Molecular signatures identify immature mesenchymal progenitors in early mouse limb buds that respond differentially to morphogen signaling

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SUMMARY STATEMENT

Cell sorting identifies limb bud mesenchymal progenitors (LMPs) with distinct molecular signatures and differential dependence on morphogen signaling. Specifically, two immature LMP populations with strong chondrogenic differentiation potential are identified.

ABSTRACT

The key molecular interactions governing vertebrate limb bud development are a paradigm to study the mechanisms controlling progenitor cell proliferation and specification during vertebrate organogenesis. However, little is known about the cellular heterogeneity of the mesenchymal progenitors in early limb buds that ultimately contribute to the chondrogenic condensations prefiguring the skeleton. We combined flow cytometric and transcriptome analyses to identify the molecular signatures of several distinct mesenchymal progenitor cell populations present in early mouse forelimb buds. In particular, JAGGED1 (JAG1)-positive cells located in the posterior-distal mesenchyme were identified as the most immature limb bud mesenchymal progenitors (LMPs), which critically depend on SHH and FGF signaling in culture. The analysis of *Gremlin1* (*Grem1*)-deficient forelimb buds showed that JAG1-expressing LMPs are protected from apoptosis by GREM1-mediated BMP antagonism. At the same stage, the osteo-chondrogenic progenitors (OCPs) located in the core mesenchyme are already actively responding to BMP signaling. This analysis sheds light on the cellular heterogeneity of the early mouse limb bud mesenchyme and the distinct response of LMPs and OCPs to morphogen signaling.

INTRODUCTION

The developing vertebrate limb bud is an excellent model to study the molecular mechanisms and cellular interactions that govern proliferative expansion, specification and differentiation of mesenchymal progenitors during organogenesis. The limb bud mesenchymal progenitors (LMPs) will give rise to the osteo-chondrogenic lineages of the appendicular skeleton, tendons and connective tissue. In contrast, muscles arise from myoblasts that migrate from the somites into the early limb bud (reviewed by Zuniga, 2015). There is evidence that the mesenchyme consists of molecularly distinct anterior and posterior compartments during the initiation of limb bud development (Osterwalder, et al., 2014). It has been shown that SHH morphogen signaling specifies the antero-posterior (AP) identities of the future digits during the onset of mouse limb bud outgrowth (around embryonic day E9.75-E10.5; Zhu, et al., 2008). In parallel, a feedback signaling system is established between the posterior SHH signaling centre and FGF signaling by the apical ectodermal ridge (AER), which regulates the survival and proliferative expansion of LMPs in concert with GREMLIN1 (GREM1)-mediated BMP antagonism and WNT signaling (ten Berge, et al., 2008; Zhu, et al., 2008; Benazet, et al., 2009). In contrast much less is known about the cellular heterogeneity of the mesenchyme and potential differences in the mesenchymal response to morphogen signalling.

LMPs arise by a local epithelial-to-mesenchymal transition (EMT) of the coelomic epithelium within the presumptive limb field, which is regulated by the TBX5 transcriptional regulator and FGF10 signaling (Gros and Tabin, 2014). Experimental analysis and model simulations show that distal progression of limb bud outgrowth is driven by oriented rather than random cell behaviours and division (Boehm, et al.,

2010; Gros, et al., 2010). Lineage tracing identified a dorso-ventral compartment boundary which overlaps with the dorso-ventrally restricted expression of specific genes in mouse limb buds (Arques, et al., 2007). Furthermore, genetic mapping of the descendants of *Shh*-expressing cells showed that they give rise to the two posterior-most and part of the central digit (Harfe, et al., 2004). The *Shh*-expressing mesenchymal cells were isolated from mouse limb buds by means of an EGFP marker in combination with fluorescence activated cell sorting (FACS). Their analysis identified the cistrome and gene expression signature of the SHH-signaling cells in the posterior limb bud mesenchyme (Rock, et al., 2007; VanderMeer, et al., 2014). As limb bud outgrowth progresses, the distal and sub-ectodermal mesenchyme is kept in a proliferative and undifferentiated state by AER-FGF and ectodermal WNT signaling (Pearse, et al., 2007; ten Berge, et al., 2008; Karamboulas, et al., 2010). In contrast, the core mesenchyme expresses the SOX9 transcriptional regulator which marks the osteo-chondrogenic progenitors (OCPs) from early stages onward (Akiyama, et al., 2005). In particular, SOX9 controls the mesenchyme to chondrocyte transition and initiation of chondrogenic differentiation (Wright, et al., 1995; Barna and Niswander, 2007). FACS analysis of *Sox9*-EGFP-positive and -negative cells from mouse handplates (E11.5) showed that digit progenitors express SOX9 in a periodic pattern (Raspopovic, et al., 2014).

Here, we first investigated the cell cycle kinetics, which showed that the percentage of mesenchymal cells in S-phase decreases in parallel to the increase in cell numbers during progression of forelimb bud outgrowth. By combining flow cytometry with RNA sequencing (RNA-seq) analysis we were able to identify and analyse distinct cell mesenchymal cell populations in early mouse forelimb buds. This analysis identified distinct immature LMPs located in the posterior-distal and peripheral mesenchyme and

osteo-chondrogenic progenitors (OCPs) in the core mesenchyme. One of the three LMP populations encompasses myoblasts, while the other two represent distinct LMP populations with chondrogenic differentiation potential in culture. Comparative functional analysis showed that the transcriptional response to morphogenetic signaling differs significantly among the two chondrogenic LMP populations and OCPs. Genetic analysis of early forelimb buds revealed that the survival of the most immature LMPs located in the posterior-distal mesenchyme depends critically on GREMLIN1 (GREM1)-mediated BMP antagonism.

RESULTS

Quantitation of limb bud mesenchymal cell number and cell cycle kinetics reveals during forelimb bud outgrowth

Mouse forelimb bud mesenchymal cell numbers were determined by *Prx1*-Cre-mediated activation of an EGFP transgene in the endogenous β-actin locus. This results in EGFP expression by the vast majority of all limb bud mesenchymal cells (Fig. 1A; Logan, et al., 2002; Jagle, et al., 2007). Single cells were prepared from dissected forelimb buds (inset, Fig. 1B), which resulted in maximally 8-15% cell death at all stages (red arrowhead, Fig. 1B). Forelimb buds were accurately staged by counting somite numbers and mesenchymal cell numbers determined by counting the EGFP-positive cells in defined sub-fraction volumes using flow cytometry (for details see Materials and Methods, Fig. 1C, Table 1). Mesenchymal cell numbers increased from ~$1x10^4$ (22 somites at E9.25) to ~$7.7x10^5$ cells (54 somites at E12.0, Fig. 1C and Table 1). Cell numbers during the onset of forelimb bud development (18 somites at E9.0) were determined by counting DAPI-stained mesenchymal cell nuclei on serial

sections using stacks of confocal images. This analysis established that forelimb buds at E9.0 contain ~4512±974 mesenchymal cells (mean ± SD; n=4).

The cell cycle kinetics at the three stages of forelimb bud outgrowth were analysed using flow cytometric determination of cellular DNA contents and mitotic cells by measuring propidium iodide uptake and detecting phospho-histone H3 positive cells, respectively (Fig. 1D). This analysis revealed that the fraction of mesenchymal cells in S-phase was highest at E9.5, while the fraction of mesenchymal cells in the G0/G1-phase of the cell cycle was highest at E11.75. In contrast, the fraction of mitotic cells was similar at all stages (mean at E9.5: 1.2%, E10.75: 1.22%, E11.75: 1.31%, Fig. 1D). This decrease in the fraction of cells in S-phase was independently confirmed by directly assessing DNA synthesis by BrdU incorporation, which was highest in the mesenchyme of early limb buds (Figure S1). Taken together, this analysis showed that mitotic rates are similar at all stages, but in early forelimb buds more than half of all mesenchymal cells are in S-phase (E9.75), while at late stages most are in the G0/G1-phase of the cell cycle (~68%, E11.75, Fig. 1D).

FACS identifies distinct mesenchymal progenitor populations in early mouse forelimb buds (E10.5-E10.75)

Previous analysis of limb bud mesenchymal cells had established that the vast majority express platelet-derived growth factor receptor-α (PDGFRα; Takakura, et al., 1997), which in combination with SCA-1 allowed FACS isolation of mesenchymal stromal cells (MSCs) during limb long bone development (Morikawa, et al., 2009; Craft, et al., 2013; Nusspaumer, et al., 2017). To gain insight into the potentially cellular heterogeneity during the early phase of forelimb bud outgrowth, we used mouse embryos at E10.5-E10.75 (35-38 somites, Figs 2-7). These are the earliest forelimb

bud stages that permitted isolation of sufficient mesenchymal cells for functional analysis. We used several cell surface markers suited for FACS analysis (Fig. 2) in combination with a *Sox9*-EGFP allele (*Sox9*$^{IRES\text{-}EGFP}$; Chan, et al., 2011), as SOX9 is expressed by the OCPs located in the core limb bud mesenchyme already at early stages (Fig. 2A-C). Immunofluorescence analysis also detected high levels of PDGFRα in the core mesenchyme, while levels were lower in the peripheral mesenchyme (Fig. 2B). In contrast, the SCA-1 transcript distribution in early forelimb buds was previously shown to be rather diffuse with higher levels in the peripheral mesenchyme (Nusspaumer, et al., 2017). Our analysis of different cell surface markers suited for FACS isolation also identified the transmembrane NOTCH ligand JAG1 due to its localized expression in the posterior-distal forelimb bud mesenchyme (E10.5-E10.75, Fig. 2A,C; Fig. S2; Panman, et al., 2006). Based on these results, we decided to use these markers for FACS isolation distinct forelimb bud mesenchymal cell populations (E10.5-E10.75, Fig. 3A). Initially apoptotic, ectodermal and various non-mesenchymal cell-types were excluded from further analysis using the appropriate cell surface markers (exclusion of lineage-positive cells, for details see Materials and Methods). The vast majority of these lineage-negative (Lin$^-$) cells were PDGFRα-positive (Pα$^+$) mesenchymal cells, which were separated further into SOX9-positive (S9$^+$) and negative (S9$^-$) cells by their *Sox9*-EGFP expression (second panel in Fig. 3A). The core mesenchymal cells expressing SOX9 and high levels of PDGFRα (S9$^+$Pα^{hi}, Fig. 2A-2C) corresponded to ~38±8% of all Lin$^-$ mesenchymal cells (Fig. 3B). This population consisted predominantly of OCPs as it expressed only low levels of *Col2a1*, a molecular indicator of chondroblast differentiation (Fig. 3C; Akiyama, et al., 2005). The SOX9-negative Pα$^+$cells (S9$^-$Pα$^+$ cells) were sorted further with respect to

their expression of the SCA-1 and JAG1 antigens, leading to isolation of three additional populations (third panel in Fig. 3A). FACS analysis established these as distinct populations as there was no overlap between the SCA-1 ($S9^{-}SCA\text{-}1^{+}$) and JAG1 ($S9^{-}JAG1^{+}$) populations. The third population of SOX9-negative cells neither expressed SCA-1 nor JAG1, but high levels of PDGFRα ($S9^{-}P\alpha^{hi}$, right panel in Fig. 3A). This $S9^{-}P\alpha^{hi}$ population included ~25±6 % of all Lin^{-} mesenchymal cells, while the $S9^{-}SCA\text{-}1^{+}$ (~6±2%) and $S9^{-}JAG1^{+}$ (~9±21%) populations were much less abundant.

Molecular signatures identify $S9^{-}P\alpha^{hi}$ and $S9^{-}JAG1^{+}$ LMPs as early progenitors with robust chondrogenic differentiation potential in culture

To gain insight into the transcriptional signatures of the three mesenchymal cell populations and OCPs isolated from mouse forelimb buds at E10.5-E10.75 (Fig. 3A), FACS was combined with RNA-seq analysis (Figs. 4, 5). Chondroblasts expressing high levels of *Col2a1* were isolated from forelimb buds at E11.5 (45-47 somites) as $S9^{+}P\alpha^{hi}$*Col2a1*$^{+}$ cells (Fig. 3B-D) and included in the analysis to discriminate OCPs from chondroblasts. Principal components analysis (PCA) of the RNA-seq data showed that the biological replicates cluster well, pointing to minimal intra-group variability. This analysis revealed that the $S9^{-}SCA\text{-}1^{+}$ mesenchymal cell population exhibit the highest variance along the y-axis, indicating that these cells might be rather different from the other populations (Fig. 4A). As expected, OCPs ($S9^{+}P\alpha^{hi}$ population) were rather similar to chondroblasts ($S9^{+}P\alpha^{hi}$*Col2a1*$^{+}$ population), while $S9^{-}JAG1^{+}$ and $S9^{-}P\alpha^{hi}$ LMPs differed from both OCPs and chondroblasts, but to a lesser extent than $S9^{-}SCA\text{-}1^{+}$ cells (Fig. 4A).

Next, the RNA-seq datasets were subjected to Gene Ontology (GO) analysis to identify the genes and pathways, whose expression differed significantly in one

population versus all others. GO analysis of the S9^{-}SCA-1^{+} population revealed that genes and pathways functioning in cell growth/proliferation and metabolic processes were expressed at higher than average levels, while the expression of genes functioning during limb bud development and chondrogenesis were expressed at lower than average levels (Fig. S3A,B). In addition to S9^{-}SCA-1^{+} cells being actively proliferating progenitors, the GO analysis revealed that they expressed genes functioning in migration and differentiation of myoblasts (Fig. 4B; Chal and Pourquie, 2017). These included the c-MET receptor tyrosine kinase (*Met*), myogenin (*Myog*), myogenic differentiation factor-1 (*Myod1*), myogenic factor-5 (*Myf5*) and the *Pax3* and *Pax7* transcriptional regulators (Fig. 4B). Furthermore, culturing S9^{-}SCA-1^{+} cells under conditions that favour chondrogenesis resulted in their elimination by cell death rather than induction of chondrogenic differentiation (data not shown). Our gene expression data suggests that the S9^{-}SCA-1^{+} cell population isolated from early forelimb buds (E10.5-E10.75) encompasses myogenic rather than chondrogenic progenitors.

S9^{-}JAG1^{+} LMPs displayed much less variance along the y-axis and appeared more closely related to the other three populations than S9^{-}SCA-1^{+} cells (Fig. 4A). GO analysis showed that genes functioning in pathways relevant to cell growth/proliferation, metabolism and diverse developmental processes were also expressed at higher than average levels (Fig. 4C). In addition, genes belonging to pathways functioning in limb bud, chondrogenic and skeletal development were expressed at low levels by S9^{-}JAG1^{+} LMPs (Fig. S3C). Overall the GO analysis indicated that these cells either belong to a non-chondrogenic lineage or have not yet been determined, which would point to the immature state of S9^{-}JAG1^{+} LMPs (see below). In contrast, S9^{-}Pα^{hi} LMPs most prominently expressed genes with essential functions during limb bud morphogenesis and mesenchymal cell proliferation (Fig. 4D,

Fig. S2D). As expected, S9^{+}Pα^{hi} OCPs and S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts expressed high levels of genes functioning in chondrocyte and/or cartilage differentiation, extra-cellular matrix and collagen fibril organisation. Conversely, the expression of genes functioning in cell growth/proliferation and metabolic processes was lower than average (Fig. 4E,F, Fig. S3E,F).

The global molecular differences among two LMP populations, OCPs and chondroblasts were exemplified by the ordered comparison of all differentially expressed genes shown in Figure 5A. The most striking feature of this comparison is the large cluster of genes expressed at lower than average levels in S9^{-}JAG1^{+} LMPs (indicated by the black square in Fig. 5A). While the expression a significant fraction of these genes was increased in S9^{-}Pα^{hi} LMPs, this was enhanced in S9^{+}Pα^{hi} OCPs and S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts with the latter expressing the vast majority at high levels (Fig. 5A). To gain further insight into the relatedness and functional relevance of these changes in the four cell populations, we manually curated a list of the differentially expressed transcriptional regulators that are genetically required for limb bud and/or limb skeletal development (for details see legend to Fig. 5B). This analysis revealed the expression profiles of these essential transcription factors in the different cell populations. For example, *Hoxa11*, *Hoxa13* and the *Hoxd11-13* genes were expressed at higher than average levels in S9^{-}JAG1^{+} LMPs as expected from their expression in the posterior-distal limb bud mesenchyme (left lane, Fig. 5B; reviewed by Zakany and Duboule, 2007). These *Hox* genes were also expressed at higher levels in S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts in agreement with their requirement for limb skeletal bone development (right lane, Fig. 5B; Gonzalez-Martin, et al., 2014; Neufeld, et al., 2014). Other than that, the signature of S9^{-}JAG1^{+} LMPs was largely complementary to one of S9^{+}Pα^{hi} OCPs and S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts (Fig. 5B).

The S9^{-}Pα^{hi} LMP population expressed higher than average levels of transcription factors functioning the anterior, posterior and/or peripheral mesenchyme during early limb bud development such as *Pax1*, *Alx4*, *Irx3/5 Tbx2/3*, and *Msx1* (second lane in Fig. 5B), which confirmed that this population is distinct from S9^{-}JAG1^{+} LMPs. As expected, S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts expressed high levels of transcriptional regulators required for chondrogenesis and limb skeletal, digit and tendon morphogenesis such as *Hoxa* and *Hoxd*, *Sox* and *Runx* gene family members and the *Shox2*, *Osr1* and *Scx* transcription factors (right lane in Fig. 5B).

Next, we assessed the chondrogenic differentiation potential of the two LMP populations identified in high density culture (Fig. 5C; Barna and Niswander, 2007; Benazet, et al., 2012). This resulted in activation of *Sox9*-EGFP expression in a significant fraction of cells from both LMP populations within 24 hours as previously reported for SOX9-negative digit progenitors isolated at much later stages (E11.5; Raspopovic, et al., 2014). Moreover, the SOX9-positive cells in these cultures aggregated and formed typical chondrogenic condensations without addition of exogenous BMP4 (Fig. 5C). This analysis revealed the potent chondrogenic differentiation potential of both the S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMP populations, which together with the gene expression analysis (Fig. 4, Fig. 5A,B) indicated that they are likely progenitors of the chondrogenic lineage in forelimb buds.

Differential cellular responsiveness uncovers the specific requirement of SHH and FGF signaling for S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs in culture

Limb bud outgrowth and patterning are controlled by the self-regulatory SHH/GREM1/AER-FGF feedback signaling system (reviewed by Zuniga, 2015). The transcriptome datasets of the four cell populations with chondrogenic differentiation

potential (Figs. 4, 5) allowed us to analyse the differential expression of genes functioning in these pathways in an un-biased and genome-wide manner. This showed that the expression of genes functioning in SHH signal transduction by Smoothened (SMO) was very different among the four mesenchymal cell populations (Fig. 6A). In particular, the SMO gene expression signature in S9^{-}JAG1^{+} LMPs in the posterior-distal and S9^{+}Pα^{hi} OCPs in the core mesenchyme appeared rather complementary (Fig. 6A, compare to Fig. 2A, 2C). The genes expressed at high levels in S9^{+}Pα^{hi} OCPs (and chondroblasts at E11.5) included direct transcriptional targets that are negatively regulated by SHH signaling and expressed predominantly in the core mesenchyme (e.g. *Cdon*, *Boc*, *Gli2* and *Hhip*; Tenzen, et al., 2006; Probst, et al., 2011; Lewandowski, et al., 2015). By contrast, S9^{-}JAG1^{+} LMPs expressed high levels of genes like *Gli1* and *Ptch1*, which are activated in the posterior mesenchyme in response to SHH signaling (Goodrich, et al., 1996; Buscher and Ruther, 1998). As this pointed to potential differences in the SMO-mediated response to SHH signaling, we treated forelimb buds mesenchymal cells (E10.5-E10.75) in high density culture with cyclopamine, a SMO small molecule antagonist (Chen, et al., 2002). Twelve hours of cyclopamine treatment caused loss of *Gli1* expression, a direct transcriptional target of SHH-mediated signal transduction (Fig. 6B and Fig. S4A; Lee, et al., 1997). Importantly, this relatively short cyclopamine treatment did not alter cell survival but slightly decreased the fraction of mitotic cells (Fig. S4B,C). Comparative flow cytometric analysis of control and cyclopamine-treated cultures revealed a significant reduction in both the S9^{-}JAG1^{+} (~3-fold) and S9^{-}Pα^{hi} LMP populations (~2-fold; Fig. 6B), while the large fraction of S9^{+}Pα^{hi} OCPs was not altered by inhibiting SHH signal transduction (Fig. 6B). These results showed that maintenance of the two LMP populations in culture depended critically on SHH signal transduction. As S9^{-}JAG1^{+}

LMPs are located in the posterior-distal mesenchyme close to the SHH source (Fig. 2C), we wondered if these LMPs include *Shh*-expressing cells and/or their descendants (Harfe, et al., 2004). The *Shh*^{GFPCre} allele, which labels *Shh*-expressing cells by EGFP (first panel in Fig. 6C) was used in combination with a CRE-inducible *ROSA26*$^{LSL\text{-}tdTomato}$ transgene to trace the tdTOMATO-positive *Shh* descendants (second panel in Fig. 6C; Harfe, et al., 2004). This approach identified a small fraction of cells expressing both tdTOMATO and JAG1 (fourth panel in Fig. 6C). This was also confirmed by FACS as ~10% of the tdTOMATO$^+$ LMPs co-expressed JAG1 (Fig. 6D). Therefore, it appears that only a small fraction of S9$^-$JAG1$^+$ LMPs originated from *Shh* expressing cells and/or their descendants, pointing to the cellular heterogeneity of this population.

AER-FGF signaling is required to maintain cells in the distal sub-AER mesenchyme in an undifferentiated and proliferative state (ten Berge, et al., 2008), which suggested that it might be required to maintain/expand LMPs in culture. Indeed, S9$^-$JAG1$^+$ LMPs express the highest levels of direct transcriptional targets of FGF signal transduction in the limb bud mesenchyme (*Spry1, Spry 2, Spry 4* and *Dusp6*, Fig. S5A; Kawakami, et al., 2003; Morgani, et al., 2018). As FGF8 is the main AER-FGF (Lewandoski, et al., 2000), we assessed the effects of treating forelimb bud mesenchymal cells in culture with FGF8b for 12 hours. As expected the FGF8b treatment did not alter cell survival, but increased the fraction of cells in S-phase and the expression of the direct targets *Spry4* and *Dusp6* (Fig. S5B-D). Flow cytometric analysis revealed that FGF8b treatment increased the fraction of S9$^-$JAG1$^+$ LMPs by ~2-fold, while the S9$^-$Pα^{hi} LMP population remained constant and the fraction of S9$^+$Pα^{hi} OCPs was slightly reduced (Fig. S5D). Together, this analysis provided experimental evidence that S9$^-$JAG1$^+$

LMPs isolated from early limb buds depend most critically on SHH and FGF signaling in high density cultures (Fig. 6 and Fig. S5).

GREM1-mediated BMP antagonism protects the immature S9^{-}JAG1^{+} LMPs from precocious BMP-induced apoptosis

The majority of genes associated with GO term “cellular response to BMP signaling” were expressed at lower than average levels in S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs (Fig. 7A). However, genes expressed at high levels by S9^{-}JAG1^{+} LMPs included the BMP antagonist *Grem1*, which is expressed by a fraction of the *Jag1*-positive limb bud mesenchyme (Panman, et al., 2006). Several other BMP pathway genes were also increased in S9^{-}JAG1^{+} LMPs such as *Msx1*, *Bmp4*, *Bmp2* and *T-brachyury* which are normally expressed in the posterior and/or distal limb bud mesenchyme (Catron, et al., 1996; Liu, et al., 2003; Bandyopadhyay, et al., 2006; Benazet, et al., 2009). S9^{-}Pα^{hi} LMPs also expressed higher levels of *Msx1*, *Msx2* and *Bmp4* but not *Grem1*, which showed that this population does not overlap the *Grem1*-expression domain in limb buds (Fig. 7A). This global analysis not only revealed distinct molecular differences between S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs populations, but also highlighted the expression of BMP-response genes that function in chondrogenesis in S9^{+}Pα^{hi} OCPs. The higher expression of *Col2a1* transcripts in S9^{+}Pα^{hi} OCPs suggested that a fraction of them already initiated chondrogenic differentiation in forelimb buds at E10.5-E10.75 (Fig. 7A, compare to Fig. 3C). However, direct comparison of BMP response genes showed that S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts at E11.5 expressed higher levels of genes that function in chondroblast differentiation and maturation than S9^{+}Pα^{hi} OCPs such as *Acan, Col2a1, Chordl1, Bmpr1*, *Nog* and *Adamts12* (Fig. 7A).

Unexpectedly, these results indicated that the SOX9-positive OCPs located in the core mesenchyme were already exposed to higher BMP activity in early forelimb buds than the SOX9-negative LMPs in the peripheral and posterior-distal mesenchyme. To assess their response to BMP signaling, LMPs and OCPs were cultured in medium containing BMP4 for 24 hours (Fig. 7B). While $S9^{+}P\alpha^{hi}$ OCPs activated COL2A and formed aggregates typical of chondrogenic condensations (lower panels, Fig. 7B), no COL2A and fewer to no SOX9-positive aggregates were detected in $S9^{-}JAG1^{+}$ and $S9^{-}P\alpha^{hi}$ LMP cultures (upper and middle panels, Fig. 7B). In fact, overall cell numbers decreased (Fig. 7B), which prompted us to assess BMP-induced apoptosis (Fig. 7C). Indeed, the apoptosis of both LMP populations increased significantly, while the survival of $S9^{+}P\alpha^{hi}$ OCPs was not altered. Next, the effects of inhibiting BMP signal transduction on the different cell populations were assessed. Dorsomorphin, a selective inhibitor of BMP type I receptors (Yu and Ornitz, 2008), reduced BMP signal transduction in unsorted mesenchymal cell cultures (E10.5-E10.75) by 40-50% within 12 hours (Fig. S6A) and increased overall apoptosis by ~2-fold (left panel in Fig. 7D). However, among the live Lin^{-} cells, the $S9^{-}JAG1^{+}$ and $S9^{-}P\alpha^{hi}$ LMPs increased by ~4 to ~7-fold, respectively, while the fraction of $S9^{+}P\alpha^{hi}$ OCPs was reduced (Fig. 7D). Together these results (Fig. 7B-7D) indicated that lower BMP levels favour LMPs in high density cultures.

The proposed protective role of BMP antagonism for LMPs was genetically assessed by flow cytometric analysis of forelimb buds from wild-type and *Grem1*-deficient littermate embryos (E10.5-E10.75). Due to the complexity of analysis and small numbers of cells recovered, overall cell death was ~2-fold higher than normal even in wild-type controls (Fig. S6B, see Materials and Methods). Among the live Lin^{-} mesenchymal cells, the fraction of $S9^{-}JAG1^{+}$ LMPs was reduced by ~42%, while $S9^{-}$

Pα^{hi} LMPs were not significantly affected and the fraction of the predominant S9^{+}Pα^{hi} OCPs increased by ~15% in *Grem1*-deficient forelimb buds (Fig. 6E). These results show that GREM1-mediated BMP antagonism (Zuniga, et al., 1999) preferentially impacts the immature S9^{-}JAG1^{+} LMPs located in the distal-posterior forelimb bud mesenchyme. In particular, this analysis highlighted the importance of GREM1-mediated protection of LMPs from premature exposure to BMP signaling in early forelimb buds. At the same stage, the OPCs located in the core mesenchyme already express higher levels of BMP target genes that function in the onset of chondrogenesis. This reveals the differential exposure and response of the core and peripheral/posterior-distal mesenchyme to BMP signaling and GREM1-mediated antagonism in early forelimb buds (E10.5-E10.75).

DISCUSSION

In this study, we quantitate limb bud mesenchymal cell numbers and show that the proportion of mesenchymal cells in S-phase are highest in early forelimb buds, while the fraction of LMPs in G0/G1 increases during distal progression of outgrowth. These results corroborate one of our previous studies, which showed that GLI3 promotes the BMP-dependent cell cycle exit of digit progenitors during initiation of chondrogenic differentiation (Lopez-Rios, et al., 2012). Studies by others have shown that distal progression of limb bud outgrowth also depends on oriented divisions of the limb bud mesenchymal cell and cell shape changes (Boehm, et al., 2010; Gros, et al., 2010). To gain insight into the cellular heterogeneity of mesenchymal progenitors during outgrowth and patterning, we combined cell sorting with RNA-seq analysis of forelimb

buds at E10.5-E10.75. This analysis identified three distinct SOX9-negative mesenchymal progenitor cell populations in addition to SOX9-positive OCPs in early forelimb buds. Our transcriptome analysis reveals both the population-specific gene expression signatures and the distinct transcriptional responses of the different mesenchymal cell populations to SHH and BMP signaling in early forelimb buds. This analysis also identified S9^{-}SCA-1^{+} mesenchymal cell population as the one encompassing the myogenic progenitors migrating into forelimb buds (reviewed by Francis-West, et al., 2003; Epting, et al., 2004). As these S9^{-}SCA-1^{+} cells also express PDGFRα, it is important to note that this FACS signature does not appear enriched in Pα^{+}SCA-1^{+} MSCs in forelimb buds (E10.5-E10.75) in contrast to developing limb long bones (Morikawa, et al., 2009; Nusspaumer, et al., 2017).

The transcriptome analysis together with their differentiation potential in culture provides evidence that S9^{-}JAG1^{+} LMPs and S9^{-}Pα^{hi} LMPs are early progenitors with significant chondrogenic differentiation potential. The S9^{-}JAG1^{+} LMPs express markers of the posterior-distal mesenchyme in proximity to the source of SHH signaling, whereas S9^{-}Pα^{hi} LMPs express a more diverse set of markers of anterior, posterior and distal mesenchyme. This contrasts with the transcriptional signature of the S9^{+}Pα^{hi} OCPs that reside in the core mesenchyme and give rise to chondroblasts. Previous analysis of more advanced limb buds (E11.5) showed that WNT and FGF signals emanating from the ectoderm and AER keep the underlying distal mesenchyme in a proliferative and undifferentiated state (ten Berge, et al., 2008; Gros, et al., 2010). This is corroborated by our analysis, which shows that FGF8b increases the fraction of cells in S-phase. FGF8b treatment also specifically increases the fraction of S9^{-}JAG1^{+} LMPs in high density culture. By contrast, the abundance of S9^{-}

Pα^{hi} LMPs is not altered in response to FGF signaling. In agreement, our transcriptome analysis revealed that the S9^{-}JAG1^{+} LMPs located in the posterior-distal mesenchyme express highest levels of FGF target genes (Kawakami, et al., 2003; Morgani, et al., 2018). During the onset of limb bud development, SHH signaling specifies antero-posterior digit identities and subsequently promotes the proliferative expansion of mesenchymal progenitors (Towers, et al., 2008; Zhu, et al., 2008). Our analysis shows that S9^{-}JAG1^{+} LMPs express the highest levels of target genes functioning in the positive response to SHH signal transduction such as *Gli1* and *Ptch1* (reviewed by Lopez-Rios, 2016). In contrast, the OCPs located in the core mesenchyme express high levels of genes (e.g. *Cdon*, *Boc* and *Hhip*) that are negatively regulated by SHH signal transduction (Tenzen, et al., 2006; Probst, et al., 2011; Lewandowski, et al., 2015). Inhibition of SHH signal transduction in culture shows that S9^{-}JAG1^{+} and S9^{-} Pα^{hi} LMPs, but not S9^{+}Pα^{hi} OCPs, depend critically on SHH signaling. As no significant changes in overall mesenchymal cell cycle kinetics and apoptosis were detected after 12 hours treatment, the reduction in the two LMP populations might reflect changes in their fates and/or be the result them undergoing differentiation. Both LMP populations also express high levels of *Mycn* (also known as *N-Myc*) which regulates limb bud mesenchymal cell proliferation (ten Berge, et al., 2008; Towers, et al., 2008 and this study). It has been shown that smaller condensations and skeletal elements form in *Mycn*-deficient mouse limbs as a consequence of the premature depletion of mesenchymal progenitors (Ota, et al., 2007). Additional cell cycle regulators expressed in the distal limb bud mesenchyme include *Cdk6*, which regulates cell cycle progression and its inhibitor *Cdkn2c* (Lopez-Rios, et al., 2012; Lewandowski, et al., 2015). Interestingly, S9^{-}JAG1^{+} LMPs express the highest levels of *Cdk6*, while *Cdkn2c* is expressed by the other cell populations analysed (this study).

The balance between proliferative expansion of LMPs and their exit toward chondrogenic differentiation is controlled by the GLI3 repressor, which regulates both the cell cycle and *Grem1*-mediated BMP antagonism (Lopez-Rios, et al., 2012). To transit from SOX9-negative LMPs to SOX9-positive OCPs and chondrogenic differentiation, the mesenchymal progenitors switch from responding to growth-promoting signals to increased BMP activity (Benazet, et al., 2012; Lopez-Rios, et al., 2012). We show that in early forelimb buds, the $S9^{+}P\alpha^{hi}$ OCPs located in the core mesenchyme are already exposed to higher BMP signal transduction. Furthermore, the proportion of $S9^{+}P\alpha^{hi}$ OCPs is increased in *Grem1*-deficient forelimb buds as a likely direct consequence of the increase in BMP activity. Of the two LMP populations analysed, $S9^{-}P\alpha^{hi}$ LMPs express the highest levels of *Tbx2*, which encodes a transcriptional regulator that participates in repressing *Grem1* in the limb bud mesenchyme (Farin, et al., 2013). This indicates that $S9^{-}P\alpha^{hi}$ LMPs could be in a transitory phase from immature LMPs toward OCPs. Indeed, *Grem1* is only expressed by the immature $S9^{-}JAG1^{+}$ LMPs which are drastically reduced in *Grem1*-deficient forelimb buds. In fact, previous genetic analysis has shown that *Grem1* inactivation induces limb bud mesenchymal apoptosis due to precociously increased BMP activity (Bastida, et al., 2004; Michos, et al., 2004). This together with our analysis indicates that the BMP antagonist GREM1 protects the uncommitted and proliferating $S9^{-}JAG1^{+}$ LMPs from premature exposure to high BMP activity. As *Grem1* is expressed only by dorsal and ventral mesenchymal cells within the posterior-distal JAG1 domain (Panman, et al., 2006), extra-cellular GREM1 antagonist likely protects the non-expressing $S9^{-}JAG1^{+}$ LMPs in a paracrine manner. Others have reported a similar protective effect of the BMP antagonist NOGGIN during joint development (Ray, et al., 2015; Huang, et al., 2016). Similarly, BMP activity is transiently reduced during

regeneration of the tracheal epithelium by FOLLISTATIN- and NOGGIN-mediated BMP antagonism, thereby enabling epithelial self-renewal (Chung, et al., 2018). Together, these and our study reveal a general protective function of BMP antagonists in averting premature and deleterious exposure of progenitor and stem cells to BMP signaling.

Our study establishes that the mesenchyme of early mouse forelimb buds is already composed of different types of progenitors with heterochronic cell specification and differentiation states. In particular, the immature $S9^{-}JAG1^{+}$ LMP population appears to critically depend on SHH, AER-FGF signaling and *Grem1*-mediated BMP antagonism as part of the self-regulatory signaling system that coordinately controls limb bud patterning and outgrowth (reviewed by Zuniga, 2015). At the same early stage, the $S9^{+}P\alpha^{hi}$ OCPs located in the core mesenchyme already positively respond to BMP signal transduction. Our study provides insights into how this differential responsiveness coordinately regulates both the expansion and differentiation of OCPs in the core and immature $S9^{-}JAG1^{+}$ LMPs in the posterior-distal mesenchyme during the early phase of mouse forelimb bud development.

MATERIALS AND METHODS

Mouse strains and ethics statement

The *Prx1*-Cre (Logan, et al., 2002), *b-ACTIN-loxP-stop-loxP-EGFP* (Jagle, et al., 2007), *Sox9*$^{IRES\text{-}EGFP}$ (Chan, et al., 2011), *Shh*^{GFPCre} (Harfe, et al., 2004), *ROSA26*$^{LSL\text{-}tdTomato}$ (Madisen, et al., 2010) and two *Grem1* loss-of-function alleles (delta and Del C alleles; Michos, et al., 2004; Zuniga, et al., 2004) were kept in a mixed Swiss Albino genetic background. Swiss Albino mice were purchased from Janvier. All experiments were performed on embryos strictly adhering to the Swiss law, the 3R principles and the Basel Declaration. All animal studies were evaluated and approved by the Regional Commission on Animal Experimentation (license 1950 and 1951). Embryos of both genders were used at the indicated developmental stages.

Quantitation of limb bud mesenchymal cell numbers

Dissected limb buds were digested in 1ml 1xHBSS (Gibco) containing 1 mg/ml collagenase D and 50 µg/ml DNase I (Roche) at 37°C in FACS tubes. Single cells were counted by flow cytometry in defined sub-fraction volumes that were calibrated using TrueCount^{TM} tubes with polystyrene fluorescent beads (BD Biosciences). The beads were gated in the GFP and propidium iodide (PI) channels. In order to calculate the volume acquired by the FACS in one minute, beads and/or cells from one limb bud were resuspended in 2 ml PBS and counted using a constant flow. This was repeated several times to assure that the volume calibrations and volume measurements were accurate. The volume fraction analysed per minute was calculated as follows:

V= counted beads/ total beads (corresponding to the volume fraction per minute)

Total cell numbers (C) were calculated as follows:

C = (counted cells/V) x 2000

2000 (µl) = total volume used to resuspend either the cells from one limb bud or beads for calibration.

The GFP-positive LMPs correspond to the cells in which the *ßact*^{GFP} transgene has been activated by *Prx1*-Cre-mediated recombination. In contrast, non-limb bud mesenchymal cells and ectodermal cells do not express GFP. Gating of apoptotic cells showed maximally 8-12 % of cell death during preparation of single cells.

Cell cycle analysis by FACS

Forelimb buds were dissected, pooled (~25 at E9.75, eight at E10.75 and six at E11.75) and dissociated using collagenase D. To remove ectodermal, endothelial and hematopoietic, and apoptotic cells by FACS, the cells were stained with a mix of biotinylated antibodies (EpCAM: Biolegend, clone G88; CD31: eBioscience, clone 390; TER119: Biolegend; CD45: Biolegend clone 30F11; CD11b: Biolegend clone M1-70; Gr1: Biolegend clone RB6-8C5) as previously described by Nusspaumer, et al. (2017). Apoptotic cells were identified by double staining for Annexin V (APC-conjugated, Biolegend) and 7AAD. Following this combined staining of lineage-positive cells, all cells were fixed in 70% ethanol at -20°C for minimally 2 hours. Phospho-histone H3 antibodies (BD Biosciences, clone HTA28 Alexa Fluor 647) were used to detect mitotic cells. Cells were also incubated with 50 µl/ml propidium iodide (Sigma) and 50 µl/ml RNAse A (Sigma) to directly measure their DNA content. For cell cycle analysis of cultured cells, mesenchymal cells were pooled from 6 forelimb buds

at E10.5. For each embryo, one forelimb bud was used as untreated control and one for the experimental treatment. FACS was used to determine the fractions of cells in the different phases of the cell cycle and the fraction of phospho-histone H3-positive mitotic cells among the lineage-negative (Lin^-) limb bud mesenchymal cells. to study the cell cycle by BrdU incorporation, pregnant mice were injected intra-peritoneally with 1 mg of BrdU (5 mg/ml in PBS, Sigma) four and two hours before analysis. Single cells prepared from 20 forelimb buds were analysed. The BrdU-positive cells were detected using the APC BrdU Flow kit (BD Biosciences). FACS analysis was done using a BD™ FACSAria III machine. After exclusion of apoptotic and lineage-positive cells, the numbers of cells in different phases of the cell cycle, mitotic and BrdU-positive cells were determined and fractions calculated using the FlowJo 10.5.3 software.

Immunofluorescence analysis

After fixation in 4% paraformaldehyde for 2 hours at 4°C, limb buds were dehydrated. Then they were mounted in 50:50 (v/v) OCT/30% sucrose and 10µm cryosections for immunofluorescence analyses prepared. Sections were permeabilized using PBS containing 0.2% Triton X-100 for 30 minutes at room temperature.

For immunofluorescence analysis of FACS sorted LMP populations, cells were resuspended in complete DMEM/F12 medium (supplemented with 1% penicillin/streptomycin and 10% FBS, Merck) and per well 88000 cells were seeded in one well of a 384 well plate (BD Biosciences). After culture, cells were fixed in 4% paraformaldehyde for 30 minutes at room temperature and then permeabilized as described above. The following primary antibodies were used for immunofluorescence: GFP (1:250; 4745-105, Bio-Rad), JAGGED1 (1:50; TS1.15H,

Developmental Studies Hybridoma Bank), PDGFRα (1:250; AF1062, R&D), DsRed (1:1000; 632496, Clontech), SOX9 (1:10000; AB5535, Millipore). COLII (1:250; MS-235-P1, Thermo Fischer Scientific), Signals were detected using the following fluorochrome-coupled secondary antibodies (1:250): anti-sheep Alexa Fluor 488 (713-545-147, Jackson ImmunoResearch), anti-mouse Alexa Fluor 594 (R37121, Thermo Fischer Scientific), anti-rabbit Alexa Fluor 594 (406418, Biolegend), anti-rat Alexa Fluor 647 (A-21247, Thermo Fischer Scientific) and anti-goat Alexa Fluor 647 (A-21447, Thermo Fischer Scientific). Nuclei were counterstained with Hoechst-33258. images were taken using a Nikon Ti-E microscope equipped with Hamamatsu Flash 4.0 V2 CMOS camera, Yokogawa Spinning Disk CSU-W1-T2 and the VisiView Premier Image acquisition software. Pseudo-colours were chosen from the available lookup tables.

RNA whole mount *in situ* hybridization

Whole mount *in situ* hybridizations were done as described by (Haramis, et al., 1995).

FACS Isolation of mouse LMP populations

Single cell suspensions were prepared from 60 to 160 mouse embryonic forelimb buds at E10.5-E10.75 (35-38 somites) and E11.5 (46-48 somites; for chondroblasts only). Dissected limb buds were collected into ice-cold PBS and digested for up to 15 minutes in 1 mg/ml collagenase D in high glucose DMEM medium at 37°C. Limb buds were gently pipetted every 5 minutes until the tissue was dissociated into single cells. Ice-cold HBSS supplemented with 2% FBS and 10 mM HEPES was added to stop digestion. The cell suspensions were filtered to remove aggregates. During FACS analysis, the lineage-positive ectodermal, endothelial and hematopoietic cells (see

above) and apoptotic cells were excluded by gating. Apoptotic cells were detected using 7AAD (Biolegend) and in general amounted to ~20-30% of all mesenchymal cells at E10.5-E10.75. After the initial gating the lineage-negative (Lin^-) cells were separated into different populations using the following antigens: anti-PDGFRα (CD140a; clone APA5: BV421-conjugated, Biolegend); anti-JAG1 (clone HMJ1-29: PE-conjugated, Biolegend) and anti-SCA-1 (clone D7: APC-conjugated, eBioscience). Streptavidin was conjugated to APC/Cy7. Cells were sorted using a FACSAria III (BD Bioscience) equipped with an 85µm nozzle in combination with the FACS Diva software V8.0. After sorting, the different cell populations were re-analysed to assess their viability and purity. FACS plots were generated using the FlowJo 10.5.3 and GraphPad Prism 7 software. Bar- and whiskers-plots were generated using GraphPad Prism 7.

RNA-seq analysis

Thirty to eighty forelimb buds were collected from *Sox9*$^{IRES-}$EGFP embryos at E10.5-E10.75 to purify the different mesenchymal cell populations. S9$^+$Pα^{hi}*Col2a1*$^+$ chondroblasts were isolated from 12 to 30 forelimb buds at E11.5 . RNA was extracted using the RNeasy Microkit (Qiagen) and the RNA quality determined using RNA 6000 Pico kit (Agilent 2100 Bioanalyzer). Only samples with an RNA integrity ≥8.5 were used. Libraries were prepared from 15ng of total RNA after purification of poly(A)$^+$ RNA using NEBNext kits according to manufacturer's instructions. Libraries were sequenced using the HiSeq 2500 Illumina sequencer with the single-read 50 cycles protocol. Single-end RNA-seq reads were mapped to the mouse genome mm10 assembly using RNA-STAR (Dobin, et al., 2013). For reporting multi-mappers, only

one hit in the final alignment files (outSAMmultNmax=1) was used and reads without evidence in splice junction tables were filtered out (outFilterType="BySJout"). Raw reads and the mapping quality were assessed using the qQCreport function of the R/Bioconductor software package QuasR (version 1.18.0; Gaidatzis, et al., 2015) The RefSeq mRNA coordinates from UCSC (genome.ucsc.edu) and the qCount function from the QuasR package were used to quantify gene expression by the number of reads starting within any of the annotated exons of the gene of interest.

Hierarchical clustering, heatmaps and statistical testing

The subsequent gene expression data analysis was done using R software (version 3.4.2, R Foundation for Statistical Computing, Vienna, Austria) and the corresponding software packages of Bioconductor (version 3.6; Huber, et al., 2015). Differentially expressed genes were identified using the edgeR package (version 3.20.1; Robinson, et al., 2010). Genes with p-values ≤0.1 and absolute $\log_2$ fold changes ≥1.2 were considered as differentially expressed. Principal component analysis was performed with $\log_2$ transformed CPM values using 25% of the most variable genes. Heatmaps are showing row-centred log2 transformed CPM values. The 1-Pearson correlation coefficient was used as distance measure for hierarchical clustering (“complete” method). In order to enhance the colour scale, values outside of the 0.05% - 99.5% percentile range were replaced with the corresponding percentile value. MsigDb (v6.0, Broad institute) was used in competitive gene set enrichment analysis. Human EntrezGene IDs were converted to mouse EntrezGene IDs using the HomoloGene database (NCBI, build 68). Only gene sets consisting of at least 10 genes were tested

with the “camera” function from edgeR package. A false discovery rate (FDR) of <0.05 was set as cut-off.

Limb bud mesenchymal cell cultures

Forelimb buds from two mouse embryos (E10.5-E10.75) were incubated in ice-cold 2% Trypsin (Gibco)/PBS at 4°C for 30 minutes and the digestion was stopped by an excess of DMEM medium with 10% fetal bovine serum (FBS). The limb bud ectoderm was manually removed and mesenchymal cells dissociated by gentle pipetting. Cells were plated in four wells of a 96-well plate in high glucose DMEM medium (10% FBS, 4.5 g/L glucose, 100 U penicillin, 0.1 mg/ml streptomycin and 200 mM L-glutamine, Merck). After 8-9 hours, non-adherent cells were removed by changing the medium. Two wells were treated with either 20 µM Cyclopamine KAAD (dissolved in EtOH; Calbiochem), 300 ng/µl FGF8b (dissolved in PBS, 0.1%BSA; R&D), 5µM Dorsomorphin (dissolved in DMSO; Merck) or with 20 ng/ml BMP4 (dissolved 4 mM HCl; R&D) for 24 hours, while others served as controls (normal medium with solvent). After 12 hours, cells were gently detached using trypsin and either processed for FACS analysis of specific cell populations (see before) or processed for RT-qPCR analysis (see below). The Wilcoxon test was used to statistically verify differences observed.

RT-qPCR analysis

After culture, cells were flash frozen in RLT buffer and RNA was isolated using Qiagen RNeasy Microkit. cDNA was prepared from 300 ng of total RNA that was quantified using the Qubit RNA HS assay. For each sample, the relative expression was normalized to the house-keeping gene *Rpl19* and to the target gene expression level

in the untreated condition (ΔΔCt method). Transcripts detected with Ct values ≥32 were considered as non-expressed genes. To statistically verify significant differences in the relative gene expression, the Wilcoxon and Mann-Whitney tests were used.

The oligos used for gene expression analysis are listed:

Acan fwd: 5'-AGTCAACCGTTGCAGACCAG-3' *Acan rev*: 5'-GGTCATGAAAGTGGCGGTAA-3'
BMP4 fwd: 5'-AGCCGAGCCAACACTGTGA-3' *BMP4 rev*: 5'-GTTCTCCAGATGTTCTTCGTGATG-3'
Col2a1 fwd: 5'-AGTGGAAGAGCGGAGACTACTG-3' *Col2a1 rev*: 5'-TTGGGGTAGACGCCAAGTCTC-3'
Id1 fwd: 5'-GCGAGATCAGTGCCTTGG-3' *Id1 rev*: 5'-CTCCTGAAGGGCTGGAGT-3'
Gli1 fwd: 5'-CAAGTGCACGTTTGAAG-3' *Gli1 rev*: 5'-CAACCTTCTTGCTCACACATGTAAG-3'
Dusp6 fwd: 5'-AGTTTTTCCCTGAGGCCATT-3' *Dusp6 rev*: 5'-GCATCGTTCATGGACAGGTT-3'
Grem1 fwd: 5'-CCCACGGAAGTGACAGAATGA-3' *Grem1 rev*: 5'-AAGCAACGCTCCCACAGTGTA-3'
Jag1 fwd: 5'- GCGGTTGCAGAAGTCAGAGT-3' *Jag1 rev*: 5'- AGGCTGTCACCAAGCAACAG -3'
Msx2 fwd: 5'-ATACAGGAGCCCGGCAGATACT-3' *Msx2 rev*: 5'-TCCGGTTGGTCTTGTGTTTCC-3'
Spry4 fwd: 5'-TGTGACTCTGCA GCTCCTCAAA-3' *Spry4 rev*: 5'-ATGAGGCTGGAGGTCCTGAACT-3'
Sox9 fwd: 5'-CAAGTGTGTGTGCCGTGGATAG-3' *Sox9 rev*: 5'-CCAGCCACAGCAGTGAGTAAGAA-3'
Rpl19 fwd: 5'-ACCCTGGCCCGACGG-3' *Rpl19 rev*: 5'-TACCCTTTCCTCTTCCCTATGCC-3'

FACS analysis of mesenchymal cells from *Grem1*-deficient mouse limb buds

Mice heterozygous for a *Grem1* loss-of-function alleles were crossed to isolate littermate embryos of the different genotypes at E10.5-E10.75. Single cells were

prepared from pairs of forelimb buds for each embryo and divided into two samples to assess both apoptosis and the fractions of $S9^{-}JAG\text{-}1^{+}$ and $S9^{-}P\alpha^{hi}$ LMPs and $S9^{+}P\alpha^{hi}$ OCPs by FACS, which allowed analysis of ~70000 cells per sample. This analysis was done blindly as the embryos were only genotyped after the FACS analysis of the cells was already complete. The longer processing times together with the lower numbers of cells analysed explains the ~2-fold increase in overall cell death as detected by APC-conjugated Annexin-V and 7AAD (Fig. S6B). It is important to note that only the fraction of live and Lin^{-} limb bud mesenchymal cells were analysed to determine the fractions of the three cell populations, which together with sufficiently large numbers of biological replicates resulted in significant and biological meaningful results that were statistically verified using the Mann-Whitney test.

Data availability

All RNA-seq datasets have been deposited in the Gene Expression Omnibus (GEO) database under the accession number GSE116115.

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AUTHOR CONTRIBUTIONS

R.R. and F.G. performed the experiments for this study except where stated otherwise. G.N. participated in the early phase of the project and initiated the FACS isolation and transcriptome analysis of the different forelimb bud mesenchymal cell populations. E.U. performed the experimental quantitation of limb bud mesenchymal cell numbers. R.I. performed the bioinformatics analysis as head of the DBM Bioinformatics Core Facility. A.Z. and R.Z. supervised the study and wrote the manuscript together with input from all authors.

COMPETING INTERESTS

The authors have no competing interests

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Figures

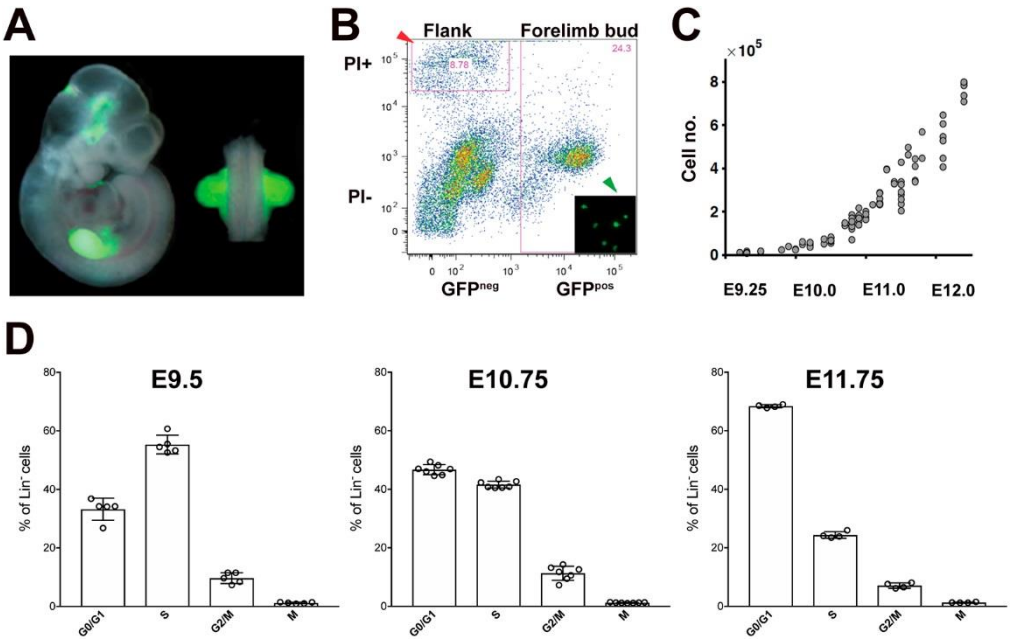

Fig. 1. Forelimb bud mesenchymal cell numbers and cell cycle analysis.

(A) *Prx1*-Cre was used to activate EGFP under control of the ß-actin locus (ßactGFP) in the forelimb bud mesenchyme. A representative embryo at E10.75 (37 somites) is shown. (B) Representative FACS analysis of *Prx1*-Cre/ßactGFP forelimb buds. Necrotic and apoptotic cells are electronically gated in the upper part (red arrowhead), while the EGFP-positive cells are gated in the right half. Fluorescence microscopy confirmed that single EGFP-positive cells were analysed (green arrowhead). Results shown are representative of n≥3 samples. (C) Experimentally determined forelimb bud mesenchymal cell numbers from accurately somite staged embryos between E9.5 and E12.0. Individual data points are shown. See also Table 1. (D) Analysis of the cell-cycle and mitotic cells in lineage-negative (Lin^-) mesenchymal cells from mouse forelimb buds at E9.5 (24-28 somites, n=5), E10.75 (35-39 somites, n=7) and E11.75 (49-52 somites, n=4).

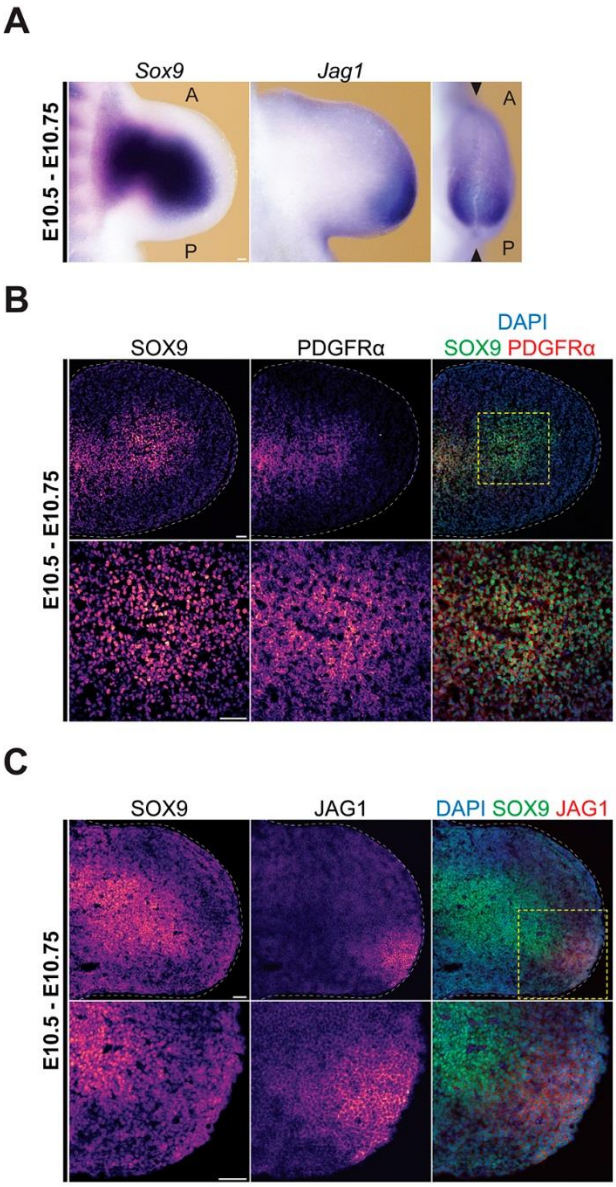

Fig. 2. Key markers used to identify mesenchymal cell populations in mouse forelimb buds.

(A) Whole mount RNA *in situ* hybridization shows the spatial distribution of the *Sox9* transcription factor and the Notch ligand *Jagged1* (*Jag1*) in forelimb buds at E10.5-E10.75 (35-38 somites). (B, C) Immunohistochemistry using forelimb buds at E10.5-10.75 detects the Platelet-derived growth factor receptor-α (PDGFRα), SOX9 and JAG1 proteins in sagittal sections through the limb bud apex (the approximate plane of section is indicated by arrowheads in the right-most panel A). The right panels show

the co-localization of PDGFRα and SOX9 in the core mesenchyme (panel B), while JAG1-positive cells are located in the posterior-distal SOX9-negative mesenchyme (panel C). Images are pseudo-coloured in accordance with fluorescence intensity (purple=low; yellow=high). White dashed lines outline limb buds. Yellow dashed lines demarcate the regions shown as close-ups. A: anterior; P: posterior. Scale bars: 50 µm.

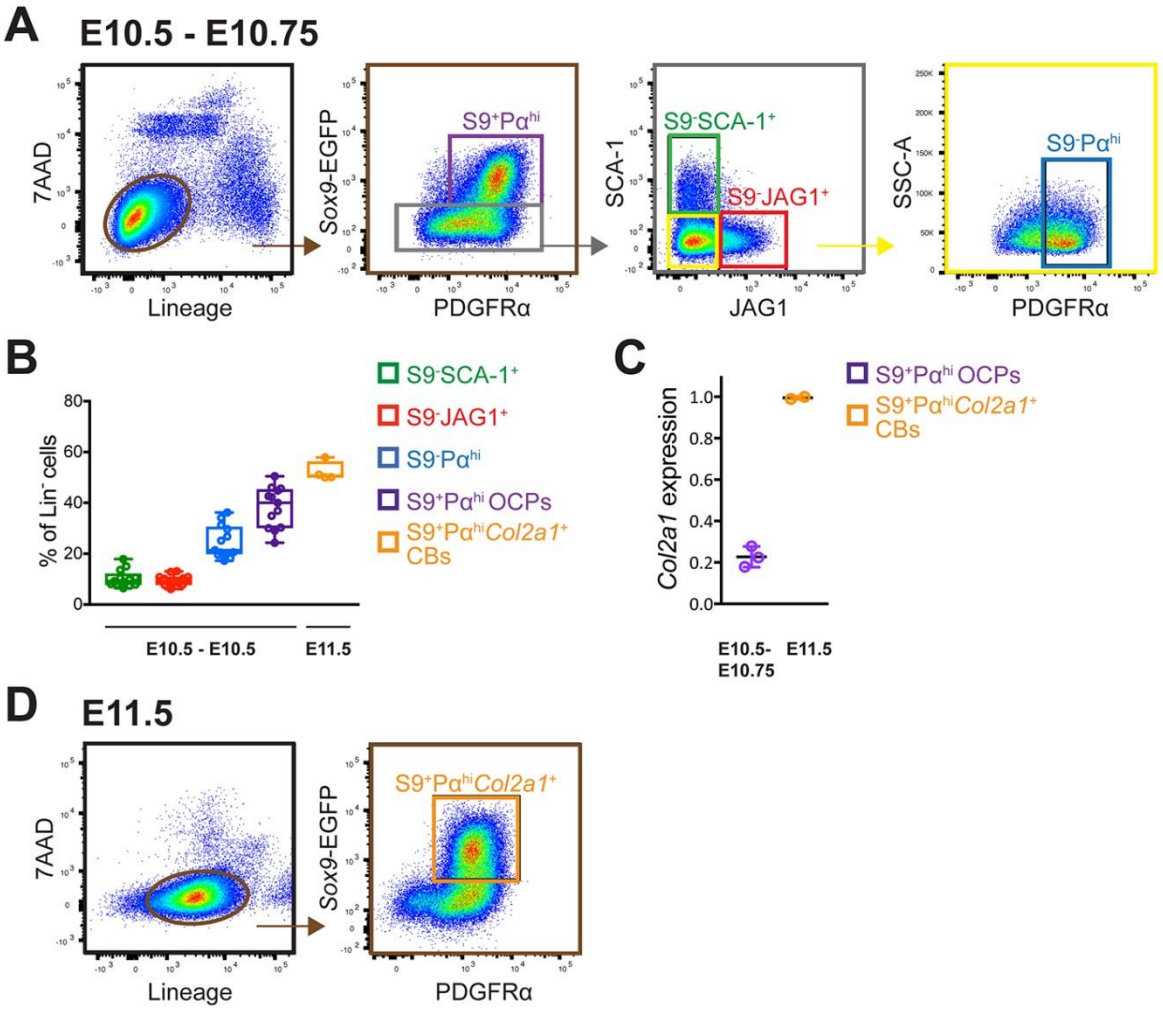

Fig. 3. Isolation of distinct mesenchymal cell populations from forelimb buds at E10.5-E10.75 and E11.5.

(A) FACS strategy to isolate the different cell populations from lineage-negative (Lin^-) mesenchymal cells of mouse forelimb buds (35-38 somites, E10.5-E10.75, first panel). $S9^+P\alpha^{hi}$ (violet): *Sox9*-EGFP-positive cells correspond predominantly to osteo-chondrogenic progenitors (OCPs) express high levels of PDGFRα. In addition, three mesenchymal populations of *Sox9*-EGFP-negative cells were isolated: $S9^-SCA\text{-}1^+$ (green), $S9^-JAG1^+$ (red) and $S9^-P\alpha^{hi}$ (blue) cells. (B) Histogram showing the abundance (%) of the different cell populations within the Lin^- mesenchymal cells. (C) Relative *Col2a1* expression levels in $S9^+P\alpha^{hi}$ OCPs (E10.5-E10.75) and

S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts (CBs, E11.5). (D) CB were isolated from Lin^{-} forelimb bud mesenchymal cells at E11.5 as S9^{+}Pα^{hi} cells that express *Col2a1*: S9^{+}Pα^{hi}*Col2a1*$^{+}$ CBs (orange, see panel C for *Col2a1* expression). Representative FACS experiments are shown and the same gates were used for all analyses.

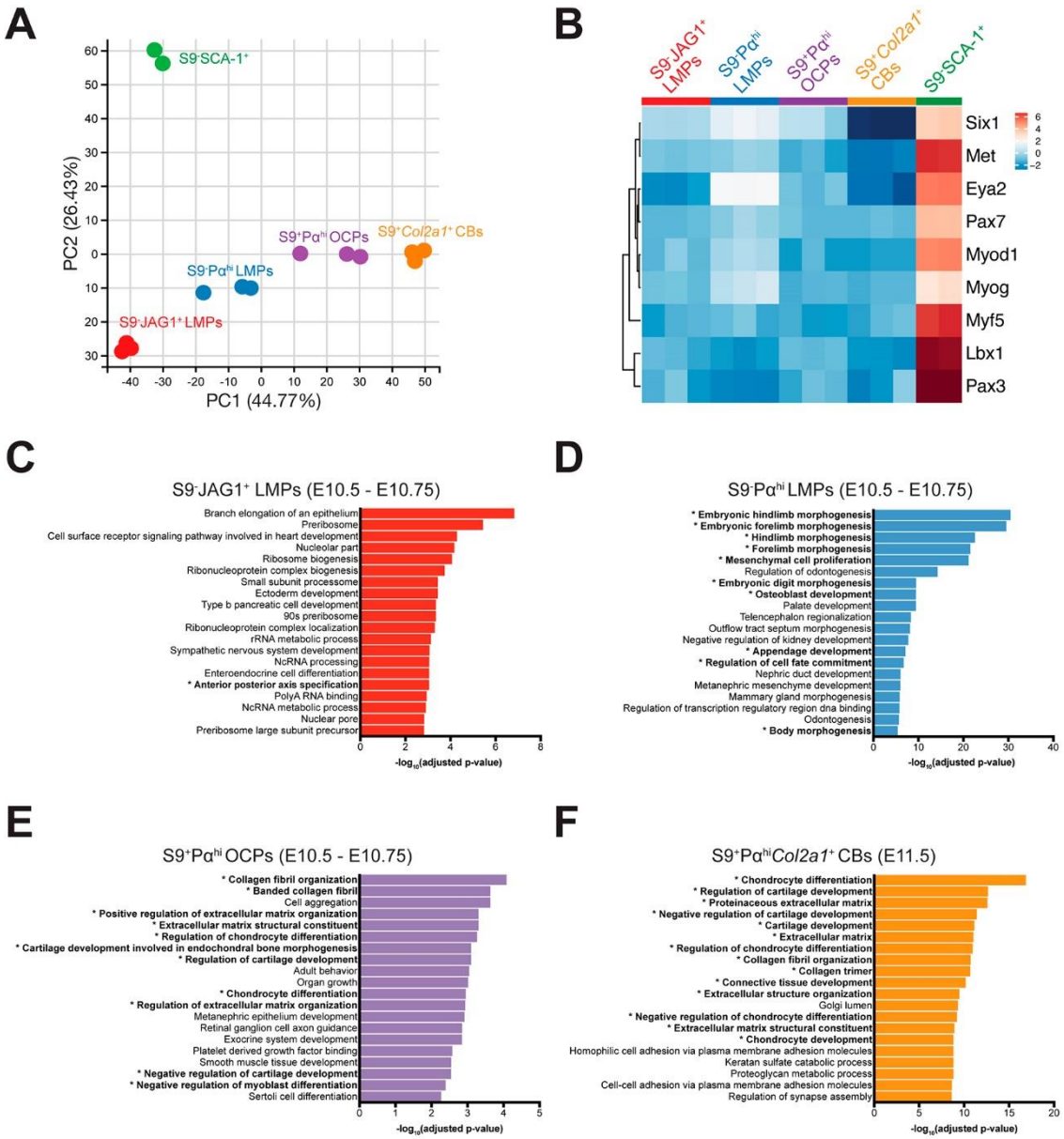

Fig. 4. Comparative transcriptome analysis identifies two early LMP populations.

(A) Principal components analysis (PCA) of RNA-seq metadata from the five different forelimb bud mesenchymal cell populations identified. Three biological replicates were sequenced for all populations with the exception of S9$^-$SCA-1$^+$ cells, which yielded only two samples of sufficient sequencing quality. (B) Heatmap showing the relative expression levels of key genes involved in myoblast migration and differentiation. Analysis shows that the S9$^-$SCA-1$^+$ progenitors express the highest levels of myoblast-

specific markers in comparison to the other populations (Table S1, S2). Higher than average expression: orange-red; lower that average: blue; average: white. (C-F) Global Gene Ontology (GO) enrichment analysis of the genes whose expression is higher in the cell population of interest than all other populations (Tables S2-S6). (C) $S9^{-}JAG1^{+}$ LMPs, (D) $S9^{-}P\alpha^{hi}$ LMPs, (E) $S9^{+}P\alpha^{hi}$ OCPs (all E10.5-E10.75) and (F) $S9^{+}P\alpha^{hi}Col2a1^{+}$ chondroblasts (E11.5). The X axis shows the $-\log_{10}$ of the false discovery rate (FDR). Asterisks indicate chondrogenesis- and limb-related GO terms.

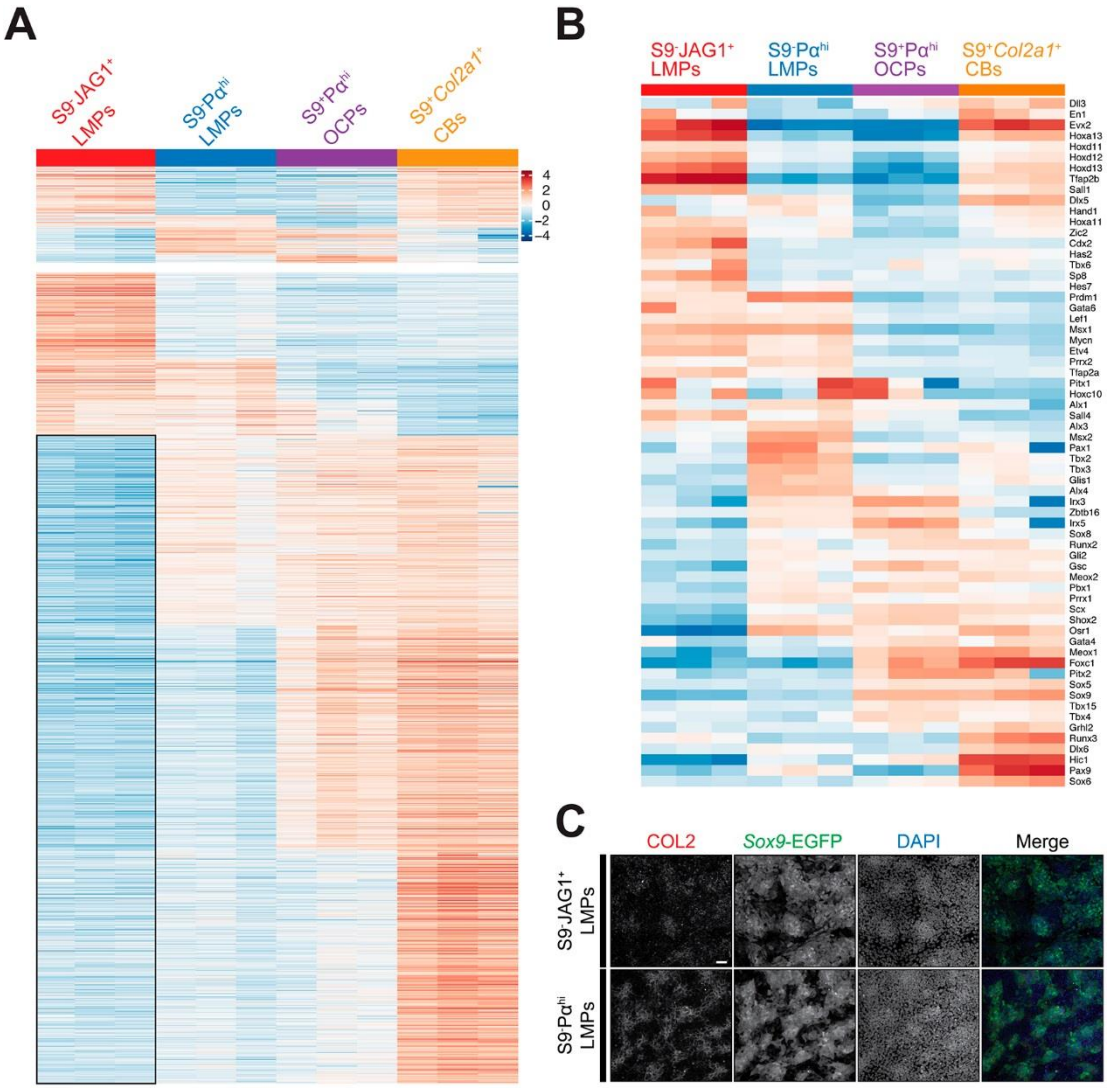

Fig. 5. S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs are early mesenchymal progenitors with distinct molecular signatures and robust chondrogenic differentiation potential. (A) Comparative analysis of the transcriptomes based on pseudo-temporal ordering from S9^{-}JAG1^{+} to S9^{-}Pα^{hi} LMPs to S9^{+}Pα^{hi} OCPs (E10.5-E10.75) and to S9^{+}Pα^{hi}*Col2a1*$^{+}$ CBs (E11.5, Table S7). (B) Manually curated list of differentially expressed transcriptional regulators required for limb bud and/or limb skeletal development (Table S10) using the “Mammalian Phenotype Ontology Annotations” related to limb development from Mouse Genome Informatics (MGI: http://www.informatics.jax.org/). Higher than average expression: orange-red; lower

that average: blue; average: white. (C) Culturing FACS-isolated S9^{-}JAG1^{+} and S9^{-} Pα^{hi} LMPs for 24 hours results in activation of *Sox9*-EGFP expression in cells that undergo aggregation to form the typical chondrogenic condensations. Scale bar: 50 µm.

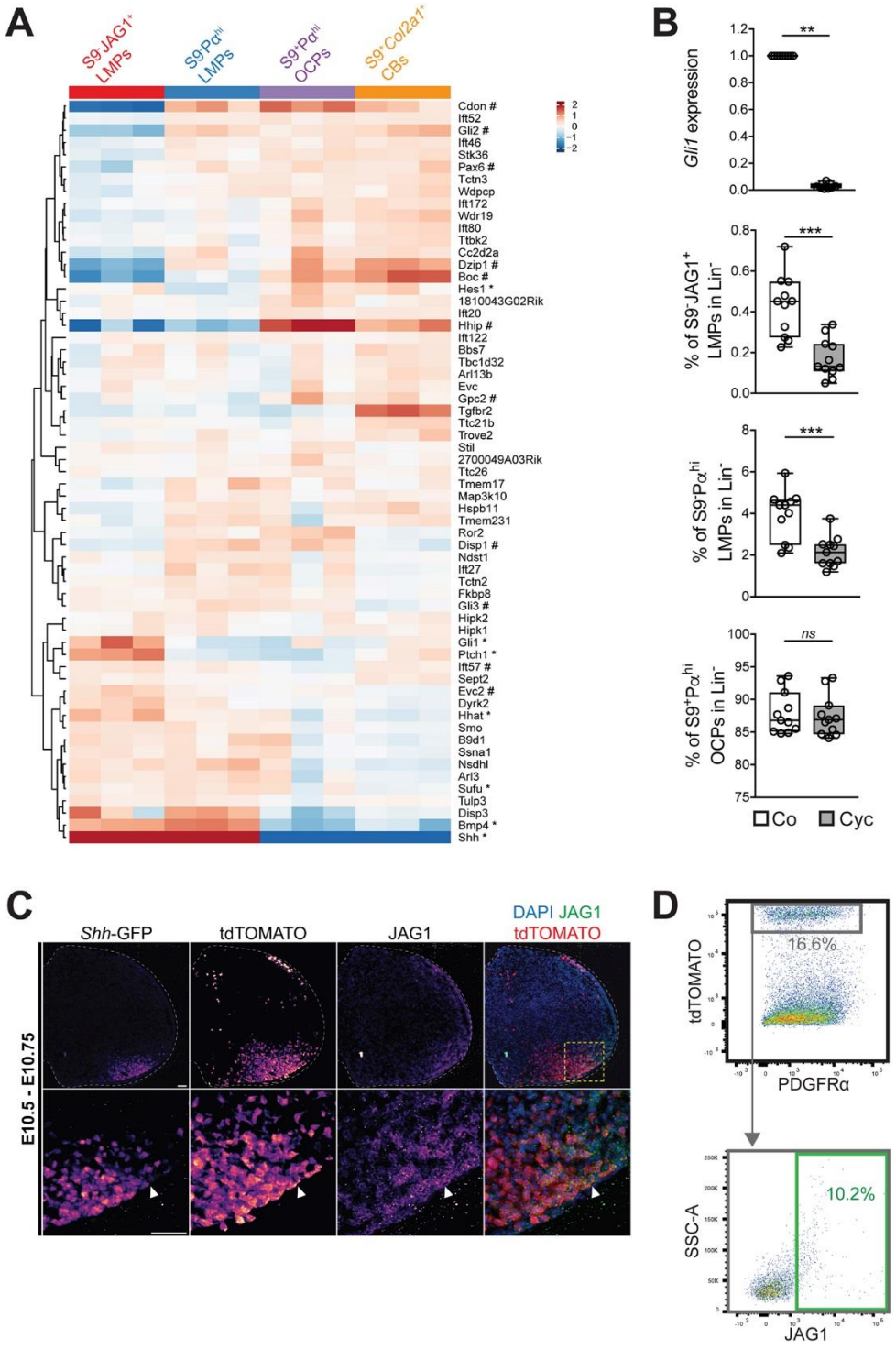

Fig. 6. S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs depend on SHH pathway activity.

(A) Heatmap showing expression level of genes associated with the term "Smoothened (SMO) signaling pathway" (GO:0007224, Table S8). Known distally (*) and centrally (#) expressed genes are highlighted. (B) Limb bud mesenchymal cells

(E10.5-E10.75) were cultured for 12 hours either in normal medium (control: co) or in medium supplemented with 20 µM cyclopamine (Cyc, a SMO antagonist). The top panel shows the relative expression of *Gli1*, a direct transcriptional target of SHH signal transduction as determined by RT-qPCR analysis. Lower three panels: FACS analysis shows that the Fraction (%) of $S9^{-}JAG1^{+}$ and $S9^{-}P\alpha^{hi}$ LMPs was significantly reduced when SMO-mediated signal transduction was blocked. In contrast, the fraction of $S9^{+}P\alpha^{hi}$ OCPS was not altered. $S9^{-}JAG1^{+}$ LMPs: decrease from 0.43%±0.14% to 0.17±0.09%, $S9^{-}P\alpha^{hi}$ LMPs from 3.94±1.18% to 2.14±0.73% of the lineage-negative cells in culture. The Wilcoxon test was used for statistical analysis of results: (**) p-value ≤0.01, (***) p-value ≤0.001. (C) Distribution of *Shh*-expressing cells (*Shh*-GFP, white arrowhead indicates distal border) and *Shh*-descendants expressing tdTOMATO in a representative forelimb bud (E10.5-E10.75). This pattern arose from permanent activation of the $Rosa26^{tdTomato}$ transgene by Shh^{GFPCre} induced recombination. The JAG1 protein was detected using specific antibodies. The overlap (right panel) shows that only a small fraction of cells co-expressed tdTOMATO (red) and JAG1 (green; n=3 independent samples). Images were pseudo-coloured in accordance with fluorescence intensity (purple=low; yellow=high). White dashed lines outline the limb buds. Yellow dashed lines demarcate the regions shown as close-ups. Scale bars: 50 µm. (D) FACS analysis confirmed that only a small fraction of tdTOMATO-positive cells co-expressed JAG1 (n=3).

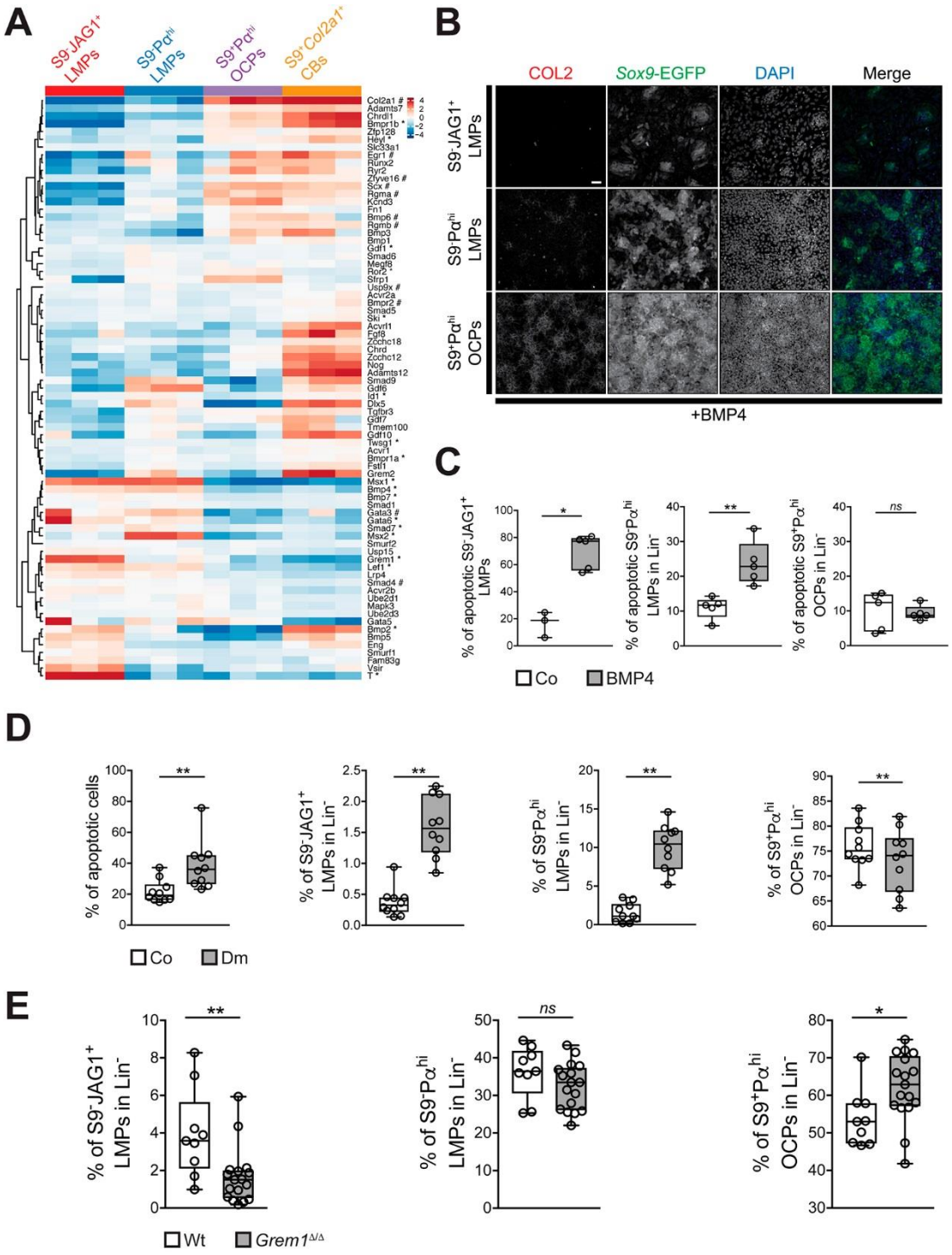

Fig. 7. Immature S9^{-}JAG1^{+} LMPs depend critically on GREM1-mediated BMP antagonism.

(A) Heatmap showing expression level of genes associated with the GO term “Cellular response to BMP stimulus” (GO:0071773, Table S9). Known distal (*) and central (#)

expressed genes are highlighted. (B) S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs and S9^{+}Pα^{hi} OCPs were cultured for 24 hours in medium supplemented with 10 ng/ml BMP4. Controls were cultured in medium with solvent. In all cases, equal numbers of alive mesenchymal cells were plated after FACS isolation. Only S9^{+}Pα^{hi} OCPs underwent robust chondrogenic differentiation within 24 hours in BMP4-supplemented medium. Scale bar: 50 µm. (C) Quantitation of apoptotic cells in the three mesenchymal cell populations after culturing them for 24 hours in BMP4-supplemented medium. While apoptosis was not altered for the OCP population, cell death was significantly increased for both LMP populations. Individual data points plus mean ± SD are shown (n≥3 per condition and cell-type). (D) Forelimb bud mesenchymal cells (E10.5-E10.75) were cultured in medium supplemented with 5 µM dorsomorphin (Dm) to inhibit BMP signaling (Fig. S6A). Controls (Co) were cultured in medium supplemented with solvent only. After 12 hours, the overall cellular apoptosis and the fractions (%) of S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs and S9^{+}Pα^{hi} OCPs were determined. Both LMPs populations increased significantly, while the OCP population was reduced. Individual data points plus mean ± SD are shown (n=10). (E) Comparative FACS analysis of the fraction (%) of S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs and S9^{+}Pα^{hi} OCPs in pairs of forelimb buds from wild-type (Wt) and *Grem1*-deficient mouse embryos (Grem1$^{\Delta/\Delta}$) at E10.5-E10.75. Individual data points plus mean ± SD are shown (n=9 for *Grem1*$^{\Delta/\Delta}$; n=17 for Wt forelimb buds). Note that the fraction of S9^{-}JAG1^{+} LMPs was reduced by ~2-fold, while S9^{-}Pα^{hi} LMPs were not altered and S9^{+}Pα^{hi} OCPs increased in *Grem1*-deficient forelimb buds. The Mann-Whitney test was used for statistical analysis of all results shown in panels C-E: (*) p-value ≤0.05, (**) p-value ≤0.01.

Stage	Somite no.	Average cell no. (± SD)	n
E9.25	22-24	11′395±2′641	6
E9.5	25-27	16′117±770	4
E9.75	28-30	27′059±6′541	4
E10.0	31-33	50′211±7′680	6
E10.5	34-36	68′268±11′559	8
E10.75	37-39	152′210±30′150	20
E11.0	40-42	227′945±38′934	12
E11.5	43-45	317′794±64′868	10
E11.75	46-48	438′658±70′721	8
	49-51	530′404±82′911	6
E12.0	52-54	769′171± 34′465	6

Table 1. Experimentally determined mesenchymal cell numbers in mouse forelimb buds.

The table lists the average numbers of mesenchymal cells per mouse forelimb bud at the developmental stages indicated. Somite numbers were accurately counted and

assigned to the respective days of mouse embryonic development as previously defined (Zuniga, et al., 1999). The individual data points used for generating this table are shown in Fig. 1C.

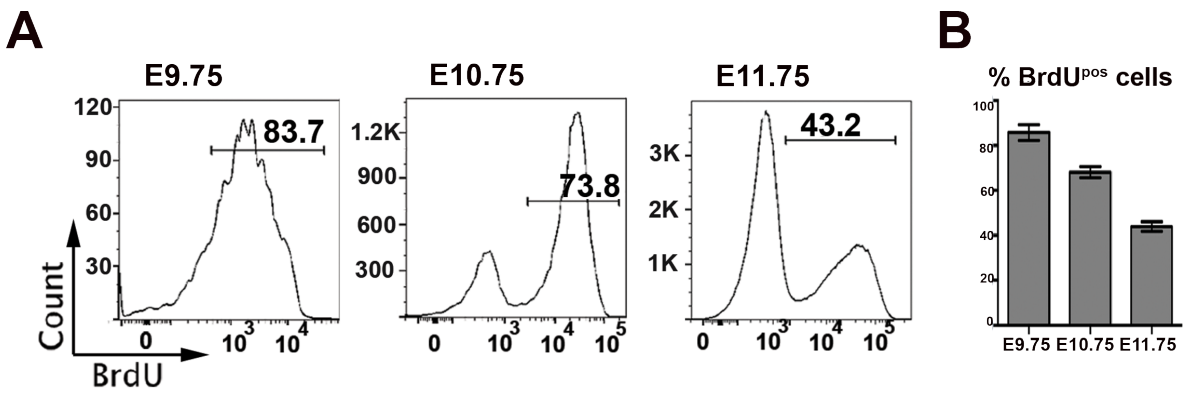

Fig. S1. Fraction of BrdU-positive mesenchymal cells at different forelimb bud stages.

(A) Representative FACS analysis shows the BrdU incorporation into wild-type forelimb buds at E9.75 (26-29 somites, n=5 independent samples), E10.75 (36-40 somites, n=4) and E11.75 (48-52 somites, n=5). Numbers indicate the percentage of BrdU-positive cells. (B) Percentage of BrdU-positive cells in wild-type forelimb buds (E9.75: n=5, E10.75: n=4 and E11.75: n=5 independent samples).

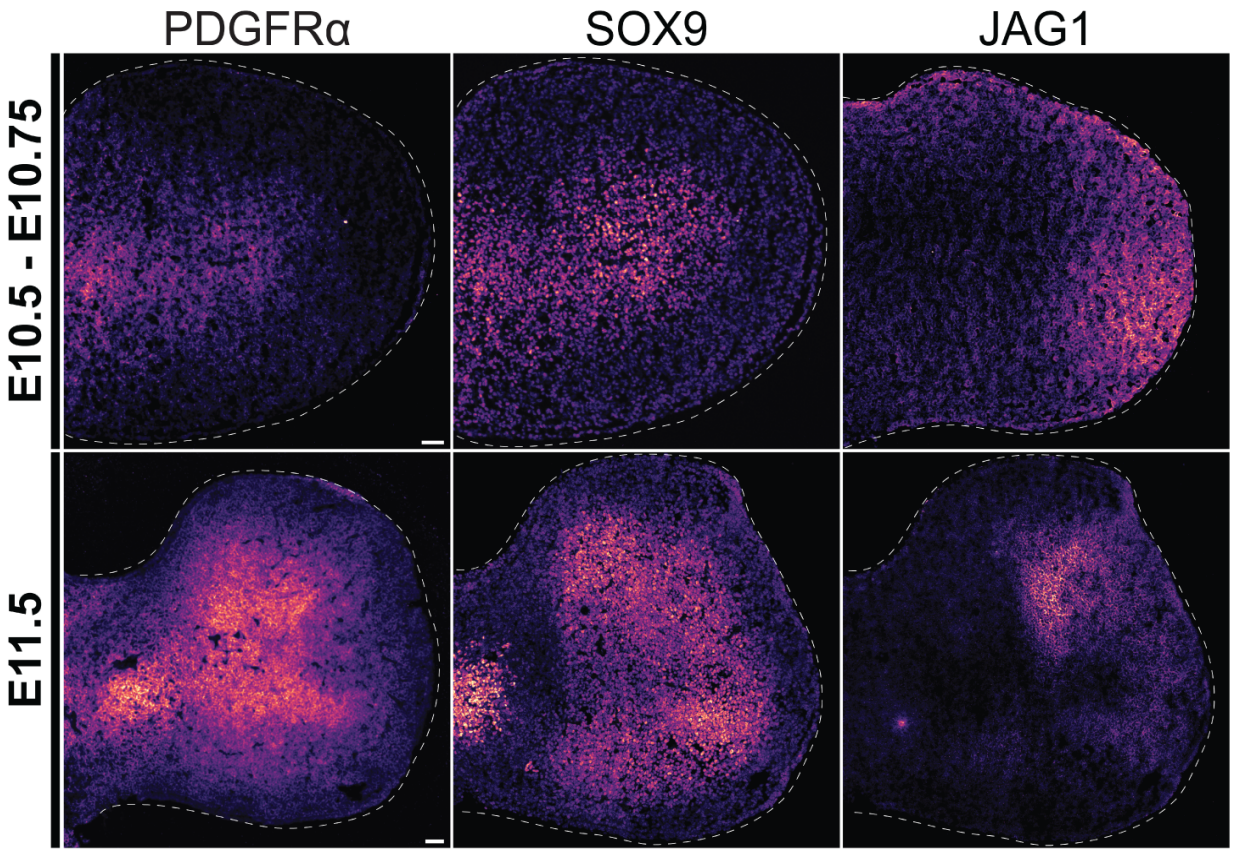

Fig. S2. Spatial distribution of markers used to identify specific mesenchymal cell populations in forelimb buds.

Immunohistochemistry shows the spatial distribution of the SOX9, PDGFRα and JAG1 proteins in mid-sagital sections of mouse forelimb buds at E10.5 and E11.5. Note that the mesenchymal cells expressing JAG1 at E11.5 overlap with SOX9-positive cells in the anterior mesenchyme. This was confirmed by FACS analysis. Therefore, JAG1 is only marking the posterior-distal and SOX9-negative mesenchymal cells in early forelimb buds at E10.5 (see also Fig. 2). White dashed lines outline limb bud. Scale bars: 50 μm.

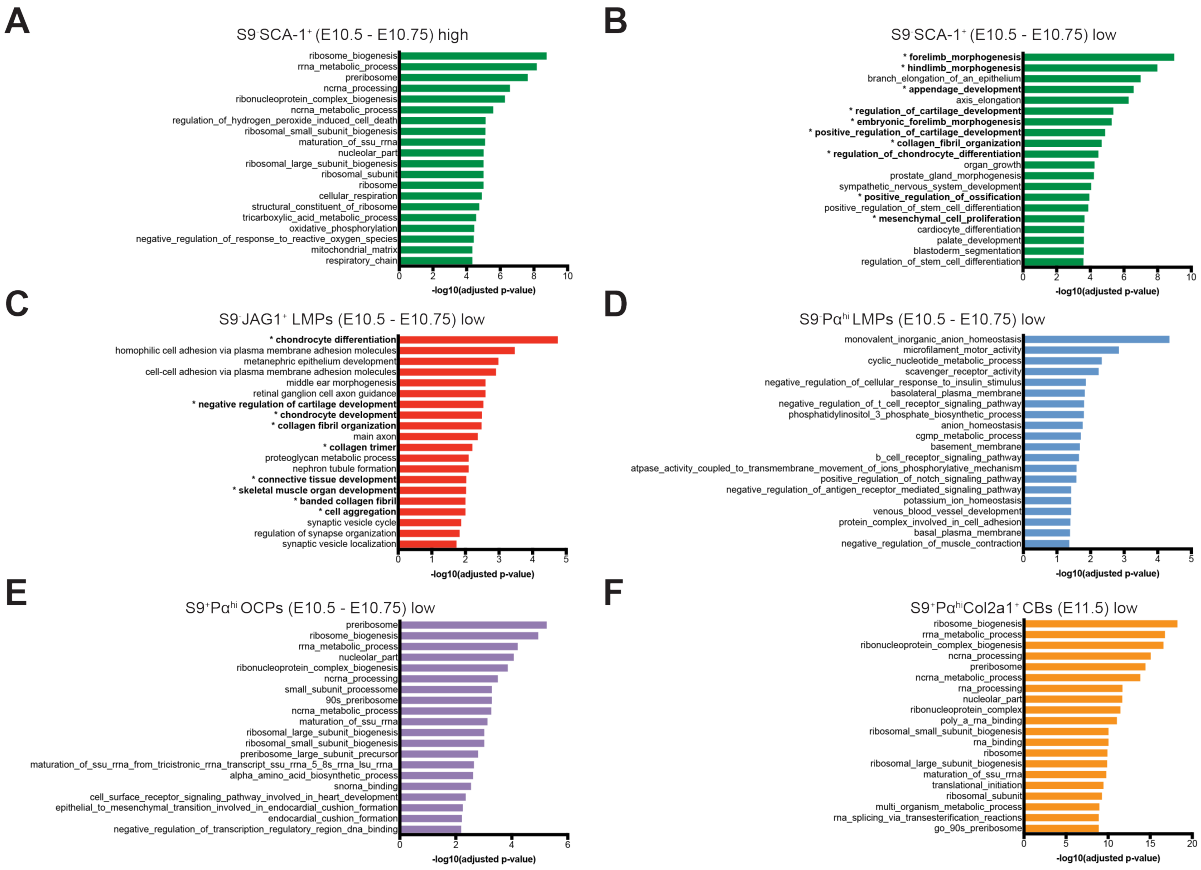

Figure S3. GO analysis of the genes expressed differentially in the forelimb bud mesenchymal cell populations at E10.5-E10.75.

(A, B) GO analysis of the genes whose expression is higher (panel A) and lower than average (panel B) in the S9^{-}SCA-1^{+} mesenchymal cell population. (C-F) GO analysis of genes expressed at lower than average levels in S9^{-}JAG1^{+} LMPs (panel C), S9^{-}Pα^{hi} LMPs (panel D), S9^{+}Pα^{hi} OCPs (panel E) and S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts (panel F). Asterisks indicate chondrogenesis- and limb-related GO terms.

