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Running title: Sustained hepatic LT signaling causes HCC.

Summary

Hepatitis B and C viruses (HBV, HCV) cause chronic hepatitis and hepatocellular carcinoma (HCC) by poorly understood mechanisms. We show that the cytokines lymphotoxin (LT) α, β and their receptor (LTβR) are significantly increased in HBV- or HCV-induced hepatitis and HCC. Liver-specific LTα, β expression in mice causes liver inflammation and HCC suggesting a causal link between sustained hepatic LT expression, hepatitis and HCC. Development of HCC, composed in part of $A6^+$ oval cells, depends on lymphocytes and IKappa B kinase β expressed by hepatocytes but not on TNFR1. *In vivo* LTβR stimulation implicates hepatocytes as the major LT-responsive liver cells and LTβR inhibition in LT$\alpha\beta$-transgenic mice with hepatitis suppresses HCC formation. Thus, sustained LT signaling may represent a hitherto unknown pathway involved in hepatitis induced HCC.

Significance

Pharmacological inhibition of LTβR signaling reduces pathogen- and concavalin A-induced liver injury while LT signaling on hepatocytes is beneficial during liver regeneration. We demonstrate that sustained hepatic LT expression in mice can be injurious causing chronic hepatitis and HCC. Enhanced hepatic LTβR signaling might be of potential clinical relevance since LTβR and its ligands are drastically increased in human HBV- and HCV-induced hepatitis and HCC when compared to normal livers or non-viral, benign liver diseases. Thus, hepatic LT signaling might be advantageous if transiently active during liver regeneration, but detrimental if chronically triggered. Based on the data presented in this study, suppression of hepatic LTβR signaling might be beneficial in liver diseases with chronic LTα, LTβ or LIGHT overexpression.

Introduction

A causal relationship between chronic hepatitis, hepatocellular damage and regeneration with fibrosis and carcinogenesis is well established from epidemiological studies (Berasain et al., 2009; El-Serag and Rudolph, 2007). Various etiologies, including chronic alcohol consumption, chronic drug abuse, autoimmune disorders, exposure to toxins (e.g. aflatoxin B) or infections with hepatotropic viruses (e.g. HBV, HCV) can lead to chronic hepatitis, liver fibrosis and cirrhosis. HBV- and HCV-infections are by far the most common cause of chronic hepatitis in humans (Malhi et al., 2006). Chronic HBV- and HCV-infections are frequently associated with hepatocellular carcinoma (HCC) development, the most prevalent primary human liver cancer (El-Serag, 2007), and except for HBV-infections, liver cirrhosis precedes HCC in most cases. The exact mechanisms driving chronic hepatitis-induced liver cancer remain elusive. Among others, aberrant expression of cytotoxic cytokines is thought to be critically involved (Greten and Karin, 2004; Karin, 2006; Lee et al., 2005; Lowes et al., 2003; Maeda and Omata, 2008; Vainer et al., 2008).

The pro-inflammatory and homeostatic cytokines LTα and LTβ are members of the tumor necrosis factor (TNF) superfamily. Under physiological conditions LTs are expressed by activated T-, B-, NK- and lymphoid tissue inducer cells (Fu et al., 1998; Ware, 2005) and are crucial for organogenesis and maintenance of lymphoid tissue (Alimzhanov et al., 1997; Koni et al., 1997; Mackay et al., 1997; Rennert et al., 1996). Whereas LTβ contains a transmembrane domain, LTα is soluble. Consequently, LT can exist as membrane bound heterotrimers (LT$\alpha_1\beta_2$ or LT$\alpha_2\beta_1$) interacting with LTβR or as soluble secreted homotrimers (LTα_3) triggering TNF receptor 1, 2 (TNFR1, TNFR2) and the herpes virus entry mediator receptor (HVEM) (Browning et al., 1997; Ware, 2005). LTβR and TNFR1 signaling can be activated by the HCV core protein (Chen et al., 1997; Zhu et al., 1998) involving the canonical or non-canonical NF-κB signaling pathways (Ware, 2005; You et al., 1999). Furthermore, HBV- or HCV-infections lead to increased hepatic LT expression *in vivo* and *in vitro* (Lee et al., 2005; Lowes et al., 2003) and HCV replication has been demonstrated to

depend on components of the LTβR signaling pathway *in vitro* (Ng et al., 2007). Besides, IL-6 and IL-1β induce LTβ expression in hepatoma cell lines and oval cells (Subrata et al., 2005).

LTs can directly act on hepatocytes which physiologically express high levels of LTβR but little LT (Browning and French, 2002). T-cell-derived LT and LIGHT (LT-like, exhibits inducible expression, competes with HSV glycoprotein D for HVEM, expressed by T lymphocytes) signaling to hepatocytes controls lipoprotein homeostasis (Lo et al., 2007). In addition, LT signaling is important for liver regeneration through T-cell-derived LT expression (Tumanov et al., 2008) and regulates hepatic stellate cell function and wound healing (Ruddell et al., 2008). Thus, hepatic LTβR signaling is crucial for controlling liver homeostasis in both health and disease.

The observation that chronic inflammatory stimuli promote HCC formation has been recapitulated in various mouse models. Ablation of the multi-drug resistance gene 2 (*mdr2*) induces cholestatic hepatitis and liver cancer (Pikarsky et al., 2004) and application of the chemical carcinogen diethylnitrosamine (DEN) causes acute liver injury and HCC (Maeda et al., 2005). Experiments with transgenic mice expressing the hepatitis B surface antigen (HBsAg) specifically in the liver demonstrate that chronic immune-mediated liver cell injury is critical for HCC formation (Nakamoto et al., 1998).

Triggering TNFR1 or LTβR induces the classical and alternative NF-κB signaling pathways, which are linked to inflammation-induced carcinogenesis (Greten and Karin, 2004; Karin, 2006). However, the precise role of these pathways in HCC pathogenesis is controversial (Vainer et al., 2008). Mice lacking IKappa B kinase β specifically in hepatocytes ($Ikk\beta^{\Delta hep}$) exhibit a marked increase in DEN-induced HCC formation (Maeda et al., 2005) suggesting a protective function of IKKβ in HCC development. In contrast, NF-κB signaling promotes HCC development in $mdr2^{-/-}$ mice and anti-TNFα treatment is protective (Pikarsky et al., 2004). Interestingly, mice with a hepatocyte-specific deletion of IKKγ (also called NEMO) develop steatohepatitis and HCC (Luedde et al., 2007). Consequently, the role of NF-κB signaling in

hepatocarcinogenesis might depend on the mouse model and the type or degree of liver inflammation and injury (Vainer et al., 2008). Therefore, more research is needed to understand the role of NF-κB signaling in HCC formation.

Here we report that LTβR and its ligands are drastically upregulated in chronic hepatitis B, C and in HCC. Immunohistochemistry and mRNA expression analysis revealed that LTs are expressed on both, lymphocytes and hepatocytes. Consistent with this result, challenge with infectious, cell culture derived HCV caused upregulation of LTα, LTβ, LIGHT, LTβR and various chemokines by a human hepatocyte cell line *in vitro*.

Sustained hepatic LTα, β expression in transgenic mice caused chronic hepatitis and HCC formation independent of viral infection. Hepatitis and HCC development were prevented by the ablation of lymphocytes or hepatocyte-specific removal of IKKβ, yet HCC induction was TNFR1- independent. *In vivo* LTβR stimulation with an agonistic LTβR antibody identified hepatocytes as the major LT responsive liver cells and pharmacological inhibition of LTβR signaling in LTαβ-transgenic mice with hepatitis reduced liver inflammation and prevented HCC. Our results demonstrate that sustained hepatic LT signaling is critically involved in hepatitis and HCC development.

Results

Upregulation of LTα, LTβ and LTβR in HBV or HCV infected human livers and in HCC

The specific role of LT signaling in the pathogenesis of virally-induced hepatitis and HCC formation is currently ill-defined. We first analyzed transcriptional levels of *LTα*, *LTβ*, *LIGHT*, *TNFα*, *LTβR* and *TNFR1* in human HBV- or HCV-induced chronic hepatitis and HCC or in non-viral HCC compared to healthy liver specimens (Fig. 1; Supplemental Fig. S1). *LTα*, *LTβ* and *LTβR* mRNA expression was increased on average ~2^7 to 2^{10} fold in HBV- or HCV-induced hepatitis and HCC (*P*<0.001), whereas *LIGHT* transcripts were less elevated (on average ~2^3 to 2^5 fold; *P*<0.001). Likewise, *TNFR1* mRNA expression was significantly increased in HBV- or HCV-induced hepatitis and HCC (on average ~2^7 to 2^9 fold; *P*<0.0001). In contrast, *TNFα* was only slightly upregulated in HBV-induced hepatitis (*P*=0.04), while no significant difference was observed in HCV-induced hepatitis (*P*=0.3) and HCC (*P*=0.4) when compared to healthy controls.

In most cases, HCV genotype, degree of inflammation (Knoddel score), fibrosis (Metavir score) and liver enzyme levels (ALT; AST) were assessed (Supplemental Table 1). The levels of *LTα*, *LTβ* and *LTβR* mRNA expression did not significantly correlate with the degree of liver inflammation (*P*=0.5), fibrosis (*P*=0.5), patient age (*P*=0.5), gender (*P*=0.5), the HCV genotype or the type of virus infection (HBV; HCV; HBV/HCV co-infection in the case of some HCC; *P*=0.5) (Supplemental Fig. S1; data not shown).

To determine whether upregulation of LT ligands and receptors was specific for HBV- or HCV-induced liver diseases, we examined transcript levels in non-viral liver diseases. These included liver disorders with hepatitis [alcoholic steatohepatitis (ASH); cholestasis (CH); primary biliary cirrhosis/autoimmune cholangitis (PBC); end-stage liver cirrhosis due to alcoholic liver disease (CIR)] and liver diseases without inflammation [steatosis (ST), focal nodular hyperplasia (FNH)]. Additionally, other liver diseases (OLD) such as hemochromatosis/siderosis, Wilson's disease, focal liver fibrosis, α1-antitrypsin deficiency and non-viral HCC (NVH) were investigated.

Levels of *LTα, LTβ* and *LTβR* mRNA were significantly lower in all non-viral liver diseases analyzed except NVH when compared to virus-induced chronic hepatitis and HCC (*LTα: P*<0.0001; *LTβ: P*=0.05; *LTβR: P*<0.0001; Fig. 1; Supplemental Fig. S1). This was irrespective of whether non-viral liver diseases were associated with inflammation or not. *LIGHT* and *TNFR1* mRNA expression in non-viral liver diseases including NVH was similar to HBV- or HCV-induced chronic hepatitis and HCC. In contrast, *TNFα* mRNA expression was significantly higher in non-viral liver diseases with inflammation and NVH when compared to healthy (*P*<0.0001), HBV- or HCV-induced hepatitis and HCC (*P*<0.0001).

Increased chemokine expression in HBV- or HCV-induced hepatitis and HCC

To confirm that pro-inflammatory signaling cascades are activated during HBV- or HCV-induced hepatitis and HCC formation, chemokine mRNA expression levels were measured (Supplemental Fig. S1). *CCL2, CCL3, CCL5* and *CXCL10* mRNA expression was significantly higher in human HBV- (*P*<0.0001) or HCV- (*P*<0.0001) induced hepatitis and HCC (*P*<0.0001) when compared to healthy controls. *CXCL1* mRNA expression was significantly increased in HBV-induced hepatitis (*P*<0.0001) and HCC (*P*=0.02) but not in HCV-induced hepatitis (*P*=0.07).

Upregulation of LTα, LTβ, LIGHT by human hepatoyctes upon HCV infection in vitro

We next investigated whether *LTα*, *LTβ*, *LIGHT and LTβR* transcripts are directly upregulated by hepatocytes as a consequence of viral infection. Thus, a human hepatocyte cell line (Huh-7.5; (Blight et al., 2002) was challenged with infectious HCVcc (Pietschmann et al., 2006) and cytokine as well as chemokine expression were measured (Supplemental Fig. S2). At 48 to 72 hrs post infection, *LTα* (*P*=0.05), *LTβ* (*P*=0.05), *LIGHT* (*P*=0.05), LTβR (*P*=0.05) and chemokine (*CCL2*, *CCL3*, *CXCL1* and *CXCL10*) transcripts were increased (2-32 fold) in HCVcc-infected compared to non-infected Huh-7.5 cells.

Identification of liver cells expressing LTβR and its ligands in HBV- or HCV-infections

To identify the cellular source of *LTα*, *LTβ*, *LTβR* and *LIGHT* expression in human HCV-infected livers, cells were collected from HCV-induced hepatitis and HCC (Fig. 2A). Liver cells were sorted according to their CD45 surface expression, resulting in CD45-enriched (T-, B-cells; monocytes, macrophages/Kupffer cells; dendritic and NK-cells) or CD45-depleted fractions (hepatocytes, oval cells, bile duct epithelial and endothelial cells). Purity of CD45-enriched or -depleted fractions was assessed by real-time PCR for lymphocyte (CD3; CD20; CD45) or hepatocyte markers (cytokeratin 18). The CD45-depleted fraction displayed only a minor contamination with CD45 mRNA (~1-10%). Vice versa, the CD45-enriched fraction displayed only a minor amount of cytokeratin 18 mRNA transcripts (~2-20%; Supplemental Fig. S2; data not shown).

Within HCV-induced HCC, CD45-enriched and -depleted liver cells expressed similar *LTα* or *LTβ* mRNA levels (LTα: *P*=0.8; LTβ: *P*=0.1) that were significantly higher than unsorted liver cells of healthy individuals (*P*<0.0001). *LTβR* mRNA transcript levels were significantly higher in CD45-depleted compared to CD45-enriched (*P*=0.006) or unsorted liver cells of healthy individuals (*P*<0.0001). In contrast, *LIGHT* mRNA expression was significantly increased in CD45-enriched when compared to CD45-depleted (*P*=0.008) or unsorted liver cells of healthy individuals (*P*=0.0007).

Within HCV-induced hepatitis, CD45-enriched cells exhibited a trend towards increased *LTα* mRNA levels (*P*=0.089) and a significant increase in both *LTβ* and *LIGHT* transcripts compared to CD45-depleted or unsorted cells of healthy individuals (*LTβ*: *P*=0.006; *LIGHT*: *P*=0.01). Similar to HCV-induced HCC, *LTβR* mRNA expression was significantly higher in CD45-depleted compared to CD45-enriched (*P*=0.002) or unsorted control liver cells (*P*<0.0001). These data indicate that CD45-enriched liver cells represent the major producers of *LTα*, *LTβ* and *LIGHT* in HCV-induced hepatitis. However, our data show that also CD45-depleted cells express *LTα*, *LTβ* and *LIGHT* in HCV-induced hepatitis and HCC, albeit at lower levels and to varying degrees.

Immunohistochemical analysis for LTβ protein expression corroborated these data: $CD3^+$ and $CD20^+$ lymphocytes as well as hepatocytes express LTβ in HBV- or HCV-induced hepatitis and HCC. In contrast, healthy liver specimens were devoid of specific staining for LTβ (Fig. 2C).

Hepatocyte-specific LTα and β overexpression induces chronic progressive hepatitis

To determine whether sustained hepatic LTβR signaling is causally linked to the development of chronic hepatitis and liver cancer, we utilized transgenic mice. Two independent lines expressing LTα and β under the control of the albumin enhancer/promoter embedded in a *Prnp* half genomic construct (phgPrP; (Raeber et al., 1999) were generated and further characterized. These two lines express LTα and β in a liver specific manner, either at low (i.e. *tg*1222) or at high level (i.e. *tg*1223; Heikenwalder et al., 2005).

Although livers of *tg*1222 and *tg*1223 mice were histologically indistinguishable from those of negative littermates at three months of age (Supplemental Fig. S3), the hepatic transcriptome was already considerably altered in *tg*1223 and to a lesser degree in *tg*1222 mice (Fig. 3A; data not shown). Genes with the most dramatic expression changes were initially identified by DNA-microarray analysis and subsequently confirmed by real-time PCR (Fig. 3A). As expected, *Ltα* and *Ltβ* transcripts were increased in *tg*1222 and *tg*1223 livers (Fig. 3A; data not shown). Additionally, mRNA expression of chemokines (*Ccl2*, *Ccl7, Cxcl1*, *Cxcl10*), genes involved in early growth response (e.g. *Egr1*, *Egr2*), cholesterol metabolism (e.g. *Ch25h*) and immediate early response (e.g. *c-Fos, Jun-b, Socs-3*) were significantly (P<0.0001) elevated. In contrast, genes involved in cell cycle control, histone modifications and cell metabolism were significantly downregulated (P<0.0001) (Fig. 3A; Supplemental Tables 2-4; Supplemental online material). *In situ* hybridization at 3 months of age, before the onset of hepatitis revealed detectable levels of *Ltα*, *Ltβ*, *Cxcl10, Ccl2 and Egr1* mRNA transcripts in hepatocytes of *tg*1223 mice (Fig. 3B; Supplemental Fig. S3).

At the age of 4 months a slight increase in infiltrating intrahepatic $CD11b^+$, $CD68^+$ and $MHCII^+$ cells was first detected in *tg*1223 mice when compared to age-matched *tg*1222 or C57BL/6 mice (Supplemental Fig. S3; data not shown). At this time point, no significant increase in IL1β, IFNγ, IL6 and TNFα protein levels was found in liver homogenates from either transgenic mouse line when compared to age matched C57BL/6 mice (data not shown). At 4-6 months transgenic livers started to develop strong portal and lobular (*tg*1223) or weak portal (*tg*1222) inflammation consisting of $CD4^+$ and $CD8^+$ T-cells, $B220^+$ B-cells and $CD11c^+$ dendritic cells (Supplemental Fig. S3; Heikenwalder et al., 2005).

At ≥9 months of age, livers of all *tg*1223 mice exhibited strong portal and lobular inflammatory infiltrates with $CD3^+$ and $B220^+$ lymphocytes (Fig. 3C). Furthermore, a pronounced influx of $F4/80^+$ macrophages and proliferation of $A6^+$ oval cells was observed. Chronic inflammation coincided with an increase in proliferating $Ki67^+$ hepatocytes (*tg*1223: 17±5 $Ki67^+$cells/mm^2 liver section; C57BL/6: 0.5±0.3 $Ki67^+$cells/mm^2 liver section; P=0.003), which was not significant in age-matched *tg*1222 livers (P=0.08; Fig. 3C; data not shown).

At this stage, hepatitis was accompanied by significantly increased protein levels of IL1β (P=0.05), IFNγ (P=0.05) and IL6 (P=0.05) and, to a lesser degree, of TNFα in *tg*1223 livers. In *tg*1222 livers we observed only a slight elevation of these cytokines compared to C57BL/6 (Fig. 3D). Quantitative analysis of total intrahepatic lymphocyte numbers revealed an increase in *tg*1223 livers (C57BL/6: 17-24x10^6 cells/liver; *tg*1223: 35-73x10^6 cells/liver P<0.05). Intrahepatic lymphocytes were further characterized by flow cytometry in *tg*1223 and C57BL/6 mice (both n=4; Fig. 3E). Frequencies of $CD8^+$ (C57BL/6: 18±11%; *tg*1223: 38±10%), $CD4^+$ (C57BL/6: 16±3%; *tg*1223: 26±6%) and $TCR\beta^+$ T-cells (C57BL/6: 33.5±9%; *tg*1223: 63.5±4%) were elevated (n=4), while $NK1.1^+$ cells (C57BL/6: 12±2%; *tg*1223: 7±2%) were reduced in *tg*1223 livers. Furthermore, we observed an increase in the frequency of $CD19^+$ B-cells in *tg*1223 livers (C57BL/6: 25±7%; *tg*1223: 52±4%). Intracellular cytokine staining showed elevated frequencies of IFNγ-producing $CD4^+$ and $CD8^+$ T-cells in *tg*1223 mice, while IL17- producing cells were comparable to those of control livers (Fig. 3E; data not shown).

LTα and LTβ overexpression induces hepatotoxicity

To determine whether chronic hepatitis ultimately leads to hepatocyte cell death in *tg*1222 or *tg*1223 mice, we initially analyzed serum transaminase levels (ALT and AST). From the age of 19 weeks on, serum ALT and AST levels were significantly elevated (*P*=0.05) in *tg*1223 but not in *tg*1222 mice (Fig. 4A). Consistent with this observation, apoptotic hepatocytes were frequently detected in *tg*1223 mice (*tg*1223: 40.3±11.4 $TUNEL^+$cells/mm^2 liver section; C57BL/6: 3.9±6.2 $TUNEL^+$cells/mm^2 liver section; *P*=0.0005) but rarely in *tg*1222 and virtually absent in C57BL/6 mouse livers from the age of 6 months on (Fig. 4B; Supplemental Fig. S4; data not shown for *tg*1222).

Hepatitis persisted in both transgenic lines for ≥18 months, although to different degree. Phenotypes were much milder in *tg*1222 mice, implying that the *LTα*, *β* expression level determined the severity of inflammation and liver injury. Therefore, *tg*1223 mice were selected for additional experiments and further key results were obtained from this particular line.

Nine month-old *tg*1223 and C57BL/6 livers were compared by DNA microarray and subsequent real-time PCR analysis. This revealed elevated mRNA expression of genes involved in embryogenesis (e.g. *Dmrta1*), liver inflammation (e.g. *Pbfe1*), carcinogenesis (e.g. *Phlda3, Thrsp*; (Kawase et al., 2009), glucose homeostasis and insulin sensitivity (e.g. *Fgf21*), while mRNAs responsible for cell cycle control (*Gadd45g*) and protease inhibition (*SerpinA9*) were consistently downregulated (Supplemental Fig. S4; Supplemental Tables 6-8; Supplemental online material).

In contrast, genes found to be strongly up- or downregulated at 3 months (Fig. 3A) returned to normal levels in 9 month-old *tg*1223 livers, except *Ltα* and *Ltβ* mRNA, which remained at high levels. Interestingly, we found a significant upregulation of genes involved in cell division, liver inflammation, lipid metabolism and wound healing, as well as tumorigenesis in 9 month-old when compared to 3 month-old *tg*1223 livers (*P*<0.001). Genes involved in growth arrest and apoptosis were significantly downregulated (*P*<0.001) (Supplemental Fig. S4; Supplemental Table 9-12).

HCC development in tg1223 mice

At 12 months of age, about 20% (6/34) of *tg*1223 mice developed macroscopically visible nodules that classified histologically as HCC, including the broadening of liver cell cords, loss of collagen IV networks and increased proliferative activity as stained by Ki67. In contrast, age-matched C57BL/6 livers lacked HCC (0/20; *P*=0.05) (Fig. 4C, D; Table 1).

The frequency of tumors further increased with age and reached ~35% (18/51) by 18 months, whereas C57BL/6 mice lacked HCC (0/35; *P*<0.0001) at this age (Supplemental Fig. S5; Table 1). Tumors varied in size (1-25mm), histology and affected both genders with similar frequencies (males:females = 13:11; *P*=0.3) (Fig. 4; Supplemental Table 13).

HCC derived from *tg*1223 mice contained $A6^+$ cells, a marker for oval cells (Engelhardt et al., 1990). $A6^+$ cells were either focally (8/24) or diffusely (2/24) distributed within HCC. The remaining *tg*1223 HCC (14/24) lacked $A6^+$ cells but were surrounded by them at the border zone of the tumor (Supplemental Fig. S5).

Chromosomal aberrations and local spread of HCC in tg1223 mice

We further investigated micro-dissected *tg*1223 HCC (n=9) and age-matched C57BL/6 livers (n=5) for chromosomal aberrations. Array comparative genomic hybridization analysis (aCGH) revealed chromosomal aberrations in all *tg*1223 HCC (Fig. 5A and B; Supplemental online material). Amplifications and deletions of chromosomal regions ranged from ≤ 1 mega-base (MB) to up to 160 MB and were detected in most autosomes of all analyzed *tg*1223 HCC. Of note, the pattern of chromosomal aberrations varied in HCC from different individual *tg*1223 mice (*P*=0.34). For control, aCGH analysis of independent C57BL/6 liver DNA samples did not reveal significant chromosomal aberrations (Supplemental online material).

We did not detect lung metastases but often multifocal intrahepatic disease in 18 months old *tg*1223 mice. We therefore investigated whether multifocal *tg*1223 HCC represented intrahepatic spread of clonal tumors. Independent HCC (n=6) from different lobes of the same *tg*1223 liver were micro-dissected and subsequently analyzed by aCGH (Fig. 5B). All HCC taken from the same liver displayed significantly overlapping chromosomal aberrations

throughout the entire genome (P<0.05), indicating a clonal relationship of a tumor that has locally spread within the liver (Fig. 5B; Supplemental online material).

Expression of the human tumor markers GP73, GS and AFP in tg1223 HCC

We analyzed the expression of human liver tumor markers golgi protein 73 (GP73), glutamine synthetase (GS) and α-fetoprotein (AFP) in *tg*1223 livers (Bachert et al., 2007; Marrero and Lok, 2004; Sakamoto, 2009). GP73, GS and AFP protein expression was elevated in most *tg*1223 HCC as detected by immunohistochemistry and immunoblot analysis when compared to C57BL/6 livers, but not in unaffected liver regions adjacent to *tg*1223 HCC (Fig. 6A-C; data not shown).

Mechanisms driving LTαβ-induced chronic hepatitis and liver cancer

In order to identify other receptors and molecular mediators potentially involved in LT-induced chronic hepatitis and HCC development, we intercrossed *tg*1223 with *Tnfr1*$^{-/-}$, *Tnfr2*$^{-/-}$ or *Ikkβ*$^{\Delta hep}$ mice. In addition, we investigated the requirement of lymphocytes in chronic hepatitis and HCC formation by intercrossing with *Rag1*$^{-/-}$ mice, which lack mature B- and T-lymphocytes.

The absence of IKKβ, TNFR1 or lymphocytes *per se* did not appear to influence transgenic *Ltα* or *Ltβ* mRNA expression (Figs. 3A and 6D; Supplemental online material). Initially, at three months of age, *tg*1223/*Ikkβ*$^{\Delta hep}$, *tg*1223/*Tnfr1*$^{-/-}$, *tg*1223/*Tnfr2*$^{-/-}$ and *tg*1223/*Rag1*$^{-/-}$ mice lacked histological evidence of hepatitis similar to *tg*1223 mice (data not shown). The aberrant hepatic gene expression pattern described for 3 month-old *tg*1223 mice developed only partially in *tg*1223/*Ikkβ*$^{\Delta hep}$ and *tg*1223/*Rag1*$^{-/-}$ mice, whereas *tg*1223/*Tnfr1*$^{-/-}$ livers displayed an expression profile rather similar to that of *tg*1223 mice (Fig. 6D; Supplemental Fig. S6). At 9 months of age *tg*1223/*Rag1*$^{-/-}$ (n=26) and *tg*1223/*Ikkβ*$^{\Delta hep}$ (n=18) livers displayed neither hepatitis nor hepatocyte or oval-cell proliferation (Supplemental Table 5),

whereas *tg*1223/*Tnfr1*$^{-/-}$ (n=8) or *tg*1223/*Tnfr2*$^{-/-}$ (n=8) livers were indistinguishable from those of *tg*1223 mice (Fig. 6E and F; Supplemental Fig. S6).

At the age of 18 months, *tg*1223/*Rag1*$^{-/-}$ (n=26) and *tg*1223/*Ikk*$\beta^{\Delta hep}$ (n=25) mice were still devoid of hepatitis and HCC (P<0.0001) (Fig. 6G; Table 1) suggesting that both lymphocytes and hepatocyte-specific IKKβ expression are required for LT-induced chronic hepatitis and HCC development.

We investigated whether ablation of TNFR1 signaling would affect HCC formation in *tg*1223 mice. Notably, *tg*1223/*Tnfr1*$^{-/-}$ mice displayed HCC (4/12) with an incidence similar to *tg*1223 mice (Fig. 6G; Supplemental Fig. S7; Table 1; Supplemental Table 13). This shows that TNFR1 signaling is not essential for LT-induced HCC formation in *tg*1223 mice.

Hepatocytes are the major responsive liver cells to agonistic LTβR antibody treatment

To investigate whether hepatocytes represent the major LT-responsive liver cells and to investigate LTβR signaling in *Tnfr1*$^{-/-}$ and *Ikk*$\beta^{\Delta hep}$ livers, TNFα (as positive control), agonistic LTβR antibody (3C8) and appropriate negative controls (PBS; rat IgG) were administered intravenously (i.v.) to C57BL/6 and various knock-out mice (Fig. 7; Supplemental Fig. S7). Nuclear p65 (RelA) translocation in hepatocytes and non-parenchymal cells (NPC: e.g. Kupffer cells, lymphocytes), alterations in the hepatic transcriptome and protein expression of selected chemokines were examined.

Administration of agonistic LTβR antibody (3C8) induced nuclear p65 translocation primarily in hepatocytes and in some NPC of C57BL/6 livers (Fig. 7A). Moreover, 3C8 treatment caused transcriptional changes and upregulation of selected chemokines reminiscent of those observed in 3 month-old *tg*1223 livers (Fig. 7A; Supplemental Fig. S8). Similar results were observed with 3C8 treatment of *Tnfr1*$^{-/-}$ mice. In contrast, *Ikk*$\beta^{\Delta hep}$ livers were devoid of nuclear p65 translocation in hepatocytes and NPC upon 3C8 treatment (Supplemental Table 14). Furthermore, upregulation of selected NF-κB target genes could not be detected by real-time PCR. As control, *Lt*$\beta r^{-/-}$ mice were also treated with 3C8. Nuclear p65 translocation in

hepatocytes or NPC did not occur in these mice, and selected NF-κB target genes were not upregulated.

