

# Underlying mechanisms of reproductive toxicity caused by multigenerational exposure of 2, bromo-4, 6-dinitroaniline (BDNA) to Zebrafish (*Danio rerio*) at environmental relevant levels



Xianyi Xie<sup>a</sup>, Yaru Jin<sup>a</sup>, Zhiyuan Ma<sup>a</sup>, Song Tang<sup>b</sup>, Hui Peng<sup>c</sup>, John P. Giesy<sup>a,d</sup>, Hongling Liu<sup>a,\*</sup>

<sup>a</sup> State Key Laboratory of Pollution Control and Resource Reuse, School of the Environment, Nanjing University, Nanjing, 210023, China

<sup>b</sup> Department of Environmental Toxicology, National Institute of Environmental Health, Chinese Center for Disease Control and Prevention, Beijing, 100021, China

<sup>c</sup> Department of Chemistry, University of Toronto, Ontario, M5S 3H6, Canada

<sup>d</sup> Department of Biomedical Veterinary Sciences and Toxicology Centre, University of Saskatchewan, Saskatoon, SKS7N 5B3, Canada

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## ABSTRACT

2-bromo-4, 6-dinitroaniline (BDNA) is a mutagenic aromatic amine involved in the production and degradation of Disperse blue 79, one of the most extensively used brominated azo dyes. In our previous study, a multi-generational exposure of BDNA (0.5, 5, 50 and 500 µg/L) to zebrafish from F<sub>0</sub> adult to F<sub>2</sub> larvae including a recovery group in F<sub>2</sub> larvae was conducted. The effects on apical points observed in individuals and the long-term effects predicted on population were all related to reproduction. In this study, we performed molecular analysis to elucidate the underlying mechanisms of the reproductive toxicity of BDNA. In F<sub>1</sub> generation, measurement of vitellogenin and transcription levels of genes associated with hypothalamus-pituitary-gland (HPG) axis, estrogen receptor (ER) and androgen receptor (AR) were conducted. There was a decrease in VTG level in the blood of F<sub>1</sub> female fish and transcription of genes related to ER was more affected than that of genes related to AR. These results were consistent with adverse effects that sexual differentiation was biased towards males and fecundity was impaired in a concentration-dependent manner in adults of F<sub>1</sub> generation after 150 days exposure. In F<sub>2</sub> generation, global gene transcriptions of F<sub>2</sub> larvae were investigated. It was uncovered that processes related to apoptosis, development and DNA damage were strongly affected. Alterations to these biological pathways accounted for the irreversible parental influence on a significant decrease in hatchability and increase in abnormality of F<sub>2</sub> larvae. All evidence suggested that the multigenerational exposure of BDNA posed lasting effects transmitted from parents to offspring that persisted after exposure ceased.

## 1. Introduction

Azo dyes are extensively used in food and clothing for their outstanding coloring properties and extremely low price, accounting for 70% of dye production worldwide (Novotný et al., 2006). Azo dyes rather than brominated flame retardants have been found to be predominant (56%) of brominated compounds in house dust (Peng et al., 2016). A large amount of dyes also enter wastewaters, especially from textile industries (Sarayu and Sandhya, 2012). After either anaerobic reduction in sediment or biotransformation in organisms, azo bonds, the chromophoric group of azo dyes, can be cleaved to form aromatic amines (Collier et al., 1993; Ahlström et al., 2005; Rawat et al., 2016).

2-bromo-4,6-dinitroaniline (BDNA) is the synthetic intermediate and also the degradation product of several azo dyes including Disperse blue-79, which is widely used as one of the three primary color dyes

and an exclusive dye for polyester fiber with the characteristics of disperse dyes (Weber and Adams, 1995; García-Lavandeira et al., 2010). Because of massive production and large-scale application, both Disperse blue-79 and BDNA have been found in aquatic and air environment. As an example, on the Yamaska River in Quebec, Canada, on which textile mills were situated upstream, the concentration of Disperse blue-79 was 1.9 ~ 17.1 µg/L, 0.8 ~ 3.3 µg/L and 0.1 ~ 4.2 mg/kg in water, suspended particles and sludge, respectively, and the concentration of BDNA in the sludge was 0.1 ~ 1.9 mg/kg (Maguire, 1992). BDNA has also been identified in house dust with a mean concentration of 502 ± 430 ng/g (Peng et al., 2016). BDNA is a potentially hazardous chemical based on limited research. BDNA is more toxic than its parent compound since an increase of toxic potency was observed after anaerobic treatment of textile wastewater containing Disperse blue-79 (Melgoza et al., 2004). Due to the great mutagenicity,

\* Corresponding author.

E-mail address: [hlliu@nju.edu.cn](mailto:hlliu@nju.edu.cn) (H. Liu).

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BDNA was listed as a model and positive chemical in an inter-laboratory evaluation of Ames mutation assay (Ackerman et al., 2009). A disposition and metabolism study of BDNA suggested that BDNA was rapidly absorbed by tissues, especially adipose tissues, after oral or injection exposure in rats (Chopade and Matthews, 1986). Additionally, the bromine substitution in BDNA molecule suggests that it may be a potential endocrine disruptor like many brominated organic compounds which have (anti-)estrogenic or (anti-)androgenic properties (Hamers et al., 2006; Harju et al., 2010).

To comprehensively explain the mechanism of the adverse effects of BDNA, a long-term or multigenerational toxicity test conducted at environmentally relevant concentrations is recommended. At present, performing short-term acute toxicity tests is a cost-efficient method to quickly determine whether a compound is toxic (Irons et al., 2010; Raftery et al., 2014). However, some compounds, like endocrine-disrupting chemicals existing at low environmental concentrations might not cause pronounced adverse effects during relatively short durations of exposure. Moreover, adverse outcomes of contaminants and the causes can be quite different in every developmental stage or generation of a specific organism (Nash et al., 2004). The cause of detrimental effects on individuals can be interpreted through investigating alterations at the molecular level as they are the immediate responses of organisms to external stimuli. Alterations in gene expression can be measured in two different ways. When candidate genes corresponding to a certain observed effect have already been clarified, quantitative real-time PCR (q-RT-PCR) is performed to straightly assess changes in the transcription of these specific genes (Zheng et al., 2012; Liu et al., 2015). When the observed effect is an integrated and complicated consequence, transcriptomics approach is applied to search key pathways and determine the biomarker (No, 2008).

Our previous study selected zebrafish as a model organism to conduct the multigenerational exposure of BDNA. Zebrafish is very inviting for a multigenerational exposure experiment because of its small size, easy culture, short life cycle and high fecundity (Segner, 2009). The apical effects on development and sexual differentiation were uncovered at the individual level and the risks of collapse were predicted at the population level. The observation of endpoints started from F<sub>1</sub> generation while the exposure was initiated at F<sub>0</sub> adult stage so as to simulate the circumstance in the real environment, that is, the offspring have been exposed to chemicals since their parental generation because the gametes of their parent fish were exposed (Ma et al., 2018). The evidence at both individual and population level pointed to the reproductive toxicity of BDNA, yet the mode of action (MOA) remained unknown. To this end, the objective of the current study is to elucidate the underlying mechanisms of the observed multigenerational adverse effects elicited by BDNA. We performed molecular analysis including q-RT-PCR, transcriptome sequencing and quantification of proteins to investigate events at the molecular level. These changes were then linked with apical endpoints to thoroughly understand the toxicological profile of BDNA.

## 2. Material and methods

### 2.1. Chemicals

BDNA (CAS number 1817-73-8) was purchased from Shanghai J&K Scientific (Shanghai, China) and purity is above 95%. Dimethyl sulfoxide (DMSO) (CAS number 67-68-5) was purchased from Shanghai Genaray Biotech (Shanghai, China) and purity is above 99%.

### 2.2. Multigenerational exposure experiment

As the data of the waterborne concentration of BDNA was unavailable, the data acquired from literature were transformed to derive the level of BDNA in aquatic environment, which is 0.01–72.68 µg/L. Besides, an acute toxicity test was conducted to extrapolate the value of

predicted no effect concentration (PNOEC) of BDNA as 394 µg/L. Finally, the exposure concentrations were determined as 0.5(7.82 × 10<sup>-4</sup> µM), 5(7.82 × 10<sup>-3</sup> µM), 50(7.82 × 10<sup>-2</sup> µM) and 500 µg/L(0.782 µM).

The multigenerational exposure was conducted by exposing F<sub>0</sub> adult zebrafish, the subsequent F<sub>1</sub> and F<sub>2</sub> zebrafish consecutively to four different concentrations of BDNA with three replicates in each treatment group. Additionally, recovery group was included in F<sub>2</sub> generation to identify whether the effects of BDNA would last via maternal transfer from F<sub>1</sub> to F<sub>2</sub>. The duration of the exposure in each generation was 21 d for F<sub>0</sub> (Fish Short-Term Reproductive Assay) (OECD, 2012), 150 d for F<sub>1</sub> (Fish Short-Term Reproductive Assay) (OECD, 2000) and 7 d for F<sub>2</sub> generation (Fish Early Life Stage Toxicity Test) (OECD, 2013a, b), respectively. Endpoints observation and molecular analysis were implemented in F<sub>1</sub> and F<sub>2</sub> generation. The experiment protocol has been described in our previous study (Ma et al., 2018) and was summarized here in Text S1. The concentration of dissolved oxygen in the water was always above 60% of the saturated concentration. The pH value of the water in exposure tanks was maintained between 7.5 and 8.5. Water samples were collected daily and the concentrations of BDNA were determined using liquid chromatography – electrospray ionization (–)–tandem mass spectrometry. Detailed methods and raw data were described in Text S2 and Table S3.

### 2.3. Q-RT-PCR assay

Q-RT-PCR assay of genes on HPG axis and genes related to ER and AR was conducted to find the triggers of reproductive toxicity in zebrafish larvae of F<sub>1</sub> generation. 20 F<sub>1</sub> larvae from each replicate of each concentration were collected at 7 dpf. Larvae were kept in RNAlater (Qiagen, Germany) under -80°C. Total RNA was extracted with RNeasy Mini kit (Qiagen, Germany) and cDNA was transcribed with Omniscript RT kit (Qiagen, Germany) following the manufacturer's instructions. SYBR real-time quantitative PCR kit purchased from Toyobo (Shanghai) Biotechnology (Shanghai, China) was then used to amplify expressions of genes related to the HPG axis, ER and AR. The sequence of selected genes and primers were characterized previously (Liu et al., 2015; Ma et al., 2016) and were listed in Table S4. The housekeeping gene beta-actin was used as an internal control for mRNA expression, and the analysis of gene expression was calculated by the 2<sup>-ΔΔCt</sup> method (Livak and Schmittgen, 2001).

### 2.4. Quantification of vitellogenin

After exposure terminated at 150 dpf, F<sub>1</sub> zebrafish were anesthetized and blood was collected by cutting the tail. Blood of 4 fish per replicate was pooled as a sample and the sample was centrifuged to separate plasma from blood cells. The supernatant was kept under -80 °C. Concentrations of vitellogenin protein were quantified according to the manufacturer's instructions using the ELISA kit purchased from Nanjing SenBeiJia biological technology (Nanjing, Jiangsu, China).

### 2.5. RNA sequencing

Transcriptome responses were analyzed to find altered biological processes which led to system collapse in zebrafish of F<sub>2</sub> generation at 7 dpf. 20 F<sub>2</sub> larvae from each replicate of each BDNA exposure concentration were pooled and kept in RNAlater. Samples were stored under -80 °C until isolation of total RNA. After checking the purity and integrity of RNA, a total amount of 1 µg RNA per sample was used as input material preparation of RNA. Sequencing libraries were generated using NEBNext® Ultra™ RNA Library Prep Kit for Illumina® (New England Biolabs Ipswich, MA, USA) following manufacturer's recommendations and index codes were added to attribute sequences to each sample. Following preparation of the library, the clustering of the index-coded samples was performed on a cBot Cluster Generation

System using TruSeq PE Cluster Kit v3-cBot-HS (Illumina, San Diego, CA, USA) according to the manufacturer's instructions. After cluster generation, the library preparations were sequenced on an Illumina HiSeq-2500 platform and 125 bp/150 bp paired-end reads were generated. Finally, expressions of genes were quantified using previously described methods (Trapnell et al., 2010).

## 2.6. Data analysis

Statistical analyses of data from the multigenerational exposure experiment and q-RT-PCR assay were performed in Graph Pad Prism 5 (GraphPad, San Diego, CA, USA). One-way analysis of variance (ANOVA) and subsequent multiple comparisons of Tukey's test methods were used to assess significant differences between the exposed and control groups, with a  $p < 0.05$  indicating a significant difference.

Differential expression analysis of BDNA-exposed groups and control was performed using the DESeq package (1.18.0) in R. The resulting  $p$  values were adjusted using the Benjamini and Hochberg's approach for controlling the false discovery rate. Genes with an adjusted  $p$  value  $< 0.05$  found by DESeq were assigned as differentially expressed. Gene Ontology (GO) and pathway enrichment analysis of differentially expressed genes was implemented using a Cytoscape (v3.6.1) (Shannon et al., 2003) plug-in, ClueGO (v2.5.2) (Bindea et al., 2009) as described in a previous study (Sun et al., 2016).

## 3. Results and discussion

### 3.1. $F_1$ generation: accumulated effects on reproduction

Results of toxicological endpoints have been described in our previous study and are summarized in Table S7 (Ma et al., 2018). At the early life stage, the hatchability of  $F_1$  embryos at 72 hpf was significantly less when exposed to 500  $\mu\text{g}$  BDNA/L than that of control. At adult stage, cumulative production of eggs of  $F_1$  female fish was significantly reduced by exposure to BDNA in a concentration-dependent manner and the proportion of females after BDNA exposure was significantly reduced compared to unexposed controls (Ma et al., 2018). We hypothesized that the effect posed by BDNA on reproduction of zebrafish might be responsible for these adverse outcomes. In order to detect early signal of responses on transcription of genes in early life stages and evaluate if these early responses are helpful to predict effects in the subsequent life stages, expression of genes associated with the HPG axis, ER and AR were investigated at 7dpf in  $F_1$  generation exposed to BDNA (Table S5 and Table S6). Transcription of genes related to HPG axis, ER and AR are considered to be critical for regulation of reproduction. Since marked phenotypic effects were found in zebrafish exposed to 500  $\mu\text{g}$ /L and the responses of gene transcription were generally more sensitive and rapid than apical changes, the assay was conducted at three concentrations lower than 500  $\mu\text{g}$ /L. Also, the concentration of VTG which is directly correlated to egg production was measured in  $F_1$  adult fish.

Q-RT-PCR assay presented a complex situation of transcription responses that the transcriptions of genes along HPG axis were significantly different in individuals exposed to 0.5, 5 and 50  $\mu\text{g}$  BDNA/L (Fig. 1A). At 0.5  $\mu\text{g}$  BDNA/L, 6 genes were differentially expressed in the brain. Expression of *gnrh2* and *gnrh3* associated with gonadotrophin-releasing hormone (GnRH), which were responsible for regulating syntheses and releases of gonadotropins and neuromodulators of reproduction in the hypothalamus (Bosma et al., 2000; Okuzawa et al., 2003), were significantly up-regulated by 1.58- and 1.70-fold, respectively. However, genes encoding receptors of GnRHs in the pituitary were significantly down-regulated. This result was consistent with suppression of synthesis and release of gonadotropins by the pituitary since *fshb* encoding FSH which initiates vitellogenesis (Clelland and Peng, 2009) was significantly down-regulated by 2.54-fold. Inconsistency between responses in the hypothalamus and pituitary might

be attributed to negative feedback mechanisms. Because q-RT-PCR assay only provides information on the transcription of genes at a certain moment, the description of responses may not be complete. At 5 and 50  $\mu\text{g}$ /L, most of the genes along HPG axis were significantly affected. In brain, *lhb* encoding for LH, which regulates the formation of gametes (Schulz et al., 2010) was significantly downregulated by 1.85-fold in individuals exposed to 5  $\mu\text{g}$  BDNA/L and *fshb* was significantly down-regulated by 1.55-fold at 50  $\mu\text{g}$  BDNA/L. However, in gonads, exposure to the two greater concentrations of BDNA resulted in up-regulation of genes relevant to the synthesis of sex hormones. Complete steroidogenesis consists of synthesis and transportation of cholesterol and synthesis of steroid hormones. Hydroxymethylglutaryl coenzyme A reductase (*hmgcr*), one of the rate-limiting enzymes in the synthesis of cholesterol (Saunders et al., 2015) was significantly up-regulated by 2.98- and 2.13-fold at 5 and 50  $\mu\text{g}$  BDNA/L, respectively. *Cyp11a1*, *cyp17* and *cyp19a* which were CYPs involved in steroid hormone synthesis, were upregulated by 4.37-, 2.25- and 4.38-fold when exposed to 5  $\mu\text{g}$  BDNA/L, by 1.53-, 1.50- and 2.36-fold at 50  $\mu\text{g}$  BDNA/L, respectively. Regardless of down-regulation of *star* by 2.08-fold at 50  $\mu\text{g}$  BDNA/L, genes participating in steroid hormone synthesis were mostly up-regulated to counteract the reduction of signals from brain and to maintain E2 and T levels in plasma through compensatory mechanisms.

The balance between estrogen and androgen is crucial during sexual differentiation and reproduction of fish. In brain, *esr1* and *esr2b* were significantly down-regulated in individuals exposed to 0.5  $\mu\text{g}$  BDNA/L, while *ar* was not affected after exposure to BDNA. Based on the results of transcription of genes along the HPG axis, a more complete investigation of genes related to ER and AR directly responding to sex hormones was conducted to explore whether estrogen or androgen was more affected (Fig. 1B). The core genes encoding estrogen receptors, *esr1* (ER $\alpha$ ) and *esr2b* (ER $\beta$ ) were significantly down-regulated by 2.12- and 1.60-fold at the lowest concentration, while *esr2a* (ER $\beta$ 1) was not affected. Regulations of *esrs*, especially *er1*, were positively correlated with alterations of concentrations of E2 in the blood of fish (Menuet et al., 2004). Previous studies have shown that the exposure of fish to E2 led to up-regulation of *esr1* and *esr2b* and down-regulation of *esr2a* (Liu et al., 2013). Discrepancies indicated that BDNA was supposed to inhibit E2, which coincided with the assumption from results of transcription of genes along the HPG axis. Down-regulation of *cyp19b* in brain, though not significant, could also be interpreted in that *cyp19b* was regulated by E2 through binding with the estrogen responsive element (ERE) on its promoter (Liu et al., 2011). The downstream yolk protein gene family, *vtg1*, *vtg2*, *vtg4* and *vtg5* also showed varying degrees of down-regulations consistent with inhibition of ER transcription. *Vtg1* was down-regulated by 2.65- and 1.50-fold in individuals exposed to the lowest and medium concentrations, respectively. *Vtg2* was significantly down-regulated by 2.31-fold in individuals exposed to the lowest concentration, and *vtg5* was down-regulated by 2.72- and 1.50-fold in individuals exposed to 0.5  $\mu\text{g}$  and 5 BDNA/L, respectively. Responses to the lowest concentration of BDNA, which is environmental relevant, were the greatest. This result could be explained by sensitive over-compensatory mechanisms at lower doses, which can make the body return to homeostasis more efficiently and prevent the accumulation of small alterations from turning into visible toxic effects (Calabrese, 2001). In contrast to ER, it could be inferred from the results that BDNA had little effect on the transcription of genes related to AR. Except for *pa2g4b*, which was significantly down-regulated by 1.71-fold in individuals exposed to 5  $\mu\text{g}$  BDNA/L, other AR genes were not affected in all exposures. These results indicated that concentrations of androgen might not be affected.

Adult  $F_1$  zebrafish exposed to BDNA exhibited several molecular and phenotypic alterations, which could be regarded as consequences of the alteration at the level of gene transcription during early life stages. As a well-defined biomarker for estrogen and a critical parameter for egg production, the concentration of VTG in blood serum of adult  $F_1$  females was measured to be 51.37% and 65.54% of that of control fish,

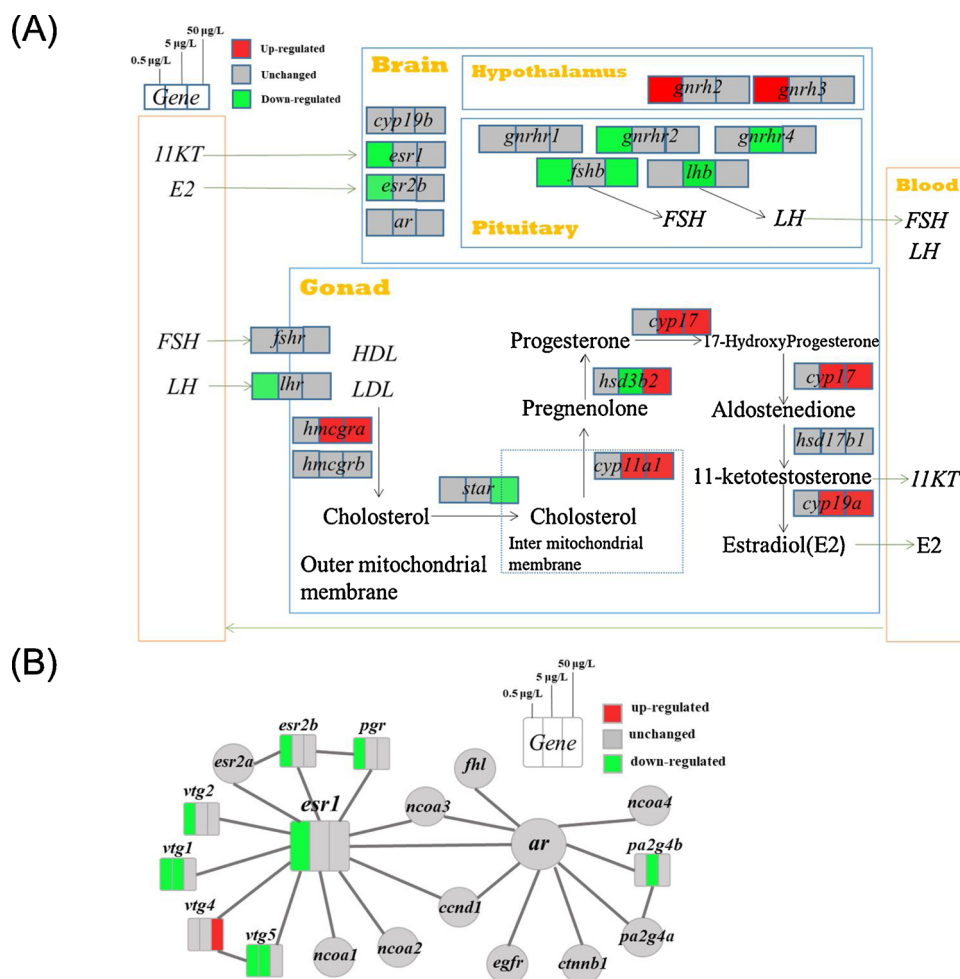


Fig. 1. Changes in gene transcription related to HPG axis (A), ER and AR (B) in zebrafish larvae of F<sub>1</sub> generation exposed to BDNA. Red blocks represent significant upregulation of genes ( $p < 0.05$ ), green blocks represent significant downregulation of genes ( $p < 0.05$ ) and grey blocks represent unchanged regulation of genes.

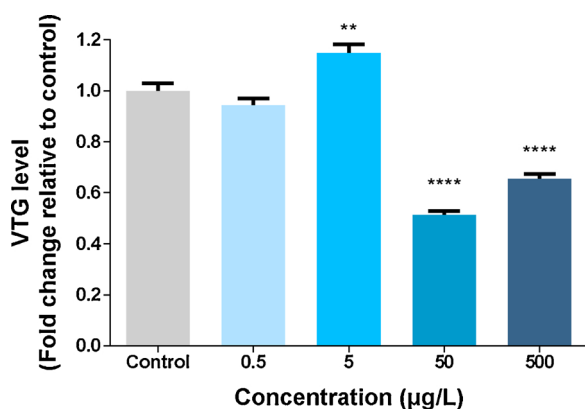


Fig. 2. Changes in VTG level in adult zebrafish of F<sub>1</sub> generation exposed to BDNA. \* $p < 0.05$ , \*\* $p < 0.01$  and \*\*\*\* $p < 0.001$  represent different levels of significance, respectively.

when F<sub>1</sub> females were exposed to 50 and 500 µg BDNA/L, respectively (Fig. 2). This observation corresponded with down-regulation of vtgs in early life stages of F<sub>1</sub> individuals. Decreases in concentrations of VTG in blood plasma could account for impaired fecundity after exposure to BDNA since VTG was essential to the production of eggs (Miller et al., 2010). Furthermore, many studies found that binding of the ER $\alpha$  to E2 directly promoted the induction of VTG (Ryffel, 1978; Pakdel et al., 1991; Marlatt et al., 2008). The reduction of the concentration of VTG

in blood plasma was speculated to be the response to E2 inhibition in plasma of zebrafish exposed to BDNA, which was mediated through ER pathway. Additionally, the proportion of females after BDNA exposure was significantly reduced compared to unexposed controls (Ma et al., 2018). No sex chromosomes or sex-linked genes were found in zebrafish, and sexual differentiation was achieved by apoptosis of the ovarian-like gonad at 20 dpf with subsequent generation of the testis (Liang et al., 2015). The process is regulated by sex hormones. E2 inhibition would initiate ovarian apoptosis and differentiation of testis which ultimately resulted in the sex ratio biased toward males in F<sub>1</sub>. Based on the transcription level of genes related to sex hormone receptors and the level of VTG, BDNA was assumed to suppress the activity of ER.

### 3.2. F<sub>2</sub> generation: pronounced and irreversible effects of hypogenesis and DNA damage

Adverse effects caused by BDNA were more obvious at the individual level during early life-stages of the F<sub>2</sub> individuals than F<sub>1</sub> individuals. All parameters including fertilization, hatchability and survival rate were significantly decreased in individuals that were developed from F<sub>1</sub> individuals exposed to 500 µg/L of BDNA. Hatchability of F<sub>2</sub> embryos derived from F<sub>1</sub> exposed to all concentrations of BDNA except 0.5 µg/L at 72 hpf was significantly less than that of the control. Development retardation and deformities such as yolk sac edema, pericardial edema, bent spine were observed in embryos. The situation was the same for F<sub>2</sub> fish recovering in the clean water (Ma

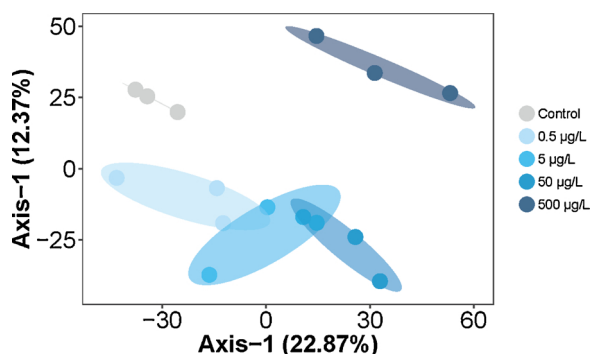


Fig. 3. PCA analysis of transcriptomic results of zebrafish larvae at 7 dpf of F<sub>2</sub> generation exposed to BDNA.

et al., 2018). Compared with F<sub>1</sub> larvae, the effects of BDNA on F<sub>2</sub> larvae became more intensive as severe systematic damages occurred. The destruction of the whole system of F<sub>2</sub> larvae was supposed to be the consequence of various biological pathways being affected simultaneously. As transcriptomics is capable of comprehensively interpreting changes in gene expression, especially those changes that directly impact key events in chemical MOA (No, 2008), this technique was applied to explore changes in global transcription and determine altered pathways that might result in the observed adverse phenotypic consequences in F<sub>2</sub> larvae.

The number of differentially expressed genes (DEGs) increased in a dose-dependent manner, ranging from 138 (64 up-regulated and 74 down-regulated) at 0.5 µg/L, 273 (142 up-regulated and 131 down-regulated) at 5 µg/L, 954 (513 up-regulated and 441 down-regulated) at 50 µg/L, to 1230 (697 up-regulated and 533 down-regulated) at 500 µg/L. Principal component analysis (PCA) was further used to visualize differences between transcription patterns of genes in F<sub>2</sub> larvae exposed to different concentrations of BDNA (Fig. 3). Both 0.5 µg BDNA/L and 50 µg BDNA/L group presented an overlapping expression pattern with 5 µg BDNA/L group. The 500 µg BDNA/L group was distinctly separated with groups of three lower concentrations, indicating that the exposure of 500 µg BDNA/L led to the most significant changes in the global transcription of genes in F<sub>2</sub> larvae among all concentrations. Processes that were severely impacted or were associated with phenotypic effects were interpreted.

### 3.2.1. Response to chemical stress

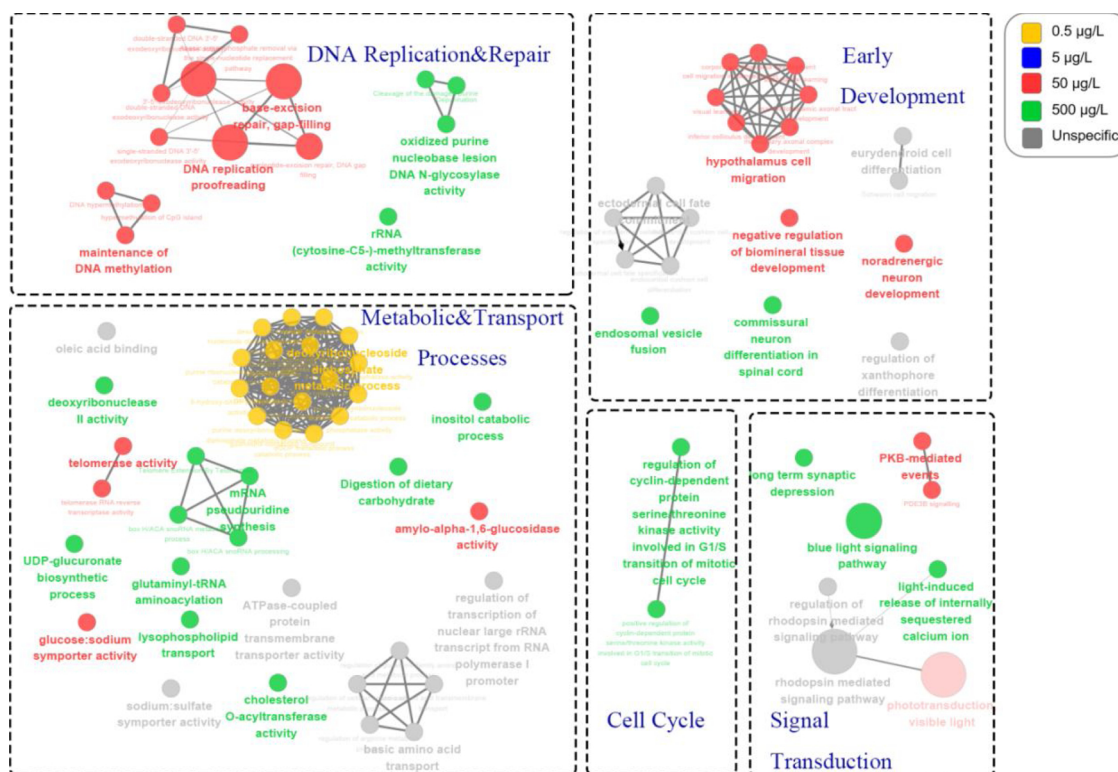
Through the investigation of processes in which all treatment groups were involved, processes of the innate immune system, apoptosis, metabolism, and response to estrogen stimulus were found to be significantly perturbed. Excessive stress under BDNA exposure contributed to less hatchability, survival and more abnormality as observed in F<sub>2</sub> larvae. Of note, the transcription of genes involved in response to estrogen stimulus was altered. *Aqxtb* and *hpx* were identified to be E2-targeted genes and transcription of both genes were significantly down-regulated in zebrafish under E2 exposure (Hao et al., 2013). On the contrary, transcription of *aqxtb* and *hpx* were significantly up-regulated in F<sub>2</sub> larvae exposed to 50 and 500 µg BDNA/L, respectively in our study. This may provide evidence that BDNA serves as an estrogen-like chemical but the response of zebrafish to BDNA is opposite to that to E2, which is in concordance with effects observed in F<sub>1</sub> fish.

### 3.2.2. Early ontogeny

Early life-stage is a critical period in the whole life span of zebrafish as many essential organs and tissues including heart, eyes and notochord initiate to form and develop in this stage. Processes associated with embryo development of zebrafish were enriched in BDNA-treated F<sub>2</sub> larvae. Disruption on these processes may account for the phenotypes of reduced hatchability and increased abnormality. Collagen is

the major component of extracellular matrix and constitutes bone or cartilage dependent on the degree of mineralization. Transcription of *col2a1a*, *col9a3*, *col11a1*, *col11a2* and *col15a1b* were significantly lesser at 50 µg BDNA/L. These genes encoded collagens which are responsible for cartilage formation. The pathway of “commissural neuron differentiation in the spinal cord” was also enriched at 500 µg BDNA/L. Down-regulation of these genes in zebrafish led to craniofacial malformations and notochord distortion observed in our study (Baas et al., 2009; Fang et al., 2010; He et al., 2018). Transcription of *col15a1b*, *col4a5* and *col4a6* involved in ear and eye development were overtly inhibited at 50 µg BDNA/L. *Col15a1b* participates in differentiation of retina, the light-sensitive layer in eyes of most vertebrates (Bretaud et al., 2011), while *col4a6* deficiency was discovered directly related to X-linked nonsyndromic hearing loss (Rost et al., 2013). Transcription of genes concerning heart development was significantly reduced. The transcription factor *klf2a* which influences the morphogenesis of atrioventricular valve in heart was significantly down-regulated at 0.5 and 500 µg BDNA/L (Steed et al., 2016). Expression of *mat2aa* (methionine adenosyltransferase) regulating cardiogenesis and ventricular chamber size was lesser at 50 and 500 µg BDNA/L. Deficiency of *mat2aa* transcription resulted in pericardiac edema in zebrafish that was also observed in our study (Moulton, 2013). Previous studies discovered that fatty acids are essential to the early development of vertebrates (Monroig et al., 2010). At 500 µg BDNA/L, processes related to fatty acid elongation were inhibited. Transcription of *elovl* (elongases of long-chain fatty acid) gene family including *elovl1a*, *elovl4b*, *elovl5*, *elovl6l* and *elovl7b* were significantly reduced. *Elovl1a*-deficient zebrafish was found to have difficulty in inflation of swim bladder (Bhandari et al., 2016) and *Elovl4b* is responsible for the biosynthesis of DHA which is critical to marine organisms (Monroig et al., 2010).

The most significantly suppressed processes in samples of 50 and 500 µg BDNA/L were phototransduction, response to light stimulus and visual perception relevant processes, which could cause damage to visual function of zebrafish (Fig. 4). Transcriptions of *opn6a*, *rho*, and *rhod* were pronouncedly lesser at 50 µg BDNA/L, while transcription of *opn6b*, *opn1sw1*, *opn1sw2* and *opn4.1* were pronouncedly lesser at 500 µg BDNA/L. Genes of *opn* family and *rho* encode opsins, a group of light-sensitive proteins in the retina. The protein product of *rho* (rhodopsin) is responsible for triggering the visual transduction cascade in rod cells. The protein product of *opn1sw1* and *opn1sw2* (blue-sensitive opsin) in cone cells is specifically sensitive to light of short wavelengths (Morrow et al., 2011). Reduced transcription of *opn1sw1* and *opn1sw2* led to the enrichment of blue light signaling pathway at 500 µg BDNA/L. Additionally, melanopsin encoded by *opn4.1* is found to play a critical role in circadian photoentrainment in ganglion cells though not involved in visual photoreception (Panda et al., 2002). Transcription of *grk1a*, *grk7a*, *gnat1*, *gnat2* and *gnb1b* were markedly down-regulated at 50 µg BDNA/L while transcription of *grk1a* and *gnat2* were markedly down-regulated at 500 µg BDNA/L. The protein of *grk1a* (rhodopsin kinase) and *grk7a* (cone opsin kinase) are G protein-coupled receptor kinases that are responsible for phosphorylation and desensitization of rhodopsin and iodopsin in the phototransduction signaling processes (Osawa and Weiss, 2012). The protein of *gnat1* and *gnat2* are alpha subunits and *gnb1b* is the beta subunit of transducin involved in visual impulse (Lerea et al., 1989). The transcription of *grk1* and *gnat1* occurs in rod cells while transcription of *grk7a* and *gnat2* occurs in cone cells in the retina. The significantly reduced transcription of *grk* and *gnat* gene family can lead to dysfunction in dark adaptation and color vision of F<sub>2</sub> larvae (Weiss et al., 2001). Transcription of *rom1b* was significantly down-regulated at 50 µg BDNA/L, while transcription of *prph2a*, *prph2b* and *prph2l* were significantly down-regulated at 500 µg BDNA/L. Expression of *rom1b* (rod outer segment membrane protein 1) and *prph2a* (peripherin-2) are essential to outer segment disk morphogenesis in retina and mutation of *prph2a* in mice is associated with photoreceptor apoptosis (Porteracailiau et al., 1994). Some of the developmental defects revealed in RNA sequencing were not inspected and could not



**Fig. 4.** Cytoscape visualization of enriched GO terms and pathways that were significantly down-regulated in  $F_2$  larvae exposed to different concentrations of BDNA. Yellow, blue, red and green nodes represent specific GO terms associated with the exposures of 0.5, 5, 50 and 500  $\mu\text{g}$  BDNA/L, respectively. Gray nodes suggest GO terms that are not specific to any concentration. The significance of GO terms was presented by the size of the node. The intensity of color was proportional to the ratio of the associated genes found to all associated genes in a GO term.

be easily distinguished only from the appearance of fish, but with the aid of transcriptome sequencing, we discovered the potential effects and further studies are needed to confirm.

### 3.2.3. DNA damage

BDNA has the structure of aromatic amine and was found to show positive action in Ames mutation assay (Ackerman et al., 2009), which suggests that it has potential to cause damage to DNA in the current study. It was confirmed by evidence in the transcriptome of  $F_2$  larvae that processes of DNA replication, base excision repair (BER) and cell cycle were strongly interfered, especially at higher concentrations (Fig. 4). There were indeed defensive responses as processes related to DNA repair including regulation of mitotic recombination and photo-reactive repair were significantly enhanced at 50 and 500  $\mu\text{g}$  BDNA/L, respectively (Fig. S4). Nonetheless, more genes which are required for DNA rehabilitation were down-regulated and therefore impairment of DNA repair system was overwhelmed. Transcription of *ddx11* (DEAD/H (Asp-Glu-Ala-Asp/His) box helicase 11) was significantly lesser at three higher concentrations except 0.5  $\mu\text{g}$  BDNA/L. *ChlR1* is a DNA helicase encoded by *ddx11* and is canonical in chromatin cohesion and the maintenance of genomic stability (Wu and Brosh, 2012). Knockdown of *ddx11* in human cells was found to cause accumulation of DNA damage and finally irreversible consequences when counteracting DNA cross-linking agent (Shah et al., 2013). Transcription of *apex1*, *pole* and *pold1* were significantly lesser at 50  $\mu\text{g}$  BDNA/L, while *ogg1* and *rgcc* was significantly lesser at 500  $\mu\text{g}$  BDNA/L. All genes except *rgcc* participate in BER process which is responsible for moving small, non-helix-distorting base lesions from the genome throughout the cell cycle (Wallace, 2014). AP endonuclease 1 encoded by *apex1* is a multifunctional enzyme and is able to recognize the abasic sites and initiate DNA repair processes (Wang et al., 2006). *Pole* (polymerase (DNA directed), epsilon) and *pold1* (polymerase (DNA directed), delta, catalytic subunit) are involved in DNA replication proofreading process.

The catalytic subunit of polymerase  $\delta$  encodes DNA polymerizing and exonuclease regions so it is assigned to maintain accuracy in DNA synthesis and repair damaged DNA (Prindle and Loeb, 2012). Transcription of *rgcc* is directly induced by tumor suppressor p53 (*tp53*) in response to DNA damage. Protein products of these two genes possess the function of hampering the formation of tumor (Saigusa et al., 2006). However, transcription of *tp53* was not down-regulated, which may indicate the post-transcriptional modification. Failure of DNA repair ultimately resulted in cell death. DNA damage-induced apoptosis in germ cells would lead to a decrease in sperm and oocyte counts and impair the fertility of zebrafish (Agarwal et al., 2003).

At two lower concentrations, differentially expressed genes were primarily associated with metabolic and innate immune responses. These processes were basically responsible for maintaining the homeostasis to minimize adverse effects developed at the individual level of the organism (Hermsen et al., 2012). The reduced hatchability of fish exposed to 0.5 and 5  $\mu\text{g}$  BDNA/L represented delay of growth and development but didn't result in significantly higher mortality of fish than control. Compared to the lower concentrations, there were more diverse processes affected in individuals exposed to the two greater concentrations. The intervention of these processes led to the observed adverse effects and magnitudes of effects were greater in two greater concentrations. In terms of these four concentrations, the concentration of 5  $\mu\text{g}$  BDNA/L was probably a transition. Regulations of transcription of genes were chiefly involved in the maintenance of stability below 5  $\mu\text{g}$  BDNA/L while above 5  $\mu\text{g}$  BDNA/L the balance could not be held and adverse effects became pronounced.

## 4. Conclusions

BDNA caused profound and irreversible multigenerational effects that had been accumulated and transmitted from one generation to the next during constant exposure. Sublethal effects were observed at the

concentration as low as 5 µg BDNA/L, which was at the same level of concentrations in the environment and was far below 394 µg/L, the PNOEC value derived from LC<sub>50</sub> values (data not shown). Alterations in transcriptions of genes during early life stages of the F<sub>1</sub> generation could be regarded as indicators of the adverse effects presented in the adult stage and similarly, the reproductive dysfunction in the F<sub>1</sub> generation determined the emergence of adverse effects on the development of the F<sub>2</sub> generation.

BDNA affected transcription of genes related to ER rather than AR and perturbed biological processes related to organogenesis and DNA repair. The multigenerational adverse effects on reproduction and development were due to disruption of the endocrine system and genome integrity by BDNA, even at environmentally relevant concentrations. In recent years, chemicals, structures of which are similar to hormones and hormones themselves have received attention and are prioritized in the screening of endocrine disruptors. However, the structure of BDNA doesn't resemble those of any sex hormones, but it still has endocrine disrupting activity, which implicates that non-sex hormone-like chemicals ubiquitously distributed in the environment require equal attention.

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### Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.aquatox.2019.105285>.