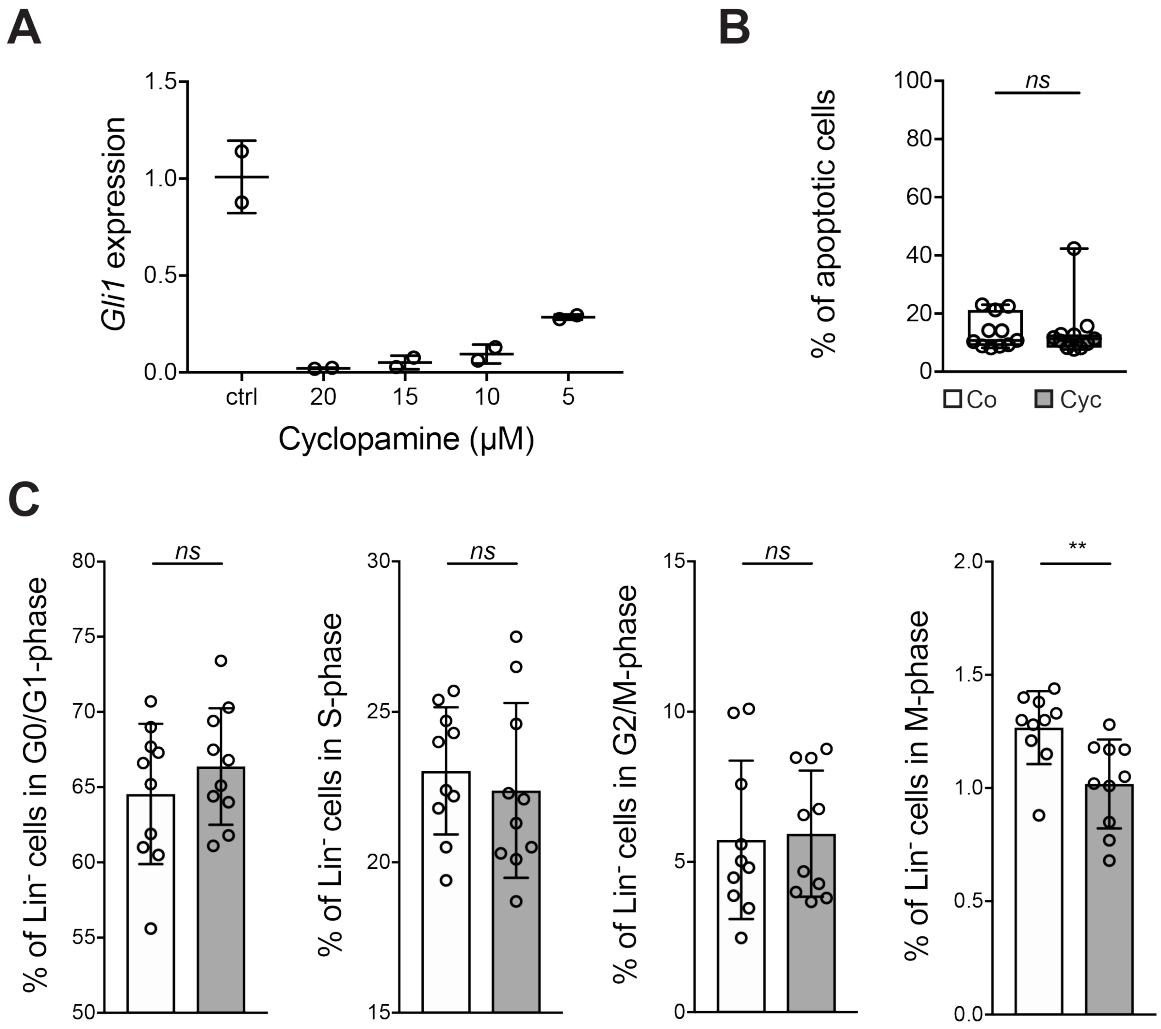

Fig. S4. SHH pathway analysis.

(A)Limb mesenchymal cells were cultured for 12 hours in presence of different concentrations of cyclopamine (0-20μM). Graph showing relative *Gli1* expression levels as determined by RT-qPCR. Individual data points plus mean ± SD are shown (n=2 data points per concentration). (B) Apoptosis rate assessed by Annexin-V in lineage-negative limb bud culture cells treated with 20μM cyclopamine (Cyc) or solvent alone (Co). Individual data points plus mean ± SD are shown (n=11). (C) Quantification of cell cycle stages occupied by limb mesenchymal cells after 12 hours of cyclopamine treatment. Individual data points plus mean ± SD are shown (n=10). Statistical evaluation of all results was done using the Wilcoxon test: (**) p-value ≤0.01.

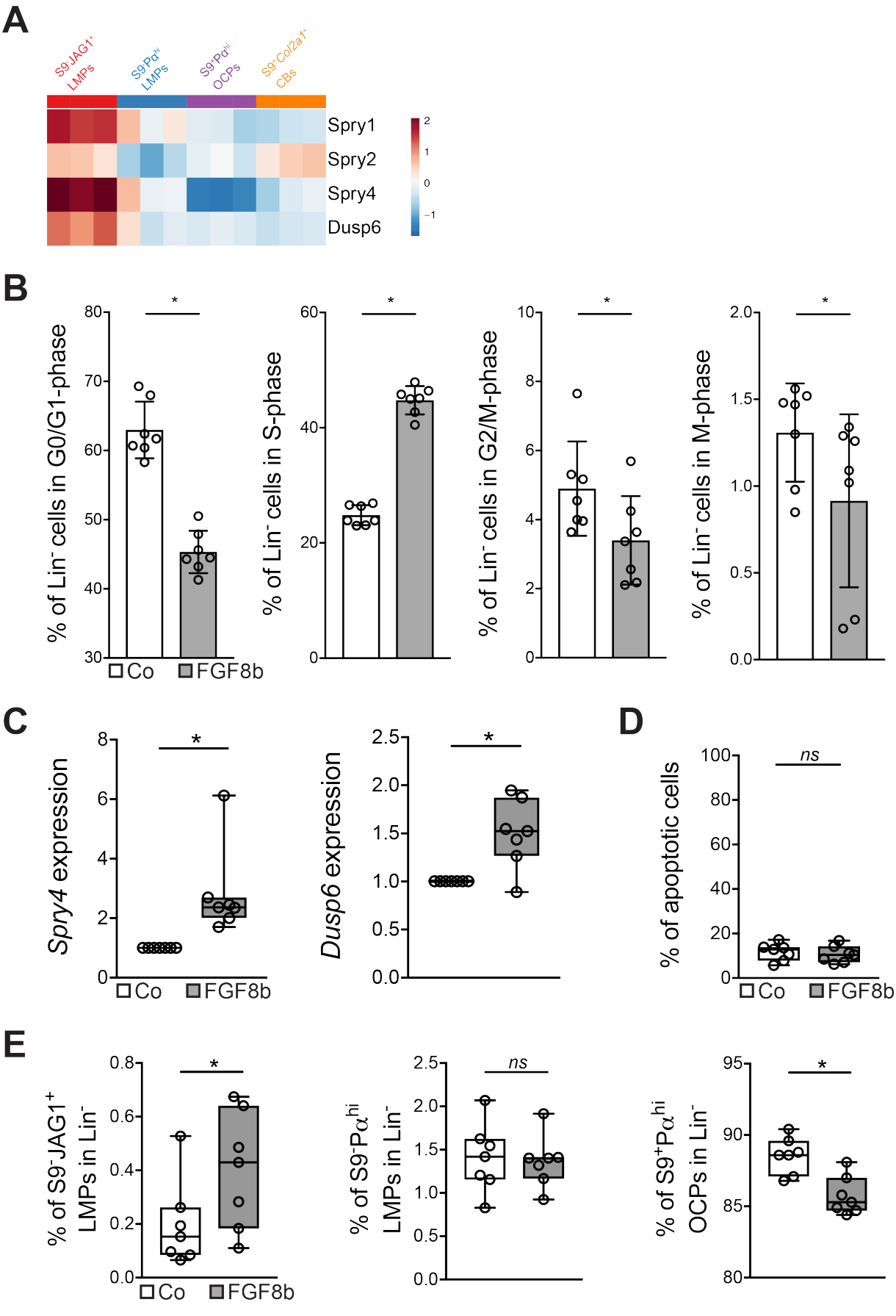

Fig. S5. FGF pathway analysis.

(A) S9^{-}JAG1^{+}LMPs express highest levels of the *Spry* and *Dusp6* transcriptional targets of FGF signaling in limb buds. (B) Forelimb bud mesenchymal cells (E10.5) were cultured for 12 hours in medium supplemented with FGF8b (300ng/mL) or solvent alone (Co). The fractions cells at the different stages of the cell cycle were quantitated by FACS. Individual data points plus mean ± SD are shown (n=7). (C) The effects of the FGF8b treatment on *Spry4* and *Dusp6* expression levels in cultured mesenchymal cells was determined by RT-qPCR (levels in control cultures were set arbitrary to 1). (D) Lin^{-} mesenchymal cells undergoing apoptosis in control and FGF8b-treated cultures. Individual data points plus mean ± SD are shown (n=7). (D) FACS quantitation of the different stages of the cell cycle in limb bud mesenchymal cells (controls versus FGF8b treated). Individual data points plus mean ± SD are shown (n=7). (E) Comparative analysis of the fractions (%) of S9^{-}JAG1^{+} and S9^{-}Pα^{hi} LMPs and S9^{+}Pα^{hi} OCPs in control and FGF8b treated cultures. Statistical evaluation of all results was done using the Wilcoxon test: (*) p-value ≤0.05.

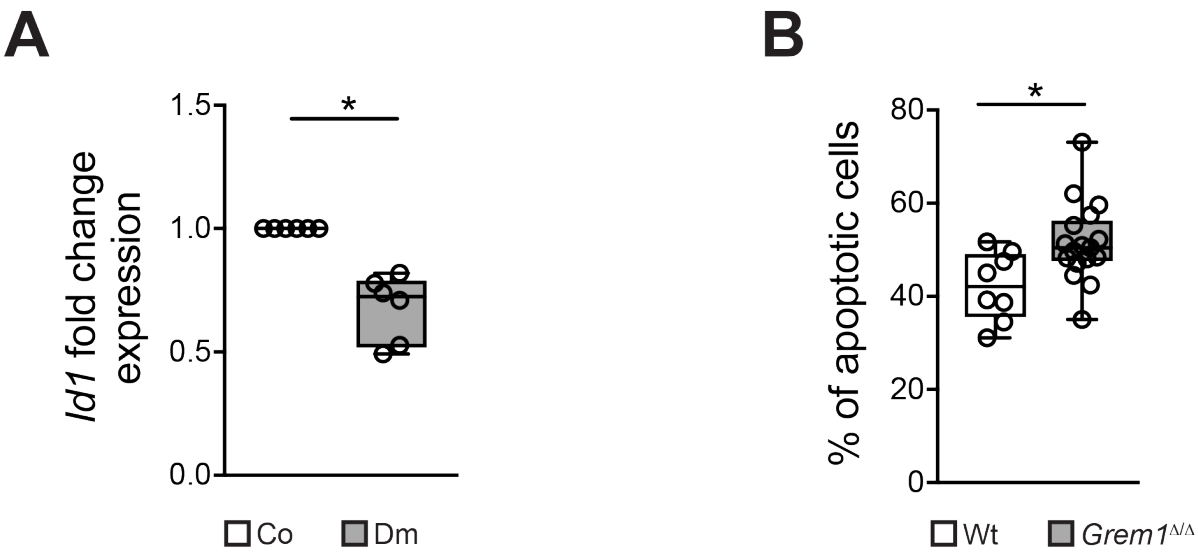

Fig. S6. BMP and *Grem1* pathway analysis.

(A) Limb mesenchymal cells (E10.5) were cultured for 12 hours in medium supplemented with solvent (Co) or 5 µM Dorsomorphin (Dm). This reduces the expression of the direct transcriptional target *Id1* as determined by RT-qPCR analysis. Individual data points plus mean ± SD are shown (n=6). (B) FACS was used to determine the fraction of apoptotic cells isolated from wild-type (Wt) and *Grem1*-deficient forelimb buds (*Grem1*$^{\Delta/\Delta}$) at E10.5. Individual data points plus mean ± SD are shown (n=8 for *Grem1*$^{\Delta/\Delta}$; n=17 for Wt). Statistical evaluation of all results was done using the Wilcoxon test: (*) p-value ≤0.05.

Table S1

Symbol	OCP_rep1	OCP_rep2	OCP_rep3	CB_rep1	CB_rep2	CB_rep3	PDGFRa_rep1	PDGFRa_rep2	PDGFRa_rep3	Jagged_rep1	Jagged_rep2	Jagged_rep3	Sca_rep2	Sca_rep3
Eya2	-1.832764127	-1.907162408	-1.388653793	1.795475517	1.74634731	1.89571432	-0.563378195	-0.886977577	-0.488471987	-2.514229395	-2.525693122	-3.201530432	4.904714292	4.966609596
Lbx1	-0.70639119	-0.832468878	-1.212001763	-1.425405519	-1.798517434	-1.413213625	-0.689789309	-0.828707229	-0.702078045	-1.572404061	-1.57987879	-1.855401739	7.396530707	7.219726875
Met	-0.470901802	-0.585583964	-0.492018217	-0.361553264	-0.060016612	-0.125394637	-1.063538493	-0.813349738	-1.363469964	-2.42109318	-2.436388277	-2.120237219	6.220971243	6.092574123
Myf5	-1.462650965	-0.957462604	-0.876670604	-0.741537412	-0.429246268	-1.177390601	-1.029113305	-1.472915329	-1.424234859	-1.290204917	-0.784461352	-0.625420806	5.993180008	6.278129014
Myod1	-0.892901338	-0.257127882	-0.834136263	0.061487498	0.273850561	0.15288807	-1.493023282	-0.810641273	-1.493023282	-1.493023282	-1.311075773	-1.320372417	4.667840949	4.749257712
Myog	-0.582446933	-0.516492303	-0.753823449	0.390416403	0.616858698	0.947973002	-1.054293554	-0.889562049	-0.840881579	-1.054293554	-0.872346045	-0.88164269	2.554313419	2.936220636
Pax3	-0.992318017	-0.414561377	-1.557419119	-1.948160497	-2.038231371	-2.080961998	-1.231142162	-0.615597274	-0.838775258	-2.172819845	-1.613602884	-0.220817323	7.665752146	7.665752146
Pax7	-0.844870234	-0.844870234	-0.686826915	-0.328330333	0.142894331	-0.143267735	-0.50875336	-0.844870234	-0.844870234	-0.844870234	-0.662922725	-0.844870234	3.647028779	3.609399364
Six1	0.185683123	0.138332715	0.207076693	1.286250975	1.58749924	1.340385304	0.459422338	0.445465988	-0.340858115	-3.859655964	-3.981218899	-3.981218899	3.237445793	3.425980806

Table S2

DEGs S9^{-}Sca-1^{+} E10.5-E10.75		
Gene Symbol	**log_2FC**	**FDR**
Pax3	9.091976323	2.84E-144
Lbx1	8.526176215	0
Adamts16	7.739363958	0
Mybpc1	7.404872643	0
Met	7.172588356	0
Myf5	7.136355046	0
Sp5	7.038958872	2.29E-88
Eya1	6.416993071	3.83E-171
Cxcr4	6.330805778	1.10E-95
Hpgd	6.305134197	6.43E-112
Hbb-bh1	5.992714007	5.09E-14
Msc	5.957178248	2.46E-44
Itga4	5.934663939	0
Wnt16	5.750559166	1.89E-265
Slit1	5.744092946	4.46E-216
Eya2	5.742934959	0
Gabra2	5.736595759	5.85E-209
Cr2	5.695450886	8.47E-227
Hbb-y	5.541777904	8.05E-12
Myod1	5.474993584	4.13E-262
Hba-x	5.473351137	2.48E-10
Hba-a2	5.470808744	8.71E-14
Hba-a1	5.470359756	8.73E-14
Cdkn1a	5.440119867	3.54E-158
Ppp1r16b	5.431846561	0
Tmem132d	5.350018361	1.92E-271
Foxd2	5.310501841	5.37E-284
Sim2	5.293384728	5.26E-31
Sowahb	5.123864963	6.45E-172
Slc4a1	5.086291183	1.57E-18
Cdh15	5.017842277	4.80E-181
Lurap1l	4.923562894	4.20E-159
Foxd2os	4.738087188	1.51E-198
Cpne8	4.715669508	5.03E-135
Pcdh17	4.665152085	0
Rtn4rl2	4.597990081	8.53E-146
Nav3	4.588894291	6.37E-80
Cav1	4.508605802	8.49E-127
Pygm	4.382289608	1.13E-76
Tacr3	4.360853323	5.24E-94
Uncx	4.356929943	3.93E-81
Gfra1	4.352601144	7.90E-216
Camk1d	4.227256293	1.50E-278
Pax7	4.224345844	5.88E-127
Fam81a	4.216859172	1.31E-114
Pitx3	4.20413681	1.09E-90
Dlgap1	4.1742417	1.18E-80
Scn3a	4.162451949	2.31E-112
Npr1	4.158673574	9.20E-72
Plcg2	4.08292367	2.33E-218
Pitx2	3.956913067	8.14E-16
Wscd1	3.899555666	5.08E-82
Six1	3.876194418	5.29E-188
Gdnf	3.861370265	1.16E-18
Lgr5	3.860211899	1.29E-147
Crym	3.796260151	1.49E-38
Tead4	3.72500161	8.04E-144
Ppargc1b	3.722386173	4.47E-119
Tmem30b	3.717523503	6.38E-137
Npffr2	3.682263844	1.93E-90
Sim1	3.599484938	2.11E-33
Fam107a	3.587304305	6.30E-43
Lrrc3b	3.562726796	2.01E-42
Col13a1	3.543017711	3.35E-87
Pls1	3.529000209	9.25E-165
Rbm20	3.490912925	7.59E-109
3425401B19Rik	3.444172729	3.60E-66
Plch1	3.397669898	1.31E-173
Zfp536	3.393135518	4.71E-85
Dmrt2	3.379739156	7.56E-23
Fgf5	3.366911266	1.64E-69
Lmcd1	3.336653149	9.54E-49
Iigp1	3.315099856	5.83E-79
Vgll2	3.279954546	1.61E-64
Pcdh19	3.274192763	1.51E-159
Prdm8	3.264292135	3.35E-41
Ppp1r1a	3.246483047	3.45E-126
Mn1	3.239276971	1.83E-161
Myog	3.212446388	2.50E-66
Myc	3.166458561	3.43E-64
Lfng	3.140171699	1.20E-73
Lgi1	3.136535885	1.97E-43
Car2	3.131157209	1.96E-14
Tcf15	3.126683967	2.86E-111
Synpo2l	3.12330519	4.01E-46
Tubb2a-ps2	3.105939289	1.18E-70
Dclk3	3.103415253	7.75E-43
Sptb	3.095839898	2.82E-10
Tubb2b	3.08889686	7.43E-203
Lmo3	3.079613376	4.96E-45
Ripply3	3.076897069	7.80E-72
Rerg	3.059547909	1.72E-24
Lin28a	3.056346473	1.75E-09
Nav2	3.044604422	4.91E-183
Dll1	3.037949222	7.48E-06
Dgkg	3.037139975	1.73E-35
Slco5a1	3.034810582	9.62E-74
Cerkl	3.022537319	4.82E-32
Tpm2	2.99833795	2.26E-224
Atp2a1	2.989346019	2.65E-41
Pdgfa	2.989081024	8.95E-36
Fat2	2.986456927	8.73E-55
Tmem232	2.954627603	1.12E-55
Cntn3	2.933942634	1.37E-55
Tbx21	2.930822601	1.16E-51
Ephx1	2.923534761	5.14E-68
Grb14	2.921425966	6.28E-97
Fst	2.908137892	3.71E-47
Rbm24	2.900477197	2.40E-101
Vgll3	2.894270502	3.68E-38
Rab20	2.881263431	2.76E-42
Myo5b	2.87990011	2.18E-76

Six2	2.866619737	1.12E-65
Gpr12	2.810676728	1.82E-41
Tnik	2.806887683	8.45E-41
Ly6a	2.7977145	1.40E-42
Kcnk13	2.785676392	2.55E-54
Chrnd	2.783900084	1.78E-44
Il18rap	2.782194256	6.12E-53
Ube2ql1	2.779582191	2.70E-24
Kdr	2.771230761	1.22E-16
Des	2.762706441	6.31E-24
Sox3	2.758313726	8.43E-38
Rbp4	2.755612407	1.86E-40
Dach2	2.754881198	2.66E-111
Tbc1d30	2.727590399	5.65E-29
Tex16	2.724936623	6.34E-30
Islr2	2.72452005	2.25E-33
Fam195a	2.714559936	1.49E-66
Mmp9	2.713761494	6.46E-34
Fgfr4	2.712860062	1.32E-60
Smtnl2	2.711061565	2.48E-37
Brsk2	2.69670216	5.50E-39
Epha6	2.684592718	1.59E-52
Rel	2.672463709	9.84E-69
Moxd1	2.647877151	2.02E-74
Espn	2.624054749	7.71E-36
Lin7a	2.623109991	5.31E-21
Pgf	2.621103213	7.07E-80
Chst7	2.594478098	4.46E-42
Fhl1	2.557826786	1.50E-203
Wfikkn1	2.539491605	3.06E-22
Sypl2	2.536008777	5.19E-42
Ndrg1	2.532058717	1.02E-37
Prokr2	2.511570514	1.95E-24
Hoxd1	2.481985061	3.18E-25
Adam12	2.481024745	1.72E-50
Ntn5	2.462510145	1.65E-24
Arhgdig	2.447955466	5.01E-25
Tnnt1	2.428930959	2.63E-20
Tubb2a	2.417884487	1.26E-107
Meox1	2.416978578	3.84E-38
St8sia4	2.412642835	1.98E-43
Fgf9	2.383093709	1.23E-41
Syt12	2.381481212	1.36E-30
Lingo1	2.372597872	6.55E-24
Dusp4	2.363161102	1.12E-75
Gm10007	2.351583849	5.98E-39
Ahr	2.346026216	2.49E-27
Col4a6	2.336561161	2.04E-17
Slit2	2.332131744	8.48E-43
Grik1	2.323742081	2.21E-34
Ssc5d	2.318925332	7.71E-37
Nkain3	2.315207173	1.89E-61
Hist1h2ac	2.310132207	2.95E-17
Sowaha	2.304063409	1.65E-24
Fap	2.297211806	4.51E-11
Mstn	2.28404464	2.11E-36
Lrrn1	2.282172262	1.84E-93
Alpl	2.274001098	6.70E-34
Epha5	2.273141102	1.02E-32
Cpne7	2.271425469	7.94E-27
Adamts17	2.267887575	2.38E-53
Sobp	2.26696294	6.39E-87
Sec1	2.246178136	7.70E-32
Pip5k1b	2.222853274	4.59E-25
Dusp2	2.221154241	9.08E-19
Megf10	2.219671738	1.11E-24
Chchd10	2.209399908	1.69E-44
Ankrd33b	2.207500837	1.02E-23
Reps2	2.20623088	3.35E-24
Tex15	2.199891053	1.12E-36
Plk2	2.171869634	1.65E-21
Stom	2.169924835	1.04E-47
Bcar3	2.147138802	1.58E-36
Gabra3	2.141647447	6.36E-32
Hymai	2.135402937	5.70E-22
Chrnb1	2.13244789	8.71E-22
Gata3	2.129775192	1.25E-07
Plagl1	2.12309271	1.30E-29
Grem2	2.108279142	4.19E-15
Me1	2.104495493	1.20E-42
Grap	2.103049583	4.99E-17
Isl1	2.09337282	0.000492626
Cldn11	2.085765567	1.49E-19
Pde8a	2.07292838	1.15E-38
Ank1	2.067572611	2.48E-09
Palmd	2.053295054	8.73E-22
Dio3	2.051306997	1.73E-23
Ppargc1a	2.049449598	1.71E-63
Bdnf	2.04912832	4.58E-12
Cldn1	2.047885618	7.84E-47
Adora1	2.042895735	1.16E-20
Atp2b1	2.041572933	2.42E-203
St6galnac5	1.999192222	4.14E-18
Stk32a	1.997816565	4.79E-23
Dkk2	1.995746956	4.95E-11
Sct	1.990388356	1.23E-19
9030612E09Rik	1.989561296	7.44E-25
Ackr3	1.98942962	2.39E-18
Inpp4b	1.988728671	2.63E-30
Lox	1.986817691	7.85E-15
Sema6b	1.979905253	2.53E-36
Cobl	1.974450879	5.86E-15
Stc2	1.971798642	3.87E-10
Arhgef15	1.964954293	4.92E-20
Lama5	1.959475886	2.65E-67
Gabra4	1.95636709	2.47E-26
Lgr6	1.952576483	8.53E-07
Crip2	1.944038062	1.70E-36
Foxd1	1.92725974	6.41E-11
Epb41l4a	1.920101867	3.25E-42
Rab3c	1.918468436	4.58E-28
Gria2	1.91024096	0.000232048
Calcrl	1.901436735	4.78E-92
Susd4	1.882363938	1.41E-25

Slc9a9	1.870385621	6.56E-19
Ptprj	1.866012825	1.13E-70
Pdlim1	1.847625495	1.03E-17
Fam89a	1.836668678	4.63E-25
Zcchc12	1.821449337	3.09E-30
Pdk4	1.819453126	8.43E-22
Gdap1	1.815242451	1.00E-17
Mapk12	1.814002029	1.92E-88
D930020B18Rik	1.81336253	1.24E-15
Tfpi	1.804165235	3.78E-18
Fam212b	1.799522168	1.86E-18
Cdc42ep1	1.798077594	3.26E-25
Wfdc2	1.791239176	1.49E-37
Cbs	1.790744223	1.79E-09
Sema3c	1.785628806	9.15E-19
Lrrk2	1.78489263	1.27E-36
Ezr	1.782046951	1.68E-43
Ggta1	1.780450279	3.44E-21
Glt1d1	1.771904589	1.55E-13
Scn4b	1.771857553	1.40E-06
Trim25	1.766761721	1.22E-38
Abcg1	1.766657458	1.40E-25
Sp8	1.756447825	9.85E-19
Pmp22	1.755645878	1.29E-13
Cotl1	1.755146317	2.43E-24
Heyl	1.746192335	1.04E-18
Nup210	1.739302424	4.00E-28
Klk8	1.732819875	9.74E-15
Ehd4	1.720454344	1.18E-72
Notum	1.715794235	1.55E-17
P4ha3	1.705030529	1.11E-11
Pcdh11x	1.695534678	3.29E-12
Nectin1	1.690445262	7.26E-59
Grrp1	1.688925775	6.66E-14
Ppfia2	1.683268248	4.51E-08
Ehbp1l1	1.677902033	7.01E-14
Actn3	1.67449378	1.09E-15
Anxa6	1.672512976	6.27E-94
Slc35g1	1.660324756	1.13E-26
Pdgfc	1.653712863	4.15E-73
Pik3cd	1.642161195	1.87E-30
Pknox2	1.641106183	4.63E-24
Mip	1.64009314	7.02E-17
Rimkla	1.640010637	1.91E-20
Gpm6a	1.637924839	5.35E-15
Chst2	1.629473229	1.27E-64
Pde1b	1.62698862	8.64E-16
Elavl2	1.620661939	9.69E-37
Il13ra1	1.61720607	4.09E-23
Snhg4	1.614195567	2.24E-20
Rora	1.609922387	6.69E-10
Hspa1a	1.597035758	0.032530513
Flt4	1.589905041	2.38E-12
Vav3	1.588355523	3.70E-14
Ydjc	1.587025737	1.97E-23
Frat2	1.583942975	1.24E-24
Man1c1	1.581107306	4.23E-24
Eng	1.570683503	3.81E-28
Pltp	1.568999717	3.75E-17
Phlda1	1.567576367	1.94E-57
Stx1a	1.563119961	3.24E-21
Rpl34-ps1	1.553780013	3.77E-07
Rell1	1.549515235	2.94E-56
Rbp1	1.544755523	1.41E-23
Ttn	1.544178098	1.94E-07
Rpl21	1.543683723	9.40E-07
Srcin1	1.524518125	1.71E-12
Epha3	1.520108371	1.80E-17
Hoxc10	1.519701639	0.075708179
Bcl6	1.515395988	4.48E-08
Pik3r1	1.499806674	1.29E-63
Gamt	1.497514479	1.03E-10
Tdrd1	1.496817724	2.89E-11
Ptpn18	1.477441748	2.40E-12
Lrig1	1.465212783	1.92E-15
Fam46c	1.46485906	4.84E-13
Gucy1b3	1.462526947	2.29E-05
Ramp2	1.459112885	3.22E-10
Stc1	1.458347478	8.69E-15
Dok1	1.456284398	6.09E-30
Stk26	1.455875934	7.01E-45
Ablim1	1.445212884	3.50E-48
Hhex	1.440291898	2.15E-11
Nog	1.436849713	6.70E-10
Usp44	1.435729444	2.87E-08
Hspa1b	1.435049079	0.036283221
Hacd1	1.434251368	8.76E-28
Tbc1d4	1.428793883	1.02E-55
Pvt1	1.422612767	2.97E-10
Fam46a	1.420765938	1.03E-05
Cdx1	1.416152402	9.02E-09
Tmsb4x	1.415076764	1.79E-21
Tusc1	1.412675915	2.59E-31
Hes6	1.410623935	3.18E-61
Col18a1	1.410382039	9.28E-55
Kcnq5	1.410244845	2.72E-09
Dpysl4	1.408362376	5.82E-27
Fam185a	1.401542065	7.90E-32
Gsn	1.400240106	4.91E-11
Mamld1	1.398416929	2.63E-15
Pou3f4	1.39442519	1.15E-12
Acsl5	1.392885246	4.43E-31
Frmd7	1.392684114	3.90E-22
Meox2	1.39247949	4.32E-11
Id2	1.390742503	3.81E-37
Acy3	1.388470026	1.51E-09
Pde4b	1.387921303	4.99E-10
Sdc4	1.384366939	3.43E-24
Coro2b	1.379045356	1.35E-18
Rtn2	1.37891502	5.13E-12
Srxn1	1.373022849	8.78E-13
Ryr1	1.367677386	4.50E-21
Chchd4	1.365407761	3.40E-16
Kbtbd8	1.364695331	2.46E-21

Elovl2	1.364172345	5.25E-33
Zfpm1	1.34748881	7.01E-22
Acp5	1.346788701	0.000800705
Ppp1r3b	1.344322285	1.75E-11
Macrod2	1.337487308	4.79E-12
Sulf1	1.334747521	2.56E-07
Tuba4a	1.334244782	2.02E-11
Psd2	1.332513623	1.59E-08
Thsd1	1.330251702	1.53E-06
Cntnap2	1.329769279	5.56E-13
Fam169b	1.315318246	4.96E-10
Ripk3	1.312401878	3.89E-36
Reln	1.3088807	2.60E-05
Scarf1	1.306017784	4.55E-06
Abr	1.30373839	4.62E-79
Npdc1	1.296356713	6.94E-09
Nudt19	1.295895318	4.03E-14
Egln3	1.291935631	3.70E-14
Dock5	1.287307729	2.19E-32
Ets1	1.28566331	1.04E-41
Timp1	1.279851889	3.41E-15
Atf3	1.279560897	1.27E-07
Stat5a	1.279015141	1.74E-27
Arid5a	1.27201103	1.79E-08
Shc2	1.269806156	1.91E-28
Gimap6	1.269786565	5.76E-11
Fgf8	1.265775847	0.000554937
Prss35	1.264997899	0.029710987
Klf15	1.263983642	5.04E-07
Vldlr	1.263834435	3.24E-13
Slc45a3	1.262141234	3.95E-14
Cldn9	1.258544325	1.60E-10
Tnfrsf19	1.258480433	3.04E-10
Mamstr	1.258377844	1.54E-07
Slc39a8	1.257596029	1.96E-05
Slc22a23	1.256065694	6.97E-22
Sh3kbp1	1.247798465	3.27E-28
Slc25a37	1.244471757	2.86E-10
Rps6ka4	1.244033016	3.83E-15
Elf4	1.242033443	3.81E-11
Lpl	1.241842523	9.25E-41
Cluh	1.241835401	2.42E-69
Ptpn6	1.239475704	1.17E-15
Crmp1	1.229348355	5.80E-08
Nat8l	1.227206372	1.64E-11
Ostf1	1.216199899	5.26E-30
Dgke	1.211593694	6.87E-16
Jph1	1.203380383	2.68E-17
Cdh8	1.202520624	2.58E-07
Trim16	1.201389789	3.06E-05
Hps6	1.200069475	2.05E-10
Hoxb6	-1.20028551	0.084387505
Rap1gap2	-1.202366201	5.42E-07
Ctnna2	-1.203757224	0.005216178
Dkk1	-1.20657054	2.80E-06
Selenop	-1.211254585	1.49E-18
Gramd1c	-1.211455087	2.06E-06
Chrna4	-1.214723751	6.16E-08
Ptprt	-1.215482853	2.01E-06
Dixdc1	-1.215720557	8.17E-36
Zadh2	-1.217619757	2.25E-21
Gm5126	-1.218336812	1.05E-06
Enox1	-1.218530817	5.26E-22
Meioc	-1.219409006	0.000715016
Igfbpl1	-1.21946859	0.000171541
Asxl3	-1.221043284	8.23E-13
Mertk	-1.221691772	3.34E-12
Fgd4	-1.222264183	1.99E-07
Fam160a1	-1.222567242	1.45E-05
Chmp4c	-1.223585946	0.000955047
Ttbk1	-1.226449367	0.001799809
Abca8b	-1.22665907	1.20E-09
Gpsm2	-1.226666381	3.23E-27
Trim9	-1.22879797	0.083537857
Rgl3	-1.229100754	9.21E-07
Rem2	-1.229831478	1.61E-10
Tns1	-1.232231185	1.96E-23
Tspan11	-1.23516263	4.08E-13
Gal3st1	-1.2351807	4.37E-05
Gck	-1.235594661	1.13E-05
Evpl	-1.238139367	7.45E-11
Dnajb4	-1.239407207	1.01E-17
Clmp	-1.240789589	1.04E-37
Epha8	-1.240859493	0.011043245
6030408B16Rik	-1.241973867	0.000800288
Smarca1	-1.242679307	5.27E-32
Spry4	-1.244051072	3.32E-09
Cacna1e	-1.245892436	0.000744773
Emp1	-1.245965311	1.72E-14
Cdh11	-1.246254786	8.95E-30
C430049B03Rik	-1.250046676	1.16E-11
Akap2	-1.251338595	7.31E-19
Dusp6	-1.252247089	5.63E-12
Stat4	-1.252361157	1.23E-05
Crocc2	-1.254135242	0.000348932
Rnf32	-1.254287017	3.81E-05
Ubl4b	-1.255420525	9.35E-07
Tceal3	-1.256551322	5.71E-09
Cdc42ep3	-1.257251365	2.53E-07
C3HC4	-1.257345237	2.57E-15
Dennd1a	-1.257448985	1.97E-28
Eml1	-1.258614146	5.86E-30
Adgra2	-1.259061187	4.85E-25
Tgfbr3	-1.260187208	6.14E-13
Gng2	-1.26176082	4.23E-24
Cadm2	-1.262353009	0.000369293
Fam159a	-1.262753107	7.54E-06
Dock6	-1.263229517	3.98E-14
Mapk15	-1.26361322	8.33E-05
Ankrd44	-1.265100401	1.97E-31
Fam19a1	-1.266850989	6.38E-06
Plxnb1	-1.268254936	4.31E-19
Gpc5	-1.271458895	2.18E-09
Col6a3	-1.27213949	1.10E-07

Pakap	-1.272572055	1.34E-19
Ulk4	-1.274152345	8.83E-06
Prrt2	-1.274212879	0.000228408
Syt5	-1.274523585	3.45E-07
Dmrta1	-1.274527437	0.000644314
H2-Q5	-1.27480671	0.000127812
Hmgcs2	-1.275799844	0.000114769
Vill	-1.277063419	2.09E-11
Mc4r	-1.278741876	5.83E-05
Wnt2b	-1.280056241	0.000141389
Srsf12	-1.281660601	1.06E-06
Cacna2d1	-1.284005071	2.53E-10
Tub	-1.285661739	2.75E-20
Cyp2d22	-1.28635128	4.71E-05
Efnb1	-1.286676816	1.60E-20
Dlx6	-1.286733604	2.31E-06
Ybx2	-1.287093148	0.000139226
Tnfaip8	-1.288948906	4.64E-27
Ogn	-1.289140188	0.006082428
Atp8a2	-1.289227191	1.07E-07
Cd82	-1.289396858	7.76E-10
Prr16	-1.289568799	0.000471554
Tec	-1.289664882	0.000288497
Elf3	-1.290375904	7.47E-17
Olfml1	-1.294219515	3.85E-17
Gpc3	-1.297409611	2.21E-27
Apc2	-1.298355868	3.52E-06
Col25a1	-1.299382913	9.04E-22
Ptpre	-1.300222569	0.000252199
Flnb	-1.303107316	1.40E-12
Sgpp1	-1.303801368	2.95E-24
Hmcn1	-1.304618297	1.01E-09
Akap6	-1.304632352	1.16E-05
Creb5	-1.305070281	0.001781614
Nfib	-1.3056137	0.000129363
2610035D17Rik	-1.306257245	2.37E-07
Dsc3	-1.306608276	0.023641881
Tmem119	-1.307402751	2.99E-16
Gm9767	-1.30890619	2.56E-05
Ptges	-1.309895675	3.66E-22
Nrxn1	-1.309921007	0.000102919
Gas7	-1.309958841	3.48E-10
Dync1i1	-1.311689103	2.92E-09
Rian	-1.311697049	4.27E-05
Sorcs3	-1.314447262	1.63E-06
Panx2	-1.314779254	0.00015699
Slc5a7	-1.318539557	0.000356877
Sash1	-1.319003227	1.30E-24
Emilin3	-1.321668887	5.60E-26
Acan	-1.322531087	0.018181891
Mycbpap	-1.322709012	0.000222788
Grem1	-1.323483496	2.78E-08
Egfl6	-1.326493419	6.81E-05
Syngr3	-1.329715581	5.10E-10
Wt1	-1.333717774	0.002143274
Sp7	-1.338364537	1.76E-07
Gjb2	-1.338474272	6.63E-07
Slc35f1	-1.342825919	1.63E-09
Sgk1	-1.343394075	1.47E-08
Kcnj2	-1.34449193	2.01E-07
Nell2	-1.34610682	1.85E-10
Olfml3	-1.348195814	0.000352904
Fndc3c1	-1.34844696	2.24E-31
Grid2ip	-1.349020583	5.88E-05
Dnm3	-1.350315171	8.98E-07
Nrgn	-1.352787015	1.99E-07
Thsd7a	-1.355539959	1.39E-07
Serpini1	-1.357248895	5.17E-13
Crnde	-1.358436274	0.037966055
Penk	-1.361129331	5.50E-05
Rnf128	-1.365688111	8.27E-09
Peli3	-1.366193754	2.07E-05
Tgfb2	-1.36716756	1.23E-07
Aifm3	-1.367188465	8.70E-07
Cnih2	-1.36746632	4.48E-18
Colgalt2	-1.367669551	0.00010558
B830017H08Rik	-1.368725557	1.79E-05
Prkg1	-1.369740327	3.70E-05
Col14a1	-1.370144052	0.023786716
Nid1	-1.370212755	7.90E-26
Pdgfd	-1.371942322	6.64E-09
Ptch2	-1.372549304	6.47E-21
Lpar4	-1.375332867	1.69E-16
Ctsc	-1.375925958	1.91E-17
Klhl3	-1.380486536	1.88E-07
Tpd52l1	-1.38257193	1.17E-24
Rbfox3	-1.383415892	1.96E-07
St8sia6	-1.383962234	4.79E-07
Cbx8	-1.384442261	7.14E-14
Tmx4	-1.386449488	1.52E-17
Gpc4	-1.388960399	3.69E-16
Mtmr11	-1.392727205	7.24E-15
Hspb8	-1.393913805	3.81E-12
Tmcc3	-1.394147995	8.05E-13
Ccdc106	-1.398408092	2.53E-08
Rasgef1b	-1.399269022	3.52E-17
Trpm5	-1.399817242	6.42E-05
Bambi	-1.401379265	4.59E-15
Fnd3c2	-1.406958526	1.57E-21
Fgfr3	-1.407562128	2.28E-08
Gsap	-1.411737546	1.00E-05
Pdgfrb	-1.412854974	9.38E-27
Filip1l	-1.41455044	1.35E-12
Sox10	-1.416786131	0.008914753
Npas3	-1.42015342	8.90E-07
Fam227a	-1.422627825	0.000184993
Sema6d	-1.423509265	1.31E-13
Mir1906-1	-1.42394123	0.000813666
Mir1906-2	-1.42394123	0.000813666
Sox18	-1.424619799	1.23E-05
Il1rn	-1.425133346	0.001233776
Rapgef5	-1.425328871	6.43E-09
Ankrd45	-1.4281201	2.13E-12
Pamr1	-1.431845259	0.094622329

Mst1r	-1.431961678	4.76E-07
Cd248	-1.434391731	7.86E-11
Capn6	-1.436590302	7.34E-36
Kifc3	-1.436591382	3.95E-23
Efemp1	-1.437712329	0.003634349
Sfrp2	-1.439784964	3.99E-20
Pcdh18	-1.441701079	4.13E-24
Kank1	-1.443331408	1.66E-18
Klf2	-1.447898635	0.00169775
Tox	-1.448609245	2.71E-06
Zmat4	-1.451239165	0.000680934
Col6a1	-1.452498248	1.15E-15
Prnp	-1.454923032	2.15E-16
Col5a2	-1.45521418	1.12E-17
Ltbp1	-1.456089595	7.59E-14
Pcdh8	-1.45612427	0.069594703
Rnf125	-1.456478059	2.58E-07
Mob3c	-1.456645263	2.21E-10
Dmd	-1.458511985	8.09E-23
Ahnak	-1.459601469	6.15E-05
Agtr1a	-1.460093996	1.15E-08
Col15a1	-1.462605743	0.000100712
Lrrc9	-1.466396281	9.02E-08
Pag1	-1.468064012	2.98E-41
Mfap4	-1.468452423	1.01E-26
Hecw2	-1.468903731	2.17E-14
Peg3	-1.469854551	6.96E-21
Prkcb	-1.469997513	5.63E-12
Hdac9	-1.470432115	1.23E-20
Loxl1	-1.470681281	6.02E-11
Postn	-1.471128454	0.019667245
Grik2	-1.471712591	1.57E-06
Spint2	-1.476043338	1.20E-19
Pax9	-1.476175288	0.000167062
Mylk	-1.476917027	1.40E-09
Wbscr17	-1.477279174	2.16E-12
Lhx1	-1.48147295	5.61E-07
Syne3	-1.483049739	1.15E-06
Ak5	-1.483136919	6.80E-07
Chst15	-1.484015009	4.66E-22
Tgm3	-1.48454328	7.39E-05
Fos	-1.489443011	0.004603184
Fam196b	-1.491269079	0.001200298
Sh3bp5	-1.49164346	7.24E-35
Ablim2	-1.491748612	5.70E-07
Rsph9	-1.497440982	1.70E-09
Cd47	-1.49805504	1.24E-24
Sdc2	-1.507919156	1.89E-42
Ptgfr	-1.509501106	6.92E-07
Enpp5	-1.511579907	1.12E-10
Chrna1	-1.511694095	5.26E-06
Lhx2	-1.512628554	4.27E-11
Arhgap9	-1.515348136	5.57E-12
Sema4f	-1.515887084	1.70E-14
Aatk	-1.516579681	3.66E-08
St3gal6	-1.517827094	3.38E-11
Rab37	-1.530478464	4.16E-11
Ghr	-1.531302411	2.41E-21
Thbd	-1.532608222	1.50E-05
Mef2c	-1.534012485	2.97E-10
Cyp2s1	-1.536630627	0.000114488
Mkx	-1.541142105	9.73E-16
Hoxc8	-1.541283135	0.004036188
Efnb3	-1.541883274	2.13E-23
Nrsn2	-1.544275208	1.05E-07
Adamts4	-1.545588203	2.17E-14
Fam163b	-1.549770757	1.52E-09
Peg3os	-1.550442586	6.55E-25
Tril	-1.551635795	1.82E-25
Abtb2	-1.55327491	7.04E-32
H2-Ab1	-1.553656703	4.26E-07
D630003M21Rik	-1.553666142	1.45E-14
Hoxd8	-1.553788727	5.72E-23
Entpd1	-1.556587403	1.02E-08
Wipi1	-1.55964166	1.01E-31
Lrba	-1.560348127	3.03E-17
Fndc1	-1.560904482	0.010643703
Nod1	-1.561165615	0.000467646
Scube3	-1.562189426	1.78E-17
Arhgap29	-1.562830619	2.09E-19
Stard8	-1.563778105	2.53E-08
Nap1l5	-1.564722485	4.76E-14
Klhl14	-1.565130188	4.80E-08
Rgs5	-1.568205296	4.57E-06
Zcchc5	-1.569166392	0.01024678
Lrrc56	-1.571051434	1.12E-31
Clstn2	-1.573685532	1.97E-07
A330033J07Rik	-1.574004897	1.30E-05
Bgn	-1.574960102	2.85E-20
Cdh6	-1.57533136	1.98E-21
Pianp	-1.576221251	0.001930033
Pid1	-1.578158238	8.42E-06
Lgi3	-1.581912168	5.53E-07
Pear1	-1.583486427	1.91E-23
Rgs9	-1.584305342	1.57E-13
Rarres1	-1.587516673	8.90E-06
Rbms3	-1.59092745	1.77E-40
Hand1	-1.593539349	0.011270298
Frem1	-1.594378335	9.95E-20
Tox3	-1.596510879	1.42E-26
Rnf152	-1.598711749	2.37E-06
Ntng2	-1.605314206	3.86E-06
Bmx	-1.609323812	1.86E-06
Nxnl2	-1.610721634	4.78E-06
Id1	-1.610860461	3.68E-29
Bmp4	-1.613734361	5.28E-21
Bmp3	-1.614916203	0.000638612
Wls	-1.616174688	1.87E-51
Wnt4	-1.618685671	8.78E-06
Col7a1	-1.618943366	7.22E-05
Arhgap24	-1.626962801	1.08E-29
Bnc1	-1.628910986	0.001641464
Spock3	-1.638847196	8.15E-12
Palm2	-1.64195757	3.09E-13

Slc16a7	-1.644546618	8.92E-12
Twist1	-1.64566542	2.14E-26
Spp1	-1.650031	4.21E-06
Crabp1	-1.652653425	2.90E-05
Apela	-1.654339252	4.65E-10
Tmem132c	-1.654897791	7.47E-18
Rhoj	-1.654939431	3.24E-13
Gria3	-1.654985275	6.03E-06
Kctd12b	-1.655720561	3.77E-14
Gata5	-1.65665075	0.007978687
Gdf6	-1.657033614	3.07E-06
Pappa2	-1.657806697	2.26E-05
Rarb	-1.658623122	0.000587387
Shisa6	-1.663003794	7.03E-06
Pam	-1.663296894	6.64E-26
Syne1	-1.663611073	3.64E-09
Corin	-1.664745633	0.010862573
3110039I08Rik	-1.665964945	6.76E-06
Mbnl3	-1.666992279	6.02E-38
Aass	-1.667780675	2.22E-18
Krt18	-1.671669184	1.04E-08
Cbfa2t3	-1.672979263	5.15E-15
Negr1	-1.681284627	3.13E-07
Cntfr	-1.682907338	6.96E-09
Adgre5	-1.68390838	9.18E-11
Crispld2	-1.685183317	2.35E-06
Nap1l2	-1.686978211	4.26E-07
Padi3	-1.693052818	1.36E-13
Ifitm1	-1.694239246	1.89E-13
Adora2b	-1.694536914	1.09E-17
Fam84a	-1.699083038	8.08E-07
Kcp	-1.705131959	3.79E-07
Alx1	-1.711547594	5.59E-05
Itpr3	-1.713786978	1.53E-21
Bmp7	-1.715121743	8.76E-53
Zfp979	-1.718772718	0.020872902
Msx2	-1.719243901	2.31E-14
Jakmip2	-1.722477919	2.78E-14
Cpa2	-1.722495297	1.43E-35
Jag1	-1.725561005	1.20E-19
Mtus2	-1.725821067	1.10E-06
Lix1	-1.728093756	3.75E-20
Unc5b	-1.732558572	3.81E-35
Tpsg1	-1.732605024	1.60E-07
Edil3	-1.732851495	3.98E-06
Wfikkn2	-1.734040629	1.20E-12
Wisp1	-1.735489046	4.30E-06
Gata4	-1.736084932	0.000109256
Cnr1	-1.736843832	1.60E-12
Samd5	-1.73721912	3.00E-09
Pcdh1	-1.737230761	8.92E-10
Irf2bpl	-1.739474468	4.05E-18
Wnt11	-1.741968498	9.58E-21
Sdk1	-1.744004521	1.17E-27
Mirg	-1.746840131	1.20E-07
Armc2	-1.747512307	6.95E-09
D030045P18Rik	-1.748601795	8.92E-10
Ctgf	-1.749515728	4.61E-08
Gulp1	-1.755450072	6.03E-30
Maf	-1.761603259	1.61E-16
Rtn4r	-1.763205909	7.90E-10
Tns3	-1.765438966	4.53E-38
Zim3	-1.765643956	1.54E-08
Tmem252	-1.765862776	1.55E-06
Atp1a2	-1.766031042	8.60E-16
Lgals12	-1.767483453	2.55E-10
Nckap5	-1.770839261	2.41E-06
Adamtsl1	-1.775140778	9.42E-07
Vasn	-1.775593342	8.40E-30
Dlg2	-1.778308673	2.52E-06
Igsf11	-1.778708365	5.28E-09
Ctsk	-1.779193501	2.65E-09
Setbp1	-1.779481644	1.89E-17
Eln	-1.781119667	9.99E-19
Gria4	-1.783545405	2.72E-12
Wdr86	-1.787019081	5.97E-24
Spsb1	-1.791928462	3.48E-37
Arhgap18	-1.792993933	5.70E-23
Pgm5	-1.794989778	2.32E-07
Mgat4a	-1.79510001	3.34E-49
Grik4	-1.800621024	5.70E-11
Clcf1	-1.801273534	1.88E-11
Usp29	-1.803503774	9.51E-23
Meg3	-1.804756978	1.76E-05
L1td1	-1.80914672	1.41E-06
Piezo2	-1.817965264	1.50E-07
Ednra	-1.820827395	4.27E-18
Epha1	-1.821851463	7.53E-28
Xpnpep2	-1.822442894	2.93E-10
Cpxm2	-1.826530643	1.06E-05
2010300C02Rik	-1.830132803	2.00E-10
Cox4i2	-1.83078363	1.30E-11
Col6a2	-1.835200245	9.22E-33
Fam151a	-1.83594676	2.05E-15
Zic3	-1.836478582	1.50E-20
Plcb1	-1.837777286	2.02E-24
Nrtn	-1.83916502	4.02E-12
Nfatc2	-1.848788978	1.89E-10
Tfap2a	-1.851032218	6.46E-17
Col1a2	-1.855639381	7.13E-24
Sema3d	-1.862194901	7.73E-05
Tac1	-1.8643365	1.52E-07
Ldb2	-1.867436262	1.68E-37
Drp2	-1.867551107	2.06E-12
Kitl	-1.870908325	8.46E-09
Gm2694	-1.871765086	1.09E-11
Clec14a	-1.879028988	2.32E-11
Lama4	-1.879554109	2.76E-65
Vegfc	-1.887469675	5.75E-18
Dhrs3	-1.8891364	3.70E-22
Kcnq4	-1.892253828	8.56E-18
Dnm1	-1.89324407	3.24E-40
Cd38	-1.894005471	2.02E-16
Trps1	-1.89503858	3.74E-19

Col16a1	-1.895260542	4.47E-11
Elmod1	-1.895416244	4.42E-10
Snai2	-1.895425053	2.24E-39
Thbs1	-1.895576586	5.00E-09
Abca4	-1.896107761	1.87E-14
Abca9	-1.899429295	1.82E-10
Rin2	-1.904842856	2.96E-33
Fbln5	-1.904886526	4.19E-18
Daam2	-1.907932358	3.52E-47
Cyp1b1	-1.911206932	2.52E-11
Card11	-1.918767655	7.90E-06
Fbln2	-1.920774601	2.19E-34
Mgat4c	-1.923389822	0.001058763
Ptpru	-1.927121842	6.45E-32
Adgrg1	-1.937025331	6.87E-20
Ptpn13	-1.937574981	1.87E-38
Mctp2	-1.937636826	1.76E-12
Cdo1	-1.942436463	2.49E-11
Prrx2	-1.942714249	1.60E-31
Irx5	-1.946821285	0.006141941
Enpp3	-1.950532573	1.96E-12
Wnt2	-1.956954184	0.007265433
Kif26a	-1.960765899	2.21E-50
Alx4	-1.961911421	8.93E-12
Vax2	-1.962270127	3.76E-07
Dnajc22	-1.971776703	1.24E-12
Sema5b	-1.978166799	1.32E-08
Gdf7	-1.979589632	4.48E-07
Lvrn	-1.980848041	2.58E-11
S1pr3	-1.982586148	2.40E-24
Erg	-1.982622292	2.10E-16
Veph1	-1.989076573	2.74E-07
Gpm6b	-1.990365431	5.43E-32
Svep1	-1.995846728	3.82E-12
Fgf10	-1.997856475	2.86E-33
Slc16a2	-2.007334122	1.87E-38
Cd83	-2.007806837	2.26E-14
Slc14a1	-2.010062237	1.49E-07
Adamts18	-2.011497118	3.55E-06
Kcnd3	-2.015406802	6.92E-10
Myrf	-2.015763182	7.01E-16
Stmn2	-2.016550158	3.77E-09
Cdh22	-2.017277357	3.25E-13
Hs3st1	-2.020740836	1.46E-08
Epha4	-2.021145151	1.69E-34
Hs3st6	-2.022264163	4.74E-15
Dysf	-2.024217757	2.16E-31
Aff3	-2.029541062	6.55E-32
Kank4	-2.036212797	5.75E-74
Dab1	-2.038018447	1.29E-12
Sall1	-2.041831087	2.72E-25
Nrp2	-2.044929895	6.70E-41
Arhgef19	-2.046642952	7.61E-08
Ncald	-2.047545091	9.30E-13
Zim1	-2.048130022	1.34E-05
Shank1	-2.050449484	2.67E-08
Dgkk	-2.051911456	1.98E-16
Gsg1l	-2.052568386	3.49E-09
Irx3	-2.054105283	0.006379665
Foxf2	-2.057053029	2.23E-11
E330013P04Rik	-2.057972523	1.71E-08
Mir5130	-2.061872727	8.03E-10
Tshz1	-2.062229697	1.34E-42
Samd4	-2.064928334	3.83E-33
Dcn	-2.06570201	5.41E-06
Crhbp	-2.065988397	8.13E-07
Jazf1	-2.066548781	4.60E-16
Acot11	-2.068152963	5.21E-28
Gulo	-2.068280985	2.12E-17
Lrrc75b	-2.073209775	1.16E-12
Cacna1c	-2.073390882	3.19E-17
Efcab1	-2.075776222	4.04E-15
a	-2.082570841	1.66E-22
Rgcc	-2.084824183	3.46E-09
Slc6a17	-2.086524645	5.40E-21
Nrn1	-2.08823237	8.97E-12
Rtl1	-2.101261089	5.51E-11
Ndnf	-2.112727564	2.53E-05
Rtn4rl1	-2.113691944	3.19E-13
Wif1	-2.118702565	4.61E-15
Mdga1	-2.125955987	2.30E-24
Mmp28	-2.129754016	6.14E-11
Prrx1	-2.131236298	1.13E-46
Dlk1	-2.137165548	3.46E-11
Fli1	-2.148438462	7.89E-51
Prelp	-2.14977565	0.000488903
Rgag1	-2.152034308	1.20E-14
Dll3	-2.156723032	0.002092697
Cmklr1	-2.163515902	1.05E-10
Tshz2	-2.163604846	3.50E-68
Tbx4	-2.163922793	9.32E-14
Alcam	-2.168441673	3.38E-07
Syt13	-2.183597538	1.08E-08
Rftn2	-2.186820172	6.75E-44
Egfem1	-2.188651001	8.98E-07
Barx2	-2.189678155	0.000924104
Sostdc1	-2.196267491	1.68E-11
Gja3	-2.19708007	4.03E-15
Slitrk6	-2.198000131	6.92E-07
Tmem28	-2.202440515	5.17E-18
Nfia	-2.209548107	1.94E-11
Alx3	-2.210313565	1.10E-21
Mir7025	-2.213766532	2.76E-16
Tbx2	-2.221946652	1.34E-29
Prickle2	-2.227946597	1.09E-32
Gata6	-2.229255874	9.11E-07
Kcnd2	-2.234989841	2.37E-09
Hgf	-2.236492174	4.37E-19
Lrrc4b	-2.244818234	1.73E-27
Spry1	-2.245775532	5.23E-30
Sema6a	-2.246251586	5.20E-30
Slit3	-2.252133151	8.73E-51
A730020E08Rik	-2.256455665	1.35E-16
Emilin2	-2.263404925	7.28E-58

Thbs2	-2.264102773	1.78E-13
Cacna1h	-2.268450793	2.22E-16
Cbln1	-2.271938535	7.15E-25
Adamts2	-2.281855001	5.61E-08
Zbtb16	-2.281965059	4.02E-23
Optn	-2.282028379	2.19E-20
Asb9	-2.282785369	5.38E-14
Runx3	-2.287654087	5.37E-13
Rab32	-2.29362207	4.87E-15
Vcam1	-2.296078249	1.20E-100
Rarg	-2.296371392	3.95E-58
Hoxd9	-2.299529619	2.63E-34
Lhx9	-2.307982537	8.22E-46
Nrp1	-2.308280398	2.49E-53
Mcub	-2.316084928	1.50E-20
Dlx5	-2.318849687	8.66E-11
Slc14a2	-2.324083796	6.31E-12
Kctd12	-2.326955898	1.70E-19
Itga11	-2.335154377	2.07E-17
Dcc	-2.344073058	4.40E-12
Agtr2	-2.350399384	2.75E-06
Angptl1	-2.351297008	1.19E-15
Mpped1	-2.354970143	1.18E-25
Plpp3	-2.366510037	1.36E-74
Fgfr2	-2.37088035	2.61E-19
Pmaip1	-2.373059679	3.23E-13
Cped1	-2.375170853	2.20E-34
Tspan18	-2.379621895	4.33E-21
Cdh10	-2.384140199	3.87E-14
Edar	-2.395304569	1.87E-10
Sfrp1	-2.395339651	8.07E-08
Tmem200b	-2.401938319	9.51E-23
En1	-2.412839009	1.10E-05
Mme	-2.413983484	6.59E-37
Astn2	-2.416754695	6.15E-20
Sdpr	-2.422491983	1.12E-09
Eva1a	-2.424851525	4.18E-22
Spata18	-2.427303808	4.66E-10
Pappa	-2.428342369	1.20E-09
Shisa7	-2.441220656	4.08E-08
Il16	-2.449738318	1.06E-14
Tbx3	-2.459481845	4.62E-21
Rag1	-2.470343536	1.92E-11
Col1a1	-2.471070877	4.52E-24
Tmem132e	-2.473391479	8.42E-06
Kif26b	-2.492172342	1.51E-36
Gdf10	-2.493429926	9.11E-07
Rxfp2	-2.49870073	2.36E-05
Zic2	-2.498897212	1.04E-42
Sparcl1	-2.501823727	2.45E-07
Bmper	-2.516098668	6.83E-09
Fosb	-2.526464266	0.001735943
Rspo2	-2.528185686	6.30E-16
Fam181b	-2.530689351	4.56E-30
Fam69c	-2.535805874	3.11E-13
Pde3a	-2.537968448	6.27E-26
Emx2os	-2.553546719	1.05E-07
Mab21l1	-2.565876944	6.04E-44
Tmem200a	-2.567248832	2.44E-16
Enpp1	-2.572782583	3.48E-13
Wscd2	-2.573354308	1.08E-25
Ccdc85a	-2.575626629	4.81E-13
Nlgn3	-2.587022118	1.79E-21
Calb2	-2.589099296	7.06E-07
Pde7b	-2.602779783	2.46E-16
Lhfp	-2.606090934	1.10E-21
Ptprv	-2.610815523	1.58E-15
Hoxa13	-2.611191904	7.92E-29
Scube1	-2.613708186	3.26E-40
Col8a1	-2.615109121	2.28E-07
AW549542	-2.629381397	1.00E-08
Hoxc6	-2.630172606	6.68E-09
Gpr4	-2.63543536	1.69E-67
Ets2	-2.639509265	1.03E-77
Hpse2	-2.641647262	2.93E-28
Lmx1b	-2.648722816	1.83E-45
Sema5a	-2.653779729	2.17E-65
Col8a2	-2.674511675	1.36E-13
Kbtbd11	-2.691691522	2.06E-63
Sox5	-2.693955259	1.62E-49
2610035F20Rik	-2.715451792	1.85E-31
Id4	-2.727652295	8.58E-14
Plcl1	-2.73742097	7.88E-19
Gfra3	-2.764130508	1.23E-15
Zic5	-2.770841232	1.69E-33
Sox6	-2.774832878	2.58E-26
5033428I22Rik	-2.782848645	2.77E-18
Ntn1	-2.784603546	6.42E-14
Slc1a3	-2.791239821	4.29E-26
C130021I20Rik	-2.793936049	1.05E-49
Arhgef3	-2.797108641	8.86E-12
Tmem178	-2.799787315	2.30E-29
Matn4	-2.823417704	0.002231557
Cbln4	-2.827264221	2.32E-14
Scn11a	-2.831416317	1.77E-13
Gdf5	-2.835063237	1.23E-25
Robo2	-2.844110285	3.00E-34
Glis3	-2.844233356	4.54E-26
Col9a1	-2.845499855	5.45E-42
Lpar1	-2.845784633	9.48E-130
Ptx3	-2.855825615	4.06E-37
Adamts5	-2.862574109	3.93E-17
Cyp26b1	-2.865357307	4.98E-81
Col3a1	-2.884113483	2.76E-33
Cacna1g	-2.884959266	2.29E-36
Col23a1	-2.894375366	3.17E-48
Prickle1	-2.897070379	6.45E-47
Aldh1a2	-2.901957118	4.38E-09
Uph	-2.90640838	6.75E-49
Hoxc4	-2.919717176	2.08E-07
Adamts6	-2.923309663	2.41E-13
Hottip	-2.951284065	1.34E-14
Shox2	-2.952623115	1.80E-42
Col9a3	-2.984598652	1.96E-14

Hapln1	-2.987884651	4.28E-23
Wnt5a	-3.009470475	1.67E-69
Adcy5	-3.011524278	8.13E-16
Bmp2	-3.028071097	7.46E-12
Sall3	-3.034811045	3.06E-76
Plxdc2	-3.036195974	1.43E-81
Ccser1	-3.045014	3.11E-33
Foxc1	-3.046788392	1.08E-17
Sorbs2	-3.050902448	3.36E-33
Pkdcc	-3.072084736	1.16E-07
Tnc	-3.133443155	2.66E-06
Itga8	-3.140499521	6.10E-90
Runx2	-3.142351654	2.27E-11
Clmn	-3.171039255	4.26E-70
Fbxo41	-3.186061442	3.61E-28
Papss2	-3.221229628	9.88E-13
Hoxd10	-3.227557606	4.40E-79
Zfp503	-3.250268133	6.86E-66
Mab21l2	-3.250334486	6.79E-58
Tbx18	-3.282823762	5.20E-34
Nfix	-3.296126755	2.08E-17
Rspo1	-3.317112947	7.76E-05
Enpp2	-3.356588854	1.67E-49
Smoc2	-3.389991297	7.81E-12
Evx2	-3.432103904	2.31E-14
Sned1	-3.454367411	4.04E-14
Col12a1	-3.457996015	1.58E-15
Tfap2b	-3.471415061	3.99E-36
Synpo	-3.519354817	4.17E-65
Ddr2	-3.624776294	1.80E-87
Cttnbp2	-3.63231138	4.25E-39
Plxna4	-3.634676283	7.06E-57
Hoxc5	-3.697432602	8.79E-07
Sox9	-3.730208279	3.06E-52
Pdzd2	-3.763458256	3.99E-27
Tbx5	-3.783996801	2.23E-80
Adamtsl2	-3.79197367	2.74E-23
Hand2	-3.797945899	8.86E-102
Emx2	-3.832617248	3.59E-20
Pdgfra	-3.878509722	9.62E-59
Lum	-3.888033434	1.47E-14
Tbx15	-3.896781275	1.40E-66
Hoxd11	-3.945298591	3.62E-119
Ntrk2	-3.953379562	9.99E-28
Ebf2	-3.978859462	1.18E-30
Rspo3	-4.005824736	1.38E-84
Hic1	-4.015165797	2.00E-31
Gsc	-4.122240722	1.85E-47
Hoxd12	-4.289376518	3.36E-58
Cxcl14	-4.427304607	3.51E-42
Hoxd13	-4.431978278	1.23E-62
Pax1	-4.721613071	5.27E-06

Table S3

DEGs S9^{-}JAG1^{+} E10.5-E10.75		
Gene Symbol	**log_2FC**	**FDR**
Tfap2b	6.005444146	0
Evx1	5.227961395	1.83E-144
Shh	5.150873323	1.91E-293
Evx2	5.104798092	1.42E-116
Gja3	5.030410365	3.91E-211
Evx1os	5.007940147	1.72E-114
Hoxa13	4.671544721	1.46E-266
Lmo2	4.648730325	1.82E-283
Hottip	4.572982246	2.91E-103
T	4.545057778	2.72E-35
Hoxd13	4.476610427	9.10E-214
Tfap2c	4.310117635	3.93E-146
Edar	4.220400586	8.27E-76
Scn11a	4.070131906	1.58E-61
Epha8	3.965337174	1.79E-73
Sv2b	3.710685999	2.63E-109
Tgm3	3.698782349	4.20E-53
Mamdc2	3.692068918	1.80E-188
Rcsd1	3.590177428	1.61E-237
Jag1	3.498318179	4.42E-186
Epha2	3.461936525	4.03E-210
Naaa	3.2759461	4.00E-153
Tspan18	3.273870427	6.37E-106
Pmaip1	3.272427094	8.90E-62
Hoxd12	3.270114681	8.39E-115
Cdh22	3.267875487	1.86E-92
Cbfa2t3	3.260803431	1.83E-133
Gbx2	3.22270483	1.56E-84
Sall3	3.186563442	1.48E-242
Nptx2	3.140239735	1.14E-50
Cbln1	3.122644258	2.21E-120
Hey1	3.088146435	2.21E-157
Eogt	3.069885966	1.63E-149
Pdzd2	3.051160455	1.56E-55
Wnt2	3.043435166	2.21E-09
Rprml	3.034780034	2.69E-38
Gucy2c	3.030642636	1.37E-44
Cpa2	2.990937241	1.53E-252
Rnf128	2.894748202	7.36E-93
Zic3	2.874608859	9.20E-121
Mnx1	2.845641748	1.02E-52
Mcub	2.794761279	1.18E-77
Gldc	2.786828444	6.59E-45
Padi3	2.776506743	1.25E-92
Sall1	2.760375559	3.10E-110
Mtus1	2.757605982	1.37E-224
Gm53	2.738416654	1.51E-37
Tmem204	2.696460248	4.80E-44
Spry4	2.659675711	5.57E-84
Chrna1	2.658285603	9.04E-45
2610035F20Rik	2.653781705	4.16E-86
Grem1	2.64943111	9.74E-67
B430010I23Rik	2.625369053	6.42E-34
Slc35f2	2.622632599	4.55E-91
Dgkk	2.622292756	1.40E-64
Zic5	2.577549297	6.84E-80
Calml4	2.562695246	1.14E-35
Cd40	2.562176222	6.31E-140
Ablim2	2.516851242	2.61E-41
Hoxb9	2.466652086	3.72E-11
Cyp26b1	2.466204205	2.11E-163
Gm2694	2.445497016	1.24E-45
Zic2	2.423153306	3.40E-103
Socs2	2.412470684	1.71E-153
Adamtsl2	2.398140749	1.08E-28
Nrarp	2.367460794	1.03E-57
Soga3	2.352941989	2.37E-30
Arhgap22	2.349273502	3.92E-46
Rtn4rl1	2.34562488	6.94E-41
Rgs5	2.337713613	2.05E-26
Rgs9	2.320347871	2.64E-62
Peli3	2.308118753	4.47E-29
Vax2	2.300839768	1.23E-20
Rnf125	2.288906756	2.02E-37
Vax2os	2.286540312	2.62E-34
2610528A11Rik	2.279784918	3.91E-38
Vegfd	2.259257619	1.47E-89
Slc1a3	2.256601447	2.27E-45
Gata6	2.256406757	2.54E-15
Oasl2	2.240968317	1.39E-35
Ccdc3	2.233302004	2.93E-23
Thbd	2.231825265	6.35E-27
Rbfox3	2.209997374	2.22E-41
Hoxd11	2.202584341	6.21E-117
Fam163b	2.18004796	1.56E-43
Wnt5a	2.178610912	7.92E-100
Spry1	2.176669676	9.52E-69
Rnf39	2.15526363	3.52E-29
Lama1	2.151759887	7.03E-96
Sgms2	2.148272971	3.69E-50
Greb1	2.135438937	2.73E-122
Klf9	2.122817096	9.58E-29
Gm13032	2.112139736	1.95E-28
Jazf1	2.101543657	2.40E-41
Insm1	2.087268847	2.09E-27
Mid1ip1	2.08303659	6.73E-93
Msx1	2.07845138	1.89E-64
C77370	2.072691844	1.75E-34
Epha1	2.071752012	1.57E-86
Gcnt4	2.05474304	4.78E-55
Optn	2.049451754	2.72E-40
Crmp1	2.037484994	8.21E-28
Card10	2.018962848	2.37E-30
Ajap1	2.016057628	4.90E-35
Msx1os	2.016052217	4.39E-71
Sp8	2.01558928	3.32E-27
Rapgef3	2.005639897	1.35E-24
Serinc5	2.001531472	7.62E-126
Clstn2	1.987788748	1.57E-26
Slit3	1.986298672	4.41E-96
Epha4	1.986144727	6.05E-77
Steap3	1.981922929	6.05E-27

Mmp25	1.97409938	5.29E-26
Ptch2	1.970450168	2.61E-92
Hspb8	1.969834427	7.35E-53
Lgals12	1.967392869	6.44E-29
Hoxa11os	1.965713067	3.58E-51
Tfap2a	1.959882472	1.66E-42
Gjb2	1.948273532	1.35E-31
Ano1	1.94660732	1.70E-28
Enpp1	1.895717431	3.44E-20
Tnc	1.890015437	2.24E-06
Nid1	1.875235601	1.55E-99
Elmod1	1.869769093	8.09E-18
Lax1	1.863682586	4.95E-27
Lmo1	1.858513589	8.28E-15
Daam2	1.850974628	6.01E-101
Padi1	1.827677447	1.62E-19
Lrrc75b	1.817971169	1.57E-23
4930487H11Rik	1.81550506	1.46E-15
Nrp2	1.787951925	9.87E-72
Mdga1	1.76290626	6.83E-40
Grrp1	1.746496615	2.58E-18
Nap1l5	1.743657373	2.24E-41
Itga8	1.725949014	2.42E-78
Vsir	1.716629338	7.43E-16
Fzd10	1.714343061	1.16E-25
Nrgn	1.713922324	1.93E-23
Dock6	1.711962483	1.24E-50
Slc27a6	1.710404646	9.73E-45
N4bp3	1.701908431	8.65E-73
Bmp2	1.701297121	2.17E-10
Tnfrsf12a	1.699507475	1.55E-26
Gata5	1.692270274	1.31E-05
Slc7a5	1.687695331	1.43E-27
H2-Q7	1.686803211	4.85E-57
H2-Q9	1.685743374	4.61E-57
Rrad	1.684415138	5.19E-32
Msi2	1.68128483	2.42E-78
Pam	1.681033136	7.34E-57
Etv4	1.668785224	5.56E-41
Slco4a1	1.667933275	5.36E-16
Mtss1	1.660866865	8.76E-49
Aifm3	1.659916967	5.75E-19
Gm26688	1.658005196	1.64E-19
Sall4	1.651411687	4.96E-19
Frem1	1.649527452	4.01E-44
Rhof	1.648081686	1.70E-16
Cyp1b1	1.643312038	4.51E-19
Tagln2	1.628779203	4.20E-28
Ppp2r2b	1.625640716	1.36E-05
Has2	1.620094166	1.30E-69
Ets2	1.619244819	2.94E-73
Hs3st6	1.609809769	1.35E-22
Unc5b	1.605904924	4.24E-65
Slc16a6	1.601759795	5.12E-35
Slc25a33	1.597420621	3.95E-67
Klhl14	1.5904452	1.33E-19
Prickle1	1.581329389	9.42E-37
Slc2a3	1.581151417	1.55E-35
Mesdc1	1.579415851	1.91E-81
Dusp6	1.57826443	2.33E-36
En1	1.577915081	9.07E-06
5033428I22Rik	1.567928675	1.00E-15
C030037D09Rik	1.562637993	1.95E-13
Nxn	1.554214355	5.36E-65
Tmem173	1.552793551	6.45E-91
Plxna4	1.548099515	7.64E-31
Sox18	1.547314189	1.19E-11
Ceacam1	1.543757836	1.44E-10
Hapln1	1.539033928	2.06E-17
Hand2	1.538520188	1.83E-49
Hlx	1.537077134	2.50E-06
Cecr2	1.527883311	1.58E-92
Col13a1	1.526948192	1.01E-18
Kitl	1.52307759	1.59E-12
Arhgap9	1.521084962	5.26E-25
Tbx6	1.504429161	7.35E-05
Sh3rf3	1.50378598	5.88E-11
Gnai1	1.503354338	3.68E-73
Gatsl3	1.500565568	2.19E-11
Ankrd6	1.500222606	4.24E-68
Kcnab3	1.488124014	6.73E-18
Aim2	1.483845116	2.18E-10
Kank4	1.481853178	9.89E-91
Gfra3	1.472653529	4.40E-12
Enpp2	1.471347515	6.42E-28
Plaur	1.471269758	5.36E-16
Svep1	1.471135001	1.18E-14
Dync1i1	1.469656843	2.68E-26
Hoxd10	1.460137024	3.66E-44
Fgf10	1.458057181	8.33E-40
Mapk11	1.457901539	2.45E-42
Il17rd	1.453022954	7.02E-70
Thbs4	1.439071131	2.78E-05
Slc4a4	1.437578202	3.29E-76
Mmp17	1.436827615	1.93E-32
Vwa2	1.431353129	1.43E-08
Styk1	1.427087498	9.95E-14
Maff	1.423315327	1.34E-17
H2-Q5	1.419151678	8.79E-10
Dysf	1.418375906	3.39E-35
Mycn	1.418361806	1.90E-28
Slc16a2	1.415588747	2.26E-43
Itga1	1.411072631	3.69E-18
Pear1	1.409505782	9.78E-39
LOC100503496	1.407670828	8.25E-16
Fam169b	1.405153671	9.48E-14
Hoxc8	1.393217274	0.000178434
Fgd3	1.383727763	1.67E-11
Cited1	1.383096042	3.39E-20
Cygb	1.381779729	7.67E-15
Hey2	1.373905206	1.27E-08
Lor	1.368333405	3.96E-22
Map1b	1.360699896	3.74E-25
Dll1	1.358172524	0.022142172

Dmrta2	1.351721323	2.31E-22
Ctsc	1.3332027	7.42E-33
Tmc7	1.328128885	3.90E-39
Frmd4b	1.323670725	1.22E-34
Hes7	1.302668603	8.66E-10
Ttyh2	1.298702772	2.82E-37
Aspg	1.29596671	4.71E-08
Cdk6	1.29515417	1.93E-58
Trim71	1.286618177	1.34E-41
Lrrtm4	1.285581019	1.08E-06
B830017H08Rik	1.285302648	1.75E-09
Eps8	1.275552772	5.36E-16
Tcf7	1.263551044	3.12E-24
Ifitm1	1.262648832	8.73E-16
Eva1a	1.258798334	7.58E-15
Heg1	1.258363821	1.82E-32
Fbln7	1.255673546	1.35E-12
Nim1k	1.253392572	1.09E-20
Apba2	1.248765443	5.58E-25
Rpph1	1.248162683	6.41E-08
Bambi	1.245468165	2.12E-23
Has2os	1.245048687	6.19E-13
Shb	1.24501978	2.64E-43
Adora2b	1.244093756	7.49E-21
Saa2	1.24111737	2.46E-12
L1td1	1.240025601	8.75E-07
Lhx2	1.236759756	9.55E-15
Cgnl1	1.236325092	1.13E-43
Ptch1	1.235240018	7.80E-37
Dkk1	1.232389283	4.02E-16
a	1.230043984	2.92E-19
Vcam1	1.222661657	8.98E-67
Tbrg3	1.220160712	2.38E-07
Kif6	1.218405952	9.25E-08
Kcnma1	1.2177178	3.31E-14
Gm10409	1.214836005	8.10E-10
Sema4d	1.213904855	1.19E-27
Crb2	1.212510231	6.90E-08
Kbtbd11	1.207661763	8.58E-33
Sash1	1.206531209	5.38E-40
Tfeb	1.20590446	2.23E-14
Tril	1.203503466	6.91E-31
D930048N14Rik	1.203232515	7.32E-10
Lfng	1.202191696	4.01E-13
Ubash3b	1.200715444	1.01E-31
Lhfp	-1.201511065	1.46E-08
Slc2a10	-1.204835363	4.09E-14
Tnnt1	-1.204975054	0.000219656
Trhde	-1.206961537	2.27E-05
Heyl	-1.207574519	9.41E-07
Vgll2	-1.207826074	0.000770724
Lrrtm1	-1.208721964	9.75E-05
Olfml1	-1.208798423	8.67E-21
Tex15	-1.210546009	2.03E-09
Slit2	-1.211032591	4.83E-10
septin 4	-1.211061674	4.40E-07
A730020E08Rik	-1.211241653	1.90E-06
Sesn3	-1.211887885	1.69E-23
Dpysl4	-1.213532809	2.58E-18
Xpnpep2	-1.213920056	3.18E-06
Scamp5	-1.2139266	1.78E-11
Crnde	-1.215037143	0.024076468
Ube2l6	-1.215502603	0.000432088
Gsap	-1.218414218	2.07E-05
Cd83	-1.22052389	1.14E-07
Olfm2	-1.222284672	2.55E-05
Epha3	-1.223273994	2.16E-10
Tmem200c	-1.225003422	3.49E-08
Gpr156	-1.225234439	8.37E-07
Sobp	-1.225568839	1.02E-20
Ica1	-1.225807613	1.77E-15
9030612E09Rik	-1.226186947	2.00E-06
Dpep1	-1.227041076	9.07E-06
Mc4r	-1.227168911	7.67E-06
Pde1b	-1.228613351	5.05E-08
Map3k9	-1.229836531	2.13E-13
Prob1	-1.230214378	0.000126329
Pdpn	-1.231261154	9.06E-10
Sema3a	-1.231575509	2.00E-13
Galnt16	-1.232224606	7.53E-12
Meioc	-1.232266503	6.19E-05
Amot	-1.232326207	9.58E-29
Dzip1	-1.233350972	9.33E-16
Plekhb1	-1.233678261	3.71E-06
Hmgcs2	-1.234204266	3.97E-05
Rin2	-1.234570642	1.95E-21
Sgcd	-1.236271009	4.27E-14
Pak3	-1.238421434	1.93E-18
Cd300a	-1.238618166	0.000759288
Mr1	-1.238670207	1.41E-07
Hoxb6	-1.240242318	0.02836073
Fras1	-1.240947212	4.51E-10
Syt16	-1.241377217	3.06E-07
Speg	-1.242678014	1.48E-23
Fgd4	-1.243505604	2.23E-10
Robo1	-1.243778685	2.70E-24
Cadm4	-1.244561234	8.77E-18
Susd5	-1.244575605	7.51E-06
Axl	-1.247031336	1.45E-23
Cntn1	-1.248499536	4.04E-07
Gsc	-1.248701208	4.21E-09
D430041D05Rik	-1.249286278	7.57E-10
Rab40b	-1.249584484	3.10E-06
Zmat1	-1.251295107	8.62E-09
P2ry1	-1.251752309	7.34E-06
Manba	-1.252820611	8.45E-10
Rnf144b	-1.253625463	6.54E-07
Cdo1	-1.254968981	9.09E-08
Mboat1	-1.255394116	1.00E-09
Sfmbt2	-1.25626107	7.61E-07
1810011O10Rik	-1.256306926	1.20E-06
Pcdhb7	-1.25896012	1.88E-08
Tap1	-1.259245869	4.41E-08
Dusp10	-1.259266972	4.18E-10

Zpld1	-1.259478109	2.79E-06
Gpr137c	-1.261707218	1.27E-08
Gpr85	-1.262961427	4.39E-07
Mfsd6	-1.263408463	8.20E-06
Egflam	-1.263939192	1.38E-28
Ablim1	-1.264807051	1.06E-31
Me1	-1.264994421	1.08E-12
Selenbp1	-1.267381581	2.18E-13
E130310I04Rik	-1.267739384	2.44E-05
Podn	-1.267913834	2.66E-07
Fam151a	-1.269352982	5.86E-11
Samd4	-1.269914971	7.92E-20
Fos	-1.271373409	0.002947846
Cd82	-1.271386638	2.25E-12
Fut4	-1.271704429	1.27E-11
Nxnl2	-1.272934499	0.000173812
Rap1gap	-1.273044346	1.87E-10
Nefl	-1.273360332	0.000247919
Unc80	-1.275928002	0.006926632
Glrb	-1.278386099	4.71E-25
Arhgef16	-1.27869444	3.45E-11
Sema3c	-1.27905713	1.91E-08
Serping1	-1.279992703	2.44E-13
Pkdcc	-1.281378391	0.003738333
Zdhhc2	-1.281598259	1.62E-12
Zfhx3	-1.285342464	1.48E-08
Pcsk5	-1.286718225	8.56E-19
Nog	-1.287065536	8.47E-07
Zfp72	-1.287462096	1.43E-09
Fam181b	-1.288358531	2.07E-13
Rprm	-1.288940243	8.60E-08
Pax7	-1.289018523	0.010186916
Cdh6	-1.289040876	1.37E-20
Dusp15	-1.289977073	1.00E-07
Nol4	-1.290179315	1.04E-05
Dcaf12l1	-1.290243879	1.57E-13
Hoxc6	-1.290781738	0.000359844
Dock10	-1.290916076	3.57E-11
Lgr4	-1.290949829	1.42E-30
Nr2f2	-1.291060929	1.95E-41
Pou3f3	-1.291130976	1.53E-08
Ociad2	-1.291663988	1.02E-10
AW551984	-1.292866478	3.42E-06
Rarres1	-1.294716648	5.93E-05
Efnb2	-1.297115905	5.19E-16
Mir5130	-1.301808087	8.76E-06
Pstpip2	-1.304253732	9.80E-12
Atp9a	-1.304332273	2.14E-25
Maob	-1.305803337	7.80E-08
Map7d2	-1.310660437	2.01E-11
Wif1	-1.310961674	1.99E-09
Fli1	-1.311761052	1.61E-30
Fam219a	-1.311881127	1.50E-09
Sema3b	-1.314583765	1.52E-10
Large2	-1.314604152	3.73E-20
Mdfic	-1.316268494	1.15E-19
Msrb3	-1.319354201	2.30E-25
Efna5	-1.320439602	1.52E-18
Extl1	-1.322627324	1.30E-05
2810468N07Rik	-1.324535316	3.21E-08
Ccdc80	-1.325125799	2.39E-19
1700020L24Rik	-1.329566823	6.83E-07
Nipal2	-1.329863375	1.50E-05
Tmem63a	-1.330065151	1.75E-12
Dtx4	-1.331748156	2.24E-10
Lgi1	-1.331892231	0.000155928
Nap1l2	-1.332604878	7.01E-06
Id2	-1.332794844	7.12E-31
Enpp4	-1.333979911	9.02E-22
Smpdl3a	-1.335316608	1.58E-13
Cdkn2c	-1.337309333	2.59E-10
Adgrb2	-1.339525599	1.79E-09
Adamts7	-1.340133855	9.27E-27
Gm2a	-1.343485909	4.09E-13
Slc5a7	-1.345188188	2.02E-05
Sspn	-1.348057253	4.06E-14
Ap3m2	-1.348318893	1.79E-13
Scn3a	-1.348755017	1.54E-06
Kcnd3	-1.351512905	1.24E-05
Lgi3	-1.35217785	3.77E-06
Luzp2	-1.353116033	2.54E-05
Pik3r5	-1.354213457	1.94E-10
Col11a2	-1.356800261	0.000254555
Col4a5	-1.357216242	2.44E-19
Fndc1	-1.357381712	0.015056707
Inhba	-1.359521796	1.17E-05
Dab1	-1.36025991	1.63E-08
Tspan11	-1.360648585	5.55E-21
Ell2	-1.361518989	1.12E-06
Slc40a1	-1.363210211	4.14E-06
Cpa4	-1.363836927	8.80E-08
NA	-1.364997299	5.18E-07
Glis1	-1.365068947	3.30E-13
Kcnq4	-1.368271401	2.84E-13
Abca8b	-1.369379547	1.88E-15
Adgrg2	-1.370290575	3.68E-06
Sema4f	-1.37048844	1.49E-15
Arhgef28	-1.374399266	2.69E-11
Ephb1	-1.375104538	4.33E-05
Mme	-1.376219334	4.35E-20
Pcdhb18	-1.377020742	1.90E-09
Bmx	-1.377306613	0.00128202
Tll1	-1.378703601	6.81E-18
Rgs8	-1.378838878	3.52E-06
Rusc2	-1.379603684	7.98E-14
Pth1r	-1.37991543	9.70E-14
Sgk1	-1.381498161	4.74E-12
Gstm7	-1.382973248	7.12E-27
Erg	-1.383313279	3.02E-12
Asap3	-1.385929889	2.76E-13
Lsamp	-1.386363009	8.49E-09
Arhgap18	-1.388275089	5.13E-20
D630003M21Rik	-1.389756924	8.79E-16
Dpyd	-1.389939435	2.13E-17

Dach1	-1.390194578	4.95E-27
Ccdc149	-1.393978936	5.52E-09
Tmtc2	-1.395560475	2.44E-25
Wfikkn2	-1.395883251	6.23E-12
Tead4	-1.398656031	1.37E-09
Ppp1r36	-1.399500426	1.11E-09
Myog	-1.400356643	0.000171186
Vstm4	-1.400588165	4.64E-10
Rimkla	-1.401538034	7.02E-11
Tmcc3	-1.401797036	3.72E-17
Prkg2	-1.402355046	2.71E-07
Rps6ka4	-1.402949062	1.61E-14
Uncx	-1.407110056	6.39E-06
Actc1	-1.407114419	2.43E-06
Pitx3	-1.40736169	0.000206658
Jade2	-1.409670817	1.31E-07
Hoxb5	-1.410480366	0.021652401
Enpp5	-1.414317543	1.57E-12
Egfl6	-1.414646865	4.51E-07
Ppp1r3b	-1.415074027	3.29E-10
Tmem229b	-1.415564664	1.08E-07
Chst1	-1.41745509	1.86E-15
Cpxm2	-1.422177328	0.001301779
Scube3	-1.423974641	8.67E-21
Pde7b	-1.425539417	9.39E-07
Layn	-1.427267359	6.05E-09
Sfrp2	-1.428042462	1.11E-27
Herc6	-1.432718466	1.05E-09
Atp2a1	-1.434317292	5.42E-07
Fbn1	-1.434804991	1.40E-15
Sowahb	-1.435538304	2.61E-05
D930020B18Rik	-1.435806399	1.20E-06
Myl9	-1.436612902	4.81E-10
Igfbp5	-1.436619178	0.000991746
Kcnb1	-1.437261169	1.46E-05
Foxp1	-1.438295865	1.40E-10
Ntrk2	-1.439378098	1.11E-05
Slc22a23	-1.440147609	5.86E-24
Slc14a1	-1.441174358	0.027233968
Plagl1	-1.441385551	1.61E-11
Trim12c	-1.442555624	2.35E-12
2900011O08Rik	-1.444624886	5.04E-20
3110039I08Rik	-1.44495664	1.88E-06
Lrrc7	-1.445029458	0.005765106
Tmem132e	-1.448117701	0.005998165
Nedd9	-1.45116257	5.87E-16
Aass	-1.45150126	2.35E-19
Zcchc24	-1.457052204	3.46E-29
Thbs2	-1.457307905	1.49E-08
Galnt18	-1.459392597	6.20E-09
Flrt2	-1.462277317	2.61E-32
Thsd7a	-1.463213811	3.45E-11
Fmod	-1.464743989	9.84E-07
Acot11	-1.465427144	1.24E-21
Glis3	-1.469634321	9.15E-12
S1pr3	-1.469654884	1.17E-20
Cdkn1c	-1.470010483	1.17E-47
Ldlrad4	-1.471236125	2.89E-09
Colgalt2	-1.471722735	9.32E-07
Piezo2	-1.472446611	2.32E-07
Slc2a12	-1.474446889	1.06E-12
Nhsl2	-1.47667058	1.32E-17
Nkain4	-1.477106908	1.33E-10
Cplx2	-1.481328192	2.85E-55
Sh2d5	-1.483912749	5.22E-21
Islr	-1.48600752	1.76E-19
Slco3a1	-1.486876079	1.07E-27
E330013P04Rik	-1.491154316	1.88E-05
Eda	-1.491881485	1.58E-18
Rnf150	-1.494008769	1.10E-15
Irx3	-1.494267911	0.013054338
Mab21l1	-1.494511488	5.41E-25
Ell3	-1.495339241	1.17E-11
Kcnn3	-1.498504337	4.00E-11
Mgst1	-1.500052858	2.37E-24
Epha6	-1.503443895	6.36E-05
Slco5a1	-1.504966113	1.02E-11
Pld2	-1.505548834	7.98E-09
Scn9a	-1.506201152	8.91E-10
Gstt3	-1.507572131	2.19E-09
Rgma	-1.508167042	6.32E-36
Dsg2	-1.512790587	1.83E-07
Mmp28	-1.513404295	0.039192598
Fat3	-1.514631595	8.22E-11
Gria3	-1.52036014	8.49E-07
Dkk2	-1.520845358	1.04E-05
Arhgef26	-1.521726051	4.93E-18
Dlgap1	-1.52298798	4.51E-06
Bves	-1.523962029	1.43E-14
Hpse	-1.524815793	1.67E-14
Ryr2	-1.533571065	6.60E-06
Tmem8	-1.534978275	3.93E-12
Rasl10b	-1.535449301	2.20E-15
Trpm6	-1.53803768	4.58E-09
Myc	-1.538379963	2.01E-11
Vstm2b	-1.538419417	0.000240377
Nrxn1	-1.53961155	2.66E-08
Npr1	-1.541467845	4.79E-07
Rab27b	-1.542726078	6.17E-09
Pou2f2	-1.54474031	3.70E-20
Lgr5	-1.544860964	1.09E-13
Dgki	-1.548275085	1.18E-09
Stk32a	-1.548324023	2.17E-06
2500004C02Rik	-1.549621289	2.22E-13
Rgs16	-1.551902547	4.01E-07
Add2	-1.553390051	1.99E-12
Dner	-1.553471774	7.44E-10
Aig1	-1.556839587	2.07E-12
Robo2	-1.558575202	4.16E-18
Sult5a1	-1.558753099	1.21E-10
Zcchc12	-1.561025295	1.14E-16
Hoxc5	-1.561725412	0.008915901
Gdf5	-1.562046367	1.05E-10
Glrx	-1.564852231	1.62E-24

Kcnk6	-1.566084545	6.26E-11
Rag1	-1.566523128	7.69E-06
Slc2a13	-1.567281927	1.73E-08
Slc4a1	-1.568350121	0.045797261
Spp1	-1.572713423	1.67E-05
Kcne1l	-1.573767468	3.47E-08
Wfdc2	-1.578838374	7.98E-22
Chst11	-1.579641882	1.95E-16
Ppp1r16b	-1.580832666	1.62E-09
Fxyd1	-1.582772376	1.16E-12
Mxd4	-1.583897706	1.70E-29
Smoc2	-1.586105064	7.63E-05
St6galnac5	-1.590967645	5.32E-09
Tbc1d30	-1.591149345	2.01E-07
Cyr61	-1.595883795	3.24E-06
Six2	-1.596810869	8.81E-15
Nfe2	-1.597244738	1.53E-09
Wisp1	-1.602145272	2.89E-07
Rarb	-1.603411237	4.93E-05
Tnik	-1.606719591	3.23E-10
Slc25a23	-1.608284963	1.12E-49
Fgfr3	-1.612390915	2.68E-14
Cpne8	-1.613828256	5.70E-08
Ebf1	-1.616524588	9.62E-18
Nod1	-1.618944662	1.29E-05
Cntfr	-1.619877007	1.58E-11
BC064078	-1.622576677	4.37E-08
Ppp1r1a	-1.622743288	8.94E-16
Fam46c	-1.624658175	3.24E-11
Myf5	-1.627384205	0.000288775
Myo5c	-1.629344493	1.00E-07
Sorl1	-1.633123672	8.98E-12
Kctd12	-1.635863919	1.93E-15
Csrnp3	-1.636592453	4.48E-26
Gimap6	-1.636716233	4.60E-12
Hoxc4	-1.637096738	0.000245471
Ngf	-1.637760588	1.52E-09
Sox10	-1.642163569	8.56E-06
Pbx1	-1.642597493	6.17E-27
Cd200	-1.643426537	1.04E-08
Gprc5c	-1.64562392	1.83E-25
Lrrn1	-1.646860717	4.44E-36
Meox2	-1.64791237	2.33E-13
Ldb2	-1.649998608	3.87E-42
Mvb12b	-1.650133726	3.91E-38
Prkch	-1.650743317	1.11E-17
Apobec3	-1.651188907	2.79E-26
Adamts9	-1.654047507	5.34E-07
Tubb4a	-1.656150415	9.54E-21
Foxd1	-1.659302781	2.99E-06
Boc	-1.659465089	1.28E-36
Edil3	-1.662025127	9.98E-08
Sorcs2	-1.663052512	6.05E-45
Sostdc1	-1.664702163	1.77E-09
Car11	-1.664874862	2.06E-14
Gstt1	-1.667565771	3.50E-13
Fbxl16	-1.66791319	5.97E-26
Fam160a1	-1.668101974	7.65E-13
Vat1l	-1.669033217	6.63E-11
Chrnb1	-1.669355911	1.07E-07
Edn3	-1.671585025	9.44E-35
Anxa2	-1.672036597	1.42E-08
Jph2	-1.673344237	3.46E-26
Stom	-1.674041142	3.43E-21
Nav3	-1.677264898	3.81E-07
Chrna4	-1.682241723	5.86E-18
Parm1	-1.683637337	5.58E-05
Ntng1	-1.68638111	2.81E-17
Spint2	-1.687287742	1.00E-33
Col6a6	-1.689628165	9.85E-08
Gas2	-1.693154416	3.73E-44
Sox9	-1.694022574	5.05E-21
Trp53inp1	-1.695028331	4.80E-46
Nbl1	-1.697814914	3.22E-13
Plekha4	-1.698533244	4.24E-07
Ntf3	-1.699139149	5.75E-17
Col8a2	-1.699237945	2.79E-07
Gpc4	-1.699783575	1.62E-30
Ssc4d	-1.70232715	3.85E-15
Wscd2	-1.702653706	6.45E-13
Loxl1	-1.705296552	3.18E-19
AI464131	-1.711132722	1.35E-14
Lrrc17	-1.713546599	5.92E-37
5930403L14Rik	-1.714040333	7.52E-42
Magel2	-1.717471798	1.96E-07
Stra6	-1.719990185	9.31E-31
Col15a1	-1.720915859	3.04E-08
Enho	-1.721416462	1.62E-18
Tmem200a	-1.721521963	6.78E-09
Vwce	-1.724405217	3.16E-21
Fez1	-1.728045773	3.22E-14
Synpo	-1.728705877	1.85E-29
Nfasc	-1.729338182	6.58E-11
Crhbp	-1.729629938	2.44E-06
Lhfpl1	-1.72971352	7.53E-12
Gabra3	-1.731051696	8.18E-15
Plat	-1.731140039	1.84E-12
Pax9	-1.732946071	7.40E-08
Olfml2a	-1.733247739	4.71E-11
Alox5ap	-1.734776774	2.50E-14
Fgf5	-1.735329351	1.29E-10
Otor	-1.7372486	1.34E-10
Astn1	-1.737900413	7.50E-48
Hhip	-1.742382513	1.74E-13
Car8	-1.74305647	1.09E-11
Npdc1	-1.747176247	2.09E-11
Spock1	-1.748879005	3.67E-08
Irx5	-1.754899696	0.002250695
Pbx3	-1.757969053	1.43E-52
Myof	-1.768271762	1.46E-09
Fcgrt	-1.772618537	7.60E-23
Abca3	-1.775308718	3.99E-53
Ebf4	-1.776810025	1.56E-10
Hoxb2	-1.778824574	3.20E-11

