

Behind melanocortin antagonist overexpression in the zebrafish brain: a behavioral and transcriptomic approach

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ABSTRACT

Melanocortin signaling is regulated by the binding of naturally occurring antagonists, agouti-signaling protein (ASIP) and agouti-related protein (AGRP) that compete with melanocortin peptides by binding to melanocortin receptors.

ASIP overexpression in transgenic zebrafish results in alterations of dorso-ventral pigment pattern. We further demonstrate that ASIP overexpression results in increased growth but not obesity. The differential growth is explained by increased food efficiency and food intake levels, mediated by a differential sensitivity of the satiety system. Brain transcriptome analysis unravels the flow of melanocortinergic information through the central pathways that controls the energy balance. These melanocortin-induced differences are both sex-dependent and independent. Our data also provide information on the transcriptomic differences between the male and female brain. Results provide direct evidences on the involvement of melanocortin systems in fish feeding behavior and growth by melanocortin-induced inhibitory actions on satiety neural circuits. The information provided herein will help to elucidate new central systems involved in control of obesity but should be of invaluable use for sustaining fish production systems.

Keywords: Growth, Stress, Food intake, Brain, Transcriptome, Sex-dimorphism, Agouti-signaling protein (ASIP), Agouti-related protein (AGRP), Melanocortin receptor

INTRODUCTION

The melanocyte-stimulating hormones (MSHs) and adrenocorticotrophic hormone (ACTH) are the main melanocortin peptides. All of them are encoded in a common precursor called proopiomelanocortin (POMC), which expressed mainly in the pituitary (Castro and Morrison 1997). In the rat brain, POMC is also expressed in two discrete neuronal groups, the arcuate nucleus (Ac) of the hypothalamus, and the caudal region of the nucleus of the tractus solitarius (NTS) of the medulla (Bangol et al., 1999). Melanocortin signaling is mediated by binding to a family of specific G protein-coupled receptors that positively couple to adenylyl cyclase. Five melanocortin receptors (MC1R-MC5R) have been characterized in tetrapods but only MC3R and MC4R are abundantly expressed within the mammalian central nervous system (CNS). Subtype 2 receptor binds ACTH, whereas the other four MCRs distinctively recognize MSHs (Schiöth et al., 2005). Atypically, melanocortin signaling is not exclusively regulated by the binding of endogenous agonists, as naturally occurring antagonists, agouti-signaling protein (ASIP) and agouti-related protein (AGRP) compete with melanocortin peptides by binding to MCRs. ASIP is a potent melanocortin antagonist at MC1R and MC4R. In mice, ASIP is exclusively produced within the hair follicle, where it locally regulates the production of pigment in follicular melanocytes by antagonizing the effects of α -MSH on MC1R (Lu et al., 1994). In contrast, AGRP is mainly produced within the hypothalamic arcuate nucleus and the adrenal gland, and it is potent in inhibiting melanocortin signaling at MC3R and MC4R, but inactive at MC1R (Ollmann et al., 1997). Strong evidence has demonstrated that the central melanocortin system is a nodal point in controlling the energy balance in mammals (Girardet and Butler, 2014). Central activation of MC3R and MC4R is thought to mediate melanocortin effects on the energy balance (Cone, 2005; 2006) since both MC3R knockout rats (Chen et al., 2000) and MC4R knockout mice (Huszar et al., 1997) display severe alterations in energy homeostasis. The interruption of α -MSH central signaling by ubiquitous constitutive expression of agouti gene in obese yellow mice (Ay) results in hyperphagia, hyperinsulinemia, increased linear growth, maturity-onset obesity and yellow fur (Lu et al., 1994). A similar metabolic syndrome is also observed in transgenic mice ubiquitously overexpressing agouti or AGRP genes (Klebig et al., 1995; Ollmann et al., 1997), and in MC4R knockout mice (Huszar et al., 1997). However, mice with multiple copies of agouti gene expressed under the control of a skin-specific promoter do not exhibit the obesity-related phenotype but manifest yellow fur (Klebig et al., 1995). This suggests that the antagonizing of central α -MSH signaling by agouti protein in obese yellow mice is responsible for this metabolic syndrome. Accordingly, the central administration of the C-terminal fragment of AGRP (Rossi et al., 1998) or chemical antagonists for MC3R and MC4R increase food intake in rodents (Fan et al., 1997; Kask et al., 1998), and intracerebroventricular (icv) injections of the melanocortin receptor agonist MTII produces a dose-dependent reduction in food intake in mice

(Fan et al., 1997). However, MC4R deficient mice do not respond to the anorectic effects of MTII, suggesting that α -MSH inhibits feeding primarily by activating MC4R (Marsh et al., 1999). Actually, AGRP effects on MC4R seem to be independent of agonist binding since AGRP works as an inverse agonist at the constitutively activated MC4R (Nijenhuis et al., 2001; Tolle and Low, 2008; Sánchez et al., 2009).

The structure of the melanocortin system in fish diverges from that reported in tetrapods as the genome of the teleost antecessor doubled once more (3R), resulting in an expansion of the receptor/peptide systems (Cerdá-Reverter et al., 2011; Cortés et al., 2014). Therefore, the zebrafish genome has two POMC (González-Núñez et al., 2003), AGRP paralogue genes, a single copy of ASIP gene (Klovins and Schiöth, 2005) and six different MCRs since MC5R duplicated (Logan et al., 2003). In contrast, neuronal pathways expressing POMC (Cerdá-Reverter et al., 2003a; Forlano and Cone, 2007), AGRP (Cerdá-Reverter and Peter 2003; Forlano and Cone, 2007) and MC4R (Cerdá-Reverter et al., 2003b) are well conserved, as is the involvement of the melanocortin system in the energy balance regulation (Cerdá-Reverter et al., 2011). The central administration of melanocortin agonist severely inhibits food intake in fasted goldfish (Cerdá-Reverter et al., 2003 a,b), whereas MC4R antagonists stimulate food intake in fed animals (Cerdá-Reverter et al., 2003b). Fasting increases AGRP expression in the lateral tuberal nucleus, the homologue of the mammalian arcuate nucleus of goldfish (Cerdá-Reverter and Peter, 2003) and zebrafish (Song et al., 2003). Overexpression of AGRP in transgenic models resulted in increased linear growth and adipocyte hypertrophy, suggesting that zebrafish could serve as a model for obesity research (Song and Cone, 2007). The AGRP-mediated suppression of MC4R activity seems critical for early larval growth (Zhang et al., 2012). In addition, non-functional Y-linked MC4R copies are associated with the larger males of *Xiphophorus* and act as dominant-negative mutations, delaying the onset of puberty (Lampert et al., 2010).

In recent experiments, we generated a transgenic zebrafish strain over-expressing goldfish ASIP that showed a profound alteration of the dorso-ventral pigment pattern (Ceinos et al., 2015). This effect is mediated by ASIP antagonism on MC1R, which is known to be a key element of the melanogenic pathway in fish (Gross et al., 2009). However, ASIP is also an antagonist (Cerdá-Reverter et al., 2005) of the constitutively activated MC4R (Sánchez et al., 2009) suggesting that ASIP overexpression could reduce the activation of the central MC4R resulting in enhanced growth. This model offers an excellent scenario to analyze the phenotype induced by decreased activity of the central melanocortin system, and to study the neuronal pathways downstream of the melanocortin system. We demonstrate that ASIP-overexpressing zebrafish exhibit an enhanced linear growth that could be mediated by increased food intake because of a decreased satiety but also as a result of increased food efficiency. Transcriptomic analysis reveals several candidate neuronal pathways that

could mediate the melanocortin effect on food intake. Total lipid levels and profiles remained unaltered, suggesting that enhanced food intake does not result in an obese phenotype.

MATERIAL AND METHODS

Animals and reagents

Wild type (WT) TU and ASIP [Tg(Xla.Eef1a1:Cau.Asip1)im04, overexpressing ASIP1 (Ceinos et al., 2015)] zebrafish strains were raised at 24-28°C, with 14h light/12h dark cycle. MC4R^{-/-} mutant strain *sal22* generated on Tupfel long fin background were obtained from the Sanger Institute Zebrafish Mutation Project and genotyped as previously described (Zhang et al., 2012). Prior any manipulation, animals were netted and anaesthetized for 1 minute in 2-phenoxy-ethanol (0.05%) in the sampling tank. When required, animals were sacrificed by rapid decapitation after anaesthesia or cold exposition. All experiments were carried out in accordance with the principles published in the European animal directive (86/609/EEC) for the protection of experimental animals and approved by the Consejo Superior de Investigaciones Científicas (CSIC) ethics committee (project number AGL2013-46448-C3-3-R). Unless otherwise indicated, all reagents were purchased from Sigma (St Louis MO, USA). Primers used in the experiments are summarized in supplementary Table 1.

Cell culture and transfection

HEK cells were maintained in DMEM media (Gibco) supplemented with 10% FBS (Gibco) and 1% penicillin/streptomycin mixture (Gibco) in a humidified atmosphere of 5% CO₂ at 37°C. Transient transfections were carried out using Lipofectamine LTX (Invitrogen) according to the manufacturer's instructions with 25ng of each construct, and total amounts of DNA were kept constant in 2µg with pBSSK plasmid.

Pharmacological experiments

A HEK-293 cell clone (clone Q), stably expressing β-galactosidase under the control of a vasoactive intestinal peptide promoter placed downstream of tandem repetitions of cAMP responsive elements (CRE) was used to evaluate receptor activation (CRE-GAL) (Sánchez et al., 2009). MCR constructs alone or in combination were transiently transfected in the clon Q. A construct carrying luciferase gene under the control of a constitutive promoter was also transfected to standardize transfection levels. The following day, cells were split up into 96-well plates and stimulated with human α-MSH (Bachem) ranging from 10⁻⁶ to 10⁻¹² M or forskolin 10⁻⁶ in assay medium at 48h post-transfection. After 6h, the medium was removed, cells were lysed and

galactosidase activity measured as previously described (Sánchez et al., 2009). The effect of pig ASIP (Peninsula, USA), 10^{-7} M on MTII-stimulated MCRs (Bachem, Switzerland) activity was studied also. Measurements were normalized for the protein content, the luciferase activity and forskolin-induced galactosidase activity. Protein content was determined using the BCA protein assay kit (Pierce). Luciferase activity was determined using the luciferase assay kit (Promega) following provider instructions.

Growth experiments

Three males and three females of ASIP or TU strain WT fish were inbred to obtain sufficient embryos for the experiment. Six hundred embryos of each group were initially reared in 15-liter tanks and fed three times a day (9.00, 13.00, 17.00 h) with rotifer and artemia nauplii for 15 days. At 30 days post fertilization (dpf) animals of each group were split up into two 45-liter tanks (n=150/tank) and were fed twice a day (9.00, 17.00 h) with artemia nauplii and commercial flakes (SeraVipan, GmbH), which were suspended in fresh water and administered with plastic Pasteur pipettes. The same volume of artemia and/or flakes was administered to each experimental tank. Animals (n=50) were then sampled for standard length (L) and body weight (BW) and visually sexed at 90, 120 and 150 dpf. Sampled animals were not placed back into the home tanks, so that the rearing density did not increase with time. In every sampling, six animals (3 males and 3 females) of each group (n=6) were euthanized by cold exposure for lipid determination. This experiment was carried out twice using different parental fish in order to discriminate parent-related effects. Special care was taken to maintain rearing density similar in both groups throughout the experiment as well as supported feeding amount.

Analysis of total lipids and fatty acids

Total lipids from lyophilized individuals were extracted according to Monroig et al. (2006). After evaporation of the solvent mixture under nitrogen, the lipids were dried overnight in a vacuum desiccator and quantified gravimetrically (0.01 mg, Mettler Toledo XS 105, Barcelona, Spain). Total lipids were stored at 10mg/ml in chloroform:methanol (2:1,v/v) which also contained 0.01% of butylated hydroxytoluene (BHT) as an antioxidant. Total lipid samples were stored at -30 °C, in sealed vials, under nitrogen. Fatty acid methyl esters (FAMES) from total lipids were prepared by direct acid transmethylation and subsequently purified by thin layer chromatography (Silca gel G 60, Merck) using a mix of hexane:diethyl:ether:acetic acid (85:15:1.5, v/v/v) as the solvent phase. FAMES were analysed with a Thermo gas chromatograph (Thermo Trace GC Ultra, Thermo Electron Corporation, Waltham, MA, USA) fitted with an on-column injection system, a FID detector, and a silica capillary column (30 m × 0.25 mm × 0.25 µm film thickness, TR-WAX,

Teknokroma, Spain), using helium as a carrier gas. The analytical temperature was programmed from 50 °C to 220 °C. Chromatograms were integrated and analysed with Azur Datlys (St Martin d'Herès, France) software. FAMES were identified by comparison of retention times of each peak with those of well characterised standards.

Feeding experiments

For these experiments, ASIP1 (n=5, BW=0.42 g ±0.009 g) or WT (n=5, BW=0.42±0.018 g) males were individually placed into 6-liter tanks and fed with granulated diet for tropical fish [Supervit, Tropical]. Animals were supplied with 10 pellets (0.0114±0.0002 between 2-3 % body weight) at 10.00 h., and 4 hours later the uneaten pellets were siphoned and counted. The water level was made up to the original level. Food intake was calculated as the difference between the initial weight and the uneaten food weight. The reduction in weight of food in water for 4 h was less than 2%. This feeding protocol was followed for 15 consecutive days (acclimatisation period). Once the feeding base line was stable, feeding levels were recorded for 5 additional consecutive days for comparison. Subsequently, the same feeding protocol was used but animals were fed twice a day at 10.00 and 15.00 h.

Stress experiments

Two experiments were made to evaluate the effects of stress on the feeding behavior of ASIP1 fish. In the first experiment, animals were subjected to acute stress induced by netting, and in the second animals were subjected to chronic stress by confinement. For the first experiment, 10 ASIP and WT adult males (n=5/group) were placed individually in 6-liter tanks and acclimated as before for 17 days. On the stress day, animals were netted, air-exposed for 3 minutes and then released back into the home tank for an additional three minutes. This protocol was repeated 3 consecutive times before placing the fish definitively in the home tanks. Subsequently, food intake was evaluated as before for 10 consecutive days. For the chronic stress experiment, 10 ASIP and WT adult males (n=5/group) were placed individually in 6-liter tanks and acclimated as before for 8 days. Fish were then placed in cylindrical tanks with a cross-section of 5 cm (total volume ~0.2 l). Tanks were perforated to allow water circulation. These confinement tanks were placed in 40-liter tank on a platform to reach a volume of 50 ml. These conditions were maintained for two weeks and, subsequently, fish were put back into the home 6-liter tanks for an additional two weeks. Feeding levels were recorded as before.

***In situ* hybridization**

Animals were anaesthetized and sacrificed and the tissues were carefully dissected. Muscle and brain tissues were fixed with paraformaldehyde (PAF, 4%) in phosphate buffer (PB, 0.1 M pH 7.4)

overnight, dehydrated, and embedded in Paraplast (Sherwood, St Louis, MO). Serial 7 μ m cross sections were cut using a rotary microtome. Sections were mounted on 3-aminopropyltriethoxylane (TESPA)-treated slides and then air-dried at room temperature (RT) overnight. Sections were stored at 4 °C under dry conditions and used for hybridization within one month. The *in situ* hybridization procedure followed Cerdá-Reverter et al. (2003b). Brain anatomical localizations were confirmed by reference to the zebrafish atlas (Wulliman et al., 1996)

Central melatonin and neurotransmitters

To measure central melatonin and neurotransmitter levels forty WT (n=20) or ASIP (n=20) adult zebrafish were placed separately in two 20-liter tanks under a 14h light/10h dark cycle and fed twice a day (9.00 and 13.00 h) for 15 days. After the acclimation period, 5 females and 5 males from each genotype were sampled at 2.00 h (n=10) and 14.00 h (n=10). Brains were dissected and immediately placed at -80 °C. Brain melatonin levels were assayed by HPLC according to Muñoz et al. (2009) with modifications. Each brain was homogenized in 200 μ l of 0.2 M phosphate buffer (pH 6.7) and centrifuged at 16,000 g for 10 min. A 100 μ L aliquot of supernatant was mixed with 1 ml chloroform for 1 min, then centrifuged and the aqueous phase was removed. After washing with 200 μ l 0.2M NaOH, the aqueous phase was aspirated and the organic volume was dried under vacuum. The residual was dissolved in 100 μ l of mobile phase, filtered and injected into the HPLC. Melatonin was separated on a 5 μ m C18 analytical column (Phenomenex Inc, Torrance, CA, USA). The mobile phase consisted of a solution of 85 mmol⁻¹ acetic acetate, 0.1 mmol⁻¹ Na₂-EDTA and acetonitrile (14% of final volume), with the pH was adjusted with acetic acid to 4.7. Brain levels of noradrenaline (NA), dopamine (DA), serotonin (5HT) and the respective DA and 5HT acidic main metabolites 5-hydroxyphenylacetic acid (DOPAC), and 5-hydroxyindoleacetic acid (5HIAA) were analyzed by HPLC with electrochemical detection, as previously described (Gesto et al., 2013). Briefly, 20 μ L of a 1:5 dilution from the brain supernatant was used to inject into the HPLC system. The mobile phase was composed of 63.9 mmol l⁻¹ NaH₂PO₄, 0.1 mmol l⁻¹ Na₂EDTA, 0.80 mmol l⁻¹ sodium 1-octanesulfonate and 15.3% (v/v) methanol; pH was adjusted to 2.95 with orthophosphoric acid. For the acquisition and integration of chromatograms ChromNAV version 1.12 software (Jasco Corp., Tokyo, Japan) was used.

Data were normalized according to the protein content of the tissues, which was measured with the bicinchoninic acid method (Smith et al., 1985).

Microarray

Twenty ASIP1 (5 males + 5 females) and WT (5 males + 5 females) zebrafish were placed in 6-liter tanks and acclimated for 30 days prior to sampling to minimize physiological differences. On the

sampling day, animals were sacrificed and the brain + pituitary dissected under a stereo microscope, placed in trizol and stored at -80 °C until RNA extraction. After RNA extraction (following the manufacturer's protocol), samples were treated with DNase (Promega). Subsequently total, RNA was quantified by spectrometry (NanoDrop ND1000) and quality was confirmed by an RNA 6000 Nano Bioanalyzer (Agilent Technologies) assay. 150 ng of total RNA were used to produce cyanine 3-CTP-labeled cRNA using the Low Input Quick Amp Labelling Kit, One-Color (Agilent p/n 5190-2305) according to the manufacturer's instructions. Following One-Color Microarray-Based Gene Expression Analysis protocol Version 6.6 (Agilent p/n G4140-90040), 1650 ng of labeled cRNA was hybridized with the Zeno Custom Gene Expression Microarray (Agilent p/n G2514F-044138). Arrays were scanned in an Agilent Microarray Scanner (Agilent G2565C) according to the manufacturer's protocol and data extracted using Agilent Feature Extraction Software 11.5.1.1 following the Agilent protocol GE1_1050_Oct12, grid template 044138_D_F_20121017 and the QC Metric Set GE1_QCMT_ Oct12. Six biological replicates (3 females and 3 males) of each group (ASIP1 and control) were analyzed in a total of 3 slides containing 4 microarrays in the 4 × 44 k format. Microarrays included 60-mer probes to the unique transcripts from Ensembl and Unigene, which were annotated by functional categories of GO and pathways of KEGG with bioinformatics package STARS, which was also used for processing the data. Spot intensities were filtered by the criterion $(I/B) > 8$, where I is the median signal and B the background intensity. The arrays were equalized according to the mean intensities. For each gene, the individual values were divided by the mean value of all samples. The log₂-ER (Expression Ratios) were normalized by locally weighted non-linear regression (Lowess). The differentially expressed genes (DEG) were selected according to the criteria $p < 0.05$ after t-test and $\log_2 ER \geq |0.7|$ (1.6-fold), and analyzed using the newly developed Gene-Hub software (Afanasyev and Krasnov, unpublished data). Interactions between genotype and sex were analyzed by Two-Way ANOVA ($p < 0.05$). Hierarchical clustering analysis of the samples followed Ward's method. Enrichment analysis was performed by comparison of counts per pathway in the lists of DEG and all microarray features that passed the quality control. Difference was assessed with Yates' corrected chi square test ($p < 0.05$). Complete microarray results were submitted to GEO (GSE72908).

qPCR validation and expression levels

Up to 13 differentially expressed genes were validated by real-time qPCR on the same individual RNA samples used for cDNA labeling for microarray analysis. One µg of total RNA was used for cDNA synthesis with Superscript III reverse transcriptase (Invitrogen) primed with random hexamers and oligo(dT)₁₂₋₁₈ (Invitrogen). Subsequently, one microlitre of pure or diluted cDNA was added to 10 µl of 2X Taqman PCR master mix (ABgene, Thermo Scientific, Spain). Reactions were

carried out in triplicate in a Realplex Mastercycler (Eppendorf). Primer and cDNA concentrations were tested for each gene and reaction efficiencies below 90% were not accepted. The housekeeping genes β -actin and elongation factor-1 α (EF-1 α) were used as internal reference to normalize the cDNA template between samples. The melting curves of the products were verified to confirm the specificity of PCR products. CART2b expression levels in the brain of sa122 (+/+ and MC4R^{-/-}) were determined by qPCR as above but only β -actin was used as housekeeping gene for normalization. RNA extraction, DNase treatment, cDNA synthesis and calculations were carried out as above.

Fasting experiments

WT (+/+, n=40) or MC4R knockout (MC4R^{-/-}, n=40) KANGAROOS were placed in two tanks and fed *ad libitum* for 15 days. After this acclimation period, the whole brain of ten animals (time 0) was dissected, placed in Trizol (Sigma) and frozen in liquid N₂ until RNA extraction. Subsequently, the whole brain of 10 WT or mutant animals was sampled after 4, 6 and 12 days of progressive fasting and samples were treated as before. Animals were always sampled at 10.00 h.

Data analysis and statistics

Receptor activation data were fitted to logistic curves using SigmaPlot software. For a graphic representation, the response average for each dose from 3 independent experiments was calculated and data were fitted to logistic and ED50 values were resumed in supplementary Table 2. For qPCRs, normalized relative quantities of mRNA expression were calculated with the mathematical method of $\Delta\Delta C_t$ (cycle threshold). Statistical analysis comparing biometrical parameters, food intake and gene expression levels was conducted by one-way ANOVA followed by Tukey's multiple range test or *t*-test but interaction between variables (sex vs genotype) when comparing biometrical parameters or lipid content was analyzed using two-way ANOVA. Differences were considered statistically significant at $P < 0.05$.

RESULTS

Human ASIP is a competitive antagonist of zebrafish melanocortin receptors

In previous studies, we demonstrated that a conditioned medium of HEK-293 cells overexpressing goldfish ASIP1 is able to antagonize NDP-MSH binding as well as NDP-MSH-induced cAMP production at goldfish MC1R and MC4R (Cerdá-Reverter et al., 2005). Since ASIP1 molecules are moderately conserved (Cortés et al., 2014), we explore the ability of human ASIP1 (the only ASIP1 commercially available) to act as a functional melanocortin antagonist in zebrafish receptors. We

subcloned zebrafish MC1R, MC3R, MC4R, MC5Ra and MC5Rb into expression vectors that were transiently transfected into HEK-293 cells. As expected MTII, a potent universal agonist of melanocortin receptors, was able to promote cAMP-induced galactosidase activity (Fig. 1). The EC₅₀ of all the receptors increased when the transfected cells were stimulated with graded concentrations of MTII in media containing ASIP1 (10^{-7} M) (supplementary Table 2) in the same way as a competitive antagonist does. The order of potency was MC4R~MC5Ra>MC1R~MC5Rb~MC3R.

Transgenic zebrafish grow faster than WT fish

Transgenic zebrafish were longer and heavier than WT animals (Fig. 2). Differences were evident throughout the experimental period. After 6 months, transgenic males were 4.6% longer and 15.6% heavier than WT fish, while transgenic females were 14.4% longer and 62.9% heavier than their WT counterparts. Similarly, ASIP1 fish exhibited higher levels of condition factor although the difference gradually decreased as the experiment progressed. This reduction in condition factor level was also observed in WT animals. Total fat levels, as well as the fatty acid profile, were statistically similar in both ASIP1 and WT fish, confirming that ASIP1 fish were not obese. Independently of the treatment, sex differences in both total fat levels and fatty acid profiles were found (data not shown).

Under our experimental conditions WT males were significantly longer (2.5%), but not heavier, than females. This condition was reversed in ASIP1 animals, where females were significant longer (7.4%) and heavier (29%) than males. The weight of WT animals was independent of sex, whereas the condition factor was always higher in females independently of the genotype. However, ASIP1 exhibited significantly higher levels when the sex of the animals was taken in consideration except in 6-month old ASIP1 males, which showed similar condition factor levels to WT fish (Fig. 2).

Food intake levels increase in transgenic fish

To compare food intake levels of ASIP1 and WT fish, an experiment was set up in which animals were housed individually and fed once a day for 5 consecutive days after an acclimatization period. Subsequently, the same animals were fed twice a day in order to evaluate the satiation effect of the first meal (Fig. 3). When fed once or twice a day, transgenic fish ate more than WT animals during the entire experimental period. Accordingly, mean daily food intake was significantly higher in ASIP1 fish than in WT fish. No differences in food intake levels were observed when WT fish were fed once or twice, whereas ASIP1 fish fed twice a day ate significantly more than when fed only once a day.

Transgenic zebrafish cope with stressful conditions similarly to WT fish

Two experiments were undertaken to evaluate how transgenic fish cope with stressful conditions using food intake level as a stress marker (Leal et al., 2011). In the first experiment, animals were subjected to acute stress induced by netting/air exposition whereas in the second animals were subjected to chronic stress by confinement. Acute stress induced a severe decrease in food intake levels in both WT and transgenic fish although both groups recovered during the third experimental day (Fig 4A). As mentioned above, transgenic fish exhibited higher food intake levels both before and after application of the acute stressor. Similarly, chronic stress induced a reduction in food intake levels, which gradually recovered after cessation of the stress (Fig 4B). Again, transgenic fish exhibited higher food intake levels before and after the chronic stressor, while during the stressful period and the first recovery week, levels were statistically identical.

MC4R is profusely expressed in the zebrafish muscle and brain

In situ hybridization experiments demonstrated that MC4R is profusely expressed in zebrafish muscle (Fig. 5A) but also throughout the rostro-caudal extension of the brain, including the fore-, mid- and hindbrain (data not shown). We also observed high expression levels within the ventral and dorsal epithalamic habenula (Fig 5B).

Central melatonin and neurotransmitters

As expected, WT zebrafish exhibited higher melatonin levels at night than during the photophase. Surprisingly, no statistical differences were found when comparing diurnal and nocturnal melatonin levels in ASIP zebrafish (Fig. 6A). No differences in dopamine levels were found at any time during the diurnal period in both WT and ASIP zebrafish but both male and female WT exhibited higher levels than ASIP zebrafish during the photophase (Fig. 6B). Similarly no diurnal daily differences were found in 5-HT central levels. WT females exhibited significant higher levels than those measured in males but these differences were masked by ASIP overexpression (Fig 6C). Higher levels of noradrenaline were measured in WT females during both sampling periods although there were no significant differences from the levels recorded in WT males during the scotophase. Noradrenaline levels in WT females were significantly higher than those recorded in the brain of WT males during the photophase, although, again, this difference was mitigated by ASIP overexpression. No daily differences were found independently of the fish genotype (Fig 6D).

Validation of microarray results

To confirm the reliability of microarray results, the abundance of selected transcripts was quantified using qPCR. The genes selected were those of potential interest for understanding key physiological functions such as circadian rhythms (*hiomt*), steroid biosynthesis (*srd5a1*, *hsd11b2*), the control of

food intake (*adipor2*, *cart2b*, *kiss1*, *tacr3b*, *tgfbr1a*, *mboat1*), and neurotransmitter signaling (*comtb*, *dd3r*, *gabra6*). The results of the qPCR analysis were in close agreement with the microarray findings, all the genes showing significant changes in the same direction (Fig. 7).

Characteristics of the microarray and pathways analysis To gain new insight into the neuronal pathways involved in the melanocortin response, the central transcriptomic response was compared with the melanocortin pathway blockade mediated by ASIP1 overexpression in transgenic zebrafish. The aim of this experiment was to identify functional classes of genes and individual candidates underlying susceptibility to melanocortin signalling, elucidating the functional significance of sets of DEG in some neuronal functions. Hierarchical clustering analysis successfully grouped both WT and transgenic fish. The sex of WT fish was accordingly grouped but, surprisingly, one transgenic female grouped with ASIP1 males (data not shown). As a result, the transcriptome of WT females and males was compared, detecting 255 genes to be differentially expressed (113 upregulated in females and 142 in males; see Figs. 8 and 9, and complete list in additional file 1). Initial classification of DEG by gene ontology (GO) revealed a significant degree of enrichment in functional categories related to neurotransmitter secretion (e.g. *slc6s6a*, *slc6s6b*, *nrxn1a*), synapse assembly (e.g. *pou4f1*, *nrxn1a*, *cdk5*), and steroid hormone receptor activity (e.g. *nr1d1*, *rorca*, *nr1i2*). Circadian rhythm category was also significantly affected by sex (e.g. *nr1d1*, *atoh7*, *cry2b*, *nfil3-5*, *per3*, *ciartb*) (Table 3). By contrast, statistical analysis revealed no sex-dependent KEGG pathways. When comparing ASIP1 in males and females, the number of DEG decreased to 31 (18 and 13 upregulated in females and males, respectively) and no significant enrichment in GO categories or KEGG pathways was detected (see complete list in additional file 2). Only three genes were regulated by sex independently of ASIP overexpression (*igf1*, *dio2a* and *perc*). All three genes were downregulated in the brain-pituitary complex of female zebrafish. Therefore, ASIP1 overexpression was able to abolish the differential expression of 252 sex-induced DEG (Fig. 8, additional file 1) but also to induce the differential expression of 28 additional genes (Fig. 9, additional file 2). Two-way ANOVA showed that the interaction between genotype and sex significantly affected the expression of 97 genes, meaning that genes are differentially affected by the genotype depending on the sex of the animal (see complete list in additional file 3).

Statistical analysis revealed 1122 DEG when considering only fish genotype (ASIP1 vs WT) independently of the sex of the animals (Fig. 8, see additional file 4). The KEGG pathways and GO terms significantly affected are shown in Table 4a and 4b, respectively. Analysis also revealed 1066 (543 and 523 up- and downregulated in ASIP1 zebrafish) and 981 (482 and 499 up- and downregulated in ASIP1 zebrafish) DEG when comparing ASIP males (see complete list in additional file 5) or females (see complete list in additional file 6) with their WT counterparts, respectively (Fig. 8). Tables 5 and 6 show significantly enriched KEGG pathways (5a, 5a) and GO

terms (6b, 6b) in a comparison of ASIP1 males or females vs their WT counterparts, respectively. Significantly, analysis of the KEGG pathways showed that steroid hormone synthesis in the brain-pituitary complex was affected by the melanocortin system in both males (e.g. *cyp1c*, *hsd17b8*, *srd5a2b*, *sult2st3*, *udpgt2b10*, Table 5a) and females (e.g. *cyp1c*, *hsd17b8*, *srd5a2b*, *sult2st3*, *udpgt2b10*, Table 6a). This was further corroborated when the shared genes between both lists were analyzed (see below). Enrichment analysis showed that functions related to steroid metabolism, such as terpenoid backbone biosynthesis (e.g. *acat*, *pdss2*, *idi1*, *fdps*, *hmgcra*, *hmgcs1*, *mvda*), were also affected by ASIP overexpression in females (Table 6a). Similarly, mitochondrial function, go terms mitochondrion, mitochondrial inner membrane and mitochondrial matrix (e.g. *abca12*, *cds2*, *cox5b2*, *cratb*, *cyp27a1.2*, *eci1*, *efhd1*, *fahd1*, *fpgs*, *ghitm*, *hccsa*, *hspd1*, *metaxin 1b*, *prkar2abas*, *prodha*, *slc25a32b*, *timm8b*), as well as lipid transport and metabolism (*acat2*, *apoll1*, *gst3*, *plpt*, *sdc*, *stard4*) were severally affected in both sexes (Table 5b and 6b). Circadian rhythms seemed to be affected only in males, as indicated by significant enrichment of the tryptophan metabolism (*aanat1*, *acat2*, *aldh2*, *cyp1a*, *ddc*; Table 5a) and the proper circadian rhythm GO term (*aanat1*, *clock3*, *ddc*, *homer1b*, *nr1d2a*, *per3*, *5ht-7*; Table 5b). Lists of DEG in ASIP1 vs WT males and ASIP vs WT females shared 323 common DEG (Fig. 10, see additional file 7). Again, both steroid hormone (e.g. *hsd17b8*, *srd5a2b*, *cyp27a1.4*, *cyp27a7*, *udpgt2b10*) and terpenoid backbone biosynthesis (*acat2*, *idi1*, *hmgcs1*) were significantly enriched (Table 7a). This means further that 743 (see additional file 8) and 658 (see additional file 9) genes were differentially expressed exclusively in males and females, respectively. Only, the KEGG pathway “arginine and proline metabolism” (e.g. *aldh4a1*, *nos1*, *nos2a*, *ckba*, *gamt*, *p4ha1b*, *sat2b* for male and *agmat*, *aldh9a1b*, *ass1*, *ckba*, *dao.2*, *nos2a*, *nos2b*, *gatm*, *lap3*, *prodha*, *p4ha1b* for female) was commonly affected in both males and females, suggesting that the nitric oxide pathway is involved in melanocortin signaling (Tables 8a and 9a). All GO terms enriched in males (Table 8b) were included in the enriched GO terms of females (Table 9b).

Candidate genes involved in the control of food intake

Our results demonstrate that ASIP1 overexpression in a transgenic model results in enhanced growth and food intake levels as well as a differential regulation of the satiety system. Analysis of the transcriptomic results allowed us to explore individual candidates that could mediate downstream melanocortin effects on food intake. As a result, several neuronal systems involved in the control of food intake were identified; which displayed a differential expression according to the genotype of the fish. For example, *neuromedin U (nmu)*, *kisspeptin 1 (kiss1)* and *cocaine- and amphetamine-regulated transcript 2b (cart2b)* transcripts were downregulated in both male and female transgenic fish. The *cart2b* and *kiss1* results were corroborated by qPCR. All three neuropeptides have been demonstrated to inhibit food intake in mammals (Howard et al., 2000,

Stengel et al., 2011, Kristensen et al., 1998). By contrast, *nitric oxide synthase 2a (nos2a)* was upregulated in transgenic fish. The number of *histamine N-methyltransferase (hnmt)* transcripts was downregulated in transgenic fish. Hnmt is known to participate in the degradation of histamine, which, when administered centrally, decreases cumulative food intake and body weight in agouti yellow mice (*Ay/a*) (Masaki et al., 2003). Similarly, the expression of *dopa decarboxylase (ddc)* was upregulated in the brain-pituitary axis of ASIP1 zebrafish. Ddc participates in the last step of the central synthesis of dopamine and serotonin, both of which are known to regulate food intake in vertebrates, including fish (Leal et al., 2013).

ASIP1 overexpression also modified the sensitivity of the brain-pituitary axis to different neurotransmitter, neuroendocrine or endocrine systems by regulating receptor expression. Some of these systems are known to be involved in the control of food intake. Therefore, *tachykinin (tacr3l)*, *dopamine (drd3)*, and *apelin (aplnra)* receptor transcripts are downregulated after ASIP1 overexpression in both the male and female brain-pituitary complex. Both *tacr3l* and *drd3* were also tested by qPCR. In contrast, the expression of *adiponectin (adipor2a)*, *cannabinoid (cnr1)* and *gamma-aminobutyric acid (GABA) A (gabra6b)* receptors are upregulated in transgenic fish. The results on *adipor2a* and *gabra6* gene expression were also corroborated by qPCR.

In addition, the expression of other receptors, including orphan receptors, was seen to be regulated by ASIP1 overexpression. Therefore, transcripts for *adrenergic alpha-1Ab receptor (adra1ab)*, *tumor necrosis factor receptor superfamily member 14 (tnfrsf14)*, *cytokine receptor family member b1 (crfb1)*, *prolactin receptor a (prlra)*, *G protein-coupled receptor 22 (gpr22)*, *G protein-coupled receptor 144 (gpr144)*, and *G protein-coupled receptor 176 (gpr176)* were downregulated. However, the expression of *nuclear receptor subfamily 1, group D, member 2a (nr1d2a)*, *cholinergic receptor nicotinic alpha 10a (chrna10a)*, *transforming growth factor beta receptor 1 a (tgfbr1a)* and *transferrin receptor 1b (trf1b)* was upregulated, indicating alteration of brain-pituitary axis sensitivity.

A possible role for the central CART system in melanocortin-induced feeding

In order to evaluate the involvement of MC4R in the central expression of *cart2b*, WT (+/+) and MC4R knockout (-/-) fish were fasted and the central *cart2b* expression measured by qPCR. Progressive fasting induced a reduction in the central expression of *cart2b* in WT fish but not in MC4R knockout fish (Fig 11), suggesting that a functional MC4R is required for the fasting response of *cart2b*. Basal expression levels (time 0) were lower in ASIP than in WT fish (data not shown).

DISCUSSION

In this paper, we demonstrate that ASIP1 overexpression results in increased growth but not in obesity in zebrafish. Increased food intake levels mediated by a differential sensitivity of the satiety system, together with improved food efficiency, could explain the observed differences. Transcriptomic studies revealed expression differences in several central circuits involved in the control of food intake as well as modifications in the central responsiveness to neurotransmitter, neuropeptides and peripheral hormones known to be involved in control of the energy balance. These data are of critical importance for fish aquaculture world-wide. Despite the reticence of markets towards the use of transgenic organisms for human consumption, the data demonstrate that by regulating the melanocortin system, growth and food efficiency could be enormously improved and, that by extension, fish aquaculture worldwide could attain much more sustainable rates.

Our data in transgenic models demonstrate that ASIP overexpression results in both increased linear growth and body weight. However, the total content and lipid profile were similar in WT and ASIP fish, suggesting that ASIP overexpression does not result in obesity. AGRP overexpression in transgenic founder zebrafish (+/-) produced similar results although the authors reported adipocyte hypertrophy and increased total triglyceride levels, suggesting an obese phenotype in zebrafish overexpressing AGRP (Song and Cone 2007). A possible explanation for the observed discrepancy could be the different feeding rates of the experimental animals. Because fish were fed with live prey and commercial flakes, it is difficult to calculate feeding rates and so compare both experimental designs. It is plausible that restricted feeding rates result in increased growth rates but not in obesity.

Increased linear growth and obesity as a result of disruption of MC4R signaling has been reported in several rodent models including lethal ($A^y/+$) or viable agouti-yellow mice ($A^{vy}/+$) (Klebig et al., 1995), AGRP transgenic mice (Ollmann, 1997) and MC4R knockout mice (Huszar et al., 1997) but also in humans (Martinelli et al., 2011). In zebrafish, AGRP morpholino blockage reduces larval growth but not in the absence of a functional MC4R, which, in turn, is responsible for the increased growth rate in adult zebrafish (Zhang et al., 2012). In addition, natural mutations affecting MC4R signaling have been shown to modify swordtail fish (*X. nigrensis* and *X. multilineatus*) growth. Large males in this species result from multiple copies of mutant MC4R at the *P locus*, that block the activity of the wild-type receptor (Lampert et al., 2010). Pharmacological studies show that ASIP works as a competitive antagonist in MC4R in several vertebrate species (Lu et al., 1997) including goldfish (Cerdá-Reverter et al., 2005) and zebrafish (present work). ASIP antagonism on central MC4R provides an explanation for the increased growth and obesity of dominant alleles of agouti locus (Fan et al., 1997). It is therefore plausible that the increased growth observed in ASIP zebrafish could be mediated by ASIP binding to central MC4R. The expression of central MC4R is well conserved in fish compared to mammalian models (Cerdá-Reverter et al., 2003b, Sánchez et

al., 2009). We have previously demonstrated that selective antagonism of MC4R by HS024 is able to stimulate food intake in fed goldfish, whereas MTII inhibits food intake in 24 h fasted animals (Cerdá-Reverter et al., 2003a,b). Accordingly, ASIP fish fed once a day exhibited increased food intake levels. When fish were fed twice a day, WT animals split the amount of ingested food between both meals but ASIP fish ate more than those fed once a day, suggesting that the satiety system of ASIP fish exhibits reduced sensitivity that allows them to increase food intake levels upon food availability. Melanocortin has been proposed as an essential substrate for the integration of long-term and short-term satiety signals. Therefore, MC4R is necessary for the cholecystokinin-induced suppression of feeding that may explain, in part, the hyperphagia and increased meal size seen in obese subjects with dampened MCR4 signaling (Fan et al., 2004). Our transcriptomic studies revealed ASIP-induced downregulated expression of some neuropeptides involved in the control of food intake, including the CART system. Zebrafish exhibit four different CART genes. Although the central expression of all four is downregulated by fasting in zebrafish (Nishio et al., 2012), only *Cart2b* expression was depressed in transgenic fish. When the response of this system to fasting in the absence of MC4R. Our fasting experiments using *Sa122* allele demonstrate that a functional MC4R seemed to be necessary for the *Cart2b* response to energy depletion. Because MC4R signaling is expected to be reduced in ASIP fish, *Cart2b* levels may be expected to be depressed in fish lacking functional MC4R, as demonstrated by expression experiments. Interestingly, experiments in zebrafish have demonstrated that cannabinoid receptor 1 (*cnbr1*) lies upstream of the CART system and signals the appetite through the downregulation of CART expression (Nishio et al., 2012). Accordingly, anandamide, an endogenous cannabinoid, has been shown to increase food intake via *cnr1* in goldfish (Valenti et al., 20005). ASIP fish show upregulated *cnbr1* expression and it is known that the activation of *cnr1* increases feeding by selective β -endorphin release from POMC neurons of rat hypothalamus (Koch et al., 2015). Taken together, the data suggest that *cnbr1* neurons upstream of CART/POMC neurons express MC4R. Depressed MC4R signaling in ASIP fish results in dampened CART expression, probably increasing β -endorphin release, leading to the attenuation of satiety and, by extension, increasing food intake levels. However, more experiments are required to explore this hypothesis.

Other central neuropeptide systems could also participate in ASIP-induced feeding as *neuromedin U* and *kiss 1* expression have been shown to be downregulated in transgenic fish. Central administration of neuromedin U inhibits food intake in goldfish (Maruyama et al., 2009). Although it is known that *kiss1* inhibits food intake in rats (Stengel et al., 2011), no studies have been reported in fish. *Kiss1* is exclusively expressed in the ventral habenula and is downregulated after induction of the fear response in zebrafish (Ogawa et al., 2014). AGRP projections in the ventral habenula of zebrafish are scarce but α -MSH innervation is profuse (Forlano and Cone, 2007). The abundant expression of

MC4R in the ventral habenula reported here suggests the involvement of hypothalamic α -MSH projections in the Kiss1-mediated habenular functions that are antagonized in ASIP fish. We propose that habenular MC4R signaling, via α -MSH binding or MC4R constitutive activity (Sánchez et al., 2009), could be involved in feeding anxiety in zebrafish via caudal serotonergic pathways (Oiwaga et al., 2014). In this respect, we found increased serotonin central levels in ASIP fish but differences were only statistically significant in females. Similarly, diurnal dopaminergic levels were significantly elevated in the brain of both ASIP males and females. Accordingly, dopa decarboxylase (*ddc*), which is involved in dopamine synthesis, and catechol-O-methyltransferase b (*comtb*), which is involved in the dopamine degradation, were up- and downregulated, respectively. In addition, dopamine receptor D3 (*drd3*) was severely downregulated in transgenic zebrafish. The presence of MC4R in dopamine receptor-expressing neurons has been reported in the brain rat (Roseberry et al., 2015). Dopamine effects on food intake are controversial; for example, mice unable to synthesize central dopamine are hypoactive, hypophagic and die of starvation, but L-dopa restores feeding behavior (Szczyпка et al., 1999; Zhou and Palmiter, 1995). However, earlier studies showed that the hypothalamic injection of dopamine inhibits food intake in rats (Leibowitz and Rossakis, 1979). Our previous studies in the sea bass demonstrated that oral L-dopa inhibits growth by reducing both food intake and feed conversion efficiency (FCE) without altering daily feeding rhythms (Leal et al., 2013). It is therefore difficult to conclude that there is any dopamine-mediated effect of melanocortin-induced feeding, although it is clear that ASIP overexpression profoundly alters central dopamine metabolism and sensitivity. Interestingly, ASIP overexpression induced upregulation of inducible nitric oxide synthase (*nos2a*) but downregulation of the neuronal isoform (*nos1*). Accordingly, KEGG pathway analysis revealed an alteration of the arginine/proline metabolism. Nitric oxide seems to be among the principal components in the neuropeptide regulation of food intake (Morley et al., 2011) and *Nos1* activation in the paraventricular nucleus suppresses feeding in mice (Sutton et al., 2014).

Sensitivity to central neuropeptide and neurotransmitter by modulation of receptor abundance could also account for the variations in food intake levels observed in ASIP fish. Therefore, apelin receptor a (*aplnra*) is downregulated but gamma-aminobutyric acid (GABA) A (*gabra6b*) receptors are upregulated in ASIP fish. The central administration of apelin has been shown to stimulate food intake in goldfish (Volkoff and Wyatt, 2009). Although studies focusing GABA involvement in the control of food intake in fish are absent, it is well known that this neurotransmitter regulates food intake in mammals via a GABA A receptor (Wu et al., 2015). Finally, transcriptomic data also revealed the overexpression of adiponectin receptor 2 (*adipor2*). Adiponectin plays important roles in the inflammation, glucose and lipid metabolism and oxidative stress in rat (Yamauchi et al., 2007). It is mainly produced in the adipose tissue, reaches the cerebrospinal fluid from the circulation and stimulates food intake via the activation of adipoR1/AMPK in the arcuate nucleus.

Accordingly, *adipo(-/-)* mice fed a high fat diet exhibited decreased food intake levels (Kubota et al., 2007). There is little information about adiponectin in fish but it is known that *adipor1/2* are insensitive to fasting in the brain of orange-spotted grouper (Qin et al., 2014). Therefore, increased *adipoR1* expression could mean enhanced sensitivity to the orexigenic adiponectin.

A constant finding in GO term analysis was the enrichment of the mitochondrial function. Such enrichment could be understood as a modification of the neuronal energy metabolism since organisms must coordinate the whole-body energy balance with that of cellular energetics (Dietrich et al., 2013). These organelles respond rapidly to changes in the cellular environment, changing their location and morphology to optimize cell function. Mitochondrial dynamics has been shown to be critical in the hunger-promoting AGRP/NPY neurons during metabolic switches (Dietrich et al., 2013) but also in the hypothalamic POMC/CART neurons (Schneeberger et al., 2013). This alteration of mitochondrial physiology could be understood as an adaptation of the organelle system to the new energy balance imposed by ASIP overexpression or the increased neuronal activity required for ASIP-induced changes in metabolism.

Increased food intake levels provide only partial explanation for the enhanced growth rates in ASIP fish, although in the growth experiments, animals were fed with the same quantity of food, pointing to an improved conversion rate in ASIP zebrafish. The long-term administration of MC4R antagonist HS024, or agonist MTII has been shown to increase and decrease food conversion rate in rats, respectively (Jonsson et al., 2002). In addition, genetic analysis has demonstrated the association of MC4R polymorphisms with food efficiency in several species (Houston et al., 2004, Davoli et al., 2012). Therefore, ASIP fish grow more and faster not only because of the increased food intake levels but also because feed conversion efficiency is improved. The molecular basis of increased growth associated with MC4R signaling is unclear, but studies in the early stages of zebrafish have reported a dense projection of AGRP and POMC neurons to the pituitary. Morpholino blockage of AGRP expression results in depressed growth hormone (gh) expression, in accordance with the increased expression of GH-releasing hormone (ghrh) and decreased expression of central somatostatins (sst) (Zhang et al., 2012). The present study points to the profuse expression of MC4R in zebrafish muscle fibers, suggesting that the peripheral melanocortin system could be involved in muscle energy metabolism and/or development. Therefore, MC4R signaling in the muscle could involve a physiological break in muscle development that could be bypassed by ASIP antagonism in transgenic fish. Ongoing experiments will elucidate the role of MC4R in muscle hypertrophy and/or hyperplasia.

Most vertebrate species, including fish, exhibit sex dimorphic growth. In our experiment, WT male were longer than WT females despite their similar weights. However, this sex dimorphism pattern was reversed in ASIP fish since ASIP females were much longer and heavier than males. Our data suggest that the melanocortin system could be involved in sexual dimorphic growth in fish. To the

best of our knowledge, no data are available concerning the dimorphic effect of melanocortin on vertebrate growth, although polymorphism analysis revealed that MC4R was associated with enhanced body weight in female broilers (Sharma et al., 2008). Elucidation of the mechanisms underlying dimorphic growth is difficult. The fact that MC4R was found to be expressed in muscle fibers suggests that dimorphic effects could be peripherally or centrally mediated. Gender specific roles of melanocortin receptors in the CNS of mice have been described previously. Particularly, MC3R deletion increases dopamine levels in the ventral tegmental area (VTA) and decreases sucrose intake and preference only in females, suggesting a sexually dimorphic function of MC3R in the regulation of the dopaminergic system and reward (Lippert et al., 2014). Overexpression of ASIP in transgenic fish increased diurnal dopamine levels in both males and females but selectively increased nocturnal and diurnal levels of 5-HT in transgenic females, suggesting dimorphic regulation of the serotonergic pathways. The sex dimorphic regulation of central pathways becomes more evident with an analysis of transcriptomic data. A comparison between WT males and females reveals that ~0.7% of DEG enriches GO terms related to neurotransmitter secretion, circadian rhythms and sex steroid activity. Surprisingly, when ASIP is overexpressed, the number of DEG is reduced by ~90% and no GO terms are enriched. The results show that ASIP overexpression equalizes the brain-pituitary transcriptome equally between female and male. This is further supported by clustering analysis, which displays ASIP females grouping together with ASIP males, which, in turn, suggests that ASIP overexpression induces a masculinization of the female central transcriptome by removing differential expression ~99% of DEG but inducing 28 new DEG. Two-way ANOVA revealed a sex-genotype interaction in 97 DEG. Interestingly, hydroxysteroid 11-beta dehydrogenase 2 (*hsd11b2*) expression was downregulated in WT females compared with WT males. This enzyme regulates the bioavailability of cortisol by catalyzing its conversion to inactive forms (Alderman and Vijayan, 2012). It is tempting to speculate that the cortisol metabolism and, by extension, the central response to stress can be sexually regulated; however, ASIP overexpression masked any sex dimorphic expression. Whether this possible increase in central cortisol degradation in females is related to the reversion of dimorphic growth remains to be explored. When transgene effects were analyzed according to gender, the sex-dependent response to ASIP overexpression was more evident as the list of DEG in ASIP1 vs WT males and ASIP vs WT females shared only ~30% of DEG. However, when GO enrichment of non-shared genes was compared between both lists, 100% of GO terms enriched in males were included in the list of GO terms enriched in females, which suggests that the female brain-pituitary complex is more severely affected by ASIP1 overexpression than male axis

A common term/pathway that is noticeably affected by ASIP overexpression in both the male and female brain-pituitary axis is steroid metabolism/biosynthesis. Phenotype implications of the melanocortin-induced effects on the central steroid metabolism could be diverse as steroids exhibit

pleiotropic effects. At the reproductive level, melanocortins are not critical since knockout (MC3R, MC4R), transgenic (AGRP) or genetic (lethal and viable agouti yellow) models reproduce naturally. However, it is known that the melanocortin system is involved in the regulation of sexual function and behavior (Schiöth 2002; Roulin and Ducrest, 2011). In fish, particularly in *Xiphophorus*, MC4R fills locus P that regulates both growth and puberty timing. Body size differences are linked to behavioral differences. Larger males court females whereas small males perform sneak matings (Lampert et al., 2010). While we have no behavioral data to compare reproductive patterns in ASIP and WT fish, preliminary data support modifications in the puberty timing of ASIP zebrafish (Navarro S, Guillot R, Schultz R, Wei G, Cerdá-Reverter JM, unpublished data). Ongoing experiments will focus on the reproductive behavior of transgenic fish.

CONCLUSION

Results provide direct evidences on the involvement of melanocortin systems in fish feeding behavior and growth. We demonstrate that ASIP overexpression results in increased growth but not obesity. Increased food efficiency and food intake levels, mediated by a differential sensitivity of the central satiety system, can explain the observed differences. Female and male transcriptome is different and ASIP overexpression induces both sex-dependent and independent differences in the central/pituitary transcriptome that help to unravel the flow of melanocortinergic information through the central pathways that controls the energy balance.

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COMPETING INTEREST

The authors declare they have no competing interests

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FIGURE LEGENDS

Figure 1. Effects of pig agouti-signaling protein (ASIP) on MTII-stimulated galactosidase activity in HEK-293 cells transiently expressing the different zebrafish melanocortin receptors but stably cAMP-responsive β -galactosidase reporter gene. \circ (MTII), \bullet (MTII + ASIP 10-7M), \blacktriangledown (ASIP). Data were normalized to protein levels and expressed as percentage of the basal levels. Experiments were performed using quadruplicate data points and repeated at least three independent times. Data were normalized to protein levels and expressed as percentage of the basal levels. A construct carrying luciferase gene under the control of a constitutive promoter was also transfected to standardize the transfection levels. Experiments were performed using quadruplicate data points and repeated at least three times independently. Data are mean \pm SEM of the three independent experiments.

Figure 2. Overexpression of ASIP causes an increased rate of length (A), weight (B) and condition factor (CF) in the zebrafish. Animals were sampled and visually sexed at 90 (n=50), 120 (n=50) and 150 (n=50) days post fertilization (dpf). Sampled animals were not placed back in the home tanks, and so rearing density did not increase with time. This experiment was carried out twice, using different parental fish in order to discriminate parental-related effects. Different letters indicates significant differences for each sampling time after one-way ANOVA followed by Tukey's multiple range test ($p < 0.05$).

Figure 3. ASIP1 (\blacksquare , n=5) or WT (\circ , n=5) males were placed individually into 6-liter tanks and supplied with 10 pellets of dry food at 10.00 h. Four hours later the uneaten pellets were siphoned and counted. Food intake was calculated as the difference between the initial weight and the uneaten food weight. Once the feeding base line was stable, feeding levels were recorded for 5 additional consecutive days for comparison (upper left panel). Subsequently, the same feeding protocol was used but animals were fed twice a day at 10.00 and 15.00 h (upper right panel). Bottom panel shows daily mean food intake using data from upper panels. Data were expressed as percentage of body weight. * indicates significant differences between ASIP and WT fish after one-way ANOVA followed by Tukey's multiple range test, upper panels of t-test bottom panel ($p < 0.05$). # indicates significant differences between 1 and 2 meals of the same genotype fish after t-test ($p < 0.05$).

Figure 4. Effects of acute (A) or chronic stress (B) on feeding levels of ASIP (\bullet) and WT (\circ) zebrafish. For acute stress experiments, ASIP and WT adult males (n=5/group) were placed individually in 6-liter tanks and acclimated for 17 days (see Fig. 3 for details). After physical stress, food intake was evaluated as before 10 consecutive days. For the chronic stress experiment, ten ASIP and WT adult males (n=5/group) were placed into cylindrical tanks with a section of 5 cm (total volume ~ 0.2 l). Tanks were perforated to allow water circulation and placed into 40-liters tank

on a platform to reach a volume of 50 ml. These conditions were kept for two weeks and subsequently, fish were put back into the home 6-liter tanks for two additional weeks. Feeding levels were recorded as before.

Figure 5. *In situ* hybridization of MC4R the level of preoptic area (A) or muscle (B). Scale bar = 20 μ m.

Figure 6. Melatonin (A), dopamine (B), serotonin, 5-HT, (C) and noradrenaline (D) brain levels in ASIP. Forty WT (n=20) or ASIP (n=20) adult zebrafish were placed separately in two 20-liter tanks under 14h light/10h dark cycle and fed twice a day (9.00 and 13.00 h) for 15 days. After the acclimation period, 5 females and 5 males from each genotype were sampled at 2.00 h (n=10) and 14.00 h (n=10). Different letters indicate significant differences after two-way ANOVA (p<0.05).

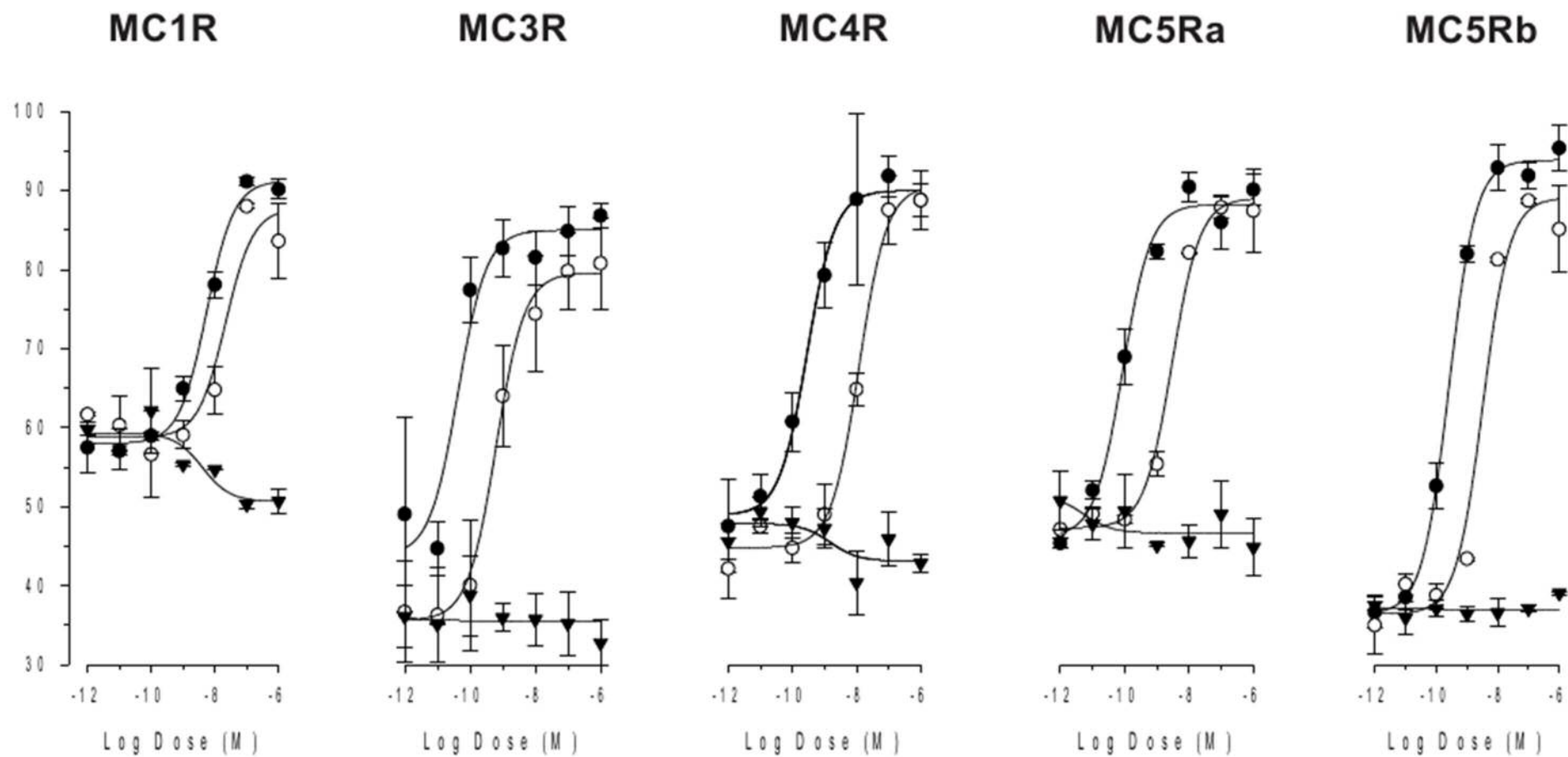
Figure 7. Genes of potential interest in the understanding of key physiological functions were selected to confirm the reliability of the microarray results. The qPCR analysis of gene expression was in good agreement with the microarray findings, all genes showing significant changes in the same direction (Fig. 7).

Figure 8. Differentially expressed genes (DEG) between males and females (left panel) or ASIP and WT fish after microarray analysis (see Material and Methods for details). See additional files 1, 2, 4, 5, 6 for complete listing of DEG

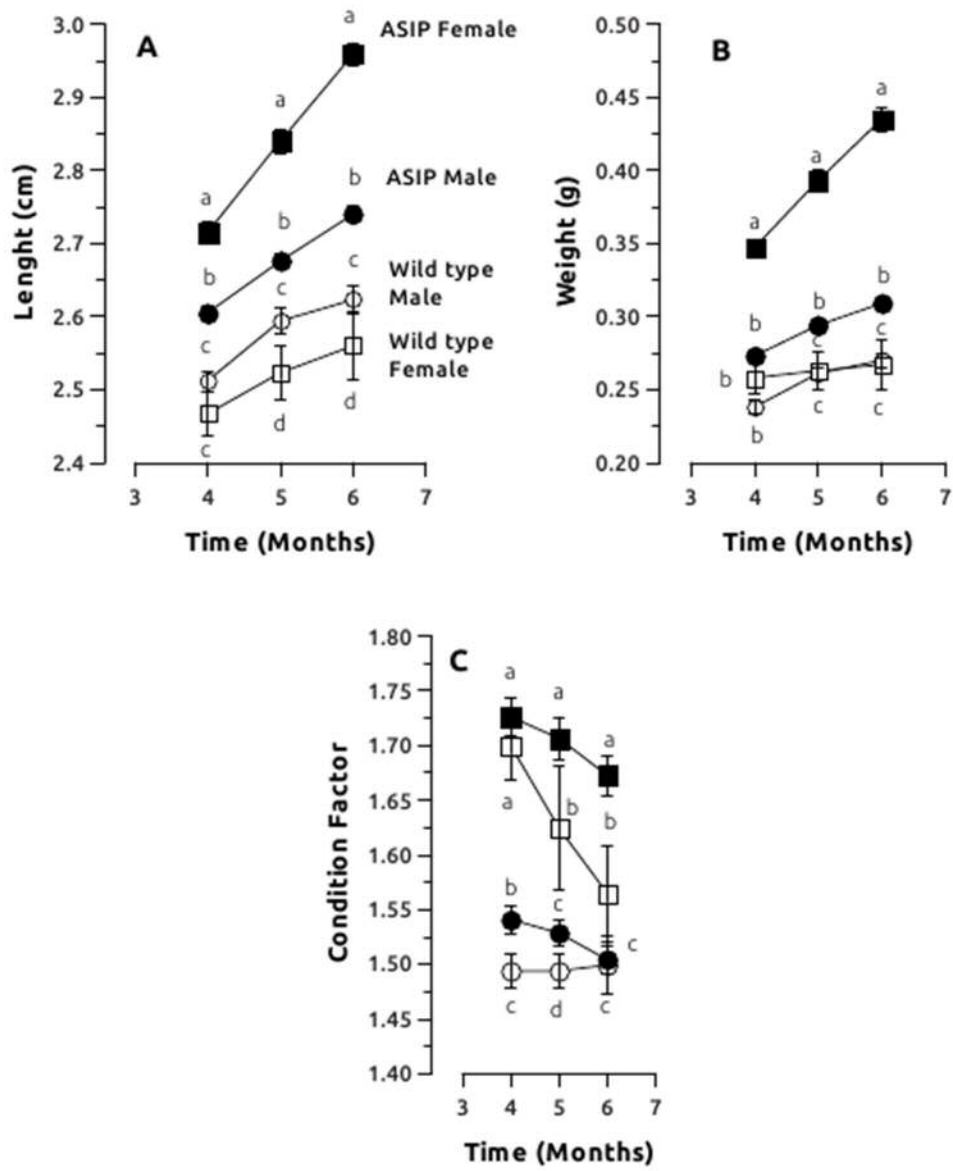
Figure 9. Comparison of differentially expressed genes (DEG) between ASIP males and females or WT males and females. Some physiologically important and common DEGs are highlighted. Complete list of DEG can be obtained in additional files 1 and 2.

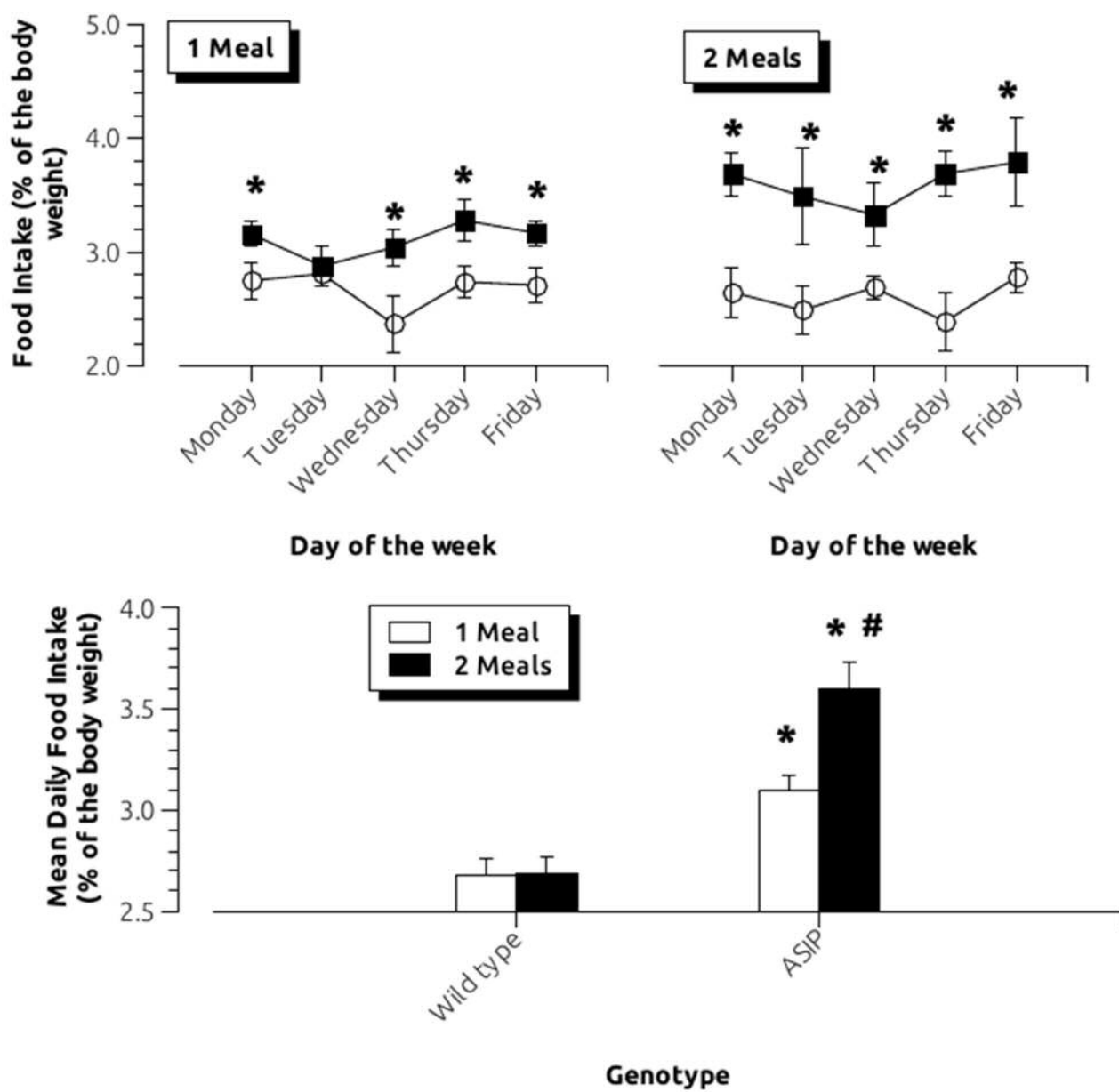
Figure 10. ASIP-induced DEG genes in both females and males. Complete lists of DEG can be obtained in additional files 5-9.

Figure 11. Effects of fasting on brain Cart2b expression of WT (+/+, n=40) or mutant strain *sal22* (MC4R -/-, n=40) Animals were fed *ad libitum* for 15 days. Brains were dissected after 0, 4, 6 and 12 days of progressive fasting. The animals were always sampled at 10.00 h. Different letters indicate significant differences for each genotype after one-way ANOVA followed by Tukey's multiple range test (p<0.05).

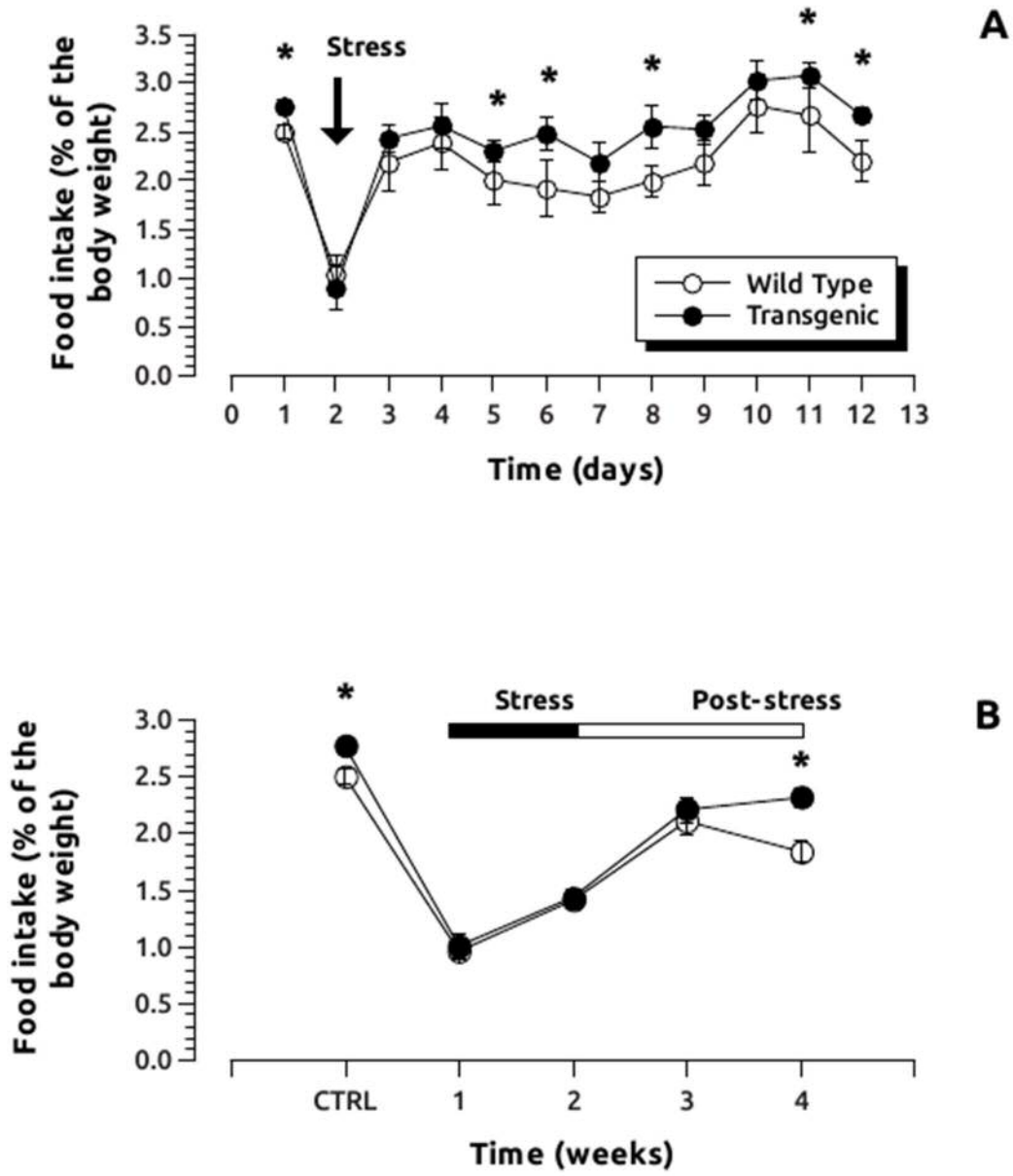


2 Figure 2

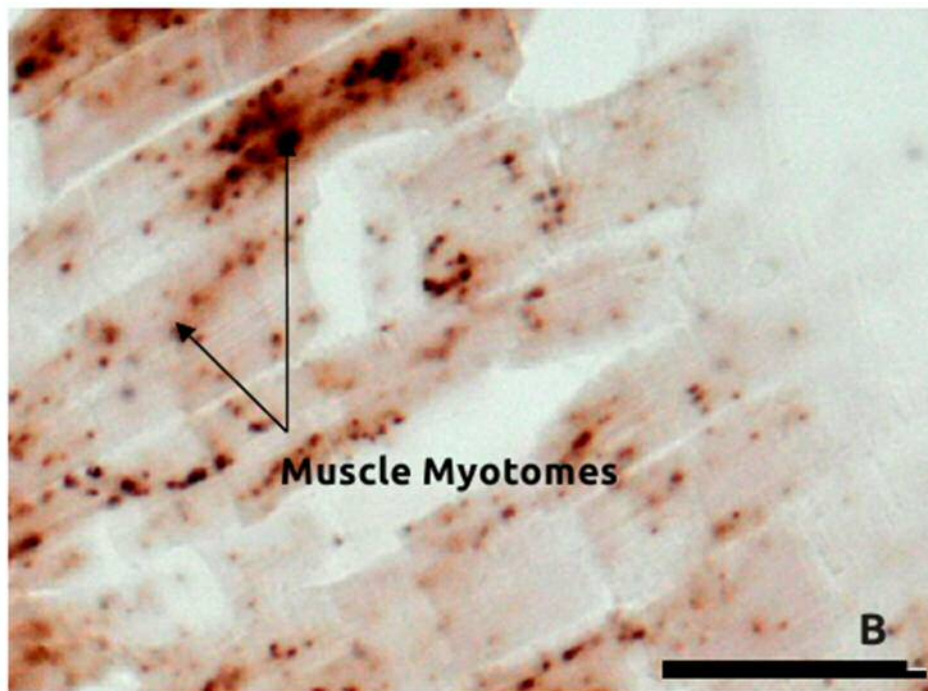
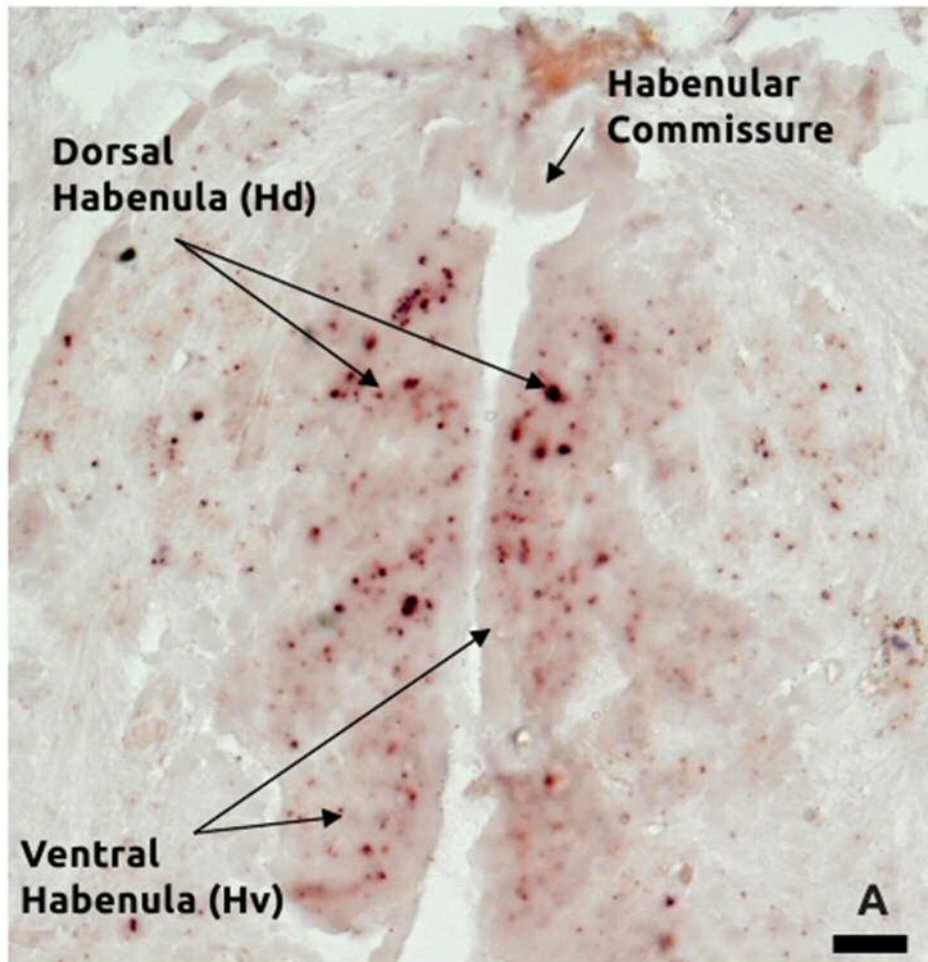




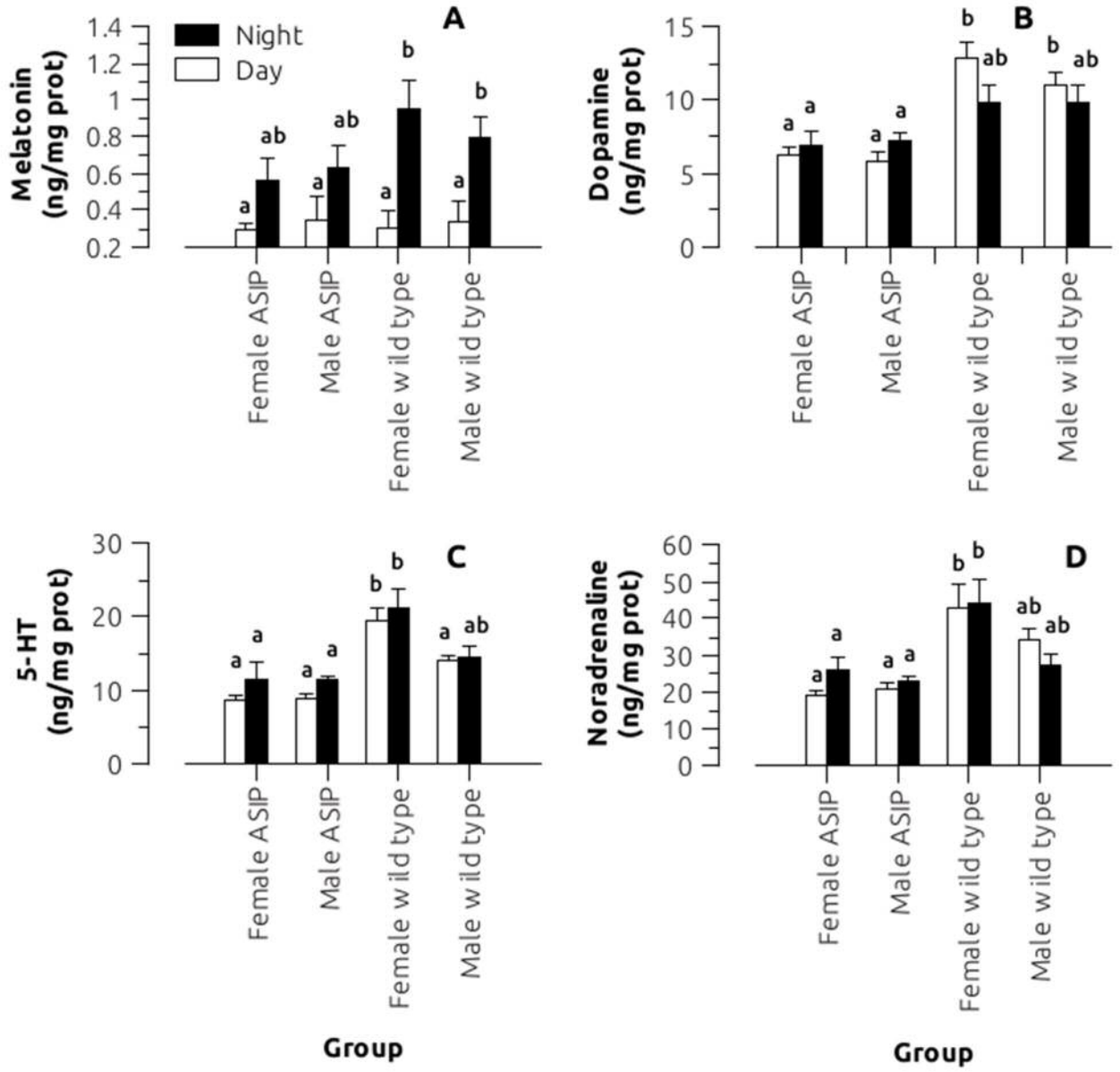
4 Figure 4



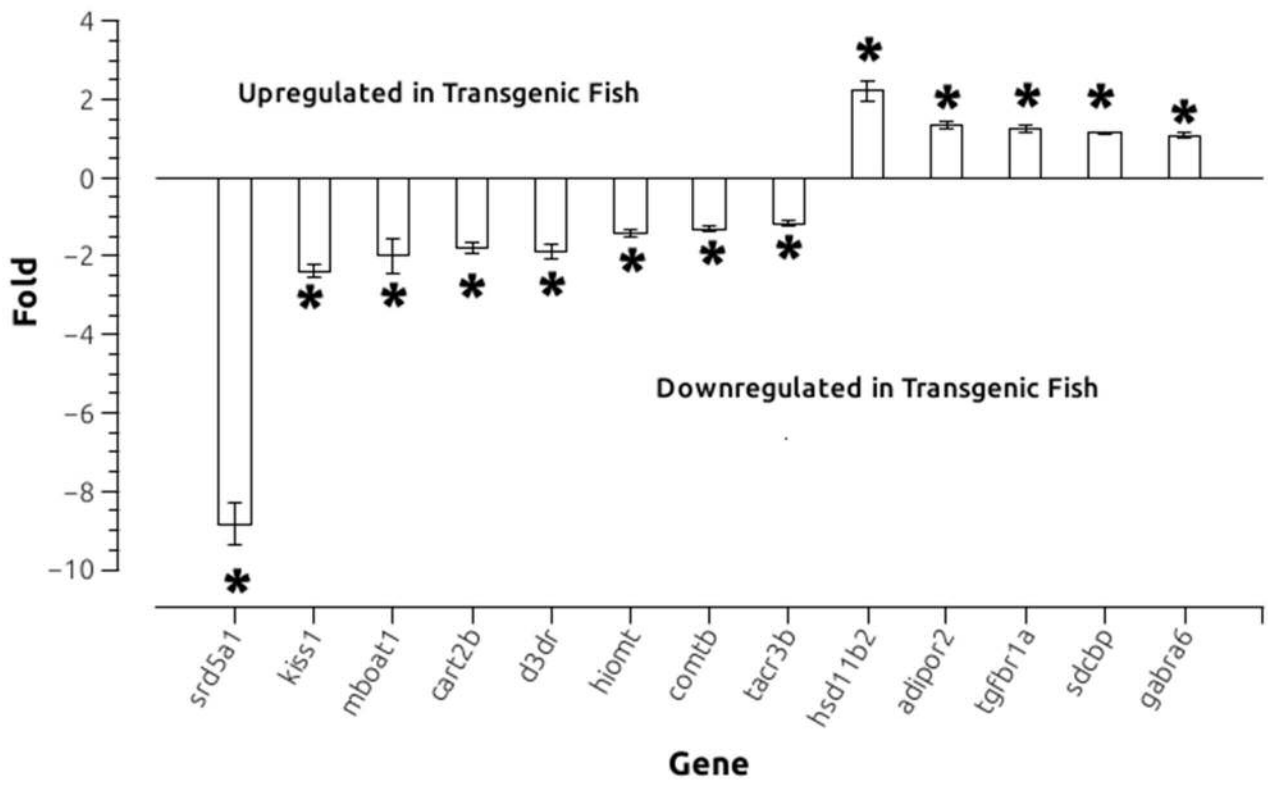
5 Figure 5



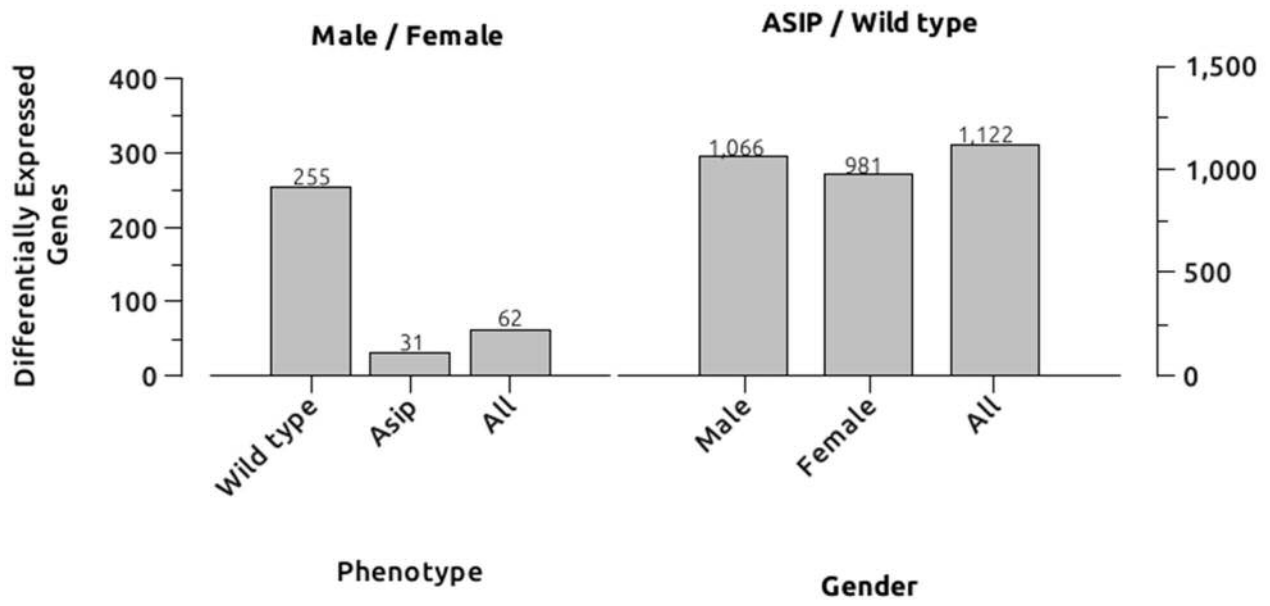
6 Figure 6



7 Figure 7

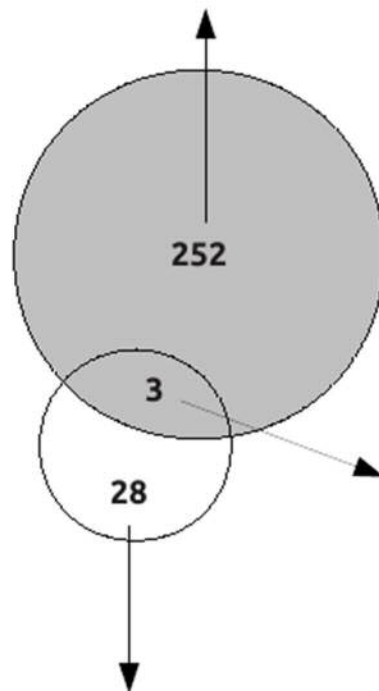


8 **Figure 8**



DEG induced by sex but abolished by ASIP expression

Prolactin (*prl*)
Proopiomelanocortin a (*pomca*)
Hydroxysteroid 11-beta dehydrogenase 2 (*hsd11 β 2*)
Hydroxy-delta-5-steroid dehydrogenase_
3 beta-and steroid delta-isomerase (*hsd3 β 7*)
Nitric oxide synthase 1 (*nos1*)