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## Supplementary Material

700

701 **Underlying Mechanisms of Reproductive Toxicity Caused by Multigenerational**  
702 **Exposure of 2, bromo-4, 6-dinitroaniline (BDNA) to Zebrafish (*Danio rerio*) at**  
703 **Environmental Relevant Levels**

704 Xianyi Xie,<sup>1</sup> Yaru Jin,<sup>1</sup> Zhiyuan Ma,<sup>1</sup> Song Tang,<sup>2</sup> Hui Peng,<sup>3</sup> John P. Giesy,<sup>1, 4</sup>  
705 Hongling Liu<sup>1,\*</sup>

706 <sup>1</sup> State Key Laboratory of Pollution Control and Resource Reuse, School of the  
707 Environment, Nanjing University, Nanjing 210023, China

708 <sup>2</sup>Department of Environmental Toxicology, National Institute of Environmental  
709 Health, Chinese Center for Disease Control and Prevention, Beijing 100021, China

710 <sup>3</sup>Department of Chemistry, University of Toronto, Ontario M5S 3H6, Canada

711 <sup>4</sup>Department of Biomedical Veterinary Sciences and Toxicology Centre, University of  
712 Saskatchewan, Saskatoon, SKS7N 5B3, Canada

713 \* Corresponding author:

714 Hongling Liu, State Key Laboratory of Pollution Control and Resource Reuse, School  
715 of the Environment, Nanjing University, Nanjing 210023, China

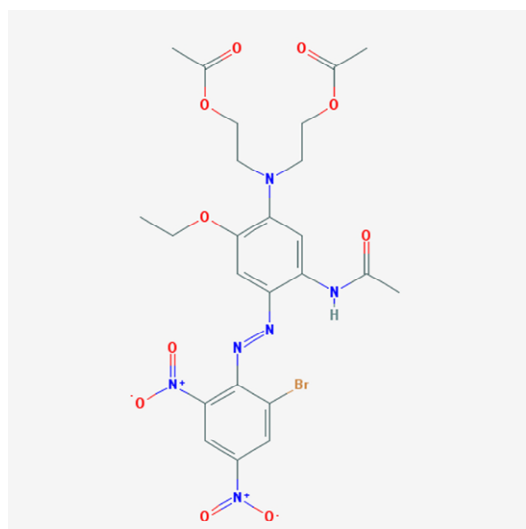
716 Tel.: +86-25-89680356

717 Email: [hliu@nju.edu.cn](mailto:hliu@nju.edu.cn) (Hongling Liu)

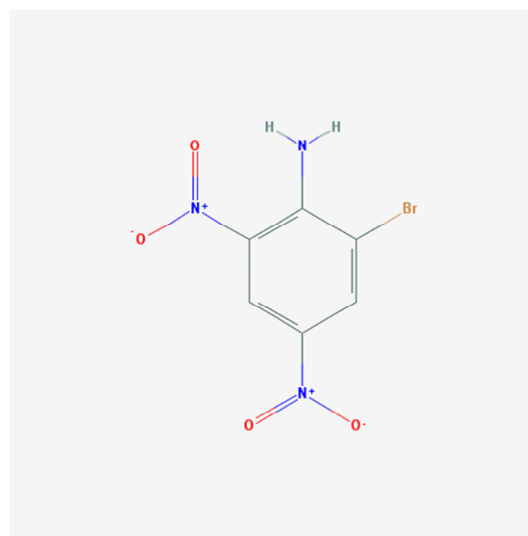
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748	blue, red and green nodes represent specific GO terms associated with the exposures of 0.5, 5,	
749	50 and 500 µg BDNA/L, respectively. Gray nodes suggest GO terms that are not specific to	
750	any concentration. The significance of GO terms was presented by the size of the node. The	
751	intensity of color was proportional to the ratio of the associated genes found to all associated	
752	genes in a GO term. ....	57
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756 **Fig. S1. Structure of Disperse blue-79 and BDNA**



Disperse blue 79



BDNA

757

758

759 **Text S1. Multigenerational exposure experiment design**

760 **Exposure concentration setting**

761 **1. Derivation of waterborne concentration of BDNA**

762 (1) Based on the definition of Organic Carbon-Water Partitioning Coefficient (Koc),  
763 the waterborne concentration of BDNA can be calculated using the concentration of  
764 BDNA in sludge.

765 
$$Koc = \frac{\text{Concentration}_{\text{in organic carbon}}}{\text{Concentration}_{\text{in water}}} \quad (1)$$

766 
$$= \frac{\text{Mass}_{\text{chemical}}}{\text{Mass}_{\text{organic carbon}} \times \text{Concentration}_{\text{in water}}} \quad (2)$$

767 
$$\text{Mass}_{\text{organic carbon}} = \text{TOC} \times \text{Mass}_{\text{sediment}} \quad (3)$$

768 
$$\text{Concentration}_{\text{in water}} = \frac{\text{Concentration}_{\text{in sludge}}}{\text{TOC} \times Koc} \quad (4)$$

769 The concentration of BDNA in the sludge was 0.1~1.9 mg/kg in the Yamaska river  
770 in Canada(Maguire, 1992), TOC is 3% in the sludge(Liu et al., 2013) and Koc of  
771 BDNA is predicted to be 871.4 L/kg using EPISuite. Thus, the waterborne  
772 concentration of BDNA was calculated to be 3.83~72.68 µg/L.

773 (2) The other source of BDNA in water is from the degradation of its parent  
774 compound, Disperse blue 79. The waterborne concentration of Disperse blue 79 was  
775 1.9~17.1 µg/L in the Yamaska river in Canada(Maguire, 1992)and was recorded as  
776 0.01~3.9 µg/L in a report of United States Environmental Protection Agency. The  
777 degradation rate from Disperse Blue 79 to BDNA was about 65%.(Melgoza et al.,  
778 2004) The waterborne concentration of BDNA was calculated to be 0.01~11.11 µg/L.

779 **2. Derivation of predicted no effect concentration (PNOEC) of BDNA to zebrafish**

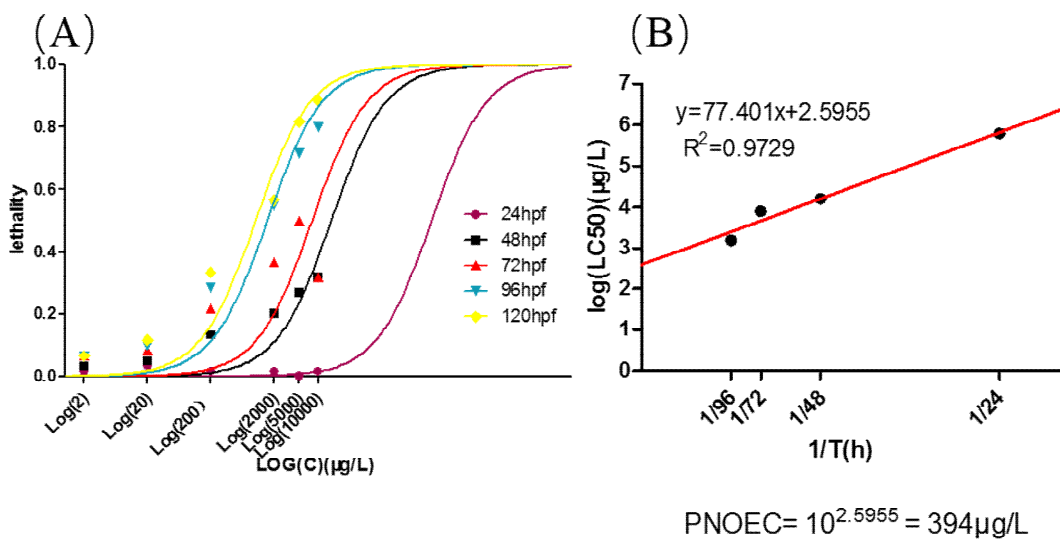
780 As a multigeneration experiment is aimed at simulating long-term exposure  
781 scenario in environment, the predicted no effect concentration (PNOEC) of the  
782 chemical is helpful as a reference in determining the upper limit of the exposure range.  
783 However, the information about the chronic toxicity of BDNA we weren't able to be  
784 acquired due to the lack of study about BDNA. Additionally, it would be more  
785 reasonable and practical to use the data which were derived by use of an experimental  
786 protocol similar to that used in our studies. Thus, we performed a preliminary embryo  
787 acute toxicity test and applied a two-step extrapolation method to calculate the  
788 PNOEC from the LC<sub>50</sub> values. The experiment was designed as six concentrations, 2,  
789 20, 200, 2000, 5000 and 10000µg/L with DMSO used as co-solvent and its volume  
790 not exceeding 0.01% of the total solution. Mortality was determined for 24, 48, 72, 96  
791 and 120 hpf. At different terminal point, an S-shaped curve was plotted to derive the  
792 LC<sub>50</sub> value. (Table S1, Fig. S2A) Then linear regression was performed regarding the  
793 inverse of time as independent variable and the logarithm of LC<sub>50</sub> as the dependent  
794 variable. The point where the line intersects the Y-axis represents the logarithm of  
795 LC<sub>50</sub> when the exposure time was infinite. The PNOEC was determined to be 394 µg  
796 BDNA/L. (Fig. S2B)

797 **Table S1. LC<sub>50</sub> values at various time points in acute toxicity test.**

Time	LC <sub>50</sub> (μg/L)	Confidence interval
24 h	623107	36902 -1.052e+007
48 h	16102	8405-30850
72 h	8016	2508-25615
96 h	1568	757.4-3247
120 h	1023	438.0-2388

798 **Fig. S2. The derivation of LC<sub>50</sub> values (A) and the extrapolation from LC<sub>50</sub>**

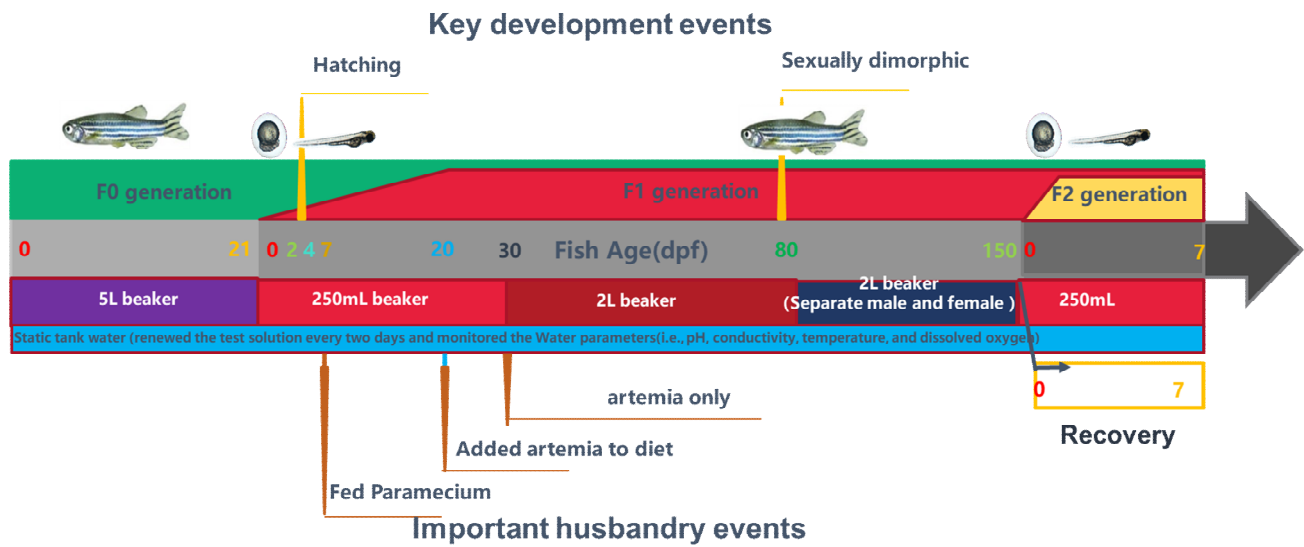
799 **values to the PNOEC value (B).**



800

801 Taking the environmental level of BDNA into consideration either from the existence  
 802 of BDNA itself (3.83~72.68 μg/L) in the water and the transformation from disperse  
 803 blue 79 (0.01~11.11 μg/L), we determined the exposure range with four  
 804 concentrations, 0.5, 5, 50 and 500 μg/L.

805 **Fig. S3. Experiment design of zebrafish multigenerational exposure to BDNA.**



806  
807

## 808 **Multigenerational exposure experiment protocol**

809 The exposure procedures were described in our previous study(Ma et al., 2018).

810 The protocol is summarized here to help readers understand this study more eligibly  
811 and comprehensively.

### 812 **F<sub>0</sub> generation:**

813 4-month old, wild AB type zebrafish, 25 males and 25 females, were acclimated for  
814 one week and were divided into five groups (four treatment groups and one control  
815 group) to perform 21-day, short-term exposures. On the 14<sup>th</sup> day, males and females in  
816 each group were separated and the exposure continued to the last day. After exposure  
817 was terminated, fish of different sexes in each group were paired to spawn eggs three  
818 times. The number of eggs produced was recorded. Subsequently, the embryos  
819 spawned at one of the three times became F<sub>1</sub> individuals. During the exposure process,  
820 the solution was replaced every other day. Any abnormal behavior, including  
821 swimming, ingestion, bleeding or discoloration as well as lethality was recorded  
822 through the experiment.

### 823 **F<sub>1</sub> generation:**

824 F<sub>1</sub> zebrafish were exposed for nearly a full life span of 150 days and the  
825 observation of endpoints were started from F<sub>1</sub> generation. Embryos produced in each  
826 concentration by F<sub>0</sub> fish were exposed to corresponding concentrations.100 embryos  
827 were exposed to each concentration in each of three replicate tanks. Endpoints  
828 involving rates of fertilization, embryo coagulation, developmental delay, edema,  
829 hatchability, body length, spine bending were recorded within 120 hpf. So as to not  
830 disturb development of organs, exposure solutions weren't replaced until 7 dpf. When



831 the exposure proceeded to 80 days, male and female fish could be distinguished by  
832 secondary sex characteristics. The number of both sexes was recorded. They were  
833 then exposed separately until 150 dpf. Lethality was recorded, and any abnormalities  
834 were observed through the process and sexes of dead fish were recorded as well. After  
835 exposure, 2 males and 2 females from each replicate of each concentration were  
836 randomly taken out to spawn eggs according to the procedures explained above. The  
837 eggs produced became the F<sub>2</sub> individuals. The number of the eggs produced was  
838 recorded. Finally, F<sub>1</sub> adult fish were dissected and body masses were measured  
839 without intestines.

840 **F<sub>2</sub> generation:**

841 50 embryos produced by F<sub>1</sub> adult fish continued to be exposed in each of three  
842 replicates for each concentration. In addition, a recovery experiment was included in  
843 this generation. All conditions were held constant for the recovery group except that  
844 the solution was the solvent control of 0.01% DMSO. The entire exposure process  
845 was 7 d. Endpoints including rates of fertilization, embryo coagulation, developmental  
846 delay, edema, hatchability, body length, spine bending were recorded through the  
847 exposure.

848 **Text S2. Chemical analysis**

849 Samples of water containing BDNA were filtered through a 0.46  $\mu\text{m}$  Nylon  
850 membrane. The resulting filtrates were transferred to a vial (Agilent Technologies,  
851 Santa Clara, CA, USA) for instrumental analyses. Concentrations of BDNA in  
852 exposure solutions were determined by use of an Agilent 1260 Series system (Agilent  
853 Technologies, Palo Alto, CA, USA), which was equipped with reversed-phase  
854 XBridge BEH C18 analytical column of 2.1 mm $\times$ 50 mm and 2.5  $\mu\text{m}$  particle size  
855 (Waters Corporation, Milford, MA, USA) interfaced to a 4000 QTRAP (AB SCIEX,  
856 Foster City, CA, USA) with an electrospray ionization (ESI) Turbo VTM Ion Source  
857 in negative mode. The HPLC instrumentation consisted of a vacuum degasser, a  
858 binary pump, an isocratic pump, and an autosampler. The injector needle was  
859 externally washed with methanol prior to any injection. The reversed-phase column  
860 was kept at 40  $^{\circ}\text{C}$  during the analysis. The mobile phase consisted of formic acid 0.1 %  
861 in water (A) and methanol (B). Chromatographic isocratic elution was followed by 40%  
862 (A):60% (B) for 5 min. For detection and quantification of BDNA analyses by mass  
863 spectrometric were performed in the multiple reaction-monitoring mode (MRM) using  
864 the most abundant parent and daughter ions for individual BDNA. The other operation  
865 parameters for MS were optimized as follows: gas 1, nitrogen (55 psi); gas 2, nitrogen  
866 (55 psi); ion spray voltage, -4000 V; ion source temperature, 600  $^{\circ}\text{C}$ ; curtain gas,  
867 nitrogen (35 psi). The compound-dependent operation parameters and MRM  
868 transitions are listed in Table S2.

869 Concentrations of target compounds in water or food were calculated from peak  
870 areas.

$$871 \quad C_w(\text{ng/mL}) = (A - b)/a \quad (5)$$

872 Where:  $C_w$  is the concentration of BDNA in water;  $A$  is the peak area of target  
873 compound;  $a$  is the slope of standard curve;  $b$  is intercept of standard curve.

874 **Table S2. Optimized instrumental parameters, multiple reaction monitoring (MRM; mass-to-charge (m/z)) transitions and limit of**  
 875 **quantification (LOQ)) for BDNA analyzed by liquid chromatography–electrospray ionization (-)-tandem mass spectrometry.**

Compound	Rt (min)	Precursor ion (m/z)	Quantification			Confirmation			Linearity, R2 (0.1-100 µg/L)	LOQ (ng/mL)
			Q3	Declustering potential (v)	Collision energy (eV)	Q3	Declustering potential (v)	Collision energy (eV)		
BDNA	1.52	262[M-H]-	81.00	-60.00	-54.43	119.90	-60.00	-36.95	0.9995	0.08

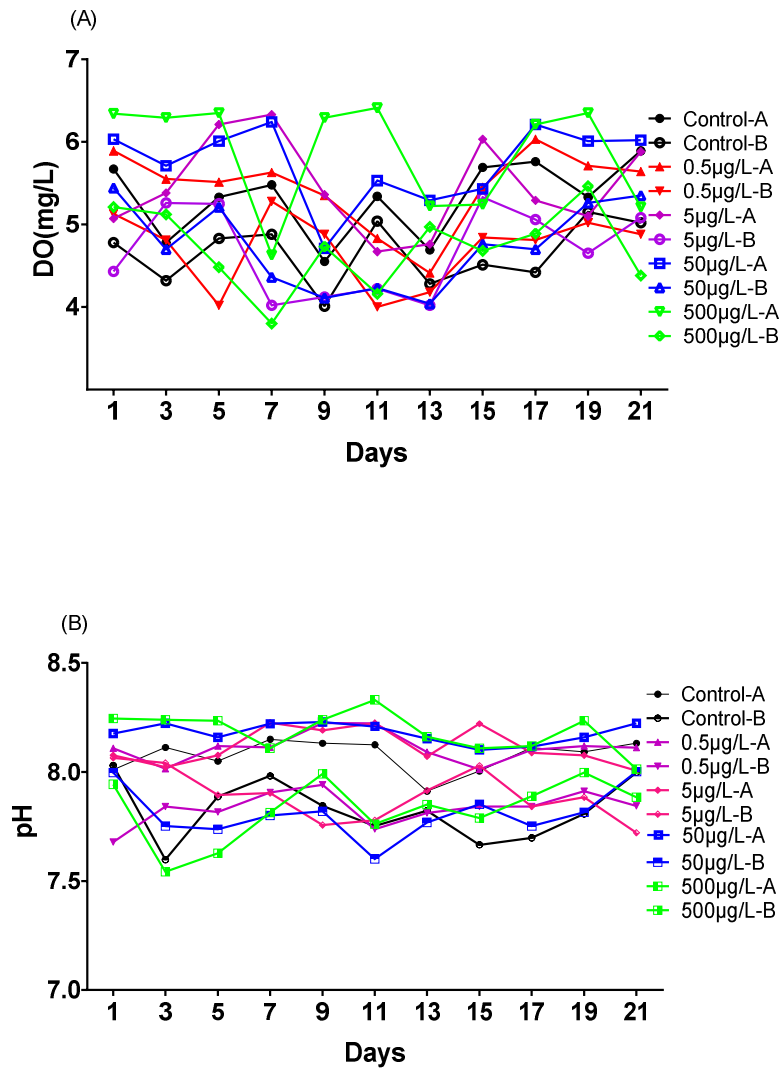
876 **Table S3. Concentration of BDNA in samples of water from multigenerational exposure experiment. Measured concentrations of BDNA**  
 877 **are presented as mean ± standard error (µg/L). Three replicates were extracted and analyzed for each treatment.(Ma et al., 2018)**

Nominal concentrations (µg/L)	0	0.5	5	50	500
Measured concentrations (µg/L)	N.D.	0.6 ± 0.10	4.08 ± 0.44	45.96 ± 1.84	474.83 ± 2.75

878

879

880 **Fig. S4. The dissolved oxygen (A) in the exposure solution and the pH value (B)**  
881 **of water in the exposure tanks. Monitoring results of 21 consecutive days were**  
882 **presented. Xx-A represents the measurement after the replacement of solutions**  
883 **and xx-B represents the measurement before the replacement of solutions.**  
884



885

886 **Table S4. Sequence of primers in q-RT-PCR assay**

Function	Gene	Forward Primer (5'-3')	Reverse Primer (5'-3')	Gene ID
	<i>gnrh2</i>	gctcagcactggtctca	ctcttttgaaatcacgaa	ENSDARG00000044754
	<i>gnrh3</i>	tggagtggaaaggaaggttg	ttcagcatccacctcattca	ENSDARG00000056214
	<i>gnrhr1</i>	gtggcttcattgtggtgtg	ccagagatttcggagagcag	ENSDARG00000100593
	<i>gnrhr2</i>	cttggcctgtggtactggtt	gacgtcctgatggaggtcat	ENSDARG00000003553
	<i>gnrhr4</i>	aaacacacgcttctgctctt	aggttgcacacagctgacac	ENSDARG00000038116
	<i>cyp19a1b</i>	ggcagtctctggaggatgac	cagtgttctcgaagttctcca	ENSDARG00000098360
	<i>fshb</i>	acagcacaccagaaggtct	agctccccagtctgttgtgt	ENSDARG00000010841
	<i>lhb</i>	gagacggtatcggtggaaaa	aacagtcgggcaggttaatg	ENSDARG00000099363
	<i>esr1</i>	ggtccagtgtggtgtcctct	cacacgaccagactccgtaa	ENSDARG00000004111
	<i>esr2b</i>	ttgtgttctccagcatgagc	ccacatatggggaaggaatg	ENSDARG00000034181
HPG	<i>ar</i>	acattctggaggccattgag	acattctggaggccattgag	ENSDARG00000067976
	<i>fshr</i>	cgctcttttgtgcactgga	gtggcaattccacacttct	ENSDARG00000071494
	<i>lhcgr</i>	aaaaggacgagtcgctgaaa	gctcttctgggaacatctgc	ENSDARG00000026081
	<i>hmgcra</i>	gagccatcgactctctcctg	gaacacgactgctagcacca	ENSDARG00000052734
	<i>hmgcrb</i>	ccaactgctccctgatcaat	ttaagaatcgcgaggcact	ENSDARG00000105206
	<i>star</i>	ctgagaatggaccacctgt	gcaataaacgtcagcaagca	ENSDARG00000006137
	<i>cyp11a1</i>	tcccgaaccagagcaatac	gctcaaactgtctctgacc	ENSDARG00000002347
	<i>hsd3b2</i>	agagaccgggagaaaagagc	gggtggagtgaatctcagga	ENSDARG00000019747
	<i>cyp17a1</i>	gacagtcctccgcacatct	gcatgatggtggtgttca	ENSDARG00000033566
	<i>hsd17b1</i>	gtctgatgggtcctctggaa	tctcacaagcgcctctatt	ENSDARG00000027469
	<i>cyp19a1a</i>	ctgaaagggctcaggacaa	tggtc gatggtgtctgatg	ENSDARG00000041348
	<i>esr1</i>	ggtccagtgtggtgtcctct	cacacgaccagactccgtaa	ENSDARG00000004111
	<i>esr2a</i>	agcttgtgcacatgatcagc	gctttcatccctgctgagac	ENSDARG00000016454
ER	<i>esr2b</i>	ttgtgttctccagcatgagc	ccacatatggggaaggaatg	ENSDARG00000034181
	<i>pgr</i>	caacaggtggttgtggacag	attggagatgtccgctttg	ENSDARG00000035966
	<i>vtg1</i>	ctgctgaagttgtcatgct	gaccagcattgccataact	ENSDARG00000092233
	<i>vtg2</i>	tactttggcactgatgcaa	agacttcgtgaagcccaaga	ENSDARG00000055809

	<i>vtg4</i>	ctacaaggtggaggctctgc	ggaggacaaatcaccagcat	ENSDARG00000078429
	<i>vtg5</i>	agctaatgctctgcccgtta	gttcagcctcaaacagcaca	ENSDARG00000092126
	<i>ncoa1</i>	tgagagcctctgttgagggt	ctctgaccctggttggtgt	ENSDARG00000018257
	<i>ncoa2</i>	agagcctgtcagtcccaaga	ggtcgtagccaccatcagtt	ENSDARG00000017929
	<i>ncoa3</i>	aactcacctgccacaaatc	agaggcctgttgctggctca	ENSDARG00000077404
	<i>ccnd1</i>	tgactgccttgactgtcg	gaaaaagcagggagcacttg	ENSDARG00000101637
	<i>ar</i>	acattctggaggccattgag	acgtgcaagtacggaacc	ENSDARG00000067976
	<i>pa2g4a</i>	cgggaaaaggacatgaagaa	aagccgtcaacatgaactcc	ENSDARG00000039578
	<i>pa2g4b</i>	caaagacaccaccagtttg	gtgccaccattacgctttt	ENSDARG00000070657
AR	<i>fhl</i>	ctcttccaaatgccacgaat	gggcacgcagtagttatggt	ENSDARG00000071498
	<i>ctnnb1</i>	atcctgtccaacctgacctg	tctctgcatcctgggtctg	ENSDARG00000014571
	<i>ncoa4</i>	gacaactgcggaaaagaagc	ctggggattggcagagtta	ENSDARG00000021439
	<i>egfr</i>	aacgcaaataatggcaggac	tctccagaaccacagtgcag	ENSDARG00000013847

887

888 **Table S5. Fold changes of genes in HPG axis. Data are shown as the mean of three**  
889 **replicates. \* represents  $p<0.05$ , \*\* represents  $p<0.01$  and \*\*\* represents  $p<0.001$ ,**  
890 **which indicate significant difference between exposure groups and the control.**

Gene	Concentration ( $\mu\text{g/L}$ )	Mean PCR efficiency	Mean	SD
<i>gnrh2</i>	0.00	85.3%	1.00	0.04
	0.50		1.58***	0.04
	5.00		-1.11	0.07
	50.00		-1.15	0.02
<i>gnrh3</i>	0.00	85.3%	1.00	0.03
	0.50		1.70***	0.06
	5.00		-1.27	0.02
	50.00		-1.08	0.02
<i>gnrhr1</i>	0.00	85.3%	1.00	0.03
	0.50		-1.35	0.06
	5.00		-1.45	0.02
	50.00		-1.05	0.01
<i>gnrhr2</i>	0.00	85.3%	1.00	0.08
	0.50		-1.74***	0.07
	5.00		-1.12	0.04
	50.00		-1.41	0.05
<i>gnrhr4</i>	0.00	85.3%	1.00	0.03
	0.50		-1.13	0.03
	5.00		-1.65***	0.04
	50.00		-1.20	0.04
<i>cyp19a1b</i>	0.00	85.3%	1.00	0.04
	0.50		-1.33	0.02
	5.00		-1.15	0.03
	50.00		-1.28	0.02
<i>fshb</i>	0.00	85.3%	1.00	0.01
	0.50		-2.54***	0.02
	5.00		-1.21	0.04
	50.00		-1.55***	0.03
<i>lhb</i>	0.00	85.3%	1.00	0.10
	0.50		-1.27	0.13
	5.00		-1.85*	0.07
	50.00		-1.00	0.26
<i>esr1</i>	0.00	85.0%	1.00	0.06
	0.50		-2.12*	0.05
	5.00		-1.18	0.05
	50.00		1.40	0.31



<i>esr2b</i>	0.00	85.0%	1.00	0.04
	0.50		-1.60**	0.02
	5.00		1.00	0.05
	50.00		1.42	0.07
<i>ar</i>	0.00	85.7%	1.00	0.01
	0.50		1.03	0.04
	5.00		1.00	0.03
	50.00		-1.00	0.04
<i>fshr</i>	0.00	85.7%	1.00	0.28
	0.50		-1.34	0.18
	5.00		-1.13	0.45
	50.00		-1.13	0.45
<i>lhcgr</i>	0.00	85.7%	1.00	0.02
	0.50		-1.82***	0.02
	5.00		-1.31	0.03
	50.00		-1.43	0.05
<i>hmgcra</i>	0.00	85.7%	1.00	0.03
	0.50		1.47	0.06
	5.00		2.98***	0.03
	50.00		2.13***	0.08
<i>hmgcrb</i>	0.00	85.7%	1.00	0.06
	0.50		1.01	0.02
	5.00		-1.48	0.02
	50.00		1.08	0.03
<i>cyp11a1</i>	0.00	83.8%	1.00	0.07
	0.50		-1.41	0.12
	5.00		4.37***	0.09
	50.00		1.53**	0.20
<i>cyp19a1a</i>	0.00	83.8%	1.00	0.13
	0.50		-1.08	0.14
	5.00		4.38***	0.10
	50.00		2.36***	0.08
<i>hsd3b2</i>	0.00	83.8%	1.00	0.02
	0.50		-1.80*	0.08
	5.00		4.47***	0.26
	50.00		1.46	0.11
<i>star</i>	0.00	83.8%	1.00	0.05
	0.50		-1.46	0.04
	5.00		1.27	0.08
	50.00		-2.08***	0.09
<i>hsd17b1</i>	0.00	86.4%	1.00	0.48
	0.50		-2.97	0.24
	5.00		-1.92	0.19
	50.00		-1.40	0.13

	0.00		1.00	0.01
<i>cyp17</i>	0.50	86.4%	1.38	0.01
	5.00		2.25***	0.09
	50.00		1.50***	0.05

891

892

893 **Table S6. Fold-changes of genes associated with ER and AR pathways. Data are**  
894 **shown as the mean of three replicates. \* represents  $p<0.05$ , \*\* represents  $p<0.01$**   
895 **and \*\*\* represents  $p<0.001$ , which indicate significant difference between**  
896 **exposure groups and the control.**

Gene	Concentration ( $\mu\text{g/L}$ )	Mean PCR efficiency	Mean	SD
<i>esr1</i>	0.00	85.0%	1.00	0.06
	0.50		-2.12*	0.05
	5.00		-1.18	0.05
	50.00		1.40	0.31
<i>esr2a</i>	0.00	85.0%	1.00	0.08
	0.50		1.12	0.05
	5.00		-1.09	0.04
	50.00		1.37	0.07
<i>esr2b</i>	0.00	85.0%	1.00	0.04
	0.50		-1.60***	0.02
	5.00		1.00	0.05
	50.00		1.42	0.07
<i>pgr</i>	0.00	84.6%	1.00	0.11
	0.50		-2.71***	0.01
	5.00		-1.19	0.04
	50.00		1.31	0.13
<i>vtg1</i>	0.00	84.6%	1.00	0.07
	0.50		-2.65***	0.04
	5.00		-1.50***	0.03
	50.00		1.00	0.03
<i>vtg2</i>	0.00	84.6%	1.00	0.05
	0.50		-2.31***	0.08
	5.00		-1.36	0.03
	50.00		1.06	0.17
<i>vtg4</i>	0.00	84.6%	1.00	0.19
	0.50		-1.47	0.11
	5.00		1.22	0.08
	50.00		1.84*	0.47
<i>vtg5</i>	0.00	84.6%	1.00	0.00
	0.50		-2.72***	0.02
	5.00		-1.50***	0.03
	50.00		1.00	0.11
<i>ncoa1</i>	0.00	85.0%	1.00	0.00
	0.50		1.01	0.11

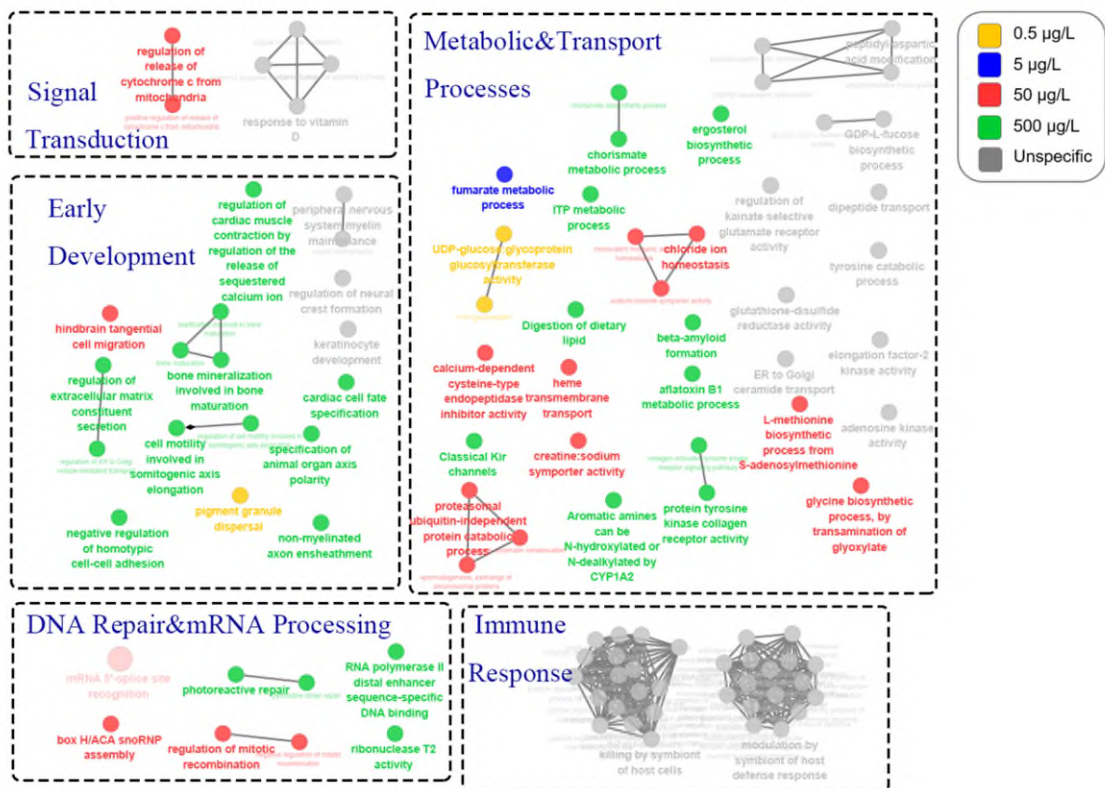
	5.00		1.09	0.03
	50.00		1.20	0.01
<i>ncoa2</i>	0.00	85.0%	1.00	0.03
	0.50		1.21	0.03
	5.00		1.09	0.05
	50.00		1.24	0.04
<i>ncoa3</i>	0.00	85.0%	1.00	0.04
	0.50		1.16	0.04
	5.00		1.11	0.06
	50.00		-1.01	0.28
<i>ccnd1</i>	0.00	86.4%	1.00	0.02
	0.50		-1.19	0.02
	5.00		-1.03	0.01
	50.00		-1.08	0.01
<i>ar</i>	0.00	85.7%	1.00	0.01
	0.50		1.03	0.04
	5.00		1.00	0.03
	50.00		-1.00	0.04
<i>pa2g4a</i>	0.00	86.4%	1.00	0.02
	0.50		-1.23	0.15
	5.00		-1.03	0.01
	50.00		-1.01	0.01
<i>pa2g4b</i>	0.00	86.4%	1.00	0.01
	0.50		-1.32	0.01
	5.00		-1.71*	0.02
	50.00		-1.20	0.24
<i>fhl</i>	0.00	83.8%	1.00	0.07
	0.50		-1.32	0.06
	5.00		1.19	0.01
	50.00		-1.10	0.11
<i>ctnbl</i>	0.00	83.8%	1.00	0.07
	0.50		-1.04	0.06
	5.00		1.31	0.11
	50.00		1.21	0.06
<i>ncoa4</i>	0.00	85.0%	1.00	0.04
	0.50		1.04	0.04
	5.00		1.08	0.04
	50.00		1.20	0.04
<i>egfr</i>	0.00	86.4%	1.00	0.03
	0.50		-1.07	0.11
	5.00		1.01	0.02
	50.00		1.12	0.04

897 **Table S7. Toxicological endpoints observed in every life stage from F1 to F2 generation.(Ma et al., 2018)<sup>a</sup>**

Generation		Endpoints	BDNA/ (µg/L)				
			control	0.5	5	50	500
F <sub>1</sub> (150d exposure)	Early Life stage	Rate of hatching (%)	99.30±1.21	98.41±1.38	100	95.45±2.07	86.20±9.14*
	Adult stage	Average cumulative egg production of 3 times	356.67±11.55	366.67±55.35	318.17±7.85	202.67±65.04***	90.67±19.44***
		Body mass Male (g)	0.35±0.02	0.31±0.03	0.36±0.08	0.36±0.04	0.35±0.06
		Female	0.54±0.03	0.53±0.02	0.44±0.01***	0.49±0.01*	0.48±0.01*
		Rate of females (%)	66.87±4.47	52.16±10.56	64.55±8.15	37.90±4.77**	35.56±3.85**
F <sub>2</sub> (7d exposure)	Exposure group	Rate of hatching (%)	99.31±1.20	89.36±0.23	85.53±5.15*	84.68±5.76*	80.82±6.87**
		Rate of abnormality (%)	0	5.12±2.55	7.21±2.76	10.88±5.48*	14.49±2.48***
	Recovery group	Rate of hatching (%)	99.31±1.20	93.39±1.93	85.44±4.86*	85.16±6.04*	82.46±4.06***
		Rate of abnormality (%)	0	3.85±1.58	9.15±4.07	9.71±1.94*	16.23±4.60***

898 <sup>a</sup> All data are expressed as means ± SEM. \**p* < 0.05, \*\**p* < 0.01 and \*\*\**p* < 0.001 represent different levels of significance, respectively.

899 **Fig. S5. Cytoscape visualization of enriched GO terms and pathways that were**  
 900 **significantly up-regulated in zebrafish F<sub>2</sub> larvae exposed to different**  
 901 **concentrations of BDNA. Yellow, blue, red and green nodes represent specific GO**  
 902 **terms associated with the exposures of 0.5, 5, 50 and 500 µg BDNA/L, respectively.**  
 903 **Gray nodes suggest GO terms that are not specific to any concentration. The**  
 904 **significance of GO terms was presented by the size of the node. The intensity of**  
 905 **color was proportional to the ratio of the associated genes found to all associated**  
 906 **genes in a GO term.**



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909 **Table S8. Differentially expressed gene (DEG) lists of RNAseq in F<sub>2</sub> generation.**

910 **0.5 µg /L Group DEG lists**

Gene_id	readcount_EG1	readcount_CK	log2FoldChange	pval	padj	Gene name
ENSDARG00000009136	2152.152503	3155.104147	-0.55191	1.04E-08	1.14E-05	tp53bp2a
ENSDARG00000010312	1357.633661	1978.506739	-0.54332	8.62E-08	7.62E-05	---
ENSDARG00000016494	480.6056235	330.4224152	0.54054	3.39E-05	0.011858	---
ENSDARG00000022631	221.3662375	80.93651826	1.4516	4.09E-13	1.63E-09	---
ENSDARG00000024278	2510.46222	1650.480997	0.60507	3.79E-09	5.24E-06	---
ENSDARG00000032010	396.086237	266.2748788	0.5729	4.39E-05	0.014852	---
ENSDARG00000036943	467.3848344	291.8979349	0.67915	1.82E-07	0.00014442	---
ENSDARG00000037874	58.55039888	26.04129845	1.1689	0.00015363	0.037608	---
ENSDARG00000039069	118.0752759	60.56167123	0.96323	0.00013413	0.034704	slx4ip
ENSDARG00000039264	81.17786378	164.5149361	-1.0191	1.13E-07	9.21E-05	igfbp5a
ENSDARG00000039459	624.4175443	848.4825688	-0.44237	5.91E-05	0.019032	qsox1
ENSDARG00000039687	20.97697493	2.684444032	2.9661	5.08E-06	0.0024121	---
ENSDARG00000041576	90.73471961	151.4630862	-0.73924	0.00010203	0.028481	nudt18
ENSDARG00000041595	450.1508094	682.6248653	-0.60068	5.27E-07	0.0003421	---
ENSDARG00000041645	443.0178078	740.1355475	-0.74042	6.27E-05	0.019494	---
ENSDARG00000042667	1421.930097	2676.129584	-0.9123	2.07E-05	0.0079395	klf2a
ENSDARG00000043168	77.92537762	225.9366346	-1.5358	1.10E-06	0.00061204	---
ENSDARG00000043171	382.8616253	626.3498278	-0.71015	1.08E-08	1.14E-05	---
ENSDARG00000043443	222.1513832	92.78445634	1.2596	1.22E-12	3.89E-09	kcnj13

ENSDARG00000045262	870.7885985	209.3775327	2.0562	6.16E-57	1.96E-52	---
ENSDARG00000052033	95.52904878	159.9783288	-0.74387	9.98E-05	0.028262	---
ENSDARG00000054746	325.1746663	213.1286508	0.60949	2.41E-05	0.0091393	---
ENSDARG00000055388	308.4872382	435.9591365	-0.49898	0.00018047	0.042543	---
ENSDARG00000059583	295.7234358	193.862697	0.60921	7.04E-05	0.021147	rcc11
ENSDARG00000060637	674.5007322	399.6218038	0.75518	3.08E-09	4.46E-06	---
ENSDARG00000068460	230.9543846	334.9880888	-0.5365	0.00012871	0.034133	otog
ENSDARG00000068792	18.39307742	80.00603083	-2.1209	1.53E-12	4.44E-09	---
ENSDARG00000068966	4.692594141	51.72425584	-3.4624	6.08E-05	0.01916	---
ENSDARG00000071045	66.84698139	127.1496564	-0.92759	9.39E-06	0.0040952	si:rp71-1k13.6
ENSDARG00000071648	7.037688733	25.276064	-1.8446	0.00021071	0.0488	zgc:113298
ENSDARG00000071662	23.6604352	82.56200571	-1.803	7.49E-10	1.19E-06	si:rp71-36a1.3
ENSDARG00000073769	87.96911812	171.3221373	-0.96164	3.19E-07	0.00023593	magi2b
ENSDARG00000073821	17.51985819	0	Inf	1.12E-06	0.00061707	---
ENSDARG00000075016	19.51871221	69.66874232	-1.8357	6.43E-05	0.019494	---
ENSDARG00000075027	20.51729114	60.56424374	-1.5616	1.77E-05	0.006937	---
ENSDARG00000075622	137.3783825	70.26774533	0.96722	2.89E-06	0.0015083	zgc:174938
ENSDARG00000075826	133.3424606	62.29635155	1.0979	3.13E-07	0.00023593	---
ENSDARG00000076386	1390.54586	1972.730985	-0.50454	3.95E-07	0.00027358	epd11
ENSDARG00000076790	2595.04284	3507.655299	-0.43475	0.00015221	0.037548	---
ENSDARG00000076819	1.85654889	17.47861918	-3.2349	7.14E-05	0.021229	si:dkey-121n8.4
ENSDARG00000079305	7465.247725	5455.931491	0.45236	3.27E-06	0.0016496	---
ENSDARG00000079659	187.0483891	109.6090634	0.77104	0.00010937	0.030005	wdr53
ENSDARG00000079727	847.9066053	1116.087538	-0.39647	0.00014295	0.03582	sepp1b
ENSDARG00000079986	11.7434194	37.55035993	-1.677	6.37E-05	0.019494	---
ENSDARG00000086418	13.1479511	79.00041672	-2.587	2.95E-06	0.0015155	---



ENSDARG00000086576	64.29961239	118.8767425	-0.88658	3.25E-05	0.011486	---
ENSDARG00000087070	43.91532314	96.80044799	-1.1403	6.13E-06	0.002826	---
ENSDARG00000087359	180.5085249	341.1892656	-0.91851	7.69E-05	0.022651	---
ENSDARG00000087666	53.13740318	16.36867493	1.6988	4.34E-05	0.014852	---
ENSDARG00000087954	358.6519556	495.7326305	-0.46698	0.00017177	0.041098	---
ENSDARG00000089179	37.29645589	11.2065708	1.7347	1.93E-05	0.0074914	---
ENSDARG00000089382	22576.7265	4582.896933	2.3005	1.76E-10	3.30E-07	---
ENSDARG00000090381	52.35323417	99.82612343	-0.93114	0.00010298	0.028497	---
ENSDARG00000090847	24.25906693	88.05414534	-1.8599	9.58E-11	1.91E-07	---
ENSDARG00000090869	32.35432726	9.211618937	1.8124	5.37E-05	0.01763	---
ENSDARG00000091136	68.15596752	136.1638756	-0.99843	1.29E-06	0.00068646	---
ENSDARG00000091348	2515.488919	3349.974724	-0.41331	2.52E-05	0.0093519	---
ENSDARG00000092042	6.710079016	26.510999	-1.9822	6.03E-05	0.01916	---
ENSDARG00000092725	40.1067042	5.200844868	2.947	2.86E-10	5.06E-07	---
ENSDARG00000092890	133.2677181	63.27971098	1.0745	5.12E-07	0.00034007	---
ENSDARG00000092947	3773.778326	1600.950838	1.2371	8.67E-09	9.85E-06	---
ENSDARG00000093998	192.3880844	71.89586989	1.42	0.00015976	0.038595	---
ENSDARG00000094197	99.56594738	24.68742359	2.0119	6.88E-09	8.42E-06	---
ENSDARG00000094451	167.9405991	289.7687532	-0.78695	7.64E-06	0.0034229	---
ENSDARG00000094550	8.940093755	38.57155421	-2.1092	1.23E-06	0.00066477	---
ENSDARG00000095142	135.5144349	211.6298933	-0.6431	0.00014179	0.035811	FKBP15 (1 of many)
ENSDARG00000095724	123.0093106	43.60790684	1.4961	6.27E-11	1.33E-07	si:ch211-196c10.15
ENSDARG00000095822	11.9614192	60.11944293	-2.3294	4.20E-10	7.04E-07	---
ENSDARG00000096240	6.606682958	25.52680626	-1.95	0.00011652	0.031423	---
ENSDARG00000096508	680.8322705	1248.990488	-0.87539	6.79E-08	6.36E-05	---
ENSDARG00000096599	44.92991968	15.07851313	1.5752	0.00013112	0.034202	---