Lrrc3b	-1.78593878	5.98E-08
Ogn	-1.785970631	3.33E-08
Fhl2	-1.787391947	1.34E-06
Mbp	-1.788345733	3.49E-14
Cyp7b1	-1.789768551	4.46E-11
Cspg4	-1.791341838	8.89E-18
Wipf3	-1.795930795	6.99E-12
Epb41l4a	-1.800419657	5.14E-27
Fam84a	-1.800443812	7.46E-10
Runx1	-1.800732553	2.03E-11
Itga4	-1.801215829	5.96E-23
Celf2	-1.802621764	1.06E-47
Panx2	-1.804305903	7.20E-11
Cxcr4	-1.805082936	1.93E-05
Acss3	-1.805245698	3.88E-16
Sirpa	-1.805445161	1.48E-38
Slit1	-1.808242077	5.27E-11
Zfp663	-1.811091663	1.73E-23
Dpp6	-1.811794425	3.10E-14
Hist3h2ba	-1.813336777	4.69E-08
Map2	-1.814798185	3.86E-27
Bnc2	-1.823329262	4.08E-18
Spata18	-1.823867841	1.63E-05
Cntnap2	-1.827362718	1.16E-17
Ephx1	-1.828413552	1.61E-15
Itgb8	-1.828549032	7.85E-12
Unc5c	-1.83043026	2.97E-12
Mylk	-1.83086328	8.95E-19
Mamld1	-1.831104971	2.87E-13
Cdh15	-1.832584962	1.82E-12
Angptl1	-1.832658347	1.10E-13
Kcnh2	-1.837626589	1.62E-30
Kcnd2	-1.843423347	6.28E-08
Trpm5	-1.844005054	8.60E-11
Shox2	-1.844484693	3.32E-28
Nt5e	-1.844722266	6.81E-06
Mcf2l	-1.845984578	1.38E-14
Hoxb3	-1.849190533	7.53E-05
Grb14	-1.849909926	7.49E-20
Ptger4	-1.850010403	6.72E-08
Tcp11l2	-1.85117042	3.51E-16
Gabra2	-1.851651151	2.30E-08
Chrdl1	-1.852258472	7.59E-32
Fam189a2	-1.855829685	1.13E-17
Fam114a1	-1.855836842	5.88E-53
C330018D20Rik	-1.857025828	3.70E-22
Tmem26	-1.861590048	5.45E-28
Shisa7	-1.861919893	0.000258086
Cyp2s1	-1.866662849	2.08E-09
Adamtsl3	-1.868119152	0.000106881
F930015N05Rik	-1.869787551	5.09E-16
Lrrc8b	-1.870838472	1.07E-53
Mmp11	-1.879388388	9.88E-45
Scx	-1.879547991	5.99E-37
Fgfr2	-1.880442277	1.16E-18
Dnm3	-1.882788989	8.08E-16
Gm15663	-1.88505958	6.72E-12
Nfix	-1.885103561	3.57E-09
Chchd10	-1.890409407	3.04E-19
Nr4a3	-1.890569309	6.25E-09
Sema6a	-1.904356475	4.25E-32
Fzd8	-1.906698089	6.14E-20
Rassf4	-1.907689636	5.90E-19
Ank1	-1.91050709	1.38E-06
Gbp7	-1.911016682	3.61E-15
Tgfa	-1.911132554	3.77E-14
B130024G19Rik	-1.91587379	8.10E-13
Ltbp4	-1.920192054	1.06E-46
Maf	-1.927629318	8.49E-26
Reps2	-1.931348071	1.15E-12
Sned1	-1.936303729	4.25E-08
Zeb2	-1.936340747	2.50E-27
Pcdh19	-1.940033882	4.03E-37
Pdzrn4	-1.944756515	9.79E-08
Cr2	-1.946206635	9.00E-11
Prkcb	-1.949797261	1.70E-25
St8sia4	-1.952588071	5.80E-17
Camk2a	-1.954446129	7.45E-25
Dcdc2a	-1.956363868	2.92E-13
Rph3al	-1.959087991	4.72E-14
Slc35f1	-1.962400927	3.90E-24
Pygl	-1.970963209	1.60E-39
Tmem35a	-1.971331281	5.73E-27
A730056A06Rik	-1.984323335	2.48E-16
Rgcc	-1.984501209	3.71E-11
Hcn1	-1.985882872	1.41E-09
Sstr1	-1.986828821	1.21E-13
Aldh1a2	-1.987478294	1.21E-06
Synpo2l	-1.994387975	5.46E-12
Zmat4	-1.995525848	4.90E-10
Rec8	-1.998307815	8.21E-11
Mstn	-1.998680439	8.15E-05
Tcf15	-2.010106613	1.86E-29
Epha7	-2.011271172	3.34E-48
Rab32	-2.016464037	2.30E-16
Mpzl2	-2.016895599	8.25E-27
Ypel2	-2.017996439	4.96E-19
Egfem1	-2.023625424	5.71E-05
Ebf2	-2.023825638	1.33E-14
Pamr1	-2.025102786	3.01E-12
Cntn3	-2.029057288	1.72E-16
Megf10	-2.030205915	1.10E-13
Dtx1	-2.030736218	1.87E-18
Maml2	-2.03276493	2.41E-37
Zfr2	-2.03865872	2.77E-09
Meis2	-2.040035018	2.91E-05
Prss23	-2.042221247	7.76E-20
Hs3st1	-2.045288097	2.95E-11
Ube2ql1	-2.049085177	1.16E-09
Hs3st3a1	-2.053358018	1.39E-14
Srgap3	-2.054736692	2.80E-48
Dcc	-2.0571808	2.11E-12
Srcin1	-2.058176681	2.57E-16
Plk2	-2.059280423	1.42E-14

Foxp4	-2.059981245	3.90E-75
Dtna	-2.061872787	6.67E-16
Espn	-2.062665782	1.73E-14
Hoxb4	-2.063399355	0.000538724
Apc2	-2.067962314	4.90E-18
Tgm2	-2.076818525	1.16E-08
Rhoj	-2.083927138	1.70E-26
Palmd	-2.088075802	1.07E-13
Dab2	-2.091087209	4.13E-26
Meis1	-2.093809718	7.76E-07
Npnt	-2.093813002	8.05E-33
Hbb-y	-2.095915031	0.062563857
Negr1	-2.098706119	3.56E-14
Ppfia2	-2.098950063	5.46E-10
Pax3	-2.099590444	7.42E-05
Dact1	-2.102558651	2.36E-21
Prr16	-2.1060695	1.53E-13
Cdon	-2.124402304	1.38E-37
Myod1	-2.125403661	2.97E-11
Ddit4	-2.131119148	3.52E-27
Hba-x	-2.133918965	0.075467395
Hba-a1	-2.135520775	0.034843608
Hba-a2	-2.135633012	0.034843608
Veph1	-2.14104114	3.51E-11
Doc2b	-2.142543076	3.64E-08
Vgll3	-2.147280841	6.23E-14
Hs3st3b1	-2.161518939	3.52E-29
Cthrc1	-2.164787071	8.39E-12
Esrrg	-2.164939704	2.53E-16
Bdnf	-2.174431077	3.20E-10
Gxylt2	-2.176890376	2.87E-22
Lurap1l	-2.178281233	1.84E-13
Tbx18	-2.180277307	1.93E-25
Tmem132d	-2.182960211	2.34E-17
Psd2	-2.203286887	8.15E-17
Pgf	-2.205042461	2.42E-30
Rasa4	-2.205706335	6.31E-11
Adam12	-2.209205267	3.75E-26
Adcy2	-2.212881207	1.58E-17
Mybpc1	-2.218671359	2.87E-14
Rflna	-2.220596811	6.77E-14
Wnt9a	-2.224774759	2.30E-25
Plce1	-2.228617203	8.46E-58
Ebf3	-2.234607524	4.27E-24
Kctd8	-2.236330903	1.18E-16
Fgf9	-2.237763608	1.22E-21
Fgfr4	-2.246477757	1.52E-23
Tgfb2	-2.248614125	6.32E-24
Creb5	-2.254010723	6.10E-12
Foxc1	-2.26128837	2.02E-15
Kirrel3	-2.267634534	1.14E-15
Tle2	-2.27101909	2.79E-10
Tox	-2.272872838	5.91E-18
Egr2	-2.275933475	0.000213282
Cav1	-2.281460134	5.40E-17
2810442N19Rik	-2.285158125	2.18E-19
Calb2	-2.291848832	4.15E-06
Mgat4c	-2.295342146	5.73E-10
Ror1	-2.297879259	4.24E-11
Pls1	-2.298779127	9.48E-34
Pappa	-2.306086327	4.86E-12
Hpgd	-2.30676911	1.15E-09
Atxn1	-2.312864472	7.59E-16
Cdh8	-2.315573593	1.50E-15
Tcerg1l	-2.316977816	1.02E-09
Col8a1	-2.328971302	7.54E-05
Pou6f1	-2.34044199	6.56E-30
Abcg1	-2.343644968	9.67E-27
Scrn1	-2.353199802	2.20E-26
Zfhx4	-2.367650495	6.62E-25
Pcdh11x	-2.37021098	4.63E-16
Dcx	-2.380482818	1.17E-61
Barx2	-2.393640708	5.56E-11
Eya1	-2.405297392	1.03E-14
Mtus2	-2.435785288	1.04E-16
Limch1	-2.439168429	4.20E-43
Matn4	-2.441559886	0.020772322
Osr2	-2.441853225	6.40E-35
Plcl1	-2.443122267	3.33E-19
2610316D01Rik	-2.444310584	5.96E-20
Mcam	-2.460430672	2.94E-44
Syt13	-2.46322998	1.25E-14
P4ha3	-2.464395342	6.27E-16
Sdpr	-2.485971874	4.84E-13
Fam107a	-2.489779455	3.23E-14
Col12a1	-2.496200218	2.22E-13
Pcdh8	-2.497918428	0.000120323
Egr1	-2.509388467	9.18E-06
Col9a3	-2.510461255	1.31E-14
Sulf1	-2.532619015	1.22E-18
Artn	-2.534710795	3.56E-27
Crym	-2.540584407	1.17E-11
Pde8a	-2.54084899	8.34E-34
Lmcd1	-2.542109681	1.75E-17
Fam19a2	-2.544500272	2.28E-24
Zfp804a	-2.554276832	3.87E-09
Sim1	-2.577653223	1.74E-13
Bmf	-2.581508512	7.13E-54
Pitx2	-2.586553911	9.22E-05
Fst	-2.598381119	9.93E-20
Grem2	-2.609517518	4.99E-14
Lbp	-2.618865707	3.34E-26
Nr2f1	-2.618970293	1.72E-09
Ccdc85a	-2.627952116	2.25E-17
Adamts16	-2.630028507	1.91E-20
Myh14	-2.640365073	6.15E-13
Wnt16	-2.643478261	1.39E-22
Slitrk6	-2.668915823	6.71E-13
Emx2os	-2.670369191	1.65E-11
Egfr	-2.673981279	3.73E-14
Snap91	-2.675706572	1.12E-43
Lepr	-2.676385908	2.91E-16
A830082K12Rik	-2.678894734	5.88E-21
Ntm	-2.690133069	2.65E-18

Islr2	-2.692601374	4.43E-15
Lbx1	-2.695707653	9.35E-25
Lin7a	-2.701855937	1.07E-14
Hic1	-2.739515756	9.37E-23
Foxd2os	-2.743498754	3.32E-27
Myo5b	-2.745955476	9.76E-35
Pcdh9	-2.777834789	1.32E-19
Igfbp3	-2.807937495	5.65E-23
Cadm2	-2.817692304	2.32E-24
Pmp22	-2.825589972	3.07E-23
Msc	-2.845575754	1.14E-07
Bmper	-2.852723838	3.87E-16
Fam69c	-2.85474844	1.05E-23
Arsj	-2.867707849	2.09E-35
Nfatc2	-2.880526529	1.34E-30
Itm2a	-2.89074641	1.23E-24
Ppargc1a	-2.914466934	1.52E-71
Igf1	-2.917257011	6.24E-09
Erbb3	-2.957316309	8.49E-20
Ntn1	-2.963261711	9.64E-22
Adamts15	-2.96945359	1.24E-74
Lox	-3.016045183	3.35E-21
Nrk	-3.016798904	1.48E-38
Miat	-3.017070525	2.64E-10
Ackr3	-3.023388725	7.67E-27
Bmpr1b	-3.028611652	9.40E-82
Zcchc5	-3.06252973	1.02E-19
Plekhg1	-3.106993605	2.90E-28
Foxp2	-3.112758413	1.35E-31
Cldn11	-3.127916099	2.17E-25
Runx1t1	-3.169156909	2.64E-29
Eya4	-3.206325248	8.81E-29
Wnt11	-3.300659355	3.80E-81
Moxd1	-3.356903523	3.54E-47
Met	-3.419443521	2.25E-116
Cldn1	-3.456030914	8.35E-64
Meox1	-3.466146645	1.34E-42
Foxd2	-3.507485392	3.70E-49
Emx2	-3.534561703	1.56E-24
Dmrt2	-3.549443732	3.58E-14
Pcdh10	-3.570445489	1.46E-57
Mn1	-3.622377506	1.57E-103
Fap	-3.642607668	7.85E-16
Cxcl12	-3.64560031	4.66E-39
Col9a2	-3.666521025	6.87E-29
Agtr2	-3.681681294	1.36E-19
Gfra1	-3.802584007	2.05E-71
2700069I18Rik	-3.81543053	3.37E-32
Eya2	-3.828094194	3.95E-98
Tmem30b	-3.840272209	1.81E-68
Gria2	-3.859100368	2.56E-09
Col2a1	-3.881041052	5.54E-53
Pcdh17	-4.006698573	1.02E-102
Sim2	-4.107751566	1.01E-09
Osr1	-4.364145149	3.50E-95
Sema3d	-4.466481282	8.10E-39
Gdnf	-5.185900074	1.32E-15
Six1	-5.278123081	4.26E-140
Fibin	-5.406767581	3.91E-76

Table S4

DEGs S9$^{Pa^{hi}}$ E10.5-E10.75		
Gene Symbol	**log_2FC**	**FDR**
Dkk1	3.676229481	2.27E-146
Pax1	3.292928347	8.15E-09
Sptssb	3.242660987	2.38E-58
Rspo4	3.058428618	2.91E-32
Tbx2	2.850904197	6.24E-120
Msx2	2.731477917	1.84E-80
Shh	2.70126828	1.72E-83
Prdm1	2.518664952	1.34E-74
Tbx3	2.431553818	1.18E-50
Tmem200b	2.32049133	5.03E-54
Myh15	2.301588418	5.43E-31
Alx4	2.272147058	1.32E-34
Msx1	2.249195312	4.36E-75
Msx1os	2.229659853	9.46E-87
Zfp804a	2.208729768	7.96E-11
Cyp1b1	2.182632531	3.79E-33
Slitrk6	2.167239991	1.40E-14
Lhx2	2.142026863	7.01E-45
Pkdcc	2.094133794	5.65E-09
Gdf6	2.054074105	1.55E-18
a	2.053859867	2.38E-54
Crabp1	2.047432484	4.76E-15
Col6a6	2.045468257	4.81E-12
Alx3	2.034986836	3.68E-43
Cntfr	2.014928653	8.15E-26
Cnr1	2.006771399	1.13E-35
Emilin2	1.996633734	2.18E-110
AW549542	1.993904303	2.18E-11
Dpep1	1.958334278	1.60E-21
Pcdh10	1.898897675	3.79E-33
Kctd8	1.877539776	1.82E-20
Cdo1	1.858900153	4.30E-22
Rxfp2	1.848082635	8.93E-06
Prrt4	1.847010562	2.74E-29
Wif1	1.834953922	1.79E-25
Col14a1	1.83385186	1.19E-05
Pou4f1	1.824386399	1.24E-12
Syt13	1.800534365	1.01E-14
Cdh6	1.780184108	1.70E-58
Osr1	1.754644071	8.09E-36
Ptprt	1.722167329	2.07E-25
Hgf	1.719978052	2.30E-26
Thbs2	1.718504508	3.77E-18
Tfap2c	1.718407468	5.66E-23
Trpm1	1.709853432	3.11E-17
Notum	1.70809666	1.24E-20
Agtr2	1.686069821	2.89E-09
Lrrtm1	1.684246959	1.59E-12
Glis1	1.67528446	6.22E-30
Prrx2	1.653421842	4.62E-50
Ednra	1.650172399	1.95E-31
Htra1	1.640916618	9.41E-11
Jaml	1.625751385	8.80E-08
Hoxb5	1.623006155	0.003548974
Tmem28	1.608753883	4.59E-23
Synpo2	1.600705713	7.03E-16
Slc6a17	1.595422164	1.53E-27
Rspo1	1.592850643	0.004913445
Itm2a	1.578826522	8.07E-13
L1cam	1.572341142	4.25E-08
Alx1	1.567349339	1.28E-07
Scube1	1.554213232	2.22E-34
Hdac9	1.54973157	6.01E-47
Sostdc1	1.5371091	3.29E-13
Ubl4b	1.536700354	7.22E-20
Olfm1	1.523571705	1.26E-25
Gata2	1.502640961	4.69E-10
Zdhhc23	1.501648046	2.03E-09
Wnt11	1.495942932	1.72E-34
Col3a1	1.492020052	3.18E-22
Shox2	1.484536282	3.12E-27
Bmp4	1.477252196	8.09E-36
Zfp503	1.46719848	9.76E-36
Acot11	1.445316357	1.01E-30
Lhx9	1.431985042	2.24E-40
Sh2d5	1.431340662	3.57E-33
Rarres1	1.418764116	1.80E-10
Alcam	1.41818733	1.46E-06
Dlx5	1.410304993	1.06E-09
Kctd12	1.408700168	4.11E-16
Lhfp	1.407903335	4.72E-15
Rarb	1.402053407	4.98E-05
Prdm6	1.396770262	1.25E-12
Prrx1	1.392126354	4.27E-44
Pcdh8	1.384318482	0.021095006
Sdk2	1.376405686	4.60E-15
Hoxd9	1.375188648	7.43E-28
Igdcc3	1.372935344	3.15E-14
Zic3	1.368995035	7.29E-25
Cysltr1	1.353245503	1.88E-11
Ccser1	1.352034394	6.68E-18
Dync1i1	1.349900643	3.55E-21
Cygb	1.34686425	2.17E-13
Lvrn	1.343201391	3.70E-11
5930412G12Rik	1.341593936	4.44E-18
Phactr3	1.337930753	1.27E-39
Hoxc5	1.328766295	0.009858298
Adgre5	1.325600181	4.09E-13
Meis2	1.322525128	0.003045046
Pth1r	1.32075341	7.01E-17
Dlk1	1.318367168	4.00E-09
Plcl1	1.315465824	1.03E-13
Mab21l1	1.304519516	3.03E-27
Mir5130	1.297200917	9.75E-09
Vegfd	1.296366008	1.23E-26
Hoxc4	1.290684895	0.000988048
Fam151a	1.288847849	2.09E-16
Hoxb6	1.287677002	0.016994888
A730020E08Rik	1.286015644	1.78E-13
Pgm5	1.284844547	2.05E-07
Spata18	1.273712739	3.70E-08
Uph	1.269873687	7.76E-26
Twist1	1.256280178	6.46E-31
Dmrta1	1.255151509	2.92E-06
Snap91	1.250216988	2.00E-18

Mogat2	1.247469675	5.65E-11
Emx2	1.243576585	1.14E-07
Gsc	1.242828157	1.12E-13
Rspo2	1.241868181	3.68E-09
Postn	1.235843475	0.013317877
Nxph4	1.234027558	3.81E-08
Ptpru	1.229240893	6.84E-28
Ano1	1.22919023	9.93E-11
Thsd7a	1.228101507	1.20E-12
Zbtb16	1.224665246	5.64E-15
Hapln1	1.224115071	7.86E-11
Irx3	1.213502592	0.044714529
Angpt1	1.206360805	2.24E-12
Slc8a1	1.202005523	4.64E-20
Lhx1	-1.205998682	0.047518491
Abcg1	-1.207775512	3.99E-07
Rbm24	-1.215817395	3.52E-11
Neb	-1.217991382	0.000648954
Rxrg	-1.234103166	2.28E-05
Eya2	-1.234218615	1.07E-09
Bmp3	-1.234351256	0.007467871
Synpo2l	-1.238052449	0.001120533
Eya1	-1.239927773	0.000197667
Rab20	-1.240518464	8.20E-05
Ndnf	-1.240917083	0.007499629
Ssc5d	-1.249374503	2.87E-08
Arhgap20	-1.250643643	8.46E-05
Nog	-1.253629112	6.36E-06
Celf2	-1.253686806	1.35E-24
Tubb4a	-1.258898705	4.52E-12
Cav1	-1.261125351	0.050352929
Lgi1	-1.261749787	0.025376899
Gcnt1	-1.26249507	4.07E-15
2610035D17Rik	-1.263063314	1.31E-08
Cacna1b	-1.26933329	0.000221482
Atf3	-1.270947369	4.65E-06
Cgnl1	-1.274564451	6.78E-32
Fhdc1	-1.276044801	1.17E-08
Rbp4	-1.276527677	3.17E-06
Hhip	-1.27701415	1.95E-07
Luzp2	-1.279961404	0.00251695
Slitrk2	-1.284711064	0.000111314
Cdh15	-1.285751089	1.34E-05
Tcf15	-1.290929145	4.30E-13
Hymai	-1.292843	5.43E-06
Fzd9	-1.294981975	2.37E-06
Pdgfa	-1.296745503	7.25E-05
Hoxa13	-1.304698164	1.24E-10
Cacna1e	-1.306122837	0.000151008
Col9a1	-1.311004889	1.23E-15
Fbxo44	-1.311550149	0.002264236
Fndc1	-1.312733842	0.058831774
Fgf8	-1.317192383	0.005916959
Mgll	-1.3194086	8.24E-05
Vwa2	-1.321649548	6.49E-05
Pde4b	-1.323034566	1.98E-07
Phlda1	-1.324931205	1.83E-33
Lmo3	-1.325363184	6.93E-06
Dsc3	-1.334987751	0.011634807
Gfra1	-1.337276222	1.04E-10
T	-1.339038474	0.02306784
Rgs8	-1.340792198	2.95E-05
Dab1	-1.341127172	1.08E-07
Fam107a	-1.346171792	0.017115721
Il18rap	-1.348361454	0.00636273
Stra6l	-1.353019866	3.15E-09
Sgms2	-1.356367865	2.20E-11
Fgfr4	-1.358544781	1.78E-08
2610307P16Rik	-1.361883126	0.007258398
Ldlrad4	-1.367630633	1.86E-07
Plch1	-1.367672652	1.83E-17
Cobll1	-1.368385991	1.47E-11
Egfr	-1.373952326	0.000603304
Fzd4	-1.378019483	1.72E-12
Rcsd1	-1.380874495	3.11E-17
Lgr5	-1.382321065	1.57E-10
F930015N05Rik	-1.390559995	3.57E-09
Myog	-1.395503609	0.000704544
Mgp	-1.398376637	1.25E-07
Adora1	-1.407039156	1.05E-06
Zcchc12	-1.407599548	3.50E-13
BC064078	-1.408895558	0.023449062
Sh3rf2	-1.40941325	2.89E-09
Egln3	-1.40978026	6.57E-13
Rbfox1	-1.412167834	3.69E-06
Sdpr	-1.412619168	0.014369837
Foxd1	-1.413981012	0.000572939
Cdkn1a	-1.419228081	3.87E-06
Dll3	-1.425008225	0.052630762
Pls1	-1.425175333	2.78E-13
Fam81a	-1.43121078	4.46E-07
Wnk4	-1.43991097	4.88E-07
Thbd	-1.444909884	1.41E-05
Cobl	-1.445856024	6.37E-06
Thbs1	-1.454201296	1.36E-07
Shisa6	-1.455382331	0.001292364
Cthrc1	-1.45864704	2.44E-05
Tcp11l2	-1.460018377	1.67E-09
Sema3c	-1.466278359	5.91E-10
Ppp1r1a	-1.472308878	2.51E-12
Epha5	-1.473282148	1.69E-10
Atp2a1	-1.47459388	9.96E-07
Sema3d	-1.474970964	0.002336743
Trim16	-1.478768534	1.15E-05
Bmper	-1.491202304	0.006964768
Gsn	-1.491393063	2.22E-10
Sp8	-1.497188682	8.63E-06
Dmtn	-1.499049257	1.17E-05
Plekha4	-1.499507027	5.68E-05
Fam46c	-1.504264122	5.05E-09
Adamtsl3	-1.505989768	0.00786129
Colgalt2	-1.506587311	1.78E-06
Hs3st3a1	-1.507235348	3.08E-08
Sowaha	-1.512607584	4.57E-08
Fam169b	-1.517998699	2.39E-07
Npr1	-1.532889754	2.18E-06
St8sia4	-1.536027763	5.30E-10

Lbx1	-1.540686197	5.43E-05
Pamr1	-1.541124676	0.079880241
Stk32a	-1.544452777	1.10E-05
Hcn1	-1.553047886	0.000181136
Inpp4b	-1.569274808	1.33E-14
Sox10	-1.570768229	0.000484715
Bcl6	-1.579910337	6.68E-07
Scn3a	-1.604883769	1.59E-08
Rflna	-1.613090403	9.67E-06
Lrrn3	-1.618021753	2.83E-08
Ackr3	-1.62031671	4.24E-09
Car2	-1.634926454	0.004723043
Hs3st3b1	-1.635045428	1.42E-17
Phactr1	-1.635798501	3.03E-07
Tgm2	-1.636615018	0.000154232
Tead4	-1.639256687	2.08E-12
Col2a1	-1.647870307	7.30E-13
Cdc42ep3	-1.655537121	4.87E-15
Egfem1	-1.66136607	0.036997797
Tacr3	-1.666606183	3.58E-05
Prokr2	-1.667674434	1.50E-07
Cr2	-1.672631211	3.19E-06
Ogn	-1.677436478	3.62E-06
Cpne8	-1.681508386	5.21E-08
Mamld1	-1.702318963	1.96E-10
Tpd52	-1.714160436	5.21E-39
Sardh	-1.714869521	4.97E-10
Slit1	-1.714870433	3.39E-09
Hlx	-1.722568976	0.000797133
Pmp22	-1.727489739	9.36E-10
Arhgef3	-1.735078557	6.38E-07
Dlgap1	-1.738449723	1.89E-07
Klf9	-1.740240835	1.87E-11
Moxd1	-1.740869468	0.00017909
Clstn2	-1.747619389	4.82E-11
Adamts16	-1.760826547	0.023916144
Dll1	-1.779247144	0.086869362
Nav3	-1.7830802	2.30E-07
Foxd2os	-1.783152053	0.004647049
Lrig1	-1.796341675	1.23E-18
Meox1	-1.822873975	1.22E-13
Sorbs2	-1.825152783	2.32E-18
Slc14a1	-1.828358573	0.000319493
Pax3	-1.831018787	0.003554626
Sorcs1	-1.831766344	1.09E-09
Pknox2	-1.837896338	1.22E-21
Met	-1.838793646	3.00E-40
Slc4a1	-1.843497045	0.039903319
Megf10	-1.847464508	7.41E-11
Tspan18	-1.849510269	4.21E-18
Sulf1	-1.852551973	1.18E-10
Sim2	-1.852685981	0.01003648
Mcam	-1.855894139	3.97E-26
Chrnb1	-1.856269851	2.01E-09
Zfp536	-1.866528189	1.31E-12
Lurap1l	-1.867077681	3.13E-07
Hpgd	-1.872446126	2.50E-05
Col11a2	-1.885972958	1.29E-06
Ppp1r16b	-1.899420371	1.36E-13
Bcar3	-1.901090115	1.75E-19
Myod1	-1.917531842	0.000161247
Cldn9	-1.93107731	3.22E-14
Pygm	-1.937708751	3.33E-09
Scrn1	-1.952234583	1.17E-17
Cxcr4	-1.97671295	7.40E-06
Nol4	-1.979362517	1.00E-11
Rasef	-1.985249059	3.15E-07
Mstn	-1.992832325	0.000317708
Foxd2	-1.995908656	1.17E-12
Nrarp	-2.004913995	9.59E-23
Fgf9	-2.013115715	5.73E-17
Wnt16	-2.014799662	9.01E-09
Myo5b	-2.031603807	1.23E-18
Shisa3	-2.03885047	2.40E-14
Fst	-2.043307297	1.33E-09
Afap1l2	-2.058855913	7.03E-16
Msc	-2.081115231	0.007258398
Col9a3	-2.086269202	7.79E-10
Foxc1	-2.091415529	7.26E-13
Six2	-2.103152973	9.59E-23
Igfbp5	-2.114635688	7.33E-06
Tfap2b	-2.121866376	5.36E-19
Lfng	-2.145236034	6.45E-18
Myf5	-2.157283892	1.31E-10
Col8a1	-2.166020159	0.003095454
Nav2	-2.169369205	7.21E-57
Hottip	-2.169602414	2.20E-06
Enpp1	-2.171639147	1.26E-11
Parm1	-2.188445026	2.38E-07
Enpp2	-2.189036753	1.39E-33
Jag1	-2.259065474	2.89E-42
Sp5	-2.269434111	0.000236523
Erbb3	-2.335370356	2.99E-10
Adamts17	-2.3641382	2.89E-38
Islr2	-2.386984221	1.07E-08
Pitx2	-2.398575626	0.000885244
Myh14	-2.413357571	1.34E-09
Atp1a2	-2.425832815	1.65E-35
Sv2b	-2.462852199	5.45E-20
Dmrt2	-2.676674	3.60E-06
Foxc2	-2.852644606	1.75E-26
Col9a2	-2.933002627	6.12E-19
Matn4	-3.191111525	1.94E-09
Evx2	-3.262321709	6.70E-13

Table S5

DEGs S9^{+}Pa^{hi} E10.5-E10.75		
Gene Symbol	**log$_2$FC**	**FDR**
Shisa7	3.976975852	1.31E-41
Emx2	3.395748345	2.08E-50
Zmat4	3.254556876	2.63E-42
Sema3d	3.080963059	7.55E-46
Ntn1	3.021469763	1.09E-42
Sned1	3.009572058	1.21E-30
Fam69c	2.997625146	2.68E-86
Calb2	2.925172521	2.69E-20
Nfatc2	2.907504828	3.72E-65
Sox9	2.846509276	2.12E-93
Foxc1	2.842524224	1.13E-42
Mgat4c	2.831052597	3.34E-24
Fibin	2.704468699	7.38E-52
Gsc	2.683259071	2.34E-66
Emx2os	2.655954908	7.18E-24
Col2a1	2.654550169	7.12E-53
Irx5	2.654125995	1.98E-09
Plekha4	2.63091133	6.83E-27
Sorbs2	2.612075944	2.26E-70
Prelp	2.611960865	2.67E-67
Irx3	2.60143342	2.75E-08
Aqp4	2.538254762	1.20E-42
Sdpr	2.536799004	7.38E-36
Bmx	2.480894114	1.51E-40
Synpo	2.475917586	6.19E-95
Hgf	2.4536347	6.68E-56
Cttnbp2	2.447972203	1.19E-53
Rag1	2.443279528	1.62E-27
Myh14	2.42491287	1.08E-22
Plcl1	2.41941084	1.39E-43
Rspo1	2.404644689	4.88E-06
Tmem132e	2.403962966	2.97E-11
Fam181b	2.39350364	3.39E-69
Nrcam	2.383683313	9.60E-48
Rspo2	2.373023799	5.66E-35
Sox10	2.365340198	6.99E-35
Barx2	2.363430769	7.33E-37
Nr2f1	2.34406756	8.19E-13
Cxcl12	2.33541113	5.54E-33
Gria2	2.333299219	6.19E-07
Mylk	2.327204549	4.33E-49
Ebf2	2.32394875	4.22E-33
Col9a2	2.320151673	3.20E-26
Hoxc4	2.308610655	1.60E-11
Col9a3	2.298334164	4.55E-25
Pkdcc	2.268740878	9.28E-11
Hoxc5	2.264968195	3.55E-07
Enpp2	2.258276792	1.20E-66
Crnde	2.238955751	2.03E-07
Cnmd	2.237051647	3.41E-36
Crhbp	2.225564062	3.38E-17
Trpm6	2.219278727	4.62E-31
Pcdh1	2.216901482	1.50E-37
Gdnf	2.216163666	1.34E-07
Mmp28	2.212331913	1.56E-34
Glis3	2.186947821	1.05E-41
Col12a1	2.179506921	1.31E-17
E330013P04Rik	2.156022112	1.16E-20
Nos1	2.151820876	1.24E-30
Shox2	2.144365503	1.49E-59
Rgs8	2.137979016	5.55E-22
Veph1	2.13194439	1.78E-23
Tbx18	2.126708589	6.42E-40
Lepr	2.111328236	5.53E-18
Fap	2.098907431	1.03E-10
A830082K12Rik	2.067013287	9.19E-23
Dmrt2	2.065624152	4.04E-11
Meis1	2.050956436	8.20E-10
Rhoj	2.007662056	8.53E-44
Kcnd3	2.006757111	2.91E-22
Adamts6	1.971542843	1.20E-15
Bmper	1.950007585	9.81E-20
Rgcc	1.92175466	1.11E-18
Osr2	1.921077432	3.90E-37
Hoxc6	1.900801122	3.76E-11
Rarb	1.894133971	2.90E-09
Col23a1	1.893290798	5.42E-54
Angptl1	1.888924932	2.15E-25
Tgm2	1.874810725	9.83E-12
Pde7b	1.874801249	1.07E-22
Il1rn	1.868623717	2.96E-35
Rab32	1.86369093	6.26E-25
Pde8a	1.837240277	4.37E-36
Zim1	1.837140455	2.94E-09
Cyp46a1	1.83322041	1.24E-10
Spint2	1.821004151	2.31E-63
Fbxo41	1.819971753	2.20E-25
Robo2	1.815590641	6.59E-36
Sfrp1	1.806341097	4.08E-10
Hoxb6	1.805930551	0.000124456
Prkcb	1.802864136	5.31E-42
Col9a1	1.802286989	1.90E-43
Itgb8	1.802029897	9.55E-19
Mcam	1.797402483	1.14E-48
Tbx15	1.792810027	3.15E-42
Igf1	1.773159981	6.53E-06
Spp1	1.770975497	8.23E-25
Myo5b	1.767297683	1.16E-32
Abca8b	1.75952463	2.84E-39
Mstn	1.758461891	1.46E-27
Ctgf	1.757849451	1.56E-16
Pappa	1.750199482	1.46E-12

Lhfp	1.739776512	8.39E-24
Meg3	1.726900592	8.55E-10
Meis2	1.719932675	1.79E-05
Sema6a	1.696965465	3.44E-40
Slitrk6	1.687161162	5.51E-09
Hhip	1.682929331	2.22E-19
Arsj	1.677499276	1.97E-29
Macc1	1.669182034	2.75E-29
Tcerg1l	1.657030575	5.84E-09
Tbx4	1.656452094	3.88E-18
Esrrg	1.656164557	1.79E-16
2700069I18Rik	1.655466628	9.94E-14
Lbp	1.645054934	1.29E-18
Hmx1	1.621261318	2.53E-05
Kcnh2	1.620257709	3.97E-37
Nr4a3	1.619752798	4.34E-10
Hoxb7	1.61042931	0.000305378
Runx1t1	1.608371405	3.78E-14
Asic2	1.605408836	0.005792061
Mtus2	1.604987585	9.93E-14
Fli1	1.60155294	3.51E-65
Ypel2	1.598298747	4.93E-19
Colgalt2	1.592898039	1.76E-18
Zbtb16	1.58977767	3.29E-26
Hcn1	1.583731527	7.40E-11
D030045P18Rik	1.582915114	3.13E-17
Scube3	1.582358243	1.85E-36
Ackr3	1.580980985	9.04E-14
Cldn1	1.580149552	3.93E-33
Pdgfra	1.578022223	1.04E-28
Hic1	1.567254	2.30E-16
Ntrk2	1.566707619	9.40E-15
Adgrg1	1.564154819	2.65E-29
Ptprv	1.559645494	8.86E-14
Scx	1.558268393	2.33E-39
Bmf	1.556809906	6.70E-34
Spata18	1.556655073	2.63E-11
Mir1906-1	1.554600164	1.78E-07
Mir1906-2	1.554600164	1.78E-07
Cxcl14	1.554104572	2.57E-17
Nlgn3	1.55321314	2.69E-19
2610035D17Rik	1.550161172	4.87E-20
Hoxb8	1.536756782	0.041253709
Runx2	1.518060499	4.29E-07
Foxp2	1.516701921	4.04E-14
Mctp2	1.515821204	2.34E-17
Tle2	1.511434205	2.71E-07
Smoc2	1.505537393	7.83E-07
Lrrc7	1.503720081	0.000315199
Dusp15	1.493011544	8.13E-19
Negr1	1.485431367	5.60E-12
Ror1	1.482696755	2.03E-07
Col15a1	1.479399016	5.75E-10
Dcx	1.47555106	2.33E-39
Aass	1.467763802	5.47E-31
AI854703	1.464380747	4.21E-25
Maf	1.463602819	8.02E-26
Kcnd2	1.458979822	1.85E-10
A730056A06Rik	1.45685987	1.47E-16
Duxbl1	1.45521663	3.40E-10
Ildr2	1.44822888	2.23E-35
Sox5	1.447568991	1.29E-35
Duxbl2	1.439639253	5.16E-10
Duxbl3	1.439639253	5.16E-10
Dnm3os	1.433983551	0.000166772
Ldb2	1.432351659	2.37E-48
Gpr4	1.429701941	1.67E-52
Rgag1	1.427166184	1.34E-16
Atp1a2	1.424641835	2.52E-23
Dab1	1.422084377	2.01E-14
Thbs1	1.418443816	1.39E-10
Slc5a7	1.413850078	2.48E-09
Tmem200b	1.413372863	2.25E-19
Agtr2	1.409955002	5.33E-07
Myrf	1.408617798	7.28E-17
Rian	1.398699869	5.09E-10
Fgd4	1.39364364	1.78E-17
E130310I04Rik	1.391996908	4.89E-09
Matn4	1.389607214	1.29E-08
Arhgef26	1.383311498	5.62E-22
Fgf9	1.382200021	1.56E-16
Asb9	1.378056588	4.18E-12
Ryr2	1.373862051	2.07E-06
Hs3st1	1.369032304	2.52E-11
Nrk	1.366577414	2.66E-14
Crocc2	1.365600798	1.71E-08
Egfem1	1.363380584	2.01E-12
Acot11	1.362586758	2.07E-27
Slc8a3	1.354214053	7.96E-16
Hoxb3	1.348371296	0.000968774
Psd2	1.348232499	1.85E-10
Ak1	1.343357103	1.69E-29
Dhrs3	1.342948765	1.31E-24
Zfp663	1.331772653	8.04E-24
Eda	1.329749669	1.85E-22
Rassf4	1.324820176	1.02E-15
Gata4	1.318382465	6.47E-05
Hoxb4	1.317921557	0.013601633
Ccdc85a	1.312551164	1.25E-12
Vstm2b	1.305974865	0.000393943
Mfsd6	1.299444466	2.27E-08
Aff3	1.299231026	1.77E-28
Fgfr2	1.293124773	2.66E-13
Cd83	1.283509957	6.36E-14

Fgd2	1.282064109	2.87E-05
3110039I08Rik	1.280897893	9.39E-07
Igfbp3	1.275112161	1.81E-08
Cdon	1.274400518	5.50E-21
Mgll	1.272970284	9.04E-11
Srgap3	1.272719119	5.93E-30
Hoxb5	1.271429174	0.023371703
Mir214	1.267360403	2.31E-05
Cyr61	1.263852727	2.37E-05
Chrna4	1.263494829	1.75E-18
Dpep1	1.263095669	2.94E-09
Tgfb2	1.262896483	4.90E-12
Irak2	1.261229154	1.96E-09
Gria3	1.258659928	3.86E-07
Ebf4	1.257458754	4.58E-08
Pbx1	1.244189248	4.25E-22
Fam151a	1.23895182	1.82E-15
Dagla	1.238054237	1.38E-25
Cadm2	1.237742674	4.13E-10
Sorl1	1.236439627	1.14E-09
Dact1	1.232480808	2.42E-11
Gpc5	1.232287166	8.28E-18
Enpp5	1.227095695	9.65E-15
Fgf12	1.225767191	2.36E-12
Eya4	1.224942805	6.14E-08
1810011O10Rik	1.224549566	4.27E-08
Cmklr1	1.221157637	1.23E-07
Scube1	1.218866571	7.78E-21
Col3a1	1.21721012	8.94E-15
1700020L24Rik	1.21678181	5.73E-13
Mab21l2	1.215924472	2.38E-21
Fndc1	1.215417167	0.000525079
Lix1	1.21499571	2.38E-20
Palm2	1.210864637	1.07E-14
Rec8	1.208616548	2.31E-06
Arhgap18	1.207830307	1.27E-22
Hpgd	-1.20083444	0.036319153
Col14a1	-1.201969602	0.028699788
3425401B19Rik	-1.207872053	0.000807236
Pdgfa	-1.211092365	0.000157715
Vgll2	-1.212354263	0.00135306
Steap3	-1.215644079	6.68E-07
Soga3	-1.216182918	2.17E-05
Ano1	-1.216453938	3.77E-07
Styk1	-1.223358704	1.20E-06
Ppargc1b	-1.225820635	1.10E-07
Mapk11	-1.226916828	2.53E-20
Prokr2	-1.228703362	0.000227575
Rbfox3	-1.230173097	2.23E-07
Efna1	-1.23343434	1.24E-08
Slco5a1	-1.234899042	6.93E-08
Gatsl3	-1.238458909	1.80E-05
Tcf7	-1.238566514	1.91E-16
Hoxd12	-1.247991168	7.84E-11
Cdh22	-1.251172007	4.79E-06
Slc35f2	-1.254310035	1.67E-12
Jazf1	-1.2586654	1.97E-08
Dsp	-1.260412271	0.000174246
Vldlr	-1.262320693	3.22E-11
Cbfa2t3	-1.282671391	1.46E-12
Pax7	-1.292423708	0.017185847
Islr2	-1.300381387	0.084672361
Tubb2a-ps2	-1.303792841	1.39E-08
Pdk4	-1.312175857	1.01E-07
Zic2	-1.312285333	6.65E-20
Ppp1r16b	-1.315291741	4.85E-06
Klhl14	-1.317583458	1.66E-06
Rbp4	-1.327389549	6.32E-07
Lfng	-1.341654989	4.02E-07
Slc7a5	-1.341747383	4.91E-12
Kcnj2	-1.34180558	1.33E-09
Il18rap	-1.349329671	0.003404985
Tbx2	-1.35056836	1.65E-17
Prdm8	-1.350987222	7.71E-05
Grrp1	-1.362004723	4.90E-07
Sptb	-1.3684464	0.038869108
Ccdc3	-1.373280267	1.37E-05
Jag1	-1.373460287	4.50E-18
Cbln1	-1.386374937	1.39E-14
Dlgap1	-1.393230453	0.000109732
Pitx3	-1.404997752	0.000393992
Mmp9	-1.417067799	3.62E-06
Gabra2	-1.417103596	0.041076236
Chst2	-1.417245049	5.11E-40
Slit1	-1.426419249	1.58E-06
Hspb8	-1.430005386	2.32E-16
Trpm3	-1.431685135	5.99E-06
Dkk2	-1.432316596	7.14E-05
Arhgef15	-1.432899881	2.79E-08
Tek	-1.440482057	4.78E-08
Fzd10	-1.442466556	2.80E-12
Pmaip1	-1.447035913	5.33E-08
Scn3a	-1.453456177	3.30E-07
Acan	-1.458015906	0.001626745
Rtn4rl1	-1.470308995	5.13E-08
Rassf2	-1.478786115	2.17E-16
Wnt2	-1.483367238	0.060600355
Pcsk6	-1.483437297	1.39E-07
Runx1	-1.483760462	1.20E-07
Ptprt	-1.485731097	2.10E-11
C77370	-1.488827648	7.82E-11
Sall1	-1.491874152	1.51E-20
Hey1	-1.492145401	1.27E-22
Slc2a3	-1.493409902	1.03E-20

Tspan18	-1.502193095	9.05E-13
Fzd5	-1.504225249	1.19E-06
E130114P18Rik	-1.507834885	2.39E-09
Tmem30b	-1.517189609	5.24E-14
Prss35	-1.533959292	0.021651151
Irx1	-1.551687023	0.005617122
Ppp2r2b	-1.561371236	0.001059486
Spry4	-1.563509791	3.34E-18
Nrarp	-1.570261126	3.21E-15
Bmp5	-1.576493513	4.01E-22
Lrrn3	-1.583388757	3.35E-08
Car2	-1.585010341	0.004185494
Cxcr4	-1.621665328	0.000375031
Dync1i1	-1.624508438	7.57E-17
Epha2	-1.6248993	9.83E-26
Pknox2	-1.641841323	3.55E-18
Tnc	-1.645191491	0.003509804
Palmd	-1.649877285	1.26E-07
Rab3c	-1.656945614	8.31E-14
Hoxa11	-1.660472809	5.28E-29
Sv2b	-1.673151338	4.16E-05
Synpo2	-1.674382739	3.69E-11
Cdkn1a	-1.70044875	5.98E-09
Fam81a	-1.705793823	2.13E-10
Cpne8	-1.712719039	1.20E-08
Acta2	-1.717776796	0.00089465
Bmp2	-1.732815165	2.73E-06
Rtn4rl2	-1.750544742	6.93E-10
Lbx1	-1.753272229	2.00E-07
Grem2	-1.758392354	0.000117592
Scn11a	-1.76464108	0.068076334
Etv4	-1.786774487	7.52E-30
Ramp2	-1.811980248	6.89E-12
Dlx5	-1.812237489	4.77E-09
Smad9	-1.815058321	1.21E-07
Kcnma1	-1.842285963	1.54E-17
Gcnt4	-1.850316221	3.26E-23
Tacr3	-1.864149166	7.22E-09
Edar	-1.867477868	4.26E-07
Itga4	-1.885893992	2.08E-24
Myf5	-1.885990032	2.09E-06
Rcsd1	-1.887411016	6.05E-31
Dll1	-1.894172462	0.035431916
Pax3	-1.895143899	0.001231897
Spock2	-1.91641953	1.01E-12
Adamts17	-1.91965522	2.91E-27
Rprm	-1.93465791	4.29E-15
Dkk1	-1.962044808	3.09E-19
Eya1	-2.006364823	1.72E-10
Rbm20	-2.011668767	2.69E-19
Fam169b	-2.039377903	3.10E-14
Hlx	-2.066155165	5.81E-06
Epha3	-2.103664242	2.15E-25
Sp5	-2.114646123	0.000958921
Grik1	-2.120868526	7.38E-18
Hoxd13	-2.122913738	3.13E-28
Msc	-2.12322157	0.00329293
Lmo2	-2.142268167	8.71E-33
Hoxa11os	-2.154589013	1.13E-36
Mybpc1	-2.174982083	3.27E-13
Pax9	-2.24123701	4.82E-13
Gja3	-2.249250792	1.52E-20
Msx1os	-2.260611147	5.10E-51
Gata3	-2.272989968	1.63E-06
Lgr5	-2.276017272	6.80E-27
Msx1	-2.286048016	8.68E-45
Prdm1	-2.298346623	1.75E-30
Hottip	-2.334819689	5.22E-08
Camk1d	-2.368718492	2.14E-40
Eya2	-2.520013209	1.83E-40
Tfap2b	-2.659439602	1.20E-29
Zic3	-2.714573856	1.63E-53
Evx1	-2.756415463	1.65E-21
Evx1os	-2.781402836	3.13E-19
Tfap2c	-2.99642748	1.56E-33
Col13a1	-3.090877827	2.24E-33
Evx2	-3.127155062	1.74E-11
Hoxa13	-3.228910308	4.09E-55
Shh	-3.492310678	4.09E-39

Table S6

DEGs S9^{+}Pa^{hi}		
Gene Symbol	**log$_2$FC**	**FDR**
Matn4	7.0664819	3.00E-59
Col8a1	6.341412334	5.44E-82
Eomes	5.733495936	5.71E-74
Kera	5.540242581	4.32482833415364e-318
Col9a2	5.431059467	9.73E-126
Ogn	5.345569605	2.15E-169
Col9a3	5.282994945	1.21E-116
Aldh1a2	5.229226442	1.93E-67
Cnmd	5.033636658	3.74E-102
Bmper	4.910017225	2.47E-95
Hic1	4.89849903	1.08E-145
Slc14a1	4.77781163	9.48E-131
Nkx3-2	4.755917276	7.09E-114
Sema3d	4.722684088	2.41E-98
Evx2	4.716782583	2.56E-103
Rflna	4.679988875	3.58E-120
Foxc1	4.556968067	1.72E-106
Egfem1	4.510261911	5.75E-69
Pax9	4.488083386	2.76E-102
Nfix	4.404586094	2.04E-85
Dcc	4.179131757	1.64E-98
Gdf5	4.167710801	2.53E-168
Tmem200a	4.163090343	6.85E-118
Acan	4.15493799	7.87E-36
Lum	4.146815147	1.17E-47
Zcchc5	4.105571963	7.17E-62
Pamr1	4.023895813	1.79E-141
Smoc2	3.96771331	3.30E-44
Runx1	3.966181872	4.08E-99
Ntrk2	3.828442277	1.10E-81
Shisa6	3.814346665	1.01E-71
Sdpr	3.784284021	1.59E-73
Stmn2	3.767224812	2.30E-69
Macc1	3.706641824	2.05E-95
Inhba	3.692577397	8.61E-55
Prelp	3.680991118	3.29E-124
Arhgef3	3.676951251	1.83E-52
Miat	3.662829136	8.94E-26
Islr2	3.655446933	2.12E-62
Cbln4	3.647686608	1.70E-56
Rxfp3	3.644493472	8.82E-63
Col8a2	3.643828244	2.49E-64
Creb5	3.630373661	1.62E-53
Papss2	3.624354407	2.12E-41
Col11a2	3.565114312	1.21E-38
Sulf1	3.555835736	1.45E-65
Dcn	3.553200976	6.10E-33
Tnc	3.515882029	2.18E-20
Adamtsl1	3.492516551	3.19E-55
Unc80	3.486725096	1.41E-18
Ebf1	3.463160636	4.56E-129
Slitrk1	3.459409062	7.24E-80
Col2a1	3.455056531	1.95E-91
Egfr	3.439158319	1.03E-41
Fam84a	3.431547776	4.25E-66
Col12a1	3.428341589	1.12E-44
Moxd1	3.424007544	2.67E-148
Cxcl14	3.417864138	1.25E-86
Phactr1	3.412692538	6.51E-55
Sorcs1	3.402918245	3.81E-66
Cacna1e	3.373784724	5.96E-63
Irx1	3.36769267	1.91E-16
Cd200	3.363078872	3.91E-62
Runx3	3.34901602	5.53E-68
Sorbs2	3.33959166	1.50E-118
Fmod	3.322472203	6.66E-59
Dab1	3.317321152	4.17E-82
Matn1	3.285033862	4.73E-62
Piezo2	3.262016791	1.21E-52
Luzp2	3.253585885	5.32E-61
Erbb3	3.230037939	1.14E-49
Sox9	3.218893253	2.20E-121
Enam	3.19674182	4.41E-48
Rab32	3.174768267	7.46E-75
Dner	3.132489204	2.12E-76
Fam69c	3.129084761	3.35E-96
Igfbp5	3.120385752	1.22E-21
Card11	3.106649825	3.51E-24
Thbs1	3.103528917	7.15E-54
Tcp11l2	3.088401609	4.87E-97
Cntnap3	3.077636396	5.01E-59
Cpxm2	3.068960851	7.87E-29
Pdzrn4	3.065927635	7.52E-27
Lrrn3	3.035153886	5.40E-50
Dtx1	3.02524555	5.59E-78
Pcdh9	3.023727545	3.30E-44
Nfatc2	3.021163329	1.21E-71
Fndc1	3.015602869	1.94E-15
Ccdc85a	3.013947679	1.92E-55
Ntm	3.005853635	1.22E-42
Ldlrad4	2.984784719	3.20E-68
Ntn1	2.977762441	2.42E-42
Sox6	2.968289624	2.28E-81
Trpm5	2.961489338	2.63E-51
Enpp6	2.947513608	5.59E-51
Ebf3	2.944899425	6.80E-72
Rbpjl	2.936850083	4.47E-66
Agtr2	2.936055856	8.11E-27
Gsap	2.930367955	9.73E-55
Gm9767	2.930229935	3.73E-73
Sned1	2.918436902	1.52E-29
Barx2	2.895830143	1.27E-52

Hottip	2.882723923	3.15E-47
Epyc	2.865521335	6.17E-56
Extl1	2.863870189	7.41E-39
Fzd9	2.863173534	1.74E-55
Tox	2.850718555	3.40E-50
Wnt4	2.844621792	2.90E-30
Rhoj	2.832616735	7.11E-92
Tcerg1l	2.807515756	4.00E-21
Fam160a1	2.787063327	1.59E-86
Nlgn3	2.784648039	8.54E-66
Pid1	2.779489865	2.58E-35
Mmp28	2.776396901	2.15E-52
Clec14a	2.77159224	1.01E-57
Arhgef19	2.770393043	2.79E-28
Sgk1	2.769781847	3.01E-76
Tacr1	2.763651471	5.12E-67
Col9a1	2.759870992	9.40E-108
Adamtsl3	2.758120001	3.63E-14
Adcy5	2.757884166	5.24E-36
Colgalt2	2.753081558	6.07E-53
Adamts12	2.751283361	1.86E-50
Col6a5	2.747884544	3.64E-51
Fgfr3	2.739374802	8.54E-66
P4ha3	2.736476185	3.44E-36
Egfl6	2.732139059	8.10E-41
Susd5	2.730555749	5.24E-45
Chrdl1	2.728153808	7.68E-117
Emx2	2.72785402	4.43E-34
Nod1	2.727202388	7.87E-24
Fzd5	2.72279692	2.08E-33
Sema6a	2.720272839	5.87E-110
Kcns1	2.710889875	7.28E-36
Bmp2	2.706910322	1.08E-25
Scrn1	2.698770674	5.08E-77
Enpp1	2.696118308	1.49E-39
Phex	2.695670098	1.09E-35
Mgp	2.691369294	6.71E-40
Foxp2	2.688730223	7.96E-47
Mfap3l	2.682955232	1.11E-53
Pde7b	2.681675108	4.57E-47
Dlx5	2.679252253	1.24E-35
Fibin	2.677609012	8.72E-52
Otor	2.677352749	9.16E-41
Nrxn1	2.674087714	1.26E-45
Myh14	2.67023259	1.23E-27
Ebf2	2.6669293	1.21E-44
Rasa4	2.659055604	4.22E-26
Rnf152	2.658663789	3.38E-36
Mef2c	2.655167908	8.02E-68
Slc14a2	2.645888052	9.53E-36
Arhgap20	2.640358042	5.59E-35
Wfikkn2	2.626400147	3.72E-66
Adgrg6	2.619932052	5.41E-24
Tmcc3	2.60296995	2.53E-102
Dpf3	2.60109188	5.24E-36
Adgrb2	2.600082307	1.94E-52
Kcnj2	2.591791114	1.54E-55
Meioc	2.586350743	1.59E-32
Cdh12	2.582819393	1.03E-45
Car8	2.575244773	4.66E-44
Podn	2.572287948	5.99E-39
Trhde	2.570022297	9.95E-37
Rarres1	2.557124835	5.24E-33
Slitrk2	2.55671474	3.67E-29
Kcne4	2.556598704	6.22E-20
Spp1	2.550339721	8.66E-48
D630003M21Rik	2.542545142	1.05E-93
Erg	2.541039829	2.02E-64
Gdf10	2.531107633	2.87E-16
Cntn1	2.528815446	9.13E-39
Cybrd1	2.525679196	9.82E-29
Slc44a5	2.523183224	1.03E-27
Calb2	2.522858689	7.30E-17
Hmgcs2	2.516905172	5.76E-45
Efna1	2.515294512	1.67E-55
Gcgr	2.510943484	3.46E-22
Pappa	2.502566969	5.65E-26
Cadm2	2.498174378	3.18E-39
Wnt11	2.490104285	5.05E-103
Adamts5	2.488630748	7.23E-35
C1qtnf3	2.48768673	1.36E-21
Wnk4	2.48310798	2.74E-33
Cthrc1	2.481473013	1.01E-26
Apc2	2.479197656	1.76E-44
Hs3st1	2.47594317	9.98E-34
Hoxa13	2.473255655	3.09E-75
Tmem200c	2.469835076	8.55E-53
Ndnf	2.469647419	1.08E-15
Rin2	2.459727921	7.96E-137
Tspan18	2.457454833	4.46E-59
Islr	2.436694951	5.40E-81
Cdh8	2.41998781	1.10E-30
Rax	2.407165668	1.98E-43
Mia	2.406872528	1.88E-36
Lgi3	2.406471558	1.01E-36
Fhdc1	2.406062289	3.88E-56
Atp1a2	2.405225977	5.78E-71
Veph1	2.404037733	4.99E-30
Anxa2	2.390050962	1.77E-26
Htra3	2.386081672	1.39E-30
NA	2.385195003	8.84E-38
Tubb4a	2.383291695	1.12E-81
Pdzd2	2.378399736	8.09E-34
Pknox2	2.373336168	2.54E-65

Doc2b	2.372412952	2.10E-15
Tlr1	2.371816836	1.95E-11
Fam181b	2.370567489	3.70E-69
BC064078	2.364504925	1.40E-32
Cspg4	2.363316572	1.27E-50
Sparc	2.362156307	5.97E-15
Parm1	2.358259355	3.93E-15
Gal3st1	2.355284388	7.35E-43
Loxl1	2.35425944	1.62E-59
Adgrg2	2.349622174	1.20E-20
Rgs17	2.348924392	5.45E-25
Fbxo44	2.347478396	1.09E-14
Cdc42ep3	2.345621774	1.07E-49
Fzd8	2.340222236	2.19E-49
Chmp4c	2.329365865	4.53E-25
Sema3e	2.328308439	3.53E-26
Hoxd13	2.328104877	1.28E-58
2700069I18Rik	2.32496742	3.98E-27
Cacna1h	2.320211878	2.12E-41
Robo2	2.318732935	5.66E-61
Mgll	2.311646272	2.31E-31
Maf	2.310922346	4.01E-69
Id4	2.306493204	1.89E-25
Angptl1	2.305254307	4.01E-39
Csgalnact1	2.297944882	7.49E-30
Osmr	2.291911653	3.09E-35
Hpse2	2.285357412	2.70E-57
Ptx3	2.277551937	3.85E-70
Stk32a	2.276751424	1.05E-34
Sox10	2.264377731	6.21E-34
Ptprb	2.260428587	1.44E-24
Aatk	2.259851042	7.56E-38
Rprm	2.253514104	9.44E-36
Foxc2	2.249934752	3.03E-33
Tfap2b	2.247276894	2.30E-51
Syt16	2.239218848	4.25E-40
Npas3	2.234357524	7.02E-34
Ptpre	2.22691634	3.94E-25
Cacna1d	2.216469113	5.19E-36
Scn9a	2.216254397	7.05E-38
Dlg2	2.21494049	2.52E-19
2810442N19Rik	2.211360998	1.26E-35
Atxn1	2.209382258	1.36E-25
Megf10	2.208974159	7.49E-30
Unc5c	2.208865157	9.90E-28
Nfib	2.208004561	1.19E-23
Ell2	2.199688022	2.59E-24
C1ql3	2.19859656	4.93E-45
Unc13c	2.194588309	2.35E-32
Wscd2	2.192537248	3.48E-59
Jade2	2.189081981	8.55E-28
Rab27b	2.188131199	7.01E-30
Kif1a	2.186295795	3.43E-50
Tbx18	2.181008085	6.61E-43
Grem2	2.178542861	4.22E-19
Pianp	2.177562964	1.40E-11
Il1rn	2.173440962	8.79E-47
En1	2.173297247	1.77E-09
Cxcl12	2.172553352	4.45E-29
Clstn2	2.168806763	4.00E-32
Ndrg2	2.168499324	4.55E-43
Rai2	2.167998494	1.15E-24
Kcnk6	2.167963911	2.68E-36
Igfbp3	2.160563987	1.99E-25
2610035D17Rik	2.160530879	4.29E-41
Corin	2.150415307	7.10E-07
Adamts15	2.146891692	5.45E-79
Adcy2	2.142609349	1.43E-28
Sstr1	2.138274323	6.83E-27
Hs3st3a1	2.136475405	6.08E-26
Arsj	2.136227106	7.83E-49
Plekhg1	2.128358679	2.07E-26
Atp9a	2.124038318	1.11E-105
Clmn	2.12149045	1.07E-89
Ltbp3	2.1131833	4.71E-55
Bmpr1b	2.112108042	6.18E-80
Syne3	2.111841253	2.80E-28
Lrrc7	2.107527151	3.31E-07
Ccdc80	2.107525396	3.85E-75
Trpc5	2.107308287	4.26E-24
Rbfox1	2.104198996	4.69E-23
AW549542	2.097086958	2.04E-13
Map2	2.095090933	9.23E-58
Dsc3	2.093623049	1.03E-08
Tekt2	2.092726289	5.15E-21
Mir6236	2.092708015	0.00025964
Emp2	2.085054003	2.04E-50
Pde8b	2.082754843	2.33E-21
Gas2	2.079346862	2.17E-107
Enpp5	2.075336125	3.32E-45
Rab40b	2.075258649	3.87E-28
2900011O08Rik	2.074655993	3.85E-75
Sfrp2	2.072368701	2.68E-87
Grin3a	2.071961354	3.04E-11
Gstt1	2.070225745	7.95E-39
Wwp2	2.069044556	1.35E-55
Alcam	2.066993375	6.55E-15
Dlx6	2.051887472	1.34E-35
Emp1	2.048869107	7.05E-80
Eln	2.048660428	1.59E-58
Tmem63a	2.044037787	9.74E-47
Gsg1l	2.04332226	2.15E-16
Lhx1	2.041343723	2.91E-33
Flrt2	2.040680946	1.36E-95

AW551984	2.040165662	6.00E-21
Efcab1	2.038806499	1.76E-38
Rag1	2.037328358	1.80E-20
Zfr2	2.034821834	8.44E-15
Tgfa	2.025680004	3.58E-28
Nxnl2	2.02296099	1.43E-19
Serinc2	2.014532258	1.82E-49
Igsf11	2.011417577	4.54E-25
Mab21l1	2.005175976	3.32E-69
Ppp1r13b	2.001400771	2.01E-42
Srgap3	2.000276734	1.70E-79
Foxf2	1.997920244	1.15E-23
Ptrf	1.99783095	4.57E-20
Stac	1.994901837	2.87E-15
Fam196b	1.994197433	1.24E-10
Kdelr3	1.993899854	1.03E-43
Stk32b	1.99327093	6.08E-31
Crtac1	1.98570717	8.21E-34
Tmem26	1.983316977	9.98E-52
Bnc2	1.982358428	2.41E-34
B130024G19Rik	1.981253942	2.28E-23
Pla2g7	1.97374485	1.98E-27
Zfp185	1.971405331	3.41E-26
Ntng1	1.968420926	3.54E-41
Fam19a2	1.966147212	1.41E-30
3110039I08Rik	1.966029524	1.40E-16
Rgcc	1.965076747	2.27E-20
Chst11	1.963291381	6.51E-39
1700020L24Rik	1.961142614	3.41E-31
Nfia	1.959307777	4.35E-21
Cbln2	1.958230664	6.90E-15
Gpc4	1.956999569	3.98E-71
Grhl1	1.955480616	3.05E-19
Eno2	1.953216875	1.55E-11
Penk	1.952097058	1.41E-18
Dgki	1.946505569	9.25E-25
Pnck	1.944285838	8.98E-42
Smpd5	1.944054209	2.03E-28
Fgfr2	1.943183292	1.06E-31
Ltbp1	1.941911805	1.42E-50
Hs3st3b1	1.941651041	3.22E-39
Tpsg1	1.941467738	1.14E-17
B3gat1	1.941130155	2.10E-22
Wisp1	1.940968985	7.00E-16
Ccser1	1.940917872	4.14E-39
Shank1	1.938894508	1.24E-16
Negr1	1.937197211	3.80E-21
Pmp22	1.930723928	1.26E-20
Mtus2	1.930126916	2.09E-20
Fat4	1.928318547	9.11E-49
Prss35	1.926966722	4.98E-05
Dll3	1.925986981	1.21E-05
Adam22	1.921435583	1.89E-49
Ahnak	1.921179938	4.79E-16
Jdp2	1.919340822	1.30E-27
Pdgfra	1.91717915	5.14E-44
Itga11	1.916781007	5.52E-29
Nckap5	1.915262432	4.41E-15
Fam19a1	1.913793839	1.92E-29
Pard3b	1.905852203	1.10E-49
Sparcl1	1.900879219	3.54E-10
Tgfb2	1.895497838	1.27E-28
Wnt9a	1.894380644	4.77E-37
Ypel2	1.893810764	7.22E-28
Pdgfd	1.892964303	3.11E-37
Thsd7a	1.888502985	2.90E-32
Tiam2	1.888095004	7.29E-35
Aplp1	1.883143141	7.35E-55
Itgb8	1.878382936	2.82E-21
Hist3h2ba	1.873023883	3.37E-13
Hlx	1.87137045	8.03E-09
Nap1l2	1.870431885	4.15E-19
Myl9	1.870260801	7.15E-25
Emx2os	1.86960546	2.05E-14
Pde3a	1.867022971	1.09E-36
Unc5d	1.866643874	1.30E-16
Six2	1.86652752	8.69E-32
Gstt3	1.860737128	1.72E-22
Jag1	1.859768587	2.56E-50
Sostdc1	1.857591553	2.22E-20
Dtna	1.852436651	2.35E-22
Ccdc106	1.839657608	3.51E-29
Eya2	1.83939106	6.70E-70
P2ry1	1.839255953	2.97E-17
Ptprt	1.839188374	9.91E-31
Sema3b	1.837717069	8.63E-31
Gbp7	1.836689975	5.79E-26
Cd9	1.831374271	4.21E-29
Prkcb	1.830385477	3.17E-45
Rtn4r	1.829701777	6.17E-23
Tspoap1	1.825480894	6.03E-16
Vstm4	1.825148539	4.16E-29
Dab2	1.824405469	1.01E-32
Col15a1	1.824312984	1.27E-15
Enpp2	1.8160013	2.07E-43
Pou6f1	1.814925066	2.66E-32
Erc2	1.814325182	3.57E-40
Gpr156	1.811812712	8.11E-22
Prnp	1.811533246	9.06E-54
Tmem35a	1.811374663	4.33E-42
Sardh	1.81026167	5.91E-20
Atp8a2	1.805927868	8.38E-31
Runx1t1	1.802909627	1.45E-18
Gria3	1.802357284	6.78E-15

Creb3l2	1.801526827	3.92E-54
Sox5	1.798145391	2.70E-57
Kirrel3	1.79797833	1.31E-17
Gfra1	1.797450013	1.66E-39
Rnf144b	1.795050191	1.15E-20
Lbp	1.794740473	5.21E-23
Zpld1	1.794536506	1.07E-27
Ssh3	1.794389185	9.14E-10
Plxnc1	1.793081384	2.94E-20
Ddx58	1.792251387	3.54E-20
Olfml2a	1.790886742	4.32E-20
Tmem163	1.789699532	2.47E-29
Ttbk1	1.787610899	2.67E-12
Synpo	1.787096938	7.74E-49
F930015N05Rik	1.78613552	1.38E-23
Selenbp1	1.785807136	1.89E-42
Asap3	1.785060203	2.22E-34
Edil3	1.779806459	1.23E-13
Fam114a1	1.779668769	1.31E-84
Npr3	1.775449589	1.84E-05
Trim16	1.774870908	2.38E-13
Tmeff2	1.772109633	1.89E-19
Fgf8	1.770597545	5.28E-08
Myof	1.767983488	5.58E-15
Flnb	1.762103106	3.58E-45
Atp2b4	1.760690503	2.96E-54
Abi3bp	1.76055669	7.23E-11
Col6a1	1.759012323	4.13E-48
Adamts9	1.758942739	1.45E-11
Prss23	1.75598651	1.57E-26
Kcnd2	1.755486641	2.90E-15
Creb3l1	1.754699205	7.91E-14
Cacng4	1.750924203	3.28E-19
Lhfpl1	1.744873346	2.34E-17
Col6a2	1.743410336	1.01E-67
Nog	1.740711596	2.69E-18
Lrrc17	1.737825861	3.59E-62
Lrrc4b	1.736416123	5.89E-42
Spock1	1.736369485	2.79E-12
Tspan11	1.733071752	3.69E-52
Gpm6b	1.730443578	4.30E-60
St3gal6	1.728584417	1.15E-30
A330033J07Rik	1.727856449	1.97E-11
Fgf11	1.727395814	1.51E-19
Tmem30b	1.726255532	2.84E-32
Fgf18	1.725731239	1.12E-39
Palm2	1.725628746	1.54E-31
Pxdc1	1.72282982	6.35E-20
Gadd45b	1.722456787	4.15E-06
Cdh10	1.722143651	7.99E-19
Mcam	1.721253877	3.77E-46
Sfmbt2	1.720631581	8.20E-19
Hivep2	1.718512823	1.57E-16
Mturn	1.717869938	1.01E-57
Thbd	1.715590547	2.82E-17
Fgd4	1.713514896	1.19E-27
Tbx5	1.712800089	2.06E-49
Sema4f	1.711899262	4.78E-44
Dennd3	1.711872474	1.99E-19
Atp1b2	1.708465467	3.39E-25
Krt18	1.707652882	1.71E-19
Kctd12b	1.705231874	1.43E-33
Meox1	1.701965474	7.14E-23
Egr2	1.700877429	0.000433191
Slc35f1	1.699770094	1.65E-33
Zbtb4	1.697918385	9.86E-25
Frem2	1.695044301	9.04E-16
Fbxo41	1.694746282	1.16E-22
Syt13	1.693684729	3.44E-14
Ptgfr	1.691504788	7.75E-18
Mr1	1.689094699	2.04E-20
Pcdhb7	1.687229617	3.02E-23
Pcsk6	1.686013279	9.49E-15
Fgf7	1.685894444	1.06E-16
Sec24d	1.684390808	3.13E-38
Catip	1.682137185	3.28E-14
Maml2	1.680480929	1.60E-43
Cadps2	1.676297399	3.16E-15
Osr1	1.676250488	9.42E-34
Adamts6	1.667667102	7.76E-12
Kcnb1	1.667212893	2.65E-10
Glis3	1.665715577	1.20E-24
Hoxc5	1.665423524	0.000108127
D930020B18Rik	1.662510963	1.06E-16
Nostrin	1.662279679	2.13E-13
Frrs1l	1.661187875	3.71E-14
Kcnq4	1.660920282	1.65E-33
Mamld1	1.658728454	3.05E-26
Scn11a	1.658468308	1.32E-15
Oplah	1.658335411	1.23E-38
Tmem51	1.658011086	7.70E-18
Bmp3	1.657102064	5.81E-08
Gpr137c	1.65314328	8.78E-23
Pcdhb3	1.652992582	3.53E-21
Strip2	1.652992037	1.97E-22
Fam65c	1.643716225	3.18E-17
Klf8	1.64155964	3.76E-22
Khdrbs2	1.64144317	7.26E-20
Sh3rf2	1.640823516	2.08E-23
Arhgap18	1.640339537	2.33E-44
Il17d	1.639932103	2.09E-22
Tmem229b	1.633141101	1.64E-15
Abcg1	1.631878822	1.81E-27
Jazf1	1.631170426	2.93E-25

Stard13	1.628554708	1.16E-16
Il1r1	1.627857707	3.85E-15
Pcdhb11	1.627733869	1.26E-17
Npr2	1.625666742	4.49E-18
Hoxd12	1.620839278	3.24E-27
Col1a1	1.619351802	2.58E-25
Abca1	1.618377357	7.46E-29
Scamp5	1.61777978	2.26E-30
Panx2	1.617720638	4.44E-16
Adgrf5	1.616711727	2.40E-08
Lsamp	1.615608469	6.41E-23
Oprl1	1.614656812	4.56E-06
Nacad	1.614125368	1.84E-25
Kcnmb4os1	1.613945714	5.02E-28
Smpdl3a	1.61125964	1.00E-32
Rusc2	1.610921358	1.78E-27
Clstn3	1.607909817	2.86E-58
Axl	1.607878167	2.72E-56
Trpm3	1.607355538	3.95E-11
Acvrl1	1.606067891	1.45E-16
Arhgef28	1.605074906	3.30E-22
Slc16a4	1.604352919	1.08E-08
Wbscr17	1.602558825	3.60E-32
Trp53inp1	1.601716105	1.46E-64
Spint2	1.601178159	2.06E-49
Chrd	1.59968496	1.65E-13
Pcdhb14	1.597075742	3.73E-20
Actc1	1.597006619	7.63E-13
Spock3	1.5963612	5.91E-24
F11r	1.596313423	6.60E-13
Mme	1.596290163	1.38E-39
Cldn9	1.59469811	9.24E-20
Cyp2s1	1.594441325	3.34E-13
Dnajb4	1.594111986	4.49E-59
Car5b	1.592987583	3.55E-21
Lrrc15	1.59164477	1.81E-16
Synpr	1.586563664	7.17E-13
Pcdh8	1.586393518	0.001225594
Kank1	1.585962465	1.73E-45
Pcdh10	1.584791604	1.19E-23
Dapk2	1.581959028	1.67E-13
Fxyd1	1.579967808	3.75E-23
Tgfbi	1.578599224	6.38E-58
Sspn	1.573790282	8.38E-29
Sorcs2	1.571847445	8.35E-65
Runx2	1.565252585	3.89E-08
Dsg2	1.559599936	3.38E-12
Tac1	1.55929592	2.60E-11
Fat3	1.558357127	1.23E-16
Pcdhb6	1.557777894	3.04E-12
Entpd1	1.555520796	9.95E-19
Wnt5a	1.555334073	3.71E-49
Kcnmb4	1.553703063	1.13E-44
Ngf	1.552302163	1.54E-13
C1s1	1.549464662	1.47E-14
Armc2	1.548067389	3.68E-15
Fam46a	1.547367656	2.26E-08
Serpini1	1.545627008	7.84E-36
Cd83	1.544948844	3.95E-21
Klhdc8b	1.543932542	7.13E-26
Bmx	1.542416641	6.45E-20
Astn1	1.539537328	2.19E-62
Il16	1.539194956	8.56E-15
Ell3	1.53768232	1.37E-20
Tbx15	1.534949671	3.23E-31
Selenop	1.531491776	2.10E-59
Prr16	1.525204359	1.31E-13
Mylk	1.525106257	4.30E-21
A730056A06Rik	1.524109902	3.03E-19
Larp6	1.524054219	5.64E-12
Lrba	1.522895224	6.15E-34
Fst	1.522696922	8.61E-18
Fam150b	1.521723061	2.59E-19
Sytl2	1.521697922	1.29E-17
Firre	1.520661333	1.26E-06
Mfsd7c	1.518727825	2.42E-16
Scn1a	1.517468047	8.28E-17
Dsp	1.516103935	3.91E-09
Lrrc75b	1.515975485	4.04E-17
Bnc1	1.515797937	1.20E-05
Cdh4	1.514146414	3.05E-36
Egr1	1.513372522	0.000463686
Nrbp2	1.51324392	2.40E-09
Cd38	1.511421261	3.32E-24
E130114P18Rik	1.511081375	6.08E-16
Col16a1	1.510400945	1.49E-15
Samd4	1.509311958	8.34E-42
Cd82	1.508822394	8.73E-29
Rbms3	1.507865235	5.36E-78
Slain1	1.507262803	5.53E-18
Fos	1.507030789	1.09E-05
Wipf3	1.50696003	6.90E-15
Kctd12	1.506847341	1.65E-19
Drp2	1.50603921	3.99E-18
Nrxn2	1.505850896	5.12E-22
Zcchc12	1.505424965	1.02E-25
Popdc3	1.504694313	2.50E-17
L1td1	1.503583558	8.15E-10
Ctnna2	1.502440391	1.84E-07
Kat2b	1.496293661	4.46E-13
Ccdc60	1.494901497	5.55E-10
Grhl2	1.493834449	3.79E-11
Prkca	1.493146279	1.01E-37
Selenbp2	1.493100271	3.43E-19

Ap3m2	1.492741339	4.24E-26
Nbl1	1.492142751	1.39E-15
Pcdhb8	1.490079557	6.58E-11
Dnm3	1.488136934	7.32E-17
Mpzl2	1.486495396	6.93E-25
Rnasel	1.486023336	3.33E-17
Rspo3	1.482973847	1.63E-37
Prkar1b	1.482424501	1.81E-20
Ttll7	1.480683145	3.63E-34
Foxd1	1.48049161	9.27E-09
Brdt	1.480092077	1.74E-15
Plce1	1.4799794	1.39E-44
Tcea3	1.479804003	6.13E-13
Nt5e	1.478980047	9.75E-06
Ebf4	1.477981006	8.55E-12
Mbnl2	1.477553491	5.94E-22
Adgrl3	1.472629306	5.28E-44
Zeb2	1.471335444	2.60E-26
Six1	1.471231397	8.14E-29
Ppp1r3b	1.471072852	1.29E-17
Eps8l2	1.469788401	1.75E-13
Dhrs3	1.469781031	1.00E-30
Ghr	1.467746598	3.52E-41
Bcl2	1.467200663	1.71E-41
Grid2ip	1.466370871	9.44E-11
Tceal6	1.465764049	3.34E-17
Osr2	1.464073474	9.59E-22
2810459M11Rik	1.461905453	1.78E-12
Pcdh7	1.461420533	3.99E-29
Zfp804a	1.46040021	6.12E-06
Syt5	1.455852619	8.06E-19
Abca9	1.454752416	1.29E-13
Tshz1	1.453071952	7.69E-48
Vwa5a	1.44714812	1.58E-59
Vcan	1.446904015	3.64E-15
Plcl1	1.445666572	1.75E-17
Pcdhb18	1.445467405	1.93E-16
Rxrg	1.444910208	3.60E-12
Gsc	1.444854701	1.58E-19
Ncan	1.44214807	4.69E-31
Plekha4	1.440539562	9.31E-10
Tgfbr2	1.439981558	1.45E-46
Sema5b	1.437703559	3.05E-10
Cpt1c	1.437553512	1.19E-14
Hcn1	1.436303105	3.98E-10
Pcdh1	1.435485928	6.42E-17
Brinp1	1.434951611	8.70E-09
Arhgap36	1.433835119	4.80E-09
Rab11fip5	1.433682219	1.08E-15
Timp3	1.433331202	1.58E-59
Flrt1	1.432985484	9.23E-14
Sel1l3	1.429524694	1.60E-13
Als2cl	1.42931557	3.16E-14
Dennd2c	1.42884159	6.62E-15
Nol4	1.427729641	6.23E-12
Rftn2	1.427654669	5.75E-44
Rn45s	1.4269844	0.001085687
Lars2	1.425578754	0.0012666
Kifc2	1.425227496	1.68E-07
Fry	1.423521254	1.33E-13
Gria4	1.423366604	7.86E-18
Tinagl1	1.421423906	1.34E-09
Iglon5	1.421394984	4.96E-43
Spata18	1.420803837	1.37E-10
Pcdha5	1.419319819	2.58E-12
Patj	1.417871948	2.36E-43
Lrrc8c	1.417772385	6.51E-39
Clcf1	1.41701669	1.08E-15
Pcdhb20	1.416033944	3.62E-19
Mctp2	1.413010353	3.96E-16
Magi2	1.411332143	1.24E-11
Pcdhac2	1.408052039	2.77E-09
Pygl	1.40720418	1.38E-38
Klhl14	1.404896114	2.09E-16
Pstpip2	1.404701313	6.48E-22
Smarca2	1.403525956	2.36E-68
Pcdhb5	1.402468664	7.30E-15
Plxna4	1.402240271	1.52E-25
St8sia4	1.402103832	2.93E-18
Arrdc1	1.398680775	1.05E-26
Rap1gap	1.397717153	2.71E-18
Fgf12	1.396052534	3.24E-17
Pcdha9	1.395142965	3.39E-12
Trps1	1.393506187	1.12E-22
Nlrp10	1.393011217	1.80E-08
Ptgs1	1.392966134	8.92E-16
Myo6	1.392390521	2.70E-24
Nlrp5-ps	1.392363642	1.93E-05
Trim46	1.392085511	3.39E-17
Pcdhb19	1.391408977	3.32E-14
Smad9	1.389736214	1.23E-07
Snai2	1.389255511	4.96E-48
Tle2	1.387435998	8.55E-07
Tec	1.386586838	3.46E-09
Pld1	1.385824047	4.93E-21
Stard8	1.385329939	1.83E-13
Rasgef1b	1.384951884	7.15E-34
Nr4a3	1.384350617	2.12E-08
Nxph3	1.382985089	2.24E-14
Cyp4v3	1.381977549	4.27E-19
Pcdha2	1.378095906	1.98E-11
2810029C07Rik	1.377503263	1.01E-09
Arhgap33os	1.376445913	9.60E-06
Eva1a	1.375455426	4.07E-18

Col11a1	1.375367267	3.14E-44
Arhgef26	1.374853457	1.59E-22
2610307P16Rik	1.374178487	0.000126541
A730020E08Rik	1.372409147	1.09E-16
Pik3ip1	1.37155301	7.44E-20
Pcdha12	1.369140034	1.80E-12
Rflnb	1.368653631	4.09E-35
Homer2	1.368372336	1.94E-51
Glrx	1.367719487	8.36E-31
Creb3l4	1.36644951	4.39E-25
Dubr	1.365043494	8.23E-08
Adgrg1	1.364767786	5.87E-23
Mst1r	1.363862734	3.91E-13
Limch1	1.363834131	4.38E-23
Pip5kl1	1.363812647	4.07E-09
Pcdha1	1.362243566	1.86E-10
Slc2a13	1.362181155	7.55E-10
Adcy9	1.36110482	1.07E-27
Mgat4c	1.360262406	2.41E-09
Kcnmb4os2	1.360024699	4.68E-37
Shroom1	1.359238639	5.02E-17
Ulbp1	1.359008984	2.48E-06
Pcdhac1	1.358486762	1.57E-10
Stag3	1.358372914	3.64E-05
Ralgps1	1.356485531	2.96E-33
Pcdha7	1.356385386	1.01E-10
Pcdha6	1.35478757	3.43E-10
Chrnb1	1.354703076	1.91E-12
Slc45a1	1.353613112	1.65E-11
Pcdha3	1.352587905	1.11E-10
Dst	1.351686623	1.94E-13
Ak1	1.351388601	8.68E-31
Rapgefl1	1.350913726	8.77E-17
Pcdha8	1.350066968	6.95E-11
Pcdha4	1.349558824	1.56E-10
Tlr2	1.349166762	1.55E-08
Cpe	1.34866962	3.45E-43
E130310I04Rik	1.348663036	2.12E-09
Azin2	1.346478017	4.89E-29
Tub	1.346286093	2.66E-45
Rrad	1.345124619	4.16E-21
Dusp15	1.345115343	8.72E-17
Trim12c	1.344697275	4.24E-16
2510009E07Rik	1.344135849	1.14E-52
Mirg	1.343222628	8.46E-10
Acss3	1.343028574	1.27E-15
Lgr5	1.342987401	1.19E-19
Kif5a	1.342807578	6.65E-13
Pcdha10	1.339793318	6.78E-10
Thsd4	1.339748066	5.50E-19
Gdf7	1.339542497	2.35E-07
Thbs3	1.339033292	2.62E-10
Fhl2	1.338938992	6.83E-06
Adcy4	1.336693604	3.03E-21
Nacc2	1.335219842	9.00E-42
Pnma3	1.333727178	3.14E-12
Col25a1	1.331190317	6.01E-45
Cyp2d22	1.330109733	5.09E-10
Gulo	1.329643286	2.54E-18
Lepr	1.329441415	5.25E-08
C1qtnf4	1.328298108	4.56E-16
Gmds	1.328057624	6.63E-39
Xpnpep2	1.327780837	3.24E-13
Pcdha11	1.327629265	7.57E-11
E330013P04Rik	1.326410067	1.28E-09
Mmp11	1.325928815	4.18E-35
Dleu2	1.323890751	1.24E-21
Rgag1	1.323860668	1.03E-15
Ltbp4	1.323011147	1.88E-35
Peg13	1.322915696	3.08E-20
Chadl	1.320355796	1.17E-15
Uph	1.319125098	1.04E-29
Tceal3	1.318941052	1.04E-20
Clec2l	1.318907738	1.95E-17
Ddah1	1.315607247	6.12E-27
Anxa4	1.315482876	6.76E-17
Nfic	1.314095586	1.82E-39
Dcaf12l1	1.313667525	3.85E-21
Sema3c	1.309692727	8.64E-13
Egflam	1.308397294	4.34E-44
Emilin3	1.307207122	3.18E-53
Nkain4	1.306998989	2.18E-15
Rian	1.301185827	2.60E-09
Tmem169	1.300645896	7.30E-29
Rab27a	1.299073294	7.93E-30
Fam159a	1.299057268	8.26E-12
Grina	1.298624667	1.42E-35
Lox	1.295609265	2.20E-08
Notch1	1.293735733	3.28E-14
Tap1	1.291474044	1.79E-13
Tox3	1.290808713	4.50E-37
Grik4	1.289311932	1.04E-12
Lmna	1.289192004	2.01E-23
Gpr85	1.288532513	4.66E-11
Ccdc149	1.28776818	2.94E-12
Adgrb3	1.287685477	8.39E-07
Galnt18	1.286242569	1.78E-11
Slc2a12	1.286062739	1.87E-17
Nhsl2	1.28599662	2.31E-19
Nlgn2	1.284743949	1.12E-29
Gpr4	1.281999396	3.01E-43
Gm5126	1.2818499	2.12E-15
St8sia1	1.281715859	9.55E-15
Mir7025	1.281129621	2.00E-14

Trpm4	1.280578796	1.96E-19
Hmgcll1	1.280482439	8.69E-23
Neb	1.278530107	1.68E-06
Adgrb1	1.27836065	5.18E-12
Mtmr11	1.277752958	1.57E-25
Robo1	1.275782983	4.15E-35
Galnt3	1.274242013	2.96E-07
Scx	1.27307899	1.63E-26
Epha7	1.272750766	1.13E-30
Abca8b	1.272403221	7.66E-21
Mxd4	1.270848385	1.31E-28
Garem2	1.270741213	9.23E-09
Fam134b	1.270546972	3.86E-15
Triqk	1.270418215	4.44E-18
Hap1	1.269460978	1.84E-11
Mab21l2	1.268400225	5.41E-24
Prkg1	1.267217234	1.78E-08
Mapre3	1.266820271	2.07E-18
C3HC4	1.261939114	2.22E-31
Gcnt1	1.26129601	1.12E-24
Sall1	1.261085589	1.10E-21
Egln3	1.260799657	1.84E-17
Pnmal2	1.260189283	2.67E-27
Fndc3b	1.260047129	8.95E-29
Col6a6	1.259983956	1.05E-07
Pdzd4	1.259451357	2.05E-34
Plekhb1	1.257362264	1.62E-09
Rab33a	1.254382332	2.53E-15
Prune2	1.254165936	7.78E-11
Cox4i2	1.25378423	4.12E-13
Trpc1	1.252785537	4.98E-11
Parp9	1.252151852	2.74E-15
Olfml1	1.251291876	9.94E-32
Fkbp14	1.250401133	3.54E-25
Ccl28	1.250387846	1.36E-09
Zmat1	1.249853751	8.95E-13
Agtr1a	1.248637568	6.68E-14
Slc26a1	1.248045593	2.33E-15
Fam46c	1.247199175	2.24E-12
Pcdhb17	1.246184495	1.94E-12
Prrt2	1.245776944	1.05E-07
Olfml2b	1.244849089	2.07E-20
Kcnt2	1.244771332	3.00E-08
Mdfic	1.244402162	1.01E-25
Pcdhb4	1.244339905	3.65E-12
Dpp6	1.243943459	2.41E-12
Bicc1	1.241996834	2.43E-36
Palmd	1.241471546	2.45E-11
Mylip	1.240942325	2.45E-28
Rap1gap2	1.240775979	1.16E-14
Epb41l3	1.23999054	2.54E-36
Abcg4	1.238326267	4.94E-09
Sfxn3	1.23776656	2.21E-16
Mir5130	1.237093054	6.12E-09
Mboat1	1.236238346	2.54E-14
Tmem45a	1.236177457	8.81E-17
Apela	1.235746518	1.60E-12
Elf4	1.235119035	2.67E-14
Artn	1.234991135	1.36E-12
Wif1	1.234386235	4.14E-12
Tenm4	1.234083218	1.83E-26
Cyp7b1	1.233602524	7.20E-09
Prkcdbp	1.232460567	3.75E-10
Olfml3	1.232294677	1.44E-06
Car11	1.231234436	6.13E-13
Ryr2	1.228751439	4.89E-06
Srcin1	1.228477208	1.24E-10
Chst3	1.227292331	2.64E-23
Dtx4	1.226324774	6.91E-13
Mast1	1.225087755	4.64E-13
Epcam	1.224951186	3.10E-18
Cul9	1.224355045	2.95E-14
Bmf	1.223874012	3.28E-21
Smarca1	1.22157835	1.54E-60
Dock9	1.220796805	2.31E-22
Crhbp	1.218323403	1.15E-06
Ifitm7	1.218020688	7.47E-09
4833422C13Rik	1.216701414	3.94E-31
Acss1	1.216112124	1.00E-05
Ppp1r36	1.215827566	6.88E-12
Manba	1.215583048	2.49E-14
Fli1	1.214445076	2.68E-37
Mansc4	1.214407743	8.05E-10
Chsy3	1.21339143	9.38E-14
Shisa2	1.213255616	6.96E-39
Dapp1	1.213251967	2.13E-12
Setbp1	1.212701745	2.56E-17
Col1a2	1.212500331	5.82E-22
Tcf7l2	1.212360223	6.39E-44
Srpx	1.212089637	1.62E-13
Arhgap44	1.21168875	5.37E-24
Klhl3	1.211343632	1.35E-11
Ctdspl	1.211194062	3.46E-37
Col20a1	1.208494249	8.15E-06
Rbm46	1.207579473	5.24E-06
Nrsn2	1.207131906	7.51E-10
Nedd4l	1.206533957	4.96E-31
Cpq	1.203925185	1.40E-17
Meg3	1.203887358	1.89E-05
Gm15663	1.203816539	2.22E-08
S1pr3	1.203803098	6.53E-20
Pak7	1.202081732	1.90E-15
A330074K22Rik	1.200799923	6.01E-14
Hist1h2ad	-1.201661143	0.002474328

Ak4	-1.20225799	6.46E-18
C1qbp	-1.202491394	1.60E-16
Ybx3	-1.207900103	8.63E-24
Mthfd2	-1.20863394	8.78E-19
Rps2	-1.210639469	9.42E-10
Mthfd1	-1.21157402	1.29E-40
Aen	-1.216125336	5.18E-32
Ppat	-1.216440687	1.99E-25
Dmrta1	-1.218227106	5.15E-05
Gm6644	-1.218961963	7.44E-15
Rcc1	-1.222524918	2.40E-22
Ung	-1.224304551	1.89E-15
Dach2	-1.226540075	1.14E-15
Lrrc3b	-1.228333742	0.000737819
Car14	-1.229923212	1.22E-31
Prdx6	-1.230938976	1.87E-20
Prrt4	-1.232689024	8.24E-10
Nme1	-1.233932437	2.05E-09
Hist1h2an	-1.236147754	0.001331878
Rplp1	-1.238536133	5.32E-06
Dyrk3	-1.240394315	4.77E-14
Shmt1	-1.244010647	1.36E-21
Hspa1a	-1.24449977	0.095847387
Pkm	-1.244872848	6.14E-16
Lef1	-1.245036054	3.64E-21
Etv4	-1.24824196	1.16E-16
Stc2	-1.251362012	0.000272281
Unc5a	-1.256205194	3.44E-07
Wt1	-1.259221645	0.000463056
Fabp5	-1.260299466	3.12E-13
Mrpl12	-1.2647983	3.88E-18
Eno1	-1.268754782	3.67E-19
Exosc6	-1.268779525	6.63E-28
T	-1.269913836	0.009121531
Epb41l5	-1.281848149	1.84E-13
Ninl	-1.286601408	1.34E-16
Ccne1	-1.288193266	6.56E-28
Bola2	-1.292090713	2.09E-09
Epha2	-1.296157955	2.54E-18
Gm4737	-1.303050889	2.76E-16
Rgl1	-1.305119162	2.52E-44
Hspe1	-1.309703062	1.15E-13
Ppp1r14b	-1.31078255	1.28E-26
Cth	-1.316385411	2.02E-22
Sptbn2	-1.320936149	7.08E-22
Tubb6	-1.323728503	0.00385416
Dusp2	-1.324496469	4.98E-06
Asic2	-1.330442436	0.028769575
Eno1b	-1.333559449	9.62E-17
Fgf5	-1.335381241	1.34E-05
Hprt	-1.353184348	4.55E-14
Hspd1	-1.354387253	6.08E-21
Snhg4	-1.357151141	7.95E-13
Grwd1	-1.359552392	3.73E-21
Tmem204	-1.369073245	1.40E-07
Eif5a	-1.374503404	1.87E-12
Fam89a	-1.384774235	1.27E-11
Ano1	-1.395468513	5.15E-10
Lix1	-1.397071499	6.20E-20
Sp8	-1.404601903	2.96E-05
Nhp2	-1.414061922	2.40E-11
Hist1h2ak	-1.421775775	8.43E-06
Mif	-1.430015692	1.53E-10
Grem1	-1.431014514	3.12E-13
Tmem132d	-1.431108419	7.29E-06
Scn4b	-1.435428663	0.000209301
Hist1h2ap	-1.43650071	7.14E-06
Hist1h2ab	-1.43760776	0.000265011
Bcat1	-1.43954289	1.66E-14
Ahcy	-1.446028036	1.88E-14
Slc25a5	-1.452410109	9.52E-17
Greb1	-1.460663404	6.62E-38
Myf5	-1.465696918	0.001974935
Hist1h2ao	-1.466203344	2.23E-06
Meis3	-1.46810413	0.000111521
Pou4f1	-1.475173272	1.36E-06
Cdkn1a	-1.47614056	1.21E-07
Dusp9	-1.488990165	2.64E-17
Pdlim1	-1.490063504	9.33E-10
Atg9b	-1.499721863	2.99E-09
Dctpp1	-1.504188991	1.75E-13
Oasl2	-1.513236928	2.77E-10
Arid3a	-1.529811803	1.38E-35
Gabra2	-1.531032034	0.002708001
Wfikkn1	-1.533974678	4.65E-07
Epop	-1.545099136	1.99E-34
Hoxd1	-1.547868145	9.36E-09
Plaur	-1.566268706	2.68E-12
Lama1	-1.56679796	6.36E-33
Podxl	-1.571070926	1.82E-06
Slc7a5	-1.58985465	7.44E-17
Cyp1b1	-1.616882214	4.63E-12
Nptx2	-1.618533283	5.40E-09
Crabp1	-1.635799715	2.81E-07
Mapk12	-1.647237071	1.13E-55
Lin28b	-1.649355835	2.04E-38
Trim71	-1.650723682	2.40E-46
Cpne7	-1.650958674	4.63E-11
Grrp1	-1.659181964	7.35E-11
Elovl2	-1.659293806	1.69E-41
Rpl21	-1.665482509	5.45E-07
Chchd4	-1.66753072	9.66E-21
Gata5	-1.670874177	0.000668803
Mthfd1l	-1.67271585	3.75E-29

Ripply3	-1.673027476	2.55E-13
Dusp4	-1.689147135	9.69E-30
Mycn	-1.7093288	5.79E-28
Trpm1	-1.710694208	2.83E-12
Vegfd	-1.734811435	4.42E-31
Dkk1	-1.740003416	1.13E-16
Cygb	-1.753473262	4.25E-15
Camk1d	-1.777740406	5.36E-26
a	-1.790920554	2.58E-24
Sowahb	-1.824311823	5.45E-11
Cd40	-1.834177665	2.90E-38
Mamdc2	-1.840662977	1.22E-23
Adamts16	-1.850860448	0.001876777
Gldc	-1.85328657	7.15E-13
Msx1os	-1.861692689	8.02E-38
Prdm1	-1.86810803	1.42E-22
2010204K13Rik	-1.906001485	1.26E-11
Lmo1	-1.913253556	2.00E-10
Chrna1	-1.91653262	2.18E-13
Col13a1	-1.916759553	7.63E-15
Fzd10	-1.97590168	8.90E-22
Msx1	-1.990450358	1.93E-36
Des	-2.010599989	9.54E-10
4930502E18Rik	-2.022354724	0.060960085
Mogat2	-2.048645795	7.03E-20
Mybpc1	-2.089171633	4.44E-13
Hoxc9	-2.121925015	6.67E-08
Jaml	-2.127269154	2.00E-09
Sall4	-2.159662212	2.86E-20
Plcg2	-2.1760345	2.42E-36
Cdx1	-2.202924536	6.50E-15
Fignl2	-2.223638753	7.46E-38
Tcf7	-2.236647732	8.64E-47
Gbx2	-2.432072657	1.12E-25
Hoxb9	-2.45058578	1.63E-07
Epha8	-2.481642203	5.27E-17
Prtg	-2.507046524	4.60E-32
Lbx1	-2.536510135	2.44E-21
Dpep1	-2.556839576	4.10E-21
Crmp1	-2.595556089	8.35E-26
Pitx1	-2.70011597	0.025422854
Nr1h5	-2.710757751	0.027973353
Sp5	-2.783611717	1.93E-10
Rspo4	-2.812668628	1.55E-15
Tfap2c	-3.228378396	1.84E-39
Notum	-3.25871866	1.03E-37
Pax3	-3.266223193	1.95E-13
Hoxc10	-3.518061358	0.000807474
Shh	-3.547771124	1.32E-42
Igdcc3	-3.609710858	9.98E-52
Lin28a	-4.565708807	1.13E-10