To examine whether lack of functional IKKα on hepatocytes and NPC would suppress LTβR induced upregulation of selected NF-κB responsive genes, we investigated livers of mice expressing a non-phosphorylatable *IKKα*^{AA} knock-in allele (*Ikkα*$^{AA/AA}$; Cao et al., 2001). Upon 3C8 treatment *Ikkα* $^{AA/AA}$ mice upregulated selected NF-κB responsive genes (Supplemental Fig. S7). The degree of mRNA upregulation in liver was similar to 3C8-treated C57BL/6 mice. In contrast, control treated (rat IgG) *Ikkα* $^{AA/AA}$ mice lacked upregulation of selected NF-κB responsive genes. Our data suggest that 3C8-mediated LTβR signaling in the liver is mainly integrated by hepatocytes and involves functional, canonical NF-κB signaling.

Inhibition of LTβR signaling reduces chronic hepatitis and carcinogenesis

We investigated the involvement of LTβR signaling in the transition of chronic hepatitis to HCC by long-term LTβR-Ig administration in *tg*1223 mice. Nine month-old *tg*1223 mice with chronic hepatitis (n=31) or age-matched C57BL/6 mice (n=23) were treated for 2 months with LTβR-Ig, remained untreated for another 4 weeks and were sacrificed at the age of 12 months. Livers were then analyzed macroscopically and by histology.

LTβR-Ig treatment significantly reduced the incidence of chronic hepatitis in *tg*1223 mice when compared to untreated *tg*1223 controls (*tg*1223 mice LTβR-Ig treated: 4/31; *tg*1223 mice untreated: 34/34; *P*<0.0001). Furthermore, LTβR-Ig treatment suppressed chronic hepatitis-driven HCC formation (*tg*1223 mice LTβR-Ig treated: 0/31; *tg*1223 mice untreated: 6/34; *P*<0.05) (Fig. 7B; Table 1). LTβR-Ig treatment did not lead to overt histopathological alterations in C57BL/6 livers nor did we detect overt changes of lymphocyte (B-, T-cells) or macrophage populations in LTβR-Ig treated when compared to untreated C57BL/6 or *tg*1223 spleens (data not shown). Efficiency of LTβR-Ig treatment was ascertained by the loss of LTβR-dependent follicular dendritic cells (FDCs) within C57BL/6 and *tg*1223 spleens (Supplemental Fig. S8). Our data imply that long-term suppression of LTβR effectively

reduces chronic hepatitis incidence and can prevent the transition from chronic hepatitis to HCC in *tg*1223 mice.

Discussion

Here we show drastic and robust mRNA upregulation of *LTβR*, *LTα* and *LTβ* in HBV- or HCV-induced hepatitis and HCC when compared to livers of healthy individuals or non-viral, benign liver diseases. Notably, upregulation of *LTβR*, *LTα* and *LTβ* transcripts was also detected in non-virus related HCC. *LT* and *LIGHT* transcripts were mainly expressed by $CD3^+$ T- and $CD20^+$ B-cells; however a significant proportion of *LTα* and *LTβ* expression was also attributable to hepatocytes. It cannot be excluded that other cell types contribute to hepatic *LT* and *LIGHT* expression.

Infection with HCVcc induced transcription of *LTα*, *LTβ*, *LTβR, LIGHT* and various chemokines by Huh-7.5 cells recapitulating in part HCV-driven LT and chemokine expression found in HCV-infected livers *in vivo*.

To determine whether sustained hepatic LT signaling is causally linked to chronic hepatitis and HCC formation, we examined transgenic mice with liver-specific *Ltα*, *β* expression. This induced expression of chemokines by hepatocytes leading to chronic hepatitis, liver injury, hepatocyte and oval-cell proliferation, finally culminating in HCC development.

LT signaling can induce both the canonical and the non-canonical NF-κB signaling pathways, whose role in controlling liver cancer formation remains controversial (Vainer et al., 2008). In a mouse model with acute DEN exposure, depletion of functional NF-κB signaling ($Ikk\beta^{\Delta hep}$ mice) increased hepatocyte cell death, enhanced Kupffer-cell activation and elevated HCC incidence (Maeda et al., 2005). In contrast, NF-κB signaling has been shown to promote HCC development in $mdr2^{-/-}$ mice with cholestatic hepatitis (Pikarsky et al., 2004). Similarly, hepatocyte-specific depletion of IKKβ prevented HCC formation in *tg*1223 mice. How can this contradictory role of IKKβ signaling in HCC formation be reconciled? One explanation might be that IKKβ signaling may play a dual role in hepatic tumorigenesis. IKKβ signaling may be required for hepatocytes to appropriately respond to and survive carcinogenic stimuli and acute liver damage (e.g. DEN exposure). On the other hand, IKKβ signaling might enable local chemokine expression by hepatocytes and subsequent chronic inflammation, which

further leads to HCC. Consistent with this hypothesis, *tg*1223/*Rag1*$^{-/-}$ mice lacking mature lymphocytes were devoid of chronic hepatitis, hepatocyte or oval-cell proliferation and failed to develop HCC.

Why could immune cells be essential for liver tumorigenesis? One explanation is that CD4^{+} or CD8^{+} T-cells expressing inflammatory cytokines (e.g. IL1β, TNFα, IFNγ) as well as cytolytic proteins (e.g. Granzyme B) might contribute to hepatocyte cell death and tissue remodeling, finally leading to HCC (Budhu and Wang, 2006; Nakamoto et al., 1998). Besides, a role for B-cells, macrophages or Kupffer cells in supporting inflammation-induced carcinogenesis cannot be excluded at this stage. Intrahepatic lymphocytes themselves may also influence the production of inflammatory mediators expressed by hepatocytes in *tg*1223 mice. The observation that markedly reduced hepatic cytokine and chemokine levels were detected in 3 month-old *tg*1223/*Rag1*$^{-/-}$ livers supports this notion.

We propose that rather than directly acting as a cell-autonomous oncogene on hepatocytes or A6^{+} oval cells, hepatic LT$\alpha\beta$ expression induces local upregulation of chemokines (e.g. *Ccl2; Cxcl10, Cxcl1, Ccl7*) by hepatocytes. This leads to the attraction of circulating inflammatory cells, generating a hyperproliferative, hepatotoxic environment that stochastically leads to HCC formation (Fig. 7C). In this context it is also worth mentioning that some chemokines found in this study (e.g. CXCL10) have been reported to be expressed mainly by hepatocytes in human livers chronically infected with HCV (Narumi et al., 1997; Zeremski et al., 2007).

Ablation of TNFR1 signaling did not prevent chronic hepatitis and liver cancer formation in *tg*1223 mice although anti-TNFα antibody treatment has been reported to prevent HCC development in a model of cholestatic hepatitis (Pikarsky et al., 2004). We therefore investigated the mode of LT signaling in *Tnfr1*$^{-/-}$ livers upon treatment with a LTβR agonist. This induced hepatic changes similar to those seen in *tg*1223 mice at 3 months of age. Similar to our results with *tg*1223/*Tnfr1*$^{-/-}$ mice, this suggests that heterotrimeric LT causes p65 translocation in hepatocytes and induces a TNFR1-independent signaling cascade via LTβR, presumably contributing to chronic hepatitis and HCC formation. Most probably,

cholestatic hepatitis-induced HCC formation in *mdr2*$^{-/-}$ mice depends on pathways involving TNFR1 that are distinct from the LTβR-dependent pathways described in our own study.

We sought to indentify the major LT responsive liver cell-type by using *Ikkβ*$^{\Delta hep}$ mice. I.v. administration of TNFα into *Ikkβ*$^{\Delta hep}$ mice did not cause p65 translocation in hepatocytes but upregulated NF-κB target genes, presumably through TNFα-activated NPC. In contrast, 3C8 treatment in *Ikkβ*$^{\Delta hep}$ mice neither induced nuclear p65 translocation in hepatocytes or NPC nor upregulation of selected NF-κB target genes. Therefore, hepatocytes but not NPC are likely to be the major liver cells integrating LT signaling. This would also explain why *tg*1223/*Ikkβ*$^{\Delta hep}$ mice lack chronic hepatitis and HCC formation although LTα, β were constitutively expressed by transgenic hepatocytes.

We further asked whether IKKα signaling on hepatocytes or NPC could be involved in 3C8-induced hepatic LTβR signaling. However, upon 3C8 treatment, *Ikkα*$^{AA/AA}$ livers displayed upregulation of selected NF-κB target genes that was similar to C57BL/6 mice (Supplemental Fig. S7). Therefore, the absence of *IKKα* in both, hepatocytes and NPC, still allows upregulation of selected NF-κB target genes upon 3C8 treatment, suggesting the involvement of the classical NF-κB pathway in LTβR-induced hepatic signaling.

LTβR signaling was reported to induce oval-cell proliferation (Akhurst et al., 2005) and oval cells are thought to contribute to the development of liver tumors (Lee et al., 2006). We have observed proliferation of A6^{+} oval cells in chronically inflamed *tg*1223 livers at the age of 9 months. Moreover, we have found A6^{+} cells within and at the border of *tg*1223 HCC. Whether A6^{+} cells represent oval cells that in part contribute to liver carcinogenesis or whether the A6^{+} marker is upregulated on abnormal hepatocytes within HCC cannot be stated at the moment. Remarkably, lack of lymphocytes and ablation of IKKβ specifically in hepatocytes prevented oval-cell proliferation, although LTα, β transgene expression was unaltered. Therefore, it is conceivable that activated, infiltrating lymphocytes or Kupffer cells may contribute to proliferation of A6^{+} cells by providing further LT or other cytokines in *tg*1223 livers. Based on

the presented data, we propose a sequence of events leading to chronic hepatitis and HCC in *tg*1223 mice (Fig. 7C).

Our results indicate that sustained LTβR signaling on hepatocytes either induced by hepatocytes themselves or by NPC attracted to or present within the liver leads to chemoattraction of further immune cells causing chronic hepatitis and liver cancer.

What are the possible clinical implications of our findings? A recent study has proposed that pharmacological stimulation of LTβR might be an effective therapeutic approach to improve liver regeneration (Tumanov et al., 2008). Our findings indicate that sustained LTβR signaling may result in liver cancer formation. Consequently, one could postulate that LT signaling on hepatocytes might be beneficial during a transitory period (days) supporting liver regeneration (Tumanov et al., 2008), but may become detrimental upon chronic activation.

Pharmacological inhibition of LTβR signaling was also demonstrated to revert spontaneous autoimmune insulitis in nonobese diabetic mice (Wu et al., 2001) and to reduce virus-, bacteria- and concavalin A-induced liver injury (An et al., 2006; Anand et al., 2006; Puglielli et al., 1999).

Side-effects of LTβR signaling include alterations of the microarchitecture of white pulp follicles and disappearance of FDCs in non-human primates (Gommerman et al., 2002). Despite the loss of FDCs and a greatly reduced capacity to trap immune complexes, B- and T-cell areas the primary antibody response to keyhole limpet hemocyanin was not significantly altered over a 20-day period or even periods exceeding 6 months (Gommerman et al., 2002).

In *tg*1223 mice, inhibition of LTβR signaling at the stage of chronic hepatitis partially reverted inflammation and prevented HCC formation, suggesting that LTβR-Ig treatment might be beneficial in pathogen-induced liver pathologies with sustained *LTβR*, *LTα* and *LTβ* expression. Interestingly, siRNA knock-down of various components of the LTβR signaling pathway (e.g. LTβ; Rel A) was found to interfere with HCV replication *in vitro* (Ng et al.,

2007). This implies that besides creating a hepatotoxic, inflammatory environment, hepatic LT signaling might also be involved in controlling the efficiency of HCV replication.

In conclusion, our results show that LT signaling plays a critical role in the onset of hepatic inflammation and subsequent HCC formation and imply that blocking LTβR signaling might become a beneficial therapeutic approach in the context of HBV- or HCV-induced chronic hepatitis as well as other liver diseases that display sustained hepatic LTβR signaling.

Experimental Procedures

Human liver tissue: Human liver biopsies were obtained from the University Hospitals Zurich, Freiburg, Grenoble and Heidelberg and the University of Graz. All samples were registered in the respective biobanks and kept anonymous. The research project was authorized by the ethical committees of the "Gesundheitsdirektion Kanton Zürich" (Ref. Nr. StV 26-2005), Freiburg (Forschungsvorhaben Nr. 299/2001), Heidelberg (Prof. Bannasch), Ethikkomission der medizinischen Universität Graz (Ref. Nr. Version 1.0 24/11/2008; Prof. Zatloukal) University of Graz and by the ethical committee of the University Hospital Grenoble (Ref. Nr. 03/APTF/1, promoter APTFC, Prof. V Leroy). The study protocol was in accordance with the ethical guidelines of the Helsinki declaration and was approved by the review board of the University Hospital Grenoble. Patients were enrolled after giving their written informed consent. HBV- or HCV infected patients suffering from chronic hepatitis were not treated with ribavirin or other immunomodulatory drugs at the time point of needle biopsy.

Mice: Animals were devoid of any bacterial, viral, and parasitic pathogens listed in the Federation of European Laboratory Animal Science Associations recommendations and were maintained under specific pathogen-free (spf) conditions. Housing and experimental protocols were in accordance with the Swiss Animal Protection Law and mice were held according to the regulations of the Veterinary office of the Canton Zurich. AlbLTαβ transgenic mice were generated as published (Heikenwalder et al., 2005). *Tnfr1*$^{-/-}$, *Tnfr2*$^{-/-}$, *Rag1*$^{-/-}$, *Ltβr*$^{-/-}$, *Ikkα*$^{AA/AA}$ and *Ikkβ*$^{\Delta hep}$ mice were published previously (Alimzhanov et al., 1997; Bluethmann et al., 1994; Browning et al., 1995; Cao et al., 2001; Futterer et al., 1998; Koni et al., 1997; Mackay et al., 1997; Maeda et al., 2005). *Tg*1223, *Tnfr1*$^{-/-}$, *Tnfr2*$^{-/-}$, *Rag1*$^{-/-}$ and *Ikkβ*$^{\Delta hep}$ mice were intercrossed to create *tg*1223/*Tnfr1*$^{-/-}$, *tg*1223/*Tnfr2*$^{-/-}$, *tg*1223/*Rag1*$^{-/-}$ and *tg*1223/*Ikkβ*$^{\Delta hep}$.

TNFα and 3C8 treatment: Twelve to fourteen week-old male mice (C57BL/6 and knock-out mice) were i.v. injected with either PBS, murine recombinant TNFα (50μg/kg bodyweight;

R&D Systems) and agonistic LTβR antibody (50μg/mouse; clone 3C8; eBioscience) or rat IgG (50μg/mouse; eBioscience) and sacrificed for analysis 45 min post injection. All substances were injected at a total volume of 100μl dissolved in PBS.

Isolation of intrahepatic murine lymphocytes (IHL): Mice were anesthetized and liver was perfused with PBS to remove circulating leukocytes. Liver tissue was minced and digested in medium containing collagenase (1mg/ml) and DNase (25μg/ml) at 37°C for 40 min. Cells were centrifuged at 300rpm for 3 min to sediment the majority of hepatocytes. Supernatant was removed and centrifuged again at 1200 rpm for 10 min. Cell pellet was resuspended in the 40% fraction of a 40:80 Percoll gradient. Upon centrifugation at 2500rpm for 20 min, IHL were collected at the interface. IHL were analyzed for surface marker expression by staining with anti-CD4, anti-CD8, anti-TCR-β, anti-NK1.1 or anti-CD19 Abs, and for cytokine production capacity by intracellular staining with anti-IFNγ and anti-IL17 Abs (all from eBioscience) upon PMA/Ionomycin stimulation by using a two-laser FACScalibur (BD). Analysis was executed with CellQuest and FlowJo software. Cytokine production by IHL was determined by intracellular staining with anti-IFNγ and anti-IL17 antibodies (all from eBioscience) after 4 hrs stimulation with PMA and Ionomycin.

Measurement of aminotransferases: The analysis for AST and ALT was performed with mouse serum on a Roche Modular System (Roche Diagnostics) with a commercially available automated colorimetric system at the Institute of Clinical Chemistry at the University Hospital Zurich using a Hitachi P-Modul (Roche).

Additional methods: Detailed and further methodology is described in the Supplemental online material section.

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References

Akhurst, B., Matthews, V., Husk, K., Smyth, M. J., Abraham, L. J., and Yeoh, G. C. (2005). Differential lymphotoxin-beta and interferon gamma signaling during mouse liver regeneration induced by chronic and acute injury. Hepatology *41*, 327-335.

Alimzhanov, M. B., Kuprash, D. V., Kosco-Vilbois, M. H., Luz, A., Turetskaya, R. L., Tarakhovsky, A., Rajewsky, K., Nedospasov, S. A., and Pfeffer, K. (1997). Abnormal development of secondary lymphoid tissues in lymphotoxin beta-deficient mice. Proc Natl Acad Sci U S A *94*, 9302-9307.

An, M. M., Fan, K. X., Cao, Y. B., Shen, H., Zhang, J. D., Lu, L., Gao, P. H., and Jiang, Y. Y. (2006). Lymphtoxin beta receptor-Ig protects from T-cell-mediated liver injury in mice through blocking LIGHT/HVEM signaling. Biol Pharm Bull *29*, 2025-2030.

Anand, S., Wang, P., Yoshimura, K., Choi, I. H., Hilliard, A., Chen, Y. H., Wang, C. R., Schulick, R., Flies, A. S., Flies, D. B.*, et al.* (2006). Essential role of TNF family molecule LIGHT as a cytokine in the pathogenesis of hepatitis. J Clin Invest *116*, 1045-1051.

Bachert, C., Fimmel, C., and Linstedt, A. D. (2007). Endosomal trafficking and proprotein convertase cleavage of cis Golgi protein GP73 produces marker for hepatocellular carcinoma. Traffic *8*, 1415-1423.

Berasain, C., Castillo, J., Perugorria, M. J., Latasa, M. U., Prieto, J., and Avila, M. A. (2009). Inflammation and liver cancer: new molecular links. Ann N Y Acad Sci *1155*, 206-221.

Blight, K. J., McKeating, J. A., and Rice, C. M. (2002). Highly permissive cell lines for subgenomic and genomic hepatitis C virus RNA replication. J Virol *76*, 13001-13014.

Bluethmann, H., Rothe, J., Schultze, N., Tkachuk, M., and Koebel, P. (1994). Establishment of the role of IL-6 and TNF receptor 1 using gene knockout mice. J Leukoc Biol *56*, 565-570.

Browning, J. L., Dougas, I., Ngam-ek, A., Bourdon, P. R., Ehrenfels, B. N., Miatkowski, K., Zafari, M., Yampaglia, A. M., Lawton, P., Meier, W., and et al. (1995). Characterization of surface lymphotoxin forms. Use of specific monoclonal antibodies and soluble receptors. J Immunol *154*, 33-46.

Browning, J. L., and French, L. E. (2002). Visualization of lymphotoxin-beta and lymphotoxin-beta receptor expression in mouse embryos. J Immunol *168*, 5079-5087.

Browning, J. L., Sizing, I. D., Lawton, P., Bourdon, P. R., Rennert, P. D., Majeau, G. R., Ambrose, C. M., Hession, C., Miatkowski, K., Griffiths, D. A.*, et al.* (1997). Characterization of lymphotoxin-alpha beta complexes on the surface of mouse lymphocytes. J Immunol *159*, 3288-3298.

Budhu, A., and Wang, X. W. (2006). The role of cytokines in hepatocellular carcinoma. J Leukoc Biol *80*, 1197-1213.

Cao, Y., Bonizzi, G., Seagroves, T. N., Greten, F. R., Johnson, R., Schmidt, E. V., and Karin, M. (2001). IKKalpha provides an essential link between RANK signaling and cyclin D1 expression during mammary gland development. Cell *107*, 763-775.

Chen, C. M., You, L. R., Hwang, L. H., and Lee, Y. H. (1997). Direct interaction of hepatitis C virus core protein with the cellular lymphotoxin-beta receptor modulates the signal pathway of the lymphotoxin-beta receptor. J Virol *71*, 9417-9426.

El-Serag, H. B. (2007). Epidemiology of hepatocellular carcinoma in USA. Hepatol Res *37 Suppl 2*, S88-94.

El-Serag, H. B., and Rudolph, K. L. (2007). Hepatocellular carcinoma: epidemiology and molecular carcinogenesis. Gastroenterology *132*, 2557-2576.

Engelhardt, N. V., Factor, V. M., Yasova, A. K., Poltoranina, V. S., Baranov, V. N., and Lasareva, M. N. (1990). Common antigens of mouse oval and biliary epithelial cells. Expression on newly formed hepatocytes. Differentiation *45*, 29-37.

Fu, Y. X., Huang, G., Wang, Y., and Chaplin, D. D. (1998). B lymphocytes induce the formation of follicular dendritic cell clusters in a lymphotoxin alpha-dependent fashion. J Exp Med *187*, 1009-1018.

Futterer, A., Mink, K., Luz, A., Kosco-Vilbois, M. H., and Pfeffer, K. (1998). The lymphotoxin beta receptor controls organogenesis and affinity maturation in peripheral lymphoid tissues. Immunity *9*, 59-70.

Gommerman, J. L., Mackay, F., Donskoy, E., Meier, W., Martin, P., and Browning, J. L. (2002). Manipulation of lymphoid microenvironments in nonhuman primates by an inhibitor of the lymphotoxin pathway. J Clin Invest *110*, 1359-1369.
Greten, F. R., and Karin, M. (2004). The IKK/NF-kappaB activation pathway-a target for prevention and treatment of cancer. Cancer Lett *206*, 193-199.
Heikenwalder, M., Zeller, N., Seeger, H., Prinz, M., Klohn, P. C., Schwarz, P., Ruddle, N. H., Weissmann, C., and Aguzzi, A. (2005). Chronic lymphocytic inflammation specifies the organ tropism of prions. Science *307*, 1107-1110.
Karin, M. (2006). Nuclear factor-kappaB in cancer development and progression. Nature *441*, 431-436.
Kawase, T., Ohki, R., Shibata, T., Tsutsumi, S., Kamimura, N., Inazawa, J., Ohta, T., Ichikawa, H., Aburatani, H., Tashiro, F., and Taya, Y. (2009). PH domain-only protein PHLDA3 is a p53-regulated repressor of Akt. Cell *136*, 535-550.
Koni, P. A., Sacca, R., Lawton, P., Browning, J. L., Ruddle, N. H., and Flavell, R. A. (1997). Distinct roles in lymphoid organogenesis for lymphotoxins alpha and beta revealed in lymphotoxin beta-deficient mice. Immunity *6*, 491-500.
Lee, J. S., Heo, J., Libbrecht, L., Chu, I. S., Kaposi-Novak, P., Calvisi, D. F., Mikaelyan, A., Roberts, L. R., Demetris, A. J., Sun, Z*., et al.* (2006). A novel prognostic subtype of human hepatocellular carcinoma derived from hepatic progenitor cells. Nat Med *12*, 410-416.
Lee, S. H., Park, S. G., Lim, S. O., and Jung, G. (2005). The hepatitis B virus X protein up-regulates lymphotoxin alpha expression in hepatocytes. Biochim Biophys Acta *1741*, 75-84.
Lo, J. C., Wang, Y., Tumanov, A. V., Bamji, M., Yao, Z., Reardon, C. A., Getz, G. S., and Fu, Y. X. (2007). Lymphotoxin beta receptor-dependent control of lipid homeostasis. Science *316*, 285-288.
Lowes, K. N., Croager, E. J., Abraham, L. J., Olynyk, J. K., and Yeoh, G. C. (2003). Upregulation of lymphotoxin beta expression in liver progenitor (oval) cells in chronic hepatitis C. Gut *52*, 1327-1332.
Luedde, T., Beraza, N., Kotsikoris, V., van Loo, G., Nenci, A., De Vos, R., Roskams, T., Trautwein, C., and Pasparakis, M. (2007). Deletion of NEMO/IKKgamma in liver parenchymal cells causes steatohepatitis and hepatocellular carcinoma. Cancer Cell *11*, 119-132.
Mackay, F., Majeau, G. R., Lawton, P., Hochman, P. S., and Browning, J. L. (1997). Lymphotoxin but not tumor necrosis factor functions to maintain splenic architecture and humoral responsiveness in adult mice. Eur J Immunol *27*, 2033-2042.
Maeda, S., Kamata, H., Luo, J. L., Leffert, H., and Karin, M. (2005). IKKbeta couples hepatocyte death to cytokine-driven compensatory proliferation that promotes chemical hepatocarcinogenesis. Cell *121*, 977-990.
Maeda, S., and Omata, M. (2008). Inflammation and cancer: role of nuclear factor-kappaB activation. Cancer Sci *99*, 836-842.
Malhi, H., Gores, G. J., and Lemasters, J. J. (2006). Apoptosis and necrosis in the liver: a tale of two deaths? Hepatology *43*, S31-44.
Marrero, J. A., and Lok, A. S. (2004). Newer markers for hepatocellular carcinoma. Gastroenterology *127*, S113-119.
Nakamoto, Y., Guidotti, L. G., Kuhlen, C. V., Fowler, P., and Chisari, F. V. (1998). Immune pathogenesis of hepatocellular carcinoma. J Exp Med *188*, 341-350.
Narumi, S., Tominaga, Y., Tamaru, M., Shimai, S., Okumura, H., Nishioji, K., Itoh, Y., and Okanoue, T. (1997). Expression of IFN-inducible protein-10 in chronic hepatitis. J Immunol *158*, 5536-5544.
Ng, T. I., Mo, H., Pilot-Matias, T., He, Y., Koev, G., Krishnan, P., Mondal, R., Pithawalla, R., He, W., Dekhtyar, T*., et al.* (2007). Identification of host genes involved in hepatitis C virus replication by small interfering RNA technology. Hepatology *45*, 1413-1421.
Pietschmann, T., Kaul, A., Koutsoudakis, G., Shavinskaya, A., Kallis, S., Steinmann, E., Abid, K., Negro, F., Dreux, M., Cosset, F. L., and Bartenschlager, R. (2006). Construction and characterization of infectious intragenotypic and intergenotypic hepatitis C virus chimeras. Proc Natl Acad Sci U S A *103*, 7408-7413.

Pikarsky, E., Porat, R. M., Stein, I., Abramovitch, R., Amit, S., Kasem, S., Gutkovich-Pyest, E., Urieli-Shoval, S., Galun, E., and Ben-Neriah, Y. (2004). NF-kappaB functions as a tumour promoter in inflammation-associated cancer. Nature *431*, 461-466.
Puglielli, M. T., Browning, J. L., Brewer, A. W., Schreiber, R. D., Shieh, W. J., Altman, J. D., Oldstone, M. B., Zaki, S. R., and Ahmed, R. (1999). Reversal of virus-induced systemic shock and respiratory failure by blockade of the lymphotoxin pathway. Nat Med *5*, 1370-1374.
Raeber, A. J., Sailer, A., Hegyi, I., Klein, M. A., Rülicke, T., Fischer, M., Brandner, S., Aguzzi, A., and Weissmann, C. (1999). Ectopic expression of prion protein (PrP) in T lymphocytes or hepatocytes of PrP knockout mice is insufficient to sustain prion replication. Proc Natl Acad Sci U S A *96*, 3987-3992.
Rennert, P. D., Browning, J. L., Mebius, R., Mackay, F., and Hochman, P. S. (1996). Surface lymphotoxin alpha/beta complex is required for the development of peripheral lymphoid organs. J Exp Med *184*, 1999-2006.
Ruddell, R. G., Mann, D. A., and Ramm, G. A. (2008). The function of serotonin within the liver. J Hepatol *48*, 666-675.
Sakamoto, M. (2009). Early HCC: diagnosis and molecular markers. J Gastroenterol *44 Suppl 19*, 108-111.
Subrata, L. S., Lowes, K. N., Olynyk, J. K., Yeoh, G. C., Quail, E. A., and Abraham, L. J. (2005). Hepatic expression of the tumor necrosis factor family member lymphotoxin-beta is regulated by interleukin (IL)-6 and IL-1beta: transcriptional control mechanisms in oval cells and hepatoma cell lines. Liver Int *25*, 633-646.
Tumanov, A. V., Koroleva, E. P., Christiansen, P. A., Khan, M. A., Ruddy, M. J., Burnette, B., Papa, S., Franzoso, G., Nedospasov, S., Fu, Y. X., and Anders, R. A. (2008). T Cell-Derived Lymphotoxin Regulates Liver Regeneration. Gastroenterology *136*, 694-704.
Vainer, G. W., Pikarsky, E., and Ben-Neriah, Y. (2008). Contradictory functions of NF-kappaB in liver physiology and cancer. Cancer Lett. *267*, 182-8.
Ware, C. F. (2005). Network communications: lymphotoxins, LIGHT, and TNF. Annu Rev Immunol *23*, 787-819.
Wu, Q., Salomon, B., Chen, M., Wang, Y., Hoffman, L. M., Bluestone, J. A., and Fu, Y. X. (2001). Reversal of spontaneous autoimmune insulitis in nonobese diabetic mice by soluble lymphotoxin receptor. J Exp Med *193*, 1327-1332.
You, L. R., Chen, C. M., and Lee, Y. H. (1999). Hepatitis C virus core protein enhances NF-kappaB signal pathway triggering by lymphotoxin-beta receptor ligand and tumor necrosis factor alpha. J Virol *73*, 1672-1681.
Zeremski, M., Petrovic, L. M., and Talal, A. H. (2007). The role of chemokines as inflammatory mediators in chronic hepatitis C virus infection. J Viral Hepat *14*, 675-687.
Zhu, N., Khoshnan, A., Schneider, R., Matsumoto, M., Dennert, G., Ware, C., and Lai, M. M. (1998). Hepatitis C virus core protein binds to the cytoplasmic domain of tumor necrosis factor (TNF) receptor 1 and enhances TNF-induced apoptosis. J Virol *72*, 3691-3697.