ENSDARG00000096967	44.82961299	14.83208257	1.5957	1.70E-05	0.0067423	---
ENSDARG00000097453	14.79794056	48.23117005	-1.7046	1.41E-05	0.0057334	---
ENSDARG00000097539	166.2545329	41.25092579	2.0109	8.63E-07	0.00051788	si:ch211-39f2.3
ENSDARG00000098332	5.756855708	52.76861068	-3.1963	1.70E-13	8.73E-10	---
ENSDARG00000098644	1751.72561	2305.702475	-0.39643	0.00010036	0.028262	si:ch211-126j24.1
ENSDARG00000098721	5.14556356	27.53385992	-2.4198	3.50E-06	0.001739	---
ENSDARG00000099099	162.4244752	74.84928941	1.1177	3.38E-07	0.00024452	---
ENSDARG00000099577	292.6828195	174.5578573	0.74563	5.75E-07	0.00036622	si:dkey-182g1.10
ENSDARG00000099805	193.5979946	346.4930347	-0.83976	0.00020558	0.048104	---
ENSDARG00000099930	148.5107532	261.8080354	-0.81794	2.02E-07	0.00015677	---
ENSDARG00000100302	116.4121392	35.83105006	1.7	3.92E-07	0.00027358	si:dkey-237g15.2
ENSDARG00000100344	9.804009757	42.03333449	-2.1001	5.13E-05	0.016992	---
ENSDARG00000100357	216.9766762	127.5996748	0.76592	6.69E-06	0.0030428	---
ENSDARG00000100442	494.0386151	712.9987207	-0.52928	0.00014039	0.035811	cfh
ENSDARG00000100480	283.6164167	2.17600274	7.0261	4.86E-23	5.15E-19	---
ENSDARG00000100602	50.03845422	6.820136289	2.8752	7.75E-12	1.90E-08	---
ENSDARG00000100690	107.2461951	27.57796338	1.9593	1.26E-13	8.04E-10	---
ENSDARG00000100795	231.4806301	385.2505161	-0.73491	9.03E-07	0.00052977	---
ENSDARG00000100964	19.46952329	3.705638321	2.3934	0.00014842	0.036901	si:ch211-57b15.2
ENSDARG00000101482	353.9787118	239.2173939	0.56534	0.0001283	0.034133	---
ENSDARG00000101791	162.9450073	73.5968899	1.1467	8.25E-09	9.72E-06	ccb12
ENSDARG00000103260	44.57508468	14.8743017	1.5834	1.31E-05	0.0054246	si:ch211-57b15.1
ENSDARG00000103285	20.85901401	3.026581323	2.7849	1.31E-05	0.0054246	---
ENSDARG00000103960	324.0927398	139.6095893	1.215	5.04E-06	0.0024121	---
ENSDARG00000105273	308.1538664	139.3975231	1.1444	1.92E-13	8.73E-10	---
ENSDARG00000105450	506.3315124	855.1867572	-0.75616	4.24E-11	9.65E-08	si:ch211-63p21.1

ENSDARG00000105824	242.9581189	126.6551933	0.9398	8.97E-08	7.71E-05	---
ENSDARG00000106467	48.45843241	151.1468917	-1.6411	9.48E-05	0.027166	---
ENSDARG00000107664	16.77197426	0	Inf	1.38E-08	1.41E-05	---
ENSDARG00000107916	95.42755718	161.534813	-0.75937	8.54E-05	0.024697	---
ENSDARG00000108519	1079.787058	699.2200868	0.62693	1.44E-08	1.43E-05	---
ENSDARG00000109085	212.8328298	121.8740477	0.80433	1.57E-05	0.0063366	---
Novel00018	54.69451985	118.0726221	-1.1102	9.16E-07	0.00052977	--
Novel00047	193.3406584	459.5952485	-1.2492	1.06E-17	8.44E-14	--
Novel00053	131.6755013	72.6015738	0.85891	6.41E-05	0.019494	---
Novel00090	7.844064809	40.83123446	-2.38	2.53E-08	2.44E-05	--
Novel00138	19.78782977	56.71720116	-1.5192	5.61E-06	0.0026259	---
Novel00320	8.718736773	42.23580672	-2.2763	8.16E-08	7.42E-05	--
Novel00341	175.0002622	294.8040628	-0.7524	2.59E-05	0.0093519	--
Novel00346	238.5451412	138.7011468	0.78228	1.06E-06	0.00060495	--
Novel00550	101.285185	167.072505	-0.72205	0.0001149	0.031252	---
Novel00592	302.6518312	190.7352559	0.66609	4.18E-06	0.0020467	--
Novel00826	8.358407451	64.50859509	-2.9482	4.82E-13	1.70E-09	---
Novel00827	71.43713169	323.8425134	-2.1805	1.39E-36	2.22E-32	---
Novel00829	42.26363753	15.81627532	1.418	0.00013041	0.034202	--
Novel00883	336.8533417	204.3015254	0.72142	0.00016009	0.038595	--
Novel00955	13.07775076	83.20775726	-2.6696	8.48E-06	0.0037484	--
Novel00981	136.8707299	68.29359124	1.003	7.97E-07	0.00048781	--
Novel01034	7.003540789	47.10592791	-2.7498	5.13E-07	0.00034007	--
Novel01116	1239.492997	1643.995748	-0.40746	8.13E-05	0.023736	---
Novel01122	73.41663533	133.8162787	-0.86607	2.58E-05	0.0093519	--
Novel01153	83.77487342	42.24359681	0.98778	5.92E-05	0.019032	---

Novel01190	4.819382182	24.5926953	-2.3513	1.02E-05	0.0043986	--
Novel01192	59.46162374	114.6936135	-0.94775	2.80E-05	0.0099956	--
Novel01202	3.421064346	18.58175178	-2.4414	0.00017667	0.041956	---
Novel01242	48.04581406	18.99879804	1.3385	0.00014121	0.035811	--
Novel01247	17.52916142	0	Inf	6.43E-09	8.19E-06	--
Novel01263	9.220419002	32.48312922	-1.8168	4.95E-05	0.016584	--
Novel01317	576.0836218	115.4299698	2.3193	3.85E-05	0.013325	--
Novel01374	195.6403623	57.24734611	1.7729	5.89E-12	1.56E-08	--
Novel01494	199.5079602	70.12724696	1.5084	9.98E-08	8.36E-05	---
Novel01572	87.92040532	40.74067274	1.1097	1.23E-05	0.0052235	--
Novel01667	17.01767545	42.23678517	-1.3115	0.00021162	0.0488	--
Novel01687	33.61198733	112.4330999	-1.742	2.54E-09	3.84E-06	--
Novel01731	1385.668303	896.7623263	0.62778	4.57E-09	6.06E-06	--
Novel01766	49.0685289	106.3687414	-1.1162	2.59E-05	0.0093519	--
Novel01777	182.0709276	97.17255748	0.90588	6.47E-07	0.00040367	--

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**5 µg /L Group DEG lists**

Gene_id	readcount_EG2	readcount_CK	log2FoldChange	pval	padj	Gene name
ENSDARG00000003449	752.9878856	523.0039472	0.5258	2.79E-05	0.0060552	---
ENSDARG00000004177	453.7263601	278.4401731	0.70446	1.69E-07	9.63E-05	fam169ab
ENSDARG00000004187	476.9740765	648.7081342	-0.44366	0.00034985	0.043283	zgc:122979
ENSDARG00000004843	1446.723111	1059.894445	0.44887	3.33E-05	0.0069455	foxp1a
ENSDARG00000005561	304.8746946	178.2943015	0.77396	4.76E-07	0.00022544	---
ENSDARG00000005980	3140.533465	2184.07014	0.52399	2.27E-07	0.00012523	---
ENSDARG00000006202	1429.021168	1075.827373	0.40958	0.00013329	0.021062	---
ENSDARG00000006235	1035.169593	763.4053958	0.43935	0.00027621	0.037358	---

ENSDARG00000007184	1081.041157	783.577753	0.46427	3.60E-05	0.0073679	-/-
ENSDARG00000008249	145.4489516	85.62389693	0.76443	9.53E-05	0.016526	ptchd4
ENSDARG00000008275	2200.144283	1691.748475	0.37908	0.00017759	0.026244	klhl24b
ENSDARG00000011072	106.7722431	193.8085675	-0.8601	1.09E-06	0.00044392	ddx11
ENSDARG00000011862	315.8812428	492.2366795	-0.63997	8.28E-07	0.00035843	inaa
ENSDARG00000013997	537.6323255	934.6967229	-0.79788	7.94E-05	0.014319	-/-
ENSDARG00000015065	157.7039523	87.03728043	0.85751	8.60E-06	0.0023661	-/-
ENSDARG00000015803	101.5577893	272.9437336	-1.4263	6.60E-09	6.02E-06	-/-
ENSDARG00000015805	1091.921407	777.8455197	0.48931	2.58E-05	0.0057191	cgnl1
ENSDARG00000015853	274.5808002	466.3122199	-0.76407	5.34E-06	0.0016234	-/-
ENSDARG00000016536	1127.884865	1503.791519	-0.41498	0.00012195	0.020066	npas2
ENSDARG00000016545	454.5407985	317.944403	0.51564	0.00012196	0.020066	CRAT (1 of many)
ENSDARG00000018008	23.99531277	55.84845172	-1.2188	7.81E-05	0.014319	-/-
ENSDARG00000018524	2960.223944	4207.364995	-0.50721	3.06E-05	0.006519	midn
ENSDARG00000021172	627.0714653	1099.605382	-0.81028	1.16E-06	0.00046245	cyp2ad2
ENSDARG00000022203	654.1885017	935.3648472	-0.51582	9.63E-06	0.0025607	-/-
ENSDARG00000022525	53.9333232	9.925148403	2.442	3.91E-06	0.0012736	-/-
ENSDARG00000023082	2037.122351	1588.936854	0.35847	0.00038779	0.046488	-/-
ENSDARG00000026811	269.2097773	160.3187128	0.74779	1.55E-06	0.00056654	-/-
ENSDARG00000027017	63.550362	109.9679004	-0.79111	0.00035541	0.043633	ppp2r5a
ENSDARG00000027529	342.8713771	551.5906556	-0.68593	1.56E-06	0.00056654	-/-
ENSDARG00000028386	160.403692	309.2149689	-0.9469	9.38E-05	0.016448	-/-
ENSDARG00000028517	2688.488807	1970.874737	0.44796	5.91E-05	0.011372	-/-
ENSDARG00000029581	430.8803003	696.055654	-0.69192	0.00025129	0.034724	-/-
ENSDARG00000029822	2258.945205	3255.821813	-0.52737	6.94E-05	0.012888	-/-
ENSDARG00000029832	125.1626857	213.838371	-0.77272	1.46E-05	0.0035003	slc26a1

ENSDARG00000030687	2417.264182	1737.532324	0.47634	5.56E-06	0.0016637	phka2
ENSDARG00000030723	217.2501242	324.8963174	-0.58062	6.04E-05	0.011545	-/-
ENSDARG00000032098	81.59597423	144.4297451	-0.8238	3.20E-05	0.006766	-/-
ENSDARG00000032820	151.854082	68.77136288	1.1428	1.18E-08	9.78E-06	-/-
ENSDARG00000034503	1065.687491	1437.195728	-0.43147	8.63E-05	0.015381	per2
ENSDARG00000034598	7.230252246	0	Inf	0.00033212	0.042068	-/-
ENSDARG00000035438	1534.429494	602.4325103	1.3488	7.85E-08	5.57E-05	myhc4
ENSDARG00000036168	401.158376	575.1989769	-0.51989	3.57E-05	0.0073679	-/-
ENSDARG00000036767	427.0310856	263.3845182	0.69717	4.56E-07	0.00022407	-/-
ENSDARG00000037398	9.755390798	32.05482074	-1.7163	9.15E-05	0.016226	zgc:113229
ENSDARG00000038439	5913.524732	7891.960172	-0.41637	9.40E-06	0.0025207	fabp10a
ENSDARG00000038785	580.0817839	830.1705197	-0.51715	1.09E-05	0.0027656	abcf2a
ENSDARG00000038881	537.8651096	950.3863343	-0.82127	1.08E-06	0.00044392	acaa2
ENSDARG00000039266	1042.595813	786.5666287	0.40654	0.00036508	0.044648	rbm25a
ENSDARG00000039579	1297.632572	1729.932457	-0.41483	0.00013738	0.021184	cfp
ENSDARG00000039652	221.3212673	372.7927115	-0.75223	8.79E-08	6.06E-05	-/-
ENSDARG00000040100	108.9911354	199.4241755	-0.87163	7.53E-07	0.00033383	-/-
ENSDARG00000040815	245.3570406	349.9882105	-0.51242	0.00036855	0.044901	-/-
ENSDARG00000041595	343.1672116	667.6165617	-0.96011	3.28E-14	7.48E-11	-/-
ENSDARG00000041645	388.143711	723.9060056	-0.89921	0.00034709	0.043181	-/-
ENSDARG00000041947	262.2958376	172.5050462	0.60456	0.00010108	0.017255	-/-
ENSDARG00000042010	2872.690535	3879.561722	-0.43349	9.99E-06	0.0026078	-/-
ENSDARG00000042055	733.5094126	497.4117643	0.56037	2.63E-06	0.0008929	-/-
ENSDARG00000043247	245.807518	413.5347469	-0.75048	5.18E-06	0.0015983	-/-
ENSDARG00000043279	610.7872883	941.0584124	-0.62361	5.38E-08	3.99E-05	aqp12
ENSDARG00000043701	335.3037667	221.4758133	0.59832	2.95E-05	0.0063578	-/-

ENSDARG00000043722	2903.596712	4152.257419	-0.51605	0.00041924	0.049018	-/-
ENSDARG00000044626	178.2995033	101.1223254	0.8182	4.44E-06	0.0014156	-/-
ENSDARG00000045262	643.318884	204.7746888	1.6515	1.37E-18	4.87E-15	-/-
ENSDARG00000052223	578.3186192	788.3687801	-0.44701	0.0001042	0.017615	-/-
ENSDARG00000052413	222.2473431	114.7718771	0.9534	0.00029659	0.038992	-/-
ENSDARG00000053133	163.3340921	254.8654576	-0.64191	6.18E-05	0.011679	-/-
ENSDARG00000054748	337.5579197	213.8324089	0.65865	5.21E-06	0.0015983	-/-
ENSDARG00000055388	281.2159746	426.3631367	-0.6004	1.17E-05	0.002896	-/-
ENSDARG00000055642	512.8019357	299.9126259	0.77386	2.13E-09	2.12E-06	GPT (1 of many)
ENSDARG00000055854	804.7313654	1665.792304	-1.0496	0.00016428	0.02462	nr4a3
ENSDARG00000056314	659.1456664	1186.305156	-0.84781	7.00E-14	1.40E-10	-/-
ENSDARG00000056938	229.3950561	363.3092861	-0.66336	2.91E-06	0.00096796	-/-
ENSDARG00000057714	719.4740175	492.3035982	0.54739	3.33E-05	0.0069455	cmah
ENSDARG00000058944	245.9321486	145.0685529	0.76153	1.49E-06	0.00055982	SBK2
ENSDARG00000059026	61.38071202	28.45265434	1.1092	0.00023436	0.033248	zgc:123217
ENSDARG00000059858	238.1329391	152.8498979	0.63965	9.23E-05	0.01627	pappab
ENSDARG00000060877	237.4224187	151.9281807	0.64407	7.23E-05	0.013344	edil3b
ENSDARG00000061520	48.14726865	88.38860064	-0.87641	0.00025399	0.034945	-/-
ENSDARG00000061974	394.7378074	188.4237838	1.0669	1.21E-10	1.55E-07	-/-
ENSDARG00000061994	3848.319836	2998.906209	0.35979	0.0003543	0.043633	acacb
ENSDARG00000062970	309.4764337	434.4300171	-0.48929	0.00038984	0.046488	fam129ba
ENSDARG00000063153	856.6225462	621.3702911	0.46321	9.76E-05	0.016757	-/-
ENSDARG00000067517	14.51364938	53.30396601	-1.8768	9.37E-06	0.0025207	ccdc15
ENSDARG00000067848	932.354768	1416.488948	-0.60337	2.65E-07	0.00014082	-/-
ENSDARG00000068516	213.9160438	470.5808533	-1.1374	1.07E-07	6.83E-05	hapln1b
ENSDARG00000068966	1.33365959	50.59903447	-5.2456	4.80E-07	0.00022544	-/-

ENSDARG00000068991	112.3804979	48.3196435	1.2177	6.62E-06	0.0019223	---
ENSDARG00000069988	326.6927498	200.2216634	0.70634	1.21E-06	0.0004705	---
ENSDARG00000070536	171.0865421	104.9453224	0.70509	0.00016642	0.024823	---
ENSDARG00000070545	1290.150428	1683.569083	-0.38398	0.00024018	0.033565	---
ENSDARG00000070581	71.15791388	20.88930813	1.7683	1.20E-08	9.78E-06	ggact.1
ENSDARG00000070721	1132.279262	778.4013966	0.54064	1.85E-06	0.00064916	---
ENSDARG00000071010	258.8390283	159.3755818	0.69962	1.00E-05	0.0026078	---
ENSDARG00000071045	72.42744904	124.3458485	-0.77975	0.00015164	0.02294	si:rp71-1k13.6
ENSDARG00000071090	641.0298293	445.4960038	0.52498	2.37E-05	0.0053368	---
ENSDARG00000071576	150.3997071	77.6520166	0.95371	0.0002408	0.033565	---
ENSDARG00000074085	0.334294884	9.631030119	-4.8485	0.00014191	0.021673	---
ENSDARG00000074712	25.00558301	55.89132035	-1.1604	0.00013223	0.020999	---
ENSDARG00000075132	1694.925023	1308.181624	0.37366	0.0004108	0.048386	---
ENSDARG00000075608	394.2830076	266.8131866	0.5634	4.20E-05	0.0084308	mical2a
ENSDARG00000076126	233.7638875	1092.885064	-2.225	1.95E-11	2.60E-08	---
ENSDARG00000076534	69.71019623	128.6807414	-0.88435	1.91E-05	0.0043879	---
ENSDARG00000076820	161.5770522	67.34046329	1.2627	0.00013903	0.021335	xkr8.2
ENSDARG00000077045	23.05992448	69.74946419	-1.5968	6.58E-06	0.0019223	---
ENSDARG00000077134	542.3461705	398.5459176	0.44447	0.00041296	0.048462	---
ENSDARG00000077516	81.13361551	133.2371859	-0.71563	0.00032369	0.041329	---
ENSDARG00000077697	60.7018711	17.96429236	1.7566	7.56E-08	5.49E-05	---
ENSDARG00000077960	109.4395253	171.4194641	-0.6474	0.00032345	0.041329	---
ENSDARG00000078024	18.88125693	1.000472779	4.2382	1.30E-07	7.99E-05	---
ENSDARG00000078685	193.2401883	123.8028491	0.64235	0.00026755	0.036497	---
ENSDARG00000078797	573.1434769	333.9829836	0.77912	1.90E-05	0.0043879	dennd3a
ENSDARG00000078832	54.46348696	18.38470999	1.5668	1.21E-05	0.0029498	---



ENSDARG00000079031	66.89713947	115.8501169	-0.79224	0.00028293	0.037876	-/-
ENSDARG00000079043	26.4634408	65.92823306	-1.3169	4.91E-06	0.0015528	-/-
ENSDARG00000079305	3825.870209	5335.954047	-0.47996	0.000131	0.020999	-/-
ENSDARG00000079742	385.8476163	263.3069778	0.55129	5.44E-05	0.01059	-/-
ENSDARG00000087597	32.71969635	3.167409494	3.3688	5.61E-05	0.01086	si:dkey-51d8.3
ENSDARG00000087714	32.70140523	67.94371365	-1.055	0.00013533	0.021129	si:ch211-226o13.1
ENSDARG00000087989	11.16369765	0.667815952	4.0632	0.0001233	0.020081	-/-
ENSDARG00000088142	130.8143523	19.34697376	2.7573	2.28E-07	0.00012523	-/-
ENSDARG00000088245	130.5615225	59.39042914	1.1364	1.95E-06	0.00067709	-/-
ENSDARG00000088820	227.8164091	155.0222307	0.5554	0.00034705	0.043181	-/-
ENSDARG00000088908	150.6694579	82.44898054	0.86981	6.50E-06	0.0019223	-/-
ENSDARG00000089179	47.24425126	10.95915513	2.108	7.10E-07	0.00031931	-/-
ENSDARG00000089593	37.44937566	10.66186003	1.8125	1.16E-05	0.002896	pcdh2ab11
ENSDARG00000090033	39.08568762	7.033666584	2.4743	1.59E-07	9.21E-05	si:dkey-16p6.1
ENSDARG00000090228	876.3082761	1583.770542	-0.85385	0.00012273	0.020081	gsta.1
ENSDARG00000090381	47.89126465	97.63659841	-1.0277	2.98E-05	0.0063855	-/-
ENSDARG00000090428	22955.40694	29864.14116	-0.37958	0.00013152	0.020999	-/-
ENSDARG00000090901	129.2631734	31.14278327	2.0533	9.31E-18	2.97E-14	-/-
ENSDARG00000091013	40.69314862	8.876802395	2.1967	9.02E-08	6.06E-05	-/-
ENSDARG00000091136	44.30657661	133.1689648	-1.5877	3.30E-12	5.26E-09	-/-
ENSDARG00000091236	18.25180627	57.97049627	-1.6673	1.26E-06	0.00048404	-/-
ENSDARG00000091320	67.87159287	129.0860115	-0.92745	3.91E-05	0.0079532	zgc:136791
ENSDARG00000091499	23.39421936	59.18935927	-1.3392	2.31E-05	0.0052364	-/-
ENSDARG00000092364	263.7825093	154.7439345	0.76947	1.18E-06	0.00046678	si:ch211-218c6.8
ENSDARG00000092833	28.34535759	117.0774908	-2.0463	2.65E-14	6.51E-11	-/-
ENSDARG00000093198	58.99809978	110.0683065	-0.89966	2.72E-05	0.0059518	-/-

ENSDARG00000093237	435.811912	280.1439573	0.63754	2.91E-06	0.00096796	si:ch211-89o9.4
ENSDARG00000093489	98.3578235	49.93953372	0.97786	0.00012119	0.020066	-//-
ENSDARG00000093799	625.813156	454.9941133	0.45988	0.00018257	0.026856	setbp1
ENSDARG00000094120	16.64078832	42.15799303	-1.3411	0.00039004	0.046488	-//-
ENSDARG00000094197	51.59356769	24.14832974	1.0953	0.00029683	0.038992	-//-
ENSDARG00000095142	92.66700519	206.9705464	-1.1593	1.88E-10	2.30E-07	FKBP15 (1 of many)
ENSDARG00000095200	44.55198377	10.8285257	2.0407	9.47E-05	0.016522	-//-
ENSDARG00000095556	1585.493525	2445.058189	-0.62494	5.79E-10	6.61E-07	-//-
ENSDARG00000095724	99.79073297	42.65346421	1.2262	3.90E-07	0.0001976	si:ch211-196c10.15
ENSDARG00000095767	1570.436796	1056.451298	0.57194	7.29E-06	0.002077	-//-
ENSDARG00000096216	35.7283133	7.178156531	2.3154	9.11E-08	6.06E-05	si:ch211-162i8.7
ENSDARG00000096508	665.7992671	1221.559664	-0.87557	1.12E-14	3.25E-11	-//-
ENSDARG00000096527	39.57613191	99.37080175	-1.3282	0.00022685	0.032326	-//-
ENSDARG00000096599	56.16002071	14.74333053	1.9295	2.15E-08	1.68E-05	-//-
ENSDARG00000096988	88.21840186	155.564226	-0.81836	2.72E-05	0.0059518	-//-
ENSDARG00000097110	212.7509456	393.6596635	-0.88778	8.31E-07	0.00035843	si:dkey-56f14.4
ENSDARG00000098037	133.0156448	70.63417212	0.91316	4.26E-05	0.0084947	-//-
ENSDARG00000098058	533.6457469	354.6837334	0.58935	0.00031124	0.040549	-//-
ENSDARG00000098349	938.3857367	489.5756207	0.93865	1.83E-05	0.0042615	hdac4
ENSDARG00000099091	196.9569052	427.6731639	-1.1186	0.0002949	0.038992	-//-
ENSDARG00000099111	298.2912707	425.0956076	-0.51107	0.00023998	0.033565	-//-
ENSDARG00000099171	42.22209672	11.45530081	1.882	1.84E-06	0.00064916	-//-
ENSDARG00000099534	498.3603524	348.905656	0.51435	6.43E-05	0.011997	-//-
ENSDARG00000099764	7.72467318	49.74986859	-2.6871	1.82E-08	1.45E-05	-//-
ENSDARG00000099839	140.3772091	84.37500633	0.73442	0.00026137	0.035806	-//-
ENSDARG00000099902	410.3269012	289.8906496	0.50126	0.00022044	0.031553	-//-

ENSDARG00000099960	176.2342533	396.4570929	-1.1697	4.50E-05	0.0089219	-/-
ENSDARG00000100000	130.8459208	242.006108	-0.88717	1.03E-07	6.73E-05	-/-
ENSDARG00000100040	24.80635485	3.086002321	3.0069	2.45E-07	0.00013271	-/-
ENSDARG00000100057	786.4614528	1533.999333	-0.96385	5.58E-06	0.0016637	-/-
ENSDARG00000100061	50.10005374	18.17199888	1.4631	4.08E-05	0.0082355	-/-
ENSDARG00000100185	300.5328874	582.0260592	-0.95356	0.00011488	0.0192	-/-
ENSDARG00000100311	65.43200711	8.411013843	2.9596	1.38E-09	1.42E-06	-/-
ENSDARG00000100357	193.3857039	124.7962937	0.63191	0.00032555	0.041401	-/-
ENSDARG00000100442	458.7769459	697.3100843	-0.60401	4.74E-07	0.00022544	cfh
ENSDARG00000100480	235.129992	2.129072684	6.7871	1.82E-11	2.52E-08	-/-
ENSDARG00000100602	51.86032922	6.670652625	2.9587	5.14E-13	9.12E-10	-/-
ENSDARG00000100747	80.02723264	35.12465599	1.188	5.09E-06	0.0015915	GUCA1A (1 of many)
ENSDARG00000101124	24.02029809	6.832313695	1.8138	0.00032004	0.041232	-/-
ENSDARG00000101312	83.83292289	16.87240321	2.3129	1.48E-14	3.93E-11	si:dkey-31n13.4
ENSDARG00000101407	89.45544245	177.1314058	-0.98558	9.62E-05	0.016601	-/-
ENSDARG00000101450	21.31743375	2.663756911	3.0005	2.95E-06	0.00097065	si:ch211-215p11.3
ENSDARG00000101482	413.1070807	233.9445152	0.82035	1.15E-07	7.19E-05	-/-
ENSDARG00000101598	43.73734773	8.116221048	2.43	7.10E-09	6.30E-06	si:ch211-215p11.1
ENSDARG00000101688	14.08718151	1.954900116	2.8492	0.00031044	0.040549	-/-
ENSDARG00000101956	149.8362961	0.332656826	8.8151	5.61E-22	2.99E-18	-/-
ENSDARG00000102102	41.19809239	16.29350133	1.3383	0.0003356	0.042342	-/-
ENSDARG00000102105	593.4949666	903.9585703	-0.60702	1.44E-07	8.50E-05	-/-
ENSDARG00000102435	330.8724047	192.7697365	0.7794	0.00032035	0.041232	-/-
ENSDARG00000102440	69.7848805	26.22250106	1.4121	9.36E-07	0.00039329	-/-
ENSDARG00000102595	65.78038178	21.33325049	1.6246	8.55E-07	0.00036373	-/-
ENSDARG00000102679	163.9602205	92.40198377	0.82735	8.30E-06	0.0023037	-/-

ENSDARG00000102691	22.47692451	55.48861457	-1.3037	3.60E-05	0.0073679	--
ENSDARG00000102798	608.4974791	870.0294737	-0.51581	8.94E-06	0.0024392	--
ENSDARG00000102848	25.94089729	5.624134405	2.2055	2.31E-05	0.0052364	--
ENSDARG00000102849	14.24723355	0.997970479	3.8355	1.29E-05	0.0031085	--
ENSDARG00000102915	10.90049308	30.89153362	-1.5028	0.0004029	0.047809	--
ENSDARG00000103230	0	7.169300609	#NAME?	0.00034767	0.043181	--
ENSDARG00000103285	71.69094322	2.960377494	4.5979	5.52E-26	3.52E-22	--
ENSDARG00000103680	29.77122717	4.201416216	2.825	3.43E-07	0.00017642	--
ENSDARG00000103957	110.5383746	47.13115307	1.2298	4.02E-07	0.00020056	aamdc
ENSDARG00000103960	19.07692814	136.5695107	-2.8397	0.00021898	0.031485	--
ENSDARG00000104015	115.5780052	196.2245811	-0.76364	7.99E-06	0.0022376	--
ENSDARG00000104062	28.03218239	6.343674909	2.1437	0.00019827	0.028767	--
ENSDARG00000104064	59.9300918	14.12406232	2.0851	7.33E-10	8.06E-07	--
ENSDARG00000104293	11.5193839	0.583231968	4.3038	0.00021234	0.03067	--
ENSDARG00000104314	364.132368	518.1554854	-0.50892	0.00040776	0.048207	nrg1
ENSDARG00000104476	31.43918165	10.2074297	1.6229	0.00016138	0.024298	--
ENSDARG00000104569	599.4319214	849.5392678	-0.50308	0.00013636	0.021129	--
ENSDARG00000105001	906.9885464	1229.887474	-0.43937	6.41E-05	0.011997	--
ENSDARG00000105067	1.632409317	13.17213728	-3.0124	0.00028303	0.037876	--
ENSDARG00000105273	287.827114	136.347403	1.0779	1.03E-05	0.0026496	--
ENSDARG00000105491	593.3248484	389.4432027	0.60741	0.00013588	0.021129	--
ENSDARG00000105651	9.421095914	56.36230925	-2.5808	1.31E-11	1.90E-08	--
ENSDARG00000105731	76.74790186	315.0507638	-2.0374	1.11E-27	8.87E-24	CR788316.1
ENSDARG00000105749	7.233809195	32.16976186	-2.1529	1.62E-06	0.00058182	--
ENSDARG00000105829	30.81294225	127.5600399	-2.0496	1.17E-09	1.24E-06	CR788316.4
ENSDARG00000105880	465.7979779	942.7066519	-1.0171	1.68E-05	0.0039669	--

ENSDARG00000106383	571.8972096	247.475877		1.2085	5.01E-08	3.81E-05	--
ENSDARG00000106467	12.31251756	147.8319076		-3.5858	6.07E-32	9.69E-28	--
ENSDARG00000106478	38.63388874	14.47490975		1.4163	0.0001837	0.026897	--
ENSDARG00000106574	0	14.81324569	#NAME?		0.00027544	0.037358	--
ENSDARG00000106663	44.65506229	17.34136858		1.3646	8.62E-05	0.015381	--
ENSDARG00000107664	12.43326982	0	Inf		9.94E-06	0.0026078	--
ENSDARG00000108939	309.576042	107.4733115		1.5263	1.11E-08	9.60E-06	--
ENSDARG00000108952	79.03873646	1.000472779		6.3038	3.93E-34	1.26E-29	--
ENSDARG00000108971	51.33419176	18.46861946		1.4748	1.07E-05	0.0027282	--
ENSDARG00000109185	153.3938986	231.0918296		-0.59123	0.00031461	0.040822	--
Novel00047	283.0799703	449.4888179		-0.66708	5.71E-07	0.00026421	--
Novel00090	12.64688645	39.93548044		-1.6589	1.62E-05	0.0038635	--
Novel00113	936.0204511	1619.014954		-0.7905	2.41E-05	0.0053703	--
Novel00136	649.5074599	444.499985		0.54716	0.00039031	0.046488	--
Novel00138	10.94686976	55.46724715		-2.3411	2.16E-10	2.55E-07	--
Novel00152	88.01217081	149.0894429		-0.7604	0.00013536	0.021129	--
Novel00220	29.10612035	8.624878229		1.7547	0.00019554	0.0285	--
Novel00335	19.32222429	3.666731989		2.3977	0.00011178	0.018778	--
Novel00430	331.953815	220.915447		0.58749	0.00038457	0.046488	--
Novel00439	7.60012929	76.80983233		-3.3372	4.59E-21	2.09E-17	--
Novel00470	14.2117254	40.48036962		-1.5101	0.0001294	0.020967	--
Novel00602	7.69965086	96.02286607		-3.6405	5.97E-20	2.38E-16	--
Novel00611	913.9947687	225.525783		2.0189	6.13E-05	0.011656	--
Novel00750	251.1020172	674.1790338		-1.4249	2.52E-09	2.44E-06	--
Novel00751	399.2803745	1026.203278		-1.3618	1.43E-29	1.53E-25	--
Novel00758	66.62654932	32.25069027		1.0468	0.0001474	0.022404	--

Novel00811	50.54098409	93.70225395	-0.89063	0.00024594	0.034132	--
Novel00822	516.1827403	261.1376106	0.98307	0.00013191	0.020999	--
Novel00827	143.4393537	316.7180331	-1.1428	1.60E-13	3.00E-10	--
Novel00846	5.996188233	52.31667925	-3.1252	4.88E-14	1.04E-10	--
Novel00861	51.05629003	93.05613495	-0.86601	0.00024062	0.033565	--
Novel00883	431.22876	199.8211304	1.1097	2.21E-06	0.00075781	--
Novel00927	14.85532985	2.336104684	2.6688	0.00028359	0.037876	--
Novel00999	5.540869405	47.8653624	-3.1108	8.72E-12	1.33E-08	--
Novel01002	20.53830587	54.60673849	-1.4108	0.00038108	0.046251	--
Novel01059	14.88031517	93.13125046	-2.6459	3.15E-07	0.00016472	--
Novel01070	338.1057329	172.5407994	0.97054	6.17E-07	0.00028137	--
Novel01116	816.8748257	1607.796409	-0.9769	5.12E-09	4.81E-06	--
Novel01150	10.85431408	45.32857934	-2.0622	1.21E-05	0.0029498	--
Novel01192	61.89338706	112.175878	-0.85791	7.93E-05	0.014319	--
Novel01203	133.4422977	46.11884331	1.5328	1.34E-07	8.04E-05	--
Novel01242	3.762759515	18.57788147	-2.3037	0.00029458	0.038992	--
Novel01247	12.16302535	0	Inf	1.10E-06	0.00044392	--
Novel01269	0.700614978	13.66578067	-4.2858	7.20E-06	0.0020691	--
Novel01308	6.205902223	49.97123988	-3.0094	8.91E-13	1.50E-09	--
Novel01312	22.31331551	2.579172927	3.1129	0.0001043	0.017615	--
Novel01314	26.53139386	2.878295809	3.2044	0.00034648	0.043181	--
Novel01407	54.63424686	19.99944638	1.4498	7.36E-06	0.0020801	--
Novel01458	8.994282349	0	Inf	4.67E-05	0.0092113	--
Novel01494	253.1697981	68.5758229	1.8843	7.90E-05	0.014319	--
Novel01611	18.60397257	46.78165466	-1.3303	0.00017751	0.026244	--
Novel01613	59.15114894	20.6344029	1.5194	1.31E-06	0.00049855	--

Novel01687	54.98610448	109.9635704	-0.99989	1.16E-05	0.002896	--
Novel01731	1636.726532	877.0200971	0.90013	1.69E-05	0.0039686	--
Novel01769	35.55387278	74.43904043	-1.0661	5.35E-05	0.010469	--
Novel01830	34.37674529	7.579034521	2.1813	1.51E-06	0.00055982	--
Novel01846	368.438519	553.7883817	-0.58791	4.27E-06	0.0013766	--

913

914 **50 µg /L Group DEG lists**

Gene_id	readcount_EG3	readcount_CK	log2FoldChange	pval	padj	Gene name
ENSDARG00000000068	519.2067174	768.7707453	-0.56624	1.82E-06	0.0003251	slc9a3r1a
ENSDARG00000001976	124.7937567	193.3540326	-0.6317	0.00026304	0.015197	fkbp16
ENSDARG00000001999	269.9033519	369.8430286	-0.45447	0.00076602	0.032161	adamts18
ENSDARG00000002193	38801.98219	56845.71262	-0.55092	0.00033387	0.017852	rho
ENSDARG00000002196	506.5211842	325.1130401	0.63968	6.61E-07	0.00013724	bach1b
ENSDARG00000002369	3703.082904	2683.237126	0.46475	1.87E-06	0.00033107	---
ENSDARG00000002909	1045.286418	770.4055978	0.44021	0.0001084	0.0079987	---
ENSDARG00000002968	471.2469985	777.245237	-0.72189	1.88E-08	6.60E-06	a1cf
ENSDARG00000003091	622.7493958	435.5295403	0.51588	2.45E-05	0.0025953	oclnb
ENSDARG00000003132	396.2577589	281.3014112	0.49432	0.00029477	0.016581	---
ENSDARG00000003216	2770.852444	2009.544625	0.46346	0.00049613	0.023589	anxa2a
ENSDARG00000003311	2412.470319	1888.048729	0.35362	0.00055543	0.025352	---
ENSDARG00000003449	715.4043103	527.3631773	0.43996	0.00041496	0.020945	---
ENSDARG00000003615	207.8850668	427.3821307	-1.0397	1.63E-05	0.001887	slc26a3.2
ENSDARG00000003684	134.612536	212.5265104	-0.65883	0.00013039	0.0091362	obs11a
ENSDARG00000003779	1026.215447	1393.332074	-0.44121	4.49E-05	0.0041866	---
ENSDARG00000004177	476.3221266	280.7002394	0.76291	1.17E-08	4.44E-06	fam169ab
ENSDARG00000004187	448.487781	654.0255323	-0.54428	9.52E-06	0.0011955	zgc:122979

ENSDARG00000004297	1680.222183	2224.8845	-0.40508	0.00015469	0.010275	irf2bpl
ENSDARG00000004325	455.8165769	342.6744761	0.41161	0.0014585	0.049367	casp9
ENSDARG00000004415	1947.180967	2846.650221	-0.54788	0.00028329	0.016105	---
ENSDARG00000004702	1002.406334	1506.402726	-0.58764	4.22E-05	0.0039773	---
ENSDARG00000004748	2004.061396	1164.281931	0.78349	7.54E-11	5.36E-08	---
ENSDARG00000004843	1624.05621	1068.608081	0.60387	1.25E-08	4.65E-06	foxp1a
ENSDARG00000004953	157.8029351	1.975553012	6.3197	0.0014571	0.049367	mxb
ENSDARG00000005108	1328.646195	935.8144346	0.50566	2.87E-06	0.0004628	oclna
ENSDARG00000005186	543.8720655	727.5649872	-0.41981	0.00044427	0.021993	---
ENSDARG00000005518	35.69766673	69.07756995	-0.95239	0.00042589	0.021261	---
ENSDARG00000005561	274.7497486	179.770751	0.61196	0.00010333	0.0077315	---
ENSDARG00000005713	500.1426364	375.7781229	0.41246	0.001336	0.047206	---
ENSDARG00000005800	414.5002218	292.5985506	0.50245	0.00037011	0.019197	ampd3a
ENSDARG00000005834	571.6835281	815.6753077	-0.51278	9.14E-06	0.0011679	---
ENSDARG00000005980	3002.256552	2202.048196	0.4472	7.15E-06	0.00096377	---
ENSDARG00000006038	313.8352803	475.4583224	-0.59931	0.00025763	0.014979	---
ENSDARG00000006060	944.9623626	710.2271231	0.41198	0.00031045	0.017072	aim1b
ENSDARG00000006112	650.9656541	459.2942581	0.50316	4.31E-05	0.0040303	myof
ENSDARG00000006202	1577.036556	1084.692729	0.53993	4.18E-07	9.35E-05	---
ENSDARG00000006220	410.2062838	772.6023852	-0.91338	1.27E-08	4.65E-06	---
ENSDARG00000006235	1190.839868	769.7109848	0.62959	0.00021696	0.013302	---
ENSDARG00000006266	2148.278255	1603.686282	0.42179	3.88E-05	0.0037322	---
ENSDARG00000006422	310.5240642	192.2832424	0.69147	2.72E-06	0.00044565	---
ENSDARG00000006427	3181.698977	4678.852745	-0.55636	0.0001067	0.0079466	fabp2
ENSDARG00000006588	2988.803955	1826.282334	0.71066	0.00036408	0.019038	zgc:111983
ENSDARG00000007175	274.0236386	190.1240291	0.52736	0.00067828	0.029485	---



ENSDARG00000007184	1153.974437	790.0550189	0.54659	8.41E-07	0.00016998	---
ENSDARG00000007241	413.6257355	552.5483875	-0.41777	0.0010327	0.039516	---
ENSDARG00000007406	183.1002767	273.060306	-0.57659	0.00016251	0.010618	---
ENSDARG00000007425	307.5086551	210.2396061	0.54859	0.00023612	0.014207	---
ENSDARG00000007443	89.09922654	145.5576508	-0.70811	0.00027656	0.01582	---
ENSDARG00000007682	1923.151634	2544.154218	-0.40371	0.0012512	0.045326	---
ENSDARG00000007739	944.4439537	728.487361	0.37456	0.0008943	0.03585	atp1a1a.2
ENSDARG00000007836	13070.56933	9287.8918	0.4929	0.00036471	0.01904	---
ENSDARG00000007906	346.029635	563.617527	-0.70382	0.0013967	0.048346	---
ENSDARG00000008170	295.3816507	211.2461733	0.48366	0.0010596	0.040016	dbnla
ENSDARG00000008275	2692.213344	1705.619398	0.6585	8.42E-11	5.85E-08	klhl24b
ENSDARG00000008413	1908.13397	1472.12088	0.37427	0.00030826	0.016986	atp1a
ENSDARG00000008849	116.1079105	65.73007469	0.82084	0.00010751	0.00797	ptprq
ENSDARG00000009136	2294.158839	3111.123233	-0.43947	1.36E-05	0.0016447	tp53bp2a
ENSDARG00000010420	5570.209855	3903.00094	0.51315	2.98E-06	0.00047132	ndrg1b
ENSDARG00000010437	204.5503407	332.0180205	-0.69881	0.00083412	0.034167	---
ENSDARG00000010571	115.2016719	173.0170907	-0.58675	0.0011145	0.041597	ezh2
ENSDARG00000010794	503.2853538	376.6328981	0.41822	0.0012125	0.044425	tfeb
ENSDARG00000010933	251.4060993	347.0575612	-0.46516	0.00076309	0.03208	---
ENSDARG00000010936	1264.818146	1700.186807	-0.42676	0.00041604	0.020966	---
ENSDARG00000011072	84.10744539	195.3835077	-1.216	4.17E-11	3.25E-08	ddx11
ENSDARG00000011141	1305.526886	1650.181964	-0.33799	0.0010639	0.040131	---
ENSDARG00000011157	558.7704509	395.6232111	0.49813	0.0001178	0.0084963	arhgef18a
ENSDARG00000011445	363.4140579	232.4379268	0.64477	4.87E-06	0.00069815	---
ENSDARG00000011573	55.38882771	145.262662	-1.391	0.0014297	0.048993	---
ENSDARG00000011696	43.20309644	88.80010656	-1.0394	3.45E-05	0.0033706	---

