NA25219.1.286.906
lcl|pep.Genscan:ctg12317.1.163870.164421
lcl|pep.Genscan:ctg9424.1.236849.241235
lcl|pep.Genscan:ctg9424.2.36849.41235
lcl|pep.Genscan:ctg9424.3.141841.142817
lcl|pep.Genscan:ctg9424.2.182769.195433
lcl|pep.Genscan:ctg9424.3.31080.43744
lcl|pep.Genscan:ctg9424.3.52002.58922
lcl|pep.Genscan:NA32659.1.566.1499
lcl|pep.Genscan:ctg14130.1.282613.283587
lcl|pep.Genscan:ctg9424.1.56140.57195
lcl|pep.Genscan:ctg25004.4.49468.50529
lcl|pep.Genscan:ctg9424.1.77131.78132
lcl|pep.Genscan:ctg12317.1.44321.82783
lcl|pep.Genscan:ctg12317.1.186465.187472
lcl|pep.Genscan:ctg12317.1.180557.181618
lcl|pep.Genscan:ctg9424.1.132022.133020
lcl|pep.Genscan:ctg12317.1.112975.136477
lcl|pep.Genscan:ctg9424.1.142525.163825
lcl|pep.Genscan:ctg9424.1.104888.111879

OLF

lcl|pep.Genscan:NA4387.1.7756.8574
lcl|pep.Genscan:NA4387.1.2863.7339
lcl|pep.Genscan:ctg30275.1.150132.157738
lcl|pep.Genscan:ctg12310.1.113871.132469
lcl|pep.Genscan:ctg26.5.69643.97825
lcl|pep.Genscan:ctg10361.1.248862.249600
lcl|pep.Genscan:ctg10361.2.61516.65845
lcl|pep.Genscan:ctg10361.2.48862.49668
lcl|pep.Genscan:ctg26.6.8597.9544
lcl|pep.Genscan:ctg26.5.208597.209544
lcl|pep.Genscan:NA15667.1.21572.22283
lcl|pep.Genscan:ctg26.5.168575.169552
lcl|pep.Genscan:ctg30275.1.94787.119676
lcl|pep.Genscan:ctg10361.2.54759.55697
lcl|pep.Genscan:ctg13462.1.18362.68428
lcl|pep.Genscan:NA4463.1.3582.4565
lcl|pep.Genscan:ctg26.5.49782.54156
lcl|pep.Genscan:ctg10611.1.87684.176824
lcl|pep.Genscan:ctg10361.1.244343.245281
lcl|pep.Genscan:ctg10361.2.44343.45281
lcl|pep.Genscan:NA3274.1.24741.28472
lcl|pep.Genscan:ctg26.5.116066.165616
lcl|pep.Genscan:ctg10534.1.100615.101577
lcl|pep.Genscan:ctg12183.1.83578.84501
lcl|pep.Genscan:ctg26293.2.13158.223104
lcl|pep.Genscan:ctg10947.1.4000.8931
lcl|pep.Genscan:ctg10083.2.220303.221283
lcl|pep.Genscan:ctg10083.3.20303.21283
lcl|pep.Genscan:ctg12183.2.122283.123230
lcl|pep.Genscan:ctg13462.1.72791.73690
lcl|pep.Genscan:ctg12183.1.98190.99110

OPN

lcl|pep.Genscan:ctg11194.1.39733.82277
lcl|pep.Genscan:ctg10135.1.110809.137252
lcl|pep.Genscan:ctg26810.1.17803.28686
lcl|pep.Genscan:ctg9573.1.116115.189125
lcl|pep.Genscan:ctg26810.1.16066.17076
lcl|pep.Genscan:ctg9473.1.49775.51692
lcl|pep.Genscan:ctg9650.1.112520.193049
lcl|pep.Genscan:ctg12644.1.23064.52034
lcl|pep.Genscan:NA2098.1.4136.49385
lcl|pep.Genscan:NA13684.1.33458.56919
lcl|pep.Genscan:ctg13710.1.17241.30831
lcl|pep.Genscan:NA1955.1.82286.101867
lcl|pep.Genscan:ctg26436.1.126937.255730
lcl|pep.Genscan:ctg10666.1.14244.50768
lcl|pep.Genscan:ctg25765.1.68238.144822
lcl|pep.Genscan:NA16527.1.37745.54501
lcl|pep.Genscan:ctg26015.3.116269.117752
lcl|pep.Genscan:ctg25459.8.75489.93102
lcl|pep.Genscan:ctg9684.9.38232.42936
lcl|pep.Genscan:ctg9684.8.238232.242767
lcl|pep.Genscan:ctg26768.2.132916.134109
lcl|pep.Genscan:ctg26768.2.54004.56532
lcl|pep.Genscan:ctg26768.2.59208.60638
lcl|pep.Genscan:ctg26768.2.49968.51576
lcl|pep.Genscan:ctg30047.1.159439.161095
lcl|pep.Genscan:NA14414.1.16201.17265
lcl|pep.Genscan:ctg21117.1.45043.104387
lcl|pep.Genscan:ctg12457.1.122914.152951
lcl|pep.Genscan:ctg11056.1.63222.142555
lcl|pep.Genscan:ctg30270.1.5101.8359
lcl|pep.Genscan:ctg9485.1.112488.128129