Table S7

Symbol	Jagged_rep1	Jagged_rep2	Jagged_rep3	PDGFRa_rep1	PDGFRa_rep2	PDGFRa_rep3	OCP_rep1	OCP_rep2	OCP_rep3	CB_rep1	CB_rep2	CB_rep3
Gm2694	1.446788968	1.619557242	1.679168263	-0.410783987	-0.662502865	0.20201918	-1.213374854	-1.199476784	-0.695670052	-0.171551258	-0.36538002	-0.228793833
Gm3636	0.365200192	0.822906237	1.213820638	-0.228880265	0.137722818	-0.39445946	-0.53009261	0.198840777	-0.488046966	-0.426764963	-0.319351945	-0.350894453
Gm10409	0.75281732	0.777944717	1.05749032	0.074038905	0.179713618	-0.247994616	-0.527675043	-0.227510102	-0.019874876	-0.096336451	-0.7092618	-1.013351993
Gm13032	1.732070372	1.202632125	1.497740184	-0.744353798	-0.591486444	0.173902777	-0.464111163	-0.958358526	-0.627423562	-0.495349131	-0.521061907	-0.204200926
LOC100503496	0.932439109	1.074937504	1.409365549	-0.257464924	0.309687261	-0.470359892	-0.888676373	-0.528843588	-0.639652034	-0.613466543	-0.304182778	-0.023783293
Eogt	2.001245856	2.315006729	2.323108489	-0.187122907	-0.503875287	0.11881168	-1.352366323	-0.797006322	-1.134995335	-0.917256984	-1.016433738	-0.849115858
Mtus1	2.021152356	2.013306289	1.956538705	-0.986203305	-0.804855218	-0.747644385	-0.124143058	-0.376797253	-0.541411211	-0.722046017	-0.899891101	-0.788005802
Cpne7	0.649411331	1.171533789	0.87178108	0.007935985	-0.073037329	-0.152835023	-0.28209311	0.686435302	-0.384418167	-0.845890365	-0.913785732	-0.73503776
Gm26688	0.853907408	0.90702899	1.461397561	-0.01016132	0.083743021	0.391213504	-0.636689139	-0.398656797	-0.69985194	-0.349256876	-0.83955872	-0.763115691
Cdh22	2.148249774	2.163098756	2.330952748	-0.117183085	-0.968607206	-0.910382889	-1.410800771	-1.380924781	-1.342006054	-0.306454396	0.047828361	-0.253770456
Rprml	2.728817058	1.90125964	2.071480249	-0.101197532	-0.76634157	0.390251807	-1.030131709	-1.202081111	-0.907302789	-1.202081111	-0.680591819	-1.202081111
Slc16a6	1.162147785	1.254971506	1.558172935	-0.171065337	0.250940715	-0.258329207	-1.032854829	-0.749791161	-0.757408365	-0.632857866	-0.400096425	-0.223829751
Aspg	0.357705808	1.491628004	0.926700406	-0.447072135	-0.324317621	-0.563151498	-0.973720144	-0.020066069	-0.719578575	-0.068850246	0.176884765	0.163837305
Card10	1.359914219	1.89410857	1.878703651	-0.627840207	-1.190786367	-0.674349661	-1.229191494	-0.200580971	-0.472384719	-0.195683265	-0.274903032	-0.267006725
Trip10	0.597433022	0.96130387	0.953655289	-0.183330705	-0.093071528	0.133812821	-0.31933261	-0.160199035	-0.604593131	-0.468153502	-0.458883229	-0.358641262
Fam163b	1.336178256	1.512490817	1.424889596	-0.909781403	-1.196534188	-0.518505729	-0.446655832	-0.367809875	-0.296156837	-0.140259707	-0.464734961	0.066879864
Nop2	0.694027961	0.872264659	0.8222692	0.103750193	0.069423386	0.142752829	-0.147740519	0.055976536	-0.447694669	-0.709148694	-0.72148668	-0.734394203
Pde4c	0.637754124	1.478093624	0.653246723	-0.450338037	-0.702056915	-0.369029138	-0.909858276	0.296776861	0.110823614	0.20030734	-0.230832069	-0.714887851
H2-Q6	0.831597186	0.550649875	1.207731649	-0.488313765	0.292434356	0.112590267	-0.492986848	-0.391444505	-1.185663164	-0.379645883	0.170841626	-0.227790794
H2-Q9	1.106875503	1.217812135	1.077767916	-0.033161624	-0.383135707	-0.176282789	-0.53128687	-0.778730337	-0.56078372	-0.207976878	-0.456022112	-0.275075516
Chrna1	1.950682102	1.756731212	1.801536375	0.45952781	-0.059214413	-0.01624496	0.364293549	-0.623638017	-0.220856487	-1.914520578	-1.566286579	-1.932010013
Ttyh2	1.025118749	0.989891049	0.844013877	-0.24700703	-0.143155194	0.0544389	-0.337493856	-0.580478939	-0.445256998	-0.198816987	-0.451089735	-0.510163836
Apba2	0.793230311	0.954170096	0.779729862	-0.091355873	0.012111554	0.18196728	-0.269246292	-0.078608732	-0.135985537	-0.75927142	-0.940481842	-0.446259405
Arpc1b	0.927149147	1.125130143	1.046147245	-0.359638866	-0.470271878	-0.159532264	-0.601064015	-0.694480895	-0.606024602	-0.202574462	-0.104064322	0.09922477
Car2	1.619796265	1.087886412	1.810418991	-0.237839985	-1.587082815	-0.453986379	-0.575685176	-0.484993748	-0.738606006	-0.332167653	0.017041085	-0.124780993
Cbfa2t3	2.072764312	2.310934338	2.428317864	-0.32926097	-0.69876992	0.062928285	-1.161032873	-1.513840884	-1.3721453	-0.844954806	-0.563486978	-0.391453068
Cbln1	1.988108057	2.015846528	2.135941055	-0.293510736	-0.43175383	0.336716043	-1.323826376	-1.673271119	-1.659505492	-0.534669538	-0.189510331	-0.37056426
Cdk6	0.999494238	0.90448057	1.125050805	-0.668394982	-0.610242576	-0.489857457	-0.002497708	-0.168855385	-0.157558302	-0.209511784	-0.363953306	-0.358154114
Cdx2	1.503223222	1.862410759	2.909751356	-0.778507761	-0.34276822	-0.778507761	-0.778507761	-0.778507761	-0.778507761	-0.632138808	-0.629431742	-0.778507761
Cited1	1.312657414	0.702909038	0.727516701	0.140926033	-0.357171096	0.001174282	-0.545031753	-1.077645695	-0.848946641	-0.201761419	0.094394386	0.050978752
Plk3	0.398310477	1.122225532	0.759860151	-0.135097177	-0.593500626	-0.04976934	-0.727353188	0.290059061	-0.529961705	-0.210745404	-0.172038873	-0.151988907
Dnmt3b	0.857543116	0.979117875	1.061575611	0.015085325	0.015889485	-0.025561469	-0.20764347	-0.273540353	-0.315704707	-0.662197427	-0.849814639	-0.594749345
Edar	2.187027218	3.147178496	3.253851002	-0.36859141	-0.979153806	-0.495988225	-1.44205303	-2.710504894	-1.898589586	-0.457608162	-0.042414353	-0.193153249
Epha1	1.017575762	1.344713683	1.46345911	-0.194486262	-0.202967992	-0.258100021	-0.789291179	-0.664661938	-0.693924748	-0.407733358	-0.205865163	-0.408717892
Epha2	2.450379238	2.756340357	2.759186115	0.042422517	-0.46347835	0.00671147	-1.6521196	-1.106038235	-1.438699661	-1.131703658	-1.205920605	-1.017079589
Epha4	0.967214954	1.184646184	1.37213207	-0.646103379	-0.323962278	-0.713334023	-0.986718685	-0.563745555	-0.517049474	0.12799156	0.100006015	-0.00107739
Evx1	3.475204245	3.475204245	3.475204245	-0.18502937	-1.054925572	-0.379978677	-2.811705896	-2.076010077	-2.359405704	-1.398248339	-1.104064506	-0.491106931
Ankrd6	0.971391481	1.065293228	1.209964304	0.098062909	0.161287566	0.100976279	-0.847364375	-0.734575104	-0.635327599	-0.459780731	-0.623711631	-0.306216326
Fgf10	0.701084253	0.716725582	0.872904053	-0.32681801	-0.219441192	0.09829424	-0.329990671	-0.580350484	-0.476434961	-0.445618313	-0.077713277	0.067358778
Fjx1	0.790562556	0.763525802	0.948868065	-0.049876261	-0.324678063	-0.068019592	-0.47701185	-0.329439754	-0.257450766	-0.246990835	-0.163210345	-0.586278957
Gja3	3.408369133	3.475204245	3.475204245	-0.650044924	-0.936926308	-0.286920868	-1.824243175	-2.410970229	-2.498533156	-0.84282305	-0.886558886	-0.412766558
Gucy2c	1.73617168	2.500372454	2.323549571	-1.105394557	-1.272087801	-0.881423652	-0.335324253	-0.751743983	-0.339197201	-0.11341089	-0.9109181	-0.850593268
H2-Q5	0.624704337	1.202381164	0.821652731	0.174325218	-0.49021016	-0.514626792	-0.01772961	-0.546288115	-0.53110503	0.052886913	-0.017723852	-0.758266804
H2-Q7	1.106625627	1.220560769	1.07751804	-0.0334115	-0.383385583	-0.176532665	-0.531536746	-0.778980213	-0.561033596	-0.208226754	-0.456271988	-0.275325392
H2-Q8	0.835249767	0.559345332	1.185156444	-0.51088897	0.269859151	0.090015062	-0.515562053	-0.41401971	-1.208238369	-0.402221088	0.215091163	-0.10378673
Has2	1.201401537	1.022327065	1.373707896	-0.888596835	-0.78731891	-0.760113074	-0.599638096	-0.575624433	-0.309373666	0.190243954	0.175740323	-0.042755761
Hey1	2.507842794	2.329035887	2.651744607	-0.895263188	-1.017363826	-0.347957578	-0.947088392	-1.218352402	-1.293385763	-0.502806841	-0.600084464	-0.666320833
Mnx1	1.660383787	2.264962346	2.276047603	-0.715629713	-0.451880664	-1.427243602	-0.645401076	-0.488360782	-0.607016819	-0.43124818	-0.772641619	-0.661971281
Lama1	1.496481748	1.799458708	2.055015015	-0.358972221	-0.304369408	-0.192430071	-0.196728718	-0.349661759	-0.496463534	-1.125621217	-1.30489028	-1.021818264
Lamb1	0.759680704	0.885856131	0.816431481	-0.462616379	-0.27970358	-0.23003501	-0.181406349	-0.213348071	-0.328474196	-0.238136928	-0.245195216	-0.283052586
Lfng	1.501003075	1.303896068	1.891875521	-1.47296464	-1.06192149	-0.74737329	-0.586100339	-0.124814878	-0.578968221	-0.307579778	-0.018544589	0.201492561
Lmo2	3.19274818	3.475204245	3.475204245	-0.368739058	-0.956705413	-0.288538852	-1.771137373	-2.078962452	-1.96925108	-1.21960673	-0.896006412	-0.860702027
Lor	0.783877399	0.935823028	1.218060699	-0.174552332	0.032173203	-0.351009723	-0.93972115	-1.048446592	-0.764812176	0.199002664	0.142916462	-0.033311483
Ly75	0.73994905	0.891381266	1.000124541	-0.129585069	0.087395549	-0.065657476	-0.293502054	-0.618377173	-0.358675261	-0.521249337	-0.46854008	-0.263263956
Maff	0.913036911	1.510961579	1.283350602	0.140196617	-0.187376475	-0.076148721	-1.012297993	-0.188580604	-0.42512745	-0.422733988	-0.787196977	-0.7480835
Man2a1	0.931446112	0.810912269	0.924915255	-0.290987107	-0.179938111	-0.149777986	-0.562710968	-0.496425692	-0.387959601	-0.192692796	-0.161496037	-0.245285338
Kitl	1.118840996	0.675466126	0.7651768	-1.174443136	-0.912235614	-0.513940302	0.545256074	0.520410678	-0.365602747	-0.204333484	0.182380655	-0.636976045
Map1b	0.908251951	0.834431575	1.082923942	-0.768647467	-0.136377923	-0.396111224	-0.688279449	-0.222561358	-0.675265499	0.218158303	0.065226421	-0.221749272
Myh9	0.742193798	0.987902134	0.980860757	-0.550776041	-0.460922318	-0.49617678	-0.336177714	-0.129525418	-0.39021668	-0.24153042	-0.107898261	0.002266942
Nid1	1.249405728	1.251920108	1.163772234	-0.24240245	-0.174378639	0.150696981	-0.105793054	-0.490726127	-0.227302011	-0.855932259	-0.887379644	-0.831880867
Nrp2	0.869507317	0.963993807	1.202301153	-0.258761312	-0.050642605	-0.403282378	-1.029484606	-1.066944761	-0.728644336	0.239276285	0.032376504	0.230304931
Padi1	1.506459847	1.231886481	1.195807535	-0.306718272	0.046098101	0.28490117	-0.661163635	-1.32183502	-0.825581584	-0.388348532	-0.323247891	-0.4382582
Padi3	1.843466347	2.026423841	1.765956111	-0.39098918	-0.809892695	-0.618695576	-0.74780342	-1.010367881	-0.53617994	-0.35237024	-0.608491894	-0.561055473
Plaur	1.38267791	1.031246065	1.378040939	0.020184067	0.279816625	-0.534137238	-0.226793208	0.307397507	-0.148397524	-1.080574711	-0.880555882	-1.528904549
Mapk11	1.183579931	1.586033455	1.402261057	-0.051586604	-0.123631216	0.279160942	-0.556653443	-0.801748174	-0.851867274	-0.657162968	-0.793578758	-0.614806947
Ptch1	0.672346669	0.718047936	0.943289739	-0.284291674	-0.375178038	-0.519742571	-0.591187264	-0.609430864	-0.301467465	-0.07242153	0.124151603	0.295883459
Ptch2	1.244239809	1.326828391	1.318191719	-0.324694934	-0.571289782	-0.207848735	-0.71964348	-0.339104913	-0.357923921	-0.604320743	-0.448037746	-0.316395663
Gm53	1.838573468	2.249196873	2.191297055	-0.532990697	-0.795267374	-0.000563298	-0.254136494	-0.540903371	-1.351219633	-1.204850679	-0.829730341	-0.769405509
C030037D09Rik	0.92856495	1.431007956	1.052467921	0.043068161	-0.4127851	-0.30645563	-0.33806846	-1.176457327	-0.397778565	-0.230142377	0.058892812	-0.652314344
Rgs5	1.601513599	1.657895967	1.485928633	-0.472823508	-0.347310418	0.506948207	-1.207731491	-1.128885533	-0.640407647	-0.070313816	-0.343187541	-1.041626453
Rgs9	1.12740217	1.704970962	1.728707722	-0.735275591	-0.780862691	-0.89834117	-1.165989473	-0.612978926	-0.904648051	-0.157283015	0.218448433	0.47584963
Saa2	1.001720618	0.866553401	0.884941639	0.168633197	0.084473967	-0.005062643	-0.400776242	0.028442494	-0.497766768	-0.424878822	-0.598750742	-1.107530099
Sema4d	0.943865938	0.894108991	1.144481393	-0.021065821	-0.30182388	-0.02599563	-0.167145607	-0.581784212	-0.271969818	-0.440890629	-0.651535134	-0.520245591
Slc1a3	1.058417255	1.315574245	1.386367735	-1.323596286	-1.398475621	-1.12545145	-0.86348818	0.264883925	0.000352488	0.32632881	0.371038391	-0.011951312
Slit3	1.003597189	1.183912303	1.2011642	-0.100243858	-0.148369624	-0.286214875	-0.800107963	-0.823404714	-0.676392163	-0.351157993	-0.11115042	-0.091632082
Sox18	1.012540137	0.967928512	0.942880063	0.038889883	-0.729950281	0.306636606	-0.10025808	-0.657625941	-1.053467537	-0.150949272	-0.671273539	0.094694947
Sall3	1.857815178	1.880214367	2.068806014	-0.701023902	-0.771222058	-0.401457716	-0.820474809	-0.647273722	-0.745443523	-0.776603636	-0.604827931	-0.338508262
Tmc7	0.975044238	0.938864862	1.130484919	-0.166424808	-0.35294259	-0.09108529	-0.446458668	-0.37256532	-0.621448856	-0.296702513	-0.452630059	-0.244135916
T	2.288356214	3.206019517	3.475204245	-1.680421167	-0.656011511	-1.302189497	-1.527603263	-0.527100966	-0.922030375	-0.881566577	-1.331683945	-1.04986749
Mtss1	0.856964133	1.246443424	1.2773927	-0.260415028	-0.26358105	-0.093671854	-0.966853492	-0.333111915	-0.553790202	-0.20890865	-0.32711325	-0.373354816
Nomo1	0.844007866	0.760450927	0.732292278	0.001064755	-0.015886699	0.112347703	-0.034844783	-0.382077562	-0.238543413	-0.562877273	-0.538818717	-0.677115084
N4bp3	1.200143362	1.211358259	1.234002884	-0.400773735	-0.672772624	-0.249546473	-0.147079572	-0.048861161	-0.144013303	-0.823952504	-0.687097798	-0.471407336
Tagln2	1.291110033	1.241053808	1.328006071	-0.397359571	-0.537694459	0.264413202	-0.250191141	-0.925944733	-0.625337381	-0.453416257	-0.551912494	-0.382727078
Tbrg3	1.048499466	1.027647076	1.178306893	-0.630564382	0.33435469	-0.947148808	-0.463224072	-0.006296532	-0.628791699	-0.044483653	-0.307515453	-0.560783525
Tbx6	0.334292491	-0.190705963	2.109246835	-0.760304327	-0.404488843	-0.505100276	-0.626445549	0.71583834	-0.201991858	-0.353630446	0.232489939	-0.349200342
Socs2	1.68320522	1.844697453	1.628964688	-0.373178543	-0.717669789	-0.300532192	-1.018469946	-1.142657574	-0.969333195	-0.348587484	-0.167496299	-0.11894234
Arhgap9	0.713627907	1.064800923	0.947974488	-0.368110888	-0.554563657	-0.773553848	-0.602948354	0.128472373	-0.52388484	0.005020975	-0.073048359	0.036213279
Acap1	1.185206235	1.366270603	0.18910107	-0.527064831	0.02045398	-0.282148448	-1.273842662	0.938295488	-0.697254041	-0.397692872	-0.240206341	-0.28111818
Tgm3	2.054956318	2.802671273	3.028878073	-1.074735161	-1.349197833	-0.724753792	-0.381377151	-1.246739449	-0.853794513	-0.89410712	-0.273669636	-1.088131008
Thbs4	2.181046731	-0.069906488	0.3203894	-0.531874234	-0.299552499	-0.51502851	-0.449511985	-0.166762755	-0.305813559	0.063967287	0.009536502	-0.23648989
Serinc5	1.249864992	1.451982061	1.59946875	-0.068005483	-0.226675793	0.007836446	-0.746794269	-0.671138168	-0.559765134	-0.710711034	-0.638851845	-0.687210523
Gcnt4	1.981834537	1.642572633	1.728320543	-0.29648893	-0.396259284	-0.237290693	-1.00457883	-1.570610589	-1.445578265	-0.313461329	0.032194284	-0.120654076
Tjp2	0.777986336	0.840141862	0.780437107	-0.034523921	-0.080845321	-0.006477426	-0.179985649	-0.225402133	-0.274838775	-0.614075708	-0.547446354	-0.434970017
Cd40	1.830517508	1.901115591	1.815888774	0.021559933	0.178078006	0.168941994	-0.632678026	-0.036635368	-0.327779547	-1.7109676	-1.647294163	-1.560747103
Nrros	0.751065785	0.29347833	1.348753342	0.147069648	-0.148321852	-0.417546721	-0.31454773	-0.940937274	-0.47801009	-0.206621647	0.010598176	-0.044979966
Wnt2	3.475204245	0.540834469	0.954387351	-0.837486422	-0.038848357	0.684643666	-1.50905685	-1.170811927	-1.257356452	0.143984865	0.635583617	-1.643227866
Slc27a6	1.326421879	0.928946586	1.33281539	-0.283602091	-0.492850334	-0.256006482	-0.441202284	-0.719694152	-0.702880307	-0.260914147	-0.338710274	-0.092323785
Rcsd1	2.601079966	2.704842883	2.850795732	-1.358351086	-1.415593273	-0.996441012	-1.551341257	-1.810374177	-1.592914525	-0.05705355	0.271524649	0.35382565
Ajap1	1.291312427	1.535321413	1.452624659	-0.015132429	-0.559886904	-0.058921615	-0.921599439	-0.347665519	-0.920577322	-0.209696943	-0.461940083	-0.783838245
Ablim2	1.356043222	1.844651774	1.893859067	0.231544067	-0.605982252	0.104956237	-0.866176926	-1.194601033	-1.032536844	-0.4958068	-0.603140945	-0.632809566
Sdad1	0.759807334	0.737704307	0.809152255	-0.14433626	0.009753141	0.080100975	-0.154051583	-0.147686201	-0.258862004	-0.464664049	-0.684874746	-0.54204317
Cyp26b1	1.420338017	1.31849434	1.445166839	-0.517290972	-0.432584098	-0.248335989	-0.54904847	-0.837499301	-0.498784415	-0.373917953	-0.514193412	-0.212344586
Frmd4b	0.811083187	0.76132331	0.940182803	-0.457530828	-0.582106913	-0.564859279	-0.654026158	-0.08633163	-0.25742838	-0.089787703	0.037973677	0.141507916
Tspan33	1.024989587	1.100030496	1.033536645	-0.189229475	-0.334213909	-0.215630681	-0.066002102	-0.461310457	-0.425980131	-0.241605416	-0.733127881	-0.491456675
Cpa2	1.872401573	2.071113624	2.169982498	-0.21567971	-0.268174474	0.137810909	-0.635920996	-0.711957987	-0.843662023	-1.190568975	-1.201609459	-1.18373498
Cpne2	0.973174952	0.818710817	0.591661565	-0.061222263	-0.148639967	0.34679693	0.200322984	-0.80228049	-0.14886201	-0.624584811	-0.573976796	-0.57110091
Plcg2	0.933896599	0.882981336	0.847993565	-0.063642497	-0.222693945	0.486585036	0.239505797	-0.41831679	-0.004896648	-0.904326831	-0.974210982	-0.802874639
Sh3rf3	0.561645102	1.163987471	1.4576284	-0.498929992	-0.337742535	-0.538092055	-0.674562892	-0.438850447	-0.838550548	0.48670355	0.23450027	-0.577736324
Ets2	0.829192318	0.670084669	0.786801007	-0.179156158	-0.309555109	-0.049001589	-0.232051135	-0.525137328	-0.196420016	-0.419073351	-0.289012014	-0.086671294
Grem1	1.938977662	1.897110365	1.76222194	-0.140664017	-0.177901467	0.347042934	0.050967348	-0.985469103	-0.578855347	-1.323371516	-1.446107558	-1.343951242
Arhgap22	1.794708528	1.758492924	1.630277764	-0.59622892	-0.051754841	-0.035955647	-1.364342253	-0.661484757	-1.140634583	-0.692319801	-0.262874054	-0.377884362
Mmp17	0.942237514	0.958463869	1.048980994	0.074508626	-0.494024296	-0.007806151	-0.840545018	-0.660613361	-0.773232941	-0.175017464	-0.172293928	0.099342156
Peli3	0.823878782	1.747593043	1.966975934	-0.448726148	-0.298229321	-0.911444957	-0.758858323	-0.6788427	-1.08346066	-0.227283393	-0.220786954	0.089184696

Spry1	1.256628546	1.190050642	1.428834192	-0.012202851	-0.374494003	0.380815666	-0.882845206	-0.476749761	-0.471534793	-0.5940578	-0.633840834	-0.810603798
Spry4	1.939250742	1.763784822	1.948844392	-0.215628787	-0.230160398	0.538711753	-1.426290794	-1.504158295	-1.496848104	-0.215079726	-0.341264323	-0.761161281
Lax1	1.332894983	1.341403948	1.302456401	-0.64864506	-0.317736056	-0.662753291	-0.026021007	-0.122218446	-0.052277575	-0.957936594	-0.633625777	-0.555541526
Crb2	1.360802636	0.270897359	0.807323884	-0.538630643	-0.45651155	0.190639634	-0.668056389	-0.466780032	-0.602234269	-0.324503232	-0.017308218	0.444360819
Kcng1	1.044017287	1.037818581	1.028179946	0.330102775	-0.111763611	-0.124363593	-0.199096498	-0.793698423	-0.288796956	-0.427358327	-0.690015436	-0.805025745
Kank4	0.68479664	0.808232652	0.812701744	-0.062019807	0.097523809	0.092196858	-0.29363531	-0.228159231	-0.237283179	-0.610984375	-0.566693576	-0.496676225
Dmrta2	0.932482277	1.058108468	1.436367288	-0.039863979	-0.065432601	0.137526619	-0.256051576	-0.756653387	-0.565372712	-0.655728952	-0.839339208	-0.386042236
Hpdl	0.6733035	0.673645692	1.112821628	0.176336642	-0.368459365	0.322205746	-0.328356738	-0.176317153	-0.490955381	-0.512725704	-0.230462671	-0.851036197
Lrrtm4	1.013398543	0.700114166	0.90038944	-0.795655975	-0.642788621	0.448994744	0.171033854	-0.502954014	0.041081038	-0.378535322	-0.005809839	-0.949268014
Nim1k	1.040439181	0.474504747	0.806906143	0.001238877	-0.147858349	-0.107219723	-0.112482152	-0.364100357	-0.340897678	-0.444094059	-0.478667428	-0.327769202
Ceacam1	0.882956552	1.117269127	1.467756971	-1.428998821	-0.255838564	-0.230697741	0.118250156	-0.190139339	0.126262971	-0.106278078	-0.991648451	-0.508894784
Greb1	1.387326673	1.669370724	1.686985751	-0.749533327	-0.707871475	-0.529711917	0.220826158	0.494065704	0.331773876	-1.142476568	-1.424427852	-1.236043747
Elmod1	1.50180446	0.80817821	1.021857359	-1.210646498	-0.394502033	0.22013232	-0.517288488	-0.215628306	-0.752957347	-0.131767045	-0.355513158	0.026330527
Tnfrsf12a	1.068033528	1.539879537	1.590450251	-1.104418157	-0.857503613	-0.708009676	-0.427937127	-0.143270475	-0.419924313	-0.298489454	-0.111623892	-0.127186609
Tnfrsf19	0.816228635	1.078152955	1.11707035	0.193825831	0.015350731	-0.017078845	-0.368283834	-0.749158282	-0.371143782	-0.033794812	-0.44237144	-1.238797508
Fgd3	0.572072572	1.161304452	1.32338723	-0.153089038	-0.429040784	-0.664832784	-0.674883242	0.179794853	-0.182545323	-0.300962065	-0.469208062	-0.361997808
Dusp4	0.756090987	0.800259421	0.999600977	0.143031421	-0.034642191	0.061111624	-0.074847439	0.036602795	-0.034449235	-0.534684435	-0.85318754	-1.264886384
Dock6	0.939176005	1.225792439	1.171877155	-0.329576644	-0.438473999	-0.64968834	-0.670395791	-0.007501153	-0.394189201	-0.405997295	-0.325624978	-0.115398199
Relt	0.777889118	0.818409208	1.044661776	-0.093557331	-0.290880751	0.091396574	0.132482744	0.0574032	0.025665794	-0.818664122	-0.859554417	-0.885251793
Sp8	1.44746289	1.931565556	2.378853918	-0.984262797	-0.548523255	-0.984262797	-0.169115075	-0.60415585	-0.235724773	-0.583352118	-0.984262797	-0.664222903
C330024D21Rik	1.039091584	0.826671221	0.568869088	-0.40283529	0.222573286	0.221703278	-0.192783257	0.320180577	-0.970696784	-0.415162096	-0.396159507	-0.821452099
Hs3st6	0.845550351	0.996990145	0.819847964	-0.597685083	-0.789503352	-0.779560382	0.134686571	-0.606396145	0.011959942	0.008726552	-0.283300514	0.23868395
Cecr2	1.048769599	1.182986811	1.288437053	-0.128436944	-0.048867617	0.14596387	-0.431200032	-0.286791999	-0.407644152	-0.770178041	-0.864776281	-0.728262267
Dgkk	1.485784616	1.680892116	1.889735436	-0.740650932	-0.667115201	-0.248374734	-1.310439096	-1.07274406	-1.48174346	-0.217941737	0.058735791	0.623861259
Aim2	0.667404545	1.126875622	1.586934794	-0.570542229	-0.549042854	-0.992585307	-0.807837727	0.374102268	-0.243239948	-0.004773346	-0.144009253	-0.443286566
Rnf39	1.2133063	1.843660316	1.865428194	-0.226643263	-0.840778452	-0.594386757	-0.680974956	-0.464707087	-0.497603619	-0.431074695	-0.737661849	-0.448564131
Tmem204	2.396617083	1.602898459	2.02732968	-0.192006449	0.165725261	0.617571813	-0.988914249	-1.133829625	-0.910518565	-0.966630558	-1.474597018	-1.143645834
Dlc1	0.708807895	0.910529517	0.966693563	0.109438435	0.146172096	0.054301832	-0.727838384	-0.502699256	-0.551324697	-0.448608294	-0.287609342	-0.377863364
Nptx2	2.241035192	2.339162675	2.739395446	0.128983866	-0.572673274	-0.025291938	-0.411727181	-1.347905089	-1.016970126	-1.180706022	-1.856752387	-1.036551162
Insm1	1.214773156	2.067456803	1.975092383	-0.509010667	-1.061740696	-0.337167491	-0.343950227	-0.635422819	-0.677183534	-0.695004099	-0.550085939	-0.44775687
Pdlim1	1.386317069	1.317714872	1.241607812	-0.09694614	-0.695272571	0.419828972	-0.05653398	-0.751367358	-0.362422966	-1.092446258	-0.462875023	-0.847604427
Slc4a4	1.16758138	1.091802737	1.099115813	0.068064027	0.060796198	0.267222124	-0.59035299	-0.465448621	-0.543436692	-0.770350728	-0.686944475	-0.698048772
Pmaip1	1.415884275	2.228923965	2.619429144	-0.161702673	-0.013255615	-0.445445862	-1.988386476	-1.543836341	-1.311051827	-0.173297674	-0.644040487	0.016779571
Hibadh	0.758575257	0.890773002	0.896218181	-0.309503878	-0.341330616	-0.163331976	-0.656094417	-0.671092189	-0.781612144	0.040374485	0.222876216	0.114148077
Rrs1	0.812329982	0.728584293	0.842186337	0.083272556	0.031265284	0.209940916	-0.22705388	-0.183586525	-0.248458032	-0.489362784	-0.808801585	-0.749322839
Has2os	1.043214767	0.673864644	1.007195289	-0.822696949	-0.753116315	-0.178343911	-0.295574033	-0.645426686	-0.187436469	0.185526809	0.116497731	-0.143704876
Nrgn	1.252887737	0.955273073	1.091582814	-0.138448341	-0.628906028	0.302017827	-0.511007303	-0.76171271	-0.700566943	-0.491409151	-0.06543493	-0.304276046
Sv2b	2.676404881	3.170123892	3.287924883	-1.897130614	-1.634143142	-2.069882684	-0.972799544	-1.389219274	-1.32134466	-0.152913328	0.022924214	0.280055377
Zic5	1.219682188	1.582428614	1.695400874	0.063553763	-0.059727855	0.17356397	-1.838856926	-1.024037908	-1.518811858	-0.370770249	-0.000147601	0.077722987
Mcub	1.893075679	1.721699754	1.714850214	-0.050259204	-0.513739003	0.325199402	-1.149636469	-1.343130663	-1.295530465	-0.627488688	-0.618465356	-0.056575201
Rnf128	1.866548143	2.02653666	2.210617794	-0.53285842	-0.533614528	-0.283749083	-1.329337152	-1.089201441	-0.94903043	-0.772660398	-0.124463637	-0.488787509
Naaa	2.237796305	2.423994234	2.620261434	-0.839474409	-0.771446623	-0.271156413	-1.106738028	-1.239394602	-1.00640191	-0.911559287	-0.562003841	-0.57387686
Nrarp	1.982900052	2.068804655	2.331771911	-1.714982876	-1.377253997	-1.052420051	-1.317802304	-1.269845029	-0.562712999	0.289542598	0.142138992	0.479859051
Soga3	1.665738428	2.017180705	2.018643652	-0.47950658	-0.218536437	0.269407665	-1.198118055	-0.836326743	-0.773664365	-1.413215429	-0.504483438	-0.547119403
Dusp6	1.17849435	0.809240925	1.035746237	-0.336045332	-0.555831479	0.2399784	-0.377143043	-0.248815349	-0.412886455	-0.36767242	-0.424637996	-0.540427838
Rnf125	1.653431738	1.481500698	1.500104553	-0.529204784	-0.530535273	0.210105162	-0.940509851	-0.983496197	-0.831726301	-0.830670102	-0.171221849	-0.027777795
Mid1ip1	1.289896203	1.479768596	1.549090026	-0.316493205	-0.362121186	-0.52620856	-0.250660535	-0.738530456	-0.350117463	-0.567311578	-0.460884145	-0.746427697
Steap3	1.621498304	1.656007987	1.48936468	-0.339476175	-0.252450535	0.177964456	-0.6544457	-1.263468076	-1.012028995	-0.601227889	-0.274341743	-0.547396314
2610035F20Rik	1.38713395	1.70546096	1.634866524	0.110606065	-0.13785141	-0.037648097	-1.737103743	-1.300444625	-1.238463716	-0.469566052	0.172647766	-0.089637622
Fbln7	0.958628153	1.047457764	0.740361024	-0.389519533	-1.045158367	-0.475635226	-0.304083372	-0.82433357	-0.125077899	0.035769887	0.393043454	-0.011452314
Slc25a33	1.144755314	1.339804783	1.560673102	-0.207652479	-0.255525809	-0.171156153	-0.365627426	-0.319147702	-0.430861135	-0.666176249	-0.767671353	-0.861414894
Evx1os	3.238016209	3.475204245	3.475204245	-0.342538061	-1.389119205	-0.871629107	-2.701706618	-2.369979445	-2.170245621	-0.898601113	-0.475493014	-0.060129387
Optn	0.977824654	1.311007578	1.258361598	-0.408866076	-0.751101948	-0.503716455	-0.866231938	-0.228404401	-0.203859019	-0.437106151	-0.308657926	0.160750085
Mamdc2	2.755080654	2.769082565	2.832240306	-1.219368212	-1.197050754	-0.74420543	-0.493264723	0.264659689	-0.131038389	-1.723376758	-1.595704868	-1.517054078
Endod1	0.778853384	0.777553507	0.818374853	-0.374545662	-0.445034376	-0.548523058	-0.287258114	-0.689659865	-0.226371687	-0.177111043	0.216250984	0.157471077
Gatsl3	1.32593937	1.217338144	1.233007092	-0.202782045	-0.224332552	0.784831691	-0.605409048	-1.183190321	-1.021126132	-0.166797148	-0.196106263	-0.961372788
Slc35f2	1.964424824	1.980424858	1.875864984	-0.157051925	-0.256444697	0.438517283	-0.971857453	-1.368349656	-1.132363456	-0.901750778	-0.732027333	-0.73938665
Aifm3	1.145043946	0.965495687	1.073325697	-0.686406257	-0.620002668	-0.587741563	-0.926451986	-0.130971204	-0.172731919	0.048025373	0.337291156	-0.444876263
Tmem173	1.261268606	1.268620653	1.293043836	-0.029728743	-0.057286235	0.092427942	-0.497197764	-0.740925694	-0.559624936	-0.547295846	-0.687303331	-0.795998488
Grrp1	1.907455522	1.589280422	1.744818624	-0.105884222	-0.755489718	0.635337018	-0.54903404	-0.658117862	-0.95762389	-0.960523878	-0.816035569	-1.074182398
Ubash3b	0.804992092	0.831732669	0.750224231	-0.073273808	0.133402324	0.139917878	-0.602844203	-0.557064308	-0.572311126	-0.323502648	-0.512683612	-0.018589489
Ppp2r2b	2.513062889	0.212358566	0.889612119	-0.550620331	0.181984012	-0.603923251	-0.935758987	-1.339313128	-0.776182474	0.534579854	0.39455313	-0.5203524
Pear1	0.903331707	0.813407787	0.698932979	-0.453215367	-0.799537254	-0.62469015	-0.219564246	0.143972561	0.013585055	-0.312905885	-0.220374464	0.057057277
Vsir	1.261593911	0.864008092	1.425440497	-1.184020374	-0.381099106	-1.260752547	-0.391936613	-0.085101391	0.057569591	-0.394491024	-0.253736208	0.342525171
Sgms2	1.630904761	1.590637415	1.784931327	-1.294849573	-1.308892062	-0.805818414	-0.601521845	-1.317090994	-0.51916088	0.195379875	0.477904081	0.167576308
4930487H11Rik	1.188257491	1.167405101	1.484971585	-0.793282552	-0.733537011	-0.952501025	-0.494397248	-0.093192078	-0.660757166	0.674035079	-0.599773473	-0.187228703
Calml4	1.438564479	2.022243606	2.082606799	-1.348402964	-0.962202324	-0.257934846	-0.013082785	-0.646765884	-0.019274262	-0.92341847	-0.77850031	-0.593833038
Lhpp	0.935201925	0.904364016	0.894159999	0.058828481	-0.015991206	0.331374703	-0.135521485	-0.916558878	-0.46675424	-0.507815719	-0.513762386	-0.567525209
Daam2	0.951064604	1.28159888	1.029320008	0.136014647	-0.059432634	0.077741769	-0.924222297	-0.521819669	-0.655040773	-0.46470107	-0.379332868	-0.471190596
Cln6	0.937474692	0.734465715	0.840902732	-0.172907557	-0.239142883	-0.032640593	-0.038751278	-0.740076951	-0.332679675	-0.322428961	-0.268028178	-0.366187063
Msi2	1.156595089	1.049777773	1.371893479	-0.321298502	-0.117352704	-0.001893388	-0.239137137	-0.59903306	-0.402652432	-0.61679044	-0.676332033	-0.603776645
Heg1	1.04882796	0.998837074	1.147238342	-0.446953333	-0.235546386	-0.078683346	-0.409299971	-0.781228792	-0.576214498	-0.350490381	-0.045990981	-0.270495689
Adamtsl2	0.81011368	1.399024051	1.286631696	-0.730455081	-0.833157568	-1.69418266	-0.689537382	0.364097814	-0.129462966	0.157893131	-0.065232583	0.124267867
Nav2	1.111155591	1.330354007	1.381005767	-1.218183918	-0.997933186	-1.201687693	-0.427701417	-0.018919424	-0.109662001	0.100150604	0.232223701	-0.18080203
Gmip	0.640950337	0.997989451	0.928255819	-0.140363362	-0.241246351	-0.021701287	-0.465595864	0.036466323	-0.505483306	-0.40545642	-0.248042942	-0.575772397
B430010I23Rik	1.903174997	1.790747632	2.069415111	-1.006930029	-1.269206705	-0.025885143	-0.816071448	0.067404957	-0.392080107	-0.63526208	-0.762629164	-0.922678022
Hspb8	1.326909553	1.280297239	1.278645425	0.354528913	0.028869381	0.220718468	-1.288138381	-1.496340765	-1.449101193	-0.404049037	-0.116915521	0.264575918
Hes7	0.432747055	0.861480117	1.443100609	-0.501793216	0.023328371	0.221444527	-0.459580347	-0.422062532	-0.488501216	-0.551653819	-0.371728323	-0.186781225
Rpph1	1.240227614	1.370497064	0.639124126	-0.075617046	-0.204828077	-0.041444527	-0.469418309	0.282654264	-0.525418323	-0.863429054	-0.16519703	-1.187150701
D930048N14Rik	0.727791741	1.207686498	0.579251715	-0.370510565	-0.65143528	-0.175158272	-0.412848645	0.03736267	-0.10370312	-0.149049903	-0.583509581	-0.105877258
Prickle1	0.303723696	0.837122182	0.855963793	-0.767286397	-0.921225805	-0.787087595	-0.31516967	0.020711972	-0.269162774	0.111712439	0.296973841	0.633724319
Slco4a1	1.070294964	0.889548831	1.397061361	-0.881192776	-0.63513208	-0.531211406	-0.258568723	-1.388859207	-0.352498801	-0.098123651	0.217508402	0.571173085
Bmp2	0.228409625	0.918760921	1.146572387	-0.07035116	0.229353642	-1.479486228	-2.385207602	-1.415806375	-2.090723403	1.657964617	1.792431909	1.468081667
Bnc1	1.406067105	-0.360116465	0.094461667	-0.904293813	-0.301433616	-0.822984913	-0.801939101	-0.280438776	-0.447917722	1.571388361	1.191582828	-0.344375556
Dll3	-0.830432532	-1.012257503	1.778596034	-1.325716337	-1.049845261	-1.98750573	-0.026595772	0.087679257	0.563454618	1.317597653	0.850882677	1.634142895
Drp2	0.048645758	0.531612482	0.425633168	-0.32516842	-0.48296795	-0.713347281	-1.274718197	-0.133122198	-0.682036981	0.911094923	0.920542379	0.773832317
En1	1.954564997	-0.053541767	-0.253682032	-1.416613632	-1.016575487	-1.008285981	-1.342174217	-0.175466929	-0.500617206	2.019877218	1.401413124	0.391101913
Dmtn	0.007745626	0.382481252	0.594155522	-1.115117718	-0.813346067	-1.228093534	-0.018900289	0.106888969	0.475388188	0.143469069	0.738116693	0.727212289
Eps8	0.499231613	0.947899642	1.073048202	-0.811198739	-0.682834724	-1.533398448	-0.79467639	-0.310020546	-0.418881575	0.72296915	0.673283054	0.63457876
Evx2	2.57909539	3.475204245	3.475204245	-3.033093044	-3.033093044	-3.033093044	-3.033093044	-3.033093044	-3.033093044	2.750559128	3.45451367	3.110170936
Foxc2	0.248459826	0.293065676	1.039087759	-2.405502289	-2.200222567	-1.840959248	-0.675252387	-0.242681991	-0.029209401	1.567586215	1.955753768	2.289874639
Foxf2	0.656800993	0.441475124	0.152226047	-0.403981731	-0.763168697	-0.56475274	-1.220327225	-1.41909848	-0.472257909	0.779126652	1.231987367	1.581970598
Gas7	-0.065961404	0.057143092	-0.054329824	-0.835003787	-0.833733457	-1.083474067	0.019325448	0.416831667	0.605567121	0.312121718	0.759578122	0.701935369
Gcnt1	0.084557462	0.098400028	0.305006217	-1.128911375	-1.293160565	-0.810638922	-0.082795755	-0.005312106	-0.053788657	0.772048414	0.907891871	1.206703389
Gjb2	1.206498995	1.323235877	1.357935347	-0.517507246	-1.01015712	-1.390476126	-0.864730819	-0.543476048	-0.347026017	0.291455624	0.237123652	0.257123882
Hey2	1.449433517	0.449390369	0.677399248	-0.700766464	-0.790412528	-0.393131773	-0.399022826	-1.076097989	-1.029922232	0.096194237	0.899964	0.816972441
Hlx	2.128815154	0.8452007	0.728029152	-1.57400103	-1.731688629	-0.575095251	-1.252054115	-1.357111909	-1.872649848	1.686001249	2.219466213	0.755088314
Hoxa11os	1.246065539	1.919021177	1.639738408	-0.586701869	-0.833052406	-0.397707681	-1.655535137	-1.741938923	-1.564502684	0.309662699	0.792459629	0.872491247
Hoxa13	2.980948901	3.145501877	3.475204245	-1.312920008	-1.821536861	-1.597655815	-3.033093044	-3.033093044	-2.856969449	1.143307951	1.627780681	1.642615766
Hoxd11	0.922463471	0.966529351	1.01890724	-0.295746965	-0.565560377	-0.315827154	-0.847718912	-0.796499511	-0.557099493	-0.007563677	0.063368809	0.414747217
Hoxd12	1.551677133	1.737226444	1.973699322	-0.168451897	-0.47891416	-0.391944359	-1.911077358	-2.15757661	-1.513924733	0.133947845	0.533033408	0.692304964
Hoxd13	2.389301944	2.666994698	2.995375964	-0.926081189	-1.277768314	-1.062824821	-2.457890249	-2.939892209	-2.350022609	0.595073483	1.163312266	1.204421035
Lrig1	-0.094698887	0.561587375	0.377155458	-0.942197095	-0.96261547	-1.597440823	-0.098441296	0.617534833	0.484803326	0.728651985	0.500846233	0.424814361
Irs1	0.6422724	0.647677099	0.810861609	-0.443379179	-0.410262576	-0.937393967	-0.754944712	-0.435107847	-0.262497275	0.312684309	0.37448217	0.45560797
Itga6	0.104340758	0.224658794	0.650245564	-0.830310774	-0.696538171	-0.849547648	0.107539161	0.158513711	0.477397618	0.303457332	0.028219255	0.322024398
Jag1	2.073727599	2.462496254	2.753479135	-2.312732588	-1.992878545	-2.177727218	-1.648826601	-1.32827179	-1.315517896	0.946719082	1.173762297	1.365770271
Kcnab3	0.912026708	1.24836768	1.031190259	-0.563731638	-1.109965249	-0.468321977	-1.172728396	-0.230580579	-0.731422674	0.289046391	0.473482895	0.322636578
Kcnma1	0.808969436	1.113565178	1.165277945	-0.13054375	-0.735111155	-0.160338751	-1.662017147	-1.340762375	-1.206180679	0.541663821	0.765186573	0.840290902
Klf9	1.322969896	1.590026754	1.934454423	-1.245691137	-1.854785729	-1.311157942	-1.146596431	-0.603402879	-0.318332193	0.223609711	0.500242174	0.908663355
Lhx1	0.388049787	0.318614861	0.774543512	-1.20982118	-1.536834016	-0.985850276	-0.945806815	-0.300205189	-0.522382926	1.582221007	1.175060077	1.262411158
Mical1	0.559902744	0.774331314	0.779378393	-0.503708533	-0.700708687	-0.388668584	-0.550445379	-0.285164323	-0.631570716	0.177291545	0.387961484	0.381400742
Nfia	-0.100370973	0.387766588	0.739851784	-0.487175045	-0.169977142	-1.014405199	-1.636040578	-0.508895145	-0.739337457	1.112448862	1.367766862	1.048367443
Pam	1.000846935	1.098102799	0.927406684	-0.784165674	-0.800715162	-0.604888346	-0.613778259	-0.877649688	-0.493398481	0.164695486	0.320535659	0.663008045
Pcsk6	0.621334596	0.436266039	0.216862885	-0.585399499	-0.807653239	-0.046032282	-0.974094129	-1.728701532	-0.989123271	0.612955586	1.744644556	1.49894029

Enpp1	0.599972094	1.041181591	1.326989255	-2.34662318	-2.489517232	-1.865966447	-0.733771853	-0.462776543	0.012215763	1.209979014	1.597171129	2.111146409
Enpp2	0.646160062	0.392417944	0.472704708	-2.535737059	-2.470093718	-2.270305631	0.691293761	1.393595062	1.287330469	0.698812915	0.64270442	1.051117067
Sardh	0.203904636	0.513550506	0.936023051	-1.326210085	-1.470830755	-1.366910081	-0.50689422	-0.220056715	-0.994014806	1.118632144	1.834396893	1.278409433
Lrrc75b	0.720532721	1.025390347	1.321043459	-0.293219061	-0.778500387	-0.549025601	-1.326587304	-1.364932064	-1.176088309	0.462106206	0.871352241	1.08792775
Slc2a3	0.902335414	1.197404778	1.56815244	-0.747043176	-0.527694731	-0.617433864	-1.183612698	-1.411513933	-1.025635006	0.423660091	0.692839154	0.72854153
Mkx	-0.122234821	-0.010868431	0.034331848	-0.541458498	-0.813760053	-1.123589314	0.114237098	0.66180726	0.63525336	0.570720161	0.354048457	0.241512932
Cntn2	0.744369514	0.346783695	-0.007937143	-0.759607545	-1.500691564	-1.003962076	0.204547034	0.257546278	0.209208317	0.2594627	0.568061975	0.682218814
Megf11	-0.082255495	0.397248259	0.441274246	-0.725478603	-0.179442662	-0.501519025	-0.689007224	-0.253654504	-0.622165243	0.713438694	0.698698741	0.802862815
Tfap2b	3.475204245	3.475204245	3.475204245	-2.282769412	-2.64499844	-2.247425939	-3.033093044	-2.490387761	-2.787116908	1.090100232	1.044937461	1.257709137
Tfeb	0.612807933	1.135362246	1.17746444	-1.001842284	-0.781862602	-1.005193871	-0.663963877	-0.051609201	-0.458656013	0.255482775	0.456256459	0.325753993
Rassf2	0.653451161	0.601584905	0.545632785	-0.468067245	-0.587265501	-0.309646186	-0.852133429	-1.147284898	-1.171526757	0.503996507	1.062768893	1.168489765
Abca9	0.049425844	0.396054053	0.195913787	-0.675474556	-0.262212649	0.039796169	-0.383362088	-0.914394253	-0.779812557	0.38630191	0.697968747	1.249795593
Trib2	0.590812885	0.670694093	0.955268445	-0.543064703	-0.537078187	-0.684116413	-0.740763373	-0.923771024	-0.588989615	0.657198287	0.775934321	0.367875283
Thbd	1.683216975	0.986560214	1.710635475	-1.402634568	-1.88562226	-1.0611837	-1.062917119	-1.51104554	-0.71716317	0.883731635	0.925199441	1.451222617
Timp3	0.514448117	0.522375614	0.652821099	-0.93484772	-0.655865725	-0.994577227	-0.721963225	-0.786685385	-0.514361295	0.887555581	0.951545542	1.079554625
Tnc	2.143845452	0.204851245	-0.775613923	-1.250935905	-0.90653098	-0.828722641	-2.652202376	-1.299641483	-1.673615314	2.50274518	2.491180893	2.044639851
Tpd52	-0.008478644	0.143201412	0.307045683	-1.10436195	-1.363215952	-1.25406268	0.207328073	0.32369967	0.510733542	0.846992115	0.649468933	0.741649799
Phlda2	0.71580021	0.076375759	0.097152465	-0.878510817	-0.59627004	0.223094169	-1.053428568	-0.425569827	-0.305359253	0.335619332	0.95109617	0.8600004
Rapgef3	1.298374069	1.454207986	1.631689581	-1.00280005	-0.911253301	-1.142719076	-0.969828242	-0.450079368	-0.793630858	-0.077989933	0.864785761	0.099243431
Wnt5a	1.080858528	1.028658287	1.290209967	-0.729470707	-0.687558009	-0.723666627	-1.025177813	-1.239098057	-0.952180298	0.406376218	0.67292174	0.878126771
Adgrf5	0.166623823	0.004193273	0.653826754	-1.150624328	-0.013804477	-0.535355775	-1.627194406	-0.081251689	-1.320178506	1.143583084	1.44531414	1.314868107
Klhl14	0.849796109	1.151334301	0.878902991	-0.910784815	-0.384896093	0.011985126	-1.403408907	-1.638119553	-1.079886776	0.800272061	0.842574638	0.882230918
Afap1l2	0.670615193	0.464210921	0.921004923	-1.557706015	-1.355187885	-1.312789631	-0.708772256	-0.2693963	0.021122336	1.300393308	1.245181762	0.581323644
B3gnt7	0.390707523	0.325030387	0.348779229	-0.867835187	-1.402881096	-0.176261093	0.280054655	-0.477262097	-0.693257634	0.535521045	1.028762118	0.70864215
Gsn	-0.349174218	0.517740766	0.694694253	-0.882214657	-0.853255332	-0.984145692	-0.530628813	-0.198117309	-0.24923346	1.000121595	1.180088425	0.654124443
Jazf1	1.095468599	1.288358716	1.407449403	-0.769445667	-1.26205871	-0.300986189	-1.371977394	-1.257720221	-1.564802469	0.925786622	1.074140312	0.735786998
Eva1a	0.147435238	0.487861341	0.866605337	-0.240434957	-0.021199251	-0.761124161	-0.821543336	-0.879107618	-0.720163123	0.502003187	0.739718755	0.699948588
Adamts17	1.257553346	1.350715488	1.608854181	-1.270019932	-1.41829964	-1.646838112	-1.616537984	-0.973688557	-0.72268946	1.197188003	1.264314956	0.969447709
Inpp4b	-0.014978854	0.254233029	0.395963992	-0.850905558	-0.66654207	-1.07259649	-0.524253888	0.558976545	0.126577217	0.659788504	0.50553925	0.628198322
Adamts5	-0.293060254	0.842799774	0.412230211	-1.085280346	-1.203453977	-1.48890498	-0.541677721	-0.689627406	-0.228199126	0.910785945	1.808221952	1.556165929
Rhof	0.882377285	1.266609132	1.190287143	-0.544987539	-1.160829349	-0.532166531	-1.122711113	-0.087298847	-0.683296369	-0.026763465	0.350133902	0.468645751
Mmp25	1.143883968	1.617196646	1.401539389	-0.413566998	-1.320155486	-0.926088309	-1.006247693	-0.415857398	-1.25512355	0.324274285	0.400502474	0.449642673
Scn11a	2.261862801	2.65483919	3.143101536	-1.171519974	-1.193070481	-2.136497678	-2.660642257	-1.195645402	-2.184824782	0.777628631	0.764775655	0.939992759
Vwa2	0.303881871	1.319512049	1.670867145	-0.656460368	-1.247770413	-1.156360165	-0.420795617	-0.452684587	-0.37513384	0.74847286	0.366972921	-0.100501856
Itga8	0.71983478	0.818073583	0.700390736	-0.861297261	-0.795559794	-0.925924111	-0.355530443	0.014640258	-0.250780779	0.118487525	0.425097745	0.392567761
Tspan18	1.785661064	2.255997672	2.34635105	-2.225607452	-1.961368609	-1.698021231	-1.816360086	-1.447960296	-1.705534536	1.049902855	1.602904504	1.814035067
Rasef	0.193395596	1.106035681	1.457958854	-0.866955777	-1.918006571	-1.524737117	-0.664721256	0.53388375	-0.272491259	0.92067751	0.628160475	0.406800114
Garem2	0.170460973	0.178306592	0.666311855	-0.401922715	-1.212751981	-0.628329813	-0.449382006	-0.91377407	-0.74598061	0.687401387	1.059564472	1.590095916
Styk1	0.939822207	1.017843514	1.208953554	-0.609805811	-0.169573411	-0.348486982	-1.355503442	-0.565657093	-1.256426407	0.812272115	0.178874524	0.147687233
Nlrp10	-0.126091757	-0.143182563	0.679805583	-0.570262835	-0.791749247	-0.033586642	-0.574415781	-0.691589016	-0.593964276	0.59420793	1.161172584	1.089656021
C77370	1.24396939	1.586086652	1.651207574	-1.03823867	-0.922499954	-0.763531363	-1.567437942	-1.288627662	-1.154870592	0.230673659	1.158173027	0.865095881
Prokr2	-0.14946652	0.609629793	1.188786528	-0.956732437	-1.013147936	-0.453225485	-0.049211402	-0.559118158	-0.801519481	0.645406749	0.901215479	0.637382871
Tspan12	0.125321322	0.303335699	0.422569859	-0.847280293	-1.081461985	-0.665627535	-0.225085778	0.503980627	0.247526398	0.305664058	0.423660978	0.487396651
Magee2	0.675449386	0.581957446	0.626839412	-0.491124147	-0.578718838	0.027424039	-0.651607959	-1.207853541	-0.548728153	0.269620416	0.688340468	0.60840147
Bcar3	0.384719564	0.471520007	0.941371298	-1.245130743	-0.990484441	-1.03597207	-0.009464003	-0.048770937	-0.033230669	0.135554804	0.946692083	0.483195106
Tor3a	0.467710593	0.086553462	0.119933992	-0.504890242	-0.80200088	-0.564577796	-0.424712512	-0.467232468	-0.342709882	0.547445304	0.894394195	0.990086234
Cxxc4	0.586365524	0.421954671	0.690110393	-0.579092985	-0.335406181	-0.454224893	-0.544472974	-0.625352967	-0.56529309	0.3521444	0.469577635	0.583690467
Cobll1	0.025818255	-0.076901514	0.319244242	-1.047270787	-0.988924297	-0.652791611	0.109491528	0.844400251	0.07461423	0.345700733	0.523882543	0.522736428
	0.524410409	0.505117595	0.401340856	-0.757311282	-0.719775607	-0.848105215	-1.350468542	-0.265745829	-0.369468818	0.600188078	1.106032363	1.173785992
Rasgef1b	0.153855928	0.288292301	0.408007938	-0.785215002	-1.08199406	-0.764241136	-0.238561922	-0.189295698	-0.289410594	0.581111269	0.770331733	1.147119243
Frem1	0.823505173	1.112042344	1.054942267	-1.028702788	-1.091283576	-1.226513534	0.045778858	0.808224872	0.39414436	-0.191790849	-0.449722339	-0.250624789
Lmo7	0.888513037	0.703516659	0.74392439	-0.393119037	0.148834323	-0.186508736	-1.240347576	-0.616574812	-1.146303388	0.233599557	0.762568834	0.10189675
L1td1	0.571249773	0.715628113	0.724969701	-0.524167628	-0.789052223	-0.065774738	-0.597286111	-1.965125741	-0.65930724	0.679702518	1.352262367	0.556901209
Flrt1	-0.002633975	0.75665295	0.607858891	-0.123370422	-0.776019087	-0.977884956	-0.749898241	-0.933271617	-0.862266988	0.822573827	1.102974395	1.135285222
Fam169b	0.878518689	1.619009644	1.583437301	-0.451780458	-1.454532116	-1.060836254	-1.409332149	-1.295207746	-1.293337009	1.045930883	1.070888272	0.767240943
Snhg14	0.021743477	0.957103018	0.547399536	-0.704114052	-0.708151967	-1.091836438	-0.782598454	1.125636162	0.045901708	0.165087231	0.057910526	0.365919254
Hmcn1	0.430824319	0.47573475	0.422928544	-1.078710959	-0.501893452	-1.18590762	-0.479533139	0.223865597	-0.064754363	0.509221034	0.484599049	0.76362624
Lgals12	1.036147385	1.445925281	1.147638704	-1.296750777	-0.689131333	-0.699292651	-0.957033327	-0.510257606	-0.908908313	0.32184698	0.778555037	0.331260621
Rrad	1.058463527	1.109928589	1.191471352	-0.882537894	-0.856901134	-1.407475014	-0.970798693	-0.912979089	-0.934486895	0.647370803	0.920059723	1.037884725
Cacna2d2	0.799682003	0.599755853	0.298540187	-0.831468612	-0.739709051	-0.883989903	0.301606503	0.45475041	0.141300669	0.163255906	0.113723477	-0.417447442
Fam196b	1.064710679	-0.034167763	-0.346973958	-0.937404301	-0.511941202	0.10269315	-0.941204741	-1.500089954	-0.799391693	0.601462411	1.47904713	1.823260241
Sall1	1.758647016	1.741203615	1.907654888	-0.858464447	-0.994594302	-0.577588565	-1.742653131	-1.635278424	-1.388805869	0.250222375	0.531614842	1.008042003
Clstn2	0.902379308	1.311598072	1.561153861	-1.612918392	-1.946366875	-1.550066256	-1.144858784	-1.007255444	-0.753847745	0.937470342	1.50552226	1.797189654
Pdzd2	1.251393095	1.852240658	1.926620773	-1.536705213	-1.486079275	-2.026022104	-1.73198459	-0.750990218	-1.052546179	0.932384316	1.308646337	1.3130424
Cgnl1	0.869120004	1.092694323	1.092371444	-0.975326107	-0.869175616	-1.155061346	-0.738027885	-0.615062194	-0.565818999	0.566782013	0.520173834	0.777330828
2610528A11Rik	1.297840993	1.642995305	1.841731328	-0.996315293	-1.008747771	-1.169067363	-0.578040162	-1.169067363	-0.746786224	0.020829522	0.39626819	0.468358835
Malat1	0.099397751	0.652136581	0.33889265	-1.150499815	-0.21312101	-1.59256764	-0.688917532	1.085978013	-0.145722573	0.840361686	0.327186881	0.446875009
Stra6l	0.394764636	0.285455279	0.140147411	-0.966018305	-0.936566535	-1.252670832	0.168216924	0.891654136	-0.011430425	0.321318395	0.360774023	0.604355293
Mdga1	0.526069558	1.33005621	0.994417651	-0.290697965	-0.433279381	-0.482049715	-1.241479032	-1.009142896	-1.053789787	0.429070239	0.71490912	0.515915998
Hottip	2.478305616	3.321169865	3.345997092	-2.056846877	-2.199740928	-2.689868405	-2.231764628	-3.033093044	-2.147641954	1.28250625	1.868867529	2.067332801
Gpr146	0.885080949	0.008675834	0.815976074	-1.159801868	-0.646133598	-0.912302174	-0.252280833	-0.01332235	-0.277038939	0.491779134	0.539413817	0.519953954
Spock2	0.606582669	0.922876179	1.647020816	-0.340895393	-0.911008221	-0.603815205	-1.55594621	-1.557491988	-0.956428627	0.619919012	1.022575111	1.106611858
Atp1a2	-0.09104408	-0.069425953	-0.024435318	-2.232350029	-2.248395264	-2.416667996	0.38991815	0.969082331	0.983664178	1.331011435	1.517338631	1.891303914
Grwd1	0.896510113	0.813573349	0.713334699	0.267187637	0.051396975	0.413838535	0.170891351	-0.557306822	-0.248268375	-0.878319814	-0.747513845	-0.895323804
Ano1	1.466696093	1.404738094	1.472956871	0.734376416	0.61728627	1.199862339	-1.399260348	-0.795866198	-1.037477365	-1.521562833	-0.894358148	-1.247391191
Gldc	2.219719383	1.973872548	2.039071377	-0.117882146	0.008423475	0.937681131	-0.175687796	-1.117178906	-0.911354152	-1.416918785	-1.895584851	-1.544161278
Psat1	0.879114746	0.658409738	0.782897638	0.342256374	0.139158072	0.630117874	-0.09026532	-0.968680557	-0.429058445	-0.581841071	-0.688930021	-0.673179028
Unc5a	0.957367148	0.482784105	0.105556407	0.677183115	0.357631674	1.094636293	-0.057724868	-0.363568681	-0.271841353	-0.609852084	-1.025137294	-1.347034462
Unc5b	0.943566191	0.910649037	0.945544059	0.356485084	0.203038562	0.280353528	-0.860210049	-1.17622532	-0.866362418	-0.426838564	-0.216887698	-0.093112412
Cth	0.779954712	0.486024419	0.49749617	0.518670883	0.307548418	0.695500651	0.052114216	-0.380217853	-0.203647363	-0.744754926	-1.073965047	-0.934724281
Shmt2	0.742972456	0.635129966	0.587168367	0.360430021	0.166126279	0.598291875	0.042493968	-0.559443734	-0.18065004	-0.728088451	-0.813207421	-0.851223287
Mthfd1	0.781852579	0.804829732	0.75985042	0.197694381	0.085424547	0.428444146	-0.080262341	-0.249950279	-0.287324137	-0.80663532	-0.856637438	-0.777286291
Itga1	0.902149688	0.612474541	1.153601495	-0.107646763	0.252029455	0.570605874	-0.760855896	-0.714417696	-0.854984401	-0.343937367	-0.513477141	-0.19554179
Cygb	1.399617687	1.092682965	0.938304659	1.110854817	0.969308984	1.274311566	-0.729909062	-1.135621838	-0.727394432	-0.825378673	-1.877732006	-1.489044668
Synpo2	0.226858668	0.335707786	0.704560099	1.29929654	1.31833617	1.020172404	-1.408362161	-1.827934584	-1.042940698	0.173558304	-0.012572296	-0.786680233
Axin2	0.080368126	0.722750431	0.608408854	0.865944992	0.791340179	0.39185114	-0.580813496	-0.211394765	-0.301276906	-0.383349013	-0.694965845	-1.288863697
Bcat1	1.14428495	0.928906527	0.987299069	0.295003086	0.148708762	0.681469945	0.08080625	-0.935074845	-0.42423832	-0.984423107	-1.043158724	-0.879583594
Prdm1	0.78037338	0.589559123	0.621059987	2.319182134	2.159692552	2.234539964	-1.782418562	-1.857155188	-1.252523525	-0.882174449	-1.420155975	-1.50961944
Bmp4	0.538663814	0.639377963	0.659318172	0.878129537	0.919873131	0.757633088	-0.743852111	-0.980796706	-0.898741955	-0.332301928	-0.402475584	-1.03482742
Cdx1	0.554456159	0.810442611	1.433582242	1.052547524	0.503772004	1.208050679	-0.026597818	-1.017525136	-0.189640429	-1.329591117	-1.221575765	-1.777920955
Col13a1	2.20257564	1.604577717	1.975853407	0.964769264	0.408257781	0.585563531	-1.792245119	-1.488125128	-1.886175198	-0.698002992	-0.389403717	-1.487645187
Crabp1	1.031592981	0.523415244	0.347467445	1.242205991	0.997181077	1.728950227	0.497820979	-1.183566962	-0.435532377	-1.306368072	-1.495033481	-1.948133051
Crmp1	1.961691062	1.799754603	1.932929282	0.354580238	0.07493524	0.990935998	0.049804005	-0.798965097	-1.022463028	-1.733429368	-1.827652928	-1.782120009
Cyp1b1	1.242525868	1.048179163	0.445580538	1.549280271	1.052024706	1.474654206	-0.299715613	-1.130060645	-0.47835699	-1.692807623	-1.531508007	-1.679795875
Des	1.083725724	-0.305785369	-0.131942191	1.007970967	1.02820937	1.272590432	0.098710089	-0.437571289	-0.506958117	-1.265150595	-0.515446845	-1.328352176
Dkk1	1.10910314	0.509978418	0.578935155	2.688127006	2.79577082	2.622548736	-1.464978492	-2.197965695	-1.803518664	-1.332031788	-1.844889492	-1.661079144
Eno1	0.767794677	0.69161151	0.625113182	0.462187413	0.209012345	0.654720278	0.132495343	-0.561739078	-0.222224532	-0.799750875	-1.014613387	-0.944606876
Epha8	2.936280403	2.935967514	2.95658583	0.526976501	-0.466944928	1.082423586	-0.932187062	-1.15532775	-1.338624613	-2.244283632	-2.237485662	-2.063380186
Akr1b8	0.676023427	0.790129584	0.607463038	0.424284327	0.325169381	0.530735486	0.113517353	-0.687865724	-0.292128487	-0.749386567	-0.870545753	-0.867396066
Vegfd	1.670527968	1.590821052	1.682915398	0.627859057	0.775248399	1.168577113	-0.741243034	-1.096929731	-1.117818851	-1.597907528	-1.491049905	-1.470999939
Gata3	1.923980048	0.106993069	0.315038093	0.744522655	1.018977199	0.877141003	-1.567503234	-0.992736411	-1.283360751	-0.594412235	0.580778398	-1.129417832
Gata6	2.317008055	0.572109756	0.65282842	0.127956295	0.472321447	0.402494485	-0.660304949	-1.00594787	-0.8878361	-0.406236607	-0.526738831	-1.057654101
Gbx2	2.634907856	2.232306029	2.399234388	0.187694569	0.25709392	0.797954162	-0.355546209	-0.624406938	-1.328858498	-2.099110085	-2.20717605	-1.894093142
Gnai1	1.09118325	1.290309307	1.314170697	0.377662307	0.230626239	0.267217433	-0.677886729	-1.000304541	-0.732328437	-0.640709813	-0.757977456	-0.761962256
Hk2	0.953401804	0.979631743	1.196586253	0.031310995	0.283335039	0.29590921	-0.281155459	-0.633676402	-0.601498433	-0.592223279	-0.787325852	-0.844295619
Hoxb9	2.207763574	1.850241127	2.14401345	0.478783682	0.41687996	1.521221522	-0.206837427	-0.415327702	-2.418825931	-1.592864812	-1.728299375	-2.256748067
Hprt	0.913717926	0.625076627	0.638949444	0.413025067	0.177004302	0.763641417	0.180942894	-0.636370465	-0.316042491	-0.783822676	-0.911451904	-1.064670142
L1cam	0.251177745	0.405568161	-0.239472706	0.666064515	1.241868477	1.261523318	-0.639836767	-0.099220399	-1.290713878	-0.866147301	-0.484773147	-0.206038017
Ldha	1.029268039	0.607339864	0.643629155	0.472564298	0.321701885	0.762894271	-0.028103519	-1.047132036	-0.510048791	-0.632599331	-0.837836399	-0.781677435
Lef1	0.624700966	0.763328328	0.926443398	0.635246177	0.513965004	0.714504577	-0.25085985	-0.703930361	-0.575481238	-0.684447923	-0.826310619	-1.13715846
Lhx2	0.700160565	0.616383084	0.762288812	1.226556668	1.161618804	1.769005419	-0.930291878	-1.3621654	-1.3726585	-1.137421908	-0.90739383	-0.526081837
Il17rd	1.050153222	1.005333596	1.16210464	0.019067542	0.244975207	0.305411912	-0.387304336	-0.548835787	-0.507903365	-0.725011447	-0.823217047	-0.794774137
Mif	0.954068833	0.371200694	0.414904347	0.531393635	0.301833608	1.02095002	0.186033807	-0.855650004	-0.024426196	-1.021705728	-0.958916426	-0.919686589
Msx1	1.454741224	1.691168891	1.802994591	1.818314931	1.704155422	1.836234203	-1.432156812	-2.023664242	-2.095670498	-1.86238877	-1.377624229	-1.516104711

Mthfd2	0.988906811	0.849309241	0.890787986	0.253176763	0.086068341	0.469916285	-0.062398127	-0.653881131	-0.353944635	-0.624337977	-0.945481292	-0.898122264
Mycn	1.184069725	1.086031956	1.281349928	0.504866792	0.336573384	1.005881945	-0.213961866	-0.704177299	-0.595710915	-1.202825031	-1.219880991	-1.462217628
Nxn	1.079793405	1.023424522	1.18744748	0.355302815	0.118766669	0.190495082	-0.394489647	-0.85653275	-0.524514804	-0.617877203	-0.772950603	-0.788864968
Etv4	1.449320666	1.483297179	1.591784832	0.458533531	0.422868589	0.821493485	-1.070542567	-1.352855332	-1.309600273	-0.586695778	-0.630217727	-1.277386605
Pkm	0.764094578	0.727854997	0.563733099	0.476773916	0.225045165	0.593232818	0.151867727	-0.671678477	-0.208112842	-0.774244951	-0.986533342	-0.862032689
Pou4f1	0.297227861	0.752674364	0.943784405	1.201537177	1.082582997	1.779623242	-0.236224317	-0.643482725	-1.368155283	-1.156589003	-1.810825151	-0.842153565
Pros1	0.544958686	0.637687866	0.654931866	0.316346519	0.310562401	0.70267791	-0.423529844	-0.89804981	-1.008469227	-0.380831717	-0.216518648	-0.239766002
Prrx2	0.298287836	0.061575862	0.05037627	1.004227682	0.773009499	0.979897299	-0.331394819	-0.353749786	-0.579938244	-0.502463004	-0.624466418	-0.775362177
Shh	3.475204245	3.475204245	3.475204245	2.233709706	1.765509471	1.938090616	-2.975463609	-2.872582538	-2.934360776	-2.711292141	-3.033093044	-2.879593054
Slc7a5	1.665474937	1.453629269	1.521600793	0.481606657	0.157793304	0.646050754	-0.440765125	-1.494668119	-0.838454661	-0.900406851	-1.134107946	-1.117753012
Bhlhe40	0.879038749	1.041143872	0.887347641	0.031954623	0.401145896	0.068956997	-0.830607174	0.035018187	-0.604874744	-0.668027348	-0.734711032	-0.506385666
Atg9b	0.734449493	1.002299005	0.494276546	0.707008785	0.264566	0.731577721	0.197304706	-0.660659537	-0.329724574	-1.58582113	-0.651004471	-0.904272543
Tcf7	1.212719937	1.231611843	1.285046431	0.957386806	0.821501985	1.382673578	-0.452971213	-1.054726835	-0.788196679	-1.612526211	-1.544134895	-1.438384747
Tfap2a	0.956327781	1.161831721	1.436792669	0.140914164	0.232262782	0.650269759	-0.927886999	-0.947872688	-0.948606701	-0.824497136	-0.581322742	-0.348212611
Tfap2c	3.467813308	3.475204245	3.475204245	1.197095798	1.070899756	1.884905042	-1.859795864	-2.599527885	-2.642783921	-2.397473278	-2.957030564	-2.216996708
Tek	0.664294317	0.510902152	0.587286007	0.308244893	1.424338374	0.827444562	-1.161292341	-0.700006879	-1.050407967	-0.247818158	-0.397532572	-0.765452387
Tnni1	1.653964083	0.051910086	0.102771038	-0.287169285	0.691987783	0.988750007	-0.779793377	-0.656005069	-0.852439834	-0.574427992	0.360345138	-0.699892577
Prdm6	0.710370622	0.497617582	0.117274887	0.940064229	0.875058794	0.936043869	-0.265184933	-0.956612238	-0.751336597	-0.657373642	-0.270221608	-1.175700965
Dyrk3	0.713888262	0.564138891	0.834268263	0.15858493	0.263888375	0.675033056	0.07212378	-0.213077237	-0.440090131	-0.897587628	-0.835503712	-0.895666849
Camk1d	0.80536921	0.680649929	0.670372359	0.958976709	1.06580485	0.812393602	-0.826398813	-1.926210758	-0.665284001	-0.498580175	-0.550162411	-0.526930501
Shb	0.630149156	0.920863727	1.090366669	0.294378226	0.160754529	0.125493589	-0.650126916	-0.483163755	-0.586813283	-0.515277347	-0.533905548	-0.452719046
Oasl2	1.525971047	1.785306985	1.967272509	0.009680115	0.500758107	0.515443023	-1.000045257	-0.771056125	-0.725917873	-0.717670753	-1.689419748	-1.40032203
Vax2	1.680999418	1.328194461	1.387308352	0.254488333	0.340441874	0.954360944	-0.130951656	-1.084821935	-0.809266019	-1.669302898	-1.454315002	-0.797135872
Asns	1.007317732	0.859719828	0.919535215	0.476326847	0.392715098	0.671431934	-0.402497393	-1.010695702	-0.734515414	-0.732536252	-0.79214881	-0.654653083
Mthfd1l	1.138674832	0.996630422	1.058499846	0.215449083	0.322404836	0.518274378	0.117635202	-0.571011505	-0.269193003	-1.096067976	-1.411778825	-1.019517291
Eif5a	0.918029557	0.52616914	0.598294353	0.445997658	0.236708131	0.677425018	0.310407687	-0.766818503	-0.218123618	-0.769062841	-0.967589406	-0.991437176
Eno1b	0.89465131	0.677113182	0.603348065	0.436351023	0.196802154	0.640408279	0.233269024	-0.576796774	-0.21666057	-0.858822235	-1.071958083	-0.957705374
Apcdd1	0.647196086	1.016711228	1.109879227	0.718972837	0.605905964	0.590988994	-0.875701036	-0.821925017	-0.606095368	-0.239988849	-0.507905701	-1.638038364
Bok	0.741078885	0.78808207	1.264883577	0.250442577	0.382509265	0.103234666	-0.412930976	-0.29091801	-0.66590233	-0.402375692	-0.912206267	-0.845897764
Rbfox3	1.642205799	1.352082217	1.470280372	0.49150013	0.472218011	0.547038001	-1.275287915	-0.762324081	-1.77520111	-0.748276216	-0.508283243	-0.905951964
Vax2os	1.213130441	1.760695166	1.768472671	-0.185961883	0.345639276	0.640799833	-0.533185456	-0.63824325	-0.909134699	-1.169313208	-1.164379273	-1.128519618
Nap1l5	1.168371772	1.041429222	1.009058379	0.275831047	0.497539765	0.696048736	-0.98992799	-0.936928746	-1.151958846	-0.43221729	-0.535052759	-0.64219329
Tmem41a	0.81992358	0.502978653	0.677585102	0.331824419	0.34917761	0.763936208	0.058789806	-0.744866546	-0.251484578	-0.838388818	-0.752902399	-0.916573036
Tril	0.7070548	0.552609713	0.682966564	0.413206104	0.30342765	0.387973554	-0.264041151	-0.771407741	-0.367453475	-0.439036285	-0.572135675	-0.633164058
Mgarp	0.946630127	0.568899694	0.23784538	0.506221271	0.409681478	1.032078756	0.019087205	-1.20400061	-0.586155739	-0.546106391	-0.305692083	-1.078489089
Tubb6	1.531821354	0.598127813	0.20463027	0.287328093	-0.382856119	1.345960121	0.611551348	-1.406405611	-0.511687212	-0.889161714	-0.400447412	-0.98886093
Aen	0.997674608	0.795944042	0.958254178	0.168280317	0.105093075	0.409083864	-0.25013175	-0.46249517	-0.276377628	-0.714541139	-0.916333276	-0.814451122
2010204K13Rik	1.431697762	0.768609985	1.117036161	0.297048767	0.253910984	1.018907357	0.268303396	-0.86785767	-0.54029172	-1.287824432	-0.96634962	-1.493190971
Cad	0.772147783	0.839454164	0.712698745	0.252583412	0.225384477	0.415850413	0.007780753	-0.493027927	-0.339837825	-0.766900607	-0.852786938	-0.77334645
0610038B21Rik	0.614304498	0.825070169	0.565121909	0.651701473	0.388188689	0.428921404	-0.39116151	-0.737924407	-0.143054967	-0.764071389	-0.754787354	-0.682308516
4933416M07Rik	0.743913613	0.820527964	0.840564765	0.206346541	0.218391382	0.421645725	-0.046364784	-0.654615094	-0.548654374	-0.309874208	-1.151666716	-0.540214815
Chchd4	0.962045925	0.77591479	0.888807897	0.231767834	0.322075728	0.728455557	0.213814004	-0.632643016	-0.396066556	-0.898478646	-1.030147722	-1.165545794
Ccdc3	1.590735228	1.360373086	1.824407774	0.282212812	0.415734085	1.155211137	-1.239580494	-1.431135312	-1.139327903	-0.429349188	-0.719362171	-1.669925818
Dusp9	0.825915628	0.676874823	0.711414577	0.587027404	0.390235554	0.727944723	0.16806812	-0.82298147	-0.294253545	-1.012042709	-1.150592785	-0.80761032
Rab11fip1	0.924851292	0.779592465	0.976554528	0.312992378	0.281567994	0.580968135	-0.261678686	-0.79738297	-0.494130931	-0.79138247	-1.11537673	-0.396529066
Notum	1.016478229	1.557888259	0.827679675	2.174281074	1.347256508	1.490606086	-0.507543387	-0.381685562	-0.826001605	-2.091361388	-2.158045073	-2.449552816
Arhgap10	0.632865878	0.857628493	0.615797827	0.530566512	0.301839213	0.480683103	-0.241061389	-0.461336628	-0.414880067	-0.643856038	-0.762331371	-0.895915532
Slc16a3	1.049994782	0.546116988	0.732868714	0.500640008	0.517676983	0.658708164	-0.331578643	-1.231817988	-0.646122727	-0.479750688	-0.745142934	-0.571592659
Mesdc1	1.051856183	1.04755952	1.230817964	0.386654862	0.062513154	0.205252087	-0.41956413	-0.632094424	-0.441112847	-0.703235564	-0.90660828	-0.882038525
Plekha2	0.851227281	0.554863002	0.833219596	0.742966084	0.092193865	0.288499715	-0.318394526	-0.675762832	-0.992845327	-0.388998936	-0.41830805	-0.568659871
Msx1os	1.411530155	1.634526196	1.707065556	1.757187915	1.667888249	1.834305996	-1.476282171	-1.994584335	-2.046755686	-1.746159358	-1.274039602	-1.474682914
Fzd10	1.505991161	1.397411424	1.556288211	1.000577681	0.866780665	1.289114468	-0.487733227	-1.566321499	-1.236228296	-1.309139636	-1.458156212	-1.558584741
Nkd1	0.534845401	0.756554009	0.643606456	0.731745734	0.393235403	0.407365323	-0.515832064	-0.629087932	-0.444306134	-0.593452004	-0.601234848	-0.683439345
A230070E04Rik	-0.653898079	-0.346109965	-0.111736595	0.517264596	0.042335891	0.676951408	-0.871064825	-0.890319818	-0.631824739	0.500292197	0.861025307	0.907084622
Uph	-0.040461739	0.207270974	0.118148442	0.49015018	0.459324932	0.317260094	-0.917354176	-1.173111972	-0.927793915	0.262701589	0.534407227	0.669458363
Nxph4	0.556435876	-0.187754745	-0.245265152	0.733217807	0.497548171	1.060525286	-0.946120483	-1.113931498	-0.493820292	-0.210220981	-0.025975095	0.375361107
Acta2	1.87582729	-0.148257128	-0.523912617	-0.919207796	0.377300852	0.579117422	-1.246907828	-1.027618768	-1.415653891	1.050919606	1.156098018	0.242294841
Bgn	0.224079179	0.141307312	0.025136372	0.331811804	0.30744271	0.283263579	-0.981982543	-1.347619197	-0.729399476	0.3202691	0.645446158	0.780245001
Bmp5	0.854419032	0.718213102	0.80768402	-0.253980224	-0.068228901	-0.199162194	-1.554192052	-1.387860731	-1.187351051	0.868934837	1.06347752	0.338046643
Col14a1	0.580328702	-1.213955078	-1.358793095	1.239129158	1.336123179	1.35380904	-1.468511919	-0.786517758	-1.091191602	1.171743667	1.009559698	-0.771723993
Dlx5	-1.02564695	-0.459117903	0.058102542	1.033062286	0.631280201	0.271896026	-2.042730306	-2.012960073	-1.617948884	1.624739488	1.904194029	1.635129545
Dync1i1	0.687450959	1.113798885	0.886682395	0.754162905	0.733773556	0.930112391	-1.360558392	-1.447978877	-1.847678978	-0.234430096	-0.154942438	-0.06039231
Epha3	-0.126004753	-1.108086965	-0.950446756	0.918737735	1.000455582	1.143989358	-1.189869343	-1.410798312	-1.464684739	0.810008543	1.147900156	1.228799495
Hand1	1.718652005	-0.589583095	-0.17902442	0.360370328	0.874251964	-0.027072766	-1.631781766	-0.753448508	-0.916359147	-0.19698289	0.576490899	0.764487396
Hoxa11	0.932949408	1.138088109	0.966904221	-0.202146832	-0.219021883	0.234303284	-1.025397001	-1.330771461	-1.14485237	-0.095751231	0.251711391	0.493984367
Mafb	-0.847281591	-0.371124544	-0.274816948	0.864303796	0.509735317	0.401458092	-0.907816563	-0.734588973	-0.986811204	0.634745826	1.004141957	0.708054836
Nfatc1	-0.000853181	0.309149419	0.337887032	-0.112906806	-0.084966245	0.046114638	-1.085699457	-0.900986747	-0.689887494	0.461314904	0.821029611	0.899804326
Ptprt	-1.219252707	-0.661947581	-0.934257992	1.128228261	1.108853724	1.170984284	-1.2439764	-1.701008718	-1.338548953	0.796744336	1.374454905	1.519726841
Cx3cl1	-0.108615755	-0.266633384	0.054389069	0.509176783	0.248072654	0.213808684	-0.596573514	-0.75173187	-1.010627448	0.180470117	0.612961714	0.915302951
Frzb	0.316859563	0.502720916	0.558766614	-0.187371247	-0.197731761	0.067489388	-0.971063768	-1.203555801	-0.520961945	0.275598068	0.384645528	0.974604446
Zic2	1.381679967	1.42289911	1.509055215	0.027278919	-0.050969015	0.402319644	-1.610956435	-1.434109586	-1.554866796	-0.392740652	0.087812919	0.212596708
Zic3	1.70942044	1.827311057	2.214888012	0.499203923	0.789643142	0.858939393	-2.672186357	-2.393391426	-2.497696008	-0.452701455	0.025332657	0.09123662
Rtn4rl1	1.714237353	1.315774099	1.362038827	-0.104368594	0.12872338	0.005948674	-1.551832752	-2.219627141	-1.168122946	-0.219035838	0.354654499	0.381610439
Pdlim3	0.038356292	1.0462289	1.051657309	-0.096497509	-0.563784841	0.792407401	-0.490298772	-0.877233749	-1.188854929	0.252126495	-0.038683756	0.074577159
Epb41l4b	0.037842616	0.684005517	0.547324648	0.327971745	0.059941623	0.422151105	-1.092849823	-0.696511611	-0.497985715	0.123645182	0.038634257	0.045830456
Chst2	0.480751129	0.463903025	0.630859425	0.418011597	0.125873392	0.322746758	-0.814208745	-0.72628165	-0.84699443	0.018051253	0.147112584	-0.219824337
Ramp2	1.062668877	0.901407079	1.013145568	-0.161709489	-0.053339903	0.819573729	-0.776822122	-1.773531429	-1.009483103	-0.233885297	-0.005018466	0.216994557
Smad9	0.087934512	-1.097738472	-0.942190039	1.091921734	0.837295565	0.5207266	-1.281538955	-2.062696225	-0.856821841	0.772730522	1.441396587	1.488980011
Svep1	0.478260748	0.763082766	1.088479817	-0.050285891	0.323336704	-0.414008209	-1.156709773	-0.587471678	-0.891743254	0.432582715	0.423337444	-0.408861389
Sncaip	-0.589669371	0.110886841	0.089445971	0.322694592	0.488090506	-0.012931516	-0.879968305	-0.966844189	-0.74901476	0.473236799	0.870694575	0.843378857
Rbm20	-0.248404818	-0.220652731	0.11053098	0.681587961	0.148100827	0.607841669	-0.674043294	-1.231947444	-0.83803095	0.737431585	0.682949185	0.244637029
5033428I22Rik	0.851810034	0.556688015	0.732722673	0.073989899	-0.436590938	0.477579243	-0.824661832	-1.419560185	-0.503645457	-0.138450291	0.308732395	0.321386444
Cox4i2	0.347866295	-0.162508413	0.358891362	0.561084516	0.468463079	0.163889514	-1.37257657	-1.473291276	-0.866886278	0.341067133	0.853163893	0.780836746
Epop	0.683629557	0.758833525	0.723909048	0.615172154	0.127739423	0.568894911	-0.077048081	-0.324754021	-0.045828636	-0.833650848	-1.006690131	-1.190207421
Prex2	0.493818307	0.357058364	0.420273677	0.135737722	0.417423126	0.236497955	0.220097043	0.372994082	0.200079881	-0.599677353	-1.230745029	-1.023557776
Lmo1	1.690815023	1.031924547	1.097444464	0.36453543	0.110562105	1.185399941	0.594253505	-0.602741811	-0.40803067	-1.640169547	-1.654153679	-1.769839308
Dut	0.587106197	0.302602461	0.293468997	0.398384402	0.185570219	0.582260677	0.35086248	-0.432370821	-0.062669086	-0.654731921	-0.788416001	-0.762067602
Hmga1-rs1	0.204069326	0.196657945	0.091743344	0.514377644	0.155422872	0.594558351	0.480004272	-0.274569536	0.293170425	-0.707010831	-0.815590041	-0.732833771
Gm4737	0.629569907	0.400830204	0.510633079	0.611713802	0.524546026	0.61416066	0.378145976	-0.564068323	-0.02940158	-0.974827642	-1.144541694	-0.956220595
Slc25a5	0.928189915	0.626614911	0.671789651	0.277707728	0.141016611	0.616774048	0.235338675	-0.618963605	-0.107027588	-0.709068645	-1.05875263	-1.003619069
Prdx6	0.626006477	0.432644237	0.408435894	0.416086912	0.165725108	0.627086529	0.163510472	-0.403333629	-0.048170512	-0.706298848	-0.908705143	-0.772987496
Ccne1	0.392332635	0.474139306	0.275361797	0.288082139	0.100299097	0.492055036	0.234405203	0.080190111	0.101089526	-0.545699119	-0.919263242	-0.972992488
Arid3a	1.000890966	0.9436539	0.989222958	0.201686064	0.173687775	0.42666552	0.189657957	-0.317924282	-0.259574039	-1.14160399	-1.243011745	-0.963351083
Gap43	0.410850386	0.15910962	-0.027163138	0.841199064	0.684861453	0.864002646	0.22728551	-0.33368967	-0.22339011	-0.659124954	-1.053818957	-0.89012185
Gata5	2.378151975	0.028297954	-0.638129321	0.697139766	-0.084230491	0.969792997	0.721647437	0.280728648	0.143193435	-1.261223135	-1.356939986	-1.878429279
H2-Ab1	0.551864139	-0.183551611	0.14846613	0.357513466	0.647036538	0.400529118	0.550157697	0.392697071	-0.42084329	-0.946439423	-0.539671732	-0.957758105
H2-D1	0.825813669	0.893962359	-0.162290047	0.389777176	-0.68561943	0.789309326	0.874093043	-0.675938521	0.03146149	-1.179485026	-1.020921528	-0.080162512
Hmga1	0.201145773	0.181791416	0.080591353	0.503402961	0.158044291	0.588768617	0.481457702	-0.263902243	0.287893171	-0.689802976	-0.813683689	-0.715706376
Hoxc8	1.905155169	-0.406397537	0.222258409	-0.181239284	0.3712058	0.612967225	0.627750622	-0.068697696	-0.165480906	-0.666714905	-0.742770186	-1.508036712
Hoxc9	1.925377078	-0.238543708	0.710399876	-0.192979505	0.241302395	1.502751256	1.114807575	0.348992023	-0.758250053	-1.600977652	-1.451901633	-1.600977652
Hsph1	0.656071896	0.638837743	0.558660479	0.203556156	0.113892622	0.422582924	0.108971611	-0.158478028	-0.230694749	-0.538138946	-0.74586643	-1.029395279
Hspe1	0.828992198	0.47650158	0.535204842	0.249789778	0.249312867	0.583001784	0.33595583	-0.524830674	-0.241450362	-0.645293081	-0.804351502	-1.04283326
Fabp5	0.679271343	0.34297394	0.425226317	0.421453113	0.324523559	0.753740915	0.323930564	-0.511757118	-0.117760019	-0.671170117	-0.964781322	-1.005651175
Lipg	0.329242767	0.476385559	0.459530522	0.416787906	0.626104647	0.786951444	0.248873293	-0.637990484	-0.067320768	-0.710467194	-1.021127265	-0.906970426
Rps2	0.798824915	0.309630445	0.392090817	0.433740323	0.260457568	0.344119418	0.372704875	-0.433244188	-0.019609855	-0.417081547	-0.770403127	-1.271229646
Trpm1	0.010784141	0.044143377	0.297084695	1.407953222	1.499919567	0.712946283	0.399666323	-0.225637598	0.237417838	-1.349475734	-1.341094563	-1.69370755
Nme1	0.753166574	0.531709955	0.566356479	0.388711322	0.148016946	0.492112508	0.426034285	-0.804296772	-0.059231859	-0.612881941	-0.830780844	-0.998916652
Pim1	0.366489413	0.724888329	0.57261426	0.385608631	0.156203024	0.202122006	-0.178912717	0.109360024	0.029146304	-0.641715072	-0.725167808	-1.000636395
Pitx1	2.548136675	-0.419357366	0.005437536	-0.740096088	-0.444703536	3.235008119	2.868665865	0.150016261	-3.033093044	-1.054074692	-1.308666004	-1.466852804
Ppp1r14b	0.708778204	0.247147562	0.39375416	0.283171559	0.144330585	0.428197009	0.186974154	-0.042155406	0.053436136	-0.583022282	-0.855152051	-0.96545963
Ppfibp2	0.359308923	0.590291313	0.493419272	0.173509213	0.15849599	0.113353746	0.137872239	0.269296026	0.014113987	-0.642796815	-0.944917455	-0.721946439
Igdcc3	1.041904291	0.606024787	0.46740403	1.092094927	0.91738545	1.629053633	1.279772379	0.4367496	0.67485186	-2.545221274	-2.880899252	-2.719120431
Rbpms	0.680314205	0.252578776	0.216334404	0.105897537	-0.033776082	0.677217935	0.342816565	0.096682318	0.209555149	-0.715629267	-0.894762653	-0.937228888
Rgl1	0.836377469	0.806001774	0.699433748	0.376418822	0.320400411	0.595944789	-0.019117922	-0.238021724	-0.159861005	-1.062545367	-1.047092522	-1.107938472