ENSDARG00000011769	416.8423902	293.0909781	0.50815	0.00024072	0.01443	cpm
ENSDARG00000011819	859.8937838	1250.625033	-0.54042	0.00029129	0.016472	---
ENSDARG00000011862	286.4706254	496.2690352	-0.79274	1.40E-09	7.46E-07	inaa
ENSDARG00000011870	411.09182	291.3002323	0.49695	0.00034435	0.018276	---
ENSDARG00000011886	155.940109	227.7562594	-0.5465	0.00054567	0.025154	---
ENSDARG00000011948	1905.564383	1487.685355	0.35715	0.00054747	0.025154	insra
ENSDARG00000012274	437.9960786	581.2495162	-0.40824	0.00094221	0.037119	---
ENSDARG00000012422	4213.914759	7476.732059	-0.82725	3.55E-05	0.0034604	col11a2
ENSDARG00000012829	258.6715644	456.2451273	-0.81869	1.55E-06	0.00028388	asah2
ENSDARG00000012881	880.3803788	1301.369576	-0.56383	0.00015793	0.010382	---
ENSDARG00000013031	1559.797422	2155.265372	-0.46651	4.76E-06	0.00068449	mta2
ENSDARG00000013221	316.5618024	550.7655471	-0.79895	1.70E-05	0.0019423	---
ENSDARG00000013522	21516.36221	27322.64204	-0.34466	0.00025334	0.014924	---
ENSDARG00000013871	863.0386436	1133.881894	-0.39377	0.00038193	0.019618	slc5a1
ENSDARG00000014017	1034.658905	1397.290656	-0.43348	0.0013592	0.047616	---
ENSDARG00000014233	271.8107759	373.3628742	-0.45798	0.0010493	0.039872	---
ENSDARG00000015064	73.03950474	135.9174681	-0.89598	1.48E-05	0.0017464	---
ENSDARG00000015065	150.7289874	87.74854624	0.78051	5.00E-05	0.0044987	---
ENSDARG00000015134	388.3663719	277.4041039	0.48543	0.00032884	0.017658	camkk1b
ENSDARG00000015662	1045.252071	1336.639391	-0.35476	0.00084892	0.034585	---
ENSDARG00000015749	137.4147623	207.4612398	-0.5943	0.00037575	0.019444	---
ENSDARG00000015793	228.7699143	350.6676616	-0.61621	1.75E-05	0.0019704	creb3l1
ENSDARG00000015803	117.4342998	275.1744391	-1.2285	2.10E-09	1.03E-06	---
ENSDARG00000015805	1173.423316	784.3435253	0.58117	2.30E-07	5.65E-05	cgnl1
ENSDARG00000016439	587.4857195	408.802411	0.52315	2.12E-05	0.0023224	slc7a1
ENSDARG00000016464	540.1372154	715.6171166	-0.40586	0.00056169	0.025528	---

ENSDARG00000016536	1088.648246	1516.072054	-0.4778	7.72E-06	0.0010154	npas2
ENSDARG00000016598	3436.848708	4344.808045	-0.33821	0.00059501	0.026776	---
ENSDARG00000017126	433.9310448	599.3975689	-0.46605	0.00013437	0.0093739	---
ENSDARG00000017168	315.3895128	425.3165697	-0.4314	0.0010018	0.038777	nr2f1b
ENSDARG00000017659	732.1743923	951.4252965	-0.3779	0.00068733	0.029636	---
ENSDARG00000017741	1439.296339	1842.412163	-0.35623	0.00061226	0.027397	g3bp1
ENSDARG00000017834	139.2865549	86.93364637	0.68007	0.00064362	0.028403	---
ENSDARG00000017929	1464.945589	1872.951978	-0.35447	0.00053798	0.024911	---
ENSDARG00000018008	19.20209149	56.31021169	-1.5521	2.43E-06	0.00041113	---
ENSDARG00000018263	853.5358115	1183.11712	-0.47107	2.48E-05	0.00261	---
ENSDARG00000018266	178.1803572	266.0278813	-0.57824	0.00054035	0.024985	mthfd1a
ENSDARG00000018478	7141.668392	5572.310562	0.35799	0.00017843	0.011402	---
ENSDARG00000018524	2864.811985	4241.613545	-0.56617	2.13E-06	0.00036928	midn
ENSDARG00000018621	418.9523825	848.9618315	-1.0189	0.00019536	0.012246	---
ENSDARG00000018814	1154.063266	841.9057196	0.45499	4.05E-05	0.0038732	---
ENSDARG00000018881	229.4802839	320.7860548	-0.48324	0.00068516	0.029605	apobec2a
ENSDARG00000019228	270.8367484	383.6481836	-0.50236	0.00017991	0.01145	---
ENSDARG00000019236	491.8059476	356.3639397	0.46474	0.00032753	0.017617	---
ENSDARG00000019360	1758.353017	2261.975121	-0.36336	0.00043063	0.021464	---
ENSDARG00000019564	700.5648642	450.6854839	0.6364	1.82E-07	4.57E-05	---
ENSDARG00000020602	407.7992119	544.87329	-0.41806	0.00088804	0.035663	grk7a
ENSDARG00000021021	566.3019106	404.9257057	0.48391	0.00015019	0.010103	---
ENSDARG00000021172	629.6413242	1108.694636	-0.81626	5.76E-06	0.00079463	cyp2ad2
ENSDARG00000021720	586.7900977	892.8595118	-0.60559	6.81E-05	0.0056941	---
ENSDARG00000021787	1590.954189	1006.188886	0.66099	1.85E-09	9.39E-07	abcb5
ENSDARG00000021987	6227.679335	4550.775472	0.45258	3.38E-06	0.00051366	plecb

ENSDARG00000022525	62.56816635	10.00393895	2.6449	0.0013518	0.04746	---
ENSDARG00000023532	883.8627273	600.2324102	0.5583	1.31E-06	0.0002485	---
ENSDARG00000024325	330.6724943	207.4384456	0.67272	3.89E-06	0.00057601	col4a3bpa
ENSDARG00000024877	867.75091	1140.889412	-0.39481	0.00082066	0.033702	---
ENSDARG00000025094	986.6021927	763.6140947	0.36962	0.0009341	0.036936	---
ENSDARG00000025147	1999.657667	1500.25325	0.41455	0.00033445	0.017852	---
ENSDARG00000025254	3213.495077	2203.832844	0.54413	4.24E-08	1.29E-05	---
ENSDARG00000025513	911.4913691	1215.118196	-0.4148	0.00017473	0.011298	---
ENSDARG00000026165	7167.467803	12155.48629	-0.76207	6.59E-05	0.0055436	---
ENSDARG00000026629	710.5975886	539.1017405	0.39848	0.00065734	0.028809	---
ENSDARG00000026811	230.6110261	161.6273225	0.51279	0.0011981	0.043998	---
ENSDARG00000026820	585.8275158	811.4075291	-0.46995	5.37E-05	0.0047349	gc3
ENSDARG00000026926	586.263563	787.5122166	-0.42575	0.00043328	0.021563	rom1b
ENSDARG00000027316	2926.065752	2286.272745	0.35596	0.0010213	0.039173	---
ENSDARG00000027495	577.5233803	812.2328682	-0.49201	2.23E-05	0.0024072	---
ENSDARG00000027529	344.3018948	556.0811694	-0.69162	0.0007214	0.030773	---
ENSDARG00000027689	395.1513952	536.5817036	-0.44139	0.00051302	0.024069	---
ENSDARG00000028048	398.7289144	555.8483637	-0.47928	0.00036684	0.019114	---
ENSDARG00000028067	1822.292588	1363.127276	0.41883	4.87E-05	0.0044296	bnip3lb
ENSDARG00000028517	2662.743543	1987.130697	0.42223	3.14E-05	0.0031434	---
ENSDARG00000029072	1994.462191	2557.250124	-0.35859	0.00040116	0.020377	---
ENSDARG00000029581	435.9558071	701.7408568	-0.68676	2.02E-08	6.98E-06	---
ENSDARG00000030215	5387.293725	7947.595221	-0.56096	1.21E-08	4.55E-06	---
ENSDARG00000030237	708.3018048	941.7379284	-0.41096	0.00022192	0.013531	---
ENSDARG00000030440	5471.383656	4315.825975	0.34227	0.00034889	0.018486	---
ENSDARG00000030494	197.8955207	350.4941137	-0.82465	3.51E-08	1.08E-05	---

ENSDARG00000030508	79.65790175	142.8382011	-0.84249	2.88E-05	0.0029341	CCDC134 (1 of many)
ENSDARG00000030687	2609.243709	1751.699972	0.57488	1.04E-05	0.0012833	phka2
ENSDARG00000030722	792.7544203	1259.758081	-0.6682	0.00045914	0.022465	---
ENSDARG00000030723	235.2377252	327.5954375	-0.4778	0.0009506	0.037311	---
ENSDARG00000031299	170.2503563	243.2659197	-0.51488	0.0012153	0.044478	dhrs11b
ENSDARG00000031336	710.1676908	478.0180311	0.57109	1.75E-06	0.00031346	hsd20b2
ENSDARG00000031616	926.599279	684.8373602	0.43618	0.00098662	0.038348	g6pca.1
ENSDARG00000031658	170.0628162	106.8590732	0.67036	0.00019548	0.012246	---
ENSDARG00000031702	1689.482549	1218.008689	0.47206	5.02E-06	0.00071349	---
ENSDARG00000031814	95.89592777	54.6286821	0.81181	0.00050438	0.023909	---
ENSDARG00000031915	809.8919972	549.2708285	0.56021	2.17E-06	0.0003745	---
ENSDARG00000032049	939.0167927	1357.171064	-0.53138	0.00053092	0.02462	enah
ENSDARG00000032932	290.0101855	205.112813	0.49969	0.0006257	0.027882	---
ENSDARG00000033170	543.8830104	384.9005216	0.49881	8.88E-05	0.0069575	sult2st1
ENSDARG00000033296	287.9126346	426.344327	-0.56639	3.45E-05	0.0033706	gpr37b
ENSDARG00000034423	1085.774901	1529.293046	-0.49414	0.00054427	0.025129	---
ENSDARG00000034503	1118.064687	1448.893111	-0.37395	0.00055153	0.025246	per2
ENSDARG00000034598	10.88613328	0	Inf	5.93E-06	0.00081326	---
ENSDARG00000035018	174.3545643	110.5446848	0.65739	0.0003779	0.019505	---
ENSDARG00000035178	208.3042238	101.4782553	1.0375	3.72E-06	0.00055805	gna14
ENSDARG00000035308	194.4187404	127.2643177	0.61134	0.00044049	0.021853	---
ENSDARG00000035309	545.2616795	391.0957458	0.47943	0.00010926	0.0080435	---
ENSDARG00000035438	1391.913699	607.2678901	1.1967	4.71E-11	3.58E-08	myhc4
ENSDARG00000035519	10209.67344	13467.13068	-0.39951	0.00016718	0.010856	histh11
ENSDARG00000035569	288.5836948	170.664163	0.75783	3.50E-06	0.00052946	---
ENSDARG00000035650	444.4781156	592.3431268	-0.41432	0.00077244	0.032388	evla

ENSDARG00000035655	641.254215	842.1391929	-0.39316	0.0006386	0.028259	---
ENSDARG00000035835	3963.285334	2576.543913	0.62126	2.79E-10	1.78E-07	---
ENSDARG00000035852	286.8650458	179.4713993	0.67662	3.99E-05	0.0038254	---
ENSDARG00000035883	334.0122003	462.8056901	-0.47051	0.00029681	0.016614	nt5c1aa
ENSDARG00000036168	327.4996657	579.9280551	-0.82438	1.31E-10	8.55E-08	---
ENSDARG00000036386	472.9417896	645.377333	-0.44848	0.00036733	0.019114	---
ENSDARG00000036493	385.9096269	284.6166897	0.43924	0.0013375	0.047206	si:ch73-174h16.4
ENSDARG00000036549	3558.300017	4425.513807	-0.31466	0.0011158	0.041597	---
ENSDARG00000036687	834.7819569	1297.455573	-0.63621	0.0014903	0.049934	bcl9
ENSDARG00000036767	712.6151311	265.5729266	1.424	6.92E-08	1.94E-05	---
ENSDARG00000036816	309.7369789	482.8648912	-0.64058	4.52E-05	0.0041874	pou2f2a
ENSDARG00000036848	5458.270844	3769.95599	0.5339	2.74E-08	8.75E-06	---
ENSDARG00000036943	472.1582075	287.8216051	0.7141	5.59E-08	1.61E-05	---
ENSDARG00000037079	468.8525409	683.0665413	-0.54289	6.58E-06	0.00089471	---
ENSDARG00000037191	532.2840946	690.698976	-0.37586	0.0014734	0.049657	ttr
ENSDARG00000037476	526.8346485	380.470055	0.46957	0.00031634	0.017248	---
ENSDARG00000037551	188.0959661	303.7431143	-0.69138	3.22E-06	0.00049463	pm20d1.1
ENSDARG00000037675	302.5822312	426.442429	-0.49502	0.00023891	0.014348	---
ENSDARG00000037845	2597.710221	4842.564438	-0.89853	0.00059798	0.026871	col9a3
ENSDARG00000037852	250.7895486	170.3590765	0.5579	0.00033972	0.01806	zgc:101663
ENSDARG00000038296	558.6429603	745.2684948	-0.41583	0.00035765	0.018794	tmem86b
ENSDARG00000038378	2020.785861	2566.729688	-0.34501	0.00057378	0.025966	---
ENSDARG00000038422	414.463625	586.205752	-0.50016	0.001035	0.039531	---
ENSDARG00000038439	6068.164174	7957.502192	-0.39106	3.16E-05	0.0031558	fabp10a
ENSDARG00000038639	287.9825085	401.9950903	-0.4812	0.0013718	0.047797	elov16l
ENSDARG00000038785	547.7922751	836.9899758	-0.61158	2.50E-07	6.05E-05	abcf2a

ENSDARG00000038822	281.5456969	193.8982333	0.53807	0.00047662	0.023083	mrc1b
ENSDARG00000038881	492.389791	958.1005051	-0.96038	6.43E-08	1.82E-05	acaa2
ENSDARG00000039123	628.9582007	846.299679	-0.4282	0.00017503	0.011298	---
ENSDARG00000039131	687.9192959	463.7981235	0.56874	2.38E-06	0.00040443	atp1a1a.3
ENSDARG00000039196	346.8131409	250.9196314	0.46693	0.00068277	0.029605	greb11
ENSDARG00000039266	1093.901611	793.0078185	0.46408	2.89E-05	0.0029349	rbm25a
ENSDARG00000039381	130.5436126	51.46646594	1.3428	1.32E-09	7.17E-07	---
ENSDARG00000039406	359.3713562	248.7885987	0.53056	0.00011726	0.0084765	prom2
ENSDARG00000039459	546.431682	836.6921701	-0.61466	5.48E-05	0.004774	qsox1
ENSDARG00000039563	683.9697186	884.4948749	-0.37092	0.0012589	0.0455	---
ENSDARG00000039577	428.0638505	316.493043	0.43565	0.00095573	0.037429	ptk2bb
ENSDARG00000039579	1229.303685	1744.146242	-0.50468	1.88E-06	0.00033202	cfb
ENSDARG00000039652	240.4015176	375.8828747	-0.64484	0.00012781	0.0090345	---
ENSDARG00000039677	2265.214163	3329.333919	-0.55559	0.00049029	0.023557	---
ENSDARG00000039901	156.1983725	234.4752492	-0.58606	0.0013678	0.04771	---
ENSDARG00000040041	635.9394303	909.0411724	-0.51546	4.86E-05	0.0044296	---
ENSDARG00000040100	107.8577147	201.0756552	-0.89861	4.16E-07	9.35E-05	---
ENSDARG00000040252	234.2478022	159.7808543	0.55194	0.00063452	0.028196	atp1a1a.5
ENSDARG00000040258	45.91516216	19.9616144	1.2017	0.00049407	0.023569	si:ch73-340m8.2
ENSDARG00000040274	651.3024588	842.972771	-0.37216	0.0010291	0.039425	scamp5b
ENSDARG00000040334	2565.010497	3399.422841	-0.40633	4.31E-05	0.0040303	---
ENSDARG00000040452	1677.715985	1304.839819	0.36263	0.00045423	0.022327	---
ENSDARG00000040465	435.9665009	302.7973658	0.52586	0.00010081	0.0076118	---
ENSDARG00000040466	2122.045523	2889.185759	-0.44521	9.35E-06	0.0011802	vil1
ENSDARG00000040482	258.0115542	186.2589749	0.47013	0.0014831	0.049825	---
ENSDARG00000040535	208.5850706	315.2140997	-0.5957	5.28E-05	0.0046826	---

ENSDARG00000040628	673.5977861	413.6935603	0.70332	1.04E-08	4.00E-06	---
ENSDARG00000040700	102.1906268	158.512357	-0.63333	0.0006857	0.029605	---
ENSDARG00000040777	365.69968	262.3903336	0.47894	0.00060102	0.02697	---
ENSDARG00000040781	3.006568957	17.02256359	-2.5013	0.00020358	0.012679	---
ENSDARG00000040921	29.24387885	9.6646756	1.5973	0.00033893	0.018048	---
ENSDARG00000040971	2657.055686	2059.313448	0.36767	0.00022309	0.013577	GABARAPL1
ENSDARG00000041595	275.234185	673.0947902	-1.2902	1.58E-17	3.16E-14	---
ENSDARG00000041607	3088.425715	2357.008266	0.38991	0.00029294	0.016507	---
ENSDARG00000041645	373.3795536	729.7632917	-0.96679	2.45E-08	8.19E-06	---
ENSDARG00000041706	105.2260333	59.38002424	0.82544	0.00029582	0.016611	---
ENSDARG00000041947	363.8901665	173.9291202	1.065	5.73E-13	6.54E-10	---
ENSDARG00000042010	3137.153532	3911.751392	-0.31836	0.0012893	0.046285	---
ENSDARG00000042055	805.5121932	501.5258645	0.68358	7.49E-05	0.0061228	---
ENSDARG00000042188	212.2207659	298.9921424	-0.49454	0.00094593	0.037174	ttc38
ENSDARG00000042272	96.99486961	149.4374052	-0.62356	0.0013202	0.046955	tmem231
ENSDARG00000042332	259.97979	164.0221727	0.66451	1.55E-05	0.001808	---
ENSDARG00000042529	7073.180408	9113.860424	-0.3657	9.06E-05	0.0070434	---
ENSDARG00000042535	4235.388791	3290.090583	0.36437	0.00030519	0.016928	---
ENSDARG00000042637	122.6110249	223.7374677	-0.86772	0.00069493	0.029843	---
ENSDARG00000042737	60.92843444	128.9741296	-1.0819	0.00027936	0.01591	---
ENSDARG00000042793	664.2242795	507.2836356	0.38888	0.0011995	0.044	tpp1
ENSDARG00000043093	366.0262635	108.2157564	1.758	8.79E-05	0.0068996	---
ENSDARG00000043128	2499.084251	1900.455511	0.39505	0.00013724	0.0095114	---
ENSDARG00000043141	186.873973	293.3401899	-0.65051	2.10E-05	0.0023129	---
ENSDARG00000043154	6908.135601	5512.367309	0.32562	0.00073521	0.031154	ucp3
ENSDARG00000043211	216.0951136	310.8584837	-0.52459	0.00040927	0.020697	---



ENSDARG00000043247	248.5423186	416.8971036	-0.7462	2.36E-05	0.0025177	---
ENSDARG00000043279	575.3162116	948.8767817	-0.72187	1.94E-07	4.84E-05	aqp12
ENSDARG00000043713	263.8837283	359.8919881	-0.44766	0.0013317	0.047206	asf1bb
ENSDARG00000044034	270.6835755	187.0142179	0.53346	0.00039041	0.01999	tmem86a
ENSDARG00000044072	185.2758084	121.9657406	0.6032	0.00042125	0.02114	---
ENSDARG00000044199	1654.670652	2219.496503	-0.42369	2.60E-05	0.0026985	---
ENSDARG00000044365	582.4246728	408.5765816	0.51146	4.07E-05	0.003877	---
ENSDARG00000044545	623.9892733	825.2079512	-0.40324	0.0008502	0.034585	---
ENSDARG00000044626	178.6300504	101.9499574	0.80911	5.44E-06	0.00076275	---
ENSDARG00000044655	457.3434098	337.7367732	0.43738	0.00090257	0.036092	---
ENSDARG00000044755	38.85038242	16.8073036	1.2088	0.001491	0.049934	GCNT4 (1 of many)
ENSDARG00000044914	1394.291719	1784.189547	-0.35574	0.00049425	0.023569	suclg2
ENSDARG00000044935	2642.253841	1978.998009	0.417	4.31E-05	0.0040303	---
ENSDARG00000045262	623.3453898	206.4629482	1.5941	5.26E-24	3.36E-20	---
ENSDARG00000045465	762.2003964	1041.044884	-0.44979	7.75E-05	0.0063038	---
ENSDARG00000045486	369.1601982	256.1247814	0.5274	0.00019226	0.012116	pawr
ENSDARG00000045530	99.10701319	50.39018765	0.97584	2.69E-05	0.0027514	---
ENSDARG00000045549	134.132365	84.60545829	0.66483	0.00081284	0.03351	bik
ENSDARG00000045633	47.87174923	89.75045775	-0.90674	0.0013893	0.048247	asb15a
ENSDARG00000045638	224.4685637	361.1949596	-0.68626	0.00088422	0.03558	slc13a1
ENSDARG00000045694	850.2333979	651.4600235	0.38418	0.00088302	0.035577	prickle1b
ENSDARG00000045708	116.9731411	61.15129333	0.93572	5.84E-05	0.0050285	---
ENSDARG00000045815	44.87736948	80.85073084	-0.84927	0.00085082	0.034585	---
ENSDARG00000045843	864.9850001	1156.491788	-0.41901	0.00017922	0.011429	apex1
ENSDARG00000046053	194.9301618	125.6107002	0.634	0.0002565	0.014963	slc27a6
ENSDARG00000051939	869.1114624	1194.320796	-0.45858	2.91E-05	0.0029451	---

ENSDARG00000051975	1368.89835	969.8260383	0.49722	3.57E-06	0.00053727	---
ENSDARG00000052045	277.9159083	182.5950975	0.606	8.24E-05	0.0066013	ggt5a
ENSDARG00000052057	228.2191458	333.9585981	-0.54925	9.71E-05	0.0074192	pcolceb
ENSDARG00000052061	2147.601117	2866.444348	-0.41654	2.63E-05	0.0027077	col4a6
ENSDARG00000052063	3763.109163	4984.731698	-0.40559	3.26E-05	0.0032299	col4a5
ENSDARG00000052223	508.2744036	794.9175515	-0.6452	3.10E-08	9.71E-06	---
ENSDARG00000052348	1185.040723	1577.09419	-0.41233	0.00042147	0.02114	smarca5
ENSDARG00000052413	243.9577752	115.7498711	1.0756	2.54E-06	0.00042205	---
ENSDARG00000052604	511.5789507	731.4068189	-0.51572	6.11E-05	0.0052225	---
ENSDARG00000052633	137.7874203	217.6342987	-0.65946	6.75E-05	0.0056603	---
ENSDARG00000052658	895.0756962	1193.645928	-0.41529	0.00031134	0.017092	---
ENSDARG00000053293	140.6378631	50.98167538	1.4639	7.32E-06	0.00097492	ftr14
ENSDARG00000053301	455.0579136	711.9127036	-0.64565	0.0009811	0.038227	insm1b
ENSDARG00000053526	79.14115277	184.3852263	-1.2202	9.24E-09	3.60E-06	---
ENSDARG00000053761	81.26399951	22.39469929	1.8595	9.49E-08	2.51E-05	si:dkey-187j14.4
ENSDARG00000053773	167.7158325	286.3422759	-0.77172	4.50E-07	9.83E-05	vgl12b
ENSDARG00000053973	24224.36658	29979.70762	-0.30753	0.00080832	0.033417	---
ENSDARG00000054031	480.7880864	334.746029	0.52233	0.00015232	0.01016	---
ENSDARG00000054122	369.9698103	253.8297466	0.54355	9.93E-05	0.0075356	---
ENSDARG00000054160	11.79126181	1.850402694	2.6718	0.00095594	0.037429	---
ENSDARG00000054616	5314.046386	4127.354952	0.36459	0.0001361	0.0094733	cldni
ENSDARG00000054835	149.121413	90.99181974	0.71268	0.00016707	0.010856	---
ENSDARG00000054842	296.5864654	206.7693778	0.52043	0.00032007	0.017351	---
ENSDARG00000054848	3374.114407	1981.085791	0.76822	4.92E-14	6.03E-11	pdk4
ENSDARG00000055054	805.4843978	1034.458354	-0.36095	0.0011824	0.043673	bcl9l
ENSDARG00000055092	1482.679756	1166.459162	0.34607	0.00086199	0.034862	---

ENSDARG00000055118	644.0115636	433.5138504	0.57101	3.16E-06	0.00048795	mylipb
ENSDARG00000055120	1386.415294	2222.072088	-0.68055	0.00011682	0.0084765	---
ENSDARG00000055226	293.8005303	406.5250674	-0.46851	0.00050774	0.023975	---
ENSDARG00000055240	692.1207481	903.5538101	-0.38459	0.00081963	0.033702	---
ENSDARG00000055388	266.8420704	429.8870756	-0.68797	6.21E-07	0.00012967	---
ENSDARG00000055412	895.1154004	691.217827	0.37293	0.0011867	0.043731	---
ENSDARG00000055502	1864.033939	2474.765652	-0.40886	6.92E-05	0.0057568	cicb
ENSDARG00000055591	160.7391963	239.3909999	-0.57465	0.00022088	0.013493	pipox
ENSDARG00000055642	689.4914033	302.3407557	1.1894	3.21E-21	1.14E-17	GPT (1 of many)
ENSDARG00000055784	916.710452	651.8915306	0.49183	1.72E-05	0.0019537	---
ENSDARG00000055854	415.2316886	1679.298673	-2.0159	2.33E-21	9.30E-18	nr4a3
ENSDARG00000056141	2182.520748	2839.269437	-0.37952	0.0006532	0.028707	coq10b
ENSDARG00000056248	18095.291	25906.87619	-0.51772	3.26E-08	1.01E-05	---
ENSDARG00000056314	813.1459621	1196.118917	-0.55677	5.12E-07	0.00010909	---
ENSDARG00000056324	92.34357954	41.69015681	1.1473	3.01E-06	0.00047359	---
ENSDARG00000056376	286.1378257	177.6786064	0.68744	0.00017724	0.011348	---
ENSDARG00000056481	2026.876419	2913.272304	-0.52338	1.67E-06	0.00030266	vat1
ENSDARG00000056535	73.45668328	37.1857978	0.98214	0.00026433	0.015245	---
ENSDARG00000056743	1117.926386	1543.342985	-0.46523	8.67E-05	0.0068379	cavin4b
ENSDARG00000056744	16083.42314	21843.78293	-0.44165	0.00089665	0.0359	ela2
ENSDARG00000056805	251.8903629	168.9422645	0.57627	0.00021733	0.013302	---
ENSDARG00000056835	95.55413392	50.31052405	0.92546	0.0004789	0.023113	---
ENSDARG00000056892	506.7970418	669.4773213	-0.40163	0.0011297	0.042017	---
ENSDARG00000056921	80.6702059	126.566416	-0.64979	0.00094337	0.037119	---
ENSDARG00000056938	203.092967	366.3359376	-0.85103	1.95E-09	9.72E-07	---
ENSDARG00000056950	1586.303052	2219.642784	-0.48466	2.04E-06	0.00035893	---

ENSDARG00000057138	139.4194024	87.74166445	0.6681	0.00074895	0.03161	zgc:174164
ENSDARG00000057218	693.4337911	536.6568739	0.36976	0.0013195	0.046955	tbc1d15
ENSDARG00000057568	403.5237352	532.0309578	-0.39886	0.0013401	0.047206	---
ENSDARG00000057683	497.4351453	802.8151393	-0.69056	1.06E-06	0.00020847	mcm6
ENSDARG00000057714	748.8843188	496.3674352	0.59333	7.07E-07	0.00014473	cmah
ENSDARG00000057729	146.5588044	224.949894	-0.61812	0.00019708	0.012322	ephb6
ENSDARG00000057737	540.557366	706.0170924	-0.38526	0.0013054	0.046601	rxraa
ENSDARG00000057881	2020.240678	2638.531289	-0.38521	0.00011702	0.0084765	---
ENSDARG00000058003	269.6864431	377.3238094	-0.48452	0.0005063	0.023965	---
ENSDARG00000058325	199.7432722	122.9567439	0.7	0.00013236	0.0092536	---
ENSDARG00000058369	1342.150344	1712.369552	-0.35145	0.0007848	0.03282	mex3b
ENSDARG00000058371	55457.55601	73448.68678	-0.40535	0.00010134	0.0076183	---
ENSDARG00000058522	199.9374813	135.5716931	0.56049	0.0010033	0.038777	---
ENSDARG00000058533	334.8226996	460.105187	-0.45857	0.00046431	0.022614	pole
ENSDARG00000058558	208.2728193	310.2777035	-0.57509	0.000448	0.022123	lzts3b
ENSDARG00000058597	897.1892862	653.7165114	0.45675	4.77E-05	0.0043816	nt5c3a
ENSDARG00000058605	240.9949645	142.0371882	0.76273	3.36E-06	0.0005132	---
ENSDARG00000058685	20.43831072	4.498747578	2.1837	0.00015648	0.01033	---
ENSDARG00000058693	7149.446524	5785.683506	0.30534	0.0014586	0.049367	cast
ENSDARG00000058799	475.7018989	618.7517615	-0.3793	0.0013935	0.04829	---
ENSDARG00000058800	123.3413722	77.36686241	0.67287	0.00084769	0.034585	---
ENSDARG00000058803	511.3003524	755.0016475	-0.56231	2.20E-06	0.00037723	---
ENSDARG00000058939	281.8636528	161.0286698	0.80768	3.60E-07	8.37E-05	b4galnt3b
ENSDARG00000058944	274.3380715	146.2490774	0.90753	2.49E-08	8.20E-06	SBK2
ENSDARG00000059026	61.12721816	28.69541552	1.091	0.00025428	0.014924	zgc:123217
ENSDARG00000059123	565.2451141	409.8305168	0.46385	0.00021507	0.013214	plcd1a

ENSDARG00000059163	3395.556606	5111.567522	-0.59012	1.60E-08	5.72E-06	---
ENSDARG00000059227	1840.88368	2545.73247	-0.46768	0.0014152	0.048621	fabp1b.1
ENSDARG00000059304	608.5400123	807.6235471	-0.40833	0.00048932	0.023557	chchd2
ENSDARG00000059556	336.0328804	238.9259693	0.49204	0.00062183	0.027748	---
ENSDARG00000059646	5664.141446	4011.138272	0.49785	4.10E-07	9.35E-05	---
ENSDARG00000059658	56.6830501	27.06703122	1.0664	0.00045405	0.022327	---
ENSDARG00000059817	526.5951951	397.0667445	0.40731	0.0010918	0.040942	---
ENSDARG00000059824	372.1987216	235.2217811	0.66205	0.00011981	0.0085771	---
ENSDARG00000059871	1046.540579	811.1212372	0.36764	0.00093671	0.036994	shrprbck1r
ENSDARG00000059923	437.7162066	301.1947447	0.5393	9.41E-05	0.0072444	---
ENSDARG00000060349	91.38246493	153.1162585	-0.74464	0.0002674	0.015366	---
ENSDARG00000060354	120.324274	179.1454929	-0.5742	0.00098987	0.038428	samd7
ENSDARG00000060622	221.0224257	134.8279198	0.71307	2.10E-05	0.0023129	si:ch73-14h1.2
ENSDARG00000060723	897.963999	1189.462677	-0.40558	0.00025458	0.014924	---
ENSDARG00000060796	2711.127833	2089.68494	0.37561	0.00017616	0.011321	---
ENSDARG00000060954	461.9034103	607.6841972	-0.39573	0.001414	0.048621	---
ENSDARG00000060962	180.4205517	116.671715	0.62891	0.00036846	0.019142	btr04
ENSDARG00000061201	297.178068	449.236484	-0.59615	0.00052068	0.024357	acsf2
ENSDARG00000061233	8883.597238	7048.29948	0.33387	0.00038141	0.019618	abcc5
ENSDARG00000061354	452.6359399	601.9768777	-0.41136	0.0011071	0.041372	---
ENSDARG00000061391	549.9717162	410.1113789	0.42334	0.0010752	0.040462	grhl1
ENSDARG00000061479	530.992942	789.2506304	-0.57179	0.00050952	0.023975	thsd7aa
ENSDARG00000061651	222.1671909	151.0651361	0.55648	0.00078593	0.032824	marveld2b
ENSDARG00000061687	571.8381776	433.4478053	0.39975	0.001366	0.04771	---
ENSDARG00000061762	44.20116506	18.15161699	1.284	0.00025377	0.014924	trim108
ENSDARG00000061798	543.8196316	358.7787602	0.60003	2.95E-06	0.00046963	arhgap27l

ENSDARG00000061844	1512.681315	1078.163279	0.48853	0.00031768	0.017291	---
ENSDARG00000061848	703.7177538	909.9228437	-0.37075	0.0014139	0.048621	---
ENSDARG00000061974	450.3913165	189.984832	1.2453	4.66E-18	1.06E-14	---
ENSDARG00000061977	790.1604271	557.2401456	0.50385	1.48E-05	0.0017464	---
ENSDARG00000061994	4277.114071	3023.495786	0.50042	4.18E-07	9.35E-05	acacb
ENSDARG00000062059	241.560712	346.6466124	-0.52108	0.00031497	0.017241	si:ch211-236114.4
ENSDARG00000062132	516.5410541	684.1289907	-0.40539	0.0011024	0.041242	---
ENSDARG00000062190	634.8528996	831.3201654	-0.38898	0.0010907	0.040942	PDE3B
ENSDARG00000062221	197.7002307	101.1082924	0.96741	4.71E-08	1.39E-05	si:ch211-135f11.1
ENSDARG00000062319	711.2694601	425.1285901	0.7425	6.34E-09	2.60E-06	---
ENSDARG00000062430	453.189846	306.7346935	0.56312	2.16E-05	0.0023521	---
ENSDARG00000062510	759.2050523	1054.53113	-0.47404	2.46E-05	0.0025955	bcl11ba
ENSDARG00000062562	529.2218675	378.2601719	0.48449	9.69E-05	0.0074192	egl2
ENSDARG00000062590	4548.646941	3603.544244	0.33602	0.00065969	0.028873	---
ENSDARG00000062750	667.7625661	469.7760041	0.50736	3.27E-05	0.0032331	---
ENSDARG00000062799	881.0694867	542.9766238	0.69837	2.50E-09	1.21E-06	---
ENSDARG00000062801	749.5907884	1026.487048	-0.45354	5.67E-05	0.0048924	erfl3
ENSDARG00000062855	312.7297175	212.1374193	0.55992	0.00013756	0.0095129	---
ENSDARG00000062933	1442.684782	1988.817635	-0.46315	1.49E-05	0.0017464	---
ENSDARG00000062974	205.5659261	103.1697374	0.99458	7.90E-06	0.0010302	itga2.2
ENSDARG00000063031	1663.899622	2112.997461	-0.34472	0.00092787	0.036775	rad54l2
ENSDARG00000063153	826.7574322	626.5123807	0.40012	0.00067269	0.029328	---
ENSDARG00000063195	898.1793632	680.7735753	0.39983	0.00031631	0.017248	---
ENSDARG00000063354	789.5209652	582.2974834	0.43922	0.00013983	0.0095868	---
ENSDARG00000063407	369.596013	540.1740115	-0.54748	0.0010697	0.040304	---
ENSDARG00000063435	384.2990793	277.7753007	0.46831	0.00080849	0.033417	---

ENSDARG00000063631	1067.071366	1446.567217	-0.43898	4.70E-05	0.0043278	ch1073-291c23.1
ENSDARG00000063661	348.3440466	244.6341089	0.50989	0.0013186	0.046955	nuak2
ENSDARG00000063701	651.3747257	468.7603481	0.47464	0.00014419	0.0098016	rreb1a
ENSDARG00000067517	15.5224547	53.74661184	-1.7918	1.45E-07	3.72E-05	ccdc15
ENSDARG00000067524	107.2729644	66.30931599	0.694	0.0014326	0.048993	---
ENSDARG00000067806	62.59975418	108.7887329	-0.7973	0.00020895	0.012913	---
ENSDARG00000067848	795.5810167	1428.020294	-0.84394	7.58E-12	6.97E-09	---
ENSDARG00000067872	102.332884	42.95251266	1.2525	0.00067371	0.029328	---
ENSDARG00000067958	310.8891462	222.5852499	0.48204	0.00090958	0.036236	---
ENSDARG00000068217	176.023867	118.3802565	0.57234	0.001485	0.049838	stx2b
ENSDARG00000068323	847.9558452	1172.990143	-0.46813	0.001271	0.045783	astn1
ENSDARG00000068370	197.7754321	287.6881428	-0.54064	0.00031872	0.017318	---
ENSDARG00000068503	415.4166138	311.7092374	0.41436	0.0014784	0.049722	gbgt114
ENSDARG00000068515	769.8340509	1053.6952	-0.45284	4.51E-05	0.0041874	chs1
ENSDARG00000068516	250.6537385	474.4776054	-0.92064	4.70E-08	1.39E-05	hapln1b
ENSDARG00000068586	517.0851546	701.5285441	-0.4401	0.00023009	0.013897	---
ENSDARG00000068714	279.9652522	393.0538111	-0.48948	0.00045634	0.022396	---
ENSDARG00000068822	1486.581621	2012.15584	-0.43674	0.0010186	0.039173	---
ENSDARG00000068851	528.4057801	316.0230544	0.74162	5.08E-09	2.14E-06	---
ENSDARG00000068966	1.984671749	50.99212145	-4.6833	1.58E-06	0.00028798	---
ENSDARG00000068991	102.3672711	48.73337603	1.0708	0.00015058	0.010107	---
ENSDARG00000069038	156.5882287	87.57152099	0.83844	1.30E-05	0.0015786	si:ch211-242e8.1
ENSDARG00000069093	15990.90478	32305.79658	-1.0145	0.00024388	0.014565	col2a1a
ENSDARG00000069171	315.908858	227.995112	0.47051	0.0013992	0.048382	---
ENSDARG00000069266	402.0922354	658.4598753	-0.71157	7.43E-09	2.93E-06	---
ENSDARG00000069282	484.0882808	327.559925	0.56351	0.00014312	0.0097707	bbc3

ENSDARG00000069293	510.9044344	683.9170699	-0.42077	0.00059203	0.026679	ahsg2
ENSDARG00000069342	434.5621495	626.1491762	-0.52694	2.04E-05	0.0022681	---
ENSDARG00000069402	602.9545634	797.5668911	-0.40356	0.00081818	0.033687	---
ENSDARG00000069608	1036.486206	790.6145436	0.39065	0.00035371	0.018649	---
ENSDARG00000069956	818.4786791	615.3744668	0.41148	0.00049185	0.023563	---
ENSDARG00000069957	108.3674668	52.61337719	1.0424	2.94E-06	0.00046963	zgc:162936
ENSDARG00000069981	1884.884835	2547.708386	-0.43472	0.00095794	0.037462	cspg5a
ENSDARG00000069988	410.1323747	201.8738806	1.0226	8.43E-08	2.28E-05	---
ENSDARG00000070122	841.8477877	658.5256231	0.35432	0.0014725	0.049657	stk11ip
ENSDARG00000070187	1061.088727	1485.176752	-0.48509	0.0012667	0.045731	dyrk1b
ENSDARG00000070220	373.933218	517.6793446	-0.46928	0.00032041	0.017351	---
ENSDARG00000070545	1350.283818	1697.54297	-0.33019	0.001367	0.04771	---
ENSDARG00000070651	1944.596533	1486.170499	0.38787	0.00016043	0.010504	prkcdb
ENSDARG00000070666	290.7091481	447.3665176	-0.62188	4.84E-05	0.0044296	---
ENSDARG00000070669	287.9102311	183.9451821	0.64634	1.13E-05	0.0013852	---
ENSDARG00000070721	1037.559814	784.7246891	0.40294	0.00026911	0.015437	---
ENSDARG00000070864	869.4591441	647.7441477	0.42469	0.00028727	0.016273	---
ENSDARG00000070960	138.6437721	203.3478957	-0.55257	0.001007	0.038848	si:ch211-288g17.4
ENSDARG00000070972	815.3738227	573.3432827	0.50806	7.37E-05	0.006037	---
ENSDARG00000071010	295.5771532	160.6937475	0.87922	2.03E-08	6.98E-06	---
ENSDARG00000071026	2020.155731	2749.046131	-0.44446	1.25E-05	0.0015216	---
ENSDARG00000071090	606.5304311	449.1804495	0.43328	0.00067376	0.029328	---
ENSDARG00000071173	742.4494079	516.4855962	0.52356	4.94E-05	0.004484	slc12a10.2
ENSDARG00000071235	863.6033767	613.1792763	0.49406	2.30E-05	0.0024636	si:ch211-117c9.5
ENSDARG00000071304	263.1007148	165.9933846	0.66449	1.50E-05	0.0017506	tbc1d2
ENSDARG00000071325	288.1291862	439.8117575	-0.61017	5.50E-06	0.00076438	cbarpb



ENSDARG00000071341	292.1997695	181.1200588	0.69001	4.36E-06	0.00063668	---
ENSDARG00000071384	209.6818121	145.4851522	0.52733	0.0014508	0.049313	---
ENSDARG00000071576	173.5576923	78.28843777	1.1485	1.07E-06	0.00020857	---
ENSDARG00000071604	24.77014946	5.925512071	2.0636	8.08E-05	0.0065281	si:ch211-156p11.1
ENSDARG00000071673	1051.637876	763.6531791	0.46165	3.24E-05	0.0032249	ctdspla
ENSDARG00000071684	1216.306855	721.3915777	0.75365	7.64E-12	6.97E-09	---
ENSDARG00000073707	413.7700202	576.1837885	-0.4777	0.00083915	0.034285	---
ENSDARG00000073723	69.54664573	37.3942994	0.89516	0.001008	0.038848	---
ENSDARG00000073761	267.5593016	172.9199758	0.62975	5.06E-05	0.0045314	---
ENSDARG00000073912	31.91456058	10.04446762	1.6678	0.00012605	0.0089492	si:ch211-202h22.7
ENSDARG00000074052	110.0616497	1.596907952	6.1069	0.0013054	0.046601	---
ENSDARG00000074059	843.5325232	1110.336131	-0.39648	0.00069239	0.029774	dlg5a
ENSDARG00000074226	189.0764606	264.8686584	-0.48631	0.0014114	0.048621	---
ENSDARG00000074255	1088.015828	838.3292658	0.37611	0.0012416	0.045182	micu3b
ENSDARG00000074589	643.6937232	437.6791712	0.5565	4.39E-06	0.00063706	---
ENSDARG00000074676	286.744398	402.3125249	-0.48855	0.00028591	0.016225	---
ENSDARG00000074695	374.1015522	243.4133923	0.62002	7.09E-06	0.00095944	mertka
ENSDARG00000074697	290.6176648	396.1377357	-0.44688	0.00097781	0.038145	npdc1a
ENSDARG00000074760	197.3756351	290.1976972	-0.55609	0.00017359	0.01125	ttc7a
ENSDARG00000075014	939.0064937	692.3850065	0.43956	7.75E-05	0.0063038	---
ENSDARG00000075016	15.57436797	68.69933149	-2.1411	9.72E-06	0.0012132	---
ENSDARG00000075058	157.2333951	233.6650822	-0.57153	0.0004094	0.020697	gabra6a
ENSDARG00000075178	431.0297884	570.2558808	-0.40382	0.0013825	0.048075	lpcat3
ENSDARG00000075211	2298.129323	3086.994831	-0.42574	0.0012251	0.044738	chd7
ENSDARG00000075295	406.7035994	276.1416246	0.55857	2.74E-05	0.0027918	tulp1a
ENSDARG00000075355	46.28966333	19.2469001	1.2661	0.00013941	0.0095868	---