PEPTIDE

lcl|pep.Genscan:ctg15412.1.44691.66122
lcl|pep.Genscan:ctg10033.3.59105.93877
lcl|pep.Genscan:ctg10041.1.156891.158233
lcl|pep.Genscan:NA17350.1.1987.48568
lcl|pep.Genscan:ctg14500.1.27372.123399
lcl|pep.Genscan:ctg10238.1.143312.172222
lcl|pep.Genscan:ctg11726.1.47827.97899
lcl|pep.Genscan:ctg12940.2.182139.192152
lcl|pep.Genscan:ctg26402.1.182265.241786
lcl|pep.Genscan:NA10075.1.7959.23081
lcl|pep.Genscan:ctg11362.1.27458.28300
lcl|pep.Genscan:NA4303.1.30.581
lcl|pep.Genscan:ctg24876.2.100374.101018
lcl|pep.Genscan:ctg24921.1.69040.154367
lcl|pep.Genscan:ctg10784.1.133033.139208
lcl|pep.Genscan:ctg10784.1.139531.164631
lcl|pep.Genscan:ctg11371.1.50564.72327
lcl|pep.Genscan:ctg9355.1.8964.12996
lcl|pep.Genscan:ctg10033.1.181400.188195
lcl|pep.Genscan:ctg26800.1.65788.81730
lcl|pep.Genscan:ctg25249.6.119601.133616
lcl|pep.Genscan:ctg30028.3.187963.192265
lcl|pep.Genscan:ctg30028.4.27872.41381
lcl|pep.Genscan:ctg24086.7.128594.216104
lcl|pep.Genscan:ctg24086.8.5434.16104
lcl|pep.Genscan:ctg25777.2.101565.164382
lcl|pep.Genscan:ctg9913.1.20080.104341
lcl|pep.Genscan:NA9343.1.56703.62790
lcl|pep.Genscan:ctg30010.2.120113.121432
lcl|pep.Genscan:ctg12062.1.135370.142064
lcl|pep.Genscan:ctg15346.1.3291.20406
lcl|pep.Genscan:ctg12773.5.204280.205569
lcl|pep.Genscan:ctg12773.6.4280.5569
lcl|pep.Genscan:ctg25075.1.145813.191322
lcl|pep.Genscan:ctg10308.1.54163.129695
lcl|pep.Genscan:ctg25426.2.29396.64697
lcl|pep.Genscan:ctg12023.1.174728.193778
lcl|pep.Genscan:ctg16068.1.38209.77814
lcl|pep.Genscan:ctg10029.2.59548.84803
lcl|pep.Genscan:ctg20579.1.113155.159884
lcl|pep.Genscan:ctg30001.1.229511.242205
lcl|pep.Genscan:ctg30001.2.29511.42205
lcl|pep.Genscan:ctg11693.1.4852.108595
lcl|pep.Genscan:ctg12330.1.232531.233670
lcl|pep.Genscan:ctg12330.2.44811.45950
lcl|pep.Genscan:NA17295.1.35419.37855
lcl|pep.Genscan:ctg9836.1.65854.99415
lcl|pep.Genscan:ctg10459.1.60521.135058
lcl|pep.Genscan:ctg11431.1.19054.93244
lcl|pep.Genscan:ctg15465.2.139063.183815
lcl|pep.Genscan:ctg15276.3.148162.149177
lcl|pep.Genscan:ctg14036.4.143603.170025
lcl|pep.Genscan:ctg20605.1.85390.96250
lcl|pep.Genscan:ctg11796.2.154258.161891
lcl|pep.Genscan:ctg15562.1.17507.36459
lcl|pep.Genscan:ctg10536.1.206088.206774
lcl|pep.Genscan:ctg10536.1.206088.206774
lcl|pep.Genscan:ctg10536.2.6054.6774
lcl|pep.Genscan:ctg24346.1.231683.232880
lcl|pep.Genscan:ctg10170.1.203072.219574
lcl|pep.Genscan:ctg10170.2.19982.36484
lcl|pep.Genscan:ctg11007.1.59876.65000
lcl|pep.Genscan:ctg24346.2.37805.96639
lcl|pep.Genscan:ctg10673.2.179987.197854
lcl|pep.Genscan:NA17425.1.28673.36790
lcl|pep.Genscan:NA5489.1.35426.39767
lcl|pep.Genscan:ctg10717.1.231384.234348

PTGER

lcl|pep.Genscan:ctg12032.1.79243.89708
lcl|pep.Genscan:NA67721.1.284.1057
lcl|pep.Genscan:ctg10613.1.91111.129892
lcl|pep.Genscan:ctg9970.2.217301.240223
lcl|pep.Genscan:ctg9970.3.17301.40223
lcl|pep.Genscan:ctg10152.2.242534.246987
lcl|pep.Genscan:ctg10152.3.42534.46987
lcl|pep.Genscan:ctg9912.2.145786.148661
lcl|pep.Genscan:ctg9967.1.125551.150815
lcl|pep.Genscan:ctg30094.1.48166.85653
lcl|pep.Genscan:ctg10689.2.7470.83827
lcl|pep.Genscan:ctg10689.1.187876.247073
lcl|pep.Genscan:ctg10666.1.118079.119194
lcl|pep.Genscan:ctg24012.1.27165.79243
lcl|pep.Genscan:ctg12162.1.40979.59497
lcl|pep.Genscan:ctg12778.1.29725.39446
lcl|pep.Genscan:ctg9698.2.236114.240936
lcl|pep.Genscan:ctg9698.3.36114.40936
lcl|pep.Genscan:ctg10326.1.141124.142437
lcl|pep.Genscan:ctg15465.3.228124.229389
lcl|pep.Genscan:ctg15465.4.28124.29389
lcl|pep.Genscan:ctg9812.3.177450.178835

Purin

lcl|pep.Genscan:ctg30197.1.45461.46492
lcl|pep.Genscan:ctg11219.1.2674.3846
lcl|pep.Genscan:ctg11051.1.5533.57271
lcl|pep.Genscan:ctg13452.1.24801.50884
lcl|pep.Genscan:NA18661.1.5808.6794
lcl|pep.Genscan:ctg26770.2.161860.165749
lcl|pep.Genscan:ctg25874.2.218337.221959
lcl|pep.Genscan:ctg9339.2.190581.191612
lcl|pep.Genscan:ctg30034.1.76172.77272
lcl|pep.Genscan:ctg9339.2.149133.151929
lcl|pep.Genscan:ctg12587.1.6720.7691
lcl|pep.Genscan:ctg11160.1.181766.182683
lcl|pep.Genscan:ctg11613.2.90359.109468
lcl|pep.Genscan:ctg30054.1.1175.44149
lcl|pep.Genscan:ctg30054.1.93725.94741
lcl|pep.Genscan:ctg30054.1.101714.148624
lcl|pep.Genscan:ctg10241.1.79155.80975
lcl|pep.Genscan:ctg24784.1.73418.74368
lcl|pep.Genscan:ctg30089.2.232432.235714
lcl|pep.Genscan:ctg9.6.71054.72082
lcl|pep.Genscan:ctg30054.1.64769.88885
lcl|pep.Genscan:ctg10985.1.103501.104304
lcl|pep.Genscan:ctg10019.1.151993.206578
lcl|pep.Genscan:NA4550.1.1865.4096
lcl|pep.Genscan:ctg13671.1.24192.31287
lcl|pep.Genscan:ctg9404.3.117273.121318
lcl|pep.Genscan:ctg13054.1.96722.99239
lcl|pep.Genscan:ctg11858.1.103220.173281
lcl|pep.Genscan:ctg26923.1.69486.90455
lcl|pep.Genscan:ctg12118.1.26556.60595
lcl|pep.Genscan:ctg10019.14.79589.82640
lcl|pep.Genscan:ctg25874.2.226379.227458
lcl|pep.Genscan:ctg12118.1.91365.131206
lcl|pep.Genscan:ctg12118.1.139266.140183
lcl|pep.Genscan:NA4144.1.6037.6528
lcl|pep.Genscan:ctg25104.1.56734.108122
lcl|pep.Genscan:ctg9339.2.133505.134464
lcl|pep.Genscan:NA14967.1.21066.22037
lcl|pep.Genscan:NA10306.1.2190.5081
lcl|pep.Genscan:NA5112.1.17332.23796
lcl|pep.Genscan:ctg10928.2.137094.138101
lcl|pep.Genscan:NA17470.1.15457.16551
lcl|pep.Genscan:ctg11503.1.67075.81926
lcl|pep.Genscan:ctg15810.1.157761.167032
lcl|pep.Genscan:ctg11633.2.57257.130856
lcl|pep.Genscan:ctg9942.1.18749.35545
lcl|pep.Genscan:ctg10025.3.103405.113094
lcl|pep.Genscan:NA49053.1.432.1052
lcl|pep.Genscan:ctg10221.1.141828.179975
lcl|pep.Genscan:NA6900.1.12686.13715
lcl|pep.Genscan:ctg11503.1.31149.37420
lcl|pep.Genscan:NA45655.1.107.1090
lcl|pep.Genscan:ctg12118.1.17450.18400
lcl|pep.Genscan:ctg10728.1.163282.164244
lcl|pep.Genscan:ctg25764.2.39533.40273
lcl|pep.Genscan:ctg19445.1.10524.16429
lcl|pep.Genscan:NA3919.1.48652.49638
lcl|pep.Genscan:ctg26292.3.230871.231908
lcl|pep.Genscan:ctg26292.4.30871.31908
lcl|pep.Genscan:ctg9404.3.138072.139109
lcl|pep.Genscan:ctg10422.1.79045.113524
lcl|pep.Genscan:ctg11493.1.54653.75133
lcl|pep.Genscan:NA24656.1.1132.2216
lcl|pep.Genscan:ctg13054.1.118142.155575
lcl|pep.Genscan:NA15897.1.6648.7562
lcl|pep.Genscan:ctg14823.1.29954.30943
lcl|pep.Genscan:ctg14823.1.7074.8045
lcl|pep.Genscan:ctg10562.1.266135.281319
lcl|pep.Genscan:ctg14823.1.29068.29576
lcl|pep.Genscan:ctg17.1.114251.115351
lcl|pep.Genscan:ctg10961.1.151087.153591
lcl|pep.Genscan:ctg13452.1.59912.60868
lcl|pep.Genscan:ctg10302.2.111324.112316
lcl|pep.Genscan:NA7888.1.60337.88758
lcl|pep.Genscan:ctg10447.1.131852.159952
lcl|pep.Genscan:NA9046.1.34692.35645
lcl|pep.Genscan:ctg9756.1.32363.56899
lcl|pep.Genscan:ctg11571.1.163687.164652
lcl|pep.Genscan:ctg9804.1.107325.133123