Rpl21	0.139500112	0.766792483	-0.288412108	0.526257776	-0.56111937	0.798949972	0.714655554	0.214931362	0.586643149	-0.774832696	-0.983699802	-1.139666432
Rrm2	0.521110455	0.483447426	0.476038283	0.356239748	0.172710109	0.499101173	0.108763368	-0.140459917	-0.095128943	-0.692202925	-0.830716802	-0.858901975
Sptbn2	0.339167753	0.405496657	0.584059589	0.576359873	0.568267216	0.502830797	0.173601875	0.055805149	0.01699711	-0.757338211	-1.140310762	-1.324937047
Hoxc10	1.888077125	-0.618216085	2.032385659	-1.825685195	-1.05573744	2.855171983	2.953320261	0.92434845	-1.825685195	-1.825685195	-1.676609175	-1.825685195
Alx1	0.491699635	-0.31741999	-0.541632671	0.878699333	0.878889347	1.126294305	0.090203494	0.15526286	0.161479446	-0.354501591	-0.420786059	-2.148188108
Wt1	1.549190693	-0.151060092	0.11626251	0.448318684	0.3203444	0.867725735	0.320378636	0.328675542	-0.073008799	-0.890129432	-1.055738191	-1.780959686
Epb41l5	0.767217485	0.533964507	0.613086936	-0.021580293	0.241508258	0.573464386	0.450742276	-0.343604633	-0.107018545	-0.838511034	-1.01835146	-0.850917882
Rspo4	0.367683718	-0.260956459	-0.824247542	2.140508066	2.081802014	2.557982353	1.005894798	0.01076962	0.382096625	-1.818705161	-2.533669426	-3.033093044
Ppat	0.691189262	0.526204214	0.653922531	0.224933938	0.215936622	0.491658502	0.131939799	-0.336657215	-0.178959257	-0.653927843	-0.901775572	-0.86446498
Mogat2	0.981232859	0.680654061	0.649065074	0.781810889	0.692293865	1.307923766	0.529851381	-0.554403508	-0.095156316	-1.755950273	-1.758740055	-1.458581744
Prtg	1.075952641	0.809592245	0.767051568	0.415401285	0.399913966	0.88857065	0.760069417	0.340018936	0.200110302	-1.442693121	-2.334224417	-1.879763473
Car14	0.477268648	0.478293771	0.325811181	0.223800873	0.155592238	0.454125296	0.271145084	-0.079048929	-0.029597648	-0.659981595	-0.78919431	-0.828214611
Dmrta1	-0.223246556	0.275087522	0.202587359	0.828898695	0.218366992	1.155140534	0.810623034	0.271995257	0.250164534	-0.762393938	-1.031367962	-1.995855471
Ahcy	0.647946562	0.427225035	0.333782364	0.621746021	0.398385549	0.813329743	0.546572423	-0.470247661	-0.045784981	-0.897711624	-1.187735368	-1.187508063
Podxl	1.463982627	0.162081494	0.346980035	-0.482952754	0.495104941	0.546227887	0.140387986	0.449169921	-0.15418233	-1.005875579	-0.798450967	-1.162473262
Mapk12	0.448761208	0.625700316	0.549299112	0.048803028	0.131859386	0.137018019	0.408609817	0.285164811	0.193074814	-0.763965816	-1.097840648	-0.966484048
Hist1h2ad	1.406618927	0.445094708	0.35599749	-0.014071685	-0.179073244	0.365690874	0.83562757	-1.291054603	0.239976066	-0.388450182	-0.732752232	-1.043603691
Hist1h2ak	1.388400582	0.071953257	0.663693615	-0.099743291	0.0302791	0.595678423	0.660647292	-0.352823664	-0.1445091	-0.819409438	-0.537035161	-1.457131615
Hist1h2an	1.281409566	0.057938944	0.300302967	0.030286096	0.134156366	0.95590418	0.513798774	-1.057880373	0.203798222	-1.016902158	-0.414724828	-0.988087757
Hist1h2ap	1.094852956	-0.003304112	0.460400216	-0.211991623	-0.022559477	0.928614341	0.556427309	-0.441385282	0.380409064	-0.975718059	-0.488231423	-1.27751391
Hist1h2ab	1.575416285	0.302379089	0.650128866	0.172362106	-0.139130967	0.464899006	0.692730862	-1.170574428	0.198200768	-1.04211008	-0.452486804	-1.251814702
Fnd3c2	0.09294765	-0.224544324	-0.220818953	0.294370526	0.581712323	0.715153707	0.452211788	0.575177479	0.503830328	-0.921773249	-0.906176038	-0.942090338
Zdhhc23	-0.818453429	0.682099344	-0.173663867	1.134366996	1.185898185	0.593355784	0.236360533	0.084991886	-0.107820957	-0.89337113	-0.961266497	-0.962496847
Fndc3c1	0.099067324	-0.050196284	-0.081901096	0.341148064	0.528652913	0.638971667	0.651590353	0.594166166	0.367333744	-0.940542738	-1.131332942	-1.016957168
Lin28b	0.669391737	0.313253348	0.463447125	0.237417756	0.392777998	0.722252815	0.288021524	0.260810032	0.025581759	-0.982241782	-1.247363512	-1.143348798
Dnph1	0.772039363	0.354584687	0.165616229	0.525608435	0.029520526	0.723073716	0.53667348	-0.826249902	-0.155567956	-0.547976645	-0.721651392	-0.855670542
Nr1h5	1.909676753	-0.923597754	-0.923597754	-0.923597754	-0.923597754	3.475204245	2.861382657	-0.923597754	-0.923597754	-0.923597754	-0.923597754	-0.923597754
B830017H08Rik	0.635924079	1.032536229	0.602612861	0.688853686	0.101128341	0.461422598	-0.346446548	-0.343698527	0.324340022	-0.734649897	-1.210396248	-1.211626597
a	0.642178749	0.68857191	0.355729071	1.070004509	1.25072949	1.333267893	0.254543162	-0.322347592	0.198785833	-1.746003101	-1.84883857	-1.876621354
Nhp2	0.993034294	0.607130458	0.596910405	0.265356272	0.026285475	0.63040955	0.403371765	-0.677734596	-0.198733798	-0.781904139	-0.803187763	-1.060937562
Elovl2	0.697352718	0.389157526	0.549762498	0.21637831	0.315719882	0.67282104	0.189517003	-0.031121155	0.104289652	-0.932887635	-1.152022878	-1.01896696
Rplp1	0.775410743	-0.125573687	-0.02292735	0.305516331	0.099114316	0.862008666	0.73009537	-0.567892277	0.182157585	-0.771530518	-0.678708869	-0.787670311
Rbm38	0.459390939	0.463381807	0.293616316	0.32937244	0.093454593	0.562302699	0.026497073	0.071452759	0.017506532	-0.635395634	-0.836600756	-0.84497877
Mrpl12	0.745586874	0.522187572	0.629676659	0.168982049	0.150350152	0.46679307	0.277569459	-0.485365362	-0.133559556	-0.756832653	-0.766170462	-0.819217801
Arid3b	0.83427528	0.847459467	0.917997661	0.06301832	0.092268952	0.210402785	0.133147456	-0.290238733	-0.003081985	-0.962675793	-1.068242617	-0.774330793
Trim71	1.161001835	0.988011132	1.206478145	0.174056529	0.103757163	0.313160608	0.020041898	-0.031840294	-0.318547222	-1.252353042	-1.304767723	-1.058999029
Bola2	0.802625375	0.437472839	0.482769393	0.196028277	0.040841159	0.605672701	0.574007404	-0.52830962	-0.059570043	-0.81839819	-0.662524209	-1.070615086
Dctpp1	0.889527181	0.452899229	0.53418484	0.32173863	0.189657627	0.771121049	0.473680867	-0.533581337	-0.122375304	-0.864864439	-1.041984906	-1.070003437
Hist1h2ao	1.243210265	0.028651572	0.492617135	-0.17530193	-0.067598832	0.849447564	0.531615383	-0.406146064	0.296406277	-1.020360342	-0.56265563	-1.209885397
Lix1	0.648112678	0.336198513	0.312761634	0.325249137	0.370090025	0.494331046	0.690921979	0.541484029	0.70159055	-1.027145928	-1.557041919	-1.836551745
Fignl2	0.7299922	0.374252748	0.522575927	0.635749177	0.386605443	0.937844099	0.809135202	0.171227611	0.238467248	-1.625097703	-1.722903072	-1.457848881
Murc	0.714130184	0.900358399	0.51824901	0.146810188	0.00980552	-0.584061455	-0.309261055	0.662929291	0.138753457	-0.590308158	-0.689693811	-0.91771157
Ddx39	0.755530054	0.668411491	0.721873302	0.226030124	0.081423245	0.297522917	0.151504426	-0.253935198	-0.224823666	-0.733073892	-0.923427085	-0.767035717
Mcm10	0.609885047	0.733216095	0.666120138	0.135193129	0.058332761	0.348883036	-0.060431062	-0.044298697	-0.205225955	-0.716478953	-0.783040183	-0.742155357
NA	0.411827421	0.630319289	0.687300799	0.226805773	-0.420587339	0.364419509	0.480276494	-0.026526439	0.144653293	-1.095995225	-0.50987484	-0.892618736
Phactr3	0.0862804	0.234718919	0.243567688	0.728787442	0.913457132	1.161447994	0.020910786	0.001089182	-0.225714325	-0.982875849	-1.151848557	-1.029820812
Mnd1	0.352720937	0.337656681	0.155705297	0.41999876	0.364387431	0.464617343	0.496546491	-0.271139896	0.122649703	-0.416038605	-0.905628097	-1.121476046
Ninl	0.611511922	1.009630453	0.887999505	0.195854376	0.151265184	0.15393225	-0.35687478	0.368045002	-0.300235814	-0.700724665	-0.990042917	-1.030360516
Lin28a	1.873587451	0.59853876	0.585850929	-0.061389315	-0.408229468	2.168129316	2.558502923	0.397178522	0.696453271	-2.466028121	-3.033093044	-2.812866644
Plvap	0.111197818	-0.354070119	0.065400533	-0.019919876	0.443325455	0.366011141	0.976522226	0.858339955	-0.228742677	-1.161419804	-0.698251258	-0.358386348
Sall4	1.568270221	1.07648258	1.599392512	-0.077175147	-0.006036646	0.813775317	0.385287629	-0.274758635	-0.301894128	-1.71889728	-1.646824787	-1.417621637
Fam174b	-0.720414044	-0.872284699	-1.188561565	0.26688684	0.124929078	-0.223942362	0.424246675	0.277466916	0.676616602	0.874461458	0.41765549	-0.057060388
Apela	-1.234064928	-0.896806461	-0.362900948	-0.092344984	-0.067719607	0.408106055	-0.034395156	0.351965385	-0.133753531	0.629073279	0.793222327	0.639618569
Nhsl2	-1.010549151	-1.711804536	-1.566591419	0.146113271	0.476288881	-0.092746349	0.384118857	0.339368174	0.530426978	0.748182222	0.80049026	0.956702811
Gpr153	-1.031312008	-1.248300132	-1.194875856	0.0451881	-0.002002782	0.090561347	0.376792185	0.521642149	0.434115658	0.400611697	0.774081561	0.83367808
Ccdc149	-1.574283801	-0.816185065	-0.952965551	-0.214600983	0.306557713	-0.694494398	0.116445738	0.195291695	0.419663031	1.07039136	1.178970814	0.965209446
A730020E08Rik	-1.686696342	-1.048432125	-1.579335592	0.610850833	0.612145777	0.490346104	-0.125307514	0.517109827	0.200276849	0.743956772	0.711644428	0.553440982
Gm15910	-0.725651975	-1.111865409	-0.932909292	0.14244759	-0.044746939	-0.249004757	0.55701479	0.444928865	0.245942982	0.79822926	0.359697966	0.51591692
Mir5130	-1.36341713	-1.170510611	-1.797759746	0.885938423	0.822873491	0.076648236	-0.207029151	0.370765129	0.594325251	0.986552232	0.324241576	0.477372301
AW549542	-1.098651137	-0.982464283	-1.486462991	1.596409657	1.269648134	0.153885603	-1.941337409	-0.247502608	-0.911234256	1.097328966	1.59318089	0.957199434
Tcta	-1.261102443	-0.745456973	-0.949394673	-0.023106367	-0.315490998	0.111297102	0.391868327	0.100776173	0.313888225	0.644593498	0.953444024	0.778284105
6330403K07Rik	-0.842983311	-0.695695694	-0.767426696	0.039311995	0.162519997	-0.344079002	0.05975466	0.067749143	0.396226028	0.634974539	0.685392363	0.604255978
Dnm3	-1.925514478	-1.906253496	-1.49052506	0.637293693	0.527331854	0.074330126	-0.030263592	0.494269281	0.790230717	1.221414975	0.893348577	0.714337402
Synpo	-2.015001891	-1.987998316	-2.288730392	0.185466679	0.179104811	-0.1746649	1.189955088	1.299965379	1.371494146	0.700326656	0.760120102	0.779962638
Aldh6a1	-0.840639093	-0.854621369	-0.532686524	0.061971658	0.164741103	-0.338355728	-0.038354731	0.133447634	0.333023809	0.694834749	0.587715234	0.628923257
Vmac	-0.663095459	-0.946652151	-1.032938476	-0.012689346	-0.209073847	0.073297602	0.483391106	0.059161835	0.545731202	0.504575987	0.695473645	0.502817905
Lgr4	-0.785305127	-1.006062756	-0.984798413	0.064079133	0.117035214	-0.250470899	0.119374086	0.414934922	0.350626263	0.51774699	0.732709348	0.710131239
Osr2	-1.985118015	-1.909016761	-2.674286218	0.114069236	-0.385221999	-0.139658431	1.103842522	1.378463493	1.545076485	0.903070169	0.797578955	1.251200565
Camk2d	-0.761152953	-1.115765644	-0.718828293	0.037724941	0.173607503	-0.133168375	0.203905366	0.317252443	0.01527952	0.644404642	0.812044377	0.524696472
Lhfp	-1.159793825	-1.470619128	-1.846851774	0.654996172	0.845526662	0.287126639	0.933717476	0.800361162	0.967730119	0.386073241	0.156536223	-0.554802965
Maob	-0.653745144	-0.753657683	-1.290800821	0.239064453	-0.01781958	0.275489808	0.894513247	-0.304040263	0.451191656	0.400424896	0.345282802	0.414096628
Pygl	-1.545337652	-1.707768202	-1.276504099	-0.080458873	0.029555874	-0.221070986	0.454537945	0.338489919	0.334411318	1.094044324	1.222306606	1.357793827
Scn2a	-1.097672592	-0.543253806	-0.912480788	-0.100526471	0.050512579	-0.26176367	-0.323700612	0.620644765	0.284666385	0.706982642	1.023806177	0.552785392
Abca4	-1.186844272	-0.928229453	-0.980458276	0.261226365	0.587161963	0.257264259	-0.147049261	0.426780591	0.222229278	0.404094306	0.262583713	0.821240786
Npnt	-0.914784441	-1.620799251	-1.925608479	-0.011817494	0.144098189	-0.105568811	0.668669512	0.726571786	0.899422661	0.80452081	0.644282534	0.691012983
Palmd	-1.261529336	-1.399689711	-1.075961749	0.535114718	0.80188359	0.939150098	-1.170238988	-0.641045352	-0.863223088	1.031830558	1.902269558	1.201439701
Chrna4	-1.381938048	-1.63434548	-1.750836965	0.213295946	0.240784155	0.00233511	0.529108843	0.844615132	0.931421609	0.754372218	0.555012084	0.696175397
Tle6	-0.688404722	-0.794210585	-0.861685742	0.067788926	0.137906832	-0.024988925	0.180440994	0.67796694	0.076174868	0.491263627	0.61155156	0.126196224
Adam11	-0.805457864	-0.68188774	-0.756282196	0.184033581	-0.093018786	-0.334625469	0.308209383	0.803688403	0.553048012	0.276030269	0.297753587	0.24850882
Add2	-1.321554506	-0.959683201	-1.154823433	-0.013287029	-0.055741862	-0.375252154	0.062424686	0.786864225	0.586126412	0.989049936	0.712158124	0.743718804
Agtr1a	-0.93779923	-0.731266446	-1.397455786	-0.218681963	0.096939003	0.083290864	0.478998572	0.102611193	0.35278418	0.886708697	0.490790377	0.79308054
Agtr2	-3.033093044	-3.033093044	-3.033093044	1.126226919	1.245853776	0.224412269	0.688663836	0.259675103	1.117991162	2.337681892	2.306407207	0.775659052
Alcam	-0.482981864	-1.491938914	-2.729636919	0.685568702	0.966575037	0.587884834	-0.536305981	-0.374595889	-0.539424095	1.193558562	1.389400653	1.331895873
Ank1	-0.618353884	-1.249392798	-1.554910644	0.526816016	-0.061940506	0.111661128	0.266897524	0.91903287	0.486918697	0.266022737	0.734121571	0.181831458
Speg	-0.633495528	-0.922096311	-1.075178331	0.275860051	0.072938107	0.08975232	0.337470583	0.75907362	0.365417571	0.140597327	0.361114141	0.228546449
Nr2f2	-1.084183836	-0.874300425	-1.059005917	0.151099045	-0.024543751	-0.233282555	0.159396001	0.259219546	0.141800422	0.810077679	0.841188053	0.912535739
Artn	-2.239523187	-1.447789307	-1.926254163	-0.045197515	0.126690105	-0.595193523	0.611651727	1.231975327	0.713586977	1.308398546	0.949670503	1.311984508
Rab27a	-1.13389591	-0.981393517	-1.087464582	-0.051415454	0.232815244	-0.220186484	0.108066607	0.003084528	0.344747198	0.912520361	0.928806237	0.944315771
Astn1	-1.405331448	-1.713090588	-1.610784087	-0.042519679	0.07282749	-0.104867711	0.461055054	0.564317067	0.582263509	1.193645656	1.167511929	0.834972808
Zfhx3	-1.063415266	-1.267854792	-1.065839764	0.33395843	0.801961514	-0.214392869	0.234645062	0.574617846	0.512124439	0.829230541	0.468804707	-0.143839847
Bdnf	-1.785159967	-0.815275369	-1.376994214	0.98135162	0.905429009	0.333451624	-0.358209716	0.602854898	0.356086826	1.105932633	0.475702503	-0.425169847
Bmpr1b	-2.196118318	-2.416020961	-2.078721188	-0.391353585	-0.112318263	-0.308952278	0.410105792	0.739755922	0.670100208	1.576600756	1.950328621	2.156593293
Serping1	-1.182234519	-1.099680673	-1.027052676	-0.037681882	0.080605212	-0.374878735	0.211088925	0.71086112	0.39654992	0.742282785	0.960879347	0.619261176
Camk2a	-1.493828264	-1.713613216	-1.470864272	-0.229411391	-0.064730016	0.108436888	0.978753966	0.522131779	0.456074786	1.121675639	1.047040562	0.738333539
Runx2	-1.652964028	-0.961386107	-1.048176235	0.544340726	0.309316011	-0.905360073	-0.124319532	0.930630136	0.967299446	1.005430552	0.954300386	-0.01911128
Runx1t1	-2.185692039	-2.6880573	-3.033093044	0.436275123	0.592573797	-0.458370972	0.772389951	1.510651896	1.207932647	1.469417286	1.379105378	1.211273144
Entpd1	-1.129183292	-0.981353565	-0.968576305	-0.388876264	0.275113045	-0.334456058	0.501183271	0.341767066	-0.198352201	0.799424476	1.050382319	1.032927508
Cd82	-1.028070296	-1.467563722	-1.357746224	-0.04154561	0.005736645	-0.316862155	0.458711137	0.38996108	0.451809536	0.985171783	0.853285288	1.067112537
Cd83	-1.714941106	-1.679436554	-0.873581758	0.088208238	-0.123751676	-0.214165233	0.526535221	0.498392603	0.884834306	0.86984666	0.806250348	0.931808949
Cdh6	-1.075365541	-1.229338882	-1.828039204	1.071492628	1.1230647	1.111136472	0.004869925	0.008692886	-0.073027705	0.309842641	0.393519568	0.183152511
Cdkn2c	-0.719281648	-1.330880926	-1.280019974	0.11442949	0.594859163	0.329631358	0.067383555	0.20621681	-0.03281481	0.888186802	0.822566522	0.33972366
Cdo1	-1.012081455	-1.410555957	-1.784376394	1.126408812	1.107259624	1.112924205	0.716531523	0.119024632	0.552132137	0.291335522	0.008087876	-0.826690524
Cldn1	-2.11220546	-2.210470882	-2.753156982	0.48412459	0.061372308	0.031075956	1.787149299	1.433134481	1.8050476	0.476422821	0.545604703	0.451901567
Cntfr	-1.044877115	-1.993157315	-2.019116557	1.598496748	1.175737407	1.028644333	0.367168875	-0.145959573	0.316828628	0.219876568	0.31928875	0.17706925
Col3a1	-0.973711847	-1.245824845	-1.654152709	0.711488362	0.840935338	0.236933617	0.446008459	0.400761842	0.419970409	0.535944154	0.360199509	-0.078552289
Col6a3	-0.495844068	-0.783447312	-1.098398594	0.4999659	0.647286814	0.225908778	-0.582612058	0.173848455	-0.279507175	0.598260211	0.692580606	0.401958442
Col1a1	-0.905274747	-1.565996627	-1.696484011	0.462002356	0.58709935	0.044548888	0.335158364	0.098073033	0.153092927	0.931956488	0.930089082	0.625734897
Col1a2	-1.140835179	-1.070491959	-1.351415141	0.400602639	0.499296674	-0.077673759	0.244737346	0.249802347	0.395855646	0.818600446	0.58116958	0.450351361
Cplx2	-1.08066232	-1.154367669	-1.322194692	0.196195821	0.272713449	0.137091063	0.288682922	0.377996409	0.47294175	0.543199133	0.582292984	0.686111149
Crhbp	-1.153316841	-2.081379612	-2.222405904	-0.373333598	-0.264938412	0.28643462	1.847858032	1.290377186	1.005226479	0.368505393	0.115146438	1.181826219
Crym	-0.834711995	-1.65839012	-1.235629108	0.34374589	0.078861295	0.476196833	-0.078233747	-0.078022611	0.525230726	1.435496001	1.310698775	-0.285241938
Ctf1	-0.850481957	-0.947583783	-0.535936365	-0.087095598	-0.101541697	-0.073945338	0.36352186	0.23519349	0.086228361	0.617501612	0.702250099	0.591889316
Ctsh	-0.730193379	-0.814490958	-0.672405962	0.198265762	0.457203744	0.209751883	0.439134742	-0.089423764	0.06384775	-0.071061846	0.622044633	0.387327394
Cyp7b1	-1.470442469	-1.48507387	-1.195929332	0.250009566	0.105025132	-0.736283263	-0.172028345	0.917955944	0.623129417	1.027026193	1.149300723	0.987310303

Dab2	-1.490440863	-1.92514183	-2.139026408	0.054683975	0.209031622	-0.511470936	0.248396942	0.87927271	0.700588195	1.410233656	1.427844467	1.136028472
Dach1	-1.229370117	-0.918399574	-0.575562966	0.785136961	0.946617531	0.780463301	0.110066296	0.127883843	0.119645597	-0.148767599	-0.115711635	0.11799836
Dcx	-1.637609999	-2.168701093	-1.957454404	0.217478671	0.612629629	0.577130265	1.256818804	1.082608375	1.239017366	0.29526188	0.079817928	0.403002579
Dlk1	-0.32772105	-1.576048777	-1.587879404	0.811456316	0.581040541	0.551991131	0.677307478	0.253774008	0.582551134	0.23303486	0.124529037	-0.324035274
Dmd	-0.564166085	-0.861120424	-1.018662093	0.191397999	0.217370472	0.499824395	0.560130903	0.499600664	0.42111734	0.104792838	-0.114819962	0.064533953
Doc2b	-1.401610699	-2.44363386	-1.785775716	0.309153531	-0.297929905	-0.917045572	-0.372188665	1.039717888	0.646798738	2.103958819	1.999688329	1.118867111
Dpp6	-0.878614238	-1.648588195	-1.355448719	0.379670216	0.525529256	0.074573891	-0.435874564	-0.14655897	-0.01115745	1.208128279	1.465420813	0.822919682
Ebf2	-2.163674476	-2.246166808	-2.833286141	0.221611319	0.351431353	-0.675088353	0.740772394	1.423250893	1.083236489	1.521807914	1.592174227	0.983931189
Eda	-1.281885708	-1.016770495	-1.56629669	0.269205104	0.052704176	-0.264487246	0.869607737	1.0036985	1.106858622	0.378262989	0.26592038	0.183182631
S1pr3	-1.337813292	-1.571604791	-1.837098075	0.592946525	0.68219546	0.294616711	0.614978044	0.156252834	0.644930874	0.765346879	0.63096639	0.364282441
Edil3	-0.894731166	-2.302329175	-2.11526998	0.138934069	0.621810971	-0.154044635	0.148342764	0.579887066	0.587250706	1.195920888	1.337057111	0.857171382
Edn3	-1.391315033	-1.032032697	-1.199178836	0.089801867	-0.047700981	-0.481905815	0.405321452	0.531145582	0.681969677	0.836776778	0.816257797	0.79086021
Efna5	-0.795731542	-1.258241262	-1.169921808	-0.064835503	0.435674186	-0.07283268	0.40356546	0.264813787	0.465904666	0.728357261	0.691128753	0.372118683
Efnb2	-1.113032004	-1.011027251	-1.135359954	0.580798425	0.701299014	0.375518652	0.625184038	0.416201755	0.591309285	0.337288015	0.171264222	-0.539444197
Efnb3	-0.693643229	-0.732279735	-0.949175262	0.46012347	0.317710657	0.241964014	0.598037094	0.077773752	0.527259864	0.094170262	0.078077827	-0.020018714
Egr1	-2.070307904	-1.461418727	-1.968319618	1.044542488	-0.286191992	-1.220567243	-0.678929443	1.481853035	1.038044795	1.941341448	1.224554336	0.955398824
Egr2	-1.796505116	-1.141473018	-1.650414272	0.626707862	-0.357348954	-1.383651113	-1.385384532	1.389448819	0.884915376	2.28555374	1.298159474	1.229991735
Emp3	-0.920956166	-1.019526841	-0.410802623	-0.014586529	0.324458264	-0.199786494	0.124510698	0.093072767	0.020990076	0.736986524	0.838240517	0.427399808
Emx2	-3.033093044	-3.033093044	-3.033093044	0.558581042	0.049783709	0.124410622	1.958895775	2.045320665	2.015805952	1.880218865	1.788489399	0.314157849
Epb41l1	-0.834372995	-0.98267368	-1.03305974	0.067038584	-0.087222988	-0.311896151	-0.029112012	0.291027412	0.255377292	0.666562057	1.039142579	0.959189642
Epb41l3	-0.911054214	-1.108336302	-1.21293587	0.270776962	0.292582901	-0.077110246	-0.171678397	0.23253837	0.00901964	0.869225493	0.987706783	0.81926488
Stom	-0.614094218	-1.171034379	-0.960590097	0.494668985	0.501763696	0.082899478	0.090244194	-0.160445022	0.211154986	0.675307666	0.222817076	0.627307635
Epha7	-1.754009561	-1.835193588	-1.851293774	0.280819379	0.72973464	0.074144531	0.513894199	0.639111546	0.684945102	0.8441657	0.796932528	0.876749298
Nr2f1	-1.472449843	-1.922018445	-3.033093044	0.770041588	0.429886164	0.488405072	1.843603972	2.204008846	1.753629344	0.569017524	0.071899591	-1.489257738
Mpzl2	-1.907506073	-1.929171605	-1.430286167	0.247655041	0.625811756	0.198209794	0.379642532	0.202407832	0.41617118	1.029031336	1.411759783	0.75627459
Kcnn3	-0.924492046	-1.268238647	-1.606695047	0.72004262	0.686075604	0.852775934	-0.200733684	0.082015546	-0.363332328	0.744255733	0.944489237	0.333837078
Eya4	-2.153961507	-2.109652623	-2.934750436	0.341017503	0.488387723	-0.179006118	0.574730156	1.660110135	1.193048676	1.329020856	1.170265073	0.620791163
Colec12	-0.233829715	-1.259483787	-1.249070684	0.253427866	0.242983925	0.275969432	0.178088438	0.297924382	0.188883812	0.439824641	0.495714016	0.369567672
Fap	-2.22859055	-2.072977465	-2.881843051	0.44333331	0.609609052	-0.003170504	1.441610835	2.794776722	2.195031943	0.824438277	0.146245709	-1.268464278
Fbn1	-0.697693979	-1.180804372	-1.624224332	0.079464522	0.446132596	-0.110829759	0.300683905	0.385647331	0.272289577	0.804343461	0.770301282	0.554689768
Fcgrt	-1.033998893	-1.401233918	-1.456997515	0.45981036	0.19761065	0.341212999	0.360058489	0.760201969	0.489550554	0.571196381	0.269670295	0.442918629
Fgfr2	-1.547664319	-1.952827204	-2.559026547	0.484255653	0.542444677	-0.06309447	0.380025254	0.7531117	0.621805517	0.90094353	1.23555999	1.204465319
Fhl2	-1.61100555	-1.455392465	-0.982753464	-0.258328209	0.647930714	-1.16831365	-0.112330995	0.801923951	0.665336348	1.298796691	1.486466554	0.687670076
Fli1	-1.408651682	-1.5180716	-1.53013314	0.115409737	0.157539619	-0.064228865	0.756839237	1.067809186	0.74436769	0.471400108	0.543166283	0.664553425
Fos	-1.443356006	-0.672076281	-1.774091956	0.699653821	-0.253111379	-0.792667653	-0.580068714	1.166266458	0.685913567	1.409287899	0.988225554	0.566024689
Fut4	-0.626479861	-1.472924474	-0.825222703	0.535812032	0.292002131	0.032023898	0.51762754	0.16201359	0.673349534	0.262693935	0.167794759	0.281309618
Gab1	-0.78130496	-0.757777653	-0.723097829	0.048664591	-0.016437011	-0.223514384	0.118987865	0.096617347	0.331095815	0.527490013	0.600496366	0.77877984
Gab2	-1.090437386	-0.705926577	-0.741795888	0.225689373	0.346574302	-0.043463577	0.288533155	0.165941735	0.354863518	0.280842272	0.431825941	0.487353132
Gabra3	-0.60830993	-1.198796525	-1.075019495	-0.160301716	0.1784269	0.337395491	0.358220158	0.425676819	0.581503315	0.596822471	0.666267456	-0.101884944
Gabrb3	-1.096318727	-0.934875707	-1.248373147	0.588827053	0.702649713	0.81110782	0.502947927	0.170331897	0.431637842	0.282393033	0.1045625	-0.314890205
Gdnf	-3.033093044	-2.918119747	-3.033093044	1.176779498	0.291145084	0.56114689	2.714600478	2.714187931	2.738799528	1.014612373	0.923670063	-2.512068122
Ghr	-0.998815539	-1.067689936	-1.034974912	-0.110189099	0.208751789	-0.365451999	-0.017549917	0.44990307	0.260125394	0.828091457	0.958702112	0.889097579
Gli2	-0.807681772	-0.822545773	-1.023770599	0.300305548	0.404606963	0.210950937	0.018775897	0.152542249	0.197433414	0.289703332	0.494632481	0.585047323
Glrb	-1.008392167	-1.098577533	-0.849865242	0.102281858	0.406851902	-0.150822019	0.535756236	0.765854477	0.736824983	0.189297557	0.188213551	0.182576397
Pdpn	-0.720356279	-0.928555108	-1.461991357	0.007162033	-0.069670489	0.001676454	0.488772057	-0.07052988	0.693462308	0.908660936	0.708624014	0.442745312
Gpc4	-1.332766975	-1.888423487	-1.737579358	0.32876844	0.488456027	0.298291947	0.064564251	-0.243397805	0.093237922	1.167233272	1.419291471	1.342324295
Gria2	-2.920597569	-2.366811284	-2.277846048	0.54351731	0.876290445	-0.924100001	1.121838687	3.304631999	2.206092076	1.326446979	0.533552393	-1.423014987
Gsc	-1.439559494	-1.71370854	-2.44141948	0.439901803	0.143012324	-0.105959794	1.229225095	1.597972678	1.201954167	0.451364969	0.490668403	0.14654787
Gstm2	-0.688851289	-0.813735123	-0.903828585	0.030537174	0.11823034	-0.033045786	0.186357631	-0.159208888	0.597568667	0.425803595	0.739603515	0.50056875
H19	-0.711160108	-0.953745883	-1.009341753	0.052783816	0.051892397	0.064044989	0.381437116	-0.170290799	0.232217581	0.595035166	0.677046034	0.790081444
Hoxb3	-1.202021242	-1.511472436	-1.589152863	0.900621461	0.897955725	0.715396287	0.908608954	1.373576627	1.133250087	0.617978603	0.259914672	-2.504655875
Hoxb4	-1.107745421	-1.353817221	-2.010739636	0.709755788	0.691241172	0.294654489	1.159406356	1.410447807	1.246365915	1.041049002	0.77898993	-2.859608181
Hoxc4	-1.479416013	-1.881372308	-2.067607865	0.74738387	0.595938014	0.245804593	1.215773242	1.391866267	1.522530113	0.944876408	0.599889052	-1.835665373
Hoxc5	-1.157062523	-1.851559424	-2.895764713	0.847255694	0.363941284	0.206600086	0.942647727	1.276319809	1.533973362	1.460447798	1.138565036	-1.865364136
Hoxc6	-1.37172851	-1.450876908	-1.665230596	0.452843798	0.530684984	0.271714746	0.991049726	1.042459444	1.190154307	0.865734968	0.566379037	-1.423184995
Hpse	-1.36296817	-1.306457398	-1.500248172	0.741852901	0.763188721	0.687965691	-0.081457447	0.162668349	-0.186211199	0.48115396	0.735041812	0.865470951
Hs3st1	-1.916811013	-1.825642196	-2.308291616	0.06488649	-0.252822213	-0.525141981	0.461488618	0.648108039	0.999452204	1.98222324	1.731182444	0.941367985
Id2	-0.973335502	-0.622734959	-0.7996432	0.580765504	0.676174029	0.466431836	-0.075123002	0.258603875	0.192542	0.197898975	0.209622622	-0.111202178
Ids	-0.81190609	-1.075848796	-0.806087237	-0.159980474	0.140120743	-0.255214486	0.053610575	0.198067257	0.384251897	0.813176856	0.747253429	0.772556326
Igf1	-1.349353118	-3.033093044	-3.033093044	0.561795173	0.873339742	-0.043470758	0.742844735	1.706297312	1.743124612	1.390938572	0.956896963	-0.145727512
Igf2	-0.659363963	-1.077332818	-1.110140994	0.236940713	0.191989942	0.240209555	0.62860221	-0.197027204	0.381469042	0.374714962	0.468891463	0.521047093
Cyr61	-1.574270633	-0.990698354	-1.615799829	0.601876499	0.10718224	-0.811643346	0.018626462	1.492776214	0.962128197	0.815621446	0.68995121	0.304249894
Igfbp4	-0.520805385	-0.865067972	-0.8488858	0.701032854	0.535338769	0.496603064	0.078256045	-0.391674785	0.05959021	0.220701924	0.234546581	0.300364496
Il10rb	-0.502087298	-0.574954105	-1.159425211	-0.054136177	-0.035551362	0.326653798	-0.354371076	0.361864634	0.08592827	0.481133484	0.710897678	0.714047365
Itm2a	-1.65887244	-2.873820914	-2.93244692	1.218062891	1.297488545	1.09675959	1.084771637	0.251862278	0.864581836	0.518323112	0.609270044	0.524020341
Kcnd2	-2.52538591	-1.363747971	-1.96535869	0.54907415	0.411518477	-0.290574031	0.378910874	1.02785626	0.835989611	1.158002003	1.249000724	0.534714504
Kcnh2	-1.254259634	-1.661640898	-1.64567998	0.356000231	0.190507157	0.194816802	1.47202414	1.132752908	1.187766034	0.322620085	0.045067882	-0.339974727
Mdfic	-0.960976797	-1.113266563	-1.132171317	0.145907494	0.356287997	-0.042713892	0.079719918	-0.428750601	0.087782447	0.882493475	1.123726236	1.001961603
Klf3	-0.824866381	-1.15682594	-0.826965844	0.305447196	0.373667448	0.132221393	0.705359408	0.407298233	0.58300789	0.027853612	0.212043251	0.061759732
Aff3	-1.040760475	-1.425960131	-1.615719468	0.123258464	0.303076484	0.008354677	0.613851546	0.710783719	0.620063393	0.52014619	0.469819284	0.713086317
Lbp	-2.201732843	-2.279797918	-2.376376184	0.219429963	0.237207906	-0.698473551	0.848319811	1.319545164	1.209303616	0.912557704	1.223893131	1.586123864
Ldb2	-1.521000273	-1.659701339	-1.933666558	0.438714304	0.509535422	0.07183351	0.831527593	0.751244193	0.772672789	0.617682636	0.528093611	0.593064113
Lox	-1.729307313	-1.891815832	-2.347497656	1.360416942	1.192143375	0.754760757	-1.082757837	-0.470403161	-0.022965431	1.792326012	1.760833902	0.684266241
Lsp1	-0.730368111	-1.174634256	-1.327008544	0.827717706	0.707179715	0.661210401	0.461620658	0.029505367	0.063530996	0.294569261	0.244578258	-0.057901451
Peg10	-0.567779634	-1.124096581	-1.087827806	0.18223086	0.482714267	0.442445893	0.847471033	0.532395761	0.662432858	-0.001211379	-0.25537134	-0.113403932
Xpnpep2	-1.105097213	-1.123016332	-1.815858797	0.31096517	0.554863956	0.201278672	0.304567632	0.14033924	0.432228679	1.045640962	0.719141579	0.334946451
Mab21l1	-1.884404832	-1.42150388	-1.866221567	0.514445439	0.738880574	0.282669506	-0.113071247	0.206950163	0.199951805	0.997024274	1.104318275	1.240961492
Mxd4	-1.296496026	-1.426130651	-1.300330396	0.216185522	-0.016863985	-0.472657417	0.342353594	0.444179466	0.609114096	0.864258614	0.960684263	1.075702921
Bmf	-1.972339174	-1.954478883	-2.474969447	0.177799346	0.010903991	-0.204369305	1.382518425	0.855550645	1.330187719	0.889176626	0.865573864	1.094446194
Mbp	-1.010986754	-1.543899888	-2.029218649	0.76206184	0.464071943	0.48978912	0.829602152	0.940997771	0.516905653	0.517175439	0.201998222	-0.138496849
Mc4r	-0.694562498	-1.335766617	-1.763651561	0.290355724	0.591847453	0.078484181	-0.017999252	0.291005124	0.754228747	0.746064916	0.719777129	0.340216653
Meox2	-1.365348044	-0.798798116	-0.951806775	0.253675348	0.401655177	-0.681219636	-0.083458165	0.358598589	0.435953413	1.028651396	0.747294967	0.654801845
Met	-1.39709171	-1.41740131	-1.102297347	-0.054692694	0.197769108	-0.350285833	0.553568413	0.465771397	0.528994935	0.677632593	0.985328296	0.912704153
Mme	-1.241620379	-1.755404955	-1.815956413	0.321290553	0.589164922	0.183030705	0.302478426	0.478152081	0.497492176	0.631366257	0.802411937	1.007594691
Mmp11	-1.515615631	-1.459307608	-1.69445066	0.240782836	0.061646073	-0.254921018	0.516510679	0.358039635	0.648786392	0.9416635	1.169386118	0.987479684
Nap1l2	-1.282195951	-1.608635379	-1.280851875	-0.096032869	-0.312686648	0.020003523	0.238092097	0.59624262	0.37148821	1.672834808	1.136728628	0.545012836
Nbl1	-1.522871321	-1.010156929	-1.602620851	0.620791618	0.285512972	-0.147978857	-0.315853961	-0.140046074	0.285122122	1.560878752	1.257065886	0.730156644
Nedd9	-0.999516085	-0.740229265	-1.14785714	0.114946342	0.421503747	-0.253407915	-0.281704683	0.225637095	0.214269456	0.816639869	0.902477649	0.72724093
Nefl	-1.551029431	-0.748992585	-0.521057005	0.376765121	0.589603381	0.381028676	-0.115824332	-0.0860541	-0.185220569	1.400110538	0.918035217	-0.457364913
Ngf	-1.456971866	-1.039283349	-1.617273212	0.116482413	0.524769794	-0.092896028	-0.36010946	0.13392024	0.334843185	1.537103583	1.300097178	0.619317522
Nqo1	-0.851820261	-0.833136096	-0.907285739	0.781017006	0.817614236	0.777445502	0.388900258	-0.368540841	0.246061132	0.117601103	-0.120742276	-0.047114023
Nrtn	-0.527526891	-1.047916865	-1.233335885	0.47529015	-0.358551616	-0.203561779	0.648937355	0.254567937	0.420548215	0.677976834	0.385669191	0.507903353
Ntf3	-1.405833746	-0.928667069	-1.044284073	0.691865192	0.547450657	-0.321178061	0.081411318	0.264190391	0.319401595	0.721939299	0.506276049	0.56742845
Cldn11	-2.314727532	-1.592252766	-2.34387838	-0.25527261	-0.23011991	-0.081412347	1.512099286	0.730141718	1.324233494	1.376988508	1.453556887	0.42064365
Pappa	-2.221441575	-1.895072937	-2.88204249	0.194289751	0.318780036	-1.092335994	0.666916906	1.169978071	1.04137755	1.630212816	1.80704843	1.262289436
Pbx1	-0.933872668	-1.414014071	-1.59694092	0.389272138	0.567237794	0.287572668	1.213840554	0.878546333	0.999875352	0.077962081	-0.091069996	-0.378409262
Pbx3	-0.955549394	-1.347244165	-1.574588692	0.647992172	0.622972773	0.553929762	0.57814938	0.589619455	0.631296389	0.12515251	0.065843872	0.062425939
Pcdh10	-2.756104507	-2.947952317	-3.033093044	1.549586062	1.71781277	0.691989039	0.362813643	0.517992379	0.650168129	1.139472087	1.256719395	1.098900114
Pcdh8	-3.033093044	-3.033093044	-0.942943902	1.090056564	1.477899049	0.052588346	0.387151712	0.661821948	0.964791455	1.455303255	1.245806644	0.761527591
Pcsk5	-1.075019449	-1.136425622	-1.230457564	0.246729326	0.428016967	-0.155572573	0.247718015	0.793554515	0.582369884	0.431561323	0.475392375	0.392132803
Pdk2	-0.627748706	-1.193285153	-1.046328824	-0.013914867	-0.087912102	-0.18619084	0.458644788	-0.181202245	0.418765781	0.792610508	0.844638861	0.821922798
Phka1	-1.008940662	-0.894789372	-0.973327458	0.385874922	0.324488765	0.150835598	0.198306041	0.405382383	0.297122656	0.391777591	0.418187054	0.305082481
Prkch	-1.08023203	-1.375216239	-1.25950483	0.357506639	0.272506812	-0.220388116	0.454289242	0.186894403	0.11717258	0.951138758	0.751778623	0.844054158
Plat	-0.544138303	-1.572599047	-1.576032229	0.270678473	0.311182279	-0.116278335	0.357054953	0.663076911	0.188903666	0.844668986	0.826464446	0.347018201
Prrx1	-0.866500572	-1.012155757	-1.082478611	0.606183872	0.803942535	0.608610824	0.088639625	-0.168087953	0.082638769	0.266525539	0.21165246	0.461029269
	-1.262335781	-0.741323249	-1.146253729	0.235589124	0.141709123	-0.273038345	0.350230541	-0.358890466	0.403529537	0.718698131	1.079431241	0.852653873
Pou2f2	-1.180250108	-1.001664495	-0.841888823	0.631094749	0.652401054	0.334531929	0.299749199	0.53613077	0.064767394	0.164850762	0.288549172	0.051728397
Prkar2b	-0.773764626	-0.857383653	-0.806711178	0.3258647	0.331005446	0.24970804	0.260374818	0.226938026	0.444918986	0.250746967	0.112484553	0.235817922
Prkg2	-0.756958268	-0.887224692	-1.41429618	0.489701154	0.432458967	0.174998213	0.547650982	0.326313886	0.564044265	0.45065568	0.702379349	-0.629723355
Prtn3	-0.851281338	-0.987740746	-0.794428655	0.187913428	-0.200596574	-0.214244714	0.376498628	0.338609264	0.37437654	0.61113822	0.637003035	0.522752913
Ptger4	-1.32773954	-1.262235675	-1.648521387	1.043726054	0.541962258	0.235460852	0.24758973	0.821537435	0.73284882	0.587411229	0.883334008	-0.855373784
Rspo1	-0.832729728	-1.313939998	-3.033093044	1.317089122	0.588015764	0.451772198	1.427317126	1.472991703	1.621690843	1.072519284	-0.037989361	-2.552428941
Pth1r	-0.774213041	-1.369994495	-1.586267856	1.11396774	0.946394502	0.772477553	0.588930184	0.182796197	0.385908408	0.041350766	0.115800956	-0.417150915
Sirpa	-1.183270535	-1.393418239	-1.406253957	0.280191971	0.243988986	0.456248196	0.757566273	0.53542757	0.500592264	0.371122052	0.708360649	0.12944477

Robo1	-0.7830365	-1.157480528	-1.228601144	-0.054311174	0.162713136	-0.216144261	-0.100987516	0.162900869	0.221736986	0.965055111	0.974058163	1.054096857
Mst1r	-0.827541921	-1.439141199	-0.737578351	0.312509729	0.176284705	-0.031370778	-0.389362123	0.486896095	-0.045271859	0.818824713	1.025284965	0.650466023
Scnn1a	-0.656777491	-0.717283692	-1.152828799	0.253226543	-0.166895011	-0.399973537	0.560965273	0.4932327	0.527549594	0.479610089	0.685893321	0.093281011
Scx	-1.682811887	-1.509111475	-1.877603106	-0.0031006	-0.097734402	-0.657915416	0.908839893	1.165189358	1.164866964	0.963122923	0.794468632	0.831789116
Cxcl12	-2.556346574	-2.856141646	-3.033093044	-0.046459565	-0.140368919	-0.774884893	1.762062996	1.734855686	1.861318917	1.692159954	1.810826089	1.477331158
Sema3a	-0.74801142	-1.130226477	-1.739117836	0.173002737	0.332805975	0.194050106	0.419671836	0.698984457	0.694820401	0.465716941	0.399154776	0.239148504
Sema4f	-1.271442423	-1.616808934	-1.326360276	0.161910092	0.216873093	-0.061627028	0.233290857	0.069487083	0.340133074	1.159453789	1.142342255	0.952748418
Shox2	-1.830101433	-2.075951307	-2.332613674	0.638485446	0.754056994	0.351634766	1.014331025	1.218612632	1.187304775	0.580758631	0.379482877	0.113999267
Six1	-3.033093044	-3.033093044	-3.033093044	0.99586192	0.984818985	0.199712377	0.739502029	0.720113441	0.757274701	1.855370275	2.163062493	1.908454161
Slc8a1	-0.604660621	-0.965408424	-1.012161896	0.6690301	1.009443036	0.470713028	0.063442295	0.016669544	0.085231524	0.300690191	0.151861917	-0.184850695
Snap91	-2.078042143	-2.197216593	-2.108251357	1.095984417	1.187204236	0.645526746	0.719673181	0.963009873	0.793843799	0.59266624	0.208825087	0.176776515
Sntb1	-0.754253707	-0.769399722	-0.817811255	0.097444703	0.649889787	-0.269688581	-0.16417312	0.409932229	-0.110210954	0.714812307	0.480843506	0.532614806
Sorl1	-1.160081768	-1.491678764	-2.081367097	0.5194242	0.633627903	0.174453063	0.682975469	0.731810786	0.913529198	0.626576951	0.455362725	-0.004632666
Spock1	-1.163136061	-1.749472867	-1.460328329	0.271575396	0.241118588	-0.705735969	-0.138186263	0.584544088	0.278846354	1.669108179	1.616940876	0.554726009
Stra6	-1.264511166	-1.199970051	-1.499300532	0.853306711	0.59286399	0.461316374	0.889932649	0.605763709	1.03962816	0.062167778	-0.09205916	-0.449138461
Rgag1	-0.754529935	-1.399990191	-1.757907303	-0.109204737	-0.198193454	0.119850466	0.867485116	0.535370412	0.764902386	0.883218983	0.373410986	0.675587271
Iglon5	-1.083829394	-1.215325701	-0.996934627	0.116637361	0.010005017	-0.0958481	0.129940463	-0.062651583	0.323686652	0.805163774	1.136841932	0.932314206
Dock10	-1.408528049	-0.711106415	-1.474139671	0.595321897	0.703633917	0.695808302	0.588296965	0.973619997	0.332832923	-0.077668546	0.148276759	-0.366348079
Pcdh9	-2.123026277	-3.02262177	-2.116446182	-0.174115705	0.118023406	-0.71587852	-0.198933704	0.894843838	0.526371895	1.963384531	2.297632341	2.550766148
Spsb4	-0.778164582	-0.85181977	-1.045945742	0.173366501	0.008247665	-0.123937777	0.800538483	0.66355886	0.952207848	-0.082647121	0.072001669	0.212593966
Klhl32	-1.041251314	-0.713014311	-0.544975434	0.609783864	0.844520101	0.155552361	0.717414305	0.161018422	-0.030484464	-0.235162008	0.217472904	-0.140874423
Pgghg	-0.692142766	-0.751195386	-0.952051321	-0.063717274	-0.179067229	-0.072159968	0.448609435	0.147629886	0.301540081	0.565905263	0.67624673	0.570402549
Tap1	-0.9546949	-1.636679959	-0.896907483	0.071366055	-0.453060608	0.245226318	0.096555874	0.340188324	0.426256701	0.748618879	1.137201588	0.875929211
Fbxl16	-1.39684521	-1.089015733	-1.139235716	0.089089423	-0.141024212	-0.239556526	0.322765103	0.654321436	0.672510085	0.702568981	0.953881132	0.610541236
Slc35f1	-1.531366981	-1.792183611	-2.233784284	0.131318097	0.124519892	0.139022909	0.493703134	0.402290046	0.931529562	1.086167745	1.306826422	0.941957071
Trmt2b	-0.974188816	-0.747903014	-0.722320456	-0.02050452	0.084114702	0.045030722	0.312080016	0.425567819	0.50289105	0.263078252	0.452152241	0.380002003
Ccdc85a	-3.033093044	-2.183107584	-2.63636514	0.450158082	0.442519286	-0.498631415	0.354232915	0.855637571	0.472533222	1.629196024	2.018996945	2.131376859
Rnf157	-0.939283248	-0.891722359	-0.774401537	0.304337612	0.223943937	-0.044169573	0.048079229	0.056911532	0.312063989	0.552543457	0.692164131	0.459532831
Tgfb2	-1.688098441	-2.127813692	-2.443606877	0.088185246	0.453374468	-0.339437144	0.424638989	0.863546857	0.971284754	1.422468385	1.464063585	0.911393868
Mboat1	-1.350899961	-0.997917898	-0.95807547	0.173025491	0.28585528	-0.406208091	-0.053530482	0.078919953	0.471894335	0.994296333	0.975258763	0.787381747
Tgfbr3	-0.749240698	-0.722155151	-1.39650525	0.063000237	0.249410477	-0.085513948	0.235058393	0.243869225	0.247083585	0.770818428	0.644801351	0.499373352
Thbs2	-1.386758303	-1.408034128	-2.087077701	0.962687274	1.25128234	0.477064121	0.12804535	0.368681198	0.611086219	0.476469704	0.652799371	-0.046245445
Lhfpl2	-0.851016966	-0.970401543	-1.020679478	0.247077591	0.238857233	-0.135806183	0.173105272	0.182982325	0.54509178	0.66411599	0.444940915	0.481733064
Tle2	-2.130358875	-1.424165668	-2.083927547	0.122693646	0.051398609	-0.898061269	0.326926484	1.903097104	0.943357438	1.074365773	1.50588431	0.608789995
Fam167a	-0.792805794	-0.739849899	-1.07410322	0.228872078	0.494495434	0.256107212	-0.091154381	0.087304613	0.243751887	0.367615879	0.521709679	0.498015113
Pcdh17	-2.090080684	-2.489628367	-2.239104591	0.272693432	0.929252376	0.375497732	-0.134482305	0.342390083	0.128445058	1.556932558	1.701941508	1.6461432
Ucp2	-0.952686861	-0.999611157	-0.740212453	0.423626496	0.28890213	0.337448533	0.144484796	-0.365845369	0.014725708	0.480730961	0.630712451	0.737724765
Utrn	-0.644611632	-0.895346719	-0.98748551	-0.066852953	0.327771115	-0.151055452	0.515932789	0.681803305	0.518063063	0.286084629	0.201374154	0.21432321
Dap	-0.860707308	-0.733088345	-1.233490145	0.050575013	-0.042375476	-0.216611952	-0.101391604	-0.033001473	0.446007385	0.812311208	0.935440267	0.976332431
Nipal2	-0.850775279	-1.289693637	-1.316723835	0.209508871	0.280949743	-0.232637638	0.40252269	0.915971896	0.447681225	1.111241753	0.765838743	-0.443884532
Wisp1	-1.153976567	-1.880664925	-1.826268037	-0.013895931	-0.017349222	-0.364010619	0.543571806	0.620499822	0.75289323	1.901180547	1.250205546	0.187814349
Wnt11	-3.019461367	-3.033093044	-2.906243336	0.969336403	1.028899164	0.446389652	0.489286892	0.476833642	0.564350523	1.737030961	1.524016292	1.730167961
Glis3	-2.146687742	-1.677829588	-1.47311619	-0.203147886	0.066604319	-0.536460899	1.016473853	1.295046069	1.280754919	0.767536802	0.88874296	0.722083382
Zfp36	-1.839695752	-0.772605298	-0.646462758	0.821439567	0.582700719	-0.529896312	-0.48305068	0.221710738	0.811463904	0.811616523	0.595563936	0.427215414
Plcl1	-2.482346779	-2.201517907	-2.803128625	0.75484272	0.612494843	0.057121514	1.055037796	1.630182875	1.502901602	0.603069365	0.918026456	0.35331614
Zim1	-0.81931122	-1.094205498	-1.570869077	0.125238269	0.39909105	-0.299974093	0.468567056	1.590677974	1.198855752	0.861059356	0.287914885	-1.147044454
Large2	-1.175813481	-0.989691342	-1.217741774	0.07746449	-0.156208232	-0.337643739	0.670660131	0.821325117	0.635742176	0.43439866	0.754962603	0.482545391
Ebf4	-1.6628661	-1.532964392	-1.597660216	0.308132596	-0.169151985	-0.692643749	0.159924409	1.35674863	0.783505923	1.160672577	1.11890599	0.767396318
Ppp1r3d	-0.584375905	-0.995793077	-1.066186262	0.295760739	0.169636313	0.14591277	0.399746181	-0.057048642	0.453017493	0.731164886	0.142971079	0.365194424
Fam151a	-1.019746856	-1.612923716	-1.558526828	0.877739387	0.762067765	0.271179607	0.658739062	0.461973545	0.789668932	0.227810295	0.105311758	0.03670705
Gimap6	-1.496196752	-0.950055425	-0.775845453	0.472206681	0.710564284	0.464390098	-0.761216876	-0.186724372	-0.437694745	0.778841582	1.059076736	1.122654242
Ccser1	-1.420615947	-1.503751348	-1.623898292	0.639827981	0.616484959	0.076337925	0.016883059	0.165049733	0.181382825	0.584876384	1.117974685	1.149448037
Gxylt2	-1.273447211	-1.320151813	-2.01161258	0.256308739	0.114124998	-0.249788062	0.082582963	0.540074562	0.559929447	1.31475364	1.318357359	0.668867959
Gdpd5	-0.684372594	-0.846659263	-0.856309638	-0.14498912	-0.285925371	0.176320617	0.241452527	0.417231089	0.310271717	0.489672507	0.76090327	0.422404257
6430548M08Rik	-0.571038315	-1.310344428	-0.778295632	0.186644159	0.278528498	-0.527090372	0.543488172	0.202333124	0.45250611	0.176569864	0.810387025	0.536311796
Adamts15	-1.992203944	-2.465529244	-2.590001647	-0.210441786	-0.146412366	-0.452865004	0.912036084	0.699812084	0.901643809	1.747238532	1.964357258	1.632366226
Fez1	-1.604623373	-1.202350309	-1.480153585	0.983183577	0.338441169	0.352831597	0.278651865	0.298799973	0.689978085	0.374563556	0.717472993	0.253204451
Spry3	-0.809527412	-0.755098977	-0.776468033	-3.57E-05	0.329241987	0.031874751	0.343634399	0.241443079	0.311032007	0.563729863	0.524212885	-0.004038895
Stard8	-0.564878901	-1.488407029	-1.590871684	0.236707778	0.21412289	-0.154093268	-0.133543094	0.513463393	0.462229727	0.83868494	1.006695464	0.659889781
L3mbtl3	-0.924129506	-0.598821929	-0.813870687	0.180847353	0.339156151	-0.124263114	-0.113322535	0.366953999	0.220688065	0.591493709	0.523750319	0.351518176
Col23a1	-1.53287775	-1.253986027	-1.204611529	0.360085503	0.250291392	-0.168724886	0.910493592	0.996342406	0.948633872	0.330016855	0.357077624	0.007258949
Gdf7	-0.667772861	-0.880349573	-1.233950815	-0.008934567	0.365117464	-0.278618508	0.159832133	0.189492022	0.670010962	1.177530118	1.073851077	-0.566207452
Tmem30b	-2.130535329	-2.186573964	-2.66503882	0.934096472	0.850766823	0.101050295	-0.68740412	-0.365913345	-0.304064889	1.91672018	2.278817306	2.258079391
Bves	-0.862377525	-1.450984354	-1.711984286	0.609533897	0.501606274	0.07785708	-0.038004866	0.346231644	0.362017324	0.544800164	0.692008522	0.929296127
Zfp72	-0.672285948	-0.958038194	-1.341255834	-0.050850115	0.029505116	0.483390885	0.619044046	0.83996018	0.256040173	0.131216449	0.418711752	0.244561489
Fbln5	-0.741568481	-1.118337579	-1.426492887	0.347534973	0.501507685	0.249044853	0.579389037	0.023731003	0.520253928	0.240744806	0.284198389	0.539994273
Kctd12	-1.589316596	-1.674631662	-2.053744907	0.840796678	0.868566565	0.207786669	0.209822839	0.255225874	0.692408542	1.154338602	0.670900142	0.417847255
Slitrk6	-2.425920046	-2.36564253	-2.77690134	1.427044525	1.642771044	0.866956637	0.511057816	1.275227906	1.077409864	1.043361151	0.59274948	-0.868114508
Mab21l2	-0.856175543	-0.865253962	-0.81026293	0.132815643	0.339454782	-0.066231205	0.149291931	0.516104328	0.326327476	0.228819069	0.291526907	0.613583504
Nt5e	-1.312673542	-1.126164281	-1.99153339	0.107897806	-0.226110771	-0.297852555	0.314274797	0.590036004	1.088099615	1.854608645	1.411182459	-0.411764788
Osr1	-3.033093044	-3.033093044	-3.033093044	1.735068596	1.598145594	1.241914213	0.568672045	0.122140494	0.323493855	1.615003752	1.731338116	1.111427588
Pacsin1	-1.090451433	-0.975942897	-0.703659449	0.581368731	0.677389643	0.967397157	0.075884249	0.05922129	-0.178088278	0.448810323	0.192780534	-0.054709869
Zpld1	-1.164131207	-1.327337073	-1.185551788	0.035227532	0.59645462	0.011335894	-0.324830748	-0.094556779	-0.198279769	1.159409944	1.277221413	1.215037961
Cadm2	-2.481238674	-2.595194998	-2.35110876	0.33324273	0.267568728	-0.747680811	0.430756894	0.788278246	1.033251136	1.84639575	1.991668699	1.48406106
Sgcd	-1.038894612	-1.171917898	-1.076121336	0.249647174	0.494383221	0.158854059	0.20014806	0.574037115	0.368833685	0.603518432	0.389321438	0.248190662
Pgap1	-0.859398654	-0.952142043	-0.81110972	-0.189582509	-0.018031639	-0.133766137	0.502762782	0.094225812	0.312055897	0.666386758	0.588798278	0.799801176
Wif1	-1.553717553	-1.132524216	-1.745906157	1.181248774	1.194973668	0.740629291	-0.222714755	-0.518814286	0.300273003	0.891500763	0.565437351	0.299614116
St8sia6	-0.753159156	-0.832289708	-0.823650872	0.37659483	-0.012671384	0.017225851	0.138718823	0.214754056	0.287394342	0.788464751	0.613785654	-0.015167186
Olfml2a	-1.611199269	-1.911473778	-1.296831622	0.444510905	0.382607182	-0.063959591	0.22211235	0.240004343	-0.035487351	0.874903256	1.077089095	1.677724479
Zfp804a	-1.467916035	-2.149901094	-2.405728542	1.622861364	2.630514434	0.483168535	-1.450900431	-0.204305294	-0.848654226	1.297099131	1.33925026	1.154511897
Pabpc4l	-1.125485358	-0.887840313	-0.938568215	0.166179556	0.518057263	0.202764787	0.27389748	0.252753566	0.28960079	0.359005376	0.475635496	0.413999571
Tmem8b	-0.750809775	-0.916042937	-0.561089996	0.199797811	0.006359396	-0.130132863	-0.068349491	-0.0647076	0.176195916	0.631465001	0.783746621	0.693567917
Bnc2	-1.374120019	-1.588516672	-2.168330884	0.115314367	0.32134328	-0.542307531	0.037475951	0.553184827	0.467931283	1.46859066	1.340013828	1.369420909
Kctd8	-1.966273565	-1.855882901	-1.887014448	1.4747218	1.716827188	0.692823322	0.105298025	0.829824744	0.462725227	0.264227567	0.080719975	0.082030066
Tox3	-0.95899732	-0.908515291	-1.180522023	0.128472566	-0.091221482	-0.085928916	0.023565692	0.42132301	0.451500694	0.773053257	0.623962908	0.803306905
Olfm2	-1.791228818	-0.586545261	-0.761256392	0.745891464	0.403334606	-0.037230031	0.262322261	-0.443444204	0.192081101	0.73231823	0.813152251	0.470604792
Layn	-1.571716484	-0.769679638	-1.15596535	0.321195992	0.393858436	0.032648516	0.38431844	0.28510913	-0.161269492	0.426538889	0.813915495	1.001046064
Col6a6	-1.44436602	-1.44436602	-1.44436602	2.021520695	1.181261137	1.131164118	-0.979970479	-0.207737193	-0.796599142	1.21989339	1.404625808	-0.641060274
AA414768	-0.239177393	-1.1499597	-1.301722207	0.067867307	0.220031777	-0.092903702	0.210094844	-0.192285798	0.929655239	0.977817676	0.335241194	0.235340764
Dcaf12l2	-0.565133062	-1.064096974	-0.773648317	0.145965556	0.042833597	-0.106570481	0.471923987	0.04182554	0.364624803	0.479229182	0.614210604	0.348835566
Dcaf12l1	-1.062119744	-1.682651958	-0.780674981	0.121771122	-0.133970508	0.027990708	0.12318931	0.132021615	0.330711153	1.009258257	1.102294116	0.81218091
Pcdh11x	-1.141331827	-1.670403586	-1.822166093	-0.214448986	0.291592377	-0.297788909	0.544889065	1.687290686	0.767134046	0.631495148	0.754919713	0.468818366
Spag4	-0.819874985	-0.58556241	-1.024220632	-0.132304565	0.087861168	0.006120239	0.003388184	1.043605983	0.468363372	0.327977874	0.312811872	0.311833901
Esrrg	-1.358544345	-2.620500353	-2.044026499	0.178590554	0.300627212	0.29773816	1.435833107	1.020507492	0.920590976	0.786349584	0.936324286	0.146509827
Mapk13	-0.870770953	-0.961319722	-1.008050955	-0.058751792	-0.033115031	-0.158991568	0.225921525	0.625502606	0.438870029	0.701587905	0.600640915	0.498477042
Ror1	-0.980930094	-2.150361143	-2.594971335	0.14748299	0.207353753	-0.249037123	1.136745034	1.349617853	1.393222534	1.066492039	0.862826802	-0.188441309
Pclo	-0.442703957	-0.775731046	-1.014363538	-0.087502127	0.522738663	-0.42958715	0.134667769	0.750200384	0.366631362	-0.189182353	0.246485146	0.918346847
Abat	-0.772174913	-0.794267137	-0.927438451	0.077940824	0.143052892	0.005625873	0.319129726	-0.240324471	0.231244048	0.525071848	0.689487788	0.742651971
Scube3	-1.117393455	-1.443470164	-1.887155515	0.492721344	0.665576162	0.326580113	1.073775705	0.950394193	0.88456566	0.049452985	0.054053395	-0.049100423
Nfasc	-1.500016827	-1.114199579	-1.521437408	0.178240987	-0.09627539	-0.248402167	0.75934163	0.543352466	0.627569177	1.278319938	0.941335793	0.152171381
Wdr86	-0.902524735	-0.808686871	-0.997173338	0.288265626	0.377712785	-0.141009015	-0.00024658	0.535896043	0.411197892	0.525852598	0.401477793	0.309237802
Vat1l	-0.756755569	-1.562203328	-1.894925207	0.460414572	0.476211877	0.52666995	0.741550253	0.367477301	0.232570669	0.908114937	0.407549243	0.093325302
Maml2	-1.70391328	-1.845811977	-1.768608495	-0.043016939	0.145213725	-0.185131173	0.213654528	0.960241564	0.56168301	1.145606075	1.247373532	1.272709429
Tmem132e	-1.138750418	-1.423695844	-2.417996785	0.637903028	-0.022144621	0.207346454	1.645538155	1.519687026	1.380796388	0.392224464	0.584233044	-1.365140892
Arsj	-2.191522864	-2.750370552	-2.608585267	-0.292018531	0.143310687	-0.143155228	0.830355405	1.2445458	1.269218156	1.36340995	1.628781134	1.50603131
Nrk	-2.031521642	-2.318025636	-2.851296657	0.302830835	0.90523856	-0.062991093	0.995163295	1.384506176	1.074229388	1.070454742	0.756308219	0.775103813
Magel2	-1.879370556	-0.797119765	-1.764369818	0.594586531	0.542601426	-0.632638932	-0.067875219	0.96215276	0.764035818	0.767322433	0.922522459	0.588152864
Nrep	-0.817011183	-1.051243926	-0.949865277	0.0269782	-0.009022966	-0.135527047	0.435528762	-0.034118094	0.438027816	0.697780756	0.635068948	0.763404012
Rasl10b	-1.012419034	-1.350577191	-1.522977374	0.364605806	-0.269820455	0.061018981	0.746566202	0.098294302	0.6001603	0.76893269	0.81436698	0.701848794
Tmtc2	-1.036897505	-0.999667648	-0.985810866	0.303733491	0.480337727	-0.19401689	-0.04075663	0.024780547	0.138357074	0.814201194	0.860842827	0.634896679
Reep3	-0.5134732	-0.787925375	-0.974822702	0.007401143	0.063275625	0.052861425	0.080868948	-0.052531438	0.191675163	0.639354406	0.6220735	0.671242504
Lmcd1	-0.728198235	-1.763600626	-1.716944496	0.269169761	-0.199547484	-0.259921284	0.71093594	1.005984024	0.613259902	0.027635355	1.092536137	0.948691006
Aass	-1.449340928	-1.278379859	-1.786736221	0.165811855	0.212833208	-0.20096607	0.744035048	0.815348857	0.996973417	0.767892697	0.520284656	0.492243339
Gpr4	-1.15708935	-1.357717965	-1.417118864	0.165349757	0.227059587	0.126466997	0.663128911	0.541977084	0.66729639	0.347712837	0.625935518	0.566999099

A830082K12Rik	-2.41514948	-1.683694701	-2.480690756	0.50789488	0.542227484	0.152425822	1.483736821	1.907457748	1.547890179	0.61083674	0.396639746	-0.569574484
Msrb3	-0.868647194	-1.11468835	-1.272805375	0.373614535	0.375128941	0.227719584	0.28673711	0.206846234	0.390077107	0.709744198	0.455739689	0.230533521
Pik3r5	-1.097759481	-0.898761679	-1.564607906	0.39041515	0.260607582	0.04161739	0.526585569	1.060100217	0.9590281	0.434531011	0.086438274	-0.198194227
Negr1	-1.416081039	-2.287670102	-2.448786331	-0.010680408	0.196606926	-0.322309845	0.509521955	1.062146647	1.055991049	1.604470918	1.341476227	0.715314002
Cdh10	-1.82377373	-1.474924338	-0.927054754	0.257199946	0.868710801	0.096476827	-0.204909468	0.137092797	0.257852442	1.121964024	0.805122357	0.886243097
Wscd2	-1.350402551	-2.296376398	-2.10561589	0.411174254	0.392484934	0.290966615	0.404548135	0.303729369	0.150998372	1.338153509	1.252407414	1.207902239
5930403L14Rik	-1.296029632	-1.281172527	-1.199486461	0.127062163	0.172836971	-0.15927512	0.569569502	0.339867629	0.854565383	0.557374206	0.592305088	0.722382797
Gm15663	-1.010081081	-1.576960635	-1.333705829	0.789677543	0.347669458	-0.111919974	0.106724391	-0.575384506	-0.115677319	1.080255645	1.592728883	0.806673423
Ppfia2	-1.2074118	-1.38780598	-1.219341729	-0.286922401	-0.049837633	0.047987583	0.209260534	1.296090278	0.74984414	1.300553124	1.032908923	-0.485325037
Emx2os	-2.609273844	-2.614435304	-2.494148607	0.44787946	0.237441903	-0.619224013	1.305576571	1.856266482	1.820667354	1.364713444	1.481254046	-0.176717493
Hecw2	-1.192068737	-0.811628747	-0.641528565	0.334820319	0.657322146	0.397768732	-0.083203765	0.198923376	0.079093356	0.471891141	0.275046513	0.31356423
Acot11	-1.299043258	-1.6704977	-1.826675053	0.974433555	0.754847787	0.43122148	0.719467964	0.480917354	0.854094918	0.115187519	0.198064152	0.267981283
Adamts3	-0.770540189	-0.840885359	-0.651974789	0.185307775	0.460671252	-0.090699304	0.040031354	0.509795232	0.42639767	0.358750667	0.184649024	0.188496668
Sdk1	-0.809232702	-0.804819064	-0.683754677	-0.127299326	-0.006247068	-0.190969893	0.255574656	0.304817475	0.489675717	0.638636034	0.59807803	0.335540817
Thsd7a	-1.169997157	-1.680768181	-1.473223886	0.843252863	0.962845362	0.196608705	-0.377336153	-0.686549824	-0.427922943	1.224779407	1.295425982	1.292885825
Wipf3	-1.182599838	-1.621686881	-2.104336302	-0.370580676	-0.20580846	0.191721008	0.409809582	0.678648806	1.090759368	0.772718708	1.34034517	1.001009515
Rnf150	-1.126089422	-1.377797402	-1.609143678	0.472273086	0.589255783	0.039231605	0.18180231	0.577490237	0.49154147	0.875130646	0.771168488	0.115136877
Rtl1	-0.812702673	-1.111350206	-0.931333817	0.518125376	0.937675571	-0.137100442	0.52344832	0.437057228	0.5842244	0.451705887	-0.039128285	-0.420621358
Rph3al	-1.02009162	-2.00032482	-1.826114848	0.361483863	0.460573679	-0.042942887	0.828866997	0.205133394	0.82994704	0.945094228	0.584416629	0.673958346
Fam189a2	-1.392239603	-1.734993177	-1.26210969	1.055272383	0.66676238	0.978121019	0.650510749	0.750953926	0.798347678	-0.425629824	0.135617041	-0.220612882
Zfp663	-1.446699333	-1.719377308	-1.577292312	-0.154123255	-0.123199953	-0.186071181	0.918849139	1.156864476	0.747817216	0.762531581	0.828825901	0.79187503
Mir214	-1.352292658	-0.392663873	-1.411213571	0.062044431	-0.062507085	-0.334826852	0.324497811	1.524376408	0.54846843	0.376118835	0.873253378	-0.155255254
Panx2	-1.205909499	-2.091880025	-1.84686102	0.935185648	0.867566198	-0.052881591	0.142202261	0.114329072	-0.050622814	0.794265266	1.245755446	1.148851055
Taf9b	-0.481783265	-1.05071965	-0.936892417	0.09847683	0.281809542	0.119496554	0.301949153	0.240134738	0.458598659	0.361537771	0.417876874	0.18951521
Lrrc8b	-1.288022573	-1.486669077	-1.385030375	0.213639193	0.088553457	0.121061905	0.70219239	0.946509252	0.92864634	0.337993764	0.332516783	0.488608941
Mn1	-2.126291063	-2.250180942	-2.372127838	0.103825883	0.133349118	-0.56953358	1.115467901	1.345114402	1.252434915	1.098942434	1.160470696	1.108528073
B130024G19Rik	-1.420117227	-1.558277602	-2.036262069	0.231633377	-0.102375199	-0.174116983	-0.268601077	0.895731651	0.063739624	1.535608518	1.57402273	1.259014258
A330074K22Rik	-0.76225344	-1.047198865	-1.285831358	-0.071784057	0.185690581	0.047850951	0.161441028	0.251004607	0.247574501	0.434414509	0.984738244	0.8543533
Fbxl7	-0.842251309	-0.722655535	-0.858463107	0.096284445	0.096869476	-0.403730319	0.078904434	0.337152474	0.428963811	0.660002761	0.64517052	0.483752348
Camk1	-0.783125605	-0.994187187	-1.048457615	0.162976809	0.098301371	-0.059867314	0.269081556	0.218688988	0.419271391	0.521733323	0.678936026	0.516648257
Ncald	-0.46652374	-1.258273203	-1.268881255	-0.223401952	0.089968499	0.546290445	0.542129709	0.359300564	0.696456457	0.141880036	0.297181528	0.543872912
Gria3	-1.167917706	-2.005932685	-1.471144435	-0.175978695	-0.022444543	-0.489415153	0.074340431	1.290746486	0.565383304	1.264600726	1.42757334	0.710188931
Slc40a1	-0.640380439	-1.739543143	-1.353734203	0.825021665	0.250737356	0.336768293	0.713179064	0.078002824	0.697994488	0.292601144	0.501842681	0.037510268
Fmn2	-0.87350581	-1.003619538	-0.777446299	0.406087329	0.418138631	-0.057859628	-0.137419722	0.508824955	0.136925287	0.505616741	0.65503112	0.219226934
Pde3a	-0.557353071	-1.470977846	-1.269947394	0.124237967	0.027030354	-0.169262047	0.207517007	0.140137546	-0.080097024	0.905400873	1.138141731	1.004002023
Pdzrn3	-0.640275672	-0.642377138	-1.013510187	0.187809693	0.089323831	-0.422763187	0.091390382	0.588454271	0.448920898	0.377163082	0.475821931	0.460042096
Kcnd3	-1.616333174	-1.123111341	-1.672521445	0.151481026	0.169556412	-0.830620421	0.771318141	1.345185456	1.505185191	0.485110779	0.51000342	0.304745956
Mgst1	-1.022366632	-1.218027951	-1.677627523	0.382484717	0.233468479	0.58358766	0.703696215	0.314056695	0.61075014	0.39884473	0.311810711	0.379322757
Mlycd	-0.417891052	-1.090403317	-0.855808645	0.247956181	-0.048307591	0.358949952	0.514005248	0.243471931	0.18039267	0.370810039	0.21076179	0.286062794
Clcf1	-0.947276989	-0.924979288	-1.089720489	0.164542675	0.13334252	-0.744503367	0.023474817	0.716559259	0.250947183	0.628310233	0.796182416	0.99312103
Rec8	-1.884290719	-1.586817441	-1.306628388	-0.24274398	0.185522329	-0.045120662	0.149684996	1.66759384	0.805338596	0.98956949	0.767640582	0.500251357
Ube2l6	-0.937847234	-0.548688352	-0.804048737	0.178293345	-0.274817899	0.289722899	0.884943275	-0.921301666	0.323265994	0.488187422	0.782453807	0.539837146
Hacl1	-1.073687092	-0.603459095	-0.744327109	-0.123178165	0.098627486	-0.249177503	0.257817477	0.25808477	0.261871998	0.428312578	0.829073868	0.660040787
Sult5a1	-1.322565378	-1.046627573	-1.176474534	-0.196919815	0.008359906	-0.080530132	0.45999595	-0.219919801	0.894930519	0.984199011	0.919485937	0.776065909
Ntn4	-0.841278391	-1.289043092	-0.81497613	0.208921223	0.020712469	0.068655009	0.108292514	0.592017595	0.292107988	0.356139996	0.474342758	0.82410806
Cdon	-1.586876553	-1.646223586	-2.20650794	0.505217208	0.755604748	0.249710663	1.043673201	0.785629365	0.997683178	0.550011666	0.444322753	0.107755298
Bcl11b	-1.064966549	-0.623085499	-0.724482609	0.553687022	0.443591418	-0.303693073	0.116825552	0.630473408	0.700743524	0.286896077	0.114466261	-0.130455534
Dact1	-1.6450715	-1.580524656	-1.85822141	0.613365668	0.462009044	-0.44827588	0.637496045	1.178673995	1.113290329	0.73350201	0.537926292	0.255830064
Jph2	-1.053154848	-1.039119385	-1.360394654	0.203696461	-0.061885033	-0.112473402	0.889514739	0.688096845	0.640928549	0.333366215	0.411670739	0.459753775
Tmem8	-0.986614268	-1.29753347	-1.342396166	-0.356204966	0.035749214	-0.130447346	0.700965644	0.801322465	0.303888321	0.781285678	0.449056413	1.040928481
Kcnq4	-2.071999285	-1.412208116	-1.086763634	0.101835507	0.096425814	0.06963519	0.302310189	0.641518054	0.416805963	0.927780115	0.936289135	1.078371068
Klf14	-0.393489967	-1.005252684	-1.250992223	0.516514067	-0.12383938	-0.349542025	0.824252797	0.01450243	0.696532731	0.501525816	0.627862077	-0.058073638
Kctd21	-0.614764624	-1.19154532	-0.779414855	-0.017533023	-0.031226728	0.295461429	0.369357461	-0.522110771	0.401236356	0.402524453	0.838766954	0.849248667
Dusp10	-0.866522869	-1.220166593	-0.888656657	-0.093243249	0.056855468	-0.173039868	0.138790913	0.33841432	0.71322308	0.473266408	1.000507613	0.520571434
Slc5a7	-1.507985168	-1.12216792	-1.268127623	0.456802311	0.252600659	-0.588525325	0.487737345	1.294917986	0.863686252	0.578364966	0.763973746	-0.211277229
Syne1	-0.972576627	-0.676461095	-1.07980755	0.058146943	0.787622803	-0.276412822	-0.002229607	0.794662854	0.368937952	0.463891989	0.175357016	0.358868143
Sv2a	-0.752328958	-0.74924504	-0.849691419	0.550382037	0.69964568	0.583269542	0.293515651	0.005456121	-0.019712089	0.345530236	0.254179182	-0.361000942
Prrg2	-0.812901743	-0.791078401	-0.997618657	0.058809183	-0.05697869	-0.208379127	0.126854666	0.75705871	0.66937141	0.276365843	0.53131029	0.447186516
Sostdc1	-1.893323565	-1.492259841	-1.877835783	0.982965693	1.220671456	-0.12354361	-0.030925024	-0.018547493	-0.033868408	1.241791188	1.03159873	0.993276657
Ypel3	-0.647191678	-0.886977137	-0.820761986	0.090447949	-0.124979118	-0.120765969	0.21610748	0.380258743	0.425786398	0.352921654	0.560272234	0.57488143
Tmed3	-0.564148458	-0.782804259	-0.888753535	-0.09846084	-0.166990737	0.086022954	0.380751803	-0.164086479	0.348870539	0.656907073	0.705798811	0.486893127
Rgcc	-1.414596586	-2.360570434	-2.321225924	-0.085960774	-0.041165809	-0.731931531	0.771736337	1.497837236	1.142009833	1.378283547	1.372993102	0.792591006
Kcne1l	-0.895733805	-1.384670106	-1.092279909	0.255233102	0.135588952	-0.57308781	0.67975505	0.238466255	0.642352595	1.258510604	0.660773719	0.075091354
Aig1	-1.033380853	-0.802868102	-1.690718766	-0.076903748	0.023805014	0.326418703	0.484919456	0.18835935	0.758021388	0.368376912	0.731007945	0.722962701
Camk2n1	-0.606338902	-1.133846537	-1.205184538	0.361341286	0.223790767	0.081137287	-0.136783959	0.6044577	0.448614556	0.576077003	0.551863185	0.234872153
Dzip1	-1.144754973	-0.98766738	-1.100855146	0.164881715	0.136384577	-0.254047987	-0.014346505	0.776008204	0.263444616	0.739250535	0.801598709	0.620103636
Cntnap2	-1.555760582	-1.001974297	-1.059484703	0.608463542	0.774945463	1.13196107	0.224632729	-0.242842518	-0.048532274	0.364278916	0.603978934	0.200333718
Sh3d21	-0.765963018	-0.808333734	-0.96311701	0.061434235	0.107967975	-0.359135942	0.45914272	0.487258187	0.315538458	0.551915896	0.654457303	0.25883493
Ssbp2	-0.75598591	-0.747322919	-0.823243264	0.107455473	0.051389929	-0.105758348	0.203675875	-0.045590381	0.173375967	0.581245347	0.68885757	0.671900661
Slc25a23	-1.186717217	-1.399978631	-1.14876636	-0.015709139	-0.194123871	-0.255506084	0.362987762	0.36550864	0.45122426	0.939916175	1.120776519	0.960387946
Herc6	-0.661428071	-1.191130439	-1.325137391	-0.363994805	-0.039705622	0.215207561	0.263716233	0.916492397	0.479747153	0.739912493	0.581204504	0.385115986
Pigc	-0.76299807	-0.826903518	-0.912724231	0.05176341	0.052097433	0.034287563	0.307132964	0.010639068	0.348834318	0.59812999	0.58976699	0.509974084
Mgat4c	-2.252599494	-1.917042695	-2.252599494	-0.479900081	0.258713405	-0.992421392	0.871954081	2.687175993	1.774378638	1.080299012	0.552125036	0.669916991
Fibin	-3.033093044	-3.033093044	-3.033093044	0.289612167	-0.107124817	-0.609082373	1.944725421	2.166914561	2.552813501	2.447549522	2.249507699	1.958176618
Wfdc2	-0.855551313	-0.855588205	-0.992286579	0.252603372	0.238828386	-0.10865544	0.38521943	0.250755627	0.747360077	0.143930621	0.479331243	0.314052781
Kirrel3	-2.237314479	-1.900642864	-1.389735585	0.902166594	1.085499305	0.261464647	-0.851233284	0.051154548	-0.266580964	1.308637032	1.798657594	1.237927454
Plgrkt	-0.499284956	-0.866424562	-0.853514778	-0.070777897	0.073831887	0.259269536	-0.009912587	0.036774079	0.515829412	0.654982071	0.482915028	0.276312766
Gstm7	-0.95726455	-1.272002591	-1.209187448	-0.015781156	-0.057047872	-0.180856939	0.467631061	0.094942485	0.504961141	0.835069152	0.824600289	0.964936427
Tspan11	-1.199949907	-1.37162256	-1.439335199	-0.125444304	0.085036012	-0.450758389	0.034769641	0.474979214	0.498817773	1.176870145	1.21289452	1.103743053
Letmd1	-0.671880661	-0.943470121	-0.8431612	0.296203534	0.246981611	0.290637765	0.448159592	0.049294336	0.437277728	0.329290799	0.118579871	0.242086745
Prrt2	-1.135734029	-0.803918851	-1.196350943	0.130934083	0.166043004	-0.691471323	-0.291192367	0.996426586	0.502600671	0.856173175	1.080761152	0.385728842
1810011O10Rik	-1.291927334	-0.737264306	-1.604722254	0.107070183	0.057824503	-0.232876011	0.286750346	1.219290515	0.855838159	0.669811724	0.626354914	0.043849561
Enho	-1.015929641	-1.410787195	-1.727676389	0.990553611	0.507870043	0.76949539	0.941810348	0.307824871	0.732507772	0.149133905	-0.091110275	-0.153692439
Camsap3	-0.878057773	-0.686417503	-0.681156316	0.050427698	-0.074246502	-0.031902374	0.232248242	0.552166835	0.28782816	0.311101831	0.405871324	0.512136378
Gprc5c	-0.780024801	-1.472686066	-1.260760509	-0.004737979	-0.058207271	-0.317320212	0.398075107	0.268430327	0.640749941	0.692419461	0.908329374	0.985732627
Zdhhc2	-0.557972657	-1.203965074	-0.85783037	0.197671203	0.157301798	0.001248891	0.65958865	0.056550773	0.411312323	0.585557024	0.253628133	0.296909306
Fam213a	-0.765987624	-0.8395051	-0.998032452	0.062051617	0.143268576	-0.327438157	0.277515754	0.256153756	0.603110951	0.567968367	0.435754373	0.585139939
Prr16	-1.7617098	-2.104463373	-1.910356946	0.802803771	0.582933646	0.417445449	-0.271040107	0.740455527	0.53602788	0.872698046	1.101772187	0.993433721
Rarres2	-0.59606976	-0.951902365	-0.729690496	0.121697333	0.026513856	0.107502469	0.793523248	0.646661664	0.55198902	-0.057575111	0.182496441	-0.095146299
Cpa4	-1.318069859	-1.058010071	-1.329844168	0.517663728	0.553871577	0.442852499	0.461076212	0.673876014	0.762269296	0.485559935	0.423554079	-0.614799243
Fam219a	-0.817817109	-1.163023566	-1.365046411	0.510279023	0.536983858	0.23565806	0.661376253	0.442486556	0.597481378	0.563345914	0.0658013	-0.267525257
Zcchc24	-1.002793216	-1.288749275	-1.157181512	0.272695012	0.296752563	-0.096851484	0.152096691	0.260001317	0.566766153	0.813908061	0.628228479	0.555127211
1810041L15Rik	-0.829187003	-0.91645439	-0.480949864	0.133900562	-0.301290855	0.333683084	-0.311227788	0.299744274	0.097925675	0.785967813	0.951029991	0.236858502
2500004C02Rik	-0.72372713	-1.044622866	-1.516587283	0.375858026	0.004353167	-0.148571868	0.176270259	0.867204758	0.717343306	0.547082752	0.528306146	0.217089733
2610316D01Rik	-2.112422469	-1.870881306	-2.141573317	0.710662641	1.190358231	0.453315014	0.199439782	1.092644192	0.40755025	0.908181396	0.598628386	0.564097202
Mvb12b	-1.208189485	-1.159567217	-1.413859667	0.305368118	0.075524849	-0.104028759	0.231454409	0.387138926	0.669553269	0.62647153	0.814980141	0.775153885
2700069I18Rik	-3.033093044	-2.56193768	-3.033093044	0.135922108	0.337766208	-0.49838764	0.94470373	1.411855993	1.564304696	2.322963056	1.899144134	1.178303414
2810468N07Rik	-0.656178051	-1.246664646	-0.779796545	0.337464807	-0.394990903	0.390015945	0.331140461	0.909166132	0.961376095	0.032444436	0.237789577	-0.121767308
Pcdh18	-0.763738358	-0.925209256	-1.080557092	0.174276988	0.295551995	-0.067940643	0.030001051	0.185872194	0.37909991	0.645032517	0.622893769	0.504716926
Spata18	-1.428759292	-2.172302151	-2.194443122	0.601106447	0.609743712	0.479228208	1.173899819	-0.146354291	1.051807163	0.742505085	1.035164557	0.248403865
Mir675	-0.568287785	-1.076675642	-1.273611941	-0.094749408	0.021378141	0.120058471	0.39015907	0.024864447	0.469880016	0.528574269	0.636349718	0.822060645
Vgll3	-0.620902376	-1.059989419	-1.830018085	1.068121412	1.151236012	0.650203086	0.144797554	-0.293261931	-0.241325503	0.848163638	-0.020581534	0.203557146
Arhgap18	-1.750699949	-1.281992461	-1.41299161	-0.174925979	0.112464696	-0.268456109	0.363178533	0.859719739	0.616275668	0.955851673	0.996534668	0.98504113
Plce1	-1.474737412	-1.800323909	-1.726970572	-0.166629547	-0.028035966	-0.401639683	0.300829529	0.666161853	0.65832915	1.146695515	1.460634253	1.365326787
Foxp4	-1.284081099	-1.533730799	-1.681384697	0.218057856	-0.037845394	-0.089398062	1.093855049	1.003595863	1.188533688	0.333114816	0.488337224	0.300945556
Cyp2s1	-2.043414461	-1.497273134	-1.767965145	-0.03420952	0.557914813	0.061801613	-0.080528751	0.70818508	1.140000987	1.15424125	1.2517813	0.549465969
Lrrtm1	-1.215155731	-1.224980306	-0.958100869	1.446355751	1.377632148	0.465536639	-0.693071129	-0.714886985	-0.644946115	0.712743598	1.278402514	0.170470486
Samd4	-1.113816865	-1.546115662	-1.6830938	0.224074669	0.42168156	0.03815226	0.24201419	0.525950714	0.437631676	0.782926136	0.917768601	0.752826521
Lrrc17	-1.359228548	-1.462811454	-1.713278529	0.157666973	0.037458674	-0.169943635	0.111176339	0.399168918	0.189684422	1.040836666	1.305410737	1.463859437
Lvrn	-1.34046191	-0.412145767	-0.621333949	0.808248806	0.745908333	0.48408266	0.063755878	0.259954229	-0.07348625	0.295238267	0.230525193	-0.440285491
Cds1	-0.183181626	-1.011899397	-1.068568923	0.566174743	0.445850403	0.946815692	-0.339907488	-0.430092374	-0.028815955	0.15555876	0.448834429	0.499231734
Ddit4	-1.918088131	-1.905272368	-1.462240848	0.220745153	0.465088597	-0.335814987	0.683413184	0.37101372	1.050309141	0.992676692	0.950848316	0.887321531
Glt8d2	-0.931994608	-0.976295516	-0.876795795	0.076243128	0.138336373	-0.30737527	-0.099202675	0.318525769	0.214631911	0.848156311	0.94637541	0.64939496
Sesn3	-1.030790503	-0.992467576	-0.796613317	0.021968011	0.116095188	-0.372725712	0.304902519	0.218576424	0.417898013	0.622665903	0.6323924	0.85809865