ENSDARG00000075444	87.90994076	153.862224	-0.80754	3.04E-05	0.0030595	---
ENSDARG00000075608	408.3741954	269.0236781	0.60216	1.40E-05	0.0016775	mical2a
ENSDARG00000075718	674.1941561	501.7643975	0.42615	0.00036098	0.018929	rpz5
ENSDARG00000075958	132.8416458	200.8602718	-0.59648	0.00041965	0.021115	si:dkey-266f7.9
ENSDARG00000075963	16.8105872	0.588293625	4.8367	4.06E-07	9.34E-05	---
ENSDARG00000076068	320.3049731	227.6062677	0.49291	0.00070546	0.030214	---
ENSDARG00000076126	379.906081	1101.704047	-1.536	4.34E-09	1.93E-06	---
ENSDARG00000076146	107.3516595	45.63348087	1.2342	7.58E-06	0.0010044	zgc:172075
ENSDARG00000076221	111.6326951	61.89863095	0.85078	0.00087907	0.035462	---
ENSDARG00000076299	217.4272262	331.4853547	-0.60841	2.46E-05	0.0025955	---
ENSDARG00000076439	496.8804967	662.77142	-0.41561	0.00074856	0.03161	ppp4cb
ENSDARG00000076534	80.66058362	129.7333434	-0.68561	0.00072981	0.031007	---
ENSDARG00000076547	835.9397311	574.8111276	0.54031	2.07E-06	0.00036174	---
ENSDARG00000076623	779.15189	1414.16235	-0.85997	0.00047286	0.022995	col14a1b
ENSDARG00000076710	24.62511283	6.431477984	1.9369	0.00014818	0.010039	si:dkey-42123.7
ENSDARG00000076820	203.839393	67.90290645	1.5859	5.59E-10	3.50E-07	xkr8.2
ENSDARG00000076839	101.9890636	169.0653677	-0.72917	0.00010065	0.0076118	---
ENSDARG00000076862	77.13614619	133.9759322	-0.79649	9.41E-05	0.0072444	---
ENSDARG00000076945	3051.199504	4667.996758	-0.61343	0.0011894	0.043782	---
ENSDARG00000077018	231.2960905	320.0206126	-0.46842	0.0010515	0.039901	---
ENSDARG00000077045	31.39816876	70.31381408	-1.1631	5.37E-05	0.0047349	---
ENSDARG00000077068	133.9511169	35.77930849	1.9045	2.36E-06	0.00040269	si:ch211-11p18.6
ENSDARG00000077252	69.99893508	17.94336217	1.9639	6.28E-10	3.78E-07	si:rp71-36a1.5
ENSDARG00000077516	80.49042503	134.342084	-0.73902	0.00026645	0.015339	---
ENSDARG00000077571	53.49190374	24.8730241	1.1047	0.00064506	0.028416	zgc:174862
ENSDARG00000077688	39.65352764	78.58193119	-0.98675	0.00014876	0.010048	---

ENSDARG00000077697	59.44685521	18.11235867	1.7146	2.32E-07	5.65E-05	---
ENSDARG00000077778	204.0191541	352.0688079	-0.78715	4.98E-06	0.0007109	---
ENSDARG00000077862	11.90082109	32.40527323	-1.4452	0.00094096	0.037116	---
ENSDARG00000078024	23.41070509	1.008614327	4.5367	2.74E-09	1.29E-06	---
ENSDARG00000078072	220.3804052	152.3860019	0.53227	0.0012562	0.045453	---
ENSDARG00000078093	25.87038467	3.948812095	2.7118	1.40E-06	0.00026235	zgc:172065
ENSDARG00000078222	856.3224901	653.723342	0.38947	0.00083752	0.034262	---
ENSDARG00000078310	746.7263508	550.806889	0.43903	0.00014398	0.0098016	cecr2
ENSDARG00000078416	651.7349923	895.8366156	-0.45895	5.92E-05	0.005086	---
ENSDARG00000078520	105.1831727	191.2214611	-0.86234	0.00011443	0.0083857	---
ENSDARG00000078608	13.19302639	0.335822454	5.2959	8.77E-05	0.0068996	---
ENSDARG00000078685	195.0515438	124.8150519	0.64406	0.00018964	0.011998	---
ENSDARG00000078768	186.5977583	271.7152158	-0.54216	0.00030452	0.01692	---
ENSDARG00000078797	635.1363143	336.7797653	0.91526	6.17E-13	6.79E-10	dennd3a
ENSDARG00000078800	68.27459199	32.73433729	1.0605	0.00014831	0.010039	---
ENSDARG00000078801	66.96853753	116.8154783	-0.80268	0.0001934	0.012164	msantd1
ENSDARG00000078832	65.67762561	18.53370294	1.8253	4.57E-07	9.87E-05	---
ENSDARG00000078878	11.39938851	32.43457905	-1.5086	0.0013212	0.046955	---
ENSDARG00000078917	43.08762114	76.56839022	-0.82948	0.0011636	0.043027	zgc:195245
ENSDARG00000078973	840.3184939	596.160894	0.49523	3.32E-05	0.0032597	uck11b
ENSDARG00000079031	55.78347104	116.7924008	-1.066	1.10E-06	0.00021115	---
ENSDARG00000079055	223.1093026	145.9542772	0.61223	0.0014339	0.048993	---
ENSDARG00000079229	586.9002266	410.3610773	0.51622	3.78E-05	0.0036621	znf414
ENSDARG00000079245	121.4631325	59.80263887	1.0222	1.60E-05	0.0018577	si:dkey-73p2.2
ENSDARG00000079324	246.7106552	168.9010825	0.54664	0.00049546	0.023589	---
ENSDARG00000079372	1152.637111	799.0244057	0.52863	7.29E-06	0.00097492	si:ch211-264f5.6

ENSDARG00000079377	85.2004712	48.28539004	0.81927	0.0011841	0.043686	---
ENSDARG00000079396	319.9099538	469.4951056	-0.55344	6.44E-05	0.0054397	---
ENSDARG00000079420	261.0434576	485.0593197	-0.89387	2.27E-05	0.0024466	---
ENSDARG00000079456	68.60734262	33.20423899	1.047	0.00012925	0.0090762	si:ch211-149a19.3
ENSDARG00000079543	330.3903834	445.9388746	-0.43267	0.00099385	0.038536	dpys
ENSDARG00000079611	455.3834642	612.7501865	-0.42822	0.00052466	0.024435	---
ENSDARG00000079702	865.5431811	675.4495183	0.35776	0.0013828	0.048075	---
ENSDARG00000079738	923.8845994	1220.517917	-0.40171	0.00029197	0.016482	znf219
ENSDARG00000079742	386.0772081	265.4433335	0.54049	8.18E-05	0.0065796	---
ENSDARG00000079922	65.06516651	120.5801218	-0.89003	0.0005566	0.025368	---
ENSDARG00000079946	55.26022697	99.93461605	-0.85474	0.00015615	0.01033	---
ENSDARG00000079949	1687.382942	2318.529361	-0.45842	7.70E-06	0.0010154	supt16h
ENSDARG00000080001	73.03359811	25.85003868	1.4984	0.00016032	0.010504	---
ENSDARG00000082187	105.7928618	62.91400367	0.74979	0.00061604	0.027528	---
ENSDARG00000086056	235.779992	155.9389645	0.59646	0.00025303	0.014924	plekhg6
ENSDARG00000086351	2.014233082	13.0703106	-2.698	0.00071461	0.030524	---
ENSDARG00000086553	403.3114303	290.2703773	0.4745	0.00030803	0.016986	---
ENSDARG00000086739	479.6508877	318.3285352	0.59147	5.39E-06	0.00075801	si:ch1073-513e17.1
ENSDARG00000086842	602.0522623	433.4164018	0.47413	0.00021001	0.012953	---
ENSDARG00000086950	567.7596414	403.5477819	0.49254	7.20E-05	0.0059432	---
ENSDARG00000087013	612.4839153	849.447427	-0.47185	0.00040929	0.020697	---
ENSDARG00000087032	114.6780707	46.98250551	1.2874	2.56E-08	8.34E-06	si:ch211-200e2.1
ENSDARG00000087143	201.4234811	124.9092559	0.68935	0.0003548	0.018675	---
ENSDARG00000087193	234.1371235	156.4409959	0.58174	0.00025113	0.014886	---
ENSDARG00000087306	200.3782957	120.3528986	0.73546	8.98E-05	0.0070182	---
ENSDARG00000087574	130.689373	58.32297588	1.164	0.0004761	0.023083	nox1

ENSDARG00000087597	31.20158542	3.193815903	3.2883	4.79E-09	2.07E-06	si:dkey-51d8.3
ENSDARG00000087666	49.70750421	16.13897619	1.6229	0.00025089	0.014886	---
ENSDARG00000087911	4761.940013	2957.526337	0.68716	0.0003028	0.016855	psme4a
ENSDARG00000087994	180.2962071	122.2767	0.56022	0.0014444	0.049146	si:ch211-114c17.1
ENSDARG00000088245	179.3800088	59.87976176	1.5829	7.66E-08	2.11E-05	---
ENSDARG00000088251	532.4380665	2.354198071	7.8212	0.00032375	0.017473	---
ENSDARG00000088449	2766.795615	2139.188579	0.37115	0.00015124	0.01013	---
ENSDARG00000088741	2109.927579	1594.679146	0.40393	8.38E-05	0.0066564	---
ENSDARG00000088820	258.9323949	156.2889571	0.72836	2.81E-06	0.0004559	---
ENSDARG00000088908	199.138766	83.12477173	1.2604	1.09E-11	9.71E-09	---
ENSDARG00000089042	191.8851434	308.5924863	-0.68546	0.00080244	0.033396	foxb1a
ENSDARG00000089187	160.2288944	229.0918906	-0.51579	0.0008885	0.035663	---
ENSDARG00000089217	79.06612524	38.03102706	1.0559	5.43E-05	0.0047597	ubap1la
ENSDARG00000089225	493.536014	345.464929	0.51462	4.18E-05	0.0039505	trove2
ENSDARG00000089227	139.0341688	83.3349503	0.73845	0.00010816	0.0079987	si:ch211-91p5.3
ENSDARG00000089271	1129.802463	1441.913716	-0.35191	0.001417	0.048627	si:dkey-114c15.7
ENSDARG00000089296	354.9738997	226.8571297	0.64593	6.06E-06	0.00082786	---
ENSDARG00000089388	20.65281602	4.371426725	2.2402	0.00012874	0.00906	---
ENSDARG00000089582	86.39862631	41.09752211	1.072	0.00017645	0.011321	---
ENSDARG00000089901	0	8.660525737	#NAME?	0.00054856	0.025154	---
ENSDARG00000089917	773.0026224	582.5292728	0.40814	0.00039884	0.020291	---
ENSDARG00000089963	1840.653985	3739.556283	-1.0226	0.00019748	0.012323	---
ENSDARG00000090108	60.78412152	101.3602336	-0.73773	0.00091543	0.036333	---
ENSDARG00000090195	204.2042813	138.9699164	0.55524	0.0013506	0.04746	---
ENSDARG00000090228	1061.188569	1596.854192	-0.58955	2.60E-08	8.40E-06	gsta.1
ENSDARG00000090268	21988.48297	30471.85985	-0.47073	0.00015625	0.01033	---

ENSDARG00000090346	209.1879461	137.8320939	0.60189	0.00033392	0.017852	---
ENSDARG00000090381	46.21853473	98.4273242	-1.0906	8.25E-06	0.0010714	---
ENSDARG00000090408	127.1017693	79.72704209	0.67284	0.0010585	0.040016	---
ENSDARG00000090468	145.8949725	92.02093436	0.6649	0.00060657	0.027181	---
ENSDARG00000090526	113.077513	23.78208207	2.2494	2.88E-17	5.41E-14	---
ENSDARG00000090557	33.58754024	77.69998433	-1.21	0.00010101	0.0076118	MFAP4 (1 of many)
ENSDARG00000090707	10.04160408	0	Inf	1.72E-05	0.0019537	---
ENSDARG00000090770	266.0106666	187.0060658	0.5084	0.0006369	0.028259	---
ENSDARG00000090844	81.99897884	36.51988772	1.1669	9.18E-06	0.0011686	---
ENSDARG00000090899	320.2284877	618.1717575	-0.94891	0.0011537	0.042713	---
ENSDARG00000090901	164.3251787	31.39436498	2.388	8.94E-17	1.50E-13	---
ENSDARG00000090969	110.5429986	187.4422989	-0.76184	0.00071399	0.030524	---
ENSDARG00000091013	54.25477507	8.950084693	2.5998	6.95E-12	6.73E-09	---
ENSDARG00000091136	55.31953292	134.2642208	-1.2792	3.72E-09	1.72E-06	---
ENSDARG00000091260	1618.502965	2268.840161	-0.48729	2.72E-06	0.00044565	mylk4a
ENSDARG00000091359	633.0209861	917.426629	-0.53534	3.85E-06	0.00057281	---
ENSDARG00000091560	866.8256195	1370.192483	-0.66056	1.30E-06	0.00024774	---
ENSDARG00000091734	188.2441206	107.9970555	0.80161	1.67E-05	0.00193	traf3ip2l
ENSDARG00000091801	859.5672305	1301.29776	-0.59827	0.00049192	0.023563	serpinb14
ENSDARG00000091970	24.98742479	7.438945346	1.748	0.00039861	0.020291	---
ENSDARG00000092042	164.7576736	26.1407446	2.656	2.97E-29	4.74E-25	---
ENSDARG00000092159	0.304665957	8.57602749	-4.815	0.00053086	0.02462	---
ENSDARG00000092191	867.8509437	6.810123044	6.9936	0.00032338	0.017473	---
ENSDARG00000092364	304.2422885	156.0255099	0.96344	5.94E-10	3.65E-07	si:ch211-218c6.8
ENSDARG00000092609	761.7621489	574.9869477	0.40581	0.00056591	0.025683	---
ENSDARG00000092726	295.7391954	192.2801864	0.62112	0.0010861	0.040824	si:dkey-184p9.7

ENSDARG00000092776	659.9321157	913.6949131	-0.46939	0.00072574	0.030875	---
ENSDARG00000092976	220.8995765	313.382455	-0.50453	0.00064569	0.028416	si:ch211-127i16.2
ENSDARG00000093082	10.10238668	0.672791872	3.9084	0.00031515	0.017241	---
ENSDARG00000093105	40.53796418	18.02659006	1.1691	0.001241	0.045182	---
ENSDARG00000093198	56.71131806	110.9809396	-0.9686	1.33E-05	0.0016075	---
ENSDARG00000093237	521.6589855	282.4462389	0.88513	3.54E-11	2.83E-08	si:ch211-89o9.4
ENSDARG00000093316	165.9839134	96.87692653	0.77682	2.57E-05	0.0026846	---
ENSDARG00000093476	72.78397261	32.60931037	1.1583	9.04E-05	0.0070434	si:dkey-175d9.2
ENSDARG00000093545	45.23802151	18.82821993	1.2646	0.00086145	0.034862	---
ENSDARG00000093671	150.7814505	236.7694418	-0.65102	8.50E-05	0.0067211	---
ENSDARG00000093684	248.2173564	170.2813367	0.54368	0.00051528	0.02414	---
ENSDARG00000093759	70.7917343	38.19338856	0.89026	0.0011448	0.04248	---
ENSDARG00000093936	950.028294	379.2330052	1.3249	0.00024555	0.014637	si:dkeyp-1h4.6
ENSDARG00000093998	254.2971731	70.87423207	1.8432	1.61E-08	5.72E-06	---
ENSDARG00000094120	17.88126107	42.49371043	-1.2488	0.00058643	0.026464	---
ENSDARG00000094197	63.0625728	24.3372588	1.3736	0.00057068	0.025863	---
ENSDARG00000094286	32.65100717	63.96900488	-0.97025	0.00068321	0.029605	si:ch211-117m20.4
ENSDARG00000094316	57.25986737	29.20711626	0.9712	0.0012406	0.045182	si:rp71-80o10.4
ENSDARG00000094550	3.499132191	38.03205063	-3.4421	3.19E-11	2.62E-08	---
ENSDARG00000094910	92.3450562	36.1794774	1.3519	2.49E-06	0.00041696	---
ENSDARG00000094951	46.00179984	2.940197768	3.9677	0.00092886	0.036775	---
ENSDARG00000095005	14.18554554	37.18706816	-1.3904	0.0003064	0.016966	si:dkey-21e2.10
ENSDARG00000095032	22.08875518	5.504044405	2.0047	0.00035149	0.018562	---
ENSDARG00000095050	26.50780126	6.515976231	2.0244	4.09E-05	0.0038844	---
ENSDARG00000095090	143.4022378	94.22604093	0.60587	0.001414	0.048621	---
ENSDARG00000095142	115.9806126	208.6808095	-0.84741	1.06E-06	0.00020847	FKBP15 (1 of many)

ENSDARG00000095512	46.85558477	88.64208614	-0.91977	0.00091339	0.036297	///-
ENSDARG00000095553	52.0197635	87.70928792	-0.75367	0.0013664	0.04771	///-
ENSDARG00000095678	147.0602464	94.35016768	0.64031	0.00063831	0.028259	///-
ENSDARG00000095708	48.10269983	90.18634238	-0.90679	0.00020401	0.012681	znf1012
ENSDARG00000095724	106.7595258	42.99648223	1.3121	4.44E-08	1.34E-05	si:ch211-196c10.15
ENSDARG00000095767	1418.358082	1065.2508	0.41303	0.0001099	0.0080719	///-
ENSDARG00000095833	196.7607349	278.1371479	-0.49935	0.00087514	0.035349	alk
ENSDARG00000095843	190.7100733	284.9012542	-0.57908	0.0014541	0.049367	///-
ENSDARG00000095947	1090.729381	815.309831	0.41987	0.00023216	0.013995	adkb
ENSDARG00000095949	182.2274983	114.8905298	0.66548	0.0010037	0.038777	///-
ENSDARG00000096214	344.9169699	477.8829936	-0.47041	0.00024383	0.014565	si:ch211-197k17.3
ENSDARG00000096398	113.7744094	50.22475544	1.1797	2.20E-07	5.44E-05	si:ch211-276a17.5
ENSDARG00000096508	580.8057692	1231.54803	-1.0843	1.87E-21	8.56E-18	///-
ENSDARG00000096533	241.1786443	333.5786827	-0.46792	0.00080455	0.033405	rltgr
ENSDARG00000096599	41.78618934	14.8711323	1.4905	7.33E-05	0.0060215	///-
ENSDARG00000096978	42.37648919	78.78621512	-0.89468	0.00050332	0.023895	///-
ENSDARG00000097110	235.8807007	396.8606238	-0.75058	7.79E-05	0.0063142	si:dkey-56f14.4
ENSDARG00000097118	1363.246355	695.0473548	0.97186	3.08E-06	0.00048169	///-
ENSDARG00000097157	860.357123	429.1467067	1.0035	1.11E-07	2.91E-05	///-
ENSDARG00000097205	2142.498291	2796.212078	-0.38418	0.00017613	0.011321	///-
ENSDARG00000097285	137.8785266	202.5170834	-0.55465	0.00090748	0.036217	///-
ENSDARG00000097504	337.0884014	218.0696533	0.62834	0.0013394	0.047206	///-
ENSDARG00000097513	117.617941	55.05436744	1.0952	4.52E-07	9.83E-05	///-
ENSDARG00000097539	293.8867043	40.67859516	2.8529	0.00055468	0.025352	si:ch211-39f2.3
ENSDARG00000097700	36.49471264	11.6806339	1.6436	5.38E-05	0.0047349	si:dkey-23k10.2
ENSDARG00000097746	301.9438878	184.2394523	0.7127	1.54E-06	0.00028388	///-



ENSDARG00000097762	54.72664631	27.56599195	0.98935	0.00082893	0.033998	---
ENSDARG00000097763	157.8538354	104.7686925	0.59138	0.0014404	0.049115	---
ENSDARG00000097766	17.43026511	2.436402391	2.8388	3.84E-05	0.0037042	---
ENSDARG00000097845	154.6129761	101.1842319	0.61168	0.0012453	0.045208	si:ch211-105j21.9
ENSDARG00000097937	390.3138677	194.6421665	1.0038	3.94E-09	1.80E-06	---
ENSDARG00000098024	2065.372393	1508.047777	0.45372	1.12E-05	0.001377	si:dkey-262k9.2
ENSDARG00000098063	114.270505	202.3523046	-0.82442	1.70E-06	0.00030677	---
ENSDARG00000098162	212.3567311	300.6673202	-0.50168	0.00052445	0.024435	---
ENSDARG00000098191	234.1387834	161.4945136	0.53588	0.00069722	0.029901	si:dkey-1612.20
ENSDARG00000098271	6.622469826	0	Inf	0.00078205	0.032748	---
ENSDARG00000098349	907.6338521	493.5808151	0.87882	5.10E-14	6.03E-11	hdac4
ENSDARG00000098363	77.02640364	36.68876082	1.07	5.46E-05	0.0047637	---
ENSDARG00000098390	71.40124949	22.47563325	1.6676	2.19E-08	7.46E-06	---
ENSDARG00000098406	30.30420673	8.866856803	1.773	9.76E-05	0.0074401	---
ENSDARG00000098591	6122.917221	7970.193939	-0.3804	7.22E-05	0.005947	---
ENSDARG00000098597	83.28822143	35.59167735	1.2266	7.78E-06	0.0010181	---
ENSDARG00000098670	1855.334514	2775.432152	-0.58103	0.00011632	0.0084765	---
ENSDARG00000098769	402.4390195	288.1391995	0.482	0.00037914	0.019538	---
ENSDARG00000098779	4.982371365	23.36966672	-2.2297	0.00050906	0.023975	---
ENSDARG00000098802	1377.82589	1085.314263	0.34428	0.0013919	0.048285	---
ENSDARG00000098834	1581.404443	2356.086814	-0.57519	4.72E-07	0.00010112	---
ENSDARG00000098837	81.76619443	211.1903127	-1.369	0.0010205	0.039173	tgm5l
ENSDARG00000098886	17.94038374	2.941344732	2.6087	0.00011603	0.0084765	---
ENSDARG00000098897	1369.416779	1747.59682	-0.35181	0.00066441	0.02904	---
ENSDARG00000098997	17.39331109	3.066371657	2.5039	0.00015265	0.010161	---
ENSDARG00000099091	206.588595	431.1005472	-1.0613	0.00050936	0.023975	---

ENSDARG00000099099	190.4046837	73.80304716	1.3673	1.55E-09	8.14E-07	--/
ENSDARG00000099111	244.2949558	428.5472483	-0.81083	4.52E-09	1.98E-06	--/
ENSDARG00000099137	856.3094519	1200.280093	-0.48717	0.0010593	0.040016	--/
ENSDARG00000099149	199.3061452	294.0863441	-0.56125	0.00015763	0.010382	--/
ENSDARG00000099171	38.74821583	11.55343644	1.7458	2.02E-05	0.0022504	--/
ENSDARG00000099184	617.6798077	839.99452	-0.44352	0.00013823	0.0095385	--/
ENSDARG00000099419	108.0434116	49.9155747	1.114	1.30E-06	0.00024774	--/
ENSDARG00000099424	875.936923	548.5230337	0.67527	0.00027917	0.01591	--/
ENSDARG00000099448	695.9290832	418.2545925	0.73456	2.94E-07	6.95E-05	--/
ENSDARG00000099525	240.4484615	398.2799913	-0.72806	1.31E-07	3.38E-05	si:ch1073-13h15.3
ENSDARG00000099555	920.5341328	1239.656979	-0.4294	0.001144	0.04248	--/
ENSDARG00000099558	327.7163818	661.3495049	-1.013	8.72E-16	1.27E-12	--/
ENSDARG00000099566	1289.871264	1016.365589	0.34381	0.0012466	0.045208	--/
ENSDARG00000099577	285.5557007	172.123834	0.73033	8.68E-06	0.0011228	si:dkey-182g1.10
ENSDARG00000099622	21.17475731	4.327457155	2.2908	9.92E-05	0.0075356	--/
ENSDARG00000099633	465.9790026	649.7538264	-0.47963	6.20E-05	0.0052809	--/
ENSDARG00000099634	190.4054074	314.608195	-0.72448	0.00022872	0.01384	elna
ENSDARG00000099764	17.21428315	50.16804587	-1.5432	5.44E-05	0.0047597	--/
ENSDARG00000099775	267.4087542	157.5320614	0.7634	5.20E-05	0.0046322	--/
ENSDARG00000099827	8.676793518	34.66923824	-1.9984	9.00E-06	0.0011546	--/
ENSDARG00000099839	163.2269512	85.085661	0.93989	1.80E-05	0.002011	--/
ENSDARG00000099865	2677.680041	3543.593065	-0.40423	4.18E-05	0.0039505	--/
ENSDARG00000099902	528.5747038	292.29676	0.85467	9.93E-11	6.75E-08	--/
ENSDARG00000099930	166.5490819	258.1738565	-0.6324	5.06E-05	0.0045314	--/
ENSDARG00000099960	173.9140976	399.6527537	-1.2004	7.14E-08	1.98E-05	--/
ENSDARG00000099972	1025.991753	1364.475901	-0.41133	0.00012083	0.008617	nup153

ENSDARG00000100000	110.3979713	243.9681624	-1.144	4.95E-09	2.11E-06	---
ENSDARG00000100003	9584.793947	7282.154299	0.39638	2.50E-05	0.0026195	---
ENSDARG00000100043	76.66906207	151.5240618	-0.98283	0.00029866	0.016682	---
ENSDARG00000100095	102.5370725	163.5020366	-0.67316	0.00018082	0.011486	---
ENSDARG00000100139	283.2301327	416.9575809	-0.55793	5.20E-05	0.0046322	---
ENSDARG00000100155	15.7205147	3.530661929	2.1546	0.0010964	0.041066	si:ch211-217i17.1
ENSDARG00000100185	247.8374891	586.7501266	-1.2434	5.84E-08	1.67E-05	---
ENSDARG00000100231	190.9225709	114.3543579	0.73948	1.76E-05	0.00198	---
ENSDARG00000100246	115.2159074	72.07258996	0.67682	0.0014019	0.048421	---
ENSDARG00000100265	822.5992938	573.3090911	0.52088	9.84E-06	0.0012235	rhcgb
ENSDARG00000100311	66.73611968	8.484647458	2.9755	2.64E-09	1.26E-06	---
ENSDARG00000100332	59.10523523	29.03455548	1.0255	0.00064183	0.028363	---
ENSDARG00000100333	41.68845272	13.74859051	1.6004	1.22E-05	0.0014985	---
ENSDARG00000100357	266.2778381	125.8217425	1.0816	5.88E-11	4.37E-08	---
ENSDARG00000100398	650.1427531	873.8982507	-0.42671	0.00029692	0.016614	---
ENSDARG00000100431	901.3069768	609.0057381	0.56556	5.77E-07	0.00012133	spaca4l
ENSDARG00000100478	28.10467252	79.21468796	-1.495	1.40E-05	0.0016799	---
ENSDARG00000100480	249.0227699	2.144549506	6.8595	1.11E-14	1.42E-11	---
ENSDARG00000100499	1046.133631	1466.624697	-0.48743	7.32E-06	0.00097492	---
ENSDARG00000100582	3615.913695	2745.24286	0.39743	8.37E-05	0.0066564	---
ENSDARG00000100690	87.20972448	27.19357528	1.6812	0.00027679	0.01582	---
ENSDARG00000100697	3932.735469	2727.053807	0.52819	8.42E-08	2.28E-05	---
ENSDARG00000100747	86.01654917	35.41964657	1.2801	2.68E-06	0.00044381	GUCA1A (1 of many)
ENSDARG00000100792	352.5198082	572.3671319	-0.69924	2.90E-08	9.19E-06	---
ENSDARG00000100826	10135.87772	7243.330141	0.48475	4.39E-07	9.67E-05	---
ENSDARG00000100832	91.95577905	42.23652801	1.1224	5.59E-05	0.0048518	---

ENSDARG00000100847	54.10400569	100.9284432	-0.89953	0.00018697	0.011853	---
ENSDARG00000100942	14.78896143	2.562699672	2.5288	0.00065477	0.028736	zgc:194655
ENSDARG00000100981	386.0681263	563.9280292	-0.54666	2.61E-05	0.0027025	---
ENSDARG00000101040	45.12291277	14.49719849	1.6381	0.00030836	0.016986	---
ENSDARG00000101049	90.63253576	31.85623793	1.5085	4.08E-09	1.84E-06	---
ENSDARG00000101106	287.6135181	194.5225911	0.56419	0.00025391	0.014924	---
ENSDARG00000101142	29.37820293	10.38029008	1.5009	0.00072266	0.030785	---
ENSDARG00000101189	58.63963718	26.51697234	1.145	0.00014293	0.0097707	---
ENSDARG00000101239	1431.309687	1801.801297	-0.3321	0.0009823	0.038227	---
ENSDARG00000101312	56.95520141	17.01568181	1.743	1.76E-07	4.47E-05	si:dkey-31n13.4
ENSDARG00000101407	92.1130049	178.5919062	-0.95519	0.00010515	0.0078493	---
ENSDARG00000101479	87.30357157	42.33261929	1.0443	0.00080276	0.033396	---
ENSDARG00000101482	590.2736916	235.9012369	1.3232	2.25E-18	5.53E-15	---
ENSDARG00000101484	116.6507365	67.65924081	0.78584	0.00016668	0.010856	si:dkey-264f17.2
ENSDARG00000101629	2059.998806	2884.512782	-0.48568	0.00073856	0.031254	---
ENSDARG00000101707	218.0829219	327.7747203	-0.58783	0.00019173	0.012106	---
ENSDARG00000101726	1434.526408	1904.033569	-0.40848	0.00036141	0.018929	si:ch211-93f2.1
ENSDARG00000101816	1705.157898	2881.740731	-0.75704	0.00035046	0.018539	col5a3b
ENSDARG00000101861	115.5427514	218.1532878	-0.91692	8.53E-08	2.29E-05	---
ENSDARG00000101865	466.8191018	302.1115359	0.62778	3.12E-06	0.00048541	pcdh1g30
ENSDARG00000101894	995.5100046	773.9866175	0.36313	0.0013553	0.047531	---
ENSDARG00000101910	206.3864632	130.636444	0.65979	0.00012257	0.0087217	pcdh20
ENSDARG00000101956	162.1321114	0.335822454	8.9153	6.62E-12	6.61E-09	---
ENSDARG00000102057	48.37762117	20.64218823	1.2287	0.00046334	0.022601	---
ENSDARG00000102102	44.08900963	16.4298055	1.4241	8.33E-05	0.0066511	---
ENSDARG00000102105	691.8492631	911.4245241	-0.39767	0.00063148	0.0281	---

ENSDARG00000102112	15.00494338	1.596907952	3.2321	6.03E-05	0.005163	---
ENSDARG00000102119	50.29725423	89.80093892	-0.83625	0.00046286	0.022601	si:ch73-359m17.2
ENSDARG00000102167	153.1094313	265.0869891	-0.7919	5.35E-07	0.00011324	---
ENSDARG00000102228	37.3954112	16.51647429	1.179	0.0014729	0.049657	---
ENSDARG00000102430	105.5160972	157.4922731	-0.57782	0.0014428	0.049145	---
ENSDARG00000102435	466.0667504	194.3797428	1.2617	2.16E-19	5.76E-16	---
ENSDARG00000102440	73.22408214	26.43464463	1.4699	2.71E-07	6.45E-05	---
ENSDARG00000102528	25.32590818	4.668891037	2.4395	0.00012823	0.009044	---
ENSDARG00000102572	2585.455295	1974.45514	0.38896	0.00015021	0.010103	si:ch211-260e23.9
ENSDARG00000102618	370.2650467	575.1045264	-0.63527	3.61E-07	8.37E-05	---
ENSDARG00000102691	26.12035793	55.93820163	-1.0987	0.00049353	0.023569	---
ENSDARG00000102726	17.54869372	4.328604119	2.0194	0.0010356	0.039531	---
ENSDARG00000102748	292.1271642	407.9420898	-0.48177	0.00025664	0.014963	---
ENSDARG00000102798	511.2868207	877.2237209	-0.77881	1.09E-10	7.26E-08	---
ENSDARG00000102845	224.2508926	340.2827256	-0.60162	0.00015172	0.010141	---
ENSDARG00000102849	10.33444738	1.007467362	3.3587	0.00080988	0.033431	---
ENSDARG00000102888	448.5110504	599.4726446	-0.41855	0.00055862	0.025424	---
ENSDARG00000102916	133.6706273	234.5872745	-0.81144	0.0011967	0.043998	---
ENSDARG00000102977	411.1619936	554.5190842	-0.43153	0.00049031	0.023557	---
ENSDARG00000103025	471.1191507	653.2068355	-0.47145	0.0010456	0.039816	hmgcs1
ENSDARG00000103054	585.379647	761.7516923	-0.37995	0.0011487	0.042578	---
ENSDARG00000103117	497.0612524	283.3516334	0.81083	1.66E-09	8.54E-07	tmprss4a
ENSDARG00000103199	2075.89322	1170.924524	0.82608	5.38E-06	0.00075801	---
ENSDARG00000103226	279.8861998	413.4991561	-0.56304	2.21E-05	0.0023904	---
ENSDARG00000103260	36.19909931	14.6659482	1.3035	0.0005481	0.025154	si:ch211-57b15.1
ENSDARG00000103285	72.18592291	2.984167338	4.5963	3.20E-20	9.30E-17	---

ENSDARG00000103322	171.7600202	111.5404574	0.62283	0.00047683	0.023083	si:ch73-347e22.8
ENSDARG00000103333	666.5823914	880.265883	-0.40116	0.00085763	0.034773	baiap2b
ENSDARG00000103369	1670.662235	1296.919408	0.36533	0.00047782	0.023096	taldo1
ENSDARG00000103381	25.55371279	7.224832317	1.8225	0.00032626	0.017579	---
ENSDARG00000103404	305.3162917	451.5267787	-0.56451	2.31E-05	0.0024723	---
ENSDARG00000103409	694.1524499	926.9902911	-0.4173	0.0010581	0.040016	uhrf1
ENSDARG00000103490	729.0019396	954.6034615	-0.38898	0.00051129	0.024023	dpysl4
ENSDARG00000103590	223.0010169	152.4279608	0.54892	0.00052267	0.024414	---
ENSDARG00000103607	74.2258278	123.1231997	-0.73011	0.00054874	0.025154	---
ENSDARG00000103634	509.7744066	296.6477445	0.78111	6.94E-05	0.0057615	---
ENSDARG00000103680	18.15784235	4.240664979	2.0982	0.00080615	0.033407	---
ENSDARG00000103811	1255.53477	1758.051292	-0.48568	4.25E-06	0.0006257	agla
ENSDARG00000103878	1030.541514	1902.12001	-0.88421	7.44E-07	0.00015149	---
ENSDARG00000103908	632.3248614	1038.478192	-0.71573	6.29E-05	0.005345	---
ENSDARG00000103960	16.48652262	137.6287318	-3.0614	9.17E-05	0.0071114	---
ENSDARG00000103981	135.2937494	84.80171347	0.67393	0.00079617	0.033208	---
ENSDARG00000104015	99.88928313	197.8433577	-0.98596	4.95E-08	1.44E-05	---
ENSDARG00000104045	73.30000727	31.13640577	1.2352	9.28E-06	0.0011766	---
ENSDARG00000104064	48.52950065	14.24345696	1.7686	0.00069184	0.029774	---
ENSDARG00000104109	10.27993796	0.37864506	4.7628	0.00085193	0.034586	---
ENSDARG00000104152	134.9416002	87.20409879	0.62987	0.0012975	0.046454	---
ENSDARG00000104246	228.9236276	137.992655	0.73027	1.70E-05	0.0019423	---
ENSDARG00000104293	19.70759688	0.588293625	5.0661	2.46E-08	8.19E-06	---
ENSDARG00000104314	312.3688916	522.3850254	-0.74186	1.27E-07	3.29E-05	nrg1
ENSDARG00000104372	3572.745264	4432.280091	-0.31102	0.001346	0.047361	---
ENSDARG00000104414	765.8860741	1035.249995	-0.43478	0.00025785	0.014979	---

ENSDARG00000104524	24.43444552	1.554085346	3.9748	2.73E-06	0.00044565	--/
ENSDARG00000104569	580.8956301	856.4738412	-0.56013	1.51E-06	0.00028014	--/
ENSDARG00000104582	597.1300371	890.5539293	-0.57666	0.00039	0.01999	--/
ENSDARG00000104642	137.2751013	86.55078363	0.66545	0.0013336	0.047206	--/
ENSDARG00000104672	466.7645538	322.0274168	0.53551	0.0002466	0.014672	--/
ENSDARG00000104685	690.1970244	1106.884675	-0.68142	6.96E-10	4.12E-07	grk1b
ENSDARG00000104702	1930.147764	2420.185709	-0.32641	0.0010495	0.039872	cat
ENSDARG00000104704	32.20888054	12.10005442	1.4124	0.00090798	0.036217	--/
ENSDARG00000104732	288.2173006	439.3991823	-0.60838	5.77E-06	0.00079463	--/
ENSDARG00000104839	699.817551	978.7962314	-0.48403	1.72E-05	0.0019537	--/
ENSDARG00000105001	972.0060023	1240.015241	-0.35132	0.0014353	0.048993	--/
ENSDARG00000105104	427.1160644	190.7583395	1.1629	3.86E-16	6.17E-13	--/
ENSDARG00000105114	434.6637945	313.0863844	0.47334	0.0003761	0.019444	--/
ENSDARG00000105161	20.09060084	3.656959211	2.4578	8.24E-05	0.0066013	--/
ENSDARG00000105270	95.94229157	56.93993417	0.75273	0.00096649	0.03775	--/
ENSDARG00000105273	389.0110177	137.4389301	1.501	6.47E-11	4.70E-08	--/
ENSDARG00000105285	764.7544249	1125.287595	-0.55723	3.31E-05	0.0032591	--/
ENSDARG00000105367	14.50203415	2.983020374	2.2814	0.0014348	0.048993	--/
ENSDARG00000105388	121.4106694	29.67689456	2.0325	8.31E-10	4.74E-07	--/
ENSDARG00000105411	207.259627	404.9576392	-0.96633	6.98E-07	0.00014396	--/
ENSDARG00000105442	178.2808545	260.2057489	-0.5455	0.00039388	0.020103	si:cabz01100188.1
ENSDARG00000105454	18.07636776	4.746630892	1.9291	0.0014778	0.049722	--/
ENSDARG00000105473	0.943559204	11.09692813	-3.5559	0.00073486	0.031154	si:cabz01036006.1
ENSDARG00000105491	666.2671377	392.7071143	0.76265	1.09E-09	6.11E-07	--/
ENSDARG00000105584	266.776308	175.3507668	0.60539	0.00011854	0.00853	slc8b1
ENSDARG00000105619	464.8833618	651.5919174	-0.4871	7.10E-05	0.0058739	--/

ENSDARG00000105880	511.7690285	950.6430494	-0.89341	0.0002118	0.013038	--
ENSDARG00000106002	457.3468357	174.4870844	1.3902	0.00011922	0.0085597	--
ENSDARG00000106256	20.32893472	51.27299827	-1.3347	4.99E-05	0.0044987	--
ENSDARG00000106383	692.307788	249.5266008	1.4722	2.95E-06	0.00046963	--
ENSDARG00000106467	9.10857415	149.028184	-4.0322	7.74E-41	2.47E-36	--
ENSDARG00000106538	36.51411126	14.78778102	1.304	0.00080506	0.033405	--
ENSDARG00000106574	0	14.92517776	#NAME?	0.00025511	0.014928	--
ENSDARG00000106663	41.27441076	17.48214261	1.2394	0.00045753	0.02242	--
ENSDARG00000106904	127.2793112	216.1784899	-0.76423	0.0010418	0.039721	--
ENSDARG00000107252	11.04299257	0.37864506	4.8661	0.00012707	0.0090017	--
ENSDARG00000107438	171.1946684	99.89334701	0.77718	3.62E-05	0.0035183	--
ENSDARG00000107441	225.2520884	335.5319134	-0.57491	0.00042304	0.021185	--
ENSDARG00000107542	829.5741838	324.540485	1.354	8.68E-08	2.31E-05	--
ENSDARG00000107664	12.32225572	0	Inf	1.00E-06	0.00019854	--
ENSDARG00000107761	1230.548252	804.9548105	0.61232	0.00010182	0.0076364	--
ENSDARG00000108111	2781.208515	2001.327949	0.47475	3.13E-06	0.00048541	--
ENSDARG00000108195	463.8782671	325.3460129	0.51177	8.44E-05	0.0066914	--
ENSDARG00000108218	83.05043738	48.03037815	0.79004	0.0012727	0.045792	--
ENSDARG00000108639	191.3851771	63.23450898	1.5977	5.64E-05	0.0048809	--
ENSDARG00000108939	338.4972119	108.3458647	1.6435	2.27E-24	1.81E-20	--
ENSDARG00000108952	107.1377333	1.008614327	6.7309	1.36E-23	7.23E-20	--
ENSDARG00000108971	51.8340666	18.61832458	1.4772	9.54E-06	0.0011955	--
Novel00047	259.2585256	453.1818264	-0.8057	8.80E-06	0.0011339	--
Novel00081	41.18554348	18.12014063	1.1845	0.0011232	0.041825	--
Novel00090	9.324372826	40.26146857	-2.1103	2.62E-07	6.30E-05	--
Novel00113	678.0185214	1632.112573	-1.2673	1.07E-12	1.14E-09	--



Novel00136	743.1852858	448.1207951	0.72983	1.56E-08	5.66E-06	---
Novel00138	13.9385256	55.9292727	-2.0045	7.22E-09	2.92E-06	---
Novel00141	3.575993539	29.08860094	-3.024	6.90E-05	0.0057547	--
Novel00152	68.74426286	150.3164048	-1.1287	4.52E-06	0.00065279	--
Novel00173	65.09933169	109.4253371	-0.74923	0.00091237	0.036297	--
Novel00198	138.3683104	212.0995547	-0.61623	0.00022657	0.013762	--
Novel00199	119.2887203	233.3443084	-0.968	7.39E-09	2.93E-06	--
Novel00215	63.02154597	30.80656492	1.0326	0.00058639	0.026464	--
Novel00222	101.0157598	52.88088229	0.93376	0.00013978	0.0095868	--
Novel00311	86.91612823	136.2432147	-0.64849	0.0012252	0.044738	--
Novel00382	103.0227835	184.7089258	-0.84229	8.09E-05	0.0065281	--
Novel00430	486.4448294	222.7036635	1.1272	6.52E-16	9.92E-13	--
Novel00439	18.90629487	77.44599601	-2.0343	2.01E-11	1.70E-08	--
Novel00470	14.27718286	40.80759298	-1.5151	9.20E-05	0.0071195	--
Novel00512	22.88432443	66.35123842	-1.5358	3.20E-07	7.51E-05	---
Novel00597	272.5128646	165.2655237	0.72154	4.34E-06	0.00063565	--
Novel00602	7.50376977	96.81665268	-3.6896	1.17E-20	3.73E-17	---
Novel00659	440.7842631	615.5265273	-0.48175	0.00010751	0.00797	---
Novel00693	8.655918246	0.37864506	4.5148	0.00044467	0.021993	---
Novel00715	45.92994752	19.83761104	1.2112	0.0003915	0.020013	--
Novel00721	97.16170833	50.51853208	0.94358	4.56E-05	0.0042073	--
Novel00735	239.8128975	152.3548088	0.65447	3.08E-05	0.0030943	---
Novel00751	531.0342001	1034.628926	-0.96224	7.97E-17	1.41E-13	--
Novel00752	2570.60054	1930.644476	0.41302	0.0005296	0.02462	--
Novel00760	233.275444	118.3080046	0.97949	0.0014699	0.049657	--
Novel00805	785.1453098	1039.735596	-0.40519	0.0002089	0.012913	--