Genes Regulated by Sex independently of ASIP Expression

Iodothyronine deiodinase type I (*dio2*)
Insulin-like growth factor 1 (*igf1*)
Peroxisomal-trans-2-enoyl-CoA
reductase-like (*pcer*)

Sex differences in DEG induced by ASIP expression

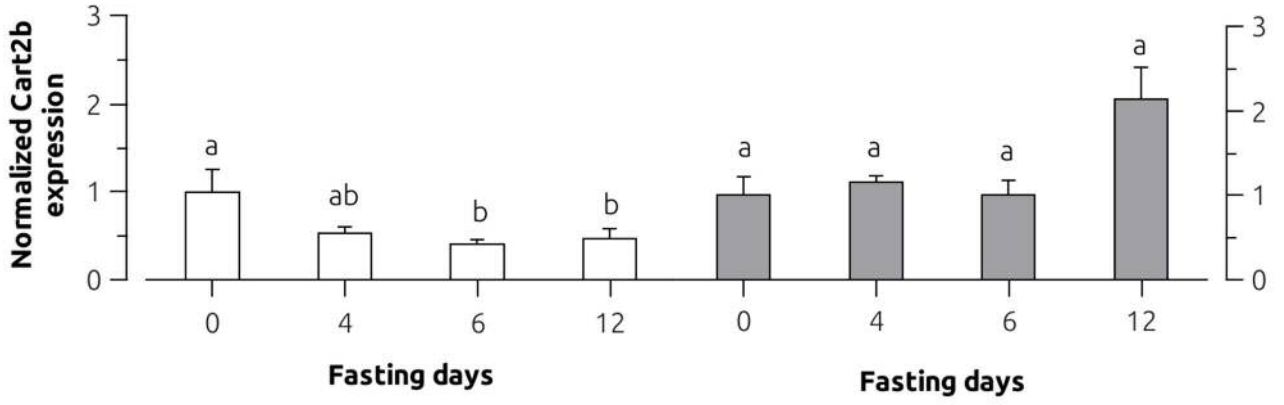
Follicle-stimulating hormone beta (*fshb*)
17-beta hydroxysteroid dehydrogenase type 3 (*hsd17 β 3*)
Tyrosinase-related protein 1 (*tyrp1b*)

ASIP-induced DEG in males



**ASIP-induced DE genes
in both males and females**

ASIP-induced DEG in females



17 **Supplementary Table 2**

18 EC₅₀ (M) of zfMCRs after MTII stimulation in the absence of presence of ASIP1

	MC1R	MC3R	MC4R	MC5Ra	MC5Rb
MTII	5.47 x 10 ⁻⁹	4.27 x10 ⁻¹¹	2.86 x 10 ⁻¹⁰	8.6 x 10 ⁻¹¹	2.57 10 ⁻¹⁰
MTII + hASIP (10⁻⁷M)	2.17 x 10 ⁻⁸	6.26 x 10 ⁻¹⁰	1.19 x 10 ⁻⁸	2.95 x 10 ⁻⁹	3.22 10 ⁻⁹

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Supplementary Table 3: Go terms analysis for DEG between wild type females and males

Term	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Calcium ion binding	11	758	2.62401E-02	1.5
Cell adhesion	7	398	2.88872E-02	1.8
Cell proliferation	6	282	1.38491E-02	2.1
Cellular component disassembly involved in execution phase of apoptosis	3	45	1.84980E-04	6.7
Circadian rhythm	5	63	5.11130E-09	7.9
Heme binding	5	137	4.24485E-04	3.6
Iron ion binding	5	169	2.87635E-03	3.0
Lipid binding	4	96	8.00581E-04	4.2
Lipid metabolic process	4	108	2.12004E-03	3.7
Mitochondrial inner membrane	5	251	4.26206E-02	2.0
Neurotransmitter secretion	3	70	5.33200E-03	4.3
Nuclear chromatin	7	99	2.07918E-11	7.1
Regulation of gene silencing	3	15	2.11556E-11	20.0
Response to hypoxia	5	163	2.12489E-03	3.1
Scavenger receptor activity	3	52	6.41240E-04	5.8
Signal transducer activity	5	243	3.55087E-02	2.1
Steroid hormone receptor activity	3	66	3.65754E-03	4.5
Synapse assembly	3	78	1.01549E-02	3.8

No significant KEGG pathways enrichment was found

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25**Table 4a: KEGG Pathways analysis for DEG between ASIP1 and wild type zebrafish independently of sex**

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Arginine and proline metabolism	13	160	1.11E-05	8.1
Ascorbate and aldarate metabolism	9	40	1.23E-12	22.5
Drug metabolism - cytochrome P450	9	69	2.89E-07	13.0
Drug metabolism - other enzymes	7	84	1.74E-03	8.3
Fatty acid metabolism	6	96	3.35E-02	6.3
Glycerolipid metabolism	7	106	1.26E-02	6.6
Histidine metabolism	5	61	1.28E-02	8.2
Homologous recombination	5	68	2.49E-02	7.4
Metabolism of xenobiotics by cytochrome P450	11	69	6.29E-11	15.9
NOD-like receptor signaling pathway	23	511	2.32E-03	4.5
Pentose and glucuronate interconversions	9	46	4.68E-11	19.6
Porphyrin and chlorophyll metabolism	8	95	6.09E-04	8.4
Pyruvate metabolism	7	110	1.65E-02	6.4
Retinol metabolism	7	82	1.38E-03	8.5
Steroid biosynthesis	4	33	3.24E-03	12.1
Steroid hormone biosynthesis	12	90	9.08E-10	13.3
Terpenoid backbone biosynthesis	5	47	1.94E-03	10.6
Tryptophan metabolism	7	81	1.22E-03	8.6
Valine leucine and isoleucine degradation	6	96	3.35E-02	6.3

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28 **Supplementary Table 4b: Go terms analysis for DEG between ASIP1 and wild type zebrafish.**
 29 **independently of sex**

Term	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Carbohydrate metabolic process	17	439	4.94E-02	3.9
Cell death	15	345	2.33E-02	4.3
Cell redox homeostasis	7	109	1.52E-02	6.4
Cellular protein modification process	7	109	1.52E-02	6.4
Cortical cytoskeleton	5	57	8.00E-03	8.8
Cysteine-type endopeptidase activator activity involved in apoptotic process	21	431	1.06E-03	4.9
Defense response to bacterium	22	518	6.70E-03	4.2
DNA recombination	7	94	4.66E-03	7.4
Fatty acid metabolic process	6	95	3.09E-02	6.3
Glutathione metabolic process	5	54	5.47E-03	9.3
Innate immune response	50	1334	8.08E-04	3.7
Ion channel activity	4	49	3.31E-02	8.2
Iron ion binding	20	325	2.05E-05	6.2
Isoprenoid biosynthetic process	3	20	5.42E-03	15.0
Lipid metabolic process	13	195	2.62E-04	6.7
Lipid particle	8	144	2.61E-02	5.6
Mitochondrial inner membrane	21	482	5.81E-03	4.4
Mitochondrial matrix	16	377	2.39E-02	4.2
Mitochondrion	61	1628	1.93E-04	3.7
Neuron apoptotic process	22	465	1.28E-03	4.7
Positive regulation of NF-kappab transcription factor activity	9	181	3.94E-02	5.0
Protein folding	13	248	5.77E-03	5.2
Protein N-linked glycosylation via asparagine	9	177	3.34E-02	5.1
Protein stabilization	7	122	3.32E-02	5.7
Regulation of inflammatory response	21	487	6.70E-03	4.3
Response to drug	19	510	5.37E-02	3.7
Response to hydrogen peroxide	4	50	3.66E-02	8.0
Ribonucleoprotein complex	10	184	1.32E-02	5.4
Secretory granule	5	72	3.40E-02	6.9
Steroid metabolic process	3	28	2.95E-02	10.7
T cell receptor signaling pathway	7	126	4.09E-02	5.6
Xenobiotic metabolic process	10	203	3.01E-02	4.9

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32 **Supplementary Table 5a: KEGG Pathways analysis for DEG between ASIP1 and wild type**
 33 **males**

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Arginine and proline metabolism	9	81	2.58E-04	11.1
Ascorbate and aldarate metabolism	5	24	6.10E-05	20.8
Axon guidance	11	152	8.06E-03	7.2
Biosynthesis of secondary metabolites	9	108	5.58E-03	8.3
Calcium signaling pathway	14	207	5.21E-03	6.8
Drug metabolism - other enzymes	5	43	8.32E-03	11.6
Glycerolipid metabolism	9	53	5.13E-07	17.0
Glycerophospholipid metabolism	7	80	1.23E-02	8.8
Histidine metabolism	6	30	1.18E-05	20.0
Lysosome	10	114	1.84E-03	8.8
Metabolism of xenobiotics by cytochrome P450	5	43	8.32E-03	11.6
Neurotrophin signaling pathway	9	123	1.72E-02	7.3
Nitrogen metabolism	5	34	1.48E-03	14.7
Pentose and glucuronate interconversions	5	28	2.76E-04	17.9
Porphyrin and chlorophyll metabolism	6	50	2.30E-03	12.0
Pyruvate metabolism	5	58	4.83E-02	8.6
Retinol metabolism	5	46	1.29E-02	10.9
Steroid hormone biosynthesis	9	46	3.90E-08	19.6
T cell receptor signaling pathway	11	108	1.43E-04	10.2
Tryptophan metabolism	5	43	8.32E-03	11.6
Valine_ leucine and isoleucine degradation	5	52	2.68E-02	9.6
VEGF signaling pathway	7	79	1.12E-02	8.9

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Supplementary Table 5b: GO terms analysis for DEG between ASIP1 and wild type males

Term	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Apoptotic process	24	398	1.32E-03	6.0
Apoptotic signaling pathway	7	79	1.12E-02	8.9
Axon guidance	21	348	2.83E-03	6.0
Blood coagulation	21	279	6.22E-05	7.5
Brain development	12	199	3.06E-02	6.0
Calcium ion binding	35	758	1.77E-02	4.6
Calcium-dependent cell-cell adhesion	6	52	3.18E-03	11.5
Calcium-dependent phospholipid binding	5	34	1.48E-03	14.7
Carbohydrate metabolic process	14	225	1.30E-02	6.2
Cell adhesion	26	398	1.67E-04	6.5
Cell death	12	175	9.27E-03	6.9
Cell junction	22	405	1.01E-02	5.4
Cell redox homeostasis	6	59	8.40E-03	10.2
Cell-cell signaling	11	184	4.30E-02	6.0
Cell-matrix adhesion	7	75	7.50E-03	9.3
Cellular iron ion homeostasis	6	70	2.66E-02	8.6
Chromatin binding	18	311	1.04E-02	5.8
Circadian rhythm	7	63	1.67E-03	11.1
DNA repair	11	174	2.74E-02	6.3
Dorsal/ventral pattern formation	5	56	4.02E-02	8.9
Double-strand break repair	6	44	7.41E-04	13.6
Endocytosis	10	103	5.76E-04	9.7
Endoplasmic reticulum	27	417	1.47E-04	6.5
Extracellular matrix organization	12	172	7.77E-03	7.0
Fc-epsilon receptor signaling pathway	10	158	3.71E-02	6.3
Focal adhesion	8	115	3.81E-02	7.0
G2/M transition of mitotic cell cycle	9	116	1.06E-02	7.8
Heme binding	12	137	5.47E-04	8.8
Hemopoiesis	8	59	6.32E-05	13.6
Hindbrain development	4	31	1.34E-02	12.9
Hippocampus development	5	38	3.49E-03	13.2
Homophilic cell adhesion	12	179	1.16E-02	6.7
Inflammatory response	12	173	8.25E-03	6.9
Innate immune response	35	765	2.04E-02	4.6
Insulin receptor signaling pathway	13	159	7.67E-04	8.2
Intermediate filament cytoskeleton	10	70	2.21E-06	14.3
Ion channel activity	6	26	1.84E-06	23.1
Iron ion binding	18	169	1.94E-07	10.7
Leukocyte migration	8	87	4.24E-03	9.2
Lipid metabolic process	12	108	1.62E-05	11.1
Lipid particle	7	55	4.37E-04	12.7
Lipid transport	5	45	1.12E-02	11.1
Liver development	8	83	2.74E-03	9.6
Mitochondrial inner membrane	21	251	6.78E-06	8.4
Mitochondrial matrix	14	184	1.21E-03	7.6
Mitochondrial outer membrane	9	100	2.66E-03	9.0
Mitochondrion	52	825	2.03E-07	6.3
Modulation by virus of host morphology or physiology	18	326	1.80E-02	5.5
mRNA metabolic process	5	53	2.98E-02	9.4
Muscle contraction	7	70	4.26E-03	10.0
Negative regulation of apoptotic process	24	410	2.17E-03	5.9
Negative regulation of cell death	5	43	8.32E-03	11.6
Negative regulation of epidermal growth factor receptor signaling pathway	4	37	3.39E-02	10.8
Negative regulation of neuron apoptotic process	9	132	2.98E-02	6.8
Negative regulation of NF-kappaB transcription factor activity	5	43	8.32E-03	11.6
Nervous system development	17	240	9.30E-04	7.1
Neuronal cell body	18	251	5.19E-04	7.2
Neurotrophin TRK receptor signaling pathway	19	285	1.13E-03	6.7
Phospholipid binding	25	367	9.78E-05	6.8
Platelet activation	14	201	3.69E-03	7.0
Positive regulation of cell migration	7	96	4.28E-02	7.3
Positive regulation of NF-kappaB transcription factor activity	8	88	4.69E-03	9.1
Postsynaptic density	9	126	2.09E-02	7.1
Postsynaptic membrane	13	235	4.98E-02	5.5

Protein folding	9	138	4.12E-02	6.5
Proteinaceous extracellular matrix	14	152	7.31E-05	9.2
Proteolysis	25	441	2.92E-03	5.7
Regulation of cell growth	6	66	1.82E-02	9.1
Regulation of cell proliferation	7	96	4.28E-02	7.3
Regulation of long-term neuronal synaptic plasticity	4	36	2.96E-02	11.1
Regulation of small gtpase mediated signal transduction	11	160	1.31E-02	6.9
Response to drug	19	237	4.69E-05	8.0
Response to glucocorticoid stimulus	6	62	1.20E-02	9.7
Response to glucose stimulus	6	62	1.20E-02	9.7
Response to hydrogen peroxide	5	25	9.24E-05	20.0
Response to hypoxia	12	163	4.40E-03	7.4
Response to stress	9	107	5.12E-03	8.4
Ribonucleoprotein complex	8	95	9.06E-03	8.4
Signal transduction	30	554	2.37E-03	5.4
Skeletal muscle tissue development	6	61	1.07E-02	9.8
Small gtpase mediated signal transduction	22	391	6.19E-03	5.6
Small molecule metabolic process	29	482	3.86E-04	6.0
Spindle	9	105	4.29E-03	8.6
Synapse assembly	9	78	1.61E-04	11.5
Synaptic transmission	19	382	4.65E-02	5.0
Synaptic transmission, glutamatergic	4	27	5.93E-03	14.8
Synaptic transmission_dopaminergic	3	15	5.98E-03	20.0
T cell receptor signaling pathway	6	61	1.07E-02	9.8
Telomere maintenance	5	48	1.68E-02	10.4
Xenobiotic metabolic process	7	97	4.56E-02	7.2
Z disc	10	80	1.88E-05	12.5
Zinc ion binding	51	1248	4.01E-02	4.1

38 **Supplementary Table 6a: KEGG Pathways analysis for DEG between ASIP1 and wild type**
 39 **females**

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Arginine and proline metabolism	11	81	2.97E-07	13.6
Ascorbate and aldarate metabolism	6	24	1.49E-07	25.0
Butanoate metabolism	5	48	9.88E-03	10.4
Drug metabolism - cytochrome P450	6	40	1.19E-04	15.0
Drug metabolism - other enzymes	5	43	4.63E-03	11.6
Glutathione metabolism	5	40	2.70E-03	12.5
Hedgehog signaling pathway	5	60	3.74E-02	8.3
Metabolism of xenobiotics by cytochrome P450	7	43	7.97E-06	16.3
mTOR signaling pathway	5	54	2.06E-02	9.3
NOD-like receptor signaling pathway	32	368	2.00E-10	8.7
Oxidative phosphorylation	10	135	4.57E-03	7.4
Pentose and glucuronate interconversions	6	28	1.44E-06	21.4
Pentose phosphate pathway	6	43	2.55E-04	14.0
Porphyrin and chlorophyll metabolism	5	50	1.29E-02	10.0
PPAR signaling pathway	7	68	1.56E-03	10.3
Pyruvate metabolism	6	58	3.90E-03	10.3
Steroid hormone biosynthesis	8	46	4.59E-07	17.4
Terpenoid backbone biosynthesis	7	25	9.73E-10	28.0

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Supplementary Table 6b: GO terms analysis for DEG between ASIP1 and wild type females

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Antigen processing and presentation of exogenous peptide antigen via mhc class i _{tap} -dependent	5	50	1.29E-02	3.6
Apoptotic process	22	398	2.44E-03	2.0
Blood coagulation	14	279	4.69E-02	1.8
Calcium ion binding	32	758	2.76E-02	1.5
Carbohydrate metabolic process	15	225	1.54E-03	2.4
Cell death	12	175	3.92E-03	2.4
Cell redox homeostasis	6	59	4.46E-03	3.6
Cell surface	22	288	4.81E-06	2.7
Cell-matrix adhesion	6	75	2.45E-02	2.9
Cellular lipid metabolic process	8	64	6.00E-05	4.5
Cellular protein modification process	7	66	1.17E-03	3.8
Centrosome	16	293	1.30E-02	1.9
Chromatin modification	7	78	5.26E-03	3.2
Cilium	6	83	4.50E-02	2.6
Cysteine-type endopeptidase activator activity involved in apoptotic process	29	333	1.48E-09	3.1
Cytokine-mediated signaling pathway	8	79	7.20E-04	3.6
Cytokinesis	8	93	3.66E-03	3.1
Defense response to bacterium	31	371	1.73E-09	3.0
Dna recombination	6	53	1.84E-03	4.0
Dna repair	11	174	1.35E-02	2.3
Endosome	8	109	1.42E-02	2.6
Extracellular matrix organization	10	172	3.82E-02	2.1
Fatty acid metabolic process	6	45	4.03E-04	4.8
G1/s transition of mitotic cell cycle	9	116	5.06E-03	2.8
G2/m transition of mitotic cell cycle	8	116	2.28E-02	2.5
Induction of apoptosis	34	441	5.50E-09	2.8
Innate immune response	54	765	1.30E-11	2.5
Iron ion binding	15	169	1.66E-05	3.2
Isoprenoid biosynthetic process	6	11	6.13E-14	19.5
Lipid metabolic process	8	108	1.32E-02	2.6
Lipid particle	10	55	3.78E-09	6.5
Lipid transport	6	45	4.03E-04	4.8
Liver development	7	83	8.69E-03	3.0
Lysosome	8	129	4.76E-02	2.2
Microtubule	14	274	4.00E-02	1.8
Mitochondrial inner membrane	21	251	9.95E-07	3.0
Mitochondrial matrix	16	184	1.20E-05	3.1
Mitochondrial outer membrane	9	100	1.12E-03	3.2
Mitochondrion	56	825	4.21E-11	2.4
Modulation by virus of host morphology or physiology	18	326	6.85E-03	2.0
Negative regulation of apoptotic process	24	410	5.35E-04	2.1
Negative regulation of cell growth	7	84	9.54E-03	3.0
Negative regulation of neuron differentiation	6	66	1.04E-02	3.2
Neuron apoptotic process	31	351	2.20E-10	3.2
Peroxisome	5	55	2.30E-02	3.2
Phosphatidylinositol biosynthetic process	5	45	6.38E-03	4.0
Positive regulation of angiogenesis	7	91	1.73E-02	2.7
Post-translational protein modification	8	114	2.00E-02	2.5
Protein folding	11	138	1.17E-03	2.8
Protein n-linked glycosylation via asparagine	6	83	4.50E-02	2.6
Protein stabilization	5	62	4.46E-02	2.9
Proteolysis	22	441	1.07E-02	1.8
Pyridoxal phosphate binding	6	54	2.16E-03	4.0
Regulation of apoptotic process	7	76	4.23E-03	3.3
Regulation of cell shape	7	100	3.30E-02	2.5
Regulation of inflammatory response	29	355	1.32E-08	2.9
Response to drug	17	237	2.12E-04	2.6
Response to hypoxia	12	163	1.73E-03	2.6
Ribonucleoprotein complex	7	95	2.34E-02	2.6
Ruffle	8	112	1.75E-02	2.6
Signal transduction	24	554	4.59E-02	1.5
Small molecule metabolic process	34	482	1.20E-07	2.5
Synapse	9	126	1.07E-02	2.6
Xenobiotic metabolic process	7	97	2.70E-02	2.6
Zinc ion binding	56	1248	5.44E-04	1.6

42 **Supplementary Table 7a: KEGG pathway analysis for DEG in both ASIP1 males and females**

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Biosynthesis of secondary metabolites	5	123	2.82E-02	3.1
Butanoate metabolism	3	51	3.21E-02	4.4
Histidine metabolism	3	33	2.97E-03	6.8
Steroid hormone biosynthesis	5	58	4.71E-05	6.5
Synthesis and degradation of ketone bodies	2	9	3.29E-04	16.7
Terpenoid backbone biosynthesis	3	26	5.42E-04	8.7

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Supplementary Table 7b: GO terms analysis for DEG in both ASIP1 males and females

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Central nervous system development	4	99	6.25E-02	3.0
Cerebral cortex gabaergic interneuron migration	2	10	6.61E-04	15.0
Chromatin modification	4	85	2.97E-02	3.5
DNA damage response_ signal transduction by p53 class mediator resulting in cell cycle arrest	3	54	4.13E-02	4.2
Drug binding	3	53	3.81E-02	4.3
Focal adhesion	5	121	2.56E-02	3.1
Heme binding	6	165	2.83E-02	2.7
Iron ion binding	9	202	5.05E-04	3.3
Isoprenoid biosynthetic process	2	11	1.20E-03	13.7
Lipid particle	6	109	1.05E-03	4.1
Lipid storage	2	23	3.94E-02	6.5
Mitochondrial inner membrane	11	264	2.45E-04	3.1
Mitochondrial outer membrane	6	112	1.37E-03	4.0
mRNA metabolic process	3	56	4.82E-02	4.0
Negative regulation of angiogenesis	3	54	4.13E-02	4.2
Negative regulation of apoptotic process	13	464	1.14E-02	2.1
Negative regulation of cell growth	4	98	5.97E-02	3.1
Phosphatidylinositol biosynthetic process	3	46	1.97E-02	4.9
Regulation of long-term neuronal synaptic plasticity	3	37	6.05E-03	6.1
Response to drug	8	268	3.94E-02	2.2
Response to hydrogen peroxide	3	29	1.23E-03	7.8
Response to morphine	2	24	4.58E-02	6.3
Small molecule metabolic process	16	539	1.98E-03	2.2
Sodium channel activity	2	23	3.94E-02	6.5
Steroid metabolic process	2	18	1.50E-02	8.4

Supplementary Table 8a: KEGG pathway analysis for DEG only in ASIP1 males

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Apoptosis	5	84	4.29E-02	6.0
Arginine and proline metabolism	8	81	1.85E-05	9.9
Axon guidance	9	152	3.42E-03	5.9
Calcium signaling pathway	11	207	3.46E-03	5.3
Glycerolipid metabolism	9	53	6.88E-11	17.0
Glycerophospholipid metabolism	6	80	4.08E-03	7.5
Lysosome	10	114	8.54E-06	8.8
Neurotrophin signaling pathway	8	123	2.68E-03	6.5
Nitrogen metabolism	5	34	2.55E-05	14.7
Pyrimidine metabolism	6	106	3.05E-02	5.7
T cell receptor signaling pathway	8	108	6.98E-04	7.4
VEGF signaling pathway	5	79	3.05E-02	6.3

Supplementary Table 8b: GO terms analysis for DEG only in ASIPI males

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Cell surface	15	288	2.44E-02	5.2
Cellular lipid metabolic process	5	64	4.98E-02	7.8
Cellular protein modification process	7	66	1.06E-03	10.6
Cysteine-type endopeptidase activator activity involved in apoptotic process	24	333	5.34E-06	7.2
Cytokine-mediated signaling pathway	6	79	3.17E-02	7.6
Defense response to bacterium	26	371	4.13E-06	7.0
Fatty acid metabolic process	5	45	5.93E-03	11.1
Induction of apoptosis	26	441	2.10E-04	5.9
Innate immune response	42	765	1.48E-05	5.5
Isoprenoid biosynthetic process	4	11	8.09E-07	36.4
Mitochondrial matrix	13	184	1.54E-03	7.1
Mitochondrion	40	825	6.02E-04	4.8
Neuron apoptotic process	25	351	4.40E-06	7.1
Pyridoxal phosphate binding	5	54	1.94E-02	9.3
Regulation of inflammatory response	24	355	2.35E-05	6.8

Supplementary Table 9a: KEGG pathway analysis for DEG only in ASIP1 females

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Arginine and proline metabolism	10	81	6.30E-10	12.3
Glutathione metabolism	5	40	3.73E-05	12.5
Metabolism of xenobiotics by cytochrome P450	5	43	8.35E-05	11.6
NOD-like receptor signaling pathway	26	368	2.97E-12	7.1
Oxidative phosphorylation	8	135	2.02E-03	5.9
Pentose phosphate pathway	5	43	8.35E-05	11.6
PPAR signaling pathway	7	68	8.24E-06	10.3
Protein processing in endoplasmic reticulum	9	184	6.72E-03	4.9

Supplementary Table 9b: GO terms analysis for DEG only in ASIP1 females

Pathway	Affected genes in the pathway	Genes in the pathway	Yates corrected Chi-square	% of affected genes in the pathway
Calcium ion binding	22	758	4.50E-02	2.9
Carbohydrate metabolic process	9	225	3.59E-02	4.0
Cell redox homeostasis	4	59	2.56E-02	6.8
Cell surface	15	288	9.56E-05	5.2
Cellular lipid metabolic process	5	64	3.30E-03	7.8
Cellular protein modification process	7	66	5.33E-06	10.6
Centrosome	12	293	9.91E-03	4.1
Chloride channel complex	3	39	4.39E-02	7.7
Cholesterol metabolic process	4	62	3.31E-02	6.5
Cysteine-type endopeptidase activator activity involved in apoptotic process	24	333	1.06E-11	7.2
Cytokine-mediated signaling pathway	6	79	1.25E-03	7.6
Cytokinesis	5	93	3.86E-02	5.4
Defense response to bacterium	26	371	4.13E-12	7.0
DNA recombination	4	53	1.41E-02	7.5
Fatty acid metabolic process	5	45	1.35E-04	11.1
G1/S transition of mitotic cell cycle	6	116	2.51E-02	5.2
Glycogen metabolic process	3	27	7.33E-03	11.1
Golgi apparatus	18	575	3.56E-02	3.1
Hippocampus development	3	38	3.93E-02	7.9
Induction of apoptosis	26	441	2.59E-09	5.9
Innate immune response	42	765	6.93E-13	5.5
Iron ion binding	8	169	1.52E-02	4.7
Isoprenoid biosynthetic process	4	11	3.99E-10	36.4
Lipid particle	4	55	1.75E-02	7.3
Long-term synaptic potentiation	3	31	1.53E-02	9.7
Lysosome	6	129	4.80E-02	4.7
Microtubule	11	274	1.72E-02	4.0
Mitochondrial inner membrane	12	251	1.76E-03	4.8
Mitochondrial matrix	13	184	1.69E-06	7.1
Mitochondrion	40	825	7.54E-10	4.8
Negative regulation of neuron differentiation	5	66	4.17E-03	7.6
Negative regulation of neuron projection development	3	31	1.53E-02	9.7
Neuron apoptotic process	25	351	5.97E-12	7.1
Peroxisome	4	55	1.75E-02	7.3
Positive regulation of neuron projection development	4	67	4.84E-02	6.0
Post-translational protein modification	7	114	3.24E-03	6.1
Protein folding	8	138	2.51E-03	5.8
Protein N-linked glycosylation via asparagine	5	83	1.99E-02	6.0
Protein targeting	3	32	1.79E-02	9.4
Pyridoxal phosphate binding	5	54	7.95E-04	9.3
Regulation of angiogenesis	3	27	7.33E-03	11.1
Regulation of apoptotic process	5	76	1.14E-02	6.6
Regulation of inflammatory response	24	355	1.16E-10	6.8
Response to hormone stimulus	3	32	1.79E-02	9.4
Response to hypoxia	7	163	4.84E-02	4.3
Secretory granule	3	29	1.08E-02	10.3
Signal transduction	17	554	5.11E-02	3.1
Small molecule metabolic process	18	482	4.31E-03	3.7
Steroid hormone receptor activity	4	66	4.51E-02	6.1
Structural constituent of ribosome	6	119	2.96E-02	5.0
Synapse	6	126	4.19E-02	4.8
Zinc ion binding	43	1248	4.77E-05	3.4

ESEMBL ID	Description	Symbol	<i>t</i>	log ₂ ER
ENSDARG00000074443	Growth arrest-specific protein 7	gas7a	0.00000	-5.91
ENSDARG00000037946	Prolactin	prl	0.02461	-3.46
ENSDARG00000078522	Uncharacterized protein	si:ch211-80h18.1	0.04098	-3.31
ENSDARG00000043135	Proopiomelanocortin a	pomca	0.03436	-3.27
ENSDARG00000069734	Hemoglobin cathodic subunit beta-like	hbb2	0.01222	-3.23
ENSDARG00000039243	Interferon stimulated gene 12	isg12	0.03860	-2.71
ENSDARG00000069583	Carnosine dipeptidase 1	cndp1	0.00304	-2.63
ENSDARG00000017489	Interferon stimulated gene 12.1	lsg121	0.04165	-2.57
ENSDARG00000004470	Protein kinase C substrate 80K-H	prkcsh	0.00259	-2.49
ENSDARG00000052859	Calcineurin-like EF hand protein 1	chp1	0.01640	-2.21
ENSDARG00000075826	MutS protein homolog 4	msh4	0.00264	-2.15
ENSDARG00000041379	Guanylyl cyclase inhibitory protein-like	gc1p	0.00030	-2.10
ENSDARG00000054797	Retinol dehydrogenase 13	rdh13	0.00065	-2.08
ENSDARG00000070683	Dickkopf homolog 3b (Xenopus laevis)	dkk3b	0.03260	-2.05
ENSDARG00000045898	Uncharacterized protein	si:ch211-152c2.3	0.00829	-1.96
ENSDARG00000043019	Exocyst complex component 1	exoc1	0.00006	-1.86
ENSDARG00000091029	Paired-like homeobox 2bb	phox2bb	0.04445	-1.82
ENSDARG00000015964	Claudin-24-like	cldn24	0.00030	-1.77
ENSDARG00000027355	Solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 4	slc25a4	0.00782	-1.72
ENSDARG00000078389	interferon alpha-inducible protein 27-like isoform X1	Ifi27	0.03882	-1.63
ENSDARG00000094857	Diiodinase, iodothyronine, type II	dio2	0.00275	-1.59
ENSDARG00000020960	Hepatocyte growth factor-regulated tyrosine kinase substrate	hgs	0.00353	-1.59
ENSDARG00000058966	retinol dehydrogenase 12-like	rdh12	0.00120	-1.55
ENSDARG00000095972	Phospholipase A1 member A	pla1a	0.00006	-1.53
ENSDARG00000016570	Prolactin receptor a	prlra	0.00100	-1.51
ENSDARG00000023645	Cysteine conjugate-beta lyase; cytoplasmic (glutamine transaminase K, kynurenine aminotransferase)	ccb1	0.00012	-1.48
ENSDARG00000075165	Zinc finger CCCH domain-containing protein 6	zc3h6	0.00012	-1.48
ENSDARG00000062477	UPF0606 protein KIAA1549L	kiaa1549la	0.03828	-1.42
ENSDARG00000026039	Cytochrome P450, family 1, subfamily A	cyp1a	0.01545	-1.41
ENSDARG00000010729	Interferon-induced protein 44	Ifi44	0.04256	-1.41
ENSDARG00000079637	Alpha-kinase 2	alpk2	0.01874	-1.40
ENSDARG00000037099	Insulin receptor substrate 2	irs2a	0.04281	-1.31
ENSDARG00000094965	Nuclear factor, interleukin 3 regulated, member 5	nfil3-5	0.00616	-1.30
ENSDARG00000005150	T-box 20	tbx20	0.02402	-1.28
ENSDARG00000003146	Neurofilament medium polypeptide isoform X1	nefm	0.00009	-1.24
ENSDARG00000087933	Transmembrane protein 106C	tmem106c	0.03880	-1.24
ENSDARG00000037790	Parvalbumin 8	pvalb8	0.03026	-1.23
ENSDARG00000016651	Zinc finger protein 106a	znf106a	0.00232	-1.21
ENSDARG00000016771	Transferrin-a	tfa	0.03535	-1.21
ENSDARG00000073793	Uncharacterized protein	bx927234.1	0.00382	-1.19
ENSDARG00000075191	O-acyltransferase like	oacyl	0.02706	-1.19
ENSDARG00000042899	UPF0577 protein KIAA1324 homolog isoform X1	KIAA1324	0.03526	-1.16
ENSDARG00000095179	Uncharacterized protein		0.00150	-1.15
ENSDARG00000025757	Tetraspanin-1 like	tspan1	0.04252	-1.14
ENSDARG00000008986	E2F transcription factor 7	e2f7	0.00051	-1.14
ENSDARG00000013973	Peroxisomal biogenesis factor 3	pex3	0.02822	-1.13
ENSDARG00000001975	Hydroxysteroid 11-beta dehydrogenase 2	hsd11b2	0.01182	-1.12
ENSDARG00000036966	Hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase	hsd3b7	0.04296	-1.08
ENSDARG00000069940	Phosphatidic acid phosphatase type 2D	ppab2b	0.00092	-1.08
ENSDARG00000003903	Hyaluronan and proteoglycan link protein 2	hapln2	0.00720	-1.07
ENSDARG00000077648	Folliculin-interacting protein 2	fnip2	0.02626	-1.07
ENSDARG00000035768	Phospholipid transfer protein	pltp	0.00341	-1.07
ENSDARG00000077572	Uncharacterized protein	si:ch211-193k19.2	0.03157	-1.05
ENSDARG00000078847	Peroxisomal trans-2-enoyl-CoA reductase-like	pcer	<u>0.04523</u>	-1.05
ENSDARG00000016235	Retinol binding protein 1a, cellular	rbp1a	0.02638	-1.04
ENSDARG00000068910	Nitric oxide synthase 1 (neuronal)	nos1	0.00652	-1.02
ENSDARG00000056163	Uncharacterized protein	zgc:73228	0.03142	-1.01
ENSDARG00000092052	Glutathione S-transferase kappa 1		0.01623	-1.00
ENSDARG00000088959	Pyridoxal (pyridoxine, vitamin B6) kinase a	pdxka	0.00176	-1.00
ENSDARG00000069823	Protein interacting with cyclin A1	proca1	0.02674	-0.99
ENSDARG00000011618	Solute carrier family 26 (sulfate transporter), member 2	slc26a2	0.00006	-0.98
ENSDARG00000069552	Atonal homolog 7	atoh7	0.02769	-0.94
ENSDARG00000090901	NACHT, LRR and PYD domains-containing protein 12-like	nlrp12	0.00947	-0.94
ENSDARG00000060319	Sodium channel, voltage-gated, type IV, beta a	scn4bb	0.00045	-0.94
ENSDARG00000091294	Cytidine deaminase	cda	0.00075	-0.94
ENSDARG00000021233	6-phosphogluconolactonase	pgls	0.00266	-0.93

ENSDARG00000091131	Cryptochrome 2b	cry2b	0.00512	-0.92
ENSDARG00000094935	Uncharacterized protein	si:dkey-58f10.11	0.00368	-0.92
ENSDARG00000069261	Methionyl aminopeptidase 2a	metap2a	0.00298	-0.91
ENSDARG00000074904	Dysbindin (dystrobrevin binding protein 1) domain containing 2	dbnnd2	0.00510	-0.91
ENSDARG00000078359	Poly(U)-specific endoribonuclease-C	endouc	0.03896	-0.90
ENSDARG00000062059	Uncharacterized protein	si:ch211-236114.4	0.01843	-0.90
ENSDARG00000075537	Uncharacterized protein		0.02566	-0.89
ENSDARG00000094554	SITS-binding protein isoform X1	-	0.02701	-0.88
ENSDARG00000026473	Sine oculis homeobox homolog 1b	six1b	0.04031	-0.88
ENSDARG00000039820	Male-enhanced antigen 1	mea1	0.01916	-0.88
ENSDARG00000010658	Insulin induced gene 1	insig1	0.00395	-0.87
ENSDARG00000070717	Solute carrier family 25 (mitochondrial carrier). member 18	slc25a18	0.01493	-0.87
ENSDARG00000077906	Ring finger protein 165a	rnf165a	0.00055	-0.87
ENSDARG00000076376	Transmembrane protein 175	tmem175	0.01098	-0.87
ENSDARG00000041728	Mannosidase, alpha. class 1A. member 1	man1a2	0.02115	-0.87
ENSDARG00000037634	Glucosamine (UDP-N-acetyl)-2-epimerase/N-acetylmannosamine kinase	gne	0.01867	-0.86
ENSDARG00000012738	Zinc finger, CCHC domain containing 14	zcchc14	0.00091	-0.86
ENSDARG00000012534	Solute carrier family 6 (neurotransmitter transporter. taurine). member 6a	slc6a6a	0.04419	-0.86
ENSDARG00000078084	Quinone oxidoreductase PIG3	pig-3	0.00517	-0.85
ENSDARG00000027464	Glucosamine (N-acetyl)-6-sulfatase (Sanfilippo disease IIID). b	gnsb	0.01084	-0.84
ENSDARG00000030756	DNA (cytosine-5-)-methyltransferase 1	dnmt1	0.00848	-0.84
ENSDARG00000053831	Vitronectin b	vtnb	0.00651	-0.84
ENSDARG00000094132	Insulin-like growth factor 1	igf1	0.00495	-0.84
ENSDARG00000055305	Ret proto-oncogene receptor tyrosine kinase	ret	0.02076	-0.84
ENSDARG00000027065	Solute carrier family 38. member 3a	slc38a3a	0.02536	-0.84
ENSDARG00000095283	Uncharacterized protein	si:dkeyp-2e4.3	0.00795	-0.84
ENSDARG00000016141	Solute carrier family 6 (neurotransmitter transporter. noradrenalin). member 2	slc6a2	0.01937	-0.84
ENSDARG00000077761	Neurologin 4b	nlg4b	0.02929	-0.83
ENSDARG00000052307	LMBR1 domain containing 1	lmbd1	0.00134	-0.83
ENSDARG00000005154	Aspartoacylase	aspa	0.00105	-0.83
ENSDARG00000068126	C-type natriuretic peptide	nppc	0.01085	-0.83
ENSDARG00000068708	Interferon-related developmental regulator 1	ifrd1	0.02476	-0.81
ENSDARG00000055540	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 4	pfkfb4	0.01151	-0.80
ENSDARG00000002795	Myeloid ecotropic viral integration site 3	meis3	0.00429	-0.80
ENSDARG00000036911	Secretory carrier membrane protein 1	scamp1	0.02355	-0.80
ENSDARG00000071601	Parvalbumin 9	pvalb9	0.03694	-0.79
ENSDARG00000061231	Tubulointerstitial nephritis antigen-like 1	tinagl1	0.02258	-0.79
ENSDARG00000002303	Exportin. tRNA (nuclear export receptor for tRNAs)	xpot	0.00810	-0.79
ENSDARG00000086288	Secretogranin III	scg3	0.02459	-0.79
ENSDARG00000040469	Ectonucleotide pyrophosphatase/phosphodiesterase 6	enpp6	0.04645	-0.78
ENSDARG00000056510	Glutathione S-transferase kappa 1	gstk1	0.00121	-0.77
ENSDARG00000035859	Angiopoietin-like 4	angptl4	0.02148	-0.77
ENSDARG00000095328	Uncharacterized protein	si:ch211-191i18.4	0.00732	-0.76
ENSDARG00000043446	EF-hand domain family. member D1	efhd1	0.04752	-0.76
ENSDARG00000056499	Carbonic anhydrase VI	ca6	0.00366	-0.76
ENSDARG00000069729	N-methylpurine-DNA glycosylase	mpg	0.00214	-0.76
ENSDARG00000003046	Sorbin and SH3 domain-containing protein 2	sorbs2a	0.04231	-0.75
ENSDARG00000001972	Tyrosylprotein sulfotransferase 2	tpst2	0.00224	-0.75
ENSDARG00000057231	RAR-related orphan receptor C a	rorca	0.01174	-0.75
ENSDARG00000016866	Family with sequence similarity 102. member Ab	fam102ab	0.02078	-0.75
ENSDARG00000022437	Tetraspanin	cd81b	0.01209	-0.75
ENSDARG00000086216	Proline rich 13	prr13	0.02119	-0.74
ENSDARG00000061647	Neurexin 1a	nrxn1a	0.04644	-0.74
ENSDARG00000006497	Reticulon 1a	rtn1a	0.00560	-0.74
ENSDARG00000090064	Transmembrane protein 179	CABZ01084273.1	0.02305	-0.74
ENSDARG00000011239	Protein phosphatase 1. regulatory (inhibitor) subunit 14Aa	ppp1r14aa	0.02565	-0.73
ENSDARG000000077730			0.00363	-0.73
ENSDARG000000027078	Cyclin Pas1/PHO80 domain containing 1	cnppd1	0.00613	-0.73
ENSDARG00000092726	Uncharacterized protein	si:dkey-184p9.7	0.03779	-0.73
ENSDARG00000060434	Microtubule-associated protein 1B	map1b	0.00298	-0.73
ENSDARG00000056453	Actin filament associated protein 1-like 1b	afap111b	0.03703	-0.73
ENSDARG00000058440	Solute carrier family 6 (neurotransmitter transporter. taurine). member 6b	slc6a6b	0.04841	-0.73
ENSDARG00000024032	Cochlin	coch	0.01373	-0.73
ENSDARG00000036900	Suppression of tumorigenicity 14 (colon carcinoma) b	st14	0.03360	-0.72
ENSDARG00000040295	Apolipoprotein Eb	apoeb	0.03997	-0.72
ENSDARG00000052020	CKLF-like MARVEL transmembrane domain containing 4	cmtm4	0.00813	-0.72

ENSDARG00000078003	F-box/LRR-repeat protein 3	fbx13	0.01997	-0.72
ENSDARG00000089838	Uncharacterized protein	si:dkey-262k9.4	0.04167	-0.72
ENSDARG00000058644	DnaJ (Hsp40) homolog, subfamily B, member 6a	dnajb2	0.01219	-0.71
ENSDARG00000079307	CDP-diacylglycerol--serine O-phosphatidyltransferase	pssA	0.02369	-0.71
ENSDARG00000092390	<u>Uncharacterized protein</u>	si:dkey-6f10.4	0.02308	-0.71
ENSDARG00000074235	V-set domain-containing T-cell activation inhibitor 1-like	vtcn1	0.04803	-0.71
ENSDARG00000052330	Solute carrier family 4, anion exchanger, member 2b	slc4a2b	0.00941	-0.71
ENSDARG00000034048	Cholesterol desaturase daf-36-like	daf36	0.02118	-0.70
ENSDARG00000096310	TATA box-binding protein-associated factor RNA polymerase I subunit C	taf1c	0.04682	-0.70
ENSDARG00000002071	Adenylosuccinate synthase	adss	0.04836	-0.70
ENSDARG00000034173	Protein kinase C, theta	prkcq	0.01016	0.70
ENSDARG00000039422	Fucose mutarotase	fuom	0.00181	0.70
ENSDARG00000075693	Nuclear fragile X mental retardation-interacting protein 1	NUFIP2	0.01555	0.70
ENSDARG00000041944	Adenosine deaminase, tRNA-specific 2, TAD2 homolog (S. cerevisiae)	adat2	0.01341	0.71
ENSDARG00000042697	Scavenger receptor class B, member 1	scarb1	0.00106	0.71
ENSDARG00000011246	KRR1, small subunit (SSU) processome component, homolog (yeast)	krr1	0.00864	0.71
ENSDARG00000005559	POU domain, class 4, transcription factor 1	pou4f1	0.04375	0.71
ENSDARG00000000830	TEL2, telomere maintenance 2, homolog (S. cerevisiae)	telo2	0.00127	0.71
ENSDARG00000063309	Tight junction protein 2a (zona occludens 2)	tjp2a	0.01598	0.71
ENSDARG00000045199	Calpain 9	capn9	0.03389	0.72
ENSDARG00000075664	Delta(14)-sterol reductase	tmstf2	0.00341	0.72
ENSDARG00000074060	mitogen-activated protein kinase kinase kinase 14-like isoform X1	map3k14	0.02004	0.72
ENSDARG00000086709	H3 histone, family 3A	H3f3a	0.01086	0.72
ENSDARG00000039661	Solute carrier family 36 (proton/amino acid symporter), member 1	slc36a4	0.00261	0.72
ENSDARG00000040727	Transcription factor B1, mitochondrial	tfb1m	0.03934	0.73
ENSDARG00000037640	Aurora kinase B	aurkb	0.04266	0.73
ENSDARG00000018650	GTP binding protein 3	gtpbp3	0.00171	0.74
ENSDARG00000088171	Circadian associated repressor of transcription b	ciartb	0.00136	0.75
ENSDARG00000071074	RCC1 domain-containing protein 1	rccd1	0.00007	0.75
ENSDARG00000002300	Purinergic receptor P2X, ligand-gated ion channel, 2	p2rx2	0.00015	0.76
ENSDARG00000012271	Transmembrane protein 206	tmem206	0.00466	0.76
ENSDARG00000087854	Histone H2B	si:dkey-108k21.13	0.00621	0.77
ENSDARG00000089304	Uncharacterized protein	si:dkeyp-4f2.1	0.01435	0.77
ENSDARG00000058560	Adhesion regulating molecule 1	adrm1	0.00671	0.77
ENSDARG00000040087	Erythrocyte membrane protein band 4.1 like 4A	epb4114a	0.02683	0.78
ENSDARG00000041252	Gem (nuclear organelle) associated protein 4	gemin4	0.01197	0.78
ENSDARG00000019250	Fanconi anemia group F protein	fancf	0.02848	0.78
ENSDARG00000086591	Histone H2B	si:ch211-113a14.11	0.04141	0.78
ENSDARG00000074441	Platelet glycoprotein Ib beta chain	gp1bb	0.02919	0.79
ENSDARG00000091150	Antigen KI-67	mki67	0.01783	0.79
ENSDARG00000071036	Bloodthirsty-related gene family, member 21	btr21	0.01789	0.80
ENSDARG00000074937	H2A histone family, member X	si:dkey-261m9.15	0.02856	0.80
ENSDARG00000036592	SET domain containing 4	setd4	0.01707	0.80
ENSDARG00000014277	Ventral homeobox	vox	0.00540	0.81
ENSDARG00000002988	Troponin T2d, cardiac	tnnt2d	0.03069	0.81
ENSDARG00000002293	Uncharacterized protein	si:ch211-197g15.9	0.03557	0.81
ENSDARG00000076507	H2A histone family, member X		0.00861	0.81
ENSDARG00000042990	Cytochrome P450, family 2, subfamily P, polypeptide 10	cyp2p10	0.02221	0.82
ENSDARG00000068928	H2A histone family, member X	si:dkey-108k21.26	0.04363	0.82
ENSDARG00000075220	H2A histone family, member X	si:ch211-113a14.19	0.01655	0.83
ENSDARG00000016011	Glycerophosphocholine phosphodiesterase GDE1 homolog (S. cerevisiae)	gpcpd1	0.03495	0.84
ENSDARG00000078659	Transmembrane protein 176	tmem176	0.04206	0.86
ENSDARG00000061174	Zinc finger protein 740	znf740b	0.02123	0.86
ENSDARG00000012499	Period homolog 1b (Drosophila)	per1b	0.00041	0.87
ENSDARG00000010266	Insulin-like growth factor 2 mRNA binding protein 3	igf2bp3	0.00625	0.87
ENSDARG00000088686	H2A histone family, member X	zgc:195633	0.01535	0.88
ENSDARG000000035332	UPF0769 protein C21orf59 homolog	c10h21orf59	0.01650	0.88
ENSDARG00000055360	Protein LLP homolog	llph	0.00520	0.88
ENSDARG00000076518	Methyltransferase like 1	mett11	0.01964	0.88
ENSDARG00000060951	Polymerase (DNA directed), gamma	polg	0.04623	0.89
ENSDARG00000078844	Uncharacterized protein	si:dkey-259p7.1	0.00897	0.89
ENSDARG00000075620	Uncharacterized protein		0.02735	0.90
ENSDARG00000045847	Uncharacterized protein	si:ch211-214j24.10	0.04034	0.91
ENSDARG00000030949	Signal recognition particle receptor subunit beta	srprb	0.02571	0.91
ENSDARG00000074446	Uncharacterized protein	zgc:173714	0.00735	0.91
ENSDARG00000010519	Period homolog 3 (Drosophila)	per3	0.00256	0.91

ENSDARG00000042784	Growth/differentiation factor 7	gdf7	0.00213	0.91
ENSDARG00000013539	IKAROS family zinc finger 1 (Ikaros)	ikzfl	0.01995	0.93
ENSDARG00000070282	H3 histone. family 3A	si:ch211-113a14.14	0.01739	0.94
ENSDARG00000075508	Histone H1 like	si:dkey-108k21.10	0.04463	0.94
ENSDARG00000036115	KRIT1. ankyrin repeat containing	krit1	0.01681	0.95
ENSDARG00000056640	Ribose 5-phosphate isomerase A (ribose 5-phosphate epimerase)	rpia	0.00870	0.95
ENSDARG00000054597	CCR4-NOT transcription complex. subunit 6-like	cnot6l	0.04822	0.95
ENSDARG00000096189	Gastrula zinc finger protein XICGF8.2DB-like	si:dkey-54j5.2	0.00317	0.96
ENSDARG00000096096	Uncharacterized protein	si:dkey-78k22.2	0.01220	0.96
ENSDARG00000041140	Damage-specific DNA binding protein 2	ddb2	0.00221	0.97
ENSDARG00000059115	F-box protein 7	fbxo7	0.01307	0.97
ENSDARG00000031956	Transmembrane protein 63C	tmem63a	0.01779	0.98
ENSDARG00000043897	ST6 (alpha-N-acetyl-neuraminy1-2.3-beta-galactosyl-1.3)-N-acetylgalactosaminide alpha-2.6-sialyltransferase 4	st6galnac4	0.01515	1.00
ENSDARG00000092395			0.01811	1.00
ENSDARG00000077853	Tubulin tyrosine ligase-like family. member 2	tll2	0.02744	1.00
ENSDARG00000058656	Desmin a	desma	0.01758	1.00
ENSDARG00000089340	Rho-related BTB domain containing 2b	rhobtb2b	0.00156	1.06
ENSDARG00000087451	H2A histone family. member X		0.04054	1.06
ENSDARG00000016773	Cytokine inducible SH2-containing protein b	cishb	0.02057	1.07
ENSDARG00000024195	Zinc finger protein 395b	znf395b	0.00071	1.07
ENSDARG00000087835	Uncharacterized protein	si:ch211-113p18.3	0.00993	1.08
ENSGMOG00000012033	Sodium/hydrogen exchanger 1		0.04899	1.08
ENSDARG00000038207	Aldehyde dehydrogenase 4 family. member A1	aldh4a1	0.04536	1.09
ENSDARG00000021065	Calcium/calmodulin-dependent protein kinase (CaM kinase) II beta 2	camk2b2	0.02741	1.10
ENSDARG00000030448	Signal peptide peptidase-like 2	sppl2	0.01436	1.11
ENSDARG00000089087	Ba1 globin	ba1	0.01471	1.11
ENSDARG00000060308	URB1 ribosome biogenesis 1 homolog	urb1	0.00779	1.12
ENSDARG00000045620	N-acetylneuraminic acid synthase	nans	0.03287	1.15
ENSDARG00000038123	Myosin. light chain 9a. regulatory	myl9a	0.03678	1.16
ENSDARG00000042310	Biliverdin reductase B (flavin reductase (NADPH))	blvrb	0.00288	1.16
ENSDARG00000052383	Transcription factor 3a	tf3a	0.03909	1.17
ENSDARG00000087610	Uncharacterized protein; cDNA FLJ59044. highly similar to LINE-1 reverse transcriptase homolog	CR354426.1	0.00011	1.25
ENSDARG00000051735	Histone H1 like	si:ch211-113a14.24	0.02082	1.28
ENSDARG00000056885	Period homolog 1a (Drosophila)	per1a	0.03514	1.30
ENSDARG00000040099	Tubulin-specific chaperone D	tbcd	0.01395	1.32
ENSDARG00000018765	Pbx/knotted 1 homeobox 1.2	pknox1.2	0.00015	1.35
ENSDARG00000007823	Activating transcription factor 3	atf3	0.00507	1.36
ENSDARG00000051718	Histone H1 like	si:ch211-113a14.24	0.03120	1.38
ENSDARG00000017316	BCL2-associated athanogene 5	bag5	0.00170	1.39
ENSDARG00000033160	Nuclear receptor subfamily 1. group d. member 1	nr1d1	0.01618	1.40
ENSDARG00000032637	Histone H1 like	si:dkey-261m9.12	0.01216	1.44
ENSDARG00000091234		cu019646.2	0.01011	1.45
ENSDARG00000056683	Cyclin-dependent protein kinase 5	cdk5	0.03980	1.46
ENSDARG00000014836	Structural maintenance of chromosomes flexible hinge domain containing 1	smchd1	0.00569	1.48
ENSDARG00000070287	H3 histone. family 3A		0.00017	1.50
ENSDARG00000013477	GATA binding protein 1a	gata1a	0.01480	1.60
ENSDARG00000068374	Uncharacterized protein	si:ch211-132b12.7	0.00001	1.62
ENSDARG00000030020	ArfGAP with FG repeats 1a	agfg1a	0.01454	1.65
ENSDARG00000040607	Protein RTF2 homolog		0.00069	1.74
ENSDARG00000069373	Calcitonin gene-related peptide-receptor component protein	crcp	0.04652	1.86
ENSDARG00000018687	Integrin. alpha 2b (platelet glycoprotein IIb of IIb/IIIa complex. antigen CD41B)	itga2b	0.01441	1.94
ENSDARG00000053097	Heat shock factor 2	hsf2	0.01063	2.02
ENSDARG00000029766	Nuclear receptor subfamily 1. group I. member 2	nr1i2	0.00039	2.11
ENSDARG00000022218	Uridine-cytidine kinase 1	uck1	0.00463	2.38
ENSDARG00000068840	Lysosomal thioesterase PPT2-like	ppt2	0.01809	2.43
ENSDARG00000029374	DENN domain-containing protein 1A	dennd1a	0.00048	2.63
ENSDARG00000003132	APAF1 interacting protein	apip	0.00003	4.39

Log₂R<0 means downregulated in females or upregulated in males

ESEMBL ID	Description	Symbol	<i>t</i>	log ₂ ER
ENSDARG00000033140	Desumoylating isopeptidase 1a	desi1a	0.00032	-5.11
ENSDARG00000094857	Deiodinase . iodothyronine type II	dio2	0.00020	-1.73
ENSDARG00000010841	Follicle stimulating hormone . beta polypeptide	fshb	0.03302	-1.48
ENSDARG00000078847	Peroxisomal trans-2-enoyl-CoA reductase-like	pcer	0.00897	-1.35
ENSDARG00000028252	Ubiquitin-conjugating enzyme E2D 2 (UBC4/5 homolog . yeast) . like	ube2d2l	0.01285	-1.17
ENSDARG00000006468	GRB2-related adaptor protein 2a	grap2a	0.00512	-1.10
ENSDARG000000086253	Uncharacterized protein	cabz01080229.2	0.03954	-1.02
ENSDARG000000094132	Insulin-like growth factor 1	igf1	0.02778	-0.97
ENSDARG00000023287	Hydroxysteroid (17-beta) dehydrogenase 3	hsd17b3	0.04841	-0.92
ENSDARG000000094316	Basic helix-loop-helix domain-containing protein KIAA2018 homolog	KIAA2018	0.04147	-0.80
ENSDARG000000041575	tRNA methyltransferase 10 homolog C	trmt10c	0.04338	-0.78
ENSDARG000000075014	Sequestosome 1	sqstm1	0.03655	-0.73
ENSDARG000000091558	Fish-egg lectin-like precursor	-	0.03204	-0.70
ENSDARG000000057433	ST6 (alpha-N-acetyl-neuraminyl-2 .3-beta-galactosyl-1 .3)-N-acetylgalactosaminide alpha-2 .6-sialyltransferase 5b	st6galnac5b	0.03904	0.70
ENSDARG000000031049	Immunoglobulin superfamily . member 21a	igsf21a	0.02352	0.70
ENSDARG000000036593	Lysine (K)-specific demethylase 2Ba	kdm2ba	0.01130	0.74
ENSDARG000000052666	Lipopolysaccharide-induced TNF factor	litaf	0.03883	0.76
ENSDARG000000074828	Rho-related BTB domain containing 2a	dbc2	0.01415	0.76
ENSDARG000000077047	Protein tyrosine phosphatase . receptor type . Nb	ptprnb	0.04872	0.79
ENSDARG000000093481	E3 ubiquitin-protein ligase	rbbp6	0.04865	0.80
ENSDARG000000094441	Uncharacterized protein KIAA0556 homolog isoform X1	kiaa0556	0.04616	0.81
ENSDARG000000004687	Acetyl-Coenzyme A acyltransferase 1	acaal	0.03227	0.82
ENSDARG000000032111	Mitochondrial fission process protein	mtfp	0.04097	0.84
ENSDARG000000044526	Calcium/calmodulin-dependent protein kinase IGa	camk1ga	0.04621	0.85
ENSDARG000000031015	Dystrobrevin . alpha	dtna	0.00642	0.86
ENSDARG000000077810	OTU domain-containing protein 4	otud4	0.00181	0.86
ENSDARG000000056151	Tyrosinase-related protein 1b	tyrp1b	0.04066	0.99
ENSDARG000000010454	Guanylate cyclase activator 1A	guca1a	0.01222	1.14
ENSDARG0000000799	Immunoglobulin light 3 variable 5	igl3v5	0.01411	1.29
ENSDARG000000079736	Chemokine (C-C motif) ligand 33 . duplicate 3	ccl33.3	0.01623	1.34
ENSDARG000000045453	Coagulation factor XIII . A1 polypeptide a . tandem duplicate 1	fl3a1a.1	0.04026	1.64

Log₂ER<0 means downregulated in females or upregulated in males

ESEMBL ID	Description	Symbol	<i>t</i>	log ₂ ER
ENSDARG00000033140	Desumoylating isopeptidase 1a	desi1a	0.00032	-5.11
ENSDARG00000094857	Deiodinase . iodothyronine type II	dio2	0.00020	-1.73
ENSDARG00000010841	Follicle stimulating hormone . beta polypeptide	fishb	0.03302	-1.48
ENSDARG00000078847	Peroxisomal trans-2-enoyl-CoA reductase-like	pcer	0.00897	-1.35
ENSDARG00000028252	Ubiquitin-conjugating enzyme E2D 2 (UBC4/5 homolog . yeast) . like	ube2d2l	0.01285	-1.17
ENSDARG00000006468	GRB2-related adaptor protein 2a	grap2a	0.00512	-1.10
ENSDARG000000086253	Uncharacterized protein	cabz01080229.2	0.03954	-1.02
ENSDARG00000094132	Insulin-like growth factor 1	igf1	0.02778	-0.97
ENSDARG00000023287	Hydroxysteroid (17-beta) dehydrogenase 3	hsd17b3	0.04841	-0.92
ENSDARG00000094316	Basic helix-loop-helix domain-containing protein KIAA2018 homolog	KIAA2018	0.04147	-0.80
ENSDARG000000041575	tRNA methyltransferase 10 homolog C	trmt10c	0.04338	-0.78
ENSDARG00000075014	Sequestosome 1	sqstm1	0.03655	-0.73
ENSDARG00000091558	Fish-egg lectin-like precursor	-	0.03204	-0.70
ENSDARG00000057433	ST6 (alpha-N-acetyl-neuraminyl-2 .3-beta-galactosyl-1 .3)-N-acetylgalactosaminide alpha-2 .6-sialyltransferase 5b	st6galnac5b	0.03904	0.70
ENSDARG000000031049	Immunoglobulin superfamily . member 21a	igsf21a	0.02352	0.70
ENSDARG000000036593	Lysine (K)-specific demethylase 2Ba	kdm2ba	0.01130	0.74
ENSDARG00000052666	Lipopolysaccharide-induced TNF factor	litaf	0.03883	0.76
ENSDARG00000074828	Rho-related BTB domain containing 2a	dbc2	0.01415	0.76
ENSDARG00000077047	Protein tyrosine phosphatase . receptor type . Nb	ptprnb	0.04872	0.79
ENSDARG00000093481	E3 ubiquitin-protein ligase	rbbp6	0.04865	0.80
ENSDARG00000094441	Uncharacterized protein KIAA0556 homolog isoform X1	kiaa0556	0.04616	0.81
ENSDARG00000004687	Acetyl-Coenzyme A acyltransferase 1	acaal	0.03227	0.82
ENSDARG000000032111	Mitochondrial fission process protein	mtfp	0.04097	0.84
ENSDARG00000044526	Calcium/calmodulin-dependent protein kinase IGa	camk1ga	0.04621	0.85
ENSDARG00000031015	Dystrobrevin . alpha	dtna	0.00642	0.86
ENSDARG00000077810	OTU domain-containing protein 4	otud4	0.00181	0.86
ENSDARG00000056151	Tyrosinase-related protein 1b	tyrp1b	0.04066	0.99
ENSDARG00000010454	Guanylate cyclase activator 1A	guca1a	0.01222	1.14
ENSDARG000000799	Immunoglobulin light 3 variable 5	igl3v5	0.01411	1.29
ENSDARG00000079736	Chemokine (C-C motif) ligand 33 . duplicate 3	ccl33.3	0.01623	1.34
ENSDARG00000045453	Coagulation factor XIII . A1 polypeptide a . tandem duplicate 1	fl3a1a.1	0.04026	1.64

Log₂ER < 0 means downregulated in females or upregulated in males

Additional File 3. Interaction Sex-Genotype in DEG after two way ANOVA in the brain-pituitary axis of zebrafish

ESEMBL ID	Description	Symbol	ANOVA II Interaction	Log2ER			
				Ctrl Female	Ctrl Male	Asip1 Female	Asip1 Male
ENSDARG00000089087	Hemoglobin subunit gamma-2	ba1	0.001	-2.78	1.73	-3.76	-3.60
ENSDARG00000033140	Desumoylating isopeptidase 1	desi1a	< 0.0001	0.29	0.58	-5.47	-0.36
ENSDARG00000095179	Uncharacterized protein		0.004	0.08	1.22	-1.88	-2.00
ENSDARG00000086763	Serine/threonine-protein kinase pim-1-like	pim1	0.007	1.18	0.66	-1.84	-1.44
ENSDARG00000094133	Uncharacterized protein		0.026	-0.96	1.35	-2.05	-2.20
ENSDARG00000095249	Serine/threonine-protein kinase pim-1-like	pim1	0.013	0.96	0.53	-1.20	-1.07
ENSDARG00000094020	Serine/threonine-protein kinase pim-1-like	pim1	0.048	0.96	0.55	-1.16	-1.06
ENSDARG00000068840	Lysosomal thioesterase PPT2	zgc:66024	0.003	1.71	-0.73	-1.16	-1.12
ENSDARG00000069734	Hemoglobin subunit gamma-2	zgc:92880	0.028	-1.84	1.39	-1.94	-1.64
ENSDARG00000086808	Phospholipase DDHD1		0.025	0.90	0.38	-0.91	-0.77
ENSDARG00000070378	Chemokine CCL-C25y-like precursor	ccl2	0.005	0.89	0.26	-0.92	-0.89
ENSDARG0000006468	GRB2-related adapter protein 2	grap2a	< 0.0001	0.65	0.44	-1.48	-0.38
ENSDARG00000014041	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A containing DEAD/H box 1		0.049	0.42	0.57	-0.49	-1.15
ENSDARG00000052738	Hydroxymethylglutaryl-CoA synthase cytoplasmic [HMG-CoA synthase]	hmgcs1	0.042	0.69	0.24	-1.01	-0.62
ENSDARG00000079080	Methyltransferase-like protein 20	mettl20	0.033	0.73	0.37	-1.02	-0.42
ENSDARG00000069878	NHP2-like protein 1	nhp2l1a	0.034	0.99	-0.21	-1.06	-0.68
ENSDARG00000029766	Nuclear receptor subfamily 1 group I member 2	nr1i2	< 0.0001	1.34	-0.77	-0.70	-0.70
ENSDARG00000059459	UPF0561 protein C2orf68		0.048	0.74	0.36	-0.66	-0.63
ENSDARG00000019976	Isopentenyl-diphosphate Delta-isomerase 1	idi1	0.039	0.47	0.35	-1.11	-0.56
ENSDARG00000053383	Protein reprimo	rprma	0.018	0.16	0.74	-0.70	-0.70
ENSDARG0000003257	Uncharacterized protein	zgc:101559	0.028	0.69	0.23	-0.72	-0.63
ENSDARG00000075620	Ras-related protein Rab-33B-like	rab33b	0.015	0.96	0.06	-0.78	-0.44
ENSDARG00000028252	Ubiquitin-conjugating enzyme E2 D1	ube2d2l	0.006	0.43	0.38	-1.28	-0.12
ENSDARG00000068910	Nitric oxide synthase inducible	nos1	0.041	-0.08	0.94	-0.59	-0.73
ENSDARG00000022971	Ephrin type-A receptor 6	epha6	0.019	-0.01	0.76	-0.32	-0.91
ENSDARG00000052787	Probable palmitoyltransferase ZDHHC12	zdhhc12b	0.015	0.38	0.56	-0.46	-0.62
ENSDARG00000008107	Tyrosine-protein kinase Fyn	src	0.032	0.03	0.57	-0.17	-1.13
ENSDARG00000076494	Uncharacterized protein		0.035	0.05	0.77	-0.42	-0.61
ENSDARG00000034056	Casein kinase 1, gamma 2b	csnk1g2b	0.004	0.20	0.51	-0.24	-0.89
ENSDARG00000035559	Cellular tumor antigen p53	tp53	0.005	0.47	0.37	-0.59	-0.39
ENSDARG00000029587	Mitochondrial peptide methionine sulfoxide reductase		0.000	0.45	0.31	-0.77	-0.26
ENSDARG00000004687	3-ketoacyl-CoA thiolase peroxisomal	acaal	0.011	0.30	0.36	-0.09	-0.91
ENSDARG00000031439	Glutaredoxin-3	glrx3	0.038	0.13	0.60	-0.30	-0.60
ENSDARG00000077728	ATP-dependent RNA helicase SUPV3L1 mitochondrial	supv3l1	0.034	0.49	0.27	-0.51	-0.35
ENSDARG00000037906	Alpha-ketoglutarate-dependent dioxygenase alkB homolog 7 mitochondrial	alkbh7	0.005	0.66	0.11	-0.73	-0.09

ENSDARG00000087627	Uncharacterized protein		0.025	0.05	0.56	-0.25	-0.72
ENSDARG00000040123	Zinc finger protein ZFPM2	zfp2a	0.021	0.15	0.58	-0.25	-0.58
ENSDARG00000005150	T-box transcription factor TBX20	tbx20	0.028	-0.38	0.90	-0.59	-0.44
ENSDARG000000060197	Calcium-transporting ATPase type 2C member 1	atp2c1	0.009	0.14	0.52	-0.32	-0.47
ENSDARG00000019236	Glutathione reductase_mitochondrial	gsr	0.044	0.46	0.27	-0.62	-0.10
ENSDARG000000057723	Sterol-4-alpha-carboxylate 3-dehydrogenase_mitochondrial	nsdhl	0.050	0.49	0.23	-0.49	-0.21
ENSDARG000000033973	28S ribosomal protein S23_mitochondrial	mrps23	0.037	0.41	0.19	-0.51	-0.34
ENSDARG00000006031	4-aminobutyrate aminotransferase_mitochondrial	abat	0.019	-0.52	-0.34	0.58	-0.01
ENSDARG00000002988	Troponin T_slow skeletal muscle	tnnt2d	0.022	-0.01	-0.82	0.35	0.26
ENSDARG000000030999	Transcriptional activator Myb	mybl1	0.006	-0.35	-0.38	0.59	0.13
ENSDARG000000094441	Uncharacterized protein KIAA0556		0.026	-0.44	-0.34	0.75	-0.06
ENSDARG000000037100	Ankyrin repeat domain-containing protein 10		0.041	0.18	-1.01	0.32	0.32
ENSDARG000000037855	Transcription initiation factor TFIID subunit 11	tafl1	0.014	-0.21	-0.56	0.22	0.48
ENSDARG000000051814	Receptor-type tyrosine-protein phosphatase zeta	ptprz1a	0.021	-0.59	-0.19	0.55	0.16
ENSDARG000000077572	Sterile alpha motif domain-containing protein 3		0.005	-1.02	0.03	0.48	0.22
ENSDARG000000076224	Lymphocyte function-associated antigen 3		0.013	-0.09	-0.65	0.32	0.44
ENSDARG000000038123	Myosin regulatory light polypeptide 9	myl9a	0.017	0.16	-1.00	0.16	0.51
ENSDARG000000069373	DNA-directed RNA polymerase III subunit RPC9	crpc	0.034	0.35	-1.51	0.14	0.24
ENSDARG000000079637	Alpha-protein kinase 2	alpk2	0.037	-1.31	0.27	0.30	0.21
ENSDARG000000009637	Recoverin-like	rcvrn	0.035	-2.66	0.01	1.11	-1.66
ENSDARG000000056683	Cyclin-dependent kinase 5	cdk5	0.047	0.20	-1.26	0.36	0.14
ENSDARG000000077383	Annexin A11	anxa11a	0.043	-0.20	-0.63	0.19	0.55
ENSDARG000000030020	Arf-GAP domain and FG repeat-containing protein 1	agfg1a	0.007	0.35	-1.30	0.38	0.26
ENSDARG000000059115	F-box only protein 7	fbxo7	0.002	0.02	-0.95	0.22	0.45
ENSDARG000000052666	Lipopolysaccharide-induced tumor necrosis factor-alpha factor	litaf	0.004	-0.52	-0.33	0.83	0.08
ENSDARG000000088020	Uncharacterized protein		0.031	-0.98	-0.02	0.52	0.09
ENSDARG000000040113	Chromosome 3 open reading frame 31_isoform CRA_f		0.040	-0.06	-0.87	0.30	0.40
ENSDARG000000075149	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase		0.016	-0.21	-0.63	0.33	0.47
ENSDARG000000073793	Sterile alpha motif domain-containing protein 3		0.003	-1.12	0.07	0.39	0.23
ENSDARG000000038207	Delta-1-pyrroline-5-carboxylate dehydrogenase_mitochondrial	aldh4a1	0.028	0.00	-1.09	0.10	0.49
ENSDARG000000075537	Sterile alpha motif domain-containing protein 3		0.049	-0.75	-0.17	0.39	0.39
ENSDARG000000090901	NACHT_LRR and PYD domains-containing protein 1		0.021	-1.00	-0.06	0.67	0.09
ENSDARG000000035434	Zinc finger matrin-type protein 5	zmat5	0.050	-0.20	-0.69	0.27	0.55
ENSDARG000000031956	Transmembrane protein 63C		0.016	0.02	-0.96	0.44	0.34
ENSDARG000000068245	Acid-sensing ion channel 4	asic1c	0.009	-0.62	-0.29	0.62	0.19
ENSDARG000000001975	Corticosteroid 11-beta-dehydrogenase isozyme	hsd11b2	0.027	-1.19	-0.07	0.41	0.13

ENSDARG00000007184	2 Zinc finger and BTB domain-containing protein 16	zbtb16a	0.031	-0.83	-0.23	0.49	0.28
ENSDARG00000017803	Glycogen synthase kinase-3 beta	gsk3b	0.028	-0.94	-0.20	0.52	0.16
ENSDARG00000003582	Coiled-coil domain-containing protein 34	ccdc34	0.031	-0.20	-0.89	0.44	0.40
ENSDARG000000037914	Zinc finger-like gene 1	znfl1	0.037	0.06	-1.48	-0.16	0.68
ENSDARG000000017757	Phosphatidylinositol 4_5-bisphosphate 3-kinase catalytic subunit gamma isoform	pik3cg	< 0.0001	-0.38	-0.69	0.30	0.63
ENSDARG000000018765	Homeobox protein PKNOX1	pknox1.1	0.001	0.05	-1.30	0.54	0.27
ENSDARG000000016866	Protein FAM102A	fam102ab	0.000	-0.93	-0.30	0.50	0.38
ENSDARG000000079126	Zinc finger-like gene 1	znfl1	0.039	-0.07	-1.46	-0.17	0.78
ENSDARG000000016570	Prolactin receptor	prlra	0.022	-1.44	0.07	0.48	0.29
ENSDARG000000021233	6-phosphogluconolactonase	ppls	0.005	-1.07	-0.15	0.50	0.42
ENSDARG000000053097	Heat shock factor protein 2	hsf2	0.007	0.58	-2.24	0.16	0.31
ENSDARG000000061436	Collagen alpha-2(VI) chain	colla2	0.041	-0.39	-0.86	0.23	0.80
ENSDARG000000041575	Mitochondrial ribonuclease P protein 1	trmt10c	0.034	-0.27	-0.73	0.36	1.14
ENSDARG000000028912	Uncharacterized protein	si:dkey-10h3.2	0.008	-0.66	-0.73	0.30	0.76
ENSDARG000000017602	Cyclin-G2		0.004	-1.07	-0.38	0.72	0.34
ENSDARG000000076787	Angiopoietin-2		0.019	-0.67	-0.75	0.28	0.85
ENSDARG000000026149	Proton-coupled folate transporter	slc46a1	0.034	-0.57	-0.94	0.56	0.65
ENSDARG000000027065	Sodium-coupled neutral amino acid transporter 5	slc38a3a	0.011	-1.25	-0.42	0.70	0.44
ENSDARG000000004470	Glucosidase 2 subunit beta	prkesh	0.001	-2.26	0.23	0.18	0.55
ENSDARG000000023645	Kynurenine--oxoglutarate transaminase 1	ccb1l	< 0.0001	-1.67	-0.18	0.50	0.71
ENSDARG000000029374	DENN domain-containing protein 1A	dennd1a	< 0.0001	0.80	-1.84	0.77	0.67
ENSDARG000000032264	Myb-related protein B	mybl2	0.047	-0.81	-1.44	0.57	0.84
ENSDARG000000036239	Glycine amidinotransferase_mitochondrial	gatm	0.020	-2.45	-0.58	0.90	0.19
ENSDARG000000003132	Methylthioribulose-1-phosphate dehydratase	apip	< 0.0001	0.48	-3.91	0.46	0.32
ENSDARG000000074443	Growth arrest-specific protein 7	gas7a	< 0.0001	-6.17	-0.26	0.73	0.57

LogE2R<0 means downregulated

Additional File 4. Genotype (ASIP1)-induced DEG in the brain-pituitary axis of zebrafish independently of sex

ESEMBL ID	Description	Symbol	<i>t</i>	log2ER
ENSDARG00000076290	Calreticulin, like 2	calrl2	0.02315301	-3.34
ENSDARG00000086612		si:ch73-269m14.4	3.9854E-08	-3.24
ENSDARG0000001929	PTEN induced putative kinase 1	pink1	0.02936654	-3.23
ENSDARG00000026821	Transmembrane protein 106Ba	tmem106ba	1.166E-07	-3.21
ENSDARG00000089087	Ba1 globin	ba1	0.02472325	-3.14
ENSDARG00000003940	Mitochondrial fission regulator 1-like	mtfr1l	0.00551783	-3.04
ENSDARG00000033140	Desumoylating isopeptidase 1a	desi1a	0.03669251	-2.84
ENSDARG00000095338		si:ch211-214c11.3	0.04321367	-2.82
ENSDARG00000051746	Cat eye syndrome chromosome region, candidate 1a	cecr1a	1.0125E-06	-2.65
ENSDARG00000095179		si:ch211-235f1.3-001	1.6737E-05	-2.60
ENSDARG00000086763		Si:dkeyp-104h9.7	8.2954E-08	-2.56
ENSDARG00000043019	Exocyst complex component 1		0.0360625	-2.37
ENSDARG00000052978	Muscleblind-like (Drosophila)	mbnl1	3.9323E-06	-2.37
ENSDARG00000016538	Ovochymase-1 precursor	zgc:55888-001	0.00085283	-2.36
ENSDARG00000088959	Pyridoxal (pyridoxine, vitamin B6) kinase a	pdxka	0.00093302	-2.34
ENSDARG00000094133	Uncharacterized protein	wu:fc21g02	0.00556796	-2.32
ENSDARG00000091009	Probable E3 ubiquitin-protein ligase TRIML1	si:ch211-28p3.4	3.4603E-06	-2.31
ENSDARG00000093549	Selenoprotein P, plasma, 1a	sepp1a	0.01849646	-2.31
ENSDARG00000043002		Si:ch1073-473i7.3	0.01994194	-2.31
ENSDARG00000045383	G protein-coupled receptor 22		0.00621867	-2.25
ENSDARG0000003281	Phosphoinositide-3-kinase interacting protein 1	pik3ip1	0.00248757	-2.25
ENSDARG00000035913	Tyrosyl-tRNA synthetase	yars	0.0001058	-2.22
ENSDARG00000059843	Family with sequence similarity 135, member A	fam135a	0.00640002	-2.21
ENSDARG00000024032	Cochlin		1.6453E-05	-2.18
ENSDARG00000011146	Ubiquinol-cytochrome c reductase binding protein	uqcrb	0.00087096	-2.16
ENSDARG00000091656	N-alpha-acetyltransferase 38, NatC auxiliary subunit		1.298E-05	-2.12
ENSDARG00000074084	Striatin interacting protein 1	strip1	0.04877532	-2.10
ENSDARG00000009494	X-ray repair complementing defective repair in Chinese hamster cells 1	xrcc1	0.00399782	-2.07
ENSDARG00000075960	Cadherin-2-like isoform X2	cdh24a	0.01472515	-2.07
ENSDARG00000028131	Holochoyochrome c synthetase a	hccsa	0.00102393	-2.06
ENSDARG00000037805	Lectin, galactoside-binding, soluble, 3 binding protein a	lgals3bpa	0.02624796	-2.04
ENSDARG00000011555	Sperm associated antigen 7	spag7	0.00520254	-2.01
ENSDARG00000075485	Kinesin light chain 1a		4.01E-05	-1.95
ENSDARG00000096668	Mitotic-spindle organizing protein 1		2.0108E-06	-1.94
ENSDARG00000077310	G protein-coupled receptor 144	gpr144	0.00212857	-1.92
ENSDARG00000095249		si:ch211-196n4.5	1.6525E-07	-1.90
ENSDARG00000015123	Deoxyribonuclease-1-like 1	zgc:101000	0.03843002	-1.89
ENSDARG00000040528	Lectin, galactoside-binding, soluble, 3 binding protein b	lgals3bpb	0.04448045	-1.89
ENSDARG00000063483		zgc:175214	1.244E-08	-1.89
ENSDARG00000020596	Family with sequence similarity 73, member A	fam73a	6.0395E-06	-1.88
ENSDARG00000094020		si:ch211-214c11.8	3.339E-07	-1.88
ENSDARG00000068840		zgc:66024	0.01895129	-1.87
ENSDARG00000070740		si:ch211-196n4.3	1.1832E-06	-1.86
ENSDARG00000027803	Shwachman-Bodian-Diamond syndrome	sbds	0.03996407	-1.86
ENSDARG00000032010	Solute carrier family 15 (H ⁺ /peptide transporter), member 2	slc15a2	5.9433E-05	-1.86
ENSDARG00000095044		si:ch211-196n4.2	7.6605E-07	-1.84
ENSDARG00000006600	LSM14 homolog Aa (SCD6, <i>S. cerevisiae</i>)	lsm14aa	0.00206722	-1.84
ENSDARG00000016477	Eukaryotic translation initiation factor 4A, isoform 2	eif4a2	4.8209E-05	-1.82
ENSDARG00000042631	Glutaredoxin 2	glrx2	3.6958E-05	-1.82
ENSDARG00000002391	TLC domain containing 1	tlcd1	0.0039732	-1.82
ENSDARG00000000540	Asparagine synthetase domain containing 1	asnsd1	2.7513E-05	-1.81
ENSDARG00000078844		zgc:171242	5.9185E-05	-1.81
ENSDARG0000004722	Discoidin domain receptor family, member 2, like	ddr2l	1.6969E-05	-1.80
ENSDARG00000093475		si:ch211-214c11.7	7.5076E-07	-1.80
ENSDARG00000041505	Integral membrane protein 2Cb		2.1857E-07	-1.79
ENSDARG00000069869		zgc:113030	0.00111648	-1.79
ENSDARG00000054290	Apoptotic chromatin condensation inducer 1a	acin1a	0.00053621	-1.78
ENSDARG00000092404	Lactase		4.2801E-05	-1.78
ENSDARG00000092132		si:ch211-214c11.2	2.6828E-07	-1.76
ENSDARG0000008035		zgc:113516	0.02117086	-1.74
ENSDARG00000036482	Hexamethylene bis-acetamide inducible 1	hexim1	1.8236E-07	-1.74
ENSDARG00000074700	Oral cancer-overexpressed protein 1		0.00287832	-1.73
ENSDARG00000094339	Si:dkeyp-104h9.7		1.1487E-07	-1.72
ENSDARG00000027572	Arsenic (+3 oxidation state) methyltransferase	as3mt	0.00018075	-1.72
ENSDARG00000074581	Adducin 1 (alpha)		0.00110688	-1.71
ENSDARG00000006983	Cugbp, Elav-like family member 3b	celf3b	0.00021046	-1.70
ENSDARG00000025859	Lipase maturation factor 2b	lmf2b	1.166E-05	-1.69
ENSDARG00000041429	CDNA FLJ55475; von Willebrand factor A domain-containing protein 9		0.01419553	-1.68