SOG

lcl|pep.Genscan:NA4356.1.3785.6683
lcl|pep.Genscan:ctg9487.3.153230.191637
lcl|pep.Genscan:NA4066.1.6132.25801
lcl|pep.Genscan:ctg13236.2.167031.171061
lcl|pep.Genscan:ctg12201.6.108350.202219
lcl|pep.Genscan:ctg9945.2.120446.121426
lcl|pep.Genscan:NA2621.1.9334.10353
lcl|pep.Genscan:NA15731.1.3335.3864
lcl|pep.Genscan:ctg9465.1.22903.108027
lcl|pep.Genscan:ctg9763.1.17593.27548
lcl|pep.Genscan:ctg24807.1.51878.73962
lcl|pep.Genscan:ctg11764.1.51342.53251
lcl|pep.Genscan:ctg9945.2.106995.113904
lcl|pep.Genscan:ctg15060.1.5232.32246
lcl|pep.Genscan:ctg10579.1.236120.237196
lcl|pep.Genscan:ctg13567.3.74987.76087
lcl|pep.Genscan:ctg15460.1.28501.46294
lcl|pep.Genscan:ctg11007.1.111745.158074
lcl|pep.Genscan:ctg9406.2.101874.174702
lcl|pep.Genscan:NA17534.1.25726.26763
lcl|pep.Genscan:NA13948.1.2490.3614
lcl|pep.Genscan:NA17534.1.54413.55552
lcl|pep.Genscan:ctg30069.3.91873.93315
lcl|pep.Genscan:ctg25457.1.56262.57551
lcl|pep.Genscan:ctg10514.2.164058.164822
lcl|pep.Genscan:NA3695.1.1164.2186
lcl|pep.Genscan:ctg606.1.213946.215016
lcl|pep.Genscan:ctg14180.1.3458.205504
lcl|pep.Genscan:ctg26239.1.157128.158225
lcl|pep.Genscan:ctg30033.1.16230.48979
lcl|pep.Genscan:ctg20760.1.15580.42330
lcl|pep.Genscan:ctg22363.1.23661.85396