Atp6v0e2	-0.535461295	-0.951051505	-1.020807205	-0.009614771	-0.25402987	0.574605862	1.002255461	-0.448369894	0.854343115	0.521690579	0.193035535	0.073403988
Mfap4	-0.965029018	-0.930767915	-1.326602915	0.249709781	0.126501229	-0.014145062	0.320271074	0.595262814	0.631455323	0.392530288	0.477283732	0.443530669
Tbx18	-2.546493956	-2.351260047	-2.32490128	0.302375275	0.451173557	-0.019962647	0.891463159	1.098229369	1.170894757	1.153674635	1.153176399	1.02163078
Lmf1	-0.606817555	-0.736693872	-0.992627524	0.288280578	-0.046222396	0.039655074	0.569266073	0.463998932	0.424033719	0.183782396	0.29099977	0.122344806
Prss8	-0.856752419	-0.510742851	-0.997790254	-0.059303671	0.099969639	0.062701286	0.023058578	-0.019927769	0.166757004	0.831224992	0.792346579	0.468458887
Rflnb	-0.909678516	-1.195971861	-1.3712482	0.017080529	0.013567158	-0.115649592	0.430329167	-0.010870433	0.462229628	1.026703378	0.835954383	0.817554359
Flywch2	-0.683002354	-0.968540332	-1.183641457	0.052967836	-0.067778506	0.136231747	0.529492516	0.33053353	0.441858315	0.098761603	0.632602349	0.680514754
Chst1	-0.870135929	-1.237370955	-1.23883747	0.247543125	0.165269874	0.170399467	0.031417312	0.183570216	0.211068126	0.711478632	0.676379833	0.949217771
Ube2ql1	-1.050963483	-1.020373235	-1.01549411	0.764350193	0.669149479	0.574081219	-0.850623222	-0.20414098	-0.009666176	1.433007602	1.138392939	-0.427720226
Mpped2	-0.493565044	-1.394369977	-1.41773367	0.283342091	0.304339968	0.013984731	-0.067103906	0.272300694	0.376032847	0.907559186	0.783293486	0.431919593
C330018D20Rik	-1.02453698	-1.500695556	-1.567912467	0.10027066	0.68506429	0.3817184	-0.025213471	0.274620812	0.351321405	0.674551546	1.030622041	0.62018932
Mtus2	-1.530335114	-2.778422934	-2.809581481	0.364035935	-0.126062094	0.272440854	0.701997363	1.376995955	0.803621406	1.28102677	1.466432476	0.977850864
Limch1	-2.133901718	-2.243881107	-1.810429974	0.37757587	0.45675182	-0.258796978	0.579214483	1.101704397	0.881263163	0.960765106	1.080494288	1.00924065
Csrnp3	-1.229706237	-1.413735248	-1.49655424	0.167640373	0.443705565	-0.254131652	0.347147892	0.654034939	0.616229463	0.655145177	0.693086231	0.817137737
Lpar4	-1.230508672	-1.051545717	-1.056670618	0.135012364	0.335435988	-0.182168168	0.321528636	0.798095868	0.62892163	0.622207508	0.412266119	0.267425064
Wbscr27	-0.760998751	-0.783013637	-1.052423341	0.096424461	0.011009393	-0.114967026	0.045293952	0.248178041	0.104582988	0.503989097	0.818576909	0.883347912
Ntng1	-1.565920156	-1.307596333	-1.8092576	-0.293644052	-0.00384168	0.000644848	0.387927283	0.273681939	0.170124867	1.580839706	1.41846209	1.14857909
Zfhx4	-2.003750039	-1.845937718	-1.970520095	0.31460822	0.906727834	-0.126754298	0.443603334	0.996972774	0.881301745	1.165833899	0.769198613	0.468715731
Syt13	-2.896278981	-2.270205117	-2.056463334	1.166479856	1.07623347	0.822115656	0.651330008	0.231767465	0.667664744	1.384990137	1.163300908	0.059065189
Emc9	-0.785156292	-0.757404205	-0.863447169	-0.171996867	0.243014692	0.620652539	0.548327517	0.124132439	0.155778233	0.122002146	0.370944368	0.393152599
Peli2	-1.027556616	-1.146210468	-0.844643222	0.119090858	0.177294251	-0.080279676	0.172287321	0.128666173	0.265710961	0.608147227	0.727135595	0.900357595
Abtb2	-0.815291627	-0.574588256	-0.957812099	0.312372993	0.0364666	0.026408385	0.244675994	0.416935217	0.39864917	0.353180381	0.325389101	0.233614142
Olfml3	-0.520371652	-1.297682264	-2.001498047	0.242966472	-0.378435131	0.225829435	0.746261503	0.081865648	0.64281662	0.297120976	1.007369172	0.953757269
Dpyd	-0.973307896	-1.339591094	-0.902784614	0.037583296	0.359537908	-0.199868746	0.182831832	0.376690241	0.498934753	0.591789622	0.54256454	0.825620158
Prrt4	0.306100589	-0.393387421	-0.553237251	1.406012182	1.180799909	1.204134103	0.369785306	-0.072241388	0.081761648	-1.174285833	-0.96033892	-1.395102924
Hoxb2	-0.965167086	-1.477591839	-1.1740738	0.943867275	0.756604786	0.704743454	0.73368027	1.000178295	0.661832274	0.162626573	0.006660575	-1.353360778
Gpc5	-0.368726997	-0.439502514	-0.279509073	0.462526509	0.827366362	0.661945767	0.919233388	0.581855359	0.701430972	-0.899898352	-1.089273735	-1.077447688
Pkdcc	-0.842142351	-1.653140453	-2.645490931	1.360343883	1.162360906	0.917323484	1.476074745	1.163379111	1.303962911	0.075896783	-0.249361871	-2.069206216
Asic2	0.182158433	-0.779414369	-2.04504085	0.690986861	0.439339351	0.695534677	1.847915552	1.316358493	0.999752167	-0.25630745	-0.877777764	-2.213505101
Angpt1	-0.296926894	-0.100673576	-0.292385131	0.980755425	1.076267643	0.490258807	-0.65583256	-0.264297043	-0.93361086	0.020869136	0.291501735	-0.315927781
Alx3	0.59694075	-0.149123334	-0.077141786	1.134359355	1.127364557	1.297907982	-0.293485286	-0.701742734	-0.373981691	-0.56674176	-0.912169389	-1.082186663
Alx4	-0.742997756	-1.290001906	-1.757121885	1.451555393	1.483597916	1.369091304	0.626323049	0.055981085	0.415331772	-0.186561726	-0.6543967	-0.770800547
Cnr1	-0.199491788	-0.646242064	-0.731674553	1.303369664	1.466656251	0.967202553	-0.548954497	-0.794670785	-0.40905853	-0.437057803	0.264664932	-0.234743378
Crabp2	-0.633720168	-0.840605246	-1.064025603	0.639584537	0.581577435	0.747833051	0.880423608	-0.051946271	0.490668451	-0.050055024	-0.29190908	-0.407825692
Dpep1	-0.22711356	-1.138091512	-1.4102491 15	1.701412814	1.820344604	1.570586954	1.409231526	0.947892126	1.103351896	-1.441099729	-2.288523556	-2.047742448
Ednra	-0.829629249	-0.9536293	-1.063728294	1.01128952	1.123212438	0.698899784	0.444459348	0.298655579	0.61294832	-0.044904047	-0.421678742	-0.875895359
Eno3	-0.501350801	-0.709912813	-0.957917339	0.429970231	0.182915136	0.286955822	1.200446566	0.803761419	0.815330461	-0.460786666	-0.618190731	-0.471221286
Rxfp2	-0.22783672	-0.715726068	-0.943463345	0.826916466	1.566344237	0.78312728	-0.5035959	0.57069906	-0.395957371	1.065051973	-0.290146149	-1.735413462
Gata2	-0.975420095	-0.074745931	-0.751802794	1.398496929	1.249455999	0.768874209	-0.029982366	-1.075091607	-0.44622264	-0.244588947	0.19356867	-0.012541425
Hgf	-0.797261458	-1.06950145	-1.675749731	1.027479032	1.082045349	0.651182994	1.693844543	1.577323764	1.338431502	-0.960837473	-1.424751137	-1.442205941
Hoxb5	-0.687031451	-1.152303604	-1.705804302	1.35174427	1.244951571	1.27897988	0.989053812	0.943692763	1.158261076	0.274111065	-0.260287374	-3.033093044
Hoxb6	-0.697347752	-1.176707164	-1.476103785	1.107194416	0.82631928	0.84107858	1.078653222	1.775559969	1.154644646	0.196433762	-0.444261087	-3.033093044
Hoxb7	-0.174141943	-1.773862088	-1.058916662	0.190194499	0.601514069	0.486289156	1.682075958	0.999493926	1.204921235	0.341916647	-0.265669709	-2.23381509
Irx3	-0.705743055	-1.45880456	-2.624938836	0.897083728	0.704275274	0.670869191	1.947086051	1.979590416	1.74826661	0.422110166	-0.233291728	-3.033093044
Parvb	-0.146475483	-0.42028583	-0.390263547	0.690416646	0.524778505	0.759306313	0.812209699	-0.145024644	0.412032558	-0.655853164	-0.807762577	-0.633078475
Meis1	-1.01337925	-2.113132715	-2.555627563	0.910362128	0.996239688	0.574381058	1.728182402	1.571921873	1.450013021	0.340001871	-0.081250791	-1.807711722
Meis2	-0.960262625	-1.849924994	-2.496530323	1.120726501	1.139420056	0.878271404	1.502631836	1.35514644	1.311227471	0.418554197	0.012373537	-2.431633499
Meis3	0.096491449	-1.048370682	-0.862299072	1.052644658	0.376179284	0.710913832	0.931042404	0.715795091	1.367906673	0.931042404	-0.6062205	-0.48146288	-2.252620259
Msx2	-0.451300297	0.004451002	-0.288978499	1.916004405	1.97124258	1.621854499	-1.392640529	-1.179658662	-0.86098299	-0.18163739	-0.248640562	-0.909713558
Pax1	-1.703842773	-0.161668085	-0.983416888	2.361430942	2.306543057	0.961474797	0.206257201	-0.17863918	0.551728416	0.675694858	0.208023088	-0.033093044
Ptn	-0.500470866	-1.047198884	-1.348934219	0.586722936	0.633221904	0.46310068	0.935974781	0.523368486	0.475088514	0.116430161	-0.02893048	-0.808373014
Tbx2	-0.489647507	-0.396916571	-0.675860112	2.128076356	1.866169293	1.418137771	-1.763594413	-1.317658971	-1.4607509	0.263648865	0.397281987	0.031114202
Tbx3	-0.486159779	-1.158476703	-1.393994811	1.51572535	1.627181071	1.199928891	-0.590461474	-0.626678438	-0.517337374	0.21601639	0.399564144	-0.185307266
Rarb	-1.082098881	-1.506301274	-2.213271005	0.938013428	0.884258688	0.772623954	1.113057387	1.447568344	1.273694867	0.35454745	-0.019187294	-1.962905666
Adamts20	-0.310965705	-0.471841646	-0.868540775	0.77248112	1.020551313	0.318457091	-0.003073942	0.972382344	0.438280162	0.044576861	-0.504334399	-1.407918425
Fhod3	-0.211806623	-0.518081375	-0.96466026	0.625176673	0.577327107	0.246221057	0.605618496	0.555045795	0.608437735	-0.055685024	-0.469554912	-0.998038669
Kcnq5	-0.03552686	-0.792473241	-1.004988503	0.864016984	1.060270916	0.667981557	-0.797103939	-0.520209675	-0.326852225	0.638626112	0.481345242	-0.235086368
Slc6a17	-0.070739653	-0.16200603	-0.496312143	1.010010136	0.792106786	0.739395234	0.091824025	-0.056025756	0.071724462	-0.942062807	-0.387264236	-0.590650019
Glis1	-1.388877459	-1.063363274	-0.925145824	1.507790242	1.153994077	1.247891632	-0.394789631	-0.470973337	-0.440995533	-0.043776589	0.603345082	0.214900615
Sh2d5	-1.184181408	-1.546542984	-1.141790877	1.120260902	1.068124915	0.923921012	0.847595848	0.740682712	0.815973318	-0.602285216	-0.614630475	-0.427127745
Zbtb16	-0.145744405	-0.428805293	-0.454277924	0.484713574	0.549625098	0.521682989	0.975297697	0.670285937	0.836682873	-0.598500132	-1.192561855	-1.218398558
Sdk2	-0.090573143	-0.790755264	-1.018433981	1.072613709	0.906711393	0.736429785	-0.152519685	0.063677707	-0.001821976	-0.275682778	0.051020084	-0.500665851
Rspo2	-0.606296805	-1.439303148	-1.700210685	0.588283626	0.511650393	0.414577616	1.676864263	1.198841873	1.382552038	-0.218433959	-0.735661334	-1.072863878
Adamts19	-0.822178329	-0.591131121	-0.69783092	1.128672503	1.124386067	0.367935169	-0.355138463	0.28577352	0.149973379	-0.181403727	-0.400725121	-0.008332958
Gdf6	-0.569544932	-1.487955496	-1.385223584	0.998931925	1.449424679	1.496652888	-0.330706192	-1.255020497	-0.813523605	0.407820225	0.872245222	0.616899366
Emilin2	-0.538569202	-0.661532575	-0.607051306	1.140062651	1.200151302	1.05397694	0.229682958	-0.151218117	-0.00748668	-0.462813915	-0.536003411	-0.659198646
Jaml	-0.107842025	-0.385452892	-0.698259087	1.804207314	0.661302965	1.556934715	1.212006456	-0.497009087	1.110552093	-1.584311473	-1.485861717	-1.586267262
Pcdh19	-1.00027918	-0.916967407	-0.778542479	0.88759113	1.306842928	1.122765091	-0.045224838	-0.451377913	-0.27284765	0.278426093	-0.257385425	0.126999651
Cabp1	-0.081630543	-0.795189468	-0.517544055	0.805531544	0.593178345	0.96735199	0.787432295	0.396444315	-0.39793126	-0.54256275	-0.700692484	-0.514387929
5930412G12Rik	-0.154161853	-0.390067381	-0.649922288	0.937276702	1.042665623	0.754678706	0.428199982	-0.222856759	0.082179638	-0.619828309	-0.561558417	-0.646605645
AI464131	-0.826100083	-1.284421143	-1.35632864	1.013351133	1.01242129	0.972874444	0.714710758	0.172396102	0.36035861	0.234844999	-0.442809179	-0.522171242
Irx5	-1.075857397	-1.702722187	-2.305583788	0.847715779	0.554626784	0.527960684	1.723230443	2.179239488	1.863950457	0.580306831	-0.008662615	-3.033093044
Olfm1	-0.038899305	-0.552207279	-0.435260679	1.104258323	0.79661244	1.148387684	0.31241772	-0.431822523	-0.190743645	-0.67950844	-0.578541841	-0.454692455
Htra1	-0.20592633	-0.56327324	-1.13739519	1.446893576	1.146812513	0.807703233	-0.072669294	-0.565530227	-0.526611501	-0.134475555	0.48186704	-0.677395025
Cysltr1	-0.002733211	-0.348099722	-0.673094915	0.878864061	0.963012055	0.657965724	0.655306619	0.36167661	0.414134156	-0.971557974	-1.059049372	-0.876424029
Tmem28	0.247726083	-0.229598247	-0.049581858	0.814079402	0.638109209	1.055213204	-0.346553698	-0.420954984	-0.09214265	-0.655003137	-0.55268941	-0.408603914
Tmem200b	-0.273715655	-0.913593365	-0.966410391	1.648507459	1.181524488	1.251432317	0.724368512	0.791930977	0.492809376	-1.091340014	-1.445407864	-1.40010584
Scube1	-0.2246091	-0.271725044	-0.697859583	0.69718686	0.800564275	0.633025682	0.386631552	0.606490696	0.400040766	-0.581556925	-0.793703976	-0.954485202
Sptssb	-0.613605458	-0.751765833	-1.061286049	2.53509068	2.469416679	2.177839502	-0.52231511	-1.2297503	-0.807469162	-0.258143641	-0.708261008	-1.2297503
Myh15	-0.948495362	-0.005627638	-0.673046046	1.592941128	1.815870776	1.750061936	-0.803319568	-1.128889542	-0.973984627	0.190106961	-0.143584664	-0.672033356
Ubl4b	-0.057151534	0.029631373	0.067318254	1.027396102	0.953119488	0.907631858	-0.005972141	0.015468062	-0.220088625	-0.828996666	-0.814566059	-1.073790113
Tmem59l	-0.272966211	-0.579040521	-0.254361725	0.632592877	0.940542781	1.034404096	0.077643509	-0.347941825	-0.147323517	-0.153539635	-0.297260513	-0.632749316
Comtd1	-0.538783761	-0.657853846	-0.636077899	0.6380568	0.329747309	0.696318344	0.734085769	0.497275176	0.49924355	-0.276219565	-0.18903334	-1.096758536
Metrn	0.044457908	-0.703415189	-0.628728612	0.1108477	-0.093000018	0.717095648	1.384887797	0.661175171	0.876864676	-0.77422354	-0.839640763	-0.75632078
Psd2	-1.487108676	-1.116758552	-1.901371359	0.725284295	0.16874592	0.424243916	1.054365264	1.88618057	1.061929569	0.039268233	-0.210007588	-0.644771591
Hdac9	-0.279037777	-0.660922182	-0.333018325	0.878785551	0.939764524	0.989399115	-0.263172221	-0.567150999	-0.454051733	-0.288453591	0.077749089	-0.045327352
Gm15441	-0.488947259	-1.123840967	-0.946887694	-0.441391467	-0.445855492	-0.006355684	0.76677389	-0.01798763	0.651224698	0.617316275	0.708661726	0.727289605
Duxbl2	-1.264961471	-0.794668451	-0.959904496	-0.553843009	-0.70341187	-1.07320777	0.197854922	1.661466738	1.038667674	0.663834412	0.789439411	0.998733909
Duxbl3	-1.264961471	-0.794668451	-0.959904496	-0.553843009	-0.70341187	-1.07320777	0.197854922	1.661466738	1.038667674	0.663834412	0.789439411	0.998733909
Mirg	-1.131657179	-0.518096778	-1.301837386	-0.109168688	-0.628268921	-0.325349191	0.147223777	1.280720095	0.277114414	0.852001664	0.905326893	0.5519913
Gm3716	-0.202372865	-0.985446111	-0.871219571	-0.00168407	-0.544375634	-0.124933442	0.593075224	1.349377608	0.144219945	-0.797139865	0.368001723	1.102246957
Tgfbr3l	-0.305521073	-0.478967218	-0.502067177	-0.775736928	-0.414704346	-0.560203577	-0.599846285	1.784378832	-0.119273639	0.381965006	1.090147131	0.499829274
Rusc2	-1.100092063	-1.325162575	-1.274775556	0.161524376	-0.333960509	-0.582099305	-0.069372907	0.513785395	0.456925863	1.083302184	1.28616754	1.183757557
Mir1906-1	-0.932278534	-0.531214809	-0.829522489	-0.300870159	-0.309015358	-1.242239859	-0.033288284	1.616973556	1.079383376	0.651955561	0.838328377	-0.008211378
Nlrp5-ps	-0.452385498	-0.404904466	-1.535133799	-0.577133445	-0.741044471	-0.544738621	-0.148958057	1.300582642	-0.310325999	0.545028623	1.637370225	1.231642866
Mir1906-2	-0.932278534	-0.531214809	-0.829522489	-0.300870159	-0.309015358	-1.242239859	-0.033288284	1.616973556	1.079383376	0.651955561	0.838328377	-0.008211378
Arhgap33os	-1.042972041	-0.535854979	-0.857404453	-0.646438475	0.3609057	-1.451188906	-0.062050369	0.639159668	0.402227528	1.477561211	1.29494211	0.421112987
Lrrc8c	-0.879196056	-0.972906696	-1.076211696	-0.581588757	-0.447830951	-0.677912683	0.473703971	0.508450285	0.693059114	0.787587114	0.931293429	1.241552927
Mapre3	-0.933612238	-0.739207739	-1.04206594	-0.065150571	-0.338923453	-0.405754029	-0.050274502	0.719337012	0.353489	0.807915632	0.888832469	0.805414358
Adamts9	-0.669881515	-1.733194039	-1.714022222	-0.236645434	-0.061442418	-0.95382106	-0.089011051	0.686208516	0.60495132	1.813166635	1.6919758	0.661715469
AW146154	-0.606696862	-0.6465155	-0.509265534	-0.632951205	-0.222511895	-0.321136758	-0.053903984	0.953568217	-0.225301992	0.474337309	1.120075087	0.670303115
Firre	-1.111823011	-0.062361385	-0.610903083	-0.748748769	-0.637194849	-1.527700659	-0.60483806	1.574309723	0.399521243	1.046848952	1.145155398	1.1377345
Zfr2	-1.947961263	-1.42241107	-1.71844318	-0.038622338	0.017945417	-1.370214767	-0.17637866	1.173354334	0.709740453	1.565344969	1.692746567	1.514899538
Adcy4	-0.938783435	-0.903925948	-1.083179657	-0.222541436	-0.143759927	-0.505247528	0.015000669	0.801348694	0.103411246	0.749654265	1.053261331	1.074761724
Mycbpap	-0.732592548	-0.092115281	-0.248055826	-0.54203098	-0.851192017	-1.074163373	0.001422273	1.400849776	0.256773748	0.430515941	0.654160967	0.79642732
Slain1	-1.435081975	-0.727404757	-0.672548136	-0.468123036	-0.1579279	-0.30193515	-0.229166043	0.202532526	0.542387145	1.067980335	0.942401354	1.236885636
Dock9	-0.728639432	-0.564552673	-0.809760278	-0.73369392	-0.652198898	-0.814556079	-0.107042766	0.501055439	0.381930949	0.882766607	1.293695715	1.350995335
Mbnl2	-1.087728712	-1.001305985	-0.961510742	-0.358779488	-0.028819844	-0.642399353	-0.123070521	0.890075967	0.378770514	0.93935473	1.028424924	0.96698851
Dennd3	-0.976830353	-0.612630811	-0.604516812	-0.504606228	-0.532243045	-1.43526832	-0.077840104	0.771913991	0.412355948	1.100782487	1.342424474	1.116458773
Ttbk1	-1.765780802	-1.496193684	-0.355185502	-0.08373978	0.21065153	-1.018192277	0.215424645	0.102169672	0.414608525	1.274721527	1.345701766	1.15581438
Kank1	-0.415219791	-0.144556717	-0.06956384	-1.092926599	-1.112210147	-1.238553054	0.041921157	0.587509333	0.456389076	0.767590158	1.027590467	1.192029956
E330013P04Rik	-1.904349628	-1.60687635	-1.256549654	0.024383	-0.500420057	-0.604887912	0.883619367	1.658621139	1.435571733	1.158421545	0.717267441	-0.004800625
Col16a1	-1.131097789	-0.756936534	-0.957281823	0.039014731	-0.070150893	-0.492968107	-0.361343659	0.949856393	0.151983015	0.838880654	0.902090293	0.887953721
Mylk	-1.628419455	-2.091998002	-1.569878249	-0.768792202	-0.352184205	-1.180002492	1.249561232	1.974444507	1.478147476	1.014050589	0.909140878	0.965929922

Nod1	-1.868581557	-1.353471711	-1.475605698	-0.567108043	-0.921706868	-1.123572737	-0.657764817	1.235406076	0.921956335	1.814136071	1.986618152	2.009694797
Lin7a	-1.505480571	-2.06432826	-1.24842571	-0.09304304	0.145314563	-1.545746671	0.44587578	1.08629925	0.971416615	1.600891392	1.190760221	1.01646643
Ltbp4	-1.276500201	-1.565868834	-1.35507949	-0.280415924	-0.197692057	-0.601082639	0.246626087	0.791490226	0.562360133	1.229398643	1.249694378	1.197069676
Sema3d	-3.033093044	-3.033093044	-3.033093044	-1.867644723	-1.066171902	-1.79952257	1.326781985	2.475555907	2.368316592	3.185077932	3.475204245	3.475204245
Adamts7	-1.093327012	-1.049796876	-0.902775027	-0.089420578	-0.200141744	-0.651871545	0.224180321	0.507997501	0.435110732	0.953354491	1.021500016	0.845189719
Adamts6	-1.459306648	-0.988567336	-1.410640491	-0.227552373	-0.027435319	-1.134210999	0.104607068	1.600912466	1.098421497	0.91238591	0.897923401	0.633462823
Foxp1	-0.601737046	-1.422972552	-1.47711046	-0.064856157	-0.007194113	-0.795553902	0.224981006	0.573170846	0.782744771	1.013704269	0.99231719	0.782506148
Sft2d2	-0.576690318	-0.830881487	-0.603701448	-0.403505548	-0.163342238	-0.523320222	0.343385535	-0.140992347	0.391304325	0.777160835	0.815547578	0.915035336
Ston2	-0.632967747	-0.388949606	-0.100682085	-0.642177929	-0.749512064	-0.785112953	0.546945809	0.280954488	0.615025344	0.387809477	0.645105169	0.823562096
Ssc4d	-1.261079412	-1.5941065	-1.164673814	-0.195440211	0.011218621	-0.708254263	0.460894706	1.004460239	0.53878215	0.884382477	1.218479682	0.805336325
Bmp3	-0.250084845	-0.2152048	-0.31083836	-0.851318851	-1.157836417	-1.939932881	0.319958004	1.00635359	0.763470852	1.569387845	1.401713852	-0.335667991
Manba	-0.901453669	-1.160317335	-0.896655625	-0.535645736	-0.234042758	-0.231038495	0.17027501	0.6573486	0.143600858	0.772255797	1.286096496	0.929576858
Rap1gap	-1.424435161	-1.056276825	-1.06591546	-0.142667616	-0.146517339	-0.5757376	-0.021073599	0.927857748	0.541117129	0.988233955	1.034659323	0.940755445
Arhgef28	-1.506671252	-1.068989793	-0.896189079	-0.292611781	-0.186576535	-0.965057663	0.027817177	0.746062243	0.329382695	1.130615065	1.314433281	1.367785642
Adgrv1	-0.718852624	-0.78531225	-0.844335418	-0.228914225	0.181009733	-1.008020263	0.296710663	1.030371237	0.135696094	0.906019331	0.537724329	0.497903415
Slc8a2	-0.657833358	-0.897550226	-0.989722593	-0.421100326	-0.050800112	-0.126995326	0.587898919	0.12823475	0.161794972	0.684842455	1.005150375	0.576080472
Slc8a3	-0.602809044	-0.018538068	-0.080513281	-1.084703622	-0.883457137	-0.444252344	1.022660838	0.828980434	0.880700209	0.416380302	-0.145260097	0.110811811
Abca1	-0.860954965	-0.518595674	-0.855127095	-0.624416182	-0.833771017	-1.237717908	-0.02888057	0.764989974	0.369291693	1.155928105	1.334817876	1.334435764
Abcg1	-1.731598204	-1.275766367	-1.537822607	-0.400215744	-0.457297445	-1.113460563	0.367219435	0.437486766	0.663001876	1.473284593	1.830964559	1.7442037
Foxp2	-2.229235886	-2.458457716	-3.033093044	-0.368467735	-0.288365912	-0.975798658	0.600910272	1.586056327	1.088060844	2.092492008	2.293894958	1.850918652
Chrnb1	-1.539591232	-1.204034433	-0.22556882	-0.721362296	-1.234999187	-1.149962483	0.173416017	0.518760744	0.739535342	1.597086863	1.309400596	1.737318888
Actc1	-1.217489327	-1.217489327	-0.415776898	-1.044737258	-0.351378402	-0.666505587	0.438711923	0.41945693	-0.374761728	1.026579589	1.796122927	1.607267159
Brdt	-1.206951823	-0.700750393	-1.328112348	-0.373240684	-0.138642329	-0.29038689	-0.057258694	0.809008219	0.16137798	0.923840661	1.124781106	1.076335194
Adam12	-0.841544595	-1.302310776	-1.756418166	-0.565450981	-0.183445732	-0.390707406	0.844140458	1.280994388	1.112076781	0.321563894	0.538611806	0.94249033
Adam22	-0.958684026	-0.997472959	-0.732951596	-0.794513679	-0.472827575	-0.87353122	-0.074425406	0.443492002	0.411635712	1.486111727	1.535635759	1.02753126
Ak1	-0.870169299	-1.490778177	-1.152482436	-0.604101342	-0.586603158	-0.68371411	1.029360061	0.616999814	1.004292943	0.877583214	0.850879288	1.008733202
Prelp	-1.953395029	-2.133789209	-2.133789209	-2.133789209	-1.973469617	-2.133789209	1.555341445	1.487258936	1.883122797	2.362521878	2.739204902	2.434571526
Alox5ap	-1.045519609	-1.389266209	-1.109077157	-0.705134647	0.174786934	-0.184106437	0.373757026	0.22655514	0.602095632	1.248854986	0.934877582	0.872176759
Boc	-1.385810029	-1.049636085	-1.252869293	-0.341567474	-0.182913736	-0.453462104	0.265510315	0.782310881	0.537890803	0.791770567	1.165549368	1.123226786
Mmp28	-1.439285393	-1.697661007	-1.719801978	-1.162967067	-1.739905933	-1.624661734	0.927815742	1.409617427	1.646921077	1.447134812	1.957472379	1.995321674
Atp2a1	-0.255481654	-0.612828564	-0.729320049	-0.462400535	-0.435905762	-0.829709122	-0.412704465	0.963255956	0.428602398	0.97372303	0.833246798	0.53952197
Atp8a1	-0.316539107	-0.230679698	-0.230960551	-1.188468116	-0.678964202	-0.415510761	0.386526382	0.290792517	0.201741616	0.577316325	0.658894492	0.945851103
Atp9a	-1.098635564	-1.324499898	-1.10875999	-0.445671536	-0.697271831	-1.018468101	0.201991342	0.313143932	0.399514138	1.507746664	1.606465738	1.664445105
Barx2	-2.35799016	-2.180477767	-2.35799016	-0.640025238	-0.665045808	-1.968361411	1.228466603	1.521268994	1.688911938	1.757825138	1.748023206	2.225394664
Cspg4	-1.453058081	-1.538305206	-1.787431203	-0.847063293	-0.464298333	-0.88018854	0.213618628	0.832590616	0.742352385	1.339740091	1.739020525	2.103022411
Bicd1	-0.66926958	-0.82284188	-0.580714867	-0.769059708	-0.313466548	-1.103411027	0.132646872	1.017564319	0.42016039	0.922770241	0.867956492	0.897665296
Bmx	-1.244181071	-1.393618616	-1.560711165	-1.262814493	-0.772912507	-1.521247439	1.28669037	2.105059108	1.55294027	0.808149575	0.958546774	1.044099194
Klf5	-0.68708796	-0.750943428	-0.490022976	-0.024979074	-0.35083124	-0.71204116	-0.360371236	0.67085121	0.639723936	0.531498001	0.729585351	0.804618576
Btg2	-0.890813073	-0.905522657	-0.469156347	-0.220117628	-0.493726453	-0.977797023	-0.023715419	0.851958185	0.525910676	1.113703359	0.933572602	0.555703777
Cacna1b	-0.169866097	-0.893798853	-0.293484591	-1.065291956	-1.130727859	-1.067711483	0.442446212	0.887719746	0.970939163	0.601973843	1.529944622	0.187857252
Ddr1	-0.353825512	-0.925644053	-0.743059074	-0.19383857	-0.34785158	-0.664162592	0.21561693	0.282921889	0.417910105	0.900272606	0.64250294	0.769156911
Calb2	-2.023633607	-2.282009221	-2.440696011	-0.570394567	-1.175950276	-0.960719867	0.886025409	2.179781798	2.331608213	2.174436042	1.868271165	0.013280921
Capn5	-0.724846054	-0.844442196	-0.693598066	-0.180078729	-0.441608932	-0.113035621	0.520815081	0.098451176	0.353362495	0.890367597	0.610336756	0.524276494
Car11	-0.86380969	-1.321397145	-1.093411242	-0.58732232	-0.163755031	-0.673599317	0.177772699	0.788479242	0.017519768	1.339443246	1.435200175	0.944879617
Cd38	-0.578536526	-1.038602252	-0.560121714	-0.863263316	-0.259725211	-0.900518336	0.608387194	0.639540702	0.396959553	1.085236985	0.781443434	0.689199485
Cdkn1c	-1.106139374	-1.196819585	-1.169050049	-0.12276878	-0.301571824	-0.634955098	0.713290791	0.701190583	0.720821299	0.847532953	0.817375859	0.731093226
Ackr3	-1.329071142	-2.221919609	-2.753540125	-0.625382769	-0.996887628	-1.023678252	1.711199742	1.528510913	1.874373385	1.555486307	1.477655946	0.803253232
Col12a1	-2.072766698	-2.913176686	-3.033093044	-0.40138697	0.127322507	-1.106877604	0.448701559	1.425753609	1.297795279	2.235415532	2.086125004	2.042368388
Col15a1	-1.47005523	-1.93531457	-1.531417864	-0.708157219	-0.202115856	-0.234205119	0.473297221	1.613363168	0.405837235	1.27120249	1.439785862	0.877779882
Col2a1	-3.033093044	-2.945779934	-3.033093044	-1.076433316	-1.344562276	-1.984884701	1.526506127	2.370185559	2.121070575	2.425135704	2.616027251	2.985248354
Col4a5	-0.64722379	-1.055612787	-1.078786933	-0.366643084	-0.072886952	-0.669096156	0.163714969	0.569165927	0.381737657	0.875635968	0.830750353	1.069244827
Col5a1	-0.624498252	-0.777439481	-0.812124557	-0.248183493	-0.081283311	-0.577013692	0.220722997	0.163461629	0.236231299	0.754718219	0.979209476	0.766199168
Col9a1	-0.799423718	-0.704771585	-1.21061605	-1.438371052	-1.805681966	-1.637947604	0.725623441	0.925572648	1.016048089	1.294706862	1.6654705	1.969390434
Col9a2	-3.033093044	-2.873380209	-3.033093044	-2.561730126	-2.176781121	-3.030351751	0.738855207	2.039543022	1.946315331	3.475204245	3.475204245	3.475204245
Col9a3	-2.952887115	-2.564303855	-2.244126342	-1.965915228	-2.034028665	-2.860382	0.369131185	1.712608634	1.504834827	3.339694418	3.475204245	3.475204245
Vcan	-0.352232167	-0.333913067	-0.366150577	-1.377310073	-0.846186305	-1.294300443	-0.141106122	1.205354473	0.623380806	0.937921915	0.81143786	1.133103701
Dab1	-1.218939598	-1.474514539	-1.793641277	-1.733940248	-1.543744618	-1.167428797	0.121731236	1.097796277	0.898535428	1.989196359	2.364562471	2.460387305
Dapk2	-0.539983042	-1.152817126	-1.024044073	-0.413951073	-0.297840054	-1.490556504	0.41342623	0.595348566	0.395260482	1.436129801	1.1865634	0.892463394
Ddc	-0.14697997	-1.482156685	-1.23928462	-0.583782477	-0.288683702	-0.529362271	0.236500751	0.634176465	0.767586919	0.980803064	1.021672123	0.629510404
Dsc3	-0.571190838	0.126539813	-0.851707423	-1.134798849	-1.307550919	-1.099622942	-1.135601517	0.802084309	1.160753344	2.238174889	1.563075405	0.209844728
Dsg2	-0.827502544	-1.773476392	-1.656438338	-0.147354051	-0.47752766	-0.438404723	-0.023124719	1.226629003	0.780004894	1.019261325	1.115062418	1.202870788
Dst	-0.509303109	-0.276047051	-0.215147663	-0.989146426	-0.377308215	-0.886118652	-0.331203593	0.784947265	0.080377876	0.847920478	0.77509267	1.09593642
Dtna	-1.642081235	-1.315712596	-1.768270331	-0.550100815	-0.448005141	-1.580882765	0.422672984	1.025092702	1.123686063	1.362368872	1.644023492	1.72720877
Ebf3	-1.609124245	-2.087329682	-2.392800108	-0.513192098	-0.329292539	-1.088522369	0.036989787	0.815494674	0.653265237	2.045771835	2.297326626	2.171412882
Sparcl1	-0.962214757	-1.861517411	0.063830257	-0.291396749	-0.396695497	-0.67786478	-0.518344445	0.911202266	0.414751612	0.792711659	1.278227993	1.247309853
Egfr	-2.407242028	-2.091332444	-1.708155385	-1.006918936	-0.647593259	-1.531375874	-0.287931263	0.706552522	0.698055023	3.092692809	3.253937516	1.929311318
Elf1	-1.125578328	-0.743958702	-0.837244783	-0.272746048	-0.317971029	-0.740398488	0.288498998	0.832419633	0.641305394	0.679609265	0.68517207	0.910892018
Epb41l4a	-0.91696381	-1.250645245	-1.012463582	-0.001183099	-0.659899418	-0.310718854	1.057666161	0.952830432	0.877996188	0.604518678	0.434374346	0.224488203
Erbb3	-2.044570092	-1.934179428	-2.492250684	-1.741987701	-1.619603718	-1.600531352	0.355150851	1.203691593	1.580287869	2.32809447	2.744135299	3.221762893
Celf2	-1.072096635	-1.191730418	-1.407061869	-0.841563668	-0.590398588	-0.962524406	0.824569471	0.978079932	0.998769198	1.100751312	0.918227573	1.244978097
Fgf12	-1.046043731	-0.962569948	-1.194690878	-0.659274439	-0.658434961	-1.047676342	0.852075643	0.816868228	0.924689783	0.806761799	1.314873648	0.8534212
Fgf7	-0.958675061	-0.867506244	-0.72550967	-0.705115581	-0.536716969	-0.745815577	-0.092991912	1.007272375	0.255345251	0.808818434	1.245991955	1.314902997
Fgf9	-1.389991971	-1.21870238	-1.273487146	-1.082947272	-0.807076195	-1.64820218	1.142060917	1.750732835	1.844194189	1.017788872	0.675952842	0.989677489
Fgfr3	-1.393194635	-1.646351435	-1.640838534	-0.751114659	-0.911493699	-1.279776936	0.029123863	0.953605625	0.846356103	1.653025584	1.921720662	2.21893806
Fgfr4	-1.586144223	-1.034147602	-1.152343744	-0.346904678	-0.475268105	-0.871841798	0.72764537	1.170306653	0.827305828	0.927818678	1.208726438	0.604847185
Ctgf	-0.868280668	-0.574349096	-1.430704687	-0.253209998	-0.93738293	-0.600963446	0.553315708	1.666452261	0.865061828	0.609736836	0.693143701	0.277180491
Fst	-1.752210601	-1.597047982	-1.130892351	-0.831721202	-1.066493856	-1.236510799	0.125536058	1.082428968	0.966735131	1.993564373	1.978398371	1.468213892
Fzd8	-1.977551737	-1.535622821	-1.574727995	-0.575028238	-0.580143935	-1.24812672	0.400902481	0.919538713	1.021952296	1.814302326	1.986270704	1.348234925
Gabre	-0.942768788	-0.470687661	-0.404726068	-0.372942848	-0.630911853	-0.459058541	-0.410625288	1.381938734	0.087574949	0.946655944	0.972578008	0.302973412
Gas2	-1.442414497	-1.611558032	-1.460699029	-0.583535285	-0.570301066	-0.764300587	0.282750159	0.782881591	0.751235852	1.538431578	1.629635054	1.447874261
Gata4	0.165975581	-1.508149399	-1.420378443	-0.343055989	-0.918593677	-0.193364888	0.422790021	0.925929126	0.968476203	-0.008003506	1.010059996	0.898314975
Adgrg1	-1.010172534	-0.908436903	-0.983794149	-0.425047129	-0.439501024	-1.037289458	0.649299354	0.921455735	1.048475252	0.707103568	0.600999854	0.876907435
P3h3	-0.66705393	-0.072572833	-0.483214279	-0.317948581	-0.4075703	-0.895196792	-0.583594239	1.105564361	0.120871557	0.685123996	0.80433953	0.71125151
Gstt1	-1.384334084	-1.293165266	-1.651082379	-0.45895877	-0.297771313	-0.566996181	-0.047621669	0.581613353	0.45556276	1.378562108	1.58218338	1.702008062
Gstt2	-1.088172349	-0.045711993	-0.300236672	-0.385971301	-0.281982577	-1.039149831	-0.087926769	0.530172079	0.197826725	0.881191699	0.917797143	0.702163846
Hap1	-1.239248589	-0.573645821	-0.630315347	-0.186327229	-0.581727563	-1.025270015	0.065102918	0.08915347	0.523413561	1.208841071	1.449039775	0.900983769
Hcn1	-1.626183483	-1.629065271	-1.111200704	-0.793899256	-1.036629909	-1.598649687	0.793499052	2.130608562	0.978786308	1.182692827	1.167606802	1.542434759
Hhip	-1.712462534	-0.664139838	-1.59076833	-0.74920726	-1.020016105	-0.872456632	1.176448411	1.719967323	1.586718357	0.52259409	0.635198661	0.968123857
Hivep2	-0.88647627	-1.209343354	-0.537367533	-0.375995412	-0.360732218	-1.686021137	-0.055933965	0.389020002	0.427763884	1.529998325	1.356631562	1.408456116
Hmgcs2	-1.422761316	-1.036944068	-1.18290377	-0.750801167	-0.642234212	-1.763479575	0.294661265	0.578340384	0.58150129	2.07925247	1.594497576	1.670871123
Hmx1	-0.271402243	-0.839942136	-0.15532019	-0.499697667	-0.761974344	-0.369199638	-0.05948192	1.555926915	1.603166488	0.753633896	0.193341135	-1.149050297
Hr	-0.402441689	-0.419830193	-0.318473481	-0.982902444	-1.045662349	-0.90672961	0.402731373	0.765086009	0.68791641	0.721946924	0.866021589	0.632337462
Hs3st3a1	-0.925149339	-1.738051896	-1.947703827	-0.688424747	-0.980833764	-1.596304675	0.279533829	0.770641677	1.12411021	1.735903046	1.87989042	2.086389067
Ica1	-1.265088891	-0.967821578	-1.073025228	-0.069711099	-0.263576487	-0.375018117	0.281622143	0.714094812	0.717928158	0.884739498	0.630919648	0.784937144
Igfbp3	-1.898258557	-2.391629917	-2.070775666	-0.664307739	-0.679784629	-1.104971762	0.951442387	1.319959938	1.230229026	2.260000609	2.174616207	0.873480105
Igfbp5	0.002312498	-2.180272225	-2.13037685	-1.543280967	-1.521190858	-1.743647329	-0.013870021	0.689587829	0.709071707	2.818731881	2.858290687	2.054643649
Il1rn	-1.41197903	-1.234466638	-1.41197903	-1.084966195	-1.41197903	-1.41197903	1.331339297	1.166653579	1.114246558	1.391186077	1.275743159	1.688180285
Inha	-1.060221457	-0.282692465	-1.372836556	-0.042765972	-0.113050797	-0.707219427	0.000285114	0.861571792	0.45246401	0.372100914	1.07137494	0.820989904
Itga3	0.309295961	-1.06267039	-0.8054472	-0.389952612	-0.435525428	-0.832099121	0.585294781	0.220582787	0.029464466	0.925069849	1.006792643	0.449194264
Jak3	-1.154201702	-0.562513336	-0.6627685	0.114198162	-0.586990812	-0.290228588	-0.315055345	1.018730889	0.166800831	0.685671201	0.686682278	0.899674922
F11r	-0.063127882	-1.141513147	-0.775848352	-0.646247167	-0.816283837	-0.518728058	0.652107288	-0.05542515	0.141130349	0.612681928	1.277088656	1.334165372
Jun	-1.199200111	-0.434141972	-1.01520946	0.084385538	-0.624281123	-1.06316863	-0.159582571	1.529064982	0.604856187	1.022790774	0.769197014	0.485289372
Kifc2	-1.481063361	-0.416916351	-1.206829735	-0.65656292	-0.294956986	-0.868434462	0.053457912	1.408062245	0.21871803	0.804440118	1.395635257	1.044450253
Krt18	-0.572702516	-1.192411875	-1.373650584	-0.478595092	-0.265160171	-1.068283761	0.414966077	0.765382119	0.573758743	1.068560997	1.207718292	0.920417771
Cnmd	-2.380035463	-2.380035463	-2.380035463	-2.380035463	-2.380035463	-2.380035463	0.220041253	1.768071102	1.585464652	3.356633763	3.475204245	3.475204245
Lepr	-2.178099586	-1.993923794	-2.363150776	-0.483170765	-0.058889757	-0.528571031	1.074815073	2.015496219	1.761120535	1.483292779	1.266774737	0.004306366
Loxl1	-1.403109253	-1.738128883	-1.835868784	-0.066317214	-0.302947184	-0.847305249	0.200000878	0.390359486	0.743304347	1.501011687	1.605065203	1.753934666
Khdrbs2	-0.973281465	-0.980291342	-1.138978131	-0.274270541	-0.417164592	-0.630342508	0.197925441	0.434288113	0.346463909	1.430578827	1.300780022	0.704292265
Maf	-1.906783242	-2.106058899	-1.696643186	-0.511516697	-0.411926176	-0.358241611	0.804288027	0.94078027	0.754265647	1.116533214	1.664614487	1.710688165
Matk	-0.387513075	-0.212274947	-1.347662042	-0.815262586	-0.233590662	-0.725816913	-0.32571182	0.803710503	0.476857996	0.890250681	1.133653012	0.743359852
Matn4	-1.932343193	-2.591036487	-2.900556704	-2.896268885	-3.033093044	-3.033093044	-1.197897236	0.923855962	1.231282851	3.475204245	3.475204245	3.475204245
Mcf2l	-1.521251222	-1.278980728	-1.189434238	-0.168622568	-0.285454031	-0.621090553	0.137292586	1.281589205	0.305908075	1.072441037	1.243972942	1.023629495
Mdfi	-0.737212998	-0.804537755	-0.434682615	-0.371405724	-0.365083527	-0.621054118	0.423898868	0.572370339	0.52384221	0.493662196	0.669410005	0.650793117
Meg3	-0.955463155	-0.791420052	-1.245068824	-0.292593128	-0.283953928	-1.141595208	0.030812483	1.848907403	0.873485202	0.88959704	0.897706115	0.169586051

Meox1	-2.010463631	-2.684589049	-2.174746571	-0.644004145	-0.992095613	-1.343086164	1.055550793	1.638522991	1.603385812	2.123040711	2.060528159	1.367956707
Foxc1	-2.820057866	-2.649096797	-1.873452372	-2.023637299	-2.663124743	-2.146312311	1.081166264	2.170819043	1.699576972	2.728815304	3.222113793	3.273190012
Foxd2	-1.633251219	-1.643075794	-1.913767804	-0.493304442	-0.843264623	-0.280251956	1.305291499	0.914563954	0.994198327	0.749443723	1.363859642	1.479558691
Mstn	-1.188497794	-1.188497794	-1.020033543	-1.188497794	-1.188497794	-0.980569818	1.554820533	2.303214063	1.643542514	0.460247086	0.52785246	0.264917314
Myo5b	-1.682153669	-1.965188078	-1.268787859	-0.796872484	-1.264159816	-1.104407173	1.597448022	2.215720529	2.144099532	0.628792575	0.69368632	0.801822102
Myom1	-1.393298393	-0.562291068	-1.038655834	-0.224831348	0.011004788	-0.703099605	0.348218133	0.953524719	0.544218588	0.67561357	0.701956882	0.687639569
Nfatc2	-2.335820329	-3.016042142	-2.70452187	-1.14205342	-1.461985264	-1.399401046	1.649868538	2.025924583	2.201202339	1.936126297	1.886038	2.360664314
Nfe2	-1.143183568	-1.032792904	-0.957615981	-0.746650003	-0.421360064	-0.931395109	0.681700858	0.399829516	0.977798439	1.229942079	0.903809972	1.039916764
Nr4a3	-1.423863084	-1.682238698	-1.358510735	-0.752225018	-0.098987471	-1.952295189	1.084791877	1.031787072	1.730076133	1.028068186	1.102719119	1.290605737
Notch1	-0.932912952	-0.729826447	-0.311359109	-0.811535383	-0.508914641	-1.317348738	0.17819932	0.741891589	0.548019606	0.851061223	0.981976588	1.310748943
Npdc1	-1.090035689	-1.390310198	-0.912691038	-0.751164926	-0.95743126	-0.08573242	0.214315818	0.555285602	0.757737817	1.332143971	1.518516787	0.809365538
Ntn1	-2.882469574	-2.808063277	-2.972904451	-0.33825244	-0.73368	-1.244641371	1.723312579	1.796385653	2.183584914	2.352162286	2.079212435	0.845353247
Ntrk2	-1.466134566	-1.950387856	-2.468329214	-0.259720898	-0.832558234	-1.472333201	0.179560295	0.602559713	0.697567769	2.161246787	2.452043606	2.356485798
Oprl1	0.560446385	-0.428425245	-1.142960927	-0.752056392	-0.505995696	-1.462258605	-0.647110883	0.696899322	0.294898228	0.71526124	1.386733223	1.28456935
Osmr	-0.906133629	-1.086527809	-1.086527809	-0.913775739	-0.926208217	-0.69689906	-0.379092618	0.478752097	0.40587497	1.450797181	1.625366284	2.034374349
Pak3	-1.176579302	-1.124748402	-0.934643934	-0.336660277	0.126055159	-0.392505905	0.382731959	0.526101316	0.466154559	0.856485711	0.690555433	0.917053685
Kat2b	-1.305847329	-0.620225514	-0.94270356	-0.176764668	-0.412084592	-0.975332989	-0.357392068	0.719716502	0.356776414	1.2634562	1.352740894	1.025660709
Pde9a	-0.786582935	-0.733848566	-0.699688168	-0.449591061	-0.44336156	-0.48634333	0.13965498	0.806079807	0.319359231	0.760694178	0.767826298	0.805801125
Pdgfra	-1.057908118	-1.052313476	-1.040525309	-0.221630073	0.055046939	-0.507713797	0.383578402	0.567846582	0.545411215	0.918515775	0.79344563	0.616246231
Pgf	-1.201147063	-1.282744037	-1.208924506	-0.14923582	-0.244348441	-0.804879555	0.296955669	0.52122481	0.337188179	1.348377511	1.274575717	1.112957536
Pik3cd	-0.646005297	-0.386587737	-0.528746184	-0.441526682	-0.596674671	-0.367180565	0.445891746	0.442625848	0.219576442	0.378433894	0.645559083	0.834634122
Pitx2	-0.399108724	-1.672668484	-1.3865261	-0.775171918	-0.789598027	-1.177032303	0.800452594	2.022578913	2.032665166	2.005206524	1.365724006	-2.026521648
Prkcb	-1.671484903	-1.86781371	-2.023499596	-0.582503447	-0.309607159	-0.551213629	0.991047981	1.266112657	1.214864248	1.237804253	1.376452391	0.919840914
Pld2	-0.688750438	-1.588193524	-1.135279699	0.064966003	-0.424975166	-0.336900194	-0.023738995	0.92715789	0.447911643	0.821018142	1.0570097	0.879774639
Pmp22	-1.09515331	-2.844895369	-2.204501797	-1.013697776	-0.929937242	-1.050818293	0.951779339	1.062896312	1.26495337	1.872551641	2.151894532	1.834928593
Pou3f3	-1.268826407	-1.107881658	-0.569739764	-0.208542257	-0.337753287	-0.453205681	0.533128183	0.699682982	0.2665602	0.889742669	1.072940615	0.483894407
Pou6f1	-1.513977421	-2.006992169	-2.029326437	-0.064991703	-0.092160597	-0.679002392	0.442262946	0.873951395	0.593547278	1.121181771	1.652164716	1.703342611
Ppargc1a	-2.310550248	-1.786178104	-1.729582282	-0.439356397	-0.159925697	-0.476523808	1.219749992	1.225014356	0.877941545	1.161809578	1.209372745	1.20822832
Prkg1	-0.555368614	-1.267916876	-0.930012192	-0.244041591	-0.036663668	-0.370299267	-0.003224815	0.767029539	0.534029342	1.159189979	1.012972852	-0.065694688
Pstpip2	-1.27775859	-1.119307469	-0.918822791	-0.445844007	-0.423333386	-0.452241303	0.175448455	0.847642986	0.350475587	0.934675316	1.130782569	1.198282633
Abcg4	-1.065653249	-0.476607929	-1.249763267	0.099548233	-0.441103997	-0.098237961	-0.273871619	0.577734993	0.381609351	0.79648015	0.924358278	0.825507017
Ptpre	-1.409785954	-0.532346353	-0.510620243	-1.076551362	-1.124832544	-1.343796558	0.025419145	0.166564113	0.637693271	1.508432635	1.539570399	
Rab33a	-0.792887844	-0.880155231	-0.607696041	-0.223613103	-0.222566573	-0.443315354	0.019661003	0.441307082	0.195858386	0.707349642	0.790340126	1.015717907
Rag1	-2.40715103	-1.139390994	-1.829488699	-0.801350702	-0.361787657	-1.551178192	1.373656911	1.454064824	1.691585382	1.39318313	1.101508847	1.076348178
Dcdc2a	-1.051793941	-1.536788285	-1.368324035	-0.524109878	-0.415542922	-0.373144668	0.606491605	1.655221952	1.175601394	0.570963611	1.0499806	0.211444568
Rgs16	-1.17550401	-0.80244374	-0.973000937	-0.228214763	-0.7549403	-1.326035458	0.725418038	1.182448104	1.498682773	1.211354209	0.666152784	-0.023916699
Dhrs3	-0.83158831	-0.74376431	-0.79246109	-0.727738032	-0.669371942	-0.742465829	0.617662384	0.849786309	0.663605956	0.362714038	0.928929385	1.084691443
Rtkn	-0.75955185	-0.424775127	-0.668742486	-0.365729675	-0.497039287	-0.648911999	0.273309999	0.909798763	0.599433273	0.483256607	0.563034526	0.535917257
Rxrg	-0.021303069	-0.803507629	-0.639493412	-1.077860412	-1.320591065	-0.926895203	0.416228007	0.659494825	0.621850859	1.080752456	1.252038956	0.759285688
Ryr2	-1.407469672	-0.858630656	-1.723999765	-0.879785608	0.208840071	-0.94373705	0.7076127	1.457165793	0.844662834	1.329238074	0.956527812	0.309575466
Sdpr	-1.768452284	-2.905130045	-2.905130045	-1.642532416	-1.635847855	-1.469336482	1.188736352	1.984179994	1.475872344	2.748289115	2.793811962	2.13553936
Sema3b	-1.190611892	-1.051268948	-0.911754623	-0.876789933	-0.660023985	-1.480239487	0.125718727	0.88018706	0.688589562	1.285016827	1.614235534	1.576941157
Sema6a	-2.181801372	-2.111980181	-1.670275907	-0.679729935	-0.470263161	-0.877445282	0.547945145	1.093771162	1.083002646	1.682863614	1.803418521	1.780494293
Selenop	-0.664988816	-0.68546018	-0.832803403	-0.653364239	-0.655835222	-0.49582553	0.182261619	0.417602722	0.406894483	0.760590654	1.058095296	1.162832616
Shd	-0.687236561	-0.11365508	-0.618647767	-0.553857366	-0.629462462	-0.907157559	-0.111128051	1.007303538	0.35465235	0.562947625	0.9003898	0.795851533
Sim1	-1.26483926	-1.26483926	-1.26483926	-0.446610324	-0.829099718	-0.875210511	0.332227254	1.609014259	0.756783454	1.447223567	1.748772995	0.051416802
Sim2	-1.940992799	-1.566835614	-2.804744282	0.47709317	-0.277827745	-1.525209044	0.549349032	1.235720664	1.308236467	2.718245764	2.3196254	-0.492661013
Slc4a3	-0.910998831	-0.187978917	-0.633955249	-0.244976658	-0.373733674	-0.845119197	-0.352712005	1.180356448	0.454657928	0.570005078	0.841906889	0.502548188
Plk2	-0.982561479	-1.191314857	-1.397645995	0.10359593	0.01359618	-0.851766616	-0.297691149	0.825401084	0.430624793	1.297086503	1.334930457	0.71574515
Sox10	-1.74740759	-1.411850791	-1.578943339	-1.74740759	-1.311668049	-1.539479614	1.022928207	2.02452126	1.663286298	1.630642301	1.341967824	1.653411083
Sox5	-0.782852541	-0.82591862	-0.641972604	-0.983955596	-0.6696707	-0.708605994	0.432408434	0.776523544	0.675198829	0.680024154	0.878372006	1.170449088
Sox9	-2.225808794	-2.022872842	-2.070016033	-1.218775434	-1.389640109	-1.201290646	1.5245861	1.543137835	1.568586545	1.473606021	1.948193233	2.070294123
Serpini1	-1.015974431	-0.869699332	-0.709369796	-0.426273898	0.015625398	-0.566540112	0.086493549	0.295933421	0.226416679	1.106784697	0.951318094	0.905285731
Spint2	-1.536449923	-1.842651681	-1.577883333	-0.363349434	-0.508049355	-0.683721745	1.284456605	0.908125883	1.294390583	1.052198302	0.940957137	1.031976961
Spp1	-1.505522002	-1.668727868	-1.526942583	-1.673488191	-0.980129336	-1.01830696	0.753836455	1.056976218	1.401856995	1.45575266	1.887230682	1.817463931
Tspoap1	-1.232915877	-1.500745109	-0.590164355	-0.658271609	-0.473342774	-0.735304647	-0.162425741	1.138536344	0.342675239	1.173187171	1.447715473	1.251055884
Creb3l2	-0.944027992	-1.00598902	-0.94690863	-0.526026027	-0.441338622	-0.861163648	0.030231147	0.2163776	0.504030053	1.070484533	1.369872746	1.534457859
Sned1	-2.188179338	-2.05849184	-2.32417877	-0.777345353	-0.889346384	-1.737631556	0.701747179	2.529252109	1.581134382	1.646913142	1.758973304	1.757153126
Tmem63a	-1.300152088	-1.081262902	-1.193200833	-1.179932025	-0.748471607	-0.945989534	0.165932858	0.934324459	0.766343893	1.443101993	1.704506516	1.43479927
Triqk	-1.066984019	-0.917352614	-0.87737796	-0.422360579	-0.00303329	-0.175800459	0.311897974	0.312613578	0.279128935	0.576841974	1.008144017	0.974282441
Ccdc62	-1.123658324	0.067558865	-0.538954662	-0.344081286	-0.472055569	-0.839822305	-0.132330387	0.956503938	0.725469092	0.415910834	0.737917301	0.547542502
Myo5c	-1.185034863	-1.313788941	-0.758788531	-0.381317946	0.056202536	-0.972667979	0.262641569	1.340285144	0.546909319	1.106163329	0.528357077	0.771039286
Metrnl	-0.819742548	-0.533751495	-0.135568204	-0.707901712	-0.29772831	-0.661818056	0.238690083	0.319007908	0.575158499	0.702079685	0.628872603	0.692701548
Adcy2	-1.248407235	-1.837945669	-1.935977953	-0.638707463	-0.569094343	-0.947513427	-0.068846208	0.696146295	1.01860537	2.087670408	1.907474097	1.53659613
Zkscan2	-1.209153902	-0.520878747	-0.674792125	-0.407312726	-0.370285716	-0.562223957	0.06176869	0.944028108	0.306527041	1.031543284	0.884715593	0.516064458
Nckap5	-0.559184711	-0.473904425	-0.265570141	-0.649342507	-1.616878998	-0.715855113	0.365226223	0.415956055	0.008791269	0.577625324	1.31480763	1.598330294
Pamr1	-1.956565034	-1.956565034	-1.788100784	-1.629552198	-1.65197299	-1.260471053	0.227471479	0.79346861	0.420248976	2.85707316	3.009811055	2.935153812
Ppp1r36	-1.367596801	-0.846584268	-1.173821204	-0.22452204	-0.273831508	-0.324761817	-0.007119168	0.847558927	0.417919147	0.757170114	1.018479713	1.177108905
Tifa	-0.571010053	-0.440257932	-0.646439579	-0.904301051	-0.466780569	-0.92819269	0.70096395	0.747632187	0.803719206	1.114479372	0.314677782	0.275509378
Syne3	-0.782114846	-1.12486842	-0.348314368	-1.02227221	-0.776211514	-1.524546446	0.639678304	0.692677548	-0.024523536	1.350675189	1.594537829	1.325282469
Arap2	-0.696008948	-0.619271405	-0.291487901	-0.729854901	-0.545371583	-0.578889692	-0.086332059	1.101347191	0.108269898	0.533693285	0.969360784	0.834545331
Wbscr17	-0.658148722	-0.722787099	-0.400505481	-0.803411151	-0.623753073	-0.44035202	0.491203898	0.117358452	0.031287219	1.071294308	1.108352013	0.829461655
Tac1	-0.461348602	-1.342800011	-1.287877985	-0.679450523	-0.066057046	-0.358902413	0.0908598	1.171231976	0.216262657	0.52187218	1.076684223	1.119525745
Rassf4	-1.866705461	-0.908031255	-1.840776809	-0.074587024	-0.221659768	-0.427853084	1.068933957	1.381697768	0.897902034	0.5554742	0.706277618	0.729327825
Nudt18	-1.004309507	-0.73878566	-0.496036715	-0.365034115	-0.252050347	-0.340164801	0.478511295	0.082530651	0.317839096	0.668048304	0.653308352	0.996143447
Arhgef19	-0.814673762	-1.125592963	-0.698168938	-0.792985074	-1.291950856	-1.505128772	-0.676860823	1.05861043	0.275905782	2.071670019	1.886893959	1.612280998
Plekhg1	-2.412916328	-2.341665961	-2.295835425	-0.373621477	-0.126936307	-0.941061859	0.43559731	1.490123283	1.084258428	2.026205223	2.074750512	1.381102601
Tbx15	-0.723196818	-0.332808824	-0.256247988	-0.688248067	-0.579615307	-0.807701384	0.41290335	0.862401387	0.705636798	0.445737136	0.342628001	0.618511717
Tbx4	-0.171458981	-0.555562987	-0.512387572	-1.022155333	-1.283914835	-0.041939942	1.022320339	0.811132747	0.946552598	1.146469882	0.167948795	0.492995289
Tcf7l2	-1.032031508	-1.065965158	-0.858896849	-0.482306171	-0.11001643	-0.456635697	0.437782893	0.538208538	0.439101306	0.759676987	0.88155289	0.9495292
Zmat1	-1.430483516	-0.967018745	-1.081374778	-0.274316094	-0.16411633	-0.416116298	0.012348024	1.058170454	0.635929538	0.901479392	0.938073853	0.7874245
Arrdc1	-0.671453143	-1.048875252	-0.790084287	-0.318394873	-0.759779742	-0.392141164	0.237277285	0.402022171	0.27175157	0.871135896	1.077771072	1.120770468
Tcp11l2	-1.74328196	-1.312422829	-1.717353309	-1.1619948	-1.18701537	-1.529303386	0.306081501	0.687072096	0.546029675	2.084385444	2.417172726	2.610630212
Phf1	-1.060987656	-0.169137947	-0.611666874	-0.205074347	-0.696746196	-0.614370101	-0.28849864	0.897624309	0.346885603	0.751470232	0.958623686	0.69187793
Efemp1	0.304933731	-1.638680401	-1.645695048	-0.28180362	-0.402900155	-0.004604843	0.368225866	0.971889763	0.56263256	0.682581105	0.831425327	0.251995713
Wnt9a	-1.474029618	-1.770951599	-1.743960378	-0.255021564	-0.460096287	-0.968623445	0.61692001	0.374541822	0.764583761	1.755655405	1.760395774	1.400586121
Tec	-0.665727182	-1.279025262	-1.034939024	-0.051867912	-0.181541644	-0.450766513	0.146821665	0.787787965	0.352875749	1.247727374	1.163853428	-0.035198644
Arhgap44	-0.573986669	-0.393212613	-0.507617528	-0.262659647	-0.648687796	-0.80226942	0.219821247	0.029973811	0.318260384	0.752406368	1.027233989	0.840737873
Synrg	-0.920954023	-0.898714124	-1.036224056	-0.033378218	-0.083300271	-0.528676126	0.448543024	0.613821939	0.620237684	0.598531254	0.622530417	0.597582499
Cd300a	-0.947743312	-0.625395238	-0.98331235	-0.08833963	-0.366726428	-1.012904414	-0.305443471	1.628122083	0.144062733	0.579169418	1.123834035	0.854676576
Rab40b	-0.656286872	-1.095205229	-1.702811232	-0.690132824	-0.836700307	-0.874877931	0.06484976	0.875821378	0.235928446	1.719019739	1.404899222	1.55549585
Tgfa	-1.247295053	-1.830801857	-1.503018352	-0.805266148	-0.738827879	-0.973843081	0.402125038	0.594503637	1.188528646	1.345075644	1.667836799	1.900982606
Tgfbi	-0.65499058	-0.803000567	-1.057395465	-0.539407023	-0.586539715	-0.603953199	-0.097645995	0.300281626	0.330632945	1.105050608	1.367369544	1.239597822
Tgm2	-1.535022605	-1.183613697	-1.700719271	-1.309814736	-1.584277408	-0.584223386	1.764963462	1.528550449	1.77924644	0.760906222	1.259264993	0.804739537
Mylip	-1.158861628	-0.687110537	-0.963398846	0.002263982	-0.014628267	-0.486530219	0.077110939	0.331687513	0.298972355	0.790981021	0.962010609	0.847503077
Thbs1	-1.392451598	-1.017451783	-1.486930516	-1.220006922	-1.384034629	-2.089599422	-0.036517403	1.238952786	0.938594334	2.128589478	2.389289071	1.931566605
Zfp455	-0.071756976	-0.568890279	-0.724576165	-0.383411275	-0.639123526	-0.650619881	0.223846199	0.468674132	0.411440872	0.230154711	0.859590478	0.844671709
Marveld2	-0.536520641	-0.487372059	-0.064797843	-0.579360428	-0.470865539	-0.891265335	0.003231888	0.198468955	0.657480728	0.703424003	0.858036748	0.609539522
Tlr1	-0.927663762	-1.208251805	-0.550393661	-0.725579668	-0.987856344	-1.335880627	-0.285363921	1.416399551	-0.701081005	1.324096057	1.54556681	2.436008375
Tub	-0.962199107	-1.004594201	-1.06965775	-0.331274772	-0.018024143	-0.245828426	0.185092347	0.554793387	0.374190089	0.859390495	0.872993601	0.785118478
Tubb4a	-1.141281565	-1.130609763	-1.663541692	-1.075828354	-1.009376272	-0.861969586	0.374177408	0.305576443	0.364153358	1.757555469	2.166008395	1.915136158
Vipr2	-1.416022007	-0.9302902	-0.774741767	-0.298545903	0.010350001	-0.603642228	0.348622525	1.176426422	0.521692036	0.650357105	0.751040857	0.564753161
Nrbp2	-1.042334596	-0.562299269	-1.089633865	-0.334407645	-0.456251075	-0.552789116	-0.578112739	1.094225844	-0.085660981	0.96688989	1.343128156	1.297245397
Fgd4	-1.706613388	-1.114298951	-0.963616174	-0.95160482	-0.505801191	-0.836709198	0.43945029	1.250476367	0.905309168	1.066803988	1.121746478	1.294857432
Enpp4	-1.121361997	-1.421687873	-1.0283509	-0.34021032	-0.168974922	-0.07763873	0.69960553	0.724517024	0.719032378	0.627061729	0.532350977	0.855657103
Snx32	-0.385724652	-0.590490738	-0.818228014	-0.510472599	-0.465477792	-0.354166742	0.093859252	0.981601515	0.231598597	0.639337415	0.579967866	0.598195894
Dmrt2	-2.201855229	-1.774643406	-2.213785159	-1.11965178	-1.261004047	-1.831265669	1.219330055	3.045713591	2.503508248	1.751228336	1.846109739	0.036315321
Zfp185	-0.815266243	-1.242871813	-1.0478745	-0.4705705	-0.346964289	-1.447718108	-0.060950707	0.617414597	0.295852281	1.588393251	1.663038967	1.267517062
Proser2	-0.655758743	-1.222638297	-0.827772299	0.104027108	-0.184242701	-0.689172697	0.335333716	0.290039255	0.03645251	0.753218186	1.066337244	0.994176717
Lrsam1	-1.216361359	-0.749589215	-0.956066034	-0.325113244	-0.265729302	-0.380137203	0.004400938	0.767186589	0.456732905	0.848036899	0.945394528	0.871244497
Ikzf2	-0.576370815	-1.015864241	-1.117170837	-0.288083362	-0.13049836	-0.445647332	0.104717966	0.638189807	0.456274911	0.863997983	0.955116207	0.555338072
4930402H24Rik	-0.730056513	-0.854068912	-0.844584994	-0.20185047	-0.054746755	-0.468071383	0.115350649	0.350566807	0.312924244	0.686722662	0.861080461	0.826734205
Smox	-0.324500831	-0.109880812	-0.162867547	-0.513200359	-0.877630627	-1.115662229	0.276475145	0.283480044	0.499754875	0.581457896	0.606662367	0.855912078
Samd10	-0.813531894	-0.83642945	-0.856054633	-0.107003459	-0.257044947	-0.436992049	0.638079457	0.489057131	0.530743528	0.667309656	0.529075798	0.452790861

Fam160a1	-1.278656697	-1.892578019	-1.599438543	-0.839112336	-1.230901832	-1.149527687	0.492925906	0.870620278	0.622104392	1.968562978	2.029536453	2.006465107
Slc16a4	-0.958552818	-0.537105905	-0.27117339	-1.462576116	-0.231133696	-1.490314921	-0.187892084	1.191995782	0.569403751	1.270973371	0.969180838	1.137195189
Gbp7	-1.45875006	-1.646444026	-1.439977428	-0.754829707	-0.837997338	-0.75788687	0.289711995	1.184129142	0.970661781	1.530109897	1.691524818	1.229747796
Npr2	-1.482317085	-0.652551451	-0.785138564	-0.347825916	-0.256055013	-0.700943417	-0.41755747	0.692938446	0.172072997	1.096320434	1.406915949	1.274141089
Frrs1l	-0.988893713	-0.878503048	-1.285740877	-0.129490031	-0.078691877	-0.777105254	-0.272212289	0.344931121	0.532611565	1.531639539	1.32861024	0.672844624
Asap3	-0.976987284	-1.189950589	-1.452600458	-0.306194247	-0.523604516	-0.487652622	0.006920433	0.733021332	0.132354148	1.187147818	1.558032339	1.319513647
Fbxo44	-1.15866742	-0.560892762	-1.180088001	-0.789183466	-1.194793634	-1.291457702	-0.791950488	0.659772248	0.813043762	1.936748635	2.110899121	1.446569707
Arhgef16	-1.107985943	-1.025108576	-0.991242831	-0.31626123	-0.383467437	0.014359481	0.63519135	0.774568785	0.82960808	0.510616483	0.281660415	0.778061424
Parm1	-0.62229865	-0.889253872	-2.372236723	-1.030462715	-1.650423185	-2.140550661	0.572614768	0.72070875	1.119427619	2.24289533	2.35780997	1.69176937
Fras1	-0.435461702	-1.279654413	-0.948631221	-0.517577442	0.03225227	-0.778695424	0.390080752	0.6250117	0.612140971	0.865633027	0.745928857	0.688972625
Slc26a1	-0.467357527	-0.987706318	-0.412683145	-0.426501914	-0.428826822	-0.756525166	-0.015790078	0.441931205	0.295301455	0.917321884	0.999577089	0.841259336
Creb5	-1.985519747	-1.924748394	-2.124575926	-1.138384726	-0.661555182	-2.027004237	-0.042167296	1.159023895	0.688747769	2.303686737	2.886621343	2.865875761
Hdac11	-0.862200383	-0.866457544	-0.953869055	-0.090620634	-0.085891655	-0.479690779	0.370137696	0.675545196	0.633135366	0.499645612	0.549651116	0.610615064
Shisa7	-2.394351032	-1.848209705	-1.581330269	-1.562066804	-0.640858342	-1.31456711	2.086508753	3.475204245	2.3165332	1.01002221	0.458184089	-0.028006581
Fbxo27	-1.275055555	-0.492439011	-0.834149402	-0.183075135	-0.261531272	-0.832626431	0.351900583	0.473688789	0.401260284	0.9607084	0.927511328	0.763807424
Galnt18	-1.025832875	-1.224017721	-1.261765158	-0.189540975	-0.82454229	-0.570177718	0.34425619	0.905341268	0.801128877	0.883817103	1.354824373	0.806508927
Spon1	0.074959028	-0.679145356	-0.559766241	-0.858071747	-0.550409002	-0.582995067	0.592251908	0.795453518	0.386112362	0.22830224	0.877665059	0.275643298
Plekha7	-0.77970873	-0.363620487	-0.251881999	-0.753144192	-0.455457799	-0.377357714	-0.312829083	1.177028125	0.015997704	0.280184769	1.059683454	0.761105952
Sorbs2	-1.59175412	-1.384180724	-1.426242816	-1.895989361	-2.234051343	-2.093431351	1.205356654	1.603890944	1.654231355	1.651391964	2.045492953	2.465285845
Gramd1b	-0.972411268	-0.089158823	-0.660602487	-0.65259153	-0.43601747	-0.429737393	0.048516222	0.386749327	0.559343551	0.768259576	0.833924677	0.643725618
Fam214a	-0.959376221	-0.923323042	-0.539072018	-0.153484157	-0.117250865	-0.771658673	-0.053837429	0.52199983	0.229722464	0.880559783	0.925998236	0.959722093
Als2cl	-1.305204362	-0.587432355	-1.047891186	-0.107215277	-0.748897451	-0.702563642	0.114072274	0.645355581	0.494770735	1.253483182	1.207185801	0.784336699
Pisd-ps1	-0.642785917	-0.347767153	-0.564083555	-0.567560165	-0.266410045	-0.504621076	-0.376485491	0.909406415	-0.118826815	0.69161947	1.080437085	0.707077247
Arhgef9	-1.10290132	-0.852688213	-0.909410243	-0.097653541	0.136079556	-0.697617251	-0.036006866	0.799381294	0.588123954	0.712114007	0.897634883	0.56294374
Adam23	-0.772149284	-1.073591201	-1.158487581	-0.293396782	-0.174123287	-0.610845677	0.347534292	0.67044092	0.463873946	0.805928123	0.980274484	0.814542047
Apc2	-2.007012619	-1.944806382	-1.773681557	-0.129596991	-0.406801082	-0.895671024	0.268773596	0.832298302	0.802337167	1.691948628	1.913477024	1.648734938
Vash1	-0.740426073	-0.793382081	-0.60286447	-0.203559443	-0.413096299	-0.513702072	0.610232523	0.309137198	0.688647075	0.458819542	0.663297932	0.537706168
Macc1	-1.841471466	-1.841471466	-1.841471466	-1.668719397	-1.536879422	-1.841471466	0.342565047	1.277332983	1.142979801	2.747366591	2.589774682	2.471465581
Dlg2	-0.539236336	-0.463402586	-0.878966527	-1.105861515	-1.047613618	-0.780322312	-0.500249763	0.938665241	0.095108192	1.745613347	1.583004519	0.953261358
Mgll	-1.16693431	-1.447522353	-0.882333673	-1.610327082	-1.347339661	-0.834352186	0.184581395	1.177129003	0.954047698	1.487331602	1.692510789	1.793208728
Pdzrn4	-2.004650602	-1.458509275	-1.604468978	-1.366815846	-0.123809088	-1.4889508	-0.126903943	0.718171697	0.600319189	2.589729097	2.564934375	1.700945474
Zfp811	-0.808152056	-0.710563915	-0.729066897	-0.199198501	-0.043203895	-0.602529961	0.360685359	0.846644827	0.323485816	0.689610211	0.271843864	0.600445148
Rnasel	-0.902553977	-0.838061344	-1.12292212	-0.59038488	-0.681465347	-1.242555848	0.209453018	1.321761927	0.624117036	1.068439973	1.139260978	1.014910582
Fam69c	-2.669354663	-2.67636454	-2.985884756	-0.964749886	-1.134326404	-1.231958492	1.757981574	1.720212049	2.163188258	1.819831692	2.05211814	2.149307029
Kcnt2	-0.892991835	-1.434168542	-0.88641174	-0.862573647	-0.292974314	-0.537034444	0.236195032	1.385395404	0.693067719	0.510351376	1.056440458	1.024704533
Dusp27	-0.619824176	-0.354478026	-0.240251486	-0.976107481	-0.615074898	-0.615944906	0.960799985	0.469249141	0.669081514	0.320146931	0.131374142	0.871029259
Ralgps1	-0.886183362	-0.908949999	-0.896023468	-0.406976228	-0.29717993	-0.396179141	0.083665484	0.43858472	0.358989953	1.020515785	0.96552027	0.924215915
Zeb2	-1.137936455	-1.613792386	-1.262109528	-0.383782315	-0.740169297	-0.323372447	0.137794299	0.691424659	0.403869123	1.115384129	1.4668953	1.645794917
Galnt5	-0.854573728	-1.291949292	-1.011747862	-0.559538647	-0.115057424	-0.197671156	0.613306596	0.396684473	0.815708646	0.507083747	0.488443596	1.20931105
D430041D05Rik	-0.815247394	-0.906775668	-0.66456322	-0.35869575	-0.238662813	-0.266698495	0.623437095	0.473607947	0.737708094	0.753336601	0.816384402	-0.1538608
Pak7	-0.881178287	-0.764991433	-0.704765847	-0.359434011	-0.050019813	-0.328353138	0.042608983	0.137801251	0.537241164	0.90627233	0.719204374	0.745614427
Dzank1	-0.848418146	-0.628054305	-0.860158075	-0.631525898	-0.218947333	0.068146787	0.218718572	0.46601987	0.494998838	0.325378627	0.934945749	0.678895313
Lrrc7	-0.745806958	-1.593131056	-1.593131056	-0.580452649	-0.823183302	-1.593131056	-0.189570833	1.713193988	1.192232914	2.066686172	1.839469817	0.30682402
Palm2	-1.113643888	-0.95673627	-1.597979781	-0.290134097	-0.415900847	-0.79773695	0.432164559	0.686169932	0.84380616	0.971003812	0.879447273	1.359540096
Stard13	-0.917246761	-0.549881515	-0.252483795	-0.733229852	-0.455879665	-1.270151598	-0.262403508	0.789234642	0.248664296	0.98304542	1.064860593	1.355471744
AI854703	-0.912667173	-1.326656756	-0.886447121	-0.081717643	-0.451660534	-0.354432511	1.123694761	0.877452751	1.041802971	0.188446983	0.337796112	0.444388161
Shank1	-0.769984603	-0.973523338	-1.556922887	-0.044664834	0.075967717	-0.915078795	-0.322018384	0.667965629	0.27625874	1.035617024	1.413432766	1.112950965
Mctp2	-1.000649539	-0.686709076	-0.597425509	-1.052300851	-1.223500984	-0.262585097	0.96575209	0.934691495	0.621468088	0.823007708	0.867964799	0.610286876
Rgma	-1.281447158	-1.312765165	-1.179739961	-0.145569326	-0.402769554	-0.352481964	1.060195889	0.648230427	0.937901496	0.769906645	0.762076121	0.49646255
Olfml1	-1.314998442	-1.257035925	-1.118312919	-0.363405065	0.124244112	-0.392309191	0.613986648	0.753224937	0.667212688	0.763906142	0.632982711	0.890504305
Nlgn3	-1.61264346	-1.057101285	-0.798552004	-1.380089856	-1.049375673	-1.499939544	0.270430687	0.91695791	0.983237058	1.519429682	1.830781498	1.876864987
Iqsec2	-0.610134277	-0.549559133	-0.676904543	-0.295471719	-0.395958128	-0.424550601	0.12535672	0.232857749	0.134267654	0.676840211	0.803512024	0.979744042
Ssh3	-0.745408928	-0.538837142	-0.890162338	-0.64697405	-0.697602548	-0.766738295	-0.921580585	1.270252802	0.175540588	0.991850209	1.650741451	1.118918837
Dusp15	-0.971361812	-1.092150404	-1.499388233	-0.556088282	-0.777574694	-0.99075261	1.151303469	0.759946699	1.165765357	0.869673193	0.986038619	0.954588699
Grhl2	-1.09256614	-0.372353346	-0.777283826	-0.399813241	-0.473644194	-0.589233904	0.07371966	0.674690417	-0.231939352	0.772172587	1.387122013	1.029129325
Srgap3	-1.951672502	-1.890863475	-1.525167072	-0.726946257	-0.418053787	-0.632786036	0.657513371	0.90441399	1.108983106	1.464914928	1.603434079	1.406229655
Cadm4	-1.083213441	-0.947632914	-0.931098601	0.045431486	-0.131551149	-0.577980775	0.639301362	0.263627551	0.719278286	0.678354318	0.685871953	0.639611926
Axl	-1.021007004	-1.189148996	-1.276862134	-0.124265922	-0.056649873	-0.57419341	0.162814463	0.226274796	0.403858973	1.165685825	1.19954829	1.08394499
Fgd2	-1.494171907	-0.69213506	-0.816559839	0.127642259	-0.286221899	-1.030439286	0.078974588	1.453358361	0.94192684	0.418969165	0.220066138	1.078590641
Slc27a1	-0.875588805	-0.26124429	-0.563891248	-0.346888454	-0.407975805	-0.632571066	-0.197322328	0.791694797	0.236039319	0.691318695	0.884072762	0.682356424
Homer2	-0.816042603	-0.988078108	-1.032270142	-0.547380061	-0.49204628	-0.597158036	0.457391943	0.44153717	0.774287311	0.854052825	0.858552033	1.087153947
Fam19a2	-1.937952548	-1.800686339	-1.959373128	-0.560705884	-0.138381153	-0.686337887	0.093481921	1.027654238	0.843617608	1.764249506	1.771556352	1.582877315
Gulo	-0.995659939	-0.452410586	-0.520601849	-0.515491581	-0.43114912	-0.269925391	0.271047676	0.612077115	0.305521961	0.458604855	0.784181453	0.753805371
Egflam	-0.837867141	-1.082576744	-1.13854153	-0.672758697	-0.760421208	-0.733861388	0.599677811	0.529729634	0.897201248	0.945312249	1.10718007	1.146925696
Lsamp	-1.500755883	-1.149346974	-1.290373267	-0.445673228	-0.401706814	-0.186476405	0.614326489	0.479329594	0.649776407	1.235951864	1.260811017	0.734137201
Robo2	-1.808722585	-1.635837046	-2.007386078	-0.303949343	-0.075062037	-0.770044624	0.556527711	1.069918593	1.040976851	1.176740691	1.25243042	1.504407448
Caskin1	-1.271896925	-0.175258381	-0.608919501	-0.06074392	-0.419005573	-0.442062211	-0.564489327	0.980049145	0.318551702	0.823472388	0.862349638	0.557952965
Colgalt2	-1.215607779	-1.654526136	-1.46041971	-1.668704999	-1.221020923	-1.566038158	0.79819607	1.044192905	1.178992301	1.480577157	2.197942032	2.08641724
Ell3	-1.500789257	-0.985340575	-1.692591193	-0.303066003	-0.528000195	-0.130084256	0.332555652	0.852038982	0.747436204	0.88135148	1.003945719	1.322543444
Tpsg1	-0.668805778	-0.536377638	-0.977053427	-0.633339501	-0.386424957	-0.806824753	-0.637642104	0.87341213	0.051154343	1.130745646	1.062460931	1.528695109
Ccdc60	-0.735340185	-1.303880079	-0.980152116	-0.863137312	-1.114950417	0.017409276	0.590288181	0.722067781	0.626095347	1.566241972	0.382757718	1.092599834
Pon3	-0.719050388	-0.643704317	-0.498135815	-0.463945252	-0.414112347	-0.60560136	0.337921267	0.403263759	0.540767914	0.414356145	0.67703304	0.971207354
Gsg1l	-1.121000358	-1.131921205	-1.166612027	-0.307252771	-0.92721324	-0.234787107	0.719391975	0.456827514	0.529231127	1.774384839	1.629042857	-0.220091604
Ephb1	-0.658327421	-1.30883098	-1.007043431	0.051186915	-0.149748996	-0.846020592	0.956504011	0.516269541	0.856413701	1.048730612	1.056265442	-0.515398803
Plekhb1	-0.906644991	-1.307448274	-0.649590129	-0.724277839	-0.52175971	-0.207211509	-0.045938559	0.564031876	0.701975792	0.601063844	1.446370341	1.049429158
Abca8b	-1.679047386	-1.03708628	-1.367696927	-0.723913737	-0.51208971	-0.564160718	1.137350467	1.400937378	0.98098156	0.7714392	0.56772423	1.025561923
Abca3	-1.277054688	-1.146437884	-1.491239447	-0.588947675	-0.369711969	-0.438623053	0.552174938	0.745135106	0.741158402	1.038784608	1.129216771	1.105544891
Amot	-0.721591708	-1.080222113	-1.082834884	-0.443923486	-0.08842203	-0.343351213	0.511041422	0.533960746	0.609892844	0.615895048	0.666313819	0.823241556
Armcx6	-0.780914349	-0.567548378	-0.569188584	-0.473229394	-0.242820525	-0.604584591	0.313712248	0.345011847	0.298416373	0.749906148	0.730401946	0.800837259
Wfikkn2	-1.19579342	-1.316292054	-1.93219657	-0.773772642	-0.701876178	-1.062387529	0.367267973	0.388489609	0.905762898	1.523536981	1.721309785	2.075951148
Duxbl1	-1.27889546	-0.770541388	-1.080801647	-0.637454289	-0.637573339	-0.976591881	0.186965773	1.677698724	1.072213111	0.675710029	0.812724788	0.956545578
E130310I04Rik	-1.649461803	-1.263644555	-0.676157649	-1.171951126	-0.245720366	-0.826536445	0.780155735	1.316144983	0.841860247	0.877724599	1.061811054	0.955775324
Flnb	-0.59440808	-0.530238442	-0.509524203	-0.994629664	-0.601063958	-0.938776513	-0.002441388	0.315062108	0.381865053	0.919863304	1.10186172	1.452430063
Pde7b	-1.488399756	-1.263889432	-2.362412343	-1.058263034	-0.820988846	-0.918794861	0.633607342	1.139993358	1.197593954	1.857784116	1.753124303	1.3306452
Cttnbp2	-1.155016691	-0.477495184	-0.823608538	-0.686260325	-0.403589205	-0.870185613	0.798571287	1.680775571	1.180738947	0.423628296	0.08386289	0.248578565
Nol4	-1.323785915	-0.669203143	-0.728226311	-1.288319638	-1.28748016	-1.797515206	0.600175223	1.522658058	1.051294683	1.426787666	1.386352207	1.107262541
Trim12c	-1.038041266	-0.984885202	-1.814532094	-0.0370139	-0.396763861	-0.402750673	0.367646298	0.731025993	0.593537296	0.612877444	1.203289896	1.165610069
A730056A06Rik	-1.423480128	-1.79281976	-1.814960731	-0.081205106	-0.631283049	-0.835010664	1.085384571	1.057335676	1.093005401	1.234793982	1.364973657	0.743266151
Tmcc3	-1.266336342	-1.361225079	-1.568758835	-0.574479789	-0.835544637	-1.158739761	0.247368998	0.328901536	0.702098049	1.772182139	1.948892906	1.765640814
Dgki	-1.241202278	-1.090848849	-1.57616761	-0.716808354	-0.091399778	-0.644342689	-0.23460015	0.554113681	0.521459872	1.496709072	1.681795912	1.341291171
Fam19a1	-0.38809459	-1.430117751	-1.309831054	-0.503076921	-0.362142092	-0.602030933	0.292466289	0.184295126	0.215101769	1.299181598	1.447406624	1.156841935
D030045P18Rik	-1.080139653	-1.15122712	-1.155569179	-0.124486048	-0.44219475	-0.074556172	0.632949113	1.378579666	0.684354342	0.482626664	0.507894459	0.341768678
Lrig3	-0.843474898	-0.40449373	-0.428400502	-0.272303125	-0.212685272	-0.891914229	0.170187774	0.980226618	0.589742304	0.46005443	0.371365214	0.481695416
Itgb8	-1.854557657	-1.698944572	-1.42384573	-0.895193399	-0.903338598	-0.749324295	0.469927288	1.811106984	1.239165524	1.371445912	1.237042335	1.396516209
Fat4	-0.746395106	-0.67586222	-0.466927688	-0.941859234	-0.639907009	-1.327951517	-0.159986614	0.369544871	0.41539842	1.38077352	1.414316681	1.378855896
Med12l	-0.664646718	-0.571283595	-0.465859585	-0.393880277	-0.155344496	-0.766958297	-0.259113779	0.859151676	0.243633842	0.622804407	0.775142037	0.776354785
Shisa3	0.235926392	-1.047775851	-0.541986069	-1.098582489	-1.54918731	-1.603785459	0.64783807	0.758629426	0.879575635	0.93013675	1.517754869	0.871456038
Hfm1	-0.878800398	-0.237852984	0.196852653	-0.428153133	-0.461627646	-1.142090184	-0.752507329	1.177064005	0.256126492	0.492627871	0.941595719	0.836764935
Miat	-3.033093044	-1.775823347	-2.302894836	-0.398897501	-0.611637784	-1.873168329	-0.567183454	1.010323088	0.775501555	2.987339192	3.299642007	2.741906478
Fbxo41	-1.082512769	-0.507670391	-1.053273401	-0.366954139	-0.738977418	-0.965068564	0.512023051	0.936944244	1.035392013	0.621762369	0.620150792	0.988184213
Gm5126	-1.076368469	-0.723789272	-0.949894072	0.049499244	-0.075500536	-0.385088771	0.396536297	0.223963844	0.135535512	0.728286764	0.785207155	0.891612304
Mamld1	-1.229376973	-1.509965016	-0.852106872	-1.518508979	-1.289569556	-0.49486548	0.628750623	0.658410512	0.736389153	1.40883475	1.65803195	1.803975889
Map3k9	-1.120312885	-0.960272985	-1.031094961	-0.289059379	0.047492932	-0.250185325	0.214070217	0.775037641	0.512286901	0.776232723	0.755318401	0.570486723
Caps2	-1.045029221	-0.889416136	-1.05680353	0.057687579	-0.012138896	-0.655874868	0.32416912	1.172709862	0.353446969	0.373159483	0.554864578	0.823225059
Slc2a12	-1.289497273	-1.0086684	-0.934848869	-0.793059676	-0.622214166	-0.530803918	0.592436618	0.449183557	0.70223267	0.925109716	1.099260202	1.41086954
Prune2	-0.670642939	-0.68333394	-1.02179034	-0.704488892	-0.520005574	-0.889233999	0.384171022	0.86146531	0.304455414	1.171687336	0.515864336	1.251852265
Peg13	-0.988887258	-0.845025164	-0.936451473	-0.201347901	-0.519061587	-0.637823292	0.364770802	0.045457374	0.869203513	0.765017554	0.980968644	1.103178787
Trim46	-1.161131292	-0.946582951	-0.346677644	-0.221424837	-0.247844379	-0.806033961	0.032494874	0.498593979	0.307305594	1.152760474	0.822007443	0.916532701
Acss3	-1.181850943	-1.339918123	-1.136494937	-0.816043011	-0.396135846	-0.965395398	0.077749025	0.900184746	0.900937614	1.253744456	1.273786015	1.429436966
A330009N23Rik	-0.622980238	-0.85818614	-0.31034777	-0.622416363	-0.527841438	-0.625473527	0.222471755	0.713816047	0.394659097	0.479694231	0.870117691	0.886486656
Prob1	-0.93864691	-0.556019176	-1.11192793	-0.048996503	-0.449700972	-0.492750659	-0.388515195	1.166450601	0.231226113	0.80520395	1.045571371	0.738105311
Crocc2	-1.505166985	-0.807436335	-0.550231144	-0.468827653	-0.263929586	-1.181343484	0.417563616	1.397086251	0.700996072	0.539396104	0.884288331	0.837586813
Lonrf2	-0.594739149	-0.538898746	-0.88075645	-0.203334034	-0.108805011	-0.575775621	0.262445115	-0.215898495	0.60203474	0.97166044	0.862973359	0.419093852
BC064078	-1.392055015	-1.214542623	-1.392055015	-1.065042179	-1.087462971	-1.392055015	0.078932631	0.861322892	1.134170573	1.411110092	1.919221941	2.13845469

Zfp950	-0.759014069	-0.252346247	-0.578066743	-0.579598146	-0.139211332	-0.771904518	-0.381806512	1.318865496	0.200423087	0.628499626	0.625321351	0.688838007
Plcxd2	-0.845016664	-0.866992339	-0.917212322	-0.411716095	0.166442313	-0.430498246	0.357479851	0.286441156	0.584393891	0.560415724	0.72100279	0.79525994
Ociad2	-1.03918569	-0.865175526	-1.090564566	-0.313706111	-0.496732486	-0.301876563	0.749474627	0.473060438	0.717508059	1.003804079	0.858102446	0.305291293
Dnm3os	-1.370174299	-0.496238123	-1.435100595	-0.151322486	-0.261529574	-0.513191715	0.131213615	1.990749883	0.397577809	0.770414306	1.221518268	-0.283917089
Rgs3	-0.817379547	-0.452103985	-0.51506404	-0.453080413	-0.483586246	-0.679878827	0.319415679	0.544671104	0.419236233	0.558031415	0.750391977	0.809346651
Magi2	-1.300825345	-0.761059284	-1.0379324	-0.472487446	-0.677562169	-0.591531232	0.115972457	0.932711377	0.857855311	1.319776817	1.198826334	0.416255579
Stag3	-1.099247639	-0.161559472	-0.387372556	-0.588946056	-0.290128306	-0.923077462	-0.962520156	1.259255566	0.245103829	1.032676527	1.157691014	0.718124709
Srpx	-0.439982727	-0.717593594	-1.030399789	-0.241593234	-0.271144446	-0.859568624	0.402839864	0.266167662	0.133110411	1.009441487	1.069618027	0.679104962
Gal3st1	-1.547606742	-1.129918225	-0.779591529	-0.979746316	-0.760219126	-1.335818283	0.136070745	0.824129789	0.573375265	1.555756234	1.616192152	1.827376037
Rcan2	-0.600254905	-0.911174107	-0.734483161	-0.011834706	-0.229832785	-0.767986881	0.779674578	0.841564938	0.713397092	0.364606501	0.010518177	0.545805257
Asah2	-0.942177806	-0.763592193	-0.63025306	-0.103366415	-0.167975071	-0.406506634	0.150425584	0.332906959	-0.010093865	0.956202033	1.012990891	0.571439577
Fam205a2	-0.61368288	-0.881512111	-1.014599992	-0.375268473	0.104677132	-0.479551908	0.004853972	0.243812455	0.552958792	0.796717355	0.56287075	1.098724907
Zfp108	-0.430673657	-0.829310693	-0.608573065	-0.596842689	-0.329196857	-0.511858536	0.004645737	0.929004176	0.157890028	0.569013921	0.652504794	0.993396841
Hs3st3b1	-1.105895225	-1.653709502	-1.936911827	-0.872164395	-1.04957335	-1.476621309	0.896145616	0.666980146	1.18646792	1.716692984	1.748626352	1.879962589
Cpxm2	-1.702479579	-1.009364478	-1.72390016	-0.63519969	-0.298738142	-1.653569089	-0.507793923	0.706835807	0.364762055	2.009038329	2.226458037	2.223950833
Srcin1	-0.855123992	-1.395338648	-1.86662747	-0.25144274	-0.652901023	-0.638216106	0.157932279	1.037457115	0.488515995	1.412894271	1.3388635	1.223986818
Fxyd1	-0.887004049	-1.398212465	-1.756129577	-0.411257702	-0.494425334	-0.744372462	0.766755835	0.782099668	0.472185519	1.026450507	1.221200676	1.422709983
Txnip	-0.488029803	-1.138839453	-1.143484418	-0.585570839	-0.441186027	0.035253351	0.750915636	0.213077902	0.573518491	0.724396347	0.779622157	0.720326657
Copz2	-0.455341168	-1.02651378	-0.932629694	-0.240848022	-0.52604958	-0.047981902	0.248209474	0.051925432	0.371202138	0.853490062	0.857905781	0.846631259
Ikbke	-0.969545418	-0.580962159	-0.438797854	-0.612753523	-0.57501004	-1.240520563	-0.046428699	1.421882266	-0.094403158	1.031451514	1.103629611	1.001458023
Brinp1	-0.431132031	-0.891823299	-1.114339723	-1.196856266	-0.488738525	-0.498899843	0.614800224	0.36900235	0.722041647	1.302443267	1.388127731	0.225374467
Trpm5	-1.581323654	-1.881598164	-1.724586473	-0.654440813	-0.97354172	-1.457823314	0.078855179	1.21918481	0.597348996	2.016832141	2.122472088	2.238620923
Cxcl14	-1.030528366	-0.760231743	-0.667727349	-1.069278966	-1.347298176	-1.764293178	0.032562105	0.150509113	0.848041487	2.048629369	2.071633655	1.48798205
Vstm2b	-1.879064843	-1.401195926	-0.567366699	-0.146882927	-0.603800352	-0.88208957	0.186062258	1.572742438	1.251965225	1.523745633	1.021130436	-0.075245675
Cacna1h	-0.869693185	-0.915376306	-1.176402993	-0.560145604	-0.6859451	-1.076945332	-0.264605237	0.725673543	0.540811389	1.119316426	1.581009133	1.582303467
Nkain4	-0.687663468	-1.731678401	-1.328614989	-0.725185526	-0.505658336	-0.558534458	0.749899889	0.705389863	0.968062914	1.173958819	1.024458001	0.915565693
Fam181b	-1.498401215	-1.60293634	-1.492619608	-0.907068317	-1.640105422	-1.333098362	1.521409787	1.247996053	1.502923237	1.162380548	1.304044425	1.735475213
Chst11	-1.295961857	-1.141521911	-1.365110567	-0.259926547	-0.69126012	-0.721797567	-0.100221453	0.300220293	0.581188514	1.184373734	1.602629394	1.907388086
Slc22a17	-1.186674271	-0.263025473	-0.802714053	-0.064592859	-0.259181638	-0.98366878	-0.382845664	1.321901852	0.398065619	0.719516902	0.853502217	0.64971615
Trp53inp1	-1.342807858	-1.692949191	-1.423850361	-0.171200587	-0.184290139	-0.399429764	0.607114643	0.388667595	0.676315464	1.124573614	1.107175963	1.310680622
Arhgef26	-1.086369382	-1.444733969	-1.646085242	-0.519678093	-0.288720259	-0.712491472	0.5136194	1.150135095	1.142981145	0.920200891	0.89671464	1.074427246
Rgs22	-0.987571415	-0.406818211	-1.046492328	-0.10229023	-0.231501261	-0.47556139	0.664514836	0.832585787	0.552348264	0.502964085	0.784934307	-0.087112442
Rbm46	-1.425583393	-0.562832111	-0.187986882	-0.180514963	-0.468784771	-0.592484113	-0.439897479	0.730200459	0.185980035	1.106278733	1.059526699	0.776097788
Smoc2	-1.377480978	-2.709339194	-1.80990351	-0.773911466	-0.610182102	-1.98606553	-0.308597044	0.826618987	1.023510644	2.836498379	2.679153842	2.20969797
Lpin3	-0.892062665	-0.856558113	-0.86357276	-0.167557725	-0.114120488	-0.473013859	0.433335009	0.038026654	0.83083722	0.442081497	0.985599798	0.637005431
Ap3m2	-1.486469105	-1.217943571	-0.842372999	-0.371564351	-0.539298446	-0.689911957	0.508466757	0.51800206	0.733900117	0.862195643	1.292519498	1.232476353
F930015N05Rik	-0.722097663	-1.512556464	-1.915287017	-0.731395933	-0.87531212	-1.21065518	0.49722901	0.690816552	0.856533074	1.477312635	1.596232667	1.849180438
Fam134b	-0.979334634	-0.367490698	-0.770484035	-0.561436699	-0.403144289	-0.865449046	0.322887401	0.67030331	0.472150769	1.029181753	0.663055743	0.789760426
1700020L24Rik	-1.319159209	-1.322040997	-1.043709893	-1.033192467	-0.729605635	-1.10992464	0.51405651	0.753824518	1.082357578	1.325515952	1.608157065	1.27372122
Chmp4c	-0.981987573	-0.859375914	-1.147684239	-0.648752981	-0.911029658	-1.466981917	0.004005729	0.740055031	0.513794402	0.960086476	1.658833481	2.139037163
Clec2l	-0.608325185	-0.883952656	-0.885419171	-0.184182722	-0.490740522	-0.595208377	0.362079754	0.512591238	0.177860725	0.901443395	1.066576614	0.627276908
Pgpep1	-0.486742838	-1.042960207	-0.802273015	-0.262600143	-0.177267513	-0.330037525	0.954053608	0.378327908	0.833131756	0.325045498	0.22342307	0.3878994
Vps13b	-0.81465023	-0.509986128	-0.511063173	-0.513886822	-0.166275705	-0.721876966	-0.021703634	0.555152063	0.426680972	0.593265351	0.631325292	1.053018981
Trim5	-0.982882624	-1.193003733	-0.64524693	-0.621408837	0.185828897	-0.67875065	0.071931337	0.985626765	0.108243136	0.900456443	0.862534193	1.006672004
Efcab1	-1.07298817	-1.403363461	-1.261278465	-0.68865658	-0.239567691	-0.261924055	0.085151905	0.49068571	0.648145407	1.157962572	1.134868508	1.41096432
Clec14a	-0.867696814	-1.381422674	-1.498594222	-1.123514466	-1.048129457	-0.633055926	0.200741106	0.239009227	0.598296367	1.333924365	2.052475727	2.127966767
Wwp2	-0.877475902	-0.721350086	-0.80637326	-0.862531153	-0.82413079	-0.899660479	-0.302656166	0.629229923	0.301791184	1.188772733	1.514015741	1.660368256
Neat1	-0.736676699	0.177102616	0.116756649	-0.689349192	-1.317402201	-0.613176358	-0.540528194	1.194497445	-0.165403573	0.815004643	0.885701371	0.873473494
2900011O08Rik	-1.52212987	-1.428960461	-1.225415775	-0.224444075	-0.488828401	-0.744399244	0.358068509	0.347324126	0.574648417	1.439547035	1.512026506	1.402563233
Cpeb4	-0.883972397	-0.596675599	-0.603307434	-0.229218482	0.03838723	-0.844851091	-0.254267468	0.525725155	0.319714131	0.795497751	1.026276411	0.706691793
Rgs8	-1.529667769	-0.470264635	-1.681614908	-0.901443344	-1.039023521	-1.428264902	1.59416052	1.831168181	1.649986264	0.98616402	0.819053331	0.169746763
Rab32	-1.602536573	-2.117986209	-2.574579554	-0.81341389	-1.046081782	-1.266530502	0.770388497	0.941903447	1.404815382	1.780472088	2.101864012	2.421685083
Ccdc80	-1.065906953	-1.3805157	-1.358734423	-0.423787372	-0.379217764	-0.93334674	0.09137961	0.442984802	0.486568138	1.416877324	1.493462357	1.61023672
Nacc2	-1.082717624	-1.333297	-0.984282266	-0.176695908	-0.397741578	-0.4150784	0.503126423	0.557390513	0.574334844	0.813235627	0.957725862	0.983999507
Ndnf	0.611092428	-1.210351346	-1.57603677	-1.076783753	-1.659613792	-1.318438969	0.024668607	0.732558882	0.490567277	1.809331009	1.656319176	1.516687252
Fam114a1	-1.686673176	-1.45668262	-1.79593524	-0.17032837	-0.151404962	-0.328609102	0.399734005	0.778455897	0.54005139	1.177768021	1.335033645	1.358590512
Ankrd13d	-0.763186767	-0.303256744	-0.952498668	-0.151004692	-0.471234369	-0.57559829	-0.048762583	0.807048304	0.118752563	0.809480938	0.900311072	0.629949236
Cthrc1	-0.953665096	-2.358924155	-2.032720994	-1.269879729	-0.944029599	-1.105968063	0.62885903	0.741858818	1.209029851	1.807963858	2.539445986	1.738030093
Fndc1	-0.88936252	-1.457902413	-1.480043385	-1.225684668	-1.069775955	-1.38490314	0.207393009	1.182917569	0.873004019	2.872262958	2.614088325	-0.241993799
Trpm4	-1.056943659	-0.762236068	-1.180085894	-0.264412748	-0.215355284	-0.776445786	0.242113081	0.706829624	0.501379735	0.798559042	1.090225432	0.916372526
Plekha4	-1.474859479	-1.31391473	-1.71967141	-1.184254971	-1.400138477	-1.461200257	1.181835724	2.700621515	1.611920143	1.138433389	0.836593311	1.084635241
Ddah1	-0.843912472	-0.967910715	-1.160617	-0.398710867	-0.332847887	0.138377641	0.290170805	0.049404099	0.445557853	0.817191446	1.010558188	0.952738909
Wnk4	-0.985098534	-0.479058015	-1.099491459	-1.02194596	-1.353437879	-1.461604728	-0.449756919	0.771664245	0.412616677	1.635020322	1.92430919	2.106783059
Scrn1	-1.701627115	-1.932984234	-1.705048655	-1.679938427	-1.079725773	-1.784221862	0.667235817	1.206102114	1.184341832	2.10869158	2.369028259	2.348146462
Slc35d2	-0.406366357	-0.778192704	-0.718611444	-0.656717678	-0.586796657	-0.296868671	0.231746985	0.855524473	0.422021873	0.633587062	0.659588966	0.641084153
Tcerg1l	-1.865316345	-2.206034603	-1.886736926	-1.022029336	-0.868066257	-1.042390987	0.787075325	1.164769696	1.520971996	2.753367536	2.323685872	0.340704027
Ankrd24	-0.579871159	-0.698407675	-0.824674832	-0.366371704	-0.186890227	-0.593361501	-0.293561235	1.40769675	-0.036516696	0.750676073	0.821325656	0.599956551
Prdm16	-0.893500938	-0.678561207	-0.685236665	-0.394021107	-0.038601346	-0.505292924	0.287479819	0.598224174	0.541057191	0.464935523	0.587687328	0.715830152
Gpr137c	-0.98093835	-0.954822135	-1.35886018	-0.14568214	-0.630963467	-0.81118097	0.23285874	0.605793097	0.281510908	1.151867368	1.431149245	1.179267883
Scara5	-0.918668895	-1.201703304	-0.564020492	-0.664647696	0.075039661	-0.340922399	0.852913709	0.158080331	0.621250784	0.423424852	0.730430103	0.828823344
Izumo4	-0.897818092	-0.232215325	-0.519529083	-0.061526192	-0.394974676	-0.974312271	-0.499091939	0.839357665	0.24463072	0.700887526	1.109200095	0.685391573
Tmem25	-0.459967259	-0.478745934	-0.894309875	0.046366035	-0.427898924	-1.178546675	-0.122201017	1.000660584	0.611743848	0.182859816	0.750078932	0.969960468
Susd2	-1.082505612	-0.716827175	-0.978883415	-0.393750363	-0.815650915	-0.959005271	0.98678485	0.359449237	0.865048232	0.863966239	0.870192041	1.001182153
Ulk3	-0.503586713	-0.696856363	-0.349866785	-0.412025564	-0.446755953	-0.589600155	0.077522998	0.982851157	0.317489644	0.655708967	0.635412426	0.329706342
Vwce	-1.365343529	-0.987874826	-1.197063008	-0.34623509	-0.156956634	-0.13641912	0.548170383	1.001617572	0.551705957	0.580027006	0.802134324	0.706236963
Shroom1	-0.694810732	-0.56982974	-0.772808075	-0.301251871	-0.253372141	-0.547661057	-0.398574905	0.580558326	0.264674106	0.808827187	1.086379582	0.79786932
Epn3	-0.613883073	-0.797573168	0.056392882	-0.338453456	-0.036681804	-1.936267329	0.051294354	0.091381541	0.616134424	0.734451021	0.901040314	1.272164295
Myh14	-1.681627136	-2.02438071	-2.631986713	-2.165625791	-1.965072584	-1.57180313	0.984558578	2.335852898	2.270270233	1.937517596	1.924677367	2.587619392
Lmntd2	-1.065378935	-0.169547424	-0.377652982	-0.085850607	-0.578457996	-0.847765322	-0.227796368	1.329791101	0.281144066	0.641773141	0.613889258	0.485852068
Synpr	-0.126940627	-0.792839514	-1.304931664	-0.22760921	-0.879063261	-0.484123264	0.371844104	-0.295088219	0.376505387	1.100905392	0.912637076	1.348703799
Tmem163	-1.051328689	-0.602644166	-1.313836078	-0.392490395	-1.171649456	-0.557015103	0.072339664	0.395556973	0.442950725	1.36349612	1.361679819	1.452940587
2610035D17Rik	-0.998211576	-1.193502898	-1.321418248	-1.558195875	-1.211618573	-1.068016225	0.64990868	1.288443241	1.004582094	1.187769812	1.354614197	1.86564537
Ttc30b	-0.45643991	-0.793416569	-1.413850014	-0.27155013	-0.496591565	0.090039476	0.374174288	0.080197895	0.472129417	0.658068875	0.794522547	0.96271569
2610307P16Rik	-1.370120926	-0.789217743	-0.086125993	-0.825636813	-0.359180085	-1.42729138	-0.808736685	1.298665829	0.153147555	1.182103019	1.434091276	1.598301947
C430049B03Rik	-1.035268443	-0.755624833	-0.698761399	-0.207893109	-0.208459622	-0.318648313	0.06378709	0.825888821	0.305812698	0.716010755	0.75326323	0.559893126
Angptl1	-2.110649265	-1.322067376	-2.565487186	-0.276177449	-0.428302899	-0.725294774	0.783301981	1.08623697	1.315332108	1.42267908	1.574738328	1.245690482
2810442N19Rik	-2.087271886	-1.489497228	-1.732613185	-0.502542466	-0.407967541	-1.167812042	0.287795083	0.587043605	0.951617469	1.87114926	1.841665731	1.848433199
Veph1	-2.399139895	-2.101549608	-1.777821646	-0.430736462	-0.690723644	-1.063348716	0.480794134	1.543833223	1.729045771	1.545139475	1.665485883	1.499021485
2810459M11Rik	-0.660421757	-0.672288418	-0.915404374	-0.598102926	-1.054829075	-0.550597751	0.57325518	-0.120914773	0.193958384	1.101281492	1.193943196	1.510120823
Slc22a23	-0.805768579	-0.816785061	-1.097943743	-0.006996205	-0.278794199	-0.252077663	0.248167336	0.222735151	0.420572846	0.538665811	0.969068439	0.859155866
3110039I08Rik	-1.847210445	-1.306102485	-1.259044425	-0.327818313	-0.119643527	-0.874984363	-0.137006103	1.443062583	0.526481182	1.35899271	1.438068664	1.105204423
Bmper	-2.767401389	-2.916838934	-2.557018773	-1.376088874	-1.786149688	-1.901739397	0.085848902	1.363031717	1.481864165	3.148522027	3.475204245	3.475204245
Ddit4l	-0.765168286	-0.621765342	-0.542798538	-0.656507597	-0.401861295	-0.619505223	0.667463372	0.180166509	0.066752105	1.027396367	0.987879389	0.677948539
Col20a1	-0.171880803	-0.253477777	-0.954121544	-0.571828706	-0.352301516	-0.927900673	-0.158767461	1.026165078	-0.206450643	0.42168587	0.804552835	1.344325341
1700096K18Rik	-1.014738813	-1.028797029	-0.490655135	-0.359959279	0.150889078	-0.643933219	0.363810578	0.017111769	0.171693755	0.882788885	1.196334736	0.755454675
Rftn2	-0.943457403	-0.755856815	-0.534026595	-0.304208671	-0.524592997	-0.480315075	0.237462917	0.599951588	0.529446767	0.665668579	0.673424884	0.836502822
Fcho1	-1.180353554	-1.041979609	-0.837158528	-0.018180006	-0.70124471	-0.357317599	-0.02461368	1.035164835	0.430159542	0.862493479	1.093472528	0.739557303
Rin2	-1.342960724	-1.366698042	-1.399618129	-0.502283901	-0.317103414	-0.82265686	0.113760579	0.387949792	0.427612077	1.47608584	1.710179472	1.635733309
P4htm	-1.388902816	-0.42109888	-0.849084117	-0.221452628	0.117141245	-0.761594022	-0.227926739	1.072071859	0.263116134	0.604836878	0.892688284	0.9202048
Ifitm7	-0.692432848	-0.992707358	-0.748621119	0.360488511	-0.707865247	-0.568932508	0.22903023	0.063453312	0.415926139	0.859248494	0.97561392	0.806798475
Nipal3	-0.722962264	-1.155197931	-1.319939132	-0.163352299	-0.142164583	-0.107643066	0.526070081	0.157081714	0.477859157	0.704028946	0.747768967	0.998450409
Shpk	-1.045244777	-0.519694584	-1.465059673	-0.341324424	-0.12648245	-0.467498281	0.42094433	0.801079803	0.342195752	0.779555637	0.68728689	0.934241778
Fam46c	-1.373953769	-0.6181976	-1.036318074	-0.447508467	-0.894131451	-1.592544828	0.428000822	0.841201959	0.701810285	1.251476426	1.215299756	1.524864941
Nxnl2	-1.243915666	-1.483633762	-1.190494286	0.057557848	-0.202429334	-0.831061663	0.092796748	0.65879388	0.347207797	1.740714992	1.45326898	0.601194465
Pcdh1	-1.121393899	-1.260625713	-0.629045177	-1.226320201	-1.244119193	-1.235829687	1.131298526	1.39171389	1.736803708	0.579221794	0.857288568	1.021007386
Fam227a	-0.724609608	-0.32284	-0.547052682	-0.303822488	-0.355080841	-0.995455993	-0.00435503	1.411692851	0.276163656	0.613206763	0.842728055	0.109425318
Egfem1	-2.099770936	-2.102652723	-1.82432162	-1.267486708	-1.975573071	-2.07223714	-0.312504569	0.887853573	1.145824281	3.036996112	3.075671487	3.475204245
Rian	-1.114414472	-1.000621648	-1.285146628	-0.234802885	-0.331851459	-0.838493817	0.117064256	1.559840026	0.692805377	0.998626958	1.030524957	0.406469336
Fam184a	-0.99176499	-0.473237698	-0.420815235	-0.598379856	-0.213981851	-0.829335418	-0.150631991	0.944046475	0.368817873	0.850920406	0.825846591	0.688515692
Prss23	-1.337799522	-1.589095777	-1.750212006	-0.263831412	-0.842978558	-0.777513481	0.391428233	0.63996695	1.055259272	1.644812385	1.600186474	1.229777443
B3gat1	-0.989548768	-0.549841676	-0.522850455	-1.126670654	-0.567590676	-1.285889127	0.13078768	0.880471043	-0.032133149	1.44941539	1.137311598	1.476538794
9430083A17Rik	-0.99881857	-0.898408495	-0.797051783	-0.039454313	-0.104734221	-0.314717925	0.599529029	0.004168694	0.253853898	0.732563877	0.75772692	0.805342889
Ulbp1	-0.536997883	-0.324434476	-1.302681712	-0.350527061	-0.292279164	-0.698341626	-0.749437691	0.856055448	0.263097505	1.324624404	1.255087047	0.555835209
Ypel2	-2.037412071	-1.580067739	-1.667152645	-0.636719165	-0.332524591	-1.326337408	0.647122663	1.400284732	1.325872101	1.385755535	1.293571767	1.527606821