Novel00822	474.9933527	263.3088018	0.85115	8.93E-07	0.0001794	--
Novel00823	33.026985	4.369132796	2.9182	2.45E-06	0.00041144	--
Novel00824	23.1021496	2.267405896	3.3489	0.0010212	0.039173	--
Novel00827	167.8705008	319.3317849	-0.92771	7.58E-10	4.40E-07	--
Novel00828	633.4415231	459.3972892	0.46347	0.00011704	0.0084765	--
Novel00846	4.500337406	52.74360894	-3.5509	1.05E-15	1.46E-12	--
Novel00861	52.1651573	93.8304382	-0.84697	0.000425	0.02125	--
Novel00882	128.3651276	336.4513547	-1.3901	2.02E-11	1.70E-08	--
Novel00883	521.3931073	201.4366239	1.372	8.58E-18	1.83E-14	--
Novel00900	226.2987692	127.7102566	0.82535	1.08E-06	0.00020857	--
Novel00913	6.758453842	36.93639735	-2.4503	0.00033469	0.017852	--
Novel00927	13.09713298	2.354198071	2.4759	0.0012697	0.045783	--
Novel00967	99.68401373	39.54929498	1.3337	2.68E-05	0.0027514	--
Novel00974	323.6603714	433.6731196	-0.42213	0.0013351	0.047206	--
Novel00999	16.72485651	48.2503494	-1.5285	1.45E-05	0.0017201	--
Novel01002	23.52008109	55.05383744	-1.227	6.34E-05	0.0053745	--
Novel01059	23.07813774	93.88513705	-2.0244	1.42E-05	0.0016881	--
Novel01070	345.2186919	173.9653442	0.98871	9.68E-07	0.00019324	--
Novel01085	167.088212	104.1768346	0.68158	0.0012949	0.046432	--
Novel01129	174.7579031	109.135408	0.67924	0.00013653	0.0094826	--
Novel01150	14.40466409	45.6885499	-1.6653	0.000751	0.031655	--
Novel01214	61.41231162	26.13922746	1.2323	0.00020593	0.012775	--
Novel01224	135.0182876	68.23721176	0.98452	0.00075414	0.031746	--
Novel01242	4.921772041	18.73786347	-1.9287	0.0012984	0.046454	--
Novel01263	6.274759947	32.02662817	-2.3516	5.50E-06	0.00076438	--
Novel01270	28.55159568	8.193941538	1.8009	9.59E-05	0.0073657	--

Novel01308	4.007774171	50.38469962	-3.6521	1.16E-15	1.54E-12	--
Novel01327	92.11595821	54.37404039	0.76053	0.0013333	0.047206	--
Novel01340	105.696959	35.04685972	1.5926	0.0004366	0.021694	--
Novel01352	25.40442946	0.672791872	5.2388	4.31E-07	9.57E-05	--
Novel01373	25.72202817	79.71643619	-1.6319	0.0012771	0.045896	--
Novel01377	791.5855775	1043.264691	-0.39829	0.00068429	0.029605	--
Novel01407	48.87018441	20.16769868	1.2769	0.00012	0.0085771	--
Novel01446	55.1599036	22.89951824	1.2683	6.55E-05	0.005518	--
Novel01455	327.7276254	173.6041721	0.9167	0.00022764	0.013801	--
Novel01458	9.627562126	0	Inf	2.59E-05	0.0026985	--
Novel01494	275.1137111	69.15723355	1.9921	2.14E-28	2.28E-24	--
Novel01496	204.7720366	134.4723522	0.60671	0.00025942	0.015043	--
Novel01536	187.8369215	119.3906711	0.65379	0.00045056	0.022215	--
Novel01613	84.37385455	20.80213241	2.0201	1.67E-12	1.72E-09	--
Novel01630	48.36875183	20.21191503	1.2589	0.00026007	0.015053	--
Novel01707	911.0293232	587.614637	0.63263	4.87E-08	1.43E-05	--
Novel01722	21.23110994	5.71701047	1.8928	0.001246	0.045208	--
Novel01731	1400.789315	884.26869	0.66368	1.14E-09	6.27E-07	--
Novel01737	1351.866994	987.2836375	0.45342	1.78E-05	0.0019972	--
Novel01738	146.0350293	77.28490487	0.91806	3.80E-06	0.0005668	--
Novel01768	821.6901321	471.1846567	0.8023	2.15E-05	0.0023506	--
Novel01771	146.3173434	231.6059311	-0.66257	4.99E-05	0.0044987	--
Novel01798	223.1550874	321.8828915	-0.52849	0.00029972	0.016712	--
Novel01830	42.90397995	7.645153019	2.4885	5.53E-09	2.29E-06	--
Novel01846	364.7655598	558.2848094	-0.61403	1.50E-06	0.00027991	--
Novel01852	93.1999408	46.31851917	1.0087	2.18E-05	0.0023742	--

915 **500 µg /L Group DEG lists**

Gene_id	readcount_EG4	readcount_CK	log2FoldChange	pval	padj	Gene name
ENSDARG00000000068	474.6156509	754.2961556	-0.66837	2.59E-08	4.10E-06	slc9a3r1a
ENSDARG00000000212	2995.348843	2225.605774	0.42853	5.73E-05	0.0032917	krt97
ENSDARG00000001976	108.9302771	189.6945234	-0.80027	6.47E-06	0.00052272	fkbp16
ENSDARG00000001999	266.820287	362.8341044	-0.44344	0.001215	0.034988	adamts18
ENSDARG00000002013	265.2594267	375.8350065	-0.5027	0.00035562	0.013804	grb10a
ENSDARG00000002196	594.2992164	318.9971937	0.89765	1.67E-12	7.97E-10	bach1b
ENSDARG00000002259	205.2263679	98.53435863	1.0585	3.03E-06	0.00027215	---
ENSDARG00000002271	3388.893996	4243.573744	-0.32447	0.001147	0.033608	---
ENSDARG00000002293	47.67074504	22.87143485	1.0596	0.0017318	0.045857	si:ch211-197g15.9
ENSDARG00000002369	3354.007352	2632.917976	0.34922	0.00030863	0.012356	---
ENSDARG00000002394	24.83029093	57.14928668	-1.2026	0.0012293	0.035306	ugt5d1
ENSDARG00000002396	425.6801357	303.5555291	0.48781	0.00019472	0.0085893	---
ENSDARG00000002401	370.5538016	244.7414214	0.59842	3.28E-05	0.0020657	gale
ENSDARG00000002696	6959.620213	9701.551099	-0.47921	1.60E-06	0.00015777	---
ENSDARG00000002764	537.9633367	709.6871683	-0.39968	0.00080779	0.02593	miox
ENSDARG00000002909	968.8174627	755.7896884	0.35824	0.0018057	0.047265	---
ENSDARG00000002917	334.7621304	505.6868229	-0.59511	3.20E-05	0.0020239	---
ENSDARG00000002968	497.2155353	762.4337046	-0.61674	2.32E-05	0.0015414	a1cf
ENSDARG00000003091	608.1663953	427.3239572	0.50914	3.77E-05	0.0023063	oclnb
ENSDARG00000003181	124.1477821	59.98444954	1.0494	1.15E-06	0.00011907	---
ENSDARG00000003208	340.8929128	235.6075657	0.53293	0.00017487	0.0079891	pomk
ENSDARG00000003216	2536.984801	1971.728694	0.36365	0.00039133	0.01483	anxa2a
ENSDARG00000003311	1417.085523	1852.522962	-0.38656	0.00019967	0.0087254	---
ENSDARG00000003326	78.18924625	123.6692432	-0.66144	0.0014764	0.04047	---

ENSDARG00000003615	183.7444924	419.3804317	-1.1906	2.63E-08	4.15E-06	slc26a3.2
ENSDARG00000003684	125.3866015	208.5294067	-0.73387	1.80E-05	0.001254	obs11a
ENSDARG00000003820	2906.976298	4029.765114	-0.47118	0.00018417	0.0082534	---
ENSDARG00000003941	150.7955934	233.059784	-0.62811	0.00011563	0.0057741	---
ENSDARG00000004187	365.1165141	641.7114401	-0.81357	7.46E-11	2.31E-08	zgc:122979
ENSDARG00000004262	38.74606624	78.21266135	-1.0134	0.00011661	0.0057865	---
ENSDARG00000004325	460.5234374	336.2564825	0.45371	0.00036177	0.013941	casp9
ENSDARG00000004473	120.7311312	190.7541873	-0.65992	0.00016509	0.0076899	tbx21
ENSDARG00000004748	2277.233947	1142.255361	0.9954	6.32E-07	7.03E-05	---
ENSDARG00000004763	38.66749567	74.38903514	-0.94397	0.00035768	0.013867	---
ENSDARG00000004782	755.2761136	535.6246654	0.49578	0.00024112	0.010098	fgfr3
ENSDARG00000004843	1650.856546	1048.517922	0.65486	5.26E-10	1.26E-07	foxp1a
ENSDARG00000004979	192.8760137	103.0490908	0.90434	4.48E-07	5.18E-05	---
ENSDARG00000005108	1243.988999	918.1822864	0.43812	6.75E-05	0.0037213	oclna
ENSDARG00000005561	318.1877709	176.3615339	0.85134	1.63E-08	2.70E-06	---
ENSDARG00000005565	271.2799862	435.2425497	-0.68204	0.0016981	0.045229	entpd8
ENSDARG00000005645	1244.463446	1595.340166	-0.35834	0.00076553	0.02495	robo3
ENSDARG00000005690	706.881371	1054.204094	-0.57661	4.55E-07	5.25E-05	---
ENSDARG00000005713	631.0122819	368.6919699	0.77525	4.72E-10	1.16E-07	---
ENSDARG00000005841	262.5819231	368.695438	-0.48966	0.00044041	0.016397	---
ENSDARG00000005924	999.3466142	1364.674312	-0.4495	2.92E-05	0.0018737	serpina10a
ENSDARG00000006060	962.3421459	696.7861118	0.46583	3.88E-05	0.0023618	aim1b
ENSDARG00000006202	1519.791666	1064.250436	0.51404	1.32E-06	0.00013314	---
ENSDARG00000006422	332.3543527	188.682189	0.81676	6.38E-07	7.07E-05	---
ENSDARG00000006848	71.74590571	20.74973214	1.7898	2.32E-09	4.96E-07	---
ENSDARG00000006849	140.7620733	239.0114105	-0.76382	4.07E-06	0.00034633	---

ENSDARG00000007080	2128.833184	1378.287953	0.62719	1.19E-09	2.70E-07	rhcgl1
ENSDARG00000007108	201.648957	139.8217647	0.52826	0.0014649	0.040224	---
ENSDARG00000007184	1185.914311	775.1478999	0.61346	2.39E-08	3.83E-06	---
ENSDARG00000007276	5073.310137	7039.557755	-0.47256	8.55E-05	0.0045466	ela3l
ENSDARG00000007418	155.7315025	97.32580759	0.67817	0.00069244	0.02316	---
ENSDARG00000007436	91.20592333	55.68873416	0.71174	0.0017599	0.046295	avpr2aa
ENSDARG00000007553	301.1733622	429.2594329	-0.51126	0.00023532	0.0099319	---
ENSDARG00000007671	586.4435009	967.3027751	-0.72198	3.03E-05	0.0019323	---
ENSDARG00000007682	1924.374876	2495.63928	-0.37502	0.00171	0.045431	---
ENSDARG00000007906	342.8963094	552.9961712	-0.6895	3.90E-07	4.54E-05	---
ENSDARG00000007923	880.8872123	1160.135447	-0.39726	0.00040456	0.015295	---
ENSDARG00000008170	295.1597445	207.2505199	0.51012	0.00066942	0.022627	dbnla
ENSDARG00000008275	2618.425384	1673.615615	0.64573	1.33E-10	3.80E-08	klhl24b
ENSDARG00000008287	329.3264418	235.0249914	0.4867	0.0008564	0.026896	---
ENSDARG00000008403	251.4576107	170.8184019	0.55785	0.00047167	0.017199	phosphol
ENSDARG00000008413	1815.646585	1444.429355	0.32998	0.0013983	0.03883	atp11a
ENSDARG00000008434	647.4435438	855.7477344	-0.40243	0.0006806	0.022884	bcl2l1
ENSDARG00000008697	1944.047719	1268.892629	0.61549	4.33E-09	8.79E-07	epas1a
ENSDARG00000009153	506.1026354	776.7883752	-0.61809	9.59E-07	0.00010049	---
ENSDARG00000009208	523.6365968	381.4769022	0.45697	0.00032126	0.01283	---
ENSDARG00000009280	3691.388759	4935.069071	-0.41891	2.27E-05	0.0015166	smyd1a
ENSDARG00000009459	112.6504437	219.1830812	-0.96028	3.59E-08	5.33E-06	---
ENSDARG00000010250	1444.555559	1049.33533	0.46115	1.87E-05	0.0012982	---
ENSDARG00000010316	343.1763705	466.9484981	-0.44431	0.00057572	0.02012	---
ENSDARG00000010420	5035.562434	3829.917505	0.39484	2.89E-05	0.0018562	ndrg1b
ENSDARG00000010472	2445.757846	1681.796715	0.54028	3.52E-06	0.00030799	---

ENSDARG00000010555	91.56209468	140.3620076	-0.61633	0.0012114	0.034919	pdha1b
ENSDARG00000010933	226.2924924	340.4558113	-0.58928	2.85E-05	0.001844	---
ENSDARG00000010936	1234.014949	1668.075481	-0.43482	4.12E-05	0.0024829	---
ENSDARG00000011072	102.9500358	191.7092246	-0.89698	5.80E-07	6.54E-05	ddx11
ENSDARG00000011208	314.3314485	449.264871	-0.51528	8.03E-05	0.0043208	---
ENSDARG00000011245	1069.935845	746.7788997	0.51877	0.00066069	0.022403	---
ENSDARG00000011445	392.3187461	228.0779631	0.7825	1.95E-08	3.17E-06	---
ENSDARG00000011665	9914.962011	7913.000701	0.32538	0.0006352	0.021747	---
ENSDARG00000011696	42.03519035	87.1270791	-1.0515	3.53E-05	0.0021829	---
ENSDARG00000011862	275.4270289	486.9213994	-0.82202	7.11E-10	1.67E-07	inaa
ENSDARG00000011948	1826.864597	1459.684143	0.32371	0.0015294	0.041681	insra
ENSDARG00000012274	387.233859	570.2196279	-0.55831	4.67E-06	0.00038804	---
ENSDARG00000012504	362.5422109	516.0767789	-0.50944	8.71E-05	0.0046037	---
ENSDARG00000012609	301.7026947	79.71901561	1.9201	3.56E-11	1.26E-08	---
ENSDARG00000012829	294.6445015	447.6437031	-0.60338	0.0014389	0.03975	asah2
ENSDARG00000012881	908.7585783	1276.579973	-0.49031	0.00068528	0.022991	---
ENSDARG00000012944	60408.54817	74951.59381	-0.31121	0.0017762	0.04666	myhz2
ENSDARG00000013031	1584.157059	2114.285055	-0.41645	4.53E-05	0.0026871	mta2
ENSDARG00000013221	283.7447298	540.4078992	-0.92946	6.07E-08	8.53E-06	---
ENSDARG00000013236	201.0171691	133.0989419	0.59482	0.00060327	0.02081	---
ENSDARG00000013310	545.3678677	311.4215832	0.80836	9.04E-09	1.63E-06	map3k15
ENSDARG00000013478	313.3073017	440.4140501	-0.49128	0.00016729	0.0077585	rrp15
ENSDARG00000013575	592.6158138	811.7623333	-0.45396	0.0001039	0.0052873	rfx2
ENSDARG00000013777	831.207665	620.0194631	0.4229	0.00026802	0.010964	---
ENSDARG00000013856	11382.66827	16712.66991	-0.5541	2.24E-05	0.0015024	---
ENSDARG00000013997	493.635197	924.7384426	-0.9056	5.70E-06	0.00046601	---

ENSDARG00000014233	243.3497513	366.3022002	-0.59	2.88E-05	0.0018532	---
ENSDARG00000014646	4581.730939	3416.291681	0.42346	2.14E-05	0.0014561	aoc2
ENSDARG00000014790	1082.708468	820.8731918	0.39941	0.00028997	0.011756	---
ENSDARG00000014840	1856.678893	2590.358776	-0.48043	1.59E-06	0.00015702	prph2b
ENSDARG00000014946	26.42037005	53.3538777	-1.0139	0.0010778	0.032052	angpt2a
ENSDARG00000014954	158.7171019	102.588936	0.62958	0.00089415	0.027862	snx33
ENSDARG00000015064	77.15114536	133.3789477	-0.78977	0.00013628	0.0065987	---
ENSDARG00000015184	438.5347331	729.6500866	-0.73451	1.18E-09	2.68E-07	---
ENSDARG00000015228	98.58949708	51.30640235	0.9423	8.91E-05	0.0046833	---
ENSDARG00000015404	145.1085864	220.2336113	-0.6019	0.00021518	0.009241	---
ENSDARG00000015495	1129.025456	1424.571054	-0.33545	0.001358	0.038042	---
ENSDARG00000015540	646.0861864	475.9985669	0.44077	0.00034902	0.013614	---
ENSDARG00000015709	945.2245834	1415.716973	-0.5828	4.13E-05	0.0024879	hsd17b12a
ENSDARG00000015793	239.629522	344.0765064	-0.52192	0.00019496	0.0085893	creb3l1
ENSDARG00000015803	135.4563539	270.0330275	-0.99531	3.62E-06	0.00031494	---
ENSDARG00000015805	1185.223205	769.4065731	0.62334	3.96E-08	5.77E-06	cgnl1
ENSDARG00000015822	640.9347522	834.2906202	-0.38037	0.0011946	0.034667	---
ENSDARG00000015853	241.6379095	461.2403978	-0.93267	9.82E-06	0.0007404	---
ENSDARG00000015907	273.6432894	194.4354324	0.49301	0.0016289	0.043786	---
ENSDARG00000016290	90.03538402	145.895813	-0.69637	0.00075248	0.02464	---
ENSDARG00000016319	1403.820061	1988.183349	-0.50209	1.25E-06	0.00012737	---
ENSDARG00000016360	857.4424752	1089.57761	-0.34566	0.0014519	0.039903	kpna1
ENSDARG00000016391	560.607472	934.0346699	-0.73649	0.0014491	0.039903	calcoco1b
ENSDARG00000016439	580.2378832	401.1339834	0.53256	6.38E-05	0.0035917	slc7a1
ENSDARG00000016477	917.7773985	1167.329924	-0.347	0.0015936	0.043006	---
ENSDARG00000016484	668.9619129	915.8200596	-0.45314	3.54E-05	0.002183	---



ENSDARG00000016536	989.3855139	1487.533496	-0.58832	3.66E-08	5.38E-06	npas2
ENSDARG00000016649	241.9192468	359.0091765	-0.5695	4.56E-05	0.0026898	---
ENSDARG00000016789	63.13382087	27.07187252	1.2216	0.0012234	0.0352	---
ENSDARG00000016964	145.2324138	93.9239164	0.6288	0.00088766	0.027687	MCUR1
ENSDARG00000017034	824.9010099	362.602508	1.1858	1.02E-10	3.03E-08	---
ENSDARG00000017036	957.7775477	1273.90829	-0.4115	0.00015694	0.0074185	---
ENSDARG00000017047	275.0515694	378.6030888	-0.46098	0.00074809	0.024558	slc27a4
ENSDARG00000017155	55.14438314	26.40833189	1.0622	0.00096419	0.029412	---
ENSDARG00000017274	6133.1467	8028.475554	-0.3885	5.75E-05	0.0032917	---
ENSDARG00000017314	9840.968125	12521.34318	-0.34752	0.0017443	0.046073	---
ENSDARG00000017490	2102.552871	3046.068655	-0.53481	1.46E-06	0.00014538	---
ENSDARG00000017665	637.8536739	846.0951118	-0.40759	0.0004141	0.0156	---
ENSDARG00000017741	1333.59501	1807.472226	-0.43865	1.77E-05	0.001237	g3bp1
ENSDARG00000017780	2496.393377	3447.277804	-0.46561	4.02E-06	0.0003437	---
ENSDARG00000017834	137.4885469	85.28059691	0.68902	0.00055887	0.019661	---
ENSDARG00000018146	964.3096611	696.2198137	0.46995	5.62E-05	0.0032595	---
ENSDARG00000018179	753.2132659	574.5620209	0.3906	0.0011703	0.034102	---
ENSDARG00000018263	716.9971356	1160.682167	-0.69493	1.92E-10	5.33E-08	---
ENSDARG00000018524	2801.078759	4162.016484	-0.5713	6.10E-07	6.83E-05	midn
ENSDARG00000018621	384.5750312	833.113779	-1.1152	2.48E-05	0.0016406	---
ENSDARG00000018814	1318.918061	825.9565903	0.67522	6.68E-10	1.58E-07	---
ENSDARG00000019236	527.6809138	349.7001723	0.59355	1.98E-06	0.00018998	---
ENSDARG00000019360	1462.431038	2219.297023	-0.60173	3.24E-09	6.76E-07	---
ENSDARG00000019365	102.0768437	57.60814207	0.82531	0.00038737	0.014714	---
ENSDARG00000019418	107.871631	65.84513123	0.71217	0.0017572	0.04626	kenj2a
ENSDARG00000019564	666.0039066	442.1433238	0.59102	1.85E-06	0.00018009	---

ENSDARG00000019728	1151.887344	877.653273	0.39228	0.00036264	0.013958	---
ENSDARG00000019838	310.6421443	448.2093605	-0.52892	0.00011772	0.0058147	ugdh
ENSDARG00000020084	298.5335095	154.9476248	0.94611	0.00066853	0.022621	tg
ENSDARG00000020224	48.60191795	20.96635399	1.2129	0.00015564	0.0073681	ERGIC2 (1 of many)
ENSDARG00000020326	332.4584963	244.8773032	0.44112	0.0016317	0.043826	---
ENSDARG00000020377	1257.520361	1663.107311	-0.4033	0.00011218	0.0056192	---
ENSDARG00000020811	262.8800422	173.4816647	0.59962	0.0001169	0.0057918	---
ENSDARG00000020952	244.3504344	357.2033006	-0.54779	0.0001753	0.0079891	---
ENSDARG00000020956	3543.782511	2314.684538	0.61447	4.74E-10	1.16E-07	pck2
ENSDARG00000021021	603.5072167	397.2567322	0.6033	1.96E-06	0.00018936	---
ENSDARG00000021149	1000.56373	580.9334356	0.78437	7.23E-12	3.04E-09	cbr11
ENSDARG00000021242	1434.821799	1089.368608	0.39738	0.00015	0.0071437	mvp
ENSDARG00000021250	525.8316517	686.0694947	-0.38375	0.00082054	0.026182	---
ENSDARG00000021345	44.76864576	79.70512765	-0.83218	0.0010627	0.031751	prph21
ENSDARG00000021787	2302.99902	987.1479924	1.2222	5.52E-23	1.47E-19	abcb5
ENSDARG00000021987	5929.771738	4465.016498	0.40931	2.65E-05	0.0017374	plecb
ENSDARG00000022165	989.5434091	741.7408549	0.41585	0.00033675	0.013228	---
ENSDARG00000022203	675.766865	925.2995007	-0.45339	9.30E-05	0.004847	---
ENSDARG00000022232	250.3602543	346.7627621	-0.46994	0.00077729	0.025205	---
ENSDARG00000022295	139.6441538	91.26804215	0.61357	0.001525	0.041681	hnf1bb
ENSDARG00000022525	54.79314133	9.817145074	2.4806	3.69E-11	1.29E-08	---
ENSDARG00000023026	96.25333906	156.9725196	-0.7056	0.00021985	0.0094163	---
ENSDARG00000023082	2243.080426	1571.890342	0.51298	2.49E-06	0.00023553	---
ENSDARG00000023220	1820.933305	1438.090703	0.34052	0.0011444	0.033562	selt2
ENSDARG00000023495	753.3075415	541.1428354	0.47723	6.52E-05	0.0036512	---
ENSDARG00000023886	281.9863666	385.8231868	-0.45231	0.0007898	0.025507	cacna2d4b

ENSDARG00000024116	628.8677016	452.256547	0.47562	8.12E-05	0.0043483	vamp8
ENSDARG00000024325	361.4992162	203.5289103	0.82876	8.34E-09	1.54E-06	col4a3bpa
ENSDARG00000024561	668.0369445	889.5649924	-0.41317	0.00093139	0.028659	---
ENSDARG00000024602	116.0362143	72.4743992	0.67903	0.0016164	0.043524	---
ENSDARG00000025094	1013.823831	749.1847371	0.43641	0.00011657	0.0057865	---
ENSDARG00000025254	2865.864057	2162.399547	0.40634	5.63E-05	0.0032595	---
ENSDARG00000026229	467.1411859	692.3421301	-0.56763	0.00058426	0.020319	prnpa
ENSDARG00000026294	501.9470162	366.4610837	0.45388	0.00038128	0.014501	erbb2
ENSDARG00000026629	801.6046777	528.9129189	0.59986	3.76E-07	4.41E-05	---
ENSDARG00000026655	746.6609595	573.1214456	0.38161	0.0011108	0.032847	---
ENSDARG00000026820	463.9770298	796.0645361	-0.77883	4.41E-11	1.48E-08	gc3
ENSDARG00000026865	1509.658115	1894.743467	-0.32778	0.0013612	0.0381	fam107b
ENSDARG00000026979	281.6597739	197.6039843	0.51134	0.00081913	0.026164	---
ENSDARG00000027088	6991.712085	4521.071932	0.62898	3.34E-08	5.03E-06	---
ENSDARG00000027310	584.1196636	760.2312797	-0.38017	0.0011518	0.033687	---
ENSDARG00000027495	583.2496589	796.821831	-0.45014	6.57E-05	0.0036691	---
ENSDARG00000027529	202.2860879	545.6890601	-1.4317	4.63E-12	2.02E-09	---
ENSDARG00000027611	967.7841751	675.7902278	0.51811	0.0012329	0.035377	cavin2a
ENSDARG00000028027	1881.669906	3716.947845	-0.9821	9.93E-05	0.0051012	---
ENSDARG00000028067	1985.169028	1337.522136	0.5697	1.85E-08	3.05E-06	bnip3lb
ENSDARG00000028275	782.6715503	507.9758843	0.62365	3.78E-07	4.41E-05	---
ENSDARG00000028517	2638.02556	1949.615632	0.43627	0.00011744	0.0058097	---
ENSDARG00000028804	642.1804062	882.8877606	-0.45925	0.0015803	0.042768	ankrd9
ENSDARG00000029039	58.29324761	21.97196276	1.4077	1.17E-05	0.00086526	---
ENSDARG00000029072	1927.150409	2508.982772	-0.38063	0.00020146	0.008759	---
ENSDARG00000029232	55.78107376	24.70684747	1.1749	0.00013962	0.0067298	---

ENSDARG00000029356	124.3073388	231.2495573	-0.89554	7.82E-08	1.07E-05	---
ENSDARG00000029524	825.0274964	1066.133158	-0.36987	0.00082194	0.0262	impdh1b
ENSDARG00000029710	108.1031494	182.0587841	-0.752	0.00012219	0.0059984	---
ENSDARG00000029718	91.24048515	163.3812608	-0.8405	1.16E-05	0.0008623	---
ENSDARG00000029822	2027.869415	3220.639893	-0.66738	1.02E-08	1.80E-06	---
ENSDARG00000030006	348.7411848	228.2047266	0.61183	1.46E-05	0.0010428	---
ENSDARG00000030104	177.9505128	111.8753798	0.66958	0.00025001	0.010374	sh3bp4
ENSDARG00000030494	169.4424822	343.9428089	-1.0214	2.21E-11	8.59E-09	---
ENSDARG00000030508	39.47652061	140.1445232	-1.8278	1.71E-15	1.24E-12	CCDC134 (1 of many)
ENSDARG00000030604	366.083479	267.5659814	0.45228	0.00099694	0.030152	phkg1a
ENSDARG00000030687	2469.2875	1718.884449	0.52262	1.45E-06	0.00014459	phka2
ENSDARG00000030722	692.0583357	1236.205151	-0.83695	3.20E-06	0.00028432	---
ENSDARG00000031336	663.4260203	469.060016	0.50016	2.30E-05	0.0015369	hsd20b2
ENSDARG00000031382	435.5462331	591.0533754	-0.44046	0.00035925	0.013894	---
ENSDARG00000031438	464.6009787	310.7528114	0.58022	1.91E-05	0.0013193	kcnj11l
ENSDARG00000031588	2644.354203	781.6764796	1.7583	1.14E-10	3.35E-08	si:dkey-239b22.1
ENSDARG00000031658	172.5024856	104.8434781	0.71838	0.00070111	0.023306	---
ENSDARG00000031702	1526.146523	1195.221192	0.35262	0.00069378	0.02318	---
ENSDARG00000031915	803.8149602	538.8637637	0.57694	1.04E-06	0.00010752	---
ENSDARG00000031981	582.4229984	388.8962347	0.58268	6.07E-06	0.00049573	pcbd1
ENSDARG00000032010	371.0079211	257.5899461	0.52637	0.00020409	0.008848	---
ENSDARG00000032482	547.1186979	403.2235506	0.44027	0.00057124	0.019986	---
ENSDARG00000032553	667.1008675	413.1405659	0.69127	1.73E-07	2.20E-05	egln3
ENSDARG00000032650	366.5828374	261.7834342	0.48577	0.00046772	0.017076	---
ENSDARG00000033170	570.0751135	377.6560943	0.59408	2.55E-06	0.00023763	sult2st1
ENSDARG00000033802	773.9867395	566.7144474	0.44969	0.00018079	0.0081618	---

ENSDARG00000034598	12.81841884	0	Inf		6.15E-07	6.86E-05	---
ENSDARG00000034605	29.99245584	72.88549926		-1.281	3.34E-06	0.00029326	---
ENSDARG00000034717	105.2565974	59.43920843		0.82442	0.00024852	0.010325	def6c
ENSDARG00000034852	577.152253	783.7746992		-0.44149	9.80E-05	0.0050516	---
ENSDARG00000035018	198.4395978	108.4224781		0.87204	1.52E-06	0.00015149	---
ENSDARG00000035178	230.4568479	99.54778622		1.211	6.98E-12	2.97E-09	gna14
ENSDARG00000035309	558.7480894	383.7881027		0.54189	5.74E-05	0.0032917	---
ENSDARG00000035438	1147.463372	595.8222642		0.94549	0.00044407	0.016514	myhc4
ENSDARG00000035563	990.3197382	749.64685		0.40168	0.00024696	0.010287	---
ENSDARG00000035569	305.4327294	167.4338779		0.86726	1.68E-07	2.18E-05	---
ENSDARG00000035655	618.7021284	826.2257416		-0.41729	0.00030637	0.012294	---
ENSDARG00000035810	1880.976205	2581.804302		-0.4569	9.92E-06	0.0007448	---
ENSDARG00000035835	4685.272449	2528.211665		0.89002	1.14E-19	1.40E-16	---
ENSDARG00000035890	1134.061495	840.0421206		0.43297	7.43E-05	0.0040536	---
ENSDARG00000035909	703.4915068	1627.552639		-1.2101	0.00019974	0.0087254	mfsc2ab
ENSDARG00000036086	279.720949	196.8916018		0.50659	0.0011916	0.034627	---
ENSDARG00000036135	959.603743	741.2236115		0.37253	0.0011951	0.034667	---
ENSDARG00000036168	337.0702908	568.9826467		-0.75534	2.60E-09	5.54E-07	---
ENSDARG00000036282	826.9573057	609.298327		0.44066	0.00075291	0.02464	rnaset2
ENSDARG00000036386	450.6881039	633.1206345		-0.49035	9.31E-05	0.004847	---
ENSDARG00000036569	73.62019456	129.5062668		-0.81485	0.00012908	0.0062978	bach2a
ENSDARG00000036767	649.0959588	260.5371086		1.3169	8.49E-21	1.51E-17	---
ENSDARG00000036848	5020.383611	3699.558457		0.44044	0.00013397	0.0064967	---
ENSDARG00000036943	513.5244704	282.4163992		0.86261	6.01E-11	1.94E-08	---
ENSDARG00000037070	158.8997356	104.3885321		0.60615	0.0011129	0.032857	tmem242
ENSDARG00000037079	504.1071137	670.1207825		-0.41069	0.00055426	0.019542	---

ENSDARG00000037091	232.2743504	161.2052923	0.52693	0.0013336	0.037623	---
ENSDARG00000037158	165.0395514	231.4581364	-0.48794	0.0016466	0.044151	rcc1
ENSDARG00000037476	547.5756376	373.25683	0.55289	1.88E-05	0.001299	---
ENSDARG00000037478	691.112337	911.8080511	-0.39981	0.00053734	0.019093	cdh8
ENSDARG00000037706	197.6149752	293.6977911	-0.57164	0.00017504	0.0079891	---
ENSDARG00000037852	248.6336686	167.1510603	0.57287	0.0001936	0.0085559	zgc:101663
ENSDARG00000037871	1381.353088	1083.28828	0.35066	0.00068421	0.022981	---
ENSDARG00000037910	1007.764382	1335.790015	-0.40653	0.00018697	0.0083441	---
ENSDARG00000037960	645.3605989	467.7314136	0.46443	0.00015105	0.0071829	---
ENSDARG00000038018	2032.443691	2687.827426	-0.40323	5.36E-05	0.0031247	---
ENSDARG00000038107	728.9390839	941.9826965	-0.3699	0.00084525	0.02665	---
ENSDARG00000038248	161.5201391	38.13990228	2.0823	2.16E-14	1.38E-11	ggact.2
ENSDARG00000038359	737.073693	540.3992112	0.44778	0.00017296	0.0079408	---
ENSDARG00000038422	380.0662953	575.2444611	-0.59792	8.88E-05	0.0046803	---
ENSDARG00000038583	910.1853566	1418.880796	-0.64052	8.43E-05	0.0044974	---
ENSDARG00000038639	267.0969996	394.4187554	-0.56236	0.00085065	0.026794	elov16l
ENSDARG00000038703	85.03775905	148.0127437	-0.79955	0.00048538	0.017517	hkdc1
ENSDARG00000038785	527.898487	821.2091908	-0.63749	5.79E-08	8.18E-06	abcf2a
ENSDARG00000038822	276.3779392	190.2299966	0.5389	0.0005406	0.019166	mrc1b
ENSDARG00000038881	545.4323769	940.0691628	-0.78537	2.20E-06	0.00020968	aca2
ENSDARG00000039069	153.7153461	58.58879107	1.3916	6.13E-06	0.00049931	slx4ip
ENSDARG00000039117	1040.791699	764.0021858	0.44603	4.40E-05	0.002626	---
ENSDARG00000039123	594.9058971	830.2566474	-0.4809	4.56E-05	0.0026898	---
ENSDARG00000039196	333.0322499	246.2074157	0.43579	0.0015001	0.041087	greb11
ENSDARG00000039265	180.9118319	77.6988927	1.2193	2.82E-10	7.37E-08	arhgap4a
ENSDARG00000039381	152.1232291	50.48029506	1.5914	1.44E-13	7.71E-11	---

ENSDARG00000039406	381.843893	244.1328142	0.64532	2.45E-06	0.00023216	prom2
ENSDARG00000039459	533.7261402	820.7754902	-0.62089	4.87E-07	5.56E-05	qsox1
ENSDARG00000039535	69.43443252	16.25193482	2.095	3.42E-11	1.23E-08	---
ENSDARG00000039577	464.7243926	310.5318612	0.58163	9.50E-06	0.00071996	ptk2bb
ENSDARG00000039579	2430.572795	1711.317695	0.50619	7.75E-07	8.47E-05	cfb
ENSDARG00000039677	1872.467557	3266.704288	-0.8029	1.26E-05	0.00091516	---
ENSDARG00000039730	9527.244845	13137.52857	-0.46356	4.54E-05	0.0026889	---
ENSDARG00000039752	22.38761841	76.77055366	-1.7779	1.13E-09	2.62E-07	si:ch73-308m11.1
ENSDARG00000039901	156.8708285	230.009516	-0.55212	0.00091849	0.028399	---
ENSDARG00000039931	1205.410733	2198.248729	-0.86683	0.00018012	0.0081521	slc25a33
ENSDARG00000040190	1030.488176	734.1491923	0.48918	0.0002093	0.0090272	---
ENSDARG00000040192	236.2631201	166.5448279	0.50448	0.0014444	0.039869	---
ENSDARG00000040200	15.80401824	0	Inf	1.57E-08	2.61E-06	---
ENSDARG00000040252	268.466739	156.7721784	0.77607	5.97E-07	6.71E-05	atp1a1a.5
ENSDARG00000040258	67.8521925	19.58523541	1.7926	5.29E-09	1.04E-06	si:ch73-340m8.2
ENSDARG00000040274	603.6545243	826.9446078	-0.45407	7.53E-05	0.0040859	scamp5b
ENSDARG00000040277	1616.45881	2628.881897	-0.70161	0.00037218	0.014256	---
ENSDARG00000040278	548.3401777	1318.48371	-1.2657	2.64E-06	0.000242	---
ENSDARG00000040334	2277.170527	3335.240638	-0.55055	2.73E-08	4.21E-06	---
ENSDARG00000040465	432.1785921	297.0812286	0.54077	4.71E-05	0.002764	---
ENSDARG00000040466	2139.880855	2834.751209	-0.40569	0.00091434	0.028325	vil1
ENSDARG00000040482	269.2876802	182.7796195	0.55904	0.00016958	0.0078206	---
ENSDARG00000040485	41.35239941	138.4291374	-1.7431	0.00012817	0.0062629	---
ENSDARG00000040628	647.9636819	405.8740054	0.67488	3.20E-07	3.86E-05	---
ENSDARG00000040666	244.4059101	375.3813644	-0.61908	7.61E-06	0.00060114	---
ENSDARG00000040700	100.9112697	155.4991501	-0.62382	0.00081638	0.026127	---

ENSDARG00000040930	997.87633	766.0398888	0.38144	0.0005047	0.018109	deptor
ENSDARG00000040971	2688.684511	2020.670761	0.41207	2.82E-05	0.0018272	GABARAPL1
ENSDARG00000041133	235.637968	151.5279384	0.63699	4.23E-05	0.0025388	rap5n
ENSDARG00000041140	319.7663026	228.2042898	0.48669	0.00059018	0.020425	ddb2
ENSDARG00000041381	253.6263371	376.0307864	-0.56815	3.41E-05	0.0021165	arntl2
ENSDARG00000041382	370.417295	561.6466575	-0.60051	2.63E-06	0.000242	si:dkey-283b15.2
ENSDARG00000041645	457.3152815	716.1324024	-0.64704	1.30E-05	0.00093198	---
ENSDARG00000041828	57.36087137	13.07057041	2.1337	9.56E-09	1.70E-06	si:dkeyp-28d2.4
ENSDARG00000041848	46.09507818	106.9120038	-1.2137	1.87E-07	2.36E-05	rh50
ENSDARG00000041947	447.0337124	170.6558352	1.3893	4.28E-22	1.05E-18	---
ENSDARG00000042010	2388.601387	3837.507483	-0.684	2.32E-12	1.06E-09	---
ENSDARG00000042055	740.5724886	492.0844714	0.58973	2.24E-05	0.0015024	---
ENSDARG00000042107	299.4392614	411.0064697	-0.4569	0.00064759	0.0221	---
ENSDARG00000042188	204.8298872	293.3114223	-0.51801	0.00038926	0.014769	ttc38
ENSDARG00000042529	6152.759433	8940.602203	-0.53914	1.76E-06	0.00017162	---
ENSDARG00000042535	4771.466937	3227.901683	0.56384	8.18E-08	1.11E-05	---
ENSDARG00000042548	167.1490938	242.5912931	-0.53739	0.00089937	0.027943	---
ENSDARG00000042667	1387.250067	2588.56471	-0.89992	0.00041598	0.015652	klf2a
ENSDARG00000042698	11.96046454	1.650263241	2.8575	0.00076689	0.024969	---
ENSDARG00000042737	61.5646914	126.5176376	-1.0392	0.00044965	0.016683	---
ENSDARG00000042824	3374.233927	2423.656234	0.47737	2.52E-06	0.00023652	---
ENSDARG00000042940	190.5645495	274.1201438	-0.52453	0.00051564	0.018445	---
ENSDARG00000042961	284.8938179	186.3718555	0.61224	9.00E-05	0.0047133	zgc:100920
ENSDARG00000042988	347.9572658	508.1260798	-0.54628	2.88E-05	0.0018532	slc24a2
ENSDARG00000042993	22881.1416	32591.02268	-0.51032	1.02E-05	0.00076301	---
ENSDARG00000043085	8.159275973	0.28803082	4.8241	0.00057786	0.020164	alox5b.1



ENSDARG00000043093	396.4423609	106.1976833	1.9004	1.44E-31	9.16E-28	---
ENSDARG00000043126	53.49139374	97.51377311	-0.8663	0.00018555	0.0083038	---
ENSDARG00000043141	136.2933138	287.8527426	-1.0786	2.20E-11	8.59E-09	---
ENSDARG00000043148	1452.173964	1822.230644	-0.32749	0.0016592	0.044453	slc1a3b
ENSDARG00000043154	6962.203267	5408.543343	0.3643	0.00015422	0.0073227	ucp3
ENSDARG00000043168	112.1811578	218.6335094	-0.96268	0.0012753	0.036364	---
ENSDARG00000043171	387.7369257	605.9699889	-0.64417	2.44E-07	2.99E-05	---
ENSDARG00000043173	377.5107697	757.5101169	-1.0047	0.00067444	0.022748	---
ENSDARG00000043175	30.21249831	67.46587559	-1.159	3.92E-05	0.0023804	---
ENSDARG00000043237	706.0624065	1147.527894	-0.70066	0.001709	0.045431	---
ENSDARG00000043279	687.2436237	930.8884032	-0.43779	7.91E-05	0.0042611	aqp12
ENSDARG00000043304	394.4257924	550.7340365	-0.4816	0.00013066	0.0063652	---
ENSDARG00000043587	598.7814641	409.7054593	0.54744	8.04E-06	0.00062868	---
ENSDARG00000043713	256.4458067	353.0868538	-0.46137	0.001109	0.03283	asf1bb
ENSDARG00000043722	2255.188967	4107.341951	-0.86496	9.05E-09	1.63E-06	---
ENSDARG00000043729	744.8486012	1395.245593	-0.9055	0.00071905	0.023875	---
ENSDARG00000043818	458.6535841	298.0851077	0.62168	0.00056353	0.01976	---
ENSDARG00000043976	1938.244956	2403.619868	-0.31046	0.001922	0.0499	etf1b
ENSDARG00000044011	427.8204868	301.8841977	0.50301	0.00023157	0.0098127	xkrx
ENSDARG00000044034	272.5508535	183.5115245	0.57065	0.00015448	0.0073241	tmem86a
ENSDARG00000044125	865.1699277	469.5030143	0.88185	1.07E-13	6.09E-11	---
ENSDARG00000044365	612.6539848	400.9075959	0.6118	8.32E-07	8.95E-05	---
ENSDARG00000044485	242.1483316	171.8181655	0.49501	0.001342	0.037811	---
ENSDARG00000044526	742.1465208	984.9522662	-0.40835	0.00019001	0.0084206	camk1ga
ENSDARG00000044541	704.7401674	894.9600552	-0.34473	0.0016797	0.044924	---
ENSDARG00000044626	192.6214452	100.04311	0.94515	8.04E-08	1.10E-05	---

ENSDARG00000044935	3096.450111	1941.808003	0.67321	4.87E-11	1.62E-08	---
ENSDARG00000045262	682.3754395	202.5419592	1.7523	1.87E-08	3.05E-06	---
ENSDARG00000045299	169.7887676	245.7116662	-0.53323	0.00079539	0.025636	vmo1b
ENSDARG00000045442	6686.233744	9354.615753	-0.48448	0.00067831	0.022831	---
ENSDARG00000045486	387.1874346	251.2704135	0.62379	8.94E-06	0.00068399	pawr
ENSDARG00000045522	454.4678591	711.9180455	-0.64753	3.84E-08	5.62E-06	---
ENSDARG00000045553	138.6858089	69.6012534	0.99463	9.05E-06	0.00068926	hsl17b2
ENSDARG00000045638	204.2910374	354.312548	-0.7944	0.00036017	0.013913	slc13a1
ENSDARG00000045677	28462.74911	38521.79259	-0.4366	3.21E-06	0.00028432	---
ENSDARG00000045708	122.9912326	60.01570915	1.0351	7.87E-07	8.57E-05	---
ENSDARG00000045737	41.84352316	15.24979413	1.4562	8.55E-05	0.0045466	---
ENSDARG00000045824	237.0696937	164.3833993	0.52825	0.00090291	0.028025	---
ENSDARG00000045863	9.520243376	38.26904514	-2.0071	1.40E-06	0.00013998	asb15b
ENSDARG00000045947	2837.817605	2190.348457	0.37362	0.00028737	0.011666	---
ENSDARG00000046014	119.2776392	193.675523	-0.69932	8.97E-05	0.0047079	---
ENSDARG00000046090	230.4667159	150.1607056	0.61805	0.0001707	0.0078481	---
ENSDARG00000046140	37.13295485	13.43261573	1.467	0.00025795	0.010662	---
ENSDARG00000051914	191.6359552	111.5584821	0.78057	1.17E-05	0.00086394	slc14a2
ENSDARG00000051916	257.7734245	181.2278892	0.5083	0.0013549	0.038023	---
ENSDARG00000051925	195.3907015	112.79439	0.79267	4.50E-06	0.00037766	cyb5r2
ENSDARG00000051956	1122.607769	884.5217321	0.34388	0.0015894	0.042943	---
ENSDARG00000052045	287.890102	179.1363551	0.68446	8.64E-05	0.0045811	ggt5a
ENSDARG00000052138	179.529879	277.7581949	-0.62961	4.06E-05	0.0024537	---
ENSDARG00000052215	147.3370087	87.56379087	0.75071	0.00013831	0.0066765	---
ENSDARG00000052223	475.7856605	779.8223603	-0.71283	9.00E-10	2.10E-07	---
ENSDARG00000052348	1191.59876	1547.075315	-0.37664	0.00022362	0.0095159	smarca5