ENSDARG00000068738	Cytochrome c oxidase subunit Vb 2	cox5b2	0.0003349	-1.66
ENSDARG00000070116	Nitrilase 1	nit1	0.00259713	-1.65
ENSDARG00000056477	Coiled-coil domain-containing protein 125		0.01068413	-1.64
ENSDARG00000044278	Synaptoporin	synpr	0.00077692	-1.63
ENSDARG00000079500	Kinesin family member 3Cb	kif3cb	0.00212889	-1.63
ENSDARG00000070705	Zgc:64022	zgc:64022	0.00024565	-1.63
ENSDARG00000078222	Apoptosis-associated tyrosine kinase a	aatka	0.00086427	-1.61
ENSDARG00000074546		Zgc:194906	0.00071443	-1.61
ENSDARG00000026335	Sushi domain-containing protein 4		0.00396627	-1.60
ENSDARG00000075116	Sal-like protein 2	sall2	1.9047E-08	-1.59
ENSDARG00000003144	Peroxisomal membrane protein 2	pxmp2	7.9558E-05	-1.59
ENSDARG00000003822	Ankyrin repeat domain 16	ankrd16	0.0100259	-1.59
ENSDARG00000039067	Steroid-5-alpha-reductase, alpha polypeptide 2b	srd5a2b	6.0659E-07	-1.58
ENSDARG00000022832	BCL2/adenovirus E1B interacting protein 4	bnip4	9.5573E-05	-1.56
ENSDARG00000031657	Fumarylacetoacetate hydrolase domain containing 1	fahd1	0.00082253	-1.55
ENSDARG00000034160	Kanadaplin		4.7825E-05	-1.54
ENSDARG00000088013	Cytochrome P450, family 27, subfamily A, polypeptide 7		3.53E-05	-1.54
ENSDARG00000075754	Methylthioribose-1-phosphate isomerase homolog (S. cerevisiae)	mri1	0.00016607	-1.54
ENSDARG00000086225	Synaptogyrin 2b	syng2b	0.03802279	-1.52
ENSDARG00000078908	F-box only protein 41		0.00129756	-1.52
ENSDARG00000020024	Family with sequence similarity 151, member B	fam151b	0.00017221	-1.52
ENSDARG00000095983	DnaJ (Hsp40) homolog, subfamily A, member 3A		0.00016777	-1.51
ENSDARG00000089667	Microfibril-associated glycoprotein 4		0.00259387	-1.50
ENSDARG00000061409	Basic immunoglobulin-like variable motif-containing protein		0.0012229	-1.50
ENSDARG00000063559	Phosphatidylinositol glycan anchor biosynthesis, class X	pigx	0.00633452	-1.49
ENSDARG00000035558	G protein pathway suppressor 2	gps2	4.8121E-08	-1.49
ENSDARG0000002031	TOX high mobility group box family member 4		0.0011166	-1.49
ENSDARG00000029043	Nucleoporin-like protein 2		3.7454E-06	-1.49
ENSDARG00000030938	Fermitin family member 3b	fermt3b	0.00239114	-1.49
ENSDARG00000076386	Ependymin-like 1	epd1	0.00038062	-1.48
ENSDARG00000086808	DDHD domain containing 1b		3.3217E-06	-1.48
ENSDARG00000070378		zgc:193706	1.2586E-05	-1.48
ENSDARG00000052307	LMBR1 domain containing 1	lmbd1	0.02326961	-1.46
ENSDARG00000037554	Rho guanine nucleotide exchange factor (GEF) 3, like	arhgef3l	0.03240996	-1.45
ENSDARG00000039649	Mitochondrial translational initiation factor 3	mtif3	0.00079797	-1.45
ENSDARG00000067760			3.7318E-07	-1.45
ENSDARG00000060392	Set1/Ash2 histone methyltransferase complex subunit ASH2		0.00130563	-1.44
ENSDARG00000069281		si:dkey-14a7.4	8.0137E-05	-1.44
ENSDARG00000068431		zgc:194906	2.2277E-06	-1.44
ENSDARG000000041728	Mannosidase, alpha, class 1A, member 1		0.00035678	-1.44
ENSDARG00000055159	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 4	cyp27a1.4	4.1175E-05	-1.43
ENSDARG00000077553	RAP2C, member of RAS oncogene family		0.0016635	-1.43
ENSDARG00000009477	Protein kinase, cAMP-dependent, regulatory, type II, alpha, B	prkar2ab	0.00170735	-1.42
ENSDARG00000092234		si:dkey-179a6.2	1.6922E-07	-1.42
ENSDARG00000067818	Helitron 4 helitron-like transposon replicase/helicase/endonuclease		0.00034706	-1.42
ENSDARG00000038667	FGGY carbohydrate kinase domain containing	fggy	0.01145784	-1.42
ENSDARG00000086706	C6H16orf45-201		0.00085759	-1.42
ENSDARG00000069361	Sperm surface protein Sp17		4.5903E-06	-1.42
ENSDARG00000000472	Contactin 2	cntn2	0.00030132	-1.42
ENSDARG00000041199	Asparagine-linked glycosylation 12 homolog (yeast, alpha-1,6-mannosyltransferase)	alg12	0.00374921	-1.42
ENSDARG00000003142	Dachshund c	dachc	0.0006265	-1.41
ENSDARG00000005108	Occludin a	oclna	0.00041399	-1.41
ENSDARG00000086985	Kinesin light chain 1a		0.00034783	-1.40
ENSDARG00000075788			0.00054499	-1.39
ENSDARG00000035595	FIC domain containing	ficd	5.868E-07	-1.39
ENSDARG00000070844	Guanidinoacetate N-methyltransferase	gamt	0.00062423	-1.38
ENSDARG00000040984	Heat shock protein 13	hspa13	0.00217592	-1.38
ENSDARG00000059826	Cartilage acidic protein 1b		0.04513102	-1.37
ENSDARG00000070148	Cytoglobin 2	cygb2	0.01575542	-1.37
ENSDARG00000013861	Armadillo repeat containing 1	armc1	0.000611	-1.36
ENSDARG00000006468	GRB2-related adaptor protein 2a	grap2a	0.00050559	-1.36
ENSDARG00000036415	Galactosidase, beta 1	glb1	5.2356E-05	-1.36
ENSDARG00000075008	PAS domain containing serine/threonine kinase	pask	0.00030872	-1.35
ENSDARG00000076839		zgc:153258	0.00451028	-1.35
ENSDARG00000021293	Amidohydrolase domain containing 2	amdhd2	0.00086962	-1.35
ENSDARG000000041723	Tubulin, beta 4B class IVb		0.00014132	-1.34
ENSDARG00000096305			4.0004E-05	-1.33
ENSDARG00000044550	Hypoxia-inducible factor 1, alpha subunit, like 2	hif1a2	0.01272251	-1.33
ENSDARG00000008333	Zinc finger-like gene 2a	znfl2a	0.04576931	-1.33
ENSDARG00000073732	Myosin, heavy chain 14, non-muscle	myh14	6.0279E-05	-1.32

ENSDARG00000014041	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A containing DEAD/H box 1		0.00013275	-1.31
ENSDARG00000035569	Cytochrome P450, family 1, subfamily D, polypeptide 1	cyp1d1	9.2524E-05	-1.30
ENSDARG00000032197	Kruppel-like factor 12b	klf12b	0.04021618	-1.29
ENSDARG00000033789	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7		0.00145685	-1.28
ENSDARG00000052738	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble)	hmgs1	9.5853E-05	-1.28
ENSDARG00000095876	EGF-like-domain, multiple 6	egfl6	0.00037201	-1.28
ENSDARG00000014953	Cornichon homolog 3 (Drosophila)	cnih3	2.8882E-05	-1.28
ENSDARG00000079080	Methyltransferase like 20	mettl20	0.00023959	-1.27
ENSDARG00000037639	NK3 homeobox 2	nkx3.2	0.0003274	-1.27
ENSDARG00000046085	Claudin domain-containing protein 1		0.00027367	-1.27
ENSDARG00000011809	Microtubule associated monooxygenase, calponin and LIM domain containing 1	mical1	0.00183091	-1.27
ENSDARG00000045296	Myeloma overexpressed 2	myeov2	0.00285207	-1.27
ENSDARG00000087499		zgc:194906	0.00133607	-1.26
ENSDARG00000089256			9.8843E-05	-1.26
ENSDARG0000009208	Protein kinase C, delta a	prkceda	0.02331643	-1.26
ENSDARG00000086838	Integrin alpha-2-like	itga2.3	0.00455878	-1.25
ENSDARG00000026039	Cytochrome P450, family 1, subfamily A	cyp1a	0.01663577	-1.25
ENSDARG00000058841	UDP glucuronosyltransferase 1 family a, b		9.5524E-07	-1.24
ENSDARG00000002750	PHD finger protein 20, a	phf20a	4.3821E-05	-1.24
ENSDARG00000034215	RAB42, member RAS oncogene family a	rab42a	2.1712E-05	-1.24
ENSDARG00000019496	Esterase D/formylglutathione hydrolase	esd	0.00353249	-1.23
ENSDARG00000092997			0.00773956	-1.23
ENSDARG00000003054	Tachykinin receptor 3-like	tacr3l	3.9565E-05	-1.23
ENSDARG00000089331	Urate (5-hydroxyiso-) hydrolase		0.0119635	-1.23
ENSDARG00000079555	Coiled-coil domain containing 85C, b	ccdc85cb	0.0136832	-1.22
ENSDARG00000069878	NHP2 non-histone chromosome protein 2-like 1a (S. cerevisiae)	nhp211a	0.0145932	-1.22
ENSDARG00000039661	Solute carrier family 36 (proton/amino acid symporter), member 1		0.00034408	-1.22
ENSDARG00000096537			0.00933728	-1.22
ENSDARG00000069832	Sideroflexin 4	sfxn4	9.5527E-06	-1.22
ENSDARG00000041294	NADPH oxidase organizer 1a	noxo1a	0.00029913	-1.22
ENSDARG00000068279		si:ch211-240b21.2	0.04106894	-1.20
ENSDARG0000007496	UFM1-specific ligase 1	ufl1	0.01518934	-1.20
ENSDARG00000090166	LINE-1 type transposase domain-containing protein 1		0.00050582	-1.20
ENSDARG00000029766	Nuclear receptor subfamily 1, group I, member 2	nr1i2	0.04987654	-1.20
ENSDARG00000006392	Exosome complex component RRP45		0.00155933	-1.20
ENSDARG00000008966	Transducin (beta)-like 1 X-linked receptor 1b	tbl1xr1b	7.1313E-05	-1.20
ENSDARG00000059459	UPF0561 protein C2orf68		1.06E-06	-1.20
ENSDARG00000062206	Superkiller viralicidic activity 2 (S. cerevisiae homolog)-like	skiv2l	0.00021906	-1.19
ENSDARG00000019976	Isopentenyl-diphosphate delta isomerase 1	idi1	6.1556E-05	-1.19
ENSDARG00000087061		zgc:171242	0.00476084	-1.19
ENSDARG00000087102		si:ch1073-164k15.3	0.00287146	-1.19
ENSDARG00000043446	EF-hand domain family, member D1	efhd1	0.00271857	-1.18
ENSDARG00000052910	Wingless-type MMTV integration site family, member 8b		0.00010277	-1.18
ENSDARG00000078078	Leucine-rich repeat and fibronectin type-III domain-containing protein 4	lrfn4b	0.00476142	-1.18
ENSDARG00000095464		zgc:66350	9.7935E-05	-1.18
ENSDARG00000089901		zgc:158862	0.00213861	-1.18
ENSDARG00000087537	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		4.9278E-05	-1.17
ENSDARG00000056160	Heat shock 60kD protein 1 (chaperonin)	hspd1	0.0014601	-1.17
ENSDARG00000045414	Elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 2	elovl2	0.00459161	-1.16
ENSDARG00000040119	Coiled-coil domain-containing protein 127		0.00332956	-1.16
ENSDARG00000039543	Mitochondrial ribosomal protein S6	mrps6	0.00541034	-1.16
ENSDARG00000043566	Uncharacterized protein C3orf17		0.02016607	-1.16
ENSDARG00000053383	Reprimo, TP53 dependent G2 arrest mediator candidate a	rprma	2.6828E-05	-1.15
ENSDARG00000073845		zgc:110843	0.00104204	-1.15
ENSDARG00000010382	Carnitine O-acetyltransferase b	cratb	1.2335E-08	-1.15
ENSDARG00000052680	SLAM family member 7		0.0006124	-1.14
ENSDARG00000003631	Clock homolog 3 (mouse)	clock3	0.00234741	-1.14
ENSDARG00000004891	Peroxisomal biogenesis factor 19	pex19	0.00699474	-1.14
ENSDARG00000037954	Troponin T type 1 (skeletal, slow)	tnnt1	0.00265304	-1.14
ENSDARG00000054153	FinTRIM family, member 50	ft50	0.00066458	-1.14
ENSDARG00000059871	Sharpin and rbck1 related	shrprbck1r	0.0251798	-1.14
ENSDARG00000003257		zgc:101559	9.7181E-06	-1.13
ENSDARG00000091627	DC-STAMP domain-containing protein 2	si:dkey-271j15.3	0.00515183	-1.13
ENSDARG00000089426	NOP10 ribonucleoprotein homolog (yeast)	nop10	2.4688E-08	-1.13
ENSDARG00000059791	Defender against cell death 1	dad1	0.02538506	-1.13

ENSDARG00000040678	Coiled-coil domain containing 93	ccde93	5.3619E-05	-0.82
ENSDARG00000018060	Phosphoinositide-3-kinase, regulatory subunit, polypeptide 2	pik3r2	0.00177223	-0.82
ENSDARG00000011317	Adrenergic, alpha-1Ab, receptor		0.00137268	-0.82
ENSDARG00000055712	Succinate dehydrogenase complex, subunit D, integral membrane protein a	sdhda	0.00294563	-0.82
ENSDARG00000037682	Protocadherin 1 gamma 9		0.00060737	-0.82
ENSDARG00000032131	Dopamine receptor D3	drd3	0.00659848	-0.82
ENSDARG00000028663	TEK tyrosine kinase, endothelial	tek	5.7729E-05	-0.82
ENSDARG00000016044	DNA replication complex GINS protein SLD5		4.4551E-05	-0.82
ENSDARG00000087202		zgc:194906	0.00950884	-0.82
ENSDARG00000079015	Breast cancer 2, early onset	brca2	0.00057707	-0.82
ENSDARG00000013976	Annexin A13	anxa13	1.223E-05	-0.81
ENSDARG00000031439	Glutaredoxin 3	glrx3	0.00153253	-0.81
ENSDARG00000078261	Nephronophthisis 3	nphp3	0.01383125	-0.81
ENSDARG00000035561			2.5329E-07	-0.81
ENSDARG00000077728	Suppressor of var1, 3-like 1 (<i>S. cerevisiae</i>)	supv311	4.9863E-06	-0.81
ENSDARG00000087514			0.0048686	-0.80
ENSDARG00000056871	Adaptor-related protein complex 4, mu 1 subunit	ap4m1	0.00041551	-0.80
ENSDARG00000059919	UPF0420 protein C16orf58		2.6194E-05	-0.80
ENSDARG00000026053	Helicase-like transcription factor	hltf	0.03645514	-0.80
ENSDARG00000086425	PRP3 pre-mRNA processing factor 3 homolog (yeast)	prpf3	0.00331308	-0.80
ENSDARG00000079651	AFG3-like protein 2		0.00048737	-0.80
ENSDARG00000088685	Zinc finger BED domain-containing protein 1		0.02439865	-0.80
ENSDARG00000060835	Tectonin beta-propeller repeat-containing protein 2		0.01594547	-0.80
ENSDARG00000039333	Pyruvate kinase, muscle, a	pkma	0.0002424	-0.80
ENSDARG00000068681	Cytokine receptor family member b1	crfb1	2.572E-05	-0.80
ENSDARG00000075222	APC membrane recruitment protein 2	amer2	0.01046198	-0.80
ENSDARG00000071211	Uncharacterized protein C1orf50 homolog	c11h1orf50	3.3063E-05	-0.80
ENSDARG00000037906	AlkB, alkylation repair homolog 7 (<i>E. coli</i>)	alkbh7	0.00678558	-0.80
ENSDARG00000018461		zgc:56095	0.00880969	-0.79
ENSDARG00000010434	Clusterin	clu	0.00205466	-0.79
ENSDARG0000007517	Homer homolog 1b (<i>Drosophila</i>)	homer1b	0.00043174	-0.79
ENSDARG00000087627			0.00539292	-0.79
ENSDARG00000069134	Von Willebrand factor C domain-containing protein 2-like	vwc2l	1.0688E-05	-0.79
ENSDARG00000086813			0.01516368	-0.79
ENSDARG00000069368	Neuritin 1-like a	nrm1a	0.00395126	-0.79
ENSDARG00000055787	Double zinc ribbon and ankyrin repeat domains 1	dzank1	0.0027561	-0.79
ENSDARG00000044056	Abelson helper integration site 1	ahi1	0.0216696	-0.79
ENSDARG00000087784	Alpha-tectorin-like	si:dkeyp-110a12.4	0.00247219	-0.79
ENSDARG00000035603	D-amino-acid oxidase, tandem duplicate 2	dao.2	0.00248659	-0.78
ENSDARG00000056531	Nuclear transport factor 2	nutf2	0.00031698	-0.78
ENSDARG00000071463	Zgc:154125	zgc:154125	0.02075625	-0.78
ENSDARG00000044634	Tubulin folding cofactor E	tbce	0.04503117	-0.78
ENSDARG0000003693	Histidyl-tRNA synthetase	hars	4.0896E-05	-0.78
ENSDARG00000070011	Si:ch211-167j6.4	si:ch211-167j6.4	6.8123E-07	-0.78
ENSDARG00000095729	Serine protease 57		0.02715097	-0.78
ENSDARG00000009142	Apoptosis-stimulating of p53 protein 1		0.00061541	-0.78
ENSDARG00000040123	Zinc finger protein, multitype 2a	zfpm2a	0.00101099	-0.78
ENSDARG00000016464	CDC42 binding protein kinase beta (DMPK-like)		0.00484729	-0.78
ENSDARG00000079097	Protein TANC1		6.6191E-05	-0.77
ENSDARG00000059690	Solute carrier family 29 (nucleoside transporters), member 4	slc29a4	0.0008004	-0.77
ENSDARG00000040705	Glutaminase b	glsb	0.01505646	-0.77
ENSDARG0000005150	T-box 20	tbx20	0.04828432	-0.77
ENSDARG00000074705	Myosin phosphatase Rho-interacting protein		0.01163543	-0.77
ENSDARG00000061214	Lipin 2	lipin2	0.00424561	-0.77
ENSDARG00000090068	Uncharacterized protein C9orf117		0.00345393	-0.77
ENSDARG00000038635	Mago-nashi homolog, proliferation-associated (<i>Drosophila</i>)	magoh	0.00630981	-0.77
ENSDARG00000016699	Transient receptor potential cation channel, subfamily A, member 1a	trpa1a	0.01060988	-0.77
ENSDARG00000043716	Claudin 5a	cldn5a	0.01905759	-0.77
ENSDARG00000091754	Coiled-coil-helix-coiled-coil-helix domain-containing protein 5		0.00227319	-0.77
ENSDARG00000074622	Unconventional myosin-Va	myo5ab	0.03201347	-0.77
ENSDARG00000093415	Serine protease 57		0.01764187	-0.77
ENSDARG00000069910	General transcription factor IIF, polypeptide 2a	gtf2f2a	0.00190727	-0.76
ENSDARG00000059175	Centrosomal protein 19	cep19	0.00045526	-0.76
ENSDARG00000074067			0.04935298	-0.76
ENSDARG00000053652	NADH dehydrogenase (ubiquinone) complex I, assembly factor 6	ndufa6	0.00996309	-0.76
ENSDARG00000093724		si:dkey-54g2.2	5.6884E-06	-0.76
ENSDARG00000025820	CHK2 checkpoint homolog (<i>S. pombe</i>)	chk2	1.6042E-05	-0.76
ENSDARG0000008372	Sprouty-related, EVH1 domain containing 2b	spred2b	0.00021881	-0.76
ENSDARG00000061274	Lanosterol synthase (2,3-oxidosqualene-lanosterol cyclase)	lss	0.00722031	-0.76
ENSDARG00000061082	ELKS/RAB6-interacting/CAST family member 1a		0.0117357	-0.76

ENSDARG00000031600	Retinal degeneration 3	rd3	3.2946E-06	-0.76
ENSDARG00000006399	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon polypeptide 1	ywhae1	0.00049094	-0.76
ENSDARG00000035161	Protein kinase domain containing, cytoplasmic		0.00269298	-0.75
ENSDARG00000024116	Vesicle-associated membrane protein 8 (endobrevin)	vamp8	0.00015891	-0.75
ENSDARG00000071240	Alanyl-tRNA synthetase 2, mitochondrial (putative)	aars2	0.00195401	-0.75
ENSDARG00000074151		zgc:174234	0.00113438	-0.75
ENSDARG00000090191	Proteasome assembly chaperone 4	psmg4	0.00830767	-0.75
ENSDARG00000089923	Leucine rich repeat neuronal 1		0.02263664	-0.75
ENSDARG00000044807	Deoxycytidine kinase	dck	9.6037E-07	-0.75
ENSDARG00000040198	Follistatin-like 5	fstl5	0.0006469	-0.75
ENSDARG00000093503	Remodeling and spacing factor 1		0.00107652	-0.75
ENSDARG00000023583	Coenzyme Q9 homolog (<i>S. cerevisiae</i>)	coq9	4.2684E-06	-0.75
ENSDARG00000005870	Methylmalonic aciduria (cobalamin deficiency) cbID type, with homocystinuria	mmadhc	0.00326125	-0.75
ENSDARG00000063376	Cerebellin 1 precursor		0.0218043	-0.75
ENSDARG00000002991	Testis specific, 10		0.0037478	-0.75
ENSDARG00000061806	Protein transport protein Sec24C	si:dkey-13n15.2	0.00079684	-0.75
ENSDARG00000069102		zgc:112962	0.03824004	-0.74
ENSDARG00000091646	UPF0449 protein C19orf25		4.489E-05	-0.74
ENSDARG00000038695	ELAV (embryonic lethal, abnormal vision, <i>Drosophila</i>)-like 1 (Hu antigen R)	elavl1	0.00038169	-0.74
ENSDARG00000078520	ADP-ribosylation factor GTPase activating protein 3	arfgap3	0.02428415	-0.74
ENSDARG00000041904	Ankyrin repeat and zinc finger domain containing 1	ankzf1	0.03279689	-0.74
ENSDARG00000046127	Thymidine kinase 2, mitochondrial	tk2	0.00532746	-0.74
ENSDARG00000076224	Lymphocyte function-associated antigen 3		0.00347191	-0.74
ENSDARG00000038898		zgc:113691	0.00215267	-0.74
ENSDARG00000077817	CXXC finger 4	cxxc4	0.00239854	-0.74
ENSDARG00000059028	SRR1 domain containing	srrd	0.00041214	-0.74
ENSDARG00000031427	Calmodulin		0.00025011	-0.74
ENSDARG00000074844		cabz01061495.1	0.00158332	-0.74
ENSDARG0000004736	PARK2 co-regulated	pacrg	0.00603457	-0.74
ENSDARG00000086326	Serine/threonine-protein phosphatase 6 regulatory ankyrin repeat subunit A-like	ankrd28	0.00066889	-0.74
ENSDARG00000040178	Hepatitis A virus cellular receptor 1	havcr1	0.00367987	-0.74
ENSDARG00000057973	DPH1 homolog (<i>S. cerevisiae</i>)	dph1	0.00021429	-0.74
ENSDARG00000055027	Protein-O-mannosyltransferase 2	pomt2	1.4719E-07	-0.74
ENSDARG00000077877	Si:dkey-14o18.1	si:dkey-14o18.1	0.01328672	-0.74
ENSDARG00000013312	Ca ²⁺ -dependent activator protein for secretion 2	cadps2	4.092E-05	-0.73
ENSDARG00000037955	PIH1 domain containing 1	pih1d1	0.00561206	-0.73
ENSDARG00000027017	Serine/threonine-protein phosphatase 2A 56 kDa regulatory subunit alpha isoform		0.00110758	-0.73
ENSDARG00000017730	Kelch domain-containing protein 4		0.00613973	-0.73
ENSDARG00000061636	G protein-activated inward rectifier potassium channel 3		1.7763E-05	-0.73
ENSDARG00000027600	PDZ and LIM domain 5b	pdlim5b	0.0072585	-0.73
ENSDARG00000042630	Heme binding protein 2	hebp2	0.01243276	-0.73
ENSDARG00000033662	Stearoyl-CoA desaturase (delta-9-desaturase)	scd	0.0035367	-0.73
ENSDARG00000053776	DNA cross-link repair 1A (PSO2 homolog, <i>S. cerevisiae</i>)	dclre1a	1.2609E-05	-0.73
ENSDARG00000078356	Apelin receptor a	aplnra	0.02363061	-0.73
ENSDARG00000069946	Integrin, alpha 6b	itga6b	0.00058011	-0.73
ENSDARG00000060197	ATPase, Ca ⁺⁺ transporting, type 2C, member 1	atp2c1	9.2598E-05	-0.73
ENSDARG00000019236	Glutathione reductase	gsr	0.00245289	-0.72
ENSDARG0000005033	Thyroid hormone receptor interactor 4	trip4	0.00020461	-0.72
ENSDARG00000090656	AT-rich interactive domain-containing protein 4B		0.00481163	-0.72
ENSDARG0000009534	Wntless homolog (<i>Drosophila</i>)	wls	0.00050628	-0.72
ENSDARG00000059498	ADP-ribosylation factor-like 16	arl16	0.01169689	-0.72
ENSDARG00000032564	Argininosuccinate synthetase 1	ass1	8.9871E-06	-0.72
ENSDARG00000090778	Tubulin tyrosine ligase-like family, member 1	ttl1	0.00751059	-0.72
ENSDARG00000079827	S1 RNA binding domain 1	srbd1	2.3375E-05	-0.72
ENSDARG00000087352	Dynein heavy chain 2, axonemal		0.00011626	-0.72
ENSDARG00000021082	Sec31 homolog A (<i>S. cerevisiae</i>)	sec31a	0.00020323	-0.72
ENSDARG00000013500	ATP-binding cassette, sub-family A (ABC1), member 2	abca2	0.00395311	-0.71
ENSDARG0000003084	Spire homolog 2 (<i>Drosophila</i>)	spire2	0.00927165	-0.71
ENSDARG00000058507		zgc:173517	0.0067513	-0.71
ENSDARG00000095776	Holochochrome c synthetase a, like	hccsal	0.00031611	-0.71
ENSDARG00000074905	Calcium/calmodulin-dependent protein kinase 1Da	camk1da	0.00081566	-0.71
ENSDARG00000040300	GTP-binding protein 10 (putative)	gtpbp10	0.02259673	-0.71
ENSDARG00000015543	S100 calcium binding protein A1	s100a1	0.01826723	-0.71
ENSDARG00000036329	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 1	ndufa1	0.00073017	-0.71
ENSDARG00000023117	Golgi-associated PDZ and coiled-coil motif-containing protein		0.00108736	-0.71
ENSDARG00000087671	Netrin 4	ntn4	1.6294E-05	-0.71
ENSDARG00000036036	Midkine-related growth factor	mdka	9.6417E-05	-0.71

ENSDARG00000028336	Dihydrodiol dehydrogenase (dimeric), like	dhdhl	0.00665129	-0.71
ENSDARG00000017220	OTU domain containing 7B	otud7b	0.00019362	-0.71
ENSDARG00000003546	Unc-45 homolog A (C. elegans)	unc45a	0.00038456	-0.71
ENSDARG000000031098	Translocase of inner mitochondrial membrane 50 homolog (yeast)	timmm50	0.00031548	-0.71
ENSDARG000000043299	Neuromedin U	nmu	0.00988921	-0.71
ENSDARG000000057723	NAD(P) dependent steroid dehydrogenase-like	nsdhl	0.00038405	-0.71
ENSDARG000000090854	U7 snRNA-associated Sm-like protein LSml1		0.001130418	-0.71
ENSDARG000000043431	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase-like 1	b3gnt1l	0.02746855	-0.71
ENSDARG000000087752	E3 ubiquitin-protein ligase RFWD3		0.00119247	-0.71
ENSDARG000000075829	KiSS-1 metastasis-suppressor	kiss1	0.00531592	-0.71
ENSDARG00000008912	Solute carrier family 8 (sodium-calcium exchanger), member 2a	slc8a2a	0.03232324	-0.70
ENSDARG000000079946	Squalene monooxygenase		0.00924372	-0.70
ENSDARG000000033973	Mitochondrial ribosomal protein S23	mrps23	3.6686E-05	-0.70
ENSDARG000000058354	Selenoprotein T, 1a	selt1a	0.01034139	-0.70
ENSDARG000000034534	ATPase, H+ transporting, lysosomal V1 subunit Aa	atp6v1aa	0.00373618	-0.70
ENSDARG00000006074	Uridine-cytidine kinase 2a	uck2a	0.00173841	-0.70
ENSDARG000000079482	Glucose-induced degradation protein 4 homolog		0.0029623	-0.70
ENSDARG000000088764	Lysophospholipase-like protein 1		0.00012708	-0.70
ENSDARG000000089194	Translational activator of cytochrome c oxidase 1		0.00257291	-0.70
ENSDARG000000012572	Polymerase (RNA) III (DNA directed) polypeptide F	polr3f	0.00154252	-0.70
ENSDARG000000070702	S100 calcium binding protein V2	s100v2	0.00019364	-0.70
ENSDARG000000039871	Rapunzel 4	rpz4	0.00519664	-0.70
ENSDARG000000094592			0.00135305	0.70
ENSDARG000000090055		zgc:194906	0.02883283	0.70
ENSDARG000000087247	Potassium voltage-gated channel, shaker-related subfamily, beta member 1		0.01697538	0.70
ENSDARG000000019553	Purine nucleoside phosphorylase 5b	pnp5b	0.00061742	0.70
ENSDARG000000091726	Adipocyte enhancer-binding protein 1		0.00391186	0.70
ENSDARG00000002830	Trm2 tRNA methyltransferase 2 homolog A (S. cerevisiae)	trmt2a	9.1202E-05	0.70
ENSDARG000000077094	Zgc:194906		0.00874395	0.70
ENSDARG000000078055	Adrenocortical dysplasia homolog	acd	8.0305E-05	0.70
ENSDARG000000053129	Calcium regulated heat stable protein 1	carhsp1	9.6204E-05	0.70
ENSDARG000000020107	Ubiquitin specific peptidase 2a	usp2a	0.00133029	0.70
ENSDARG000000036456	Annexin A4	anxa4	0.00486266	0.70
ENSDARG000000093823	Trichohyalin	si:ch211-102c2.8	1.1786E-06	0.70
ENSDARG000000086385	Leucine-rich repeat and calponin homology domain-containing protein 4		0.00662701	0.71
ENSDARG000000025106	Protein phosphatase 3, catalytic subunit, beta isozyme	ppp3cb	0.00269264	0.71
ENSDARG000000058688	Adiponectin receptor 2	adipor2	0.0015347	0.71
ENSDARG000000056624	C-fos induced growth factor	figf	0.00446652	0.71
ENSDARG000000053509	Kazal-type serine peptidase inhibitor domain 3	kazald3	0.00154464	0.71
ENSDARG000000032056	ADP-ribosylation factor-like 6	arl6	0.00018074	0.71
ENSDARG00000002564	Synaptogyrin 1a	syngr1a	0.03535144	0.71
ENSDARG000000027143	Aprataxin	aptx	1.4473E-06	0.71
ENSDARG000000058613	Protein geranylgeranyltransferase type I, beta subunit	pggt1b	3.9162E-07	0.71
ENSDARG000000062267	Lysine-specific demethylase 3A		0.00034257	0.71
ENSDARG000000018159	Anoctamin 10b	ano10b	0.00496677	0.71
ENSDARG000000031981	6-pyruvoyl-tetrahydropterin synthase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1)	pcbdl	0.00030976	0.71
ENSDARG000000052086		zgc:174928	3.5972E-05	0.71
ENSDARG000000095783		si:dkey-249d8.1	0.0382472	0.71
ENSDARG000000076119	EMI domain-containing protein 1		0.00172879	0.71
ENSDARG000000086189	Matrix Gla protein	mgp	0.00121994	0.71
ENSDARG000000036940	Cathepsin Sa	ctssa	0.00077354	0.71
ENSDARG000000011152	Ribonuclease P 14 subunit	rpp14	0.00076301	0.72
ENSDARG000000096157	Si:dkey-40n15.1	si:dkey-40n15.1	0.01321923	0.72
ENSDARG000000012625	Protein kinase, AMP-activated, gamma 2 non-catalytic subunit		6.7408E-06	0.72
ENSDARG000000093368			0.00586588	0.72
ENSDARG000000062887	Metalloreductase STEAP2		0.00467776	0.72
ENSDARG000000057708	Putative homeodomain transcription factor 1	phftf1	0.01103603	0.72
ENSDARG000000095045			0.03437408	0.72
ENSDARG000000002988	Troponin T2d, cardiac	tnnt2d	0.00755821	0.72
ENSDARG000000091185		zgc:171242	0.00234269	0.72
ENSDARG000000090482	Fas-binding factor 1		0.00215824	0.72
ENSDARG000000062425	UPF0565 protein C2orf69		0.04421053	0.72
ENSDARG000000016302	Upfl regulator of nonsense transcripts homolog (yeast)	upfl	0.00075474	0.72
ENSDARG000000091269		si:ch73-27e22.8	0.00323301	0.72
ENSDARG000000059115	F-box protein 7	fbxo7	0.00013437	0.72
ENSDARG000000054373	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 3		0.00659588	0.72

ENSDARG00000052429	Synaptogyrin 2a	syng2a	0.00015088	0.72
ENSDARG00000030999	V-myb myeloblastosis viral oncogene homolog (avian)-like 1	myb1l	9.3343E-05	0.72
ENSDARG00000074690	Protein phosphatase, Mg ²⁺ /Mn ²⁺ dependent, 1H		0.00162325	0.72
ENSDARG00000013269	Synaptotagmin-like protein 4		0.00012269	0.73
ENSDARG00000071487	Protein C18orf54		0.0003194	0.73
ENSDARG00000016513	SET domain containing 3	setd3	0.00410365	0.73
ENSDARG00000077839	Putative ATP-dependent RNA helicase DHX30		0.04920559	0.73
ENSDARG00000055591	Pipecolic acid oxidase	pipox	1.1536E-05	0.73
ENSDARG00000094441	Uncharacterized protein KIAA0556		0.01122294	0.73
ENSDARG00000089885	Solute carrier family 16 (monocarboxylic acid transporters), member 12b	slc16a12b	0.00123544	0.73
ENSDARG00000025467	Apoptosis antagonizing transcription factor	aatf	0.00036115	0.73
ENSDARG00000016481	Protein tyrosine phosphatase, non-receptor type 2, a	ptpn2a	1.7569E-05	0.74
ENSDARG00000078891	Uncharacterized protein C7orf43		0.00229338	0.74
ENSDARG00000011863	Inactive tyrosine-protein kinase 7		0.0013438	0.74
ENSDARG00000012833	Forkhead box N3	foxn3	0.02722328	0.74
ENSDARG00000006031	4-aminobutyrate aminotransferase	abat	0.00298275	0.74
ENSDARG00000071082	Prolyl 4-hydroxylase, alpha polypeptide I b	p4ha1b	1.7257E-05	0.74
ENSDARG00000037855	TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor	taf11	0.00021363	0.74
ENSDARG00000038467	Immunoglobulin superfamily member 8		8.2762E-06	0.74
ENSDARG00000089806	Cathepsin L1-like	si:dkey-239j18.3	0.01182609	0.74
ENSDARG00000030967		si:ch211-51a6.2	0.0335785	0.74
ENSDARG00000035596	Iron-sulfur cluster assembly enzyme ISCU, mitochondrial		3.077E-05	0.74
ENSDARG00000058020	F-box/WD repeat-containing protein 9		0.00346855	0.74
ENSDARG00000026871	Ubiquitin carboxyl-terminal esterase L1 (ubiquitin thiolesterase)	uchl1	0.00177719	0.74
ENSDARG00000091949	Polymeric immunoglobulin receptor		0.00336616	0.74
ENSDARG00000051814	Protein tyrosine phosphatase, receptor-type, Z polypeptide 1a	ptprz1a	0.00179997	0.74
ENSDARG00000075697		sc:d136	0.00032249	0.74
ENSDARG00000044544		zgc:110782	0.00029975	0.74
ENSDARG00000028517	HMG-box transcription factor 1	hbp1	0.00256232	0.74
ENSDARG00000075314		zgc:174906	0.00021216	0.74
ENSDARG00000077572		zgc:171242	0.02613931	0.74
ENSGMOG00000007612	Ubiquitin-like protein 5		0.00039394	0.75
ENSDARG00000058941			0.02183854	0.75
ENSDARG00000090882		si:rp71-36a1.5	0.00359777	0.75
ENSDARG00000022512	Zgc:109913	zgc:109913	0.00073471	0.75
ENSDARG00000090228	Glutathione S-transferase, alpha-like	gstal	0.03463306	0.75
ENSDARG00000030064	Pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 1	plekha1	0.0005758	0.75
ENSDARG00000042409	Ral guanine nucleotide dissociation stimulator-like 1		0.00780101	0.75
ENSDARG00000070873	Chemokine (C-C motif) ligand 25b	ccl25b	0.04257758	0.75
ENSDARG00000023694	Spondin 1b	spon1b	5.9523E-06	0.75
ENSDARG00000032200	Regucalcin	rgn	0.00637203	0.76
ENSDARG00000027464	Glucosamine (N-acetyl)-6-sulfatase (Sanfilippo disease IIID), b	gnsb	0.01886377	0.76
ENSDARG00000077178		zgc:152977	2.7261E-06	0.76
ENSDARG00000002197	Phosphorylase, glycogen; liver (Hers disease, glycogen storage disease type VI)	pygl	0.00810596	0.76
ENSDARG00000061051	Protein FAM5C		0.01545099	0.76
ENSDARG00000068437	1-acylglycerol-3-phosphate O-acyltransferase 2 (lysophosphatidic acid acyltransferase, beta)	agpat2	7.0152E-06	0.76
ENSDARG00000095051		si:ch211-236114.1	0.00249176	0.76
ENSDARG00000088321		si:dkey-54i3.4	0.00117923	0.76
ENSDARG00000009136	Apoptosis-stimulating of p53 protein 1		0.0014765	0.76
ENSDARG00000095185	Uncharacterized protein C17orf97		0.00528355	0.76
ENSDARG00000062314	RAS-like, family 10, member A	rasl10a	7.8446E-05	0.76
ENSDARG00000088443		zgc:194906	0.00603601	0.76
ENSDARG00000055129	Pim-2 oncogene		0.00261497	0.76
ENSDARG00000069025		si:ch211-283g2.3	0.00566902	0.76
ENSDARG00000091625		im:7160159	2.1443E-07	0.76
ENSDARG00000094427		si:dkey-253d23.8	0.00387454	0.76
ENSDARG00000038754	Polo-like kinase 3 (Drosophila)	plk3	0.00027919	0.77
ENSDARG00000086641	Starch-binding domain-containing protein 1		0.00074295	0.77
ENSDARG00000069677	Nicotin 1	nicn1	0.00583762	0.77
ENSDARG00000054502			0.00194491	0.77
ENSDARG00000035700		zgc:101664	6.6432E-05	0.77
ENSDARG00000077442	Tubulin, gamma complex associated protein 5	tubgcp5	0.00709589	0.77
ENSDARG00000075072	RNA polymerase II-associated protein 1		0.00022805	0.77
ENSDARG00000013079	Tubulin, gamma complex associated protein 2	tubgcp2	0.00180541	0.77
ENSDARG00000037628	TRNA 2 -phosphotransferase 1		2.6273E-05	0.77
ENSDARG00000019950	Amyotrophic lateral sclerosis 2 chromosomal region candidate gene 8 protein		0.0009132	0.78
ENSDARG00000086719		zgc:194906	0.00263798	0.78
ENSDARG00000062794	Tripartite motif-containing 36	trim36	0.00480559	0.78

ENSDARG00000068635	Mitochondrial ribosomal protein S2	mrps2	0.00030556	0.78
ENSDARG0000006434	Polymerase (RNA) I polypeptide E	polr1e	0.00029719	0.78
ENSDARG00000011925	Spinster homolog 1 (Drosophila)	spns1	0.00547019	0.78
ENSDARG00000077383	Annexin A11a	anxa11a	0.00215428	0.78
ENSDARG00000052942	Asparaginase homolog (S. cerevisiae)	aspg	0.00019177	0.79
ENSDARG00000062269	FANCD2/FANCI-associated nuclease 1	fan1	0.00093567	0.79
ENSDARG00000014947	Insulin-like growth factor binding protein 1a	igfbp1a	0.04878365	0.79
ENSDARG00000035882	Heat-responsive protein 12	hrsp12	0.00027722	0.79
ENSDARG00000088117	Fucosyltransferase 8a (alpha (1,6) fucosyltransferase)		0.00301156	0.79
ENSDARG00000095233		zgc:194906	0.00419959	0.79
ENSDARG00000028275	Sulfotransferase family 1, cytosolic sulfotransferase 1	sult1st1	0.01027382	0.79
ENSDARG0000009020	Cannabinoid receptor 1	cnr1	0.04135417	0.79
ENSGMOG00000003973	Dual specificity phosphatase 22b		0.02452961	0.79
ENSDARG00000038095	Suppressor of cytokine signaling 1a	socs1a	0.04235285	0.79
ENSDARG00000036974	Ripply3	rippy3	0.0010365	0.79
ENSDARG00000060168	Family with sequence similarity 160, member B1	fam160b1	0.00699917	0.79
ENSDARG00000079376		zgc:174153	0.04498321	0.79
ENSDARG00000010701	Crystallin, gamma S4	crygs4	5.5089E-05	0.79
ENSDARG00000055575	Procollagen C-endopeptidase enhancer 2b	pcolce2b	0.00051483	0.80
ENSDARG00000028087	Aldehyde dehydrogenase 2, tandem duplicate 2		0.0011738	0.80
ENSDARG00000077862	T-lymphocyte activation antigen CD86		6.2532E-05	0.80
ENSDARG00000044395	Zinc finger protein 36, C3H type-like 1a		0.00129803	0.80
ENSDARG00000089875		si:ch211-226o13.2	0.00040423	0.80
ENSDARG00000002682	Tubulin folding cofactor E-like a	tbcela	0.00811806	0.80
ENSDARG00000051853	Galactosamine (N-acetyl)-6-sulfate sulfatase	galns	0.00045925	0.80
ENSDARG00000052666	Lipopolysaccharide-induced TNF factor	litaf	0.00299956	0.80
ENSDARG00000043475	T-cell activation RhoGTPase activating protein b	tagapb	0.0004476	0.80
ENSDARG00000088020			0.03738776	0.80
ENSDARG00000040045	Claudin 1	cldn1	0.04121433	0.80
ENSDARG00000030097	Syndecan binding protein (syntenin)	sdbcnp	0.00032254	0.80
ENSDARG00000063252	Proline-rich protein PRCC		6.0232E-06	0.81
ENSDARG00000026835	Solute carrier family 25, member 32b	slc25a32b	0.00083531	0.81
ENSDARG00000095884		si:ch211-57m13.9	0.03869736	0.81
ENSDARG00000093608		si:dkey-25o1.6	0.00173254	0.81
ENSDARG00000046071	Uncharacterized protein C18orf25		8.287E-05	0.81
ENSDARG00000056923	Debranching enzyme homolog 1 (S. cerevisiae)	dbr1	0.01107163	0.81
ENSDARG00000058740	Ubiquitin-conjugating enzyme E2R 2	ube2r2	3.9857E-05	0.81
ENSDARG00000051851	Cytosolic thiouridylase subunit 2 homolog (S. pombe)	ctu2	0.00061122	0.81
ENSDARG00000025914		si:dkey-190g11.3	0.00104681	0.81
ENSDARG00000068749		zgc:194906	0.00020099	0.81
ENSDARG00000001769	Protein tyrosine phosphatase, receptor type, A	ptpra	0.00083043	0.81
ENSDARG00000077004	Aldehyde dehydrogenase 1 family, member L1	aldh1l1	0.00332184	0.82
ENSDARG00000040113	Chromosome 3 open reading frame 31, isoform CRA_f; Mitochondrial translocator assembly and maintenance protein 41 homolog		0.00738122	0.82
ENSDARG00000088788	Si:ch211-131e11.21	si:ch211-131e11.21	0.00119893	0.82
ENSDARG00000068258	Leucine-rich repeat and calponin homology domain-containing protein 4		0.00116629	0.82
ENSDARG00000075149	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase		7.4168E-05	0.82
ENSDARG00000042920	Sulfotransferase family 3, cytosolic sulfotransferase 3	sult3st3	7.6911E-05	0.82
ENSDARG00000095059		si:ch211-106h4.5	0.03591988	0.82
ENSDARG00000093360		si:ch73-19f24.3	0.00722858	0.82
ENSDARG00000034467			0.01621873	0.82
ENSDARG00000070498	Phytanoyl-CoA 2-hydroxylase interacting protein-like b	phyhiplb	0.00010327	0.82
ENSDARG00000056829	Ring finger protein 145b		0.00144328	0.83
ENSDARG00000013926	Solute carrier family 16 (monocarboxylic acid transporters), member 9a	slc16a9a	0.00667488	0.83
ENSDARG00000086347			0.01061329	0.83
ENSDARG00000021869	Regulator of calcineurin 2	rca2	0.00024495	0.83
ENSDARG00000074306	Cathepsin L1-like precursor	ctslb	0.04583791	0.83
ENSDARG00000078581	Creb3 regulatory factor	crebrf	0.00990021	0.83
ENSDARG00000076904	Lysyl oxidase-like 5b	lox15b	0.00721539	0.83
ENSDARG00000058473	ST6 (alpha-N-acetyl-neuraminyl-2,3-beta-galactosyl-1,3)-N-acetylglactosaminide alpha-2,6-sialyltransferase 3	st6galnac3	0.00591518	0.83
ENSDARG00000086057	Plexin-D1		0.02671335	0.83
ENSDARG00000089696			0.00753647	0.83
ENSDARG00000075637	Tripartite motif containing 35-19	trim35-19	0.03265793	0.83
ENSDARG00000039914	Glyceraldehyde-3-phosphate dehydrogenase, spermatogenic	gapdhs	0.0039741	0.83
ENSDARG00000044016	Myosin VIa	myo6a	0.00223117	0.84
ENSDARG00000073793		zgc:171242	0.02027756	0.84
ENSDARG00000040822	FUN14 domain containing 1	fundc1	0.00027747	0.84
ENSDARG00000090091		si:ch211-238e22.2	0.00072301	0.84

ENSDARG0000038207	Aldehyde dehydrogenase 4 family, member A1	aldh4a1	0.04041597	0.84
ENSDARG00000043740	EF-hand calcium binding domain 11	efcab11	0.0113187	0.84
ENSDARG00000061736	Ankyrin 3a	ank3a	0.00056963	0.84
ENSDARG00000071353	Protein MGARP	si:ch211-235e9.8	0.00441522	0.85
ENSDARG00000058815	Indian hedgehog homolog b	ihhb	0.00133465	0.85
ENSDARG00000092726		si:dkey-184p9.7	0.00519986	0.85
ENSDARG00000075537		zgc:171242	0.00055862	0.85
ENSDARG00000090901		zgc:194906	0.03807863	0.85
ENSDARG00000070297		zgc:112234	0.02833157	0.85
ENSDARG00000091545			0.01571171	0.85
ENSDARG00000069632	Epithelial membrane protein 1	emp1	0.01338438	0.85
ENSDARG00000077957			0.00799086	0.85
ENSDARG0000002549	Eukaryotic translation initiation factor 3, subunit E, b	eif3eb	0.0012741	0.85
ENSDARG00000043781	Proteasome (prosome, macropain) subunit, beta type, 10		0.0004297	0.85
ENSDARG00000068066	Zinc finger BED domain-containing protein 1		0.01020262	0.85
ENSDARG00000077207	Leucine zipper putative tumor suppressor 1		0.00034504	0.85
ENSDARG00000094439	Transmembrane protein 176L3a	tmem176L3a	7.5056E-05	0.86
ENSDARG00000037654	Phosphomannomutase 2	pmm2	0.00263663	0.86
ENSDARG00000031956	Transmembrane protein 63C		0.00729202	0.86
ENSDARG00000068245	Acid-sensing (proton-gated) ion channel 1c	asic1c	0.0002643	0.86
ENSDARG00000087181	Chromobox homolog 7a		5.1037E-05	0.86
ENSDARG00000086421		im:7136729	0.0015139	0.86
ENSDARG00000073789	Sterile alpha motif domain-containing protein 9-like	bx537350.1	0.00269972	0.86
ENSDARG00000078271		si:ch211-57m13.8	0.02001193	0.87
ENSDARG00000092494			0.01102514	0.87
ENSDARG00000055622		zgc:153345	0.00136896	0.87
ENSDARG00000074656	Cathepsin Sb, tandem duplicate 1	ctssb.1	0.02500533	0.87
ENSDARG0000007219	Actin, alpha 1	actn1	6.6432E-05	0.87
ENSDARG00000042533	Glutathione S-transferase M	gstm	0.02050049	0.87
ENSDARG00000035434	Zinc finger, matrin type 5	zmat5	0.00066539	0.87
ENSDARG00000087431		zgc:173962	0.00344336	0.87
ENSDARG00000076132	Sialic acid binding Ig-like lectin 15, like	siglec15l	0.00017764	0.87
ENSDARG00000053450	FinTRIM family, member 6	ftR06	0.00072766	0.87
ENSDARG00000086098	ERBB receptor feedback inhibitor 1		0.00096438	0.87
ENSDARG00000092290	Serine/threonine-protein kinase haspin		0.00285036	0.87
ENSDARG00000088366		zgc:77938	5.3701E-05	0.87
ENSDARG00000017246	Periaxin	prx	0.00558595	0.88
ENSDARG00000075980	Transmembrane protein 125	tmem125	2.1211E-06	0.88
ENSDARG00000035768	Phospholipid transfer protein	pltp	0.02036001	0.88
ENSDARG00000091315			0.00312812	0.88
ENSDARG00000014303	Vac14 homolog (S. cerevisiae)	vac14	0.00038657	0.88
ENSDARG00000089550	Pre-B-cell leukemia transcription factor 2		6.7297E-05	0.89
ENSDARG00000042332	Perilipin 2	plin2	5.247E-06	0.89
ENSDARG00000041607	Eukaryotic translation initiation factor 4E binding protein 3, like	eif4ebp3l	0.00043808	0.89
ENSDARG00000093386			0.0354175	0.89
ENSDARG00000042913	Sperm flagellar 2	spef2	0.00082322	0.89
ENSDARG00000039150	Legumin	lgmn	5.3938E-05	0.89
ENSDARG00000077575	SLAM family member 9-like	bx005223.1	0.0017358	0.89
ENSDARG00000069427	Na ⁺ /K ⁺ transporting ATPase interacting 1		0.00015203	0.89
ENSDARG00000043371	Malate dehydrogenase, mitochondrial		0.00114976	0.89
ENSDARG00000090834	Erythropoietin receptor	epor	0.03009917	0.90
ENSDARG00000075690	DDRGL domain-containing protein 1		0.00010719	0.90
ENSDARG00000004171	Rab acceptor 1 (prenylated)	rabacl	0.00035459	0.90
ENSDARG00000001975	Hydroxysteroid 11-beta dehydrogenase 2	hsd11b2	0.02636264	0.90
ENSDARG00000068256	RWD domain containing 4	rwdd	0.00019862	0.91
ENSDARG00000029609	MACRO domain containing 1	macrod1	0.00368337	0.91
ENSDARG00000021239	Apoptotic protease activating factor 1	apaf1	0.00144311	0.91
ENSDARG00000014550	Regulatory factor X, 3 (influences HLA class II expression)	rfx3	0.0010806	0.91
ENSDARG00000036061	2-oxoglutarate and iron-dependent oxygenase domain containing 1	ogfod1	0.00160602	0.91
ENSDARG00000038729	S100 calcium binding protein Z	s100z	0.00160588	0.91
ENSDARG00000017803	Glycogen synthase kinase 3 beta	gsk3b	0.00603011	0.91
ENSDARG00000089794		zgc:171242	0.01251623	0.91
ENSDARG00000011196	DnaJ homolog subfamily C member 11		1.3643E-05	0.91
ENSDARG00000087308			0.00800587	0.91
ENSDARG00000095331		si:dkey-26m3.1	0.00274244	0.91
ENSDARG00000006215	Aldo-keto reductase family 1, member B1 (aldose reductase)	akr1b1	0.00032134	0.92
ENSDARG00000093402		zgc:194906	0.02590026	0.92
ENSDARG00000095212	Protein FAM115C		8.6454E-05	0.92
ENSDARG00000056427	Autism susceptibility candidate 2	auts2	0.00912483	0.92
ENSDARG00000036785	Histidine-rich carboxyl terminus protein 1 precursor	si:ch211-226m16.2-201	0.00078619	0.92
ENSDARG00000005058	Non-SMC condensin I complex, subunit D2	ncapd2	0.00093941	0.92
ENSDARG00000006863	Coiled-coil domain-containing protein 108		0.00188342	0.93
ENSDARG00000020072	Thrombospondin 4b	thbs4b	0.00548139	0.93
ENSDARG00000093458	Serine protease 56-like	si:dkey-76d14.2	5.284E-06	0.93

ENSDARG00000033735	Neutrophil cytosolic factor 1	ncfl	0.00134821	0.93
ENSDARG00000061602	Synovial sarcoma, X breakpoint 2 interacting protein b	ssx2ipb	0.00252844	0.93
ENSDARG00000071219	Phosphoinositide-3-kinase, regulatory subunit 3a (gamma)	pik3r3a	0.00542	0.93
ENSDARG00000029075	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 4, like	pfkfb4l	0.01831192	0.93
ENSDARG00000056764	Hydrocephalus-inducing protein homolog		0.00048527	0.93
ENSDARG00000002771	Solute carrier family 4, sodium bicarbonate cotransporter, member 5		8.4451E-05	0.93
ENSDARG00000003270	Deoxyhypusine synthase	dhps	0.00028321	0.93
ENSDARG00000001169	Hydroxysteroid (17-beta) dehydrogenase 8	hsd17b8	0.00030202	0.93
ENSDARG00000095369		zgc:112970	0.00019968	0.93
ENSDARG00000016866	Family with sequence similarity 102, member Ab	fam102ab	0.00021451	0.94
ENSDARG00000012130	Transglutaminase 1 like 1	tgm1l1	0.00102403	0.94
ENSDARG00000012552	Transferrin receptor 1a		0.00037452	0.94
ENSDARG00000053744	Doublecortin domain containing 2B	dcdc2b	9.9905E-05	0.94
ENSDARG00000087070		si:dkey-122c11.9	0.0017886	0.94
ENSDARG00000029419	Hematological and neurological expressed 1a		0.03107691	0.94
ENSDARG00000089390	Patatin-like phospholipase domain-containing protein 5		0.00366821	0.94
ENSDARG00000010962	FK506 binding protein 7	fkbp7	0.00155643	0.94
ENSDARG00000012995	ARP5 actin-related protein 5 homolog	actr5	0.03336407	0.94
ENSDARG00000094727	Muscle-specific beta 1 integrin binding protein 2		0.01739954	0.94
ENSDARG00000008275	Kelch-like 24a (Drosophila)		0.00075093	0.94
ENSDARG00000069282	BCL2 binding component 3	bbc3	2.7067E-08	0.94
ENSDARG00000086034	Poliovirus receptor-related 1b	pvr1b	0.0361497	0.95
ENSDARG00000002369	Polyubiquitin-C		0.01356351	0.95
ENSDARG000000031203	COMM domain-containing protein 1		0.00021088	0.95
ENSDARG00000059308	Golgi transport 1Bb	golt1bb	0.00165393	0.95
ENSDARG00000007184	Zinc finger and BTB domain containing 16a	zbtb16a	0.00102614	0.95
ENSDARG00000003820	Nuclear receptor subfamily 1, group D, member 2a	nr1d2a	0.00999672	0.95
ENSDARG00000095036			0.00812683	0.95
ENSDARG00000043313	Ankyrin 2b, neuronal	ank2b	0.00102761	0.95
ENSDARG00000060763	Armadillo repeat-containing protein 6		0.01546144	0.96
ENSDARG00000071448	Prolyl 3-hydroxylase 2		0.00645744	0.96
ENSDARG00000090869		fo904898.4	2.0039E-05	0.96
ENSDARG00000040944	Ntl-dependent gene 5	ntd5	0.00016019	0.96
ENSDARG00000092604		zgc:194906	0.00392771	0.96
ENSDARG00000079721			0.0049903	0.96
ENSDARG00000003582	Coiled-coil domain-containing protein 34		0.00049335	0.96
ENSDARG000000086212		zgc:174273	0.02767995	0.96
ENSDARG00000036787	ATP-binding cassette, sub-family B (MDR/TAP), member 3 like 1	abcb31l	0.00010222	0.97
ENSDARG00000067697			0.00658621	0.97
ENSDARG00000010603	Potassium channel tetramerisation domain containing 9	kctd9	9.3511E-05	0.97
ENSDARG00000006566	Nemo like kinase, type 1	nlk1	0.01661305	0.98
ENSDARG00000035663		zgc:103438	0.04304926	0.98
ENSDARG00000056874	Lysozyme g-like 1	lygl1	0.00056512	0.98
ENSDARG00000087188	Nuclear factor, interleukin 3 regulated, member 6	nfil3-6	0.00117061	0.98
ENSDARG00000076247	Delta-like 2 homolog (Drosophila)	dlk2	0.03921404	0.98
ENSDARG00000090700		zgc:171242	0.00408789	0.99
ENSDARG000000013842	TBC1 domain family, member 19	tbc1d19	0.00027314	0.99
ENSDARG00000036820	Monoglyceride lipase		0.02787341	0.99
ENSDARG00000033889	SPT2, Suppressor of Ty, domain containing 1 (S. cerevisiae)	spty2d1	0.00026513	0.99
ENSDARG00000093828			0.00529817	0.99
ENSDARG00000002196	BTB and CNC homology 1, basic leucine zipper transcription factor 1	bach1	0.00051863	1.00
ENSDARG00000017757	Phosphoinositide-3-kinase, catalytic, gamma polypeptide	pik3cg	3.6994E-06	1.00
ENSDARG00000086132			0.00052645	1.00
ENSDARG00000027552	Mitogen-activated protein kinase 1	mapk1	0.00020537	1.00
ENSDARG00000035577	CDP-diacylglycerol synthase (phosphatidate cytidyltransferase) 2	cds2	1.483E-06	1.00
ENSDARG00000002826	Centrosomal protein 57-like 1	cep57l1	2.3062E-05	1.00
ENSDARG00000077504	Histone H1 like		0.03598809	1.00
ENSDARG00000044485	Sal-like 4 (Drosophila)	sall4	8.1812E-05	1.00
ENSDARG00000060854	Potassium channel tetramerisation domain containing 3	kctd3	0.000108	1.01
ENSDARG00000036776	Aldehyde dehydrogenase 8 family, member A1	aldh8a1	0.00074354	1.01
ENSDARG00000052447	Crystallin, alpha B, b	cryabb	0.00035435	1.01
ENSDARG00000041991	U3 small nucleolar RNA-interacting protein 2		0.00082128	1.01
ENSDARG00000003244	Guanylate binding protein 3	gbp3	0.04606116	1.01
ENSDARG000000077159	TAO kinase 3a		0.01377405	1.01
ENSDARG00000071050	Fc receptor-like protein 2		0.00633997	1.01
ENSDARG00000094728	Serine/threonine-protein kinase pim-3-like	si:ch211-207c6.9	0.00233563	1.02
ENSDARG00000086490	SUN domain-containing protein 2		0.0068796	1.02
ENSDARG00000071495		si:dkey-236e20.3	6.9831E-05	1.02

ENSDARG00000025902	Pleckstrin homology domain containing, family G (with RhoGef domain) member 5a	plekhg5a	4.6853E-05	1.16
ENSDARG00000041524		si:ch211-9d9.1	0.00757031	1.16
ENSDARG00000078945	Muscle-specific beta 1 integrin binding protein	mibp	0.00800645	1.16
ENSDARG00000032849	NDRG family member 3, isoform CRA_c; Protein NDRG3		0.00055407	1.16
ENSDARG00000041575	TRNA methyltransferase 10 homolog C (S. cerevisiae)	trmt10c	0.00314649	1.17
ENSDARG00000036826	Ankyrin repeat domain 52a	ankrd52a	1.7048E-05	1.17
ENSDARG00000089881	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.0055976	1.17
ENSDARG00000017494	Transforming growth factor, beta receptor 1 a	tgfbr1a	0.00010574	1.17
ENSDARG00000029172	Polymerase (RNA) I polypeptide A	polr1a	0.00019738	1.17
ENSDARG00000077995	Sushi domain-containing protein 3		0.00267232	1.18
ENSDARG00000093509		si:ch211-135f11.6	0.00117846	1.18
ENSDARG00000096368	Sialidase 3, tandem duplicate 2		2.3915E-06	1.18
ENSDARG00000058218	Protein FAM151A		0.00017489	1.18
ENSDARG00000094500		si:ch211-238e22.4	0.00045447	1.18
ENSDARG00000077372	Transferrin receptor 1b	tfr1b	2.5627E-05	1.18
ENSDARG00000086014			8.4044E-05	1.19
ENSDARG00000013082	UDP-N-acetylglucosamine pyrophosphorylase 1, like 1	uap1l1	0.00012092	1.19
ENSDARG00000037403	Heat shock protein 8-like	hspa8l	0.03094395	1.19
ENSDARG00000088585		zgc:171242	0.00016488	1.20
ENSDARG00000040881	Heterogeneous nuclear ribonucleoprotein H1	hmrnph1	2.5541E-05	1.20
ENSDARG00000010186	Myosin IIIA	myo3a	0.00043006	1.20
ENSDARG00000026149	Solute carrier family 46, member 1	slc46a1	7.7625E-08	1.20
ENSDARG00000023190	Karyopherin alpha 4 (importin alpha 3)	kpna4	0.00154818	1.20
ENSDARG00000031562	Transcriptional adaptor 2A	tada2a	9.6082E-07	1.21
ENSDARG00000045704	DNA cross-link repair 1C, PSO2 homolog (S. cerevisiae)	dclre1c	0.00196629	1.21
ENSDARG00000035088	Si:ch211-254c8.3	si:ch211-254c8.3	0.00015821	1.21
ENSDARG00000079939	Probable Mjmc domain-containing histone demethylation protein 2C		1.8759E-05	1.21
ENSDARG00000075820			0.03939886	1.21
ENSDARG00000022280	Bromodomain-containing 2a	brd2a	9.0975E-06	1.21
ENSDARG00000086240	Si:ch211-163m16.6		0.00010134	1.21
ENSDARG00000053152	Protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1	pcmt1d1	0.00090957	1.21
ENSDARG0000005823	Solute carrier family 39 (zinc transporter), member 10	slc39a10	5.5432E-06	1.21
ENSDARG00000025535	Clathrin interactor 1a	clint1a	4.9146E-05	1.23
ENSDARG00000032705	Forkhead box G1b	foxg1b	0.02886488	1.23
ENSDARG00000057439	Metal response element binding transcription factor 2		1.0779E-07	1.23
ENSDARG00000031202	Asparagine-linked glycosylation 11	alg11	6.3577E-06	1.23
ENSDARG00000060981	Suppressor of IKBKE 1		2.8763E-06	1.24
ENSDARG00000076858	Uncharacterized protein C8orf4		0.00631108	1.24
ENSDARG00000017602	Cyclin-G2		0.0001478	1.25
ENSDARG00000051957	Selenoprotein M	selm	0.00332238	1.26
ENSDARG0000007485	Enhancer of polycomb homolog 2 (Drosophila)	epc2	1.8764E-08	1.26
ENSDARG00000091620	Zgc:194906		0.00020082	1.26
ENSDARG00000077273	Coiled-coil domain-containing protein ENSP00000299415		0.00466532	1.26
ENSDARG00000093381	Transglutaminase 2, like	tgm2l	0.03421656	1.27
ENSDARG00000031001	Protein RRNAD1		0.00088638	1.27
ENSDARG00000074106			0.01955897	1.27
ENSDARG00000076787	Angiopoietin 1		1.3734E-05	1.27
ENSDARG00000075261	Tissue inhibitor of metalloproteinase 2b	timp2b	1.3171E-06	1.28
ENSDARG0000007693	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha a		0.00551488	1.29
ENSDARG00000086830		zgc:194906	0.00626109	1.29
ENSDARG00000070282	H3 histone, family 3A		0.00189773	1.30
ENSDARG00000038458	WAS/WASL-interacting protein family member 1		9.4743E-06	1.30
ENSDARG00000052396	Protein kinase containing Z-DNA binding domains	pkz	0.02370918	1.30
ENSDARG00000035810	Regulator of cell cycle	rgcc	5.5768E-06	1.30
ENSDARG00000086594		zgc:194906	0.00995161	1.31
ENSDARG00000061747	Deleted in autism-related protein 1		0.04507439	1.31
ENSDARG00000077523	Tudor domain containing 7		0.00116392	1.31
ENSDARG00000040610	Cystine/glutamate transporter		2.8494E-07	1.32
ENSDARG00000087365		zgc:194906	0.01875255	1.33
ENSDARG00000041729	Syntrophin, basic 1	sntb1	1.6898E-05	1.33
ENSDARG00000078001	Kelch repeat and BTB domain-containing protein 7		0.00049573	1.34
ENSDARG00000015657		zgc:77112	4.9955E-05	1.34
ENSDARG00000058873	Zgc:77752	zgc:77752	0.0025732	1.35
ENSDARG00000074749	ATP-binding cassette, sub-family A (ABC1), member 12	abca12	5.4109E-05	1.35
ENSDARG00000013687	Cartilage intermediate layer protein, nucleotide pyrophosphohydrolase		0.02074946	1.35
ENSDARG00000020929	Family with sequence similarity 49, member Ba	fam49ba	9.2319E-05	1.35

ENSDARG00000069453		zgc:113314	0.00034695	1.36
ENSDARG00000078095	CLOCK-interacting pacemaker b	cipcb	0.00176608	1.36
ENSDARG00000062397	N-deacetylase/N-sulfotransferase (heparan glucosaminy) 3		0.01224214	1.36
ENSDARG0000006065	Zinc finger protein 385B	znf385b	8.0792E-05	1.37
ENSDARG0000005163	EFR3 homolog A (S. cerevisiae)		0.01712533	1.37
ENSDARG00000027065	Solute carrier family 38, member 3a	slc38a3a	0.0004524	1.38
ENSDARG00000022675	OTU domain containing 6B	otud6b	1.2054E-06	1.38
ENSDARG0000004470	Protein kinase C substrate 80K-H	prkesh	0.04292932	1.38
ENSDARG00000023645	Cysteine conjugate-beta lyase; cytoplasmic (glutamine transaminase K, kynurenine aminotransferase)	ccb11	0.00273706	1.38
ENSDARG00000027582	Angiopoietin-like 7	angptl7	0.01446396	1.38
ENSDARG00000052874		si:dkeyp-52c3.7	6.6428E-05	1.41
ENSDARG00000087317	Coiled-coil domain-containing protein ENSP00000299415		0.00194353	1.42
ENSDARG00000070429	Probable ergosterol biosynthetic protein 28		0.00490627	1.42
ENSDARG00000086300	Family with sequence similarity 107, member B		1.0624E-05	1.44
ENSDARG00000008946	Coiled-coil domain-containing protein 127		0.00094235	1.44
ENSDARG00000092002	Deoxyhypusine synthase		0.04546642	1.44
ENSDARG00000015110	Solute carrier family 18 (vesicular monoamine), member 2	slc18a2	0.00128158	1.46
ENSDARG00000096050			4.3489E-05	1.46
ENSDARG00000088978	Coiled-coil domain-containing protein ENSP00000299415		0.00237203	1.48
ENSDARG00000079326	Calcineurin-binding protein cabin-1		0.0001612	1.49
ENSDARG00000002758	Death effector domain-containing 1	dedd1	0.00093601	1.49
ENSDARG00000005827	Eukaryotic translation initiation factor 2, subunit 1 alpha a	eif2s1a	0.03217997	1.50
ENSDARG00000030981	Transmembrane protein 127	tmem127	0.00229383	1.50
ENSDARG00000031952	Myoglobin	mb	0.00234424	1.50
ENSDARG00000045528	FYVE, RhoGEF and PH domain containing 6	fgd6	0.00189943	1.50
ENSDARG00000079717	RNA-binding protein 12B		0.00041199	1.50
ENSDARG00000062987	TRNA-yW synthesizing protein 1 homolog (S. cerevisiae)	tyw1	0.00080512	1.51
ENSDARG00000096189	Si:dkey-54j5.2	si:dkey-54j5.2	0.00062996	1.52
ENSDARG00000038352	Solute carrier family 27 (fatty acid transporter), member 1b	slc27a1b	0.01415226	1.53
ENSDARG00000037484	Transmembrane protein 192	tmem192	0.00740016	1.54
ENSDARG00000025718	CXXC finger 1 (PHD domain)	cxcc1	0.03673526	1.54
ENSDARG00000011837	Protein C9orf72		0.01085188	1.54
ENSDARG000000034662	Non-SMC element 1 homolog (S. cerevisiae)	nsmce1	1.1788E-07	1.54
ENSDARG00000095459		si:ch211-191j22.3	0.00408776	1.55
ENSDARG00000022833	Ribosomal protein, large P2	rplp2	0.02087755	1.56
ENSDARG00000058305	Myotubularin related protein 3		2.1358E-06	1.57
ENSDARG00000035508	BarH-like 1a	barhl1a	7.8173E-06	1.58
ENSDARG00000037057	Glutaryl-Coenzyme A dehydrogenase	gcdh	0.01140664	1.59
ENSDARG0000001244	Serine/arginine repetitive matrix 1	srrm1	0.00012293	1.59
ENSDARG00000041179	Crystallin, gamma M5	crygm5	0.00011772	1.60
ENSDARG000000058725	Rieske (Fe-S) domain containing	rfsed	0.02677885	1.61
ENSDARG00000061993	WD repeat domain 74	wdr74	4.5426E-06	1.62
ENSDARG00000056167	Heat shock 10 protein 1 (chaperonin 10)	hspel	0.00562109	1.63
ENSDARG00000089892	Lymphatic vessel endothelial hyaluronic acid receptor 1b		3.1562E-06	1.64
ENSDARG00000058806	Apolipoprotein A-I binding protein	apoa1bp	1.5779E-05	1.65
ENSDARG00000086898	Coiled-coil domain-containing protein 23		0.00018197	1.66
ENSDARG00000074258	GRAM domain-containing protein 1B		1.6083E-06	1.67
ENSDARG00000055970		zgc:136971	0.01095755	1.67
ENSDARG000000024381	Misato homolog 1 (Drosophila)	msto1	1.7428E-05	1.68
ENSDARG00000025428	Suppressor of cytokine signaling 3a	socs3a	0.00444126	1.72
ENSDARG00000079124	MTERF domain-containing protein 2		0.00177082	1.74
ENSDARG00000003835	Stomatin	stom	0.00484486	1.75
ENSDARG000000062721	C-myc promoter-binding protein		0.0005192	1.76
ENSDARG00000007108		zgc:91985	0.00011267	1.76
ENSDARG00000090638	Platelet glycoprotein IX		0.02224452	1.76
ENSDARG00000032264	Myeloblastosis oncogene-like 2	mybl2	1.7743E-05	1.77
ENSDARG00000041576	Nudix (nucleoside diphosphate linked moiety X)-type motif 18	nudt18	0.00030224	1.79
ENSDARG00000038805	Phosphatidylinositol N-acetylglucosaminyltransferase subunit P		9.8608E-09	1.86
ENSDARG00000077090	Plectin B2	plxnb2	3.2827E-07	1.86
ENSDARG00000057855	Mitochondrial ribosomal protein S31	mrps31	9.913E-09	1.87
ENSDARG00000018312	RELT-like protein 1		0.00104572	1.91
ENSDARG00000090015		si:dkeyp-52c3.7	3.5591E-05	1.91
ENSDARG00000005670	Tau-tubulin kinase 2		0.00162913	1.92
ENSDARG000000028367	Sulfotransferase family 2, cytosolic sulfotransferase 3	sult2st3	6.561E-06	1.95
ENSDARG00000006849	Acid-sensing (proton-gated) ion channel 2	asic2	2.1241E-05	1.97
ENSDARG00000079640	Protocadherin 2 gamma 16	pcdh2g16	0.0001601	1.97
ENSDARG00000051935	Docking protein 1b	dok1b	0.00398853	1.98

ENSDARG00000036239	Glycine amidinotransferase (L-arginine:glycine amidinotransferase)	gatm	0.00591074	2.05
ENSDARG00000003519	Adenine phosphoribosyl transferase	aprt	3.4799E-05	2.08
ENSDARG00000074446		zgc:173714	0.00010833	2.13
ENSDARG00000092445	Uncharacterized protein C5orf34		1.7108E-07	2.14
ENSDARG00000002546	RUN domain-containing protein 3A		5.5853E-06	2.15
ENSDARG000000034007	Prominin 1 b	prom1b	0.00292474	2.18
ENSDARG00000016611	Secernin 3	scrn3	0.00170761	2.18
ENSDARG000000038123	Myosin, light chain 9a, regulatory	myl9a	6.8553E-07	2.20
ENSDARG000000028396	FK506 binding protein 5	fkbp5	0.03235259	2.44
ENSDARG00000017835	BRF1 homolog, subunit of RNA polymerase III transcription initiation factor IIIb	brf1a	2.167E-07	2.46
ENSDARG000000035215	Spermidine/spermine N1-acetyltransferase family member 2b	sat2b	0.00131736	2.53
ENSDARG000000061093	Pleckstrin homology-like domain, family B, member 1a	phldb1a	3.2062E-09	2.55
ENSDARG000000003293	SRY-box containing gene 9a	sox9a	8.4949E-05	2.68
ENSDARG000000026904	Cerebellin 13	cbln13	3.0484E-07	2.69
ENSDARG000000023759		zgc:73226	0.00046451	2.71
ENSDARG000000056643	Solute carrier family 22 (organic anion transporter), member 7b	slc22a7b	4.9293E-06	2.77
ENSDARG000000095549		si:dkeyp-106c3.2	0.00027571	2.79
ENSDARG000000090616	UPF0705 protein C11orf49		0.00255263	2.85
ENSDARG000000094038		si:ch211-226f6.1	0.00010233	3.08
ENSDARG000000094869		si:dkey-5n7.2	0.00012787	3.12
ENSDARG000000086917	Crystallin, gamma MX, like 1		2.9284E-05	3.31
ENSDARG000000057912	Eukaryotic translation initiation factor 1A, X-linked, b	eif1axb	1.3936E-07	3.41
ENSDARG000000063509	Leucine rich repeat containing 58b	lrre58b	2.0788E-09	3.51
ENSDARG000000074443	Growth arrest-specific protein 7	calr12	0.01538393	3.86

LogE2R<0 means downregulated in transgenic fish

69
70

ESEMBL ID	Description	Symbol	<i>t</i>	log2 ER
ENSDARG00000094133	Uncharacterized protein	wu:fc21g02		-3.56
ENSDARG00000086612		si:ch73-269m14.4	0.00026	-3.28
ENSDARG00000095179		si:ch211-235f1.3-001	0.00004	-3.22
ENSDARG00000069734	Novel beta globin	ottdrp00000002003	0.00024	-3.03
ENSDARG00000026821	Transmembrane protein 106Ba	tmem106ba	0.01172	-2.96
ENSDARG00000011555	Sperm associated antigen 7	spag7	0.00050	-2.56
ENSDARG00000016538	Ovochymase-1 precursor	zgc:55888-001	0.03532	-2.56
ENSDARG00000051746	Cat eye syndrome chromosome region, candidate 1a	cecr1a	0.00057	-2.55
ENSDARG00000032131	Dopamine receptor D3	drd3	0.00240	-2.54
ENSDARG00000024032	Cochlin		0.00475	-2.47
ENSDARG00000091009	Probable E3 ubiquitin-protein ligase TRIML1	si:ch211-28p3.4	0.00004	-2.47
ENSDARG00000075485	Kinesin light chain 1a		0.00120	-2.35
ENSDARG00000003281	Phosphoinositide-3-kinase interacting protein 1	pik3ip1	0.00001	-2.29
ENSDARG00000052978	Muscleblind-like (Drosophila)	mbn1	0.03072	-2.23
ENSDARG00000077310	G protein-coupled receptor 144	gpr144	0.00496	-2.21
ENSDARG00000096668	Mitotic-spindle organizing protein 1		0.00153	-2.19
ENSDARG00000091656	N-alpha-acetyltransferase 38, NatC auxiliary subunit		0.00028	-2.12
ENSDARG00000016477	Eukaryotic translation initiation factor 4A, isoform 2	eif4a2	0.00000	-2.11
ENSDARG00000086763		si:dkeyp-104h9.7	0.00298	-2.10
ENSDARG00000027572	Arsenic (oxidation state) methyltransferase	as3mt	0.00044	-2.09
ENSDARG00000063483		zgc:175214	0.00037	-2.05
ENSDARG00000020596	Family with sequence similarity 73, member A	fam73a	0.00006	-2.01
ENSDARG00000035913	Tyrosyl-tRNA synthetase	yars	0.00464	-1.99
ENSDARG00000086842			0.03197	-1.87
ENSDARG00000089667	Microfibril-associated glycoprotein 4		0.00296	-1.86
ENSDARG00000078908	F-box only protein 41		0.02600	-1.82
ENSDARG00000036895	Death associated protein 1b	dap1b	0.01628	-1.81
ENSDARG00000009208	Protein kinase C, delta a	prkcda	0.00404	-1.80
ENSDARG00000004722	Discoidin domain receptor family, member 2, like	ddr2l	0.04527	-1.78
ENSDARG00000006983	Cugbp, Elav-like family member 3b	celf3b	0.00005	-1.75
ENSDARG00000041505	Integral membrane protein 2Cb		0.02757	-1.75
ENSDARG00000041199	Asparagine-linked glycosylation 12 homolog (yeast, alpha-1,6-mannosyltransferase)	alg12	0.00250	-1.74
ENSDARG00000003142	Dachshund c	dachc	0.00742	-1.73
ENSDARG00000092404	Lactase		0.00264	-1.73
ENSDARG00000061409	Basic immunoglobulin-like variable motif-containing protein		0.01086	-1.72
ENSDARG00000086706	C6H16orf45-201		0.01398	-1.72
ENSDARG00000014041	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A containing DEAD/H box 1		0.00107	-1.72
ENSDARG00000041728	Mannosidase, alpha, class 1A, member 1		0.00743	-1.72
ENSDARG00000011809	Microtubule associated monooxygenase, calponin and LIM domain containing 1	mical1	0.00802	-1.71
ENSDARG00000095876	EGF-like-domain, multiple 6	egfl6	0.00047	-1.71
ENSDARG00000039067	Steroid-5-alpha-reductase, alpha polypeptide 2b	srd5a2b	0.00359	-1.71
ENSDARG00000008107	V-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)	src	0.00313	-1.69
ENSDARG00000022971	Eph receptor A6	epha6	0.00192	-1.67
ENSDARG00000068910	Nitric oxide synthase 1 (neuronal)	nos1	0.00209	-1.67
ENSDARG00000087061	Zgc:171242		0.00379	-1.66
ENSDARG00000079230	Sorbin and SH3 domain-containing protein 1		0.01087	-1.65
ENSDARG00000079500	Kinesin family member 3Cb	kif3cb	0.04356	-1.65
ENSDARG00000026039	Cytochrome P450, family 1, subfamily A	cyp1a	0.04496	-1.64
ENSDARG00000036482	Hexamethylene bis-acetamide inducible 1	hexim1	0.01994	-1.64
ENSDARG00000025859	Lipase maturation factor 2b	lmf2b	0.00179	-1.64
ENSDARG00000067760			0.00008	-1.62