lcl|pep.Genscan:ctg30335.1.52139.53236

Supplementary Table 3d

Unclassified	Amin	CHEMO	LGR	MEC	MTN	OLF	OPN	PEPTIDE
lcl|scaffold_905.32709.34334	lcl|scaffold_3083.4123.15846	lcl|scaffold_2272.17036.17965	lcl|scaffold_54.136055.166191	lcl|scaffold_5982.2402.3713	lcl|scaffold_476.54523.72972	lcl|scaffold_142.98531.100366	lcl|scaffold_815.12492.18456	lcl|scaffold_323.34584.37544
lcl|scaffold_218.57828.58886	lcl|scaffold_3260.853.6668	lcl|scaffold_63.186848.187939	lcl|scaffold_49.124516.131471	lcl|scaffold_95.274256.276541	lcl|scaffold_7045.942.1711	lcl|scaffold_3905.7962.12144	lcl|scaffold_5.496111.503530	lcl|scaffold_460.32958.56409
lcl|scaffold_291.206085.207415	lcl|scaffold_58.83165.84697	lcl|scaffold_1395.12194.18226	lcl|scaffold_516.20964.33280	lcl|scaffold_2770.888.4754	lcl|scaffold_34.376298.391205	lcl|scaffold_7573.17.1841	lcl|scaffold_465.559.4205	lcl|scaffold_1131.7455.22109
lcl|scaffold_522.86284.87336	lcl|scaffold_784.18160.24737	lcl|scaffold_96.200715.201785		lcl|scaffold_2922.4199.13880		lcl|scaffold_119.137360.138322	lcl|scaffold_5.491152.493240	lcl|scaffold_52.325772.331304
lcl|scaffold_1924.35346.36428	lcl|scaffold_2503.2465.20067	lcl|scaffold_177.28190.53315		lcl|scaffold_299.98476.99852		lcl|scaffold_142.101784.113254	lcl|scaffold_2010.16806.27309	lcl|scaffold_68.318285.337733
lcl|scaffold_5322.1539.5675	lcl|scaffold_5764.4272.5552	lcl|scaffold_169.133261.134361		lcl|scaffold_511.109082.110233		lcl|scaffold_142.120730.121689	lcl|scaffold_102.102891.104426	lcl|scaffold_3299.659.8293
lcl|scaffold_3323.7815.9919	lcl|scaffold_1045.76221.85362	lcl|scaffold_169.118943.129472		lcl|scaffold_180.255340.256242		lcl|scaffold_142.118748.119713	lcl|scaffold_68.108048.135005	lcl|scaffold_2384.6207.11456
lcl|scaffold_767.98269.99516	lcl|scaffold_143.159277.163617	lcl|scaffold_470.31632.33180		lcl|scaffold_146.114331.115356		lcl|scaffold_5287.104.772	lcl|scaffold_986.5824.11841	lcl|scaffold_135.212423.215610
lcl|scaffold_7.505324.506460	lcl|scaffold_501.117650.149825	lcl|scaffold_470.34653.36386		lcl|scaffold_256.104560.105552		lcl|scaffold_4563.5006.5959	lcl|scaffold_207.49201.62186	lcl|scaffold_697.38378.39957
lcl|scaffold_2471.275.21120	lcl|scaffold_234.190897.192480	lcl|scaffold_2745.6404.17086		lcl|scaffold_44.66013.91123		lcl|scaffold_1026.80121.80816	lcl|scaffold_176.215423.227911	lcl|scaffold_167.156078.188636
lcl|scaffold_385.74996.88850	lcl|scaffold_6660.86.2467	lcl|scaffold_1015.1544.11099		lcl|scaffold_1144.54122.60617		lcl|scaffold_155.51076.52041	lcl|scaffold_405.15398.21665	lcl|scaffold_1066.20035.21868
lcl|scaffold_126.189405.190433	lcl|scaffold_2360.23276.24613	lcl|scaffold_458.24173.25210				lcl|scaffold_6269.1619.2590	lcl|scaffold_2762.5002.6393	lcl|scaffold_1371.16841.19704
lcl|scaffold_563.59981.64264	lcl|scaffold_456.97250.102152	lcl|scaffold_322.117956.121301				lcl|scaffold_7743.39.965	lcl|scaffold_128.245081.248002	lcl|scaffold_2468.4003.8134
lcl|scaffold_26.228718.251712	lcl|scaffold_5846.427.5392	lcl|scaffold_2815.2264.7641				lcl|scaffold_4429.4755.5705	lcl|scaffold_2650.9002.10441	lcl|scaffold_1887.28308.38136
lcl|scaffold_157.185955.187025	lcl|scaffold_333.15136.16527	lcl|scaffold_710.106139.109777				lcl|scaffold_4479.6570.7541	lcl|scaffold_200.126775.129223	lcl|scaffold_1167.20651.28983
lcl|scaffold_1041.47500.63459	lcl|scaffold_4262.1937.9584	lcl|scaffold_4.668320.678469				lcl|scaffold_18.100394.101347	lcl|scaffold_6054.1315.2463	lcl|scaffold_4120.1466.5525
lcl|scaffold_92.247412.248626	lcl|scaffold_566.105680.107239	lcl|scaffold_98.39840.40970				lcl|scaffold_6818.953.1738	lcl|scaffold_25.372579.378555	lcl|scaffold_352.30346.32221
lcl|scaffold_3906.1500.5481	lcl|scaffold_444.79644.82581	lcl|scaffold_98.44573.47700				lcl|scaffold_2346.10262.15595	lcl|scaffold_1348.10841.17294	lcl|scaffold_5862.1103.5043
lcl|scaffold_160.40187.41464	lcl|scaffold_632.102995.106132	lcl|scaffold_401.175281.178212				lcl|scaffold_4479.62.3901	lcl|scaffold_998.485.16450	lcl|scaffold_467.103765.112426
lcl|scaffold_1221.67075.68757	lcl|scaffold_4655.7353.8603	lcl|scaffold_601.250.4995				lcl|scaffold_1026.69937.75591	lcl|scaffold_260.202015.217947	lcl|scaffold_134.113580.150508
lcl|scaffold_240.80045.89550	lcl|scaffold_48.231832.233103	lcl|scaffold_1197.24379.31655					lcl|scaffold_271.45530.52438	lcl|scaffold_403.51691.62826
lcl|scaffold_457.128783.138394	lcl|scaffold_299.155508.156659	lcl|scaffold_243.166760.167986						lcl|scaffold_104.244099.246829
lcl|scaffold_844.59831.60673	lcl|scaffold_1414.35660.36850	lcl|scaffold_711.9940.14212						lcl|scaffold_155.120379.121242
lcl|scaffold_844.98737.99558	lcl|scaffold_733.103757.117043							lcl|scaffold_572.71094.72449
lcl|scaffold_328.4718.5593	lcl|scaffold_972.66036.69193							lcl|scaffold_224.201938.203987
lcl|scaffold_1093.6.2264	lcl|scaffold_3058.6866.16357							lcl|scaffold_2798.877.18766
lcl|scaffold_37.31834.43667	lcl|scaffold_6783.393.1167							lcl|scaffold_134.11898.14998
lcl|scaffold_7903.3039.3865	lcl|scaffold_1210.2059.6205							lcl|scaffold_254.43323.46396
lcl|scaffold_6031.3463.4596								lcl|scaffold_335.27744.40910
lcl|scaffold_1187.17311.71735								lcl|scaffold_238.12958.14619
lcl|scaffold_26.221960.225708								lcl|scaffold_539.48258.51501
lcl|scaffold_3546.5539.7508								lcl|scaffold_37.341946.347460
lcl|scaffold_1131.57799.58713								
lcl|scaffold_710.100107.102969								
lcl|scaffold_92.11175.12207								

PTGER

lcl|scaffold_18.374552.376796
lcl|scaffold_50.84406.89649
lcl|scaffold_1572.6089.7558
lcl|scaffold_951.86682.87968
lcl|scaffold_343.94499.109850
lcl|scaffold_263.151842.154008
lcl|scaffold_463.50830.52312
lcl|scaffold_204.4435.6490
lcl|scaffold_109.44301.50030
lcl|scaffold_1949.1173.3306
lcl|scaffold_265.194297.195412
lcl|scaffold_2255.14090.17405
lcl|scaffold_715.37817.43256

Purin

lcl|scaffold_593.6.698
lcl|scaffold_2168.6773.8472
lcl|scaffold_884.20177.27857
lcl|scaffold_5359.5335.7500
lcl|scaffold_1204.16350.17909
lcl|scaffold_239.125398.138533
lcl|scaffold_193.163922.164875
lcl|scaffold_1642.6125.7261
lcl|scaffold_100.112582.113583
lcl|scaffold_593.4943.5947
lcl|scaffold_1688.2854.32664
lcl|scaffold_4368.57.10499
lcl|scaffold_169.136279.138535
lcl|scaffold_239.64420.79248
lcl|scaffold_193.161071.162205
lcl|scaffold_239.122027.122845
lcl|scaffold_1161.55218.64349
lcl|scaffold_119.194247.195235
lcl|scaffold_1393.41549.44355
lcl|scaffold_1026.17580.19510
lcl|scaffold_2150.57.992
lcl|scaffold_2900.989.14286
lcl|scaffold_1993.11106.25106
lcl|scaffold_119.190635.191711
lcl|scaffold_1393.36845.38080
lcl|scaffold_1266.52828.54009

SOG

lcl|scaffold_3097.16211.18657
lcl|scaffold_435.149000.153922
lcl|scaffold_544.38299.39618
lcl|scaffold_339.77202.79642
lcl|scaffold_93.156195.157223
lcl|scaffold_301.134606.135435
lcl|scaffold_101.241360.259580
lcl|scaffold_2051.30766.31251
lcl|scaffold_643.17436.25071