ENSDARG00000052387	85.66042404	45.89459303	0.9003	0.00033334	0.013144	---
ENSDARG00000052413	379.6290663	113.5284614	1.7415	2.33E-28	1.24E-24	---
ENSDARG00000052578	3117.90917	4606.627055	-0.56313	3.41E-07	4.07E-05	c6ast4
ENSDARG00000052641	1314.234585	1758.794393	-0.42036	5.46E-05	0.0031761	---
ENSDARG00000052654	395.5162248	257.7405806	0.61782	3.03E-05	0.0019323	---
ENSDARG00000052734	933.6890809	382.5652068	1.2872	1.20E-08	2.10E-06	hmgcra
ENSDARG00000052779	316.1510158	104.1886277	1.6014	2.40E-10	6.48E-08	---
ENSDARG00000052905	1081.893616	550.568219	0.97457	2.23E-11	8.59E-09	---
ENSDARG00000053003	204.4194256	302.6391267	-0.56607	0.00023759	0.0099907	---
ENSDARG00000053526	84.2275129	180.8921075	-1.1028	3.37E-07	4.04E-05	---
ENSDARG00000053625	212.8390981	304.7052575	-0.51765	0.00078066	0.025263	anxa2b
ENSDARG00000053761	117.3790789	21.966102	2.4178	8.78E-20	1.12E-16	si:dkey-187j14.4
ENSDARG00000053773	139.2015728	280.8948353	-1.0129	1.51E-08	2.53E-06	vgl12b
ENSDARG00000054031	510.7890844	328.5122116	0.63678	3.00E-05	0.0019173	---
ENSDARG00000054060	1063.977954	773.2977323	0.46037	4.00E-05	0.0024235	pof1b
ENSDARG00000054087	732.9196369	966.9161623	-0.39974	0.00044488	0.016525	irs1
ENSDARG00000054122	414.1572779	249.0640658	0.73366	9.43E-08	1.26E-05	---
ENSDARG00000054160	21.08834007	1.81913199	3.5351	1.62E-07	2.11E-05	---
ENSDARG00000054515	199.1930845	115.9837794	0.78024	1.22E-05	0.00089065	---
ENSDARG00000054848	3755.491754	1943.633601	0.95025	3.18E-21	5.97E-18	pdk4
ENSDARG00000055046	349.9224459	241.418115	0.5355	0.00016069	0.0075737	---
ENSDARG00000055092	1495.939089	1144.484959	0.38635	0.00024693	0.010287	---
ENSDARG00000055093	406.0519234	300.3350907	0.43509	0.0010406	0.031295	---
ENSDARG00000055118	748.5594213	425.3910959	0.81533	2.12E-08	3.44E-06	mylipb
ENSDARG00000055226	260.7088823	398.8648947	-0.61346	1.22E-05	0.00089065	---
ENSDARG00000055270	24.61806966	76.86692241	-1.6426	7.66E-09	1.43E-06	si:ch1073-358c10.1

ENSDARG00000055388	297.3453793	421.7658462	-0.5043	0.00017513	0.0079891	---
ENSDARG00000055504	984.7358882	698.604807	0.49526	1.26E-05	0.00091516	---
ENSDARG00000055540	605.694943	449.529033	0.43018	0.00046566	0.017039	---
ENSDARG00000055632	398.6827172	570.1493188	-0.5161	0.0013449	0.037842	---
ENSDARG00000055642	588.1207527	296.7081248	0.98707	5.05E-15	3.43E-12	GPT (1 of many)
ENSDARG00000055644	174.6757652	77.23831219	1.1773	9.59E-05	0.0049673	---
ENSDARG00000055754	311.2989308	423.3290673	-0.44348	0.00097158	0.029538	---
ENSDARG00000055784	851.3158849	639.5543444	0.41263	0.00032306	0.012869	---
ENSDARG00000055854	439.1280252	1647.733181	-1.9078	4.37E-16	3.49E-13	nr4a3
ENSDARG00000056026	409.4824568	287.5670866	0.5099	0.00026223	0.010801	---
ENSDARG00000056141	2046.408835	2785.895144	-0.44505	9.56E-06	0.00072277	coq10b
ENSDARG00000056259	2260.469437	1806.472079	0.32345	0.0011873	0.034533	tmem131
ENSDARG00000056262	297.2179062	414.0128984	-0.47815	0.00065005	0.022106	---
ENSDARG00000056324	120.6410579	40.91168114	1.5601	1.69E-11	6.92E-09	---
ENSDARG00000056379	394.2198113	288.7513499	0.44917	0.00086837	0.027165	si:ch73-86n18.1
ENSDARG00000056630	252.9613339	180.9396478	0.48341	0.0013167	0.03718	---
ENSDARG00000056638	243.3201548	125.4536453	0.9557	5.55E-09	1.08E-06	pir
ENSDARG00000056680	276.7727226	389.6248978	-0.49338	0.0013964	0.038813	stc2a
ENSDARG00000056719	653.0243514	906.5859414	-0.47331	3.25E-05	0.0020477	slc6a19b
ENSDARG00000056742	1267.218614	1601.423344	-0.33769	0.0012374	0.03541	---
ENSDARG00000056744	13372.79756	21430.57908	-0.68037	6.78E-11	2.16E-08	ela2
ENSDARG00000056835	91.55550363	49.36333632	0.89121	0.0013786	0.038452	---
ENSDARG00000056877	1718.403327	2220.439779	-0.36978	0.00030157	0.01215	---
ENSDARG00000056892	436.8484031	656.9039372	-0.58855	1.32E-06	0.00013314	---
ENSDARG00000056922	810.9028931	563.9786644	0.52389	8.73E-06	0.000672	---
ENSDARG00000057000	308.7073966	418.7702809	-0.43992	0.0010244	0.030866	---

ENSDARG00000057064	484.3489054	692.1665424	-0.51507	1.37E-05	0.00098199	---
ENSDARG00000057138	157.4346782	86.08695549	0.87089	1.93E-05	0.0013251	zgc:174164
ENSDARG00000057248	287.8428162	201.2730688	0.51613	0.00046137	0.01698	---
ENSDARG00000057262	348.3990659	242.2817706	0.52405	0.00016287	0.0076311	si:dkey-91i10.3
ENSDARG00000057273	73.99445074	34.30997623	1.1088	4.57E-05	0.0026898	---
ENSDARG00000057465	389.4450489	283.3883535	0.45864	0.0010796	0.032074	---
ENSDARG00000057671	1610.883836	1233.466978	0.38513	0.00022103	0.0094539	---
ENSDARG00000057683	589.7149	787.5247366	-0.41731	0.00022133	0.0094542	mcm6
ENSDARG00000057714	869.1993474	487.0093064	0.83574	1.22E-12	5.97E-10	cmah
ENSDARG00000057983	197.0604919	117.1684662	0.75005	2.31E-05	0.0015381	svopl
ENSDARG00000058053	101.0642443	157.2312422	-0.63762	0.00046405	0.017039	---
ENSDARG00000058226	559.1413902	371.7563432	0.58886	0.00023383	0.0098823	ak3
ENSDARG00000058256	160.864053	291.4182781	-0.85725	1.34E-08	2.31E-06	---
ENSDARG00000058325	181.5110959	120.6267896	0.58951	0.00098393	0.029843	---
ENSDARG00000058605	225.4386599	139.345327	0.69407	3.32E-05	0.0020765	---
ENSDARG00000058734	1038.498436	342.4017091	1.6007	3.49E-40	3.71E-36	prdx1
ENSDARG00000058738	7.986941655	27.22315676	-1.7691	0.0002541	0.01053	SLC26A6 (1 of many)
ENSDARG00000058800	128.8225584	75.92013854	0.76283	0.00016713	0.0077585	---
ENSDARG00000058803	573.8170912	740.7359048	-0.36837	0.0016444	0.044129	---
ENSDARG00000058939	323.2729999	157.9670566	1.0331	2.39E-11	8.98E-09	b4galnt3b
ENSDARG00000058943	119.7177241	66.56249633	0.84686	6.62E-05	0.0036851	cdcp1a
ENSDARG00000058964	40.17900422	77.41651202	-0.9462	0.00041037	0.015496	---
ENSDARG00000058966	161.0504398	74.89259901	1.1046	1.54E-08	2.58E-06	zgc:112332
ENSDARG00000059026	61.2660873	28.14563503	1.1222	0.00036126	0.013938	zgc:123217
ENSDARG00000059035	3868.005691	2645.654418	0.54797	2.65E-08	4.15E-06	---
ENSDARG00000059056	12.08138236	1.691503636	2.8364	0.0007394	0.024326	---

ENSDARG00000059075	132.2375209	199.4365674	-0.5928	0.00043278	0.016202	---
ENSDARG00000059123	589.7822561	402.0831533	0.55269	0.00083574	0.02646	plcd1a
ENSDARG00000059163	2886.07781	5015.855929	-0.79739	1.97E-13	1.03E-10	---
ENSDARG00000059342	140.5461169	83.53591627	0.75058	0.000162	0.0076039	avil
ENSDARG00000059646	6143.11746	3935.259193	0.64251	2.43E-10	6.52E-08	---
ENSDARG00000059729	170.8873721	242.39442	-0.50431	0.0015521	0.042149	---
ENSDARG00000059792	73.12620598	39.83161878	0.87647	0.00086179	0.027012	---
ENSDARG00000059826	1383.542603	972.8514815	0.50808	0.0011091	0.03283	---
ENSDARG00000060002	117.5913002	190.9545285	-0.69945	6.20E-05	0.0035127	---
ENSDARG00000060445	122.9439469	76.92053626	0.67656	0.0013138	0.037144	---
ENSDARG00000060549	154.0270966	233.5859283	-0.60077	0.00016392	0.0076581	---
ENSDARG00000060622	77.83553519	132.3060478	-0.76538	0.00017857	0.0080936	si:ch73-14h1.2
ENSDARG00000060627	260.2650532	170.7161701	0.60838	0.0001412	0.0067851	---
ENSDARG00000060638	112.202951	167.6524555	-0.57936	0.0014666	0.040237	CLSTN2 (1 of many)
ENSDARG00000060671	130.7972378	229.6348844	-0.81201	0.00010667	0.0054113	lct
ENSDARG00000060682	963.5726514	708.2808904	0.44407	7.39E-05	0.004037	agr1
ENSDARG00000060723	739.7544838	1167.066846	-0.65777	2.97E-09	6.27E-07	---
ENSDARG00000060796	2646.294539	2050.368095	0.36809	0.00018257	0.008205	---
ENSDARG00000060879	118.0158143	202.6259724	-0.77984	0.0001438	0.0068686	---
ENSDARG00000060885	464.4417817	349.7205729	0.4093	0.0014048	0.038945	---
ENSDARG00000060927	325.7128255	236.8686441	0.45951	0.0017145	0.045513	---
ENSDARG00000060954	442.8204723	596.2066705	-0.42909	0.00058731	0.02037	---
ENSDARG00000060978	1356.51619	1036.648299	0.38798	0.00030304	0.012194	---
ENSDARG00000060980	650.5104355	496.0281312	0.39115	0.0012036	0.034843	---
ENSDARG00000061062	350.4793179	255.9422906	0.45351	0.0016617	0.044481	---
ENSDARG00000061081	1059.483781	816.8917508	0.37514	0.00091122	0.028256	---

ENSDARG00000061354	446.3798431	590.651174	-0.40403	0.0013718	0.038296	---
ENSDARG00000061391	580.2188833	402.344916	0.52816	3.31E-05	0.0020758	grhl1
ENSDARG00000061634	201.6978863	101.6113316	0.98913	3.11E-08	4.75E-06	---
ENSDARG00000061651	222.9338401	148.1937574	0.58913	0.0004525	0.016723	marveld2b
ENSDARG00000061687	592.3566922	425.2749629	0.47807	9.56E-05	0.0049592	---
ENSDARG00000061741	560.941114	413.6143802	0.43956	0.00042905	0.016106	itpr3
ENSDARG00000061762	48.77178302	17.80994934	1.4534	2.12E-05	0.0014411	trim108
ENSDARG00000061798	607.2327621	352.0022368	0.78667	5.19E-10	1.25E-07	arhgap27l
ENSDARG00000061858	1029.110937	769.6996288	0.41903	0.00016609	0.0077252	---
ENSDARG00000061951	1547.493706	1200.371216	0.36645	0.00045046	0.016694	---
ENSDARG00000061974	491.9820644	186.3640389	1.4005	6.99E-19	7.44E-16	---
ENSDARG00000061994	4675.719285	2966.480745	0.65644	1.84E-11	7.32E-09	acacb
ENSDARG00000062221	247.0608755	99.20918616	1.3163	1.03E-14	6.70E-12	si:ch211-135f11.1
ENSDARG00000062263	502.8095058	353.3955137	0.50873	6.11E-05	0.0034695	---
ENSDARG00000062297	77.12937008	125.2784767	-0.69979	0.00070099	0.023306	---
ENSDARG00000062319	706.3666763	417.1185009	0.75996	1.24E-05	0.00090537	---
ENSDARG00000062501	313.8539369	221.6585736	0.50175	0.00073182	0.024173	hhip11
ENSDARG00000062518	384.0464182	648.9246063	-0.75677	4.20E-06	0.0003556	ulk1a
ENSDARG00000062553	307.8070503	203.6216004	0.59614	4.20E-05	0.0025263	bach1a
ENSDARG00000062562	544.1841552	371.1551067	0.55207	8.01E-06	0.00062805	egln2
ENSDARG00000062579	141.7886625	83.9444108	0.75624	0.00046503	0.017039	kremen1
ENSDARG00000062590	4928.340807	3535.536313	0.47917	1.28E-06	0.00012999	---
ENSDARG00000062750	785.1533097	460.8885617	0.76856	1.41E-10	3.99E-08	---
ENSDARG00000062799	953.3236497	532.7096295	0.83962	4.62E-13	2.34E-10	---
ENSDARG00000062801	762.2298302	1007.050556	-0.40184	0.00039746	0.015044	erfl3
ENSDARG00000062817	52.59354355	99.89594358	-0.92554	7.86E-05	0.0042425	---

ENSDARG00000062855	318.4127071	208.1439184	0.61332	2.74E-05	0.001783	---
ENSDARG00000062884	202.145379	132.5610782	0.60874	0.00043314	0.016202	map3k2
ENSDARG00000062933	1369.198808	1951.401575	-0.51118	0.0014334	0.039633	---
ENSDARG00000062970	304.7972153	429.7482418	-0.49564	0.00024216	0.010127	fam129ba
ENSDARG00000062974	161.8594289	101.22475	0.67718	0.00023765	0.0099907	itga2.2
ENSDARG00000063153	871.1292449	614.6263137	0.50318	1.27E-05	0.00091583	---
ENSDARG00000063283	106.410282	59.47458807	0.83929	0.00015915	0.007512	abi3b
ENSDARG00000063295	2929.840206	2289.905355	0.35553	0.00064987	0.022106	---
ENSDARG00000063354	772.679479	571.3956556	0.43538	0.00014754	0.0070369	---
ENSDARG00000063435	447.1357006	272.4948381	0.71448	7.04E-05	0.0038648	---
ENSDARG00000063563	956.9200247	700.3325639	0.45036	6.74E-05	0.0037213	creb3l2
ENSDARG00000063684	258.1798001	362.481408	-0.48953	0.00069731	0.023274	ppm1h
ENSDARG00000063905	278680.8359	225805.3793	0.30353	0.0012972	0.036791	mt-co1
ENSDARG00000067517	11.92837196	52.7196431	-2.1439	5.01E-08	7.17E-06	ccdc15
ENSDARG00000067520	338.2795496	547.0718815	-0.69351	4.63E-08	6.72E-06	---
ENSDARG00000067806	64.9657088	106.7190401	-0.71607	0.00096401	0.029412	---
ENSDARG00000067848	950.478671	1401.142011	-0.55988	0.00035178	0.013689	---
ENSDARG00000067958	321.9478066	218.3756338	0.56001	0.00012131	0.005964	---
ENSDARG00000068166	123.6653409	192.8754509	-0.64123	0.00022338	0.0095159	---
ENSDARG00000068217	175.472865	116.1407138	0.59537	0.0010008	0.03024	stx2b
ENSDARG00000068220	75.34637573	123.3608117	-0.71127	0.00082878	0.026339	---
ENSDARG00000068242	250.1529178	359.133339	-0.52171	0.00018739	0.0083441	---
ENSDARG00000068516	227.3043108	465.450814	-1.034	1.45E-08	2.45E-06	hapln1b
ENSDARG00000068637	45.2099698	491.5275534	-3.4426	1.45E-08	2.45E-06	si:ch211-281124.3
ENSDARG00000068680	5890.878469	8949.062379	-0.60325	3.08E-05	0.0019546	ctrl
ENSDARG00000068760	666.4505468	434.8639775	0.61593	8.25E-07	8.92E-05	---



ENSDARG00000068851	584.2598159	310.1062257	0.91385	2.68E-10	7.08E-08	---
ENSDARG00000068966	2.319294395	50.05313836	-4.4317	3.78E-06	0.00032578	---
ENSDARG00000069029	158.0582314	84.86993369	0.89713	2.54E-06	0.00023736	---
ENSDARG00000069038	134.2944256	85.91613315	0.6444	0.0011599	0.033861	si:ch211-242e8.1
ENSDARG00000069266	399.1532332	645.9969462	-0.69458	1.29E-08	2.24E-06	---
ENSDARG00000069342	396.2906432	614.3039943	-0.63239	3.64E-07	4.31E-05	---
ENSDARG00000069376	147.7561261	94.55836162	0.64394	0.00082638	0.026289	---
ENSDARG00000069471	219.5715063	322.8008606	-0.55595	0.00016929	0.0078206	---
ENSDARG00000069476	2106.061443	1651.174606	0.35105	0.0012247	0.035206	spint2
ENSDARG00000069478	176.0030232	114.354795	0.62208	0.00053421	0.019003	---
ENSDARG00000069540	121.6162754	65.73573709	0.88759	2.17E-05	0.0014707	---
ENSDARG00000069566	12.072331	0.660496014	4.192	4.34E-05	0.0025925	mucms1
ENSDARG00000069608	1018.267476	775.8118863	0.39234	0.00036898	0.014151	---
ENSDARG00000069922	180.4984965	107.2321568	0.75125	3.38E-05	0.0021062	---
ENSDARG00000069956	888.7308161	603.7523432	0.55779	0.001077	0.032052	---
ENSDARG00000069988	310.9484981	198.0773796	0.65061	3.53E-05	0.0021829	---
ENSDARG00000070000	716.4243227	515.0101654	0.47621	0.00048586	0.017517	---
ENSDARG00000070107	299.4392972	427.4722124	-0.51357	0.00020149	0.008759	six7
ENSDARG00000070116	67.80731339	19.91906574	1.7673	0.0018277	0.047724	nit1
ENSDARG00000070140	44.54613404	15.26216759	1.5453	1.86E-05	0.0012908	---
ENSDARG00000070256	196.0635618	275.6894408	-0.49172	0.00092489	0.028546	suz12a
ENSDARG00000070429	199.0902425	134.1764009	0.56929	0.00094823	0.029098	---
ENSDARG00000070434	150.165467	94.33241094	0.67073	0.00047479	0.01725	rhov
ENSDARG00000070545	1274.954364	1665.324726	-0.38536	0.00018892	0.0083837	---
ENSDARG00000070581	136.5507919	20.66334418	2.7243	2.15E-26	8.58E-23	ggact.1
ENSDARG00000070584	747.4342282	952.0585776	-0.3491	0.0017225	0.045677	---

ENSDARG00000070710	96.82709259	33.06690588	1.55	1.61E-09	3.55E-07	---
ENSDARG00000070746	67.00572302	35.50594543	0.91622	0.00086578	0.02711	SFT2D2 (1 of many)
ENSDARG00000070774	80.75409357	41.23183636	0.96978	0.00029418	0.011882	irgf1
ENSDARG00000070885	46.47429969	9.69016866	2.2618	1.02E-08	1.80E-06	---
ENSDARG00000070972	739.7923137	562.526372	0.3952	0.00075122	0.024635	---
ENSDARG00000071010	310.476401	157.6488572	0.97777	2.24E-10	6.11E-08	---
ENSDARG00000071049	74.97456196	40.06668545	0.904	0.00084174	0.026592	---
ENSDARG00000071062	236.4432309	331.7495647	-0.4886	0.00059814	0.020655	hps5
ENSDARG00000071076	842.708237	653.0273558	0.36789	0.0010615	0.031751	ldhbb
ENSDARG00000071082	418.5425999	233.0469737	0.84475	6.19E-06	0.00050271	---
ENSDARG00000071090	619.2553292	440.6554144	0.49088	0.00024466	0.010218	---
ENSDARG00000071325	273.0230668	431.5265613	-0.66043	1.72E-06	0.00016841	cbarpb
ENSDARG00000071341	291.8278866	177.722254	0.71549	1.32E-06	0.00013314	---
ENSDARG00000071353	4046.676855	2966.958464	0.44775	5.18E-06	0.00042671	si:ch211-235e9.8
ENSDARG00000071549	252.872446	344.5679074	-0.44638	0.0013037	0.03691	---
ENSDARG00000071567	265.9701271	115.5357852	1.2029	4.40E-13	2.27E-10	TSTD1
ENSDARG00000071576	161.2461572	76.83068245	1.0695	3.13E-06	0.00027949	---
ENSDARG00000071578	9.347918002	27.82873728	-1.5739	0.00069177	0.02316	---
ENSDARG00000071590	11.08316842	1.81913199	2.607	0.0016828	0.044966	si:ch211-236g6.1
ENSDARG00000071626	2816.506539	1789.715279	0.65418	1.43E-10	4.01E-08	---
ENSDARG00000071671	66.10128178	121.7075039	-0.88067	3.74E-05	0.0022926	---
ENSDARG00000071684	970.7341435	707.8615459	0.45561	0.00010098	0.0051637	---
ENSDARG00000073742	15737.63136	20409.16481	-0.375	0.00046446	0.017039	prss59.2
ENSDARG00000073769	103.9211225	165.7300008	-0.67335	0.00026744	0.010954	magi2b
ENSDARG00000073781	14.30032195	3.096930038	2.2071	0.0013652	0.038145	---
ENSDARG00000073893	91.576498	145.7558089	-0.6705	0.00045136	0.016708	---

ENSDARG00000073912	27.94585951	9.856431883	1.5035	0.00085837	0.026931	si:ch211-202h22.7
ENSDARG00000073936	30.11460381	3.343720463	3.1709	9.36E-09	1.68E-06	--/
ENSDARG00000074069	29.08554534	7.952865518	1.8708	0.00010695	0.005416	--/
ENSDARG00000074118	50.69500123	25.15528075	1.011	0.0016221	0.04364	ftr15
ENSDARG00000074136	1.018776959	9.980153066	-3.2922	0.0011782	0.034302	--/
ENSDARG00000074319	786.7264357	1064.241325	-0.43589	9.01E-05	0.0047133	--/
ENSDARG00000074345	10.91330335	110.8035686	-3.3438	4.87E-15	3.38E-12	--/
ENSDARG00000074390	1156.975006	879.4444073	0.39569	0.00032699	0.012945	tmem176l.4
ENSDARG00000074451	191.9678641	125.9676268	0.60781	0.0005277	0.018792	--/
ENSDARG00000074466	226.1950024	160.4705712	0.49526	0.0017558	0.04626	--/
ENSDARG00000074589	646.1615323	429.4206979	0.5895	6.75E-05	0.0037213	--/
ENSDARG00000074613	495.6352361	688.2916995	-0.47374	0.00098956	0.029963	--/
ENSDARG00000074749	1487.32317	1073.728327	0.47009	1.06E-05	0.0007916	--/
ENSDARG00000074765	5.910721999	22.92895587	-1.9558	0.00033062	0.013056	--/
ENSDARG00000074776	193.0586206	133.9367751	0.52749	0.0018353	0.047883	--/
ENSDARG00000074843	780.7527677	575.0497433	0.44118	0.00021088	0.0090808	--/
ENSDARG00000074979	431.5999448	574.5463922	-0.41273	0.00089838	0.027939	--/
ENSDARG00000075015	4730.940036	3623.516217	0.38474	0.001528	0.041681	--/
ENSDARG00000075017	324.2493938	490.7706351	-0.59795	3.39E-06	0.00029723	myzap
ENSDARG00000075019	12.47375915	0	Inf	2.52E-06	0.00023652	--/
ENSDARG00000075178	393.5526717	559.5117077	-0.50761	6.29E-05	0.0035486	lpcat3
ENSDARG00000075192	745.0746245	567.6353911	0.39242	0.00091852	0.028399	--/
ENSDARG00000075245	772.5405479	1001.387625	-0.37432	0.00094756	0.029098	wdr11
ENSDARG00000075249	627.6284777	811.2359761	-0.37021	0.0012901	0.03669	--/
ENSDARG00000075295	421.0892461	270.9724361	0.63598	2.05E-06	0.00019548	tulp1a
ENSDARG00000075296	112.4061388	67.58699125	0.7339	0.00064376	0.022008	--/

ENSDARG00000075444	91.69865492	150.9709713	-0.7193	0.00023357	0.0098823	---
ENSDARG00000075608	382.8844631	263.9279303	0.53677	0.00011645	0.0057865	mical2a
ENSDARG00000075622	121.7926957	67.98376651	0.84117	7.49E-05	0.0040768	zgc:174938
ENSDARG00000075697	130.4727366	250.3488179	-0.94019	0.0016896	0.045076	---
ENSDARG00000075914	74.04708844	117.5782623	-0.66711	0.0012066	0.034843	kenj14
ENSDARG00000075958	120.3942748	197.0504898	-0.7108	2.74E-05	0.001783	si:dkey-266f7.9
ENSDARG00000076011	207.6341009	374.6218964	-0.85139	4.32E-09	8.79E-07	---
ENSDARG00000076014	195.3688815	130.1828172	0.58566	0.00070121	0.023306	ERC1 (1 of many)
ENSDARG00000076126	246.91116	1081.030688	-2.1303	3.60E-14	2.21E-11	---
ENSDARG00000076146	124.7795342	44.76547593	1.4789	1.05E-10	3.11E-08	zgc:172075
ENSDARG00000076192	772.4862129	598.8098024	0.36741	0.0016157	0.043524	---
ENSDARG00000076221	111.7925073	60.72937993	0.88036	7.19E-05	0.0039429	---
ENSDARG00000076296	85.32974526	132.7323397	-0.6374	0.0014498	0.039903	triqk
ENSDARG00000076321	295.2786066	449.4673786	-0.60614	0.00010921	0.0054879	---
ENSDARG00000076361	206.5729856	110.9005916	0.89738	2.20E-07	2.73E-05	---
ENSDARG00000076371	449.4714911	313.798751	0.51839	8.05E-05	0.0043246	---
ENSDARG00000076547	925.4231262	564.0438115	0.71431	5.42E-06	0.00044556	---
ENSDARG00000076618	638.5121398	473.3542103	0.43179	0.0003433	0.013408	---
ENSDARG00000076781	168.3286755	110.693088	0.60472	0.00094842	0.029098	---
ENSDARG00000076804	1380.73609	1763.017854	-0.35261	0.00095801	0.029308	---
ENSDARG00000076819	0	16.91698994	#NAME?	9.15E-08	1.23E-05	si:dkey-121n8.4
ENSDARG00000076820	133.6137441	66.61697497	1.0041	2.70E-05	0.0017671	xkr8.2
ENSDARG00000076862	83.57270167	131.4545416	-0.65346	0.001206	0.034843	---
ENSDARG00000076870	537.1132112	368.0961417	0.54514	0.00033832	0.013262	---
ENSDARG00000076900	62.72741845	124.5988839	-0.99012	2.62E-06	0.000242	---
ENSDARG00000076945	2388.986929	4580.300537	-0.93904	0.00010413	0.0052905	---

ENSDARG00000077045	14.42247887	68.98981213	-2.2581	3.20E-11	1.17E-08	---
ENSDARG00000077096	632.8272168	475.2204367	0.41321	0.00089793	0.027939	---
ENSDARG00000077114	415.583265	270.1832208	0.6212	3.83E-06	0.00032972	arhgef16
ENSDARG00000077157	193.4539069	125.3987298	0.62547	0.0012115	0.034919	---
ENSDARG00000077187	210.3152874	303.3206708	-0.52829	0.0010571	0.031671	impg1a
ENSDARG00000077252	48.99183444	17.59918826	1.477	2.47E-05	0.0016404	si:rp71-36a1.5
ENSDARG00000077388	325.2451743	484.2525176	-0.57423	0.0017235	0.045677	obs11b
ENSDARG00000077404	1505.415807	1189.801747	0.33944	0.0011132	0.032857	---
ENSDARG00000077549	497.3190866	374.2068869	0.41034	0.00125	0.035739	---
ENSDARG00000077572	17.63839331	3.786292991	2.2199	0.00058458	0.020319	si:ch211-193k19.2
ENSDARG00000077688	37.22181588	77.09852323	-1.0506	0.00010211	0.0052048	---
ENSDARG00000077697	68.77843586	17.76805701	1.9527	3.74E-07	4.41E-05	---
ENSDARG00000077722	1830.469395	1444.156039	0.34199	0.0011329	0.033317	---
ENSDARG00000077760	324.7622928	208.1703926	0.64162	1.51E-05	0.0010701	---
ENSDARG00000077778	198.4639139	345.4576227	-0.79963	8.08E-05	0.0043341	---
ENSDARG00000077828	436.5111243	302.4546292	0.5293	0.00010891	0.0054814	---
ENSDARG00000077862	10.32679907	31.80408681	-1.6228	0.00024761	0.010301	---
ENSDARG00000077982	589.343894	253.9833853	1.2144	1.01E-20	1.62E-17	elf3
ENSDARG00000078024	36.62992386	0.989767228	5.2098	8.27E-11	2.54E-08	---
ENSDARG00000078072	267.7888955	149.5119311	0.84084	1.21E-07	1.60E-05	---
ENSDARG00000078093	36.92443299	3.872680951	3.2532	3.57E-08	5.32E-06	zgc:172065
ENSDARG00000078094	218.7468748	136.6063245	0.67924	3.86E-05	0.0023562	lmf2a
ENSDARG00000078136	557.1753219	413.3588973	0.43074	0.0005869	0.02037	---
ENSDARG00000078215	101.6121186	161.1746824	-0.66555	0.00081075	0.025999	---
ENSDARG00000078250	338.3321873	232.7504899	0.53966	0.00011617	0.0057865	---
ENSDARG00000078310	710.817073	540.5058025	0.39517	0.00061986	0.021336	cecr2

ENSDARG00000078440	300.8224444	423.8408846	-0.49461	0.00018877	0.0083837	---
ENSDARG00000078551	58.85674645	28.21552951	1.0607	0.00027065	0.011058	---
ENSDARG00000078741	504.431588	310.2182053	0.70138	1.89E-07	2.37E-05	zgc:172136
ENSDARG00000078781	537.0000699	392.6100567	0.45183	0.0010538	0.031632	---
ENSDARG00000078789	560.6219916	405.6942866	0.46664	0.0001817	0.0081774	---
ENSDARG00000078797	728.9000942	330.3840659	1.1416	5.18E-20	7.26E-17	dennd3a
ENSDARG00000078801	69.88848943	114.6141739	-0.71366	0.00088354	0.027612	msantd1
ENSDARG00000078853	194.3875223	128.3708498	0.59862	0.00055755	0.019636	---
ENSDARG00000078859	152.2688049	74.5140602	1.031	0.00027718	0.011281	g0s2
ENSDARG00000078878	12.40424888	31.81471954	-1.3589	0.0011076	0.03283	---
ENSDARG00000078917	40.82351605	75.11573131	-0.87971	0.00076043	0.024835	zgc:195245
ENSDARG00000078973	900.4557734	584.8104383	0.62269	1.13E-07	1.51E-05	uck11b
ENSDARG00000079011	871.8725606	543.3991205	0.68211	0.001237	0.03541	col17a1b
ENSDARG00000079031	45.65498429	114.5950727	-1.3277	8.62E-09	1.57E-06	---
ENSDARG00000079079	16.37776282	3.012495663	2.4427	0.00036487	0.014027	---
ENSDARG00000079148	400.6796378	602.9766079	-0.58965	5.29E-05	0.0030935	---
ENSDARG00000079229	572.1114194	402.5906243	0.50698	0.00010727	0.005416	znf414
ENSDARG00000079245	108.7102256	58.67517903	0.88967	6.64E-05	0.0036929	si:dkey-73p2.2
ENSDARG00000079305	4294.677416	5277.966883	-0.29743	0.0019218	0.0499	---
ENSDARG00000079347	179.4785162	346.9700573	-0.951	3.44E-10	8.79E-08	zgc:194659
ENSDARG00000079377	98.13787364	47.36556765	1.051	1.68E-05	0.0011862	---
ENSDARG00000079420	279.0123683	475.8631309	-0.77022	0.00053936	0.019143	---
ENSDARG00000079543	327.7198857	437.5448226	-0.41697	0.0012952	0.036791	dpys
ENSDARG00000079544	217.5286452	353.4690869	-0.70038	1.22E-06	0.00012496	si:ch1073-464p5.5
ENSDARG00000079591	196.1318151	100.2560331	0.96813	1.25E-07	1.65E-05	SSH3
ENSDARG00000079705	198.6295677	296.8941367	-0.57987	0.0013474	0.03788	---

ENSDARG00000079727	660.4293585	1079.670372	-0.70911	2.56E-10	6.82E-08	sepp1b
ENSDARG00000079773	67.86781702	26.13462811	1.3768	0.00037392	0.014306	---
ENSDARG00000079922	72.40069905	118.3171191	-0.70858	0.00095365	0.029202	---
ENSDARG00000079994	1311.269071	1029.424294	0.34913	0.0013995	0.038832	AKAP13 (1 of many)
ENSDARG00000086048	13.21080457	0.617302034	4.4196	1.21E-05	0.00088853	---
ENSDARG00000086056	288.5004476	152.9828431	0.9152	6.95E-09	1.33E-06	plekhg6
ENSDARG00000086254	362.3805537	175.3248783	1.0475	4.17E-11	1.45E-08	---
ENSDARG00000086445	113.6420755	70.82718057	0.68212	0.00080376	0.025827	---
ENSDARG00000086458	156.1119989	247.676011	-0.66587	0.0010563	0.031671	---
ENSDARG00000086569	294.5230986	501.8540673	-0.76889	4.80E-09	9.62E-07	zgc:172051
ENSDARG00000086739	507.7471198	312.3255966	0.70106	5.16E-08	7.36E-06	si:ch1073-513e17.1
ENSDARG00000086874	155.1656149	98.82825468	0.65081	0.00048559	0.017517	---
ENSDARG00000087013	563.0231068	833.302558	-0.56565	8.33E-07	8.95E-05	---
ENSDARG00000087016	12.49556126	1.275844462	3.2919	0.0001999	0.0087254	---
ENSDARG00000087032	131.2446679	46.09232872	1.5097	2.27E-11	8.62E-09	si:ch211-200e2.1
ENSDARG00000087070	53.10022922	93.65867667	-0.81869	0.0014467	0.039898	---
ENSDARG00000087193	231.6759478	153.4953123	0.59391	0.0001875	0.0083441	---
ENSDARG00000087306	190.937171	118.0978962	0.69311	4.52E-05	0.0026831	---
ENSDARG00000087359	188.7688312	330.0332985	-0.80599	2.30E-07	2.82E-05	---
ENSDARG00000087429	12.39395842	1.074201602	3.5283	0.0002818	0.011454	---
ENSDARG00000087508	1685.739934	1338.669884	0.33258	0.0017364	0.045904	---
ENSDARG00000087574	117.278751	57.21027802	1.0356	3.21E-06	0.00028432	nox1
ENSDARG00000087596	496.6663593	332.9051605	0.57717	8.98E-06	0.00068553	---
ENSDARG00000087597	38.76910746	3.131657734	3.6299	4.87E-06	0.0004039	si:dkey-51d8.3
ENSDARG00000087666	52.01730289	15.83822923	1.7156	8.05E-07	8.74E-05	---
ENSDARG00000087714	30.0052066	67.2086653	-1.1634	5.00E-05	0.0029257	si:ch211-226o13.1

ENSDARG00000087767	48.73065698	8.50461933	2.5185	1.33E-10	3.80E-08	---
ENSDARG00000087788	27.77352519	9.249549718	1.5863	0.00038062	0.014494	---
ENSDARG00000087873	170.2765786	82.13721542	1.0518	0.00026375	0.010844	---
ENSDARG00000087921	568.4406837	415.193658	0.45323	0.00026407	0.010844	---
ENSDARG00000087956	399.7101947	288.4489786	0.47064	0.00047876	0.017323	she
ENSDARG00000088087	3108.590035	4237.236411	-0.44686	0.0013426	0.037811	kdm6ba
ENSDARG00000088123	604.6124391	450.5122876	0.42444	0.0005962	0.020611	---
ENSDARG00000088142	131.1147524	19.14417962	2.7759	7.09E-09	1.35E-06	---
ENSDARG00000088245	132.4497601	58.76612834	1.1724	2.70E-08	4.18E-06	---
ENSDARG00000088432	301.072909	191.9423399	0.64944	1.69E-05	0.0011883	si:dkey-162h11.3
ENSDARG00000088449	2671.561881	2099.060542	0.34794	0.00037876	0.014456	---
ENSDARG00000088625	0.322866519	13.60604359	-5.3972	2.64E-06	0.000242	si:ch211-142d6.2
ENSDARG00000088717	53.75132316	124.8678157	-1.216	2.70E-08	4.18E-06	---
ENSDARG00000088775	119.9879261	189.9771325	-0.66294	0.00012438	0.0060964	---
ENSDARG00000088908	175.6040822	81.55703375	1.1064	5.27E-09	1.04E-06	---
ENSDARG00000088972	76.85790217	125.6179571	-0.70878	0.00085251	0.026826	si:dkey-238d18.4
ENSDARG00000089063	127.3007594	202.9074905	-0.67258	0.00010058	0.0051512	---
ENSDARG00000089107	40.08893093	81.49278718	-1.0235	7.69E-05	0.0041665	---
ENSDARG00000089179	46.7856456	10.84229194	2.1094	3.22E-08	4.87E-06	---
ENSDARG00000089217	76.9002673	37.31465755	1.0432	6.24E-05	0.0035227	ubap1la
ENSDARG00000089340	443.8158124	315.2684061	0.49338	0.00046058	0.01697	---
ENSDARG00000089354	544.9293906	712.7597882	-0.38735	0.001139	0.03345	tspan4a
ENSDARG00000089388	17.86090503	4.290293711	2.0577	0.00073769	0.024316	---
ENSDARG00000089543	182.0679679	114.8609621	0.66459	0.00023948	0.010054	---
ENSDARG00000089564	170.8511845	113.7767797	0.58653	0.00085398	0.026846	MDFI
ENSDARG00000089582	95.86096228	40.31868693	1.2495	4.09E-07	4.75E-05	---



ENSDARG00000089717	147.1593493	364.3007528	-1.3078	1.39E-17	1.30E-14	---
ENSDARG00000089831	54.10876045	23.25301827	1.2184	0.00033366	0.013144	---
ENSDARG00000089901	0	8.50461933	#NAME?	0.0006351	0.021747	---
ENSDARG00000089936	911.0189143	648.8358056	0.48963	6.23E-05	0.0035227	---
ENSDARG00000090033	48.96715856	6.957237533	2.8152	5.58E-06	0.00045765	si:dkey-16p6.1
ENSDARG00000090108	50.2240807	99.43122743	-0.98532	2.74E-05	0.001783	---
ENSDARG00000090195	233.4293009	136.3256667	0.77593	3.68E-06	0.00031946	---
ENSDARG00000090202	17.70789463	4.368867328	2.0191	0.0019261	0.049967	---
ENSDARG00000090228	1232.190945	1566.662542	-0.34647	0.0013014	0.036877	gsta.1
ENSDARG00000090337	233.1450644	327.4909585	-0.49023	0.00062855	0.021589	pprc1
ENSDARG00000090346	205.3074167	135.2336722	0.60233	0.00033705	0.013228	---
ENSDARG00000090371	187.2174178	280.3411457	-0.58247	0.00016998	0.0078263	si:dkey-46i9.6
ENSDARG00000090381	54.67223246	96.58934348	-0.82106	0.00065563	0.022255	---
ENSDARG00000090428	22804.20077	29542.72526	-0.3735	0.00020349	0.0088341	---
ENSDARG00000090468	200.6469721	90.26546239	1.1524	8.63E-06	0.00066705	---
ENSDARG00000090526	143.2836941	23.32377531	2.619	1.58E-25	5.60E-22	---
ENSDARG00000090707	9.328576188	0	Inf	0.00022367	0.0095159	---
ENSDARG00000090785	190.6274687	122.4990941	0.63798	0.00041358	0.015599	---
ENSDARG00000090814	52.31303323	15.7132064	1.7352	3.43E-07	4.08E-05	---
ENSDARG00000090833	195.5938625	285.4195638	-0.54522	0.00047219	0.017199	---
ENSDARG00000090899	306.0237064	606.2855404	-0.98635	0.0015469	0.042044	---
ENSDARG00000090901	134.7661897	30.81041241	2.129	4.82E-08	6.93E-06	---
ENSDARG00000090971	314.9060008	426.7928124	-0.43861	0.00076277	0.024886	---
ENSDARG00000091013	66.84989253	8.784835807	2.9278	0.0017534	0.04626	---
ENSDARG00000091061	1496.974289	1112.359435	0.42843	0.00013228	0.0064342	---
ENSDARG00000091116	1545.042654	833.0709951	0.89114	1.52E-16	1.35E-13	pkhd111

ENSDARG00000091128	205.3213976	137.9776729	0.57345	0.00056796	0.019893	---
ENSDARG00000091136	48.24449856	131.7373636	-1.4492	5.57E-11	1.81E-08	---
ENSDARG00000091144	0	9.60312876	#NAME?	2.23E-05	0.0015024	---
ENSDARG00000091235	15.28825438	2.224371295	2.781	0.00019516	0.0085893	---
ENSDARG00000091252	57.13175965	24.55100412	1.2185	5.73E-05	0.0032917	slc22a7b.2
ENSDARG00000091260	1673.451044	2226.214357	-0.41177	6.46E-05	0.0036314	mylk4a
ENSDARG00000091320	53.64316504	127.6995082	-1.2513	2.06E-07	2.58E-05	zgc:136791
ENSDARG00000091359	616.0267432	900.0853816	-0.54707	2.66E-06	0.00024333	---
ENSDARG00000091623	81.65603874	124.4870971	-0.60836	0.0018117	0.047343	---
ENSDARG00000091625	62.70688226	26.46194574	1.2447	3.55E-05	0.0021832	si:dkeyp-67f1.2
ENSDARG00000091678	249.0355012	154.5549718	0.68823	1.28E-05	0.00092297	---
ENSDARG00000091734	205.5838231	105.9738991	0.95602	2.65E-08	4.15E-06	traf3ip2l
ENSDARG00000091916	348.8099409	224.2612731	0.63726	9.65E-05	0.0049926	---
ENSDARG00000091918	273.1064954	180.2947804	0.59911	8.58E-05	0.0045559	---
ENSDARG00000092042	3.751011164	25.64690802	-2.7734	8.40E-07	9.00E-05	---
ENSDARG00000092115	3643.32362	5149.360954	-0.49914	1.69E-07	2.18E-05	---
ENSDARG00000092159	0.37304392	8.420184956	-4.4964	0.00064421	0.022008	---
ENSDARG00000092204	84.99660617	48.03322831	0.82337	0.00075437	0.024662	---
ENSDARG00000092331	4.386462692	18.30353019	-2.061	0.00072746	0.024079	---
ENSDARG00000092361	1.623383956	15.08939167	-3.2165	6.50E-05	0.0036425	si:dkey-79f11.7
ENSDARG00000092364	235.3315427	153.0803028	0.62041	9.88E-05	0.0050823	si:ch211-218c6.8
ENSDARG00000092521	116.6033588	54.38163009	1.1004	7.28E-06	0.00057672	jac1
ENSDARG00000092584	44.73780123	80.75262876	-0.85201	0.0006706	0.022643	si:ch1073-385f13.3
ENSDARG00000092671	381.7110679	272.6001167	0.48569	0.00034188	0.013385	---
ENSDARG00000092801	0	29.18098891	#NAME?	2.71E-07	3.29E-05	---
ENSDARG00000092833	385.2847092	115.8212127	1.734	1.75E-05	0.0012289	---