ENSDARG00000086985	Kinesin light chain 1a		0.00109	-1.62
ENSDARG00000069281	Si:dkey-14a7.4	si:dkey-14a7.4	0.00514	-1.62
ENSDARG00000070705	Zgc:64022	zgc:64022	0.01036	-1.61
ENSDARG00000094020	Si:ch211-214c11.8	si:ch211-214c11.8	0.00185	-1.61
ENSDARG00000095249	Si:ch211-196n4.5	si:ch211-196n4.5	0.00104	-1.60
ENSDARG00000032010	Solute carrier family 15 (H ⁺ □ ⁺ transporter), member 2	slc15a2	0.00182	-1.59
ENSDARG00000070490	DC-STAMP domain-containing protein 2	si:dkeyp-75b4.7	0.02519	-1.59
ENSDARG00000091627	DC-STAMP domain-containing protein 2	si:dkey-271j15.3	0.00992	-1.58
ENSDARG00000095983	DnaJ (Hsp40) homolog, subfamily A, member 3A		0.01202	-1.58
ENSDARG00000068738	Cytochrome c oxidase subunit Vb 2	cox5b2	0.01708	-1.58
ENSDARG00000075116	Sal-like protein 2	sall2	0.00041	-1.58
ENSDARG00000086974			0.00115	-1.57
ENSDARG00000090708	DC-STAMP domain-containing protein 2	si:dkey-28g23.6	0.01089	-1.56
ENSDARG0000000540	Asparagine synthetase domain containing 1	asnsd1	0.00821	-1.56
ENSDARG00000088452	Zgc:171242		0.02690	-1.56
ENSDARG00000042631	Glutaredoxin 2	glrx2	0.01181	-1.54
ENSDARG00000093475		si:ch211-214c11.7	0.02603	-1.54
ENSDARG00000035569	Cytochrome P450, family 1, subfamily D, polypeptide 1	cyp1d1	0.00063	-1.54
ENSDARG00000078078	Leucine-rich repeat and fibronectin type-III domain-containing protein 4	lrfn4b	0.00292	-1.54
ENSDARG00000044278	Synaptoporin	synpr	0.00290	-1.54
ENSDARG00000095338		si:ch211-214c11.3	0.01386	-1.54
ENSDARG00000087102	DC-STAMP domain-containing protein 2	si:ch1073-164k15.3	0.00547	-1.53
ENSDARG00000069361	Sperm surface protein Sp17		0.01145	-1.53
ENSDARG00000030938	Fermitin family member 3b	fermt3b	0.00306	-1.53
ENSDARG00000088141	DC-STAMP domain-containing protein 2	cu570684.4	0.00108	-1.53
ENSDARG00000016256	Nudix (nucleoside diphosphate linked moiety X)-type motif 3a	nudt3a	0.00497	-1.52
ENSDARG00000086873			0.03162	-1.52
ENSDARG00000089331	Urate (5-hydroxyiso-) hydrolase		0.00591	-1.52
ENSDARG00000077572		zgc:171242	0.01488	-1.52
ENSDARG00000095464		zgc:66350	0.00428	-1.51
ENSDARG00000003144	Peroxisomal membrane protein 2	pxmp2	0.00141	-1.51
ENSDARG00000013861	Armadillo repeat containing 1	armc1	0.02199	-1.50
ENSDARG00000068628	RAB8B, member RAS oncogene family	rab8b	0.00342	-1.50
ENSDARG00000010433	Si:ch211-114m9.1	si:ch211-114m9.1	0.00638	-1.50
ENSDARG00000022832	BCL2/adenovirus E1B interacting protein 4	bnip4	0.01884	-1.50
ENSDARG00000054290	Apoptotic chromatin condensation inducer 1a	acin1a	0.00314	-1.50
ENSDARG00000070844	Guanidinoacetate N-methyltransferase	gamt	0.02224	-1.49
ENSDARG00000027355	Solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 4	slc25a4	0.01772	-1.48
ENSDARG00000046085	Claudin domain-containing protein 1		0.01762	-1.48
ENSDARG00000088599	Syntaxin binding protein 1a		0.00177	-1.48
ENSDARG00000002031	TOX high mobility group box family member 4		0.03227	-1.48
ENSDARG00000078844	Zgc:171242		0.04965	-1.47
ENSDARG00000034215	RAB42, member RAS oncogene family a	rab42a	0.00173	-1.46
ENSDARG00000077989		zgc:171242	0.00134	-1.46
ENSDARG00000093317	DC-STAMP domain-containing protein 2	si:ch211-209j10.6	0.00965	-1.46
ENSDARG00000043446	EF-hand domain family, member D1	efhd1	0.01159	-1.46
ENSDARG00000088013	Cytochrome P450, family 27, subfamily A, polypeptide 7		0.03627	-1.46
ENSDARG00000092997			0.00988	-1.46
ENSDARG00000053383	Reprimo, TP53 dependent G2 arrest mediator candidate a	rprma	0.04343	-1.45
ENSDARG00000087499		zgc:194906	0.00038	-1.43
ENSDARG00000068431		zgc:194906	0.04082	-1.43
ENSDARG00000026335	Sushi domain-containing protein 4		0.00347	-1.43
ENSDARG00000095094	FXYD domain containing ion transport regulator 6	fxyd6	0.04312	-1.42
ENSDARG00000069438	Neuralized homolog a (Drosophila)	neur1a	0.04020	-1.42
ENSDARG00000038693	Guanine nucleotide binding protein (G protein), gamma 7	gng7	0.02756	-1.42
ENSDARG00000039649	Mitochondrial translational initiation factor 3	mtif3	0.03796	-1.41
ENSDARG00000014953	Cornichon homolog 3 (Drosophila)	cnih3	0.00750	-1.41

ENSDARG0000000472	Contactin 2	cntn2	0.00031	-1.39
ENSDARG00000034056	Casein kinase 1, gamma 2b	csnk1g2b	0.01757	-1.39
ENSDARG00000096355	Immunoglobulin heavy constant mu	ighm	0.00254	-1.39
ENSDARG00000020024	Family with sequence similarity 151, member B	fam151b	0.03418	-1.38
ENSDARG00000075754	Methylthioribose-1-phosphate isomerase homolog (S. cerevisiae)	mri1	0.02500	-1.38
ENSDARG00000089021	DC-STAMP domain-containing protein 2	si:dkey-7f16.3	0.03396	-1.38
ENSDARG00000076494	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.00598	-1.37
ENSDARG00000055027	Protein-O-mannosyltransferase 2	pomt2	0.00210	-1.37
ENSDARG00000086809	Zgc:171242		0.00436	-1.37
ENSDARG00000086015		bx537109.1	0.00809	-1.36
ENSDARG00000055159	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 4	cyp27a1.4	0.00563	-1.35
ENSDARG00000035558	G protein pathway suppressor 2	gps2	0.01267	-1.35
ENSDARG00000002750	PHD finger protein 20, a	phf20a	0.00069	-1.34
ENSDARG000000005150	T-box 20	tbx20	0.00189	-1.34
ENSDARG000000035595	FIC domain containing	ficd	0.02364	-1.34
ENSDARG00000023299	NHP2 non-histone chromosome protein 2-like 1b (S. cerevisiae)	nhp211b	0.00251	-1.33
ENSDARG00000074546		zgc:194906	0.02377	-1.31
ENSDARG000000061211	Spastic paraplegia 20b (Troyer syndrome)	spg20b	0.00135	-1.31
ENSDARG00000007496	UFM1-specific ligase 1	ufl1	0.00558	-1.29
ENSDARG00000078359		si:dkey-222f8.3	0.03647	-1.29
ENSDARG000000087627			0.00867	-1.28
ENSDARG00000004687	Acetyl-Coenzyme A acyltransferase 1	acaal	0.01125	-1.27
ENSDARG00000056833	SV2 related protein homolog a (rat)	svopa	0.00760	-1.27
ENSDARG00000041294	NADPH oxidase organizer 1a	noxo1a	0.00089	-1.27
ENSDARG00000041998	Zgc:113337	zgc:113337	0.04028	-1.26
ENSDARG00000003631	Clock homolog 3 (mouse)	clock3	0.01979	-1.26
ENSDARG00000060392	Set1/Ash2 histone methyltransferase complex subunit ASH2		0.00392	-1.26
ENSDARG00000034160	Kanadaplin		0.04864	-1.26
ENSDARG00000038475	Aminoacylase 1	acy1	0.00209	-1.26
ENSDARG00000060767	Smg-7 homolog, nonsense mediated mRNA decay factor (C. elegans)	smg7	0.00022	-1.26
ENSDARG00000004636	Coiled-coil domain-containing protein 9		0.01361	-1.25
ENSDARG00000003054	Tachykinin receptor 3-like	tacr3l	0.00537	-1.25
ENSDARG000000036415	Galactosidase, beta 1	glb1	0.00987	-1.25
ENSDARG00000092234		si:dkey-179a6.2	0.01539	-1.25
ENSDARG00000075908	ArfGAP with GTPase domain, ankyrin repeat and PH domain 3	agap3	0.00094	-1.24
ENSDARG00000052910	Wingless-type MMTV integration site family, member 8b		0.00302	-1.24
ENSDARG00000089923	Leucine rich repeat neuronal 1		0.00473	-1.24
ENSDARG00000029043	Nucleoporin-like protein 2		0.02513	-1.23
ENSDARG00000040039	Pituitary tumor-transforming 1 interacting protein b	pttg1ipb	0.00404	-1.23
ENSDARG00000040705	Glutaminase b	glsb	0.01388	-1.23
ENSDARG00000090975	DC-STAMP domain-containing protein 2	cr848032.1	0.00871	-1.23
ENSDARG00000003084	Spire homolog 2 (Drosophila)	spire2	0.03567	-1.23
ENSDARG00000019595	Sentrin-specific protease 8		0.01160	-1.23
ENSDARG00000074084	Striatin interacting protein 1	strip1	0.00806	-1.23
ENSDARG000000002391	TLC domain containing 1	tlcd1	0.00003	-1.22
ENSDARG00000096305			0.00181	-1.22
ENSDARG00000039093	Glutamic-oxaloacetic transaminase 1, soluble	got1	0.00132	-1.22
ENSDARG00000076780	Acyl-CoA dehydrogenase, short/branched chain	acadsb	0.01203	-1.21
ENSDARG00000058675	Phosphatase, orphan 2	phospho2	0.03606	-1.21
ENSDARG000000031439	Glutaredoxin 3	glrx3	0.01482	-1.20
ENSDARG00000058841	UDP glucuronosyltransferase 1 family a, b		0.00928	-1.19
ENSDARG00000091377	Galanin peptides		0.00403	-1.19
ENSDARG000000087514			0.00217	-1.19
ENSDARG00000038981	Zgc:153615	zgc:153615	0.02859	-1.19
ENSDARG00000052787	Zinc finger, DHHC-type containing 12b	zdhhc12b	0.03667	-1.19
ENSDARG00000077761	Neuroigin 4b	nlgn4b	0.00014	-1.18
ENSDARG000000095533	Uncharacterized protein	si:ch211-198c19.3	0.00773	-1.18
ENSDARG00000008966	Transducin (beta)-like 1 X-linked receptor	tbl1xr1b	0.01764	-1.17

ENSDARG00000087537	1b Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.01905	-1.17
ENSDARG00000020232	Eukaryotic translation initiation factor 6	eif6	0.00870	-1.16
ENSDARG00000009134	H2.0-like homeo box 1 (Drosophila)	hlx1	0.04605	-1.16
ENSDARG00000011208		zgc:86599	0.00291	-1.16
ENSDARG00000078136	WD repeat-containing protein 47		0.00455	-1.16
ENSDARG00000040123	Zinc finger protein, multitype 2a	zfp2a	0.00032	-1.16
ENSDARG00000087128	Peptidyl-prolyl cis-trans isomerase D		0.00063	-1.15
ENSDARG00000070378		zgc:193706	0.00752	-1.15
ENSDARG00000075008	PAS domain containing serine/threonine kinase	pask	0.00059	-1.15
ENSDARG00000086808	DDHD domain containing 1b		0.00603	-1.15
ENSDARG00000061479	Thrombospondin, type I, domain containing 7A	thsd7a	0.00498	-1.15
ENSDARG00000079741	Cysteine/serine-rich nuclear protein 2		0.00446	-1.14
ENSDARG00000055565	Calcium channel, voltage-dependent, beta 2b	cacnb2b	0.00203	-1.14
ENSDARG00000089256			0.00983	-1.14
ENSDARG00000037639	NK3 homeobox 2	nkx3.2	0.01572	-1.14
ENSDARG00000075859	Mcf.2 cell line derived transforming sequence-like a	mcf2la	0.01328	-1.14
ENSDARG00000073732	Myosin, heavy chain 14, non-muscle	myh14	0.02345	-1.14
ENSDARG00000086813			0.01514	-1.13
ENSDARG00000031044	Lipase, endothelial	lipg	0.01169	-1.13
ENSDARG00000014545	Golgi integral membrane protein 4b	golim4b	0.04111	-1.13
ENSDARG00000002298	Ankyrin repeat domain 22	ankrd22	0.00069	-1.13
ENSDARG00000055585	Core 1 synthase, glycoprotein-N- acetylgalactosamine 3-beta- galactosyltransferase, 1a	c1galt1a	0.02891	-1.12
ENSDARG00000006200	Eukaryotic translation initiation factor 4 gamma 1		0.03483	-1.12
ENSDARG00000031202	GDP-Man:Man(3)GlcNAc(2)-PP-Dol alpha-1_2-mannosyltransferase		0.00929	-1.12
ENSDARG00000028721	Mitogen-activated protein kinase 14b	mapk14b	0.00336	-1.12
ENSDARG00000070116	Nitrilase 1	nit1	0.02383	-1.12
ENSDARG00000070278	Methyltransferase like 14	mettl14	0.00074	-1.12
ENSDARG00000017315	La ribonucleoprotein domain family, member 7	larp7	0.00454	-1.11
ENSDARG00000087508	CD99 antigen-like protein 2	cd99l2	0.00120	-1.11
ENSDARG00000044056	Abelson helper integration site 1	ahi1	0.01498	-1.11
ENSDARG00000093043	UDP glucuronosyltransferase 1 family a, b		0.04970	-1.10
ENSDARG00000089426	NOP10 ribonucleoprotein homolog (yeast)	nop10	0.02781	-1.10
ENSDARG00000052482	Rho guanine nucleotide exchange factor (GEF) 11	arhgef11	0.00009	-1.09
ENSDARG00000069186	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 2	cyp27a1.2	0.02956	-1.09
ENSDARG00000086906	STAM binding protein b	stambpb	0.00355	-1.09
ENSDARG00000031657	Fumarylacetoacetate hydrolase domain containing 1	fahd1	0.00056	-1.08
ENSDARG00000035852	Cocaine- and amphetamine-regulated transcript 2		0.00795	-1.08
ENSDARG00000010382	Carnitine O-acetyltransferase b	cratb	0.00083	-1.08
ENSDARG00000088463	Caseinolytic peptidase B protein homolog		0.00042	-1.08
ENSDARG00000013125	Distal-less homeobox gene 1a	dlx1a	0.02501	-1.08
ENSDARG00000010155	Abl-interactor 1a	abi1a	0.03085	-1.08
ENSDARG00000069934	Poly [ADP-ribose] polymerase 4		0.01161	-1.08
ENSDARG00000043210	Nuclear factor 1 C-type		0.04598	-1.07
ENSDARG00000004306	Kelch-like protein 18		0.00258	-1.07
ENSDARG00000096059	Uncharacterized protein	si:dkeyp-85d8.3	0.00018	-1.06
ENSDARG00000063677	Cyclin Y	ccny	0.00107	-1.06
ENSDARG00000076224	Lymphocyte function-associated antigen 3		0.02392	-1.06
ENSDARG00000079584	Zgc:194930	zgc:194930	0.00047	-1.06
ENSDARG00000095821			0.00028	-1.05
ENSDARG00000067818	Helentron 4 helitron-like transposon replicase/helicase/endonuclease		0.00785	-1.05
ENSDARG00000079171	Ryanodine receptor 2a (cardiac)	ryr2a	0.01362	-1.05
ENSDARG00000030756	DNA (cytosine-5-)-methyltransferase 1	dnmt1	0.04199	-1.04
ENSDARG00000078262	Protocadherin 1 gamma 26		0.01560	-1.04
ENSDARG00000041723	Tubulin, beta 4B class IVb		0.00934	-1.04

ENSDARG00000090145	Uncharacterized protein	si:dkey-122a22.2	0.04052	-1.04
ENSDARG00000069737	POU domain, class 4, transcription factor 2	pou4f2	0.00391	-1.04
ENSDARG00000070939	Zgc:175171	zgc:175171	0.00060	-1.03
ENSDARG00000005690	Solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 25a		0.00048	-1.03
ENSDARG00000090391	UDP glucuronosyltransferase 1 family a, b		0.04012	-1.03
ENSDARG00000033376	Coiled-coil-helix-coiled-coil-helix domain containing 4	chchd4	0.00380	-1.02
ENSDARG00000074705	Myosin phosphatase Rho-interacting protein		0.00405	-1.02
ENSDARG00000040523	Sphingomyelin phosphodiesterase 2a, neutral	smpd2a	0.02087	-1.02
ENSDARG00000011600	Eph receptor A4b	epha4b	0.04497	-1.01
ENSDARG00000090068	Uncharacterized protein C9orf117		0.01529	-1.01
ENSDARG00000011197	UDP glucuronosyltransferase 1 family a, b		0.03258	-1.01
ENSDARG00000010791	DeltaA	dla	0.04722	-1.01
ENSDARG00000059738	Protein tyrosine phosphatase, receptor type, s, a	ptprsa	0.01206	-1.01
ENSDARG00000069832	Sideroflexin 4	sfxn4	0.01183	-1.01
ENSDARG00000037008	Bernardinelli-Seip congenital lipodystrophy 2 (seipin)	bscl2	0.00035	-1.01
ENSDARG00000056531	Nuclear transport factor 2	nutf2	0.03584	-1.01
ENSDARG00000090656	AT-rich interactive domain-containing protein 4B		0.00496	-1.01
ENSDARG00000002991	Testis specific, 10		0.00701	-1.00
ENSDARG00000016605	Si:ch211-215m21.17	si:ch211-215m21.17	0.00281	-1.00
ENSDARG00000039181	Transient receptor potential cation channel, subfamily M, member 3	trpm3	0.00934	-1.00
ENSDARG00000055639	RuvB-like 2 (E. coli)	ruvb12	0.00312	-1.00
ENSDARG00000059459	UPF0561 protein C2orf68		0.01537	-0.99
ENSDARG00000034685	Transmembrane protein 198b	tmem198b	0.00311	-0.99
ENSDARG00000060197	ATPase, Ca transporting, type 2C, member 1	atp2c1	0.00351	-0.99
ENSDARG00000059048	Myelin protein zero-like 1 like	mpz11	0.00045	-0.99
ENSDARG00000010411	Epsin 1	epn1	0.01092	-0.99
ENSDARG00000074905	Calcium/calmodulin-dependent protein kinase 1Da	camk1da	0.01077	-0.99
ENSDARG00000079651	AFG3-like protein 2		0.00164	-0.98
ENSDARG00000016412	Angiotensinogen	agt	0.01420	-0.98
ENSDARG00000036567	Arylalkylamine N-acetyltransferase 1	aanat1	0.00154	-0.98
ENSDARG00000029356	Membrane bound O-acyltransferase domain containing 1	mboat1	0.02483	-0.98
ENSDARG00000077648	Folliculin-interacting protein 2		0.03454	-0.98
ENSDARG00000011317	Adrenergic, alpha-1Ab, receptor		0.00640	-0.98
ENSDARG00000039642	V-type proton ATPase subunit e 1		0.02648	-0.98
ENSDARG00000016651	Zinc finger protein 106a	znf106a	0.02511	-0.97
ENSDARG00000087517	BTB (POZ) domain containing 6b		0.01525	-0.97
ENSDARG00000016399	RIO kinase 1 (yeast)	riok1	0.01042	-0.97
ENSDARG00000007517	Homer homolog 1b (Drosophila)	homer1b	0.00258	-0.97
ENSDARG00000043246	Zinc finger protein 609	znf609	0.02785	-0.97
ENSDARG00000020764	Sarcolemma associated protein b	slmapb	0.03799	-0.97
ENSDARG00000017542	Fibroblast growth factor 1a	fgfla	0.04813	-0.97
ENSDARG00000034534	ATPase, H transporting, lysosomal V1 subunit Aa	atp6v1aa	0.00125	-0.97
ENSDARG00000036911	Secretory carrier membrane protein 1	scamp1	0.00125	-0.97
ENSDARG00000007753	Copine-3		0.00486	-0.96
ENSDARG00000028663	TEK tyrosine kinase, endothelial	tek	0.02174	-0.96
ENSDARG00000078485	Syntaphilin a	snpha	0.00344	-0.96
ENSDARG00000018190	ArsA arsenite transporter, ATP-binding, homolog 1 (bacterial)	asna1	0.03315	-0.95
ENSDARG00000042620		zgc:162356	0.00856	-0.95
ENSDARG00000014573	Growth hormone inducible transmembrane protein	ghitm	0.01745	-0.94
ENSDARG00000078619	Purine nucleoside phosphorylase 5a	pnp5a	0.02579	-0.94
ENSDARG00000018270	Olfactomedin 1a	olfm1a	0.01114	-0.94
ENSDARG00000075334	Rho GTPase-activating protein 33		0.02245	-0.94
ENSDARG00000091215	rapunzel 2	rpz2	0.01035	-0.94
ENSDARG00000006120	T-box 2b	tbx2b	0.00080	-0.94
ENSDARG00000070730	Gamma-aminobutyric acid (GABA) A receptor, alpha 5	gabra5	0.00735	-0.94
ENSDARG00000036593	Lysine (K)-specific demethylase 2Ba	kdm2ba	0.02408	-0.94

ENSDARG00000093199	Si:dkey-46g23.5		0.00076	-0.94
ENSDARG00000078768	Abhydrolase domain-containing protein 15		0.01148	-0.94
ENSDARG00000044902	ATPase, Ca transporting, plasma membrane 4	atp2b4	0.01449	-0.93
ENSDARG00000037410	Mediator complex subunit 28	med28	0.00172	-0.93
ENSDARG00000008372	Sprouty-related, EVH1 domain containing 2b	spred2b	0.00122	-0.93
ENSDARG00000061348	Adenosine deaminase, tRNA-specific 1	adat1	0.00715	-0.93
ENSDARG00000061806	Protein transport protein Sec24C	si:dkey-13n15.2	0.01892	-0.93
ENSDARG00000093414		si:dkey-50i6.5	0.00028	-0.93
ENSDARG00000075115	Protocadherin 1 gamma 26		0.01032	-0.92
ENSDARG00000056163		zgc:73228	0.01385	-0.92
ENSDARG00000039997	Protein tyrosine phosphatase type IVA, member 3	ptp4a3	0.01867	-0.92
ENSDARG00000055026	Patched 2	ptch2	0.01042	-0.92
ENSDARG00000020136	Prostaglandin E synthase	ptges	0.00043	-0.92
ENSDARG00000043241	Arrestin, beta 1	arrb1	0.01153	-0.92
ENSDARG00000086099	Lysosome membrane protein 2		0.02487	-0.92
ENSDARG00000010462	Sp9 transcription factor	sp9	0.03371	-0.91
ENSDARG00000003903	Hyaluronan and proteoglycan link protein 2	hapln2	0.03305	-0.91
ENSDARG00000089610	Pre-B-cell leukemia transcription factor 1a	pbx1a	0.02006	-0.91
ENSDARG00000044719	Neurensin 1	nrsn1	0.04708	-0.91
ENSDARG00000073845	Zgc:110843	zgc:110843	0.02570	-0.91
ENSDARG00000019976	Isopentenyl-diphosphate delta isomerase 1	idi1	0.01652	-0.91
ENSDARG00000041915	Uncharacterized membrane protein C1orf95		0.01118	-0.91
ENSDARG00000030621	Tyrosine hydroxylase	th	0.01103	-0.91
ENSDARG00000024325	Collagen, type IV, alpha 3 (Goodpasture antigen) binding protein a	col4a3bpa	0.02883	-0.91
ENSDARG00000095971			0.01389	-0.90
ENSDARG00000030367	Meteorin, glial cell differentiation regulator	metrn	0.01225	-0.90
ENSDARG00000035561			0.01969	-0.90
ENSDARG00000077817	CXXC finger 4	cxxc4	0.00102	-0.90
ENSDARG00000010978	TRNA methyltransferase 1 homolog (S. cerevisiae)	trmt1	0.03105	-0.90
ENSDARG00000092390		si:dkey-6f10.4	0.02507	-0.90
ENSDARG00000055899	Leucine zipper and CTNNBIP1 domain containing	lzic	0.00090	-0.90
ENSDARG00000056262	Solute carrier family 35, member G2a	slc35g2a	0.00409	-0.90
ENSDARG00000015429	Ras homolog gene family, member Ac	rhoac	0.03550	-0.90
ENSDARG00000004939	Protein LYRIC		0.00995	-0.90
ENSDARG000000039041	Secreted frizzled-related protein 5	sfrp5	0.00730	-0.89
ENSDARG00000040815	Tsukushi small leucine rich proteoglycan homolog (Xenopus laevis)	tsku	0.02327	-0.89
ENSDARG00000027600	PDZ and LIM domain 5b	pdlim5b	0.00243	-0.89
ENSDARG00000036383	Si:ch73-335m24.5	si:ch73-335m24.5	0.03025	-0.89
ENSDARG00000060372	Plexin A3		0.00721	-0.89
ENSDARG00000073910	Cyclin-dependent kinase 2-interacting protein		0.02310	-0.89
ENSDARG00000020454	Proteasome (prosome, macropain) 26S subunit, non-ATPase, 8	psmd8	0.01065	-0.89
ENSDARG00000044298	Phosphorylated adaptor for RNA export	phax	0.01123	-0.89
ENSDARG00000053652	NADH dehydrogenase (ubiquinone) complex I, assembly factor 6	ndufaf6	0.01336	-0.88
ENSDARG00000069619	Activating transcription factor 7 interacting protein	atf7ip	0.04604	-0.88
ENSDARG00000053366	FinTRIM family, member 12	fr12	0.02766	-0.87
ENSDARG00000003109	Regulator of calcineurin 1a	rca1a	0.00016	-0.87
ENSDARG00000075474	Si:dkey-15h8.11	si:dkey-15h8.11	0.00210	-0.87
ENSDARG00000012572	Polymerase (RNA) III (DNA directed) polypeptide F	polr3f	0.01021	-0.87
ENSDARG00000040008	Neurogenic differentiation 6a	neurod6a	0.00116	-0.87
ENSDARG00000069765	Ras GTPase-activating protein SynGAP		0.04254	-0.87
ENSDARG000000039827	Bardet-Biedl syndrome 5	bbs5	0.00017	-0.87
ENSDARG00000045958	Nephronectin		0.00108	-0.87
ENSDARG00000013976	Annexin A13	anxa13	0.00750	-0.87
ENSDARG00000076718	Protein kinase, interferon-inducible double stranded RNA dependent activator	prkra	0.00387	-0.86
ENSDARG00000039661	Solute carrier family 36 (proton/amino acid symporter), member 1		0.02689	-0.86
ENSDARG00000037099	Insulin receptor substrate 2		0.02109	-0.86
ENSDARG00000003257	Zgc:101559	zgc:101559	0.01244	-0.86

ENSDARG00000075098	WD repeat-containing protein 17		0.00697	-0.86
ENSDARG00000036371	Actin, alpha 1a, skeletal muscle	acta1a	0.00429	-0.86
ENSDARG00000052738	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble)	hmgcs1	0.01409	-0.86
ENSDARG00000075260	Protocadherin 1 gamma 9		0.00580	-0.86
ENSDARG00000061419	Zinc finger, matrin type 4b	zmat4b	0.01331	-0.86
ENSDARG00000076119	EMI domain-containing protein 1		0.00806	-0.86
ENSDARG00000060901	Tripartite motif containing 62	trim62	0.02030	-0.86
ENSDARG00000010555	Pyruvate dehydrogenase (lipoamide) alpha 1b	pdha1b	0.03936	-0.86
ENSDARG00000031702	Protein kinase, cGMP-dependent, type Ia		0.04733	-0.85
ENSDARG00000059923	Solute carrier family 25, member 47a	slc25a47a	0.00698	-0.85
ENSDARG00000028982	Propionyl-Coenzyme A carboxylase, alpha polypeptide	pcca	0.01355	-0.85
ENSDARG00000045414	Elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 2	elovl2	0.00359	-0.85
ENSDARG00000051986	NADH dehydrogenase (ubiquinone) Fe-S protein 8a	ndufs8a	0.00262	-0.85
ENSDARG00000069910	General transcription factor IIF, polypeptide 2a	gtf2f2a	0.02120	-0.85
ENSDARG00000010738	Uncharacterized protein C8orf76		0.03293	-0.85
ENSDARG00000093724	Uncharacterized protein	si:dkey-54g2.2	0.01927	-0.84
ENSDARG00000074738	Protocadherin 2 gamma 9	pcdh2g9	0.00048	-0.84
ENSDARG00000061214	Lipin 2	lipin2	0.00799	-0.84
ENSDARG00000010658	Insulin induced gene 1	insig1	0.03413	-0.84
ENSDARG00000010434	Clusterin	clu	0.01131	-0.84
ENSDARG00000052247	Alpha-ketoglutarate-dependent dioxygenase alkB homolog 4		0.01120	-0.84
ENSDARG00000056797	Protein phosphatase 2 (formerly 2A), regulatory subunit B, gamma isoform	ppp2r2c	0.01938	-0.84
ENSDARG00000054856	Methyltransferase-like protein 12, mitochondrial		0.00365	-0.84
ENSDARG00000035559	Tumor protein p53	tp53	0.00935	-0.83
ENSDARG00000037682	Protocadherin 1 gamma 9		0.00045	-0.83
ENSDARG00000058585	Carbohydrate sulfotransferase 2		0.00372	-0.83
ENSDARG00000031600	Retinal degeneration 3	rd3	0.00423	-0.83
ENSDARG00000038695	ELAV (embryonic lethal, abnormal vision, Drosophila)-like 1 (Hu antigen R)	elavl1	0.00190	-0.83
ENSDARG00000061173	Suppression of tumorigenicity 14 (colon carcinoma) a	st14a	0.03448	-0.83
ENSDARG00000067848	Nicotinamide riboside kinase 2	nmrk2	0.02176	-0.83
ENSDARG00000039613	Polymerase (DNA directed), lambda	poll	0.01887	-0.83
ENSDARG00000055705	Coagulation factor V	f5	0.01044	-0.83
ENSDARG00000059423	Prune homolog 2 (Drosophila)	prune2	0.04375	-0.82
ENSDARG00000094504	Pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 1		0.00099	-0.82
ENSDARG00000051857	Testis derived transcript (3 LIM domains)	tes	0.03164	-0.82
ENSDARG00000096594	Lecithin retinol acyltransferase		0.00714	-0.82
ENSDARG00000060054	Enhancer of polycomb homolog 1 (Drosophila)		0.01484	-0.82
ENSDARG00000015252	ST3 beta-galactoside alpha-2,3-sialyltransferase 3b	st3gal3b	0.04404	-0.82
ENSDARG00000045798	Pleiotrophin	ptn	0.00145	-0.82
ENSDARG00000061636	G protein-activated inward rectifier potassium channel 3		0.03671	-0.82
ENSDARG00000006468	GRB2-related adaptor protein 2a	grap2a	0.00859	-0.82
ENSDARG00000078132	Testis expressed 2		0.00147	-0.82
ENSDARG00000053517	Echinoderm microtubule-associated protein-like 5		0.02595	-0.82
ENSDARG00000035562	Mannose-P-dolichol utilization defect 1a	mpdu1a	0.00994	-0.82
ENSDARG00000001559	CUB and sushi domain-containing protein 2		0.00120	-0.82
ENSDARG00000006074	Uridine-cytidine kinase 2a	uck2a	0.04853	-0.82
ENSDARG00000013302	Glutathione peroxidase 7		0.01683	-0.82
ENSDARG00000087671	Netrin 4	ntn4	0.04653	-0.82
ENSDARG00000045200	Dual specificity phosphatase 19		0.00819	-0.81
ENSDARG00000045706	Tetraspanin 9b	tspan9b	0.00007	-0.81
ENSDARG00000090660	Microtubule-associated protein 7 domain containing 1a		0.01016	-0.81
ENSDARG00000089194	Translational activator of cytochrome c oxidase 1		0.02776	-0.81

ENSDARG00000036096	MAD homolog 3a (Drosophila)	smad3a	0.03146	-0.81
ENSDARG00000045027	RAB9A, member RAS oncogene family	rab9a	0.02028	-0.81
ENSDARG00000021433	Acetylserotonin O-methyltransferase-like	asmtl	0.04084	-0.81
ENSDARG00000005916	Serine/arginine-rich protein specific kinase 3	srpk3	0.00197	-0.81
ENSDARG00000017220	OTU domain containing 7B	otud7b	0.01451	-0.81
<u>ENSDARG00000076343</u>	coiled-coil domain-containing protein 106-like	si:dkeyp-13d11.1	0.01029	-0.81
ENSDARG00000010946	Cystathionine-beta-synthase b	cbsb	0.00043	-0.81
ENSDARG00000010844	V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog	kras	0.00756	-0.81
ENSDARG00000017864	Thioredoxin reductase 1	txnrd1	0.00766	-0.80
ENSDARG00000030078	GLI pathogenesis-related 1b	glipr1b	0.00949	-0.80
ENSDARG00000074727	DnaJ (Hsp40) homolog, subfamily C, member 10	dnajc10	0.03665	-0.80
ENSDARG00000013351	Cold inducible RNA binding protein	cirbp	0.00281	-0.80
ENSDARG00000009950	Endothelial differentiation-related factor 1	edfl	0.02638	-0.80
ENSDARG00000061006	Neuferricin		0.00385	-0.80
ENSDARG00000001549	Sp3a transcription factor	sp3a	0.00838	-0.80
ENSDARG00000039913	Transmembrane protein 147	tmem147	0.00367	-0.80
ENSDARG00000033567	FK506 binding protein 1Ab	fkbp1ab	0.00238	-0.80
ENSDARG00000090064	Transmembrane protein 179		0.00069	-0.79
ENSDARG00000086207	Glutamate receptor, ionotropic, N-methyl D-aspartate 2D, a	grin2da	0.01870	-0.79
ENSDARG00000058230	Ribosomal protein S6 kinase b, polypeptide 1b	rps6kb1b	0.00832	-0.79
ENSDARG00000016476	Ornithine decarboxylase antizyme 1b	oaz1b	0.03791	-0.79
ENSDARG00000076997	Syntaxin-binding protein 4		0.02270	-0.79
ENSDARG00000053961	Solute carrier family 2 (facilitated glucose transporter), member 11-like		0.01142	-0.79
ENSDARG00000031795	ATP-binding cassette, sub-family F (GCN20), member 1	abcf1	0.03781	-0.79
ENSDARG00000087426	Chromosome 20 open reading frame 27	C1H20orf27	0.01095	-0.79
ENSDARG00000053776	DNA cross-link repair 1A (PSO2 homolog, S. cerevisiae)	dclre1a	0.02649	-0.79
ENSDARG00000009534	Wntless homolog (Drosophila)	wls	0.00949	-0.79
ENSDARG00000039871	Rapunzel 4	rpz4	0.04417	-0.78
ENSDARG00000012796	Histamine N-methyltransferase	hnmt	0.02932	-0.78
ENSDARG00000056949	Si:dkeyp-66d7.5		0.00832	-0.78
ENSDARG00000076044	Thyrotropin-releasing hormone-degrading ectoenzyme		0.02527	-0.78
ENSDARG00000086326	Serine/threonine-protein phosphatase 6 regulatory ankyrin repeat subunit A-like	ankrd28	0.01247	-0.78
ENSDARG00000038500	Centrosomal protein 41	cep41	0.01311	-0.78
ENSDARG00000015546	Alkaline phosphatase, liver/bone/kidney	alpl	0.03784	-0.78
ENSDARG00000015747	Alanyl-tRNA synthetase domain containing 1	aarsd1	0.01981	-0.78
ENSDARG00000059832	Brain-specific angiogenesis inhibitor 3	bai3	0.00018	-0.78
ENSDARG00000069946	Integrin, alpha 6b	itga6b	0.01115	-0.78
ENSDARG00000070959		si:ch211-288g17.3	0.01015	-0.78
ENSDARG00000025820	CHK2 checkpoint homolog (S. pombe)	chek2	0.02223	-0.77
ENSDARG00000038789	Transmembrane protein 53	tmem53	0.00210	-0.77
ENSDARG00000029989	Adenylate cyclase activating polypeptide 1 receptor 1a	adcyp1r1a	0.00038	-0.77
ENSDARG00000035161	Protein kinase domain containing, cytoplasmic		0.00572	-0.77
ENSDARG00000078507	Wingless-type MMTV integration site family, member 8b		0.00231	-0.77
ENSDARG00000095776	Holochoyochrome c synthetase a, like	hccsal	0.00560	-0.77
ENSDARG00000019945	Protein tyrosine phosphatase, receptor type, D, b	ptprdb	0.02950	-0.77
ENSDARG00000071890	Protocadherin 2 gamma 7	pcdh2g7	0.04749	-0.77
ENSDARG00000069745	Solute carrier family 35, member F2	slc35f2	0.02193	-0.77
ENSDARG00000041921	Heat shock factor binding protein 1b	hsbp1b	0.00315	-0.77
ENSDARG00000031015	Dystrobrevin, alpha	dtna	0.00549	-0.77
ENSDARG00000036695	Transcription elongation factor B (SIII), polypeptide 3		0.00754	-0.77
ENSDARG00000059367	Microfibrillar-associated protein 2	mfap2	0.03939	-0.77
ENSDARG00000002546	RUN domain-containing protein 3A		0.04847	-0.76
ENSDARG000000033957	TRNA methyltransferase 44 homolog (S. cerevisiae)	trmt44	0.00941	-0.76

ENSDARG0000001835	Sodium leak channel, non-selective	nalcn	0.00755	-0.76
ENSDARG00000005033	Thyroid hormone receptor interactor 4	trip4	0.00707	-0.76
ENSDARG00000089399	Transmembrane protein 176L2	tmem176L2	0.00101	-0.76
ENSDARG00000076744	Small integral membrane protein 13		0.00209	-0.76
ENSDARG00000055843	Cadherin 10, type 2 (T2-cadherin)	cdh10	0.01963	-0.76
ENSDARG00000075763			0.03665	-0.76
ENSDARG00000029133	Tubulin, gamma complex associated protein 3	tubgcp3	0.04398	-0.76
ENSDARG00000063035	Neurotrophic tyrosine kinase, receptor, type 3a		0.03742	-0.76
ENSDARG00000014487	Solute carrier family 35, member F3b		0.00436	-0.76
ENSDARG00000000019	Ubiquitin-conjugating enzyme E2H (UBC8 homolog, yeast)	ube2h	0.00476	-0.76
ENSDARG00000091528	Gamma-glutamyltransferase 7		0.03331	-0.75
ENSDARG00000040678	Coiled-coil domain containing 93	ccdc93	0.00558	-0.75
ENSDARG00000026764	Alpha-2-HS-glycoprotein	ahsg	0.01064	-0.75
ENSDARG00000036159	Thyrotropin-releasing hormone receptor b	trhrb	0.00526	-0.75
ENSDARG00000077092	ELK4, ETS-domain protein	elk4	0.02450	-0.75
ENSDARG00000041776	N-deacetylase/N-sulfotransferase (heparan glucosaminyl) 3	ndst3	0.00788	-0.75
ENSDARG00000041065	Heat shock protein, alpha-crystallin-related, 1	hspb1	0.03814	-0.75
ENSDARG00000070047	Regulator of G-protein signalling 4	rgs4	0.00261	-0.75
ENSDARG00000021846	Protein HID1		0.00275	-0.75
ENSDARG00000007127	Acetyl-CoA acetyltransferase 2	acat2	0.00622	-0.75
ENSDARG00000024116	Vesicle-associated membrane protein 8 (endobrevin)	vamp8	0.03650	-0.75
ENSDARG00000069134	Von Willebrand factor C domain-containing protein 2-like	vwc2l	0.01313	-0.75
ENSDARG00000087352	Dynein heavy chain 2, axonemal		0.00332	-0.74
ENSDARG00000034264	Odd Oz/ten-m homolog 4	odz4	0.03255	-0.74
ENSDARG00000031427	Calmodulin		0.00201	-0.74
ENSDARG00000040198	Follistatin-like 5	fstl5	0.01999	-0.74
ENSDARG00000021916	Ventral anterior homeobox 1	vax1	0.04740	-0.74
ENSDARG00000063682	FH1/FH2 domain-containing protein 3		0.00039	-0.74
ENSDARG00000035873	Four-jointed box protein 1		0.01478	-0.74
ENSDARG00000042291	Distal-less homeobox gene 6a	dlx6a	0.00273	-0.74
ENSDARG00000014532	Axin interaction partner and dorsalization antagonist	aida	0.00364	-0.74
ENSDARG00000062510	B-cell CLL/Lymphoma 11Ba (zinc finger protein)	bcl11ba	0.00560	-0.74
ENSDARG00000077343	Protocadherin 1 gamma 9		0.01902	-0.74
ENSDARG00000040799	Somatostatin 1, tandem duplicate 1	sst1.1	0.00198	-0.74
ENSDARG00000069823	Protein interacting with cyclin A1	proca1	0.03278	-0.74
ENSDARG00000093215	Protocadherin 1 alpha 4	pcdh1a4	0.02648	-0.74
ENSDARG00000031098	Translocase of inner mitochondrial membrane 50 homolog (yeast)	tim50	0.01564	-0.73
ENSDARG00000069241	Tetratricopeptide repeat protein 32		0.01407	-0.73
ENSDARG00000062056	ELMO/CED-12 domain containing 1	elmod1	0.03154	-0.73
ENSDARG00000033660	Zgc:112054	zgc:112054	0.04935	-0.73
ENSDARG00000025187	Sine oculis-related homeobox 6a	six6a	0.00786	-0.73
ENSDARG00000029402	Sortilin 1a	sort1a	0.02575	-0.73
ENSDARG00000000018	Nuclear respiratory factor 1	nrf1	0.03477	-0.73
ENSDARG00000070011	Si:ch211-167j6.4	si:ch211-167j6.4	0.00021	-0.73
ENSDARG00000062013	Thyrotropin-releasing hormone-degrading ectoenzyme		0.00200	-0.73
ENSDARG00000043662	Cornichon homolog 2 (Drosophila)	cnih2	0.01215	-0.73
ENSDARG00000086130	Zgc:194906		0.02773	-0.73
ENSDARG00000016044	DNA replication complex GINS protein SLD5		0.03935	-0.73
ENSDARG00000039385	Discs, large homolog 4 (Drosophila)	dlg4	0.00650	-0.73
ENSDARG00000059028	SRR1 domain containing	srrd	0.01926	-0.73
ENSDARG00000068663	Zgc:152951	zgc:152951	0.02946	-0.72
ENSDARG00000043451	Calcium binding protein 39	cab39	0.00599	-0.72
ENSDARG00000063684	Protein phosphatase, Mg ²⁺ dependent, 1H	ppm1h	0.02729	-0.72
ENSDARG00000071345	Microsomal glutathione S-transferase 2	mgst2	0.00630	-0.72
ENSDARG00000019341	Glypican-1		0.04930	-0.72
ENSDARG00000014439	Diacylglycerol kinase, zeta a	dgkza	0.02631	-0.72
ENSDARG00000020872	Nuclear factor of activated T-cells 5, tonicity-responsive	nfat5	0.03198	-0.72
ENSDARG00000046127	Thymidine kinase 2, mitochondrial	tk2	0.03246	-0.72

ENSDARG00000027657	Corticotropin releasing hormone b	crhb	0.02916	-0.72
ENSDARG00000032049	Enabled homolog (Drosophila)	enah	0.01599	-0.72
ENSDARG00000074909	DDB1- and CUL4-associated factor 17		0.00087	-0.72
ENSDARG00000019951	SEC62 homolog (S. cerevisiae)	sec62	0.01347	-0.72
ENSDARG00000032111	Mitochondrial fission process protein 1		0.00465	-0.72
ENSDARG00000076395	NME/NM23 family member 8	nme8	0.01999	-0.71
ENSDARG00000003444	Dehydrogenase/reductase (SDR family) member 7	dhrs7	0.00373	-0.71
ENSDARG00000055787	Double zinc ribbon and ankyrin repeat domains 1	dzank1	0.02135	-0.71
ENSDARG00000002790	Adaptor-related protein complex 2, mu 1 subunit, a	ap2m1a	0.03744	-0.71
ENSDARG00000061761	Optic atrophy 3	opa3	0.03432	-0.71
ENSDARG00000075152	Oxysterol binding protein-like 10		0.04763	-0.71
ENSDARG00000059474	MLX interacting protein	mlxip	0.03416	-0.71
ENSDARG00000059919	UPF0420 protein C16orf58		0.01463	-0.71
ENSDARG00000054683	PR domain containing 8b	prdm8b	0.00742	-0.71
ENSDARG00000062271	Solute carrier family 25 (mitochondrial carrier; ornithine transporter) member 15b	slc25a15b	0.01523	-0.71
ENSDARG00000079827	S1 RNA binding domain 1	srbd1	0.00464	-0.71
ENSDARG00000068369	Angiopoietin-like 2b	angptl2b	0.00102	-0.71
ENSDARG00000059485	Embigin		0.00832	-0.71
ENSDARG00000054560	Hairy-related 4, tandem duplicate 4		0.02093	-0.71
ENSDARG00000062198	Pericentriolar material 1 protein		0.00617	-0.71
ENSDARG00000008218	Zinc finger protein 410	zfn410	0.04533	-0.71
ENSDARG00000025953	Ras homolog gene family, member Q	rhoq	0.02320	-0.71
ENSDARG00000018111	Jumonji C domain containing histone demethylase 1 homolog Da (S. cerevisiae)	jhdml1da	0.01918	-0.71
ENSDARG00000036036	Midkine-related growth factor	mdka	0.04518	-0.71
ENSDARG00000075532	Solute carrier family 4, sodium borate transporter, member 11	slc4a11	0.00509	-0.70
ENSDARG00000092476	Si:rp71-1fl.4	si:rp71-1fl.4	0.00945	-0.70
ENSDARG00000040178	Hepatitis A virus cellular receptor 1	havcr1	0.01071	-0.70
ENSDARG00000061647	Neurexin 1a	nrxn1a	0.03570	-0.70
ENSDARG00000025595	Alkylglycerol monooxygenase	agmo	0.00393	-0.70
ENSDARG00000077047	Protein tyrosine phosphatase, receptor type, Nb	ptprnb	0.00041	-0.70
ENSDARG00000027041	Protocadherin 17	pcdh17	0.04564	-0.70
ENSDARG00000040684	Phospholipase C, delta 4b	plcd4b	0.02423	-0.70
ENSDARG00000067908	Family with sequence similarity 177, member A1		0.00917	-0.70
ENSDARG00000094506		si:dkey-199m13.5	0.00624	-0.70
ENSDARG00000078054	Protein Spindly		0.01319	-0.70
ENSDARG00000042659	Thymocyte nuclear protein 1	thyn1	0.00922	0.70
ENSDARG00000076773	Leucine rich repeat containing 58b		0.01453	0.70
ENSDARG00000073848	Rho guanine nucleotide exchange factor (GEF) 7b	arhgef7b	0.04530	0.70
ENSDARG00000029075	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 4, like	pfkfb4l	0.00511	0.70
ENSDARG00000056986	Dapper homolog 2, antagonist of beta-catenin (xenopus)	dact2	0.01174	0.70
ENSDARG00000070287	H3 histone, family 3A		0.00605	0.70
ENSDARG00000062049	Histocompatibility (minor) HA-1	hmha1	0.00639	0.71
ENSDARG00000030097	Syndecan binding protein (syntenin)	sdcbp	0.04210	0.71
ENSDARG00000090838	Mitochondrial ribosomal protein S22	mrps22	0.03819	0.71
ENSDARG00000089393	Leucyl-tRNA synthetase 2, mitochondrial		0.03334	0.71
ENSDARG00000087510		si:dkey-122c11.6	0.00704	0.71
ENSDARG00000061951	Golgi autoantigen, golgin subfamily b, macrogolgin (with transmembrane signal), 1	golgb1	0.00852	0.71
ENSDARG00000078411	Heat shock protein, alpha-crystallin-related, b15	hspb15	0.02057	0.71
ENSDARG00000078754	Granulito	gra	0.02164	0.71
ENSDARG00000095743	SRY-box containing gene 11b	sox11b	0.02083	0.71
ENSDARG00000025903	Lectin, galactoside-binding, soluble, 9 (galectin 9)-like 1	lgals9l1	0.00002	0.71
ENSDARG00000019233	Neurolysin (metallopeptidase M3 family)	nln	0.01576	0.71
ENSDARG00000023694	Spondin 1b	spon1b	0.02046	0.72
ENSDARG00000016048	1-acylglycerol-3-phosphate O-acyltransferase 9	agpat9	0.01059	0.72
ENSDARG00000060005	Mitochondrial translational release factor 1-	mtrf11	0.00698	0.72

ENSDARG00000025854	like DEAD (Asp-Glu-Ala-Asp) box polypeptide 51	ddx51	0.03616	0.72
ENSDARG00000088788		si:ch211-131e11.21	0.00048	0.72
ENSDARG00000017602	Cyclin-G2		0.04904	0.72
ENSDARG00000036781	HAUS augmin-like complex subunit 2		0.03262	0.72
ENSDARG00000004218	Rho family GTPase 1 like	rnd11	0.03146	0.72
ENSDARG00000071082	Prolyl 4-hydroxylase, alpha polypeptide I b	p4ha1b	0.01653	0.72
ENSDARG00000087059	Family with sequence similarity 213, member Aa		0.00941	0.72
ENSDARG00000007603	Syntaxin binding protein 2	stxbp2	0.02337	0.72
ENSDARG00000014274	Replication factor C (activator 1) 2	rfc2	0.00067	0.72
ENSDARG00000037675	Nucleophosmin/nucleoplasmin, 1b	npm1b	0.00899	0.72
ENSDARG00000045980	Zgc:153129	zgc:153129	0.00591	0.72
ENSDARG00000013477	GATA binding protein 1a	gata1a	0.00201	0.72
ENSDARG00000068903	SDA1 domain containing 1	sdad1	0.02909	0.72
ENSDARG00000014592	DENN domain-containing protein 1A		0.00351	0.72
ENSDARG00000012005	MOB kinase activator 2		0.03510	0.72
ENSDARG00000017794	Short chain dehydrogenase/reductase family 16C, member 5b	sdr16c5b	0.02171	0.72
ENSDARG00000015907	Discoidin, CUB and LCCL domain containing 1	dcbl1d1	0.01895	0.72
ENSDARG00000043986	SET domain containing 6	setd6	0.02249	0.72
ENSDARG00000076362	Transmembrane protein 260		0.01136	0.73
ENSDARG00000018806	Cathepsin C	ctsc	0.03350	0.73
ENSDARG00000075120	Coiled-coil and C2 domain-containing protein 1B		0.04688	0.73
ENSDARG00000063252	Proline-rich protein PRCC		0.01166	0.73
ENSDARG00000093179	Uncharacterized protein	si:dkey-79c1.1	0.00024	0.73
ENSDARG00000078055	Adrenocortical dysplasia homolog	acd	0.03131	0.73
ENSDARG00000094999		si:ch211-254p10.3	0.01633	0.73
ENSDARG00000096013		si:ch211-229i10.11	0.01039	0.73
ENSDARG00000006600	LSM14 homolog Aa (SCD6, <i>S. cerevisiae</i>)	lsm14aa	0.01053	0.73
ENSDARG00000056888	Dynein heavy chain 5, axonemal		0.00342	0.73
ENSDARG00000000529	Oral-facial-digital syndrome 1	ofd1	0.01046	0.73
ENSDARG00000071558	Filamin-binding LIM protein 1		0.00402	0.73
ENSDARG00000016481	Protein tyrosine phosphatase, non-receptor type 2, a	ptpn2a	0.01386	0.74
ENSDARG00000091511	Glutathione peroxidase 7	gpx7	0.01533	0.74
ENSDARG00000028800	Cytohesin 1b		0.04761	0.74
ENSDARG000000045033	BCL2/adenovirus E1B interacting protein 3	bnip3	0.02828	0.74
ENSDARG00000002300	Purinergic receptor P2X, ligand-gated ion channel, 2	p2rx2	0.03989	0.74
ENSDARG00000053119	Sphingomyelin phosphodiesterase, acid-like 3A	smpd13a	0.01087	0.74
ENSDARG00000035150		si:dkey-261j4.4	0.00124	0.74
ENSDARG00000076507	H2A histone family, member X		0.02890	0.74
ENSDARG000000061736	Ankyrin 3a	ank3a	0.02580	0.74
ENSDARG000000061314	Neugrin		0.02499	0.74
ENSDARG00000052086	Zgc:174928	zgc:174928	0.00408	0.74
ENSDARG00000089033	Protein RRNAD1		0.01015	0.74
ENSDARG00000087181	Chromobox homolog 7a		0.00980	0.74
ENSDARG00000054259	N-acetyltransferase 10	nat10	0.01390	0.74
ENSDARG00000027143	Aprataxin	aptx	0.00838	0.74
ENSDARG00000010701	Crystallin, gamma S4	crygs4	0.00001	0.75
ENSDARG00000031814	Dehydrogenase/reductase (SDR family) member 13b	dhrs13b	0.00378	0.75
ENSDARG00000016375	Asparagine synthetase	asns	0.01952	0.75
ENSDARG00000093823	Trichohyalin	si:ch211-102c2.8	0.00024	0.75
ENSDARG00000060169	Meiosis-specific nuclear structural 1	mns1	0.00259	0.75
ENSDARG00000087854		zgc:112234	0.03291	0.75
ENSDARG00000037933	Potassium voltage-gated channel, Shaw-related subfamily, member 3b	kcnc3b	0.01130	0.75
ENSDARG00000016415	Dehydrogenase E1 and transketolase domain containing 1	dhtkd1	0.02916	0.75
ENSDARG00000076297	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 3a	nfatc3a	0.01338	0.75
ENSDARG00000039364		zgc:113019	0.03729	0.75
ENSDARG00000086296		si:ch211-209p16.1	0.00046	0.75
ENSDARG00000036787	ATP-binding cassette, sub-family B (MDR/TAP), member 3 like 1	abcb311	0.02672	0.75

ENSDARG00000040303	Nibrin	nbn	0.00304	0.75
ENSDARG00000062971	Succinate dehydrogenase complex assembly factor 2	sdhaf2	0.04266	0.75
ENSDARG00000071095	ABI family, member 3 (NESH) binding protein	abi3bp	0.03976	0.75
ENSDARG00000039483	Si:dkey-51a16.9	si:dkey-51a16.9	0.03094	0.75
ENSDARG00000042927	Microtubule-associated protein, RP/EB family, member 1a	mapre1a	0.00030	0.75
<u>ENSDARG00000093042</u>	Uncharacterized protein	si:dkey-104n9.1	0.00135	0.76
ENSDARG00000014303	Vac14 homolog (<i>S. cerevisiae</i>)	vac14	0.00060	0.76
ENSDARG00000042933	Biogenesis of lysosomal organelles complex-1, subunit 6, pallidin	bloc1s6	0.03191	0.76
ENSDARG00000032056	ADP-ribosylation factor-like 6	arl6	0.00562	0.76
ENSDARG00000044809	Folylpolylglutamate synthase	fpgs	0.00321	0.76
<u>ENSDARG00000036420</u>	Active breakpoint cluster region-related protein-like	cr376787.1	0.04140	0.76
ENSDARG00000062349	Rho GTPase activating protein 15	arhgap15	0.00028	0.76
ENSDARG00000042496	Poly (ADP-ribose) polymerase family, member 12a	parp12a	0.00323	0.76
ENSDARG00000053802	Cerebellin 8		0.02720	0.76
ENSDARG00000018810	Zinc finger CCHC domain-containing protein 4		0.01047	0.76
ENSDARG00000093783	Uncharacterized protein C3orf30		0.00665	0.76
ENSDARG00000013596	Bromodomain containing 1a	brd1a	0.03121	0.77
ENSDARG00000061547		zgc:153409	0.03702	0.77
ENSDARG00000075980	Transmembrane protein 125	tmem125	0.00132	0.77
ENSDARG00000075347	Checkpoint with forkhead and ring finger domains, E3 ubiquitin protein ligase	chfr	0.00494	0.77
ENSDARG00000086332	Brain protein I3	bri3	0.00546	0.77
ENSDARG00000061394	Bromodomain adjacent to zinc finger domain, 1B	baz1b	0.01385	0.77
ENSDARG00000074806	Actin filament-associated protein 1-like 2		0.02153	0.77
ENSDARG00000000729	Death-associated protein 6	daxx	0.00052	0.77
ENSDARG00000078014	Protein kinase C and casein kinase substrate in neurons 2	pacsin2	0.00103	0.77
ENSDARG00000040072	Serine carboxypeptidase 1	scpep1	0.00458	0.77
ENSDARG00000055739	RIB43A-like with coiled-coils protein 2		0.01849	0.77
ENSDARG00000055129	Pim-2 oncogene		0.01414	0.77
ENSDARG00000003820	Nuclear receptor subfamily 1, group D, member 2a	nr1d2a	0.00872	0.77
ENSDARG00000035596	Iron-sulfur cluster assembly enzyme ISCU, mitochondrial		0.02643	0.77
ENSDARG00000058613	Protein geranylgeranyltransferase type I, beta subunit	pggt1b	0.00099	0.77
ENSDARG00000009136	Apoptosis-stimulating of p53 protein 1		0.00042	0.77
ENSDARG00000005841	Troponin I, skeletal, fast 2a, tandem duplicate 2	tnni2a.2	0.03875	0.78
ENSDARG00000033889	SPT2, Suppressor of Ty, domain containing 1 (<i>S. cerevisiae</i>)	spty2d1	0.03353	0.78
ENSDARG00000044694	FYN binding protein	fyb	0.04533	0.78
ENSDARG00000051957	Selenoprotein M	selm	0.00680	0.78
ENSDARG00000058325	Caspase 8, apoptosis-related cysteine peptidase	casp8	0.00080	0.78
ENSDARG00000088366	Zgc:77938	zgc:77938	0.00832	0.78
ENSDARG00000037097	Solute carrier family 7 (cationic amino acid transporter, y system), member 2	slc7a2	0.03748	0.78
ENSDARG00000011837	Protein C9orf72		0.01746	0.78
ENSDARG00000005832	Anaphase promoting complex subunit 2	anapc2	0.00523	0.78
ENSDARG00000010070	A disintegrin and metalloproteinase domain 9	adam9	0.00897	0.78
ENSDARG00000090521		zgc:153409	0.00118	0.78
ENSDARG00000075291		si:rp71-36n21.1	0.01425	0.78
ENSDARG00000027465	Required for meiotic nuclear division 1 homolog (<i>S. cerevisiae</i>)	rmnd1	0.02680	0.78
ENSDARG00000053509	Kazal-type serine peptidase inhibitor domain 3	kazald3	0.00307	0.78
ENSDARG00000055290	Macrophage expressed 1	mpeg1	0.01755	0.78
ENSDARG00000086704	Centromere protein U		0.00274	0.78
ENSDARG00000079818	Helicase, POLQ-like	helq	0.03341	0.78
ENSGMOG00000018839	Ryanodine receptor 1a (skeletal)		0.00264	0.79
ENSDARG00000086434			0.01833	0.79

ENSDARG0000006546	Adenylate kinase 4	ak4	0.01534	0.79
ENSDARG0000002549	Eukaryotic translation initiation factor 3, subunit E, b	EIF3EB	0.01371	0.79
ENSDARG00000095744	Cathepsin L1-like precursor	si:dkey-269i1.4	0.04017	0.79
ENSDARG00000095072	Cathepsin L1-like precursor	si:dkey-26g8.4	0.04406	0.79
ENSDARG00000012729	Hematopoietic cell-specific Lyn substrate 1	hcls1	0.02907	0.79
ENSDARG00000030064	Pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 1	plekha1	0.02084	0.79
ENSDARG00000003835	Stomatin	stom	0.04633	0.79
ENSDARG00000044544		zgc:110782	0.02526	0.79
ENSDARG00000030949	Signal recognition particle receptor subunit beta		0.01340	0.79
ENSDARG00000086855	Zinc finger protein 32	znf32	0.04968	0.79
ENSDARG00000087290		si:ch211-202h22.10	0.00836	0.79
ENSDARG00000089047			0.00549	0.80
ENSDARG00000032318	Major facilitator superfamily domain containing 6a	mfsd6a	0.04129	0.80
ENSDARG00000014480	Nuclear receptor subfamily 6, group A, member 1b	nr6a1b	0.01685	0.80
ENSDARG00000042920	Sulfotransferase family 3, cytosolic sulfotransferase 3	sult3st3	0.02654	0.80
ENSDARG00000076132	Sialic acid binding Ig-like lectin 15, like	siglec15l	0.00015	0.80
ENSDARG00000040087	Erythrocyte membrane protein band 4.1 like 4A	epb4114a	0.01278	0.80
ENSDARG00000054058	H1 histone family, member X	h1fx	0.03400	0.80
ENSDARG00000028087	Aldehyde dehydrogenase 2, tandem duplicate 2		0.01002	0.80
ENSDARG00000038754	Polo-like kinase 3 (Drosophila)	plk3	0.00870	0.81
ENSDARG00000042332	Perilipin 2	plin2	0.01162	0.81
ENSDARG00000012505	U2 small nuclear RNA auxiliary factor 2a	u2af2a	0.01041	0.81
ENSDARG00000086596	Mediator complex subunit 8		0.03362	0.81
ENSDARG00000032087	N-sulfoglucosamine sulfohydrolase (sulfamidase)	sgsh	0.00185	0.81
ENSDARG00000007892	Programmed cell death 2	pcdcd2	0.04159	0.81
ENSDARG00000091625	Im:7160159	im:7160159	0.00008	0.81
ENSDARG00000045364	Trafficking protein particle complex subunit 3		0.00045	0.81
ENSDARG00000095577	Cytochrome b reductase 1	cybrd1	0.03217	0.81
ENSDARG00000088321	Si:dkey-54i3.4	si:dkey-54i3.4	0.01313	0.81
ENSDARG000000004171	Rab acceptor 1 (prenylated)	rabac1	0.00861	0.81
ENSDARG00000076553	Tripartite motif-containing 32	trim32	0.01072	0.81
ENSDARG00000026985	LIM and senescent cell antigen-like domains 1	lims1	0.00240	0.82
ENSDARG00000068256	RWD domain containing 4	rwdd	0.00728	0.82
ENSDARG00000068437	1-acylglycerol-3-phosphate O-acyltransferase 2 (lysophosphatidic acid acyltransferase, beta)	agpat2	0.03184	0.82
ENSDARG00000092114	Si:dkey-233e3.3	si:dkey-233e3.3	0.00459	0.82
ENSDARG00000090882	Uncharacterized protein	si:rp71-36a1.5	0.00296	0.82
ENSDARG00000053744	Doublecortin domain containing 2B	dcdc2b	0.03966	0.82
ENSDARG00000076518	Methyltransferase like 1	mettl1	0.03102	0.82
ENSDARG00000087529	Ankyrin repeat and LEM domain-containing protein 1		0.00390	0.82
ENSDARG00000035700		zgc:101664	0.00569	0.82
ENSDARG00000035776	HemK methyltransferase family member 2		0.01179	0.82
ENSDARG00000071017	5'-nucleotidase		0.00155	0.82
ENSDARG00000068749		zgc:194906	0.01272	0.82
ENSDARG00000040822	FUN14 domain containing 1	fundc1	0.00004	0.82
ENSDARG00000037894	Enhancer of zeste homolog 1 (Drosophila)	ezh1	0.00992	0.82
ENSDARG00000077009	WDFY family member 4	wdfy4	0.00855	0.82
ENSDARG00000078789	Transmembrane protein 184C		0.00085	0.83
ENSDARG00000074443	Growth arrest-specific protein 7		0.00419	0.83
ENSDARG00000020742	Galactosidase, alpha		0.00180	0.83
ENSDARG00000068258	Leucine-rich repeat and calponin homology domain-containing protein 4		0.00772	0.83
ENSDARG00000011196	DnaJ homolog subfamily C member 11		0.04629	0.83
ENSDARG00000089885	Solute carrier family 16 (monocarboxylic acid transporters), member 12b	slc16a12b	0.01199	0.83
ENSDARG00000077252	Uncharacterized protein	si:rp71-36a1.5	0.00005	0.83
ENSDARG00000061865	DEAD (Asp-Glu-Ala-Asp) box polypeptide	ddx10	0.00155	0.83

ENSDARG00000043475	10 T-cell activation RhoGTPase activating protein b	tagapb	0.00178	0.83
ENSDARG00000078659	Transmembrane protein 176	tmem176	0.00933	0.84
ENSDARG00000007396	Rho family GTPase 3b	rnd3b	0.04749	0.84
ENSDARG00000001169	Hydroxysteroid (17-beta) dehydrogenase 8	hsd17b8	0.00734	0.84
ENSDARG00000060927		si:ch211-136a13.1	0.02470	0.84
ENSDARG00000002830	Trm2 tRNA methyltransferase 2 homolog A (S. cerevisiae)	trmt2a	0.00806	0.84
ENSDARG00000028625	Junctophilin-2		0.00477	0.84
ENSDARG00000046071	Uncharacterized protein C18orf25		0.00274	0.84
ENSDARG000000045847	Uncharacterized protein	si:ch211-214j24.10	0.00762	0.84
ENSDARG00000002632	Annexin A11b	anxa11b	0.03761	0.84
ENSDARG00000094439	Transmembrane protein 176l.3a	tmem176l.3a	0.00027	0.84
ENSDARG00000020270	Dynamin 1b		0.01538	0.84
ENSDARG00000077207	Leucine zipper putative tumor suppressor 1		0.00232	0.84
ENSDARG00000089550	Pre-B-cell leukemia transcription factor 2		0.00059	0.85
ENSDARG00000011312	Serine/threonine kinase 3 (STE20 homolog, yeast)	stk3	0.02684	0.85
ENSDARG00000089321	Claspin		0.03160	0.85
ENSDARG00000051916	Cyclin-dependent kinase 7	cdk7	0.00776	0.85
ENSDARG00000052721	Zgc:110727	zgc:110727	0.03232	0.85
ENSDARG00000060308	Nucleolar pre-ribosomal-associated protein 1		0.00706	0.85
ENSDARG00000033604	Low density lipoprotein receptor-related protein associated protein 1	lrpap1	0.03682	0.85
ENSDARG00000033871	Der1-like domain family, member 3	der13	0.03398	0.85
ENSDARG00000077575	SLAM family member 9-like	bx005223.1	0.00009	0.85
ENSDARG00000013726	Adaptor-related protein complex 4, beta 1 subunit	ap4b1	0.01087	0.85
ENSDARG00000001769	Protein tyrosine phosphatase, receptor type, A	ptpra	0.01986	0.85
ENSDARG00000007219	Actinin, alpha 1	actn1	0.04926	0.85
ENSDARG00000075072	RNA polymerase II-associated protein 1		0.01267	0.86
ENSDARG00000027065	Solute carrier family 38, member 3a	slc38a3a	0.00525	0.86
ENSDARG00000077862	T-lymphocyte activation antigen CD86		0.00587	0.86
ENSDARG00000087012	Si:dkeyp-52c3.7		0.00604	0.86
ENSDARG00000008032	Squamous cell carcinoma antigen recognised by T cells 3	sart3	0.01948	0.86
ENSDARG00000052429	Synaptogyrin 2a	syngr2a	0.02239	0.86
ENSDARG00000016302	Upf1 regulator of nonsense transcripts homolog (yeast)	upf1	0.00884	0.86
ENSDARG00000088924	Centromere protein U		0.01312	0.86
ENSDARG00000069298	Oxysterol binding protein-like 9	osbpl9	0.02705	0.86
ENSDARG00000095212	Protein FAM115C		0.02909	0.86
ENSDARG00000075220	H2A histone family, member X		0.02227	0.86
ENSDARG00000075314		zgc:174906	0.03134	0.87
ENSDARG00000090869	Uncharacterized protein	FO904898.4	0.00619	0.87
ENSDARG00000062794	Tripartite motif-containing 36	trim36	0.00128	0.87
ENSDARG00000062267	Lysine-specific demethylase 3A		0.02538	0.87
ENSDARG00000040985	Integrin, beta-like 1	itgb11	0.00075	0.87
ENSDARG00000078891	Uncharacterized protein C7orf43		0.02394	0.87
ENSDARG00000075697	Sc:d136		0.02797	0.87
ENSDARG00000043897	ST6 (alpha-N-acetyl-neuraminyl-2,3-beta-galactosyl-1,3)-N-acetylgalactosaminide alpha-2,6-sialyltransferase 4	st6galnac4	0.01115	0.87
ENSDARG00000013687	Cartilage intermediate layer protein, nucleotide pyrophosphohydrolase		0.00027	0.88
ENSDARG00000071487	Protein C18orf54		0.02575	0.88
ENSDARG00000031952	Myoglobin	mb	0.01826	0.88
ENSDARG00000077178		zgc:152977	0.01494	0.88
ENSDARG00000060316	Cytokine inducible SH2-containing protein	cish	0.00091	0.88
ENSDARG000000025467	Apoptosis antagonizing transcription factor	aatf	0.01956	0.88
ENSDARG00000016736	Brevican	bcan	0.01425	0.88
ENSDARG00000090700		zgc:171242	0.02245	0.88
ENSDARG00000043781	Proteasome (prosome, macropain) subunit, beta type, 10		0.02820	0.89
ENSDARG00000044016	Myosin VIa	myo6a	0.02542	0.89
ENSDARG00000092290	Serine/threonine-protein kinase haspin		0.01243	0.89
ENSDARG00000088472	Dedicator of cytokinesis 9a	dock9a	0.02574	0.89
ENSDARG00000076189	Coiled-coil domain containing 88B	ccdc88b	0.00350	0.90

ENSDARG00000023645	Cysteine conjugate-beta lyase; cytoplasmic (glutamine transaminase K, kynurenine aminotransferase)	ccb1l	0.02018	0.90
ENSDARG00000069282	BCL2 binding component 3	bbc3	0.00004	0.90
ENSDARG00000070297		zgc:112234	0.00030	0.90
ENSDARG00000086189	Matrix Gla protein	mgp	0.04253	0.90
ENSDARG00000086253			0.01339	0.90
ENSDARG00000089838	Uncharacterized protein	cu463790.1	0.03570	0.90
ENSDARG00000055622		zgc:153345	0.02890	0.91
ENSDARG00000054540	IMP4, U3 small nucleolar ribonucleoprotein, homolog (yeast)	imp4	0.00923	0.91
ENSDARG00000091726	Adipocyte enhancer-binding protein 1		0.00080	0.91
ENSGMOG00000007612	Ubiquitin-like protein 5		0.02173	0.91
ENSDARG00000091728		zgc:112234	0.02588	0.92
ENSDARG00000058941			0.02979	0.92
ENSDARG00000093458	Serine protease 56-like	si:dkey-76d14.2	0.03873	0.92
ENSDARG00000071495		si:dkey-236e20.3	0.00117	0.92
ENSDARG00000075426	Si:ch211-219a4.3		0.00229	0.92
ENSDARG00000055575	Procollagen C-endopeptidase enhancer 2b	pcolce2b	0.04894	0.92
ENSDARG00000053950	Lin-37 homolog (C. elegans)	lin37	0.00868	0.93
ENSDARG00000086421	Im:7136729	im:7136729	0.01318	0.93
ENSDARG00000070429	Probable ergosterol biosynthetic protein 28		0.02937	0.93
ENSDARG00000060854	Potassium channel tetramerisation domain containing 3	kctd3	0.00022	0.93
ENSDARG00000054373	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 3		0.00720	0.93
ENSDARG00000075690	DDRKG domain-containing protein 1		0.01684	0.93
ENSDARG00000071219	Phosphoinositide-3-kinase, regulatory subunit 3a (gamma)	pik3r3a	0.01969	0.93
ENSDARG00000026871	Ubiquitin carboxyl-terminal esterase L1 (ubiquitin thiolesterase)	uchl1	0.00174	0.93
ENSDARG00000087188	Nuclear factor, interleukin 3 regulated, member 6	nf1l3-6	0.00051	0.93
ENSDARG00000076092	Solute carrier family 31 (copper transporter), member 2	slc31a2	0.00584	0.94
ENSDARG00000012552	Transferrin receptor 1a		0.00030	0.94
ENSDARG00000069025		si:ch211-283g2.3	0.02753	0.94
ENSDARG00000030307	Heat shock protein 12B	hspa12b	0.01474	0.94
ENSDARG00000014013	Lamin B receptor	lbr	0.04354	0.94
ENSDARG00000041944	Adenosine deaminase, tRNA-specific 2, TAD2 homolog (S. cerevisiae)	adat2	0.00751	0.95
ENSDARG00000074169	Glycerol-3-phosphate acyltransferase 1, mitochondrial		0.00013	0.95
ENSDARG00000051718	Histone H1 like		0.01424	0.95
ENSDARG00000051853	Galactosamine (N-acetyl)-6-sulfate sulfatase	galns	0.00850	0.96
ENSDARG00000043313	Ankyrin 2b, neuronal	ank2b	0.01366	0.96
ENSDARG00000068066	Zinc finger BED domain-containing protein 1		0.02243	0.96
ENSDARG00000062887	Metalloreductase STEAP2		0.01480	0.96
ENSDARG00000045858	Serine protease 56-like	si:dkey-76d14.2	0.00725	0.96
ENSDARG00000007151	Potassium channel, subfamily K, member 2b	kcnk2b	0.03322	0.96
ENSDARG00000070498	Phytanoyl-CoA 2-hydroxylase interacting protein-like b	phyhiplb	0.02052	0.96
ENSDARG00000071353	Protein MGARP	si:ch211-235e9.8	0.00677	0.96
ENSDARG00000022512	Zgc:109913	zgc:109913	0.00973	0.97
ENSDARG00000020405	N-ethylmaleimide sensitive fusion protein attachment protein alpha	napa	0.01184	0.97
ENSDARG00000068635	Mitochondrial ribosomal protein S2	mrps2	0.01986	0.97
ENSDARG00000008480	TRNA methyltransferase 61 homolog A (S. cerevisiae)	trmt61a	0.01501	0.97
ENSDARG00000078004	Draculin	drl	0.00055	0.97
ENSDARG00000002771	Solute carrier family 4, sodium bicarbonate cotransporter, member 5		0.04487	0.97
ENSDARG00000089879	Heme-binding protein soul5, like	soul5l	0.00100	0.97
ENSDARG00000074024		si:ch211-152n14.4	0.02501	0.98
ENSDARG00000093608		si:dkey-25o1.6	0.02672	0.98
ENSDARG00000089140		zgc:174275	0.00078	0.98
ENSDARG00000091411	cell surface glycoprotein CD200 receptor 1-A	si:ch211-214p13.9	0.03719	0.98

ENSDARG00000029609	MACRO domain containing 1	macrodl	0.00711	0.99
ENSDARG00000087596	Uncharacterized protein PFB0145c	si:ch73-95115.5	0.01742	0.99
ENSDARG00000040881	Heterogeneous nuclear ribonucleoprotein H1	hnrnp1	0.01941	0.99
ENSDARG00000035882	Heat-responsive protein 12	hrsp12	0.02096	0.99
ENSDARG00000090581	WD repeat domain 4		0.00759	1.00
ENSDARG00000086856	Serine/threonine kinase 35	stk35	0.00155	1.00
ENSDARG00000021869	Regulator of calcineurin 2	rca2	0.00663	1.00
ENSDARG00000075664		si:ch1073-429i10.1	0.02050	1.00
ENSDARG00000077653	Rab-like protein 6		0.01259	1.00
ENSDARG00000009402	Protein FAM115C		0.00769	1.00
ENSDARG00000017494	Transforming growth factor, beta receptor 1 a	tgfbr1a	0.01766	1.01
ENSDARG00000096157		si:dkey-40n15.1	0.02757	1.01
ENSDARG00000079524		si:ch211-168h21.3	0.01011	1.01
ENSDARG00000058815	Indian hedgehog homolog b	ihhb	0.04258	1.01
ENSDARG00000055360	Protein LLP homolog		0.00256	1.01
ENSDARG00000013842	TBC1 domain family, member 19	tbc1d19	0.00218	1.02
ENSDARG00000095369		zgc:112970	0.00949	1.02
ENSDARG00000038424	Complement component 4		0.01214	1.02
ENSDARG00000061051	Protein FAM5C		0.00063	1.03
ENSDARG00000006434	Polymerase (RNA) I polypeptide E	polr1e	0.01267	1.03
ENSDARG00000025902	Pleckstrin homology domain containing, family G (with RhoGef domain) member 5a	plekhg5a	0.00003	1.03
ENSDARG00000056640	Ribose 5-phosphate isomerase A (ribose 5-phosphate epimerase)	rpia	0.04059	1.04
ENSDARG00000002826	Centrosomal protein 57-like 1	cep57l1	0.01034	1.04
ENSDARG00000077372	Transferrin receptor 1b	tfr1b	0.00876	1.04
ENSDARG00000010186	Myosin IIIA	myo3a	0.01865	1.04
ENSDARG00000093747	Uncharacterized protein	si:dkey-122c11.1	0.03759	1.04
ENSDARG00000027552	Mitogen-activated protein kinase 1	mapk1	0.03838	1.04
ENSDARG00000037855	TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor	taf11	0.01281	1.04
ENSDARG00000092134	RAD54 homolog B (S. cerevisiae)	rad54b	0.00222	1.04
ENSDARG00000091163	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 4		0.00897	1.05
ENSDARG00000068245	Acid-sensing (proton-gated) ion channel 1c	asic1c	0.00382	1.05
ENSDARG00000086430		cabz01044775.1	0.01870	1.05
ENSDARG00000007425	Apolipoprotein L, 1	apol1	0.03777	1.05
ENSDARG00000044395	Zinc finger protein 36, C3H type-like 1a		0.00844	1.05
ENSDARG00000011113	Cholinergic receptor, nicotinic, alpha 10a	chrna10a	0.00037	1.06
ENSDARG00000036974	Ripply3	rippy3	0.00933	1.06
ENSDARG00000012468	Acetoacetyl-CoA synthetase	aacs	0.01156	1.06
ENSDARG00000036785	Histidine-rich carboxyl terminus protein 1 precursor	si:ch211-226m16.2-201	0.03843	1.06
ENSDARG00000087835		si:ch211-113p18.3	0.03778	1.06
ENSDARG00000032705	Forkhead box G1b	foxg1b	0.00082	1.06
ENSDARG00000079131	Ataxin 7-like 3		0.02079	1.07
ENSDARG00000035577	CDP-diacylglycerol synthase (phosphatidate cytidyltransferase) 2	cds2	0.00692	1.07
ENSDARG00000076299	EMILIN-3		0.00144	1.07
ENSDARG00000088585		zgc:171242	0.01582	1.07
ENSDARG00000024588	Glypican 5	gpc5	0.01439	1.07
ENSDARG00000058218	Protein FAM151A		0.00064	1.07
ENSDARG00000051851	Cytosolic thiouridylase subunit 2 homolog (S. pombe)	ctu2	0.01170	1.07
ENSDARG00000006215	Aldo-keto reductase family 1, member B1 (aldose reductase)	akr1b1	0.00104	1.08
ENSDARG00000002988	Troponin T2d, cardiac	tnnt2d	0.00253	1.08
ENSDARG00000032849	NDRG family member 3, isoform CRA_c; Protein NDRG3		0.00005	1.08
ENSDARG00000007823	Activating transcription factor 3	atf3	0.00881	1.08
ENSDARG00000039173	Cathepsin Lb	ctslb	0.00009	1.08
ENSDARG00000094500	Uncharacterized protein	si:ch211-238e22.4	0.03886	1.08
ENSDARG00000053810	Heterogeneous nuclear ribonucleoprotein C	hnrnpc	0.03815	1.08
ENSDARG00000079721			0.01248	1.09
ENSDARG00000077442	Tubulin, gamma complex associated protein 5	tubgcp5	0.03570	1.09
ENSDARG00000075149	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase		0.04328	1.09
ENSDARG00000010603	Potassium channel tetramerisation domain	kctd9	0.00302	1.09

	containing 9			
ENSDARG00000035434	Zinc finger, matrin type 5	zmat5	0,00028	1.10
ENSDARG00000093364	Myotubularin related protein 3	mtmr3	0,00912	1.10
ENSDARG00000096368	Sialidase 3, tandem duplicate 2		0,00397	1.10
ENSDARG00000008026	Family with sequence similarity 129, member Bb	fam129bb	0,00765	1.10
ENSDARG00000052447	Crystallin, alpha B, b	cryabb	0,00066	1.10
ENSDARG00000025106	Protein phosphatase 3, catalytic subunit, beta isozyme	ppp3cb	0,00097	1.11
ENSDARG00000044485	Sal-like 4 (Drosophila)	sall4	0,00643	1.11
ENSDARG00000007693	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha a		0,00892	1.11
ENSDARG00000040607	Protein RTF2 homolog		0,00753	1.11
ENSDARG00000094728	Serine/threonine-protein kinase pim-3-like	si:ch211-207c6.9	0,03729	1.12
ENSDARG00000051920	Neutral sphingomyelinase (N-SMase) activation associated factor	nsmaf	0,01575	1.12
ENSDARG00000031203	COMM domain-containing protein 1		0,04658	1.13
ENSDARG00000051896	Fibrillin 2a	fbn2a	0,03104	1.13
ENSDARG00000031562	Transcriptional adaptor 2A	tada2a	0,00476	1.13
ENSDARG000000069752	Creatine kinase, brain a	ckba	0,00143	1.13
ENSDARG00000021239	Apoptotic protease activating factor 1	apaf1	0,00186	1.13
ENSDARG00000039150	Legumain	lgmn	0,00151	1.13
ENSDARG00000074359		si:ch211-155k24.1	0,00454	1.14
ENSDARG00000089087	Ba1 globin	ba1	0,03992	1.14
ENSDARG00000025535	Clathrin interactor 1a	clint1a	0,01381	1.14
ENSDARG00000057324			0,01310	1.14
ENSDARG000000095645	Uncharacterized protein	si:ch211-207c6.12	0,02391	1.14
ENSDARG00000036776	Aldehyde dehydrogenase 8 family, member A1	aldh8a1	0,02195	1.15
ENSDARG00000008275	Kelch-like 24a (Drosophila)		0,00200	1.15
ENSDARG00000034718	Tissue factor pathway inhibitor a	tfpia	0,01576	1.15
ENSDARG00000045704	DNA cross-link repair 1C, PSO2 homolog (S. cerevisiae)	dclre1c	0,00127	1.15
ENSDARG00000056764	Hydrocephalus-inducing protein homolog		0,00090	1.15
ENSDARG00000079939	Probable JmjC domain-containing histone demethylation protein 2C		0,01165	1.15
ENSDARG00000041729	Syntrophin, basic 1	sntb1	0,00909	1.15
ENSDARG00000019367	Transforming growth factor, beta 3	tgfb3	0,02738	1.16
ENSDARG00000021404		zgc:110319	0,00126	1.17
ENSDARG00000077383	Annexin A11a	anxa11a	0,00797	1.18
ENSDARG00000090945	C-type lectin domain family 7 member A		0,00331	1.18
ENSDARG00000010519	Period homolog 3 (Drosophila)	per3	0,04688	1.19
ENSDARG00000015025	Neural adhesion molecule L1.1	nad11.1	0,00159	1.19
ENSDARG00000090461		zgc:194906	0,00177	1.19
ENSDARG00000035810	Regulator of cell cycle	rgcc	0,00071	1.19
ENSDARG00000022675	OTU domain containing 6B	otud6b	0,00046	1.20
ENSDARG00000045708	Adrenomedullin 2a	adm2a	0,00636	1.20
ENSDARG000000086899	PDLIM1 interacting kinase 1 like		0,04905	1.21
ENSDARG00000041607	Eukaryotic translation initiation factor 4E binding protein 3, like	eif4ebp3l	0,00230	1.21
ENSDARG00000089888	Sn1-specific diacylglycerol lipase beta		0,00310	1.21
ENSDARG00000086240		si:ch211-163m16.6	0,04558	1.22
ENSDARG00000038359	Enolase superfamily member 1	enosf1	0,01289	1.22
ENSDARG00000077719	Uncharacterized protein	bx004876.1	0,00041	1.22
ENSDARG00000078001	Kelch repeat and BTB domain-containing protein 7		0,03800	1.22
ENSDARG00000037091	N-acylsphingosine amidohydrolase (acid ceramidase) 1a	asah1a	0,01083	1.22
ENSDARG00000030448	Signal peptide peptidase-like 2	sppl2	0,00392	1.22
ENSDARG00000028396	FK506 binding protein 5	fkbp5	0,00127	1.23
ENSDARG00000005058	Non-SMC condensin I complex, subunit D2	ncapd2	0,00003	1.23
ENSDARG00000074656	Cathepsin Sb, tandem duplicate 1	ctssb.1	0,01087	1.23
ENSDARG000000077523	Tudor domain containing 7		0,01216	1.23
ENSDARG00000035506	Ectonucleoside triphosphate diphosphohydrolase 2a, tandem duplicate 1	entpd2a.1	0,03462	1.24
ENSDARG00000095783	Uncharacterized protein	si:dkey-249d8.1	0,00030	1.24
ENSDARG00000087070		si:dkey-122c11.9	0,01129	1.24
ENSDARG00000086300	Family with sequence similarity 107, member B		0,01624	1.25
ENSDARG00000023185	Apolipoprotein L, 1		0,00328	1.25
ENSDARG00000033735	Neutrophil cytosolic factor 1	ncf1	0,02109	1.25