Hook1	-0.970576899	-0.294233233	-0.30639714	-0.460429708	-0.247838952	-0.710271669	-0.194340825	0.58731752	0.467457905	0.881150437	0.640365205	0.607797358
B230119M05Rik	-0.808927699	-0.732190156	-1.274876256	-0.592854431	0.164570544	-0.595273958	0.967446594	0.351584889	1.043887852	0.21610844	0.731316826	0.529207355
Cpt1c	-1.178031611	-0.584737657	-0.988272628	-0.040038108	-0.356534278	-0.662056563	-0.259848809	0.794932173	0.406734692	0.794551285	1.224539096	0.848762408
Klhdc8b	-0.936023177	-0.864005839	-1.072022609	-0.120095429	-0.10530215	-0.869085954	0.012285794	0.521795097	0.085246578	1.046799154	1.278016994	1.022391541
Map7d2	-1.157811658	-0.911556129	-0.562212799	-0.145934924	-0.080637936	-0.510038306	0.316642218	0.98458234	0.475817902	0.547497311	0.55274257	0.49090941
Creb3l4	-1.209903229	-0.868898558	-0.962934112	-0.501463274	-0.336017919	-0.081924831	0.184711727	0.350776182	0.539719821	1.07881758	0.8313671	0.975749514
Cul9	-0.842789406	-0.496438779	-1.215965895	-0.320738102	-0.633180817	-0.650358756	-0.024043976	0.667315422	0.623355873	1.018898332	1.076462913	0.797483192
Clip4	-0.911418262	-0.353437583	-0.798200231	-0.319603782	-0.626246221	-1.219009079	0.013515871	1.414382888	0.566132576	1.057298534	1.032512512	0.144072776
Chsy3	-0.608171858	-0.572113287	-1.251973788	-0.60752249	-0.703726002	-0.305868279	0.194975918	0.02027665	0.481608861	0.946117519	1.361056567	1.045340189
Osbpl5	-0.617893501	-0.679843633	-0.594703747	-0.263674597	-0.216197738	-0.736783547	0.132342972	0.456349127	0.346345241	0.762851492	0.724416676	0.686791255
Parp9	-0.924321448	-0.493383064	-0.504951788	-0.636033995	-0.003470764	-0.427396013	0.042041364	0.433152217	-0.000543962	0.709349009	1.041501806	0.764056638
Apobec3	-1.44841094	-1.113868021	-0.77017114	-0.400185101	-0.298977599	-0.424954018	0.393930945	0.693085717	0.40256753	0.863310325	1.170567813	0.933104488
Rab27b	-1.329643203	-1.07253367	-1.824159284	-0.45456977	-1.010720589	-0.2997821	0.349882647	0.334577876	0.52888812	1.265723028	1.641403044	1.87093941
Rhoj	-2.127921048	-2.203955684	-1.687634195	-1.16960286	-0.978487708	-1.553605753	0.917699706	1.332867304	1.575045011	1.810627829	1.986779752	2.098187646
Sorcs2	-1.184269999	-1.601551472	-1.641902879	-0.223087507	-0.275772991	-0.46883015	0.574593494	0.603500451	0.766676274	1.159058776	1.122875538	1.168710465
Chrdl1	-1.582809613	-1.618919277	-1.797594767	-0.937878374	-1.087091025	-1.134357692	0.462969521	0.939275779	0.760022115	1.602211569	2.140130278	2.254041486
Enpp5	-1.340274456	-1.678673383	-1.294258292	-0.675127756	-0.378142707	-0.815064345	0.310653601	0.958591912	0.761875904	1.272494006	1.465736615	1.4121889
Mcam	-1.980389613	-1.59146191	-1.883984015	-1.338001893	-1.433492636	-1.218366885	1.542110151	1.831503583	1.428713673	1.340864432	1.692820895	1.60968422
Glrx	-1.145890703	-1.420959744	-1.07642738	-0.233250814	-0.4111388	-0.221981108	0.467601575	0.158620566	0.412260608	0.975425776	1.177205606	1.318534417
Pcdhb7	-0.903001171	-1.327635814	-1.120091519	-0.26792947	-0.476561921	-0.265412909	0.628705383	-0.05710556	0.007881486	1.071595729	1.413932434	1.295623333
Pcdhb16	-0.767880275	-0.880870662	-0.802711032	-0.087731781	-0.482744689	-0.153198586	0.155993903	0.123092128	0.285172388	0.668482183	0.94282771	0.999568714
Pcdhb18	-1.118926137	-1.135342416	-1.251833901	0.01895136	-0.077252152	-0.417269055	-0.133240224	0.229114412	0.595949439	0.881888113	1.249291749	1.158668812
Pcdhb19	-0.420780682	-0.984722416	-1.156507339	-0.199435271	-0.649703415	-0.327697961	0.108686746	0.021098034	0.402651615	0.851976607	1.007080468	1.347353614
Tmem62	-0.607167231	-0.554512365	-0.976379072	-0.180561704	-0.079271083	-0.796690461	0.60222212	1.111150126	0.552099292	0.398563952	0.273054571	0.257491855
Mfsd6	-0.94142832	-1.183660542	-1.228523239	-0.284321141	-0.070304533	-1.330946069	0.690926251	0.847698952	1.220216915	1.127968818	0.770227949	0.382144958
Myl9	-1.092676017	-1.7732997	-1.181018855	-0.181147298	-0.078203337	-1.066241319	0.106892271	0.430096145	0.785859044	1.394004083	1.342301599	1.313433384
Ildr2	-0.639665126	-0.594417394	-0.699276696	-0.097127462	-0.473271169	-0.138971095	1.07577765	1.041278464	0.67622271	-0.121472501	-0.077867816	0.048790435
Slco3a1	-0.86881572	-1.180300805	-1.206990641	0.023252913	-0.06191261	-0.287705697	1.191700542	1.074195236	0.892860135	0.199471696	0.260798402	-0.036553451
Irak2	-1.02779901	-0.367617296	-0.567447763	0.108193737	0.122328247	0.057892282	0.592420413	1.603093696	0.49099872	-0.529599504	-0.291405136	-0.191058386
Aqp4	-0.846618317	-1.056739425	-1.573844999	-0.556013808	-1.123194923	-0.632964575	1.738214783	1.925765387	1.796331489	0.50499274	-0.275692624	0.09976379
Cyp46a1	-1.041674108	-0.596259181	-0.959176644	-0.324360626	-0.549137911	-0.253977355	0.694931578	2.280934351	0.701806935	-0.067110105	0.294791691	-0.180768625
Nos1	-0.824098294	-0.728586472	-1.537452058	0.2981546	0.275306129	-0.245256748	1.734230726	1.318532398	1.648292396	-0.655279927	-0.331634612	-0.952208139
Pde8a	-1.456428048	-1.590994477	-1.769848663	0.105596461	0.056728575	0.031059263	1.697488087	1.935559484	2.059257228	-0.066805584	-0.095078673	-0.906533654
Sfrp1	0.199222755	-1.508133338	-1.8549109	0.202782319	0.133134181	0.067212067	1.025417	0.9823248	1.138025426	0.058846785	-0.128379142	-0.315542093
Sox8	-0.776879984	-0.362144895	-0.938151567	0.058884107	-0.198079466	-0.013540302	0.871064685	0.923064057	1.120998343	0.008713903	-0.18381885	-0.51011003
Tcf15	-1.184626718	-0.997870265	-0.772536336	-0.128615018	-0.401855866	-0.770780351	1.381816709	1.604203818	1.475494381	0.262212424	-0.081971533	-0.385471247
Trpm6	-1.336507463	-1.534692309	-1.479770282	-0.547737546	-0.086030009	-0.282365975	1.143360065	1.826145624	1.631889196	0.215137879	-0.112358943	0.562893764
Dagla	-0.28358615	-0.488753294	-0.460111579	-0.153617893	-0.449262579	-0.640906194	0.868658221	0.77341225	0.780298386	-0.095716582	0.148933518	0.000651896
Nrcam	-1.214806808	-0.494594014	-0.981641416	-1.143403673	-1.105867998	-1.001947324	1.655041307	1.741287103	1.903369208	0.364937487	-0.044902379	0.322528508
Zmat4	-1.450026933	-1.922402043	-2.231922259	-0.132491063	-0.46649964	0.28353093	2.741336591	2.085176929	2.143703327	-0.222866666	0.186382376	-1.01392155
Smoc1	-0.026324964	0.004929635	-0.212970906	-0.20710581	-0.407882854	-0.165003294	1.110483446	0.666709293	0.95385846	-0.309300664	-0.816623051	-0.590769293
Aqp11	-0.684609962	-0.387258552	-0.593440199	-0.51507181	-0.251089017	-0.355556872	0.928695799	0.824230661	1.019315219	0.248371621	-0.19214628	-0.041440609
Crnde	-0.616544013	-1.239875234	-1.63428399	0.226086701	0.159111999	-0.326744769	1.315323931	2.244423795	1.239108138	0.563530434	0.332305049	-2.262442042
Gm9767	-1.025308902	-1.332790853	-1.191005568	-0.497624838	-0.740355491	-0.814209264	-0.413220106	-0.369031798	0.093895386	1.981667178	2.112784405	2.195199851
Gm17769	-0.355109611	-0.511063977	-0.55947551	0.051949757	-0.129038226	-0.139960571	-0.160490674	-0.547425651	-0.068758204	0.766252369	0.862169747	0.790950552
Tdrd7	-0.159148024	-0.280597344	-0.034993988	-0.53838895	-0.323728317	-0.699982781	-0.39452581	0.214585667	-0.061240442	0.548424797	0.695017557	1.034577634
Fam150b	-0.811158256	-0.501580336	-0.609391469	-0.045036803	-0.396590006	-0.422003903	-0.744818452	0.191829008	-0.08101169	1.101031722	1.21536657	1.103363613
Smpd5	-0.285068473	-0.301484752	0.165383349	-0.606424016	-0.671859919	-0.920294679	-0.689002927	-0.829859281	-0.376618866	1.195834504	1.754066006	1.565329053
Kcnmb4os2	-0.706651889	-0.636645506	-0.645655791	-0.180110414	-0.214172518	-0.42961251	-0.300095342	-0.195984004	-0.093454743	0.830185979	1.296585316	1.275611421
2810029C07Rik	-0.910842731	-0.429795091	-0.493270784	-0.124755355	0.169240585	-0.694965259	-0.859663338	0.257094317	0.124037065	0.866762931	1.281013657	0.815144003
Rn45s	-0.320945737	-1.204980578	-0.156994375	0.744512841	-0.404717644	-0.656408785	0.154612065	0.292926144	-0.722508292	0.27539739	2.300630086	-0.301523115
Spred3	-0.755663174	-0.43037879	-0.359260951	-0.296886364	-0.17458056	-0.746217841	-0.328665428	0.418596763	0.124477807	0.911129982	0.880913791	0.756534764
Cyp4v3	-0.878366696	-0.541306129	-0.945709598	-0.12885956	-0.075929887	-0.597481185	0.23313042	0.21782565	0.011204886	0.774536269	0.961222144	0.969733686
Lars2	0.013558082	-0.668856893	0.007810767	0.573701907	-0.356769183	-0.569896567	0.058108271	-0.700564457	-0.591482807	0.502888269	2.422850206	-0.691347595
Mir6236	0.085577329	-1.137048157	0.170083212	0.848866662	-0.340957325	-0.655162424	0.04474581	-0.985636977	-1.003563	1.021337678	3.194041492	-1.2422843
Pls1	-1.501162677	-1.023293759	-0.934328524	-0.573236899	-0.367429738	-0.380276371	-0.055843983	0.3132676	0.084896877	1.254735109	1.500625392	1.682046972
Gstt3	-1.402797613	-1.490065	-1.054560474	-0.623220575	0.297219402	-0.566888691	0.467575523	-0.135155035	0.288447913	1.477606581	1.433350219	1.308487752
Nxph3	-0.402108585	-0.308152516	-0.446323296	0.425922308	0.346428519	0.22520021	-0.716179021	-1.04689331	-0.745099889	0.38101658	1.001611606	1.284577394
Rab15	-0.632246681	-0.495605573	-0.34975242	0.088287542	-0.156811513	-0.087762891	-0.375204387	-0.615673438	-0.062215511	0.692858309	0.963863358	1.030263205
Fam84a	-1.185321425	-2.04273909	-2.188698792	-0.662466086	-0.554038715	-0.970000775	0.26899368	-0.427454638	0.443982672	2.488729684	2.664930581	2.164082904
Kdelr3	-0.471261799	-0.839213543	-0.341490086	-0.960589001	-0.390524993	-0.392235932	-0.47189984	-0.404443178	-0.155328974	1.481711133	1.656058491	1.289217722
Adgrb1	-0.051249252	-0.126037373	0.531221593	-0.478586406	-0.546433084	-0.379921711	-0.482889008	-0.405422588	-0.722505083	0.63971724	1.11793352	0.904172153
Slc14a1	-1.642585449	-1.9500674	-1.13416485	-1.954827723	-1.967260201	-1.576596053	-0.592175878	0.297572178	0.217401072	3.250117945	3.475204245	3.342947456
Card11	-1.445376873	-0.431622121	-0.315910712	-0.585973191	-1.756929671	-1.671892967	-0.728695449	0.236754836	0.217604858	1.854477905	2.271844512	2.355718874
Galnt16	-0.483563834	-0.989749956	-1.245941553	0.19737463	-0.143813645	0.378687034	0.001242927	-0.204819573	-0.230081927	0.781978839	0.992296009	0.946391048
Prkcdbp	0.053811063	-0.42166926	-0.102995093	-0.229117011	0.041296011	-0.785581705	-0.906926977	-0.170877675	-0.439174945	0.649643649	1.083487485	1.228104457
Sobp	-0.701839433	-0.486310861	-0.411999505	0.022319554	-0.311016619	-0.349257494	-0.390111225	0.094498513	-0.008893562	0.696654006	0.872681201	0.973275427
Rarres1	-1.086064347	-1.597272762	-1.295465721	1.102146085	1.012135092	0.248962039	-1.620391623	-1.496603315	-0.597026	1.723707331	1.931426383	1.674446839
Dsp	0.993576036	-0.542962685	-0.423231852	-0.099472829	-0.091718643	0.01381826	-1.429561939	-0.907838895	-0.928624957	1.01833907	0.933089472	1.464588963
Tshz1	-0.522856532	-0.295346193	-0.143422438	-0.05346016	0.025514271	-0.304703895	-0.522168093	-0.141205758	-0.350111169	0.681309533	0.931466916	0.694983518
Egln3	-0.727891992	-0.575251071	-0.015013098	-1.107759464	-0.710749748	-0.803152224	0.170358409	-0.259740438	0.139126659	1.284791071	1.388508432	1.216773064
Aatk	-1.478592331	-1.106080899	-0.941823596	-0.117123531	-0.159987432	-1.06952666	-0.342240791	0.175509927	0.391600893	1.591669388	1.561574859	1.495020173
Acvrl1	-0.484702348	-0.632594093	0.101560626	-0.566814255	-0.526545899	-0.173146057	-1.09915349	-0.483424844	-0.330359359	0.976416513	1.544450574	1.674312632
Adcy9	-0.734124681	-0.697029065	-0.588311905	-0.347838313	-0.312932469	-0.43769078	-0.174514292	-0.513498362	-0.052000142	1.092414472	1.346890715	1.418634822
Adora1	-0.416639338	-0.07062977	-0.187121255	-1.171805741	-0.597055447	-0.377988561	-0.04110015	-0.957503253	-0.033968031	1.001583628	1.432637689	1.419590229
Acan	-0.779910351	-0.887941795	-1.131057751	-1.233007571	-0.557152521	-0.092897361	-1.118999521	-1.288236785	-1.671529796	1.745435876	3.25108946	3.475204245
Ahrr	-0.562265458	-0.138595617	-0.312453413	-0.616384917	-0.272321543	-0.698405725	-0.692733042	0.519393584	0.148381242	0.834874244	0.619183651	1.171326993
Pcdha1	-0.043217026	-0.767149782	-0.960940556	-0.18226444	-0.18121791	-0.278849998	-0.143099674	-0.196062151	-0.962344326	0.80730088	1.459587793	1.44825719
Anxa4	-0.437245933	-0.387989694	-0.55004521	-0.341205539	-0.396620279	-0.294796212	0.124067787	-0.495466667	-0.397617174	0.699751825	1.249259026	1.22790807
Aplp1	-1.241580959	-0.936584909	-0.740123752	-0.063462657	-0.178999196	-0.540346979	-0.426689656	0.08708802	-0.08577047	1.284984454	1.444250765	1.397235339
Atp1b2	-1.05892027	-0.594192177	-0.456512413	-0.760443918	-0.754022179	-0.842464725	0.23548699	-0.054428365	0.10888287	0.977693756	1.599914047	1.599006385
Nkx3-2	-1.33381337	-1.33381337	-1.33381337	-1.33381337	-1.33381337	-1.33381337	-0.742786169	-0.795615444	-0.911532231	2.92565964	3.475204245	3.475204245
Bcl2	-0.363259865	-0.216457896	-0.235001517	-0.429019098	-0.367943759	-0.677313232	-0.33620202	-0.317441875	0.005600219	0.711471825	1.004726847	1.220840373
Cacna1d	-0.637699105	0.134327822	0.353579228	-0.600508409	-0.548977221	-0.881543666	-1.415816681	-0.667859474	-0.790962295	1.558145188	1.701268059	1.796046552
Cacna1e	-1.335812594	-0.242440121	-0.596041362	-1.349518016	-0.906583098	-1.676530852	-0.418086169	-0.439902025	-0.437634665	2.089012693	2.695271351	2.618264858
Cacnb4	-0.656475565	0.102620748	-0.357309303	-0.65098688	-0.225122082	-0.101864657	-0.035390622	-0.366784662	-0.302078878	0.569907849	0.984982218	1.038501834
Anxa2	-0.756111152	-2.270539385	-1.94805858	0.101412401	0.28198207	-0.065615876	-0.261222155	-0.310031405	0.036214122	1.908803494	2.010050891	1.273115574
Car8	-0.926521074	-1.795533042	-1.517201939	-0.147612425	-0.280101083	-0.537251872	-0.569485212	-0.483178874	0.048577279	1.826085819	1.989236629	2.392985792
Capn1	-0.580694941	-0.510574122	-0.4471207	-0.080032764	-0.074778003	0.200015053	-0.324388558	-0.399931204	-0.396339507	0.599052805	1.114587979	0.900203962
Ctnna2	-0.144291894	-1.038874635	-1.318147784	-0.117902082	-0.29643701	-0.245638091	-0.926662965	0.49734899	0.561778841	1.041943991	1.350696446	0.636186193
Runx1	-1.2114794	-1.597332993	-1.285812722	-0.725917987	-0.490671932	-0.890442695	-1.772979042	-1.081454049	-0.654609715	2.816412696	3.273305487	3.475204245
Runx3	0.197277659	0.356260913	0.023996639	-1.507895845	-1.14253338	-1.172985861	-1.205219201	-0.776000466	-1.369883237	1.658714594	2.332257675	2.60601051
Cbln2	-0.354451759	-1.09081184	-0.771514162	-0.172084606	-0.655072299	-0.394717858	-0.626416299	-0.051649476	-0.668530701	2.114281597	1.961179275	0.709788129
Cd1d2	-1.176497616	-0.267415021	-0.226354969	-0.193480716	-0.166226595	-0.621886708	-0.366556515	0.588820966	0.048701693	1.092467503	0.850519228	0.437908756
Cd9	-0.697504179	-0.661445609	-0.87504153	-0.489889283	-0.231251475	-0.920219215	0.19785981	-0.299881031	-0.519345568	1.316148076	1.443549675	1.737020329
Cdh4	-0.181845422	-0.009173416	0.205601966	-0.684634362	-0.81163455	-0.733592722	-0.720170802	-0.332219394	-0.412400607	0.959266641	1.455411338	1.26539133
Cdh8	-1.079224203	-1.647764097	-2.125748564	-0.152778902	-0.024444478	-0.865570462	-0.52868205	-0.488802306	0.251065447	2.067898532	2.143907311	2.450143773
Mia	-1.15893157	-0.209835182	-1.063350109	-0.543042334	-0.977011785	-0.815992613	-0.38548123	-0.154059353	-0.27271539	1.577776177	2.147405825	1.855237565
Chrd	-0.682660521	-0.141231534	0.105512331	-0.3144436	-0.639487155	-1.162382615	-0.838021568	0.163154886	0.199167177	1.099908245	1.279736866	0.930747488
Patj	-0.615581768	-0.643431849	-0.455345764	-0.223713077	-0.188966019	-0.573291074	-0.273417444	0.06949709	0.099831441	0.915679979	0.970112729	0.918625755
Cntn1	-0.973270531	-1.153664711	-1.153664711	-0.56023757	-0.849072666	-0.204937745	0.026354007	-0.473001301	-0.310937111	1.409956361	2.234626672	2.007849305
Cobl	-0.590230664	-0.800351773	0.211679206	-0.926552812	-0.595643808	-0.688028059	-0.456736307	0.133653988	0.120401808	0.761380392	1.190272933	1.640155095
Col11a1	-0.441137225	-0.585756914	-0.455629014	-0.750771904	-0.306853328	-0.781681506	-0.120467305	0.204027668	0.163802362	0.922288225	1.064385079	1.087793863
Col11a2	-1.662704561	-0.72248257	-1.287025039	-1.361771235	-1.374524302	-2.242904832	-0.767340571	0.928446223	0.248564415	2.239589681	2.982878881	3.01927391
Col6a1	-0.156284715	-0.261740443	-0.329926208	-0.341376621	-0.22593512	-0.683343267	-0.856980805	-0.292372764	-0.274260852	1.074095319	1.281198567	1.06692691
Col6a2	-0.55362088	-0.534061451	-0.422505547	-0.059390358	0.009880079	-0.354013889	-0.661243964	-0.324869376	-0.241065716	0.96640119	1.203920998	0.970568916
Col8a1	-2.502801284	-2.505683071	-1.987818504	-2.216834542	-1.817084539	-2.683195464	-1.212207817	0.384656442	0.69641215	3.475204245	3.475204245	3.475204245
Cpe	-0.758232793	-0.771562969	-0.598052305	-0.210237459	-0.174205929	-0.291656897	-0.030613805	-0.275328833	0.042267564	0.784282652	1.014365092	1.268975682
Pcdha4	-0.047375772	-0.65913849	-0.975015672	-0.099438963	-0.22780239	-0.366647569	-0.187699762	-0.129880157	-0.982468387	0.84764001	1.384154186	1.443672964
Pcdha6	0.01920211	-0.78836947	-0.982160244	-0.203484128	-0.202437598	-0.300069687	-0.164319362	-0.164108226	-0.915890504	0.823867538	1.450732069	1.427037502
Pcdha7	-0.06974384	-0.793676595	-0.98746737	-0.208791254	-0.166531633	-0.305376812	-0.084487437	-0.222588965	-0.856556804	0.799790946	1.445424943	1.450004822
Pcdha5	-0.100445464	-0.824378219	-0.874308896	-0.239492878	-0.238446348	-0.222647154	-0.115189061	-0.253290589	-0.951899254	0.878209143	1.414723319	1.527165401
Pcdha11	-0.107894184	-0.698380778	-1.025617714	-0.246941598	-0.087668288	-0.343527156	-0.164579349	-0.106759745	-0.832838814	0.798938477	1.431689118	1.383580032
Pcdha10	-0.087533038	-0.743200328	-1.005256568	-0.138748015	-0.225533922	-0.265335846	-0.102276636	-0.086398599	-1.006660338	0.819299623	1.452050264	1.389593404

Ncan	-0.53156161	-0.850446729	-0.543286434	-0.510216545	-0.234351904	-0.646526588	0.143533809	0.026836386	0.178008094	0.957589967	1.044404577	0.966016978
Dcc	-1.734571688	-1.924616419	-2.752803584	-0.444754137	-0.631948666	-1.363696764	-0.290366844	0.396795718	-0.011671802	2.889504514	3.043980824	2.824148848
Dcn	-0.236492051	-1.614483567	-1.497445513	-1.400616602	-0.559496087	-0.757524791	-0.917425837	-0.233813143	-0.240189886	2.556043249	2.659671741	2.241772486
Dlx6	-0.820141284	-0.454462848	-0.642796634	0.232780076	0.063203558	0.023401634	-1.04144499	-0.815547598	-0.717922858	1.108037103	1.475781828	1.589112014
Epyc	-0.775318798	-0.775318798	-0.775318798	-0.775318798	-0.775318798	-0.775318798	-0.603369395	-0.775318798	-0.620413883	2.542209672	2.368377151	1.740428039
Ebf1	-1.363088269	-1.209646212	-1.414912122	-0.91030067	-0.634441343	-1.144374906	-0.771679174	-0.353529016	-0.348209846	2.223135924	2.812231703	3.114813931
Efna1	-0.722343212	-0.439370974	-0.040769333	-0.871264424	-0.573782512	-1.114577479	-0.877806755	-1.10858192	-0.633886936	1.865776531	2.016699586	2.499907428
Eln	-1.017508647	-1.141297241	-1.086979912	-0.156419019	0.012388579	-0.603958916	0.078985437	-0.084568033	0.105014508	1.26317902	1.539290123	1.091874101
Emp1	-0.657221744	-0.414935966	-0.222555193	-0.553157913	-0.482508181	-0.906035891	-0.490894489	-0.41023203	-0.105276093	1.379918243	1.52852576	1.334373498
Emp2	-0.303740465	-0.1923533	-0.351146949	-0.631514093	-0.163549719	-0.464814519	-0.733305768	-0.838413502	-0.768093361	1.096304502	1.589020776	1.761606399
Enam	-0.696139489	-1.036857748	-1.036857748	-0.326655535	-0.080594839	-1.036857748	-1.036857748	-0.656750802	-1.036857748	2.62295948	2.611499717	1.709970207
Eno2	-1.03589365	-0.353655219	-1.165466537	-0.287716284	-0.068814881	-1.135697671	-0.657079782	0.784903229	-0.246022742	0.930795525	1.815148395	1.419496617
Eomes	-1.047092609	-1.35457456	-1.076243457	-1.532086953	-1.532086953	-1.142458204	-1.532086953	-1.532086953	-1.532086953	2.828333978	3.475204245	3.475204245
Erg	-1.479098074	-1.427924018	-1.576721824	-0.037325086	-0.049438128	-0.029016561	0.087974935	-0.265483585	-0.055408187	1.003575942	1.863838237	1.96502635
Eya2	-1.690936222	-1.706082237	-2.373139222	0.239563272	-0.080368572	0.31784166	-1.010375343	-1.06333782	-0.570960598	2.627128416	2.584347687	2.726318981
Lgr5	-0.756678789	-0.261764126	-0.38225535	-0.672221846	0.125280323	-0.614829621	-1.051004001	-0.993184396	-1.014692202	1.957395758	1.979942049	1.684012203
Fgf11	-0.206852593	-0.645939636	-1.003856748	-0.571754145	-0.543321336	0.007900367	-0.049028637	-0.545270189	-0.345536365	1.218732555	1.576925049	1.108001678
Fgf18	-0.690469051	-0.412231537	-0.594182922	0.104794931	-0.034649358	-0.370746462	-0.546288922	-0.838937136	-0.272900188	1.415474027	1.047434581	1.192702037
Fgf8	-0.837296527	-0.844306403	0.574931325	-0.504061935	-0.766338611	-0.932662122	-0.731263669	-0.085662044	-0.782866058	1.566563765	2.38736997	0.955592308
Fmod	-0.622006147	-1.52160164	-1.197873678	-1.181357171	-0.415542695	-1.050859142	-1.184438386	-0.589293421	-0.507183328	2.717785776	3.006428835	2.545940997
Dtx1	-1.244102161	-1.683438318	-1.737162184	-0.648245203	-0.743735946	-1.223978568	-0.297472127	-0.245486007	0.298008655	2.238656561	2.632328365	2.654626933
Fzd4	-0.80985958	-0.063142788	0.213426575	-0.912629436	-0.885887708	-0.863904873	-0.164108377	0.03545168	0.19957273	0.980599802	1.233243527	1.037238447
Fzd5	-0.207138511	0.028801089	-0.59545302	-0.425413788	-1.412668122	0.043906053	-1.50981993	-1.154860632	-1.124525387	1.815213899	2.234925513	2.307032835
Fzd9	-1.015851369	-0.852727022	-0.854193537	-0.881839619	-1.073457863	-1.249148205	-1.002738027	-0.021171931	0.112585139	2.020691578	2.449539831	2.368311026
Galnt3	-0.203968254	-0.724317046	-1.325927765	0.151233577	0.695894103	-0.634340325	-0.570471993	-0.117038015	-0.375870037	0.927415244	1.003245083	1.174145429
Gcgr	-0.769403633	-0.596501306	-1.551298959	-0.901534274	0.122516838	-0.771036244	-0.804389154	-0.154483304	-0.286684352	1.381450806	2.252559491	2.07880409
Gdf10	0.518190513	-1.266168323	-1.395353194	0.138608071	0.309687078	-0.52154518	-1.20161802	-1.120787434	-0.36071046	1.493389848	1.811465947	1.594841153
Gdf5	-2.068821084	-1.94324781	-1.48103884	-0.578526568	-0.681528383	-0.765422052	-0.16951845	-0.482790771	-0.148205602	2.41448669	3.084332476	2.820280393
Gfra1	-1.931039247	-2.226023456	-2.34095628	-0.146121292	-0.068148006	-0.42740923	-0.138750837	0.443407798	-0.10442654	2.431243038	2.559662902	1.948561149
Gm2a	-0.966173614	-0.96693526	-1.037891863	-0.168620489	0.019657001	-0.407134789	-0.051620664	-0.169452412	0.580957148	0.974985394	1.121873143	1.070356406
Gpm6b	-0.924134313	-0.824274171	-1.001670376	0.014043939	-0.272187189	-0.094027835	0.149526936	0.019560021	-0.074523794	0.936604846	1.112398812	0.958683123
Gria4	-0.259181911	-0.212284437	-0.115399546	-0.340778544	-0.305328703	-0.476652036	-0.419862736	0.139048299	-0.350953174	0.390514309	1.093418071	0.857460408
Nr3c1	-0.144648425	-0.203489695	0.009692371	0.075466717	0.171487629	-0.562359659	-0.835328292	-0.434570889	-0.455178222	0.839434117	0.922087734	0.617406615
Mr1	-1.284650645	-0.677074822	-0.846641113	-0.492925932	-0.213258323	-0.582488503	-0.211526381	0.010000048	0.055238627	1.085277316	1.833259065	1.324790664
Has3	0.092360135	-0.209303772	0.001934611	-0.441708252	0.189746488	-0.402562621	-0.635578558	-0.315682745	-0.797992358	0.57317663	1.059722417	0.885888025
Hebp1	-0.233095888	-0.188467057	-0.414442728	-0.318652034	-0.120883603	-0.412696742	0.158760995	-0.893111729	-0.198841139	0.898873002	0.79738352	0.925173402
Foxd1	-1.455013575	-1.299850956	-0.2512477	-0.372810126	-0.865460001	-0.939313773	0.184911879	0.257156166	0.072543132	1.757383947	2.00037013	0.911330876
Hic1	-2.838978533	-2.82977862	-3.033093044	-0.242467758	-0.315676694	-1.364148222	0.012905636	0.552706094	0.798665766	3.156359618	3.251217589	3.082347339
Id4	-1.158121105	-0.280965896	-0.547182126	0.005119836	-0.021719058	-1.008418665	-0.667483429	0.025371712	-0.39249582	1.197720585	1.4518638	1.396310166
Il16	-0.311171219	-0.20835614	-0.12156516	-0.394425728	-0.028687533	-0.288347176	-0.756357685	-0.155702426	0.050710302	0.437844926	0.547843283	1.228214556
Il1r1	-0.862183578	-0.576192525	-1.11168283	0.372695184	0.104895191	-0.128183335	-1.029583087	-0.793870643	-0.249835591	1.695776483	1.35564434	1.222520391
Inhba	-1.271166093	-1.271166093	-1.271166093	-0.35243886	-0.715213834	-0.881537345	-0.680138892	-1.271166093	-0.340023232	2.808662057	3.203108913	2.042245567
Irx1	-1.137605193	-1.325299159	0.651666172	-0.210334906	-0.775089106	-0.378911839	-0.888144872	-1.678469109	-1.51640492	1.383576778	3.318489363	2.556526792
Itgb3	-0.42860349	-0.848341007	-0.821349785	-0.209924519	-0.73183974	0.322961375	0.126877981	0.162904354	0.074749673	1.166620724	1.043433452	0.142510981
Kcnab1	-1.000519647	-0.900476476	-0.221912958	0.236089933	0.478356153	-0.220694369	-0.821505673	0.033529285	-0.028928841	0.975183098	1.045191115	0.425688346
Kcnb1	-1.096539107	-1.061034555	-1.465438024	0.354053646	-0.016455791	-1.054338346	-0.475454163	0.594430684	0.4313533	1.593414693	1.393319884	0.802687779
Kcnj2	0.065821479	0.099039585	0.398605677	-0.882950918	-0.511005243	-0.535956064	-1.52580323	-1.398677935	-1.058009651	1.183224058	1.949578692	2.216133551
Kcnk1	-0.465562002	-0.690314766	-0.55849428	-0.032261434	-0.244221348	-0.165830667	-0.179443069	-0.125491509	0.143908286	0.628048374	0.894620103	0.795042314
Kcns1	-1.058506087	-0.722949289	-0.890041837	-1.058506087	-0.753914043	-0.668877338	-0.467478886	-0.129233962	-0.215778488	1.310104212	2.512674013	2.142507793
Kera	-1.77661109	-1.77661109	-1.77661109	-1.449598254	-1.472019045	-1.568683114	-1.185583889	-0.539982263	-0.683400899	3.475204245	3.475204245	3.475204245
Kif1a	-1.332989398	-0.903487702	-0.81768378	-0.723451597	-0.602775578	-0.804747207	-0.115986368	0.352155035	0.153539214	1.244386609	1.670164299	1.880876473
Kif5a	-1.111203541	-0.579366996	-0.986620585	-0.315945106	-0.298252297	0.225478446	-0.037958144	0.635641495	-0.320676087	0.859389943	1.103174763	0.82633811
Sspn	-1.077026403	-1.191310106	-1.06034778	-0.403322709	0.235794962	-0.291035749	0.302206109	-0.066220853	-0.17696556	1.235926222	1.451120258	1.041181608
Lmna	-0.32612273	-0.317647066	-0.426328111	-0.025881511	-0.135897362	-0.280101265	-0.743085154	-0.037306152	-0.297117257	0.881470832	1.033092113	0.674923664
Lrrn1	-0.941600793	-0.989907555	-0.677158408	-0.063928589	-0.263347296	-0.310099621	-0.362608257	-0.131197272	0.017386952	1.009505234	1.412656337	1.300299268
Lrrn3	-1.033620627	-0.312483516	-0.121373476	-1.056755261	-1.280379408	-0.882894999	-1.377531216	-1.022571918	-0.746380406	1.963864883	3.006983685	2.86314226
Ltbp3	-0.981430761	-0.749165373	-0.947208062	-0.469540683	-0.417524981	-0.816676967	-0.571792791	0.211706871	-0.005544975	1.346248832	1.813642732	1.587286158
Lum	-0.68138609	-1.110136401	-1.229524108	-1.976980136	-0.813324552	-1.799859379	-0.611084868	-0.029861692	0.581227572	2.928786196	2.822569011	1.919574446
Slc2a10	-0.482815379	-1.047217171	-1.117458472	-0.005336687	0.038941072	-0.188716152	-0.123165159	-0.00771843	0.267217831	0.89256529	0.900100121	0.873603134
Cyp4f13	-0.531582779	-0.313255421	0.299993529	-0.639987427	-0.422591599	-0.679742387	-0.195336507	0.388396376	-0.623133172	0.912022322	1.147478405	0.657738659
Epcam	-0.788397289	-0.291454726	-0.658589862	-0.047859625	-0.134217457	-0.631917268	0.044189532	-0.067896393	0.157722447	0.795331134	0.845415062	0.777674444
Grid2ip	-0.592854375	-0.814373602	-1.014201134	0.30331293	-0.07550346	0.014011703	-0.996788828	0.076570361	0.320748038	0.53525528	1.181169604	1.062653483
Matn1	-1.013980973	-1.013980973	-0.558137477	-1.013980973	-1.013980973	-1.013980973	-0.84203157	-0.333317563	-0.47455616	1.935957846	2.583386342	2.758603446
Mef2c	-0.32976013	-0.155705134	0.000365583	-1.307385055	-0.510194166	-0.852447889	-0.995544244	-0.650491963	-0.686754794	1.510303456	1.838392873	2.139221462
Mgp	-0.869389569	-0.442177746	-0.881319498	-1.049783749	-1.049783749	-1.049783749	-0.877834347	-0.369120339	0.043426442	1.731139422	2.397289612	2.417337271
Cd200	-1.293497331	-1.442934876	-1.197915871	-1.068289462	-0.737380458	-0.950558374	0.041827959	-0.84921955	-0.471921977	2.187653572	3.061981829	2.720254537
Mras	-1.003540145	-0.800190479	-0.66177157	0.025274059	-0.104320816	-0.339581099	0.019858091	0.056687015	0.289081808	0.790481414	0.793505615	0.934516107
Msc	-0.93925556	-0.94441702	-0.960676141	-0.952960983	-0.32371091	0.070682516	-0.021529136	-0.899866873	-0.348830958	2.636025802	2.722058205	-0.037518942
Map2	-1.690314893	-1.641214454	-1.468109122	0.066281388	0.35470444	-0.21450754	-0.368336588	0.188735573	0.149183264	1.237959493	1.63952773	1.746090707
Gadd45b	-1.62604556	-0.717227002	-0.710639963	0.362602217	0.709284434	-1.707769244	-0.93089659	0.64180428	-0.078689194	1.274547248	1.385878416	1.397150957
Myo6	-0.910238196	-0.725612701	-0.329174112	-0.785465461	-0.216781864	-0.656988448	-0.081871226	0.306558698	-0.03630709	1.017454694	1.159312687	1.259113017
Ncam1	-0.144109568	0.10047689	0.093282448	-0.573912101	-0.276585391	-0.789607247	-0.365724079	-0.030385933	-0.532372626	0.710166052	0.940628031	0.868143524
Ncoa1	-0.719043348	-0.843422824	-0.77948887	-0.19542177	0.033563318	-0.532871739	-0.233748172	0.279387714	0.095453836	0.926090805	1.043678592	0.925822457
Ndrg1	-0.556475705	0.087847817	-0.565814992	-0.397072043	-0.661956638	-0.2646211	-0.470190526	0.054801201	-0.598065946	1.088952727	1.524637796	0.757957409
Neb	-0.38585237	0.014224474	-0.084635434	-0.898322509	-0.705966126	-1.064371351	-0.398826592	0.891507589	-0.743008082	0.950132325	1.003388851	1.421729224
Nfib	-1.050138258	-0.953831948	-0.804132226	-0.420146783	-0.016660886	-1.071142853	-0.939590874	0.506430707	0.07761573	1.692076038	1.705915536	1.273605817
Nfic	-0.706115921	-0.994220406	-0.893873038	0.123660302	0.178013326	-0.154315589	-0.010085604	-0.200727769	0.101344947	0.684269816	0.979653803	0.892396134
Nfix	-2.349167648	-1.682603642	-2.46878028	-0.504498846	-0.64916899	-1.341119951	-0.724822599	0.526128229	0.433932393	2.78056191	3.136341982	2.843197081
Nefm	-0.419976461	-0.386839749	-0.477185288	0.299014939	0.06695934	0.812494055	-0.799118597	-0.987108925	-0.937067668	0.924647969	0.975031572	0.929148813
Ngfr	-0.636581813	-0.187679863	0.140857829	-0.585541569	-0.677399729	-0.493204191	0.462107639	-0.229908675	-0.22323348	0.868153518	1.080918146	0.481512188
Nog	-0.694619591	-0.461276727	-1.04241736	-0.525663533	-0.53590079	-1.12570615	-0.899277769	0.144797097	0.016027109	1.361830448	1.883065808	1.879141458
Npr3	0.060867138	-1.85688458	-1.426333303	0.679087412	0.600067004	0.096056188	-0.761999657	-0.71533142	-0.282676462	2.016050571	2.015207561	-0.424110451
Nrxn1	-1.497937516	-1.175589442	-1.794784681	-0.237775499	-0.47456118	-0.449420357	-0.146421811	-0.00444713	0.198347082	1.521149521	2.338838632	1.722602382
Nrxn2	-1.024076122	-0.839900331	-0.809615454	-0.53851471	-0.191175996	-0.558410194	-0.021121794	0.143860925	0.386761982	1.315552029	1.035317041	1.101322623
Ogn	-1.444369161	-1.702744776	-1.861431565	-1.853716407	-1.224466334	-1.791100494	-1.171641726	-0.347950284	-0.688326464	3.475204245	3.475204245	3.475204245
P2ry1	-1.271866638	-0.910654853	-1.057405969	0.017950913	0.554167062	-0.554298261	-0.791988634	-0.341777318	0.103705636	1.348835036	1.389512383	1.513820643
Pax9	-1.639617311	-1.983363911	-1.382304135	0.27223311	0.842423211	0.28096289	-2.101823215	-2.336533861	-1.778301083	2.636221889	3.470162737	3.475204245
Pde1b	-1.087460522	-0.680474085	-0.26422288	0.011652966	-0.076519681	-0.734458491	0.005142868	-0.191046306	0.382099048	0.756284469	0.845010283	1.033992331
Pde4b	-0.634829936	0.322111092	0.287353096	-0.640198313	-0.572250538	-1.164049796	-0.69796129	-0.326799196	-0.023891522	0.959947033	1.219719131	1.270850237
Penk	-0.909129157	-0.54345072	-1.350429958	-0.50572992	0.015428776	-0.785628816	0.523832167	-0.635514232	0.164314953	1.287091587	1.401266443	1.337948876
Phex	-0.233492597	-1.555112833	-1.228909672	-0.78967368	-0.213266702	-0.726854083	-0.678508837	-0.049696126	-0.452776406	2.138525642	2.010314231	1.779451063
Prkca	0.209345263	-0.161680814	0.291960772	-0.607130751	-0.59225538	-0.719106517	-0.718830693	-0.484355316	-0.367969331	0.957979546	1.160983815	1.031059406
Pld1	-0.889354899	-0.431116069	-0.752391338	-0.534153068	-0.081844542	-0.626449635	-0.141724092	0.181493217	-0.057235767	1.063908669	1.040111169	1.228756355
Ppara	-0.363976479	-0.976165861	-0.304194812	-0.149000684	-0.277364111	-0.249240461	0.102429463	-0.085221898	-0.059473232	0.899521909	0.787215592	0.675470572
Prkar1b	-0.972343426	-0.748257329	-0.974807578	0.229813159	0.160059268	-0.078282266	0.066905534	-0.649051932	-0.178486082	1.133024408	1.292208154	0.71921809
Prnp	-0.315714547	-0.067179727	-0.011379921	-0.360500727	-0.368088128	-0.63115761	-0.813624352	-0.630202746	-0.336335158	0.996747847	1.225759973	1.311675097
Pcdha9	0.013138952	-0.8345013	-0.884431977	-0.20503143	-0.248569429	-0.346201517	-0.210451193	-0.26341367	-0.776189253	0.850462992	1.441068808	1.464119016
Pcdha3	-0.059626059	-0.783558815	-0.977349589	-0.198673473	-0.197626943	-0.181827749	-0.159508707	-0.212471184	-0.911079849	0.790891847	1.430707919	1.460122603
Pcdha12	-0.006161784	-0.78553657	-0.973870355	-0.181084257	-0.226657073	-0.365502252	-0.186554445	-0.282714405	-0.683694135	0.86619572	1.421768073	1.403811484
Ptgfr	-0.69458701	-1.269714095	-1.194537172	-0.070801923	0.181999781	-0.073859087	0.444779667	-0.670177331	0.103752092	1.122805422	1.266764753	0.853574905
Ptgs1	-0.542168334	-1.122063728	-0.314945641	-0.041580571	-0.5943106	-0.800378543	0.123479869	-0.110586969	0.113784368	1.17756507	1.010247708	1.100957371
Ptpn14	-0.391454584	-0.249774143	-0.168397246	-0.44864362	-0.38574431	-0.922498432	-0.145239221	-0.000708631	0.179874633	0.689479349	0.893949981	0.949156226
Ptprb	-1.561285853	-0.778742208	-0.156393109	-0.18403919	-0.780758749	-0.385818752	-0.643559429	-0.196783708	-0.14484728	1.319697978	1.695363202	1.817167099
Ell2	-1.1815459	-1.107852851	-0.798055129	-0.491120785	-0.215642851	-0.318179905	-0.635330064	-0.220778943	-0.466956801	1.323776687	1.94958352	2.162103022
Ptrf	0.018436303	-0.823494529	-0.928735387	-0.506057599	-1.076566448	-0.306275076	-0.412079669	-0.201502586	-0.510886603	1.291540786	2.052544421	1.403076387
Ptx3	-0.809721541	-0.689743731	-1.367560248	-0.223444391	-0.477667683	-0.387697802	0.060220764	0.045170148	0.042520703	1.238625248	1.442889257	1.126409275
Nacad	-0.510132346	-0.434298596	-0.969788902	-0.33595806	-0.507158192	-0.622610586	-0.077753679	-0.277718724	0.124212182	1.047717897	1.236859338	1.326629667
Rab3d	-0.147342288	-0.553182592	-0.446807118	-0.629113009	-0.284494862	-0.275301192	0.355705698	-0.490300308	0.018124434	0.936005482	0.432773547	1.083932207
Aldh1a2	-1.206380331	-2.737292092	-3.01656524	-1.194869406	-1.715610776	-1.006937553	-0.656950477	0.213517616	0.298537444	3.253693808	3.475204245	3.475204245
Rax	-1.158002603	-0.860412316	-1.169932532	-0.237513204	0.127849262	-0.787413043	-0.630961592	-0.197125335	-0.323945692	1.611542035	1.822960818	1.802954202
Reps2	-1.231906887	-1.352695479	-0.695070931	-0.361266064	0.0220731	-1.383137004	0.064048904	0.385848835	0.233198455	1.530989305	1.518136329	1.269781436
Grhl1	-0.009077022	-0.419219277	0.016851629	-0.818741948	-0.375807029	-0.594771043	-0.973805381	-1.145754783	-0.497987906	0.961997113	2.033050866	1.823264781
Rbpjl	-0.847547111	-0.847547111	-0.847547111	-0.847547111	-0.847547111	-0.847547111	-0.847547111	-0.309349185	-0.308122298	1.887836269	2.348498088	2.313966904
Rora	-1.177552253	-0.325231171	0.155670082	-0.044312073	0.211630207	-0.709951721	-0.798605942	-0.085582272	-0.251235864	1.145393088	1.086274297	0.793503623

S100a11	-0.704970895	-0.514358345	-0.422202218	-0.303336169	-0.40412654	0.149309005	0.316668828	-0.311381101	-0.139652103	0.430051191	1.019272492	0.884725856
Atxn1	-1.928292063	-1.662417762	-1.8457946	-0.163350907	0.346655091	-0.855399421	-0.307348556	0.476855798	0.521541857	1.487417229	1.897844923	2.032288412
Stmn2	-1.216868739	-1.004305333	-0.163476534	-0.777324379	-1.771481936	-1.489669099	-0.725388817	-0.380044089	-0.416773351	2.391583025	2.826422584	2.727326669
Scn1a	-0.683924773	-1.325128893	-0.650452326	-0.219112426	0.177236361	-0.526000281	-0.076238069	0.16618986	-0.274049784	1.161829495	1.33155294	0.918097897
Scn3a	-0.487135376	-0.346228757	0.089275769	-0.233114177	-0.305130244	-0.8807294	-0.305102478	-0.382590431	-0.216259922	0.955596709	1.470142948	0.641275359
Scn9a	-1.119361024	-0.941848631	-1.119361024	-0.653000102	-1.119361024	-0.291427723	-0.203986968	0.206711247	-0.471594146	1.661562147	1.97001439	2.081652857
Sfrp2	-1.189734489	-1.523740074	-1.615430417	-0.081663226	-0.204709308	-0.11485306	0.153925572	0.021878518	0.396449314	1.16350022	1.466505424	1.527871526
Selenbp1	-0.88148595	-1.305469052	-0.950017798	-0.384941178	-0.229727904	-0.311468833	-0.117612528	-0.312513877	0.217523631	1.476662778	1.529280746	1.269769965
Selenbp2	-0.638267613	-1.171180747	-0.423806944	-0.228933568	-0.356907852	-0.422390141	0.111427147	-0.508242263	-0.081397928	1.006110539	1.310253189	1.403336183
Sema3c	-0.68337765	-0.706124018	-0.54460343	-0.714608838	-0.413366448	-1.504298325	-0.39305947	0.536789438	0.074819463	1.51391898	1.509211794	1.324698504
Sema3e	-0.639506915	-0.539463744	0.315446926	-0.782439856	-0.254621633	-1.16793902	-0.784839795	-0.695203586	-0.627328972	1.707282616	2.071206365	1.397407614
Sema5b	-0.394228546	-0.034657368	-0.005624775	0.177762932	-0.635621416	-1.090359365	-0.049344213	0.16834502	-0.470372904	1.003857486	0.993782376	0.336460774
Sema6b	-0.247230506	-0.357422933	-0.242432463	-0.643578129	-0.38394557	-0.030774961	0.010609677	-0.154506102	-0.339920337	0.608195635	0.981034725	0.799970965
Sgk1	-1.408508652	-1.245935803	-1.439930459	-0.126196599	-0.308912248	-0.814924501	-0.567877629	0.117025674	-0.099262787	1.970213992	2.234073408	1.690235604
St3gal1	-0.650639664	-0.592585351	-0.530405079	-0.212513177	-0.260319866	-0.489471073	-0.232895073	0.040502923	0.047147759	0.947561124	1.054490546	0.879126931
St8sia1	-0.222593451	-0.840443573	-0.575990587	0.189600847	-0.004761343	-0.556826707	-0.381521833	-0.37306805	-0.207031484	1.076844663	1.197152499	0.69863902
St8sia2	-0.534080732	-0.390462215	-0.29450648	-0.570979908	-0.430289687	-0.769808776	-0.124696846	0.032804062	0.294026312	0.76347703	1.006145303	1.018371937
St8sia4	-0.946356633	-1.188588855	-1.082035553	-0.920509441	-0.601859177	-0.731395963	-0.212021451	0.671793941	0.158278966	1.414097642	1.586235977	1.852360549
Six2	-0.912418856	-0.485535327	-0.693552098	-0.65705679	-1.200202994	-1.610839352	-0.627507995	-0.071738329	-0.030293857	2.175760634	2.281431023	1.831953941
Sstr1	-1.189569449	-1.339006994	-1.674563793	0.150869217	0.018380559	-0.614380211	-0.341737527	-0.348491523	-0.241484936	2.349542378	1.538517381	1.691924899
Sox6	-0.754832094	-1.034003833	-0.958454619	-1.089878809	-0.521168123	-1.219343187	-0.38030618	0.132044765	0.321907569	1.499324029	1.845464432	2.159246048
Sparc	0.530618842	-1.585591181	-1.421291469	-0.68375026	-0.304152265	-0.770514574	-0.719107273	-0.471828553	-0.416787984	1.923455414	2.224487365	1.69446194
Rbms3	0.10831118	-0.193382244	-0.082062228	-0.680489523	-0.507148799	-0.657320102	-0.390945951	-0.187892761	-0.131641738	0.947494131	0.913324879	0.861753157
Kctd12b	-0.012116853	-0.331357198	-0.043784688	-0.358197887	-0.124764807	-0.230535982	-0.897244306	-0.615550622	-0.501196316	0.670736705	1.230182415	1.21382954
Dtx4	-1.301031888	-1.019430196	-0.61438078	0.140511759	-0.363102672	-0.299965803	-0.192993168	0.112083226	0.201581807	0.970750761	1.338434642	1.027542312
Thsd4	-0.372160423	0.104996141	0.370797943	-0.138600124	0.183271589	-0.276567447	-1.080840575	-0.953601081	-0.684694617	0.78169986	1.166763395	0.898935338
Igsf11	0.04219617	-0.817213254	-0.58508879	-1.435488516	-0.926549432	-0.380500652	-0.019417068	0.097850126	0.165870187	1.404612388	1.249132127	1.204596713
Pknox2	-0.129189387	-0.117243846	-0.044205691	-1.0813981	-1.378585395	-0.980230029	-0.872382015	-1.0750331	-0.962950141	1.743821101	2.299262482	2.598134122
Stac	-0.784347343	-0.542806181	-0.275926744	-0.451112752	-0.602427559	-1.061413711	-0.454193966	-0.12807024	-0.62157481	1.831872328	2.366436197	0.72356478
Stc1	-0.487467063	-0.60488708	-0.723976727	-0.388037473	0.050692367	-0.463930667	-0.240917908	0.024898219	-0.062484417	1.311073117	1.198909169	0.386128462
Prrg3	-0.523926679	-0.756215425	-0.690315889	-0.203947945	-0.083494006	-0.281149078	0.02154741	-0.260258386	0.145008072	0.92961531	0.872389862	0.830746754
Unc13c	-0.910366098	-1.251084357	-1.082620106	-0.432855421	0.215161688	-0.302357391	-0.543649166	-0.01445553	-0.319941495	1.204348157	1.742948691	1.694871029
Hmgcll1	-0.148952655	0.212680647	0.003962903	-0.653862214	-0.427989929	-0.858998793	-0.603002005	-0.266475475	-0.133098789	0.905489239	0.821457115	1.148789957
Sycp1	-1.169475414	0.484422086	0.193964473	-0.47046449	-0.457308032	-0.218676195	-0.645382241	-0.017523501	-0.105086427	1.009789652	1.150254772	0.245485318
Synj2	-0.422804161	-0.564944824	0.073046721	-0.731196565	-0.693416197	-0.858375209	-0.45626903	0.52912935	0.121221274	1.178440622	0.828337239	0.996830781
Unc5d	-0.106276177	-0.492129771	-0.685920545	0.180588008	-0.34217709	-0.490426939	-0.829137363	-0.515927816	-0.911769412	1.278872934	2.015768186	0.898535984
Adgrb3	-0.35882416	-1.286886931	-0.672244775	0.254616637	0.197534936	-0.607104823	-0.467088933	-0.173320507	-0.061945771	1.354922497	1.525067282	0.295274547
Gsap	-1.238635624	-1.25269384	-1.219862991	-1.052164802	-0.665964161	-1.109506614	-0.44655305	0.581521579	0.175363684	2.115814774	2.32442548	1.788255564
Fam46a	-0.083702153	-1.018577233	-0.442103378	-0.481521625	-0.373026737	-0.793426532	-1.492674608	-0.007100474	0.02370617	1.479064164	1.98491854	1.204443866
Fbxl21	-0.610044809	-0.37006824	-0.424853006	-0.287046728	-0.79046395	-0.467413222	0.083533749	-0.001394165	0.285234724	0.652316685	0.953866114	0.976332848
Tacr1	-0.691835909	-0.691835909	-0.691835909	-0.691835909	-0.691835909	-0.691835909	-0.691835909	-0.691835909	-0.691835909	2.020226918	2.262223084	1.944073176
Armc2	-0.541985988	0.135184354	0.354300544	-0.558502376	-0.799358699	-1.101388963	-0.393895958	0.167189121	-0.023409078	0.795264321	1.081631156	0.884971567
Zcchc5	-2.923650669	-2.58809387	-2.604352991	-0.41100728	-0.298023512	-1.487857106	0.136677541	0.42597914	0.887311351	3.149111272	3.447091865	2.266814257
Tagln	0.879744516	-0.67251462	-0.429862634	-0.783907464	-0.119643121	-0.832525555	-0.285790153	0.120046521	-0.419169655	0.836649021	0.988775479	0.718197666
Lgi3	-1.380675091	-1.289506273	-1.42628676	-0.209023116	-0.049749807	-1.167815607	-0.043962676	0.113820769	0.50912766	1.56002282	1.713989499	1.670058581
Tcea3	-1.190917998	0.035900636	-0.147476202	-0.123638109	-0.49052504	-0.471452674	-0.824201066	-0.390364809	-0.688908657	1.031984815	1.629721344	1.629877759
Tmem51	-0.263554448	0.067605809	-0.192036384	-0.237164636	-0.231862612	-0.596533615	-1.193266433	-0.806549118	-0.092492975	1.293357403	1.036641092	1.215855918
Chadl	-0.829894498	-0.466575313	-0.285148169	-0.107988436	-0.473889392	-0.612381324	-0.414437699	0.118124291	-0.052211365	0.752636767	1.178164036	1.193601103
Cdh12	-1.071462705	-1.071462705	-0.902998454	-0.478035565	-0.76687066	-1.071462705	-0.480435504	0.418403856	-0.228735106	1.775183269	2.124582494	1.753293782
Adgrg6	-0.124237643	-0.699364728	-0.111877822	-1.253148165	-1.12130819	-0.597966933	-0.961504694	-0.099827964	-0.886475422	1.745391041	2.661756372	1.448564145
D930020B18Rik	-1.013224998	-0.87595879	-0.453197778	-0.253059678	-0.487832332	-0.964314508	-0.889547716	0.05634943	-0.260733066	1.44922185	1.925338686	1.7669589
	-0.650775835	-0.800956218	-0.426648283	-0.017915518	0.03428352	-0.056203923	-0.289119617	-0.088371539	-0.037054738	0.725647843	0.842413237	0.764701071
Pik3ip1	-0.714939644	-0.669182883	-0.457274109	-0.846504197	-0.596384984	-0.514542259	0.014047805	0.424581206	0.059333959	0.673142238	1.286415016	1.341307851
Nlgn2	-0.9484055	-0.835123567	-0.983463415	0.223051125	0.021392282	-0.298603956	-0.111245593	-0.052106181	0.13279094	0.925321286	1.153219736	0.773172844
Stxbp6	0.016837217	-0.143765863	0.174707681	-0.209836685	-0.336165913	-0.425369957	-0.334149458	-0.657267589	-0.391006707	0.599267252	0.797434014	0.909316008
Mfsd7c	-0.758675635	-0.175300401	-0.42103994	-0.329651471	-0.764088779	-0.85647303	-0.148998745	0.14476968	-0.048043163	1.041445979	1.24679112	1.069264384
Tgfb3	-0.582323625	-0.413866672	-0.320643031	-0.429393852	-0.352525454	-0.473704119	0.072391603	0.041580677	0.043854076	0.823040841	0.897219721	0.694369834
Tgfbr2	-0.408507348	-0.457811237	-0.213388109	-0.354920053	-0.110625108	-0.432124303	-0.586755588	-0.315952843	-0.200555194	1.012063638	1.153033063	0.915543082
Gmds	-0.387190133	-0.640899574	-0.453059772	-0.52359929	-0.732677451	-0.723898407	0.240644228	-0.047213657	0.165704691	0.89263335	1.145033553	1.064522462
Phactr1	-0.867525972	-0.958074741	-1.004805975	-1.426876996	-1.689153673	-1.18492235	-0.774118285	0.472237978	-0.306366254	2.100236922	2.78514139	2.854227956
Rnf144b	-1.214311936	-1.051187589	-1.106951185	-0.162400693	-0.200378605	-0.339931534	-0.05494678	0.075588411	0.226930093	0.77360548	1.261410845	1.792573492
Thbs3	-0.863735764	-0.254427111	-0.482656108	-0.38533439	-0.14517108	-0.81272844	-0.6183306	0.771910485	-0.056863123	0.815777244	1.026584483	1.004974404
Pde8b	-0.675756656	-0.907030563	-0.296183965	-0.808690026	-0.671007378	-1.292825638	-0.450720813	0.591079759	0.047479424	1.140446292	1.444342677	1.878866887
Tll1	-0.87360108	-0.873637972	-1.177243014	-0.009364646	0.165107932	0.059336756	-0.295573133	0.073785818	-0.164714212	0.863323188	0.997414168	1.235166194
Shisa2	0.104657718	0.116006993	0.213297888	-0.654799185	-1.007916362	-1.10654205	-0.129482011	-0.258816505	-0.118243608	0.797381584	0.980808284	1.063647255
Tnnt1	-0.686393697	-0.340384129	-0.331745294	-0.367844024	-0.381574345	-0.174383672	-0.992546967	0.299115926	-0.199970135	1.042017796	1.623064833	0.510643708
Ppp1r13b	-0.594943746	-0.800052399	-0.849002295	-0.475841965	-0.48692506	-0.976172655	-0.462666485	0.284253499	0.001853349	1.258837677	1.536448835	1.564211246
Trpc1	-0.256238714	-0.499312842	-0.046792553	-0.282961047	-0.144089209	-0.810334395	-0.688519552	-0.110234444	-0.277921399	0.558095708	1.187067693	1.371240755
Trpc5	-0.689008473	-0.551742265	-0.334349772	-0.702713896	-0.473774473	-0.478742992	-1.029726732	0.111544716	-0.490301919	1.705656648	1.840899592	1.092259566
Cmpk2	-0.276109452	-1.1584072	-0.610521127	-0.073011009	-0.295193691	-0.041100603	0.029449325	-0.112751301	-0.079244334	0.67900423	0.820932525	1.116952637
Dpysl3	-0.445697674	-0.5565133	-0.490655035	-0.293730881	-0.290602926	-0.373650849	-0.25113825	-0.361296749	-0.089034398	1.06242114	1.072655608	1.017243314
Unc13b	-0.729968726	-0.688881304	-0.825573191	-0.551713987	-0.285296461	-0.328355862	-0.122447256	0.352499453	0.190286435	1.110461882	1.074188587	0.80480043
Unc5c	-0.964332804	-1.866741925	-2.021358539	0.000849836	0.469643896	-0.332775899	-0.554947778	0.028145031	0.141435849	1.421701927	1.702158168	1.976222239
Vim	0.054635791	0.101999625	0.191351597	-0.211450104	-0.2511907	-0.269321065	-0.738806741	-0.711780358	-0.658249854	0.885619682	0.891521136	0.71567099
Naprt	-0.653898858	-0.541978499	-0.119461655	-0.455239163	-0.097507453	-0.39236652	-0.350981882	0.264746763	-0.035913667	0.578858312	0.821374136	0.982368487
Adcy5	-0.465695352	-1.619540266	-1.611643774	0.643067851	0.344738992	-0.066029255	-0.918138774	-0.768191385	-0.441340383	1.216433968	1.951803773	1.734534604
Wnt4	-0.635514574	-1.379057433	-1.276466096	-0.594444271	-0.815930683	-0.421248337	-0.598597217	0.252593329	-0.252843268	2.176502011	2.387978059	1.157028478
Trpm3	0.057016838	-0.134188396	0.230884007	-0.308338614	-0.390446685	-0.043664443	-1.087562334	-0.547699215	-1.64522066	0.527417353	1.512961316	1.828840833
Myof	-1.157034814	-1.384580622	-1.234435945	-0.25188688	0.247238206	-0.482972719	-0.690628872	0.541456672	-0.232318229	1.620428267	1.936533789	1.088201148
Plagl1	-0.146861717	-1.231238552	-0.98328627	-0.761848145	-0.460182993	-0.34091219	-0.358418518	0.197671833	-0.042630634	1.319733906	1.553963042	1.254010238
Dner	-1.494802196	-1.317289804	-1.494802196	-0.393918617	-0.628691271	-0.546075231	-0.579428141	-0.168729926	-0.255906009	1.983410484	2.457368861	2.438864048
C1ql3	-0.402062707	-0.276489434	-0.635632588	-0.220138	-0.687425332	-0.404555995	-0.855958864	-0.690000253	-0.618995623	1.629308081	1.797192975	1.364757741
Pip5kl1	-1.273536683	-0.001678871	-0.146516888	-0.160335657	-0.639852847	-0.7077109	-0.352772541	0.526137385	0.055230314	0.745842426	0.883814195	1.071380068
D630003M21Rik	-1.384352845	-1.455128362	-1.428250645	-0.187239788	-0.570956209	-0.43902909	-0.224584764	0.288156402	0.180125568	1.619392207	1.69445612	1.907411405
Cbln4	-0.552697551	0.622304538	0.620378853	-1.645952823	-0.838715089	-0.964591625	-1.340943722	-1.56408441	-1.449752338	1.890519655	2.52855263	2.694981881
Ctso	-0.962081925	-0.589021656	-0.733618043	-0.149311156	-0.11853207	-0.591152459	-0.209591357	0.126301374	0.245911808	0.777277644	0.916066339	1.287751501
Fhdc1	-0.981915415	-1.001208229	-0.766834859	-0.84020393	-1.340084292	-1.259973824	-0.037022339	0.438683807	0.317760763	1.493422451	1.994017473	1.983358395
Ddx58	-0.841794194	-0.420087912	-0.652188134	-0.751800128	-0.897794581	-0.320420126	-0.645954025	0.468337743	0.094556623	1.035464812	1.4352836	1.496396321
Adgrb2	-1.403633605	-1.293391038	-1.144526657	0.069084397	-0.104620304	-0.846866902	-0.765374998	-0.266425663	0.090863642	1.885849604	2.114543125	1.664498398
Serinc2	-0.609014343	-0.49971861	-0.138677899	-0.521539193	-0.457822455	-0.94868998	-0.547923657	-0.639516887	-0.093018797	1.227490205	1.563190299	1.665241316
Man1c1	-0.38577516	0.014660397	0.289872693	-0.504382053	-0.332816308	-0.269679439	-0.540415968	-0.589929441	-0.35769787	0.73139905	0.84415798	1.100606119
Fndc10	-0.216015819	-0.356957351	-0.259173966	0.052865624	-0.287522128	-0.12787937	-0.414802278	-0.546130795	-0.141061766	0.617182611	0.946332698	0.733162541
9330182L06Rik	-0.672258555	-0.598923935	-0.858201667	-0.24049767	-0.015653705	-0.423018178	0.219562621	0.212682448	-0.062287398	0.467923184	1.131959748	0.838713106
Sel1l3	0.287869965	-0.25713809	-0.316161259	-0.611541049	-0.371103407	-0.177561657	-0.112045132	-0.887311184	-0.505432567	0.851472694	1.276256151	0.822695534
Pilra	-0.492221175	-0.274557611	-0.375325132	-0.237455766	-0.168983908	-0.614422865	-0.506964772	0.417607243	-0.014718029	0.319494023	0.934088462	1.01345953
Fkbp14	-0.481486014	-0.645442624	-0.549911179	-0.415019823	-0.450324707	-0.536595853	-0.056726497	-0.198954184	0.485804506	0.852960646	1.061475795	0.934219934
Clstn3	-0.423320775	-0.771936479	-0.532204043	-0.378005604	-0.34622633	-0.530428774	-0.308578842	0.036924619	-0.212118476	1.076091343	1.176205586	1.213597777
Ccdc106	-0.975836705	-0.35789221	-0.432360592	-0.33356326	-0.321858392	-0.252228914	-0.671734776	0.15761889	-0.451884467	0.989712124	1.456283464	1.193744838
Luzp2	-0.87134854	-1.212066799	-1.212066799	-0.745705877	-1.212066799	-1.212066799	-1.040117397	-0.172904435	-0.044175436	2.279903624	2.709338985	2.733276271
Psd3	-0.413894911	-0.11589354	-0.01820946	-0.329270602	-0.056851161	-0.715284905	-0.718729117	0.140240148	-0.153366765	0.784156999	0.758187584	0.838915731
Csgalnact1	-0.72241915	-0.90281333	-0.583516562	-0.575800494	-0.235899202	-0.90281333	-0.90281333	-0.522706384	-0.255046453	1.495322086	2.186562083	1.921943156
Ntm	-1.890099177	-2.64020527	-2.449444761	0.01481167	0.322697961	-0.659738265	-0.074336519	0.269810861	0.47753563	1.569067982	2.423330216	2.636569671
Lhfpl1	-1.131368283	-1.131368283	-1.131368283	-0.030484704	0.206600063	-0.741739534	-1.131368283	0.105260543	0.107527904	1.580694543	1.882243971	1.415370348
Adgrg2	-1.171503771	-1.174385558	-1.1834337	0.249944454	0.341046401	-1.143969974	-0.88750241	-0.210626503	-0.113001764	1.694429789	2.151655814	1.447347223
Trhde	-1.406171854	-1.070615055	-0.82559605	-0.695969641	-0.739257726	-0.855188114	-0.397084338	0.543797821	-0.312961663	2.191378133	1.982119528	1.585548959
Syt16	-1.040180331	-0.783070798	-1.188827478	-0.450462909	-0.652571561	-1.041812942	-0.119416189	0.307736644	-0.386341275	1.894513797	1.920463245	1.539969797
Dand5	-0.264163278	-0.362662704	-0.425211543	-0.172091196	-0.790681305	-0.549058296	-0.015241007	0.347113628	-0.146432531	0.822504307	0.999453031	0.556470892
Cntnap3	-0.827608784	-0.827608784	-0.827608784	-0.827608784	-0.523016739	-0.619680807	-0.655659382	-0.827608784	-0.827608784	1.709716206	2.60499209	2.449301335
Grem2	-1.750138949	-1.753020737	-1.349957325	0.516314323	1.014227189	-0.265871128	-0.83344999	-1.24986972	-0.762641766	2.084073157	2.765946352	1.584388595
Erc2	-0.680229829	-0.261035027	-0.262431552	-0.683564336	-0.905747017	-0.738641536	-0.306954647	0.076874823	0.092963801	0.930140561	1.430211812	1.308412946
Il17d	-0.422115567	-0.118203278	0.240770553	-0.412466135	-0.445602503	-0.671305148	-0.85557708	-0.415149506	-0.782574389	0.969253753	1.565989807	1.346979492
Rxfp3	-0.515007486	-1.131152328	-1.131152328	-0.664791406	-1.131152328	-1.131152328	-1.131152328	-0.450488918	-0.708871189	2.186376142	2.758817795	3.049726702
Adamts12	-0.692405309	-1.328181843	-0.92683735	-0.703886893	-0.394615089	-1.309720262	-0.572740942	0.080570809	-0.661952673	1.876708925	2.176445548	2.456615078
Slc2a13	-1.251891547	-0.973604571	-0.892955749	-0.023203472	0.198928272	-0.816262964	-0.736051113	0.009578718	0.488990779	1.301381186	1.378848397	1.316242063

Tenm4	-0.160160746	-0.291773167	-0.243000216	-0.583439845	-0.240791673	-0.863639525	-0.079124706	0.008763185	0.124204311	0.646938235	0.757086413	0.924937734
Papss2	-0.51255788	0.434618773	0.151186037	-1.200874421	-1.701122656	-0.978020285	-1.87145748	-0.622969381	-0.471159319	1.551268681	2.483446298	2.737641633
Gpr156	-1.488721388	-0.448106443	-1.018934791	-0.520649592	-0.458950905	-1.117915794	0.112649941	0.249959441	0.167004994	1.185194227	1.623117514	1.715352797
Tiam2	-0.92489031	-0.73137399	-0.568122064	-0.093095061	0.083124135	-0.366449697	-1.042895032	-0.204586579	-0.285069136	1.090347271	1.441615574	1.601394889
Rai2	-0.217641151	-0.77648884	-0.498157736	-0.781249163	-0.79368164	-0.746073256	-0.362974031	-0.415803307	-0.531720094	1.08043656	1.757892861	2.285459797
Sulf1	-1.191279959	-2.226164894	-1.947987413	-0.928534248	-0.994086633	-1.779490072	-0.581334545	0.216800432	0.008162521	2.6917783	3.414205139	3.317931372
Tekt2	-0.55060024	-0.566632353	-0.906382138	-0.407916865	-0.79970636	-0.718332215	-0.736162285	0.614907707	-0.464789918	1.650519267	1.64067229	1.24442311
Tlr2	-1.173108572	-1.299399049	-0.385172894	-0.141984606	0.427048241	-0.548010302	0.362243236	-0.086268414	-0.082837054	1.188662327	1.239372596	0.499454492
Catip	-0.660707817	-0.671628663	-0.194009503	-0.589304682	-0.386786553	-0.447848333	-0.917004714	0.44193776	-0.136821392	1.131718375	1.274038963	1.156416558
Frem2	-1.131512028	-0.093309656	-0.555486657	-0.224721034	-0.359176018	-0.863693287	-0.71728466	-0.145855345	-0.035258303	1.166053327	1.173980888	1.786262773
Slc44a5	0.070325224	-0.880034352	-0.711570101	-0.707282282	-0.71971476	-0.880034352	-0.880034352	-0.499927406	-0.457753214	1.297485492	2.349883974	2.018656131
Grin3a	-0.352268678	-0.738696468	-1.679552621	-0.946882917	0.089508981	-0.830493234	-0.818514257	0.532672325	-0.08781227	1.854921301	1.818414857	1.158702982
Podn	-1.08777079	-0.910258397	-1.08777079	-0.621409867	-0.131507881	-0.698142041	-1.08777079	-0.158498665	-0.24504319	2.305020913	2.09103486	1.632116637
Azin2	-0.831533589	-1.07491499	-0.76462293	-0.057375715	-0.165779392	-0.551670933	0.207794365	0.149613903	0.069657276	0.815020131	1.140269654	1.063542222
Slc45a1	-0.91676832	-0.007047316	-0.387116952	-0.302220994	-0.323771502	-0.903109098	-0.250285432	0.041885682	0.34913676	0.7720907	1.198064921	0.72914155
Ppp1r3b	-1.144558321	-0.606293626	-0.858257768	-0.352833608	-0.211753188	-0.480413616	-0.388040891	-0.085932597	-0.185886009	1.015617593	1.833469043	1.464882987
AW551984	-0.519207174	-2.184963082	-1.287663539	-0.522849536	-0.207417003	-0.099958258	0.307473075	-0.180943029	0.185687144	1.60288414	1.610319324	1.296637938
Arhgap20	-0.417792288	-0.661260691	-0.493221814	-1.107155017	-0.707116872	-0.94050395	-1.700133084	-0.520751272	-0.116819272	2.335584928	2.161760705	2.167408626
Prss35	0.54014303	-1.084026895	-1.545715361	-0.297663227	0.664529339	-1.186282738	-1.739025649	-0.881180934	-0.167334266	2.19887087	2.338127589	1.159558241
Slitrk2	-1.397399944	-0.454532221	-0.677048645	-1.250781288	-0.80784637	-1.026810384	-0.397775406	0.372175551	-0.409902761	1.487062024	2.394528577	2.168330868
Pnma3	-0.717090998	-0.633617214	-0.674035631	-0.259452427	-0.398168383	-0.503806957	0.390690265	-0.62828821	0.313325745	1.044612252	0.810765647	1.25506591
Pdzd4	-0.708521614	-0.807713897	-0.885566036	0.180118708	-0.004554343	-0.264232745	-0.30992264	-0.048512881	0.018636724	0.919563046	1.075509762	0.835195916
Klf8	-0.524887116	-0.49000707	-0.478870952	-0.609826025	0.071003352	-0.426696458	-0.47806214	-0.809838914	-0.026821479	1.055186791	1.281745344	1.437074667
Tox	-2.145491814	-2.381134045	-1.777925991	-0.089827703	0.105790324	-0.850883458	-0.256084811	0.601472985	0.680378013	1.934326943	2.189471238	1.989908319
Nav3	0.312972446	-0.911284132	-0.878453283	-0.346053828	-0.534709828	-0.526420322	-0.405745993	0.423012655	0.319694321	1.119368474	1.127808002	0.299811489
Cdc42ep3	0.114858194	0.436983687	0.385118886	-1.39752345	-1.896298547	-1.453369079	-0.807840653	-0.132749405	-0.132251561	1.175115337	1.749172202	1.958784388
Dapp1	-0.233775912	-0.361861399	-0.623304897	-0.511085147	-0.811873837	-0.461691137	-0.131045183	0.049349377	0.24183887	0.601308653	1.020930743	1.221209869
Creb3l1	-0.50787928	-1.715708232	-1.173365863	-0.205092325	-0.043756157	-0.136970172	-0.179902506	-0.170908982	0.353843902	1.517952426	1.644840087	0.616947101
Sema4g	-0.749875851	-0.427493711	-0.508438053	-0.145320681	-0.126125505	-0.610002354	-0.210294797	0.323446188	0.122799224	0.669753017	0.891752309	0.769800213
Rapgefl1	-0.81119978	-0.612896101	-0.582146371	0.004984911	-0.267527952	-0.835711578	0.090275782	-0.396296311	0.141323472	0.952526798	1.189536278	1.127130852
Meioc	-1.165051368	-1.375172476	-1.048969316	-1.02757046	-0.071286076	-1.151392146	-0.443914737	0.601695807	0.067550845	1.877333716	1.991425794	1.745350416
Tmem229b	-0.774992988	-1.018461391	-1.01346785	-0.675391323	-0.19779172	-0.72597047	0.14849561	-0.698391309	0.455024508	1.449572946	1.825914021	1.225459965
Rbfox1	0.244509294	-0.28048916	0.194424395	-1.593789253	-1.631264134	-0.836560058	-0.219555846	0.237935578	-0.530209159	1.099071864	1.581248734	1.734677744
Ltbp1	-0.303566705	0.071170171	0.249203281	-0.660617412	-0.669998217	-1.069402462	-0.663362043	-0.476631637	-0.313490057	1.008052224	1.34985653	1.478786328
Sh3rf2	-0.343137748	-0.2723464	-0.095655454	-0.886388369	-1.044075968	-1.271887533	-0.221370826	0.085404597	-0.108604986	1.135002085	1.533796746	1.489204055
Stk32a	-0.472874346	-1.031722035	-1.040770177	-0.615807287	-0.904642383	-1.001306451	-0.618207227	-0.528571018	-0.460696404	2.012467663	2.388132887	2.273996778
Islr	-1.131795151	-1.34159806	-1.132349672	-0.704385398	-0.555236383	-1.032568243	-0.057416308	-0.259921344	0.361999387	1.663550291	2.069800419	2.119920463
Ssc5d	-0.259182631	-0.308071333	-0.562068317	-0.526748205	-0.364659463	-0.715521265	-0.939036238	0.359215448	-0.252471779	1.186865037	1.171872783	1.209805962
Adamtsl3	-2.064377424	-0.454019801	-1.468882277	-1.286774138	-0.162216551	-1.721438467	-0.893170517	0.100282941	0.349968145	2.736541207	2.417004322	2.44708256
Fat3	-0.724480685	-1.275795685	-0.951750903	-0.914141189	0.06118634	-1.00208447	-0.205440614	0.306515765	0.172184013	1.33593643	1.559210634	1.638660364
Tmem169	-0.893650501	-0.988539238	-0.854282165	-0.255090568	-0.170212588	-0.416914546	0.1670158	-0.198323257	0.311463159	1.058329914	1.208514766	1.031689223
Pla2g7	-1.358533906	-0.767209639	-0.590518693	-0.5666806	-0.777517022	-0.624022413	-0.377612234	0.367141211	0.304447826	1.230414689	1.635606051	1.524484731
Lrrc4b	-0.120340813	-0.407634357	-0.367524143	-0.296925972	-0.518628154	-0.313062049	-0.175331956	-0.362191599	-0.282423203	1.026473855	0.661279843	1.156308548
Pdk4	-0.434727432	-0.850595404	-0.500268709	0.179131838	-0.300385351	0.614037502	-0.625984081	-0.743157316	-0.645532577	0.940640577	1.089755701	1.277085251
Npas3	-1.250725899	-0.759612148	-0.807511109	-0.708547923	-0.423204706	-0.688794974	-0.480065165	0.201626512	0.378791301	1.075242586	1.770733885	1.692067641
Slc14a2	-1.476254452	-0.672678302	-0.542456884	-0.585938965	-0.752530326	-1.261501493	-0.347067585	-0.009953912	0.572154985	1.550897679	1.555406282	1.969922974
Emilin3	-0.08185364	0.018628126	-0.135583023	-0.143025993	-0.27769862	-0.272430472	-0.640940068	-0.490606997	-0.376006188	0.783129652	0.752114063	0.86427316
Ndrg2	-0.611224628	-0.60002183	-0.308732168	-0.526129967	-0.499075123	-0.410384043	-0.266811808	-0.960212263	-0.632907314	1.22487333	1.752487114	1.838138701
Hist2h2be	-0.626889356	-0.604733192	-0.858648209	0.10092464	-0.271709744	-0.343530073	0.14496898	-0.297363304	0.193121427	0.521519242	0.9421578	1.100181789
Pianp	-0.375934829	-1.311244122	-1.254395776	-0.092357506	-0.486832289	0.151310381	0.202356653	-0.46951495	-0.316154555	0.307260274	1.394469183	2.251037536
Adgrl3	-0.820761085	-0.664905242	-0.371779349	-0.136169793	-0.026567595	-0.459848621	-0.166956584	-0.233587618	-0.032641053	0.898200801	0.955991294	1.059024845
Itga11	0.038982381	0.454633506	0.068127449	-0.616425796	-0.976897928	-1.115598673	-0.835763818	0.00290325	-0.298537446	0.872716286	1.245871141	1.159989649
E130114P18Rik	-0.449530496	-0.300850326	-0.580123475	0.593085042	0.164525916	0.419230935	-1.240925148	-1.015027755	-1.225156342	0.711605458	1.333340402	1.589825789
Olfml2b	-0.746544099	-0.606356722	-0.931522872	0.043105802	-0.167075278	-0.047201436	-0.082789157	-0.104650995	-0.039201619	1.124716729	1.074022865	0.483496782
NA	-1.06480929	-1.549803634	-1.230505957	-1.222790799	-0.08355759	-0.721870333	0.270515999	0.342760287	0.1072036	1.942166789	1.502187481	1.708503448
Rnf152	-0.488430377	-1.350197019	-1.395059716	-0.63221845	-1.031319451	-0.893004127	-0.333992817	0.610352561	0.024244839	1.531243316	2.132743597	1.825637643
Fry	-0.574824999	-1.028196405	-0.231629973	-0.802304262	0.030899207	-0.795053244	-0.205634838	0.266410605	-0.088052981	1.28621833	1.093351987	1.048816573
Cadps2	-0.331014852	-0.38331281	-0.154920889	-0.711517309	-0.455418208	-1.367698821	-1.049313691	0.280983881	-0.066756141	1.358022165	1.282353141	1.598593536
P4ha3	-1.711233529	-1.531035267	-1.526041726	-0.184725061	-0.172787251	-0.875324607	-1.393273869	-0.173053488	-0.096114865	2.167772145	2.948361318	2.5474562
Islr2	-1.837414909	-1.837414909	-1.14203795	-1.243987769	-1.170500781	-1.629486933	-0.922040854	-0.427122223	-0.129464022	2.807916801	3.475204245	3.475204245
Strip2	-1.095999397	-0.79862321	-0.747762258	-0.167793908	-0.034387829	-0.214932639	-0.007155305	-0.595731053	0.063267126	0.932511952	1.187770214	1.478836306
A330033J07Rik	-0.722952132	-0.736367989	-0.344663122	0.065817785	0.029180538	-0.799446311	-0.944255837	0.565522078	-0.426551036	0.875753487	1.498347257	0.939615281
Tmem117	-0.711812973	-0.724503974	-0.518037376	-0.097265647	-0.174293921	-0.242151974	-0.35477711	-0.268470773	-0.38712681	1.066732008	1.11228899	1.299419559
Abi3bp	-0.660121656	-1.329933363	-0.514030812	-0.914018615	-0.310284029	-0.55871879	-0.327427037	0.834374204	-0.492994665	1.557410393	1.739115488	0.976628883
Vstm4	-0.956512539	-1.126623389	-1.43334702	0.415291746	-0.155843116	0.040462735	-0.320482599	-0.384122823	-0.312469785	1.571665395	1.54524499	1.116736404
Ccbe1	0.771281121	-0.969374463	-1.969942563	-0.106562283	0.010068462	-0.397099759	0.025201603	0.188553162	0.037235907	1.43873229	1.259486877	-0.287580354
Enpp6	-0.956542953	-0.956542953	-0.956542953	-0.956542953	-0.651950908	-0.748614976	-0.365515752	-0.275879543	-0.534261814	1.553997743	2.29001829	2.558378772
Tmem26	-1.485464097	-1.40209929	-1.182305929	-0.397736888	0.089083361	-0.728288219	-0.220404144	-0.137225402	0.213019815	1.706604837	1.777885522	1.766930435
Unc80	-1.373522245	-0.895537778	-1.373522245	-0.780095105	-1.373522245	-0.822538505	-1.373522245	0.19175766	-0.002311722	2.447574109	2.547883538	2.807356784
Nostrin	-1.053113042	-0.730764968	-0.218212476	-0.261259737	-0.029736706	-0.409079782	-0.489239166	-0.179391324	0.087898948	1.219596751	1.492099717	0.571201785
Dennd2c	-0.661312097	-0.427432171	-0.470760714	-0.363514199	-0.086381975	-0.679738977	-0.41869682	-0.332102242	-0.044213141	1.302915092	1.160610593	1.020626651
Col8a2	-1.672172813	-1.802439237	-2.107957083	-0.094245576	-0.113220792	-0.954604436	-0.326282013	-0.710118087	0.494168099	2.281629306	2.648680862	2.356561772
Hcn4	-0.237796645	-1.096874509	-0.975576047	-0.018846885	0.153040734	-0.17454054	-0.210668967	0.301070662	-0.082521765	0.937707828	1.021252835	0.3837533
Fam109b	-0.192826319	-0.887809985	-0.335798603	-0.099870793	0.043125478	-0.149252712	-0.106616556	-0.276929356	-0.379015707	0.621043763	0.916672416	0.847278373
Hymai	0.090716461	-1.027683946	0.0087227	-0.610868852	-0.406486154	-0.800289515	-0.279822132	0.190874109	-0.050944156	0.857595543	1.078972476	0.949213465
Pcdha2	-0.005299637	-0.744605751	-1.006661991	-0.227985875	-0.226939345	-0.266741268	-0.145623626	-0.241783586	-0.875751425	0.872093075	1.438489226	1.430810201
Pcdha8	-0.04820634	-0.772139096	-0.96592987	-0.187253755	-0.186207225	-0.283839313	-0.148088989	-0.201051466	-0.899660131	0.821328445	1.442127638	1.428920101
Pcdhac1	-0.044636448	-0.768569204	-0.962359978	-0.183683863	-0.182637332	-0.280269421	-0.144519096	-0.197481573	-0.963763748	0.824898337	1.470532334	1.432489993
Pcdhac2	0.121200413	-0.820119985	-1.269497929	-0.361000273	-0.059228621	-0.318978637	-0.173357114	-0.451445911	-0.852790652	0.995800323	1.568592002	1.620826383
Sfmbt2	-1.191426701	-0.881848782	-1.387048737	-0.03513292	0.212781828	-0.915703631	0.222234064	0.203590382	0.061245766	1.176512141	1.548800238	0.985996351
4833422C13Rik	-0.783610537	-0.936276963	-0.572690218	-0.291941315	0.011536404	-0.24471368	0.019656707	0.176184728	0.062902829	0.908971465	0.807272149	0.842708431
Col27a1	-0.756367651	-0.345387615	-0.769998649	-0.127531687	-0.304936141	-0.628554715	-0.425608759	0.485626175	0.139658066	0.735183969	1.08380079	0.914116217
Shisa6	0.023543693	-0.160146402	0.047397892	-1.383463381	-1.414084762	-1.641896327	-1.385428762	-0.613195476	-1.555045981	2.116320944	2.900163554	3.065835007
Rap1gap2	-0.310640092	-0.481631073	-0.78575218	0.228758669	-0.278948256	0.191281624	-0.237773057	-0.278672659	-0.323544861	0.905473537	0.901610353	0.469837994
Ccdc177	-0.423947647	-0.631532958	-0.548149082	-0.025616802	-0.744061403	-0.448900846	0.31021876	-0.154172639	0.123345122	1.0719601	0.788752061	0.682105335
Atp2b4	-0.091351554	-0.421051835	-0.495323637	-0.770476847	-0.558065001	-1.240308496	-0.156342263	-0.07890938	0.052850904	1.181719893	1.322512595	1.254745622
Stum	-0.037192106	-0.776498219	-1.285439474	0.296714628	-0.100605034	0.333717002	-0.565847169	-0.273676055	-0.104513405	0.786001731	0.864841532	0.862496568
Zcwpw1	-0.4038306	-0.435468707	-0.717218092	-0.260775918	-0.370423654	-0.399150321	-0.274526152	0.392852615	-0.097057142	0.771613849	0.953976288	0.840007834
Susd5	-1.029878848	-1.253702918	-1.178525995	0.083322178	-0.576705967	-0.387905506	-0.971150908	-0.209829412	-0.487835646	1.818892829	2.414143253	1.779176939
Tmtc1	-0.174472395	0.285497092	0.230180414	0.001148387	-0.231179844	-0.574299411	-0.835176388	-0.589092389	-0.757865221	0.752514698	0.91223604	0.980509018
Flrt2	-1.030591775	-1.429194873	-1.336357297	-0.420799294	-0.328974348	-0.7079791	0.0231292	0.208679158	0.31884466	1.423437541	1.712986056	1.566820072
Pnmal2	-0.490454974	-0.697895326	-0.40054229	-0.358806173	-0.10763575	-0.330327609	0.244137444	-0.273743154	-0.120623993	0.73493461	0.86688627	0.934070945
Atp8a2	-0.725201718	-1.322361903	-0.365477791	-0.623746753	-0.243487684	-0.594478235	-0.027605979	0.135095304	0.121147181	1.026523714	1.286757351	1.332836513
C1s1	-1.047839774	-0.771901969	-1.093451443	0.1238122	-0.052883825	-0.83498029	-0.024040154	0.446656086	-0.090424155	0.769095537	1.194211541	1.381746247
Grb14	-0.843571378	-0.858202778	-0.982627557	-0.427269047	-0.211347099	0.18553412	-0.001954079	-0.035598741	0.064887902	1.043057382	1.05081123	1.016280046
Rab11fip5	-1.1263132	-0.830999192	-0.547853775	0.03801704	0.122046388	-0.805400228	-0.244455556	-0.14616503	0.320194579	0.994939544	1.103694379	1.12229505
Kcnk6	-1.19177722	-1.312565812	-1.237388889	-0.066131657	-0.061503839	-0.778923217	-0.1679776	-0.549234758	0.135239694	1.726442227	1.609256147	1.894564926
Ldlrad4	-1.225453945	-1.312721332	-0.929544273	-1.338026408	-0.832875229	-1.082822358	-0.661545377	-0.210075456	0.309295991	2.269315348	2.621977171	2.392475868
Chst3	-0.45933638	-0.211938689	-0.104254224	-0.06300487	-0.473393685	-0.439955844	-0.41349788	-0.355758773	-0.006057572	0.682052431	0.891652908	0.953492579
Hif3a	-0.508611265	-0.507668251	-0.463370969	-0.196166521	0.017093107	-0.311758344	-0.337650494	-0.181671466	-0.014657927	0.629590222	0.94939282	0.925479089
Corin	0.068555129	-1.27541198	-1.48195368	-0.686136312	0.219280284	-0.145390719	-1.465360031	0.743881874	-0.036217582	2.045472963	1.883288994	0.12999106
Syt5	-0.350688807	-0.053387574	-0.038764062	-0.404507674	-0.531116686	-0.693055149	-0.724273655	-0.065070584	0.049625815	0.937093324	0.951056449	0.923088603
Tlr5	-0.695568199	-0.358507633	-0.579063375	-0.240986849	-0.073666857	-0.863300175	0.193045483	0.170131042	-0.113954816	0.735982308	0.982088689	0.843800382
Rcan3	-0.635001128	-1.026304595	-0.858437153	-0.032305974	-0.166739365	-0.33045443	0.283694975	-0.163050464	0.248470593	0.884940908	0.920617262	0.87456937
Rasa4	-1.845685253	-1.330575408	-1.699594409	-0.425113906	-0.514759969	-1.342353017	-0.59167103	0.945603965	-0.03140404	2.024362531	2.530371862	2.280818674
Egfl6	-0.982311983	-1.853304279	-1.394724467	-0.16412567	0.028363951	-0.231295692	-0.452619038	-0.327063935	-0.285511348	2.222464611	2.249610225	1.190517625
Pcdh7	0.155204316	-0.341491984	-0.424641752	-0.190997873	0.013667776	-0.365701362	-0.71956068	-0.478249185	-0.606958099	0.681388311	1.143726135	1.133614396
Cacng4	-0.228642798	-0.705930763	-0.563708664	0.333958588	-0.185375204	-0.147370257	-1.260068188	-0.946854251	-0.281158548	1.20060113	1.54470339	1.239845566
Hpse2	-0.202934695	-0.301927586	-0.210061738	-0.37457853	-0.227412301	-0.059419292	-0.728360717	-0.869941744	-0.896666338	0.883303848	1.296544644	1.691454451
Fam159a	-0.641988687	-0.521260047	-0.379095742	-0.136491538	-0.330131753	-0.636391334	-0.280171242	-0.074846118	0.560943042	0.669676242	0.694664942	1.075092237
Mansc4	-0.98889533	-0.309355312	-0.555094852	0.209542706	-0.473008862	-0.503461344	0.162083415	-0.106475948	0.082367807	0.543994811	0.819800924	1.118501985
St3gal6	-0.142682426	-0.284915822	-0.016484122	-0.606862369	-0.808515375	-0.361464645	-0.534869767	-0.268957904	-0.184231474	0.625019204	1.243672682	1.357292018
Plxnc1	0.16412996	0.296246344	-0.32121595	-0.972595617	-0.886119726	-0.78215749	-0.868338336	-0.146937957	-0.256039796	1.302825157	1.664306722	0.805896688
Car5b	-0.95272446	-0.565158088	-0.548203412	-0.281283898	-0.595716362	-0.334586819	-0.079049377	-0.049279144	-0.060509142	1.009292573	1.179556829	1.277661299