ENSDARG00000092870	465.9468244	338.6152099	0.46052	0.0011289	0.03323	---
ENSDARG00000092947	661.0535508	1549.066899	-1.2286	9.06E-07	9.61E-05	---
ENSDARG00000093126	494.0119045	357.1153959	0.46816	0.00016205	0.0076039	---
ENSDARG00000093237	531.891746	277.0966079	0.94074	1.99E-12	9.32E-10	si:ch211-89o9.4
ENSDARG00000093244	481.0458541	631.8797596	-0.39348	0.0017886	0.046932	---
ENSDARG00000093303	968.8886166	722.841754	0.42265	0.00016961	0.0078206	ifitm1
ENSDARG00000093304	352.822497	226.8353341	0.6373	4.28E-06	0.00036163	si:dkey-221j11.3
ENSDARG00000093313	2127.306169	1559.925645	0.44755	1.12E-05	0.00083237	---
ENSDARG00000093316	153.9769818	95.06345113	0.69575	0.00018706	0.0083441	---
ENSDARG00000093323	32.84561681	97.26698492	-1.5662	1.16E-09	2.67E-07	si:ch211-114i13.1
ENSDARG00000093365	121.3456241	30.46204219	1.994	0.00043629	0.016282	---
ENSDARG00000093438	109.8334882	169.3072779	-0.62433	0.00071999	0.023881	---
ENSDARG00000093469	131.2833158	78.26237026	0.74629	0.00066697	0.022592	---
ENSDARG00000093476	60.0067138	31.99335622	0.90735	0.0019012	0.04944	si:dkey-175d9.2
ENSDARG00000093489	103.3592852	49.39220326	1.0653	6.96E-06	0.00055631	---
ENSDARG00000093684	242.3272302	167.0829066	0.53639	0.00076884	0.025007	---
ENSDARG00000093759	88.48643094	37.46268656	1.24	1.72E-06	0.00016841	---
ENSDARG00000093799	591.4579895	450.0610337	0.39416	0.0014152	0.039197	setbp1
ENSDARG00000093844	7619.429669	11666.26961	-0.61459	9.63E-07	0.00010049	---
ENSDARG00000093998	231.282808	69.591062	1.7327	8.88E-07	9.45E-05	---
ENSDARG00000094112	129.3872785	217.0533379	-0.74635	8.42E-06	0.00065524	---
ENSDARG00000094197	64.40593619	23.8970208	1.4304	3.27E-06	0.00028794	---
ENSDARG00000094210	237.5138736	156.3033467	0.60366	0.001203	0.034843	---
ENSDARG00000094217	181.5509918	307.8403677	-0.76181	0.001005	0.030338	---
ENSDARG00000094286	30.81956561	62.76969064	-1.0262	0.00032661	0.012945	si:ch211-117m20.4
ENSDARG00000094433	30.27418737	67.1498404	-1.1493	6.94E-05	0.0038172	---

ENSDARG00000094451	192.4737778	280.3302845	-0.54247	0.00043408	0.016219	---
ENSDARG00000094459	30.62791631	9.440772709	1.6979	0.0001429	0.0068363	---
ENSDARG00000094466	226.4019164	141.782413	0.67521	3.99E-05	0.0024229	---
ENSDARG00000094570	60.69602424	14.60362516	2.0553	0.0003252	0.012918	si:ch211-226h7.2
ENSDARG00000094677	487.3060759	367.2470461	0.40808	0.0013868	0.038612	---
ENSDARG00000094760	151.8288005	71.17164138	1.0931	5.05E-07	5.75E-05	---
ENSDARG00000094790	0.322866519	8.084401044	-4.6461	0.00081252	0.02603	---
ENSDARG00000094965	2918.658802	4125.570099	-0.49929	0.00049911	0.017975	nfil3-5
ENSDARG00000095048	19.79563489	66.57031067	-1.7497	9.64E-07	0.00010049	si:dkey-250k15.7
ENSDARG00000095136	72.70298466	40.32585157	0.85031	0.001098	0.032592	---
ENSDARG00000095142	107.5116977	204.7478879	-0.92935	9.02E-08	1.21E-05	FKBP15 (1 of many)
ENSDARG00000095147	49.16414192	15.6391919	1.6524	1.38E-05	0.00099046	krt96
ENSDARG00000095200	70.71688302	10.71271	2.7227	7.89E-06	0.00062174	---
ENSDARG00000095217	181.8401221	121.4945786	0.58178	0.00072672	0.024079	---
ENSDARG00000095293	24.00318116	8.04381259	1.5773	0.0011682	0.034072	---
ENSDARG00000095388	122.0641636	60.08190931	1.0226	3.75E-06	0.00032466	---
ENSDARG00000095464	21.76244839	104.21033	-2.2596	3.22E-07	3.88E-05	gstt2
ENSDARG00000095512	42.05205397	86.99598265	-1.0488	0.001019	0.030732	---
ENSDARG00000095522	0	39.94470723	#NAME?	7.40E-11	2.31E-08	si:dkey-71b5.3
ENSDARG00000095553	21.81137775	86.05678467	-1.9802	1.44E-12	6.94E-10	---
ENSDARG00000095649	39.74549244	115.1796006	-1.535	8.49E-11	2.58E-08	si:dkey-97a13.12
ENSDARG00000095724	94.80104139	42.19078083	1.168	2.00E-06	0.00019203	si:ch211-196c10.15
ENSDARG00000095947	1140.084065	799.8972805	0.51125	4.59E-06	0.0003836	adkb
ENSDARG00000096186	5.35506225	19.6546908	-1.8759	0.00081916	0.026164	---
ENSDARG00000096216	44.06000245	7.105705626	2.6324	1.76E-07	2.24E-05	si:ch211-162i8.7
ENSDARG00000096222	32.25253042	11.05826184	1.5443	0.00020462	0.0088588	---

ENSDARG00000096519	35.87109421	66.48262106	-0.89016	0.0012529	0.03579	---
ENSDARG00000096533	231.4526462	327.2697754	-0.49976	0.00049992	0.017984	rltgr
ENSDARG00000096579	0	22.99190081	#NAME?	0.00016385	0.0076581	si:dkey-9c18.3
ENSDARG00000096654	95.80049442	57.98190891	0.72443	0.0015297	0.041681	---
ENSDARG00000096786	36.21452375	10.62632204	1.7689	3.11E-05	0.0019731	---
ENSDARG00000096830	18.89119365	4.078230982	2.2117	0.00037787	0.01444	---
ENSDARG00000096874	358.2046954	262.9820067	0.44582	0.0017544	0.04626	tmem176l.3b
ENSDARG00000096988	68.69080499	153.8834039	-1.1636	8.40E-09	1.54E-06	---
ENSDARG00000097110	112.8228048	389.3891748	-1.7872	2.24E-18	2.31E-15	si:dkey-56f14.4
ENSDARG00000097137	556.8737827	235.1228902	1.2439	1.50E-20	2.28E-17	---
ENSDARG00000097157	741.4102665	421.0163523	0.8164	2.85E-06	0.00025885	---
ENSDARG00000097197	40.07495002	16.00905156	1.3238	0.0012971	0.036791	---
ENSDARG00000097275	44.78016637	13.60995076	1.7182	2.64E-06	0.000242	---
ENSDARG00000097369	102.6966617	179.0564798	-0.80203	6.72E-06	0.00053987	---
ENSDARG00000097489	63.73963119	108.3456474	-0.76538	0.00057821	0.020164	si:ch73-390p7.2
ENSDARG00000097533	479.8337216	802.9853587	-0.74284	0.00029286	0.011843	---
ENSDARG00000097539	234.118665	39.8978167	2.5529	9.89E-32	7.89E-28	si:ch211-39f2.3
ENSDARG00000097653	1.643946977	20.62340767	-3.649	0.00032191	0.012839	si:dkey-23k10.3
ENSDARG00000097683	342.8971529	467.2597546	-0.44645	0.00065054	0.022106	sptbn5
ENSDARG00000097763	170.2181754	102.8036042	0.72749	5.74E-05	0.0032917	---
ENSDARG00000097845	161.3823308	99.25519628	0.70127	0.00020936	0.0090272	si:ch211-105j21.9
ENSDARG00000097886	34.41099321	13.31345366	1.37	0.00083301	0.026421	---
ENSDARG00000097931	4.144618104	20.02976152	-2.2728	0.00011254	0.0056282	---
ENSDARG00000097959	1169.321627	737.2144125	0.66552	0.00035878	0.013893	si:dkey-248g15.3
ENSDARG00000097973	95.8189301	0.28803082	8.3779	6.89E-06	0.00055214	---
ENSDARG00000098024	2247.494346	1479.665284	0.60305	4.90E-09	9.78E-07	si:dkey-262k9.2

ENSDARG00000098051	105.80317	231.0565936	-1.1269	4.28E-11	1.47E-08	opn6b
ENSDARG00000098058	584.8895301	350.8340413	0.73738	0.00033628	0.013228	---
ENSDARG00000098115	11.93085016	53.72808586	-2.171	0.00061482	0.021185	---
ENSDARG00000098162	187.722918	294.9701541	-0.65196	1.60E-05	0.0011352	---
ENSDARG00000098191	232.7284699	158.4571716	0.55455	0.00047519	0.01725	si:dkey-16l2.20
ENSDARG00000098257	169.5683564	242.3164983	-0.51503	0.0017351	0.045904	---
ENSDARG00000098271	23.05391447	0	Inf	5.05E-12	2.18E-09	---
ENSDARG00000098315	1079.060227	705.4783022	0.6131	7.49E-07	8.21E-05	---
ENSDARG00000098332	7.775941598	51.05353831	-2.7149	1.25E-11	5.19E-09	---
ENSDARG00000098349	745.3941501	484.3035126	0.62209	1.55E-07	2.03E-05	hdac4
ENSDARG00000098359	551.6750525	415.2672535	0.40978	0.0007395	0.024326	il17rd
ENSDARG00000098363	95.09716729	36.00408539	1.4012	6.71E-06	0.00053987	---
ENSDARG00000098392	310.6985082	430.5389605	-0.47063	0.00055296	0.019518	si:ch73-28h20.1
ENSDARG00000098403	23.29575011	7.249175524	1.6842	0.0015102	0.041326	---
ENSDARG00000098469	35.23029967	8.041859005	2.1312	5.92E-05	0.0033778	---
ENSDARG00000098597	70.71560815	34.89927389	1.0188	0.00042796	0.016084	---
ENSDARG00000098631	1183.14669	780.714865	0.59976	8.88E-06	0.00068081	---
ENSDARG00000098714	28.37031992	9.319657052	1.606	0.00032004	0.012797	---
ENSDARG00000098721	2.683286956	26.64383989	-3.3117	4.79E-08	6.92E-06	---
ENSDARG00000098724	287.0222975	193.8710767	0.56607	0.00022824	0.0096846	---
ENSDARG00000098805	473.2819168	803.0274594	-0.76275	0.0015265	0.041681	vwa11
ENSDARG00000098837	61.24305503	207.1719396	-1.7582	7.80E-05	0.0042185	tgm5l
ENSDARG00000098995	312.7187774	209.1397592	0.5804	9.33E-05	0.0048495	---
ENSDARG00000098997	21.74311552	3.008588492	2.8534	4.06E-06	0.00034633	---
ENSDARG00000099006	11.2645541	55.39614423	-2.298	5.86E-10	1.39E-07	---
ENSDARG00000099091	164.0146505	423.0773077	-1.3671	2.98E-06	0.00026852	---

ENSDARG00000099099	149.666207	72.40689515	1.0475	0.00010007	0.0051333	---
ENSDARG00000099115	2711.650954	2133.900909	0.34568	0.00068595	0.022991	---
ENSDARG00000099134	29.91390316	11.29658598	1.4049	0.0012772	0.036388	---
ENSDARG00000099149	206.5873532	288.5214742	-0.48193	0.00096618	0.029417	---
ENSDARG00000099171	43.71653713	11.33196562	1.9478	0.00027431	0.011193	---
ENSDARG00000099403	12.80814627	38.37322823	-1.583	5.45E-05	0.003171	znf1075
ENSDARG00000099419	88.32687421	48.97263915	0.85088	0.00088514	0.027635	---
ENSDARG00000099442	188.200806	340.1597533	-0.85394	2.45E-06	0.00023216	---
ENSDARG00000099448	796.3881868	410.3253468	0.9567	4.49E-15	3.18E-12	---
ENSDARG00000099470	366.4721295	189.3999932	0.95227	2.83E-06	0.00025772	---
ENSDARG00000099506	24.92407256	63.34770586	-1.3458	0.001848	0.048122	---
ENSDARG00000099622	19.91654377	4.245146145	2.2301	0.001849	0.048122	---
ENSDARG00000099641	22.19594228	6.51271142	1.769	0.0011203	0.033007	---
ENSDARG00000099677	227.5312939	144.4582622	0.65541	5.72E-05	0.0032917	bambib
ENSDARG00000099678	34.04824869	9.434260011	1.8516	2.55E-05	0.0016871	---
ENSDARG00000099695	645.1126573	860.0758049	-0.41491	0.00043824	0.016336	si:dkey-61n16.5
ENSDARG00000099754	16.2683656	2.553642509	2.6714	0.00016886	0.0078198	---
ENSDARG00000099764	13.70600541	49.21942958	-1.8444	2.62E-05	0.0017265	---
ENSDARG00000099839	183.238543	83.46081298	1.1346	1.91E-09	4.11E-07	---
ENSDARG00000099880	94.70190779	55.12330301	0.78073	0.0010645	0.031772	---
ENSDARG00000099889	1480.148798	1948.907613	-0.39692	0.00034239	0.013388	---
ENSDARG00000099902	539.8436958	286.7750595	0.91262	4.00E-12	1.80E-09	---
ENSDARG00000099930	158.5649618	253.2553696	-0.67552	5.87E-05	0.0033593	---
ENSDARG00000099960	145.0188998	392.1722516	-1.4352	1.29E-08	2.24E-06	---
ENSDARG00000099973	329.6633161	463.2928736	-0.49093	0.00019817	0.0086859	ctage5
ENSDARG00000100000	120.8742646	239.3953866	-0.98589	3.47E-08	5.20E-06	---

ENSDARG00000100003	9629.341091	7145.777464	0.43035	7.19E-06	0.00057166	--/
ENSDARG00000100040	18.00362496	3.053736058	2.5596	0.00020814	0.0089989	--/
ENSDARG00000100095	108.5111597	160.3963282	-0.5638	0.001684	0.044966	--/
ENSDARG00000100185	194.8518696	575.6848448	-1.5629	2.03E-10	5.58E-08	--/
ENSDARG00000100188	405.8145515	226.8542068	0.83906	0.00092636	0.028559	--/
ENSDARG00000100223	1810.881906	1288.671872	0.49081	2.24E-05	0.0015045	--/
ENSDARG00000100265	817.829726	562.4894689	0.53997	7.52E-05	0.0040859	rhcgb
ENSDARG00000100311	116.3908046	8.324029067	3.8056	9.63E-07	0.00010049	--/
ENSDARG00000100315	204.5214777	335.1425595	-0.71252	0.0017934	0.047021	--/
ENSDARG00000100332	68.21492807	28.48532612	1.2599	1.27E-05	0.00091677	--/
ENSDARG00000100333	89.1079105	13.50511573	2.722	4.84E-16	3.77E-13	--/
ENSDARG00000100339	67.35819498	32.41096898	1.0554	0.0001973	0.0086607	--/
ENSDARG00000100341	23.03335145	6.595192209	1.8042	0.00051822	0.018508	si:ch211-196h24.2
ENSDARG00000100344	2.319294395	40.67986969	-4.1326	7.27E-09	1.37E-06	--/
ENSDARG00000100357	198.6592805	123.4363385	0.68653	0.00073076	0.024163	--/
ENSDARG00000100398	646.3190869	857.4956769	-0.40788	0.00073341	0.0242	--/
ENSDARG00000100478	12.47499824	77.70149599	-2.6389	2.06E-12	9.52E-10	--/
ENSDARG00000100480	79.34291299	2.10716281	5.2347	8.15E-18	8.13E-15	--/
ENSDARG00000100499	1095.22547	1438.933526	-0.39377	0.00032488	0.012918	--/
ENSDARG00000100540	36.85244453	9.878786124	1.8994	1.43E-05	0.0010239	--/
ENSDARG00000100582	4895.187344	2693.310183	0.86198	1.17E-06	0.00012042	--/
ENSDARG00000100602	61.68026621	6.59909938	3.2245	2.15E-16	1.86E-13	--/
ENSDARG00000100641	81.36896419	41.55264129	0.96954	0.00055949	0.019661	--/
ENSDARG00000100654	66.87327565	34.20318761	0.9673	0.00056125	0.019701	--/
ENSDARG00000100661	47.2269607	100.6189588	-1.0912	0.00097201	0.029538	--/
ENSDARG00000100693	578.9619969	430.471228	0.42755	0.0007456	0.024501	--/



ENSDARG00000100697	4184.120691	2675.656987	0.64503	4.36E-11	1.48E-08	---
ENSDARG00000100702	1.815042199	17.31962372	-3.2543	8.12E-06	0.00063365	---
ENSDARG00000100792	369.0428138	561.5192309	-0.60555	7.12E-06	0.00056764	---
ENSDARG00000100826	9995.459099	7107.269134	0.49198	2.60E-06	0.0002416	---
ENSDARG00000100830	25.40404445	1.481394493	4.1	4.50E-09	9.09E-07	---
ENSDARG00000100832	90.97805965	41.45562061	1.134	2.90E-06	0.00026329	---
ENSDARG00000100969	119.2262227	60.47977112	0.97918	4.61E-06	0.00038365	tmprss13a
ENSDARG00000100972	43.56600493	15.37742249	1.5024	0.00016456	0.0076765	---
ENSDARG00000100981	744.9652809	553.3300082	0.42903	0.00019733	0.0086607	---
ENSDARG00000100986	187.694498	306.8111164	-0.70896	1.92E-06	0.0001865	---
ENSDARG00000101051	534.8102967	702.3348761	-0.39313	0.00063364	0.02174	---
ENSDARG00000101084	41.69052171	18.75391706	1.1525	0.0013499	0.037917	---
ENSDARG00000101142	41.46017984	10.1857031	2.0252	5.59E-07	6.35E-05	---
ENSDARG00000101149	1.058672849	12.7458583	-3.5897	9.71E-05	0.0050151	---
ENSDARG00000101160	108.8249927	61.73868525	0.81776	0.00014162	0.0067952	apoa4a
ENSDARG00000101164	132.0022853	49.10417468	1.4266	7.23E-11	2.28E-08	---
ENSDARG00000101195	684.2251943	474.0025501	0.52958	1.02E-05	0.00076301	---
ENSDARG00000101312	66.91566762	16.69255376	2.0031	2.95E-10	7.65E-08	si:dkey-31n13.4
ENSDARG00000101405	104.3381663	49.81307349	1.0667	4.13E-06	0.00035037	---
ENSDARG00000101407	70.29361698	175.248489	-1.3179	9.34E-07	9.87E-05	---
ENSDARG00000101473	112.0754421	28.11525359	1.995	7.72E-16	5.86E-13	---
ENSDARG00000101482	505.7280373	231.3888916	1.128	2.72E-16	2.29E-13	---
ENSDARG00000101567	190.0898759	440.987309	-1.2141	1.15E-17	1.12E-14	guca1e
ENSDARG00000101571	3.590197452	17.15531409	-2.2565	0.00067775	0.022831	---
ENSDARG00000101598	32.57663604	8.02948555	2.0205	8.41E-05	0.0044937	si:ch211-215p11.1
ENSDARG00000101707	218.0834793	321.5317216	-0.56008	0.00017699	0.0080332	---

ENSDARG00000101789	200.6478514	114.1787616	0.81337	2.97E-06	0.00026852	---
ENSDARG00000101910	258.6943606	128.1639982	1.0133	3.84E-10	9.73E-08	pcdh20
ENSDARG00000101930	22.48795532	2.022728435	3.4748	0.00098297	0.029843	---
ENSDARG00000101956	179.8687388	0.329271214	9.0935	1.98E-21	3.95E-18	---
ENSDARG00000101978	0.322866519	13.11246274	-5.3439	0.00046559	0.017039	---
ENSDARG00000102028	10.48884293	0.329271214	4.9934	6.01E-05	0.003417	---
ENSDARG00000102032	227.0402507	153.1760196	0.56776	0.00059007	0.020425	---
ENSDARG00000102102	43.13497135	16.11584018	1.4204	0.00013313	0.0064658	---
ENSDARG00000102156	4.679714832	35.14976086	-2.909	7.79E-08	1.07E-05	si:dkey-264f17.4
ENSDARG00000102176	37.9999784	75.84894019	-0.99713	0.00018134	0.0081724	---
ENSDARG00000102178	148.5149737	266.4479361	-0.84325	1.87E-07	2.36E-05	---
ENSDARG00000102215	62.47246331	13.14523685	2.2487	0.0015797	0.042768	---
ENSDARG00000102234	283.0861923	189.7277366	0.57731	0.00013827	0.0066765	---
ENSDARG00000102290	6.393172078	0	Inf	0.00095251	0.029196	---
ENSDARG00000102326	25.30493769	180.5118458	-2.8346	2.67E-07	3.25E-05	---
ENSDARG00000102416	1.744301777	22.60294213	-3.6958	8.71E-05	0.0046037	---
ENSDARG00000102435	438.7966736	190.7027421	1.2022	2.97E-11	1.10E-08	---
ENSDARG00000102437	28.59283164	1.522634887	4.231	1.20E-10	3.47E-08	---
ENSDARG00000102440	102.0546638	25.94405706	1.9759	2.72E-14	1.70E-11	---
ENSDARG00000102528	26.56432908	4.588744399	2.5333	4.44E-05	0.0026409	---
ENSDARG00000102593	0	22.7922093	#NAME?	8.67E-08	1.17E-05	---
ENSDARG00000102618	373.9260839	564.1672841	-0.59337	3.54E-06	0.00030844	---
ENSDARG00000102679	159.1247792	91.40109218	0.79988	0.0017767	0.04666	---
ENSDARG00000102706	391.3489074	176.6037629	1.1479	1.02E-14	6.70E-12	---
ENSDARG00000102725	61.01399698	31.74786744	0.94248	0.0011203	0.033007	---
ENSDARG00000102759	78.18924625	123.3608117	-0.65784	0.0018056	0.047265	---

ENSDARG00000102766	1164.333967	909.9867549	0.35559	0.0010327	0.031085	--/
ENSDARG00000102793	46.52736874	99.23088846	-1.0927	0.00027546	0.011225	--/
ENSDARG00000102798	650.0872142	860.5799828	-0.40468	0.00026235	0.010801	--/
ENSDARG00000102799	29.62846328	59.18308692	-0.9982	0.00070117	0.023306	--/
ENSDARG00000102848	37.30651038	5.564184587	2.7452	7.46E-09	1.40E-06	--/
ENSDARG00000102849	10.99186498	0.987813642	3.4761	0.00035529	0.013804	--/
ENSDARG00000102888	344.0196153	588.1061995	-0.77359	3.86E-06	0.00033112	--/
ENSDARG00000102970	27.67316144	64.14429875	-1.2128	0.0004576	0.01688	--/
ENSDARG00000103013	109.8100424	292.3173468	-1.4125	0.0005427	0.019219	pcdh1g22
ENSDARG00000103038	677.634079	921.6124037	-0.44365	9.29E-05	0.004847	--/
ENSDARG00000103117	446.6413446	277.9843607	0.68411	5.68E-07	6.42E-05	tmprss4a
ENSDARG00000103199	2312.270777	1148.850786	1.0091	5.92E-22	1.35E-18	--/
ENSDARG00000103249	76.90314107	149.0285595	-0.95447	0.00076976	0.025012	--/
ENSDARG00000103285	199.4530228	2.928061289	6.09	8.13E-75	2.59E-70	--/
ENSDARG00000103333	527.0622543	863.5521051	-0.71231	4.82E-10	1.17E-07	baiap2b
ENSDARG00000103369	1733.361127	1272.391514	0.44603	0.00079235	0.025564	taldo1
ENSDARG00000103370	205.8334889	139.3175511	0.5631	0.00052425	0.01869	--/
ENSDARG00000103503	338.8787867	465.0199853	-0.45652	0.00065053	0.022106	--/
ENSDARG00000103581	50.68718002	23.79304833	1.0911	0.00078756	0.02546	--/
ENSDARG00000103634	522.7622639	291.1854091	0.84422	8.52E-06	0.00066007	--/
ENSDARG00000103658	1474.29472	2011.367143	-0.44815	2.09E-05	0.0014283	hivep1
ENSDARG00000103659	360.7971282	209.241339	0.78602	5.47E-08	7.76E-06	bco11
ENSDARG00000103680	23.11437338	4.156804599	2.4752	1.96E-05	0.0013445	--/
ENSDARG00000103754	924.598802	717.2469484	0.36636	0.0013143	0.037144	--/
ENSDARG00000103755	71.77140723	12.80749935	2.4864	4.40E-06	0.00037045	--/
ENSDARG00000103846	1954.102948	2442.556325	-0.32189	0.0013916	0.038712	--/

ENSDARG00000103859	177.9698367	82.89430864	1.1023	3.32E-09	6.87E-07	---
ENSDARG00000103878	1093.910561	1866.576831	-0.7709	1.22E-06	0.00012501	---
ENSDARG00000104007	35.77197851	68.73911677	-0.9423	0.00077988	0.025263	pcdh1g1
ENSDARG00000104045	77.97330769	30.54473584	1.3521	8.89E-05	0.0046803	---
ENSDARG00000104064	44.40587441	13.97199609	1.6682	8.74E-06	0.000672	---
ENSDARG00000104068	3874.796894	2553.420254	0.60169	1.81E-09	3.93E-07	---
ENSDARG00000104074	1.281184567	11.79667953	-3.2028	0.0005051	0.018109	---
ENSDARG00000104204	130.9629185	194.6131932	-0.57145	0.00080106	0.025766	slc1a8a
ENSDARG00000104217	388.208654	542.3060327	-0.48227	0.00011887	0.0058621	---
ENSDARG00000104246	209.1867355	135.3595576	0.62799	0.00026669	0.010938	---
ENSDARG00000104261	153.5973379	81.63864974	0.91183	6.36E-06	0.00051527	---
ENSDARG00000104293	36.48723076	0.576061639	5.985	3.03E-16	2.48E-13	---
ENSDARG00000104314	323.1232933	512.5225035	-0.66553	4.55E-06	0.0003807	nrg1
ENSDARG00000104358	338.3547792	480.0792039	-0.50474	0.00014048	0.0067607	---
ENSDARG00000104380	106.9264414	55.66984577	0.94165	0.0018081	0.047288	---
ENSDARG00000104497	181.0940521	281.955588	-0.63873	3.29E-05	0.0020657	pcdh1g29
ENSDARG00000104613	1845.311603	1239.940021	0.57359	7.39E-07	8.16E-05	znf1179
ENSDARG00000104633	70.14186357	22.59642943	1.6342	2.50E-08	3.99E-06	---
ENSDARG00000104672	434.8528545	315.946276	0.46085	0.00050111	0.018006	---
ENSDARG00000104685	521.7997078	1085.891147	-1.0573	9.24E-21	1.55E-17	grk1b
ENSDARG00000104693	2149.330367	1663.204172	0.36992	0.00019217	0.0085047	il6st
ENSDARG00000104704	48.63153233	11.86678686	2.035	6.64E-08	9.22E-06	---
ENSDARG00000104732	301.0441918	431.0926634	-0.51802	0.00062248	0.021403	---
ENSDARG00000104817	271.3597512	193.8207359	0.48548	0.00092984	0.028638	---
ENSDARG00000104914	62.23469581	33.1107518	0.91042	0.0015367	0.041838	---
ENSDARG00000104995	65.73359876	33.3614494	0.97845	0.00047675	0.017286	---

ENSDARG00000105001	913.8780451	1216.648538	-0.41284	0.00021604	0.0092652	---
ENSDARG00000105052	17.50595488	39.98160137	-1.1915	0.00098975	0.029963	cfhl5
ENSDARG00000105104	459.7620758	187.174746	1.2965	5.23E-20	7.26E-17	---
ENSDARG00000105119	28.21854863	6.220121488	2.1816	1.76E-05	0.0012355	si:ch211-258f1.3
ENSDARG00000105270	101.9584309	55.86953728	0.86785	0.00010723	0.005416	---
ENSDARG00000105380	175.1734353	110.8495832	0.66018	0.00033011	0.013052	---
ENSDARG00000105388	102.7929752	29.13323582	1.819	0.00083589	0.02646	---
ENSDARG00000105411	193.4925279	397.2146092	-1.0376	1.97E-06	0.00018976	---
ENSDARG00000105416	137.7703053	213.7033332	-0.63334	0.00025714	0.010642	---
ENSDARG00000105491	714.158799	385.2332261	0.89051	7.76E-13	3.87E-10	---
ENSDARG00000105570	4.124055083	18.41813315	-2.159	0.00030506	0.012259	crestin
ENSDARG00000105584	245.8269677	172.0182782	0.51508	0.0012066	0.034843	slc8b1
ENSDARG00000105619	460.1804647	639.3058244	-0.47431	0.00096077	0.029364	---
ENSDARG00000105651	6.706996184	55.76274866	-3.0556	1.35E-13	7.53E-11	---
ENSDARG00000105655	13.49376626	42.22876599	-1.6459	1.60E-05	0.0011352	---
ENSDARG00000105747	9.107303566	26.06321913	-1.5169	0.0014199	0.039294	---
ENSDARG00000105880	467.4349052	932.5356152	-0.99639	2.18E-05	0.0014707	---
ENSDARG00000105882	335.8610768	449.6929214	-0.42108	0.0015945	0.043006	---
ENSDARG00000105998	0.998213938	9.146229191	-3.1958	0.001837	0.047888	---
ENSDARG00000106002	272.1905872	171.2147514	0.66881	9.92E-06	0.0007448	---
ENSDARG00000106068	28.39869521	9.572960175	1.5688	0.00036539	0.01403	---
ENSDARG00000106112	37.74785231	16.78870965	1.1689	0.001451	0.039903	---
ENSDARG00000106368	71.03722662	31.1646434	1.1887	2.59E-05	0.0017103	---
ENSDARG00000106467	30.56870544	146.2485272	-2.2583	1.46E-16	1.33E-13	---
ENSDARG00000106538	36.15532183	14.50291016	1.3179	0.0015878	0.042937	---
ENSDARG00000106574	0	14.65723901	#NAME?	0.00029543	0.011917	---

ENSDARG00000106663	47.75425411	17.1598732	1.4766	1.94E-05	0.0013336	--
ENSDARG00000106735	18.78054839	2.018821264	3.2177	0.0010625	0.031751	--
ENSDARG00000106760	306.5300054	217.196595	0.49703	0.00084318	0.026611	--
ENSDARG00000106936	24.4058484	6.813115695	1.8408	0.00018357	0.0082384	--
ENSDARG00000107151	5.566053362	35.48619671	-2.6725	0.00010824	0.0054562	--
ENSDARG00000107273	150.235013	90.94202617	0.7242	0.00012604	0.0061685	--
ENSDARG00000107438	157.721393	98.02624235	0.68614	0.00017563	0.0079891	--
ENSDARG00000107451	118.0363505	67.27421352	0.81111	0.00017577	0.0079891	--
ENSDARG00000107518	3.954190013	17.37128399	-2.1353	0.0010662	0.031795	--
ENSDARG00000107610	7.988171806	23.58684636	-1.562	0.0017062	0.045406	--
ENSDARG00000107761	1569.16115	789.7975419	0.99044	6.45E-20	8.57E-17	--
ENSDARG00000107813	5.284321829	28.0885531	-2.4102	5.03E-06	0.00041546	--
ENSDARG00000107931	45.32183626	17.97295733	1.3344	0.00011981	0.0058994	--
ENSDARG00000107995	0	17.52712734	#NAME?	3.03E-09	6.35E-07	--
ENSDARG00000108033	48.44644726	19.91385468	1.2826	0.00021421	0.0092118	--
ENSDARG00000108218	111.6896653	47.12398828	1.245	6.17E-08	8.64E-06	--
ENSDARG00000108429	154.2019717	223.5005011	-0.53546	0.0013852	0.038601	--
ENSDARG00000108514	164.1684329	105.5688704	0.63699	0.00058379	0.020319	--
ENSDARG00000108639	240.5480247	62.00999413	1.9558	3.88E-25	1.24E-21	--
ENSDARG00000108711	87.2953286	46.5754897	0.90633	0.00032549	0.012918	--
ENSDARG00000108774	172.7986115	259.7865437	-0.58824	0.00016094	0.0075741	--
ENSDARG00000108939	321.3197807	106.3109824	1.5957	3.89E-23	1.13E-19	--
ENSDARG00000108952	74.03555889	0.989767228	6.225	7.32E-22	1.56E-18	--
Novel00027	447.5437198	298.5671799	0.58397	1.24E-05	0.00090537	--
Novel00071	33.56868133	0	Inf	9.95E-07	0.00010341	--
Novel00072	496.4151483	370.3867288	0.42251	0.00083171	0.026406	--

Novel00074	742.0351662	1140.988828	-0.62073	1.31E-08	2.26E-06	--
Novel00080	16.28769847	38.1264378	-1.227	0.00092504	0.028546	--/
Novel00090	11.65939119	39.4990901	-1.7603	9.27E-06	0.0007043	--
Novel00113	516.9331748	1601.523877	-1.6314	3.82E-14	2.30E-11	--
Novel00136	812.9440851	439.7192788	0.88657	8.99E-14	5.22E-11	--/
Novel00138	8.733029494	54.86674466	-2.6514	4.41E-12	1.95E-09	--/
Novel00141	2.571420493	28.55717418	-3.4732	2.76E-05	0.0017899	--
Novel00156	4.942122441	40.92926564	-3.0499	3.33E-05	0.0020783	--
Novel00168	0	8.699749492	#NAME?	6.58E-05	0.0036697	--/
Novel00172	244.6000823	347.484917	-0.50653	0.00054912	0.019425	--/
Novel00215	96.40017187	30.21611433	1.6737	3.07E-10	7.90E-08	--
Novel00216	95.68613188	197.4448857	-1.0451	6.29E-09	1.22E-06	--
Novel00217	1.804760688	16.29252327	-3.1743	3.54E-05	0.0021832	--
Novel00220	30.47736622	8.528927157	1.8373	0.00010126	0.0051698	--
Novel00222	104.1954463	51.90309087	1.0054	0.00017492	0.0079891	--
Novel00228	16.38804433	54.01111624	-1.7206	0.00022782	0.0096794	--
Novel00267	0.645733039	15.76030755	-4.6092	1.55E-06	0.00015378	--/
Novel00274	208.097236	324.6108788	-0.64145	0.0010755	0.032042	--/
Novel00311	79.73161721	133.6815184	-0.74558	0.0002622	0.010801	--
Novel00319	8.491193851	45.11819241	-2.4097	8.15E-09	1.51E-06	--
Novel00320	2.652442425	40.8691391	-3.9456	1.45E-13	7.71E-11	--
Novel00325	8.179838994	24.94126444	-1.6084	0.0011554	0.03376	--
Novel00346	68.15328373	134.1972407	-0.9775	0.0012363	0.03541	--
Novel00390	21.86030711	152.2053514	-2.7996	1.72E-11	6.94E-09	--/
Novel00430	466.4880451	218.5369122	1.094	1.04E-15	7.68E-13	--
Novel00434	1.119131759	11.665144	-3.3818	0.00020072	0.0087493	--

Novel00435	96.06697017	558.1436167	-2.5385	7.67E-55	1.22E-50	---
Novel00439	33.64064295	75.98112765	-1.1754	9.95E-06	0.00074538	--
Novel00451	27.7875061	77.59470737	-1.4815	8.47E-06	0.00065793	--
Novel00468	193.2634431	131.2196856	0.55858	0.0015695	0.042549	---
Novel00474	4.849570958	91.32621511	-4.2351	6.66E-19	7.44E-16	--
Novel00511	0	9.446633466	#NAME?	3.18E-05	0.0020138	--
Novel00597	287.9921362	162.1316778	0.82886	7.86E-08	1.08E-05	--
Novel00602	17.70133041	95.00007159	-2.4241	5.41E-11	1.78E-08	---
Novel00659	443.7310911	603.9411869	-0.44472	0.00043085	0.016155	---
Novel00662	146.1817073	94.86050663	0.62388	0.00077516	0.025162	---
Novel00715	60.15727283	19.46802693	1.6276	2.23E-07	2.75E-05	--
Novel00716	0.37304392	12.41593515	-5.0567	7.97E-06	0.00062624	--
Novel00750	397.5348504	666.9694095	-0.74654	7.20E-06	0.00057166	--
Novel00751	493.4445376	1015.139534	-1.0407	6.97E-09	1.33E-06	--
Novel00752	2365.732081	1894.285703	0.32063	0.0015658	0.042485	--
Novel00776	34.03549794	10.26362477	1.7295	6.01E-05	0.003417	---
Novel00781	1.270903057	32.66774019	-4.6839	6.38E-08	8.89E-06	---
Novel00816	966.0218166	1333.017365	-0.46457	0.00045283	0.016723	--
Novel00818	249.6112748	157.089941	0.66809	3.39E-05	0.0021062	---
Novel00827	224.9368054	313.2919185	-0.47799	0.0011395	0.03345	---
Novel00828	589.2197707	450.7925174	0.38634	0.00115	0.033663	---
Novel00829	56.44613967	15.30536157	1.8828	2.38E-08	3.83E-06	--
Novel00846	2.339857416	51.74420291	-4.4669	6.76E-19	7.44E-16	---
Novel00882	151.2291052	330.0912654	-1.1261	5.40E-09	1.06E-06	--
Novel00883	381.9273305	197.6836489	0.9501	4.14E-09	8.52E-07	--
Novel00890	77.60522016	36.00538704	1.1079	2.66E-05	0.0017451	--



Novel00945	166.3371951	74.81186118	1.1528	1.32E-09	2.93E-07	--
Novel00963	3.610760473	102.7465223	-4.8306	4.58E-28	2.09E-24	--/
Novel00999	82.43422809	47.345167	0.80003	0.0013566	0.038037	--
Novel01000	72.42370449	17.97621256	2.0104	8.95E-11	2.69E-08	--
Novel01033	9.540815341	0.701736408	3.7651	0.00047451	0.01725	--
Novel01057	74.20055702	229.3318924	-1.6279	8.65E-07	9.24E-05	--
Novel01070	295.1519591	170.721175	0.78982	7.28E-05	0.0039869	--
Novel01071	54.82524285	170.52928	-1.6371	2.22E-07	2.74E-05	--/
Novel01072	60.28845427	29.05878223	1.0529	0.00046737	0.017076	--
Novel01085	200.6700133	102.2262409	0.97306	1.62E-07	2.11E-05	--
Novel01122	44.95127053	129.4730558	-1.5262	3.35E-11	1.22E-08	--
Novel01150	8.774155536	44.84383669	-2.3536	1.50E-07	1.97E-05	--/
Novel01157	96.63298298	190.2636511	-0.97741	1.78E-05	0.0012457	--/
Novel01176	1.906354585	14.95785614	-2.972	0.00051856	0.018508	--
Novel01181	45.23298418	18.51298739	1.2888	0.00029079	0.011775	--
Novel01187	0.312585009	8.701703078	-4.799	0.00038066	0.014494	--/
Novel01188	39.46253076	13.84371579	1.5113	0.00014213	0.0068096	--
Novel01189	20.23037682	0.329271214	5.9411	1.31E-09	2.92E-07	--/
Novel01190	0.948036537	23.78848922	-4.6492	1.22E-09	2.74E-07	--
Novel01192	64.16286145	110.9613678	-0.79025	0.00035048	0.013655	--
Novel01203	121.7927225	45.62349478	1.4166	3.65E-08	5.38E-06	--
Novel01204	62.48806994	102.9544494	-0.72035	0.0010478	0.031483	--
Novel01231	19.77753218	48.22119607	-1.2858	0.00096543	0.029417	--
Novel01241	2.289680016	23.70666037	-3.3721	1.71E-07	2.19E-05	--/
Novel01258	700.5399395	1044.405551	-0.57614	0.00024115	0.010098	--
Novel01263	0.685628929	31.43162162	-5.5186	1.37E-13	7.53E-11	--

Novel01285	133.5833131	69.50944377	0.94246	3.27E-06	0.00028794	---
Novel01292	933.1470998	137.5850154	2.7618	0.00083863	0.02652	--
Novel01308	18.5374826	49.43018842	-1.4149	3.75E-05	0.002294	---
Novel01312	22.9432871	2.551688923	3.1685	1.88E-05	0.001299	--
Novel01314	23.11562142	2.8455805	3.0221	0.00018085	0.0081618	--
Novel01335	181.6838258	310.8164083	-0.77463	3.11E-06	0.00027861	---
Novel01374	159.8004685	55.38442048	1.5287	2.90E-08	4.45E-06	--
Novel01392	178.1656525	252.6513192	-0.50393	0.001364	0.038143	---
Novel01397	55.04032893	20.69481665	1.4112	0.00023576	0.0099372	--
Novel01451	0.958318048	33.98331054	-5.1482	6.49E-14	3.84E-11	--
Novel01475	147.0330706	214.0171864	-0.54159	0.0012893	0.03669	--
Novel01492	7.040144213	45.560113	-2.6941	4.26E-10	1.07E-07	--
Novel01503	442.9882816	328.1851046	0.43276	0.00079817	0.025699	--
Novel01520	180.2068611	111.8868907	0.68761	0.0001112	0.0055788	--
Novel01553	95.60389768	54.64816923	0.8069	0.00082518	0.026277	--
Novel01574	6.353285133	167.5333113	-4.7208	3.16E-08	4.80E-06	--
Novel01577	254.2589596	397.05791	-0.64305	1.97E-05	0.0013482	---
Novel01613	56.49752933	20.4172057	1.4684	6.74E-05	0.0037213	--
Novel01628	80.72200994	42.66873299	0.91978	0.0003067	0.012294	---
Novel01630	43.37559473	19.82355955	1.1297	0.0015385	0.041851	---
Novel01643	8.985146648	0.329271214	4.7702	0.00051292	0.018368	--
Novel01667	9.511200962	40.85936893	-2.103	3.72E-07	4.39E-05	--
Novel01673	260.4604556	184.8681068	0.49457	0.0012656	0.03612	--
Novel01687	47.27057387	108.7788889	-1.2024	4.75E-07	5.45E-05	--
Novel01698	28.84372759	66.96057323	-1.2151	4.31E-05	0.0025779	--
Novel01707	2064.865027	576.5315768	1.8406	3.26E-19	3.85E-16	--

Novel01716	254.0108927	129.4800054	0.97216	1.75E-09	3.82E-07	--
Novel01737	1469.708744	968.7387825	0.60135	1.43E-08	2.44E-06	--
Novel01738	149.4255567	75.83049312	0.97858	7.45E-07	8.19E-05	--
Novel01752	195.8986442	122.7528385	0.67435	6.69E-05	0.0037118	--
Novel01768	838.2267625	462.4505169	0.85804	4.60E-10	1.15E-07	--
Novel01830	45.97005644	7.498571476	2.616	2.09E-07	2.61E-05	--
Novel01835	49.21557631	22.30514114	1.1417	0.00055201	0.019506	--
Novel01845	12.49432217	31.04482938	-1.3131	0.0016956	0.045198	--
Novel01846	382.7573588	547.8146633	-0.51726	4.70E-05	0.0027606	--
Novel01850	231.2913475	154.3279278	0.58371	0.00047884	0.017323	--

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