ENSDARG00000078581	Creb3 regulatory factor	crebrf	0,00230	1.25
ENSDARG00000035889	Zinc finger and BTB domain containing 8B	zbtb8b	0,01342	1.26
ENSDARG00000006065	Zinc finger protein 385B	znf385b	0,00792	1.26
ENSDARG00000060645	Sirtuin 7	sirt7	0,02995	1.26
ENSDARG00000094727	Muscle-specific beta 1 integrin binding protein 2		0,02982	1.26
ENSDARG00000040113	Chromosome 3 open reading frame 31, isoform CRA_f; Mitochondrial translocator assembly and maintenance protein 41 homolog		0,02397	1.26
ENSDARG00000089794		zgc:171242	0,00014	1.27
ENSDARG00000061174	Zinc finger protein 740		0,03556	1.27
ENSDARG00000005823	Solute carrier family 39 (zinc transporter), member 10	slc39a10	0,00761	1.27
ENSDARG00000093509	Uncharacterized protein	si:ch211-135f11.6	0,00358	1.28
ENSDARG00000031001	Protein RRNAD1		0,03098	1.28
ENSDARG00000041991	U3 small nucleolar RNA-interacting protein 2		0,04117	1.28
ENSDARG00000056885	Period homolog 1a (Drosophila)	per1a	0,00143	1.29
ENSDARG00000002196	BTB and CNC homology 1, basic leucine zipper transcription factor 1	bach1	0,00058	1.29
ENSDARG00000006863	Coiled-coil domain-containing protein 108		0,00870	1.29
ENSDARG00000003582	Coiled-coil domain-containing protein 34		0,00058	1.29
ENSDARG00000094456	Uncharacterized protein	si:ch211-105d18.8	0,00500	1.29
ENSDARG00000087694		zgc:112234	0,02883	1.29
ENSDARG00000025397	Serine/arginine-rich splicing factor 3a	srsf3a	0,00158	1.30
ENSDARG00000031956	Transmembrane protein 63C		0,00742	1.30
ENSDARG00000053097	Heat shock factor 2	hsf2	0,00584	1.30
ENSDARG00000096050			0,02316	1.31
ENSDARG00000057439	Metal response element binding transcription factor 2		0,00773	1.31
ENSDARG00000091620		zgc:194906	0,00031	1.32
ENSDARG00000075261	Tissue inhibitor of metalloproteinase 2b	timp2b	0,01254	1.32
ENSDARG00000089390	Patatin-like phospholipase domain-containing protein 5		0,00039	1.32
ENSDARG00000020929	Family with sequence similarity 49, member Ba	fam49ba	0,00567	1.32
ENSDARG00000017757	Phosphoinositide-3-kinase, catalytic, gamma polypeptide	pik3cg	0,01228	1.32
ENSDARG00000079126		si:dkey-250i3.3	0,00005	1.32
ENSDARG00000060981	Suppressor of IKBKE 1		0,02451	1.33
ENSDARG00000037100	Ankyrin repeat domain 10b		0,00078	1.33
ENSDARG00000036826	Ankyrin repeat domain 52a	ankrd52a	0,03076	1.34
ENSDARG00000046006	Mediator complex subunit 20	med20	0,00004	1.34
ENSDARG00000029172	Polymerase (RNA) I polypeptide A	polr1a	0,00694	1.34
ENSDARG00000075626		zgc:172090	0,00373	1.35
ENSDARG00000007485	Enhancer of polycomb homolog 2 (Drosophila)	epc2	0,01588	1.35
ENSDARG00000016494	Dopa decarboxylase	ddc	0,00009	1.36
ENSDARG00000026149	Solute carrier family 46, member 1	slc46a1	0,03450	1.36
ENSDARG00000079326	Calcineurin-binding protein cabin-1		0,00026	1.37
ENSDARG00000023228	Visinin-like 1a	vsn11a	0,01213	1.37
ENSDARG00000026925	Nitric oxide synthase 2a, inducible	nos2a	0,02356	1.37
ENSDARG00000045095	ElaC homolog 1 (E. coli)	elac1	0,01686	1.39
ENSDARG00000086212		zgc:174273	0,00008	1.39
ENSDARG00000086490	SUN domain-containing protein 2		0,03884	1.39
ENSDARG00000056683	Cyclin-dependent protein kinase 5	cdk5	0,02464	1.40
ENSDARG00000059115	F-box protein 7	fbxo7	0,02998	1.40
ENSDARG00000087301	Crystallin, gamma M2d14	crygm2d14	0,00380	1.40
ENSDARG00000086014			0,02881	1.40
ENSDARG00000035088		si:ch211-254c8.3	0,00208	1.40
ENSDARG00000008946	Coiled-coil domain-containing protein 127		0,00907	1.41
ENSDARG00000079376		zgc:174153	0,02320	1.41
ENSDARG00000002758	Death effector domain-containing 1	dedd1	0,02054	1.41
ENSDARG00000040610	Cystine/glutamate transporter		0,04676	1.42
ENSDARG00000013082	UDP-N-actetylglucosamine pyrophosphorylase 1, like 1	uap111	0,00129	1.43
ENSDARG00000041179	Crystallin, gamma M5	crygm5	0,00214	1.43
ENSDARG00000038458	WAS/WASL-interacting protein family member 1		0,02172	1.44
ENSDARG00000054302	EH-domain containing 1a		0,00145	1.45

ENSDARG00000022280	Bromodomain-containing 2a	brd2a	0,01177	1.45
ENSDARG00000056427	Autism susceptibility candidate 2	auts2	0,00031	1.45
ENSDARG00000077571	Uncharacterized protein	zgc:174862	0,01012	1.45
ENSDARG00000061147	Zinc finger protein 64 homolog, isoforms 1 and 2		0,01141	1.46
ENSDARG00000069453		zgc:113314	0,01138	1.46
ENSDARG00000073773	TELO2-interacting protein 2		0,04569	1.48
ENSDARG00000012403	DNA excision repair protein ERCC-6-like 2		0,00563	1.48
ENSDARG00000028912			0,00455	1.50
ENSDARG00000029419	Hematological and neurological expressed 1a		0,00013	1.50
ENSDARG00000020114	Solute carrier family 20, member 1a	slc20a1a	0,04822	1.51
ENSDARG00000038123	Myosin, light chain 9a, regulatory	myl9a	0,01950	1.51
ENSDARG00000074749	ATP-binding cassette, sub-family A (ABC1), member 12	abca12	0,00749	1.51
ENSDARG00000015110	Solute carrier family 18 (vesicular monoamine), member 2	slc18a2	0,01537	1.52
ENSDARG00000077273	Coiled-coil domain-containing protein ENSP00000299415		0,03903	1.53
ENSDARG00000070845		si:dkey-56d12.4	0,03316	1.54
ENSDARG00000034662	Non-SMC element 1 homolog (S. cerevisiae)	nsmce1	0,00567	1.55
ENSDARG00000030020	ArfGAP with FG repeats 1a	agfg1a	0,00076	1.55
ENSDARG00000089892	Lymphatic vessel endothelial hyaluronic acid receptor 1b		0,01924	1.56
ENSDARG00000074258	GRAM domain-containing protein 1B		0,00934	1.57
ENSDARG00000018765	Pbx/knotted 1 homeobox 1.2		0,00069	1.57
ENSDARG00000012995	ARP5 actin-related protein 5 homolog	actr5	0,00094	1.58
ENSDARG00000038207	Aldehyde dehydrogenase 4 family, member A1	aldh4a1	0,04382	1.58
ENSDARG00000052874		Si:dkeyp-52c3.7	0,00209	1.59
ENSDARG00000076787	Angiopoietin 1		0,00741	1.60
ENSDARG00000078945	Muscle-specific beta 1 integrin binding protein	mibp	0,00163	1.61
ENSDARG00000090554	Coiled-coil domain-containing protein 138		0,00812	1.63
ENSDARG00000001244	Serine/arginine repetitive matrix 1	srrm1	0,00134	1.63
ENSDARG00000007108		zgc:91985	0,02748	1.65
ENSDARG00000056677	OCIA domain containing 1		0,02169	1.66
ENSDARG00000058305	Myotubularin related protein 3		0,00240	1.66
ENSDARG00000061436	Collagen alpha-2(VI) chain		0,00243	1.67
ENSDARG00000087317	Coiled-coil domain-containing protein ENSP00000299415		0,00046	1.67
ENSDARG00000055833		si:dkey-216e24.3	0,01918	1.68
ENSDARG00000078095	CLOCK-interacting pacemaker b	cipcb	0,04733	1.69
ENSDARG00000024381	Misato homolog 1 (Drosophila)	msto1	0,00761	1.70
ENSDARG00000015657		zgc:77112	0,01188	1.70
ENSDARG00000070282	H3 histone, family 3A		0,00085	1.70
ENSDARG00000035508	BarH-like 1a	barhl1a	0,00554	1.71
ENSDARG00000068828	Biogenesis of lysosome-related organelles complex 1 subunit 3		0,00159	1.72
ENSDARG00000077504	Histone H1 like		0,04945	1.73
ENSDARG00000027582	Angiopoietin-like 7	angptl7	0,02336	1.75
ENSDARG00000088978	Coiled-coil domain-containing protein ENSP00000299415		0,00084	1.75
ENSDARG00000061993	WD repeat domain 74	wdr74	0,02442	1.76
ENSDARG00000028367	Sulfotransferase family 2, cytosolic sulfotransferase 3	sult2st3	0,00173	1.76
ENSDARG00000013613	Annexin A13, like	anxa13l	0,00194	1.77
ENSDARG00000058806	Apolipoprotein A-I binding protein	apo1bp	0,04591	1.81
ENSDARG00000058873		zgc:77752	0,00572	1.82
ENSDARG00000079640	Protocadherin 2 gamma 16	pcdh2g16	0,00084	1.83
ENSDARG00000062987	TRNA-yW synthesizing protein 1 homolog (S. cerevisiae)	tyw1	0,03926	1.84
ENSDARG00000041575	TRNA methyltransferase 10 homolog C (S. cerevisiae)	trmt10c	0,02054	1.87
ENSDARG00000058574	ATP-binding cassette, sub-family G (WHITE), member 2c	abcg2c	0,00421	1.87
ENSDARG00000069826	Crystallin, gamma M2d15	crygm2d15	0,03415	1.90
ENSDARG00000057855	Mitochondrial ribosomal protein S31	mrps31	0,02339	1.90
ENSDARG00000038805	Phosphatidylinositol N-acetylglucosaminyltransferase subunit P		0,00003	1.92

ENSDARG00000096189		si:dkey-54j5.2	0,00042	1.94
ENSDARG00000077090	Plexin B2	plxnb2	0,00668	1.94
ENSDARG00000062721	C-myc promoter-binding protein		0,00106	1.94
ENSDARG00000093381	Transglutaminase 2, like	tgm2l	0,00634	1.99
ENSDARG00000018312	RELT-like protein 1		0,03890	1.99
ENSDARG00000006849	Acid-sensing (proton-gated) ion channel 2	asic2	0,03287	2.00
ENSDARG00000095459	Uncharacterized protein	si:ch211-191j22.3	0,00524	2.00
ENSDARG00000032264	Myeloblastosis oncogene-like 2	mybl2	0,03258	2.08
ENSDARG00000086898	Coiled-coil domain-containing protein 23		0,00037	2.10
ENSDARG00000037484	Transmembrane protein 192	tmem192	0,00070	2.10
ENSDARG00000030981	Transmembrane protein 127	tmem127	0,00345	2.15
ENSDARG00000055970		zgc:136971	0,01483	2.16
ENSDARG00000037914	Zinc finger-like gene 1	znfl1	0,03920	2.17
ENSDARG00000056167	Heat shock 10 protein 1 (chaperonin 10)	hspe1	0,01865	2.19
ENSDARG00000090015		Si:dkeyp-52c3.7	0,03714	2.20
ENSDARG00000061747	Deleted in autism-related protein 1		0,00471	2.29
ENSDARG00000041576	Nudix (nucleoside diphosphate linked moiety X)-type motif 18	nudt18	0,02659	2.36
ENSDARG00000079124	MTERF domain-containing protein 2		0,00036	2.40
ENSDARG00000092445	Uncharacterized protein C5orf34		0,01096	2.43
ENSDARG00000074446		zgc:173714	0,00004	2.46
ENSDARG00000017835	BRF1 homolog, subunit of RNA polymerase III transcription initiation factor IIIBa	brfla	0,01076	2.47
ENSDARG00000051935	Docking protein 1b	dok1b	0,00116	2.48
ENSDARG00000003519	Adenine phosphoribosyl transferase	aprt	0,02305	2.49
ENSDARG00000058725	Rieske (Fe-S) domain containing	rfesd	0,00311	2.51
ENSDARG00000029374	DENN domain-containing protein 1A		0,00583	2.51
ENSDARG00000026904	Cerebellin 13	cbln13	0,00005	2.58
ENSDARG00000089875	Si:ch211-226o13.2	si:ch211-226o13.2	0,00200	2.60
ENSDARG000000061093	Pleckstrin homology-like domain, family B, member 1a	phldb1a	0,01754	2.64
ENSDARG00000056643	Solute carrier family 22 (organic anion transporter), member 7b	slc22a7b	0,00007	2.67
ENSDARG00000035215	Spermidine/spermine N1-acetyltransferase family member 2b	sat2b	0,01478	2.73
ENSDARG00000090638	Platelet glycoprotein IX		0,03129	2.75
ENSDARG00000095549	Si:dkeyp-106c3.2	si:dkeyp-106c3.2	0,00156	2.82
ENSDARG00000034007	Prominin 1 b	prom1b	0,03321	2.89
ENSDARG00000003293	SRY-box containing gene 9a	sox9a	0,00293	2.90
ENSDARG00000016611	Secernin 3	scrn3	0,00276	2.93
ENSDARG00000086917	Crystallin, gamma MX, like 1		0,00025	3.10
ENSDARG00000094038	Si:ch211-226f6.1	si:ch211-226f6.1	0,00547	3.25
ENSDARG00000057912	Eukaryotic translation initiation factor 1A, X-linked, b	eif1axb	0,02756	3.30
ENSDARG00000094869	Si:dkey-5n7.2	si:dkey-5n7.2	0,00075	3.33
ENSDARG00000087765	Crystallin, gamma M2d10	crygm2d10	0,02609	3.40
ENSDARG00000023759	Zgc:73226	zgc:73226	0,01010	3.43
ENSDARG00000063509	Leucine rich repeat containing 58b	lrre58b	0,00006	3.58
ENSDARG00000003132	APAF1 interacting protein	apip	0,00020	4.23

⁷LogE2R<0 means downregulated in transgenic males

ESEMBL ID	Description	Symbol	<i>t</i>	log ₂ ER
ENSDARG00000033140	Desumoylating isopeptidase 1a	desi1a	0.00099	-5.76
ENSDARG00000001929	PTEN induced putative kinase 1	pink1	0.00008	-4.96
ENSDARG00000026821	Transmembrane protein 106Ba	tmem106ba	0.00063	-3.44
ENSDARG00000086612	Uncharacterized protein	si:ch73-269m14.4	0.00105	-3.20
ENSDARG00000086763	Uncharacterized protein	si:dkeyp-104h9.7	0.00005	-3.02
ENSDARG00000068840	Uncharacterized protein	zgc:66024	0.00035	-2.86
ENSDARG00000051746	Cat eye syndrome chromosome region, candidate 1a	cecr1a	0.00245	-2.74
ENSDARG00000028131	Holocytochrome c synthetase a	hccsa	0.00029	-2.70
ENSDARG00000011146	Ubiquinol-cytochrome c reductase binding protein	uqcrb	0.01162	-2.62
ENSDARG00000052978	Muscleblind-like (Drosophila)	mbn1l	0.00354	-2.50
ENSDARG00000009494	X-ray repair complementing defective repair in Chinese hamster cells 1	xrcc1	0.04579	-2.50
ENSDARG00000035913	Tyrosyl-tRNA synthetase	yars	0.00090	-2.46
ENSDARG00000037554	Rho guanine nucleotide exchange factor (GEF) 3, like	arhgef3l	0.00092	-2.36
ENSDARG00000088959	Pyridoxal (pyridoxine, vitamin B6) kinase a	pdxka	0.00014	-2.30
ENSDARG00000032010	Solute carrier family 15 (H ⁺ □ ⁺ transporter), member 2	slc15a2	0.00013	-2.24
ENSDARG00000069869	Uncharacterized protein	zgc:113030	0.00272	-2.24
ENSDARG00000077572	Uncharacterized protein	zgc:171242	0.00132	-2.20
ENSDARG00000095249	Uncharacterized protein	si:ch211-196n4.5	0.00002	-2.16
<u>ENSDARG00000091009</u>	Probable E3 ubiquitin-protein ligase TRIML1	si:ch211-28p3.4	0.00069	-2.15
ENSDARG00000074700	Oral cancer-overexpressed protein 1		0.02831	-2.13
ENSDARG00000094020	Uncharacterized protein	si:ch211-214c11.8	0.00021	-2.13
ENSDARG00000006468	GRB2-related adaptor protein 2a	grap2a	0.00039	-2.12
ENSDARG00000091656	N-alpha-acetyltransferase 38, NatC auxiliary subunit		0.01781	-2.12
ENSDARG00000042631	Glutaredoxin 2	glrx2	0.00017	-2.10
ENSDARG00000078844	Uncharacterized protein	zgc:171242	0.00093	-2.09
ENSDARG00000054290	Apoptotic chromatin condensation inducer 1a	acin1a	0.03346	-2.07
ENSDARG00000093475	Uncharacterized protein	si:ch211-214c11.7	0.00097	-2.06
ENSDARG00000000540	Asparagine synthetase domain containing 1	asnsd1	0.00006	-2.06
ENSDARG00000069878	NHP2 non-histone chromosome protein 2-like 1a (S. cerevisiae)	nhp2l1a	0.00068	-2.05
ENSDARG00000078222	Apoptosis-associated tyrosine kinase a	aatka	0.00212	-2.05
ENSDARG00000029766	Nuclear receptor subfamily 1, group I, member 2	nr1i2	0.00002	-2.04
ENSDARG00000031657	Fumarylacetoacetate hydrolase domain containing 1	fahd1	0.01469	-2.02
ENSDARG00000087671	Netrin 4	ntn4	0.00307	-2.00
ENSDARG00000069464	Cytochrome c oxidase subunit VIIa polypeptide 1 (muscle)	cox7a1	0.00797	-1.96
<u>ENSDARG00000095179</u>		si:ch211-235fl.3-001	0.00024	-1.95
ENSDARG00000087644	Protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1		0.01021	-1.91
ENSDARG00000032131	Dopamine receptor D3	drd3	0.00227	-1.90
ENSDARG00000074546	Uncharacterized protein	zgc:194906	0.04823	-1.90
ENSDARG00000024032	Cochlin		0.01918	-1.89
<u>ENSDARG00000075788</u>			0.00624	-1.86
ENSDARG00000036482	Hexamethylene bis-acetamide inducible 1	hexim1	0.00075	-1.84
ENSDARG00000041505	Integral membrane protein 2Cb		0.00041	-1.83
ENSDARG00000034160	Kanadaplin		0.00790	-1.83
ENSDARG00000004722	Discoidin domain receptor family, member 2, like	ddr2l	0.01895	-1.82
ENSDARG00000052914	Translocated promoter region a (to activated MET oncogene)	tpra	0.00555	-1.82
ENSDARG00000092404	Lactase		0.01295	-1.81

ENSDARG00000086808	DDHD domain containing 1b		0.00012	-1.81
ENSDARG00000070378	Uncharacterized protein	zgc:193706	0.00048	-1.81
ENSDARG00000075754	Methylthioribose-1-phosphate isomerase homolog (<i>S. cerevisiae</i>)	mri1	0.00010	-1.80
ENSDARG00000033789	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7		0.00929	-1.79
ENSDARG00000037805	Lectin, galactoside-binding, soluble, 3 binding protein a	lgals3bpa	0.04640	-1.77
ENSDARG00000020596	Family with sequence similarity 73, member A	fam73a	0.00058	-1.77
ENSDARG00000079080	Methyltransferase like 20	mettl20	0.00027	-1.76
ENSDARG00000025859	Lipase maturation factor 2b	lmf2b	0.01226	-1.75
ENSDARG00000039543	Mitochondrial ribosomal protein S6	mrps6	0.03761	-1.75
ENSDARG00000029043	Nucleoporin-like protein 2		0.00123	-1.75
ENSDARG00000068738	Cytochrome c oxidase subunit Vb 2	cox5b2	0.03307	-1.74
<u>ENSDARG00000075620</u>	Gelsolin-related protein of 125 kDa-like	gnrA	0.00358	-1.73
ENSDARG00000040984	Heat shock protein 13	hspa13	0.00644	-1.73
ENSDARG00000019496	Esterase D/formylglutathione hydrolase	esd	0.00011	-1.73
ENSDARG00000055027	Protein-O-mannosyltransferase 2	potm2	0.00299	-1.73
ENSDARG000000044278	Synaptoporin	synpr	0.04415	-1.73
<u>ENSDARG000000063483</u>			0.00026	-1.72
ENSDARG000000041723	Tubulin, beta 4B class IVb		0.00142	-1.72
ENSDARG00000028252	Ubiquitin-conjugating enzyme E2D 2 (UBC4/5 homolog, yeast), like	ube2d21	0.00309	-1.71
ENSDARG00000086935	Fibronectin type III and SPRY domain-containing protein 2		0.00684	-1.71
ENSDARG00000005108	Occludin a	oclna	0.00703	-1.70
ENSDARG00000052738	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble)	hmgcs1	0.00534	-1.70
ENSDARG00000067818	Helentron 4 helitron-like transposon replicase/helicase/endonuclease		0.02637	-1.70
ENSDARG00000096668	Mitotic-spindle organizing protein 1		0.00939	-1.68
ENSDARG00000088013	Cytochrome P450, family 27, subfamily A, polypeptide 7		0.00938	-1.68
<u>ENSDARG00000003144</u>	Peroxisomal membrane protein 2	pxmp2	0.00777	-1.67
ENSDARG00000021293	Amidohydrolase domain containing 2	amdhd2	0.01288	-1.67
<u>ENSDARG00000086838</u>	Integrin alpha-2-like	itga2.3	0.02187	-1.66
ENSDARG00000006983	Cugbp, Elav-like family member 3b	celf3b	0.01830	-1.65
ENSDARG00000020024	Family with sequence similarity 151, member B	fam151b	0.01642	-1.65
ENSDARG00000069186	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 2	cyp27a1.2	0.00613	-1.63
<u>ENSDARG00000035558</u>	G protein pathway suppressor 2	gps2	0.00034	-1.63
ENSDARG00000060392	Set1/Ash2 histone methyltransferase complex subunit ASH2		0.04365	-1.63
ENSDARG00000077853	Tubulin tyrosine ligase-like family, member 2	tll2	0.03953	-1.63
ENSDARG00000062806	Tubulin tyrosine ligase-like family, member 9	tll9	0.03007	-1.61
<u>ENSDARG00000075116</u>	Sal-like protein 2	sall2	0.00012	-1.60
ENSDARG00000092234	Uncharacterized protein	si:dkey-179a6.2	0.00016	-1.60
ENSDARG00000011809	Microtubule associated monooxygenase, calponin and LIM domain containing 1	mical1	0.00874	-1.60
ENSDARG00000043960	Ribosome production factor 2 homolog (<i>S. cerevisiae</i>)	rpf2	0.04198	-1.60
ENSDARG00000077553	RAP2C, member of RAS oncogene family		0.03623	-1.60
ENSDARG00000055159	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 4	cyp27a1.4	0.00062	-1.59
ENSDARG00000039661	Solute carrier family 36 (proton/amino acid symporter), member 1		0.00496	-1.58
ENSDARG00000090166	LINE-1 type transposase domain-containing protein 1		0.00714	-1.58
ENSDARG00000019976	Isopentenyl-diphosphate delta isomerase 1	idi1	0.00153	-1.58
ENSDARG00000075485	Kinesin light chain 1a		0.04825	-1.55
ENSDARG00000016477	Eukaryotic translation initiation factor 4A, isoform 2	eif4a2	0.02850	-1.53

<u>ENSDARG00000086724</u>	Membrane cofactor protein isoform X4	im:7151449	0.03104	-1.52
ENSDARG00000075008	PAS domain containing serine/threonine kinase	pask	0.02777	-1.52
ENSDARG00000002031	TOX high mobility group box family member 4		0.04459	-1.52
ENSDARG000000041317	Ran GTPase activating protein 1b		0.00790	-1.51
ENSDARG00000073732	Myosin, heavy chain 14, non-muscle	myh14	0.00846	-1.51
ENSDARG00000063345	Protein CREG1		0.02221	-1.51
ENSDARG00000074581	Adducin 1 (alpha)		0.00358	-1.50
ENSDARG00000070971	Furin (paired basic amino acid cleaving enzyme) b	furinb	0.03012	-1.49
ENSDARG00000076839	Uncharacterized protein	zgc:153258	0.04265	-1.48
ENSDARG00000036415	Galactosidase, beta 1	glb1	0.00817	-1.47
ENSDARG00000076290	Calreticulin, like 2	calr12	0.00224	-1.47
ENSDARG00000035595	FIC domain containing	ficd	0.00164	-1.46
ENSDARG00000068431	Uncharacterized protein	zgc:194906	0.00075	-1.45
ENSDARG00000095983	DnaJ (Hsp40) homolog, subfamily A, member 3A		0.02089	-1.45
<u>ENSDARG00000096305</u>			0.02046	-1.45
ENSDARG00000000472	Contactin 2	cntn2	0.03586	-1.44
ENSDARG00000039067	Steroid-5-alpha-reductase, alpha polypeptide 2b	srd5a2b	0.00023	-1.44
ENSDARG00000069832	Sideroflexin 4	sfxn4	0.00563	-1.43
ENSDARG00000045296	Myeloma overexpressed 2	myeov2	0.04255	-1.42
ENSDARG00000062206	Superkiller viralicidic activity 2 (S. cerevisiae homolog)-like	skiv2l	0.00036	-1.42
ENSDARG00000003257	Uncharacterized protein	zgc:101559	0.00026	-1.41
ENSDARG00000009477	Protein kinase, cAMP-dependent, regulatory, type II, alpha, B	prkar2ab	0.02693	-1.40
ENSDARG00000059459	UPF0561 protein C2orf68		0.00005	-1.40
ENSDARG00000075053	Saccharopine dehydrogenase b		0.00054	-1.39
ENSDARG00000037906	AlkB, alkylation repair homolog 7 (E. coli)	alkbh7	0.00015	-1.39
<u>ENSDARG00000073845</u>	CDGSH iron-sulfur domain-containing protein 1	zgc:110843	0.02350	-1.38
<u>ENSDARG00000089256</u>			0.01418	-1.37
ENSDARG00000006392	Exosome complex component RRP45		0.03544	-1.37
ENSDARG00000094466	Uncharacterized protein	si:ch73-199e17.1	0.01804	-1.37
ENSDARG00000054153	FinTRIM family, member 50	frt50	0.01579	-1.37
ENSDARG00000032637	Histone H1 like		0.03081	-1.37
ENSDARG00000056664	ADP-ribosylation factor interacting protein 2b	arfip2b	0.00067	-1.36
ENSDARG00000052680	SLAM family member 7		0.01371	-1.36
ENSDARG00000004891	Peroxisomal biogenesis factor 19	pex19	0.03059	-1.36
ENSDARG00000063631	Uncharacterized protein	ch1073-291c23.1	0.01035	-1.34
ENSDARG00000045620	N-acetylneuraminic acid synthase	nans	0.02911	-1.34
ENSDARG00000089901	Uncharacterized protein	zgc:158862	0.03045	-1.33
ENSDARG00000074821	Uncharacterized protein	zgc:194906	0.04167	-1.31
ENSDARG00000069361	Sperm surface protein Sp17		0.00609	-1.30
<u>ENSDARG00000091234</u>	E3 ubiquitin-protein ligase RNF182-like	cu019646.2	0.01638	-1.30
ENSDARG00000058841	UDP glucuronosyltransferase 1 family a, b		0.00125	-1.30
ENSDARG00000058230	Ribosomal protein S6 kinase b, polypeptide 1b	rps6kb1b	0.00117	-1.30
ENSDARG00000076386	Ependymin-like 1	epd1l	0.00016	-1.28
ENSDARG00000037954	Troponin T type 1 (skeletal, slow)	tnnt1	0.04148	-1.28
ENSDARG00000043857	Ubiquitin-fold modifier 1	ufm1	0.00072	-1.28
<u>ENSDARG00000067760</u>			0.00005	-1.27
ENSDARG00000069281	Uncharacterized protein	si:dkey-14a7.4	0.01945	-1.27
ENSDARG00000052734	3-hydroxy-3-methylglutaryl-Coenzyme A reductase a	hmgcra	0.00846	-1.27
ENSDARG00000044622	DNA polymerase theta		0.01903	-1.27
ENSDARG00000010738	Uncharacterized protein C8orf76		0.00471	-1.26
ENSDARG00000068846	Uncharacterized protein	zgc:55621	0.00906	-1.26
ENSDARG00000089817	Basigin		0.00031	-1.26
ENSDARG00000070874	Uncharacterized protein	zgc:162232	0.02111	-1.25
ENSDARG00000042515	G protein-coupled receptor 176	gpr176	0.00926	-1.25

ENSDARG00000087610	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.00019	-1.24
ENSDARG00000004796	Mahogunin, ring finger 1b	mgrn1b	0.00888	-1.24
<u>ENSDARG00000074622</u>	Unconventional myosin-Va	myo5ab	0.01684	-1.23
ENSDARG00000008966	Transducin (beta)-like 1 X-linked receptor 1b	tbl1xr1b	0.00999	-1.23
<u>ENSDARG00000029587</u>		Im:7149628	0.00016	-1.22
ENSDARG00000086425	PRP3 pre-mRNA processing factor 3 homolog (yeast)	prpf3	0.02000	-1.22
ENSDARG00000077877	Si:dkey-14o18.1	si:dkey-14o18.1	0.00408	-1.21
ENSDARG00000010382	Carnitine O-acetyltransferase b	cratb	0.00026	-1.21
ENSDARG00000000019	Ubiquitin-conjugating enzyme E2H (UBC8 homolog, yeast)	ube2h	0.00628	-1.21
ENSDARG00000003054	Tachykinin receptor 3-like	tacr3l	0.00661	-1.21
ENSDARG00000016412	Angiotensinogen	agt	0.00016	-1.20
ENSDARG00000002750	PHD finger protein 20, a	phf20a	0.00218	-1.19
ENSDARG00000088348	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.01639	-1.19
ENSDARG00000061173	Suppression of tumorigenicity 14 (colon carcinoma) a	st14a	0.01324	-1.19
ENSDARG00000032049	Enabled homolog (Drosophila)	enah	0.01831	-1.18
ENSDARG00000035603	D-amino-acid oxidase, tandem duplicate 2	dao.2	0.03937	-1.18
<u>ENSDARG00000086609</u>			0.00130	-1.17
ENSDARG00000087537	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.01729	-1.17
ENSDARG00000041294	NADPH oxidase organizer 1a	noxo1a	0.01236	-1.17
ENSDARG00000056262	Solute carrier family 35, member G2a	slc35g2a	0.00300	-1.17
ENSDARG00000041728	Mannosidase, alpha, class 1A, member 1		0.00352	-1.16
ENSDARG00000012796	Histamine N-methyltransferase	hnmt	0.00064	-1.15
ENSDARG00000014953	Cornichon homolog 3 (Drosophila)	cnih3	0.03448	-1.15
ENSDARG00000037551	Peptidase M20 domain containing 1, tandem duplicate 1	pm20d1.1	0.04369	-1.15
<u>ENSDARG00000090169</u>	uncharacterized protein	si:dkey-1f1.3-201	0.02188	-1.15
ENSDARG00000087210	Von Willebrand factor A domain- containing protein 3A		0.00042	-1.15
ENSDARG00000093323	Uncharacterized protein	zgc:194906	0.01217	-1.14
ENSDARG00000069269	WD repeat domain 35	wdr35	0.01559	-1.13
ENSDARG00000089426	NOP10 ribonucleoprotein homolog (yeast)	nop10	0.00036	-1.13
ENSDARG00000052910	Wingless-type MMTV integration site family, member 8b		0.03465	-1.13
<u>ENSDARG00000087784</u>	Alpha-tectorin-like	si:dkeyp- 110a12.4	0.01573	-1.12
ENSDARG00000040178	Hepatitis A virus cellular receptor 1	havcr1	0.00945	-1.12
ENSDARG00000055639	RuvB-like 2 (E. coli)	ruvb12	0.00022	-1.12
ENSDARG00000028336	Dihydrodiol dehydrogenase (dimeric), like	dhdhl	0.01767	-1.12
<u>ENSDARG00000068374</u>	Uncharacterized protein	si:ch211- 132b12.7	0.00119	-1.11
<u>ENSDARG00000090962</u>	N-acetyltransferase 14	nat14	0.03828	-1.11
ENSDARG00000096060	Uncharacterized protein	si:ch211-202c4.2	0.01565	-1.10
ENSDARG00000017298	Pleckstrin	plek	0.02893	-1.10
ENSDARG00000087499	Uncharacterized protein	zgc:194906	0.04442	-1.09
ENSDARG00000009142	Apoptosis-stimulating of p53 protein 1		0.00001	-1.09
ENSDARG00000017730	Kelch domain-containing protein 4		0.01792	-1.09
ENSDARG000000026796	Glutamate receptor, metabotropic 1a	grm1a	0.00737	-1.08
ENSDARG00000003084	Spire homolog 2 (Drosophila)	spire2	0.03628	-1.08
ENSDARG00000019236	Glutathione reductase	gsr	0.00082	-1.08
ENSDARG00000090472	Tubulin tyrosine ligase-like family, member 10	tll10	0.00935	-1.07
ENSDARG00000056160	Heat shock 60kD protein 1 (chaperonin)	hspd1	0.03827	-1.07
ENSDARG00000079412	FinTRIM family, member 2	ftr02	0.00390	-1.07
ENSDARG00000061348	Adenosine deaminase, tRNA-specific 1	adat1	0.00188	-1.07

ENSDARG00000013726	Adaptor-related protein complex 4, beta 1 subunit	ap4b1	0.04421	-1.07
ENSDARG00000091270	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.01299	-1.06
ENSDARG00000006200	Eukaryotic translation initiation factor 4 gamma 1		0.00670	-1.06
ENSDARG00000039827	Bardet-Biedl syndrome 5	bbs5	0.00099	-1.06
ENSDARG00000042630	Heme binding protein 2	hebp2	0.00493	-1.05
ENSDARG00000076119	EMI domain-containing protein 1		0.00579	-1.05
ENSDARG00000038876	Uncharacterized protein	zgc:101569	0.00098	-1.05
ENSDARG00000035569	Cytochrome P450, family 1, subfamily D, polypeptide 1	cyp1d1	0.03216	-1.05
ENSDARG00000069980	Lectin, mannose-binding, 1	lman1	0.00764	-1.05
ENSDARG00000069706	Protein arginine methyltransferase 6	prmt6	0.00176	-1.05
ENSDARG00000026053	Helicase-like transcription factor	hltf	0.04817	-1.05
ENSDARG00000004306	Kelch-like protein 18		0.02014	-1.05
ENSDARG00000004129	CDNA FLJ55475; von Willebrand factor A domain-containing protein 9		0.00061	-1.04
ENSDARG00000033596	Polymerase (RNA) II (DNA directed) polypeptide C	polr2c	0.00605	-1.04
<u>ENSDARG00000086744</u>	Zinc finger protein 239-like	si:dkeyp-79b7.9	0.01311	-1.04
ENSDARG00000079015	Breast cancer 2, early onset	brca2	0.00440	-1.04
ENSDARG00000035559	Tumor protein p53	tp53	0.00022	-1.03
ENSDARG00000061274	Lanosterol synthase (2,3-oxidosqualene-lanosterol cyclase)	lss	0.02272	-1.03
ENSDARG00000056871	Adaptor-related protein complex 4, mu 1 subunit	ap4m1	0.00091	-1.03
ENSDARG00000086906	STAM binding protein b	stambpb	0.00317	-1.02
ENSDARG00000076744	Small integral membrane protein 13		0.00733	-1.02
ENSDARG00000016605	Uncharacterized protein	si:ch211-215m21.17	0.01789	-1.02
ENSDARG00000075222	APC membrane recruitment protein 2	amer2	0.01221	-1.02
ENSDARG00000068681	Cytokine receptor family member b1	crfb1	0.00021	-1.02
ENSDARG00000002298	Ankyrin repeat domain 22	ankrd22	0.00394	-1.01
ENSDARG00000073910	Cyclin-dependent kinase 2-interacting protein		0.00067	-1.01
ENSDARG00000077979	Transmembrane protein 26b		0.00614	-1.01
ENSDARG00000016813	Coiled-coil domain containing 40	ccdc40	0.00262	-1.01
ENSDARG00000025679	Catechol-O-methyltransferase b	comtb	0.00422	-1.01
ENSDARG00000079946	Squalene monooxygenase		0.04231	-1.01
ENSDARG00000061479	Thrombospondin, type I, domain containing 7A	thsd7a	0.03091	-1.00
ENSDARG00000019595	Sentrin-specific protease 8		0.01259	-1.00
ENSDARG00000077728	Suppressor of var1, 3-like 1 (S. cerevisiae)	supv311	0.00175	-1.00
<u>ENSDARG00000091778</u>			0.02393	-1.00
ENSDARG00000071272	Nuclear receptor coactivator 6	ncoa6	0.04173	-1.00
ENSDARG00000037061	Aldehyde dehydrogenase 9 family, member A1b	aldh9a1b	0.00265	-1.00
ENSDARG00000011246	KRR1, small subunit (SSU) processome component, homolog (yeast)	krr1	0.03017	-0.99
ENSDARG00000036109	Metaxin 1b	mtx1b	0.01379	-0.99
ENSDARG00000010411	Epsin 1	epn1	0.02372	-0.99
ENSDARG00000078136	WD repeat-containing protein 47		0.00145	-0.99
ENSDARG00000061845	Uncharacterized protein	si:dkeyp-110e4.6	0.01998	-0.99
ENSDARG00000016464	CDC42 binding protein kinase beta (DMPK-like)		0.02835	-0.99
ENSDARG00000059367	Microfibrillar-associated protein 2	mfap2	0.01016	-0.99
ENSDARG00000025808	TAF5-like RNA polymerase II, p300/CBP-associated factor (PCAF)-associated factor	taf5l	0.03185	-0.98
ENSDARG00000058507	Uncharacterized protein	zgc:173517	0.00100	-0.98
ENSDARG00000043451	Calcium binding protein 39	cab39	0.00439	-0.98
ENSDARG00000060054	Enhancer of polycomb homolog 1 (Drosophila)		0.00667	-0.98
ENSDARG00000037008	Bernardinelli-Seip congenital lipodystrophy 2 (seipin)	bscl2	0.02206	-0.98

ENSDARG00000075014	Sequestosome 1	sqstm1	0.00002	-0.98
ENSDARG00000034215	RAB42, member RAS oncogene family a	rab42a	0.02623	-0.98
ENSDARG00000057723	NAD(P) dependent steroid dehydrogenase-like	nsdhl	0.00458	-0.98
ENSDARG00000035985	Family with sequence similarity 210, member A		0.00205	-0.98
ENSDARG00000069368	Neuritin 1-like a	nrn11a	0.00221	-0.98
ENSDARG00000037995	Decapentaplegic and Vg-related 1	dvr1	0.00108	-0.97
ENSDARG00000079097	Protein TANC1		0.00735	-0.97
ENSDARG00000040039	Pituitary tumor-transforming 1 interacting protein b	pttg1ipb	0.00460	-0.97
ENSDARG00000090854	U7 snRNA-associated Sm-like protein LSm11		0.01327	-0.97
ENSDARG00000039913	Transmembrane protein 147	tmem147	0.00099	-0.97
ENSDARG00000062056	ELMO/CED-12 domain containing 1	elmod1	0.01578	-0.97
<u>ENSDARG00000071211</u>	Uncharacterized protein C1orf50 homolog	C11H1orf50	0.00536	-0.96
<u>ENSDARG00000090999</u>			0.01990	-0.96
ENSDARG00000054609	Solute carrier organic anion transporter family, member 2B1	slco2b1	0.01371	-0.95
ENSDARG00000092889	Synaptonemal complex central element protein 3		0.03348	-0.95
ENSDARG00000078054	Protein Spindly		0.01529	-0.95
ENSDARG00000057737	Retinoid X receptor, alpha a	rxraa	0.00595	-0.95
ENSDARG00000075325	Mitochondrial ribosomal protein L16	mrpl16	0.01292	-0.95
ENSDARG00000006399	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon polypeptide 1	ywhae1	0.01137	-0.95
ENSDARG00000005821	Neutrophil cytosolic factor 2	ncf2	0.00144	-0.95
ENSDARG00000014545	Golgi integral membrane protein 4b	golim4b	0.00377	-0.95
ENSDARG00000033376	Coiled-coil-helix-coiled-coil-helix domain containing 4	chchd4	0.01378	-0.94
ENSDARG00000046127	Thymidine kinase 2, mitochondrial	tk2	0.03239	-0.94
ENSDARG00000018060	Phosphoinositide-3-kinase, regulatory subunit, polypeptide 2	pik3r2	0.00389	-0.94
ENSDARG00000071240	Alanyl-tRNA synthetase 2, mitochondrial (putative)	aars2	0.03534	-0.94
ENSDARG00000010511	Protein regulator of cytokinesis 1a	prc1a	0.04187	-0.94
ENSDARG00000041137	Dehydrogenase/reductase (SDR family) member 13a, duplicate 3	dhrs13a.3	0.00301	-0.94
ENSDARG00000092532	Serine protease 57		0.00371	-0.94
ENSDARG00000017864	Thioredoxin reductase 1	txnrd1	0.00538	-0.94
ENSDARG00000040678	Coiled-coil domain containing 93	ccdc93	0.00839	-0.94
<u>ENSDARG00000087816</u>			0.00799	-0.94
ENSDARG00000013312	Ca ²⁺ dependent activator protein for secretion 2	cadps2	0.00059	-0.93
<u>ENSDARG00000076659</u>	Cell division cycle-associated 7-like protein	cdca7b	0.01412	-0.93
ENSDARG00000042697	Scavenger receptor class B, member 1	scarb1	0.02910	-0.93
ENSDARG00000003693	Histidyl-tRNA synthetase	hars	0.00042	-0.93
ENSDARG00000030367	Meteorin, glial cell differentiation regulator	metrn	0.00012	-0.93
<u>ENSDARG00000089518</u>			0.00327	-0.93
<u>ENSDARG00000074844</u>	Uncharacterized protein	cabz01061495.1	0.03096	-0.93
ENSDARG00000058845	UDP glucuronosyltransferase 1 family a, b		0.00144	-0.93
ENSDARG00000024325	Collagen, type IV, alpha 3 (Goodpasture antigen) binding protein a	col4a3bpa	0.02546	-0.93
ENSDARG00000059613	Nitrogen permease regulator-like 2 (S. cerevisiae)	nprl2	0.00500	-0.93
ENSDARG00000013006	Progesterone immunomodulatory binding factor 1	pibf1	0.03609	-0.93
ENSDARG00000028663	TEK tyrosine kinase, endothelial	tek	0.00657	-0.93
ENSDARG00000021110	POC1 centriolar protein homolog B (Chlamydomonas)	poc1b	0.00849	-0.92
ENSDARG00000054856	Methyltransferase-like protein 12, mitochondrial		0.04163	-0.92
ENSDARG00000033973	Mitochondrial ribosomal protein S23	mrps23	0.00561	-0.92

<u>ENSDARG00000071578</u>	SLAM family member precursor	si:ch211-222k6.3	0.00301	-0.92
ENSDARG00000051710	Antigen-presenting glycoprotein CD1d		0.00812	-0.92
ENSDARG00000043446	EF-hand domain family, member D1	efhd1	0.02649	-0.91
ENSDARG00000059908	Coiled-coil domain-containing protein 86		0.04347	-0.91
ENSDARG00000010978	TRNA methyltransferase 1 homolog (S. cerevisiae)	trmt1	0.00799	-0.91
ENSDARG00000016044	DNA replication complex GINS protein SLD5		0.01203	-0.91
<u>ENSDARG00000096059</u>	Uncharacterized protein	si:dkeyp-85d8.3	0.00168	-0.90
ENSDARG00000043094	GNAS complex locus	gnas	0.03867	-0.90
ENSDARG00000014041	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A containing DEAD/H box 1		0.00024	-0.90
ENSDARG00000009134	H2.0-like homeo box 1 (Drosophila)	hlx1	0.01174	-0.90
ENSDARG00000003933	Pyruvate kinase, muscle, a	pkma	0.03937	-0.90
ENSDARG00000059175	Centrosomal protein 19	cep19	0.01329	-0.90
ENSDARG00000091931	G patch domain containing 4	gpatch4	0.04871	-0.90
ENSDARG00000029356	Membrane bound O-acyltransferase domain containing 1	mboat1	0.02478	-0.90
ENSDARG00000077589	Uncharacterized protein	si:dkey-188c14.4	0.02872	-0.90
ENSDARG00000008052	Nuclear distribution gene C homolog	nudc	0.03987	-0.90
ENSDARG00000007127	Acetyl-CoA acetyltransferase 2	acat2	0.03673	-0.90
ENSDARG00000059919	UPF0420 protein C16orf58		0.00220	-0.90
<u>ENSDARG00000087508</u>	CD99 antigen-like protein 2	cd99l2	0.01159	-0.89
ENSDARG00000040119	Coiled-coil domain-containing protein 127		0.02595	-0.89
ENSDARG00000059700	Agmatine ureohydrolase (agmatinase)	agmat	0.00781	-0.89
ENSDARG00000088463	Caseinolytic peptidase B protein homolog		0.04195	-0.89
<u>ENSDARG00000087746</u>			0.00008	-0.89
ENSDARG00000023583	Coenzyme Q9 homolog (S. cerevisiae)	coq9	0.00062	-0.89
ENSDARG00000091624	UDP glucuronosyltransferase 1 family a, b		0.00939	-0.88
ENSDARG00000078507	Wingless-type MMTV integration site family, member 8b		0.03809	-0.88
ENSDARG00000062307	Coiled-coil domain-containing protein 61		0.01086	-0.88
ENSDARG00000074738	Protocadherin 2 gamma 9	pcdh2g9	0.03453	-0.88
ENSDARG00000069373	Calcitonin gene-related peptide-receptor component protein	crp	0.00352	-0.88
ENSDARG00000053070	Golgi SNAP receptor complex member 2	gosr2	0.01426	-0.88
ENSDARG00000021433	Acetylserotonin O-methyltransferase-like	asmtl	0.00155	-0.88
ENSDARG00000044942	Mitochondrial ribosomal protein L45	mrpl45	0.00044	-0.88
ENSDARG00000059690	Solute carrier family 29 (nucleoside transporters), member 4	slc29a4	0.00103	-0.88
ENSDARG00000012199	Glutamic pyruvate transaminase (alanine aminotransferase) 2	gpt2	0.00553	-0.88
ENSDARG00000003680	Runt-related transcription factor 1; translocated to, 1 (cyclin D-related)	runx1t1	0.00428	-0.87
ENSDARG00000004939	Protein LYRIC		0.00152	-0.87
ENSDARG00000044776	Chloride intracellular channel a	clica	0.01261	-0.87
ENSDARG00000077263			0.00245	-0.87
ENSDARG00000035949	Transmembrane protein 106Bb	tmem106bb	0.04096	-0.87
ENSDARG00000020454	Proteasome (prosome, macropain) 26S subunit, non-ATPase, 8	psmd8	0.01574	-0.87
ENSDARG00000067672	Caspase recruitment domain family, member 9	card9	0.01053	-0.87
ENSDARG00000063718	Vacuolar protein sorting 72 homolog (S. cerevisiae)	vps72	0.03054	-0.87
ENSDARG00000070931	Uncharacterized protein	si:ch211-232m10.6	0.00243	-0.87
ENSDARG00000036305	PHD finger protein 23b	phf23b	0.02250	-0.87
ENSDARG00000069752	Creatine kinase, brain a	ckba	0.03921	-0.87
ENSDARG00000044807	Deoxycytidine kinase	dck	0.00057	-0.87
ENSDARG00000045142	Hemoglobin zeta	hbz	0.04940	-0.86
ENSDARG00000020232	Eukaryotic translation initiation factor 6	eif6	0.00122	-0.86
ENSDARG00000061211	Spastic paraplegia 20b (Troyer syndrome)	spg20b	0.02208	-0.86
ENSDARG00000060951	Polymerase (DNA directed), gamma	polg	0.01690	-0.86
ENSDARG00000037410	Mediator complex subunit 28	med28	0.00083	-0.86

ENSDARG0000003546	Unc-45 homolog A (<i>C. elegans</i>)	unc45a	0.00018	-0.86
ENSDARG00000071553	Uncharacterized protein	zgc:171500	0.03594	-0.86
ENSDARG00000093503	Remodeling and spacing factor 1		0.00166	-0.86
ENSDARG00000053383	Reprimo, TP53 dependent G2 arrest mediator candidate a	rprma	0.00448	-0.86
ENSDARG00000070287	H3 histone, family 3A		0.02903	-0.86
ENSDARG00000088764	Lysophospholipase-like protein 1		0.00131	-0.85
ENSDARG00000040556	Intraflagellar transport protein 20	ift20	0.00360	-0.85
ENSDARG00000091273	Interferon-induced transmembrane protein 3		0.00146	-0.85
ENSDARG00000077339	Peptidyl-tRNA hydrolase 2	ptrh2	0.01940	-0.85
ENSDARG00000011208	Uncharacterized protein	zgc:86599	0.04323	-0.85
<u>ENSDARG00000075850</u>	guanine nucleotide binding protein (G protein), alpha activating activity polypeptide, olfactory type 2	gna12	0.01501	-0.85
ENSDARG00000023659	GA binding protein transcription factor, beta subunit 1	gabpb1	0.02850	-0.85
ENSDARG00000091646	UPF0449 protein C19orf25		0.00981	-0.85
ENSDARG00000055490	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 12	galnt12	0.02937	-0.84
ENSDARG00000055292	ATG9 autophagy related 9 homolog A (<i>S. cerevisiae</i>)		0.01258	-0.84
ENSDARG00000052787	Zinc finger, DHHC-type containing 12b	zdhhc12b	0.00036	-0.84
ENSDARG00000095464	Uncharacterized protein	zgc:66350	0.01994	-0.84
ENSDARG00000039145	Plasminogen activator, urokinase a		0.00376	-0.84
ENSDARG00000032197	Kruppel-like factor 12b	klf12b	0.00572	-0.84
ENSDARG00000074280	StAR-related lipid transfer protein 4		0.00472	-0.84
<u>ENSDARG00000092855</u>	S1 RNA binding domain 1	srbd1	0.04983	-0.83
ENSDARG00000017562	BTG3 associated nuclear protein	banp	0.00038	-0.83
ENSDARG00000069194	MYCBP-associated protein		0.00767	-0.83
ENSDARG00000062002	Activity-dependent neuroprotector homeobox b		0.00049	-0.83
ENSDARG00000035734	Uncharacterized protein	zgc:152816	0.02477	-0.83
ENSDARG00000002190	Chromatin modifying protein 2Bb	chmp2bb	0.04810	-0.83
ENSDARG00000091754	Coiled-coil-helix-coiled-coil-helix domain-containing protein 5		0.01727	-0.83
ENSDARG00000070011	Uncharacterized protein	si:ch211-167j6.4	0.00208	-0.83
ENSDARG00000019250	Fanconi anemia group F protein		0.02149	-0.83
ENSDARG00000055722	Beta-carotene 15, 15-dioxygenase 2, like		0.00976	-0.83
ENSDARG00000058354	Selenoprotein T, 1a	selt1a	0.01689	-0.82
ENSDARG00000019709	Ras homolog gene family, member Ua	rhous	0.00049	-0.82
ENSDARG00000043431	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase-like 1	b3gnt1	0.03678	-0.82
ENSDARG00000069765	Ras GTPase-activating protein SynGAP		0.00245	-0.82
ENSDARG00000040990	Ubiquitin specific peptidase 37	usp37	0.01032	-0.82
ENSDARG00000075791	Uncharacterized protein	si:dkey-79f11.5	0.01034	-0.82
ENSDARG00000093008	Uncharacterized protein	si:dkey-30j22.5	0.04190	-0.82
ENSDARG00000015911	MCM2 minichromosome maintenance deficient 2, mitotin (<i>S. cerevisiae</i>)	mcm2	0.01587	-0.82
ENSDARG00000014550	Regulatory factor X, 3 (influences HLA class II expression)	rxf3	0.00492	-0.82
ENSDARG00000074035	Diphosphomevalonate decarboxylase		0.01139	-0.82
ENSDARG00000057973	DPH1 homolog (<i>S. cerevisiae</i>)	dph1	0.00921	-0.82
ENSDARG00000010948	Kinesin family member 11	kif11	0.02970	-0.82
ENSDARG00000006859	Na ⁺ transporting ATPase interacting 1	nkain1	0.01549	-0.82
ENSDARG00000044820	Cleavage stimulation factor subunit 1		0.00333	-0.82
ENSDARG00000036329	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 1	ndufa1	0.00270	-0.81
ENSDARG00000095698	Uncharacterized protein	si:dkey-228a15.1	0.02774	-0.81
ENSDARG00000040890	Farnesyl diphosphate synthase (farnesyl pyrophosphate synthetase, dimethylallyltransferase, geranyltransferase)	fdps	0.02855	-0.81
ENSDARG00000077070	Sjoegren syndrome nuclear autoantigen 1		0.01447	-0.81
ENSDARG00000069807	GPI mannosyltransferase 2		0.00645	-0.81
ENSDARG00000014685	Establishment of cohesion 1 homolog 2	esco2	0.00394	-0.81

ENSDARG0000007823	Activating transcription factor 3	atf3	0.02388	-0.81
<u>ENSDARG00000092648</u>	Mevalonate (diphospho) decarboxylase b	mvdb	0.01245	-0.81
ENSDARG00000028164	Uncharacterized protein	si:ch211-161h7.6	0.00221	-0.80
ENSDARG00000005456	Katanin p80 (WD repeat containing) subunit B 1	katnb1	0.00413	-0.80
ENSDARG00000093043	UDP glucuronosyltransferase 1 family a, b		0.00747	-0.80
<u>ENSDARG00000094158</u>		si:dkey-285b23.4	0.00005	-0.80
ENSDARG00000003517	Inositol(myo)-1(or 4)-monophosphatase 1	impa1	0.00305	-0.80
ENSDARG00000009524	Ring finger protein 150b	rnf150b	0.03056	-0.80
ENSDARG00000037397	Structure specific recognition protein 1a	ssrp1a	0.00182	-0.80
ENSDARG00000039641	Ribosomal protein L26	rpl26	0.01565	-0.80
ENSDARG00000076745	Uncharacterized protein	zgc:193811	0.03855	-0.79
ENSDARG00000038348	Phosphatidylinositol N-acetylglucosaminyltransferase subunit H		0.00484	-0.79
ENSDARG00000091116	Fibrocystin-L		0.03093	-0.79
ENSDARG00000090638	Platelet glycoprotein IX		0.04841	-0.79
ENSDARG00000034457	Uncharacterized protein C1orf194		0.01673	-0.79
ENSDARG00000055787	Double zinc ribbon and ankyrin repeat domains 1	dzank1	0.02472	-0.79
ENSDARG00000021082	Sec31 homolog A (S. cerevisiae)	sec31a	0.03068	-0.79
ENSDARG00000023003	Coiled-coil domain containing 12	ccdc12	0.04119	-0.78
ENSDARG00000033662	Stearoyl-CoA desaturase (delta-9-desaturase)	scd	0.01048	-0.78
ENSDARG00000005446	Cytoskeleton associated protein 5	ckap5	0.02007	-0.78
<u>ENSDARG00000031202</u>	GDP-Man:Man(3)GlcNAc(2)-PP-Dol alpha-1_2-mannosyltransferase		0.00817	-0.78
ENSDARG00000094010	Transcriptional protein SWT1		0.03733	-0.78
ENSDARG00000074151	Uncharacterized protein	zgc:174234	0.00705	-0.78
ENSDARG00000003263	Processing of precursor 4, ribonuclease P/MRP subunit	pop4	0.02721	-0.78
ENSDARG00000043905	Ring finger protein 14	rnf14	0.00402	-0.78
ENSDARG00000071336	Macrophage migration inhibitory factor	mif	0.03736	-0.77
ENSDARG00000032564	Argininosuccinate synthetase 1	ass1	0.00077	-0.77
<u>ENSDARG00000018605</u>			0.00450	-0.77
ENSDARG00000055708	Translocase of inner mitochondrial membrane 8 homolog B (yeast)	tim8b	0.00531	-0.77
ENSDARG00000013500	ATP-binding cassette, sub-family A (ABC1), member 2	abca2	0.00022	-0.77
ENSDARG00000052688	Progesterin and adipoQ receptor family member Vb	paqr5b	0.00960	-0.77
ENSDARG00000088514	Actinodin1	and1	0.00864	-0.77
ENSDARG00000070278	Methyltransferase like 14	mettl14	0.04275	-0.77
ENSDARG00000025718	CXXC finger 1 (PHD domain)	cxxc1	0.00478	-0.77
ENSDARG00000079074	FERM and PDZ domain-containing protein 1		0.04381	-0.77
ENSDARG00000068903	SDA1 domain containing 1	sdad1	0.03668	-0.77
ENSDARG00000031976	Nitric oxide synthase 2b, inducible	nos2b	0.00760	-0.77
ENSDARG00000087752	E3 ubiquitin-protein ligase RFWD3		0.03447	-0.77
ENSDARG00000035557	GABA(A) receptor-associated protein a	gabarapa	0.02739	-0.77
ENSDARG00000095718	Uncharacterized protein	zgc:158862	0.04885	-0.77
<u>ENSDARG00000088644</u>	Uncharacterized protein	cu468041.1	0.02216	-0.76
ENSDARG00000013976	Annexin A13	anxa13	0.00397	-0.76
ENSDARG00000014573	Growth hormone inducible transmembrane protein	ghitm	0.00719	-0.76
ENSDARG00000069934	Poly [ADP-ribose] polymerase 4		0.00268	-0.76
ENSDARG00000069105	Fibroblast growth factor receptor 4	fgfr4	0.00405	-0.76
ENSDARG00000095729	Serine protease 57		0.02967	-0.76
ENSDARG00000024116	Vesicle-associated membrane protein 8 (endobrevin)	vamp8	0.01349	-0.76
ENSDARG00000089876	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.00955	-0.76
ENSDARG00000004497	Tetraspanin 33	tspan33	0.00022	-0.76
ENSDARG00000010770	SRY-box containing gene 19a	sox19a	0.00171	-0.76
ENSDARG00000059028	SRR1 domain containing	srrd	0.03070	-0.76
ENSDARG00000040198	Follistatin-like 5	fstl5	0.01927	-0.76

ENSDARG00000016514	General transcription factor IIIH, polypeptide 2	gtf2h2	0.00289	-0.75
ENSDARG00000058486	Calcyphosin-2		0.04778	-0.75
ENSDARG00000071074	RCC1 domain-containing protein 1		0.00088	-0.75
ENSDARG00000018002	Enoyl-CoA delta isomerase 1	eci1	0.01016	-0.75
ENSDARG00000045565	Nucleolar complex associated 4 homolog (S. cerevisiae)	noc4l	0.02244	-0.75
ENSDARG00000061728	Acyl-coenzyme A thioesterase 13		0.04612	-0.75
ENSDARG00000025820	CHK2 checkpoint homolog (S. pombe)	chek2	0.00587	-0.75
ENSDARG00000079055	TAR (HIV-1) RNA binding protein 1	tarbp1	0.03199	-0.75
ENSDARG00000052263	Uncharacterized protein	si:ch73-131e21.5	0.00083	-0.75
ENSDARG00000017274	Opsin 1 (cone pigments), short-wave-sensitive 2	opn1sw2	0.03897	-0.75
ENSDARG00000038980	Thioredoxin domain-containing protein 12		0.03267	-0.74
<u>ENSDARG00000095821</u>	Uncharacterized protein	si:dkey-122a22.2	0.00719	-0.74
ENSDARG00000089168	Exostoses (multiple) 1a		0.04061	-0.74
ENSDARG00000039150	Legumain	lgmn	0.04821	-0.74
ENSDARG00000038898	Uncharacterized protein	zgc:113691	0.00076	-0.74
ENSDARG00000016484	Dyskeratosis congenita 1, dyskerin	dkc1	0.00905	-0.74
ENSDARG00000069134	Von Willebrand factor C domain-containing protein 2-like	vwc2l	0.01211	-0.74
ENSDARG00000094840	Serine protease 57		0.00192	-0.74
ENSDARG00000005085	Gamma-glutamyl cyclotransferase b	ggctb	0.03431	-0.74
ENSDARG00000032584	Threonine synthase-like 2 (S. cerevisiae)	thnsl2	0.03572	-0.74
ENSDARG00000040163	Primase polypeptide 1	prim1	0.00489	-0.74
ENSDARG00000045733	Cytokine induced apoptosis inhibitor 1	ciapin1	0.00810	-0.74
ENSDARG00000093756	Zgc:112234		0.01856	-0.74
ENSDARG00000093415	Serine protease 57		0.01559	-0.74
ENSDARG00000075766	Saccharopine dehydrogenase a	sccpdha	0.01420	-0.74
ENSDARG00000012271	Transmembrane protein 206	tmem206	0.00428	-0.74
ENSDARG00000031427	Calmodulin		0.03013	-0.73
ENSDARG00000070702	S100 calcium binding protein V2	s100v2	0.00184	-0.73
ENSDARG00000010266	Insulin-like growth factor 2 mRNA binding protein 3	igf2bp3	0.00113	-0.73
ENSDARG00000075455	Protein SOGA3		0.01743	-0.73
ENSDARG00000055026	Patched 2	ptch2	0.03662	-0.73
ENSDARG00000094426	Hairy-related 4, tandem duplicate 2	her4.2	0.02179	-0.73
ENSDARG00000005033	Thyroid hormone receptor interactor 4	trip4	0.04515	-0.73
ENSDARG00000079827	S1 RNA binding domain 1	srbd1	0.02157	-0.73
ENSDARG00000053684	Aldolase b, fructose-bisphosphate	aldob	0.03314	-0.73
ENSDARG00000088440	Slingshot homolog 2a (Drosophila)	ssh2a	0.00256	-0.73
ENSDARG00000044809	Folylpolyglutamate synthase	fpgs	0.00090	-0.73
ENSDARG00000093722	Uncharacterized protein	zgc:174268	0.01778	-0.73
ENSDARG00000056903	Mitochondrial ribosomal protein L13	mrpl13	0.02498	-0.72
ENSDARG00000017107	Nuclear receptor subfamily 2, group E, member 1	nr2e1	0.00852	-0.72
ENSDARG00000077691	Solute carrier family 13 (sodium-dependent dicarboxylate transporter), member 2		0.02962	-0.72
ENSDARG00000041394	DnaJ (Hsp40) homolog, subfamily B, member 1b	dnajb1b	0.04132	-0.72
ENSDARG00000059582	Sosondowah ankyrin repeat domain family Cb	sowahcb	0.01509	-0.72
ENSDARG00000076395	NME/NM23 family member 8	nme8	0.02670	-0.72
ENSDARG00000017315	La ribonucleoprotein domain family, member 7	larp7	0.01741	-0.72
ENSDARG00000021547	Vaccinia related kinase 2	vrk2	0.01253	-0.72
ENSDARG00000058022	ORM1-like 2 (S. cerevisiae)	ormd12	0.00191	-0.72
ENSDARG00000053215	Malic enzyme 1, NADP()-dependent, cytosolic	me1	0.03834	-0.72
ENSDARG00000036036	Midkine-related growth factor	mdka	0.02193	-0.71
ENSDARG00000038843	Interleukin 17 receptor D	il17rd	0.02989	-0.71
ENSDARG00000019547	Achalasia, adrenocortical insufficiency, alacrimia	aaas	0.04306	-0.71
ENSDARG00000011983	Uncharacterized protein	zgc:136908	0.04294	-0.71
<u>ENSDARG00000035561</u>			0.00045	-0.71

ENSDARG00000055712	Succinate dehydrogenase complex, subunit D, integral membrane protein a	sdhda	0.04969	-0.71
ENSDARG00000061981	Leucine aminopeptidase 3	lap3	0.02403	-0.71
ENSDARG00000012563	Prenyl (decaprenyl) diphosphate synthase, subunit 2	pdss2	0.00404	-0.71
ENSDARG00000054099	CTP synthase 1a		0.01115	-0.71
ENSDARG00000013423	Cysteine conjugate-beta lyase 2	ccb12	0.02244	-0.70
ENSDARG00000038695	ELAV (embryonic lethal, abnormal vision, Drosophila)-like 1 (Hu antigen R)	elav11	0.00348	-0.70
ENSDARG00000029476	Low density lipoprotein receptor	ldlr	0.00791	-0.70
ENSDARG00000063344	Family with sequence similarity 162, member A	fam162a	0.02231	-0.70
ENSDARG00000007549	Pyridoxal-dependent decarboxylase domain containing 1	pdxdc1	0.01232	-0.70
ENSDARG00000030703	Orthodenticle homolog 1a	otx1a	0.01801	-0.70
ENSDARG00000086626	Zinc finger protein 208-like	im:7147486	0.00410	-0.70
ENSDARG00000024371	Cadherin 1, epithelial	cdh1	0.00002	-0.42
ENSDARG00000015607	Basement membrane-specific heparan sulfate proteoglycan core protein-like	cr388152.1	0.04166	-0.33
ENSDARG00000058254	Uncharacterized protein C11orf53		0.03373	-0.32
ENSDARG00000021004	Complement component 5	c5	0.00003	-0.14
ENSDARG00000092148	G-protein coupled bile acid receptor 1		0.00022	-0.12
ENSDARG00000005972	Resistance to inhibitors of cholinesterase 8 homolog B	ric8b	0.00003	-0.10
ENSDARG00000038770	Uncharacterized protein	zgc:103625	0.03933	-0.07
ENSDARG00000074732	C-type lectin domain family 12 member B		0.01995	-0.07
ENSDARG00000087311	Uncharacterized protein	zgc:171951	0.01494	-0.06
ENSDARG00000087782	E3 ubiquitin-protein ligase RNF152		0.01516	-0.05
ENSDARG00000059349	Homer homolog 2 (Drosophila)	homer2	0.00983	-0.05
ENSDARG00000091531	Coactivator-associated arginine methyltransferase 1, like	carm11	0.00004	-0.04
ENSDARG000000068011	Uncharacterized protein si:ch211-230g14.3	si:ch211-230g14.3	0.00056	-0.03
ENSDARG00000009471	Nidogen 2b (osteonidogen)	nid2b	0.00229	-0.02
ENSDARG00000086843	Sperm acrosome membrane-associated protein 4		0.00604	-0.02
ENSDARG00000089097	Uncharacterized protein	si:dkey-254e13.12	0.00032	0.00
ENSDARG00000092897	Serine/threonine-protein kinase pim-3	si:ch211-244k5.3	0.00051	0.00
ENSDARG00000092947	Type I cytokeratin, enveloping layer	cyt1	0.03883	0.02
ENSDARG00000092169		si:dkey-250k15.4	0.00030	0.03
ENSDARG00000068122	Uncharacterized protein C9orf171		0.00010	0.04
ENSDARG00000060264	Uncharacterized protein	si:dkey-37g12.1	0.00002	0.05
ENSDARG00000095719	NACHT, LRR and PYD domains-containing protein 3	si:dkey-222h21.2	0.02790	0.06
ENSDARG00000004721	Membrane protein, palmitoylated 5a (MAGUK p55 subfamily member 5a)		0.00004	0.07
ENSDARG00000011510	Regulator of chromosome condensation 2	rcc2	0.01015	0.07
ENSDARG00000079234	Uncharacterized protein	si:ch211-285c6.2	0.00080	0.08
ENSDARG00000075761	Complement factor H	cfh	0.00587	0.11
ENSDARG00000061723	Transmembrane protein 64		0.00003	0.11
ENSDARG00000018619	Ceramide synthase 4a		0.01816	0.70
ENSDARG00000074488	Interferon gamma receptor 1	ifngr1	0.04821	0.70
ENSDARG00000016541	SAM and SH3 domain-containing protein 3		0.00567	0.70
ENSDARG00000091348	Reticulon 1a		0.01112	0.71
ENSDARG00000035596	Iron-sulfur cluster assembly enzyme ISCU, mitochondrial		0.02327	0.71
ENSDARG00000077862	T-lymphocyte activation antigen CD86		0.01961	0.71
ENSDARG00000079307	Uncharacterized protein	si:dkey-205h13.1	0.02897	0.71
ENSDARG00000036940	Cathepsin Sa	ctssa	0.02769	0.71
ENSDARG00000015627	Regulator of G-protein signalling 6	rgs6	0.00680	0.71
ENSDARG00000088836	Zgc:194906		0.04111	0.71
ENSDARG00000057032	Protein phosphatase, Mg ²⁺ dependent, 1Nb (putative)	ppm1nb	0.00404	0.71
ENSDARG00000033411	Calcium binding protein 1b	cabp1b	0.03221	0.71

ENSDARG00000061203	Transient receptor potential cation channel, subfamily C, member 1	trpc1	0.01207	0.71
ENSDARG00000055317	Complement component 1, q subcomponent-like 3a		0.01304	0.72
ENSDARG00000035700	Uncharacterized protein	zgc:101664	0.00443	0.72
ENSDARG00000070624	Calcium channel, voltage-dependent, gamma subunit 7b	cacng7b	0.02289	0.72
ENSDARG00000074551	Potassium channel, subfamily T, member 1		0.00914	0.72
<u>ENSDARG00000091625</u>	Protein FAM3D	si:dkeyp-67f1.2	0.00113	0.72
<u>ENSDARG00000094930</u>			0.02813	0.72
ENSDARG00000045983	Zinc finger and BTB domain-containing protein 43		0.04493	0.72
ENSDARG00000058958	Tripartite motif containing 35-37		0.00573	0.72
ENSDARG00000019950	Amyotrophic lateral sclerosis 2 chromosomal region candidate gene 8 protein		0.03148	0.72
ENSDARG00000016088	Reticulon 2a	rtn2a	0.01495	0.72
ENSDARG00000021805	Amino-terminal enhancer of split	aes	0.04815	0.72
ENSDARG00000055276	V-rel reticuloendotheliosis viral oncogene homolog	rel	0.04418	0.72
ENSDARG00000077532	GPI ethanolamine phosphate transferase 1		0.00639	0.72
ENSDARG00000096449	Zgc:194906		0.02505	0.72
ENSDARG00000076338	Inositol polyphosphate-5-phosphatase K		0.00563	0.73
ENSDARG00000038754	Polo-like kinase 3 (Drosophila)	plk3	0.00062	0.73
ENSDARG00000031930	ELKS/RAB6-interacting/CAST family member 1a		0.02243	0.73
ENSDARG00000062269	FANCD2/FANCI-associated nuclease 1	fan1	0.02177	0.73
ENSDARG00000002682	Tubulin folding cofactor E-like a	tbcela	0.00831	0.73
ENSDARG00000052000	Caveolin 2	cav2	0.00463	0.73
ENSDARG00000004724	Transcription elongation factor A (SII), 3	tcea3	0.00112	0.73
ENSDARG00000016481	Protein tyrosine phosphatase, non-receptor type 2, a	ptpn2a	0.00288	0.73
ENSDARG00000092284	Zgc:194906		0.03026	0.74
ENSDARG00000067984	Growth arrest-specific 1b	gas1b	0.00102	0.74
ENSDARG00000078551	Uncharacterized protein	zgc:171242	0.01303	0.74
ENSDARG00000023724	CDC42 small effector 1	cdc42se1	0.02755	0.74
ENSDARG00000094732	Microtubule associated monooxygenase, calponin and LIM domain containing 3a		0.02768	0.74
ENSDARG00000020345	Cytoplasmic linker associated protein 2	clasp2	0.00999	0.74
ENSDARG00000079269	Si:ch211-163m16.6		0.00082	0.74
ENSDARG00000071082	Prolyl 4-hydroxylase, alpha polypeptide I b	p4ha1b	0.00636	0.74
ENSDARG00000015907	Discoidin, CUB and LCCL domain containing 1	dcbl1	0.03491	0.75
ENSDARG00000077625	Chloride intracellular channel 4		0.04609	0.75
ENSDARG00000056624	C-fos induced growth factor	figf	0.04321	0.75
ENSDARG00000074781	Protein tyrosine phosphatase, receptor type, t	ptprt	0.03467	0.75
ENSDARG00000008363	Myeloid cell leukemia sequence 1b	mcl1b	0.01540	0.75
ENSDARG00000007413	AT rich interactive domain 2 (ARID, RFX-like)	arid2	0.01234	0.76
ENSDARG00000020850	Eukaryotic translation elongation factor 1 alpha 1, like 1	eef1a11	0.00346	0.76
ENSDARG00000004307	LY6/PLAUR domain containing 6	lypd6	0.01249	0.76
ENSDARG00000010710	Musashi homolog 1 (Drosophila)	msi1	0.04819	0.76
ENSDARG00000056741	SUMO1/sentrin/SMT3 specific peptidase 3b	senp3b	0.02748	0.76
ENSDARG00000062477	UPF0606 protein KIAA1549L		0.02106	0.76
ENSDARG00000031952	Myoglobin	mb	0.01019	0.76
ENSDARG00000026835	Solute carrier family 25, member 32b	slc25a32b	0.00076	0.76
<u>ENSDARG00000093344</u>			0.00423	0.76
ENSDARG00000031203	COMM domain-containing protein 1		0.00025	0.77
<u>ENSDARG00000091505</u>			0.01416	0.77
ENSDARG00000002303	Exportin, tRNA (nuclear export receptor for tRNAs)	xpot	0.03172	0.77
ENSDARG00000020057	Bone morphogenetic protein receptor, type II b (serine/threonine kinase)	bmpr2b	0.03685	0.77

ENSDARG00000087855	Uncharacterized protein	zgc:194906	0.01525	0.77
ENSDARG00000043511	Peroxiredoxin 6	prdx6	0.00107	0.77
ENSDARG00000001769	Protein tyrosine phosphatase, receptor type, A	ptpra	0.02179	0.77
ENSDARG00000052642	Shisa homolog 9 (<i>Xenopus laevis</i>)		0.02655	0.78
ENSDARG00000089981	Ring finger protein 146	rnfl46	0.02026	0.78
ENSDARG00000091013	Zgc:194906		0.00405	0.78
ENSDARG00000028275	Sulfotransferase family 1, cytosolic sulfotransferase 1	sult1st1	0.03646	0.78
ENSDARG00000038352	Solute carrier family 27 (fatty acid transporter), member 1b	slc27a1b	0.00437	0.78
ENSDARG00000038467	Immunoglobulin superfamily member 8		0.00753	0.78
<u>ENSDARG00000073825</u>			0.03705	0.78
ENSDARG00000044751	D-dopachrome tautomerase	ddt	0.00074	0.78
ENSDARG00000074204	COMM domain-containing protein 6		0.01624	0.78
ENSDARG00000036785	Histidine-rich carboxyl terminus protein 1 precursor	si:ch211-226m16.2-201	0.03020	0.78
<u>ENSDARG00000035875</u>	Transmembrane protein 54b	tmem54b	0.02649	0.79
ENSDARG00000011863	Inactive tyrosine-protein kinase 7		0.03745	0.79
ENSDARG00000060326	Microtubule-associated protein 1S		0.02519	0.79
ENSDARG00000043475	T-cell activation RhoGTPase activating protein b	tagapb	0.03857	0.79
ENSDARG00000011152	Ribonuclease P 14 subunit	rpp14	0.03201	0.79
ENSDARG00000057113	Complement component 6		0.01006	0.79
ENSDARG00000023694	Spondin 1b	spon1b	0.00188	0.79
<u>ENSDARG00000088635</u>			0.01595	0.79
ENSDARG00000079270	Polymeric immunoglobulin receptor		0.01129	0.79
ENSDARG00000086109	Unc-5 homolog B (<i>C. elegans</i>)		0.00099	0.79
ENSDARG00000012932	Methionine adenosyltransferase 2 subunit beta		0.04957	0.79
ENSDARG00000018159	Anoctamin 10b	ano10b	0.04920	0.80
ENSDARG00000030758	Guanylate cyclase activator 1C	guca1c	0.00426	0.80
ENSDARG00000055129	Pim-2 oncogene		0.04270	0.80
ENSDARG00000069538	General transcription factor IIIC, polypeptide 4	gtf3c4	0.04384	0.80
ENSDARG00000053129	Calcium regulated heat stable protein 1	carhsp1	0.00131	0.80
<u>ENSDARG00000094387</u>	Uncharacterized protein	si:dkeyp-30e7.2	0.00854	0.80
ENSDARG00000012625	Protein kinase, AMP-activated, gamma 2 non-catalytic subunit		0.00147	0.80
ENSDARG00000055543	Amyloid beta (A4) precursor protein b	appb	0.00684	0.80
ENSDARG00000088443	Zgc:194906		0.02526	0.80
ENSDARG00000075759	Protein Smaug homolog 1		0.00892	0.80
ENSDARG00000086719	Zgc:194906		0.01626	0.80
ENSDARG00000000935	Unkempt homolog (<i>Drosophila</i>)	unk	0.00028	0.81
ENSDARG00000068258	Leucine-rich repeat and calponin homology domain-containing protein 4		0.04044	0.81
ENSDARG00000079983	Zebrafish testis-expressed 25	zte25	0.00089	0.81
ENSDARG00000046071	Uncharacterized protein C18orf25		0.01332	0.81
ENSDARG00000036135	Butyrobetaine (gamma), 2-oxoglutarate dioxygenase 1 (gamma-butyrobetaine hydroxylase)	bbox1	0.04828	0.81
ENSDARG00000038585	Eukaryotic translation initiation factor 4E family member 2	eif4e2	0.02875	0.81
ENSDARG00000086216			0.03930	0.81
ENSDARG00000039486	BCL2-associated athanogene 3	bag3	0.00284	0.82
ENSDARG00000079291	Rap guanine nucleotide exchange factor (GEF) 3	rapgef3	0.03180	0.82
ENSDARG00000070441	Zinc finger, DHHC-type containing 17	zdhhc17	0.01907	0.82
ENSDARG00000035506	Ectonucleoside triphosphate diphosphohydrolase 2a, tandem duplicate 1	entpd2a.1	0.00902	0.82
ENSDARG00000043781	Proteasome (prosome, macropain) subunit, beta type, 10		0.03730	0.82
<u>ENSDARG00000092455</u>	Rho GTPase-activating protein 17	si:ch211-246e12.3	0.00857	0.82
ENSDARG00000031885	Proteasome (prosome, macropain) subunit, beta type, 11	psmb11	0.01854	0.82

ENSDARG00000094965	Nuclear factor, interleukin 3 regulated, member 5	nfil3-5	0.03869	0.83
ENSDARG00000024940	Ring finger protein 144aa		0.03453	0.83
ENSDARG00000009136	Apoptosis-stimulating of p53 protein 1		0.01845	0.83
ENSDARG00000088773	Zgc:194906		0.00529	0.83
ENSDARG00000055591	Pipecolic acid oxidase	pipox	0.00850	0.83
ENSDARG00000036031	Septin 5b	sept5b	0.02017	0.84
ENSDARG00000087306	Ribonuclease inhibitor		0.00087	0.84
ENSDARG00000094427	Uncharacterized protein	si:dkey-253d23.8	0.01526	0.84
ENSDARG00000095051	Uncharacterized protein	si:ch211-236l14.1	0.00705	0.84
ENSDARG00000002945	Decorin		0.00012	0.84
ENSDARG00000005827	Eukaryotic translation initiation factor 2, subunit 1 alpha a	eif2s1a	0.02575	0.84
ENSDARG00000038359	Enolase superfamily member 1	enosf1	0.01146	0.84
ENSDARG00000010603	Potassium channel tetramerisation domain containing 9	kctd9	0.02556	0.84
ENSDARG00000086385	Leucine-rich repeat and calponin homology domain-containing protein 4		0.02696	0.85
<u>ENSDARG00000094592</u>			0.01880	0.85
ENSDARG00000090392	Uncharacterized protein	zgc:194906	0.02767	0.85
ENSDARG00000095369	Uncharacterized protein	zgc:112970	0.03315	0.85
<u>ENSDARG00000095075</u>			0.01036	0.85
ENSDARG00000019553	Purine nucleoside phosphorylase 5b	pnpp5b	0.03529	0.85
ENSDARG00000009754	Zinc finger CCCH domain-containing protein 11A		0.04950	0.85
ENSDARG00000094590	C2 domain-containing protein 5		0.01477	0.85
ENSDARG00000056829	Ring finger protein 145b		0.02155	0.85
ENSDARG00000023185	Apolipoprotein L, 1		0.02845	0.85
ENSDARG00000096374	Uncharacterized protein	si:dkey-45d16.8	0.02844	0.85
ENSDARG00000095233	Uncharacterized protein	zgc:194906	0.02534	0.85
ENSDARG00000044804	Proline dehydrogenase (oxidase) 1a	prodha	0.01297	0.85
ENSDARG00000073789	sterile alpha motif domain-containing protein 9-like	bx537350.1	0.04444	0.85
ENSDARG00000045095	ElaC homolog 1 (E. coli)	elacl	0.04086	0.85
ENSDARG00000013269	Synaptotagmin-like protein 4		0.00629	0.86
ENSDARG00000040822	FUN14 domain containing 1	fundcl	0.03718	0.86
ENSDARG00000027887	Zinc finger, FYVE domain containing 21	zfyve21	0.02766	0.86
<u>ENSDARG00000075015</u>	Heme-binding protein soul5	soul5	0.01419	0.86
ENSDARG00000075690	DDRGK domain-containing protein 1		0.01035	0.86
ENSDARG00000079347	Uncharacterized protein	zgc:194659	0.00390	0.86
ENSDARG00000031981	6-pyruvoyl-tetrahydropterin synthase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1)	pcbd1	0.00341	0.87
<u>ENSDARG00000043436</u>	complement C1q-like protein 4	si:dkey-5n18.1	0.01580	0.87
ENSDARG00000027464	Glucosamine (N-acetyl)-6-sulfatase (Sanfilippo disease IIID), b	gnsb	0.00115	0.87
ENSDARG00000036776	Aldehyde dehydrogenase 8 family, member A1	aldh8a1	0.02991	0.87
ENSDARG00000010701	Crystallin, gamma S4	crygs4	0.02170	0.87
ENSDARG00000003046	Sorbin and SH3 domain-containing protein 2		0.03326	0.87
<u>ENSDARG00000092926</u>	Uncharacterized protein	si:dkey-66k12.3	0.04902	0.87
ENSDARG00000094439	Transmembrane protein 176l.3a	tmem176l.3a	0.01807	0.87
ENSDARG00000005163	EFR3 homolog A (S. cerevisiae)		0.03648	0.87
ENSDARG00000057334	Cytidine monophosphate N-acetylneuraminic acid synthetase a	cmasa	0.00306	0.87
ENSDARG00000091294	Cytidine deaminase		0.01536	0.87
<u>ENSDARG00000088493</u>	Uncharacterized protein	si:ch211-149k12.3	0.03480	0.87
ENSDARG00000032200	Regucalcin	rgn	0.02224	0.87
ENSDARG00000093757	CMRF35-like molecule 7		0.00508	0.88
ENSDARG00000086641	Starch-binding domain-containing protein 1		0.01744	0.88
ENSDARG00000002795	Myeloid ecotropic viral integration site 3	meis3	0.00782	0.88
ENSDARG00000069677	Nicolin 1	nicn1	0.04580	0.88
ENSDARG00000087788	Zgc:194906		0.01069	0.88
ENSDARG00000063252	Proline-rich protein PRCC		0.00994	0.88