Figure legends

Figure 1: mRNA expression of TNF-superfamily members in viral (HBV, HCV induced) and non-viral liver diseases. Analysis of hepatic *LTα*, *LTβ*, *LTβR*, *LIGHT, TNFR1, and TNFα* transcription by real-time PCR. Healthy individuals (Ctrl; n=15), patients chronically infected with HBV (n=19), HCV (n=49), affected by HCC (n=30) or suffering from various non-virus related liver disorders were investigated. Non-virus related liver diseases with hepatitis include alcoholic steatohepatitis (ASH; n=13), cholestasis (CH; n=3), primary biliary cirrhosis/ autoimmune cholangitis (PBC; n=5), end stage liver cirrhosis due to alcoholic liver disease (CIR; n=8), α1-antitrypsin deficiency (α1AT; n=1) and focal liver fibrosis (FLF; n=2). Non-virus related liver diseases without hepatitis include steatosis (ST; n=5), hemochromatosis/siderosis (HE; n=3), and Wilson's disease (WD; n=1). Focal nodular hyperplasia (FNH; n=8) was investigated as a benign primary liver tumor. Diseases such as α1AT (●), FLF (▲), HE/SID (♦), and WD (Δ) are listed under "other liver diseases" (OLD). Horizontal bars represent the average mRNA expression level. The y-axis describes the $\Delta\Delta$CT values on a log2 scale. *, **, *** indicate statistical significance: * = p≤0.05; ** = p<0.001; *** = p<0.0001.

Figure 2: Identification of cell types expressing TNF-superfamily members in virus-infected or HCC-affected livers. (A) Histology of representative paraffin sections of healthy control, HCV-infected livers, and HCC with HCV etiology. HCV-infected livers (HCV) and tumors (HCV/HCC) display leukocytic infiltrates. H&E: Hematoxylin and eosin staining. The tumor border is indicated by a dashed line (scale bar: 100μm). **(B)** Real-time PCR analysis of sorted, CD45-enriched or CD45-depleted liver cells. For control, whole liver cell populations derived from healthy or diseased livers (HCV infected/HCC) were used. mRNA expression levels are normalized to unsorted, total cell populations of the respective liver disease and calculated as 100%. The average expression level is indicated as percentage of control (unsorted cells of the respective disease) and demarcated by horizontal bars. *, **, *** indicate statistical significance (Student's T-test): * = p≤0.05; ** = p<0.001; *** = p<0.0001.

(C) Immunohistochemical (upper and lower panel) and immunofluorescence analysis for LTβ expression in healthy, HBV- or HCV-infected and HCC-affected livers (scale bar: 50μm). Arrowhead depicts $LT\beta^+$ leukocytes, arrow $LT\beta^+$ hepatocytes.

Figure 3: Characterization of *tg*1223 livers. (A) Real-time PCR analysis for mRNA expression in liver of candidate genes at the age of 3 months. Data are presented in a log2 scale (blue: upregulated; red: downregulated). Rows indicate individual mice; columns represent particular genes. Each data point reflects the median expression of a particular gene resulting from 3-4 technical replicates, normalized to the mean expression value of the respective gene in C57BL/6 livers. **(B)** *In situ* hybridization of C57BL/6 and *tg*1223 liver sections with *Ltα*, *Ltβ*, *Cxcl10, Ccl2* and *Egr1* antisense probes (age of 3 months). Multiple scattered foci of hepatocyte-specific *Ltα*, *Ltβ*, *Cxcl10*, *Ccl2* and *Egr1* mRNA were detected (scale bar: 50μm). **(C)** Immunohistochemical analysis of representative 9 month-old C57BL/6 and *tg*1223 livers. $B220^+$ stained B-cells, $CD3^+$ T-cells, $F4/80^+$ macrophages, Kupffer cells and $A6^+$ oval cells (scale bar: 150μm). $Ki67^+$ proliferating hepatocytes (arrow heads) and inflammatory cells are indicated (scale bar: 50μm). **(D)** ELISA for IL1β, TNFα, IFNγ and IL6 in C57BL/6 (hollow symbols), *tg*1223 (filled symbols) or *tg*1222 (dotted symbols) liver homogenates (9 months). **(E)** Flow cytometry of intrahepatic lymphocytes at 9 months of age. CD4 (T-helper cells), CD8 (cytotoxic T-cells), TCRβ (T-cells), CD19 (B-cells), IFNγ (Interferon γ). IFNγ expression was monitored on $CD4^+/CD8^+$ gated T-cells. Representative flow cytometry analyses are shown. Numbers in each quadrant indicate the relative percentage of cells. Staining intensity is depicted on a log scale. FSC: Forward scatter.

Figure 4: Chronic liver injury and HCC development in *tg*1223 mice. (A) Significant elevation of transaminases (ALT, AST) in sera of *tg*1223 mice from 19 weeks of age. Standard deviation is indicated by error bars. **(B)** Increased hepatocyte cell death in *tg*1223 livers documented by H&E staining and TUNEL/DAPI assay. H&E: Hematoxylin & eosin:

Black arrowheads indicate apoptotic hepatocytes. TUNEL: Green TUNEL$^+$ hepatocyte nuclei indicate apoptosis (white arrowheads; scale bars: 50μm). **(C)** Macroscopy of C57BL/6 (left panel) and *tg*1223 livers at the age of 12 (middle panel) and 18 months (right panel). White arrows indicate tumor nodules. White arrowhead indicates a liver lobe completely affected by HCC. Scale bar size is indicated. **(D)** Histological analysis of livers derived from C57BL/6 and *tg*1223 mice. Dashed line depicts the HCC border. Collagen IV staining highlights the broadening of the liver cell cords and loss of collagen IV networks indicative of HCC in *tg*1223 mice (scale bar: 200μm). High numbers of Ki67$^+$ proliferating hepatocytes (arrowheads) are only found in *tg*1223 HCC (right column; scale bar: 100μm).

Figure 5: aCGH analysis of *tg*1223 HCC. The q-arm of each chromosome is shown and chromosome numbers are indicated. Black ellipses on the top of each q-arm represent the centromere. Dark horizontal bars within the symbolised chromosomes represent G bands. Chromosomal deletions are indicated in blue, amplifications in red (see methods for details). **(A)** HCC of individual *tg*1223 mice were hybridized against liver tissue of age matched C57BL/6 mice and analyzed by aCGH analysis. Columns next to each chromosome represent individual HCC (1; 2; 3) with numerous chromosomal aberrations on the q-arm of various autosomes. No common pattern of chromosomal aberrations could be detected. **(B)** aCGH analysis of six representative HCC (1, 2, 3, 4, 5 and 6) taken from different lobes of the same *tg*1223 liver. Chromosomal aberrations of *tg*1223 HCC were normalized to age-matched C57BL/6 livers.

Figure 6: Expression of tumor markers in *tg*1223 HCC and mechanistic characterization of liver carcinogenesis in *tg*1223 mice. (A) Immunoblot analysis of C57BL/6 and *tg*1223 HCC homogenates for GP73. Strong to moderate signal intensities were detected in all *tg*1223 HCC, but not in C57BL/6 livers. **(B)** Immunoblot analysis of C57BL/6 and *tg*1223 HCC homogenates for AFP. Strong to weak signal intensities were detected in most *tg*1223 HCC, in contrast to absent or weak signal intensities in C57BL/6

livers. β-Actin served as a loading control (kDa: kilo Dalton). **(C)** Immunohistochemistry for GP73 and GS in a representative *tg*1223 HCC and age-matched C57BL/6 control (scale bar: 100μm). **(D)** mRNA expression of candidate genes in livers of 3 months old *tg*1223/*Ikkβ*$^{\Delta hep}$, *tg*1223/*Rag1*$^{-/-}$ and *tg*1223/*Tnfr1*$^{-/-}$ mice. Data are presented in a log 2 scale (blue: upregulated; red: downregulated). Rows indicate individual mice; columns represent particular genes. Each data point reflects the median expression of a particular gene resulting from 3-4 technical replicates, normalized to the mean expression value of the respective gene in C57BL/6 livers. **(E)** Histological analysis of *tg*1223/*Ikkβ*$^{\Delta hep}$, *tg*1223/*Rag1*$^{-/-}$, *tg*1223/*Tnfr1*$^{-/-}$, and *tg*1223/*Tnfr2*$^{-/-}$ livers at 9 months of age. H&E, B220 for B-cells, CD3 for T-cells (scale bar: 500μm). **(F)** Immunohistochemical analysis of A6^{+} cells (oval cells) in livers of *tg*1223/*Ikkβ*$^{\Delta hep}$, *tg*1223/*Rag1*$^{-/-}$, *tg*1223/*Tnfr1*$^{-/-}$, and *tg*1223/*Tnfr2*$^{-/-}$ mice at 9 months of age. Oval-cell proliferation was detected in *tg*1223/*Tnfr1*$^{-/-}$ and *tg*1223/*Tnfr2*$^{-/-}$ livers (scale bar: 500μm). **(G)** Immunohistochemical analysis of *tg*1223/*Ikkβ*$^{\Delta hep}$, *tg*1223/*Rag1*$^{-/-}$, and *tg*1223/*Tnfr1*$^{-/-}$ livers (18 months of age). Dashed line depicts the HCC border (upper row; scale bar: 200μm). Collagen IV staining highlights the broadening of liver cell cords and loss of collagen IV networks in *tg*1223/*Tnfr1*$^{-/-}$ HCC. Ki67^{+}-proliferating hepatocytes are indicated by arrowheads (lower row; scale bar: 50μm).

Figure 7: Effects of acute 3C8 and long-term LTβR-Ig treatment and a model of chronic inflammation-induced hepatocarcinogenesis in *tg*1223 mice. (A) Immunohistochemical analysis of nuclear p65 translocation and real-time PCR for mRNA expression of selected NF-κB target genes in livers of C57BL/6 and various knock-out mice treated with 3C8. Data are presented on a log 2 scale (blue: upregulated; red: downregulated). Rows indicate individual mice; columns represent particular genes. Each data point reflects the median expression value of a particular gene resulting from 3-4 technical replicates, normalized to the mean expression value of the respective gene in C57BL/6 livers. (scale bar: 50μm). Expression data are depicted according to treatment group: rat IgG (control) or 3C8 (LTβR

agonist). Statistical significance was evaluated by t-test: * = p≤0.05; ** = p<0.001; *** = p<0.0001.

(B) Histological analysis (H&E) of livers from untreated (left column) and LTβR-Ig treated (right column) C57BL/6 or *tg*1223 mice (12 months of age). Representative sections show no hepatitis or HCC in untreated or LTβR-Ig-treated C57BL/6 livers (upper row). Untreated *tg*1223 livers display hepatitis in 34/34 (middle panel, left column) and HCC in 6/34 cases (lower panel, left column). LTβR-Ig treatment reduces the incidence of hepatitis (middle and lower panel, right column) and prevents HCC formation in LTβR-Ig treated *tg*1223 mice. Arrowheads indicate inflammatory foci. Tumor border is indicted by a dashed line (scale bar: 200μm).

(C) Scheme of chronic inflammation-induced liver carcinogenesis in *tg*1223 mice: Transgenic hepatocytes (brown) express LTα, LTβ and induce chemokine production (e.g. CCL2, CCL7, CXCL1, CXCL10) in the presence of IKKβ and intrahepatic lymphocytes. Chemoattraction and activation of myeloid cells and lymphocytes expressing particular chemokine receptors (e.g. CXCR3, CXCR2, CCR2, CCR1) causes hepatitis: CXCL10 attracts $CXCR3^+$ T- and NK-cells, CXCL1 $CXCR2^+$ T-, B-cells and neutrophils, CCL2 $CCR2^+$ macrophages and CCL7 attracts $CCR1^+$ monocytes. Activated, infiltrating immune cells secrete cytotoxic cytokines (e.g. IL6; IL1β, TNFα, IFNγ, LTαβ) that cause tissue destruction, hepatocyte proliferation, cell death and tissue remodeling. In such an environment, hepatocytes are susceptible to chromosomal aberrations leading to HCC. Tissue destruction and remodeling supports the infiltration of activated inflammatory cells (e.g. myeloid cells) leading to a feed-forward loop towards chronic aggressive hepatitis. Asterisks indicate that genetic depletion of those components (IKKβ; T- and B-cells) blocks chronic hepatitis development and HCC. Blocking LTβR signaling with LTβR-Ig in 9 month-old *tg*1223 mice reduces chronic hepatitis incidence and prevents HCC. **+**: indicates the fortification of a described process. ┤: indicates the suppression of a described process. The transcription factor RelA is schematically depicted

as a green circle, inducing transcription of NF-κB target genes (e.g. chemokines) (arrow). B, T: B- and T-cells. MØ: macrophages. N: neutrophils. NK: NK-cells.

Table 1

Table 1A: Incidence of chronic hepatitis and HCC in *tg*1223 mice and *tg*1223 mice intercrossed with various knock-out mice at 12 or 18 months of age. Statistical evaluation: *, **, *** indicate the degree of statistical significance: * = p<0.05; ** = p<0.001; *** = p<0.0001.

12 months

C57BL/6		*tg*1223	
chronic hepatitis	HCC	chronic hepatitis	HCC
0/25	0/25	34/34	6/34

***

*

18 months

C57BL/6		*tg*1223		*tg*1223 x *Ikkβ*$^{\Delta hep}$		*tg*1223 x *Rag1*$^{-/-}$		*tg*1223 x *Tnfr1*$^{-/-}$	
chronic hepatitis	HCC	chronic hepatitis	HCC	chronic hepatitis	HCC	chronic hepatitis	HCC	chronic hepatitis	HCC
0/35	0/35	51/51	18/51	0/25	0/25	0/26	0/26	12/12	4/12

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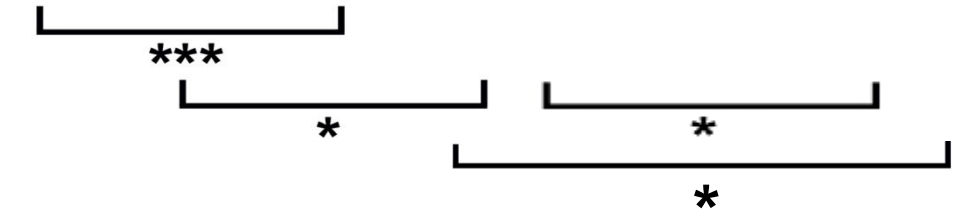
Table 1B: Reduced incidence of chronic hepatitis and HCC in *tg*1223 mice treated with LTβR-Ig at 12 months of age. Statistical evaluation: *, **, *** indicate the degree of statistical significance: * = p<0.05; ** = p<0.001; *** = p<0.0001.

12 months

C57BL/6		*tg*1223		C57BL/6 LTβR-Ig		*tg*1223 LTβR-Ig	
chronic hepatitis	HCC	chronic hepatitis	HCC	chronic hepatitis	HCC	chronic hepatitis	HCC
0/25	0/25	34/34	6/34	0/23	0/23	4/31	0/31



Haybaeck et al., Table 1

Figure 1

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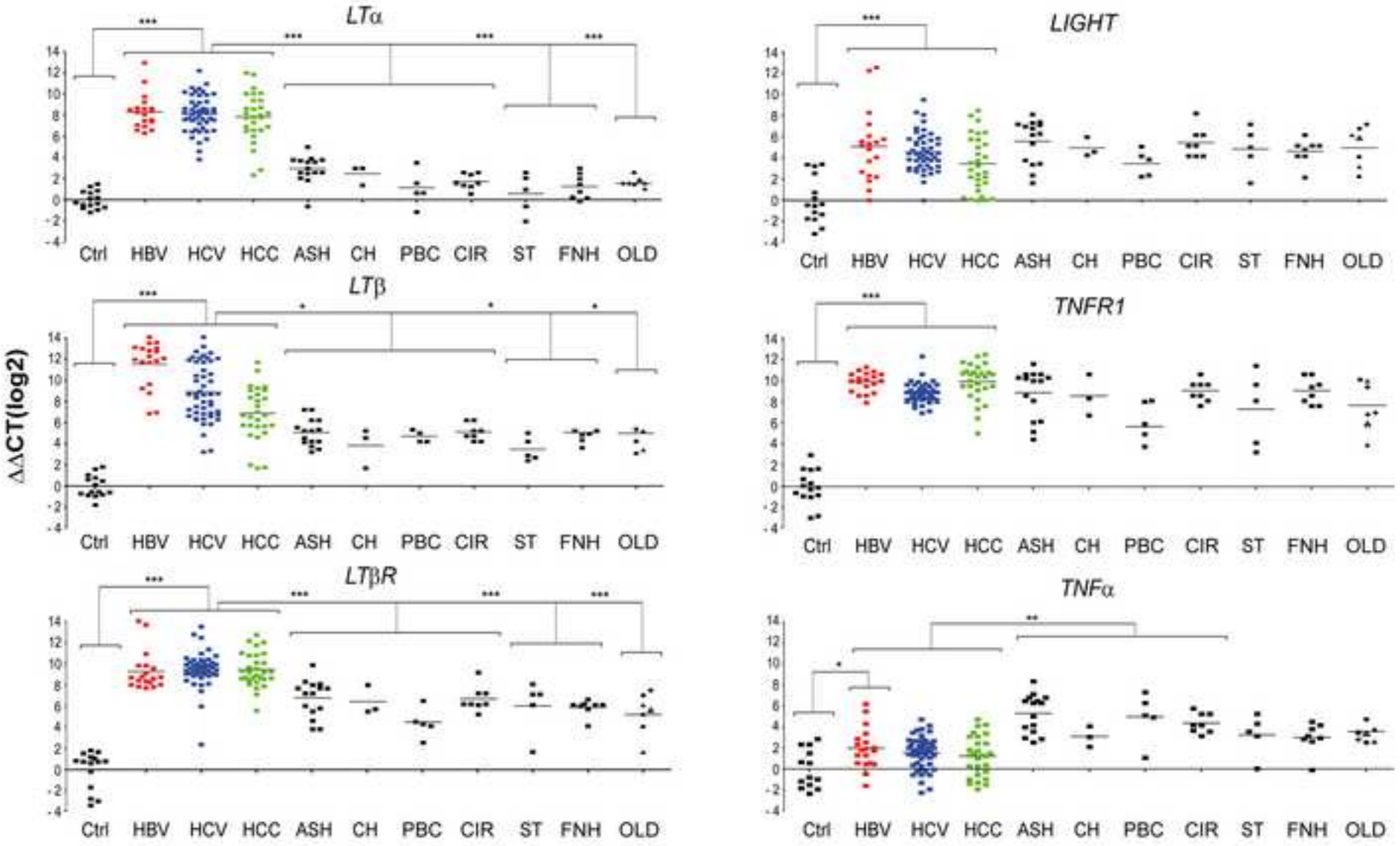

Haybaeck et al. Fig. 1

Figure 2

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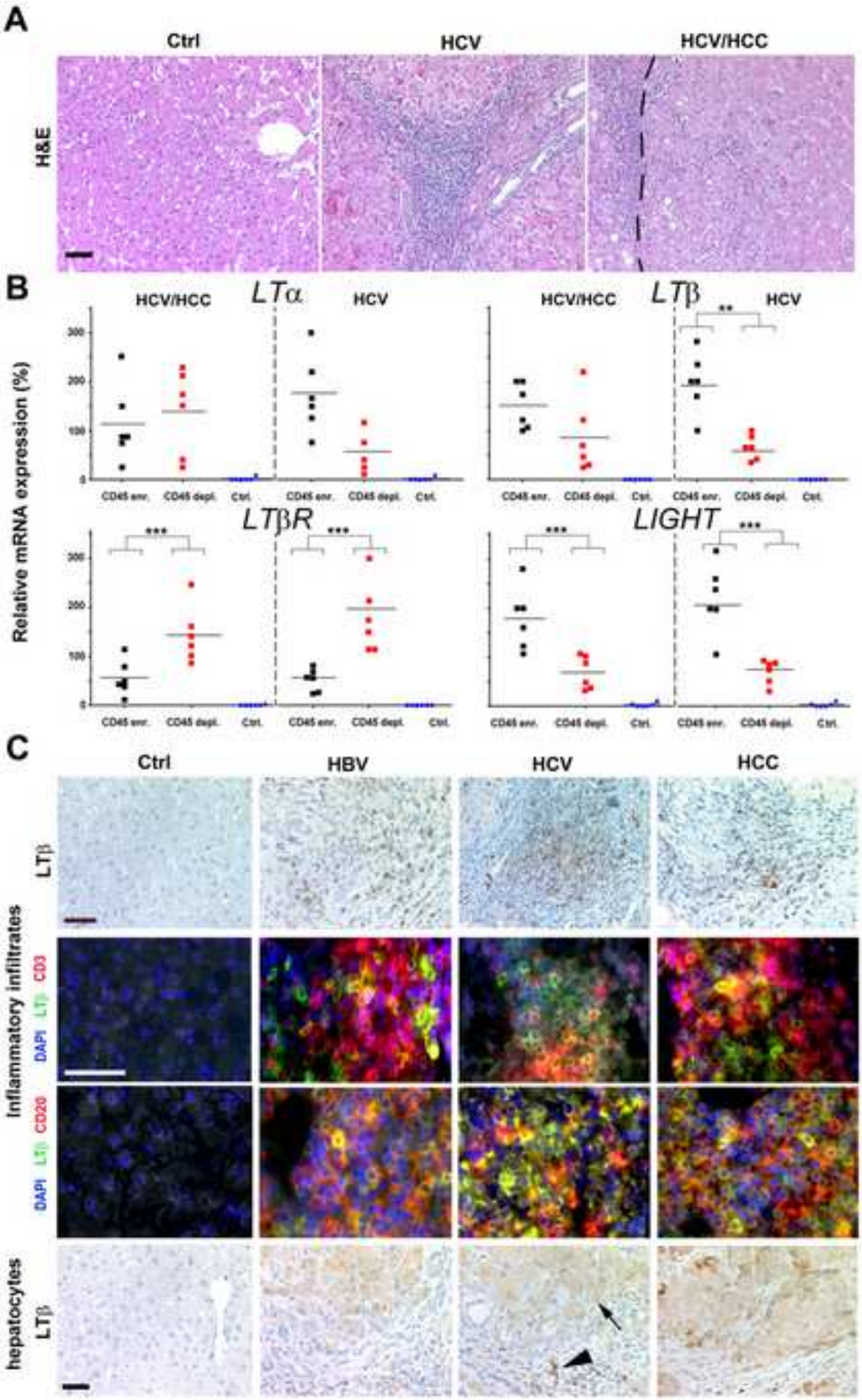

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Figure 3

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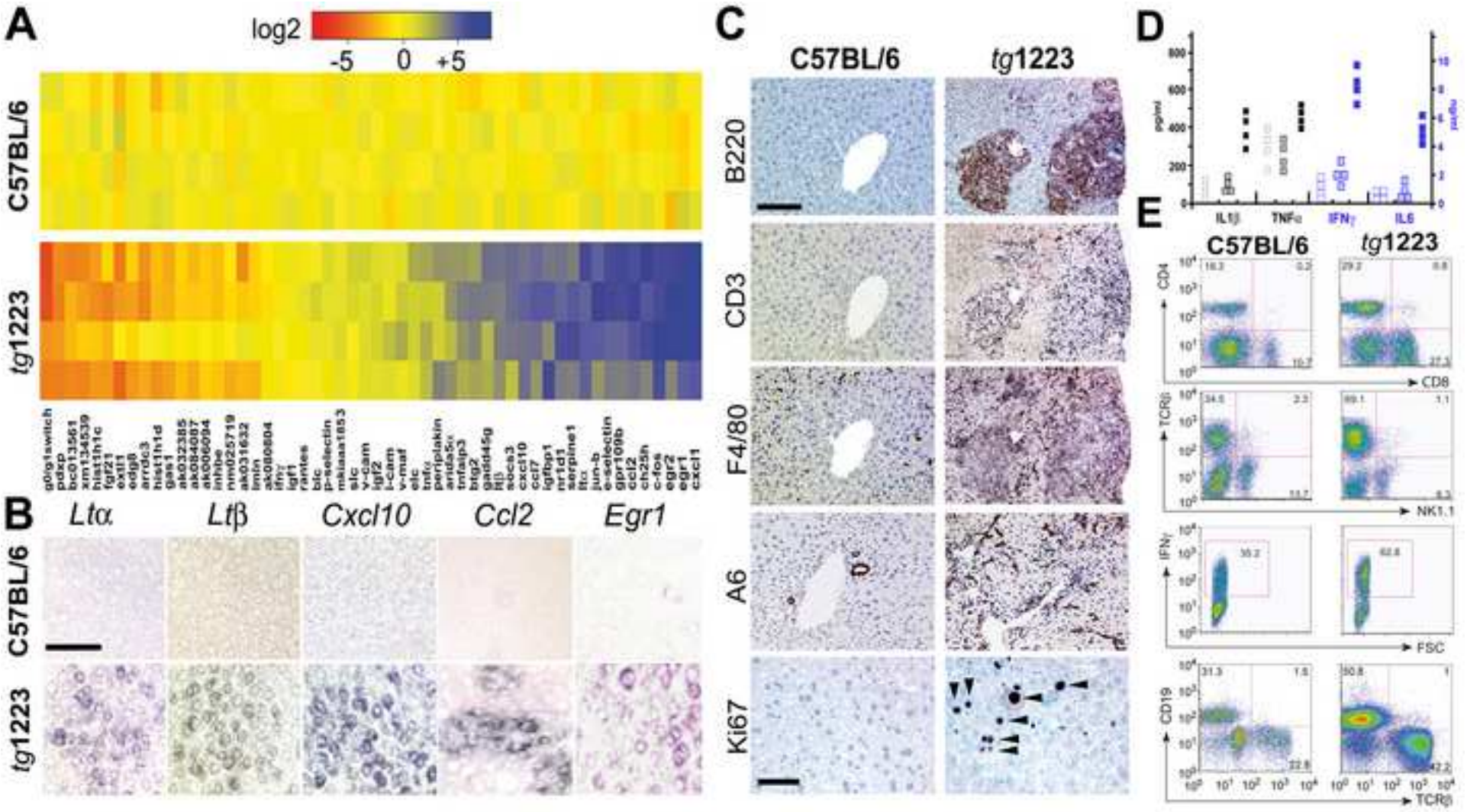

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Figure 4

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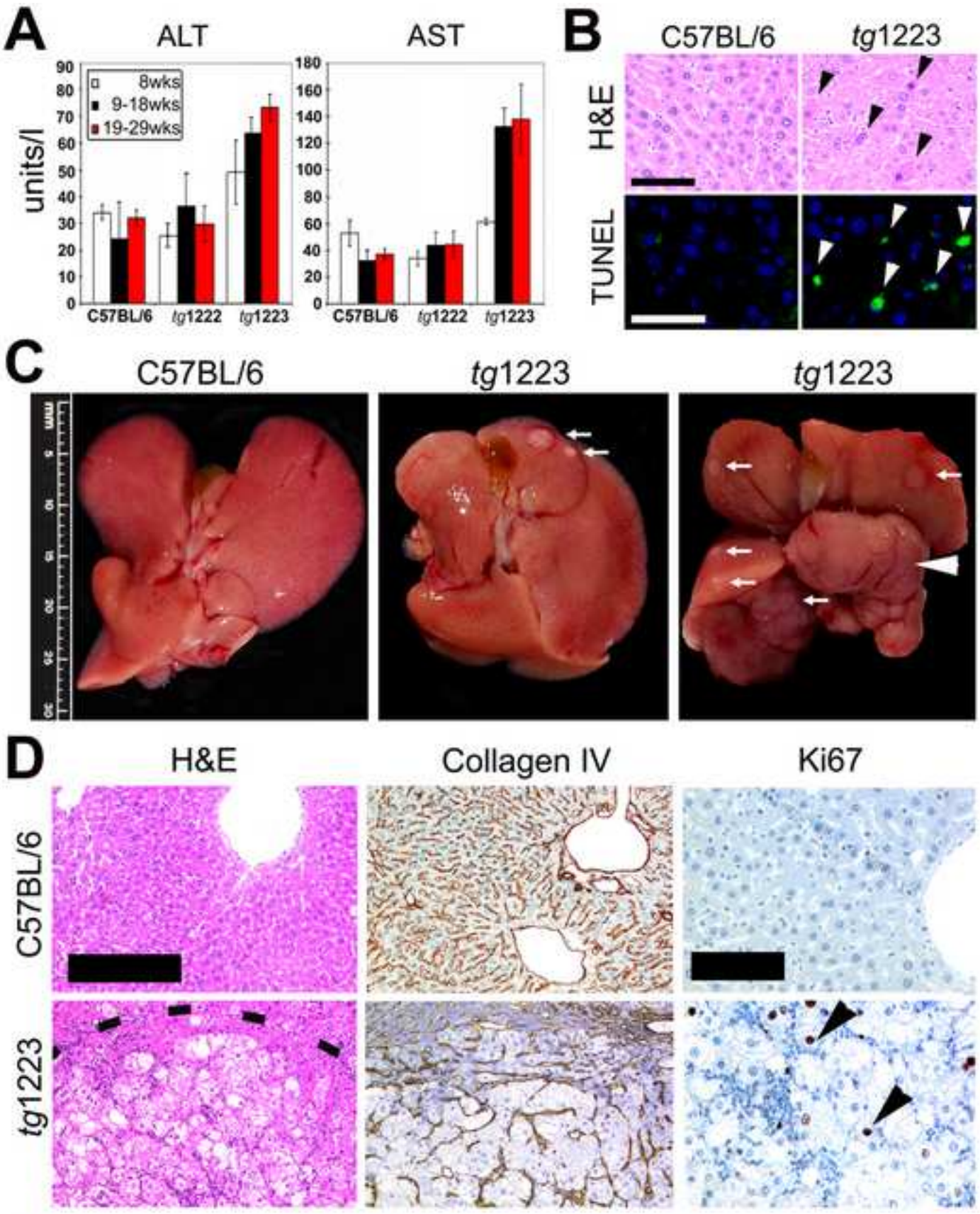