Extl1	-0.56290672	-1.539253889	-1.153444949	-0.962854624	-0.680613848	-0.88668179	-0.888415209	-0.254295971	0.02748112	2.046787204	2.688121519	2.166077156
Tmem45a	0.005391469	-0.662453878	-0.711323227	-0.028210806	0.021980415	-0.072344996	-0.391882117	-0.353551479	-0.251288817	0.829430859	0.804154873	0.810097707
Tmeff2	-0.416076004	-0.384714444	-0.396545695	-0.321983734	-0.701438629	-1.080781705	-0.004519036	-0.508180849	-0.279615396	1.554483132	1.549010315	0.990362044
Cyp2d22	-0.728419689	-0.264632772	-0.954753579	0.219508063	-0.263056048	-0.381450832	-0.356059532	0.460387896	-0.204477908	0.535870437	1.186940094	0.750143871
Elf4	-0.4211335	-0.402297831	-0.058966362	-0.038840286	-0.204846913	-0.913523676	-0.528371988	-0.849834152	-0.383735949	1.091382752	1.486954743	1.223213163
Mast1	-0.544366746	-0.236578632	-0.340355371	-0.541427883	-0.239485359	-0.684197392	-0.010732749	0.299609168	-0.317733049	0.803967348	0.845279613	0.966021052
Rgs17	-0.471890859	-0.484581859	-0.61766974	-0.599687985	-1.358095627	-0.690481918	-1.054019678	0.251993794	-0.350523856	1.799113251	1.854798667	1.72104581
Rps6ka4	-0.825535216	-0.761341314	-1.03914459	-0.054762505	-0.129695239	-0.231657897	-0.353673276	-0.109705184	-0.084218791	0.942610451	1.410822975	1.236300586
Scamp5	-1.104027569	-0.918305117	-0.9520628	-0.276558581	-0.213632245	-0.639971342	-0.382839692	0.288211108	0.315880698	1.374222059	1.372196278	1.136887204
Dkk2	-0.066303122	-1.10822402	-1.465881405	0.357871717	0.661719275	-0.34910737	-0.945455639	-0.632624936	-0.465461004	1.904439556	1.444547571	0.664479377
Ccl28	-0.676852905	-0.69091112	-0.100441759	-0.237308544	0.455991108	-0.462586667	-0.565553964	-0.065601271	-0.348996899	0.859952725	1.153610885	0.67869841
Cldn9	-0.098645178	-0.254599544	0.017859646	-1.617033489	-1.312441444	-0.920939507	-0.607945972	0.153375524	0.039973746	1.312829939	1.453770864	1.833795414
Smpdl3a	-1.338102404	-0.985120342	-0.817163443	-0.316276722	-0.289613761	-0.785277255	0.065006122	0.030865109	0.390689118	1.253412444	1.347735523	1.443845611
Otor	-1.444004339	-1.451014216	-1.473155187	-0.388921684	-0.134799895	-0.980271717	-0.458011036	-0.036434761	0.24534233	1.913733662	2.472831633	1.734705509
Kcne4	-0.843892075	-0.993329621	-1.328886419	-0.06628879	-0.77293416	-0.500953118	-0.513738698	-0.092257592	0.042324104	2.318690504	2.229019637	0.522246229
Sorcs1	-1.157702865	-0.860229587	-0.317887218	-1.300635806	-0.937800038	-1.894062946	-1.186627756	-0.188842542	-0.800852755	2.622581012	3.067280824	2.954779677
Ppp1r1a	-0.997711879	-0.472161686	-0.527925282	-0.558167518	-0.376959157	-0.703053845	0.152913523	0.322526692	-0.044898192	0.934849283	1.123338571	1.147249489
Kcnmb4	-0.707995432	-0.780263788	-0.71804163	-0.327287825	-0.214006132	-0.377654959	-0.159576749	-0.398032728	-0.1358647	0.923946917	1.535940971	1.358836056
Moxd1	-2.180158852	-2.024996233	-2.192088781	-0.758710627	-0.721031854	-1.196909415	-0.098302853	-0.527774073	-0.150431161	3.092929186	3.323192532	3.434282131
Nek6	-0.450078883	-0.432431248	-0.373399905	-0.395432056	-0.576687431	-0.427151845	-0.160728657	0.019362816	0.095509862	0.729569855	0.904789878	1.066677614
Tceal3	-0.775886263	-0.582213689	-0.52263243	-0.241983506	-0.290429948	0.155350257	0.109365145	-0.222749559	-0.091636015	0.724493277	0.924900625	0.813422104
Tmem200c	-1.239772034	-0.970184917	-0.962070918	-1.079729415	-1.022527524	-0.524280068	-0.163665786	0.061796514	0.205498027	1.684645076	1.721239537	2.289051508
Stk32b	-0.615776366	-0.284890422	-0.688928467	-0.407272727	-0.687298037	-0.646705038	-0.559922755	-0.743296131	-0.205901376	1.254989491	1.688820874	1.896180955
Gpr85	-0.448586781	-1.420303646	-1.096575683	-0.180323191	-0.205343761	-0.305955194	0.244991777	0.443531846	-0.348904782	1.323413977	0.993653066	1.00040237
Rtn4r	-0.433126273	-0.532537908	-0.296676208	-0.393536537	0.027559692	-0.059166749	-0.414076639	-0.925285965	-0.29472965	0.827174423	0.903306956	1.591094859
Tmem176b	-0.390910932	-0.683219899	-0.556208281	-0.320057269	-0.466498546	-0.241732622	0.240384625	-0.504945898	0.093396307	0.925098839	1.019027127	0.88566655
Tceal6	-0.371978553	-0.680198273	-0.187011398	-0.352748529	0.026196922	-0.356100116	-0.130578633	-0.621020121	-0.520533478	1.293450822	1.180347803	0.720173553
Grina	-0.641451594	-0.182966507	-0.346352427	-0.457209774	-0.473330562	-0.366405142	-0.337410092	-0.080815324	-0.02162707	0.80398104	0.955890469	1.147696983
Ahnak	-0.8357794	-1.2972142	-1.203432679	-0.333841305	0.622239703	-1.024882472	-0.232845273	0.524291215	-0.151765156	1.421191188	1.157523556	1.354514823
Col6a5	-0.850609811	-0.850609811	-0.850609811	-0.523596975	-0.294657552	-0.850609811	-0.850609811	-0.850609811	-0.202842933	1.813649599	2.362471363	1.948635363
Lrrk2	-0.624063587	-0.209691464	-0.202078371	-0.443240036	-0.28420441	-0.50854723	-0.941375971	-0.348091154	-0.367736312	1.169353474	1.389042988	1.370632072
Piezo2	-2.064855863	-1.326745729	-1.253283974	-0.300171493	-0.056293822	-0.547181979	-1.267935135	0.075142171	-0.125252808	2.025728156	2.598570561	2.242279913
Dleu2	-0.593223682	-0.409846577	-0.245236783	-0.444437949	-0.702406954	-0.490420949	-0.140408265	-0.085670736	0.152059643	0.853844829	1.126217677	0.979529747
Pxdc1	-0.001653685	0.182522107	-0.130284088	-0.720714431	-0.295251333	-0.385804447	-0.812510493	-0.584969183	-0.653706647	0.661651707	1.441416345	1.299304147
Dnajb4	-0.832448965	-0.508641592	-0.628566624	-0.496193992	-0.430098484	-0.70292574	-0.075857608	0.340731779	0.187701393	0.974262467	1.081926825	1.090110542
Tmem246	-0.415332537	-0.203831117	-0.272436048	-0.343296077	-0.290026399	-0.335839931	-0.069830378	-0.395551097	-0.386534971	0.795606709	0.95131733	0.965754516
Smarca2	-0.305002107	-0.2813243	-0.324407664	-0.471727767	-0.275660739	-0.521321628	-0.430831106	-0.197892126	-0.356576956	0.993395902	1.238172677	0.933175814
Spats2l	-0.758063708	-0.356690685	-0.690425758	-0.072847831	-0.151799717	-0.68735682	-0.311229525	0.335191014	0.165738941	1.170930818	0.987189665	0.369363607
Kcnmb4os1	-0.48326713	-0.840566233	-0.931314646	-0.443677394	-0.16343571	-0.439819162	-0.184687396	-0.460626607	-0.015615647	0.981905951	1.61090926	1.370194714
3632451O06Rik	-0.647315354	-0.84767277	-0.916083398	-0.019195661	0.144844363	0.118496228	-0.196689281	0.192835099	-0.235797914	0.639925891	0.879084063	0.887568734
C1qtnf4	-0.310478365	-0.968048201	-0.66079079	0.027176467	-0.319323867	0.325991842	-0.565166325	-0.430402422	-0.235041468	0.902420793	1.10622157	1.127440765
Larp6	-0.564548679	-0.786067906	-0.457187929	0.041097271	0.238653365	-0.797845515	-0.551435337	-0.738209164	0.22831216	0.970553173	1.098059393	1.318619169
Tmem35a	-1.43507542	-1.780281877	-1.227065999	-0.432867391	-0.018615718	-0.282679657	0.174929272	0.033667573	0.216163144	1.579926476	1.649929683	1.521969914
Vwa5a	-0.599129375	-0.836145846	-0.756270926	-0.57960451	-0.512606002	-0.605504596	0.096467399	0.219072961	0.157697369	1.085144008	1.062095418	1.2687841
Rprm	-0.908940012	-0.650325193	-0.931129849	0.352269882	0.639089016	-0.390775842	-1.176267873	-1.969616524	-1.042332492	1.901251127	2.198780907	1.977996854
Dubr	-0.292344618	-1.272577818	-0.484146554	-0.338041639	0.355258012	-0.938929743	-0.078913882	-0.228704312	0.469190938	1.137564769	0.871512998	0.800131849
Mturn	-1.049064593	-0.803902658	-0.861395514	-0.258796929	-0.37003251	-0.477663152	0.092003057	-0.168763525	0.268895538	1.048079287	1.174044944	1.406596056
Gpr155	-0.349210358	-0.290649056	-0.162471891	-0.810525818	-0.213987975	-0.711687786	-0.789574265	0.227849279	-0.133920666	1.060586056	1.105962001	1.067630478
Acss1	-0.133719742	-0.378410709	-1.085661327	-0.537067496	-0.422378715	-0.678237583	0.058462584	-0.216540546	0.111761581	1.130527099	1.19070364	0.960561215
Synpo2l	-1.539824573	-0.703421321	-0.738112143	-0.527146166	-0.41857921	-0.10403101	0.173182675	0.091721684	-0.16861405	0.943425144	1.833389313	1.152609657
Gsdmd	-0.803659554	-0.158008919	-0.455422415	0.052144852	0.033119376	-0.519823535	-0.333161442	0.088459073	-0.192016474	0.434998218	1.208041223	0.645329597
Ctdspl	-0.605426186	-0.867951907	-0.902514526	-0.10748524	-0.296695682	-0.149390966	0.009109562	-0.00379549	0.264072426	0.71287665	0.944170247	1.003031111
Fam65c	-0.15052857	-0.510164823	-0.716706524	-0.257119016	-0.459227667	-0.737012432	-0.326208368	-0.307329454	-0.14018878	1.321859009	0.938471654	1.34415497
Sec24d	-0.775177445	-0.603142131	-0.735892531	-0.114801264	-0.270845866	-0.598066644	-0.458599314	-0.184527976	0.285110896	1.082211106	1.139011059	1.234720108
Bdh2	-0.633994591	-0.728666159	-0.830540695	-0.100861926	-0.272805853	0.021073703	0.115683876	-0.06944997	0.165858475	1.003885787	0.860311999	0.469505354
Dpf3	-0.60829168	-0.555636814	-1.477417208	-0.649994864	-0.531646334	-1.668364263	-0.587005365	-0.108023336	0.079657108	2.039940919	1.953807702	2.112974136
Megf10	-1.429637461	-1.318126178	-0.788357222	-1.022578093	-0.696727964	-1.431840412	-0.575873045	0.524225943	0.015613742	2.41851317	2.403970669	1.900816851
Ttll7	-0.858500298	-0.941476437	-0.913129072	-0.463062229	-0.004604867	-0.352761961	0.076794548	0.306035597	0.08466116	0.829240885	1.114087443	1.122715231
Phyhipl	-0.694330078	-0.310572201	-0.082563321	-0.120502684	0.021840021	-0.599109655	-0.604070905	0.291311831	-0.349016867	0.953176931	0.918566515	0.575270414
Mfap3l	-0.768777132	-0.68611343	-0.751862451	-0.656053552	-0.914022557	-0.961509687	-0.72623038	-0.621870209	-0.323249111	1.613135376	2.417609808	2.378943327
Arhgef3	-1.537463905	-0.639798678	-0.212872627	-1.982135533	-1.480633146	-2.394692254	-0.333996327	0.564773703	0.71686505	2.035152414	2.585517979	2.679283323
Fam13c	-0.700523097	-0.195420277	-0.28709187	-0.115335431	-0.146157212	-0.450523448	-0.499559539	0.347654214	-0.344348696	0.818317999	0.909706724	0.663280632
Pdgfd	-0.688527512	-0.558625803	-0.337482431	-0.425809229	-0.458945596	0.15925633	-0.598105768	-0.391625886	-0.472702911	1.136643822	1.266455109	1.369469875
Rnf180	-1.046454548	-0.474771779	-0.039868506	-0.235919039	-0.574938506	-0.741135066	0.129324743	-0.022137194	0.295003589	1.017787446	0.795312853	0.897796006
Fndc3b	-0.708596186	-0.785066672	-0.534050419	-0.230697942	-0.046738576	-0.590845652	-0.214045416	0.059152336	0.226167816	0.810502289	1.069099272	0.945119149
2510009E07Rik	-0.51012059	-0.616617229	-0.527619429	-0.383850899	-0.499849109	-0.4687896	-0.251742655	-0.087269232	0.029393243	1.111617675	1.083346034	1.121501792
Palld	-0.272852041	-0.719838653	-0.188188689	-0.544852997	-0.292396397	-0.500123041	0.023360999	0.060987874	-0.06180143	0.766782348	0.884264209	0.844657819
Lypd1	-0.582009356	-0.266099771	-0.826821286	-0.220535569	-0.162287672	-0.932439734	-0.448514998	-0.589371352	0.683895725	1.059825388	1.220458112	1.063900514
Zcchc12	-0.765928277	-1.236075742	-0.688189669	-0.431208723	-1.040213912	-0.878990183	-0.18585381	0.25180935	0.200515056	1.592963637	1.765316248	1.415856025
Pard3b	-0.878089469	-1.006462949	-0.831411882	-0.524477131	-0.244871194	-0.779056579	-0.319602079	0.150509651	0.261301074	1.222805071	1.430855446	1.51850004
Crtac1	-0.594073226	-0.233928216	-0.278790913	-0.257392057	-0.244235599	-0.381213743	-1.115827352	-0.760733916	-0.793630448	1.44745731	1.492251469	1.72011669
Spock3	-0.538754455	-0.657438922	-0.401686571	-0.06318307	0.692918093	-0.239583874	-0.693843101	-0.464294403	-0.579223784	0.919348561	1.072844388	0.952897137
Rflna	-1.918890002	-1.927428841	-2.079191348	-1.61630761	-1.413789481	-1.474851261	0.152681589	-0.069955023	-0.066730581	2.816490161	3.475204245	3.475204245
Nptxr	0.056631098	-0.531978073	-0.413591398	-0.024252835	0.004508512	-0.433796042	-0.539600635	-0.662279909	-0.061916194	0.719176084	1.059645904	0.827453489
Cybrd1	-1.104522098	-0.87583289	-1.308887997	0.281581553	0.343706652	-0.432091159	-0.802590775	-1.481638961	-0.184462847	1.536662068	2.184292482	1.843783972
Irak3	-0.625306194	-0.795417044	-0.922396663	0.103922357	-0.160606106	-0.410553235	0.259364025	-0.052916478	-0.398687521	1.080263459	0.846105674	1.076227726
Lrrc15	-1.054743375	-0.598911537	-0.4663746	-0.224960876	0.253103602	0.039713295	-0.133607188	-1.17199561	-0.444260501	1.017787289	1.40228603	1.381963471
Arhgap36	-0.220744303	-0.761921011	-1.279026585	-0.585645855	0.42169834	-0.005991344	0.114682985	-0.669052138	-0.291754566	0.912216433	1.089397927	1.276140117
Oplah	-0.618282397	-0.655409189	-0.619368442	-0.351644059	-0.587550361	-0.866024289	-0.313904753	0.009755585	-0.117129279	1.067571156	1.523730295	1.528255732
Zbtb4	-0.810258315	-0.749302014	-1.059562273	-0.01270519	0.087221313	-0.592479545	-0.423110063	-0.255469716	-0.034426233	1.179160996	1.603666213	1.067264827
Ago4	-0.775538327	-1.115212658	-0.593092905	-0.120415485	-0.088034368	-0.213380561	-0.006881313	0.184015674	0.212080416	0.969898763	0.933900298	0.612660465
Jade2	-1.294408772	-1.309040173	-1.081104593	0.009960338	0.28105883	-0.357078232	-0.333821185	-0.254251405	-0.49606967	1.001478624	1.899246192	1.934030045
Slitrk1	-1.031376003	-1.031376003	-1.031376003	-1.031376003	-1.031376003	-1.031376003	-0.859426601	-0.651269057	-0.188648404	2.487722467	2.980424711	2.4194529
Col25a1	-0.246233181	-0.460822721	-0.455022916	-0.37488644	-0.002882093	-0.310549414	-0.205283408	-0.201356629	-0.216279166	0.822973917	0.891340616	0.759001435
Tmem200a	-1.489380884	-2.1018561	-2.069025252	-0.480303608	-0.503152079	-0.97855712	-0.972884438	-0.025149955	0.054484419	2.697887245	2.938676329	2.929261443
Adamts1	-1.434515546	-0.699980663	-0.424420239	-1.531772856	-0.651047405	-1.53483002	-0.950453708	0.109811282	-0.37298893	2.347171428	2.615210607	2.52781605
Nuak1	-0.747446418	-0.591588549	-0.574636752	-0.051429797	-0.152525636	-0.722896954	-0.164961727	0.209428447	0.232243278	0.848200711	1.014990984	0.700622412
Hist3h2ba	-1.536895429	-1.041210436	-1.075901258	-0.402065164	-0.539645341	-0.617435586	-0.962239632	0.587466133	0.467367177	1.293677588	1.625940077	2.200941873
Cdk19	-0.869256641	-0.643051105	-0.6424357	-0.19626038	-0.044216816	-0.331617537	0.008168717	0.176963682	0.181578028	0.616363138	0.77315973	0.970604883
Htra3	-0.425369359	-0.372714493	-0.02663646	-0.691065423	-1.208156562	-0.614892589	-0.865983174	-0.835908327	-0.270872059	1.296220585	1.822536098	2.192841762
Popdc3	-0.78474594	-0.634392511	-1.340847897	0.05154596	0.179880385	0.167935643	-0.15376271	-0.216203297	-0.372040371	0.718326589	1.291657473	1.092646676
Lrba	-0.733416946	-0.664305334	-0.572329281	-0.415792791	0.053423568	-0.628508397	-0.211342717	0.175029512	0.212360838	0.852345594	0.804281554	1.128254399
Jdp2	-0.178000293	-0.607600279	-0.266069594	-0.601847102	-0.54891743	-0.185825109	-0.646069237	-0.616364642	-0.769740855	0.994305509	1.604532457	1.821596574
C1qtnf3	-0.835739996	-0.835739996	-0.835739996	-0.662987926	-0.531147951	-0.62781202	-0.510170022	0.093532129	-0.413458857	2.26547402	2.343065653	0.550724963
Sytl2	-0.2620185	-0.893057414	-0.837124312	-0.519174713	-0.648848445	-1.23207898	0.187600482	0.458949213	-0.114431052	1.205286695	1.504921291	1.149975733
Bicc1	-0.652121463	-0.435101032	-0.51050943	0.00533705	-0.018884095	-0.358071506	-0.215581654	-0.258439779	0.004380249	0.773293777	0.945601719	0.720096162
Nedd4l	-0.54985327	-0.324858244	-0.330265733	-0.56213765	-0.278386991	-0.649188418	-0.226615831	0.205617627	-0.02534313	0.787067869	1.017644365	0.936319408
Sec16b	-0.395151348	-0.337847658	-0.567122181	-0.748305378	-0.687674061	-0.729959589	-0.485107528	0.52749687	0.212698586	0.786180432	1.202820294	1.221971562
Pnck	-1.098566333	-0.767406076	-1.215821888	-0.416318032	-0.359888038	-0.852884531	-0.103918845	0.461734564	0.227683491	1.178511313	1.491816289	1.455058085
Pcdhb3	-1.009582021	-1.026349871	-0.666138357	-0.549440955	-0.205680201	-0.676028786	-0.393999287	0.246967014	0.484697393	1.269919689	1.146381086	1.379254295
Pcdhb4	-0.365279109	-1.073453637	-1.111201074	-0.293981631	-0.123136122	-0.347284552	0.089391769	0.147211373	0.233090195	0.855958107	0.723721115	1.264963566
Pcdhb5	-0.793030209	-0.87216076	-0.748383731	-0.563390794	-0.224461772	-0.248878404	-0.216024342	-0.141421102	0.56526941	1.119159768	1.063856112	1.059465825
Pcdhb6	-0.352898127	-0.620727359	-0.661145776	-0.735833485	-0.884612964	-0.0622278	0.216563	0.050659685	-0.050362087	1.126362452	1.506796882	0.467425579
Pcdhb8	-0.69659167	-0.635820316	-0.917764771	-0.735656632	-0.660285914	0.24073887	0.103084061	0.093532129	-0.290303374	0.78266891	1.145441688	1.278655858
Pcdhb11	-0.515729089	-0.816003598	-0.85069442	-0.315277982	-0.314438503	-0.824473549	-0.643319333	0.352771512	0.286332828	1.172662491	1.174621108	1.293548536
Pcdhb14	-1.371625398	-1.02021649	-0.616319784	-0.13865482	0.120977738	-0.505963407	0.063579701	-0.151399338	0.124156577	1.22652987	1.251090712	1.017844638
Pcdhb17	-0.341787648	-0.895463957	-0.806095213	-0.07500012	-0.119374663	-0.968786389	0.091975278	0.119225022	0.226525213	1.052908408	0.800217162	0.915656907
Pcdhb20	-0.455126026	-1.187645331	-1.092703665	0.161740485	-0.258381069	-0.341240439	0.092130043	-0.116072342	0.205590739	0.936243294	1.088464028	0.967000284
Clmn	-0.498978731	-0.498730239	-0.677233275	-0.446238386	-0.4354767	-0.68440091	-0.217988294	0.079145534	0.145280245	0.941566796	1.015211135	1.277842824
Trim16	-0.762236775	-0.721927964	-0.231489211	-0.751040561	-0.626725435	-1.520278517	0.069539941	-0.003925662	-0.29466447	2.034115119	2.019331936	0.7893016
Tinagl1	-0.431504427	-0.566070856	-0.811810395	-0.319663591	-0.669623773	-0.935792348	-0.228309903	0.145849508	0.491250492	0.923084573	1.099397692	1.303193028
Sfxn3	-0.866220102	-1.027309365	-0.806397975	0.181586177	0.059995342	-0.4574293	-0.001555368	0.216982032	0.025979243	0.495740063	1.090075515	1.088553738
Pid1	-0.725556092	-0.744687736	-0.012339873	-0.505672759	-0.743289927	-1.218917578	-1.170572331	-0.070308044	-0.638542831	1.76175213	2.239721219	1.828413822
Eps8l2	-1.326529909	-0.739763276	-0.859831595	-0.455889086	0.112626254	0.156914082	-0.406193016	0.330078319	-0.036203887	0.715000628	1.168723768	1.341067717
Garnl3	-0.698901847	-0.323884476	-0.602842336	-0.224361005	-0.383412452	-0.287083471	-0.358566299	0.320188656	0.221259812	0.851986345	0.79999132	0.685625753

Table S8

Symbol	Jagged_rep1	Jagged_rep2	Jagged_rep3	PDGFRa_rep1	PDGFRa_rep2	PDGFRa_rep3	OCP_rep1	OCP_rep2	OCP_rep3	CB_rep1	CB_rep2	CB_rep3
Tctn3	-0.349381545	-0.227249598	-0.118268958	-0.095130995	-0.037732035	0.097101279	0.111853996	-0.010881357	0.100306536	0.095174597	0.15826007	0.275948011
Ift80	-0.210970138	-0.269903651	-0.085474397	-0.19230326	-0.023320076	-0.12448113	-0.026068273	0.299717198	-0.074884785	0.161737793	0.25086524	0.29508548
Tbc1d32	-0.391634238	0.153950171	0.168584696	-0.112437107	0.088373425	-0.17457737	-0.268018003	0.169474222	-0.053862647	0.097426344	0.191350492	0.131370016
Hipk1	-0.063301457	-0.043782301	0.199832244	-0.018702326	0.165311481	-0.09775734	-0.089507748	-0.192713798	0.065416065	0.05534304	-0.050831744	0.070693885
Wdpcp	-0.366123105	-0.469532485	-0.102548994	-0.027678365	-0.016098929	0.162016613	0.183991681	0.049564385	0.089211074	-0.036464361	0.195800994	0.337861492
Tctn2	-0.060707604	-0.024253668	0.000121912	0.198282672	0.04332941	0.109901183	0.231757768	-0.206406474	0.131284587	-0.154091348	-0.174866022	-0.094352414
Hhip	-1.686936678	-0.653520755	-1.583172268	-0.732843811	-1.007066157	-0.860042198	1.178536612	1.464198761	1.464198761	0.509425131	0.615804838	0.95608832
Disp3	1.002259916	0.304641823	-0.580115308	0.655628846	0.727030024	0.503883725	-0.31294023	-0.949046246	-0.662716999	-0.190337565	-0.267747727	-0.230540259
Ift122	-0.1451567	0.068632631	-0.024167643	-0.017534696	0.065137022	-0.019151461	0.046266709	0.01250304	-0.066700873	-0.042244583	0.008497723	0.113918831
Tgfbr2	-0.40346501	-0.44670892	-0.202500719	-0.337396847	-0.095887644	-0.418551065	-0.586491306	-0.343347875	-0.196582411	0.997289715	1.131831957	0.901810125
Fkbp8	0.044933671	-0.031133954	-0.082140347	0.118520864	0.074642219	0.162165101	0.0831635	-0.06373993	0.06247167	-0.125455945	-0.174538394	-0.068888456
Dyrk2	0.231667394	0.316954321	0.452371257	0.077246734	0.123739598	-0.118135477	-0.136636317	-0.199763866	-0.066316754	-0.168108143	-0.277733432	-0.235285316
Ptch1	0.677531668	0.729403516	0.954337456	-0.266536851	-0.360351447	-0.505973503	-0.590851076	-0.637153801	-0.297479813	-0.087470433	0.102652646	0.281891638
Ift20	-0.106894952	0.000497833	-0.140256851	-0.077460472	-0.190237562	-0.069213245	0.191670561	0.134511788	0.003824638	0.095002465	0.081838525	0.076717272
Arl13b	-0.175407388	0.073526681	0.045049357	-0.115652019	-0.008341125	-0.152055539	-0.344781218	0.189881032	-0.064557561	0.068768648	0.285588305	0.197980827
Gli2	-0.802569608	-0.811280475	-1.012842538	0.318115129	0.419498067	0.224786935	0.019154553	0.124817392	0.20145613	0.274664096	0.473137492	0.571062826
Smo	0.209939279	0.143531954	0.140565814	0.24126587	-0.012614121	0.068112679	0.034455605	-0.280748432	-0.005209114	-0.126769503	-0.194138269	-0.218391762
Boc	-1.380753066	-1.0383895	-1.241966692	-0.323789935	-0.168042496	-0.439658475	0.265919493	0.754612536	0.541947544	0.77676291	1.144083932	1.109273749
Stil	-0.049572068	0.084736312	0.032533438	0.005131698	0.083235917	-0.094148082	-0.126470649	0.214149717	0.151079408	-0.159027339	-0.088667062	-0.052981291
Ror2	-0.178215996	-0.190924768	-0.264510633	0.1182055	0.072263834	-0.068294892	0.299924407	0.354170582	0.494075385	-0.179268185	-0.268053284	-0.189371951
Shh	1.464198761	1.464198761	1.464198761	1.464198761	1.464198761	1.464198761	-1.686936678	-1.686936678	-1.686936678	-1.686936678	-1.686936678	-1.686936678
B9d1	0.280005559	0.134592095	0.096177743	0.17475911	-0.054002766	0.359475766	0.423007273	-0.440554968	-0.131298598	-0.246787396	-0.361469451	-0.233904368
Hhat	0.533174203	0.325692834	0.623223855	0.027265703	0.005373121	0.038296368	0.104598953	-0.557829046	-0.045921316	-0.355902679	-0.418705431	-0.279266566
Nsdhl	0.226652887	0.080494878	0.290950493	0.182010607	0.409300637	0.544916083	0.1538695	-0.551510171	-0.215913623	-0.370026809	-0.339961326	-0.410783156
Ift52	-0.188660092	-0.2383199	-0.289883676	0.064881906	0.046516197	0.037364444	0.185480563	-0.00466176	0.123832767	0.062088662	0.104726689	0.0966342
Gpc2	-0.414670921	0.037771347	-0.184642423	-0.092850524	-0.198801926	-0.500232708	0.010618714	0.679792097	0.104717243	0.209952259	0.370931366	-0.022584523
Ift172	-0.298948358	-0.105035573	-0.168112908	-0.105458923	-0.029514747	-0.254024036	-0.065669828	0.322434919	0.102925465	0.261037564	0.149211702	0.191154724
Hspb11	-0.346841	-0.349709632	-0.201402651	0.076038363	0.16693656	0.189385016	0.052811613	-0.4300602	0.150993134	0.191049785	0.38806564	0.112733374
Map3k10	-0.12369255	-0.121503091	-0.117786068	0.240240443	-0.032413944	0.099535665	0.076771223	-0.093957016	-0.03200645	0.104383709	0.032724459	-0.032296381
Bbs7	-0.407049084	-0.050313458	0.24125635	-0.167531964	0.225603213	-0.316581048	-0.195818737	0.200288897	-0.167688719	0.324128284	0.193175142	0.120531126
Ssna1	0.152415832	0.186803758	0.008191989	0.200500275	-0.024515091	0.196466201	0.281458584	-0.228351547	-0.151246775	-0.11291933	-0.247332288	-0.261471609
Ift57	0.084178479	0.161519534	0.242437175	-0.030435819	0.096161731	-0.010076362	-0.158528585	-0.301194918	-0.302266111	0.094417648	0.093747314	0.030039914
Ndst1	0.049658398	-0.154509168	-0.000835707	0.256367127	0.129959237	0.128410096	0.161048825	-0.325018597	0.138713846	-0.159318269	-0.144969779	-0.07950601
2700049A03Rik	-0.050032769	-0.040152888	-0.077630893	-0.137902031	0.028902115	-0.060984558	0.015354467	0.408636772	0.012433342	-0.01892589	-0.093520429	0.013822761
Hes1	-0.066589193	-0.097190878	0.229300097	-0.518453716	-0.541103961	-0.268182403	0.016743377	0.499724939	0.139618539	0.274195468	0.409489679	-0.07755195
1810043G02Rik	-0.284473953	0.030754228	-0.096055669	-0.038710505	-0.232685482	-0.255785401	0.213598733	0.452756176	0.232089056	-0.164338929	0.024574566	0.118277179
Trove2	-0.214174531	-0.251936118	-0.08743465	-0.174271045	0.195552021	-0.043166786	-0.108712681	-0.000185192	-0.057631306	0.201028164	0.100531984	0.440400141
Dzip1	-1.139743837	-0.976499471	-1.090027815	0.182682421	0.151264553	-0.240261301	-0.013943436	0.748369872	0.267499617	0.72428743	0.780184651	0.606187316
Wdr19	-0.486825699	-0.310503132	-0.407318946	-0.222051266	0.043108738	-0.259436189	-0.013909065	0.498861547	0.117280339	0.266175112	0.325071159	0.449547401
Cc2d2a	-0.531667221	-0.39746906	-0.57559907	0.115630885	0.340874826	-0.154277447	-0.144194693	0.669967244	0.148552682	0.135795241	0.267008243	0.12537837
Evc	-0.156455426	0.181265842	-0.088952214	-0.007716405	-0.044189253	-0.202548589	-0.316686933	0.378003656	-0.113469022	0.133776688	0.210081479	0.026890177
Tmem17	-0.185375497	-0.47138871	-0.247253763	0.255014958	-0.024924235	0.526134675	0.23896973	-0.11328986	0.191173732	-0.12691015	-0.147737272	0.105586392
Sep.02	0.099788575	-0.015741459	0.065694013	-0.051727943	-0.053153605	-0.040335351	-0.10174373	-0.150784603	-0.067531988	0.125785812	0.049313986	0.140436292
Disp1	-0.370322305	-0.318610637	-0.350776116	0.256234586	0.310186723	0.458567563	0.211236548	0.465070867	0.281592572	-0.219173623	-0.239469074	-0.484537104
Tmem231	-0.06423026	-0.393689438	-0.194414508	0.263585114	0.170415679	0.311489427	0.136830537	-0.654853202	0.017241405	0.018778528	0.153619927	0.23522679
Cdon	-1.581799444	-1.635008204	-1.686936678	0.523059344	0.770529605	0.263572072	1.044095161	0.757910377	1.001745451	0.534986779	0.422836389	0.093776267
Ift27	-0.102319375	-0.127591297	-0.217163743	0.398254538	0.002472943	0.356423691	0.297423987	-0.201636575	0.258401275	-0.243831643	-0.238396767	-0.182037032
Ttbk2	-0.155988301	-0.227875875	-0.049188197	-0.106623137	0.067877698	-0.37362196	-0.040210666	0.186267601	0.001103837	0.211575945	0.209704658	0.276978398
Ttc21b	-0.189335188	-0.026236083	-0.02599551	-0.062605956	-0.104180124	-0.101732164	-0.326462793	0.029649118	-0.09871425	0.257716742	0.318037507	0.329858699
Sufu	0.101172673	-0.012564583	0.038298318	0.214491847	0.103936376	0.272859204	0.213978641	-0.338616927	0.088311107	-0.261084333	-0.239811694	-0.180970629
Pax6	-0.527800514	-0.77908427	-0.034547866	-0.01520367	0.263285979	0.005319422	0.083674657	0.285674102	0.124122979	0.09524645	0.082045673	0.417267058
Gli1	0.437688022	1.085362999	0.630285102	-0.106396365	-0.529211411	-0.531936136	-0.642779598	0.15165917	-0.372581613	-0.280163009	0.094435742	0.063637097
Tulp3	0.21897061	0.01529633	0.024129121	0.181731951	0.073322564	0.037958833	-0.091202781	-0.292440271	-0.048569227	-0.038364365	-0.010305871	-0.070526894
Ift46	-0.351884906	-0.266987294	-0.186565052	0.142387666	0.01452779	-0.018406404	0.113168916	-0.025955759	0.206604586	0.07517814	0.171306626	0.12662569
Arl3	0.26383004	0.102275745	0.077971084	0.191438878	0.163612941	0.350605762	0.25653613	-0.643160173	-0.006931313	-0.223138706	-0.230098158	-0.302942229
Hipk2	-0.107011695	-0.073418201	0.190176573	0.04087472	0.160196868	-0.048766178	-0.107587499	-0.214089014	0.150612033	-0.112759672	0.019155795	0.102616271
Bmp4	0.543839538	0.650720036	0.670346311	0.895948556	0.93477408	0.771477186	-0.743587236	-1.00846457	-0.894890616	-0.34734379	-0.423947813	-1.048871683
Ttc26	0.022486594	-0.087436925	-0.079652103	-0.094772665	0.049583601	-0.039120172	-0.022804765	0.115607544	0.104784579	-0.05780579	-0.04396365	0.13309375
Gli3	0.039479658	-0.008789405	-0.017332483	0.033644389	0.289730832	0.235543976	0.157944969	0.050541383	0.037026962	-0.371918442	-0.290861969	-0.155009872
Evc2	0.195652914	0.3955252	0.306509609	0.045214962	-0.02933581	-0.144452855	-0.097695421	-0.050378865	-0.004970336	-0.175165756	-0.203861602	-0.23704204
Stk36	-0.271729943	-0.452806661	-0.384526158	0.071393727	0.00866199	-0.110462193	0.174647253	0.104565373	0.271533379	0.19770496	0.146675634	0.24434264

Table S9

Symbol	Jagged_rep1	Jagged_rep2	Jagged_rep3	PDGFRa_rep1	PDGFRa_rep2	PDGFRa_rep3	OCP_rep1	OCP_rep2	OCP_rep3	CB_rep1	CB_rep2	CB_rep3
Lef1	0.629877523	0.774675448	0.937485444	0.653041358	0.528829217	0.72834132	-0.250532398	-0.731614158	-0.571570204	-0.699515392	-0.847803539	-1.151214618
Eng	0.593810894	0.283542801	0.510316397	-0.466660637	-0.551333897	-0.587101567	-0.61880226	-0.20681806	-0.356381783	0.112091997	0.647448569	0.639887546
Sfrp1	0.2044116	-1.496961308	-1.844123958	0.220598932	0.148023752	0.081052573	1.025843696	0.954620391	1.142094579	0.043822805	-0.149858223	-0.329524839
Bmp2	0.234062692	0.930788271	1.158368175	-0.052580201	0.244505372	-1.467521905	-2.069239601	-1.442269338	-2.069239601	1.644013976	1.772073661	1.455158633
Smad4	0.152057916	0.051582507	0.1735842	0.16359913	0.057246467	0.139702414	0.027974704	-0.172784673	-0.061342856	-0.195516432	-0.2434749	-0.092628478
Bmp4	0.543839538	0.650720036	0.670346311	0.895948556	0.93477408	0.771477186	-0.743587236	-1.00846457	-0.894890616	-0.34734379	-0.423947813	-1.048871683
Bmp7	0.081774028	0.238262935	0.328507966	0.172539905	0.173266186	0.285830134	-0.342103273	-0.34666106	-0.292696194	-0.119794531	-0.124163605	-0.054762491
Smad7	-0.034447317	0.350659576	0.065541374	0.667199422	0.339728344	0.018676993	-0.4277414	-0.152555149	-0.004268669	-0.111666965	-0.210127461	-0.500998749
Rgmb	-0.380312883	-0.279470548	-0.144834089	-0.490436639	-0.769038331	-0.88608427	0.093923788	0.545783767	0.563106385	0.657376514	0.473320402	0.616665904
Acvrl1	-0.480415318	-0.623402794	0.112551034	-0.551757235	-0.513885853	-0.160273638	-1.100859243	-0.507979579	-0.326695022	0.963888079	1.525822193	1.663007374
Chrdl1	-1.578072384	-1.608224556	-1.787365095	-0.920379047	-1.072552981	-1.120873721	0.463696504	0.912048887	0.764408973	1.58764709	2.119124801	2.240541528
Col2a1	-2.069239601	-2.069239601	-2.069239601	-1.058585453	-1.329658608	-1.971099756	1.527012559	2.342539726	2.125224241	2.34292372	2.34292372	2.34292372
Bmp3	-0.244262079	-0.203970264	-0.300245441	-0.838056311	-1.149052195	-1.939982993	0.322979872	0.983959951	0.770580615	1.559144146	1.385246653	-0.346341954
Ryr2	-1.413218851	-0.85400189	-1.734680438	-0.87211762	0.225840377	-0.93901052	0.715235256	1.441149213	0.855791541	1.324584049	0.945938251	0.304490633
Rgma	-1.276470734	-1.301692484	-1.168940095	-0.127801583	-0.387958525	-0.3387026	1.060687099	0.620623658	0.942022142	0.754972011	0.740691258	0.482569852
Chrd	-0.67835425	-0.130236925	0.11656997	-0.29770747	-0.626201578	-1.151576912	-0.838362077	0.13738332	0.203665992	1.086484254	1.260027452	0.918308223
Id1	-0.409282019	-0.031134926	-0.03131037	0.337710315	0.344188764	0.070275453	-0.519947573	-0.353654785	-0.158868662	0.252941524	0.208913236	0.290169044
Acvr2b	0.337691058	0.353949961	0.456359294	0.158842392	0.153951555	0.133435531	0.168067446	-0.18011491	0.046141913	-0.551703147	-0.63815203	-0.438469064
Mapk3	0.033957233	0.061857169	0.103024367	0.146125786	0.111270411	0.398263214	0.138736135	-0.324882723	0.076057909	-0.273481694	-0.340777933	-0.130149874
Kcnd3	-1.619417364	-1.117818286	-1.673052583	0.169532648	0.18512856	-0.821240976	0.775444901	1.323539061	1.513693619	0.47489139	0.494006389	0.295292643
Scx	-1.677983588	-1.498139651	-1.867127867	0.014725007	-0.082837149	-0.644180744	0.909392564	1.137666223	1.169068123	0.948270117	0.773165116	0.817981849
Usp9x	-0.016117672	-0.091438897	0.123103192	-0.166350548	0.211242636	-0.149154215	-0.008307757	-0.086770593	0.020626885	0.128769624	-0.076298306	0.110695651
Zfp128	-0.264811457	-0.906186024	-0.265106906	-0.271410425	-0.107889752	-0.084409761	0.350533934	0.373294036	-0.02010417	0.271097917	0.457826655	0.467165953
Tgfbr3	-0.74436359	-0.711231429	-1.386425439	0.080691084	0.264281958	-0.07180547	0.23557904	0.216572859	0.251207004	0.75611737	0.623682982	0.48569363
Bmp1	-0.360034482	0.029112771	-0.157635918	-0.223088947	-0.348804284	-0.533176788	-0.215299873	0.754104502	0.116354207	0.301997581	0.402851975	0.233619255
Bmp5	0.859906257	0.729745575	0.818938086	-0.236697599	-0.053645862	-0.185697956	-1.555007909	-1.414825044	-1.184289475	0.854443062	1.042612494	0.32451837
Acvr1	-0.281639708	-0.131288595	-0.164134214	0.07273901	0.214253082	-0.266494053	-0.124325371	-0.085143938	0.1306519	0.283122235	0.171990505	0.180269147
Tmem100	-0.364730556	-0.605623913	-0.876413974	0.156989647	0.198576648	0.322947897	-0.389561556	-0.45668313	0.019160643	1.23877176	0.918962721	-0.162396187
Zcchc18	-0.52519455	-0.240723268	-0.120236945	0.027893948	-0.022559864	-0.399049102	-0.228008137	-0.090977758	-0.003297219	0.523344062	0.559649623	0.519159209
Egr1	-2.065515086	-1.450314807	-1.957727115	1.06250038	-0.271295261	-1.206916528	-0.678522335	1.454294671	1.042225313	1.926476274	1.203224347	0.941570148
Smad9	0.093347273	-1.092055452	-0.935795999	1.111039334	0.85320862	0.53502094	-1.285048152	-2.069239601	-0.855511004	0.760552313	1.423313725	1.478114901
Gdf6	-0.565122543	-1.480698142	-1.377823033	1.017420038	1.465378743	1.511607951	-0.330336425	-1.280725295	-0.810631657	0.394159738	0.852452	0.604318625
Twsg1	-0.061446525	-0.172647498	-0.110927028	-0.044701601	-0.038935029	-0.042139737	-0.078633433	-0.242606925	0.048863486	0.216528342	0.203466694	0.323179254
Ski	-0.15754788	-0.110179104	0.042238604	0.069358457	-0.035597491	-0.240147154	-0.113243879	-0.273107876	0.021360871	0.159650702	0.282728266	0.354486484
Gdf10	0.523990471	-1.257012439	-1.386829972	0.156324617	0.324753935	-0.508529661	-1.202249472	-1.146927789	-0.356765024	1.479676015	1.791392496	1.582176823
Fn1	-0.221021949	-0.358963677	-0.270625025	-0.088500563	0.268853687	-0.277359792	0.148569674	0.459945275	0.323511248	0.169803046	-0.052166857	-0.102045068
Runx2	-1.648507729	-0.950451715	-1.037603401	0.562248671	0.324260248	-0.891946618	-0.123852499	0.903277456	0.971568512	0.990713209	0.933150512	-0.032856646
Nog	-0.690699409	-0.451259974	-1.035512425	-0.510451737	-0.523205212	-1.117167941	-0.900038664	0.121564241	0.021131174	1.350682386	1.865794166	1.869163396
Usp15	0.349680894	0.417557567	0.353333179	-0.003636003	0.120750643	0.224056111	-0.145589262	0.059362695	-0.174041565	-0.247268388	-0.40848073	-0.54572514
Megf8	-0.277400023	-0.44446555	-0.323657515	0.293870182	0.203490966	-0.023422556	0.271131879	-0.019365197	0.213028649	0.0700217	0.136021194	-0.099253729
Msx2	-0.446336148	0.015664797	-0.278183643	1.934021698	1.986345857	1.635878436	-1.392819535	-1.20707322	-0.857325457	-0.196544541	-0.269926785	-0.923701458
Zcchc12	-0.761672475	-1.228065083	-0.67852003	-0.414688064	-1.028371495	-0.867444795	-0.184793688	0.2268874	0.205498597	1.580413762	1.746458773	1.404297097
Gata6	2.323018331	0.583440529	0.663913868	0.145087962	0.487004005	0.4160985	-0.660722316	-1.032497264	-0.885238087	-0.420880129	-0.547489267	-1.071736132
Gata5	2.34292372	0.03689719	-0.635619661	0.714872678	-0.073901526	0.98535561	0.724872367	0.260474789	0.147002867	-1.27649772	-1.374696685	-1.897694192
Bmpr1b	-2.069239601	-2.069239601	-2.069068421	-0.373522548	-0.097232659	-0.294986137	0.411004641	0.71278012	0.674658034	1.562270083	1.929564587	2.14332942
Smad1	0.075457933	0.051595273	0.23761357	0.028566126	0.191348584	0.075280279	-0.024251834	-0.150862945	-0.151638131	-0.067057557	-0.143876943	-0.122174356
Adamts7	-1.088364116	-1.038724221	-0.891966219	-0.071670461	-0.185323306	-0.638202335	0.224633312	0.480440231	0.439210902	0.938462027	1.000161269	0.831342917
Bmp6	-0.816147853	-0.528889864	-0.338518932	0.127399215	-0.047252176	-0.974527467	0.149192842	0.725050501	0.869959716	0.883943163	0.611461914	-0.661671058
Smad5	-0.103877088	-0.136832147	0.052950719	-0.022901121	0.06708024	-0.135147484	-0.02713326	-0.227607609	-0.006197896	0.136293565	0.090678334	0.312693748
Fstl1	-0.343712229	-0.474866125	-0.588640369	0.157620893	0.227520886	0.045033275	-0.242626758	-0.276367143	-0.128414726	0.428580645	0.631203698	0.564667953
Smurf1	0.11813464	0.369823571	0.44298266	0.03041379	-0.07493282	-0.217997038	-0.406988619	-0.175507272	-0.128481983	-0.038488075	-0.040500954	0.1215421
Vsir	1.272976868	0.879183536	1.44245285	-1.187770371	-0.372857461	-1.26723108	-0.392359902	-0.102079624	0.062691603	-0.403968056	-0.266788998	0.335750635
Ror2	-0.178215996	-0.190924768	-0.264510633	0.1182055	0.072263834	-0.068294892	0.299924407	0.354170582	0.494075385	-0.179268185	-0.268053284	-0.189371951
Gdf1	-0.045979634	-0.147408638	-0.014128234	0.334020924	-0.063548356	-0.029911845	-0.051326021	0.03756945	0.003625116	0.067486462	-0.110586999	0.020187773
Heyl	-0.563784574	-0.773557077	-0.443239455	-0.190952424	-0.333084098	-1.227457717	0.360981025	0.264890339	0.376893296	0.525168799	1.136546719	0.867595167
Dlx5	-1.022235258	-0.448728704	0.069188803	1.051856656	0.646823675	0.285967731	-2.04707468	-2.038082999	-1.617551966	1.611758785	1.884896529	1.623181428
Gdf7	-0.665972122	-0.876223567	-1.233877687	0.006704531	0.380302016	-0.267835136	0.162078125	0.1686002	0.676880731	1.168109898	1.058501278	-0.577268267
Smad6	-0.067447181	-0.268810305	-0.211739926	0.317922996	0.172894058	0.018679337	-0.153428211	0.017990296	-0.001649074	0.053296254	-0.069393812	0.191685568
Msx1	1.459977889	1.702583267	1.814096149	1.836201951	1.719113061	1.850150047	-1.431952635	-2.051325203	-2.069239601	-1.877521914	-1.399115138	-1.530162659
Zfyve16	-0.344101472	-0.37423603	-0.280633914	-0.222698856	0.055202009	-0.354535672	-0.034325391	0.35978991	0.154316955	0.382250928	0.341376745	0.317594788
Smurf2	2.50E-05	0.082796607	0.107515342	0.117473297	0.140122545	-0.11329764	-0.152214366	0.085695707	0.029006759	-0.106402729	-0.17446679	-0.016253713
Ube2d1	0.265570535	-0.041141922	0.049908079	0.140095984	-0.033048263	0.33364844	0.143134685	-0.355988826	-0.011817759	-0.16558763	-0.157288878	-0.167484444
Adamts12	-0.687581891	-1.319506071	-0.917218858	-0.687511881	-0.380228885	-1.29880544	-0.572121868	0.055219458	-0.658129452	1.863835264	2.157210844	2.34292372
Fam83g	0.448588503	0.389351128	0.683337148	-0.158647734	0.136764195	-0.129724943	-0.374426468	-0.376157671	-0.168119058	-0.559177203	0.118518498	-0.010306395
Slc33a1	-0.022850343	-0.107206879	-0.107587659	-0.035084876	-0.089112939	-0.006473384	0.028311099	0.010532152	0.164418076	0.046903484	0.062132911	0.056018357
Gata3	1.934047524	0.11674908	0.325684357	0.7628778	1.035856401	0.892598308	-1.579651418	-1.012989775	-1.290521809	-0.606788082	0.565334337	-1.143196723
Bmpr2	-0.275447893	-0.249017229	-0.029543448	-0.205832353	0.166843803	-0.340658295	-0.223197482	0.016199632	0.099763616	0.259178134	0.200791452	0.580920063
Lrp4	0.3684974	0.560829388	0.565984658	0.217176216	0.387921749	0.167661445	-0.295803133	-0.130008705	-0.252820616	-0.600006402	-0.542697096	-0.446734903
Ube2d3	0.152827802	-0.0446548	-0.014331355	0.036420864	0.064003356	0.233542799	0.05544599	-0.054156779	-0.011959758	-0.152992563	-0.110592486	-0.15355307
Fgf8	-0.839196265	-0.844544236	0.591478121	-0.495718321	-0.763983132	-0.934023876	-0.733186773	-0.097413318	-0.784288919	1.565442061	2.34292372	0.954495551
Acvr2a	-0.085723739	0.005163193	0.057794843	-0.114720531	0.046483798	-0.265271348	-0.215953514	-0.046857457	-0.065583702	0.129961928	0.138390998	0.41631553
Bmpr1a	-0.203114668	-0.367087383	-0.208113423	0.050745973	0.136057376	-0.002857917	0.053451669	-0.177802811	0.094827075	0.195680319	0.156191323	0.272022466
Grem2	-1.761273379	-1.763480884	-1.352303706	0.537729589	1.035433052	-0.253011079	-0.833962636	-1.265244164	-0.760512709	2.079907712	2.34292372	1.580892378
T	2.303517357	2.34292372	2.34292372	-1.690098156	-0.647263803	-1.304002532	-1.536880171	-0.542616702	-0.92217856	-0.890701354	-1.344925527	-1.0592725
Grem1	1.944361414	1.908647892	1.773431202	-0.123152305	-0.163292793	0.360800417	0.051322829	-1.0129068	-0.575111242	-1.338508555	-1.467515947	-1.358076111

Table S10

Symbol	S9-Jag+ LMPs rep1	S9-Jag+ LMPs rep2	S9-Jag+ LMPs rep3	S9-Pahigh rep1	S9-Pahigh rep2	S9-Pahigh rep3	S9+OCPs rep1	S9+OCPs rep2	S9+OCPs rep3	S9+Col2a1+ CBs rep1	S9+Col2a1+ CBs rep2	S9+Col2a1+ CBs rep3
Dll3	-0.830432532	-1.012257503	1.778596034	-1.325716337	-1.049845261	-1.98750573	-0.026595772	0.087679257	0.563454618	1.317597653	0.850882677	1.634142895
En1	1.954564997	-0.053541767	-0.253682032	-1.416613632	-1.016575487	-1.008285981	-1.342174217	-0.175466929	-0.500617206	2.019877218	1.401413124	0.391101913
Evx2	2.57909539	3.482134306	3.895408508	-3.528143031	-3.068399547	-3.039219694	-3.144286475	-3.19711575	-3.087546798	2.750559128	3.45451367	3.110170936
Hoxa13	2.980948901	3.145501877	3.48850083	-1.312920008	-1.821536861	-1.597655815	-3.22393539	-3.215638484	-2.856969449	1.143307951	1.627780681	1.642615766
Hoxd11	0.922463471	0.966529351	1.01890724	-0.295746965	-0.565560377	-0.315827154	-0.847718912	-0.796499511	-0.557099493	-0.007563677	0.063368809	0.414747217
Hoxd12	1.551677133	1.737226444	1.973699322	-0.168451897	-0.47891416	-0.391944359	-1.911077358	-2.15757661	-1.513924733	0.133947845	0.533033408	0.692304964
Hoxd13	2.389301944	2.666994698	2.995375964	-0.926081189	-1.277768314	-1.062824821	-2.457890249	-2.939892209	-2.350022609	0.595073483	1.163312266	1.204421035
Tfap2b	3.628588805	3.914654713	3.914654713	-2.282769412	-2.64499844	-2.247425939	-3.161029938	-2.490387761	-2.787116908	1.090100232	1.044937461	1.257709137
Sall1	1.758647016	1.741203615	1.907654888	-0.858464447	-0.994594302	-0.577588565	-1.742653131	-1.635278424	-1.388805869	0.250222375	0.531614842	1.008042003
Dlx5	-1.02564695	-0.459117903	0.058102542	1.033062286	0.631280201	0.271896026	-2.042730306	-2.012960073	-1.617948884	1.624739488	1.904194029	1.635129545
Hand1	1.718652005	-0.589583095	-0.17902442	0.360370328	0.874251964	-0.027072766	-1.631781766	-0.753448508	-0.916359147	-0.19698289	0.576490899	0.764487396
Hoxa11	0.932949408	1.138088109	0.966904221	-0.202146832	-0.219021883	0.234303284	-1.025397001	-1.330771461	-1.14485237	-0.095751231	0.251711391	0.493984367
Zic2	1.381679967	1.42289911	1.509055215	0.027278919	-0.050969015	0.402319644	-1.610956435	-1.434109586	-1.554866796	-0.392740652	0.087812919	0.212596708
Cdx2	1.503223222	1.862410759	2.909751356	-0.778507761	-0.34276822	-0.778507761	-0.778507761	-0.778507761	-0.778507761	-0.632138808	-0.629431742	-0.778507761
Has2	1.201401537	1.022327065	1.373707896	-0.888596835	-0.78731891	-0.760113074	-0.599638096	-0.575624433	-0.309373666	0.190243954	0.175740323	-0.042755761
Tbx6	0.334292491	-0.190705963	2.109246835	-0.760304327	-0.404488843	-0.505100276	-0.626445549	0.71583834	-0.201991858	-0.353630446	0.232489939	-0.349200342
Sp8	1.44746289	1.931565556	2.378853918	-0.984262797	-0.548523255	-0.984262797	-0.169115075	-0.60415585	-0.235724773	-0.583352118	-0.984262797	-0.664222903
Hes7	0.432747055	0.861480117	1.443100609	-0.501793216	0.023328371	0.221444527	-0.459580347	-0.422062532	-0.488501216	-0.551653819	-0.371728323	-0.186781225
Prdm1	0.78037338	0.589559123	0.621059987	2.319182134	2.159692552	2.234539964	-1.782418562	-1.857515188	-1.252523525	-0.882174449	-1.420155975	-1.50961944
Gata6	2.317008055	0.572109756	0.65282842	0.127956295	0.472321447	0.402494485	-0.660304949	-1.00594787	-0.8878361	-0.406236607	-0.526738831	-1.057654101
Lef1	0.624700966	0.763328328	0.926443398	0.635246177	0.513965004	0.714504577	-0.25085985	-0.703930361	-0.575481238	-0.684447923	-0.826310619	-1.13715846
Msx1	1.454741224	1.691168891	1.802994591	1.818314931	1.704155422	1.836234203	-1.432156812	-2.023664242	-2.095670498	-1.86238877	-1.377624229	-1.516104711
Mycn	1.184069725	1.086031956	1.281349928	0.504866792	0.336573384	1.005881945	-0.213961866	-0.704177299	-0.595710915	-1.202825031	-1.219880991	-1.462217628
Etv4	1.449320666	1.483297179	1.591784832	0.458533531	0.422868589	0.821493485	-1.070542567	-1.352855332	-1.309600273	-0.586695778	-0.630217727	-1.277386605
Prrx2	0.298287836	0.061575862	0.05037627	1.004227682	0.773009499	0.979897299	-0.331394819	-0.353749786	-0.579938244	-0.502463004	-0.624466418	-0.775362177
Tfap2a	0.956327781	1.161831721	1.436792669	0.140914164	0.232262782	0.650269759	-0.927886999	-0.947872688	-0.948606701	-0.824497136	-0.581322742	-0.348212611
Pitx1	2.548136675	-0.419357366	0.005437536	-0.740096088	-0.444703536	3.235008119	2.868665865	0.150016261	-3.374113964	-1.054074692	-1.308066004	-1.466852804
Hoxc10	1.888077125	-0.618216085	2.032385659	-1.825685195	-1.05573744	2.855171983	2.953320261	0.92434845	-1.825685195	-1.825685195	-1.676609175	-1.825685195
Alx1	0.491699635	-0.31741999	-0.541632671	0.878699333	0.878889347	1.126294305	0.090203494	0.15526286	0.161479446	-0.354501591	-0.420786059	-2.148188108
Sall4	1.568270221	1.07648258	1.599392512	-0.077175147	-0.006036646	0.813775317	0.385287629	-0.274758635	-0.301894128	-1.71889728	-1.646824787	-1.417621637
Alx3	0.59694075	-0.149123334	-0.077141786	1.134359355	1.127364557	1.297907982	-0.293485286	-0.701742734	-0.373981691	-0.56674176	-0.912169389	-1.082186663
Msx2	-0.451300297	0.004451002	-0.288978499	1.916004405	1.97124258	1.621854499	-1.392640529	-1.179658662	-0.86098299	-0.18163739	-0.248640562	-0.909713558
Pax1	-1.703842773	-0.161668085	-0.983416888	2.361430942	2.306543057	0.961474797	0.206257201	-0.17863918	0.551728416	0.675694858	0.208023088	-3.528143031
Tbx2	-0.489647507	-0.396916571	-0.675860112	2.128076356	1.866169293	1.418137771	-1.763594413	-1.317658971	-1.4607509	0.263648865	0.397281987	0.031114202
Tbx3	-0.486159779	-1.158476703	-1.393994811	1.51572535	1.627181071	1.199928891	-0.590461474	-0.626678438	-0.517337374	0.21601639	0.399564144	-0.185307266
Glis1	-1.388877459	-1.063363274	-0.925145824	1.507790242	1.153994077	1.247891632	-0.394789631	-0.470973337	-0.440995533	-0.043776589	0.603345082	0.214900615
Alx4	-0.742997756	-1.290001906	-1.757121885	1.451555393	1.483597916	1.369091304	0.626323049	0.055981085	0.415331772	-0.186561726	-0.6543967	-0.770800547
Irx3	-0.705743055	-1.45880456	-2.624938836	0.897083728	0.704275274	0.670869191	1.947086051	1.979590416	1.74826661	0.422110166	-0.233291728	-3.346503255
Zbtb16	-0.145744405	-0.428805293	-0.454277924	0.484713574	0.549625098	0.521682989	0.975297697	0.670285937	0.836682873	-0.598500132	-1.192561855	-1.218398558
Irx5	-1.075857397	-1.702722187	-2.305583788	0.847715779	0.554626784	0.527960684	1.723230443	2.179239488	1.863950457	0.580306831	-0.008662615	-3.184204479
Sox8	-0.776879984	-0.362144895	-0.938151567	0.058884107	-0.198079466	-0.013540302	0.871064685	0.923064057	1.120998343	0.008713903	-0.18381885	-0.51011003
Runx2	-1.652964028	-0.961386107	-1.048176235	0.544340726	0.309316011	-0.905360073	-0.124319532	0.930630136	0.967299446	1.005430552	0.954300386	-0.01911128
Gli2	-0.807681772	-0.822545773	-1.023770599	0.300305548	0.404606963	0.210950937	0.018775897	0.152542249	0.197433414	0.289703332	0.494632481	0.585047323
Gsc	-1.439559494	-1.71370854	-2.44141948	0.439901803	0.143012324	-0.105959794	1.229225095	1.597972678	1.201954167	0.451364969	0.490668403	0.14654787
Meox2	-1.365348044	-0.798798116	-0.951806775	0.253675348	0.401655177	-0.681219636	-0.083458165	0.358598589	0.435953413	1.028651396	0.747294967	0.654801845
Pbx1	-0.933872668	-1.414014071	-1.59694092	0.389272138	0.567237794	0.287572668	1.213840554	0.87854633	0.999875352	0.077962081	-0.091069996	-0.378409262
Prrx1	-0.866500572	-1.012155757	-1.082478611	0.606183872	0.803942535	0.608610824	0.088639625	-0.168087953	0.082638769	0.266525539	0.21165246	0.461029269
Scx	-1.682811887	-1.509111475	-1.877603106	-0.0031006	-0.097734402	-0.657915416	0.908839893	1.165189358	1.164866964	0.963122923	0.794468632	0.831789116
Shox2	-1.830101433	-2.075951307	-2.332613674	0.638485446	0.754056994	0.351634766	1.014331025	1.218612632	1.187304775	0.580758631	0.379482877	0.113999267
Osr1	-3.170376007	-3.509514608	-3.367313637	1.735068596	1.598145594	1.241914213	0.568672045	0.122140494	0.323493855	1.615003752	1.731338116	1.111427588
Gata4	0.165975581	-1.508149399	-1.420378443	-0.343055989	-0.918593677	-0.193364888	0.422790021	0.925929126	0.968476203	-0.008003506	1.010059996	0.898314975
Meox1	-2.010463631	-2.684589049	-2.174746571	-0.644004145	-0.992095613	-1.343086164	1.055550793	1.638522991	1.603385812	2.123040711	2.060528159	1.367956707
Foxc1	-2.820057866	-2.649096797	-1.873452372	-2.023637299	-2.663124743	-2.146312311	1.081166264	2.170819043	1.699576972	2.728815304	3.222113793	3.273190012
Pitx2	-0.399108724	-1.672668484	-1.3865261	-0.775171918	-0.789598027	-1.177032303	0.800452594	2.022578913	2.032665166	2.005206524	1.365724006	-2.026521648
Sox5	-0.782852541	-0.82591862	-0.641972604	-0.983955596	-0.6696707	-0.708605994	0.432408434	0.776523544	0.675198829	0.680024154	0.878372006	1.170449088
Sox9	-2.225808794	-2.022872842	-2.070016033	-1.218775434	-1.389640109	-1.201290646	1.5245861	1.543137835	1.568586545	1.473606021	1.948193233	2.070294123
Tbx15	-0.723196818	-0.332808824	-0.256247988	-0.688248067	-0.579615307	-0.807701384	0.41290335	0.862401387	0.705636798	0.445737136	0.342628001	0.618511717
Tbx4	-0.171458981	-0.555562987	-0.512387572	-1.022155333	-1.283914835	-0.041939942	1.022320339	0.811132747	0.946552598	0.146469882	0.167948795	0.492995289
Grhl2	-1.09256614	-0.372353346	-0.777283826	-0.399813241	-0.473644194	-0.589233904	0.07371966	0.674690417	-0.231939352	0.772172587	1.387122013	1.029129325

Runx3	0.197277659	0.356260913	0.023996639	-1.507895845	-1.14253338	-1.172985861	-1.205219201	-0.776000466	-1.369883237	1.658714594	2.332257675	2.60601051
Dlx6	-0.820141284	-0.454462848	-0.642796634	0.232780076	0.063203558	0.023401634	-1.04144499	-0.815547598	-0.717922858	1.108037103	1.475781828	1.589112014
Hic1	-2.838978533	-2.82977862	-3.263152214	-0.242467758	-0.315676694	-1.364148222	0.012905636	0.552706094	0.798665766	3.156359618	3.251217589	3.082347339
Pax9	-1.639617311	-1.983363911	-1.382304135	0.27223311	0.842423211	0.28096289	-2.101823215	-2.336533861	-1.778301083	2.636221889	3.470162737	3.719939679
Sox6	-0.754832094	-1.034003833	-0.958454619	-1.089878809	-0.521168123	-1.219343187	-0.38030618	0.132044765	0.321907569	1.499324029	1.845464432	2.159246048

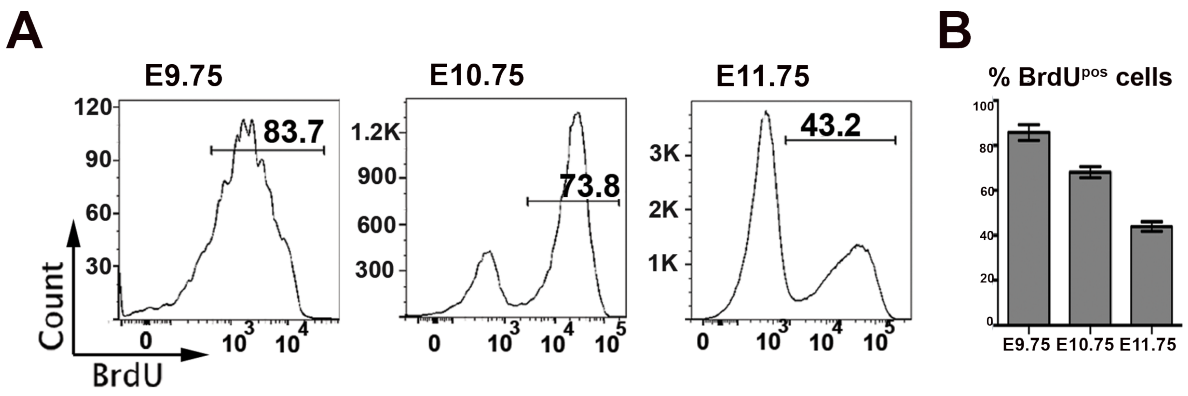

Fig. S1. Fraction of BrdU-positive mesenchymal cells at different forelimb bud stages.

(A) Representative FACS analysis shows the BrdU incorporation into wild-type forelimb buds at E9.75 (26-29 somites, n=5 independent samples), E10.75 (36-40 somites, n=4) and E11.75 (48-52 somites, n=5). Numbers indicate the percentage of BrdU-positive cells. (B) Percentage of BrdU-positive cells in wild-type forelimb buds (E9.75: n=5, E10.75: n=4 and E11.75: n=5 independent samples).

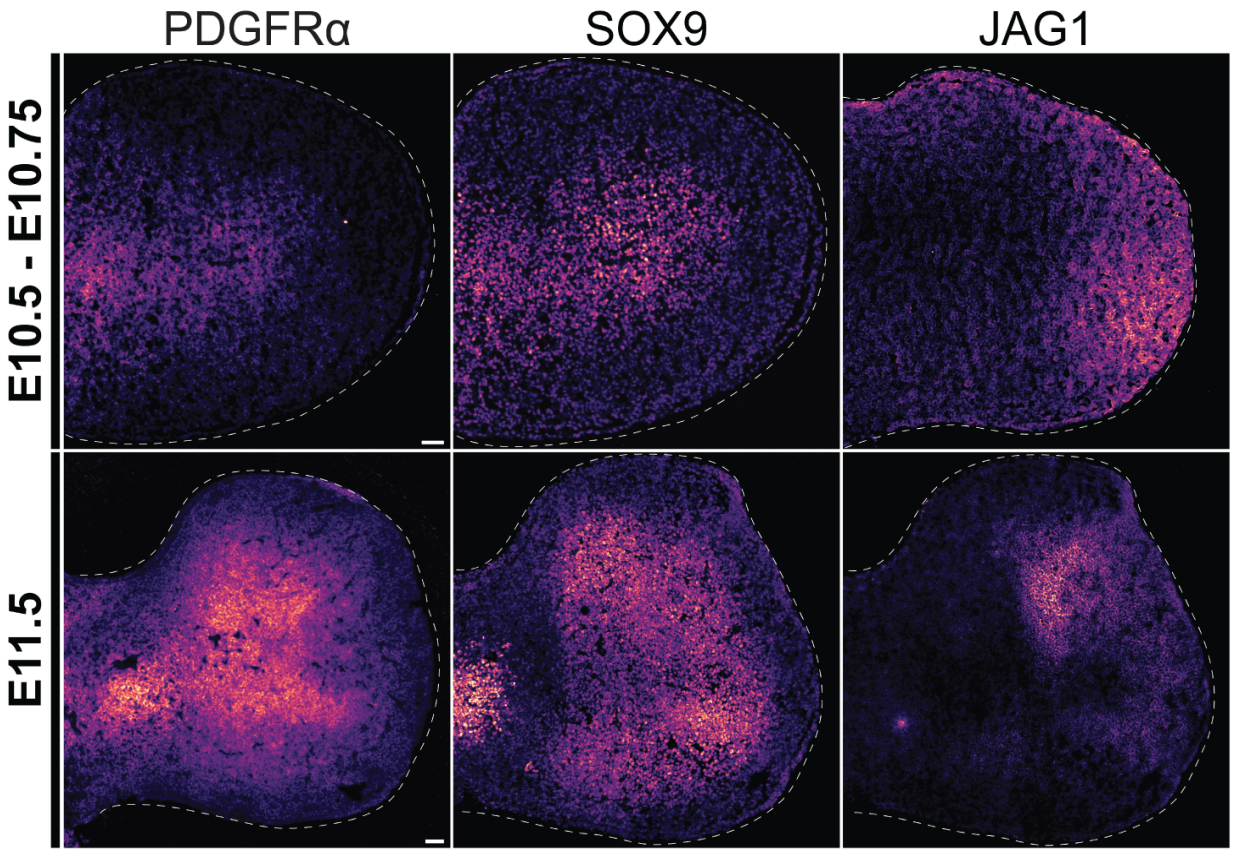

Fig. S2. Spatial distribution of markers used to identify specific mesenchymal cell populations in forelimb buds.

Immunohistochemistry shows the spatial distribution of the SOX9, PDGFRα and JAG1 proteins in mid-sagital sections of mouse forelimb buds at E10.5 and E11.5. Note that the mesenchymal cells expressing JAG1 at E11.5 overlap with SOX9-positive cells in the anterior mesenchyme. This was confirmed by FACS analysis. Therefore, JAG1 is only marking the posterior-distal and SOX9-negative mesenchymal cells in early forelimb buds at E10.5 (see also Fig. 2). White dashed lines outline limb bud. Scale bars: 50 μm.

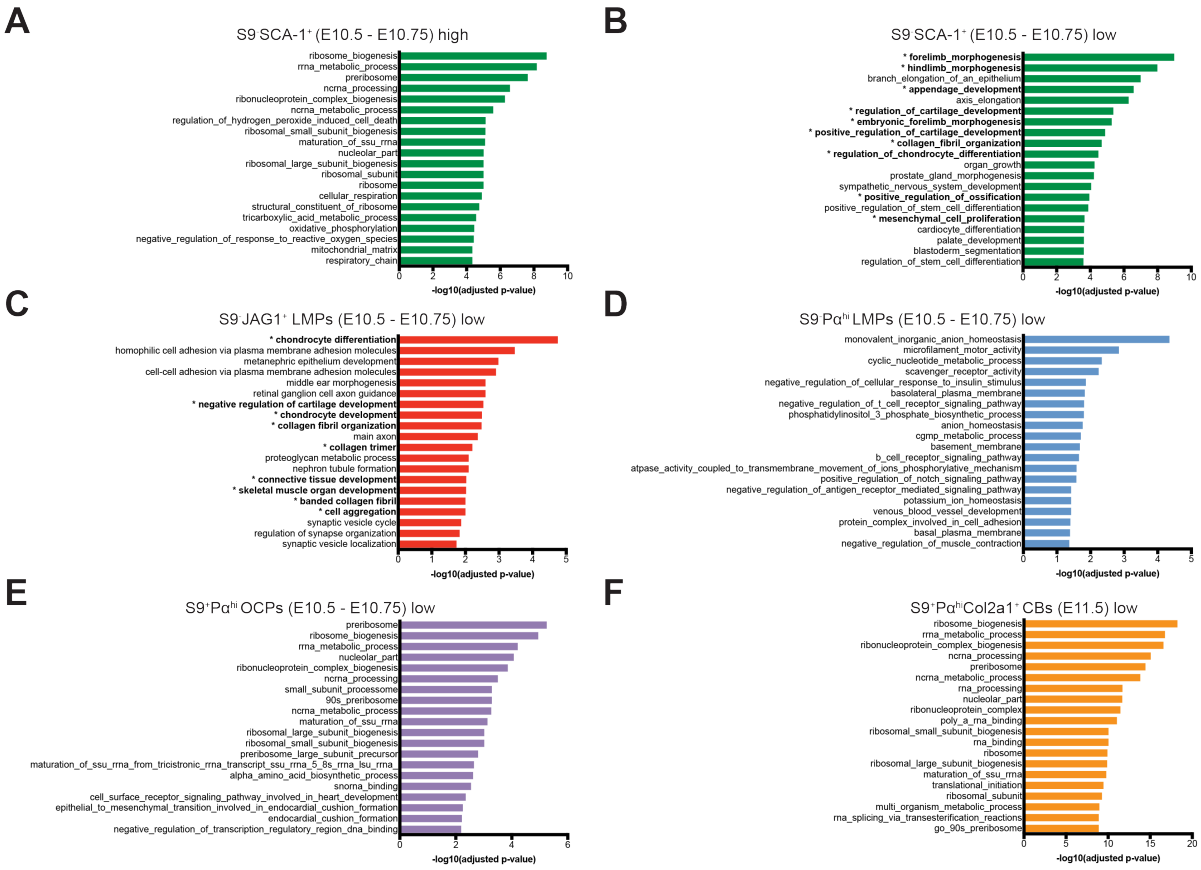

Figure S3. GO analysis of the genes expressed differentially in the forelimb bud mesenchymal cell populations at E10.5-E10.75.

(A, B) GO analysis of the genes whose expression is higher (panel A) and lower than average (panel B) in the S9^{-}SCA-1^{+} mesenchymal cell population. (C-F) GO analysis of genes expressed at lower than average levels in S9^{-}JAG1^{+} LMPs (panel C), S9^{-}Pα^{hi} LMPs (panel D), S9^{+}Pα^{hi} OCPs (panel E) and S9^{+}Pα^{hi}*Col2a1*$^{+}$ chondroblasts (panel F). Asterisks indicate chondrogenesis- and limb-related GO terms.

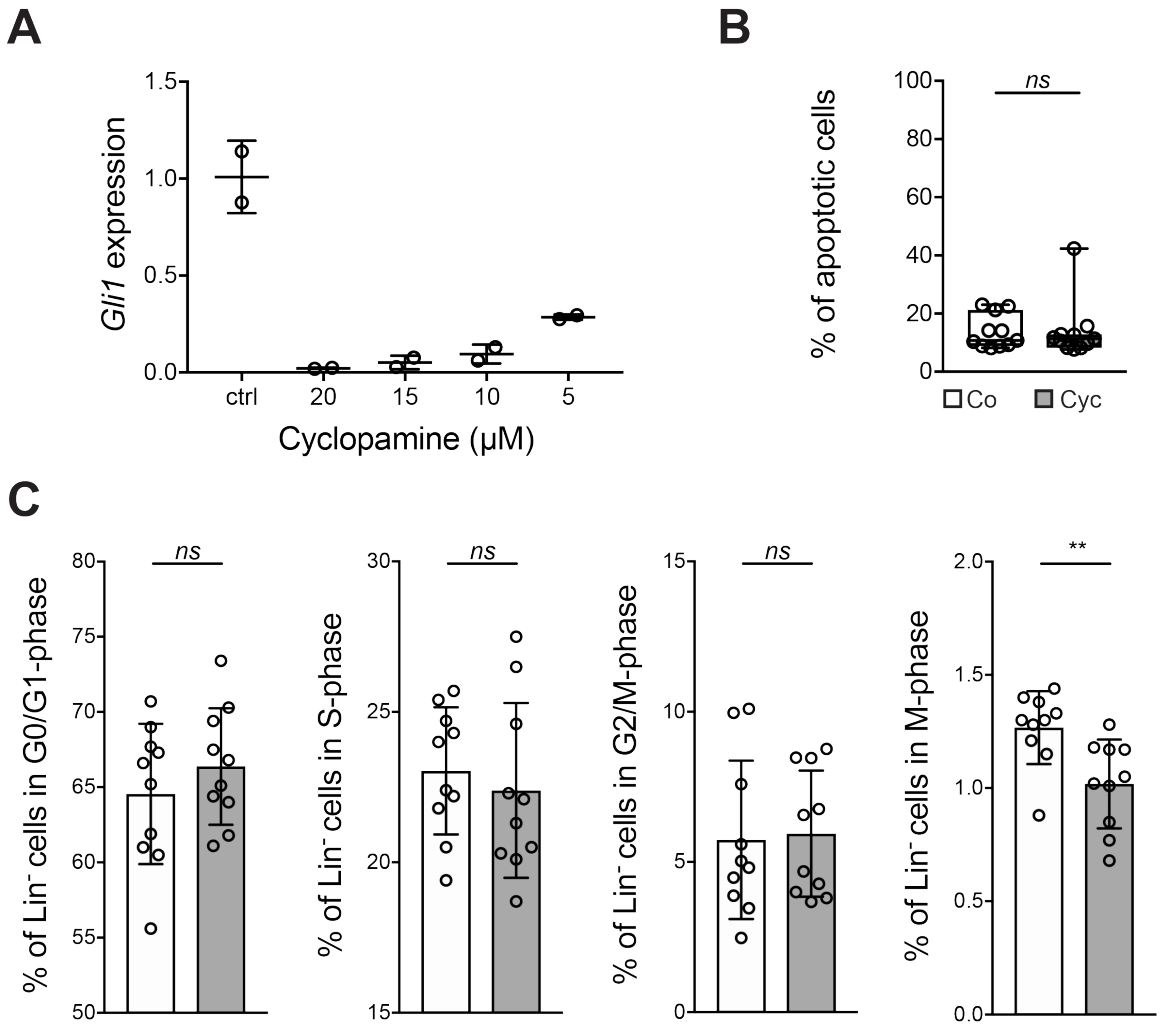

Fig. S4. SHH pathway analysis.

(A)Limb mesenchymal cells were cultured for 12 hours in presence of different concentrations of cyclopamine (0-20μM). Graph showing relative *Gli1* expression levels as determined by RT-qPCR. Individual data points plus mean ± SD are shown (n=2 data points per concentration). (B) Apoptosis rate assessed by Annexin-V in lineage-negative limb bud culture cells treated with 20μM cyclopamine (Cyc) or solvent alone (Co). Individual data points plus mean ± SD are shown (n=11). (C) Quantification of cell cycle stages occupied by limb mesenchymal cells after 12 hours of cyclopamine treatment. Individual data points plus mean ± SD are shown (n=10). Statistical evaluation of all results was done using the Wilcoxon test: (**) p-value ≤0.01.

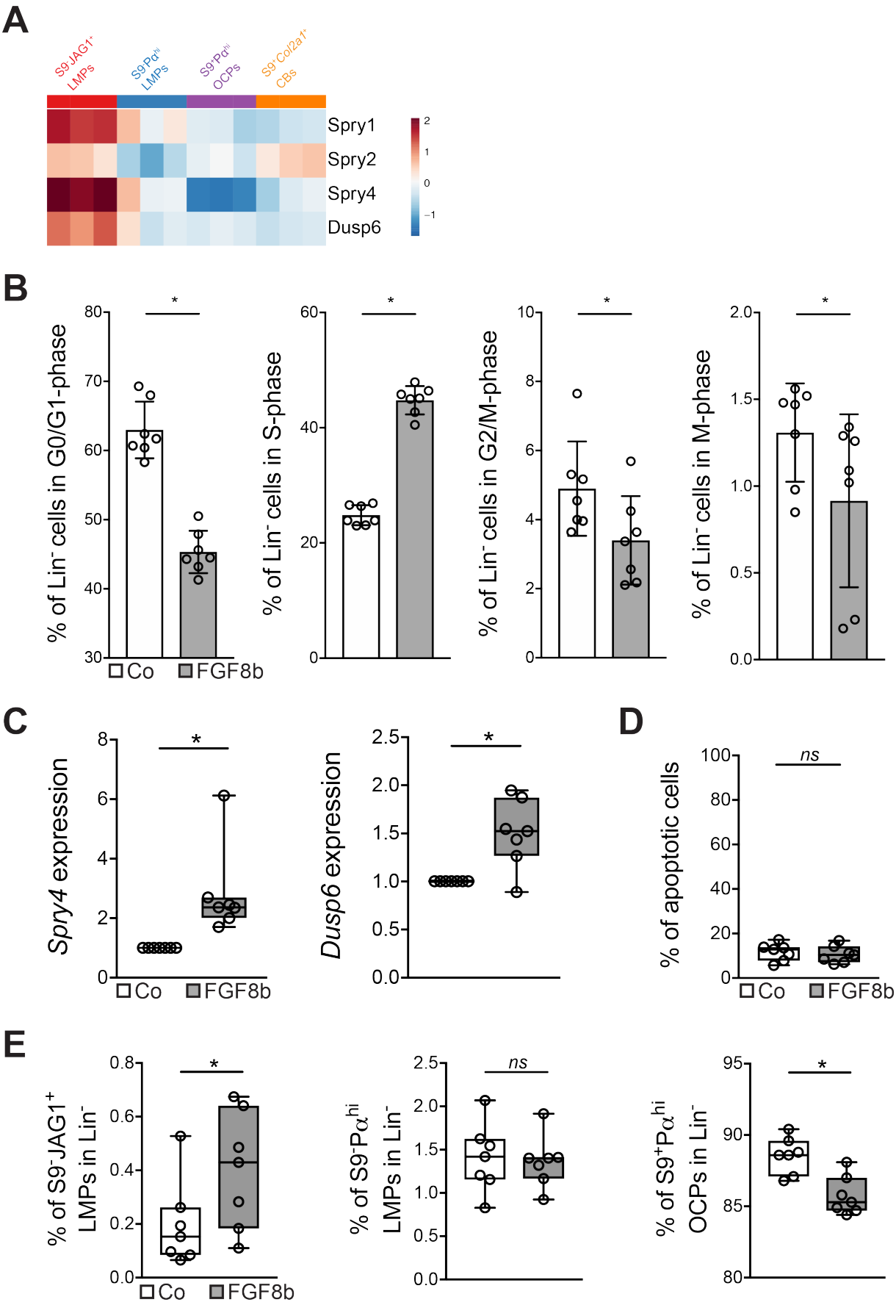

Fig. S5. FGF pathway analysis.

(A) $S9^{-}JAG1^{+}$LMPs express highest levels of the *Spry* and *Dusp6* transcriptional targets of FGF signaling in limb buds. (B) Forelimb bud mesenchymal cells (E10.5) were cultured for 12 hours in medium supplemented with FGF8b (300ng/mL) or solvent alone (Co). The fractions cells at the different stages of the cell cycle were quantitated by FACS. Individual data points plus mean ± SD are shown (n=7). (C) The effects of the FGF8b treatment on *Spry4* and *Dusp6* expression levels in cultured mesenchymal cells was determined by RT-qPCR (levels in control cultures were set arbitrary to 1). (D) Lin^{-} mesenchymal cells undergoing apoptosis in control and FGF8b-treated cultures. Individual data points plus mean ± SD are shown (n=7). (D) FACS quantitation of the different stages of the cell cycle in limb bud mesenchymal cells (controls versus FGF8b treated). Individual data points plus mean ± SD are shown (n=7). (E) Comparative analysis of the fractions (%) of $S9^{-}JAG1^{+}$ and $S9^{-}P\alpha^{hi}$ LMPs and $S9^{+}P\alpha^{hi}$ OCPs in control and FGF8b treated cultures. Statistical evaluation of all results was done using the Wilcoxon test: (*) p-value ≤0.05.

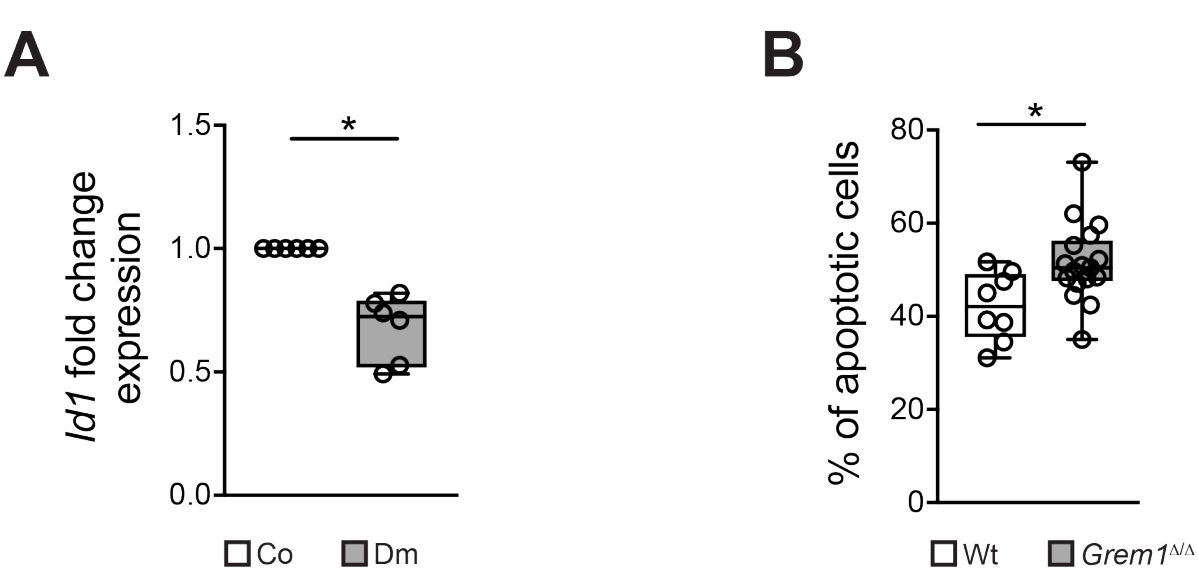

Fig. S6. BMP and *Grem1* pathway analysis.

(A) Limb mesenchymal cells (E10.5) were cultured for 12 hours in medium supplemented with solvent (Co) or 5 µM Dorsomorphin (Dm). This reduces the expression of the direct transcriptional target *Id1* as determined by RT-qPCR analysis. Individual data points plus mean ± SD are shown (n=6). (B) FACS was used to determine the fraction of apoptotic cells isolated from wild-type (Wt) and *Grem1*-deficient forelimb buds (*Grem1*$^{\Delta/\Delta}$) at E10.5. Individual data points plus mean ± SD are shown (n=8 for *Grem1*$^{\Delta/\Delta}$; n=17 for Wt). Statistical evaluation of all results was done using the Wilcoxon test: (*) p-value ≤0.05.

Table S1. Values myogenic-lineage-specific genes

Click here to Download Table S1

Table S2. Differentially expressed genes (DEGs) Sca-1 population

Click here to Download Table S2

Table S3. DEGs Jag1

Click here to Download Table S3

Table S4. DEGs PDGFRa

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Table S5. DEGs OCPs

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Table S6. DEGs chondroblasts

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Table S7. Data for the switch-peak heatmap

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Table S8. Data for “Smoothened (SMO) signaling pathway” (GO:0007224)

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Table S9. Data for “Cellular response to BMP stimulus” (GO:0071773)

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Table S10. Data for manually curated list of transcription factors with essential functions during limb development (subset of Table S7)

Click here to Download Table S10

Table S11. The oligos used for gene expression analysis

Acan fwd: 5′-AGTCAACCGTTGCAGACCAG-3′

Acan rev: 5′-GGTCATGAAAGTGGCGGTAA-3′

BMP4 fwd: 5′-AGCCGAGCCAACACTGTGA-3′

BMP4 rev: 5′-GTTCTCCAGATGTTCTTCGTGATG-3′

Col2a1 fwd: 5′-AGTGGAAGAGCGGAGACTACTG-3′

Col2a1 rev: 5′-TTGGGGTAGACGCCAAGTCTC-3′

Id1 fwd: 5′-GCGAGATCAGTGCCTTGG-3′

Id1 rev: 5′-CTCCTGAAGGGCTGGAGT-3′

Gli1 fwd: 5′-CAAGTGCACGTTTGAAG-3′

Gli1 rev: 5′-CAACCTTCTTGCTCACACATGTAAG-3′

Dusp6 fwd: 5′-AGTTTTTCCCTGAGGCCATT-3′

Dusp6 rev: 5′-GCATCGTTCATGGACAGGTT-3′

Grem1 fwd: 5′-CCCACGGAAGTGACAGAATGA-3′

Grem1 rev: 5′-AAGCAACGCTCCCACAGTGTA-3′

Jag1 fwd: 5′- GCGGTTGCAGAAGTCAGAGT-3′

Jag1 rev: 5′- AGGCTGTCACCAAGCAACAG -3′

Msx2 fwd: 5′-ATACAGGAGCCCGGCAGATACT-3′

Msx2 rev: 5′-TCCGGTTGGTCTTGTGTTTCC-3′

Spry4 fwd: 5′-TGTGACTCTGCA GCTCCTCAAA-3′

Spry4 rev: 5′-ATGAGGCTGGAGGTCCTGAACT-3′

Sox9 fwd: 5′-CAAGTGTGTGTGCCGTGGATAG-3′

Sox9 rev: 5′-CCAGCCACAGCAGTGAGTAAGAA-3′

Rpl19 fwd: 5′-ACCCTGGCCCGACGG-3′

Rpl19 rev: 5′-TACCCTTTCCTCTTCCCTATGCC-3′