<u>ENSDARG00000094935</u>	Uncharacterized protein	si:dkey-58f10.11	0.00020	0.88
ENSDARG00000055715	Calpain 8	capn8	0.00336	0.89
ENSDARG00000017785	Uncharacterized protein	zgc:158689	0.03763	0.89
ENSDARG00000021404	Uncharacterized protein	zgc:110319	0.01371	0.89
ENSDARG00000037628	TRNA 2 -phosphotransferase 1		0.00230	0.89
ENSDARG00000061719	WASH complex subunit 7		0.01421	0.89
ENSDARG00000010962	FK506 binding protein 7	fkbp7	0.03525	0.89
ENSDARG00000044485	Sal-like 4 (Drosophila)	sall4	0.01879	0.89
ENSDARG00000002771	Solute carrier family 4, sodium bicarbonate cotransporter, member 5		0.00409	0.89
ENSDARG00000030097	Syndecan binding protein (syntenin)	sdcbp	0.01244	0.90
ENSDARG00000078284	Phosphorylase b kinase regulatory subunit beta		0.02632	0.90
ENSDARG00000086420	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.04660	0.90
ENSDARG00000077004	Aldehyde dehydrogenase 1 family, member L1	aldh1l1	0.04844	0.90
<u>ENSDARG00000091315</u>			0.00131	0.90
ENSDARG00000078003	F-box/LRR-repeat protein 3		0.01572	0.90
<u>ENSDARG00000095320</u>			0.01439	0.90
ENSDARG00000016608	Fragile site, folic acid type, rare, candidate 1	fra10ac1	0.00108	0.90
ENSDARG00000003841	U6 snRNA phosphodiesterase		0.01067	0.90
<u>ENSDARG00000092494</u>			0.00226	0.90
ENSDARG00000069936	Uncharacterized protein	si:dkey-281i8.1	0.01551	0.91
<u>ENSDARG00000090390</u>			0.01499	0.91
ENSDARG00000012552	Transferrin receptor 1a		0.03389	0.91
ENSDARG00000012738	Zinc finger, CCHC domain containing 14	zchc14	0.00140	0.91
<u>ENSDARG00000093368</u>			0.00280	0.91
ENSDARG00000007219	Actinin, alpha 1	actn1	0.01119	0.91
<u>ENSDARG00000077957</u>			0.00057	0.92
ENSDARG00000062314	RAS-like, family 10, member A	rasl10a	0.00270	0.92
ENSDARG00000090482	Fas-binding factor 1		0.00031	0.92
ENSDARG00000036061	2-oxoglutarate and iron-dependent oxygenase domain containing 1	ogfod1	0.00463	0.92
ENSDARG00000002369	Polyubiquitin-C		0.02347	0.92
ENSDARG00000089550	Pre-B-cell leukemia transcription factor 2		0.00040	0.92
ENSDARG00000015025	Neural adhesion molecule L1.1	nadl1.1	0.01595	0.93
ENSDARG00000052942	Asparaginase homolog (S. cerevisiae)	aspg	0.01025	0.93
ENSDARG00000043371	Malate dehydrogenase, mitochondrial		0.03330	0.93
<u>ENSDARG00000086347</u>			0.00116	0.93
ENSDARG00000035577	CDP-diacylglycerol synthase (phosphatidate cytidyltransferase) 2	cds2	0.00514	0.93
<u>ENSDARG00000093458</u>	Serine protease 56-like	si:dkey-76d14.2	0.00243	0.94
ENSDARG00000056874	Lysozyme g-like 1	lyg1	0.00657	0.94
ENSDARG00000030999	V-myb myeloblastosis viral oncogene homolog (avian)-like 1	myb11	0.00046	0.94
ENSDARG00000052086	Uncharacterized protein	zgc:174928	0.02225	0.94
ENSDARG00000006604	Poliovirus receptor-related 3b	pvr13b	0.01726	0.94
ENSDARG00000088089		zgc:171242	0.01897	0.94
ENSDARG00000044526	Calcium/calmodulin-dependent protein kinase Iga	camk1ga	0.01816	0.95
ENSDARG00000076787	Angiopoietin 1		0.00013	0.95
ENSDARG00000034718	Tissue factor pathway inhibitor a	tfpia	0.00341	0.95
ENSDARG00000043313	Ankyrin 2b, neuronal	ank2b	0.03891	0.95
ENSDARG00000020072	Thrombospondin 4b	thbs4b	0.03964	0.95
ENSDARG00000013082	UDP-N-acetylglucosamine pyrophosphorylase 1, like 1	uap111	0.03953	0.95
ENSDARG00000090461	Zgc:194906		0.00758	0.96
ENSDARG00000013842	TBC1 domain family, member 19	tbc1d19	0.04168	0.96
<u>ENSDARG00000028912</u>			0.00274	0.96
ENSDARG00000035889	Zinc finger and BTB domain containing 8B	zbtb8b	0.01643	0.96
ENSDARG00000027552	Mitogen-activated protein kinase 1	mapk1	0.01392	0.96
ENSDARG00000069804	Uncharacterized protein	si:ch211-198k9.6	0.04309	0.96

ENSDARG00000087181	Chromobox homolog 7a		0.00276	0.96
ENSDARG00000074202	Uncharacterized protein	zgc:194906	0.01655	0.96
ENSDARG00000042332	Perilipin 2	plin2	0.00067	0.96
ENSDARG00000024143	Uncharacterized protein	zgc:158387	0.03765	0.97
ENSDARG00000002826	Centrosomal protein 57-like 1	cep5711	0.00964	0.97
ENSDARG00000058688	Adiponectin receptor 2	adipor2	0.01628	0.97
ENSDARG00000069529	Zgc:153981	zgc:153981	0.00258	0.97
ENSDARG00000088366	Zgc:77938	zgc:77938	0.00127	0.97
ENSDARG00000052139	Notch homolog 3	notch3	0.00814	0.97
<u>ENSDARG00000076132</u>	Sialic acid binding Ig-like lectin 15, like	siglec15l	0.03713	0.97
ENSDARG00000067858		zgc:194906	0.00723	0.97
ENSDARG00000022280	Bromodomain-containing 2a	brd2a	0.01849	0.97
ENSDARG00000088908	Uncharacterized protein	Zgc:194906	0.00359	0.97
ENSDARG00000087431	Uncharacterized protein	zgc:173962	0.02364	0.97
<u>ENSDARG00000086014</u>			0.04377	0.97
ENSDARG00000015657	Uncharacterized protein	zgc:77112	0.03329	0.97
ENSDARG00000039392	WNK lysine deficient protein kinase 1b	wnk1b	0.00032	0.98
ENSDARG00000059881	Family with sequence similarity 69, member B	fam69b	0.02824	0.98
ENSDARG00000038729	S100 calcium binding protein Z	s100z	0.01521	0.98
ENSDARG00000088301	Zgc:194906		0.04483	0.98
<u>ENSDARG00000091545</u>			0.00208	0.98
ENSDARG00000093007	M-phase phosphoprotein 6	mphosph6	0.03459	0.98
ENSDARG00000016513	SET domain containing 3	setd3	0.00178	0.98
ENSDARG00000030786	Mannose phosphate isomerase	mpi	0.00406	0.98
ENSDARG00000004171	Rab acceptor 1 (prenylated)	rabac1	0.02614	0.99
ENSDARG00000053831	Vitronectin b	vtnb	0.00120	0.99
ENSDARG00000014303	Vac14 homolog (S. cerevisiae)	vac14	0.01362	0.99
ENSDARG00000069282	BCL2 binding component 3	bbc3	0.00075	0.99
ENSDARG00000061736	Ankyrin 3a	ank3a	0.04468	0.99
ENSDARG00000003270	Deoxyhypusine synthase	dhps	0.00043	0.99
ENSDARG00000011196	DnaJ homolog subfamily C member 11		0.00052	0.99
<u>ENSDARG00000075980</u>	Transmembrane protein 125	tmem125	0.00107	0.99
ENSDARG00000058740	Ubiquitin-conjugating enzyme E2R 2	ube2r2	0.00317	0.99
ENSDARG00000068256	RWD domain containing 4	rwdd	0.01471	1.00
ENSDARG00000036826	Ankyrin repeat domain 52a	ankrd52a	0.02303	1.00
<u>ENSDARG00000091005</u>			0.00922	1.00
ENSDARG00000052222	Uncharacterized protein	zgc:114118	0.01160	1.00
ENSDARG00000023110	Mitogen-activated protein kinase 7	mapk7	0.00069	1.00
ENSDARG00000037346	Histone deacetylase 11	hdac11	0.00033	1.00
ENSDARG00000095209	Uncharacterized protein	zgc:194906	0.01039	1.00
ENSDARG00000029172	Polymerase (RNA) I polypeptide A	polr1a	0.00489	1.01
ENSDARG00000091949	Polymeric immunoglobulin receptor		0.02206	1.01
ENSDARG00000058736	Gamma-aminobutyric acid (GABA) A receptor, alpha 6b	gabra6b	0.01837	1.01
ENSDARG00000039820	Male-enhanced antigen 1	mea1	0.01831	1.01
ENSDARG00000008026	Family with sequence similarity 129, member Bb	fam129bb	0.00299	1.01
ENSDARG00000002549	Eukaryotic translation initiation factor 3, subunit E, b	eif3eb	0.00389	1.01
<u>ENSDARG00000095036</u>			0.00068	1.01
ENSDARG00000028517	HMG-box transcription factor 1	hbp1	0.02604	1.01
ENSDARG00000035088	Uncharacterized protein	si:ch211-254c8.3	0.02525	1.01
<u>ENSDARG00000054502</u>			0.02588	1.02
ENSDARG00000055751	FBJ murine osteosarcoma viral oncogene homolog B	fosb	0.01691	1.02
<u>ENSDARG00000091834</u>	Flocculation protein FLO11	si:ch211-198m17.1	0.03496	1.02
<u>ENSDARG00000078095</u>	CLOCK-interacting pacemaker b	cipcb	0.04601	1.02
ENSDARG00000000442	Solute carrier family 39 (zinc transporter), member 13	slc39a13	0.02925	1.02
ENSDARG00000001169	Hydroxysteroid (17-beta) dehydrogenase 8	hsd17b8	0.02994	1.02
ENSDARG00000058801	REV3-like, catalytic subunit of DNA polymerase zeta (yeast)	rev3l	0.00187	1.03
<u>ENSDARG00000095212</u>	Protein FAM115C		0.00275	1.03

<u>ENSDARG00000087308</u>			0.00073	1.03
<u>ENSDARG00000025914</u>	Uncharacterized protein	si:dkey-190g11.3	0.00775	1.04
<u>ENSDARG00000067697</u>			0.00070	1.04
ENSDARG00000079124	MTERF domain-containing protein 2		0.00252	1.05
ENSDARG00000053744	Doublecortin domain containing 2B	dcdc2b	0.00151	1.05
ENSDARG00000086098	ERBB receptor feedback inhibitor 1		0.00600	1.05
<u>ENSDARG00000093828</u>			0.00065	1.05
<u>ENSDARG00000092726</u>	Uncharacterized protein	si:dkey-184p9.7	0.03809	1.06
ENSDARG00000009402	Protein FAM115C		0.01095	1.06
ENSDARG00000009020	Cannabinoid receptor 1	cnr1	0.03798	1.07
ENSDARG00000074881	Uncharacterized protein	zgc:194906	0.03113	1.07
ENSDARG00000090091	Uncharacterized protein	si:ch211-238e22.2	0.00549	1.07
ENSDARG00000075537	Uncharacterized protein		0.00584	1.08
ENSDARG00000013926	Solute carrier family 16 (monocarboxylic acid transporters), member 9a	slc16a9a	0.03029	1.08
ENSDARG00000040300	GTP-binding protein 10 (putative)	gtpbp10	0.02992	1.08
ENSDARG00000038424	Complement component 4		0.00569	1.08
ENSDARG00000006031	4-aminobutyrate aminotransferase	abat	0.01299	1.08
ENSDARG00000060854	Potassium channel tetramerisation domain containing 3	kctd3	0.02289	1.08
ENSDARG00000053450	FinTRIM family, member 6	ftr06	0.02565	1.08
ENSDARG00000026149	Solute carrier family 46, member 1	slc46a1	0.00003	1.08
ENSDARG00000034048	Uncharacterized protein	zgc:92275	0.00425	1.09
ENSDARG00000013022			0.00116	1.09
ENSDARG00000092134	RAD54 homolog B (<i>S. cerevisiae</i>)	rad54b	0.02386	1.09
ENSDARG00000069427	Na ⁺ transporting ATPase interacting 1		0.00028	1.10
ENSDARG00000088788	Uncharacterized protein	si:ch211-131e11.21	0.00890	1.10
ENSDARG00000096189	Uncharacterized protein	si:dkey-54j5.2	0.02899	1.10
ENSDARG00000024588	Glypican 5	gpc5	0.00933	1.11
ENSDARG00000056753	Dynactin 1b	dctn1b	0.04707	1.11
ENSDARG00000071495	Uncharacterized protein	si:dkey-236e20.3	0.03781	1.11
ENSDARG00000039914	Glyceraldehyde-3-phosphate dehydrogenase, spermatogenic	gapdhs	0.00515	1.12
ENSDARG00000003146	Uncharacterized protein	si:dkey-27m7.4	0.00420	1.12
ENSDARG00000007425	Apolipoprotein L, 1	apol1	0.02066	1.12
<u>ENSDARG00000069365</u>			0.00005	1.12
ENSDARG00000042913	Sperm flagellar 2	spcf2	0.00312	1.13
ENSDARG00000052447	Crystallin, alpha B, b	cryabb	0.01488	1.13
ENSDARG00000011113	Cholinergic receptor, nicotinic, alpha 10a	chrna10a	0.03357	1.13
ENSDARG00000037324	Kelch-like protein 17		0.00539	1.14
ENSDARG00000060168	Family with sequence similarity 160, member B1	fam160b1	0.03695	1.14
ENSDARG00000051814	Protein tyrosine phosphatase, receptor-type, Z polypeptide 1a	ptprz1a	0.00972	1.14
<u>ENSDARG00000076092</u>	Solute carrier family 31 (copper transporter), member 2	slc31a2	0.00712	1.14
ENSDARG00000057439	Metal response element binding transcription factor 2		0.00146	1.15
ENSDARG00000069940	Uncharacterized protein	zgc:158309	0.00809	1.15
ENSDARG00000060981	Suppressor of IKBKE 1		0.00234	1.15
ENSDARG00000040944	Ntl-dependent gene 5	ntd5	0.00246	1.15
<u>ENSDARG00000090715</u>			0.00237	1.15
ENSDARG00000038458	WAS/WASL-interacting protein family member 1		0.00368	1.16
ENSDARG00000005823	Solute carrier family 39 (zinc transporter), member 10	slc39a10	0.00571	1.16
ENSDARG00000093747			0.00615	1.16
<u>ENSDARG00000061602</u>	Synovial sarcoma, X breakpoint 2 interacting protein b	ssx2ipb	0.02066	1.16
ENSDARG00000007485	Enhancer of polycomb homolog 2 (<i>Drosophila</i>)	epc2	0.00023	1.16
<u>ENSDARG00000057324</u>			0.00107	1.17
ENSDARG00000012130	Transglutaminase 1 like 1	tgm111	0.01264	1.18
ENSDARG00000039268	ER membrane protein complex subunit 4		0.00517	1.18

ENSDARG00000029898	Cyclic nucleotide gated channel alpha 1		0.00652	1.18
ENSDARG00000093364	Myotubularin related protein 3	mtmr3	0.00335	1.18
ENSDARG00000036787	ATP-binding cassette, sub-family B (MDR/TAP), member 3 like 1	abcb311	0.00825	1.18
ENSDARG00000094441	Uncharacterized protein KIAA0556		0.00008	1.18
ENSDARG00000055854	Nuclear receptor subfamily 4, group A, member 3	nr4a3	0.03961	1.19
ENSDARG00000074749	ATP-binding cassette, sub-family A (ABC1), member 12	abca12	0.00507	1.19
ENSDARG00000036966	Hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase	hsd3b7	0.03057	1.19
ENSDARG00000022833	Ribosomal protein, large P2	rplp2	0.01674	1.19
ENSDARG00000012468	Acetoacetyl-CoA synthetase	aacs	0.00601	1.19
ENSDARG00000086240	Uncharacterized protein	si:ch211-163m16.6	0.02964	1.19
ENSDARG00000077995	Sushi domain-containing protein 3		0.01267	1.19
ENSDARG00000095331	Uncharacterized protein	si:dkey-26m3.1	0.02450	1.20
ENSDARG00000035768	Phospholipid transfer protein	pltp	0.00221	1.20
ENSDARG00000003244	Guanylate binding protein 3	gbp3	0.00087	1.20
ENSDARG00000091620	Uncharacterized protein	zgc:194906	0.03579	1.20
ENSDARG00000041991	U3 small nucleolar RNA-interacting protein 2		0.00191	1.21
ENSDARG00000075067	Aryl hydrocarbon receptor interacting protein		0.01948	1.21
ENSDARG00000040610	Cystine/glutamate transporter		0.00133	1.21
<u>ENSDARG00000034467</u>			0.01902	1.21
ENSDARG00000075261	Tissue inhibitor of metalloproteinase 2b	timp2b	0.01342	1.22
<u>ENSDARG00000017246</u>	Periaxin	prx	0.00562	1.22
ENSDARG00000052874	Uncharacterized protein	si:dkeyp-52c3.7	0.01436	1.22
<u>ENSDARG00000087966</u>			0.00007	1.23
<u>ENSDARG00000089838</u>	Uncharacterized protein	cu463790.1	0.00621	1.24
ENSDARG00000069453	Uncharacterized protein	zgc:113314	0.01005	1.24
<u>ENSDARG00000089879</u>	Heme-binding protein soul5, like	soul5l	0.00775	1.24
ENSDARG00000032849	NDRG family member 3, isoform CRA_c; Protein NDRG3		0.01774	1.25
ENSDARG00000059308	Golgi transport 1Bb	golt1bb	0.00110	1.25
ENSDARG00000008986	E2F transcription factor 7	e2f7	0.00281	1.25
ENSDARG00000096368	Sialidase 3, tandem duplicate 2		0.00053	1.25
ENSDARG00000015110	Solute carrier family 18 (vesicular monoamine), member 2	slc18a2	0.00626	1.26
ENSDARG00000031001	Protein RRNAD1		0.03836	1.26
ENSDARG00000016866	Family with sequence similarity 102, member Ab	fam102ab	0.00007	1.27
ENSDARG00000056151	Tyrosinase-related protein 1b	tyrp1b	0.03905	1.27
ENSDARG00000095972	Phospholipase A1 member A	pla1a	0.00041	1.27
ENSDARG00000079939	Probable JmjC domain-containing histone demethylation protein 2C		0.00987	1.27
ENSDARG00000026925	Nitric oxide synthase 2a, inducible	nos2a	0.03977	1.27
ENSDARG00000020239	Lipin 1	lpin1	0.00608	1.27
<u>ENSDARG00000086132</u>			0.00260	1.28
<u>ENSDARG00000094500</u>	Uncharacterized protein	si:ch211-238e22.4	0.00628	1.28
ENSDARG00000039684	Sirtuin (silent mating type information regulation 2 homolog) 5 (S. cerevisiae)	sirt5	0.00310	1.28
ENSDARG00000025902	Pleckstrin homology domain containing, family G (with RhoGef domain) member 5a	plekhg5a	0.00047	1.29
ENSDARG00000002564	Synaptogyrin 1a	syng1a	0.00369	1.29
ENSDARG00000077653	Rab-like protein 6		0.03774	1.30
ENSDARG00000033889	SPT2, Suppressor of Ty, domain containing 1 (S. cerevisiae)	spty2d1	0.00458	1.31
ENSDARG00000079637	Alpha-kinase 2	alpk2	0.02790	1.31
ENSDARG00000058218	Protein FAM151A		0.04079	1.31
ENSDARG00000087176	Uncharacterized protein		0.00197	1.32
ENSDARG00000007184	Zinc finger and BTB domain containing 16a	zbtb16a	0.03361	1.32
ENSDARG00000025535	Clathrin interactor 1a	clint1a	0.01484	1.32

ENSDARG00000071252	Sodium channel, voltage-gated, type I, beta b	scn1bb	0.00877	1.33
ENSDARG00000077372	Transferrin receptor 1b	tfr1b	0.00348	1.33
ENSDARG00000088585	Zgc:171242		0.03286	1.33
ENSDARG00000017494	Transforming growth factor, beta receptor 1 a	tgfbr1a	0.00501	1.34
ENSDARG00000031562	Transcriptional adaptor 2A	tada2a	0.00007	1.34
ENSDARG00000052666	Lipopolysaccharide-induced TNF factor	litaf	0.00394	1.35
ENSDARG00000074556	Neutral alpha-glucosidase AB		0.02332	1.37
ENSDARG00000008032	Squamous cell carcinoma antigen recognised by T cells 3	sart3	0.01135	1.38
ENSDARG00000040881	Heterogeneous nuclear ribonucleoprotein H1	hnrnph1	0.00015	1.40
ENSDARG00000020929	Family with sequence similarity 49, member Ba	fam49ba	0.02843	1.41
<u>ENSDARG00000091600</u>			0.02156	1.41
ENSDARG00000076553	Tripartite motif-containing 32	trim32	0.01390	1.41
ENSDARG00000010186	Myosin IIIA	myo3a	0.02646	1.41
ENSDARG00000035810	Regulator of cell cycle	rgcc	0.00817	1.41
ENSDARG00000028846	ADP-ribosylation factor-like 3, like 1	arl3l1	0.00128	1.43
ENSDARG00000088559	Uncharacterized protein	zgc:194906	0.04704	1.43
ENSDARG00000032264	Myeloblastosis oncogene-like 2	mybl2	0.03272	1.44
ENSDARG00000010454	Guanylate cyclase activator 1A	guca1a	0.00385	1.44
<u>ENSDARG00000074381</u>	RhoGEF (ARHGEF) and pleckstrin domain protein 1 (chondrocyte-derived)	farp1	0.00154	1.44
ENSDARG00000071448	Prolyl 3-hydroxylase 2		0.00053	1.45
ENSDARG00000035508	BarH-like 1a	barhl1a	0.01077	1.45
ENSDARG00000078001	Kelch repeat and BTB domain-containing protein 7		0.04609	1.45
ENSDARG00000017803	Glycogen synthase kinase 3 beta	gsk3b	0.00127	1.46
ENSDARG00000053152	Protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1	pcmtd1	0.00818	1.47
ENSDARG00000058305	Myotubularin related protein 3		0.00416	1.48
ENSDARG00000006065	Zinc finger protein 385B	znf385b	0.00597	1.48
ENSDARG00000061993	WD repeat domain 74	wdr74	0.00877	1.48
ENSDARG00000058806	Apolipoprotein A-I binding protein	apoalbp	0.00952	1.49
<u>ENSDARG00000088020</u>			0.01711	1.50
ENSDARG00000025106	Protein phosphatase 3, catalytic subunit, beta isozyme	ppp3cb	0.04107	1.51
ENSDARG00000073793	Uncharacterized protein	zgc:171242	0.00307	1.51
ENSDARG00000041729	Syntrophin, basic 1	sntb1	0.00029	1.51
ENSDARG00000023190	Karyopherin alpha 4 (importin alpha 3)	kpna4	0.01310	1.51
ENSDARG00000034662	Non-SMC element 1 homolog (S. cerevisiae)	nsmce1	0.00083	1.53
ENSDARG00000001244	Serine/arginine repetitive matrix 1	srrm1	0.00893	1.55
ENSDARG00000076693	Crystallin, gamma MX, like 1		0.01210	1.56
ENSDARG00000022675	OTU domain containing 6B	otud6b	0.00038	1.56
<u>ENSDARG00000002758</u>	Death effector domain-containing 1	dedd1	0.03639	1.57
ENSDARG00000021233	6-phosphogluconolactonase	ppls	0.00136	1.57
ENSDARG00000079326	Calcineurin-binding protein cabin-1		0.02048	1.60
ENSDARG00000001975	Hydroxysteroid 11-beta dehydrogenase 2	hsd11b2	0.03545	1.61
<u>ENSDARG00000096050</u>			0.01303	1.62
ENSDARG00000089079	Ribonuclease inhibitor		0.00064	1.62
ENSDARG00000090015	Uncharacterized protein	si:dkeyp-52c3.7	0.01247	1.63
ENSDARG00000086300	Family with sequence similarity 107, member B		0.00616	1.63
<u>ENSDARG00000074106</u>			0.00187	1.63
ENSDARG00000045528	FYVE, RhoGEF and PH domain containing 6	fgd6	0.00596	1.64
ENSDARG00000090901	Uncharacterized protein	zgc:194906	0.00098	1.67
ENSDARG00000003519	Adenine phosphoribosyl transferase	aprt	0.00970	1.67
ENSDARG00000024381	Misato homolog 1 (Drosophila)	msto1	0.00707	1.68
ENSDARG00000079717	RNA-binding protein 12B		0.00106	1.68
ENSDARG00000086830	Uncharacterized protein	zgc:194906	0.01274	1.68
ENSDARG00000089892	Lymphatic vessel endothelial hyaluronic acid receptor 1b		0.00104	1.72
ENSDARG00000075820			0.03810	1.72

ENSDARG00000032327	Ubiquitin specific peptidase 36	usp36	0.00803	1.74
ENSDARG00000018312	RELT-like protein 1		0.03152	1.74
ENSDARG00000086594	Uncharacterized protein	zgc:194906	0.01616	1.75
<u>ENSDARG00000077090</u>	Plexin B2	plxnb2	0.00303	1.76
ENSDARG00000074258	GRAM domain-containing protein 1B		0.00568	1.76
ENSDARG00000017602	Cyclin-G2		0.00021	1.79
ENSDARG00000087365	Uncharacterized protein	zgc:194906	0.02504	1.80
ENSDARG00000038805	Phosphatidylinositol N-acetylglucosaminyltransferase subunit P		0.00034	1.81
ENSDARG00000057855	Mitochondrial ribosomal protein S31	mrps31	0.00466	1.81
ENSDARG00000074446	Uncharacterized protein	zgc:173714	0.00311	1.81
ENSDARG00000092445	Uncharacterized protein C5orf34		0.00254	1.86
ENSDARG00000052859	Calcineurin-like EF hand protein 1	chp1	0.02745	1.86
ENSDARG00000041179	Crystallin, gamma M5	crygm5	0.00718	1.86
ENSDARG00000068245	Acid-sensing (proton-gated) ion channel 1c	asic1c	0.00591	1.87
ENSDARG00000007108	Uncharacterized protein	zgc:91985	0.01333	1.88
ENSDARG00000002546	RUN domain-containing protein 3A		0.00424	1.88
ENSDARG00000016570	Prolactin receptor a	prlra	0.00976	1.92
ENSDARG00000006849	Acid-sensing (proton-gated) ion channel 2	asic2	0.00179	1.93
ENSDARG00000027065	Solute carrier family 38, member 3a	slc38a3a	0.00762	1.96
ENSDARG00000023759	Uncharacterized protein	zgc:73226	0.04516	2.00
ENSDARG00000038378	S-antigen; retina and pineal gland (arrestin) b	sagb	0.00421	2.04
ENSDARG00000079640	Protocadherin 2 gamma 16	pcdh2g16	0.00364	2.11
ENSDARG00000028367	Sulfotransferase family 2, cytosolic sulfotransferase 3	sult2st3	0.00357	2.14
ENSDARG00000023645	Cysteine conjugate-beta lyase; cytoplasmic (glutamine transaminase K, kynurenine aminotransferase)	ccb1	0.00077	2.16
ENSDARG00000041379	Uncharacterized protein	si:ch211-245j22.3	0.01811	2.17
ENSDARG00000003293	SRY-box containing gene 9a	sox9a	0.03586	2.26
ENSDARG00000005670	Tau-tubulin kinase 2		0.00393	2.27
ENSDARG00000011837	Protein C9orf72		0.04849	2.30
ENSDARG00000038123	Myosin, light chain 9a, regulatory	myl9a	0.00064	2.32
ENSDARG00000004470	Protein kinase C substrate 80K-H	prkcsh	0.00035	2.44
ENSDARG00000061093	Pleckstrin homology-like domain, family B, member 1a	phldb1a	0.00047	2.45
ENSDARG00000017835	BRF1 homolog, subunit of RNA polymerase III transcription initiation factor IIIBa	brf1a	0.00179	2.48
ENSDARG00000089875	Uncharacterized protein	si:ch211-226o13.2	0.00327	2.57
<u>ENSDARG00000026904</u>	Cerebellin 13	cbln13	0.00101	2.79
ENSDARG00000010680	Guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 2a	gngt2a	0.00001	2.81
ENSDARG00000056643	Solute carrier family 22 (organic anion transporter), member 7b	slc22a7b	0.00001	2.87
ENSDARG00000095549	Uncharacterized protein	si:dkeyp-106c3.2	0.00151	2.88
ENSDARG00000094038	Uncharacterized protein	si:ch211-226f6.1	0.00044	2.90
ENSDARG00000094869	Uncharacterized protein	si:dkey-5n7.2	0.00052	2.91
ENSDARG00000013613	Annexin A13, like	anxa13l	0.00111	3.04
ENSDARG00000036239	Glycine amidinotransferase (L-arginine:glycine amidinotransferase)	gatm	0.01103	3.34
ENSDARG00000063509	Leucine rich repeat containing 58b	lrrc58b	0.00011	3.45
ENSDARG00000057912	Eukaryotic translation initiation factor 1A, X-linked, b	eif1axb	0.00114	3.51
ENSDARG00000009637	Uncharacterized protein	zgc:73075	0.00012	3.77
ENSDARG00000090616	UPF0705 protein C11orf49		0.00001	4.00
ENSDARG00000074443	Growth arrest-specific protein 7		0.00000	6.90

⁷logE2R<0 means downregulated in transgenic females

Additional File 7. ASIP1-induced DEG in the brain-pituitary axis of female and male zebrafish

ESEMBL ID	Description	Symbol
ENSDARG0000000019	Ubiquitin-conjugating enzyme E2H (UBC8 homolog, yeast)	ube2h
ENSDARG00000000472	Contactin 2	cntn2
ENSDARG00000000540	Asparagine synthetase domain containing 1	asnsd1
ENSDARG00000001169	Hydroxysteroid (17-beta) dehydrogenase 8	hsd17b8
ENSDARG00000001244	Serine/arginine repetitive matrix 1	srsm1
ENSDARG00000001769	Protein tyrosine phosphatase, receptor type, A	ptpra
ENSDARG00000002031	TOX high mobility group box family member 4	
ENSDARG00000002298	Ankyrin repeat domain 22	ankrd22
ENSDARG00000002750	PHD finger protein 20, a	phf20a
ENSDARG00000002758	Death effector domain-containing 1	dedd1
ENSDARG00000002771	Solute carrier family 4, sodium bicarbonate cotransporter, member 5	
ENSDARG00000002826	Centrosomal protein 57-like 1	cep5711
ENSDARG00000003054	Tachykinin receptor 3-like	tacr3l
ENSDARG00000003084	Spire homolog 2 (Drosophila)	spire2
ENSDARG00000003144	Peroxisomal membrane protein 2	pxmp2
ENSDARG00000003257		zgc:101559
ENSDARG00000003293	SRY-box containing gene 9a	sox9a
ENSDARG00000003519	Adenine phosphoribosyl transferase	aprt
ENSDARG00000004171	Rab acceptor 1 (prenylated)	rabac1
ENSDARG00000004306	Kelch-like protein 18	
ENSDARG00000004722	Discoidin domain receptor family, member 2, like	ddr2l
ENSDARG00000004939	Protein LYRIC	
ENSDARG00000005033	Thyroid hormone receptor interactor 4	trip4
ENSDARG00000005823	Solute carrier family 39 (zinc transporter), member 10	slc39a10
ENSDARG00000006065	Zinc finger protein 385B	znf385b
ENSDARG00000006200	Eukaryotic translation initiation factor 4 gamma 1	
ENSDARG00000006468	GRB2-related adaptor protein 2a	grap2a
ENSDARG00000006983	Cugbp, Elav-like family member 3b	celf3b
ENSDARG00000007108	Lipase member H	zgc:91985
ENSDARG00000007127	Acetyl-CoA acetyltransferase 2	acet2
ENSDARG00000007219	Actinin, alpha 1	actn1
ENSDARG00000007425	Apolipoprotein L, 1	apol1
ENSDARG00000007485	Enhancer of polycomb homolog 2 (Drosophila)	epc2
ENSDARG00000008026	Family with sequence similarity 129, member Bb	fam129bb
ENSDARG00000008966	Transducin (beta)-like 1 X-linked receptor 1b	tbl1xr1b
ENSDARG00000009134	H2.0-like homeo box 1 (Drosophila)	hlx1
ENSDARG00000009402	Protein FAM115C	
ENSDARG00000010186	Myosin IIIA	myo3a
ENSDARG00000010382	Carnitine O-acetyltransferase b	cratb
ENSDARG00000010411	Epsin 1	epn1
ENSDARG00000010603	Potassium channel tetramerisation domain containing 9	kctd9
ENSDARG00000010701	Crystallin, gamma S4	crygs4
ENSDARG00000010738	Uncharacterized protein C8orf76	
ENSDARG00000010978	TRNA methyltransferase 1 homolog (S. cerevisiae)	trmt1
ENSDARG00000011113	Cholinergic receptor, nicotinic, alpha 10a	chrna10a
ENSDARG00000011196	DnaJ homolog subfamily C member 11	
ENSDARG00000011208	Cytochrome c oxidase subunit 5B_ mitochondrial	zgc:86599
ENSDARG00000011837	Protein C9orf72	
ENSDARG00000012468	Acetoacetyl-CoA synthetase	aacs
ENSDARG00000012552	Transferrin receptor 1a	
ENSDARG00000012796	Histamine N-methyltransferase	hnmt
ENSDARG00000013082	UDP-N-acetylglucosamine pyrophosphorylase 1, like 1	uap11l
ENSDARG00000013842	TBC1 domain family, member 19	tbc1d19
ENSDARG00000013976	Annexin A13	anxa13
ENSDARG00000014041	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A containing DEAD/H box 1	
ENSDARG00000014303	Vac14 homolog (S. cerevisiae)	vac14
ENSDARG00000014545	Golgi integral membrane protein 4b	golim4b
ENSDARG00000014573	Growth hormone inducible transmembrane protein	ghitm
ENSDARG00000014953	Cornichon homolog 3 (Drosophila)	cnih3
ENSDARG00000015025	Neural adhesion molecule L1.1	nadl1.1
ENSDARG00000015110	Solute carrier family 18 (vesicular monoamine), member 2	slc18a2
ENSDARG00000015657		zgc:77112
ENSDARG00000016044	DNA replication complex GINS protein SLD5	
ENSDARG00000016412	Angiotensinogen	agt
ENSDARG00000016477	Eukaryotic translation initiation factor 4A, isoform 2	eif4a2
ENSDARG00000016481	Protein tyrosine phosphatase, non-receptor type 2, a	ptpn2a
ENSDARG00000016605	Glutamine-rich protein 2	si:ch211-215m21.17
ENSDARG00000017315	La ribonucleoprotein domain family, member 7	larp7
ENSDARG00000017494	Transforming growth factor, beta receptor 1 a	tgfbr1a
ENSDARG00000017602	Cyclin-G2	
ENSDARG00000017835	BRF1 homolog, subunit of RNA polymerase III transcription initiation factor IIIBa	brf1a
ENSDARG00000017864	Thioredoxin reductase 1	txnr1
ENSDARG00000019595	Sentrin-specific protease 8	
ENSDARG00000019976	Isopentenyl-diphosphate delta isomerase 1	idi1

ENSDARG00000020024	Family with sequence similarity 151, member B	fam151b
ENSDARG00000020232	Eukaryotic translation initiation factor 6	eif6
ENSDARG00000020454	Proteasome (prosome, macropain) 26S subunit, non-ATPase, 8	psmd8
ENSDARG00000020596	Family with sequence similarity 73, member A	fam73a
ENSDARG00000020929	Family with sequence similarity 49, member Ba	fam49ba
ENSDARG00000021404	NFU1 iron-sulfur cluster scaffold homolog_ mitochondrial	zgc:110319
ENSDARG00000021433	Acetylserotonin O-methyltransferase-like	asmtl
ENSDARG00000022280	Bromodomain-containing 2a	brd2a
ENSDARG00000022675	OTU domain containing 6B	otud6b
ENSDARG00000023185	Apolipoprotein L, 1	
ENSDARG00000023645	Cysteine conjugate-beta lyase; cytoplasmic (glutamine transaminase K, kynurenine aminotransferase)	ccb11
ENSDARG00000023694	Spondin 1b	spon1b
ENSDARG00000023759	BCL2/adenovirus E1B 19 kDa protein-interacting protein 3-like	zgc:73226
ENSDARG00000024032	Cochlin	
ENSDARG00000024116	Vesicle-associated membrane protein 8 (endobrevin)	vamp8
ENSDARG00000024325	Collagen, type IV, alpha 3 (Goodpasture antigen) binding protein a	col4a3bpa
ENSDARG00000024381	Misato homolog 1 (Drosophila)	msto1
ENSDARG00000024588	Glypican 5	gpc5
ENSDARG00000025535	Clathrin interactor 1a	clint1a
ENSDARG00000025820	CHK2 checkpoint homolog (S. pombe)	chek2
ENSDARG00000025859	Lipase maturation factor 2b	lmf2b
ENSDARG00000025902	Pleckstrin homology domain containing, family G (with RhoGef domain) member 5a	plekhg5a
ENSDARG00000026149	Solute carrier family 46, member 1	slc46a1
ENSDARG00000026821	Transmembrane protein 106Ba	tmem106ba
ENSDARG00000026904	Cerebellin 13	cbln13
ENSDARG00000027065	Solute carrier family 38, member 3a	slc38a3a
ENSDARG00000027552	Mitogen-activated protein kinase 1	mapk1
ENSDARG00000028367	Sulfotransferase family 2, cytosolic sulfotransferase 3	sult2st3
ENSDARG00000029043	Nucleoporin-like protein 2	
ENSDARG00000029172	Polymerase (RNA) I polypeptide A	polr1a
ENSDARG00000030097	Syndecan binding protein (syntenin)	sdcbp
ENSDARG00000030367	Meteorin, glial cell differentiation regulator	metrn
ENSDARG00000031001	Protein RRNAD1	
ENSDARG00000031202	GDP-Man:Man(3)GlcNAc(2)-PP-Dol alpha-1_2-mannosyltransferase	
ENSDARG00000031203	COMM domain-containing protein 1	
ENSDARG00000031427	Calmodulin	
ENSDARG00000031562	Transcriptional adaptor 2A	tada2a
ENSDARG00000031657	Fumarylacetoacetate hydrolase domain containing 1	fahd1
ENSDARG00000032010	Solute carrier family 15 (H ⁺ /peptide transporter), member 2	slc15a2
ENSDARG00000032049	Enabled homolog (Drosophila)	enah
ENSDARG00000032264	Myeloblastosis oncogene-like 2	mybl2
ENSDARG00000032849	NDRG family member 3, isoform CRA_c; Protein NDRG3	
ENSDARG00000033376	Coiled-coil-helix-coiled-coil-helix domain containing 4	chchd4
ENSDARG00000034160	Kanadaplin	
ENSDARG00000034215	RAB42, member RAS oncogene family a	rab42a
ENSDARG00000034662	Non-SMC element 1 homolog (S. cerevisiae)	nsmce1
ENSDARG00000034718	Tissue factor pathway inhibitor a	tfpia
ENSDARG00000035088	GTPase IMAP family member 2	si:ch211-254c8.3
ENSDARG00000035506	Ectonucleoside triphosphate diphosphohydrolase 2a, tandem duplicate 1	entpd2a.1
ENSDARG00000035508	BarH-like 1a	barh1a
ENSDARG00000035558	G protein pathway suppressor 2	gps2
ENSDARG00000035559	Tumor protein p53	tp53
ENSDARG00000035561		
ENSDARG00000035569	Cytochrome P450, family 1, subfamily D, polypeptide 1	cyp1d1
ENSDARG00000035577	CDP-diacylglycerol synthase (phosphatidate cytidyltransferase) 2	cds2
ENSDARG00000035595	FIC domain containing	ficd
ENSDARG00000035596	Iron-sulfur cluster assembly enzyme ISCU, mitochondrial	
ENSDARG00000035700	CDNA FLJ26957 fis_ clone SLV00486	zgc:101664
ENSDARG00000035810	Regulator of cell cycle	rgcc
ENSDARG00000035889	Zinc finger and BTB domain containing 8B	zbtb8b
ENSDARG00000035913	Tyrosyl-tRNA synthetase	yars
ENSDARG00000036036	Midkine-related growth factor	mdka
ENSDARG00000036415	Galactosidase, beta 1	glb1
ENSDARG00000036482	Hexamethylene bis-acetamide inducible 1	hexim1
ENSDARG00000036776	Aldehyde dehydrogenase 8 family, member A1	aldh8a1
ENSDARG00000036785	Histidine-rich carboxyl terminus protein 1 precursor	si:ch211-226m16.2-201
ENSDARG00000036787	ATP-binding cassette, sub-family B (MDR/TAP), member 3 like 1	abcb311
ENSDARG00000036826	Ankyrin repeat domain 52a	ankrd52a
ENSDARG00000037008	Bernardinelli-Seip congenital lipodystrophy 2 (seipin)	bscl2
ENSDARG00000037410	Mediator complex subunit 28	med28
ENSDARG00000038359	Enolase superfamily member 1	enosf1
ENSDARG00000038424	Complement component 4	
ENSDARG00000038458	WAS/WASL-interacting protein family member 1	
ENSDARG00000038754	Polo-like kinase 3 (Drosophila)	plk3
ENSDARG00000038805	Phosphatidylinositol N-acetylglucosaminyltransferase subunit P	
ENSDARG00000039067	Steroid-5-alpha-reductase, alpha polypeptide 2b	srds2b
ENSDARG00000039661	Solute carrier family 36 (proton/amino acid symporter), member 1	

ENSDARG00000039827	Bardet-Biedl syndrome 5	bbs5
ENSDARG00000039913	Transmembrane protein 147	tmem147
ENSDARG00000040039	Pituitary tumor-transforming 1 interacting protein b	pttg1ipb
ENSDARG00000040198	Follistatin-like 5	fstl5
ENSDARG00000040610	Cystine/glutamate transporter	
ENSDARG00000040678	Coiled-coil domain containing 93	ccdc93
ENSDARG00000040822	FUN14 domain containing 1	fundc1
ENSDARG00000040881	Heterogeneous nuclear ribonucleoprotein H1	hnrnph1
ENSDARG00000041179	Crystallin, gamma M5	crygm5
ENSDARG00000041294	NADPH oxidase organizer 1a	noxo1a
ENSDARG00000041505	Integral membrane protein 2Cb	
ENSDARG00000041723	Tubulin, beta 4B class IVb	
ENSDARG00000041728	Mannosidase, alpha, class 1A, member 1	
ENSDARG00000041729	Syntrophin, basic 1	sntb1
ENSDARG00000042332	Perilipin 2	plin2
ENSDARG00000043313	Ankyrin 2b, neuronal	ank2b
ENSDARG00000043446	EF-hand domain family, member D1	efhd1
ENSDARG00000043451	Calcium binding protein 39	cab39
ENSDARG00000043781	Proteasome (prosome, macropain) subunit, beta type, 10	
ENSDARG00000044278	Synaptoporin	synpr
ENSDARG00000044485	Sal-like 4 (Drosophila)	sall4
ENSDARG00000045095	ElaC homolog 1 (E. coli)	elac1
ENSDARG00000046071	Uncharacterized protein C18orf25	
ENSDARG00000051746	Cat eye syndrome chromosome region, candidate 1a	cccr1a
ENSDARG00000052738	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble)	hmgcs1
ENSDARG00000052787	Zinc finger, DHHC-type containing 12b	zdhhc12b
ENSDARG00000052874	GTPase IMAP family member 2	si:dkryp-52c3.7
ENSDARG00000052910	Wingless-type MMTV integration site family, member 8b	
ENSDARG00000052978	Muscleblind-like (Drosophila)	mbn11
ENSDARG00000053383	Reprimo, TP53 dependent G2 arrest mediator candidate a	rprma
ENSDARG00000053744	Doublecortin domain containing 2B	dcdc2b
ENSDARG00000054290	Apoptotic chromatin condensation inducer 1a	acin1a
ENSDARG00000054856	Methyltransferase-like protein 12, mitochondrial	
ENSDARG00000055026	Patched 2	ptch2
ENSDARG00000055159	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 4	cyp27a1.4
ENSDARG00000055639	RuvB-like 2 (E. coli)	ruvb2
ENSDARG00000055787	Double zinc ribbon and ankyrin repeat domains 1	dzank1
ENSDARG00000056262	Solute carrier family 35, member G2a	slc35g2a
ENSDARG00000056643	Solute carrier family 22 (organic anion transporter), member 7b	slc22a7b
ENSDARG00000057324		
ENSDARG00000057439	Metal response element binding transcription factor 2	
ENSDARG00000057855	Mitochondrial ribosomal protein S31	mrps31
ENSDARG00000057912	Eukaryotic translation initiation factor 1A, X-linked, b	eif1axb
ENSDARG00000058218	Protein FAM151A	
ENSDARG00000058230	Ribosomal protein S6 kinase b, polypeptide 1b	rps6kb1b
ENSDARG00000058305	Myotubularin related protein 3	
ENSDARG00000058806	Apolipoprotein A-I binding protein	apoa1bp
ENSDARG00000058841	UDP glucuronosyltransferase 1 family a, b	
ENSDARG00000059028	SRR1 domain containing	srrd
ENSDARG00000059459	UPF0561 protein C2orf68	
ENSDARG00000059919	UPF0420 protein C16orf58	
ENSDARG00000060054	Enhancer of polycomb homolog 1 (Drosophila)	
ENSDARG00000060392	Set1/Ash2 histone methyltransferase complex subunit ASH2	
ENSDARG00000060854	Potassium channel tetramerisation domain containing 3	kctd3
ENSDARG00000060981	Suppressor of IKBKE 1	
ENSDARG00000061093	Pleckstrin homology-like domain, family B, member 1a	phldb1a
ENSDARG00000061211	Spastic paraplegia 20b (Troyer syndrome)	spg20b
ENSDARG00000061348	Adenosine deaminase, tRNA-specific 1	adat1
ENSDARG00000061736	Ankyrin 3a	ank3a
ENSDARG00000061993	WD repeat domain 74	wdr74
ENSDARG00000063252	Proline-rich protein PRCC	
ENSDARG00000063483	RING finger protein 24	zgc:175214
ENSDARG00000063509	Leucine rich repeat containing 58b	lrrc58b
ENSDARG00000067760		
ENSDARG00000067818	Helitron 4 helitron-like transposon replicase/helicase/endonuclease	
ENSDARG00000068256	RWD domain containing 4	rwdd
ENSDARG00000068258	Leucine-rich repeat and calponin homology domain-containing protein 4	
ENSDARG00000068431	NACHT_LRR and PYD domains-containing protein 1	zgc:194906
ENSDARG00000068738	Cytochrome c oxidase subunit Vb 2	cox5b2
ENSDARG00000069281		si:dkry-14a7.4
ENSDARG00000069282	BCL2 binding component 3	bbc3
ENSDARG00000069361	Sperm surface protein Sp17	
ENSDARG00000069765	Ras GTPase-activating protein SynGAP	
ENSDARG00000069832	Sideroflexin 4	sfxn4
ENSDARG00000069934	Poly [ADP-ribose] polymerase 4	
ENSDARG00000070011		si:ch211-167j6.4
ENSDARG00000070278	Methyltransferase like 14	mettl14
ENSDARG00000070287	H3 histone, family 3A	
ENSDARG00000070378		zgc:193706
ENSDARG00000071082	Prolyl 4-hydroxylase, alpha polypeptide I b	p4ha1b

ENSDARG00000071495		si:dkey-236e20.3
ENSDARG00000073732	Myosin, heavy chain 14, non-muscle	myh14
ENSDARG00000073845	CDGSH iron-sulfur domain-containing protein 1	zgc:110843
ENSDARG00000073910	Cyclin-dependent kinase 2-interacting protein	
ENSDARG00000074258	GRAM domain-containing protein 1B	
ENSDARG00000074443	Growth arrest-specific protein 7	
ENSDARG00000074446		zgc:173714
ENSDARG00000074546	NACHT_LRR and PYD domains-containing protein 1	zgc:194906
ENSDARG00000074738	Protocadherin 2 gamma 9	pedh2g9
ENSDARG00000074749	ATP-binding cassette, sub-family A (ABC1), member 12	abca12
ENSDARG00000075008	PAS domain containing serine/threonine kinase	pask
ENSDARG00000075116	Sal-like protein 2	sall2
ENSDARG00000075261	Tissue inhibitor of metalloproteinase 2b	timp2b
ENSDARG00000075485	Kinesin light chain 1a	
ENSDARG00000075690	DDRK domain-containing protein 1	
ENSDARG00000075754	Methylthioribose-1-phosphate isomerase homolog (S. cerevisiae)	mril
ENSDARG00000075980	Transmembrane protein 125	tmem125
ENSDARG00000076092	Solute carrier family 31 (copper transporter), member 2	slc31a2
ENSDARG00000076132	sialic acid binding Ig-like lectin 15, like	siglec15l
ENSDARG00000076553	Tripartite motif-containing 32	trim32
ENSDARG00000076744	Small integral membrane protein 13	
ENSDARG00000076787	Angiopoietin 1	
ENSDARG00000077090	Plexin B2	plxnb2
ENSDARG00000077372	Transferrin receptor 1b	tfr1b
ENSDARG00000077653	Rab-like protein 6	
ENSDARG00000077862	T-lymphocyte activation antigen CD86	
ENSDARG00000078001	Kelch repeat and BTB domain-containing protein 7	
ENSDARG00000078054	Protein Spindly	
ENSDARG00000078095	CLOCK-interacting pacemaker b	cipeb
ENSDARG00000078136	WD repeat-containing protein 47	
ENSDARG00000078507	Wingless-type MMTV integration site family, member 8b	
ENSDARG00000078844	Sterile alpha motif domain-containing protein 3	zgc:171242
ENSDARG00000079124	MTERF domain-containing protein 2	
ENSDARG00000079326	Calcineurin-binding protein cabin-1	
ENSDARG00000079640	Protocadherin 2 gamma 16	pedh2g16
ENSDARG00000079827	S1 RNA binding domain 1	srbd1
ENSDARG00000079939	Probable JmjC domain-containing histone demethylation protein 2C	
ENSDARG00000086014		si:ch211-163m16.6
ENSDARG00000086240	Family with sequence similarity 107, member B	
ENSDARG00000086300		si:ch73-269m14.4
ENSDARG00000086612		si:dkeyp-104h9.7
ENSDARG00000086763		
ENSDARG00000086808	DDHD domain containing 1b	
ENSDARG00000086906	STAM binding protein b	stambpb
ENSDARG00000087181	Chromobox homolog 7a	zgc:194906
ENSDARG00000087499	NACHT_LRR and PYD domains-containing protein 1	
ENSDARG00000087508	CD99 antigen-like protein 2	cd99l2
ENSDARG00000087537	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog	
ENSDARG00000088013	Cytochrome P450, family 27, subfamily A, polypeptide 7	
ENSDARG00000088366		zgc:77938
ENSDARG00000088463	Caseinolytic peptidase B protein homolog	
ENSDARG00000088585	Sterile alpha motif domain-containing protein 3	zgc:171242
ENSDARG00000089256		
ENSDARG00000089426	NOP10 ribonucleoprotein homolog (yeast)	nop10
ENSDARG00000089838	cu463790.1	
ENSDARG00000089879		
ENSDARG00000089892	Lymphatic vessel endothelial hyaluronic acid receptor 1b	
ENSDARG00000090015	GTPase IMAP family member 2	si:dkeyp-52c3.7
ENSDARG00000090461	NACHT_LRR and PYD domains-containing protein 1	zgc:194906
ENSDARG00000090638	Platelet glycoprotein IX	
ENSDARG00000091009		zgc:194906
ENSDARG00000091620	NACHT_LRR and PYD domains-containing protein 1	
ENSDARG00000091625		im:7160159
ENSDARG00000091656	N-alpha-acetyltransferase 38, NatC auxiliary subunit	
ENSDARG00000092134	RAD54 homolog B (S. cerevisiae)	rad54b
ENSDARG00000092234		si:dkey-179a6.2
ENSDARG00000092404	Lactase	
ENSDARG00000092445	Uncharacterized protein C5orf34	
ENSDARG00000093043	UDP glucuronosyltransferase 1 family a, b	
ENSDARG00000093364	Myotubularin related protein 3	mtmr3
ENSDARG00000093458	Serine protease 56-like	si:dkey-76d14.2
ENSDARG00000093475		si:ch211-214c11.7
ENSDARG00000093747		si:dkey-122c11.1
ENSDARG00000094020		si:ch211-214c11.8
ENSDARG00000094038		si:ch211-226f6.1
ENSDARG00000094439	Transmembrane protein 176l.3a	tmem176l.3a
ENSDARG00000094500		
ENSDARG00000094869		si:dkey-5n7.2
ENSDARG00000095179	Heme-binding protein soul5, like	soul5l

ENSDARG00000095212	Protein FAM115C	
ENSDARG00000095249		si:ch211-196n4.5
ENSDARG00000095369		zgc:112970
ENSDARG00000095464	Glutathione S-transferase theta-2	zgc:66350
ENSDARG00000095549		si:dkeyp-106c3.2
ENSDARG00000095821		si:dkey-122a22.2
ENSDARG00000095983	DnaJ (Hsp40) homolog, subfamily A, member 3A	
ENSDARG00000096050		
ENSDARG00000096059		si:dkeyp-85d8.3
ENSDARG00000096189		si:dkey-54j5.2
ENSDARG00000096305		
ENSDARG00000096368	Sialidase 3, tandem duplicate 2	
ENSDARG00000096668	Mitotic-spindle organizing protein 1	
ENSDARG00000028312		si:dkey-10h3.2

78 logE2R<0 means downregulated in females or upregulated in males

Additional File 8. ASIP1-induced DEG only in the brain-pituitary axis of male zebrafish

ESEMBL ID	Description	Symbol	<i>t</i>	log2ER
ENSDARG00000094133	Uncharacterized protein	wu:fc21g02	0.0003	-3.56
ENSDARG00000086612		si:ch73-269m14.4	0.0000	-3.28
ENSDARG00000095179		si:ch211-235fl.3-001	0.0002	-3.22
ENSDARG00000069734	Hemoglobin subunit gamma-2	zgc:92880	0.0117	-3.03
ENSDARG00000026821	Transmembrane protein 106Ba	tmem106ba	0.0005	-2.96
ENSDARG00000011555	Sperm associated antigen 7	spag7	0.0353	-2.56
ENSDARG00000016538	Ovochymase-1 precursor	zgc:55888-001	0.0006	-2.56
ENSDARG00000051746	Cat eye syndrome chromosome region, candidate 1a	cecr1a	0.0024	-2.55
ENSDARG00000024032	Cochlin		0.0000	-2.47
ENSDARG00000091009	Probable E3 ubiquitin-protein ligase TRIML1	si:ch211-28p3.4	0.0012	-2.47
ENSDARG00000075485	Kinesin light chain 1a		0.0000	-2.35
ENSDARG00000003281	Phosphoinositide-3-kinase interacting protein 1	pik3ip1	0.0307	-2.29
ENSDARG00000052978	Muscleblind-like (Drosophila)	mbn1l	0.0050	-2.23
ENSDARG00000077310	G protein-coupled receptor 144	gpr144	0.0015	-2.21
ENSDARG00000096668	Mitotic-spindle organizing protein 1		0.0003	-2.19
ENSDARG00000091656	N-alpha-acetyltransferase 38, NatC auxiliary subunit		0.0000	-2.12
ENSDARG00000016477	Eukaryotic translation initiation factor 4A, isoform 2	eif4a2	0.0030	-2.11
ENSDARG00000086763		si:dkeyp-104h9.7	0.0004	-2.10
ENSDARG00000027572	Arsenic (+3 oxidation state) methyltransferase	as3mt	0.0004	-2.09
ENSDARG00000063483		zgc:175214	0.0001	-2.05
ENSDARG00000020596	Family with sequence similarity 73, member A	fam73a	0.0046	-2.01
ENSDARG00000035913	Tyrosyl-tRNA synthetase	yars	0.0320	-1.99
ENSDARG00000086842	Death associated protein 1b	dap1b	0.0030	-1.87
ENSDARG00000089667	Microfibril-associated glycoprotein 4		0.0260	-1.86
ENSDARG00000078908	F-box only protein 41		0.0163	-1.82
ENSDARG00000036895	Death associated protein 1b	dap1b	0.0040	-1.81
ENSDARG00000009208	Protein kinase C, delta a	prkcda	0.0453	-1.80
ENSDARG00000004722	Discoidin domain receptor family, member 2, like	ddr2l	0.0000	-1.78
ENSDARG00000006983	Cugbp, Elav-like family member 3b	celf3b	0.0276	-1.75
ENSDARG00000041505	Integral membrane protein 2Cb		0.0025	-1.75
ENSDARG000000041199	Asparagine-linked glycosylation 12 homolog (yeast, alpha-1,6-mannosyltransferase)	alg12	0.0074	-1.74
ENSDARG00000003142	Dachshund c	dachc	0.0026	-1.73
ENSDARG00000092404	Lactase		0.0109	-1.73
ENSDARG000000061409	Basic immunoglobulin-like variable motif-containing protein		0.0140	-1.72
ENSDARG00000086706	C6H16orf45-201		0.0011	-1.72
ENSDARG00000014041	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A containing DEAD/H box 1		0.0074	-1.72
ENSDARG000000041728	Mannosidase, alpha, class 1A, member 1		0.0080	-1.72
ENSDARG00000011809	Microtubule associated monooxygenase, calponin and LIM domain containing 1	micall	0.0005	-1.71
ENSDARG00000095876	EGF-like-domain, multiple 6	egfl6	0.0036	-1.71
ENSDARG00000039067	Steroid-5-alpha-reductase, alpha polypeptide 2b	srd5a2b	0.0031	-1.71
ENSDARG00000008107	V-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)	src	0.0019	-1.69
ENSDARG00000022971	Eph receptor A6	epha6	0.0021	-1.67
ENSDARG00000087061	Sterile alpha motif domain-containing protein 3	zgc:171242	0.0109	-1.66
ENSDARG00000079230	Sorbin and SH3 domain-containing protein 1		0.0436	-1.65
ENSDARG00000079500	Kinesin family member 3Cb	kif3cb	0.0450	-1.65
ENSDARG00000026039	Cytochrome P450, family 1, subfamily A	cyp1a	0.0199	-1.64
ENSDARG00000036482	Hexamethylene bis-acetamide inducible 1	hexim1	0.0018	-1.64
ENSDARG00000025859	Lipase maturation factor 2b	lmf2b	0.0001	-1.64
ENSDARG00000067760			0.0011	-1.62
ENSDARG00000086985	Kinesin light chain 1a		0.0051	-1.62
ENSDARG00000069281		si:dkey-14a7.4	0.0104	-1.62
ENSDARG00000070705		zgc:64022	0.0019	-1.61
ENSDARG00000094020		si:ch211-214c11.8	0.0010	-1.61
ENSDARG00000095249		si:ch211-196n4.5	0.0018	-1.60
ENSDARG00000032010	Solute carrier family 15 (H ⁺ /peptide transporter), member 2	slc15a2	0.0252	-1.59
ENSDARG00000070490	DC-STAMP domain-containing protein 2	si:dkeyp-75b4.7	0.0099	-1.59
ENSDARG00000091627		si:dkey-27lj15.3	0.0120	-1.58
ENSDARG00000095983	DnaJ (Hsp40) homolog, subfamily A, member 3A		0.0171	-1.58
ENSDARG00000068738	Cytochrome c oxidase subunit Vb 2	cox5b2	0.0004	-1.58
ENSDARG00000075116	Sal-like protein 2	sall2	0.0012	-1.58
ENSDARG00000086974			0.0109	-1.57
ENSDARG00000090708	DC-STAMP domain-containing protein 2	si:dkey-28g23.6	0.0082	-1.56
ENSDARG00000000540	Asparagine synthetase domain containing 1	asnsd1	0.0269	-1.56
ENSDARG00000088452	Sterile alpha motif domain-containing protein 3	zgc:171242	0.0118	-1.56
ENSDARG00000093475		si:ch211-214c11.7	0.0006	-1.54

ENSDARG00000035569	Cytochrome P450, family 1, subfamily D, polypeptide 1	cyp1d1	0.0029	-1.54
ENSDARG00000078078	Leucine-rich repeat and fibronectin type-III domain-containing protein 4	lrfn4b	0.0029	-1.54
ENSDARG00000044278	Synaptoporin	synpr	0.0139	-1.54
ENSDARG00000095338		si:ch211-214c11.3	0.0055	-1.54
ENSDARG00000087102		si:ch1073-164k15.3	0.0115	-1.53
ENSDARG000000069361	Sperm surface protein Sp17		0.0031	-1.53
ENSDARG00000030938	Fermitin family member 3b	fermt3b	0.0011	-1.53
ENSDARG00000088141	DC-STAMP domain-containing protein 2	cu570684.4	0.0050	-1.53
ENSDARG00000016256		zgc:171242	0.0316	-1.52
ENSDARG000000086873			0.0059	-1.52
ENSDARG00000089331	Urate (5-hydroxyiso-) hydrolase		0.0149	-1.52
ENSDARG00000095464	Glutathione S-transferase theta-2	zgc:66350	0.0014	-1.51
ENSDARG00000003144	Peroxisomal membrane protein 2	pxmp2	0.0220	-1.51
ENSDARG00000013861	Armadillo repeat containing 1	armc1	0.0034	-1.50
ENSDARG00000068628	RAB8B, member RAS oncogene family	rab8b	0.0064	-1.50
ENSDARG00000010433	Rho GTPase-activating protein 44	si:ch211-114m9.1	0.0188	-1.50
ENSDARG00000022832	BCL2/adenovirus E1B interacting protein 4	bnip4	0.0031	-1.50
ENSDARG00000054290	Apoptotic chromatin condensation inducer 1a	acin1a	0.0222	-1.50
ENSDARG00000070844	Guanidinoacetate N-methyltransferase	gamt	0.0177	-1.49
ENSDARG00000027355	Solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 4	slc25a4	0.0176	-1.48
ENSDARG00000046085	Claudin domain-containing protein 1		0.0018	-1.48
ENSDARG000000088599	Syntaxin binding protein 1a		0.0323	-1.48
ENSDARG00000002031	TOX high mobility group box family member 4		0.0496	-1.48
ENSDARG00000078844	Sterile alpha motif domain-containing protein 3	zgc:171242	0.0017	-1.47
ENSDARG00000034215	RAB42, member RAS oncogene family a	rab42a	0.0013	-1.46
ENSDARG00000077989	Sterile alpha motif domain-containing protein 3	zgc:171242	0.0096	-1.46
ENSDARG00000093317	DC-STAMP domain-containing protein 2	si:ch211-209j10.6	0.0116	-1.46
ENSDARG00000043446	EF-hand domain family, member D1	efhd1	0.0363	-1.46
ENSDARG00000088013	Cytochrome P450, family 27, subfamily A, polypeptide 7		0.0099	-1.46
ENSDARG00000092997			0.0434	-1.46
ENSDARG00000053383	Reprimo, TP53 dependent G2 arrest mediator candidate a	rprma	0.0004	-1.45
ENSDARG00000087499	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.0408	-1.43
ENSDARG00000068431	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.0035	-1.43
ENSDARG00000026335	Sushi domain-containing protein 4		0.0431	-1.43
ENSDARG00000095094	FXYD domain containing ion transport regulator 6	fxyd6	0.0402	-1.42
ENSDARG00000069438	Neuralized homolog a (Drosophila)	neurla	0.0276	-1.42
ENSDARG00000038693	Guanine nucleotide binding protein (G protein), gamma 7	gng7	0.0380	-1.42
ENSDARG00000039649	Mitochondrial translational initiation factor 3	mtif3	0.0075	-1.41
ENSDARG00000014953	Cornichon homolog 3 (Drosophila)	cnih3	0.0003	-1.41
ENSDARG00000000472	Contactin 2	cntn2	0.0176	-1.39
ENSDARG00000034056	Casein kinase 1, gamma 2b	csnk1g2b	0.0025	-1.39
ENSDARG00000078359		si:dkey-222f8.3	0.0109	-1.39
ENSDARG00000096355	Immunoglobulin heavy constant mu	ighm	0.0342	-1.39
ENSDARG00000020024	Family with sequence similarity 151, member B	fam151b	0.0250	-1.38
ENSDARG00000075754	Methylthioribose-1-phosphate isomerase homolog (S. cerevisiae)	mril	0.0340	-1.38
ENSDARG00000089021	DC-STAMP domain-containing protein 2	si:dkey-7f16.3	0.0060	-1.38
ENSDARG00000076494	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.0021	-1.37
ENSDARG00000086809	Sterile alpha motif domain-containing protein 3	zgc:171242	0.0081	-1.37
ENSDARG00000086015		bx537109.1	0.0056	-1.36
ENSDARG00000055159	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 4	cyp27a1.4	0.0127	-1.35
ENSDARG00000035558	G protein pathway suppressor 2	gps2	0.0007	-1.35
ENSDARG00000002750	PHD finger protein 20, a	phf20a	0.0019	-1.34
ENSDARG00000005150	T-box 20	tbx20	0.0236	-1.34
ENSDARG00000035595	FIC domain containing	ficd	0.0025	-1.34
ENSDARG00000023299	NHP2 non-histone chromosome protein 2-like 1b (S. cerevisiae)	nhp211b	0.0238	-1.33
ENSDARG00000074546	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.0013	-1.31
ENSDARG00000061211	Spastic paraplegia 20b (Troyer syndrome)	spg20b	0.0056	-1.31
ENSDARG0000007496	UFM1-specific ligase 1	ufl1	0.0365	-1.29
ENSDARG00000087627			0.0113	-1.28
ENSDARG00000004687	Acetyl-Coenzyme A acyltransferase 1	acaal	0.0076	-1.27
ENSDARG000000056833	SV2 related protein homolog a (rat)	svopa	0.0009	-1.27
ENSDARG00000041294	NADPH oxidase organizer 1a	nox1a	0.0403	-1.27
ENSDARG00000041998		zgc:113337	0.0198	-1.26
ENSDARG00000003631	Clock homolog 3 (mouse)	clock3	0.0039	-1.26
ENSDARG00000060392	Set1/Ash2 histone methyltransferase complex		0.0486	-1.26

ENSDARG00000034160	subunit ASH2		0.0021	-1.26
ENSDARG00000038475	Kanadaplin		0.0002	-1.26
ENSDARG00000060767	Aminoacylase 1	acy1	0.0136	-1.26
	Smg-7 homolog, nonsense mediated mRNA decay factor (C. elegans)	smg7		
ENSDARG0000004636	Coiled-coil domain-containing protein 9		0.0054	-1.25
ENSDARG0000003054	Tachykinin receptor 3-like	tacr31	0.0099	-1.25
ENSDARG00000036415	Galactosidase, beta 1	glb1	0.0154	-1.25
ENSDARG00000092234		si:dkey-179a6.2	0.0009	-1.25
ENSDARG00000075908	ArfGAP with GTPase domain, ankyrin repeat and PH domain 3	agap3	0.0030	-1.24
ENSDARG00000052910	Wingless-type MMTV integration site family, member 8b		0.0047	-1.24
ENSDARG00000089923	Leucine rich repeat neuronal 1		0.0251	-1.24
ENSDARG00000029043	Nucleoporin-like protein 2		0.0040	-1.23
ENSDARG00000040039	Pituitary tumor-transforming 1 interacting protein b	pttg1ipb	0.0139	-1.23
ENSDARG00000040705	Glutaminase b	glsb	0.0087	-1.23
ENSDARG00000090975	DC-STAMP domain-containing protein 2	cr848032.1	0.0357	-1.23
ENSDARG00000030384	Spire homolog 2 (Drosophila)	spire2	0.0116	-1.23
ENSDARG00000019595	Sentrin-specific protease 8		0.0081	-1.23
ENSDARG00000074084	Striatin interacting protein 1	strip1	0.0000	-1.23
ENSDARG00000002391	TLC domain containing 1	tlcd1	0.0018	-1.22
ENSDARG00000096305			0.0013	-1.22
ENSDARG000000039093	Glutamic-oxaloacetic transaminase 1, soluble	got1	0.0120	-1.22
ENSDARG00000076780	Acyl-CoA dehydrogenase, short/branched chain	acadsb	0.0361	-1.21
ENSDARG00000058675	Phosphatase, orphan 2	phospho2	0.0148	-1.21
ENSDARG00000031439	Glutaredoxin 3	glrx3	0.0093	-1.20
ENSDARG000000058841	UDP glucuronosyltransferase 1 family a, b		0.0040	-1.19
ENSDARG00000091377	Galanin peptides		0.0022	-1.19
ENSDARG00000087514			0.0286	-1.19
ENSDARG00000038981		zgc:153615	0.0367	-1.19
ENSDARG00000052787	Zinc finger, DHHC-type containing 12b	zdhhc12b	0.0001	-1.19
ENSDARG00000077761	Neuroigin 4b	nlg4b	0.0077	-1.18
ENSDARG00000095533		si:ch211-198c19.3	0.0176	-1.18
ENSDARG00000008966	Transducin (beta)-like 1 X-linked receptor 1b	tbl1xr1b	0.0190	-1.17
ENSDARG00000087537	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.0087	-1.17
ENSDARG00000020232	Eukaryotic translation initiation factor 6	eif6	0.0460	-1.16
ENSDARG00000009134	H2.0-like homeo box 1 (Drosophila)	hlx1	0.0029	-1.16
ENSDARG00000011208	Cytochrome c oxidase subunit 5B mitochondrial	zgc:86599	0.0045	-1.16
ENSDARG00000078136	WD repeat-containing protein 47		0.0003	-1.16
ENSDARG00000040123	Zinc finger protein, multitype 2a	zfp2a	0.0006	-1.16
ENSDARG0000000087128	Peptidyl-prolyl cis-trans isomerase D		0.0075	-1.15
ENSDARG00000070378		zgc:193706	0.0006	-1.15
ENSDARG00000075008	PAS domain containing serine/threonine kinase	pask	0.0060	-1.15
ENSDARG00000086808	DDHD domain containing 1b		0.0050	-1.15
ENSDARG000000061479	Thrombospondin, type 1, domain containing 7A	thsd7a	0.0045	-1.15
ENSDARG00000079741	Cysteine/serine-rich nuclear protein 2		0.0020	-1.14
ENSDARG00000055565	Calcium channel, voltage-dependent, beta 2b	cacnb2b	0.0098	-1.14
ENSDARG00000089256			0.0157	-1.14
ENSDARG00000037639	NK3 homeobox 2	nkx3.2	0.0133	-1.14
ENSDARG00000075859	Mcf.2 cell line derived transforming sequence-like a	mcf2la	0.0234	-1.14
ENSDARG00000073732	Myosin, heavy chain 14, non-muscle	myh14	0.0151	-1.14
ENSDARG00000086813			0.0117	-1.13
ENSDARG000000031044	Lipase, endothelial	lipg	0.0411	-1.13
ENSDARG00000014545	Golgi integral membrane protein 4b	golim4b	0.0007	-1.13
ENSDARG00000002298	Ankyrin repeat domain 22	ankrd22	0.0289	-1.13
ENSDARG00000055585	Core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase, 1a	c1galt1a	0.0348	-1.12
ENSDARG00000006200	Eukaryotic translation initiation factor 4 gamma 1		0.0093	-1.12
ENSDARG00000031202	Asparagine-linked glycosylation 11	alg11	0.0034	-1.12
ENSDARG00000028721	Mitogen-activated protein kinase 14b	mapk14b	0.0238	-1.12
ENSDARG00000070116	Nitrilase 1	nit1	0.0007	-1.12
ENSDARG00000070278	Methyltransferase like 14	mettl14	0.0045	-1.12
ENSDARG00000017315	La ribonucleoprotein domain family, member 7	larp7	0.0012	-1.11
ENSDARG00000087508	CD99 antigen-like protein 2	cd99l2	0.0150	-1.11
ENSDARG00000044056	Abelson helper integration site 1	ah1	0.0497	-1.11
ENSDARG00000093043	UDP glucuronosyltransferase 1 family a, b		0.0278	-1.10
ENSDARG00000089426	NOP10 ribonucleoprotein homolog (yeast)	nop10	0.0001	-1.10
ENSDARG000000052482	Rho guanine nucleotide exchange factor (GEF) 11	arhgef11	0.0296	-1.09
ENSDARG00000069186	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 2	cyp27a1.2	0.0036	-1.09
ENSDARG00000086906	STAM binding protein b	stambpb	0.0006	-1.09

ENSDARG00000068910	Nitric oxide synthase 1 (neuronal)	nos1	0.0027	-1.09
ENSDARG00000031657	Fumarylacetoacetate hydrolase domain containing 1	fahd1	0.0079	-1.08
ENSDARG00000035852	Cocaine- and amphetamine-regulated transcript 2	cart2b	0.0008	-1.08
ENSDARG00000010382	Carnitine O-acetyltransferase b	cratb	0.0004	-1.08
ENSDARG00000088463	Caseinolytic peptidase B protein homolog		0.0250	-1.08
ENSDARG00000013125	Distal-less homeobox gene 1a	dlx1a	0.0308	-1.08
ENSDARG00000010155	Abl-interactor 1a	abi1a	0.0116	-1.08
ENSDARG00000069934	Poly [ADP-ribose] polymerase 4		0.0460	-1.08
ENSDARG00000043210	Nuclear factor 1 C-type		0.0026	-1.07
ENSDARG00000032131	Dopamine receptor D3	drd3	0.0163	-1.07
ENSDARG0000004306	Kelch-like protein 18		0.0002	-1.07
ENSDARG00000096059		si:dkeyp-85d8.3	0.0011	-1.06
ENSDARG00000063677	Cyclin Y	ccny	0.0239	-1.06
ENSDARG00000076224	Lymphocyte function-associated antigen 3		0.0005	-1.06
ENSDARG00000079584		zgc:194930	0.0003	-1.06
ENSDARG00000095821		si:dkey-122a22.2	0.0078	-1.05
ENSDARG00000067818	Helentron 4 helitron-like transposon replicase/helicase/endonuclease		0.0136	-1.05
ENSDARG00000079171	Ryanodine receptor 2a (cardiac)	ryr2a	0.0420	-1.05
ENSDARG00000030756	DNA (cytosine-5-)-methyltransferase 1	dnmt1	0.0156	-1.04
ENSDARG00000078262	Protocadherin 1 gamma 26		0.0093	-1.04
ENSDARG00000041723	Tubulin, beta 4B class IVb		0.0405	-1.04
ENSDARG00000090145	Transmembrane protein 240	tmem240b	0.0039	-1.04
ENSDARG00000069737	POU domain, class 4, transcription factor 2	pou4f2	0.0006	-1.04
ENSDARG00000070939		zgc:175171	0.0005	-1.03
ENSDARG00000005690	Solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 25a		0.0401	-1.03
ENSDARG00000090391	UDP glucuronosyltransferase 1 family a, b		0.0038	-1.03
ENSDARG00000033376	Coiled-coil-helix-coiled-coil-helix domain containing 4	chchd4	0.0040	-1.02
ENSDARG00000074705	Myosin phosphatase Rho-interacting protein		0.0209	-1.02
ENSDARG00000040523	Sphingomyelin phosphodiesterase 2a, neutral	smpd2a	0.0450	-1.02
ENSDARG00000011600	Eph receptor A4b	epha4b	0.0153	-1.01
ENSDARG00000090068	Uncharacterized protein C9orf117		0.0326	-1.01
ENSDARG00000011197	UDP glucuronosyltransferase 1 family a, b		0.0472	-1.01
ENSDARG00000010791	DeltaA	dla	0.0121	-1.01
ENSDARG00000059738	Protein tyrosine phosphatase, receptor type, s, a	ptprsa	0.0118	-1.01
ENSDARG00000069832	Sideroflexin 4	sfxn4	0.0004	-1.01
ENSDARG00000037008	Bernardinelli-Seip congenital lipodystrophy 2 (seipin)	bseip2	0.0358	-1.01
ENSDARG00000056531	Nuclear transport factor 2	nutf2	0.0050	-1.01
ENSDARG00000090656	AT-rich interactive domain-containing protein 4B		0.0070	-1.01
ENSDARG00000002991	Testis specific, 10		0.0028	-1.00
ENSDARG00000016605	Glutamine-rich protein 2	si:ch211-215m21.17	0.0093	-1.00
ENSDARG00000039181	Transient receptor potential cation channel, subfamily M, member 3	trpm3	0.0031	-1.00
ENSDARG00000055639	RuvB-like 2 (E. coli)	ruvb2	0.0154	-1.00
ENSDARG00000059459	UPF0561 protein C2orf68		0.0031	-0.99
ENSDARG00000034685	Transmembrane protein 198b	tmem198b	0.0035	-0.99
ENSDARG00000060197	ATPase, Ca ⁺⁺ transporting, type 2C, member 1	atp2c1	0.0004	-0.99
ENSDARG00000059048	Myelin protein zero-like 1 like	mpz11	0.0109	-0.99
ENSDARG00000010411	Epsin 1	epn1	0.0108	-0.99
ENSDARG00000074905	Calcium/calmodulin-dependent protein kinase 1Da	camk1da	0.0016	-0.99
ENSDARG00000079651	AFG3-like protein 2		0.0142	-0.98
ENSDARG00000016412	Angiotensinogen	agt	0.0015	-0.98
ENSDARG00000036567	Arylalkylamine N-acetyltransferase 1	aanat1	0.0248	-0.98
ENSDARG000000029356	Membrane bound O-acyltransferase domain containing 1	mboat1	0.0345	-0.98
ENSDARG00000077648	Folliculin-interacting protein 2		0.0064	-0.98
ENSDARG00000011317	Adrenergic, alpha-1Ab, receptor		0.0265	-0.98
ENSDARG00000039642	V-type proton ATPase subunit e 1		0.0251	-0.98
ENSDARG00000016651	Zinc finger protein 106a	znf106a	0.0152	-0.97
ENSDARG00000087517	BTB (POZ) domain containing 6b		0.0104	-0.97
ENSDARG00000016399	RIO kinase 1 (yeast)	riok1	0.0026	-0.97
ENSDARG0000007517	Homer homolog 1b (Drosophila)	homer1b	0.0279	-0.97
ENSDARG00000043246	Zinc finger protein 609	znf609	0.0380	-0.97
ENSDARG00000020764	Sarcolemma associated protein b	slmapb	0.0481	-0.97
ENSDARG00000017542	Fibroblast growth factor 1a	fgf1a	0.0012	-0.97
ENSDARG00000034534	ATPase, H ⁺ transporting, lysosomal V1 subunit Aa	atp6v1aa	0.0013	-0.97
ENSDARG00000036911	Secretory carrier membrane protein 1	scamp1	0.0049	-0.97
ENSDARG000000007753	Copine-3		0.0217	-0.96
ENSDARG00000078485	Syntaphilin a	snpha	0.0331	-0.96
ENSDARG00000018190	ArsA arsenite transporter, ATP-binding, homolog 1 (bacterial)	asna1	0.0086	-0.95
ENSDARG00000042620		zgc:162356	0.0174	-0.95

ENSDARG00000014573	Growth hormone inducible transmembrane protein	ghitm	0.0258	-0.94
ENSDARG00000078619	Purine nucleoside phosphorylase 5a	pnp5a	0.0111	-0.94
ENSDARG00000018270	Olfactomedin 1a	olfm1a	0.0225	-0.94
ENSDARG00000075334	Rho GTPase-activating protein 33		0.0103	-0.94
ENSDARG00000091215	Rapunzel2	rpz2	0.0008	-0.94
ENSDARG00000006120	T-box 2b	tbx2b	0.0074	-0.94
ENSDARG00000070730	Gamma-aminobutyric acid (GABA) A receptor, alpha 5	gabra5	0.0241	-0.94
ENSDARG00000036593	Lysine (K)-specific demethylase 2Ba	kdm2ba	0.0008	-0.94
ENSDARG00000093199	Pregnancy zone protein	si:dkey-46g23.5	0.0115	-0.94
ENSDARG00000078768	Abhydrolase domain-containing protein 15		0.0145	-0.94
ENSDARG00000044902	ATPase, Ca ⁺⁺ transporting, plasma membrane 4	atp2b4	0.0017	-0.93
ENSDARG00000037410	Mediator complex subunit 28	med28	0.0012	-0.93
ENSDARG00000008372	Sprouty-related, EVH1 domain containing 2b	spred2b	0.0071	-0.93
ENSDARG00000061348	Adenosine deaminase, tRNA-specific 1	adat1	0.0189	-0.93
ENSDARG00000061806	Protein transport protein Sec24C	si:dkey-13n15.2	0.0003	-0.93
ENSDARG00000093414		si:dkey-50i6.5	0.0103	-0.93
ENSDARG00000075115	Protocadherin 1 gamma 26		0.0139	-0.92
ENSDARG00000056163	Solute carrier family 25 member 51	zgc:73228	0.0187	-0.92
ENSDARG00000039997	Protein tyrosine phosphatase type IVA, member 3	ptp4a3	0.0104	-0.92
ENSDARG00000055026	Patched 2	ptch2	0.0004	-0.92
ENSDARG00000020136	Prostaglandin E synthase	ptges	0.0115	-0.92
ENSDARG00000043241	Arrestin, beta 1	arrb1	0.0249	-0.92
ENSDARG00000086099	Lysosome membrane protein 2		0.0337	-0.92
ENSDARG00000010462	Sp9 transcription factor	sp9	0.0331	-0.91
ENSDARG00000003903	Hyaluronan and proteoglycan link protein 2	hapln2	0.0201	-0.91
ENSDARG000000089610	Pre-B-cell leukemia transcription factor 1a	pbx1a	0.0471	-0.91
ENSDARG00000044719	Neurensin 1	nrsn1	0.0257	-0.91
ENSDARG00000073845	CDGSH iron-sulfur domain-containing protein 1	zgc:110843	0.0165	-0.91
ENSDARG00000019976	Isopentenyl-diphosphate delta isomerase 1	idi1	0.0112	-0.91
ENSDARG000000041915	Uncharacterized membrane protein C1orf95		0.0110	-0.91
ENSDARG00000030621	Tyrosine hydroxylase	th	0.0288	-0.91
ENSDARG00000024325	Collagen, type IV, alpha 3 (Goodpasture antigen) binding protein a	col4a3bpa	0.0139	-0.91
ENSDARG00000095971			0.0123	-0.90
ENSDARG00000030367	Meteorin, glial cell differentiation regulator	metrn	0.0197	-0.90
ENSDARG00000035561			0.0010	-0.90
ENSDARG00000077817	CXXC finger 4	cxxc4	0.0310	-0.90
ENSDARG00000010978	TRNA methyltransferase 1 homolog (S. cerevisiae)	trmt1	0.0251	-0.90
ENSDARG00000092390		si:dkey-6f10.4	0.0009	-0.90
ENSDARG00000055899	Leucine zipper and CTNBP1 domain containing	lzic	0.0041	-0.90
ENSDARG00000056262	Solute carrier family 35, member G2a	slc35g2a	0.0355	-0.90
ENSDARG00000015429	Ras homolog gene family, member Ac	rhoac	0.0099	-0.90
ENSDARG00000004939	Protein LYRIC		0.0073	-0.90
ENSDARG00000039041	Secreted frizzled-related protein 5	sfrp5	0.0233	-0.89
ENSDARG00000040815	Tsukushi small leucine rich proteoglycan homolog (Xenopus laevis)	tsku	0.0024	-0.89
ENSDARG00000027600	PDZ and LIM domain 5b	pdlim5b	0.0303	-0.89
ENSDARG00000036383	Sodium/potassium/calcium exchanger 4	si:ch73-335m24.5	0.0072	-0.89
ENSDARG000000060372	Plexin A3		0.0231	-0.89
ENSDARG00000073910	Cyclin-dependent kinase 2-interacting protein		0.0107	-0.89
ENSDARG00000020454	Proteasome (prosome, macropain) 26S subunit, non-ATPase, 8	psmd8	0.0112	-0.89
ENSDARG00000044298	Phosphorylated adaptor for RNA export	phax	0.0134	-0.89
ENSDARG00000053652	NADH dehydrogenase (ubiquinone) complex I, assembly factor 6	ndufaf6	0.0460	-0.88
ENSDARG00000069619	Activating transcription factor 7 interacting protein	atf7ip	0.0277	-0.88
ENSDARG00000053366	FinTRIM family, member 12	fr12	0.0002	-0.87
ENSDARG00000003109	Regulator of calcineurin 1a	rcan1a	0.0021	-0.87
ENSDARG00000075474		si:dkey-15h8.11	0.0102	-0.87
ENSDARG00000012572	Polymerase (RNA) III (DNA directed) polypeptide F	polr3f	0.0012	-0.87
ENSDARG00000040008	Neurogenic differentiation 6a	neurod6a	0.0425	-0.87
ENSDARG00000069765	Ras GTPase-activating protein SynGAP		0.0002	-0.87
ENSDARG00000039827	Bardet-Biedl syndrome 5	bbs5	0.0011	-0.87
ENSDARG00000045958	Nephronectin		0.0075	-0.87
ENSDARG00000013976	Annexin A13	anxa13	0.0039	-0.87
ENSDARG00000076718	Protein kinase, interferon-inducible double stranded RNA dependent activator	prkra	0.0269	-0.86
ENSDARG00000039661	Solute carrier family 36 (proton/amino acid symporter), member 1		0.0211	-0.86
ENSDARG00000037099	Insulin receptor substrate 2		0.0124	-0.86
ENSDARG00000003257		zgc:101559	0.0070	-0.86
ENSDARG00000075098	WD repeat-containing protein 17		0.0043	-0.86
ENSDARG00000036371	Actin, alpha 1a, skeletal muscle	acta1a	0.0141	-0.86