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Figure 5

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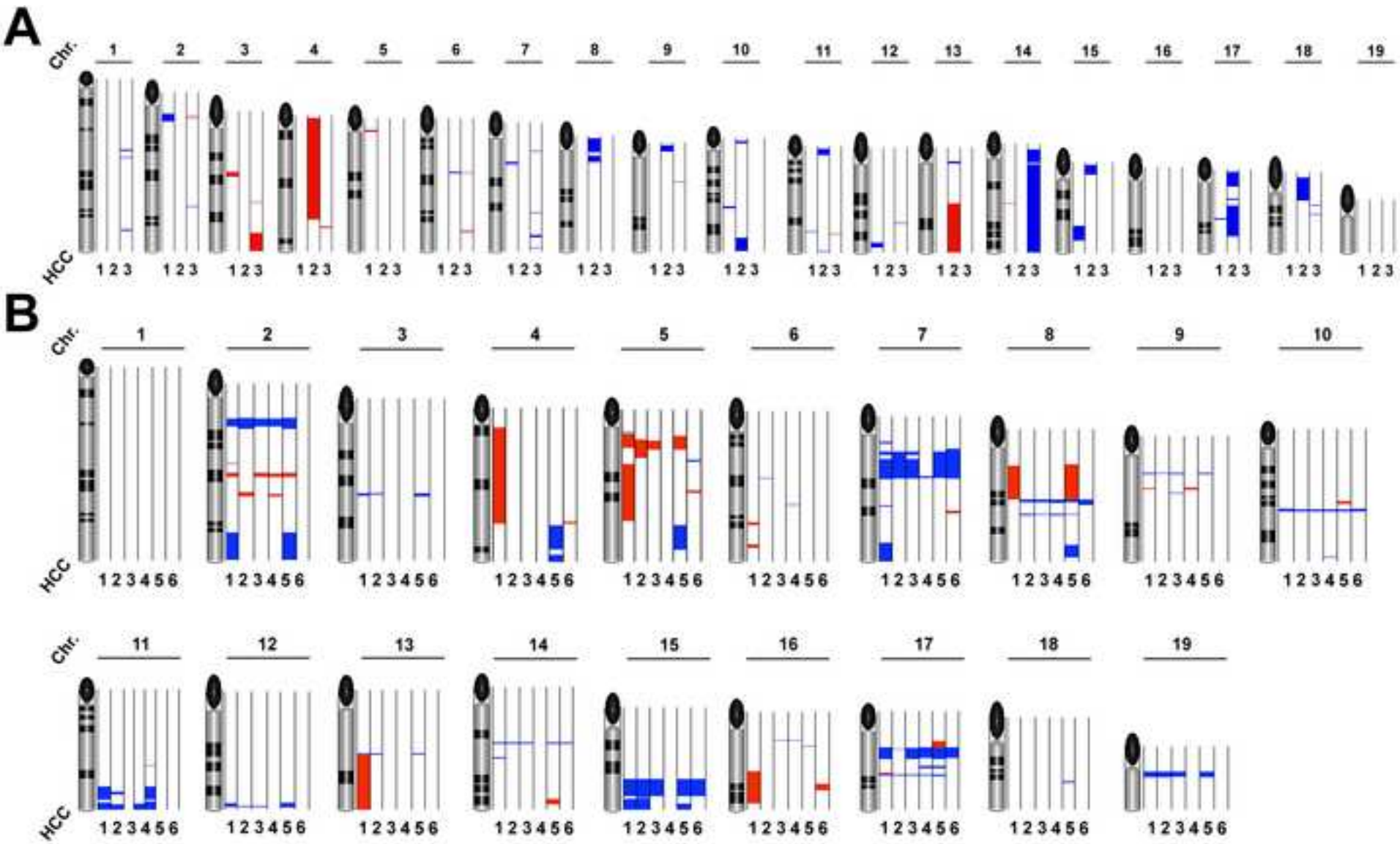

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Figure 6

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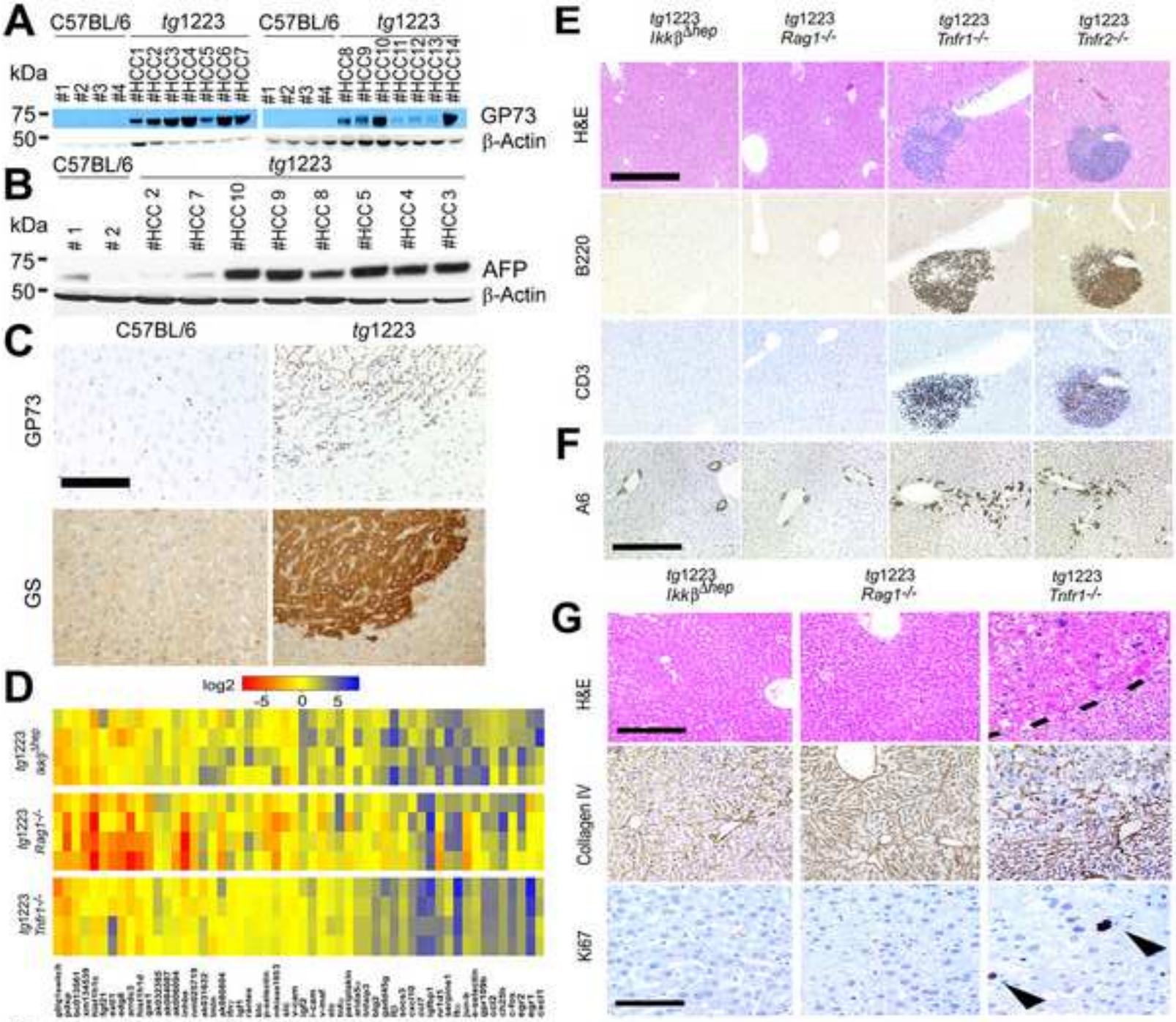

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Figure 7

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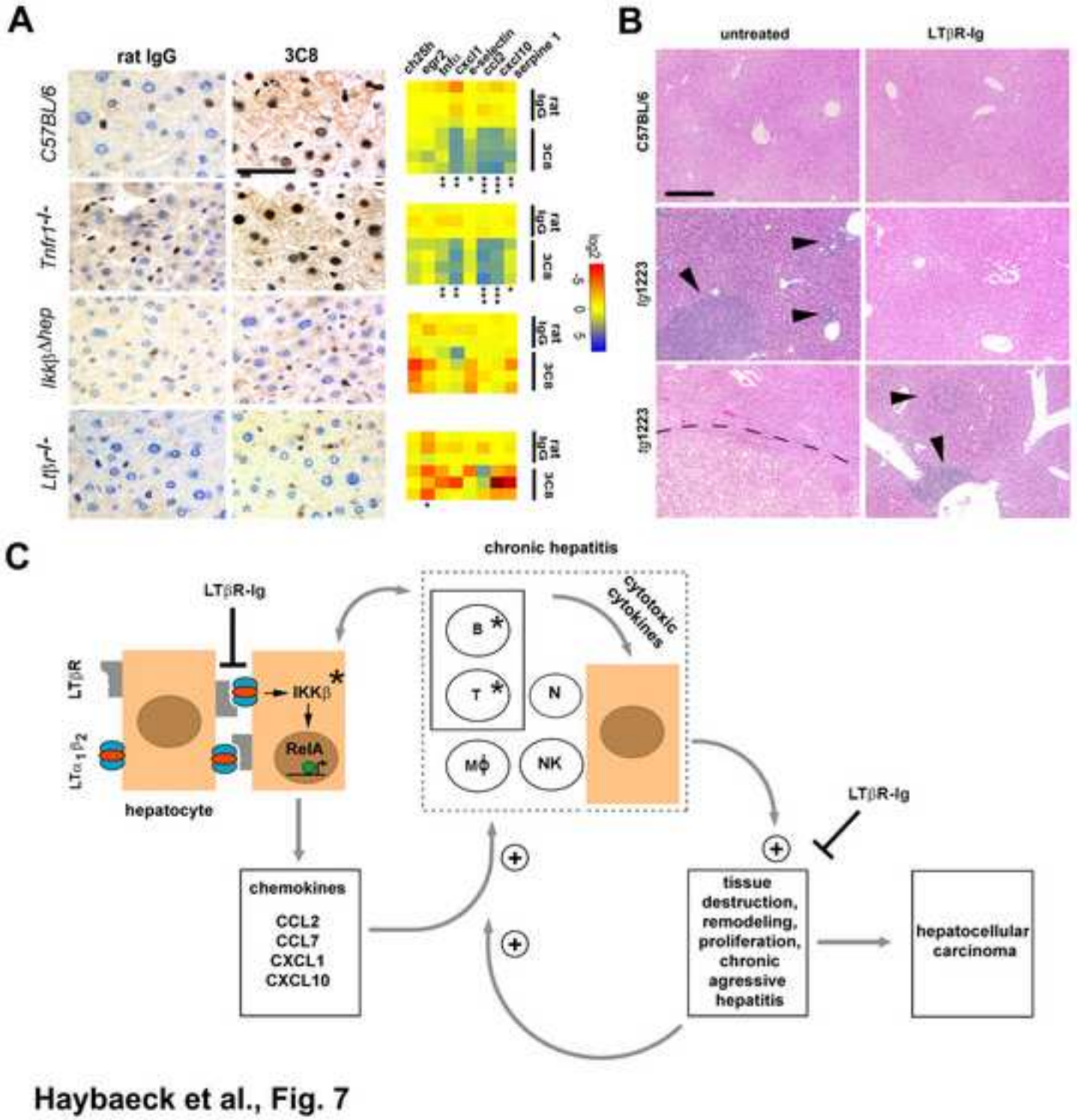

Haybaeck et al., Fig. 7

Supplemental material

Material and Methods

Generation of bi-transgenic mice overexpressing LTαβ specifically on hepatocytes: As previously published, bitransgenic mice expressing LTα and LTβ in liver under the control of the albumin promoter were generated (Heikenwalder et al., 2005). C57BL/6-Tg(LTab)1222 and C57BL/6-Tg(LTab)1223 mouse lines contained one copy per haploid genome of both AlbLTα and AlbLTβ transgenes, with expression restricted to liver and absent from spleen, thymus, mesenteric lymph nodes, pancreas, and kidney. C57BL/6-Tg(LTab)1223 mice were identified as the highest expressors and were selected for further experiments.

Histology and immunohistochemistry: Paraffin sections (2µm) and frozen sections (5 or 10µm) of livers were stained with haematoxylin/eosin or various primary and secondary antibodies. Paraformaldehyde (4%) fixed and paraffin embedded liver tissue was incubated in Ventana buffer and staining was performed on a NEXES immunohistochemistry robot (Ventana instruments, Switzerland) using an IVIEW DAB Detection Kit (Ventana). Antibodies against $B220^+$ B-cells (Pharmingen; 1:400), F4/80 (Serotec, 1:50) for macrophages, $CD4^+$ (YTS 191; 1:200) and $CD8^+$ T-cells (YTS 169; 1:50), $CD3^+$ T-cells (clone SP7, Neomarkers; 1:300) were kindly provided by R. Zinkernagel (Odermatt et al., 1991). Anti human and murine GP73 (both Santa Cruz Biotechnology, Inc.) were used as a tumor marker to characterize HCC. Anti murine Glutamine Synthetase (Abcam, Code ab16802; 1:500) was also used as tumor marker. Liver micro-architecture was evaluated by Collagen IV (IVIEW DAB Kit; 1:50), oval cell proliferation by A6 staining (1:50), kindly provided by Dr. Valentina Factor; both on a Ventana stainer from Roche. Ki67 (NeoMarkers Code RM-9106-S; 1:200) stained proliferating hepatocytes and lymphocytes. Image acquisition was either performed on an Axiophot-microscope (Zeiss), or an Olympus SZX12, equipped with a JVC digital camera (KY-F70; 3CCD) or on an Olympus BX61TRF fluorescent microscope equipped with an F-View camera and analyzed with the Analysis software.

RNA isolation from liver tissue: Total RNA from human and mouse liver samples was isolated using RNeasy Mini kit (Qiagen) or RNA-NOW kit (Biogentex-Ozyme). The quantity and quality of the RNA was determined spectroscopically using a nanodrop (Thermo Scientific). For microarray analysis, RNA quality was tested using a bioanalyzer (Agilent). Purified RNA was reversely transcribed into cDNA using Quantitect Reverse Transcription Kit (Qiagen) according to the manufacturer's protocol.

PCR specific for *tg*1222 and *tg*1223 mice: For transgenic LTα the following primers were used: Forward primer: (*Prp* 5'): 5'-CTG AGT ATA TTT CAG AAC TG-3'. Reverse primer: (LTα rev): 5'-CAG AGA AAA CCA CCT GGG AG-3'. For transgenic LTβ the following primers were used: Forward primer (Prp 5'): 5'-CTG AGT ATA TTT CAG AAC TG-3'. Reverse primer: (LTβ rev): 5'- GAG TCT CTG AGA GGC TAG AG-3'. The following PCR conditions were established on a Gene Amp® PCR System 9700 PCR machine (Applied Biosystems): 95°C 60 sec denaturation; 55°C 50 sec annealing; 72°C 50 sec elongation; 35 cycles.

Real-time PCR: For mRNA expression analysis real-time PCR was performed using Fast Start SYBR Green Master Rox (Roche) or specific TaqMan probes (Applied Biosystems, AB). Primers were custom made by Microsynth or purchased from AB or on a LightCycler® 480 Probes Master (Roche Diagnostics). Real-time PCR was performed on an ABI PRISM 7700 Sequence Detection System or on a 7900 HT Fast Real-Time PCR System (AB). Data were generated and analyzed using SDS 2.3 and RQ manager 1.2 software.

For human *LTβ* and *LTα* Taqman Gene Expression assays from AB were purchased. Hu *LTβ*: Hs00242739_m1(FAM-labelled); probe sequence: 5'-GCC CAC CTC ATA GGC GCT CCG CTG A-3'. Hu *LTα*: Hs00236874_m1(FAM labelled); probe sequence 5'-ACC TCA TTG GAG ACC CCA GCA AGC A-3'. TaqMan analysis for human 18s rRNA was performed with a TaqMan® ribosomal RNA control reagent (VIC™ Probe; AB; Part. No. 4308329). mRNA expression levels were normalized to the housekeeping gene GAPDH (mouse) or 18S rRNA and HPRT (human). Further primers used are listed in the Supplemental material. Efficiency of DNase digest was controlled by PCR of $DNase^{+}RT^{-}$ treated liver RNA samples.

In situ hybridization: In situ hybridization was performed as recently described (Prinz et al., 2004). In brief, sense and antisense probes for mLTα, mLTβ derived from a pGEM4 plasmid containing KpnI/ BamHI fragment of mLTα (GenBank: Y00467, corresponding to exon 4 of mLTα) or a pGEM plasmid containing Sau3AI fragment of mLTβ (GenBank: U06950, corresponding mainly to exon 3). Sense and antisense probes for mEGR1 were derived from a pBluescript plasmid containing BglII fragment of mEGR1 cDNA (NM_007913). Sense and antisense probes for CCL2 were derived from a pGEM-1 plasmid containing mCCL2 cDNA (Rollins et al., 1988). Sense and antisense probes for mCXCL10 were derived from a pBluescript plasmid containing 1065bp of the mCXCL10 cDNA. Sense and antisense probes were Digoxygenin (DIG) labelled according to the manufacturer's protocol with a DIG-labeling kit (Roche). Efficiency of Dig-labeling was quantified on a dot-plot on a positively charged nylon membrane (GE Healthcare, Germany). In situ hybridization was performed on freshly cut frozen sections (10-20μm, air-dried), post fixed in 4% PFA/PBS. Treatment with 0.1M HCl was performed for *Egr1* and *Ccl2* for 10 min. Tissues were then acetylated in 300ml of 0.1M triethanolamine containing 750μl acetic anhydride. Prehybridization was performed 3 hrs at RT (or at 60°C for 6hrs for *Cxcl10*) in 50% formamide, 5x SSC (5x), 5x Denhardt's solution, 250μg/ml *E. coli* t-RNA (Roche). Hybridization solutions consisted of prehybridization solution containing 50ng/50μl DIG-labelled RNA sense or antisense probes. Probes were denatured at 85°C for 5 min and then placed on ice. Prehybridization solution was then replaced by hybridization-solution, covered with a cover slip, sealed in a box, heated to 85°C for 30 min. (*Egr1, Ccl2*) and then incubated over night at 58-60°C. Washing was performed in pre-warmed SSC of different concentrations (and subsequently in PBT for CXCL10). For CXCL10 an RNase treatment (5μg/ml RNase in 2 x SSC) was performed between the washing steps. (Blocking was performed using blocking reagent in buffer 1 (100mM Tris-HCl pH 7.5; 150mMNaCl). Slides were incubated with anti-DIG AP (1:2000, Roche) at RT for 2-3 hrs. After subsequent wash in buffer 1 for 20mins twice, detection was performed in buffer 3 (100mM Tris-HCl pH 9.5; 150mMNaCl; 50mM $MgCl_2$) containing 1mM Levamisol; NBT and BCIP (Sigma, Germany). Reaction was stopped in 10mM Tris pH8.0

and 1mM EDTA. Slides were mounted in DAKO aqueous mounting medium and analyzed on an Axiophot-microscope (Zeiss), or an Olympus SZX12, equipped with a JVC digital camera (KY-F70; 3CCD).

Multiplex-bead assay: Cytokine protein levels from liver homogenates or sera were measured using a multiplexed particle-based flow cytometric cytokine assay (Vignali, 2000). Bioplex mouse cytokine kits were purchased from BioRad (Ismaning, Germany). The procedures closely followed the manufacturer's instructions. The analysis was conducted using a conventional flow cytometer (FC500 MPL, BeckmanCoulter, Nyon, Switzerland). The detection limits were as follows: CCL2 (12 pg/ml), CXCL1 (1 pg/ml), IL1β (0.3 pg/ml), IL6 (0.3 pg/ml), IFNγ (2.8 pg/ml). The homogenization buffer was tested as a negative control.

Analysis of different HCV genotypes: Different HCV genotypes were analyzed as recently published (Neumann-Haefelin et al., 2006).

ELISA: CXCL10 protein levels from liver homogenates or sera were measured using a Quantikine-Elisa-Kit from R&D Systems (Oxon, UK). The procedures closely followed the manufacturer's instructions. The detection limit was 16 pg/ml. The homogenization buffer was tested as a negative control.

Cytokine assay for TNFα: Livers were homogenized with a Dispomix (Medic tools) in 10 vol of Tris-HCl buffer (50mM, pH 7.4) with NaCl (0.6M), Triton X-100 (0.2%) and bovine serum albumin (0.5%) containing freshly dissolved protease inhibitors: benzamidine (1mM), phenylmethyl-sulfonyl fluoride (0.1mM) and Complete Mini Tablets (protease inhibitor cocktail Tablets; Roche). The supernatants were aliquoted and frozen at -80°C until the cytokine assays were performed. Profiling mouse kit for TNFα was purchased from R&D Systems (Wiesbaden-Nordenstadt, Germany). The procedures closely followed the manufacturer's instructions. The analysis was conducted using a conventional flow cytometer (LSRII from Becton Dickinson). The detection limit for TNFα was 0.4 pg/ml.

Gene expression microarray experiment and data analysis: An Agilent one-color microarray-based gene expression analysis (Mouse DNA Microarray 4x 44K) was performed on 3 and 9 months old *tg*1223 (n=4) and *Ikkβ*$^{\Delta hep}$ (n=4) livers in comparison to age matched C57BL/6 livers (n=3) according to the manufacturer's protocol. For HCC arising in 12 or 18 month-old *tg*1223 (n=3) or *tg*1223/*tnfr1*$^{-/-}$ (n=4) liver tissue was compared to non-affected *tg*1223 (n=3), non-affected *tg*1223/*tnfr1*$^{-/-}$ (n=4) liver regions as well as age matched C57BL/6 livers. In addition to biological replicates technical replicates were investigated.

Gene expression was quantified using Agilent Feature Extraction Software Version 9.5.3.1. Expression values were imported into GeneSpring 7.3 (Agilent Technologies, USA) and following Agilent's recommendation, all values less than 5.0 were set to a value of 5.0. For each sample all values were normalized to the respective 50th percentile. In case of the characterization of the *tg*1223 and *Ikkβ*$^{\Delta hep}$ liver samples at 3 and 9 months of age, hierarchical clustering and principal component analysis of the normalized values indicated a slight confounding effect based on different dates for the hybridization of the different samples. In order to compensate this effect, for each gene on each array, the expression values were normalized to the median of the values obtained from the C57BL/6 control samples on the respective day, giving rise to ratio values. Those genes were filtered out that did not have at least 75% present flags in at least one of the C57BL/6, *tg*1223 or *IKKβ*$^{\Delta hep}$ conditions at 3 or 9 months. Assuming normal distribution of the data, statistically significant, differentially expressed genes in *tg*1223 or *Ikkβ*$^{\Delta hep}$ livers were selected using a one-sample t-test that assessed whether the respective ratios did significantly differ from 1. The false discovery rate was controlled at a level of 0.05 using the method of Benjamini and Hochberg (Benjamini, 1995). In the study of individual HCC samples, each value for each sample was normalized to the 50th percentile of all expression values of the respective sample. For each pair of samples representing tumor-affected and unaffected region of the same liver, for each gene, the values were normalized to the values of the respective sample from the unaffected region. Individual fold changes of the strongest up- and downregulated genes of each HCC

samples in comparison to the median values of the C57BL/6 samples were reported after filtering out genes that did not have a present flag.

Gene Ontology microarray data analysis: Lists of significantly differentially expressed genes were investigated in respect to enrichment of Gene Ontology categories using the Gene Ontology Browser as implemented in GeneSpring 7.3. A Fisher's exact test was used to show whether more genes belonging to a Gene Ontology category are found in the list under investigation than in a randomized gene list of the same size.

Array-based Comparative Genomic Hybridization (aCGH): Agilent oligonucleotide array based CGH for Genomic DNA analysis for FFPE samples (Mouse Genome CGH Microarray 4x44K) was performed on paraffin embedded liver tissues according to the protocol provided by Agilent Technologies. Chromosomal copy number aberration in HCC samples of *tg*1223 livers in relation to C57BL/6 samples were investigated using aCGH (Agilent DNA Analytics 4.0 CGH Module User Guide). Log_2-ratios of signal intensity values of C57BL/6 (Cy5) versus signal intensity values of HCC (Cy3) samples were computed with Agilent Feature Extraction software Version 9.5.3.1. Log_2 ratios were imported into the DNA Analytics Software 4.0.76 (Agilent Technologies, USA). Saturated and non-uniform data points were filtered out. Values of probes that occurred several times within one chip were combined and averaged. The aCGH data were then normalized in a linear way using DNA Analytics centralization method. Aberrations were detected using the Aberration Detection Method Nr.1 (ADM-1) as implemented in the DNA Analytics software (Agilent DNA Analytics 4.0 CGH Module User Guide, Agilent Technologies, Inc. 2008) with standard settings. Those aberrations that were not covered by more than two probes, were filtered out. Single log_2 ratio intensities, moving average of these ratios and aberration detection results were graphically displayed in the genome browser of the DNA Analytics software.

In addition, the aCGH data were analyzed using Partek® Genomics Suite software, version 6.4 (Copyright © 2008, Partek Inc., St. Louis, USA). After importing the array data into Partek, we transformed it into adjusted copy number data as described in the manual.

Amplifications and deletions were detected by applying the genomic segmentation workflow. The optimal segmentation and region report parameters were found by following an iterative procedure (Partek support, personal communication) and finally set as follows: minimum number of genomic markers = 10, segmentation *P*-value = 0.001, signal to noise ratio = 0.2, expected range = 0.3, region p-value = 0.01. On the resulting segmentation data we applied the workflow to find regions in multiple samples, reporting all regions that were significant in at least two samples. The related cytobands are indicated for each chromosome as horicontal bars. Annotations for these regions are available under supplemental online material. The cytoband information was obtained from the UCSC genome bioinformatics database (http://genome.ucsc.edu).

Statistical significance of amplification and deletion patterns in aCGH for monoclonal tumors was calculated by applying a permutation test. The samples were compared pair-wise as follows using an in-house written program. First, the sequence overlap (o) of amplifications/deletions was calculated for the two samples. Then, the amplifications/deletions of one sample were kept but randomly distributed on the other sample and the new overlap (r_i) calculated. This step was repeated $n = 1 \times 10^7$ times and r = sum ($r_i > o$) computed. Finally, the p-value for the pair-wise comparison was estimated as p = r/n.

Western-blot analysis: 10% liver homogenates were prepared in RIPA buffer (50mM Tris; 1%NP40; 0.25% Deoxycholic acid sodium salt; 150mM NaCl; 1mM EGTA) containing 1mM Na_3VO_4 and a protease inhibitor cocktail (Complete Mini Tablets; Roche) and quantified with a BCA protein assay kit (Pierce) according to the manufacturer's manual. 60μg protein were denatured in Laemmli buffer containing 5% β-mercaptoethanol and separated by gel electrophoresis on a 12% Bis-Tris gel (Invitrogen) with a 1 x NuPAGE MES-SDS running buffer (Invitrogen) and blotted by wet blotting onto a nitrocellulose membrane (Protran BA 85 pore size 0.45μm; Whatman). After blotting the membrane was blocked in Roti-Block (Carl Roth) for 2 hrs at RT. Primary antibody GP73 (sc-48011; Santa Cruz; 1:500 dilution) was incubated at 4°C over night under shaking conditions. Incubation with the secondary

antibody (HRP-donkey anti goat IgG H+L; 705.035-147 Lot72963; 1:15000; Jackson) was performed under shaking conditions for 1 hr. Primary antibody AFP (#2137; Cell Signaling; 1: dilution) was incubated at 4°C over night under shaking conditions.

Detection was achieved with Supersignal West, chemiluminescent Substrate (Pierce). For signal detection a VersaDoc, standard exposure 15-30 sec was used. To assure equal loading, the membranes were reprobed with anti-β-actin antibody (Sigma) and detected as described above.