Supplementary Table 3e

<table>
<tr><th>Unclassified</th><th>Amin</th><th>CHEMO</th><th>LGR</th><th>MEC</th><th>MTN</th><th>OPN</th><th>PEPTIDE</th><th>PTGER</th><th>SOG</th></tr>
<tr><td>lcl|ci0100131416</td><td>lcl|ci0100132133</td><td>lcl|ci0100143923</td><td>lcl|ci0100133821</td><td>lcl|ci0100145160</td><td>lcl|ci0100131681</td><td>lcl|ci0100132620</td><td>lcl|ci0100139176</td><td>lcl|ci0100147407</td><td>lcl|ci0100133550</td></tr>
<tr><td>lcl|ci0100130034</td><td>lcl|ci0100144205</td><td>lcl|ci0100130858</td><td>lcl|ci0100151424</td><td>lcl|ci0100148112</td><td>lcl|ci0100136041</td><td>lcl|ci0100143990</td><td>lcl|ci0100147669</td><td>lcl|ci0100153844</td><td>lcl|ci0100130986</td></tr>
<tr><td>lcl|ci0100144205</td><td>lcl|ci0100130090</td><td>lcl|ci0100142526</td><td>lcl|ci0100146152</td><td>lcl|ci0100138509</td><td>lcl|ci0100132083</td><td>lcl|ci0100148961</td><td>lcl|ci0100144874</td><td></td><td>lcl|ci0100130259</td></tr>
<tr><td>lcl|ci0100130090</td><td>lcl|ci0100146328</td><td>lcl|ci0100130111</td><td>lcl|ci0100150268</td><td>lcl|ci0100147526</td><td>lcl|ci0100153785</td><td>lcl|ci0100131351</td><td>lcl|ci0100139179</td><td></td><td>lcl|ci0100150840</td></tr>
<tr><td>lcl|ci0100130445</td><td>lcl|ci0100130320</td><td>lcl|ci0100133186</td><td>lcl|ci0100141514</td><td>lcl|ci0100154135</td><td></td><td></td><td>lcl|ci0100153613</td><td></td><td>lcl|ci0100140366</td></tr>
<tr><td>lcl|ci0100151346</td><td>lcl|ci0100137803</td><td>lcl|ci0100143362</td><td>lcl|ci0100139291</td><td>lcl|ci0100137752</td><td></td><td></td><td>lcl|ci0100147236</td><td></td><td>lcl|ci0100150689</td></tr>
<tr><td>lcl|ci0100142144</td><td>lcl|ci0100134273</td><td>lcl|ci0100143330</td><td>lcl|ci0100143219</td><td>lcl|ci0100131828</td><td></td><td></td><td>lcl|ci0100143040</td><td></td><td>lcl|ci0100136241</td></tr>
<tr><td>lcl|ci0100146152</td><td>lcl|ci0100151600</td><td></td><td>lcl|ci0100153810</td><td>lcl|ci0100131120</td><td></td><td></td><td>lcl|ci0100153146</td><td></td><td>lcl|ci0100153327</td></tr>
<tr><td>lcl|ci0100137752</td><td>lcl|ci0100137389</td><td></td><td>lcl|ci0100134424</td><td>lcl|ci0100148350</td><td></td><td></td><td>lcl|ci0100152622</td><td></td><td>lcl|ci0100143261</td></tr>
<tr><td>lcl|ci0100131120</td><td>lcl|ci0100137823</td><td></td><td>lcl|ci0100142069</td><td>lcl|ci0100149095</td><td></td><td></td><td>lcl|ci0100133065</td><td></td><td>lcl|ci0100143330</td></tr>
<tr><td>lcl|ci0100143146</td><td>lcl|ci0100138913</td><td></td><td>lcl|ci0100149830</td><td>lcl|ci0100138955</td><td></td><td></td><td>lcl|ci0100134571</td><td></td><td>lcl|ci0100146266</td></tr>
<tr><td>lcl|ci0100154142</td><td>lcl|ci0100130445</td><td></td><td>lcl|ci0100145358</td><td>lcl|ci0100145235</td><td></td><td></td><td>lcl|ci0100143568</td><td></td><td>lcl|ci0100131140</td></tr>
<tr><td>lcl|ci0100135081</td><td>lcl|ci0100146763</td><td></td><td>lcl|ci0100150116</td><td>lcl|ci0100141764</td><td></td><td></td><td>lcl|ci0100142337</td><td></td><td>lcl|ci0100141702</td></tr>
<tr><td>lcl|ci0100154445</td><td>lcl|ci0100154093</td><td></td><td>lcl|ci0100148475</td><td>lcl|ci0100130574</td><td></td><td></td><td>lcl|ci0100143093</td><td></td><td>lcl|ci0100145437</td></tr>
<tr><td>lcl|ci0100134756</td><td>lcl|ci0100151346</td><td></td><td>lcl|ci0100141745</td><td>lcl|ci0100143300</td><td></td><td></td><td>lcl|ci0100141751</td><td></td><td>lcl|ci0100133606</td></tr>
<tr><td>lcl|ci0100135689</td><td>lcl|ci0100142144</td><td></td><td>lcl|ci0100151225</td><td>lcl|ci0100136887</td><td></td><td></td><td>lcl|ci0100149471</td><td></td><td>lcl|ci0100144360</td></tr>
<tr><td>lcl|ci0100148961</td><td>lcl|ci0100137935</td><td></td><td>lcl|ci0100144368</td><td>lcl|ci0100132478</td><td></td><td></td><td></td><td></td><td>lcl|ci0100143057</td></tr>
<tr><td>lcl|ci0100152581</td><td>lcl|ci0100144199</td><td></td><td>lcl|ci0100148400</td><td></td><td></td><td></td><td></td><td></td><td>lcl|ci0100141602</td></tr>
<tr><td>lcl|ci0100147669</td><td>lcl|ci0100141384</td><td></td><td>lcl|ci0100144713</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>lcl|ci0100147236</td><td>lcl|ci0100131137</td><td></td><td>lcl|ci0100130612</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>lcl|ci0100153326</td><td>lcl|ci0100134145</td><td></td><td>lcl|ci0100137355</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>lcl|ci0100146193</td><td>lcl|ci0100140881</td><td></td><td>lcl|ci0100148454</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>lcl|ci0100152713</td><td>lcl|ci0100131826</td><td></td><td>lcl|ci0100153351</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>lcl|ci0100154564</td><td></td><td></td><td>lcl|ci0100144925</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>lcl|ci0100130259</td><td></td><td></td><td>lcl|ci0100132380</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>lcl|ci0100136241</td><td></td><td></td><td>lcl|ci0100131758</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100142353</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100147271</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100149551</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100154507</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100154530</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100143701</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100142029</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100141547</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100148288</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>lcl|ci0100147431</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Supplementary Table 3d

Unclassified

gi|7301453|gb|AAF56578.1| CG12290
gi|7293436|gb|AAF48812.1| CG5936
gi|7290247|gb|AAF45709.1| EG:22E5.11
gi|7300726|gb|AAF55872.1| CG5911
gi|10727189|gb|AAF47323.2| CG13406
gi|7291031|gb|AAF46469.1| CG12121
gi|7293961|gb|AAF49320.1| CG7497
gi|7291767|gb|AAF47188.1| CG13575
gi|7291961|gb|AAF47377.1| CG17084
gi|7302858|gb|AAF57931.1| CG15614
gi|7290528|gb|AAF45980.1| CG6986
gi|7294899|gb|AAF50229.1| CG16726
gi|7292225|gb|AAF47635.1| CG8985
gi|7292223|gb|AAF47633.1| CG13803
gi|10728449|gb|AAG22404.1|
gi|7293896|gb|AAF49260.1| CG13702
gi|7293895|gb|AAF49259.1| CG7285