ENSDARG00000052738	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble)	hmgcs1	0.0058	-0.86
ENSDARG00000075260	Protocadherin 1 gamma 9		0.0133	-0.86
ENSDARG00000061419	Zinc finger, matrin type 4b	zmat4b	0.0081	-0.86
ENSDARG00000060901	Tripartite motif containing 62	trim62	0.0394	-0.86
ENSDARG00000010555	Pyruvate dehydrogenase (lipoamide) alpha 1b	pdha1b	0.0473	-0.86
ENSDARG00000031702	Protein kinase, cGMP-dependent, type Ia		0.0070	-0.85
ENSDARG000000559923	Solute carrier family 25, member 47a	slc25a47a	0.0136	-0.85
ENSDARG00000028982	Propionyl-Coenzyme A carboxylase, alpha polypeptide	pcca	0.0036	-0.85
ENSDARG00000045414	Elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 2	elov12	0.0026	-0.85
ENSDARG00000051986	NADH dehydrogenase (ubiquinone) Fe-S protein 8a	ndufs8a	0.0212	-0.85
ENSDARG00000069910	General transcription factor IIF, polypeptide 2a	gtf2f2a	0.0329	-0.85
ENSDARG00000010738	Uncharacterized protein C8orf76		0.0193	-0.85
ENSDARG00000093724		si:dkey-54g2.2	0.0005	-0.84
ENSDARG00000074738	Protocadherin 2 gamma 9	pcdh2g9	0.0080	-0.84
ENSDARG00000061214	Lipin 2	lipin2	0.0341	-0.84
ENSDARG00000010658	Insulin induced gene 1	insig1	0.0113	-0.84
ENSDARG00000010434	Clusterin	clu	0.0112	-0.84
ENSDARG00000052247	Alpha-ketoglutarate-dependent dioxygenase alkB homolog 4		0.0194	-0.84
ENSDARG00000056797	Protein phosphatase 2 (formerly 2A), regulatory subunit B, gamma isoform	ppp2r2c	0.0037	-0.84
ENSDARG00000054856	Methyltransferase-like protein 12, mitochondrial		0.0094	-0.84
ENSDARG00000035559	Tumor protein p53	tp53	0.0005	-0.83
ENSDARG00000037682	Protocadherin 1 gamma 9		0.0037	-0.83
ENSDARG00000058585	Carbohydrate sulfotransferase 2		0.0042	-0.83
ENSDARG00000031600	Retinal degeneration 3	rd3	0.0019	-0.83
ENSDARG00000038695	ELAV (embryonic lethal, abnormal vision, Drosophila)-like 1 (Hu antigen R)	elav1	0.0345	-0.83
ENSDARG00000067848	Nicotinamide riboside kinase 2	nmrk2	0.0189	-0.83
ENSDARG00000039613	Polymerase (DNA directed), lambda	poll	0.0104	-0.83
ENSDARG00000055705	Coagulation factor V	f5	0.0438	-0.83
ENSDARG00000059423	Prune homolog 2 (Drosophila)	prune2	0.0010	-0.82
ENSDARG00000094504	Pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 1		0.0316	-0.82
ENSDARG00000051857	Testis derived transcript (3 LIM domains)	tes	0.0071	-0.82
ENSDARG00000096594	Lecithin retinol acyltransferase		0.0148	-0.82
ENSDARG00000060054	Enhancer of polycomb homolog 1 (Drosophila)		0.0440	-0.82
ENSDARG000000015252	ST3 beta-galactoside alpha-2,3-sialyltransferase 3b	st3gal3b	0.0015	-0.82
ENSDARG00000045798	Pleiotrophin	ptn	0.0367	-0.82
ENSDARG00000061636	G protein-activated inward rectifier potassium channel 3		0.0086	-0.82
ENSDARG00000006468	GRB2-related adaptor protein 2a	grap2a	0.0015	-0.82
ENSDARG00000078132	Testis expressed 2		0.0260	-0.82
ENSDARG00000053517	Echinoderm microtubule-associated protein-like 5		0.0099	-0.82
ENSDARG00000035562	Mannose-P-dolichol utilization defect 1a	mpdu1a	0.0012	-0.82
ENSDARG00000001559	CUB and sushi domain-containing protein 2		0.0485	-0.82
ENSDARG00000006074	Uridine-cytidine kinase 2a	uck2a	0.0168	-0.82
ENSDARG00000013302	Glutathione peroxidase 7		0.0465	-0.82
ENSDARG00000087671	Netrin 4	ntn4	0.0082	-0.82
ENSDARG00000045200	Dual specificity phosphatase 19		0.0001	-0.81
ENSDARG00000045706	Tetraspanin 9b	tspan9b	0.0102	-0.81
ENSDARG00000090660	Microtubule-associated protein 7 domain containing 1a		0.0278	-0.81
ENSDARG00000089194	Translational activator of cytochrome c oxidase 1		0.0315	-0.81
ENSDARG00000036096	MAD homolog 3a (Drosophila)	smad3a	0.0203	-0.81
ENSDARG00000045027	RAB9A, member RAS oncogene family	rab9a	0.0408	-0.81
ENSDARG00000021433	Acetylserotonin O-methyltransferase-like	asmtl	0.0020	-0.81
ENSDARG00000005916	Serine/arginine-rich protein specific kinase 3	srpk3	0.0145	-0.81
ENSDARG00000017220	OTU domain containing 7B	otud7b	0.0103	-0.81
ENSDARG00000076343		si:dkeyp-13d11.1	0.0004	-0.81
ENSDARG00000010946	Cystathionine-beta-synthase b	cbsb	0.0076	-0.81
ENSDARG00000010844	V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog	kras	0.0077	-0.81
ENSDARG00000017864	Thioredoxin reductase 1	txnr1	0.0095	-0.80
ENSDARG00000030078	GLI pathogenesis-related 1b	glipr1b	0.0367	-0.80
ENSDARG00000074727	DnaJ (Hsp40) homolog, subfamily C, member 10	dnajc10	0.0028	-0.80
ENSDARG00000013351	Cold inducible RNA binding protein	cirbp	0.0264	-0.80
ENSDARG00000009950	Endothelial differentiation-related factor 1	edfl	0.0038	-0.80
ENSDARG00000061006	Neuferricin		0.0084	-0.80
ENSDARG00000001549	Sp3a transcription factor	sp3a	0.0037	-0.80
ENSDARG00000039913	Transmembrane protein 147	tmem147	0.0024	-0.80
ENSDARG00000033567	FK506 binding protein 1Ab	fkbp1ab	0.0007	-0.80

ENSDARG00000090064	Transmembrane protein 179		0.0187	-0.79
ENSDARG00000086207	Glutamate receptor, ionotropic, N-methyl D-aspartate 2D, a	grin2da	0.0083	-0.79
ENSDARG00000058230	Ribosomal protein S6 kinase b, polypeptide 1b	rps6kb1b	0.0379	-0.79
ENSDARG00000016476	Ornithine decarboxylase antizyme 1b	oaz1b	0.0227	-0.79
ENSDARG00000076997	Syntaxin-binding protein 4		0.0114	-0.79
ENSDARG00000053961	Solute carrier family 2 (facilitated glucose transporter), member 11-like		0.0378	-0.79
ENSDARG00000031795	ATP-binding cassette, sub-family F (GCN20), member 1	abcf1	0.0109	-0.79
ENSDARG00000087426		c1h20orf27	0.0265	-0.79
ENSDARG00000053776	DNA cross-link repair 1A (PSO2 homolog, S. cerevisiae)	dclre1a	0.0095	-0.79
ENSDARG00000009534	Wntless homolog (Drosophila)	wls	0.0442	-0.79
ENSDARG00000039871	Rapunzel 4	rpz4	0.0293	-0.78
ENSDARG00000012796	Histamine N-methyltransferase	hnmt	0.0083	-0.78
ENSDARG00000056949	5-hydroxytryptamine receptor 7 [5-HT-7]	si:dkeyp-66d7.5	0.0253	-0.78
ENSDARG00000076044	Thyrotropin-releasing hormone-degrading ectoenzyme		0.0125	-0.78
ENSDARG00000086326	Serine/threonine-protein phosphatase 6 regulatory ankyrin repeat subunit A-like	ankrd28	0.0131	-0.78
ENSDARG00000038500	Centrosomal protein 41	cep41	0.0378	-0.78
ENSDARG00000015546	Alkaline phosphatase, liver/bone/kidney	alpl	0.0198	-0.78
ENSDARG00000015747	Alanyl-tRNA synthetase domain containing 1	aarsd1	0.0002	-0.78
ENSDARG00000059832	Brain-specific angiogenesis inhibitor 3	bai3	0.0112	-0.78
ENSDARG00000069946	Integrin, alpha 6b	itga6b	0.0102	-0.78
ENSDARG00000070959		si:ch211-288g17.3	0.0222	-0.78
ENSDARG00000025820	CHK2 checkpoint homolog (S. pombe)	chek2	0.0021	-0.77
ENSDARG00000038789	Transmembrane protein 53	tmem53	0.0004	-0.77
ENSDARG00000029989	Adenylate cyclase activating polypeptide 1 receptor 1a	adcyap1r1a	0.0057	-0.77
ENSDARG00000035161	Protein kinase domain containing, cytoplasmic		0.0023	-0.77
ENSDARG00000078507	Wingless-type MMTV integration site family, member 8b		0.0056	-0.77
ENSDARG00000095776	Holocytochrome c synthetase a, like	hccsal	0.0295	-0.77
ENSDARG00000019945	Protein tyrosine phosphatase, receptor type, D, b	ptprdb	0.0475	-0.77
ENSDARG00000071890	Protocadherin 2 gamma 7	pcdh2g7	0.0219	-0.77
ENSDARG00000069745	Solute carrier family 35, member F2	slc35f2	0.0031	-0.77
ENSDARG00000041921	Heat shock factor binding protein 1b	hsbp1b	0.0055	-0.77
ENSDARG00000031015	Dystrobrevin, alpha	dtna	0.0075	-0.77
ENSDARG00000036695	Transcription elongation factor B (SIII), polypeptide 3		0.0394	-0.77
ENSDARG00000002546	RUN domain-containing protein 3A		0.0094	-0.76
ENSDARG00000033957	TRNA methyltransferase 44 homolog (S. cerevisiae)	trmt44	0.0075	-0.76
ENSDARG00000001835	Sodium leak channel, non-selective	nalcn	0.0071	-0.76
ENSDARG00000005033	Thyroid hormone receptor interactor 4	trip4	0.0010	-0.76
ENSDARG00000089399	Transmembrane protein 176L2	tmem176L2	0.0021	-0.76
ENSDARG00000076744	Small integral membrane protein 13		0.0196	-0.76
ENSDARG00000055843	Cadherin 10, type 2 (T2-cadherin)	cdh10	0.0367	-0.76
ENSDARG00000075763	NACHT_LRR and PYD domains-containing protein 1	zgc:194906	0.0440	-0.76
ENSDARG00000029133	Tubulin, gamma complex associated protein 3	tubgcp3	0.0374	-0.76
ENSDARG00000063035	Neurotrophic tyrosine kinase, receptor, type 3a		0.0044	-0.76
ENSDARG00000014487	Solute carrier family 35, member F3b		0.0048	-0.76
ENSDARG00000000019	Ubiquitin-conjugating enzyme E2H (UBC8 homolog, yeast)	ube2h	0.0333	-0.76
ENSDARG00000091528	Gamma-glutamyltransferase 7		0.0056	-0.75
ENSDARG00000040678	Coiled-coil domain containing 93	ccdc93	0.0106	-0.75
ENSDARG00000026764	Alpha-2-HS-glycoprotein	ahsg	0.0053	-0.75
ENSDARG00000036159	Thyrotropin-releasing hormone receptor b	trhrb	0.0245	-0.75
ENSDARG00000077092	ELK4, ETS-domain protein	elk4	0.0079	-0.75
ENSDARG00000041776	N-deacetylase/N-sulfotransferase (heparan glucosaminyl) 3	ndst3	0.0381	-0.75
ENSDARG00000041065	Heat shock protein, alpha-crystallin-related, 1	hspb1	0.0026	-0.75
ENSDARG00000070047	Regulator of G-protein signalling 4	rgs4	0.0027	-0.75
ENSDARG00000021846	Protein HID1		0.0062	-0.75
ENSDARG00000007127	Acetyl-CoA acetyltransferase 2	acat2	0.0365	-0.75
ENSDARG00000024116	Vesicle-associated membrane protein 8 (endobrevin)	vamp8	0.0131	-0.75
ENSDARG00000069134	Von Willebrand factor C domain-containing protein 2-like	vwc2l	0.0033	-0.75
ENSDARG00000087352	Dynein heavy chain 2, axonemal		0.0325	-0.74
ENSDARG00000034264	Odd Oz/ten-m homolog 4	odz4	0.0020	-0.74
ENSDARG00000031427	Calmodulin		0.0200	-0.74
ENSDARG000000040198	Follistatin-like 5	fstl5	0.0474	-0.74
ENSDARG00000021916	Ventral anterior homeobox 1	vax1	0.0004	-0.74
ENSDARG00000063682	FH1/FH2 domain-containing protein 3		0.0148	-0.74
ENSDARG00000035873	Four-jointed box protein 1		0.0027	-0.74
ENSDARG00000042291	Distal-less homeobox gene 6a	dlx6a	0.0036	-0.74

ENSDARG00000014532	Axin interaction partner and dorsalization antagonist	aida	0.0056	-0.74
ENSDARG00000062510	B-cell CLL/lymphoma 11Ba (zinc finger protein)	bc111ba	0.0190	-0.74
ENSDARG00000077343	Protocadherin 1 gamma 9		0.0020	-0.74
ENSDARG00000040799	Somatostatin 1, tandem duplicate 1	sst1.1	0.0328	-0.74
ENSDARG00000069823	Protein interacting with cyclin A1	proca1	0.0265	-0.74
ENSDARG00000093215	Protocadherin 1 alpha 4	pcdh1a4	0.0156	-0.74
ENSDARG00000031098	Translocase of inner mitochondrial membrane 50 homolog (yeast)	tim50	0.0141	-0.73
ENSDARG00000069241	Tetratricopeptide repeat protein 32		0.0315	-0.73
ENSDARG00000062056	ELMO/CED-12 domain containing 1	elmod1	0.0493	-0.73
ENSDARG00000033660		zgc:112054	0.0079	-0.73
ENSDARG00000025187	Sine oculis-related homeobox 6a	six6a	0.0258	-0.73
ENSDARG00000029402	Sortilin 1a	sort1a	0.0348	-0.73
ENSDARG00000000018	Nuclear respiratory factor 1	nrf1	0.0002	-0.73
ENSDARG00000070011		si:ch211-167j6.4	0.0020	-0.73
ENSDARG00000062013	Thyrotropin-releasing hormone-degrading ectoenzyme		0.0122	-0.73
ENSDARG00000043662	Cornichon homolog 2 (Drosophila)	cnih2	0.0277	-0.73
ENSDARG00000086130		zgc:194906	0.0394	-0.73
ENSDARG00000016044	DNA replication complex GINS protein SLD5		0.0065	-0.73
ENSDARG00000039385	Discs, large homolog 4 (Drosophila)	dlg4	0.0193	-0.73
ENSDARG00000059028	SRR1 domain containing	srrd	0.0295	-0.73
ENSDARG00000068663		zgc:152951	0.0060	-0.72
ENSDARG00000043451	Calcium binding protein 39	cab39	0.0273	-0.72
ENSDARG00000063684	Protein phosphatase, Mg ²⁺ /Mn ²⁺ dependent, 1H	ppm1h	0.0063	-0.72
ENSDARG00000071345	Microsomal glutathione S-transferase 2	mgst2	0.0493	-0.72
ENSDARG00000019341	Glypican-1		0.0263	-0.72
ENSDARG00000014439	Diacylglycerol kinase, zeta a	dgkza	0.0320	-0.72
ENSDARG00000020872	Nuclear factor of activated T-cells 5, tonicity-responsive	nfat5	0.0325	-0.72
ENSDARG00000027657	Corticotropin releasing hormone b	crhb	0.0160	-0.72
ENSDARG00000032049	Enabled homolog (Drosophila)	enah	0.0009	-0.72
ENSDARG00000074909	DDB1- and CUL4-associated factor 17		0.0135	-0.72
ENSDARG00000019951	SEC62 homolog (S. cerevisiae)	sec62	0.0047	-0.72
ENSDARG00000032111	Mitochondrial fission process protein 1		0.0200	-0.72
ENSDARG00000076395	NME/NM23 family member 8	nme8	0.0037	-0.71
ENSDARG00000003444	Dehydrogenase/reductase (SDR family) member 7	dhrs7	0.0214	-0.71
ENSDARG00000055787	Double zinc ribbon and ankyrin repeat domains 1	dzank1	0.0374	-0.71
ENSDARG00000002790	Adaptor-related protein complex 2, mu 1 subunit, a	ap2m1a	0.0343	-0.71
ENSDARG00000061761	Optic atrophy 3	opa3	0.0476	-0.71
ENSDARG00000075152	Oxysterol binding protein-like 10		0.0342	-0.71
ENSDARG00000059474	MLX interacting protein	mlxip	0.0146	-0.71
ENSDARG00000059919	UPF0420 protein C16orf58		0.0074	-0.71
ENSDARG00000054683	PR domain containing 8b	prdm8b	0.0152	-0.71
ENSDARG00000062271	Solute carrier family 25 (mitochondrial carrier; ornithine transporter) member 15b	slc25a15b	0.0046	-0.71
ENSDARG00000079827	S1 RNA binding domain 1	srbd1	0.0010	-0.71
ENSDARG00000068369	Angiopoietin-like 2b	angptl2b	0.0083	-0.71
ENSDARG00000059485	Embigin		0.0209	-0.71
ENSDARG00000054560	Hairy-related 4, tandem duplicate 4		0.0062	-0.71
ENSDARG00000062198	Pericentriolar material 1 protein		0.0453	-0.71
ENSDARG0000008218	Zinc finger protein 410	znf410	0.0232	-0.71
ENSDARG00000025953	Ras homolog gene family, member Q	rhoq	0.0192	-0.71
ENSDARG00000018111	Jumonji C domain containing histone demethylase 1 homolog Da (S. cerevisiae)	jhdml1da	0.0452	-0.71
ENSDARG00000036036	Midkine-related growth factor	mdka	0.0051	-0.71
ENSDARG00000075532	Solute carrier family 4, sodium borate transporter, member 11	slc4a11	0.0095	-0.70
ENSDARG00000092476		si:rp71-1fl.4	0.0107	-0.70
ENSDARG00000040178	Hepatitis A virus cellular receptor 1	haver1	0.0357	-0.70
ENSDARG00000061647	Neurexin 1a	nrxn1a	0.0039	-0.70
ENSDARG00000025595	Alkylglycerol monooxygenase	agmo	0.0004	-0.70
ENSDARG00000077047	Protein tyrosine phosphatase, receptor type, Nb	ptprnb	0.0456	-0.70
ENSDARG00000027041	Protocadherin 17	pcdh17	0.0242	-0.70
ENSDARG00000040684	Phospholipase C, delta 4b	plcd4b	0.0092	-0.70
ENSDARG00000067908	Family with sequence similarity 177, member A1		0.0062	-0.70
ENSDARG00000094506		si:dkey-199m13.5	0.0132	-0.70
ENSDARG00000078054	Protein Spindly		0.0092	-0.70
ENSDARG00000042659	Thymocyte nuclear protein 1	thyn1	0.0145	0.70
ENSDARG00000076773	Leucine rich repeat containing 58b		0.0453	0.70
ENSDARG00000073848	Rho guanine nucleotide exchange factor (GEF) 7b	arhgef7b	0.0051	0.70
ENSDARG00000029075	6-phosphofructo-2-kinase/fructose-2,6-	pfkfb41	0.0117	0.70

ENSDARG00000056986	biphosphatase 4, like Dapper homolog 2, antagonist of beta-catenin (xenopus)	dact2	0.0060	0.70
ENSDARG00000070287	H3 histone, family 3A		0.0064	0.70
ENSDARG00000062049	Histocompatibility (minor) HA-1	hmha1	0.0421	0.71
ENSDARG00000030097	Syndecan binding protein (syntenin)	sdcbp	0.0382	0.71
ENSDARG00000090838	Mitochondrial ribosomal protein S22	mrps22	0.0333	0.71
ENSDARG000000089393	Leucyl-tRNA synthetase 2, mitochondrial		0.0070	0.71
ENSDARG00000087510		si:dkey-122c11.6	0.0085	0.71
ENSDARG00000061951	Golgi autoantigen, golgin subfamily b, macrogolgin (with transmembrane signal), 1	golgb1	0.0206	0.71
ENSDARG00000078411	Heat shock protein, alpha-crystallin-related, b15	hsbp15	0.0216	0.71
ENSDARG00000078754	Granulito	gra	0.0208	0.71
ENSDARG00000095743	SRY-box containing gene 11b	sox11b	0.0000	0.71
ENSDARG00000025903	Lectin, galactoside-binding, soluble, 9 (galectin 9)-like 1	lgals911	0.0158	0.71
ENSDARG00000019233	Neurolysin (metallopeptidase M3 family)	nln	0.0205	0.71
ENSDARG00000023694	Spondin 1b	spon1b	0.0106	0.72
ENSDARG00000016048	1-acylglycerol-3-phosphate O-acyltransferase 9	agpat9	0.0070	0.72
ENSDARG00000060005	Mitochondrial translational release factor 1-like	mtrfl1	0.0362	0.72
ENSDARG00000025854	DEAD (Asp-Glu-Ala-Asp) box polypeptide 51	ddx51	0.0005	0.72
ENSDARG00000017602	Cyclin-G2		0.0326	0.72
ENSDARG00000036781	HAUS augmin-like complex subunit 2		0.0315	0.72
ENSDARG0000004218	Rho family GTPase 1 like	rnd11	0.0165	0.72
ENSDARG00000071082	Prolyl 4-hydroxylase, alpha polypeptide I b	p4ha1b	0.0094	0.72
ENSDARG00000087059	Family with sequence similarity 213, member Aa		0.0234	0.72
ENSDARG00000007603	Syntaxin binding protein 2	stxbp2	0.0007	0.72
ENSDARG00000014274	Replication factor C (activator 1) 2	rfc2	0.0090	0.72
ENSDARG00000037675	Nucleophosmin/nucleoplamin, 1b	npm1b	0.0059	0.72
ENSDARG00000045980	Cystatin-A	zgc:153129	0.0020	0.72
ENSDARG00000013477	GATA binding protein 1a	gata1a	0.0291	0.72
ENSDARG00000068903	SDA1 domain containing 1	sdad1	0.0035	0.72
ENSDARG00000014592	DENN domain-containing protein 1A		0.0351	0.72
ENSDARG00000012005	MOB kinase activator 2		0.0217	0.72
ENSDARG00000017794	Short chain dehydrogenase/reductase family 16C, member 5b	sdr16c5b	0.0189	0.72
ENSDARG00000015907	Discoidin, CUB and LCCL domain containing 1	debld1	0.0225	0.72
ENSDARG00000043986	SET domain containing 6	setd6	0.0114	0.72
ENSDARG00000076362	Transmembrane protein 260		0.0335	0.73
ENSDARG00000018806	Cathepsin C	ctsc	0.0469	0.73
ENSDARG00000075120	Coiled-coil and C2 domain-containing protein 1B		0.0117	0.73
ENSDARG00000063252	Proline-rich protein PRCC		0.0002	0.73
ENSDARG00000093179		si:dkey-79c1.1	0.0313	0.73
ENSDARG00000078055	Adrenocortical dysplasia homolog	acd	0.0163	0.73
ENSDARG00000094999		si:ch211-254p10.3	0.0104	0.73
ENSDARG00000096013	Zinc finger protein 112	si:ch211-229110.11	0.0105	0.73
ENSDARG00000006600	LSM14 homolog Aa (SCD6, S. cerevisiae)	lsm14aa	0.0034	0.73
ENSDARG00000056888	Dynein heavy chain 5, axonemal		0.0105	0.73
ENSDARG00000000529	Oral-facial-digital syndrome 1	ofd1	0.0040	0.73
ENSDARG00000071558	Filamin-binding LIM protein 1		0.0139	0.73
ENSDARG00000016481	Protein tyrosine phosphatase, non-receptor type 2, a	ptpn2a	0.0153	0.74
ENSDARG00000091511	Glutathione peroxidase 7	gpx7	0.0476	0.74
ENSDARG00000028800	Cytohesin 1b		0.0283	0.74
ENSDARG00000045033	BCL2/adenovirus E1B interacting protein 3	bnip3	0.0399	0.74
ENSDARG00000002300	Purinergic receptor P2X, ligand-gated ion channel, 2	p2rx2	0.0109	0.74
ENSDARG00000053119	Sphingomyelin phosphodiesterase, acid-like 3A	smpdl3a	0.0012	0.74
ENSDARG00000035150		si:dkey-261j4.4	0.0289	0.74
ENSDARG00000076507	H2A histone family, member X		0.0258	0.74
ENSDARG000000061736	Ankyrin 3a	ank3a	0.0250	0.74
ENSDARG00000061314	Neugrin		0.0041	0.74
ENSDARG00000052086	Zinc finger protein 112	zgc:174928	0.0102	0.74
ENSDARG00000089033	Protein RRNAD1		0.0098	0.74
ENSDARG00000059115	F-box protein 7	fbxo7	0.0196	0.74
ENSDARG00000087181	Chromobox homolog 7a		0.0139	0.74
ENSDARG00000054259	N-acetyltransferase 10	nat10	0.0084	0.74
ENSDARG00000027143	Aprataxin	aptx	0.0000	0.74
ENSDARG00000010701	Crystallin, gamma S4	crygs4	0.0038	0.75
ENSDARG00000031814	Dehydrogenase/reductase (SDR family) member 13b	dhrs13b	0.0195	0.75
ENSDARG00000016375	Asparagine synthetase	asns	0.0002	0.75
ENSDARG00000093823			0.0026	0.75
ENSDARG000000060169	Meiosis-specific nuclear structural 1	mns1	0.0329	0.75
ENSDARG00000087854	Histone H2B type 1-J	zgc:112234	0.0113	0.75
ENSDARG00000037933	Potassium voltage-gated channel, Shaw-related subfamily, member 3b	kcnc3b	0.0292	0.75
ENSDARG00000016415	Dehydrogenase E1 and transketolase domain	dhtkd1	0.0134	0.75

ENSDARG00000076297	containing 1 Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 3a	nfatc3a	0.0373	0.75
ENSDARG00000039364		zgc:113019	0.0005	0.75
ENSDARG00000086296		si:ch211-209p16.1	0.0267	0.75
ENSDARG00000036787	ATP-binding cassette, sub-family B (MDR/TAP), member 3 like 1	abcb311	0.0030	0.75
ENSDARG00000040303	Nibrin	nbn	0.0427	0.75
ENSDARG00000062971	Succinate dehydrogenase complex assembly factor 2	sdha2	0.0398	0.75
ENSDARG00000071095	ABI family, member 3 (NESH) binding protein	abi3bp	0.0309	0.75
ENSDARG00000039483	RING finger protein 24	si:dkey-51a16.9	0.0003	0.75
ENSDARG00000042927	Microtubule-associated protein, RP/EB family, member 1a	mapr1a	0.0013	0.75
ENSDARG00000093042		si:dkey-104n9.1	0.0006	0.76
ENSDARG00000014303	Vac14 homolog (<i>S. cerevisiae</i>)	vac14	0.0319	0.76
ENSDARG00000042933	Biogenesis of lysosomal organelles complex-1, subunit 6, pallidin	bloc1s6	0.0056	0.76
ENSDARG00000032056	ADP-ribosylation factor-like 6	arl6	0.0032	0.76
ENSDARG00000044809	Folylpolyglutamate synthase	fpgs	0.0414	0.76
ENSDARG00000036420		cr376787.1	0.0003	0.76
ENSDARG00000062349	Rho GTPase activating protein 15	arhgap15	0.0032	0.76
ENSDARG00000075664	Lamin-B receptor	si:ch1073-429i10.1	0.0072	0.76
ENSDARG00000042496	Poly (ADP-ribose) polymerase family, member 12a	parp12a	0.0272	0.76
ENSDARG00000053802	Cerebellin 8		0.0105	0.76
ENSDARG00000018810	Zinc finger CCHC domain-containing protein 4		0.0067	0.76
ENSDARG00000093783	Uncharacterized protein C3orf30		0.0312	0.76
ENSDARG00000013596	Bromodomain containing 1a	brd1a	0.0370	0.77
ENSDARG00000061547	Histone H4	zgc:153409	0.0013	0.77
ENSDARG00000075980	Transmembrane protein 125	tmem125	0.0049	0.77
ENSDARG00000075347	Checkpoint with forkhead and ring finger domains, E3 ubiquitin protein ligase	chfr	0.0055	0.77
ENSDARG00000086332	Brain protein I3	bri3	0.0139	0.77
ENSDARG00000061394	Bromodomain adjacent to zinc finger domain, 1B	baz1b	0.0215	0.77
ENSDARG00000074806	Actin filament-associated protein 1-like 2		0.0005	0.77
ENSDARG00000000729	Death-associated protein 6	daxx	0.0010	0.77
ENSDARG00000078014	Protein kinase C and casein kinase substrate in neurons 2	pacsin2	0.0046	0.77
ENSDARG00000040072	Serine carboxypeptidase 1	scepe1	0.0185	0.77
ENSDARG00000055739	RIB43A-like with coiled-coils protein 2		0.0141	0.77
ENSDARG00000003820	Nuclear receptor subfamily 1, group D, member 2a	nr1d2a	0.0264	0.77
ENSDARG00000035596	Iron-sulfur cluster assembly enzyme ISCU, mitochondrial		0.0010	0.77
ENSDARG00000058613	Protein geranylgeranyltransferase type I, beta subunit	pggt1b	0.0004	0.77
ENSDARG00000005841	Troponin I, skeletal, fast 2a, tandem duplicate 2	tnni2a.2	0.0335	0.78
ENSDARG00000044694	FYN binding protein	fyb	0.0068	0.78
ENSDARG00000051957	Selenoprotein M	selm	0.0008	0.78
ENSDARG00000058325	Caspase 8, apoptosis-related cysteine peptidase	casp8	0.0083	0.78
ENSDARG00000088366		zgc:77938	0.0375	0.78
ENSDARG00000037097	Solute carrier family 7 (cationic amino acid transporter, y ⁺ system), member 2	slc7a2	0.0175	0.78
ENSDARG00000011837	Protein C9orf72		0.0052	0.78
ENSDARG00000005832	Anaphase promoting complex subunit 2	anapc2	0.0090	0.78
ENSDARG00000010070	A disintegrin and metalloproteinase domain 9	adam9	0.0012	0.78
ENSDARG000000090521	Histone H4	zgc:153409	0.0142	0.78
ENSDARG00000075291		si:rp71-36n21.1	0.0268	0.78
ENSDARG000000027465	Required for meiotic nuclear division 1 homolog (<i>S. cerevisiae</i>)	rmnd1	0.0031	0.78
ENSDARG00000053509	Kazal-type serine peptidase inhibitor domain 3	kazald3	0.0175	0.78
ENSDARG00000055290	Macrophage expressed 1	mpeg1	0.0027	0.78
ENSDARG00000086704	Centromere protein U		0.0334	0.78
ENSDARG00000079818	Helicase, POLQ-like	helq	0.0026	0.78
ENSGMOG00000018839	Ryanodine receptor 1a (skeletal)		0.0183	0.79
ENSDARG00000086434			0.0153	0.79
ENSDARG00000006546	Adenylate kinase 4	ak4	0.0137	0.79
ENSDARG00000095744		si:dkey-269i1.4	0.0441	0.79
ENSDARG00000095072		si:dkey-26g8.4	0.0291	0.79
ENSDARG00000012729	Hematopoietic cell-specific Lyn substrate 1	hcls1	0.0208	0.79
ENSDARG00000030064	Pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 1	plekha1	0.0463	0.79
ENSDARG00000003835	Stomatin	stom	0.0253	0.79
ENSDARG000000044544		zgc:110782	0.0134	0.79
ENSDARG00000030949	Signal recognition particle receptor subunit beta		0.0497	0.79
ENSDARG000000086855	Zinc finger protein 32	znf32	0.0084	0.79
ENSDARG000000087290		si:ch211-202h22.10	0.0055	0.79
ENSDARG000000089047		fp074874.1	0.0413	0.80

ENSDARG00000032318	Major facilitator superfamily domain containing 6a	mfsd6a	0.0168	0.80
ENSDARG00000014480	Nuclear receptor subfamily 6, group A, member 1b	nr6a1b	0.0265	0.80
ENSDARG00000042920	Sulfotransferase family 3, cytosolic sulfotransferase 3	sult3st3	0.0002	0.80
ENSDARG00000076132	Sialic acid binding Ig-like lectin 15, like	siglec15l	0.0128	0.80
ENSDARG00000040087	Erythrocyte membrane protein band 4.1 like 4A	epb414a	0.0340	0.80
ENSDARG00000054058	H1 histone family, member X	h1 fx	0.0100	0.80
ENSDARG00000028087	Aldehyde dehydrogenase 2, tandem duplicate 2		0.0087	0.80
ENSDARG00000038754	Polo-like kinase 3 (Drosophila)	plk3	0.0116	0.81
ENSDARG00000042332	Perilipin 2	plin2	0.0104	0.81
ENSDARG00000012505	U2 small nuclear RNA auxiliary factor 2a	u2af2a	0.0336	0.81
ENSDARG00000086596	Mediator complex subunit 8		0.0019	0.81
ENSDARG00000032087	N-sulfoglucosamine sulfohydrolase (sulfamidase)	sgsh	0.0416	0.81
ENSDARG00000007892	Programmed cell death 2	pdc2	0.0001	0.81
ENSDARG00000091625		im:7160159	0.0005	0.81
ENSDARG00000045364	Trafficking protein particle complex subunit 3		0.0322	0.81
ENSDARG00000095577	Cytochrome b reductase 1	cybrd1	0.0131	0.81
ENSDARG00000088321		si:dkey-54i3.4	0.0086	0.81
ENSDARG00000004171	Rab acceptor 1 (prenylated)	rabac1	0.0107	0.81
ENSDARG00000076553	Tripartite motif-containing 32	trim32	0.0024	0.81
ENSDARG00000026985	LIM and senescent cell antigen-like domains 1	lims1	0.0073	0.82
ENSDARG00000068256	RWD domain containing 4	rwdd	0.0318	0.82
ENSDARG00000068437	1-acylglycerol-3-phosphate O-acyltransferase 2 (lysophosphatidic acid acyltransferase, beta)	agpat2	0.0046	0.82
ENSDARG00000092114	Zinc finger protein 268	si:dkey-233e3.3	0.0030	0.82
ENSDARG00000090882			0.0397	0.82
ENSDARG00000053744	Doublecortin domain containing 2B	dcdc2b	0.0310	0.82
ENSDARG00000076518	Methyltransferase like 1	mettl1	0.0039	0.82
ENSDARG00000087529	Ankyrin repeat and LEM domain-containing protein 1		0.0057	0.82
ENSDARG00000035700	CDNA FLJ26957 fis_ clone SLV00486	zgc:101664	0.0118	0.82
ENSDARG00000035776	HemK methyltransferase family member 2		0.0015	0.82
ENSDARG00000071017	5'-nucleotidase		0.0127	0.82
ENSDARG00000068749	NACHT_LRR and PYD domains-containing protein 1	zgc:194906	0.0000	0.82
ENSDARG00000040822	FUN14 domain containing 1	fundc1	0.0099	0.82
ENSDARG00000037894	Enhancer of zeste homolog 1 (Drosophila)	ezh1	0.0085	0.82
ENSDARG00000077009	WDFY family member 4	wdfy4	0.0009	0.82
ENSDARG00000078789	Transmembrane protein 184C		0.0042	0.83
ENSDARG00000074443	Growth arrest-specific protein 7		0.0018	0.83
ENSDARG00000020742	Galactosidase, alpha		0.0077	0.83
ENSDARG00000068258	Leucine-rich repeat and calponin homology domain-containing protein 4		0.0463	0.83
ENSDARG00000011196	DnaJ homolog subfamily C member 11		0.0120	0.83
ENSDARG00000089885	Solute carrier family 16 (monocarboxylic acid transporters), member 12b	slc16a12b	0.0001	0.83
ENSDARG00000077252		si:rp71-36a1.5	0.0016	0.83
ENSDARG00000061865	DEAD (Asp-Glu-Ala-Asp) box polypeptide 10	ddx10	0.0018	0.83
ENSDARG00000043475	T-cell activation RhoGTPase activating protein b	tagapb	0.0093	0.83
ENSDARG00000078659	Transmembrane protein 176	tmem176	0.0475	0.84
ENSDARG00000007396	Rho family GTPase 3b	rnd3b	0.0073	0.84
ENSDARG00000001169	Hydroxysteroid (17-beta) dehydrogenase 8	hsd17b8	0.0247	0.84
ENSDARG00000060927	HHIP-like protein 2	si:ch211-136a13.1	0.0081	0.84
ENSDARG00000002830	Trm2 tRNA methyltransferase 2 homolog A (S. cerevisiae)	trmt2a	0.0048	0.84
ENSDARG00000028625	Junctophilin-2		0.0027	0.84
ENSDARG00000046071	Uncharacterized protein C18orf25		0.0076	0.84
ENSDARG00000045847		si:ch211-214j24.10	0.0376	0.84
ENSDARG00000002632	Annexin A11b	anxa11b	0.0003	0.84
ENSDARG00000094439	Transmembrane protein 176l.3a	tmem176l.3a	0.0154	0.84
ENSDARG00000020270	Dynamin 1b		0.0023	0.84
ENSDARG00000077207	Leucine zipper putative tumor suppressor 1		0.0006	0.84
ENSDARG00000011312	Serine/threonine kinase 3 (STE20 homolog, yeast)	stk3	0.0316	0.85
ENSDARG00000089321	Claspin		0.0078	0.85
ENSDARG00000051916	Cyclin-dependent kinase 7	cdk7	0.0323	0.85
ENSDARG000000052721		zgc:110727	0.0071	0.85
ENSDARG00000060308	Nucleolar pre-ribosomal-associated protein 1		0.0368	0.85
ENSDARG00000033604	Low density lipoprotein receptor-related protein associated protein 1	lrpap1	0.0340	0.85
ENSDARG00000033871	Der1-like domain family, member 3	der13	0.0001	0.85
ENSDARG00000077575	SLAM family member 9-like	bx005223.1	0.0109	0.85
ENSDARG00000013726	Adaptor-related protein complex 4, beta 1 subunit	ap4b1	0.0199	0.85
ENSDARG00000001769	Protein tyrosine phosphatase, receptor type, A	ptpra	0.0493	0.85
ENSDARG00000007219	Actinin, alpha 1	actn1	0.0127	0.85

ENSDARG00000075072	RNA polymerase II-associated protein 1		0.0052	0.86
ENSDARG00000027065	Solute carrier family 38, member 3a	slc38a3a	0.0059	0.86
ENSDARG00000077862	T-lymphocyte activation antigen CD86		0.0060	0.86
ENSDARG00000087012	GTPase IMAF family member 2	si:dkeyp-52c3.7	0.0195	0.86
ENSDARG00000052429	Synaptogyrin 2a	syng2a	0.0088	0.86
ENSDARG00000016302	Upf1 regulator of nonsense transcripts homolog (yeast)	upf1	0.0131	0.86
ENSDARG00000088924	Centromere protein U		0.0271	0.86
ENSDARG00000069298	Oxysterol binding protein-like 9	osbp19	0.0291	0.86
ENSDARG00000095212	Protein FAM115C		0.0223	0.86
ENSDARG00000075220	H2A histone family, member X		0.0313	0.86
ENSDARG00000075314		zgc:174906	0.0062	0.87
ENSDARG00000090869		fo904898.4	0.0013	0.87
ENSDARG00000062794	Tripartite motif-containing 36	trim36	0.0254	0.87
ENSDARG00000062267	Lysine-specific demethylase 3A		0.0007	0.87
ENSDARG00000040985	Integrin, beta-like 1	itgbl1	0.0239	0.87
ENSDARG00000078891	Uncharacterized protein C7orf43		0.0280	0.87
ENSDARG00000075697		sc:d136	0.0112	0.87
ENSDARG00000043897	ST6 (alpha-N-acetyl-neuraminyl-2,3-beta-galactosyl-1,3)-N-acetylgalactosaminide alpha-2,6-sialyltransferase 4	st6galnac4	0.0003	0.87
ENSDARG00000013687	Cartilage intermediate layer protein, nucleotide pyrophosphohydrolase		0.0258	0.88
ENSDARG00000071487	Protein C18orf54		0.0183	0.88
ENSDARG00000077178	SUN domain-containing protein 3	zgc:152977	0.0009	0.88
ENSDARG00000060316	Cytokine inducible SH2-containing protein	cish	0.0196	0.88
ENSDARG00000025467	Apoptosis antagonizing transcription factor	aatf	0.0143	0.88
ENSDARG00000016736	Brevican	bcn	0.0224	0.88
ENSDARG00000090700	Sterile alpha motif domain-containing protein 3	zgc:171242	0.0282	0.88
ENSDARG00000043781	Proteasome (prosome, macropain) subunit, beta type, 10		0.0254	0.89
ENSDARG00000044016	Myosin VIa	myo6a	0.0124	0.89
ENSDARG00000092290	Serine/threonine-protein kinase haspin		0.0257	0.89
ENSDARG00000088472	Dedicator of cytokinesis 9a	dock9a	0.0035	0.89
ENSDARG00000076189	Coiled-coil domain containing 88B	ccdc88b	0.0202	0.90
ENSDARG00000023645	Cysteine conjugate-beta lyase; cytoplasmic (glutamine transaminase K, kyneurenine aminotransferase)	ccb11	0.0000	0.90
ENSDARG00000069282	BCL2 binding component 3	bbc3	0.0003	0.90
ENSDARG00000070297	Histone H2B type 1-J	zgc:112234	0.0425	0.90
ENSDARG00000086189	Matrix Gla protein	mgp	0.0134	0.90
ENSDARG000000086253			0.0357	0.90
ENSDARG00000089838		cu463790.1	0.0289	0.90
ENSDARG00000055622	Rho GTPase-activating protein 11A	zgc:153345	0.0092	0.91
ENSDARG00000054540	IMP4, U3 small nucleolar ribonucleoprotein, homolog (yeast)	imp4	0.0008	0.91
ENSDARG00000091726	Adipocyte enhancer-binding protein 1		0.0217	0.91
ENSGMOG00000007612	Ubiquitin-like protein 5		0.0259	0.91
ENSDARG00000091728	Histone H2B type 1-J	zgc:112234	0.0298	0.92
ENSDARG00000058941			0.0387	0.92
ENSDARG00000093458	Serine protease 56-like	si:dkey-76d14.2	0.0012	0.92
ENSDARG00000071495		si:dkey-236e20.3	0.0023	0.92
ENSDARG00000075426	Poly [ADP-ribose] polymerase 14 [PARP-14]	si:ch211-219a4.3	0.0489	0.92
ENSDARG00000055575	Procollagen C-endopeptidase enhancer 2b	pcolce2b	0.0087	0.92
ENSDARG00000053950	Lin-37 homolog (C. elegans)	lin37	0.0132	0.93
ENSDARG00000086421	Im:7136729	im:7136729	0.0294	0.93
ENSDARG00000070429	Probable ergosterol biosynthetic protein 28		0.0002	0.93
ENSDARG00000060854	Potassium channel tetramerisation domain containing 3	kctd3	0.0072	0.93
ENSDARG00000054373	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 3		0.0168	0.93
ENSDARG00000075690	DDRCK domain-containing protein 1		0.0197	0.93
ENSDARG00000071219	Phosphoinositide-3-kinase, regulatory subunit 3a (gamma)	pik3r3a	0.0017	0.93
ENSDARG00000026871	Ubiquitin carboxyl-terminal esterase L1 (ubiquitin thiolesterase)	uchl1	0.0005	0.93
ENSDARG00000087188	Nuclear factor, interleukin 3 regulated, member 6	nfil3-6	0.0058	0.93
ENSDARG00000076092	Solute carrier family 31 (copper transporter), member 2	slc31a2	0.0003	0.94
ENSDARG00000012552	Transferrin receptor 1a		0.0275	0.94
ENSDARG00000069025	C-type lectin domain family 10 member A	si:ch211-283g2.3	0.0147	0.94
ENSDARG00000030307	Heat shock protein 12B	hspa12b	0.0435	0.94
ENSDARG00000014013	Lamin B receptor	lbr	0.0075	0.94
ENSDARG00000041944	Adenosine deaminase, tRNA-specific 2, TAD2 homolog (S. cerevisiae)	adat2	0.0001	0.95
ENSDARG00000074169	Glycerol-3-phosphate acyltransferase 1, mitochondrial		0.0142	0.95
ENSDARG00000051718	Histone H1 like		0.0085	0.95
ENSDARG00000051853	Galactosamine (N-acetyl)-6-sulfate sulfatase	galns	0.0137	0.96

ENSDARG00000043313	Ankyrin 2b, neuronal	ank2b	0.0224	0.96
ENSDARG00000068066	Zinc finger BED domain-containing protein 1		0.0148	0.96
ENSDARG00000062887	Metalloreductase STEAP2		0.0072	0.96
ENSDARG00000045858		c4h12orf5	0.0332	0.96
ENSDARG00000007151	Potassium channel, subfamily K, member 2b	kcnk2b	0.0205	0.96
ENSDARG00000070498	Phytanoyl-CoA 2-hydroxylase interacting protein-like b	phyhiplb	0.0068	0.96
ENSDARG00000071353	Protein MGARP	si:ch211-235e9.8	0.0097	0.96
ENSDARG00000022512	Regulator of G-protein signaling 9-binding protein	zgc:109913	0.0118	0.97
ENSDARG00000020405	N-ethylmaleimide sensitive fusion protein attachment protein alpha	napa	0.0199	0.97
ENSDARG00000068635	Mitochondrial ribosomal protein S2	mrps2	0.0150	0.97
ENSDARG00000008480	TRNA methyltransferase 61 homolog A (S. cerevisiae)	trmt61a	0.0006	0.97
ENSDARG00000078004	Draculin	drl	0.0449	0.97
ENSDARG00000002771	Solute carrier family 4, sodium bicarbonate cotransporter, member 5		0.0010	0.97
ENSDARG00000089879	Heme-binding protein soul5, like	soul5l	0.0250	0.97
ENSDARG00000074024		si:ch211-152n14.4	0.0267	0.98
ENSDARG00000093608		si:dkey-25o1.6	0.0008	0.98
ENSDARG00000089140		zgc:174275	0.0372	0.98
ENSDARG00000091411	si:ch211-214p13.9		0.0071	0.98
ENSDARG00000029609	MACRO domain containing 1	macrodl	0.0174	0.99
ENSDARG000000087596		si:ch73-95l15.5	0.0194	0.99
ENSDARG00000040881	Heterogeneous nuclear ribonucleoprotein H1	hnrnph1	0.0210	0.99
ENSDARG00000035882	Heat-responsive protein 12	hrsp12	0.0076	0.99
ENSDARG00000090581	WD repeat domain 4		0.0015	1.00
ENSDARG000000086856	Serine/threonine kinase 35	stk35	0.0066	1.00
ENSDARG00000021869	Regulator of calcineurin 2	rca2	0.0205	1.00
ENSDARG00000077653	Rab-like protein 6		0.0077	1.00
ENSDARG00000009402	Protein FAM115C		0.0177	1.00
ENSDARG000000017494	Transforming growth factor, beta receptor 1 a	tgfbr1a	0.0276	1.01
ENSDARG00000096157		si:dkey-40n15.1	0.0101	1.01
ENSDARG00000079524		si:ch211-168h21.3	0.0426	1.01
ENSDARG00000058815	Indian hedgehog homolog b	ihhb	0.0026	1.01
ENSDARG00000055360	Protein LLP homolog		0.0022	1.01
ENSDARG00000013842	TBC1 domain family, member 19	tbc1d19	0.0095	1.02
ENSDARG00000095369		zgc:112970	0.0121	1.02
ENSDARG00000038424	Complement component 4		0.0006	1.02
ENSDARG00000061051	Protein FAM5C		0.0127	1.03
ENSDARG00000006434	Polymerase (RNA) I polypeptide E	polr1e	0.0000	1.03
ENSDARG00000025902	Pleckstrin homology domain containing, family G (with RhoGef domain) member 5a	plekhg5a	0.0406	1.03
ENSDARG00000056640	Ribose 5-phosphate isomerase A (ribose 5-phosphate epimerase)	rpiA	0.0103	1.04
ENSDARG00000002826	Centrosomal protein 57-like 1	cep57l1	0.0088	1.04
ENSDARG00000077372	Transferrin receptor 1b	tfr1b	0.0187	1.04
ENSDARG00000010186	Myosin IIIA	myo3a	0.0376	1.04
ENSDARG00000093747		si:dkey-122c11.1	0.0384	1.04
ENSDARG00000027552	Mitogen-activated protein kinase 1	mapk1	0.0128	1.04
ENSDARG00000037855	TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor	taf11	0.0022	1.04
ENSDARG00000092134	RAD54 homolog B (S. cerevisiae)	rad54b	0.0090	1.04
ENSDARG00000091163	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 4		0.0038	1.05
ENSDARG00000086430			0.0378	1.05
ENSDARG00000007425	Apolipoprotein L, 1	apol1	0.0084	1.05
ENSDARG00000044395	Zinc finger protein 36, C3H type-like 1a		0.0004	1.05
ENSDARG00000011113	Cholinergic receptor, nicotinic, alpha 10a	chrna10a	0.0093	1.06
ENSDARG00000036974	Ripply3	rippy3	0.0116	1.06
ENSDARG00000012468	Acetoacetyl-CoA synthetase	aacs	0.0384	1.06
ENSDARG00000036785	Histidine-rich carboxyl terminus protein 1 precursor	si:ch211-226m16.2-201	0.0378	1.06
ENSDARG00000087835		si:ch211-113p18.3	0.0008	1.06
ENSDARG00000032705	Forkhead box G1b	foxg1b	0.0208	1.06
ENSDARG00000079131	Ataxin 7-like 3		0.0069	1.07
ENSDARG00000035577	CDP-diacylglycerol synthase (phosphatidate cytidyltransferase) 2	cds2	0.0014	1.07
ENSDARG00000076299	EMILIN-3		0.0158	1.07
ENSDARG00000088585	Sterile alpha motif domain-containing protein 3	zgc:171242	0.0144	1.07
ENSDARG00000024588	Glypican 5	gpc5	0.0006	1.07
ENSDARG00000058218	Protein FAM151A		0.0117	1.07
ENSDARG00000051851	Cytosolic thiouridylase subunit 2 homolog (S. pombe)	ctu2	0.0010	1.07
ENSDARG00000006215	Aldo-keto reductase family 1, member B1 (aldose reductase)	akr1b1	0.0025	1.08
ENSDARG00000002988	Troponin T2d, cardiac	tnnt2d	0.0001	1.08
ENSDARG00000032849	NDRG family member 3, isoform CRA_c; Protein NDRG3		0.0088	1.08

ENSDARG0000007823	Activating transcription factor 3	atf3	0.0001	1.08
ENSDARG00000039173	Cathepsin Lb	ctslb	0.0389	1.08
ENSDARG00000094500		si:ch211-238e22.4	0.0382	1.08
ENSDARG00000053810	Heterogeneous nuclear ribonucleoprotein C	hnrnpc	0.0125	1.08
ENSDARG00000079721			0.0357	1.09
ENSDARG00000077442	Tubulin, gamma complex associated protein 5	tubgcp5	0.0433	1.09
ENSDARG00000075149	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase		0.0030	1.09
ENSDARG00000010603	Potassium channel tetramerisation domain containing 9	kctd9	0.0003	1.09
ENSDARG00000035434	Zinc finger, matrin type 5	zmat5	0.0091	1.10
ENSDARG00000093364	Myotubularin related protein 3	mtmr3	0.0040	1.10
ENSDARG00000096368	Sialidase 3, tandem duplicate 2		0.0076	1.10
ENSDARG0000008026	Family with sequence similarity 129, member Bb	fam129bb	0.0007	1.10
ENSDARG00000044485	Sal-like 4 (Drosophila)	sall4	0.0089	1.11
ENSDARG0000007693	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha a		0.0075	1.11
ENSDARG00000040607	Protein RTF2 homolog		0.0373	1.11
ENSDARG00000094728	Serine/threonine-protein kinase pim-3-like si:ch211-207c6.9		0.0157	1.12
ENSDARG00000051920	Neutral sphingomyelinase (N-SMase) activation associated factor	nsmaf	0.0466	1.12
ENSDARG00000031203	COMM domain-containing protein 1		0.0310	1.13
ENSDARG00000051896	Fibrillin 2a	fbn2a	0.0048	1.13
ENSDARG00000031562	Transcriptional adaptor 2A	tada2a	0.0014	1.13
ENSDARG00000069752	Creatine kinase, brain a	ckba	0.0019	1.13
ENSDARG00000021239	Apoptotic protease activating factor 1	apaf1	0.0015	1.13
ENSDARG00000074359		si:ch211-155k24.1	0.0399	1.14
ENSDARG00000089087	Ba1 globin	ba1	0.0138	1.14
ENSDARG00000025535	Clathrin interactor 1a	clint1a	0.0131	1.14
ENSDARG00000057324			0.0239	1.14
ENSDARG00000095645		si:ch211-207c6.12	0.0220	1.14
ENSDARG00000036776	Aldehyde dehydrogenase 8 family, member A1	aldh8a1	0.0020	1.15
ENSDARG0000008275	Kelch-like 24a (Drosophila)		0.0158	1.15
ENSDARG00000034718	Tissue factor pathway inhibitor a	tfpia	0.0013	1.15
ENSDARG00000045704	DNA cross-link repair 1C, PSO2 homolog (S. cerevisiae)	dclre1c	0.0009	1.15
ENSDARG00000056764	Hydrocephalus-inducing protein homolog		0.0117	1.15
ENSDARG00000079939	Probable JmjC domain-containing histone demethylation protein 2C		0.0091	1.15
ENSDARG00000041729	Syntrophin, basic 1	sntb1	0.0274	1.15
ENSDARG00000019367	Transforming growth factor, beta 3	tgfb3	0.0013	1.16
ENSDARG00000021404	NFU1 iron-sulfur cluster scaffold homolog mitochondrial	zgc:110319	0.0080	1.17
ENSDARG00000077383	Annexin A11a	anxa11a	0.0033	1.18
ENSDARG00000090945	C-type lectin domain family 7 member A		0.0469	1.18
ENSDARG00000010519	Period homolog 3 (Drosophila)	per3	0.0016	1.19
ENSDARG00000015025	Neural adhesion molecule L1.1	nadl1.1	0.0018	1.19
ENSDARG00000090461	NACHT_LRR and PYD domains-containing protein 1	zgc:194906	0.0007	1.19
ENSDARG00000035810	Regulator of cell cycle	rgcc	0.0005	1.19
ENSDARG00000022675	OTU domain containing 6B	otud6b	0.0064	1.20
ENSDARG00000045708	Adrenomedullin 2a	adm2a	0.0490	1.20
ENSDARG00000086899	PDLIM1 interacting kinase 1 like		0.0023	1.21
ENSDARG00000041607	Eukaryotic translation initiation factor 4E binding protein 3, like	eif4ebp3l	0.0031	1.21
ENSDARG00000089888	Sn1-specific diacylglycerol lipase beta		0.0456	1.21
ENSDARG00000086240		si:ch211-163m16.6	0.0129	1.22
ENSDARG00000038359	Enolase superfamily member 1	enosfl	0.0004	1.22
ENSDARG00000077719			0.0380	1.22
ENSDARG00000078001	Kelch repeat and BTB domain-containing protein 7		0.0108	1.22
ENSDARG00000037091	N-acylsphingosine amidohydrolase (acid ceramidase) 1a	asah1a	0.0039	1.22
ENSDARG00000030448	Signal peptide peptidase-like 2	sppl2	0.0013	1.22
ENSDARG00000028396	FK506 binding protein 5	fkbp5	0.0000	1.23
ENSDARG0000005058	Non-SMC condensin I complex, subunit D2	ncapd2	0.0109	1.23
ENSDARG00000074656	Cathepsin Sb, tandem duplicate 1	ctssb.1	0.0122	1.23
ENSDARG00000077523	Tudor domain containing 7		0.0346	1.23
ENSDARG00000035506	Ectonucleoside triphosphate diphosphohydrolase 2a, tandem duplicate 1	entpd2a.1	0.0003	1.24
ENSDARG00000095783		si:dkey-249d8.1	0.0113	1.24
ENSDARG00000087070		si:dkey-122c11.9	0.0162	1.24
ENSDARG00000056683	Cyclin-dependent protein kinase 5	cdk5	0.0479	1.25
ENSDARG00000086300	Family with sequence similarity 107, member B		0.0033	1.25
ENSDARG00000023185	Apolipoprotein L, 1		0.0211	1.25
ENSDARG00000033735	Neutrophil cytosolic factor 1	ncl1	0.0023	1.25
ENSDARG00000078581	Creb3 regulatory factor	crebrf	0.0134	1.25
ENSDARG00000035889	Zinc finger and BTB domain containing 8B	zbtb8b	0.0079	1.26

ENSDARG0000006065	Zinc finger protein 385B	znf385b	0.0299	1.26
ENSDARG00000060645	Sirtuin 7	sirt7	0.0298	1.26
ENSDARG00000094727	Muscle-specific beta 1 integrin binding protein 2		0.0240	1.26
ENSDARG00000040113	Chromosome 3 open reading frame 31, isoform CRA_f; Mitochondrial translocator assembly and maintenance protein 41 homolog		0.0001	1.26
ENSDARG00000089794	Sterile alpha motif domain-containing protein 3	zgc:171242	0.0356	1.27
ENSDARG00000061174	Zinc finger protein 740		0.0076	1.27
ENSDARG0000005823	Solute carrier family 39 (zinc transporter), member 10	slc39a10	0.0036	1.27
ENSDARG00000093509		si:ch211-135f11.6	0.0310	1.28
ENSDARG00000031001	Protein RRNAD1		0.0412	1.28
ENSDARG00000041991	U3 small nucleolar RNA-interacting protein 2		0.0014	1.28
ENSDARG00000056885	Period homolog 1a (Drosophila)	per1a	0.0006	1.29
ENSDARG00000002196	BTB and CNC homology 1, basic leucine zipper transcription factor 1	bach1	0.0087	1.29
ENSDARG00000006863	Coiled-coil domain-containing protein 108		0.0006	1.29
ENSDARG00000003582	Coiled-coil domain-containing protein 34		0.0050	1.29
ENSDARG00000094456		a1928824.1	0.0288	1.29
ENSDARG00000087694	Histone H2B type 1-J	zgc:112234	0.0016	1.29
ENSDARG00000025397	Serine/arginine-rich splicing factor 3a	srsf3a	0.0074	1.30
ENSDARG00000031956	Transmembrane protein 63C		0.0058	1.30
ENSDARG00000053097	Heat shock factor 2	hsf2	0.0232	1.30
ENSDARG00000096050			0.0077	1.31
ENSDARG00000057439	Metal response element binding transcription factor 2		0.0003	1.31
ENSDARG00000091620	NACHT LRR and PYD domains-containing protein 1	zgc:194906	0.0125	1.32
ENSDARG00000075261	Tissue inhibitor of metalloproteinase 2b	timp2b	0.0004	1.32
ENSDARG00000089390	Patatin-like phospholipase domain-containing protein 5		0.0057	1.32
ENSDARG00000020929	Family with sequence similarity 49, member Ba	fam49ba	0.0123	1.32
ENSDARG00000017757	Phosphoinositide-3-kinase, catalytic, gamma polypeptide	pik3cg	0.0000	1.32
ENSDARG00000079126		si:dkey-250i3.3	0.0245	1.32
ENSDARG00000060981	Suppressor of IKBKE 1		0.0008	1.33
ENSDARG00000037100	Ankyrin repeat domain 10b		0.0308	1.33
ENSDARG00000036826	Ankyrin repeat domain 52a	ankrd52a	0.0000	1.34
ENSDARG00000046006	Mediator complex subunit 20	med20	0.0069	1.34
ENSDARG00000029172	Polymerase (RNA) 1 polypeptide A	polr1a	0.0037	1.34
ENSDARG00000075626		zgc:172090	0.0159	1.35
ENSDARG000000007485	Enhancer of polycomb homolog 2 (Drosophila)	epc2	0.0001	1.35
ENSDARG00000016494	Dopa decarboxylase	ddc	0.0345	1.36
ENSDARG00000026149	Solute carrier family 46, member 1	slc46a1	0.0003	1.36
ENSDARG00000079326	Calcineurin-binding protein cabin-1		0.0121	1.37
ENSDARG000000023228	Visinin-like 1a	vsnl1a	0.0236	1.37
ENSDARG00000045095	ElaC homolog 1 (E. coli)	elac1	0.0001	1.39
ENSDARG000000086212		zgc:174273	0.0388	1.39
ENSDARG000000086490	SUN domain-containing protein 2		0.0246	1.39
ENSDARG000000087301	Crystallin, gamma M2d14	crygm2d14	0.0288	1.40
ENSDARG000000086014			0.0021	1.40
ENSDARG00000035088	GTPase IMAP family member 2	si:ch211-254c8.3	0.0091	1.40
ENSDARG00000008946	Coiled-coil domain-containing protein 127		0.0232	1.41
ENSDARG000000079376		zgc:174153	0.0205	1.41
ENSDARG00000002758	Death effector domain-containing 1	dedd1	0.0468	1.41
ENSDARG00000040610	Cystine/glutamate transporter		0.0013	1.42
ENSDARG00000013082	UDP-N-actetylglucosamine pyrophosphorylase 1, like 1	uap111	0.0021	1.43
ENSDARG000000041179	Crystallin, gamma M5	crygm5	0.0217	1.43
ENSDARG00000038458	WAS/WASL-interacting protein family member 1		0.0014	1.44
ENSDARG00000054302	EH-domain containing 1a		0.0118	1.45
ENSDARG00000022280	Bromodomain-containing 2a	brd2a	0.0003	1.45
ENSDARG00000056427	Autism susceptibility candidate 2	auts2	0.0101	1.45
ENSDARG00000077571		zgc:174862	0.0114	1.45
ENSDARG000000061147	Zinc finger protein 64 homolog, isoforms 1 and 2		0.0114	1.46
ENSDARG00000073773	TELO2-interacting protein 2		0.0056	1.48
ENSDARG00000012403	DNA excision repair protein ERCC-6-like 2		0.0046	1.48
ENSDARG000000028912		si:dkey-10h3.2	0.0001	1.50
ENSDARG000000029419	Hematological and neurological expressed 1a		0.0482	1.50
ENSDARG000000020114	Solute carrier family 20, member 1a	slc20a1a	0.0195	1.51
ENSDARG00000074749	ATP-binding cassette, sub-family A (ABC1), member 12	abca12	0.0154	1.51
ENSDARG00000015110	Solute carrier family 18 (vesicular monoamine), member 2	slc18a2	0.0390	1.52
ENSDARG00000077273	Coiled-coil domain-containing protein ENSP00000299415		0.0332	1.53
ENSDARG00000070845		si:dkey-56d12.4	0.0057	1.54
ENSDARG00000034662	Non-SMC element 1 homolog (S. cerevisiae)	nsmc1	0.0008	1.55

ENSDARG00000030020	ArfGAP with FG repeats 1a	agfg1a	0.0192	1.55
ENSDARG00000089892	Lymphatic vessel endothelial hyaluronic acid receptor 1b		0.0093	1.56
ENSDARG00000074258	GRAM domain-containing protein 1B		0.0007	1.57
ENSDARG00000018765	Pbx/knotted 1 homeobox 1.2		0.0009	1.57
ENSDARG00000012995	ARP5 actin-related protein 5 homolog	actr5	0.0438	1.58
ENSDARG00000038207	Aldehyde dehydrogenase 4 family, member A1	aldh4a1	0.0021	1.58
ENSDARG00000052874		si:dkeyp-52c3.7	0.0074	1.59
ENSDARG00000076787	Angiopoietin 1		0.0016	1.60
ENSDARG00000078945	Muscle-specific beta 1 integrin binding protein	mibp	0.0081	1.61
ENSDARG00000090554	Coiled-coil domain-containing protein 138		0.0013	1.63
ENSDARG00000001244	Serine/arginine repetitive matrix 1	srrm1	0.0275	1.63
ENSDARG00000007108	Lipase member H [LIPH]	zgc:91985	0.0217	1.65
ENSDARG00000056677	OClA domain containing 1		0.0024	1.66
ENSDARG00000058305	Myotubularin related protein 3		0.0024	1.66
ENSDARG00000061436	Collagen alpha-2(VI) chain		0.0005	1.67
ENSDARG00000087317	Coiled-coil domain-containing protein ENSP00000299415		0.0192	1.67
ENSDARG00000055833	Regenerating islet-derived protein 4 [REG-4]	si:dkey-216e24.3	0.0473	1.68
ENSDARG00000078095	CLOCK-interacting pacemaker b	cipcb	0.0076	1.69
ENSDARG00000024381	Misato homolog 1 (Drosophila)	msto1	0.0119	1.70
ENSDARG00000015657		zgc:77112	0.0008	1.70
ENSDARG00000070282	H3 histone, family 3A		0.0055	1.70
ENSDARG00000035508	BarH-like 1a	barhl1a	0.0016	1.71
ENSDARG00000068828	Biogenesis of lysosome-related organelles complex 1 subunit 3		0.0495	1.72
ENSDARG00000077504	Histone H1 like		0.0234	1.73
ENSDARG00000027582	Angiopoietin-like 7	angptl7	0.0008	1.75
ENSDARG00000088978	Coiled-coil domain-containing protein ENSP00000299415		0.0244	1.75
ENSDARG00000061993	WD repeat domain 74	wdr74	0.0017	1.76
ENSDARG00000028367	Sulfotransferase family 2, cytosolic sulfotransferase 3	sult2st3	0.0019	1.76
ENSDARG00000058806	Apolipoprotein A-I binding protein	apoa1bp	0.0057	1.81
ENSDARG00000058873	Protein tyrosine phosphatase domain-containing protein 1	zgc:77752	0.0008	1.82
ENSDARG00000079640	Protocadherin 2 gamma 16	pcdh2g16	0.0393	1.83
ENSDARG00000062987	TRNA-yW synthesizing protein 1 homolog (S. cerevisiae)	tyw1	0.0205	1.84
ENSDARG00000041575	TRNA methyltransferase 10 homolog C (S. cerevisiae)	trmt10c	0.0042	1.87
ENSDARG00000058574	ATP-binding cassette, sub-family G (WHITE), member 2c	abcg2c	0.0341	1.87
ENSDARG00000069826	Crystallin, gamma M2d15	crygm2d15	0.0234	1.90
ENSDARG00000057855	Mitochondrial ribosomal protein S31	mrps31	0.0000	1.90
ENSDARG00000038805	Phosphatidylinositol N-acetylglucosaminyltransferase subunit P		0.0004	1.92
ENSDARG00000096189		si:dkey-54j5.2	0.0067	1.94
ENSDARG00000077090	Plexin B2	plxnb2	0.0011	1.94
ENSDARG00000062721	C-myc promoter-binding protein		0.0063	1.94
ENSDARG00000093381	Transglutaminase 2, like	tgm2l	0.0389	1.99
ENSDARG00000095459		si:ch211-191j22.3	0.0326	2.00
ENSDARG00000038123	Myosin, light chain 9a, regulatory	myl9a	0.0010	2.07
ENSDARG00000032264	Myeloblastosis oncogene-like 2	myb12	0.0004	2.08
ENSDARG00000086898	Coiled-coil domain-containing protein 23		0.0007	2.10
ENSDARG00000037484	Transmembrane protein 192	tmem192	0.0035	2.10
ENSDARG00000030981	Transmembrane protein 127	tmem127	0.0148	2.15
ENSDARG00000055970		zgc:136971	0.0392	2.16
ENSDARG00000037914	Zinc finger-like gene 1	znfl1	0.0186	2.17
ENSDARG00000056167	Heat shock 10 protein 1 (chaperonin 10)	hspel	0.0371	2.19
ENSDARG00000090015	GTPase IMAP family member 2	si:dkeyp-52c3.7	0.0047	2.20
ENSDARG00000061747	Deleted in autism-related protein 1		0.0266	2.29
ENSDARG00000041576	Nudix (nucleoside diphosphate linked moiety X)-type motif 18	nudt18	0.0004	2.36
ENSDARG00000079124	MTERF domain-containing protein 2		0.0110	2.40
ENSDARG00000092445	Uncharacterized protein C5orf34		0.0000	2.43
ENSDARG00000074446		zgc:173714	0.0108	2.46
ENSDARG00000017835	BRF1 homolog, subunit of RNA polymerase III transcription initiation factor IIIBa	brf1a	0.0012	2.47
ENSDARG00000051935	Docking protein 1b	dok1b	0.0230	2.48
ENSDARG00000003519	Adenine phosphoribosyl transferase	aprt	0.0031	2.49
ENSDARG00000058725	Rieske (Fe-S) domain containing	rfsd	0.0058	2.51
ENSDARG00000029374	DENN domain-containing protein 1A		0.0000	2.51
ENSDARG00000026904	Cerebellin 13	cbln13	0.0020	2.58
ENSDARG00000061093	Pleckstrin homology-like domain, family B, member 1a	phldb1a	0.0001	2.64
ENSDARG00000056643	Solute carrier family 22 (organic anion transporter), member 7b	slc22a7b	0.0148	2.67
ENSDARG00000035215	Spermidine/spermine N1-acetyltransferase family member 2b	sat2b	0.0313	2.73

ENSDARG00000090638	Platelet glycoprotein IX		0.0016	2.75
ENSDARG00000095549		si:dkeyp-106c3.2	0.0332	2.82
ENSDARG00000034007	Prominin 1 b	prom1b	0.0029	2.89
ENSDARG00000003293	SRY-box containing gene 9a	sox9a	0.0028	2.90
ENSDARG00000016611	Secernin 3	scrn3	0.0003	2.93
ENSDARG00000086917	Crystallin, gamma MX, like 1		0.0055	3.10
ENSDARG00000094038		si:ch211-226f6.1	0.0276	3.25
ENSDARG00000057912	Eukaryotic translation initiation factor 1A, X-linked, b	eif1axb	0.0007	3.30
ENSDARG00000094869		si:dkey-5n7.2	0.0261	3.33
ENSDARG00000087765	Crystallin, gamma M2d10	crygm2d10	0.0101	3.40
ENSDARG00000023759	BCL2/adenovirus E1B 19 kDa protein-interacting protein 3-like	zgc:73226	0.0001	3.43
ENSDARG00000063509	Leucine rich repeat containing 58b	lrrc58b	0.0002	3.58
ENSDARG00000003132	APAF1 interacting protein	apip	0.0003	4.23

80gE2R<0

means

downregulated

in

transgenic

males

Additional File 9. ASIP1-induced DEG only in the brain-pituitary axis of female zebrafish

ESEMBL ID	Description	Symbol	t	log2ER
ENSDARG00000033140	Desumoylating isopeptidase 1a	des1a	0.00099	-5.76
ENSDARG00000001929	PTEN induced putative kinase 1	pink1	0.00008	-4.96
ENSDARG000000086763		si:dkeyp-104h9 ,7	0.00005	-3.02
ENSDARG000000086612		si:ch73-269m14 ,4	0.00105	-3.20
ENSDARG00000026821	Transmembrane protein 106Ba	tmem106ba	0.00063	-3.44
ENSDARG00000031657	Fumarylacetoacetate hydrolase domain containing 1	fahd1	0.01469	-2.02
ENSDARG00000029766	Nuclear receptor subfamily 1, group 1, member 2	nr1i2	0.00002	-2.04
ENSDARG00000078222	Apoptosis-associated tyrosine kinase a	aatka	0.00212	-2.05
ENSDARG00000069878	NHP2 non-histone chromosome protein 2-like 1a (S, cerevisiae)	nhp211a	0.00068	-2.05
ENSDARG00000000540	Asparagine synthetase domain containing 1	asnsd1	0.00006	-2.06
ENSDARG000000093475		si:ch211-214c11 ,7	0.00097	-2.06
ENSDARG00000054290	Apoptotic chromatin condensation inducer 1a	acin1a	0.03346	-2.07
ENSDARG00000078844	Sterile alpha motif domain-containing protein 3	zgc:171242	0.00093	-2.09
ENSDARG00000006468	GRB2-related adaptor protein 2a	grap2a	0.00039	-2.12
ENSDARG000000091656	N-alpha-acetyltransferase 38, NatC auxiliary subunit		0.01781	-2.12
ENSDARG00000094020		si:ch211-214c11 ,8	0.00021	-2.13
ENSDARG00000074700	Oral cancer-overexpressed protein 1		0.02831	-2.13
ENSDARG00000091009	Probable E3 ubiquitin-protein ligase TRIML1	si:ch211-28p3.4	0.00069	-2.15
ENSDARG000000095249		si:ch211-196n4 ,5	0.00002	-2.16
ENSDARG00000069869		zgc:113030	0.00272	-2.24
ENSDARG00000032010	Solute carrier family 15 (H+/peptide transporter), member 2	slc15a2	0.00013	-2.24
ENSDARG00000037554	Rho guanine nucleotide exchange factor (GEF) 3, like	arhgef3l	0.00092	-2.36
ENSDARG00000035913	Tyrosyl-tRNA synthetase	yars	0.00090	-2.46
ENSDARG00000009494	X-ray repair complementing defective repair in Chinese hamster cells 1	xrcc1	0.04579	-2.50
ENSDARG00000052978	Muscleblind-like (Drosophila)	mbn1	0.00354	-2.50
ENSDARG00000011146	Ubiquinol-cytochrome c reductase binding protein	uqcrb	0.01162	-2.62
ENSDARG00000028131	Holocytochrome c synthetase a	hccsa	0.00029	-2.70
ENSDARG00000051746	Cat eye syndrome chromosome region, candidate 1a	cecr1a	0.00245	-2.74
ENSDARG00000068840		zgc:66024	0.00035	-2.86
ENSDARG000000071272	Nuclear receptor coactivator 6	nco6	0.04173	-1.00
ENSDARG00000091778			0.02393	-1.00
ENSDARG00000038876		zgc:101569	0.00045	-1.00
ENSDARG00000037061	Aldehyde dehydrogenase 9 family, member A1b	aldh9a1b	0.00265	-1.00
ENSDARG00000019595	Sentrin-specific protease 8		0.01259	-1.00
ENSDARG00000077728	Suppressor of var1, 3-like 1 (S, cerevisiae)	supv31l	0.00175	-1.00
ENSDARG00000002298	Ankyrin repeat domain 22	ankrd22	0.00394	-1.01
ENSDARG00000079946	Squalene monooxygenase		0.04231	-1.01
ENSDARG00000073910	Cyclin-dependent kinase 2-interacting protein		0.00067	-1.01
ENSDARG00000077979	Transmembrane protein 26b		0.00614	-1.01
ENSDARG00000016813	Coiled-coil domain containing 40	ccdc40	0.00262	-1.01
ENSDARG00000025679	Catechol-O-methyltransferase b	comtb	0.00422	-1.01
ENSDARG00000016605	Glutamine-rich protein 2	si:ch211-215m21 ,17	0.01789	-1.02
ENSDARG00000011246	KRR1, small subunit (SSU) processome component, homolog (yeast)	krr1	0.01264	-1.02
ENSDARG000000086906	STAM binding protein b	stambpb	0.00317	-1.02
ENSDARG00000076744	Small integral membrane protein 13		0.00733	-1.02
ENSDARG000000068681	Cytokine receptor family member b1	crfb1	0.00021	-1.02
ENSDARG00000075222	APC membrane recruitment protein 2	amer2	0.01221	-1.02
ENSDARG00000035559	Tumor protein p53	tp53	0.00022	-1.03
ENSDARG00000056871	Adaptor-related protein complex 4, mu 1 subunit	ap4m1	0.00091	-1.03
ENSDARG000000061274	Lanosterol synthase (2,3-oxidosqualene-lanosterol cyclase)	lss	0.02272	-1.03
ENSDARG00000006849	Acid-sensing (proton-gated) ion channel 2	asic2	0.00262	-1.04
ENSDARG000000086744	Zinc finger protein 239-like	si:dkeyp-79b7.9	0.01311	-1.04
ENSDARG000000041429	CDNA FLJ55475; von Willebrand factor A domain-containing protein 9		0.00061	-1.04
ENSDARG00000079015	Breast cancer 2, early onset	brca2	0.00440	-1.04
ENSDARG00000033596	Polymerase (RNA) II (DNA directed) polypeptide C	polr2c	0.00605	-1.04
ENSDARG00000069706	Protein arginine methyltransferase 6	prmt6	0.00176	-1.05
ENSDARG000000069980	Lectin, mannose-binding, 1	lman1	0.00764	-1.05
ENSDARG00000004306	Kelch-like protein 18		0.02014	-1.05
ENSDARG00000026053	Helicase-like transcription factor	hltf	0.04817	-1.05
ENSDARG00000042630	Heme binding protein 2	hebp2	0.00493	-1.05
ENSDARG00000035569	Cytochrome P450, family 1, subfamily D, polypeptide 1	cypld1	0.03216	-1.05
ENSDARG000000061173	Suppression of tumorigenicity 14 (colon carcinoma) a	st14a	0.02921	-1.06
ENSDARG000000091270	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.01299	-1.06
ENSDARG00000039827	Bardet-Biedl syndrome 5	bbs5	0.00099	-1.06
ENSDARG00000006200	Eukaryotic translation initiation factor 4 gamma 1		0.00670	-1.06
ENSDARG000000061348	Adenosine deaminase, tRNA-specific 1	adat1	0.00188	-1.07
ENSDARG000000090472	Tubulin tyrosine ligase-like family, member 10	ttl10	0.00935	-1.07
ENSDARG00000056160	Heat shock 60kD protein 1 (chaperonin)	hspd1	0.03827	-1.07
ENSDARG00000079412	FinTRIM family, member 2	ftf2	0.00390	-1.07
ENSDARG00000003084	Spire homolog 2 (Drosophila)	spire2	0.03628	-1.08