Liver-cell extraction and freezing: For the isolation and analysis of liver cells we included six patients with histologically proven HCC infection who had undergone curative hepatectomy and proven persistent HCV infection in the University Hospital, Grenoble. Exclusion criteria included co-infection with human immunodeficiency virus, hepatitis B or hepatitis delta virus other causes of liver disease, alcohol consumption higher than 30g/day, inflammatory syndrome, previous antiviral treatment and previous liver transplantation. Liver and tumor tissues derived from curative hepatectomy were washed twice in a complete medium, containing RPMI 1640 supplemetned by 10% Fetal Calf Serum (Gibco), and continuous shaking for 2 min. Tissues were cut into pieces with in Petri dishes containing 10ml complete medium and 100µl DNase (3mg/ml) (Boehringer Mannheim). 10% collagenase D (10mg/ml) (Roche Diagnostic Germany) was added and incubated for 20 to 30 min at 37°C. Cell suspensions were then filtered (100µm mesh) and 10% of fetal calf serum (FCS) was added in the final volume and then centrifuged at 15000 rpm twice to remove debris. The cells were then counted with a hemocytometer and stored in 10% DMSO in liquid nitrogen or on -80°C.

Separation of $CD45^+$ and $CD45^-$ cells by microbeads: Frozen cell suspensions were thawn and viability was checked by Acridine/propidium iodide with the help of fluorescent microscope and the percentage of living cells was quantified. Leukocytes numbers were then counted with a hemocytometer. Cell sorting was performed as previously described (Vigan et al., 2003) with the following modifications: Cells were incubated with a biotinylated anti-

human CD45 antibody (BD Pharmingen) (1µl of anti CD45 for 1×10^6 of target cells) for 20 min on ice and in dark followed by a washing step with 10 volumes of PBS to remove unbound antibody. Then, the cells were incubated with streptavidine coupled microbeads (Invitrogen, Norway) in PBS with 0.1% BSA and 2mM EDTA, pH 7.4 for 30 min at 2-8°C with gentle tilting and rotation as manufacturer instructions (50µl of microbeads for 2.5×10^6 target cells). Cells were then separated into two fractions with a magnetic column i.e. one with cells bound to microbeads (leukocytes) and the second fraction consisting of unbound cells (hepatocytes, tumor cells and others). After performing additional washing steps to remove trapped liver or tumor cells, cells were eluted from the column. Both cell fractions were then used for RNA extraction.

Counting of proliferating hepatocytes: The total number of $Ki67^+$ hepatocytes was counted (number of $Ki67^+$ hepatocytes/ visual field of 2 mm^2). For each mouse/ genotype (n=8) 10 visual fields were counted. Statistics was performed (*tg*1223 versus C57BL/6 mice).

Statistical evaluation: Human specimens and various mouse groups were compared using a oneway ANOVA with post-hoc Bonferroni test and a Fisher's exact test with Bonferroni correction and a chi-square test with exact *P*-values to evaluate statistical significance. Analyses were evaluated by using the program SPSS 13.0 (SPSS Inc., Chicago, IL). Student's t-test was used to evaluate the statistical significance of hepatic cytokine and transaminase levels.

Primer sequences used for real-time PCR analysis (murine):

gene	fwd-sequence (5'-3')	rev-sequence (5'-3')
ak006094	CGG TTT TAA TCT GAG TGC	GCA ATG AAA GTT TCT TTT AG
ak031632	CCT AAT TAG GTT CTA TAG TG	GTT CTA AGA AAC ATC AAA TGC
ak032385	GGA TCC AAC TCT AGT CCT TT	GAT GTGATG GGT TCT AAT C
ak080904	CTT GTC TTT ACT TAC GTC TC	CCT TGG ACT AAA TCA GAA ACC
ak084087	GGT GGT GGA AAT ACT ATC ATG	GCC AAG AAG TAA CAT CTC
arid5a	TCC CGC AGC TTC CTG TAT C	GAC CAG CCT CTC ATA GGT GC
arrdc3	ATG GTG CTG GGA AAG GTA AAG	CGC TAG AAT ACA CGG GGA CAT TA
bc013561	CTG AGG TTT CTT GGT AAT GC	CAC TTT CAA CAG CCA ATT TAA C
blc	CCA TTT GGC ACG AGG ATT CAC	ATG AGG CTC AGC ACA GCA AC
btg2	ATG AGC CAC GGG AAG AGA AC	GCC CTA CTG AAA ACC TTG AGT C
ccl2	TTA AAA AAC CTG GAT CGG AAC CAA	GCA TTA GCT TCA GAT TTA CGG GT
ccl7	GCT GCT TTC AGC ATC CAA GTG	CCA GGG ACA CCG ACT ACT G
c-fos	AGA CTT CTC ATC TTC AAG TT	AAG ATG GCT GCA GCC AAG T
ch25h	TGC TAC AAC GGT TCG GAG C	AGA AGC CCA CTG AAG TGA TGA T
cxcl1	CTG GGA TTC ACC TCA AGA ACA TC	CAG GGT CAA GGC AAG CCT C
cxcl10	AAG TGC TGC CGT CAT TTT CT	CCT ATG GCC CTC ATT CTC AC
edg8	GCT TTG GTT TGC GCG TGA G	GGC GTC CTA AGC AGT TCC AG
egr1	AGG TTC CCA TGA TCC CTG ACT	GGT ACG GTT CTC CAG ACC CTG
egr2	CAG GAG TGA CGA AAG GAA GC	GAA GAC TGG GCA GAT GGA GG
elc	GCC TCA GAT TAT CTG CCA T	AGA CAC AGG GCT CCT TCT GGT
e-selectin	CTG CAG TTC TGA CGT GTG GT	GAG CAA TGA GGA CGA TGT CA
extl-1	TTC TGG CTG GCG TTG TCA G	GGG TTC GTC TCA GAC TGG GA
fgf21	CTG CTG GGG GTC TAC CAA G	CTG CGC CTA CCA CTG TTC C
gadd45g	GGG AAA GCA CTG CAC GAA CT	AGC ACG CAA AAG GTC ACA TTG
gapdh	CCA CCC CAG CAA GGA GAC T	GAA ATT GTG AGG GAG ATG CT
gas1	CCA TCT GCG AAT CGG TCA AAG	GCT CGT CGT CAT ATT CTT CGT C
gpr109b	CTG GAG GTT CGG AGG CAT C	TCG CCA TTT TTG GTC ATC ATG T
g0/g1switch	TAG TGA AGC TAT ACG TTC TGG GC	GTC TCA ACT AGG CCG AGC A
hist1h1c	AAC CCC AGG CTA AGA AGG C	TGG CTT TAC GGC TTT AGA CGC
hist1h1d	GTG GAG AAG ACA CCT GTG AAG	CCT TGG CTG GAC TCT TTG CT
icam1	TGC GTT TTG GAG CTA GCG GAC CA	CGA GGA CCA TAC AGC ACG TGC CAG
ifny	TCA AGT GGC ATA GAT GTG GAA GAA	TGG CTC TGC AGG ATT TTC ATG
igfbp1	ATG GGT GCT GCC TGC GGT GTG G	GGT GAG GGC ATG CAG GGG ACG AG
igf1	GGA CCG AGG GCT TTT ACT TCA A	TCG ATA GGG ACG GGG ACT TCT G
igf2	CCG GCT ACC ACA ATG TCC TGC TCT	GCT CCC GCC TGA TGT AAC CTG TCT
inhbe	AAA AGC CCA GCT CTG GCT AAT	CTG GTT AGG TGC AGT CCC TC
jun-b	TCA CGA CGA CTC TTA CGC AG	CCT TGA GAC CCC GAT AGG GA
lmln	TGC TGA CGG GCA TTT ACG AAT	TGT CGC ACA TTG TCT GCT AAG
lta	TCC ACT CCC TCA GAA GCA CT	AGA GAA GCC ATG TCG GAG AA
ltb	TAC ACC AGA TCC AGG GGT TC	ACT CAT CCA AGC GCC TAT GA
mkiaaa1853	GTC TCG GGG CCA GGA GAA G	GAG CTC CGG GCT GTG GAT G
nm025719	ATG TCG CCT GTA TCC CGA TCT	GTA GCG GTC GTT CTC CAG A
nr1d1	TAC ATT GGC TCT AGT GGC TCC	CAG TAG GTG ATG GTG GGA AGT A
pdxp	ATG AGT CAC ATT CGG GAC CAT	AGG GCA GGA AAT AAG GCC AC
periplakin	CAA AGG CAA ATA CAG CCC AAC	TTC CAC CTG GTC TGC ATT CTT
p-selectin	GAA AGG GCT GAT TGT GAC CCC	AGT AGT TCC GCA CTG GGT ACA
rantes	ATG CCG ATT TTC CCA GGA CC	TTT GCC TAC CTC TCC CTA GAG CTG
serpine-1	TTC AGC CCT TGC TTG CCT C	ACA CTT TTA CTC CGA AGT CGG T
slc	ATG ATG ACT CTG AGC CTC C	GAG CCC TTT CCT TTC TTT CC
socs3	TCC CCG ACT GGG TCT TGA C	GCG GGC ACC TTT CTT ATC C

tnfa	CAT CTT CTC AAA ATT CGA GTG ACA A	TGG GAG TAG ACA AGG TAC AAC CC
tnfaip3	GAA CAG CGA TCA GGC CAG G	GGA CAG TTG GGT GTC TCA CAT T
vcam	TAC CAG CTC CCA AAA TCC TG	CGG AAT CGT CCC TTT TTG TA
vmaf	TTC GAC CTT CTC AAG TTC GAC G	TCG AGA TGG GT TTC GGT TCA
xm134539	CAC TGG TCA ACT GCT TTT C	CTC TCT ACC TAT ACC CGA TG
adcyap1r1	CTG CGT GCA GAA ATG CTA CTG	AGC CGT AGA GTA ATG GTG GAT AG
baz2a	CAG AGG GTA TGT GTC TGT CTG A	GAA CTC CAC GAT GGT CAA GCA
dmrta1	CCC AAC TTT CGA GGT TTT CCA	CCC AGA GAA TGG TGA TGA GTG TT
dntt	CTG GCA TTC ATG CGA GCA TC	GAA GGC CCG GCG ATC ATA G
elovl6	GAA AAG CAG TTC AAC GAG AAC G	AGA TGC CGA CCA CCA AAG ATA
fbxl5	TTC AGC AGC GCA GTC AGA C	CAG CAT CTC GGA GAG CTT ATT G
fbxo21	CCT GTA CCT GGC GAT GTA CC	AGC ACC TTC AAG ACA AGA CAG A
hmgcll1	ATG GGG AAT CTA CCA TCT GCT	AGG GAG TCC AGG TAA CTG AGA
nrtk2	CTG GGG CTT ATG CCT GCT G	AGG CTC AGT ACA CCA AAT CCT A
olfr1508	ACT GTG GTC CTG ATG AGA TTG A	GGG GTA ACA GCA GTG AAA AAC AC
pbef1	GCA GAA GCC GAG TTC AAC ATC	TTT TCA CGG CAT TCA AAG TAG GA
per3	AAC ACG AAG ACC GAA ACA GAA T	CTC GGC TGG GAA ATA CTT TTT CA
phlda3	CCG TGG AGT GCG TAG AGA G	TCT GGA TGG CCT GTT GAT TCT
prm1	CCG TCG CAG ACG AAG ATG TC	CAC CTT ATG GTG TAT GAG CGG
serpina9	AAA CCC AGG TCA GAA TAT CCT CT	GGA CGA GGT ACT CGA AGC C
slpi	GGC CTT TTA CCT TTC ACG GTG	TAC GGC ATT GTG GCT TCT CAA
srgap3	TCC TGT GAA CAA CTG TCG TCT	CAC GCC CAC AAT TCC CTC C
st8sia3	AGT GTG CTA GGG CTG GTC AT	TGG CGT ACT TGG GAG TGG T
sulf1	TGT GTT CCA CCG TTC GGT C	CAC ATC CTG GTC GTC AGT GAG
thrsp	ATG CAA GTG CTA ACG AAA CGC	CCT GCC ATT CCT CCC TTG G
tmem45b	ACC ACA AGG GCT TGA AGA ATA AC	GGT GCA GGT GAG GTC CAT C
tmem51	CAA AGC CAA CGG CTC ACA CTA	GCT TAT CCG CAG GGC TGA AA
tnnt2	CAG AGG AGG CCA ACG TAG AAG	CTC CAT CGG GGA TCT TGG GT
ucp2	ATG GTT GGT TTC AAG GCC ACA	CGG TAT CCA GAG GGA AAG TGA T
upp2	GGG AGC GTC CAG AGT ATG G	CTG GTA GGT TGT GTG TTT TGG T
wee1	GTC GCC CGT CAA ATC ACC TT	GAG CCG GAA TCA ATA ACT CGC
ltbr	TCA AAG CCC AGC ACA ATG TC	TTA TCG CAT AGA AAA CCA GAC TTG C
tnfr1	GCA GTG TCT CAG TTG CAA GAC ATG TCG G	CGT TGG AAC TGG TTC TCC TTA CAG CCA C

Primer sequences used for real-time PCR analysis (human):

gene	fwd-sequence (5'-3')	rev-sequence (5'-3')
ltbR	GAG AAC CAA GGT CTG GTG GA	GAG CAG AAA GAA GGC CAG TG
light	CTG GCG TCT AGG AGA GAT GG	CTG GGT TGA CCT CGT GAG AC
cd45	CCA ATG CAA AAC TCA ACC CTA	CTC CTC TCT CCT GGG ACA TCT
cytokeratin18	CCC GCT ACG CCC TAC AGA	GCG GGT GGT GGT CTT TTG
CD3	GTG ACC TGG CTT TAT CTA CTG GA	GGT ATC TTG AAG GGG CTC ACT
CD20	AAC AAA ATC TCT ACT TTG ATG	GCA AGG CCT ACT GCT GAG TT
hprt	GAC CAG TCA ACA GGG GAC AT	GTG TCA ATT ATA TCT TCC ACA ATC AAG
ccl2	CAT TGT GGC CAA GGA GAT CTG	CTT CGG AGT TTG GGT TTG CTT
ccl3	CTC TGC ACC ATG GCT CTC TGC AAC	TGT GGA ATC TGC CGG GAG GTG TAG
ccl5	CCC CTC ACT ATC CTA CC	TCA CGC CAT TCT CCT G
cxcl1	ATG GCC CGC GCT GCT CTC TCC	GTT GGA TTT GTC ACT GTT CAG
cxcl10	TAT TCC TGC AAG CCA ATT TTG TC	TCT TGA TGG CCT TCG ATT CTG
tnfa	CTC TGG CCC AGG CAG TCA GA	GGC GTT TGG GAA GGT TGG AT
tnfr1	CTG CCT CAG CTG CTC CAA A	CGG TCC ACT GTG CAA GAA GAG
lta	CCA CCC TAC ACC TCC TCC TT	AGT CTG GGC AGC TGA AGG T
ltb	GAG GAC TGG TAA CGG AGA CG	GGG CTG AGA TCT GTT TCT GG

References

Benjamini, Y. a. H., Y. (1995). Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing. J R Statist Soc B *57*, 289-300.

Heikenwalder, M., Zeller, N., Seeger, H., Prinz, M., Klohn, P. C., Schwarz, P., Ruddle, N. H., Weissmann, C., and Aguzzi, A. (2005). Chronic lymphocytic inflammation specifies the organ tropism of prions. Science *307*, 1107-1110.

Neumann-Haefelin, C., McKiernan, S., Ward, S., Viazov, S., Spangenberg, H. C., Killinger, T., Baumert, T. F., Nazarova, N., Sheridan, I., Pybus, O.*, et al.* (2006). Dominant influence of an HLA-B27 restricted CD8+ T cell response in mediating HCV clearance and evolution. Hepatology *43*, 563-572.

Odermatt, B., Eppler, M., Leist, T. P., Hengartner, H., and Zinkernagel, R. M. (1991). Virus-triggered acquired immunodeficiency by cytotoxic T-cell-dependent destruction of antigen-presenting cells and lymph follicle structure. Proc Natl Acad Sci U S A *88*, 8252-8256.

Prinz, M., Montrasio, F., Furukawa, H., van der Haar, M. E., Schwarz, P., Rülicke, T., Giger, O., Häusler, K. G., Glatzel, M., and Aguzzi, A. (2004). Intrinsic resistance of oligodendrocytes to prion infection. J Neurosci *24*, 5974-5981.

Rollins, B. J., Morrison, E. D., and Stiles, C. D. (1988). Cloning and expression of JE, a gene inducible by platelet-derived growth factor and whose product has cytokine-like properties. Proc Natl Acad Sci U S A *85*, 3738-3742.

Vigan, I., Jouvin-Marche, E., Leroy, V., Pernollet, M., Tongiani-Dashan, S., Borel, E., Delachanal, E., Colomb, M., Zarski, J. P., and Marche, P. N. (2003). T lymphocytes infiltrating the liver during chronic hepatitis C infection express a broad range of T-cell receptor beta chain diversity. J Hepatol *38*, 651-659.

Vignali, D. A. (2000). Multiplexed particle-based flow cytometric assays. J Immunol Methods *243*, 243-255.

Supplemental Fig. 1

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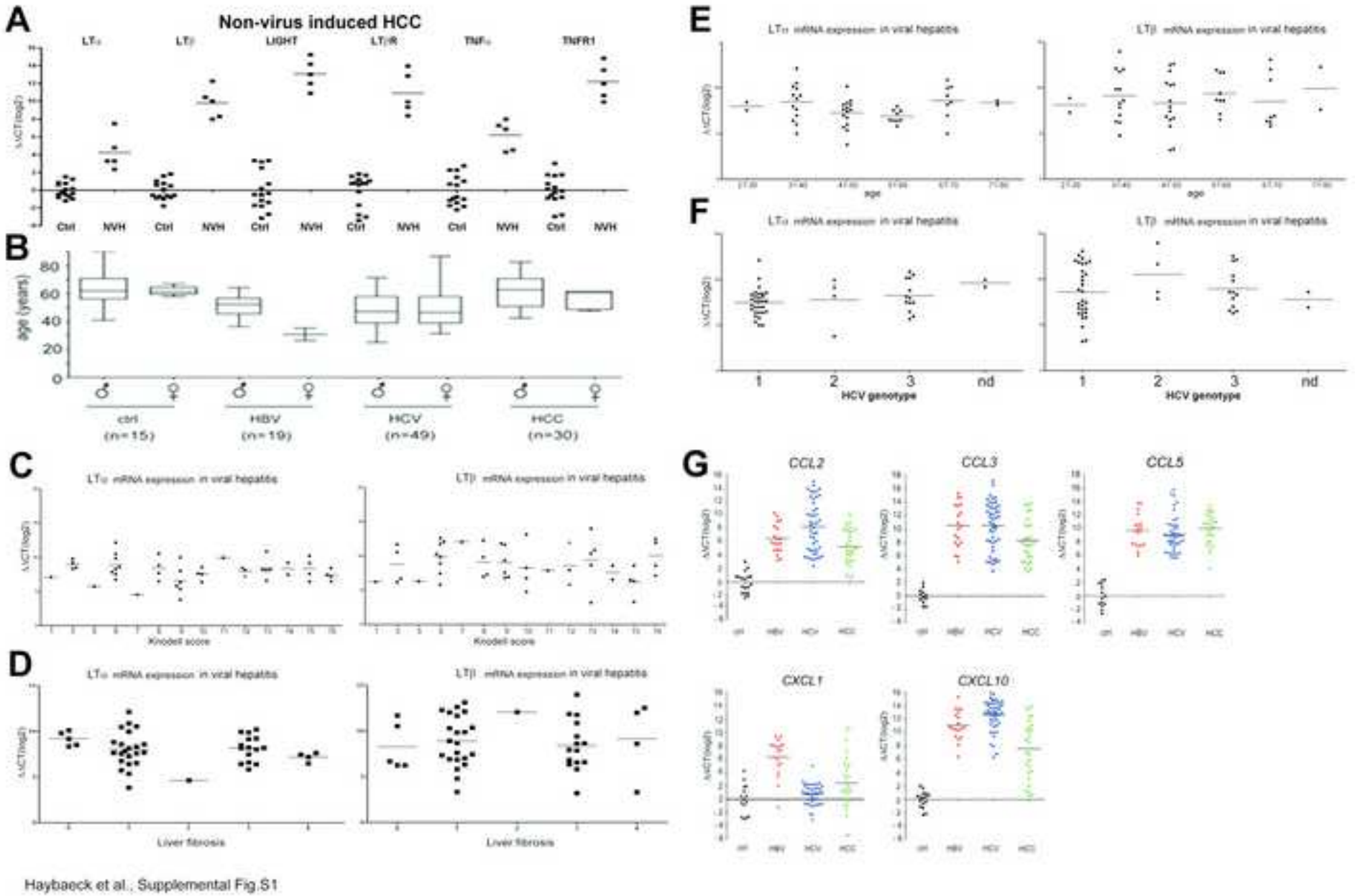

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Supplemental Fig. 2

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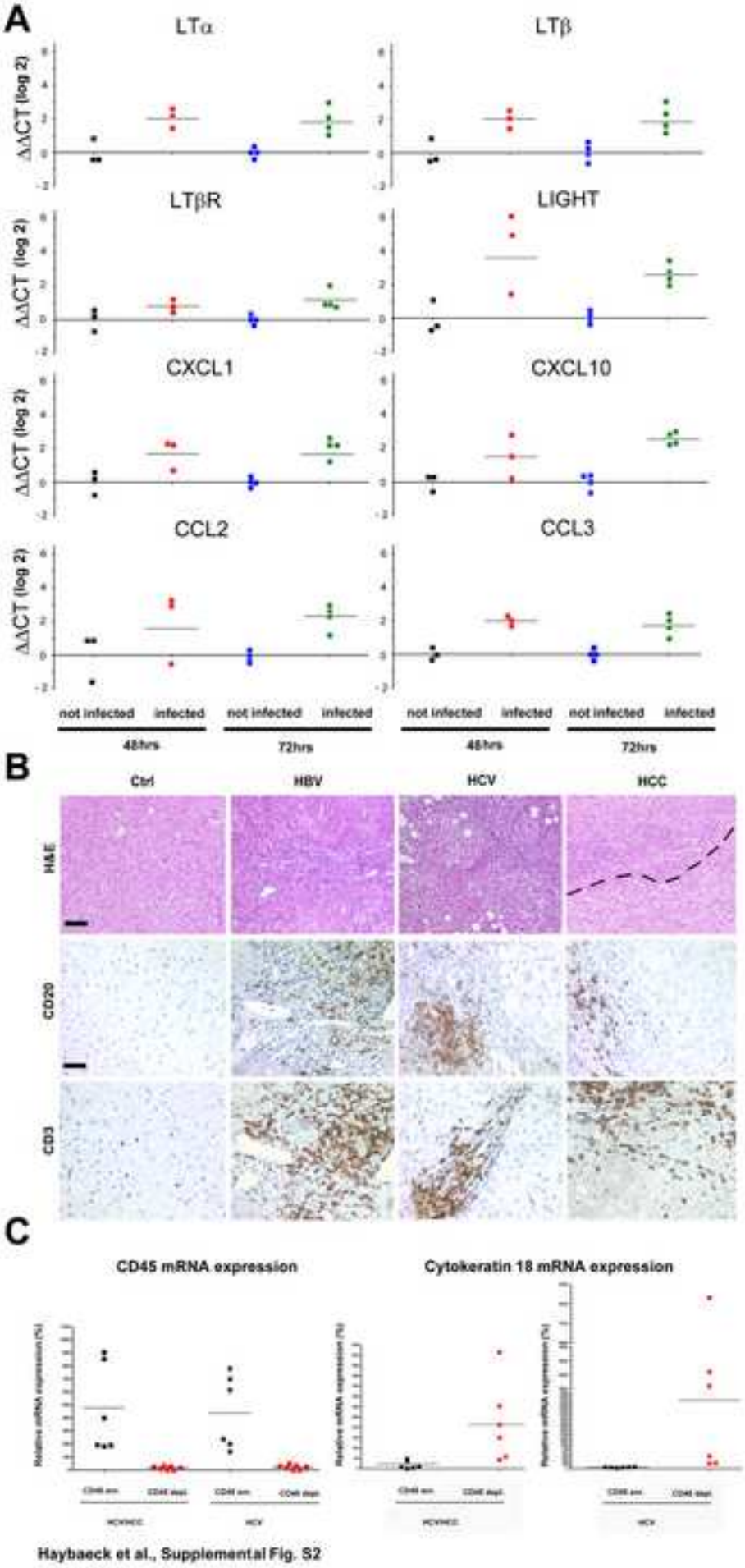

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Supplemental Fig. 3

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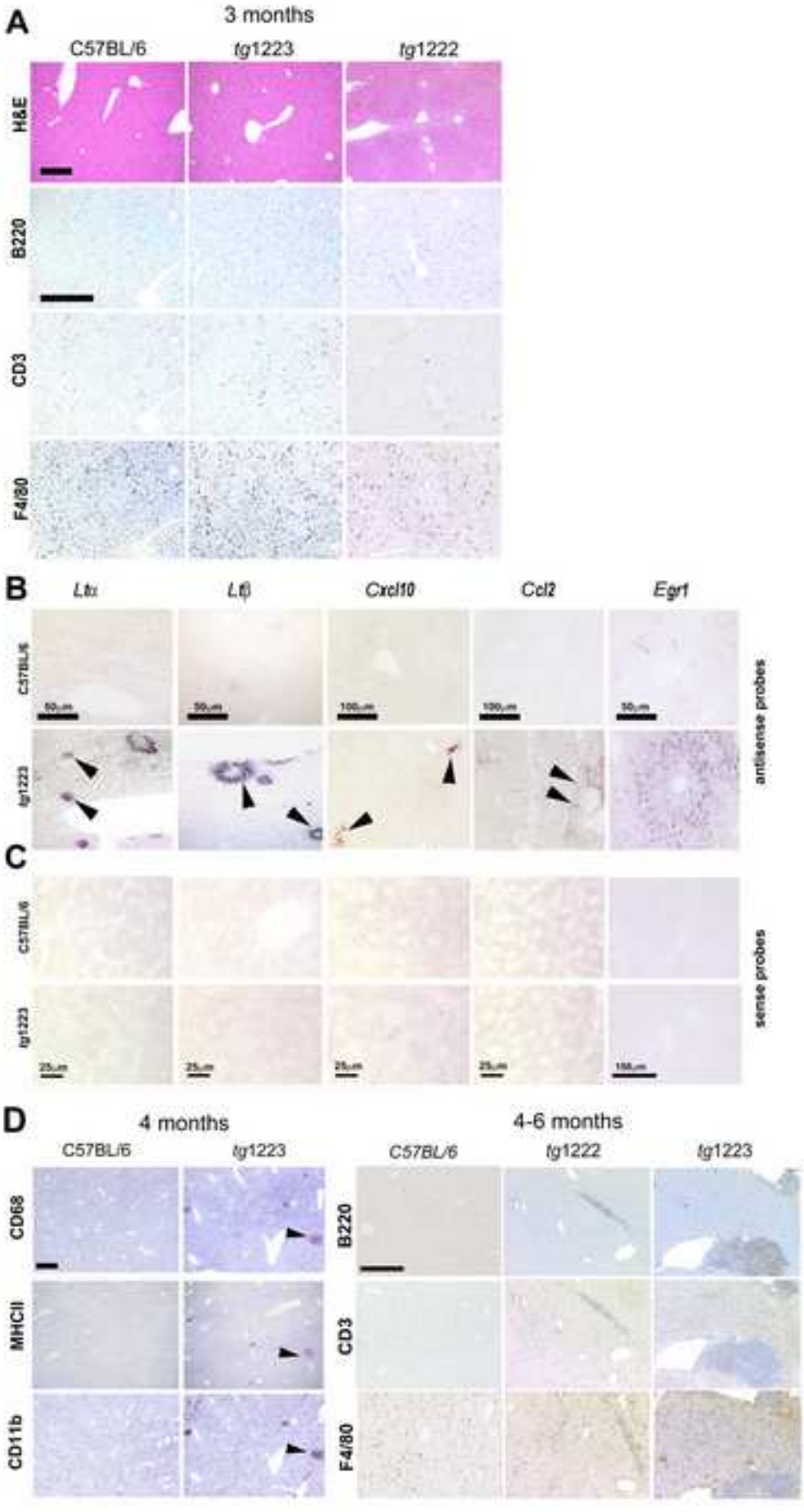