Amin

gi|7290762|gb|AAF46208.1| CG12796
gi|7300302|gb|AAF55463.1| CG7431
gi|7300647|gb|AAF55796.1| Oamb
gi|7300648|gb|AAF55797.1| Oamb gene
gi|10726848|gb|AAF56908.2| CG18741
gi|7300441|gb|AAF55598.1| CG18208
gi|7296517|gb|AAF51802.1| TyrR
gi|7299650|gb|AAF54834.1| CG6989
gi|7300871|gb|AAF56012.1| CG6919
gi|10726374|gb|AAF54188.2| CG7918
gi|7291777|gb|AAF47197.1| mAcR-60C
gi|7300301|gb|AAF55462.1| CG16766
gi|7289287|gb|AAF45375.1| CG17004
gi|7302527|gb|AAF57610.1| 5-HT1B
gi|7302520|gb|AAF57603.1| 5-HT1A
gi|7291790|gb|AAF47210.1| CG13579
gi|7299053|gb|AAF54254.1| CG7994
gi|10726392|gb|AAF54255.2| CG8007
gi|7296837|gb|AAF52113.1| 5-HT2
gi|7299647|gb|AAF54831.1| CG7078
gi|7302000|gb|AAF57104.1| 5-HT7

LGR

gi|7292844|gb|AAF48237.1| CG4187
gi|7301363|gb|AAF56490.1| CG5042
gi|10728777|gb|AAF53367.2| rk
gi|7300299|gb|AAF55460.1| Fsh

MEC

gi|10726863|gb|AAF57012.2| CG9753

MTN

gi|7290248|gb|AAF45710.1| EG:22E5.10
gi|7290610|gb|AAF46059.1| Tre

OPN

gi|7292490|gb|AAF47893.1| CG18314
gi|7300031|gb|AAF55202.1| Rh6
gi|10726639|gb|AAG22157.1| Rh3
gi|7294610|gb|AAF49949.1| CG5638
gi|7297899|gb|AAF53145.1| Rh5
gi|7294045|gb|AAF49400.1| Rh4
gi|7300560|gb|AAF55712.1| ninaE
gi|7300445|gb|AAF55601.1| Rh2

PEPTIDE

gi|7301410|gb|AAF56536.1| CG6111
gi|7297064|gb|AAF52333.1| CG13995
gi|7293505|gb|AAF48879.1| CG6881
gi|7293500|gb|AAF48875.1| CG6857
gi|7297023|gb|AAF52293.1| CG14003
gi|7294588|gb|AAF49928.1| CG10698
gi|7297159|gb|AAF52426.1| GRHR
gi|10728149|gb|AAF57285.2| CG14593
gi|7302742|gb|AAF57820.1| CG18192
gi|7299839|gb|AAF55016.1| CG9918
gi|7299749|gb|AAF54930.1| CG8784
gi|7299748|gb|AAF54929.1| CG8795
gi|7300732|gb|AAF55878.1| CG10823
gi|7296628|gb|AAF51909.1| CG1147
gi|10727804|gb|AAF49074.2| CG7395
gi|7299352|gb|AAF54544.1| Takr86C
gi|7301534|gb|AAF56655.1| NepYr
gi|7295460|gb|AAF50775.1| CG10626
gi|7301870|gb|AAF56979.1| Takr99D
gi|7303666|gb|AAF58717.1| CG13229
gi|7292292|gb|AAF47700.1| CG2114

SOG

gi|7301695|gb|AAF56809.1| CG10001
gi|10728448|gb|AAF45884.2| AlstR
gi|10728449|gb|AAG22404.1| AlstR
gi|7293896|gb|AAF49260.1| CG13702
gi|7293895|gb|AAF49259.1| CG7285

Supplementary Table 3g

Unclassified	Amin	LGR	MEC	MTN	OPN
lcl|0010818321AAAB01008859AAAB01008859_2382R25576317	lcl|00015310001296AAAB01008847AAAB01008847_20X11817967	lcl|00066760005043AAAB01008964AAAB01008964_1123R9552552	lcl|00100520007563AAAB01008846AAAB01008846_181X6791096	lcl|00116560009167AAAB01008987AAAB01008987_4222R5680747	lcl|00216680019179AAAB01008960AAAB01008960_1902L18124
lcl|00029780002442AAAB01008859AAAB01008859_3432R22968001	lcl|00047310003695AAAB01008846AAAB01008846_423X696886	lcl|00183620015873AAAB01008987AAAB01008987_2172R10797178	lcl|00207420018253AAAB01008846AAAB01008846_139X7834243	lcl|00114770008988AAAB01008987AAAB01008987_4222R5668632	lcl|0001159998AAAB01008859AAAB01008859_4032R21458419
lcl|00110360008547AAAB01008944AAAB01008944_1423R15955416	lcl|00192540016765AAAB01008846AAAB01008846_9X11100586	lcl|00040490003215AAAB01008817AAAB01008817_102R50036512			lcl|00148460012357AAAB01008859AAAB01008859_4022R21477
lcl|00174100014921AAAB01008987AAAB01008987_3982R6265512	lcl|00205980018109AAAB01008933AAAB01008933_203L4092018				lcl|00121160009627AAAB01008987AAAB01008987_6222R66907
lcl|00249630014921AAAB01008987AAAB01008987_3982R6265512	lcl|343327AAAB01008897AAAB01008897_524715556 definition line				lcl|00192170016728AAAB01008980AAAB01008980_5063R49494
lcl|00222700019781AAAB01008948AAAB01008948_422L5603671	lcl|00040470003214AAAB01008817AAAB01008817_82R49964183				lcl|00107310008242AAAB01008807AAAB01008807_762L469108
lcl|00114830008994AAAB01008948AAAB01008948_1072L7244794	lcl|0003843066AAAB01008898AAAB01008898_1062R58279518				lcl|00219950019506AAAB01008859AAAB01008859_3892R21814
lcl|00208740018385AAAB01008987AAAB01008987_1882R11516580	lcl|00014440001231AAAB01008952AAAB01008952_262R60206736				lcl|00177080015219AAAB01008960AAAB01008960_5232L26445
	lcl|00048420003778AAAB01008966AAAB01008966_223L24312828				lcl|00120770009588AAAB01008987AAAB01008987_6222R66586
	lcl|00030150002474AAAB01008859AAAB01008859_3732R22204378				lcl|00230760020270AAAB01008987AAAB01008987_6222R67380
	lcl|00188390016350AAAB01008807AAAB01008807_2362L42888095				lcl|00119490009460AAAB01008987AAAB01008987_6222R67158
	lcl|00109940008505AAAB01008817AAAB01008817_82R49972037				lcl|00121310009642AAAB01008987AAAB01008987_6192R73604
	lcl|00129160010427AAAB01008880AAAB01008880_992R53860017				
	lcl|0006274772AAAB01008799AAAB01008799_482R17802760				
	lcl|00134610010972AAAB01008799AAAB01008799_462R17848581				
	lcl|00186620016173AAAB01008859AAAB01008859_1082R28844683				
	lcl|00188040016315AAAB01008859AAAB01008859_1092R28808262				
	lcl|00129080010419AAAB01008880AAAB01008880_1032R53949904				