ENSDARG00000019236	Glutathione reductase	gsr	0.00082	-1.08
ENSDARG00000026796	Glutamate receptor, metabotropic 1a	grmla	0.00737	-1.08
ENSDARG00000087499	NACHT_LRR and PYD domains-containing protein 1	zgc:194906	0.04442	-1.09
ENSDARG00000009142	Apoptosis-stimulating of p53 protein 1		0.00001	-1.09
ENSDARG00000017730	Kelch domain-containing protein 4		0.01792	-1.09
ENSDARG00000017298	Pleckstrin	plek	0.02893	-1.10
ENSDARG00000059367	Microfibrillar-associated protein 2	mfap2	0.00943	-1.10
ENSDARG00000096060	C-C motif chemokine 7	si:ch211-202c4_2	0.01565	-1.10
ENSDARG00000068374		si:ch211-132b12.7	0.00119	-1.11
ENSDARG00000090962	N-acetyltransferase 14	nat14	0.03828	-1.11
ENSDARG00000087784	Alpha-tectorin-like	si:dkeyp-110a12.4	0.01573	-1.12
ENSDARG00000055639	RuvB-like 2 (E , coli)	ruvbl2	0.00022	-1.12
ENSDARG00000028336	Dihydrodiol dehydrogenase (dimeric), like	dhdhl	0.01767	-1.12
ENSDARG00000052910	Wingless-type MMTV integration site family, member 8b		0.03465	-1.13
ENSDARG00000089426	NOP10 ribonucleoprotein homolog (yeast)	nop10	0.00036	-1.13
ENSDARG00000069269	WD repeat domain 35	wdr35	0.01559	-1.13
ENSDARG00000093323	NACHT_LRR and PYD domains-containing protein 1	zgc:194906	0.01217	-1.14
ENSDARG00000012796	Histamine N-methyltransferase	hnmt	0.00064	-1.15
ENSDARG00000037551	Peptidase M20 domain containing 1, tandem duplicate 1	pm20d1_1	0.04369	-1.15
ENSDARG00000087210	Von Willebrand factor A domain-containing protein 3A		0.00042	-1.15
ENSDARG00000090169		si:dkey-1fl.3-201	0.02188	-1.15
ENSDARG00000014953	Cornichon homolog 3 (Drosophila)	cnih3	0.03448	-1.15
ENSDARG00000041728	Mannosidase, alpha, class 1A, member 1		0.00352	-1.16
ENSDARG00000041294	NADPH oxidase organizer 1a	noxo1a	0.01236	-1.17
ENSDARG00000056262	Solute carrier family 35, member G2a	slc35g2a	0.00300	-1.17
ENSDARG00000086609			0.00130	-1.17
ENSDARG00000087537	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.01729	-1.17
ENSDARG00000032049	Enabled homolog (Drosophila)	enah	0.01831	-1.18
ENSDARG00000035603	D-amino-acid oxidase, tandem duplicate 2	dao_2	0.03937	-1.18
ENSDARG00000002750	PHD finger protein 20, a	phf20a	0.00218	-1.19
ENSDARG00000088348	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.01639	-1.19
ENSDARG00000016412	Angiotensinogen	agt	0.00016	-1.20
ENSDARG00000003054	Tachykinin receptor 3-like	tacr3l	0.00661	-1.21
ENSDARG00000010382	Carnitine O-acetyltransferase b	cratb	0.00026	-1.21
ENSDARG00000077877		si:dkey-14o18_1	0.00408	-1.21
ENSDARG00000000019	Ubiquitin-conjugating enzyme E2H (UBC8 homolog, yeast)	ube2h	0.00628	-1.21
ENSDARG00000029587	Mitochondrial peptide methionine sulfoxide reductase	im:7149628	0.00016	-1.22
ENSDARG00000086425	PRP3 pre-mRNA processing factor 3 homolog (yeast)	prp3	0.02000	-1.22
ENSDARG00000008966	Transducin (beta)-like 1 X-linked receptor 1b	tbl1xr1b	0.00999	-1.23
ENSDARG00000074622	Unconventional myosin-Va	myo5ab	0.01684	-1.23
ENSDARG00000004796	Mahogunin, ring finger 1b	mgrm1b	0.00888	-1.24
ENSDARG00000087610	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.00019	-1.24
ENSDARG00000042515	G protein-coupled receptor 176	gpr176	0.00926	-1.25
ENSDARG00000070874	N-acetylserotonin O-methyltransferase-like protein	asmtl	0.02111	-1.25
ENSDARG00000010738	Uncharacterized protein C8orf76		0.00471	-1.26
ENSDARG000000089817	Basigin		0.00031	-1.26
ENSDARG00000068846	Lysosomal thioesterase PPT2	zgc:55621	0.00906	-1.26
ENSDARG00000044622	DNA polymerase theta		0.01903	-1.27
ENSDARG00000067760			0.00005	-1.27
ENSDARG000000069281		si:dkey-14a7_4	0.01945	-1.27
ENSDARG00000052734	3-hydroxy-3-methylglutaryl-Coenzyme A reductase a	hmgcr	0.00846	-1.27
ENSDARG00000076386	Ependymin-like 1	epdl1	0.00016	-1.28
ENSDARG00000043857	Ubiquitin-fold modifier 1	ufm1	0.00072	-1.28
ENSDARG00000037954	Tropinon T type 1 (skeletal, slow)	tnnt1	0.04148	-1.28
ENSDARG00000069361	Sperm surface protein Sp17		0.00609	-1.30
ENSDARG00000091234		cu019646.2	0.01638	-1.30
ENSDARG00000058230	Ribosomal protein S6 kinase b, polypeptide 1b	rps6kb1b	0.00117	-1.30
ENSDARG00000058841	UDP glucuronosyltransferase 1 family a, b		0.00125	-1.30
ENSDARG00000074821	NACHT_LRR and PYD domains-containing protein 1	zgc:194906	0.04167	-1.31
ENSDARG00000089901	Tumor necrosis factor receptor superfamily member 14	zgc:158862	0.03045	-1.33
ENSDARG00000045620	N-acetylneuraminic acid synthase	nans	0.02911	-1.34
ENSDARG00000063631	Vitrin	ch1073-291c23_1	0.01035	-1.34
ENSDARG00000004891	Peroxisomal biogenesis factor 19	pex19	0.03059	-1.36
ENSDARG00000052680	SLAM family member 7		0.01371	-1.36
ENSDARG00000056664	ADP-ribosylation factor interacting protein 2b	arfp2b	0.00067	-1.36
ENSDARG00000094466	Tubulin alpha-3C/D chain	si:ch73-199e17_1	0.01804	-1.37
ENSDARG00000032637	Histone H1 like		0.03081	-1.37
ENSDARG00000054153	FinTRIM family, member 50	ft50	0.01579	-1.37
ENSDARG00000089256			0.01418	-1.37

ENSDARG00000006392	Exosome complex component RRP45		0.03544	-1.37
ENSDARG00000073845	CDGSH iron-sulfur domain-containing protein 1	zgc:110843	0.02350	-1.38
ENSDARG00000075053	Saccharopine dehydrogenase b		0.00054	-1.39
ENSDARG00000037906	AlkB, alkylation repair homolog 7 (E , coli)	alkbh7	0.00015	-1.39
ENSDARG00000059459	UPF0561 protein C2orf68		0.00005	-1.40
ENSDARG00000009477	Protein kinase, cAMP-dependent, regulatory, type II, alpha, B	prkar2ab	0.02693	-1.40
ENSDARG00000003257		zgc:101559	0.00026	-1.41
ENSDARG00000062206	Superkiller viralicidic activity 2 (S , cerevisiae homolog)-like	skiv21	0.00036	-1.42
ENSDARG00000045296	Myeloma overexpressed 2	myeov2	0.04255	-1.42
ENSDARG00000069832	Sideroflexin 4	sfxn4	0.00563	-1.43
ENSDARG00000039067	Steroid-5-alpha-reductase, alpha polypeptide 2b	srds5a2b	0.00023	-1.44
ENSDARG00000000472	Contactin 2	cntn2	0.03586	-1.44
ENSDARG00000095983	DnaJ (Hsp40) homolog, subfamily A, member 3A		0.02089	-1.45
ENSDARG00000096305			0.02046	-1.45
ENSDARG00000068431	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.00075	-1.45
ENSDARG00000035595	FIC domain containing	ficd	0.00164	-1.46
ENSDARG00000076290	Calreticulin, like 2	calr12	0.00224	-1.47
ENSDARG00000036415	Galactosidase, beta 1	glb1	0.00817	-1.47
ENSDARG00000076839		zgc:153258	0.04265	-1.48
ENSDARG00000070971	Furin (paired basic amino acid cleaving enzyme) b	furinb	0.03012	-1.49
ENSDARG00000074581	Adducin 1 (alpha)		0.00358	-1.50
ENSDARG00000073732	Myosin, heavy chain 14, non-muscle	myh14	0.00846	-1.51
ENSDARG00000063345	Protein CREG1		0.02221	-1.51
ENSDARG00000041317	Ran GTPase activating protein 1b		0.00790	-1.51
ENSDARG00000086724		im:7151449	0.03104	-1.52
ENSDARG00000075008	PAS domain containing serine/threonine kinase	pask	0.02777	-1.52
ENSDARG00000002031	TOX high mobility group box family member 4		0.04459	-1.52
ENSDARG00000016477	Eukaryotic translation initiation factor 4A, isoform 2	eif4a2	0.02850	-1.53
ENSDARG00000075485	Kinesin light chain 1a		0.04825	-1.55
ENSDARG00000019976	Isopentenyl-diphosphate delta isomerase 1	idi1	0.00153	-1.58
ENSDARG00000039661	Solute carrier family 36 (proton/amino acid symporter), member 1		0.00496	-1.58
ENSDARG00000090166	LINE-1 type transposase domain-containing protein 1		0.00714	-1.58
ENSDARG00000055159	Cytochrome P450, family 27, subfamily A, polypeptide 1, gene 4	cyp27a1 ,4	0.00062	-1.59
ENSDARG00000075116	Sal-like protein 2	sall2	0.00012	-1.60
ENSDARG00000077553	RAP2C, member of RAS oncogene family		0.03623	-1.60
ENSDARG00000092234		si:dkey-179a6 ,2	0.00016	-1.60
ENSDARG00000043960	Ribosome production factor 2 homolog (S , cerevisiae)	rpf2	0.04198	-1.60
ENSDARG00000062806	Tubulin tyrosine ligase-like family, member 9	ttl9	0.03007	-1.61
ENSDARG00000077853	Tubulin tyrosine ligase-like family, member 2	ttl2	0.03953	-1.63
ENSDARG00000035558	G protein pathway suppressor 2	gps2	0.00034	-1.63
ENSDARG00000060392	Set1/Ash2 histone methyltransferase complex subunit ASH2		0.04365	-1.63
ENSDARG00000020024	Family with sequence similarity 151, member B	fam151b	0.01642	-1.65
ENSDARG00000006983	Cugbp, Elav-like family member 3b	celf3b	0.01830	-1.65
ENSDARG00000086838	Integrin alpha-2-like	itga2.3	0.02187	-1.66
ENSDARG00000021293	Amidohydrolase domain containing 2	amdhd2	0.01288	-1.67
ENSDARG00000003144	Peroxisomal membrane protein 2	pxmp2	0.00777	-1.67
ENSDARG00000088013	Cytochrome P450, family 27, subfamily A, polypeptide 7		0.00938	-1.68
ENSDARG00000096668	Mitotic-spindle organizing protein 1		0.00939	-1.68
ENSDARG00000067818	Helitron 4 helitron-like transposon replicase/helicase/endonuclease		0.02637	-1.70
ENSDARG00000052738	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble)	hmgs1	0.00534	-1.70
ENSDARG00000005108	Occludin a	oclna	0.00703	-1.70
ENSDARG00000028252	Ubiquitin-conjugating enzyme E2D 2 (UBC4/5 homolog, yeast), like	ube2d21	0.00309	-1.71
ENSDARG00000086935	Fibronectin type III and SPRY domain-containing protein 2		0.00684	-1.71
ENSDARG00000063483	RING finger protein 24	zgc:175214	0.00026	-1.72
ENSDARG000000041723	Tubulin, beta 4B class IVb		0.00142	-1.72
ENSDARG00000040984	Heat shock protein 13	hspa13	0.00644	-1.73
ENSDARG00000075620	Gelsolin-related protein of 125 kDa-like	gnrA	0.00358	-1.73
ENSDARG00000019496	Esterase D/formylglutathione hydrolase	esd	0.00011	-1.73
ENSDARG00000044278	Synaptoporin	synpr	0.04415	-1.73
ENSDARG00000068738	Cytochrome c oxidase subunit Vb 2	cox5b2	0.03307	-1.74
ENSDARG00000025859	Lipase maturation factor 2b	lmf2b	0.01226	-1.75
ENSDARG00000029043	Nucleoporin-like protein 2		0.00123	-1.75
ENSDARG00000039543	Mitochondrial ribosomal protein S6	mrps6	0.03761	-1.75
ENSDARG00000079080	Methyltransferase like 20	mettl20	0.00027	-1.76
ENSDARG00000020596	Family with sequence similarity 73, member A	fam73a	0.00058	-1.77
ENSDARG00000037805	Lectin, galactoside-binding, soluble, 3 binding protein a	lgals3bpa	0.04640	-1.77
ENSDARG00000033789	NADH dehydrogenase [ubiquinone] 1 beta		0.00929	-1.79

ENSDARG00000075754	subcomplex subunit 7 Methylthioribose-1-phosphate isomerase homolog (S , cerevisiae)	mri1	0.00010	-1.80
ENSDARG00000086808	DDHD domain containing 1b		0.00012	-1.81
ENSDARG00000092404	Lactase		0.01295	-1.81
ENSDARG00000070378		zgc:193706	0.00048	-1.81
ENSDARG0000004722	Discoidin domain receptor family, member 2, like	ddr2l	0.01895	-1.82
ENSDARG00000052914	Translocated promoter region a (to activated MET oncogene)	tpa	0.00555	-1.82
ENSDARG00000034160	Kanadapin		0.00790	-1.83
ENSDARG00000041505	Integral membrane protein 2Cb		0.00041	-1.83
ENSDARG00000036482	Hexamethylene bis-acetamide inducible 1	hexim1	0.00075	-1.84
ENSDARG00000075788			0.00624	-1.86
ENSDARG00000024032	Cochlin		0.01918	-1.89
ENSDARG00000074546	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.04823	-1.90
ENSDARG00000087644	Protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1		0.01021	-1.91
ENSDARG00000095179			0.00024	-1.95
ENSDARG00000069464	Cytochrome c oxidase subunit VIIa polypeptide 1 (muscle)	cox7a1	0.00797	-1.96
ENSDARG00000092897		si:ch211-244k5.3	0.00051	0.00
ENSDARG00000089097		si:dkey-254e13 ,12	0.00032	0.00
ENSDARG00000086843	Sperm acrosome membrane-associated protein 4		0.00604	-0.02
ENSDARG00000092947	Type I cytokeratin, enveloping layer	cyt1	0.03883	0.02
ENSDARG0000009471	Nidogen 2b (osteonidogen)	nid2b	0.00229	-0.02
ENSDARG00000092169		si:dkey-250k15.4	0.00030	0.03
ENSDARG00000068011		si:ch211-230g14.3	0.00056	-0.03
ENSDARG00000068122	Uncharacterized protein C9orf171		0.00010	0.04
ENSDARG00000091531	Coactivator-associated arginine methyltransferase 1, like	carm11	0.00004	-0.04
ENSDARG00000059349	Homer homolog 2 (Drosophila)	homer2	0.00983	-0.05
ENSDARG00000060264		si:dkey-37g12 ,1	0.00002	0.05
ENSDARG00000087782	E3 ubiquitin-protein ligase RNF152		0.01516	-0.05
ENSDARG00000095719		si:dkey-222h21.2	0.02790	0.06
ENSDARG00000087311		zgc:171951	0.01494	-0.06
ENSDARG00000074732	C-type lectin domain family 12 member B		0.01995	-0.07
ENSDARG00000011510	Regulator of chromosome condensation 2	rec2	0.01015	0.07
ENSDARG00000004721	Membrane protein, palmitoylated 5a (MAGUK p55 subfamily member 5a)		0.00004	0.07
ENSDARG00000038770	UPF0585 protein C16orf13	zgc:103625	0.03933	-0.07
ENSDARG00000079234		si:ch211-285c6 ,2	0.00080	0.08
ENSDARG00000005972	Resistance to inhibitors of cholinesterase 8 homolog B	ric8b	0.00003	-0.10
ENSDARG00000061723	Transmembrane protein 64		0.00003	0.11
ENSDARG00000075761	Complement factor H	cfh	0.00587	0.11
ENSDARG00000092148	G-protein coupled bile acid receptor 1		0.00022	-0.12
ENSDARG00000021004	Complement component 5	c5	0.00003	-0.14
ENSDARG00000077589		si:dkey-188c14 ,4	0.00556	-0.16
ENSDARG00000058254	Uncharacterized protein C11orf53		0.03373	-0.32
ENSDARG00000015607		cr388152.1	0.04166	-0.33
ENSDARG00000024371	Cadherin 1, epithelial	cdh1	0.00002	-0.42
ENSDARG00000013423	Cysteine conjugate-beta lyase 2	ccb12	0.02244	-0.70
ENSDARG00000016541	SAM and SH3 domain-containing protein 3		0.00567	0.70
ENSDARG00000018619	Ceramide synthase 4a		0.01816	0.70
ENSDARG00000063344	Family with sequence similarity 162, member A	fam162a	0.02231	-0.70
ENSDARG00000086626		im:7147486	0.00410	-0.70
ENSDARG00000074488	Interferon gamma receptor 1	ifngr1	0.04821	0.70
ENSDARG000000029476	Low density lipoprotein receptor	ldlr	0.00791	-0.70
ENSDARG00000030703	Orthodenticle homolog 1a	otx1a	0.01801	-0.70
ENSDARG00000007549	Pyridoxal-dependent decarboxylase domain containing 1	pdxdc1	0.01232	-0.70
ENSDARG00000012563	Prenyl (decaprenyl) diphosphate synthase, subunit 2	pdss2	0.00404	-0.71
ENSDARG00000035561			0.00045	-0.71
ENSDARG00000038843	Interleukin 17 receptor D	il17rd	0.02989	-0.71
ENSDARG00000091348	Reticulon 1a		0.01112	0.71
ENSDARG00000036036	Midkine-related growth factor	mdka	0.02193	-0.71
ENSDARG00000033411	Calcium binding protein 1b	cabp1b	0.03221	0.71
ENSDARG00000015627	Regulator of G-protein signalling 6	rgs6	0.00680	0.71
ENSDARG00000061203	Transient receptor potential cation channel, subfamily C, member 1	trpc1	0.01207	0.71
ENSDARG00000088836	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.04111	0.71
ENSDARG00000036940	Cathepsin Sa	ctssa	0.02769	0.71
ENSDARG00000019547	Achalasia, adrenocortical insufficiency, alacrimia	aaas	0.04306	-0.71
ENSDARG00000005712	Succinate dehydrogenase complex, subunit D, integral membrane protein a	sdhda	0.04969	-0.71
ENSDARG00000035596	Iron-sulfur cluster assembly enzyme ISCU, mitochondrial		0.02327	0.71
ENSDARG00000054099	CTP synthase 1a		0.01115	-0.71

ENSDARG00000011983	Spermatogenesis-associated protein 5	zgc:136908	0.04294	-0.71
ENSDARG00000057032	Protein phosphatase, Mg ²⁺ /Mn ²⁺ dependent, 1Nb (putative)	ppm1nb	0.00404	0.71
ENSDARG00000061981	Leucine aminopeptidase 3	lap3	0.02403	-0.71
ENSDARG00000077862	T-lymphocyte activation antigen CD86		0.01961	0.71
ENSDARG00000077532	GPI ethanolamine phosphate transferase 1		0.00639	0.72
ENSDARG00000017315	La ribonucleoprotein domain family, member 7	larp7	0.01741	-0.72
ENSDARG00000035700	CDNA FLJ26957 fis_ clone SLV00486	zgc:101664	0.00443	0.72
ENSDARG00000041394	DnaJ (Hsp40) homolog, subfamily B, member 1b	dnaj1b	0.04132	-0.72
ENSDARG00000055317	Complement component 1, q subcomponent-like 3a		0.01304	0.72
ENSDARG00000056903	Mitochondrial ribosomal protein L13	mrpl13	0.02498	-0.72
ENSDARG00000058958	Tripartite motif containing 35-37		0.00573	0.72
ENSDARG00000021547	Vaccinia related kinase 2	vrk2	0.01253	-0.72
ENSDARG00000074551	Potassium channel, subfamily T, member 1		0.00914	0.72
ENSDARG00000021805	Amino-terminal enhancer of split	aes	0.04815	0.72
ENSDARG00000045983	Zinc finger and BTB domain-containing protein 43		0.04493	0.72
ENSDARG00000096449	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.02505	0.72
ENSDARG00000094930			0.02813	0.72
ENSDARG00000019950	Amyotrophic lateral sclerosis 2 chromosomal region candidate gene 8 protein		0.03148	0.72
ENSDARG00000053215	Malic enzyme 1, NADP(+)-dependent, cytosolic	me1	0.03834	-0.72
ENSDARG00000055276	V-rel reticuloendotheliosis viral oncogene homolog	rel	0.04418	0.72
ENSDARG00000017107	Nuclear receptor subfamily 2, group E, member 1	nr2e1	0.00852	-0.72
ENSDARG00000016088	Reticulon 2a	rtn2a	0.01495	0.72
ENSDARG00000058022	ORM1-like 2 (S , cerevisiae)	ormd12	0.00191	-0.72
ENSDARG00000059582	Sosondowah ankyrin repeat domain family Cb	sowahcb	0.01509	-0.72
ENSDARG00000091625		im:7160159	0.00113	0.72
ENSDARG00000070624	Calcium channel, voltage-dependent, gamma subunit 7b	cacng7b	0.02289	0.72
ENSDARG00000077691	Solute carrier family 13 (sodium-dependent dicarboxylate transporter), member 2		0.02962	-0.72
ENSDARG00000002682	Tubulin folding cofactor E-like a	tbcela	0.00831	0.73
ENSDARG00000055026	Patched 2	ptch2	0.03662	-0.73
ENSDARG00000016481	Protein tyrosine phosphatase, non-receptor type 2, a	ptpn2a	0.00288	0.73
ENSDARG00000093722		zgc:174268	0.01778	-0.73
ENSDARG00000079827	S1 RNA binding domain 1	srbd1	0.02157	-0.73
ENSDARG00000076338	Inositol polyphosphate-5-phosphatase K		0.00563	0.73
ENSDARG00000075455	Protein SOGA3		0.01743	-0.73
ENSDARG00000008032	Squamous cell carcinoma antigen recognised by T cells 3	sart3	0.01640	0.73
ENSDARG00000088440	Slingshot homolog 2a (Drosophila)	ssh2a	0.00256	-0.73
ENSDARG00000070702	S100 calcium binding protein V2	s100v2	0.00184	-0.73
ENSDARG00000031930	ELKS/RAB6-interacting/CAST family member 1a		0.02243	0.73
ENSDARG00000094426	Hairy-related 4, tandem duplicate 2	her4_2	0.02179	-0.73
ENSDARG00000010266	Insulin-like growth factor 2 mRNA binding protein 3	igf2bp3	0.00113	-0.73
ENSDARG00000038754	Polo-like kinase 3 (Drosophila)	plk3	0.00062	0.73
ENSDARG00000053684	Aldolase b, fructose-bisphosphate	aldob	0.03314	-0.73
ENSDARG00000031427	Calmodulin		0.03013	-0.73
ENSDARG00000004724	Transcription elongation factor A (SII), 3	tcea3	0.00112	0.73
ENSDARG00000062269	FANCD2/FANCI-associated nuclease 1	fan1	0.02177	0.73
ENSDARG00000005033	Thyroid hormone receptor interactor 4	trip4	0.04515	-0.73
ENSDARG00000052000	Caveolin 2	cav2	0.00463	0.73
ENSDARG00000038898		zgc:113691	0.00076	-0.74
ENSDARG00000045733	Cytokine induced apoptosis inhibitor 1	ciapin1	0.00810	-0.74
ENSDARG00000040163	Primase polypeptide 1	prim1	0.00489	-0.74
ENSDARG00000079269		si:ch211-163m16_6	0.00082	0.74
ENSDARG00000075766	Saccharopine dehydrogenase a	sccpdha	0.01420	-0.74
ENSDARG00000078551	Sterile alpha motif domain-containing protein 3	zgc:171242	0.01303	0.74
ENSDARG00000093415	Serine protease 57		0.01559	-0.74
ENSDARG00000092284	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.03026	0.74
ENSDARG00000039150	Legumain	lgmn	0.04821	-0.74
ENSDARG00000094840	Serine protease 57		0.00192	-0.74
ENSDARG00000093756	Histone H2B type 1-J	zgc:112234	0.01856	-0.74
ENSDARG00000095821		si:dkey-122a22.2	0.00719	-0.74
ENSDARG00000005085	Gamma-glutamyl cyclotransferase b	ggctb	0.03431	-0.74
ENSDARG00000020345	Cytoplasmic linker associated protein 2	clasp2	0.00999	0.74
ENSDARG00000071082	Prolyl 4-hydroxylase, alpha polypeptide 1 b	p4ha1b	0.00636	0.74
ENSDARG00000012271	Transmembrane protein 206	tmem206	0.00428	-0.74
ENSDARG00000023724	CDC42 small effector 1	cdc42se1	0.02755	0.74
ENSDARG00000089168	Exostoses (multiple) 1a		0.04061	-0.74
ENSDARG00000038980	Thioredoxin domain-containing protein 12		0.03267	-0.74
ENSDARG00000016484	Dyskeratosis congenita 1, dyskerin	dkc1	0.00905	-0.74
ENSDARG00000094732	Microtubule associated monoxygenase, calponin and LIM domain containing 3a		0.02768	0.74
ENSDARG00000067984	Growth arrest-specific 1b	gas1b	0.00102	0.74
ENSDARG00000032584	Threonine synthase-like 2 (S , cerevisiae)	thns12	0.03572	-0.74
ENSDARG00000045565	Nucleolar complex associated 4 homolog (S , cerevisiae)	noc41	0.02244	-0.75

ENSDARG00000058486	Calcyphosin-2		0.04778	-0.75
ENSDARG00000061728	Acyl-coenzyme A thioesterase 13		0.04612	-0.75
ENSDARG00000074781	Protein tyrosine phosphatase, receptor type, t	ptprt	0.03467	0.75
ENSDARG00000071074	RCC1 domain-containing protein 1		0.00088	-0.75
ENSDARG00000089550	Pre-B-cell leukemia transcription factor 2		0.00098	0.75
ENSDARG00000056624	C-fos induced growth factor	figf	0.04321	0.75
ENSDARG00000042631	Glutaredoxin 2	glrx2	0.02255	-0.75
ENSDARG00000017274	Opsin 1 (cone pigments), short-wave-sensitive 2	opn1sw2	0.03897	-0.75
ENSDARG00000025820	CHK2 checkpoint homolog (S, pombe)	chk2	0.00587	-0.75
ENSDARG00000016514	General transcription factor IIH, polypeptide 2	gtf2h2	0.00289	-0.75
ENSDARG00000008363	Myeloid cell leukemia sequence 1b	mcl1b	0.01540	0.75
ENSDARG00000079055	TAR (HIV-1) RNA binding protein 1	tarbp1	0.03199	-0.75
ENSDARG00000052263	Ras-related protein Rab-1B	si:ch73-131e21_5	0.00083	-0.75
ENSDARG00000018002	Enoyl-CoA delta isomerase 1	ecil	0.01016	-0.75
ENSDARG00000077625	Chloride intracellular channel 4		0.04609	0.75
ENSDARG00000069934	Poly [ADP-ribose] polymerase 4		0.00268	-0.76
ENSDARG00000007413	AT rich interactive domain 2 (ARID, RFX-like)	arid2	0.01234	0.76
ENSDARG00000089876	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.00955	-0.76
ENSDARG00000088644			0.02216	-0.76
ENSDARG00000093344			0.00423	0.76
ENSDARG00000095729	Serine protease 57		0.02967	-0.76
ENSDARG00000040198	Follistatin-like 5	fstl5	0.01927	-0.76
ENSDARG00000062477	UPF0606 protein KIAA1549L		0.02106	0.76
ENSDARG00000010710	Musashi homolog 1 (Drosophila)	msi1	0.04819	0.76
ENSDARG00000069105	Fibroblast growth factor receptor 4	fgfr4	0.00405	-0.76
ENSDARG00000013976	Annexin A13	anxa13	0.00397	-0.76
ENSDARG00000056741	SUMO1/sentrin/SMT3 specific peptidase 3b	senp3b	0.02748	0.76
ENSDARG00000014573	Growth hormone inducible transmembrane protein	ghitm	0.00719	-0.76
ENSDARG00000024116	Vesicle-associated membrane protein 8 (endobrevin)	vamp8	0.01349	-0.76
ENSDARG00000004497	Tetraspanin 33	tspan33	0.00022	-0.76
ENSDARG00000026835	Solute carrier family 25, member 32b	slc25a32b	0.00076	0.76
ENSDARG00000010770	SRY-box containing gene 19a	sox19a	0.00171	-0.76
ENSDARG00000059028	SRR1 domain containing	srrd	0.03070	-0.76
ENSDARG00000004307	LY6/PLAUR domain containing 6	lypd6	0.01249	0.76
ENSDARG00000020850	Eukaryotic translation elongation factor 1 alpha 1, like 1	eef1a1l1	0.00346	0.76
ENSDARG00000020057	Bone morphogenetic protein receptor, type II b (serine/threonine kinase)	bmpr2b	0.03685	0.77
ENSDARG00000025718	CXXC finger 1 (PHD domain)	cxxc1	0.00478	-0.77
ENSDARG00000018605			0.00450	-0.77
ENSDARG00000031976	Nitric oxide synthase 2b, inducible	nos2b	0.00760	-0.77
ENSDARG00000013500	ATP-binding cassette, sub-family A (ABC1), member 2	abca2	0.00022	-0.77
ENSDARG00000079074	FERM and PDZ domain-containing protein 1		0.04381	-0.77
ENSDARG00000087855	NACHT_LRR and PYD domains-containing protein 1	zgc:194906	0.01525	0.77
ENSDARG00000088514	Actinodin1	and1	0.00864	-0.77
ENSDARG00000091505			0.01416	0.77
ENSDARG00000087752	E3 ubiquitin-protein ligase RFW3		0.03447	-0.77
ENSDARG00000095718	Tumor necrosis factor receptor superfamily member 14	zgc:158862	0.04885	-0.77
ENSDARG00000002303	Exportin, tRNA (nuclear export receptor for tRNAs)	xpot	0.03172	0.77
ENSDARG00000001769	Protein tyrosine phosphatase, receptor type, A	ptpra	0.02179	0.77
ENSDARG00000070278	Methyltransferase like 14	mettl14	0.04275	-0.77
ENSDARG00000052688	Progesterin and adipoQ receptor family member Vb	paqr5b	0.00960	-0.77
ENSDARG00000031203	COMM domain-containing protein 1		0.00025	0.77
ENSDARG00000055708	Translocase of inner mitochondrial membrane 8 homolog B (yeast)	tim8b	0.00531	-0.77
ENSDARG00000043511	Peroxiredoxin 6	prdx6	0.00107	0.77
ENSDARG00000032564	Argininosuccinate synthetase 1	ass1	0.00077	-0.77
ENSDARG00000071336	Macrophage migration inhibitory factor	mif	0.03736	-0.77
ENSDARG00000035557	GABA(A) receptor-associated protein a	gabarapa	0.02739	-0.77
ENSDARG00000012738	Zinc finger, CCHC domain containing 14	zcchc14	0.00743	0.78
ENSDARG00000003263	Processing of precursor 4, ribonuclease P/MRP subunit	pop4	0.02721	-0.78
ENSDARG00000033662	Stearoyl-CoA desaturase (delta-9-desaturase)	scd	0.01048	-0.78
ENSDARG00000038467	Immunoglobulin superfamily member 8		0.00753	0.78
ENSDARG00000044751	D-dopachrome tautomerase	ddt	0.00074	0.78
ENSDARG00000038352	Solute carrier family 27 (fatty acid transporter), member 1b	slc27a1b	0.00437	0.78
ENSDARG00000074151	Zinc finger protein 112	zgc:174234	0.00705	-0.78
ENSDARG00000074204	COMM domain-containing protein 6		0.01624	0.78
ENSDARG00000005446	Cytoskeleton associated protein 5	ckap5	0.02007	-0.78
ENSDARG00000094010	Transcriptional protein SWT1		0.03733	-0.78
ENSDARG00000073825			0.03705	0.78
ENSDARG00000036785	Histidine-rich carboxyl terminus protein 1 precursor	si:ch211-226m16.2-201	0.03020	0.78
ENSDARG00000091013	NACHT_LRR and PYD domains-containing protein 1	zgc:194906	0.00405	0.78
ENSDARG00000089981	Ring finger protein 146	rf146	0.02026	0.78

ENSDARG00000028275	Sulfotransferase family 1, cytosolic sulfotransferase 1	sult1 st1	0.03646	0.78
ENSDARG00000043905	Ring finger protein 14	rnfl4	0.00402	-0.78
ENSDARG00000023003	Coiled-coil domain containing 12	ccdc12	0.04119	-0.78
ENSDARG00000052642	Shisa homolog 9 (<i>Xenopus laevis</i>)		0.02655	0.78
ENSDARG00000031202	Asparagine-linked glycosylation 11	alg11	0.00817	-0.78
ENSDARG00000079270	Polymeric immunoglobulin receptor		0.01129	0.79
ENSDARG00000076745		zgc:193811	0.03855	-0.79
ENSDARG00000052447	Crystallin, alpha B, b	cryabb	0.00035	0.79
ENSDARG00000060326	Microtubule-associated protein 1S		0.02519	0.79
ENSDARG00000088635			0.01595	0.79
ENSDARG00000086109	Unc-5 homolog B (C, <i>elegans</i>)		0.00099	0.79
ENSDARG00000012932	Methionine adenosyltransferase 2 subunit beta		0.04957	0.79
ENSDARG00000023694	Spondin 1b	spn1b	0.00188	0.79
ENSDARG00000057113	Complement component 6		0.01006	0.79
ENSDARG00000021082	Sec31 homolog A (S, <i>cerevisiae</i>)	sec31a	0.03068	-0.79
ENSDARG00000011863	Inactive tyrosine-protein kinase 7		0.03745	0.79
ENSDARG00000038348	Phosphatidylinositol N-acetylglucosaminyltransferase subunit H		0.00484	-0.79
ENSDARG00000011152	Ribonuclease P 14 subunit	rpp14	0.03201	0.79
ENSDARG00000035875	Transmembrane protein 54b	tmem54b	0.02649	0.79
ENSDARG00000055787	Double zinc ribbon and ankyrin repeat domains 1	dzank1	0.02472	-0.79
ENSDARG00000091116	Fibrocystin-L		0.03093	-0.79
ENSDARG00000034457	Uncharacterized protein C1orf194		0.01673	-0.79
ENSDARG00000055129	Pim-2 oncogene		0.04270	0.80
ENSDARG00000055543	Amyloid beta (A4) precursor protein b	appb	0.00684	0.80
ENSDARG00000069538	General transcription factor IIIC, polypeptide 4	gtf3c4	0.04384	0.80
ENSDARG00000037397	Structure specific recognition protein 1a	ssrp1a	0.00182	-0.80
ENSDARG00000075759	Protein Smaug homolog 1		0.00892	0.80
ENSDARG00000088443	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.02526	0.80
ENSDARG00000093043	UDP glucuronosyltransferase 1 family a, b		0.00747	-0.80
ENSDARG00000055027	Protein-O-mannosyltransferase 2	pomt2	0.00214	-0.80
ENSDARG00000086719	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.01626	0.80
ENSDARG00000012625	Protein kinase, AMP-activated, gamma 2 non-catalytic subunit		0.00147	0.80
ENSDARG00000018159	Anoctamin 10b	ano10b	0.04920	0.80
ENSDARG00000094158			0.00005	-0.80
ENSDARG00000094387		si:dkeyp-30e7.2	0.00854	0.80
ENSDARG00000053129	Calcium regulated heat stable protein 1	carhsp1	0.00131	0.80
ENSDARG00000030758	Guanylate cyclase activator 1C	guca1c	0.00426	0.80
ENSDARG00000005456	Katanin p80 (WD repeat containing) subunit B 1	katnb1	0.00413	-0.80
ENSDARG00000028164	Cystatin-A	si:ch211-161h7 ,6	0.00221	-0.80
ENSDARG00000003517	Inositol(myo)-1(or 4)-monophosphatase 1	impa1	0.00305	-0.80
ENSDARG00000009524	Ring finger protein 150b	rnfl150b	0.03056	-0.80
ENSDARG00000039641	Ribosomal protein L26	rp126	0.01565	-0.80
ENSDARG00000068258	Leucine-rich repeat and calponin homology domain-containing protein 4		0.04044	0.81
ENSDARG00000095698		si:dkey-228a15 ,1	0.02774	-0.81
ENSDARG00000079983	Zebrafish testis-expressed 25	zte25	0.00089	0.81
ENSDARG00000036135	Butyrobetaine (gamma), 2-oxoglutarate dioxygenase 1 (gamma-butyrobetaine hydroxylase)	bbox1	0.04828	0.81
ENSDARG00000040890	Farnesyl diphosphate synthase (farnesyl pyrophosphate synthetase, dimethylallyltranstransferase, geranyltranstransferase)	fdps	0.02855	-0.81
ENSDARG00000086216	Proline rich 13	prp13	0.03930	0.81
ENSDARG00000036329	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 1	ndufa1	0.00270	-0.81
ENSDARG00000092648	Mevalonate (diphospho) decarboxylase b	mvdb	0.01245	-0.81
ENSDARG00000000935	Unkempt homolog (<i>Drosophila</i>)	unk	0.00028	0.81
ENSDARG00000046071	Uncharacterized protein C18orf25		0.01332	0.81
ENSDARG00000038585	Eukaryotic translation initiation factor 4E family member 2	EIF4E2	0.02875	0.81
ENSDARG00000014685	Establishment of cohesion 1 homolog 2	ESCO2	0.00394	-0.81
ENSDARG00000077070	Sjogren syndrome nuclear autoantigen 1		0.01447	-0.81
ENSDARG00000069807	GPI mannosyltransferase 2		0.00645	-0.81
ENSDARG00000015911	MCM2 minichromosome maintenance deficient 2, mitotin (S, <i>cerevisiae</i>)	mcm2	0.01587	-0.82
ENSDARG00000010948	Kinesin family member 11	kif11	0.02970	-0.82
ENSDARG00000035506	Ectonucleoside triphosphate diphosphohydrolase 2a, tandem duplicate 1	ENTPD2A ,1	0.00902	0.82
ENSDARG00000039486	BCL2-associated athanogene 3	bag3	0.00284	0.82
ENSDARG00000043431	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase-like 1	b3gnt1	0.03678	-0.82
ENSDARG00000044820	Cleavage stimulation factor subunit 1		0.00333	-0.82
ENSDARG00000057973	DPH1 homolog (S, <i>cerevisiae</i>)	dph1	0.00921	-0.82
ENSDARG00000058354	Selenoprotein T, 1a	selt1a	0.01689	-0.82
ENSDARG00000040990	Ubiquitin specific peptidase 37	usp37	0.01032	-0.82
ENSDARG00000069765	Ras GTPase-activating protein SynGAP		0.00245	-0.82
ENSDARG00000074035	Diphosphomevalonate decarboxylase		0.01139	-0.82

ENSDARG00000079291	Rap guanine nucleotide exchange factor (GEF) 3	rapgef3	0.03180	0.82
ENSDARG00000075791		si:dkey-79f11 ,5	0.01034	-0.82
ENSDARG00000092455			0.00857	0.82
ENSDARG00000014550	Regulatory factor X, 3 (influences HLA class II expression)	rfx3	0.00492	-0.82
ENSDARG00000006859	Na ⁺ /K ⁺ transporting ATPase interacting 1	nkain1	0.01549	-0.82
ENSDARG00000043781	Proteasome (prosome, macropain) subunit, beta type, 10		0.03730	0.82
ENSDARG00000019709	Ras homolog gene family, member Ua	rhousa	0.00049	-0.82
ENSDARG00000093008		si:dkey-30j22 ,5	0.04190	-0.82
ENSDARG00000031885	Proteasome (prosome, macropain) subunit, beta type, 11	psmb11	0.01854	0.82
ENSDARG00000070441	Zinc finger, DHHC-type containing 17	zdhhc17	0.01907	0.82
ENSDARG00000024940	Ring finger protein 144aa		0.03453	0.83
ENSDARG00000055722	Beta-carotene 15, 15-dioxygenase 2, like		0.00976	-0.83
ENSDARG00000062002	Activity-dependent neuroprotector homeobox b		0.00049	-0.83
ENSDARG00000035734	Matrin-3	zgc:152816	0.02477	-0.83
ENSDARG00000088773	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.00529	0.83
ENSDARG00000002190	Chromatin modifying protein 2Bb	chmp2bb	0.04810	-0.83
ENSDARG00000069194	MYCBP-associated protein		0.00767	-0.83
ENSDARG00000091754	Coiled-coil-helix-coiled-coil-helix domain-containing protein 5		0.01727	-0.83
ENSDARG00000092855	S1 RNA binding domain 1	srbd1	0.04983	-0.83
ENSDARG00000094965	Nuclear factor, interleukin 3 regulated, member 5	nfil3-5	0.03869	0.83
ENSDARG00000070011		si:ch211-167j6 ,4	0.00208	-0.83
ENSDARG00000017562	BTG3 associated nuclear protein	banp	0.00038	-0.83
ENSDARG00000055591	Pipecolic acid oxidase	pipox	0.00850	0.83
ENSDARG00000036031	Septin 5b	sept5b	0.02017	0.84
ENSDARG00000019250	Fanconi anemia group F protein		0.01729	-0.84
ENSDARG00000055490	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 12	galnt12	0.02937	-0.84
ENSDARG00000094427		si:dkey-253d23 ,8	0.01526	0.84
ENSDARG00000052787	Zinc finger, DHHC-type containing 12b	zdhhc12b	0.00036	-0.84
ENSDARG00000055292	ATG9 autophagy related 9 homolog A (S , cerevisiae)		0.01258	-0.84
ENSDARG00000087306	Ribonuclease inhibitor		0.00087	0.84
ENSDARG00000002945	Decorin		0.00012	0.84
ENSDARG00000095051		si:ch211-236l14.1	0.00705	0.84
ENSDARG00000005827	Eukaryotic translation initiation factor 2, subunit 1 alpha a	eif2s1a	0.02575	0.84
ENSDARG00000095464	Glutathione S-transferase theta-2	zgc:66350	0.01994	-0.84
ENSDARG00000010603	Potassium channel tetramerisation domain containing 9	kctd9	0.02556	0.84
ENSDARG00000074280	StAR-related lipid transfer protein 4		0.00472	-0.84
ENSDARG00000038359	Enolase superfamily member 1	enosf1	0.01146	0.84
ENSDARG00000032197	Kruppel-like factor 12b	klf12b	0.00572	-0.84
ENSDARG00000039145	Plasminogen activator, urokinase a		0.00376	-0.84
ENSDARG00000011208	Cytochrome c oxidase subunit 5B_mitochondrial	zgc:86599	0.04323	-0.85
ENSDARG00000019553	Purine nucleoside phosphorylase 5b	pnp5b	0.03529	0.85
ENSDARG000000023185	Apolipoprotein L, 1		0.02845	0.85
ENSDARG00000023659	GA binding protein transcription factor, beta subunit 1	gabpb1	0.02850	-0.85
ENSDARG00000056829	Ring finger protein 145b		0.02155	0.85
ENSDARG00000044804	Proline dehydrogenase (oxidase) 1a	prodha	0.01297	0.85
ENSDARG00000088764	Lysophospholipase-like protein 1		0.00131	-0.85
ENSDARG00000094590	C2 domain-containing protein 5		0.01477	0.85
ENSDARG00000073789	Sterile alpha motif domain-containing protein 9-like	bx537350.1	0.04444	0.85
ENSDARG00000090392	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.02767	0.85
ENSDARG00000086385	Leucine-rich repeat and calponin homology domain-containing protein 4		0.02696	0.85
ENSDARG00000009754	Zinc finger CCCH domain-containing protein 11A		0.04950	0.85
ENSDARG00000091646	UPF0449 protein C19orf25		0.00981	-0.85
ENSDARG00000095233	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.02534	0.85
ENSDARG00000095075			0.01036	0.85
ENSDARG00000040556	Intraflagellar transport protein 20	ift20	0.00360	-0.85
ENSDARG00000095369		zgc:112970	0.03315	0.85
ENSDARG00000077339	Peptidyl-tRNA hydrolase 2	ptrh2	0.01940	-0.85
ENSDARG00000094592			0.01880	0.85
ENSDARG00000096374		si:dkey-45d16 ,8	0.02844	0.85
ENSDARG00000075850	Guanine nucleotide binding protein (G protein), alpha activating activity polypeptide, olfactory type 2	gnal2	0.01501	-0.85
ENSDARG00000045095	ElaC homolog 1 (E , coli)	elac1	0.04086	0.85
ENSDARG00000091273	Interferon-induced transmembrane protein 3		0.00146	-0.85
ENSDARG00000009136	Apoptosis-stimulating of p53 protein 1		0.03321	0.86
ENSDARG00000045142	Hemoglobin zeta	hbz	0.04940	-0.86
ENSDARG00000013269	Synaptotagmin-like protein 4		0.00629	0.86
ENSDARG00000060951	Polymerase (DNA directed), gamma	polg	0.01690	-0.86
ENSDARG00000070287	H3 histone, family 3A		0.02903	-0.86

ENSDARG00000003546	Unc-45 homolog A (C , elegans)	unc45a	0.00018	-0.86
ENSDARG00000075015	Heme-binding protein soul5	soul5	0.01419	0.86
ENSDARG000000061211	Spastic paraplegia 20b (Troyer syndrome)	spg20b	0.02208	-0.86
ENSDARG000000027887	Zinc finger, FYVE domain containing 21	zfyve21	0.02766	0.86
ENSDARG00000079347		zgc:194659	0.00390	0.86
ENSDARG000000093503	Remodeling and spacing factor 1		0.00166	-0.86
ENSDARG00000040822	FUN14 domain containing 1	fundc1	0.03718	0.86
ENSDARG00000075690	DDR GK domain-containing protein 1		0.01035	0.86
ENSDARG00000020232	Eukaryotic translation initiation factor 6	eif6	0.00122	-0.86
ENSDARG00000037410	Mediator complex subunit 28	med28	0.00083	-0.86
ENSDARG00000053383	Reprimo, TP53 dependent G2 arrest mediator candidate a	rprma	0.00448	-0.86
ENSDARG00000071553		zgc:171500	0.03594	-0.86
ENSDARG000000005163	EFR3 homolog A (S , cerevisiae)		0.03648	0.87
ENSDARG00000043436		si:dkey-5n18.1	0.01580	0.87
ENSDARG000000004939	Protein LYRIC		0.00152	-0.87
ENSDARG00000070931		si:ch211-232m10 ,6	0.00243	-0.87
ENSDARG00000077263		si:ch73-27e22.3	0.00245	-0.87
ENSDARG00000027464	Glucosamine (N-acetyl)-6-sulfatase (Sanfilippo disease IIID), b	gnsb	0.00115	0.87
ENSDARG000000091294	Cytidine deaminase		0.01536	0.87
ENSDARG00000088493		si:ch211-149k12.3	0.03480	0.87
ENSDARG000000094439	Transmembrane protein 176l ,3a	tmem176l ,3a	0.01807	0.87
ENSDARG00000035949	Transmembrane protein 106Bb	tmem106bb	0.04096	-0.87
ENSDARG00000003046	Sorbin and SH3 domain-containing protein 2		0.03326	0.87
ENSDARG00000092926		si:dkey-66k12.3	0.04902	0.87
ENSDARG00000044776	Chloride intracellular channel a	clica	0.01261	-0.87
ENSDARG00000003680	Runt-related transcription factor 1; translocated to, 1 (cyclin D-related)	runx1t1	0.00428	-0.87
ENSDARG00000032200	Regucalcin	rgn	0.02224	0.87
ENSDARG00000020454	Proteasome (prosome, macropain) 26S subunit, non-ATPase, 8	psmd8	0.01574	-0.87
ENSDARG00000044807	Deoxycytidine kinase	dck	0.00057	-0.87
ENSDARG00000057334	Cytidine monophosphate N-acetylneuraminic acid synthetase a	cmasa	0.00306	0.87
ENSDARG00000031981	6-pyruvoyl-tetrahydropterin synthase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1)	pcbd1	0.00341	0.87
ENSDARG00000010701	Crystallin, gamma S4	crygs4	0.02170	0.87
ENSDARG00000063718	Vacuolar protein sorting 72 homolog (S , cerevisiae)	vps72	0.03054	-0.87
ENSDARG00000036776	Aldehyde dehydrogenase 8 family, member A1	aldh8a1	0.02991	0.87
ENSDARG00000036305	PHD finger protein 23b	phf23b	0.02250	-0.87
ENSDARG000000067672	Caspase recruitment domain family, member 9	card9	0.01053	-0.87
ENSDARG00000059690	Solute carrier family 29 (nucleoside transporters), member 4	slc29a4	0.00103	-0.88
ENSDARG00000074738	Protocadherin 2 gamma 9	pcdh2g9	0.03453	-0.88
ENSDARG00000012199	Glutamic pyruvate transaminase (alanine aminotransferase) 2	gpt2	0.00553	-0.88
ENSDARG00000086641	Starch-binding domain-containing protein 1		0.01744	0.88
ENSDARG00000091624	UDP glucuronosyltransferase 1 family a, b		0.00939	-0.88
ENSDARG000000093757	CMRF35-like molecule 7		0.00508	0.88
ENSDARG00000078507	Wingless-type MMTV integration site family, member 8b		0.03809	-0.88
ENSDARG00000002795	Myeloid ecotropic viral integration site 3	meis3	0.00782	0.88
ENSDARG00000053070	Golgi SNAP receptor complex member 2	gosr2	0.01426	-0.88
ENSDARG00000021433	Acetylserotonin O-methyltransferase-like	asmtl	0.00155	-0.88
ENSDARG00000069677	Nicotin 1	nicn1	0.04580	0.88
ENSDARG00000062307	Coiled-coil domain-containing protein 61		0.01086	-0.88
ENSDARG00000044942	Mitochondrial ribosomal protein L45	mrpl45	0.00044	-0.88
ENSDARG00000087788	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.01069	0.88
ENSDARG00000094935		si:dkey-58f10.11	0.00020	0.88
ENSDARG00000063252	Proline-rich protein PRCC		0.00994	0.88
ENSDARG000000002771	Solute carrier family 4, sodium bicarbonate cotransporter, member 5		0.00409	0.89
ENSDARG00000040119	Coiled-coil domain-containing protein 127		0.02595	-0.89
ENSDARG00000044485	Sal-like 4 (Drosophila)	sall4	0.01879	0.89
ENSDARG00000059700	Agmatine ureohydrolase (agmatinase)	agmat	0.00781	-0.89
ENSDARG00000061719	WASH complex subunit 7		0.01421	0.89
ENSDARG00000087508	CD99 antigen-like protein 2	cd99l2	0.01159	-0.89
ENSDARG00000087746			0.00008	-0.89
ENSDARG00000088463	Caseinolytic peptidase B protein homolog		0.04195	-0.89
ENSDARG00000010962	FK506 binding protein 7	fkbp7	0.03525	0.89
ENSDARG00000017785		zgc:158689	0.03763	0.89
ENSDARG00000037628	TRNA 2 -phosphotransferase 1		0.00230	0.89
ENSDARG00000023583	Coenzyme Q9 homolog (S , cerevisiae)	coq9	0.00062	-0.89
ENSDARG00000021404	NFU1 iron-sulfur cluster scaffold homolog_ mitochondrial	zgc:110319	0.01371	0.89
ENSDARG00000055715	Calpain 8	capn8	0.00336	0.89
ENSDARG00000009134	H2 ,0-like homeo box 1 (Drosophila)	hlx1	0.01174	-0.90
ENSDARG00000030097	Syndecan binding protein (syntenin)	sdcbp	0.01244	0.90

ENSDARG00000091931	G patch domain containing 4	gpatch4	0.04871	-0.90
ENSDARG00000091315			0.00131	0.90
ENSDARG00000077004	Aldehyde dehydrogenase 1 family, member L1	aldh111	0.04844	0.90
ENSDARG00000076119	EMI domain-containing protein 1		0.01606	0.90
ENSDARG00000043094	GNAS complex locus	gnas	0.03867	-0.90
ENSDARG00000003933	Pyruvate kinase, muscle, a	pkma	0.03937	-0.90
ENSDARG00000059919	UPF0420 protein C16orf58		0.00220	-0.90
ENSDARG00000086420	Uncharacterized protein; cDNA FLJ59044, highly similar to LINE-1 reverse transcriptase homolog		0.04660	0.90
ENSDARG00000092494			0.00226	0.90
ENSDARG00000095320			0.01439	0.90
ENSDARG00000059175	Centrosomal protein 19	cep19	0.01329	-0.90
ENSDARG00000016608	Fragile site, folic acid type, rare, candidate 1	fra10ac1	0.00108	0.90
ENSDARG00000078284	Phosphorylase b kinase regulatory subunit beta		0.02632	0.90
ENSDARG00000096059		si:dkeyp-85d8.3	0.00168	-0.90
ENSDARG00000007127	Acetyl-CoA acetyltransferase 2	acat2	0.03673	-0.90
ENSDARG00000008052	Nuclear distribution gene C homolog	nudc	0.03987	-0.90
ENSDARG00000003841	U6 snRNA phosphodiesterase		0.01067	0.90
ENSDARG00000014041	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A containing DEAD/H box 1		0.00024	-0.90
ENSDARG00000012552	Transferrin receptor 1a		0.03389	0.91
ENSDARG00000016044	DNA replication complex GINS protein SLD5		0.01203	-0.91
ENSDARG00000036966	Hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase	hsd3b7	0.00976	0.91
ENSDARG00000069936		si:dkey-281i8 ,1	0.01551	0.91
ENSDARG00000090390			0.01499	0.91
ENSDARG00000007219	Actinin, alpha 1	actn1	0.01119	0.91
ENSDARG00000093368			0.00280	0.91
ENSDARG00000043446	EF-hand domain family, member D1	efhd1	0.02649	-0.91
ENSDARG00000010978	TRNA methyltransferase 1 homolog (S , cerevisiae)	trmt1	0.00799	-0.91
ENSDARG00000059908	Coiled-coil domain-containing protein 86		0.04347	-0.91
ENSDARG00000002369	Polyubiquitin-C		0.02347	0.92
ENSDARG00000033973	Mitochondrial ribosomal protein S23	mrps23	0.00561	-0.92
ENSDARG00000036061	2-oxoglutarate and iron-dependent oxygenase domain containing 1	ogfod1	0.00463	0.92
ENSDARG00000054856	Methyltransferase-like protein 12, mitochondrial		0.04163	-0.92
ENSDARG00000051710	Antigen-presenting glycoprotein CD1d		0.00812	-0.92
ENSDARG00000077957			0.00057	0.92
ENSDARG00000090482	Fas-binding factor 1		0.00031	0.92
ENSDARG00000021110	POC1 centriolar protein homolog B (Chlamydomonas)	poc1b	0.00849	-0.92
ENSDARG00000071578		si:ch211-222k6.3	0.00301	-0.92
ENSDARG00000062314	RAS-like, family 10, member A	rasl10a	0.00270	0.92
ENSDARG00000013006	Progesterone immunomodulatory binding factor 1	pibf1	0.03609	-0.93
ENSDARG00000013312	Ca2+-dependent activator protein for secretion 2	cadps2	0.00059	-0.93
ENSDARG00000030367	Meteorin, glial cell differentiation regulator	metrn	0.00012	-0.93
ENSDARG00000058845	UDP glucuronosyltransferase 1 family a, b		0.00144	-0.93
ENSDARG00000074844		cabz01061495.1	0.03096	-0.93
ENSDARG00000076659	Cell division cycle-associated 7-like protein	cdca7b	0.01412	-0.93
ENSDARG00000086347			0.00116	0.93
ENSDARG00000089518			0.00327	-0.93
ENSDARG00000042697	Scavenger receptor class B, member 1	scarb1	0.02910	-0.93
ENSDARG00000052942	Asparaginase homolog (S , cerevisiae)	aspg	0.01025	0.93
ENSDARG00000024325	Collagen, type IV, alpha 3 (Goodpasture antigen) binding protein a	col4a3bpa	0.02546	-0.93
ENSDARG00000015025	Neural adhesion molecule L1 ,1	nad11 ,1	0.01595	0.93
ENSDARG00000043371	Malate dehydrogenase, mitochondrial		0.03330	0.93
ENSDARG00000035577	CDP-diacylglycerol synthase (phosphatidate cytidyltransferase) 2	cds2	0.00514	0.93
ENSDARG00000003693	Histidyl-tRNA synthetase	hars	0.00042	-0.93
ENSDARG00000059613	Nitrogen permease regulator-like 2 (S , cerevisiae)	npr12	0.00500	-0.93
ENSDARG000000041137	Dehydrogenase/reductase (SDR family) member 13a, duplicate 3	dhrs13a ,3	0.00301	-0.94
ENSDARG00000030999	V-myb myeloblastosis viral oncogene homolog (avian)-like 1	myb11	0.00046	0.94
ENSDARG00000071240	Alanyl-tRNA synthetase 2, mitochondrial (putative)	aars2	0.03534	-0.94
ENSDARG00000088089	Sterile alpha motif domain-containing protein 3	zgc:171242	0.01897	0.94
ENSDARG00000087816			0.00799	-0.94
ENSDARG00000017864	Thioredoxin reductase 1	txnrd1	0.00538	-0.94
ENSDARG00000092532	Serine protease 57		0.00371	-0.94
ENSDARG00000093458	Serine protease 56-like	si:dkey-76d14.2	0.00243	0.94
ENSDARG00000006604	Poliovirus receptor-related 3b	pvr13b	0.01726	0.94
ENSDARG00000046127	Thymidine kinase 2, mitochondrial	tk2	0.03239	-0.94
ENSDARG00000033376	Coiled-coil-helix-coiled-coil-helix domain containing 4	chchd4	0.01378	-0.94
ENSDARG00000040678	Coiled-coil domain containing 93	ccdc93	0.00839	-0.94
ENSDARG00000056874	Lysozyme g-like 1	lygl1	0.00657	0.94
ENSDARG00000018060	Phosphoinositide-3-kinase, regulatory subunit, polypeptide 2	pik3r2	0.00389	-0.94

ENSDARG00000005821	Neutrophil cytosolic factor 2	ncf2	0.00144	-0.95
ENSDARG00000013082	UDP-N-acteylglucosamine pyrophosphorylase 1, like 1	uap111	0.03953	0.95
ENSDARG00000034718	Tissue factor pathway inhibitor a	tfpia	0.00341	0.95
ENSDARG00000054609	Solute carrier organic anion transporter family, member 2B1	slco2b1	0.01371	-0.95
ENSDARG00000075325	Mitochondrial ribosomal protein L16	mrpl16	0.01292	-0.95
ENSDARG00000020072	Thrombospondin 4b	thbs4b	0.03964	0.95
ENSDARG00000076787	Angiopietin 1		0.00013	0.95
ENSDARG00000078054	Protein Spindly		0.01529	-0.95
ENSDARG00000057737	Retinoid X receptor, alpha a	rxraa	0.00595	-0.95
ENSDARG00000089875		si:ch211-226o13 ,2	0.00543	0.95
ENSDARG00000043313	Ankyrin 2b, neuronal	ank2b	0.03891	0.95
ENSDARG00000092889	Synaptonemal complex central element protein 3		0.03348	-0.95
ENSDARG00000044526	Calcium/calmodulin-dependent protein kinase IGA	camk1ga	0.01816	0.95
ENSDARG00000006399	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon polypeptide 1	ywhae1	0.01137	-0.95
ENSDARG00000014545	Golgi integral membrane protein 4b	golim4b	0.00377	-0.95
ENSDARG00000013842	TBC1 domain family, member 19	tbc1d19	0.04168	0.96
ENSDARG00000025106	Protein phosphatase 3, catalytic subunit, beta isozyme	ppp3cb	0.00843	0.96
ENSDARG00000042332	Perilipin 2	plin2	0.00067	0.96
ENSDARG00000028912		si:dkey-10h3.2	0.00274	0.96
ENSDARG00000071211	Uncharacterized protein C1orf50 homolog	c11h1orf50	0.00536	-0.96
ENSDARG00000090461	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.00758	0.96
ENSDARG00000087181	Chromobox homolog 7a		0.00276	0.96
ENSDARG00000090999			0.01990	-0.96
ENSDARG00000074202	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.01655	0.96
ENSDARG00000027552	Mitogen-activated protein kinase 1	mapk1	0.01392	0.96
ENSDARG00000069804		si:ch211-198k9 ,6	0.04309	0.96
ENSDARG00000035889	Zinc finger and BTB domain containing 8B	zbtb8b	0.01643	0.96
ENSDARG00000087431	Glutathione S-transferase A4	zgc:173962	0.02364	0.97
ENSDARG00000015657	Protein phosphatase 1 regulatory subunit 3	zgc:77112	0.03329	0.97
ENSDARG00000039913	Transmembrane protein 147	tmem147	0.00099	-0.97
ENSDARG000000069529	Dual specificity protein phosphatase 13 isoform B [DUSP13B]	zgc:153981	0.00258	0.97
ENSDARG00000079097	Protein TANC1		0.00735	-0.97
ENSDARG00000088908	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.00359	0.97
ENSDARG00000076132	Sialic acid binding Ig-like lectin 15, like	siglec15l	0.03713	0.97
ENSDARG00000086014			0.04377	0.97
ENSDARG00000022280	Bromodomain-containing 2a	brd2a	0.01849	0.97
ENSDARG00000090854	U7 snRNA-associated Sm-like protein LSm11		0.01327	-0.97
ENSDARG000000024143	Microsomal glutathione S-transferase 3 [Microsomal GST-3]	zgc:158387	0.03765	0.97
ENSDARG000000067858	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.00723	0.97
ENSDARG00000028663	TEK tyrosine kinase, endothelial	tek	0.00149	-0.97
ENSDARG00000052139	Notch homolog 3	notch3	0.00814	0.97
ENSDARG00000088366		zgc:77938	0.00127	0.97
ENSDARG00000002826	Centrosomal protein 57-like 1	cep57l1	0.00964	0.97
ENSDARG00000040039	Pituitary tumor-transforming 1 interacting protein b	pttg1ipb	0.00460	-0.97
ENSDARG00000037995	Decapentaplegic and Vg-related 1	dvr1	0.00108	-0.97
ENSDARG00000058688	Adiponectin receptor 2	adipor2	0.01628	0.97
ENSDARG00000025808	TAF5-like RNA polymerase II, p300/CBP-associated factor (PCAF)-associated factor	taf5l	0.03185	-0.98
ENSDARG00000057723	NAD(P) dependent steroid dehydrogenase-like	nsdhl	0.00458	-0.98
ENSDARG00000058507	Zinc finger protein 112	zgc:173517	0.00100	-0.98
ENSDARG00000043451	Calcium binding protein 39	cab39	0.00439	-0.98
ENSDARG00000091545			0.00208	0.98
ENSDARG00000088301	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.04483	0.98
ENSDARG00000069368	Neuritin 1-like a	nrm1la	0.00221	-0.98
ENSDARG00000037008	Bernardinelli-Seip congenital lipodystrophy 2 (seipin)	bscl2	0.02206	-0.98
ENSDARG00000016513	SET domain containing 3	setd3	0.00178	0.98
ENSDARG00000034215	RAB42, member RAS oncogene family a	rab42a	0.02623	-0.98
ENSDARG00000039392	WNK lysine deficient protein kinase 1b	wnk1b	0.00032	0.98
ENSDARG00000075014	Sequestosome 1	sqstm1	0.00002	-0.98
ENSDARG00000093007	M-phase phosphoprotein 6	mphosph6	0.03459	0.98
ENSDARG00000038729	S100 calcium binding protein Z	s100z	0.01521	0.98
ENSDARG00000030786	Mannose phosphate isomerase	mpi	0.00406	0.98
ENSDARG00000035985	Family with sequence similarity 210, member A		0.00205	-0.98
ENSDARG00000060054	Enhancer of polycomb homolog 1 (Drosophila)		0.00667	-0.98
ENSDARG00000059881	Family with sequence similarity 69, member B	fam69b	0.02824	0.98
ENSDARG00000011196	DnaJ homolog subfamily C member 11		0.00052	0.99
ENSDARG00000004171	Rab acceptor 1 (prenylated)	rabac1	0.02614	0.99
ENSDARG00000061845	Phospholipase D3	si:dkeyp-110e4 ,6	0.01998	-0.99
ENSDARG00000075980	Transmembrane protein 125	tmem125	0.00107	0.99

ENSDARG00000016464	CDC42 binding protein kinase beta (DMPK-like)		0.02835	-0.99
ENSDARG00000002549	Eukaryotic translation initiation factor 3, subunit E, b	EIF3B	0.00063	0.99
ENSDARG000000069282	BCL2 binding component 3	BBC3	0.00075	0.99
ENSDARG000000061736	Ankyrin 3a	ANK3A	0.04468	0.99
ENSDARG00000003270	Deoxyhypusine synthase	DHPS	0.00043	0.99
ENSDARG00000010411	Epsin 1	EPN1	0.02372	-0.99
ENSDARG000000058740	Ubiquitin-conjugating enzyme E2R 2	UBE2R2	0.00317	0.99
ENSDARG000000014303	Vac14 homolog (S, cerevisiae)	VAC14	0.01362	0.99
ENSDARG000000036109	Metaxin 1b	MTX1B	0.01379	-0.99
ENSDARG000000078136	WD repeat-containing protein 47		0.00145	-0.99
ENSDARG000000053831	Vitronectin b	VTNB	0.00120	0.99
ENSDARG000000036826	Ankyrin repeat domain 52a	ANKRD52A	0.02303	1.00
ENSDARG000000037346	Histone deacetylase 11	HDAC11	0.00033	1.00
ENSDARG000000068256	RWD domain containing 4	RWDD	0.01471	1.00
ENSDARG000000052222		ZGC:114118	0.01160	1.00
ENSDARG000000095209	NACHT_LRR and PYD domains-containing protein 1	ZGC:194906	0.01039	1.00
ENSDARG000000091005			0.00922	1.00
ENSDARG000000023110	Mitogen-activated protein kinase 7	MAPK7	0.00069	1.00
ENSDARG000000008026	Family with sequence similarity 129, member Bb	FAM129BB	0.00299	1.01
ENSDARG000000028517	HMG-box transcription factor 1	HBP1	0.02604	1.01
ENSDARG000000035088	GTPase IMAP family member 2	SI:CH211-254C8_3	0.02525	1.01
ENSDARG000000029172	Polymerase (RNA) I polypeptide A	POLR1A	0.00489	1.01
ENSDARG000000058736	Gamma-aminobutyric acid (GABA) A receptor, alpha 6b	GABRA6B	0.01837	1.01
ENSDARG000000039820	Male-enhanced antigen 1	MEAL	0.01831	1.01
ENSDARG000000095036			0.00068	1.01
ENSDARG000000091949	Polymeric immunoglobulin receptor		0.02206	1.01
ENSDARG000000054502			0.02588	1.02
ENSDARG000000078095	CLOCK-interacting pacemaker b	CIPCB	0.04601	1.02
ENSDARG000000004442	Solute carrier family 39 (zinc transporter), member 13	SLC39A13	0.02925	1.02
ENSDARG000000091834		SI:CH211-198M17.1	0.03496	1.02
ENSDARG000000055751	FBI murine osteosarcoma viral oncogene homolog B	FOSB	0.01691	1.02
ENSDARG00000001169	Hydroxysteroid (17-beta) dehydrogenase 8	HSD17B8	0.02994	1.02
ENSDARG000000058801	REV3-like, catalytic subunit of DNA polymerase zeta (yeast)	REV3L	0.00187	1.03
ENSDARG000000087308			0.00073	1.03
ENSDARG000000095212	Protein FAM115C		0.00275	1.03
ENSDARG000000025914		SI:DKEY-190G11.3	0.00775	1.04
ENSDARG000000067697			0.00070	1.04
ENSDARG000000088788	GTPase IMAP family member 2	SI:CH211-131E11_21	0.00834	1.05
ENSDARG000000086098	ERBB receptor feedback inhibitor 1		0.00600	1.05
ENSDARG000000093828			0.00065	1.05
ENSDARG000000053744	Doublecortin domain containing 2B	DCC2B	0.00151	1.05
ENSDARG000000079124	MTERF domain-containing protein 2		0.00252	1.05
ENSDARG000000009402	Protein FAM115C		0.01095	1.06
ENSDARG000000092726		SI:DKEY-184P9.7	0.03809	1.06
ENSDARG000000074881	NACHT_LRR and PYD domains-containing protein 1	ZGC:194906	0.03113	1.07
ENSDARG000000090091		SI:CH211-238E22_2	0.00549	1.07
ENSDARG000000090020	Cannabinoid receptor 1	CNR1	0.03798	1.07
ENSDARG000000006031	4-aminobutyrate aminotransferase	ABAT	0.01299	1.08
ENSDARG000000026149	Solute carrier family 46, member 1	SLC46A1	0.00003	1.08
ENSDARG000000013926	Solute carrier family 16 (monocarboxylic acid transporters), member 9a	SLC16A9A	0.03029	1.08
ENSDARG000000038424	Complement component 4		0.00569	1.08
ENSDARG000000060854	Potassium channel tetramerisation domain containing 3	KCTD3	0.02289	1.08
ENSDARG000000040300	GTP-binding protein 10 (putative)	GTPBP10	0.02992	1.08
ENSDARG000000053450	FinTRIM family, member 6	FTR06	0.02565	1.08
ENSDARG000000013022		SI:CH211-59H6.1	0.00116	1.09
ENSDARG000000092134	RAD54 homolog B (S, cerevisiae)	RAD54B	0.02386	1.09
ENSDARG000000034048		ZGC:92275	0.00425	1.09
ENSDARG000000069427	Na ⁺ /K ⁺ transporting ATPase interacting 1		0.00028	1.10
ENSDARG000000096189		SI:DKEY-54J5_2	0.02899	1.10
ENSDARG000000071495		SI:DKEY-236E20_3	0.03781	1.11
ENSDARG000000024588	Glypican 5	GPC5	0.00933	1.11
ENSDARG000000056753	Dynactin 1b	DCTN1B	0.04707	1.11
ENSDARG000000003146		SI:DKEY-27M7_4	0.00420	1.12
ENSDARG000000007425	Apolipoprotein L, 1	APOL1	0.02066	1.12
ENSDARG000000039914	Glyceraldehyde-3-phosphate dehydrogenase, spermatogenic	GAPDH	0.00515	1.12
ENSDARG000000069365			0.00005	1.12
ENSDARG000000075537	Sterile alpha motif domain-containing protein 3	ZGC:171242	0.00358	1.13
ENSDARG000000011113	Cholinergic receptor, nicotinic, alpha 10a	CHRNA10A	0.03357	1.13
ENSDARG0000000042913	Sperm flagellar 2	SPEF2	0.00312	1.13
ENSDARG000000051814	Protein tyrosine phosphatase, receptor-type, Z polypeptide 1a	PTPRZ1A	0.00972	1.14
ENSDARG000000060168	Family with sequence similarity 160, member B1	FAM160B1	0.03695	1.14
ENSDARG000000037324	Kelch-like protein 17		0.00539	1.14

ENSDARG00000076092	Solute carrier family 31 (copper transporter), member 2	slc31a2	0.00712	1.14
ENSDARG00000040944	Ntl-dependent gene 5	ntd5	0.00246	1.15
ENSDARG00000060981	Suppressor of IKBKE 1		0.00234	1.15
ENSDARG00000090715			0.00237	1.15
ENSDARG00000057439	Metal response element binding transcription factor 2		0.00146	1.15
ENSDARG00000069940	Phosphatidic acid phosphatase type 2D	ppap2d	0.00809	1.15
ENSDARG00000007485	Enhancer of polycomb homolog 2 (Drosophila)	epc2	0.00023	1.16
ENSDARG00000005823	Solute carrier family 39 (zinc transporter), member 10	slc39a10	0.00571	1.16
ENSDARG00000038458	WAS/WASL-interacting protein family member 1		0.00368	1.16
ENSDARG00000061602	Synovial sarcoma, X breakpoint 2 interacting protein b	ssx2ipb	0.02066	1.16
ENSDARG00000093747		si:dkey-122c11.1	0.00615	1.16
ENSDARG00000057324			0.00107	1.17
ENSDARG00000029898	Cyclic nucleotide gated channel alpha 1		0.00652	1.18
ENSDARG00000039268	ER membrane protein complex subunit 4		0.00517	1.18
ENSDARG00000093364	Myotubularin related protein 3	mtmr3	0.00335	1.18
ENSDARG00000012130	Transglutaminase 1 like 1	tgm1l1	0.01264	1.18
ENSDARG00000094441	Uncharacterized protein KIAA0556		0.00008	1.18
ENSDARG00000036787	ATP-binding cassette, sub-family B (MDR/TAP), member 3 like 1	abcb3l1	0.00825	1.18
ENSDARG00000074749	ATP-binding cassette, sub-family A (ABC1), member 12	abca12	0.00507	1.19
ENSDARG00000077995	Sushi domain-containing protein 3		0.01267	1.19
ENSDARG00000086240	Si:ch211-163m16 ,6		0.02964	1.19
ENSDARG00000012468	Acetoacetyl-CoA synthetase	aacs	0.00601	1.19
ENSDARG00000022833	Ribosomal protein, large P2	rplp2	0.01674	1.19
ENSDARG00000055854	Nuclear receptor subfamily 4, group A, member 3	nr4a3	0.03961	1.19
ENSDARG00000091620	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.03579	1.20
ENSDARG00000095331		si:dkey-26m3 ,1	0.02450	1.20
ENSDARG00000003244	Guanylate binding protein 3	gbp3	0.00087	1.20
ENSDARG00000035768	Phospholipid transfer protein	pltp	0.00221	1.20
ENSDARG00000040610	Cystine/glutamate transporter		0.00133	1.21
ENSDARG00000034467			0.01902	1.21
ENSDARG00000075067	Aryl hydrocarbon receptor interacting protein		0.01948	1.21
ENSDARG00000017246	Prerixin	prx	0.00562	1.22
ENSDARG00000052874	Si:dkeyp-52c3 ,7		0.01436	1.22
ENSDARG00000075261	Tissue inhibitor of metalloproteinase 2b	timp2b	0.01342	1.22
ENSDARG00000087966			0.00007	1.23
ENSDARG00000089879	Heme-binding protein soul5, like	soul5l	0.00775	1.24
ENSDARG000000068245	Acid-sensing (proton-gated) ion channel 1c	asic1c	0.00116	1.24
ENSDARG00000089838		cu463790.1	0.00621	1.24
ENSDARG00000008986	E2F transcription factor 7	e2f7	0.00281	1.25
ENSDARG00000096368	Sialidase 3, tandem duplicate 2		0.00053	1.25
ENSDARG00000032849	NDRG family member 3, isoform CRA_ c; Protein NDRG3		0.01774	1.25
ENSDARG00000059308	Golgi transport 1Bb	golt1bb	0.00110	1.25
ENSDARG00000015110	Solute carrier family 18 (vesicular monoamine), member 2	slc18a2	0.00626	1.26
ENSDARG00000031001	Protein RRNAD1		0.03836	1.26
ENSDARG00000026925	Nitric oxide synthase 2a, inducible	nos2a	0.03977	1.27
ENSDARG00000079939	Probable JmjC domain-containing histone demethylation protein 2C		0.00987	1.27
ENSDARG00000095972	Phospholipase A1 member A	pla1a	0.00041	1.27
ENSDARG00000056151	Tyrosinase-related protein 1b	tyrp1b	0.03905	1.27
ENSDARG00000020239	Lipin 1	lpin1	0.00608	1.27
ENSDARG00000039684	Sirtuin (silent mating type information regulation 2 homolog) 5 (S , cerevisiae)	sirt5	0.00310	1.28
ENSDARG00000086132			0.00260	1.28
ENSDARG00000094500		si:ch211-238e22.4	0.00628	1.28
ENSDARG00000069453		zgc:113314	0.00475	1.29
ENSDARG00000002564	Synaptogyrin 1a	syng1a	0.00369	1.29
ENSDARG00000025902	Pleckstrin homology domain containing, family G (with RhoGef domain) member 5a	plekhg5a	0.00047	1.29
ENSDARG00000077653	Rab-like protein 6		0.03774	1.30
ENSDARG00000079637	Alpha-kinase 2	alpk2	0.02790	1.31
ENSDARG00000058218	Protein FAM151A		0.04079	1.31
ENSDARG00000007184	Zinc finger and BTB domain containing 16a	zbtb16a	0.03361	1.32
ENSDARG00000033889	SPT2, Suppressor of Ty, domain containing 1 (S , cerevisiae)	spty2d1	0.00244	1.32
ENSDARG00000016866	Family with sequence similarity 102, member Ab	fam102ab	0.00000	1.32
ENSDARG00000087176	Uncharacterized protein		0.00197	1.32
ENSDARG00000025535	Clathrin interactor 1a	clint1a	0.01484	1.32
ENSDARG00000088585	Sterile alpha motif domain-containing protein 3	zgc:171242	0.03286	1.33
ENSDARG00000077372	Transferrin receptor 1b	tfr1b	0.00348	1.33
ENSDARG00000071252	Sodium channel, voltage-gated, type I, beta b	scn1bb	0.00877	1.33
ENSDARG00000031562	Transcriptional adaptor 2A	tada2a	0.00007	1.34
ENSDARG00000017494	Transforming growth factor, beta receptor 1 a	tgfbr1a	0.00501	1.34
ENSDARG00000052666	Lipopolysaccharide-induced TNF factor	litaf	0.00394	1.35

ENSDARG00000074556	Neutral alpha-glucosidase AB		0.02332	1.37
ENSDARG00000040881	Heterogeneous nuclear ribonucleoprotein H1	hnrnp1	0.00015	1.40
ENSDARG00000010186	Myosin IIIA	myo3a	0.02646	1.41
ENSDARG00000076553	Tripartite motif-containing 32	trim32	0.01390	1.41
ENSDARG00000091600			0.02156	1.41
ENSDARG00000020929	Family with sequence similarity 49, member Ba	fam49ba	0.02843	1.41
ENSDARG00000035810	Regulator of cell cycle	rgcc	0.00817	1.41
ENSDARG00000088559	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.04704	1.43
ENSDARG00000028846	ADP-ribosylation factor-like 3, like 1	arl311	0.00128	1.43
ENSDARG00000032264	Myeloblastosis oncogene-like 2	mybl2	0.03272	1.44
ENSDARG00000074381	RhoGEF (ARHGEF) and pleckstrin domain protein 1 (chondrocyte-derived)	farpl	0.00154	1.44
ENSDARG00000010454	Guanylate cyclase activator 1A	guca1a	0.00385	1.44
ENSDARG00000071448	Prolyl 3-hydroxylase 2		0.00053	1.45
ENSDARG00000078001	Kelch repeat and BTB domain-containing protein 7		0.04609	1.45
ENSDARG00000035508	BarH-like 1a	barhl1a	0.01077	1.45
ENSDARG00000017803	Glycogen synthase kinase 3 beta	gsk3b	0.00127	1.46
ENSDARG00000053152	Protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1	pcmt1	0.00818	1.47
ENSDARG00000061993	WD repeat domain 74	wdr74	0.00877	1.48
ENSDARG00000013613	Annexin A13, like	anxa131	0.02001	1.48
ENSDARG00000006065	Zinc finger protein 385B	znf385b	0.00597	1.48
ENSDARG00000058305	Myotubularin related protein 3		0.00416	1.48
ENSDARG00000058806	Apolipoprotein A-I binding protein	apoa1bp	0.00952	1.49
ENSDARG00000088020			0.01711	1.50
ENSDARG00000073793	Sterile alpha motif domain-containing protein 3	zgc:171242	0.00307	1.51
ENSDARG00000041729	Syntrophin, basic 1	sntb1	0.00029	1.51
ENSDARG000000023190	Karyopherin alpha 4 (importin alpha 3)	kpna4	0.01310	1.51
ENSDARG00000077572	Sterile alpha motif domain-containing protein 3	zgc:171242	0.00719	1.51
ENSDARG00000034662	Non-SMC element 1 homolog (S , cerevisiae)	nsmce1	0.00083	1.53
ENSDARG00000001244	Serine/arginine repetitive matrix 1	srrm1	0.00893	1.55
ENSDARG000000022675	OTU domain containing 6B	otud6b	0.00038	1.56
ENSDARG00000076693	Crystallin, gamma MX, like 1		0.01210	1.56
ENSDARG00000002758	Death effector domain-containing 1	dedd1	0.03639	1.57
ENSDARG00000021233	6-phosphogluconolactonase	pgls	0.00136	1.57
ENSDARG00000079326	Calcineurin-binding protein cabin-1		0.02048	1.60
ENSDARG00000001975	Hydroxysteroid 11-beta dehydrogenase 2	hsd11b2	0.03545	1.61
ENSDARG00000089079	Ribonuclease inhibitor		0.00064	1.62
ENSDARG00000096050			0.01303	1.62
ENSDARG00000090015		si:dkeyp-52c3 ,7	0.01247	1.63
ENSDARG00000074106			0.00187	1.63
ENSDARG00000086300	Family with sequence similarity 107, member B		0.00616	1.63
ENSDARG00000045528	FYVE, RhoGEF and PH domain containing 6	fgd6	0.00596	1.64
ENSDARG00000090901	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.00098	1.67
ENSDARG00000003519	Adenine phosphoribosyl transferase	aprt	0.00970	1.67
ENSDARG00000086830	NACHT_ LRR and PYD domains-containing protein 1	Zgc:194906	0.01274	1.68
ENSDARG00000079717	RNA-binding protein 12B		0.00106	1.68
ENSDARG00000024381	Misato homolog 1 (Drosophila)	msto1	0.00707	1.68
ENSDARG00000075820			0.03810	1.72
ENSDARG00000089892	Lymphatic vessel endothelial hyaluronic acid receptor 1b		0.00104	1.72
ENSDARG00000032327	Ubiquitin specific peptidase 36	usp36	0.00803	1.74
ENSDARG00000018312	RELT-like protein 1		0.03152	1.74
ENSDARG00000086594	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.01616	1.75
ENSDARG00000074258	GRAM domain-containing protein 1B		0.00568	1.76
ENSDARG00000031952	Myoglobin	mb	0.00016	1.76
ENSDARG00000077090	Plexin B2	plxnb2	0.00303	1.76
ENSDARG00000017602	Cyclin-G2		0.00021	1.79
ENSDARG00000087365	NACHT_ LRR and PYD domains-containing protein 1	zgc:194906	0.02504	1.80
ENSDARG00000074446		zgc:173714	0.00311	1.81
ENSDARG00000057855	Mitochondrial ribosomal protein S31	mrps31	0.00466	1.81
ENSDARG00000038805	Phosphatidylinositol N-acetylglucosaminyltransferase subunit P		0.00034	1.81
ENSDARG00000041179	Crystallin, gamma M5	crygm5	0.00718	1.86
ENSDARG00000092445	Uncharacterized protein C5orf34		0.00254	1.86
ENSDARG00000052859	Calcineurin-like EF hand protein 1	chp1	0.02745	1.86
ENSDARG00000007108	Lipase member H [LIPH]	zgc:91985	0.01333	1.88
ENSDARG00000016570	Prolactin receptor a	prlra	0.00976	1.92
ENSDARG00000027065	Solute carrier family 38, member 3a	slc38a3a	0.00762	1.96
ENSDARG00000023759	BCL2/adenovirus E1B 19 kDa protein-interacting protein 3-like	zgc:73226	0.04516	2.00
ENSDARG00000038378	S-antigen; retina and pineal gland (arrestin) b	sagb	0.00421	2.04
ENSDARG00000079640	Protocadherin 2 gamma 16	pcdh2g16	0.00364	2.11
ENSDARG00000028367	Sulfotransferase family 2, cytosolic sulfotransferase 3	sult2st3	0.00357	2.14
ENSDARG00000023645	Cysteine conjugate-beta lyase; cytoplasmic	ccb11	0.00077	2.16

	(glutamine transaminase K, kyneurenine aminotransferase)			
ENSDARG00000041379		si:ch211-245j22 ,3	0.01811	2.17
ENSDARG00000003293	SRY-box containing gene 9a	sox9a	0.03586	2.26
ENSDARG00000005670	Tau-tubulin kinase 2		0.00393	2.27
ENSDARG00000011837	Protein C9orf72		0.04849	2.30
ENSDARG00000004470	Protein kinase C substrate 80K-H	prkcs	0.00035	2.44
ENSDARG000000061093	Pleckstrin homology-like domain, family B, member 1a	phldb1a	0.00047	2.45
ENSDARG00000017835	BRF1 homolog, subunit of RNA polymerase III transcription initiation factor IIIBa	brf1a	0.00179	2.48
ENSDARG00000026904	Cerebellin 13	cbln13	0.00101	2.79
ENSDARG00000010680	Guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 2a	gnpt2a	0.00001	2.81
ENSDARG00000056643	Solute carrier family 22 (organic anion transporter), member 7b	slc22a7b	0.00001	2.87
ENSDARG000000095549		si:dkeyp-106c3 ,2	0.00151	2.88
ENSDARG000000094038		si:ch211-226f6 ,1	0.00044	2.90
ENSDARG000000094869		si:dkey-5n7 ,2	0.00052	2.91
ENSDARG00000036239	Glycine amidinotransferase (L-arginine:glycine amidinotransferase)	gatm	0.01103	3.34
ENSDARG000000063509	Leucine rich repeat containing 58b	lrrc58b	0.00011	3.45
ENSDARG000000057912	Eukaryotic translation initiation factor 1A, X-linked, b	eif1axb	0.00114	3.51
ENSDARG000000009637		zgc:73075	0.00012	3.77
ENSDARG000000090616	UPF0705 protein C11orf49		0.00001	4.00
ENSDARG000000074443	Growth arrest-specific protein 7		0.00000	6.90

82 LogE2R<0 means downregulated in transgenic females

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