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Supplemental Fig. 4

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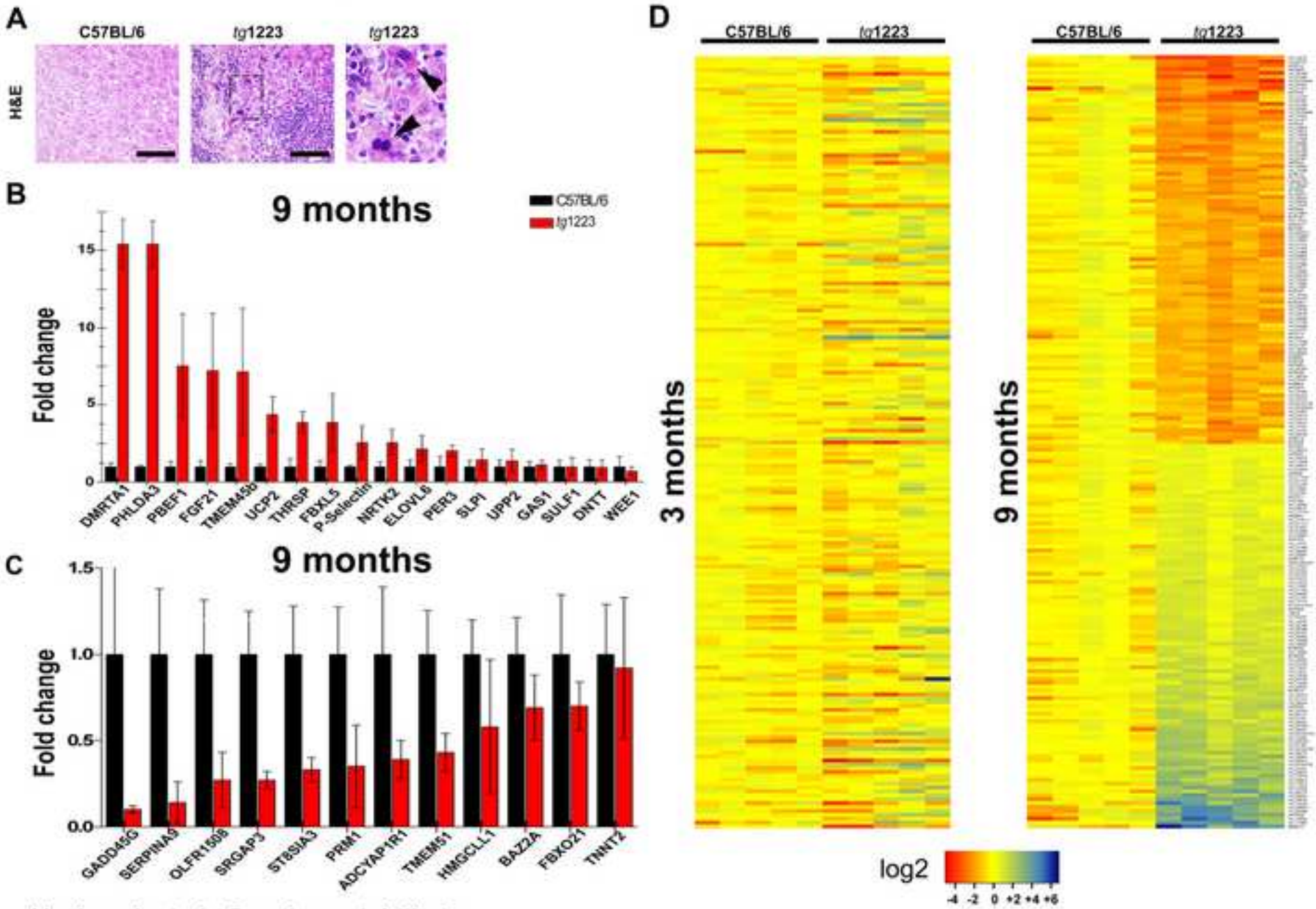

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Supplemental Fig. 5

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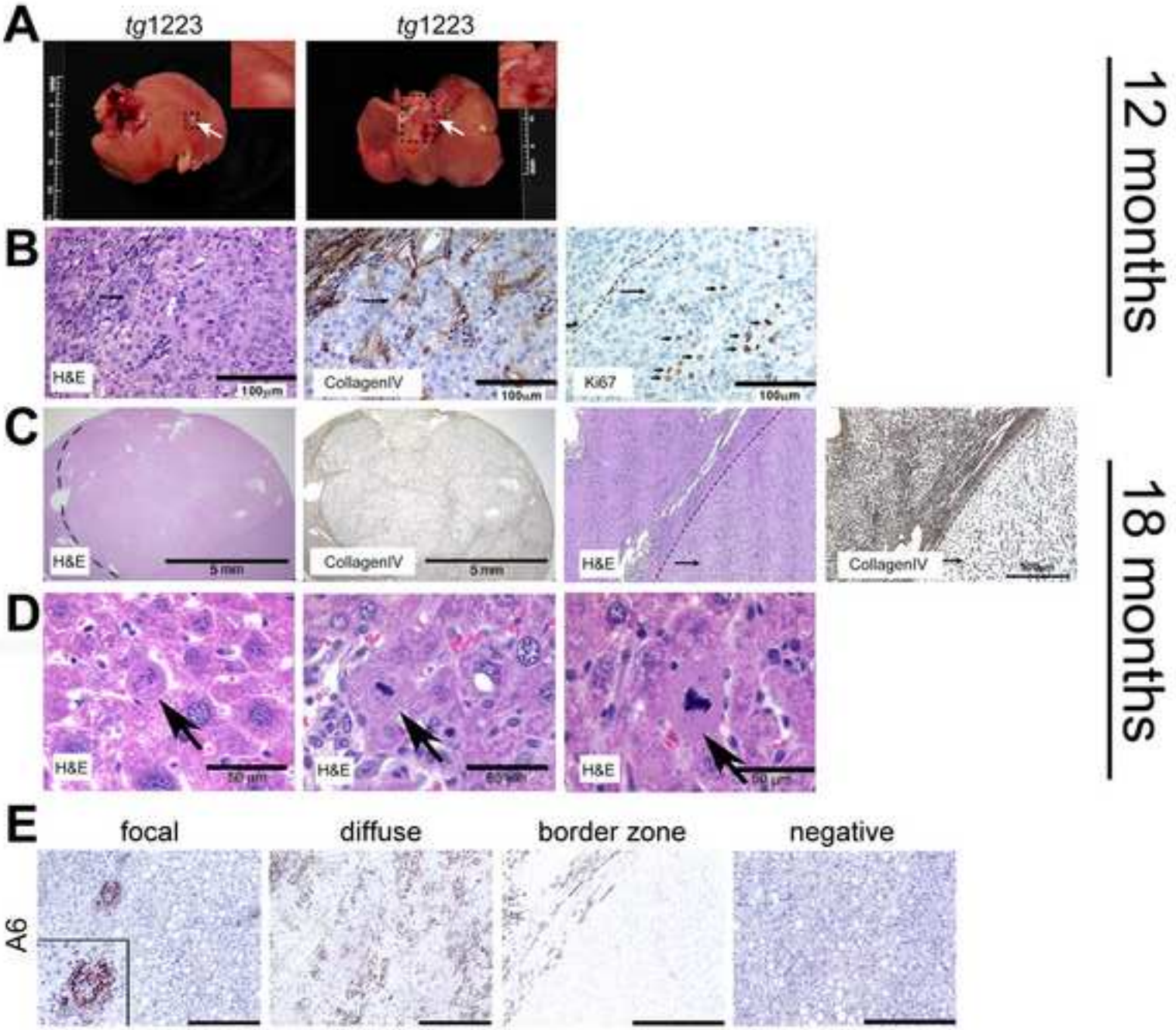

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Supplemental Fig. 6

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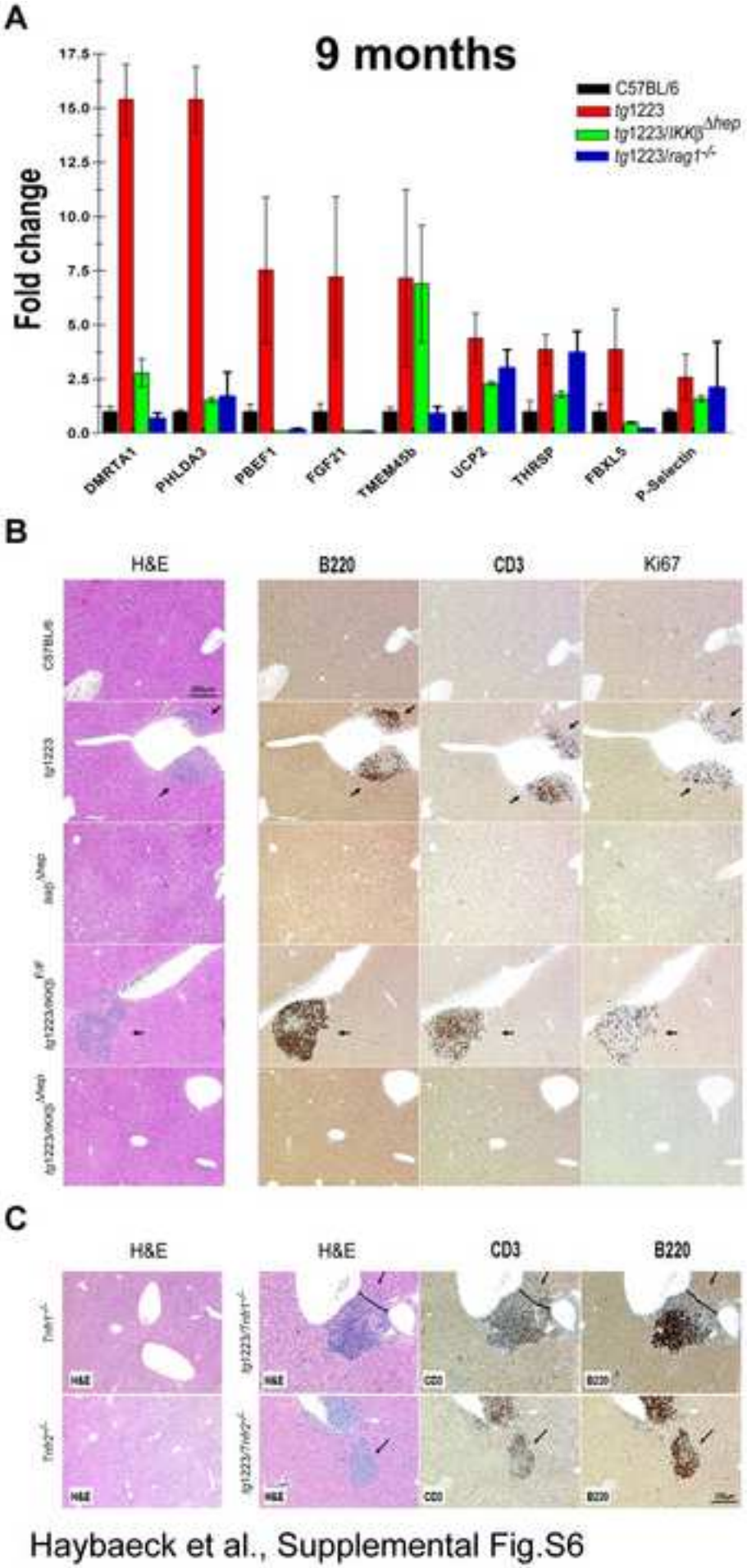

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Supplemental Fig. 7

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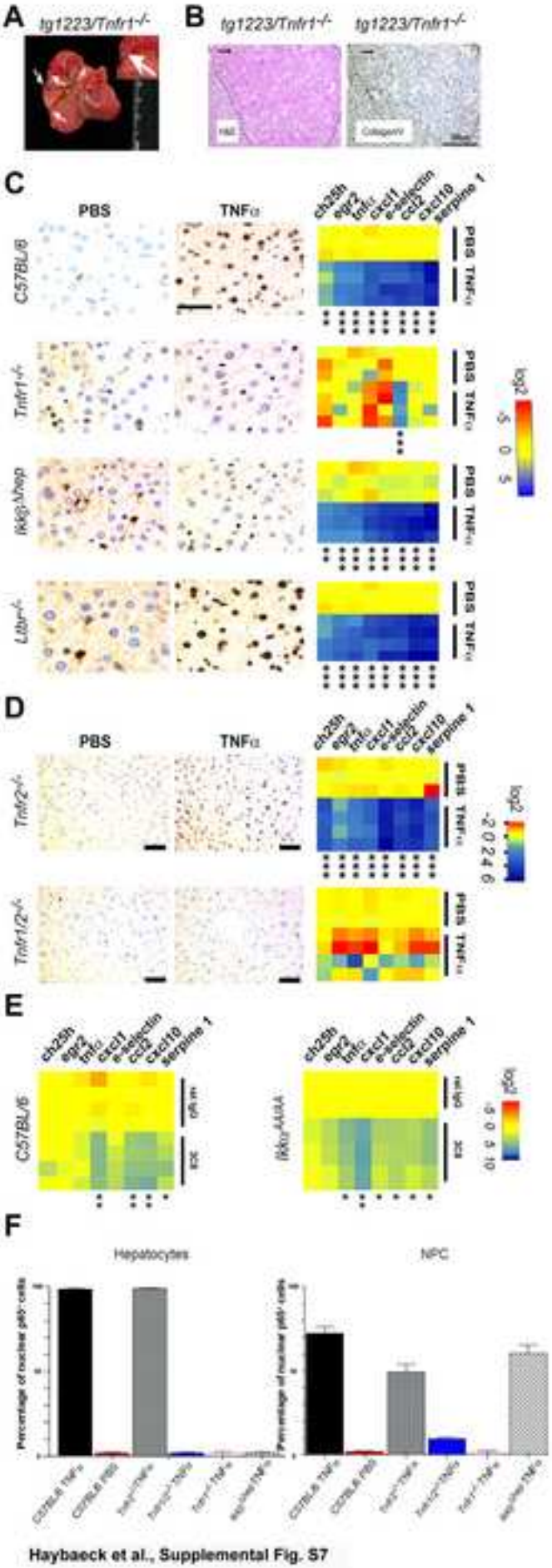

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Supplemental Fig. 8 final

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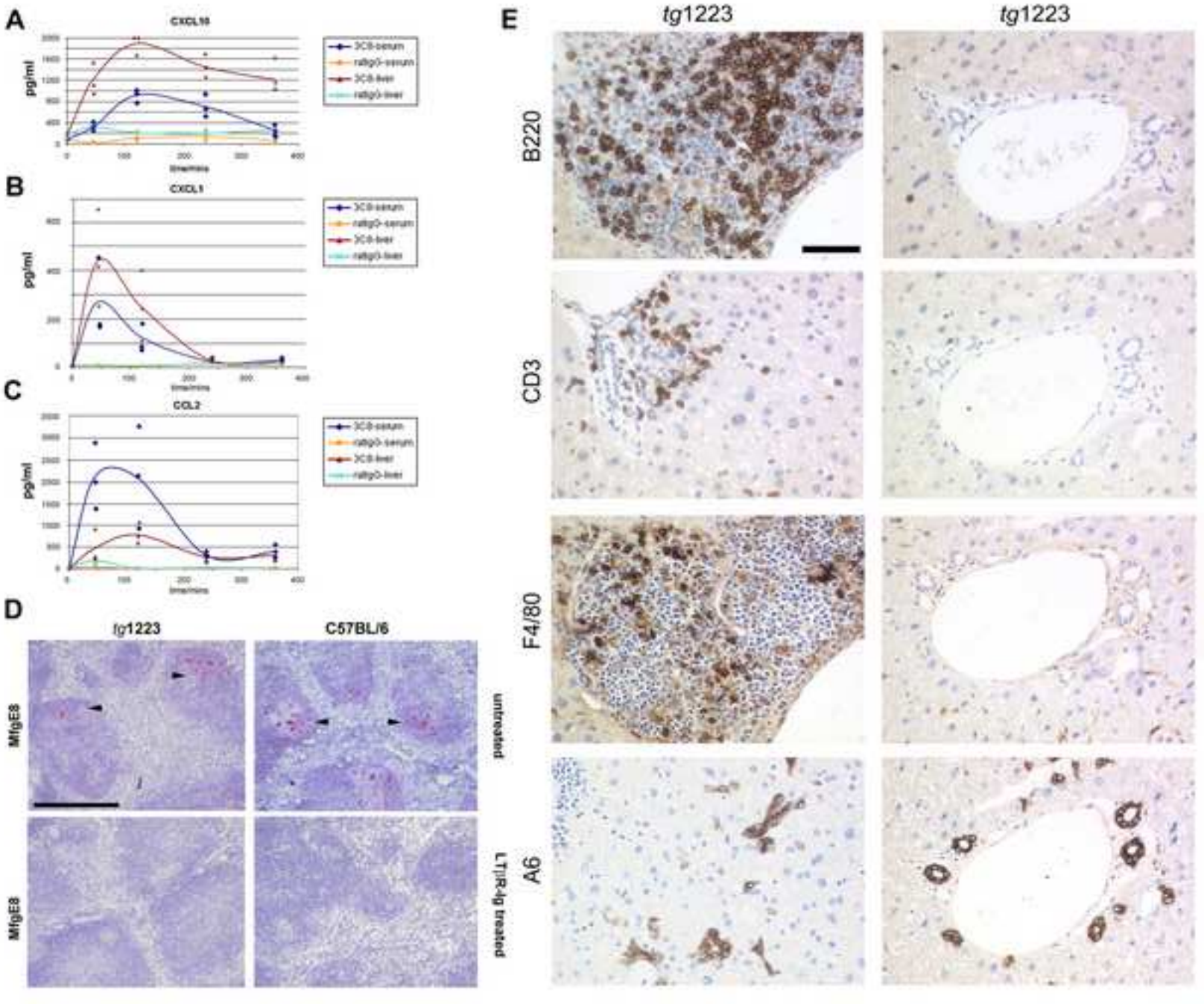

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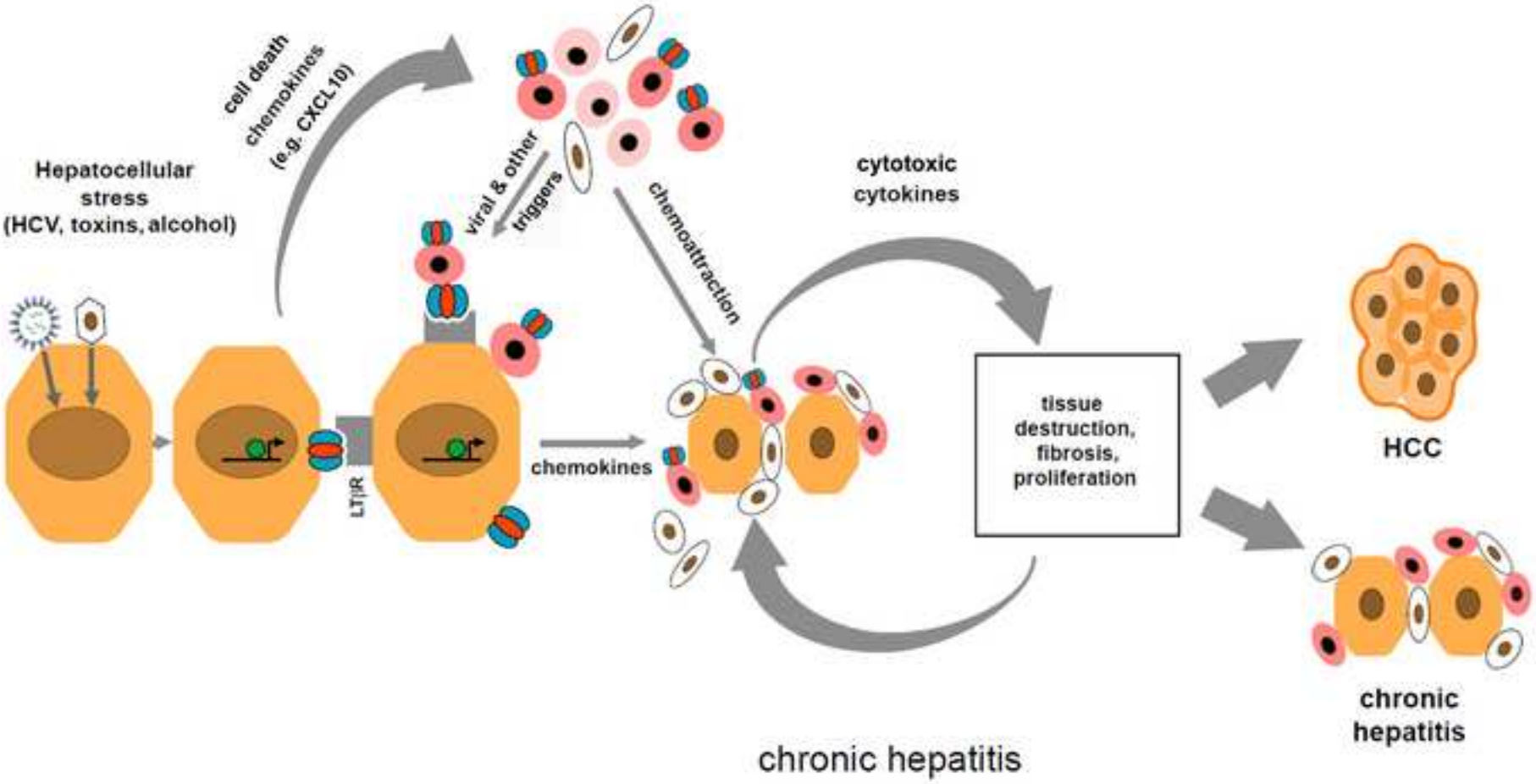

Haybaeck et al., Supplemental Fig. S9

Supplemental material

Supplemental figure legends

Supplemental Figure S1: mRNA expression in non-virus related HCC; age and gender distribution, correlation analysis of *LTα* and *LTβ* mRNA expression with Knoddel score, fibrosis, age, and HCV genotype, as well as mRNA expression analysis of chemokines in HBV- or HCV-infected livers and HCC. (A) Real-time PCR analysis for *LTα*, *LTβ*, *LIGHT*, *LTβR*, *TNFα* and *TNFR1* transcripts in non-virus related HCC (NVH). Each symbol represents one individual patient. Horizontal bars represent the average *LTα* or *LTβ* mRNA expression level. The y-axis describes the ΔΔCT values on a log2 scale. Ctrl left and NVH right. **(B)** Box plot analysis depicts age and gender distribution of respective patients. Ctrl: healthy control patients. HBV: Hepatitis B virus. HCV: Hepatitis C virus. HCC: Hepatocellular carcinoma. Each symbol represents one individual patient. Horizontal bars represent the average LTα or LTβ mRNA expression level. The y-axis describes the ΔΔCT values on a log2 scale. **(C)** Correlation analysis of *LTα* and *LTβ* mRNA expression with Knodell score (ranging from 0-16) in HCV-infected livers. **(D)** Correlation analysis of *LTα* and *LTβ* mRNA expression with fibrosis score (ranging from 0-4) in HCV-infected livers. **(E)** Correlation analysis of *LTα* and *LTβ* mRNA expression with age (ranging from the 3rd to the 8th decade) in HCV-infected livers. **(F)** Correlation analysis of *LTα* and *LTβ* mRNA expression with HCV genotypes. **(G)** Analysis of *CCL2*, *CCL3*, *CCL5*, *CXCL1* and *CXCL10* mRNA expression by real-time PCR in human livers of healthy controls (n=15), patients chronically infected with HBV (n=19) or HCV (n=49) and patients suffering from HCC (n=30). Horizontal bars represent the average mRNA expression level. The y-axis describes the ΔΔCT values on a log2 scale.

Supplemental Figure S2: HCVcc infection of human hepatocytes *in vitro* and analysis of HCV-infected liver cells *in vivo*.

(A) Real-time PCR analysis for the mRNA expression of *LTα*, *LTβ*, *LIGHT*, *LTβR*, *CXCL1*, *CXCL10*, *CCL2* and *CCL3* in a human hepatocyte cell line (Huh7.5) upon challenge with infectious HCVcc at 48 and 72 hrs post infection. Horizontal bars represent the average mRNA expression levels. The y-axis describes the ΔΔCT values on a log2 scale. For control, non-infected, time-matched control Huh7.5 cells were investigated. hrs: hours post-infection. **(B)** Immunohistological analysis of human healthy controls, HBV- and HCV-infected livers or HCC: H&E staining and staining for CD20 (B-cells) and CD3 (T-cells) was performed. H&E staining indicates morphological features of inflamed and fibrotic liver tissues (HBV- and HCV infected livers). HCC display transformed hepatocytes. The HCC border zone is indicated by a dashed line (upper row, right column). Inflammatory infiltrates were detected in HBV- or HCV-infected livers as well as at the border zones of HCC (scale bar: 100μm). **(C)** Real-time PCR analysis for *CD45* and *Cytokeratin 18* mRNA expression to quantify the purification efficiency of CD45-enrichment or CD45-depletion. Cells were prepared from HCV-infected, inflamed livers (HCV) or from HCC with HCV etiology (HCV/HCC). Horizontal bars represent the average mRNA expression level. The y-axis describes the ΔΔCT values on a log2 scale.

Supplemental Figure S3: Immunohistological analysis or *in situ* hybridization of paraffin- or cryo-sections derived from 3 or 4-6 month-old C57BL/6 and transgenic livers. (A) C57BL/6, *tg*1222 and *tg*1223 livers lacked detectable inflammatory infiltrates as highlighted by H&E (scale bar: 200μm), by staining for B-cells (B220), T-cells (CD3), macrophages, Kupffer cells (F4/80) (scale bar: 100μm). **(B)** *In situ* hybridization of liver cryo-sections from C57BL/6 and *tg*1223 mice with antisense probes for the indicated mRNAs. Arrowheads indicate focal hepatocyte-specific expression of *Ltα*, *Ltβ, Cxcl10, Ccl2* mRNA as well as broad *Egr1* mRNA expression. The size of scale bars is indicated. **(C)** Hybridization with sense probes served as negative control and did not lead to detectable signals for *Ltα*, *Ltβ, Cxcl10, Ccl2* and *Egr1* mRNA expression. The size of scale bars is

indicated. **(D)** Immunohistochemical analysis for myeloid cells at the age of 4 months in *tg*1223 and C57BL/6 livers. A slight increase in the number of $CD11b^+$, $CD68^+$ and $MHCII^+$ cells was detected in *tg*1223 livers at 4 months of age when compared to age matched-*tg*1222 or C57BL/6 livers (left panel). We could already detect small aggregates at this particular time point, mainly consisting of myeloid cells (arrow heads). At the age of 4-6 months, $B220^+$, $CD3^+$ or $F480^+$ cells accumulated at portal sites of *tg*1223 livers (right panel). In *tg*1222 livers, only small portal inflammatory infiltrates could be observed at that time point (scale bar: 200μm).

Supplemental Figure S4: Hepatocyte apoptosis and analysis of mRNA expression in 9 month-old *tg*1223 compared to age-matched C57BL/6 livers. (A) Apoptotic hepatocytes were frequently observed in chronically inflamed *tg*1223 livers. Paraffin-sections of C57BL/6 and *tg*1223 livers were stained with H&E. Arrowheads indicate apoptotic hepatocytes with eosinophilic cytoplasms and shrunken nuclei surrounded by inflammatory cells in *tg*1223 but not in C57BL/6 livers at the age of 9 months. Right panel: insert with higher magnification. (scale bars: 100μm). **(B, C)** Based on a non-supervised DNA-microarray analysis, the expression of candidate genes was assessed by real-time PCR. Differences are reported as fold change. **(B)** At 9 months of age, strong upregulation of various genes involved in inflammatory processes and carcinogenesis (e.g. *Spl1, Dmrta1, Phlda3*), cell adhesion and metastasis (e.g. *P-Selectin*), fibrogenesis (e.g. *Fgf21*), or carcinogenesis (*Nrtk2, Tmem45b*) were detected. **(C)** Genes responsible for cell cycle control (e.g. *Gadd45g*) were significantly downregulated in *tg*1223 livers compared to C57BL/6 livers at the same age. **(D)** DNA-microarray analysis of C57BL/6 and *tg*1223 livers at 3 and 9 months of age. Indicated are the 100 highest up- and downregulated genes in 9 month-old *tg*1223 livers, when compared to 9 and 3 month-old C57BL/6 as well as 3 month-old *tg*1223 livers. Columns indicate individual mice; rows represent particular genes. Data are presented in a log2 scale (blue: upregulated; red: downregulated).

Supplemental Figure S5: Macroscopic and histological analysis of HCC in 12 or 18 month-old *tg*1223 livers. (A) Macroscopic analysis of *tg*1223 HCC from 12 month-old mice. White arrows indicate HCC nodules. (Inserts with higher magnification). Size of scale bars is indicated. **(B)** Consecutive sections of a *tg*1223 HCC revealed broadening of liver cell cords, loss of collagen IV networks (H&E; Collagen IV; arrow), and increased proliferative activity of hepatocytes. $Ki67^+$ cells are indicated by short arrows (scale bar: 100μm). **(C)** Consecutive sections of a *tg*1223 HCC at the age of 18 months. The HCC compresses the adjacent hepatic parenchyma (scale bar: 5mm or 500μm, respectively). Broadening of liver cell cords and loss of collagen IV networks was detected (H&E; Collagen IV). **(D)** Higher magnification of H&E stained liver sections from 18 month-old *tg*1223 mice reveals cellular changes (arrows) including apoptosis (left panel) or frequently observed atypical mitoses (middle and right panel) in *tg*1223 hepatocytes. **(E)** Immunohistochemical analysis for $A6^+$ cells (presumably oval cells) in or around HCC. Approximately 45% of *tg*1223 HCC were composed of $A6^+$ cells, which were either focally or diffusely distributed. Other *tg*1223 HCC lacked $A6^+$ cells within the tumor (very right panel) but were surrounded by these cells at the border zone of the tumor (second right panel). Tumor border is marked by dashed line (scale bar: 200μm; insert: higher magnification).