PEPTIDE

lcl|00184090015920AAAB01008987AAAB01008987_1332R12906983
lcl|00184020015913AAAB01008987AAAB01008987_1332R12913824
lcl|00054030004159AAAB01008811AAAB01008811_94X19630208
lcl|00193620016873AAAB01008799AAAB01008799_972R16572531
lcl|00181650015676AAAB01008987AAAB01008987_4002R6215421
lcl|00116790009190AAAB01008987AAAB01008987_4132R5890401
lcl|00113010008812AAAB01008888AAAB01008888_702R42652175
lcl|00144810011992AAAB01008966AAAB01008966_353L24001145
lcl|00108710008382AAAB01008968AAAB01008968_222L2972326
lcl|00230700020639AAAB01008900AAAB01008900_1612L11980150
lcl|00032950002658AAAB01008879AAAB01008879_1152R34406219
lcl|00015260001292AAAB01008847AAAB01008847_17X11723906
lcl|00204100017921AAAB01008879AAAB01008879_282R32221803
lcl|00040930003249AAAB01008794AAAB01008794_72R34621479
lcl|00229420002658AAAB01008879AAAB01008879_1152R34406219
lcl|00174310014942AAAB01008987AAAB01008987_4872R4041609
lcl|00133590010870AAAB01008986AAAB01008986_1493L37561676
lcl|00152880012799AAAB01008986AAAB01008986_2613L34749314
lcl|00219410019452AAAB01008816AAAB01008816_1443L17417308
lcl|00204410017952AAAB01008880AAAB01008880_312R52146392
lcl|00118060009317AAAB01008986AAAB01008986_273L40629452
lcl|00145350012046AAAB01008904AAAB01008904_362R37339533
lcl|00161870013698AAAB01008859AAAB01008859_1412R28001678
lcl|00200100017521AAAB01008846AAAB01008846_378X1865162
lcl|00182010015712AAAB01008823AAAB01008823_1063L10950109
lcl|00155650013076AAAB01008846AAAB01008846_205X6187880
lcl|00181430015654AAAB01008987AAAB01008987_3882R6527327
lcl|00012690001088AAAB01008905AAAB01008905_362L3641780
lcl|00187080016219AAAB01008859AAAB01008859_1172R28618034

SOG

lcl|00196290017140AAAB01008888AAAB01008888_922R43175570
lcl|00180710015582AAAB01008795AAAB01008795_43L3329391
lcl|00090530006798AAAB01008986AAAB01008986_953L38926892

Supplementary Table 3h

Unclassified

gi|17566248|ref|NP_503405.1| Y75B7AL.1.p
gi|17553786|ref|NP_498999.1| possible G protein coupled
gi|17540944|ref|NP_502147.1| 7 transmembrane receptor
gi|17569797|ref|NP_509626.1| possible G protein coupled
gi|17509807|ref|NP_490992.1| Y23H5B.4.p
gi|17538428|ref|NP_500342.1| C04C3.6.p
gi|17532169|ref|NP_495241.1| C30B5.5.p
gi|17562626|ref|NP_506776.1| 7 transmembrane receptor
gi|17564728|ref|NP_506944.1| 7 transmembrane receptor
gi|17570603|ref|NP_509685.1| hormone receptor
gi|17534961|ref|NP_493779.1| K07E8.5.p
gi|17535601|ref|NP_494720.1| R11F4.2.p
gi|17535609|ref|NP_495204.1| thyrotropin-releasing hormone
gi|17551648|ref|NP_509866.1| G-protein coupled receptor
gi|17537225|ref|NP_496818.1| Y48C3A.11.p
gi|17543236|ref|NP_501174.1| Y40C5A.4.p
gi|17560622|ref|NP_505436.1| F36D4.4.p
gi|17550060|ref|NP_508147.1| C02H7.2.p
gi|17560716|ref|NP_505153.1| F38E1.8.p
gi|17556933|ref|NP_498545.1| ZK418.6.p
gi|17551744|ref|NP_498239.1| B0244.7.p
gi|17558314|ref|NP_506809.1| 7 transmembrane receptor
gi|17569195|ref|NP_510555.1| steroid hormone receptor
gi|17555304|ref|NP_497744.1| G-protein coupled receptor
gi|17541940|ref|NP_501055.1| R13H7.2.p
gi|17568295|ref|NP_510580.1| G-protein coupled receptor
gi|17550004|ref|NP_509541.1| B0563.6.p
gi|17543070|ref|NP_500401.1| Y37E11AL.1.p
gi|17541220|ref|NP_500093.1| K03H6.5.p
gi|17540778|ref|NP_501332.1| seven trans-membrane receptor
gi|17550622|ref|NP_509115.1| alpha adrenergic receptor
gi|17564438|ref|NP_504747.1| T19F4.1a.p
gi|17548212|ref|NP_508414.1| transmembrane domain of family 1
gi|17567665|ref|NP_510455.1| G-protein coupled receptor
gi|17543276|ref|NP_500135.1| Y41D4A.8.p
gi|17562246|ref|NP_505301.1| G-protein coupled receptor
gi|17562248|ref|NP_505300.1| transmemebrane protein
gi|17558266|ref|NP_505004.1| C26F1.6.p
gi|17560000|ref|NP_505360.1| F21C10.9.p
gi|17509597|ref|NP_493283.1| 7 transmembrane receptor
gi|17551206|ref|NP_509248.1| G-protein coupled receptors
gi|17550952|ref|NP_508965.1| G-protein coupled receptor
gi|17551646|ref|NP_509865.1| G-protein coupled receptor
gi|17559080|ref|NP_505101.1| D1014.2.p
gi|17564262|ref|NP_505903.1| G-protein coupled receptor
gi|17531423|ref|NP_494751.1| C01F1.4.p
gi|17556935|ref|NP_498546.1| ZK418.7.p
gi|17562462|ref|NP_506168.1| G-protein coupled receptor
gi|17532555|ref|NP_494987.1| C54A12.2.p
gi|17559008|ref|NP_506353.1| 7tm receptor
gi|17506669|ref|NP_492672.1| 7TM receptor
gi|17553872|ref|NP_497125.1| G-protein coupled receptor
gi|17541212|ref|NP_500092.1| K03H6.1.p
gi|17568131|ref|NP_510432.1| 7 transmembrane receptor
gi|17551742|ref|NP_498241.1| B0244.6.p
gi|17536095|ref|NP_495888.1| G-protein coupled receptor
gi|17563758|ref|NP_505883.1| G-protein coupled receptor
gi|17562622|ref|NP_506777.1| 7 transmembrane receptor
gi|17564730|ref|NP_506945.1| 7 transmembrane receptor
gi|17550512|ref|NP_509379.1| C17H11.1.p
gi|17561862|ref|NP_505724.1| 7 transmembrane receptor
gi|17544404|ref|NP_503056.1| 7 transmembrane receptor