Supplemental Figure S6: mRNA expression and histological analysis of 9 month-old *tg*1223, *tg*1223/*Ikkβ*$^{\Delta hep}$ and *tg*1223/*Rag1*$^{-/-}$ compared to age-matched C57BL/6 livers. (A) Based on a non-supervised DNA-microarray analysis expression of candidate genes was assessed by real-time PCR. Differences are reported as fold change. Backcrossing of *tg*1223 mice to *Ikkβ*$^{\Delta hep}$ or to *Rag1*$^{-/-}$ mice resulted in a significant downregulation of some genes that were highly upregulated in 9 month-old *tg*1223 livers (*Dmrta1*, *Phlda3*, *Pbef1*, *Fgf21*; P=0.05). **(B)** Hepatocyte-specific deletion of *IKKβ* prevents LTαβ-induced inflammation in livers of *tg*1223 mice, whereas depletion of *TNFR1* or *TNFR2* does not affect chronic hepatitis development in *tg*1223 mice. Histological and immunohistological analysis of liver

paraffin sections from 9 month-old C57BL/6, *tg*1223, *Ikkβ*$^{\Delta hep}$, *tg*1223/*Ikkβ*$^{F/F}$, and *tg*1223/*Ikkβ*$^{\Delta hep}$ mice**.** Sections were stained with H&E and antibodies detecting B- (B220), T- (CD3), and proliferating cells (Ki67). This revealed inflammatory foci in *tg*1223 and *tg*1223/*Ikkβ*$^{F/F}$ livers. In contrast, no inflammation was observed in livers of C57BL/6, *Ikkβ*$^{\Delta hep}$ and *tg*1223/*Ikkβ*$^{\Delta hep}$ mice (scale bar: 200μm). **(C)** Immunohistological analysis of liver paraffin sections of 9 month-old *tg*1223/*Tnfr1*$^{-/-}$ and *tg*1223/*Tnfr2*$^{-/-}$ mice. Consecutive liver sections were stained with H&E and with antibodies detecting T- (CD3), and B-cells (B220). Age-matched *Tnfr1*$^{-/-}$ and *Tnfr2*$^{-/-}$ mice lacked signs of chronic hepatitis. Arrows denote foci of lymphocytic inflammation (scale bar: 200μm).

Supplemental Figure S7: Macroscopy and histology of 18 month-old *tg*1223/*Tnfr1*$^{-/-}$ HCC, as well as molecular and histological characterization of hepatic signaling induced by acute TNFα treatment. (A) Macroscopic analysis of *tg*1223/*Tnfr1*$^{-/-}$ HCC (white arrows indicate liver tumors; insert, higher magnification). **(B)** Consecutive paraffin sections of a *tg*1223/*Tnfr1*$^{-/-}$ HCC compressing the adjacent hepatic parenchyma. Dashed lines indicate the border zone of the HCC. Arrow highlights the tumor nodule. Collagen IV stain reveals abnormally broad liver cell plates (scale bar: 250μm). **(C-E)** Immunohistochemical analysis of nuclear p65 translocation and real-time PCR for mRNA expression of selected NF-κB target genes. Data are presented on a log2 scale (blue: upregulated; red: downregulated). Rows indicate individual mice; columns represent particular genes. Each data point reflects the median expression value of a particular gene resulting from 3-4 technical replicates 45 min after treatment. Data points were normalized to the mean expression value of the respective gene in C57BL/6 livers. Statistical significance was evaluated by t-test: * = p≤0.05; ** = p<0.001; *** = p<0.0001.

As expected, TNFα but not PBS treatment induced nuclear p65 translocation in hepatocytes and NPC of C57BL/6 mice. Moreover, transcription of selected NF-κB target genes was elevated in these mice similar to livers from 3 month-old *tg*1223 mice. Livers of TNFα treated

Ikkβ$^{\Delta hep}$ mice did not exhibit nuclear p65 translocation in hepatocytes but did in NPC. However, this sufficed to upregulate selected NF-κB target genes. Livers of TNFα treated *ltβr*$^{-/-}$ mice were indistinguishable from TNFα treated C57BL/6 livers. **(D)** Acute i.v. administration of TNFα in *Tnfr2*$^{-/-}$ livers caused nuclear p65 translocation in hepatocytes and NPC, as well as elevated expression of selected NF-κB target genes (e.g. *Ch25h, Egr2, Cxcl1, Ccl2, Cxcl10*) (scale bar: 50μm). In contrast, acute i.v. administration of TNFα in *Tnfr1/2*$^{-/-}$ mice failed to induce nuclear p65 translocation in hepatocytes and NPC, as well as upregulation of selected NF-κB target genes (scale bar: 50μm). The described changes upon TNFα treatment were mainly TNFR1-mediated. *Tnfr1*$^{-/-}$ or *Tnfr1/2*$^{-/-}$ livers lacked nuclear p65 translocation in hepatocytes or NPC, as well as upregulation of all selected NF-κB target genes except *Ccl2*. **(E)** Selected NF-κB target genes were also investigated in livers of *Ikkα*$^{AA/AA}$ (right panel) and C57BL/6 (left panel) mice either treated with 3C8 or rat IgG. **(F)** Quantification of p65^{+}-hepatocytes and NPC after TNFα treatment in C57BL/6, *Tnfr1*$^{-/-}$, *Tnfr2*$^{-/-}$, *Tnfr1/2*$^{-/-}$ and *Ikkβ*$^{\Delta hep}$ livers. Percentage of nuclear p65^{+} hepatocytes or NPC/mm^2 liver section are indicated. Acute i.v. administration of TNFα into *Tnfr1*$^{-/-}$, *Tnfr1/2*$^{-/-}$ and *Ikkβ*$^{\Delta hep}$ livers failed to induce nuclear p65 translocation in hepatocytes, whereas TNFα injection into C57BL/6 or *Tnfr2*$^{-/-}$ mice caused hepatic nuclear p65 translocation. The same results were found for NPC; apart from pronounced nuclear p65 translocation detected in TNFα-treated *Ikkβ*$^{\Delta hep}$ livers.

Supplemental Figure S8: Increase of chemokines in sera and liver homogenates of C57BL/6 mice after 3C8 treatment. ELISA and multiplex-bead assay analysis of sera and liver tissue. I.v. injection of 3C8 into C57BL/6 mice led to a rapid upregulation of **(A)** CXCL10, **(B)** CXCL1 and **(C)** CCL2 in contrast to rat IgG. Hepatic upregulation of CXCL10 and CXCL1 occurred earlier and was stronger in C57BL/6 liver homogenates than in sera. Lines depict the average result from three individual mice analyzed (symbols). **(D)** Immunohistologcial analysis for the presence of FDC networks in spleens of LTβR-Ig-treated C57BL/6 or *tg*1223

mice. MFGE8 (FDC-M1) staining reveals a complete dedifferentiation of FDC networks in LTβR-Ig-treated C57BL/6 or *tg*1223 spleens. Arrowheads indicate FDC networks in spleens of untreated mice (scale bar: 200μm). **(E)** Immunohistological analysis of livers derived from LTβR-Ig-treated mice. Liver sections were stained with antibodies detecting T- (CD3), and B-cells (B220), macrophages and Kupffer cells (F4/80) as well as $A6^+$ oval cells. LTβR-Ig treatment reduced the incidence of chronic hepatitis significantly (*tg*1223 untreated: 34/34 mice; *tg*1223 LTβR-Ig treated: 4/31). In the case of persistent inflammation in livers of LTβR-Ig-treated mice we found B- (B220), T-cell (CD3) infiltrates, macrophages and Kupffer cells (F4/80), as well as oval cell proliferation (scale bar: 50μm).

Supplemental Figure S9: Model describing chronic inflammation-induced liver carcinogenesis in humans. Hepatocytes are schematically shown in brown. Various factors can lead to hepatocyte cell stress: These include toxins (aflatoxin-b), chronic alcohol uptake, drug abuse, and most frequently viral infections (e.g. HBV or HCV). These stress conditions induce cell death and may lead to transcription of chemokines (e.g. CXCL10 leading to the attraction of neutrophils and macrophages (pink circles and white ellipses) as well as lymphocytes (red circle). Infiltrating lymphocytes attracted by chemokines or viral particles presented on MHC molecules, might become activated and upregulate cytokines (e.g. TNFa, IL6, IFNγ, LT) and may induce LTβR signaling on hepatocytes. In the case of HBV- or HCV-infection, LT is also upregulated on hepatocytes further promoting hepatocyte-specific chemokine expression (e.g. *CXCL10* targeting $CXCR3^+$ T- and NK-cells) and attraction of inflammatory cells. Chronic hepatitis leads to the sustained expression of cytotoxic cytokines in liver, inducing cell death and compensatory proliferation of hepatocytes. This drives secretion of chemokines and cytokines by hepatocytes and activated Kupffer cells, promoting a positive feed-forward-loop. Ultimately, local ongoing tissue remodelling and hepatocyte proliferation stochastically induces chromosomal aberrations in hepatocytes leading to a clonal progression towards HCC. Alternatively, chronic hepatitis can persist without resulting in HCC formation.

Supplemental Data

DNA microarray analysis and aCGH analysis

1. Supplemental original DNA-microarray data of differentially regulated mRNAs of 3 month-old *tg*1223, *tg*1223/*Ikkβ*$^{\Delta hep}$ and C57BL/6 livers (normalized version) - analyzed on an Agilent microarray platform.

Individual samples analyzed are described in detail in the excel file.

These data can be directly accessed without any password on:

http://fgcz-intranet.uzh.ch/publish/UW/exprALB37LTabAlbIKKWT3months.xls

These data were also submitted to the **Gene** Expression Omnibus (**GEO**) database.

2. Supplemental original DNA-microarray data of differentially regulated mRNAs of 9 month-old *tg*1223, *tg*1223/*IKKβ*$^{\Delta hep}$ and C57BL/6 livers (normalized version) - analyzed on an Agilent microarray platform.

Individual samples analyzed are described in detail in the excel file.

These data can be directly accessed without any password on:

http://fgcz-intranet.uzh.ch/publish/UW/exprALB37LTabAlbIKKWT9months.xls

These data were also submitted to the **Gene** Expression Omnibus (**GEO**) database.

3. Supplemental original DNA-microarray data of differentially regulated mRNAs of HCC in 18 month-old *tg*1223, *tg*1223/*tnfr1*$^{-/-}$, of unaffected regions of the identical livers and of age matched *tg*1223 and C57BL/6 livers (normalized version) - analyzed on an Agilent microarray platform.

Individual samples analyzed are described in detail in the excel file.

These data can be directly accessed without any password on:

http://fgcz-intranet.uzh.ch/publish/UW/HCC.xls

These data were also submitted to the **Gene** Expression Omnibus (**GEO**) database.

4. Supplemental aCGH-data of various *tg*1223 HCC and C57BL/6 control liver tissues which demonstrate chromosomal aberrations in autosomes by the use of an Agilent aCGH platform.

The q-arm of each autosome is shown. Log ratios of C57BL/6 versus *tg*1223 signal intensities or C57BL/6 versus C57BL/6 signal intensities are shown. Negative log ratios represent deletions, positive log ratios amplifications of the respective genetic loci.

Log ratio of 0.5 corresponds to the background level of individual C57BL/6 liver DNA samples hybridized with other C57BL/6 liver DNA samples (n=5). Lines represent smoothed moving averages. Estimated copy number aberrations are indicated with colored surfaces.

The following liver DNA samples were hybridized for the aCGH analysis. Agilent aCGH array numbers and mouse ID are indicated.

- Wt 18 months

Ag 43441 (C57BL/6 – 18 months)
Ag 43457 (C57BL/6 – 18 months)
Ag 43451 (C57BL/6 – 18 months)
Ag 43415 (C57BL/6 – 18 months)

- HCC:

J955 (HCC)
Ag 42161 (HCC)
Ag A130206 2 (HCC) – clonal tumor
Ag B130206 2 (HCC) – clonal tumor
Ag B130206 2 No2 (HCC No 2) – clonal tumor
Ag C130206 2 (HCC) – clonal tumor
Ag C130206_2_b – clonal tumor
Ag B130206_2_b – clonal tumor
Ag A130206_2_b – clonal tumor
Ag C130206_1 – clonal tumor

Experiments
Array 251502810319

No1: Ag 43415 (C57BL/6) hybridized with Ag 43441 (C57BL/6)
No2: Ag C130206 2 (HCC) hybridized with Ag 43457 (C57BL/6)

Array 251502810393

No1: Ag 43451 (C57BL/6) hybridized with Ag 43457 (C57BL/6)
No2: Ag B130206 2 No 2 (HCC) hybridized with Ag 43457 (C57BL/6)

Array 251502810320

No1: Ag J955 (HCC) hybridized with Ag 43451 (C57BL/6)
No2: Ag 42161 (HCC) hybridized with Ag 43441 (C57BL/6)
No3: Ag A130206 2 (HCC) hybridized with Ag 43415 (C57BL/6)
No4: Ag B130206 2 (HCC) hybridized with Ag 43451 (C57BL/6)

Array 251502810530

No1: AgC130206_2_b (HCC) hybridized with Ag43451 (C57BL/6)
No2: AgB130206_2_b (HCC) hybridized with Ag43451 (C57BL/6)
No3: AgA130206_2_b (HCC) hybridized with Ag43451 (C57BL/6)
No4: AgC130206_1 (HCC) hybridized with Ag43451 (C57BL/6)

These data can be directly accessed without any password on:

http://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?token=zhwdtmksyosskhm&acc=GSE14467

Statistical evaluation of aCGH results: Statistical significance of amplification and deletion patterns in aCGH for monoclonal tumors was calculated by applying a permutation test. The samples were compared pair-wise using an in-house written program: First, the sequence overlap (o) of amplifications/deletions was calculated for the two samples. Then, the amplifications/deletions of one sample were kept but randomly distributed on the other sample and the new overlap (ri) calculated. This step was repeated $n = 1 \times 10^7$ times and r = sum (ri > o) computed. Finally, the p-value for the pair-wise comparison was estimated as p = r/n.

Supplemental Tables

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Supplemental Table 1A: Overview of HCV infected chronically inflamed human livers that were incorporated in our analysis. Etiology, patient age, patient gender, degree of inflammation (0-2), degree of fibrosis (0-4), transaminase levels [Aspartat-Aminotransferase (AST), Alanin-Aminotransferase (ALT)], and HCV subtype are indicated. Degree of inflammation and fibrosis was evaluated by using the Metavir Score; nd: not determined.

etiology	age (years)	gender	AST U/l	ALT U/l	inflammation	fibrosis	HCV genotype
HCV	44	f	20	34	1	3	3
HCV	45	m	42	91	1	3	1
HCV	47	m	33	79	0	2	1
HCV	36	m	9	6	0	0	2
HCV	57	f	58	71	1	2	3
HCV	34	m	77	152	1	1	1
HCV	45	m	40	72	1	2	3
HCV	35	f	44	93	0	1	1
HCV	57	m	18	32	1	1	1
HCV	38	f	36	44	0	1	3
HCV	64	m	nd	nd	nd	nd	nd
HCV	47	m	13	6	2	3	1
HCV	52	m	53	43	nd	nd	3
HCV	66	m	16	33	2	3	1
HCV	37	m	20	45	1	1	1
HCV	45	m	59	55	1	2-3	1
HCV	25	m	54	147	2	2	1
HCV	69	f	36	71	1	2	1
HCV	37	m	28	32	1	2	3
HCV	45	f	113	182	2	3	3
HCV	39	f	36	34	1	2	3
HCV	55	m	43	50	1	2	1
HCV	47	m	56	38	1	0	1
HCV	45	f	20	26	1	2	1
HCV	75	f	83	91	2	3	1
HCV	54	m	24	26	1	2	2
HCV	66	m	16	33	2	3	1
HCV	58	f	131	59	2	4	1
HCV	25	m	60	144	1	1	1
HCV	66	f	71	89	2	3	1
HCV	49	m	30	38	1	1	3
HCV	39	m	46	39	1	1	nd
HCV	38	m	86	177	2	3	3
HCV	31	f	32	51	1	2	1
HCV	45	f	30	32	0	1	3
HCV	42	f	13	26	0	0	1
HCV	64	m	52	52	2	2	1
HCV	71	m	51	106	1	1	1
HCV	54	f	28	24	1	1	2
HCV	54	f	28	24	1	1	2
HCV	42	m	27	44	2	3	1
HCV	69	f	86	144	1-2	2	1
HCV	46	m	72	109	1	1	1
HCV	58	m	29	36	1	3	1
HCV	40	f	25	22	0	0	3
HCV	57	f	35	57	1	2	1
HCV	40	m	36	103	1	2	3
HCV	38	m	64	129	1	2	1
HCV	64	m	67	91	1	3	1

Supplemental Table 1B: Overview of HCV and HBV infected chronically inflamed human livers that were incorporated in our analysis. Etiology, periportal inflammation (0-10), intralobular inflammation (0-4), portal inflammation (0-4), degree of fibrosis (0-4) and Knodell score (0-16) are indicated. Degree of hepatitis activity and fibrosis was evaluated by using the Knodell necroinflammatory score; nd: not determined.

etiology	periportal (0-10)	intralobular (0-4)	porta (0-4)	score (sum)	K fibrosis score	entire score
HCV	nd	nd	nd	nd	nd	nd
HCV	1	1	3	5	1	6
HCV	4	3	4	11	4	15
HCV	3	1	4	8	3	11
HCV	4	3	4	11	3	14
HCV	4	1	4	9	1	10
HCV	4	4	4	12	4	16
HCV	1	1	3	5	1	6
HCV	1	1	4	6	3	9
HCV	3	1	3	7	1	8
HCV	1	1	3	5	1	6
HCV	4	4	4	12	4	16
HCV	4	1	3	8	3	12
HCV	3	1	4	8	1	9
HCV	1	3	1	5	1	6
HCV	1	3	3	7	1	8
HCV	1	3	3	7	1	8
HCV	3	3	3	9	1	10
HCV	4	4	4	12	1	13
HCV	1	1	3	5	1	6
HCV	3	3	4	10	3	13
HCV	3	1	4	8	1	9
HCV	4	4	4	12	3	15
HCV	4	4	4	12	3	15
HCV	3	1	3	7	1	8
HCV	3	1	3	7	3	10
HCV	4	4	4	12	3	15
HCV	4	3	4	11	3	14
HCV	1	1	1	3	0	3
HCV	4	4	4	12	1	13
HCV	3	3	3	9	1	10
HCV	3	1	3	7	1	8
HCV	4	4	4	12	4	16
HCV	3	1	4	8	1	9
HCV	3	3	4	10	3	13
HCV	1	1	3	5	2	7
HCV	1	1	4	6	3	9
HCV	1	1	1	3	0	3
HCV	4	3	4	11	1	12
HCV	3	1	1	5	1	6
HCV	1	1	3	5	1	6
HCV	1	1	1	3	3	6
HCV	3	3	4	10	3	13
HCV	3	1	3	7	0	7
HCV	3	3	4	10	4	14
HCV	1	1	1	3	0	3
HCV	4	4	4	12	3	15
HCV	4	4	4	12	3	15
HCV	1	1	3	5	1	6
HCV	3	1	3	7	1	8
HCV	4	3	4	11	3	14
HCV	4	3	4	11	1	12
HCV	3	1	3	7	1	8

HCV	4	3	4	11	4	15
HCV	3	4	3	10	1	11
HCV	3	1	3	7	1	8
HCV	3	1	3	7	1	8
HCV	1	1	3	5	1	6
HCV	3	0	3	6	1	7
HCV	4	1	4	9	3	12
HCV	1	1	3	5	0	5
HCV	3	1	3	7	3	10
HCV	0	0	3	3	0	3
HBV	1	1	1	3	0	3
HBV	4	1	4	9	3	12
HBV	1	2	1	4	1	5
HBV	1	1	1	3	0	3

Supplemental Table 1C: Overview of HBV infected chronically inflamed human livers that were incorporated in our analysis. Etiology, patient age, patient gender, degree of inflammation (0-2), degree of fibrosis (0-4) and transaminase levels [Aspartat-Aminotransferase (AST), Alanin-Aminotransferase (ALT)] are indicated. Degree of inflammation and fibrosis was evaluated by using the Metavir Score; nd: not determined. HBsAg: Hepatitis B virus surface antigen. HBcAg: Hepatitis B virus core protein antigen.

etiology	age (years)	gender	AST U/l	ALT U/l	inflammation	fibrosis	HCV genotype
HBV/HCV	55	m	60	98	0	0	nd
HBV	34	m	34	79	1	0	nd
HBV	33	f	38	104	0	0	nd
HBV	44	m	56	95	2	3	nd
HBV	42	m	nd	nd	nd	nd	nd
HBV	51	m	nd	nd	nd	nd	nd
HBV	69	m	nd	nd	nd	nd	nd
HBV	23	f	nd	nd	nd	nd	nd
HBV	54	m	nd	nd	nd	nd	nd
HBV	61	m	nd	nd	nd	nd	nd
HBV	48	m	nd	nd	nd	nd	nd

diagnosis	HBsAg	HBcAg	age	gender
HBV	+++	-	nd	nd
HBV	+++	-	nd	nd
HBV	+++	+	nd	nd
HBV	+++	+	nd	nd
HBV	+++	-	nd	nd
HBV	+++	-	nd	nd
HBV	++	+	nd	nd
HBV	++	-	nd	nd

Supplemental Table 1D: Overview of human HCC that were incorporated in our analysis. Additional diagnosis, viral genotype, patient age and patient gender are indicated. HBsAg: Hepatitis B virus surface antigen. HBcAg: Hepatitis B virus core protein antigen.

diagnosis	HBsAg	HBcAg	age	gender
HCC, HBV	+++	+++	51	m
HCC, HBV	+++	-	nd	nd
HCC, HBV	+++	++	32	m
HCC, HBV	++	-	50	m
HCC, HBV	+	-	45	m
HCC, HBV	+++	-	55	m
HCC, HBV			62	m
HCC, HBV			42	m
HCC, HBV, HCV			47	m
HCC, HBV			63	m
HCC, HBV			70	m
HCC, HBV			82	m
HCC, HCV			45	m
HCC, HCV			71	m
HCC, HCV			67	m
HCC, HBV, HCV			51	m
HCC, HCV			77	m
HCC, HCV			70	m
HCC, HCV			56	m
HCC, HCV			62	m
HCC, HBV	nd	nd	48	m
HCC, HCV			51	m
HCC, HCV			50	m
HCC, HCV			69	m
HCC, HBV, HCV			47	f
HCC, HBV, HCV	nd	nd	61	f
HCC, HCV			60	f
HCC, HCV			49	f
HCC, HCV			61	f
HCC, HCV			55	f

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Supplemental Table 2: Non-supervised DNA-microarray analysis of 3 months old *tg* 1223 livers.

The 23 highest upregulated mRNAs expressed in *tg* 1223 when compared to C57BL/6 livers are indicated (threshold of ≥8 fold changes).

genotpye	C57BL/6			*tg* 1223			
Systematic	Normalized	StdDev Norm	t-test P-value	Normalized	StdDev Norm	t-test P-value	Common
A_51_P363187	1.00	0.31	1.00	105.8	36.62	4.17×10^{-4}	NM_008176
A_51_P286737	1.00	0.3	1.00	31.91	11.57	0.001	NM_011333
A_51_P447545	1.00	0.23	1.00	25.25	8.56	4.25×10^{-4}	NM_008341
A_51_P223776	0.99	0.35	0.99	21.12	4.58	6.29×10^{-6}	NM_145434
A_51_P159201	1.00	0.16	1.00	18.67	6.41	5.02×10^{-4}	NM_008416
A_51_P474459	1.00	0.1	0.99	17.16	8.60	0.004	NM_007707
A_52_P14456	1.00	0.26	1.00	16.5	5.30	3.23×10^{-4}	AK129457
A_51_P488739	1.00	0.31	0.99	16.5	6.42	0.001	NM_030701
A_51_P436652	1.00	0.7	1.00	14.83	2.76	3.87×10^{-7}	NM_013654
A_52_P31543	1.00	0.26	1.00	14.03	5.18	9.00×10^{-4}	NM_007570
A_51_P183571	1.00	0.45	1.00	13.53	6.65	0.004	NM_008871
A_52_P431159	1.00	0.35	1.00	12.9	4.32	4.74×10^{-4}	NM_031167
A_52_P35217	1.00	0.19	1.00	12.64	3.27	5.93×10^{-5}	NM_007570
A_52_P576222	0.99	0.52	0.99	11.36	3.18	1.14×10^{-4}	BC057152
A_52_P350512	1.00	0.28	1.00	11.32	2.82	4.15×10^{-5}	NM_145996
A_52_P608322	1.00	0.28	1.00	11.17	4.44	0.001	NM_010755
A_52_P474528	1.00	0.26	1.00	9.4	3.97	0.002	NAP066348-1
A_52_P925197	1.00	0.14	1.00	9.22	1.75	1.60×10^{-6}	NM_007570
A_51_P482990	1.00	0.49	1.00	8.96	1.92	5.84×10^{-6}	NM_145996
A_51_P325904	1.00	0.27	1.00	8.56	1.64	2.01×10^{-6}	XM_148966
A_51_P315904	0.99	0.37	0.99	8.55	3.83	0.003	NM_011817
A_52_P412417	1.00	0.12	1.00	8.17	3.40	0.002	NM_009397
A_51_P112966	0.99	0.74	0.99	8.13	3.21	0.001	NM_009890

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Supplemental Table 3: mRNA-downregulation of candidate genes on the basis of a non-supervised DNA-microarray analysis of 3 months old *tg* 1223 livers.

The 26 highest downregulated mRNAs expressed in *tg* 1223 compared to C57BL/6 livers are indicated (ratio threshold ≤0.2).

genotpye	C57BL/6			*tg1223*			
Systematic	Normalized	StdDev Norm	t-test P-value	Normalized	StdDev Norm	t-test P-value	Common
A_51_P309556	1.00	0.55	1.00	0.20	0.11	2.15×10^{-6}	NM_025751
A_51_P382700	1.00	0.40	1.00	0.20	0.13	6.14×10^{-6}	NM_026059
A_51_P251487	1.00	0.38	1.00	0.19	0.11	1.48×10^{-6}	NM_025719
A_52_P222815	1.00	0.15	1.00	0.19	0.09	6.90×10^{-7}	AB041802
A_51_P346893	1.00	0.17	1.00	0.19	0.09	4.11×10^{-10}	NM_019578
A_51_P157083	1.00	0.25	1.00	0.19	0.11	3.00×10^{-6}	NM_008086
A_52_P426634	1.00	0.20	1.00	0.18	0.12	3.49×10^{-6}	AK006094
A_51_P357735	1.00	0.26	1.00	0.18	0.07	3.03×10^{-7}	NM_008382
A_51_P191893	1.00	0.15	1.00	0.18	0.04	6.22×10^{-10}	AK054069
A_51_P480169	1.00	0.36	1.00	0.17	0.07	1.93×10^{-7}	NM_053190
A_52_P462239	1.00	0.49	1.00	0.17	0.15	9.72×10^{-6}	AK084087
A_52_P629748	1.00	0.33	1.00	0.17	0.09	9.56×10^{-7}	NM_175263
A_52_P325388	1.00	0.27	1.00	0.17	0.08	2.62×10^{-7}	AK080904
A_52_P609120	1.00	0.34	1.00	0.16	0.10	1.13×10^{-6}	NM_020271
A_51_P394446	1.00	0.67	1.00	0.15	0.11	1.36×10^{-6}	AK032385
A_52_P40504	1.00	0.23	1.00	0.15	0.10	9.20×10^{-7}	AK034741
A_52_P235347	1.00	0.28	1.00	0.15	0.10	2.30×10^{-6}	NM_020013
A_51_P133920	1.00	0.32	1.00	0.15	0.11	1.30×10^{-6}	NM_172823
A_51_P516133	1.00	0.10	1.00	0.14	0.02	1.47×10^{-17}	NM_015786
A_51_P516125	1.00	0.10	1.00	0.14	0.02	6.98×10^{-18}	BC013561
A_52_P1052029	1.00	0.63	1.00	0.14	0.09	9.14×10^{-10}	AK031632
A_52_P297765	1.00	0.25	1.00	0.13	0.06	4.19×10^{-8}	XM_134539
A_51_P431531	1.00	0.35	1.00	0.12	0.07	5.36×10^{-8}	NM_001013368
A_52_P164136	1.00	0.18	1.00	0.11	0.07	1.84×10^{-7}	NM_178917
A_51_P501260	1.00	0.17	1.00	0.09	0.05	1.18×10^{-9}	NM_145713
A_52_P681391	1.00	0.50	1.00	0.03	0.02	8.29×10^{-11}	NM_008059

Supplemental Table 4: Gene ontology (GO) analysis of deregulated genes in livers of 3 month-old *tg* 1223 mice. On the basis of a non-supervised DNA-microarray analysis the functional relation of all mRNAs up- or downregulated in *tg* 1223 compared to age matched C57BL/6 livers is shown (highest match rate upper panel, lowest match rate bottom part).