Amin

gi|17567023|ref|NP_508760.1|g-protein coupled receptor
gi|17567023|ref|NP_508760.1|g-protein coupled receptor
gi|17506683|ref|NP_492273.1| 7 transmembrane receptor
gi|17508713|ref|NP_491954.1| seven trans-membrane receptor
gi|17553482|ref|NP_498383.1| F47D12.1.p
gi|17568377|ref|NP_509093.1| Muscarinic acetycholine receptor
gi|17565624|ref|NP_506608.1| muscarinic acetylcholine receptor
gi|17569809|ref|NP_509106.1|g-protein coupled receptor (family
gi|17562444|ref|NP_505478.1| dopamine receptor like
gi|17550602|ref|NP_508741.1|g-protein coupled receptor
gi|17551400|ref|NP_509184.1|g-protein coupled receptor
gi|17555606|ref|NP_497452.1| Y22D7AR.13.p
gi|17563762|ref|NP_505884.1|g-protein coupled receptor
gi|17569447|ref|NP_510684.1|g-protein coupled receptor, family
gi|17550264|ref|NP_508474.1|g-protein coupled receptor
gi|17568989|ref|NP_508839.1|g-protein coupled receptor
gi|17550596|ref|NP_508739.1|g-protein coupled receptor
gi|17551118|ref|NP_508238.1|g-protein coupled receptor
gi|17569449|ref|NP_510535.1| octopamine receptor
gi|17551692|ref|NP_508947.1|g-protein coupled receptor

LGR

gi|17558810|ref|NP_505548.1| steroid hormone receptor

MEC

gi|17536363|ref|NP 496667.1| adenosine A1 recepto

OPN

gi|17535863|ref|NP_495564.1|g-protein coupled receptor

PEPTIDE

gi|17544326|ref|NP_502887.1| Y105C5A.23.p
gi|17558004|ref|NP_506566.1|g-protein coupled receptor
gi|17551698|ref|NP_510477.1| 7 transmembrane receptor
gi|17508933|ref|NP_493193.1| conopressin receptor like
gi|17569983|ref|NP_510779.1|g-protein coupled receptor
gi|17537509|ref|NP_497057.1| 7 transmembrane receptor
gi|17555760|ref|NP_497491.1| 7 transmembrane receptor
gi|17509189|ref|NP_491918.1|g-protein coupled receptor
gi|17551438|ref|NP_508769.1|g-protein coupled receptor
gi|17561920|ref|NP_504228.1| H22D07.1.p
gi|17507589|ref|NP_491453.1| seven-transmemebrane receptor
gi|17535039|ref|NP_493666.1| seven trans-membrane receptor
gi|17551076|ref|NP_509515.1| family 1 ofg-protein coupled
gi|17542182|ref|NP_501701.1|g-protein coupled receptor
gi|17567483|ref|NP_509570.1|g-protein coupled receptor
gi|17539372|ref|NP_501270.1|g-protein coupled receptor
gi|17566044|ref|NP_503168.1| seven trans-membrane receptor
gi|17566676|ref|NP_506659.1|g-protein coupled receptor
gi|17567639|ref|NP_509725.1| neurokinin receptor like
gi|17542514|ref|NP_501071.1| seven transmembrane receptor
gi|17569121|ref|NP_508816.1|g-protein coupled receptor
gi|17550642|ref|NP_508234.1|g-protein coupled receptor (family
gi|17551140|ref|NP_510163.1| 7 transmembrane receptor
gi|17538650|ref|NP_502162.1|g-protein coupled receptor
gi|17550484|ref|NP_510101.1| 7 transmembrane receptor
gi|17567403|ref|NP_510612.1| 7 transmembrane receptor
gi|17555370|ref|NP_499064.1|g protein coupled receptor
gi|17539298|ref|NP_500930.1| seven trans-smembrane receptor
gi|17543832|ref|NP_501460.1| Y59H11AL.1.p
gi|17538176|ref|NP_500725.1|g-protein coupled receptor
gi|17505777|ref|NP_491990.1| seven trans-membrane receptor

SOG

gi|17556795|ref|NP_499038.1| probableg protein coupled
gi|17536107|ref|NP_495481.1| T07F8.2.p
gi|17568191|ref|NP_509416.1| F55E10.7.p
gi|17542148|ref|NP_503107.1| 7 transmembrane receptor
gi|17540388|ref|NP_501164.1|g protein-coupled receptor
gi|17570185|ref|NP_508606.1|g-protein coupled receptor
gi|17552076|ref|NP_498743.1|g-protein coupled receptor
gi|17569395|ref|NP_510833.1|g-protein coupled receptor
gi|17570665|ref|NP_509896.1|g-protein coupled receptor
gi|17550966|ref|NP_509629.1|g protein coupled receptor

Supplementary Table 4.

	H.sapiens	M.musculus	D.reiro	T.rubripes	C.intestinalis	D.melanogaster	A.gambiae	C.elegans	A.thaliana	O.sativa	S.cerevisiae	S.pombe
ADH/SEC	72/0/*	52/5/10	101/18/18	103/0/*	74/8/11	88/3/3	62/0/*	156/2/1	59/0/*	21/0/*	64/1/2	44/0/*
CAMP	4/0/*	1/0/*	9/0/*	8/0/*	22/0/*	27/0/*	19/0/*	22/0/*	11/0/*	3/0/*	36/0/*	17/1/6
DMODOR	0/0/*	0/0/*	0/0/*	0/0/*	0/0/*	25/7/28	33/12/36	7/0/*	5/0/*	10/0/*	6/0/*	0/0/*
FZD	3/0/*	0/0/*	1/0/*	10/0/*	10/0/*	1/0/*	6/0/*	8/0/*	5/0/*	4/0/*	11/0/*	10/1/10
GLR	21/2/10	13/10/77	18/2/11	30/0/*	83/1/1	68/0/*	44/1/2	108/0/*	74/0/*	17/0/*	49/0/*	61/2/3
MLO	0/0/*	0/0/*	1/0/*	0/0/*	4/0/*	2/0/*	3/0/*	8/0/*	1/0/*	0/0/*	6/0/*	3/0/*
NCHM	253/0/*	295/0/*	179/0/*	113/0/*	118/0/*	99/0/*	73/0/*	485/288/69	62/0/*	11/0/*	75/0/*	75/2/3
OA1	0/0/*	0/0/*	0/0/*	5/0/*	2/0/*	1/0/*	1/0/*	0/0/*	0/0/*	1/0/*	2/0/*	0/0/*
PHER	23/0/*	11/0/*	31/0/*	46/0/*	52/0/*	72/0/*	47/0/*	86/0/*	37/0/*	10/0/*	63/0/*	63/0/*
RHOD	275/43/16	236/155/66	187/43/*	176/14/8	268/10/4	125/4/4	212/3/1	1185/0/*	209/0/*	41/0/*	188/0/*	176/1/1
STE2	0/0/*	0/0/*	0/0/*	0/0/*	0/0/*	0/0/*	0/0/*	1/0/*	0/0/*	0/0/*	1/0/*	2/0/*
STE3	0/0/*	0/0/*	0/0/*	0/0/*	2/0/*	1/0/*	2/0/*	0/0/*	3/0/*	0/0/*	10/0/*	3/0/*
TAS2	156/0/*	140/0/*	106/0/*	68/0/*	51/0/*	55/0/*	46/0/*	164/0/*	26/0/*	6/0/*	59/0/*	61/0/*
VR	120/3/3	102/0/*	149/0/*	115/0/*	86/0/*	49/0/*	51/0/*	142/0/*	47/0/*	7/0/*	76/0/*	69/0/*
GUST	0/0/*	0/0/*	0/0/*	0/0/*	0/0/*	65/26/38	0/0/*	0/0/*	0/0/*	0/0/*	0/0/*	0/0/*