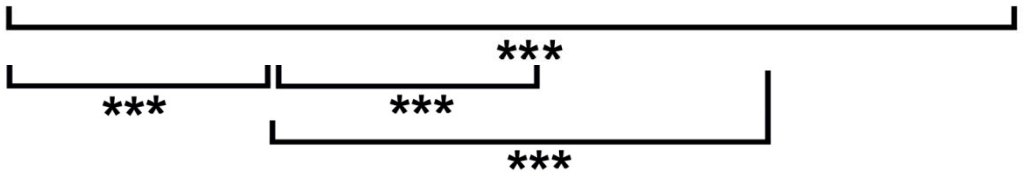
Category	Genes in Category	% of Genes in Category	Genes in List in Category	% of Genes in List in Category	p-Value
GO:50791: regulation of physiological process	3502	22.10	11	40.74	0.0227
GO:51244: regulation of cellular physiological process	3404	21.48	11	40.74	0.0185
GO:50794: regulation of cellular process	3522	22.22	11	40.74	0.0236
GO:50789: regulation of biological process	3799	23.97	11	40.74	0.0399
GO:6950: response to stress	850	5.36	7	25.93	0.0004
GO:16265: death	611	3.86	6	22.22	0.0004
GO:8219: cell death	604	3.81	6	22.22	0.0004
GO:12501: programmed cell death	571	3.60	6	22.22	0.0003
GO:7049: cell cycle	784	4.95	6	22.22	0.0017
GO:48519: negative regulation of biological process	650	4.10	6	22.22	0.0007
GO:6915: apoptosis	562	3.55	5	18.52	0.0023
GO:74: regulation of progression through cell cycle	429	2.71	5	18.52	0.0007
GO:6955: immune response	604	3.81	5	18.52	0.0032
GO:48523: negative regulation of cellular process	593	3.74	5	18.52	0.0029
GO:9607: response to biotic stimulus	762	4.81	5	18.52	0.0085
GO:6952: defense response	737	4.65	5	18.52	0.0074
GO:30154: cell differentiation	654	4.13	4	14.81	0.0237
GO:43118: negative regulation of physiological process	549	3.46	4	14.81	0.0133
GO:51243: negative regulation of cellular physiological process	536	3.38	4	14.81	0.0122
GO:9611: response to wounding	286	1.81	4	14.81	0.0013
GO:9613: response to pest, pathogen or parasite	346	2.18	4	14.81	0.0026
GO:9605: response to external stimulus	597	3.77	4	14.81	0.0176
GO:43207: response to external biotic stimulus	384	2.42	4	14.81	0.0038
GO:7389: pattern specification	182	1.15	3	11.11	0.0036
GO:9952: anterior/posterior pattern formation	62	0.39	3	11.11	0.0002
GO:30182: neuron differentiation	201	1.27	3	11.11	0.0047
GO:8213: protein amino acid alkylation	31	0.20	3	11.11	1.92×10^{-5}
GO:6479: protein amino acid methylation	26	0.16	3	11.11	1.12×10^{-5}
GO:43414: biopolymer methylation	62	0.39	3	11.11	0.0002
GO:42981: regulation of apoptosis	330	2.08	3	11.11	0.0181
GO:43066: negative regulation of apoptosis	98	0.62	3	11.11	0.0006
GO:43067: regulation of programmed cell death	335	2.11	3	11.11	0.0188
GO:43069: negative regulation of programmed cell death	99	0.63	3	11.11	0.0006
GO:6954: inflammatory response	161	1.02	3	11.11	0.0025
GO:40007: growth	123	0.78	3	11.11	0.0012
GO:6974: response to DNA damage stimulus	243	1.53	3	11.11	0.0079
GO:9719: response to endogenous stimulus	249	1.57	3	11.11	0.0085
GO:8361: regulation of cell size	79	0.50	2	7.41	0.0079
GO:16049: cell growth	74	0.47	2	7.41	0.0070
GO:1558: regulation of cell growth	65	0.41	2	7.41	0.0054
GO:6461: protein complex assembly	151	0.95	2	7.41	0.0271
GO:6334: nucleosome assembly	75	0.47	2	7.41	0.0072
GO:6333: chromatin assembly or disassembly	132	0.83	2	7.41	0.0211
GO:31497: chromatin assembly	87	0.55	2	7.41	0.0096
GO:16584: nucleosome spacing	5	0.03	2	7.41	2.79×10^{-5}
GO:40008: regulation of growth	92	0.58	2	7.41	0.0106
GO:42330: taxis	145	0.92	2	7.41	0.0251
GO:6935: chemotaxis	145	0.92	2	7.41	0.0251
GO:45765: regulation of angiogenesis	17	0.11	1	3.70	0.0286
GO:42093: T-helper cell differentiation	1	0.01	1	3.70	0.0017
GO:45063: T-helper 1 cell differentiation	1	0.01	1	3.70	0.0017
GO:42095: interferon-gamma biosynthesis	4	0.03	1	3.70	0.0068
GO:7623: circadian rhythm	29	0.18	1	3.70	0.0483
GO:42087: cell-mediated immune response	30	0.19	1	3.70	0.0499
GO:42088: T-helper 1 type immune response	27	0.17	1	3.70	0.0450
GO:46879: hormone secretion	13	0.08	1	3.70	0.0219
GO:30072: peptide hormone secretion	8	0.05	1	3.70	0.0136
GO:30073: insulin secretion	7	0.04	1	3.70	0.0119
GO:46626: regulation of insulin receptor signaling pathway	4	0.03	1	3.70	0.0068
GO:46627: negative regulation of insulin receptor signaling pathway	3	0.02	1	3.70	0.0051
GO:186: activation of MAPKK activity	5	0.03	1	3.70	0.0085

Supplemental Table 5: Incidence of chronic hepatitis or HCC in *tg*1223 mice or *tg*1223 mice intercrossed with various knock-out mice at 9 months of age.

Statistical evaluation: *, **, *** indicate the degree of statistical significance: * = p<0.05; ** = p<0.001; *** = p<0.0001. Livers were analyzed at 9 months of age on a macroscopic and histological level.

9 months

C57BL/6		*tg*1223		*tg*1223 x *Ikkβ*$^{\Delta hep}$		*tg*1223 x *rag1*$^{-/-}$		*tg*1223 x *tnfr1*$^{-/-}$	
chronic hepatitis	**HCC**	**chronic hepatitis**	**HCC**	**chronic hepatitis**	**HCC**	**chronic hepatitis**	**HCC**	**chronic hepatitis**	**HCC**
0/40	0/40	65/65	0/65	0/26	0/26	0/18	0/18	8/8	0/8



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Supplemental Table 6: Description of genes upregulated on mRNA level in livers derived from 9 month-old *tg* 1223 compared to C57BL/6 livers on the basis of a non-supervised DNA-microarray analysis.

The 27 highest upregulated mRNAs in *tg* 1223 when compared to C57BL/6 livers are indicated (ratio threshold of ≥2.5). In addition these genes were not significantly differentially regulated in *tg* 1223/*Ikk* $\beta\Delta$ *hep* mice.

genotpye	C57BL/6			*tg* 1223			
Systematic	Normalized	StdDev Norm	t-test P-value	Normalized	StdDev Norm	t-test P-value	Common
A_51_P516006	1.00	0.72	1.00	16.61	6.52	0.0038	AK018789
A_51_P516012	1.00	0.61	1.00	10.70	1.35	0.0000	NM_008745
A_51_P271984	1.00	0.74	1.00	7.39	3.45	0.0081	NM_144936
A_52_P160078	1.00	0.97	1.00	5.81	2.59	0.0050	NM_009516
A_52_P74106	1.00	0.38	1.00	5.77	2.27	0.0065	NM_212451
A_51_P509679	1.00	0.10	1.00	5.58	2.01	0.0044	NM_001024700
A_52_P235347	1.00	0.58	1.00	4.98	1.39	0.0011	NM_020013
A_52_P544435	1.00	0.57	1.00	4.71	1.54	$6.75x10^{-4}$	XM_485775
A_51_P187645	1.00	0.16	1.00	4.58	1.71	0.0064	NM_001024700
A_51_P258493	1.00	0.24	1.00	4.40	1.54	0.0039	NM_011067
A_51_P123895	1.00	0.33	1.00	4.20	1.41	0.0034	NM_053078
A_51_P463440	1.00	0.39	1.00	4.08	1.31	0.0035	NM_130450
A_51_P194099	1.00	0.48	1.00	3.71	0.98	0.0012	NM_009381
A_52_P90265	1.00	0.44	1.00	3.19	1.08	0.0029	NM_011671
A_52_P6328	1.00	0.27	1.00	3.16	1.03	0.0057	NM_021524
A_51_P255765	1.00	0.18	1.00	3.07	0.97	0.0050	NM_026424
A_52_P472324	1.00	0.74	1.00	3.06	0.55	$4.76x10^{-5}$	NM_011414
A_52_P301821	1.00	0.29	1.00	2.98	1.01	0.0064	NM_053078
A_52_P259817	1.00	0.22	1.00	2.91	1.00	0.0087	NM_029692
A_52_P236207	1.00	0.34	1.00	2.90	0.51	$4.37x10^{-5}$	BC058107
A_51_P516085	1.00	0.20	1.00	2.83	0.63	$5.98x10^{-4}$	NM_009345
A_51_P142744	1.00	0.56	1.00	2.82	0.89	0.0031	NM_172294
A_52_P673152	1.00	0.63	1.00	2.71	1.02	0.0062	NM_178729
A_51_P154485	1.00	0.54	1.00	2.67	0.83	0.0018	NM_145141
A_52_P100252	1.00	0.56	1.00	2.57	0.84	0.0090	AK080374
A_52_P122649	1.00	0.41	1.00	2.55	0.83	0.0080	NM_175647
A_51_P329928	1.00	0.25	1.00	2.52	0.63	0.0021	NM_013750

Supplemental Table 7: Description of genes downregulated on mRNA level in livers derived from 9 month-old *tg* 1223 compared to C57BL/6 mice on the basis of a non-supervised DNA-microarray analysis.

The 32 strongest downregulated mRNAs in *tg* 1223 in comparison to C57BL/6 livers are indicated (ratio threshold of <-3).

genotpye	BL/6			*tg1223*			
Systematic	Normalized	StdDev Norm	t-test P-value	Normalized	StdDev Norm	t-test P-value	Common
A_52_P615225	1.00	0.49	1.00	0.33	0.33	0.0071	NM_007407
A_51_P125842	1.00	0.29	1.00	0.33	0.07	$1.26x10^{-7}$	NM_145402
A_51_P431046	1.00	0.15	1.00	0.33	0.12	$6.06x10^{-5}$	NM_009182
A_52_P184145	1.00	0.43	1.00	0.33	0.07	$2.61x10^{-7}$	NM_145564
A_51_P338262	1.00	0.63	1.00	0.33	0.13	$2.42x10^{-5}$	NM_011619
A_52_P616996	1.00	0.34	1.00	0.32	0.08	$8.60x10^{-7}$	NM_180600
A_52_P303862	1.00	0.39	1.00	0.32	0.07	$1.89x10^{-7}$	NM_054078
A_52_P973486	1.00	0.12	1.00	0.32	0.09	$9.45x10^{-6}$	BI247908
A_52_P677262	1.00	0.46	1.00	0.32	0.10	$1.66x10^{-5}$	BC031891
A_51_P318830	1.00	0.41	1.00	0.32	0.09	$1.42x10^{-5}$	NM_018803
A_52_P580533	1.00	0.35	1.00	0.32	0.14	$1.03x10^{-4}$	AK076656
A_52_P533280	1.00	0.29	1.00	0.32	0.15	$2.56x10^{-4}$	NM_013637
A_52_P17466	1.00	0.30	1.00	0.31	0.20	$5.69x10^{-4}$	AA545095
A_52_P197722	1.00	0.27	1.00	0.31	0.18	$3.40x10^{-4}$	NM_173731
A_52_P664965	1.00	0.43	1.00	0.30	0.12	$4.49x10^{-5}$	NAP026734-1
A_51_P455997	1.00	0.36	1.00	0.30	0.21	0.0012	Y13832
A_52_P122393	1.00	0.42	1.00	0.30	0.11	$8.74x10^{-6}$	XM_147426
A_52_P391505	1.00	0.29	1.00	0.30	0.22	0.0015	NM_144513
A_51_P497090	1.00	0.46	1.00	0.30	0.33	0.0085	BC021944
A_52_P442710	1.00	0.33	1.00	0.29	0.11	$3.34x10^{-5}$	NM_172399
A_51_P131315	1.00	0.19	1.00	0.28	0.15	$2.52x10^{-4}$	NM_027997
A_51_P464000	1.00	0.53	1.00	0.27	0.15	$2.52x10^{-5}$	NM_021488
A_51_P432117	1.00	0.66	1.00	0.27	0.29	0.0017	NM_020513
A_51_P486217	1.00	0.44	1.00	0.27	0.21	$7.50x10^{-4}$	NM_175638
A_51_P469951	1.00	0.23	1.00	0.26	0.16	$3.36x10^{-4}$	NM_153070
A_51_P315904	1.00	0.70	1.00	0.25	0.10	$2.89x10^{-5}$	NM_011817
A_51_P400816	1.00	0.35	1.00	0.24	0.09	$5.97x10^{-6}$	NM_175543
A_52_P24690	1.00	0.34	1.00	0.21	0.18	$1.85x10^{-4}$	NM_177248
A_52_P1068216	1.00	0.77	1.00	0.21	0.22	$8.92x10^{-4}$	AK051522
A_52_P662577	1.00	0.60	1.00	0.20	0.17	$3.70x10^{-4}$	NAP123712-1
A_51_P315042	1.00	0.40	1.00	0.18	0.05	$3.82x10^{-7}$	NM_016847
A_52_P622941	1.00	0.16	1.00	0.14	0.11	$1.36x10^{-5}$	AK034948

Supplemental Table 8: Gene ontology analysis of all genes deregulated on mRNA level in livers of 9 month-old *tg* 1223 mice. Analysis was made on the basis of a non-supervised DNA-microarray analysis and compared to age matched C57BL/6 mice.

The functionally related mRNAs in *tg* 1223 in comparison to age matched C57BL/6 are shown.

Category	Genes in Category	% of Genes in Category	Genes in List in Category	% of Genes in List in Category	p-Value
GO:7167: enzyme linked receptor protein signaling pathway	275	1.74	3	14.29	0.0055
GO:48468: cell development	255	1.61	2	9.52	0.0443
GO:8610: lipid biosynthesis	256	1.62	2	9.52	0.0446
GO:6633: fatty acid biosynthesis	64	0.40	2	9.52	0.0032
GO:16053: organic acid biosynthesis	73	0.46	2	9.52	0.0042
GO:46394: carboxylic acid biosynthesis	73	0.46	2	9.52	0.0042
GO:6631: fatty acid metabolism	164	1.04	2	9.52	0.0196
GO:278: mitotic cell cycle	220	1.39	2	9.52	0.0339
GO:87: M phase of mitotic cell cycle	151	0.95	2	9.52	0.0168
GO:7067: mitosis	148	0.93	2	9.52	0.0162
GO:279: M phase	212	1.34	2	9.52	0.0317
GO:7178: transmembrane receptor protein serine/threonine kinase signaling pathway	88	0.56	2	9.52	0.0060
GO:7179: transforming growth factor beta receptor signaling pathway	55	0.35	2	9.52	0.0024
GO:17015: regulation of transforming growth factor beta receptor signaling pathway	8	0.05	2	9.52	4.66×10^{-5}
GO:9966: regulation of signal transduction	121	0.76	2	9.52	0.0110
GO:48515: spermatid differentiation	29	0.18	1	4.76	0.0378
GO:7286: spermatid development	29	0.18	1	4.76	0.0378
GO:42461: photoreceptor cell development	17	0.11	1	4.76	0.0223
GO:42462: eye photoreceptor cell development	16	0.10	1	4.76	0.0210
GO:46548: retinal rod cell development	2	0.01	1	4.76	0.0027
GO:48592: eye morphogenesis	28	0.18	1	4.76	0.0365
GO:1754: eye photoreceptor cell differentiation	17	0.11	1	4.76	0.0223
GO:30217: T cell differentiation	36	0.23	1	4.76	0.0467
GO:42093: T-helper cell differentiation	1	0.01	1	4.76	0.0013
GO:45063: T-helper 1 cell differentiation	1	0.01	1	4.76	0.0013
GO:42490: mechanoreceptor differentiation	13	0.08	1	4.76	0.0171
GO:46530: photoreceptor cell differentiation	20	0.13	1	4.76	0.0262
GO:9166: nucleotide catabolism	23	0.15	1	4.76	0.0301
GO:30497: fatty acid elongation	2	0.01	1	4.76	0.0027
GO:42095: interferon-gamma biosynthesis	4	0.03	1	4.76	0.0053
GO:9116: nucleoside metabolism	31	0.20	1	4.76	0.0403
GO:7623: circadian rhythm	29	0.18	1	4.76	0.0378
GO:42087: cell-mediated immune response	30	0.19	1	4.76	0.0390
GO:42088: T-helper 1 type immune response	27	0.17	1	4.76	0.0352
GO:6839: mitochondrial transport	15	0.09	1	4.76	0.0197
GO:70: mitotic sister chromatid segregation	20	0.13	1	4.76	0.0262
GO:7076: mitotic chromosome condensation	17	0.11	1	4.76	0.0223
GO:819: sister chromatid segregation	20	0.13	1	4.76	0.0262
GO:6997: nuclear organization and biogenesis	9	0.06	1	4.76	0.0119
GO:30261: chromosome condensation	21	0.13	1	4.76	0.0275
GO:7631: feeding behavior	11	0.07	1	4.76	0.0145
GO:186: activation of MAPKK activity	5	0.03	1	4.76	0.0066

Supplemental Table 9: Comparison of non-supervised DNA-microarray analysis of 3 and 9 months old *tg* 1223 livers.
The differentially up- and downregulated mRNAs expressed in 3 month-old *tg* 1223 when compared to 9 month-old *tg* 1223 livers are indicated.
Genes were selected based on a minimum fold change of 2.

Gene Name	Fold change	P-value	Common	Genbank	Description
A_52_P423810	158.7	0.00134	BC027262	BC027262	Mus musculus metallothionein 1, mRNA (cDNA clone MGC:27821 IMAGE:3483861), complete cds. [BC027262]
A_51_P363187	122.4	4.58E-05	NM_008176	NM_008176	Mus musculus chemokine (C-X-C motif) ligand 1 (Cxcl1), mRNA [NM_008176]
A_52_P1068216	57.13	0.0047	AK051522	AK051522	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130054J23 product:unclassifiable, full insert sequence. [AK051522]
A_52_P5855	50.88	0.0105	AK049452	AK049452	Mus musculus 7 days embryo whole body cDNA, RIKEN full-length enriched library, clone:C430014G08 product:epidermal growth factor receptor, full insert sequence. [AK049452]
A_52_P14456	46.86	4.60E-05	AK129457	AK129457	Mus musculus mRNA for mKIAA1853 protein [AK129457]
A_51_P447545	45.91	0.00627	NM_008341	NM_008341	Mus musculus insulin-like growth factor binding protein 1 (Igfbp1), mRNA [NM_008341]
A_51_P367866	41.92	0.012	NM_007913	NM_007913	Mus musculus early growth response 1 (Egr1), mRNA [NM_007913]
A_51_P315904	32.43	0.00136	NM_011817	NM_011817	Mus musculus growth arrest and DNA-damage-inducible 45 gamma (Gadd45g), mRNA [NM_011817]
A_51_P223776	31.18	0.000797	NM_145434	NM_145434	Mus musculus nuclear receptor subfamily 1, group D, member 1 (Nr1d1), mRNA [NM_145434]
A_52_P207654	28.43	0.0026	NAP018089-001		
A_51_P474459	26.68	0.00183	NM_007707	NM_007707	Mus musculus suppressor of cytokine signaling 3 (Socs3), mRNA [NM_007707]
A_52_P340669	24	0.0107	NM_010800	NM_010800	Mus musculus basic helix-loop-helix domain containing, class B, 8 (Bhlhb8), mRNA [NM_010800]
A_52_P638926	21.41	0.00217	AK020569	AK020569	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530024C23 product:hypothetical Zinc finger C-x8-C-x5-C-x3-H type containing protein, full insert sequence. [AK020569]
A_52_P262219	20.7	0.0101	NM_010234	NM_010234	Mus musculus FBJ osteosarcoma oncogene (Fos), mRNA [NM_010234]
A_51_P286737	19.23	0.0023	NM_011333	NM_011333	Mus musculus chemokine (C-C motif) ligand 2 (Ccl2), mRNA [NM_011333]
A_51_P271370	18.2	0.0101	NM_019653	NM_019653	Mus musculus WD repeat and SOCS box-containing 1 (Wsb1), mRNA [NM_019653]
A_51_P488960	17.82	0.0147	AK050994	AK050994	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030051L06 product:unclassifiable, full insert sequence. [AK050994]
A_51_P142923	16.81	0.00407	NM_013490	NM_013490	Mus musculus choline kinase alpha (Chka), transcript variant 1, mRNA [NM_013490]
A_51_P159201	16.54	0.000797	NM_008416	NM_008416	Mus musculus Jun-B oncogene (Junb), mRNA [NM_008416]
A_52_P338698	16.31	0.00407	AK050066	AK050066	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730009O04 product:unclassifiable, full insert sequence. [AK050066]
A_52_P544878	16.21	0.000262	AK122283	AK122283	Mus musculus mRNA for mKIAA0439 protein [AK122283]
A_52_P31543	15.44	0.00374	NM_007570	NM_007570	Mus musculus B-cell translocation gene 2, anti-proliferative (Btg2), mRNA [NM_007570]
A_51_P173043	15.37	0.0132	NM_010118	NM_010118	Mus musculus early growth response 2 (Egr2), mRNA [NM_010118]
A_52_P576222	14.67	0.00236	BC057152	BC057152	Mus musculus periplakin, mRNA (cDNA clone IMAGE:5337379), complete cds. [BC057152]
A_51_P263246	14.59	0.000405	NM_008748	NM_008748	Mus musculus dual specificity phosphatase 8 (Dusp8), mRNA [NM_008748]
A_52_P329367	14.59	0.00186	NM_001025566	NM_0010256	Mus musculus choline kinase alpha (Chka), transcript variant 2, mRNA [NM_001025566]
A_51_P488739	14.37	0.00183	NM_030701	NM_030701	Mus musculus G protein-coupled receptor 109B (Gpr109b), mRNA [NM_030701]
A_52_P363951	13.9	0.00638	NM_011580	NM_011580	Mus musculus thrombospondin 1 (Thbs1), mRNA [NM_011580]
A_52_P131423	12.68	0.000332	AK007371	AK007371	Mus musculus 10 day old male pancreas cDNA, RIKEN full-length enriched library, clone:1810008C20 product:methyl-CpG binding domain protein 1, full insert sequence. [AK007371]
A_52_P420045	11.95	0.00892	NM_013490	NM_013490	Mus musculus choline kinase alpha (Chka), transcript variant 1, mRNA [NM_013490]
A_52_P140663	11.94	0.00204	NM_026579	NM_026579	Mus musculus DNA segment, Chr 10, Wayne State University 102, expressed (D10Wsu102e), mRNA [NM_026579]
A_52_P484903	11.83	0.00107	NM_008037	NM_008037	Mus musculus fos-like antigen 2 (Fosl2), mRNA [NM_008037]
A_52_P35217	11.78	0.000797	NM_007570	NM_007570	Mus musculus B-cell translocation gene 2, anti-proliferative (Btg2), mRNA [NM_007570]
A_51_P510156	11.76	0.00765	NM_008491	NM_008491	Mus musculus lipocalin 2 (Lcn2), mRNA [NM_008491]
A_51_P294979	11.73	0.0171	NM_013602	NM_013602	Mus musculus metallothionein 1 (Mt1), mRNA [NM_013602]
A_52_P335842	11.22	0.0023	BB667837	BB667837	BB667837 RIKEN full-length enriched, adult male liver tumor Mus musculus cDNA clone C730046C01 3', mRNA sequence [BB667837]
A_52_P408580	11.04	0.00965	NM_021314	NM_021314	Mus musculus transforming, acidic coiled-coil containing protein 2 (Tacc2), transcript variant 2, mRNA [NM_021314]
A_51_P347333	10.66	4.58E-05	AK012530	AK012530	Mus musculus 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2700078F24 product:unknown EST, full insert sequence. [AK012530]
A_51_P256827	10.35	0.0026	NM_013650	NM_013650	Mus musculus S100 calcium binding protein A8 (calgranulin A) (S100a8), mRNA [NM_013650]
A_52_P925197	9.982	4.58E-05	NM_007570	NM_007570	Mus musculus B-cell translocation gene 2, anti-proliferative (Btg2), mRNA [NM_007570]
A_52_P52803	9.961	0.0026	NM_010479	NM_010479	Mus musculus heat shock protein 1A (Hspa1a), mRNA [NM_010479]
A_51_P267211	9.9	0.00634	AK037075	AK037075	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930108O06 product:hypothetical protein, full insert sequence. [AK037075]
A_51_P436652	9.85	0.000106	NM_013654	NM_013654	Mus musculus chemokine (C-C motif) ligand 7 (Ccl7), mRNA [NM_013654]
A_51_P419801	9.825	0.00596	AK051661	AK051661	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130062J21 product:hypothetical protein, full insert sequence. [AK051661]
A_52_P923956	9.778	0.00921	AK085397	AK085397	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630021L23 product:unclassifiable, full insert sequence. [AK085397]
A_52_P601727	9.748	0.0198	AK052688	AK052688	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630023O13 product:complement component factor h, full insert sequence. [AK052688]
A_51_P405606	9.696	0.000797	NM_010884	NM_010884	Mus musculus N-myc downstream regulated gene 1 (Ndrg1), mRNA [NM_010884]
A_51_P279712	9.63	0.00737	NM_145923	NM_145923	Mus musculus expressed sequence AA536743 (AA536743), mRNA [NM_145923]
A_52_P714654	9.59	0.00672	AK020221	AK020221	Mus musculus 15 days embryo male testis cDNA, RIKEN full-length enriched library, clone:8030488J09 product:unclassifiable, full insert sequence. [AK020221]
A_52_P947990	9.375	0.0335	AK083642	AK083642	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030058I23 product:unclassifiable, full insert sequence. [AK083642]
A_51_P286488	9.182	0.00539	NM_133662	NM_133662	Mus musculus immediate early response 3 (Ier3), mRNA [NM_133662]
A_52_P293443	9.074	0.00407	AK087208	AK087208	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030034H04 product:endothelial PAS domain protein 1, full insert sequence. [AK087208]
A_51_P189746	9.021	0.00187	NM_145478	NM_145478	Mus musculus proviral integration site 3 (Pim3), mRNA [NM_145478]
A_52_P343856	8.951	0.00484	NM_178661	NM_178661	Mus musculus cAMP responsive element binding protein 3-like 2 (Creb3l2), mRNA [NM_178661]
A_51_P452172	8.871	0.00311	AK045021	AK045021	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130020A07 product:hypothetical protein, full insert sequence. [AK045021]
A_52_P613241	8.69	0.00603	NM_010493	NM_010493	Mus musculus intercellular adhesion molecule (Icam1), mRNA [NM_010493]
A_52_P306327	8.671	0.00209	AK050118	AK050118	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730016P09 product:unknown EST, full insert sequence [AK050118]
A_51_P279704	8.556	0.00187	BC024679	BC024679	Mus musculus expressed sequence AA536743, mRNA (cDNA clone IMAGE:3991705), partial cds. [BC024679]
A_51_P402943	8.447	0.00186	NM_009114	NM_009114	Mus musculus S100 calcium binding protein A9 (calgranulin B) (S100a9), mRNA [NM_009114]
A_51_P389751	8.402	0.00187	NM_009046	NM_009046	Mus musculus avian reticuloendotheliosis viral (v-rel) oncogene related B (Relb), mRNA [NM_009046]
A_51_P131408	8.397	0.0184	NM_013749	NM_013749	Mus musculus tumor necrosis factor receptor superfamily, member 12a (Tnfrsf12a), mRNA [NM_013749]
A_52_P569539	8.396	0.0139	AK048506	AK048506	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130067K17 product:NFkB p105 subunit; NFkB1, full insert sequence. [AK048506]
A_52_P375076	8.369	0.00737	BC019785	BC019785	Mus musculus hypoxia up-regulated 1, mRNA (cDNA clone MGC:30561 IMAGE:5151731), complete cds. [BC019785]
A_51_P219505	8.336	0.00717	NM_177388	NM_177388	Mus musculus solute carrier family 41, member 2 (Slc41a2), mRNA [NM_177388]
A_51_P103659	8.247	0.0274	NM_009450	NM_009450	Mus musculus tubulin, beta 2 (Tubb2), mRNA [NM_009450]
A_52_P707934	8.227	0.0136	AK087356	AK087356	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030049E21 product:unclassifiable, full insert sequence. [AK087356]
A_51_P490023	8.199	0.00726	NM_009450	NM_009450	Mus musculus tubulin, beta 2 (Tubb2), mRNA [NM_009450]
A_52_P491544	8.136	0.025	NM_017464	NM_017464	Mus musculus neural precursor cell expressed, developmentally down-regulated gene 9 (Nedd9), mRNA [NM_017464]
A_52_P431159	8.118	0.0171	NM_031167	NM_031167	Mus musculus interleukin 1 receptor antagonist (Il1rn), mRNA [NM_031167]
A_52_P302147	8.102	0.0376	TC1421055		
A_51_P325904	8.051	0.00407	XM_148966	XM_148966	PREDICTED: inhibin beta-B [Mus musculus], mRNA sequence [XM_148966]
A_52_P510877	8.038	0.0125	NM_009743	NM_009743	Mus musculus Bcl2-like 1 (Bcl2l1), mRNA [NM_009743]
A_51_P361650	7.95	0.0159	NM_009117	NM_009117	Mus musculus serum amyloid A 1 (Saa1), mRNA [NM_009117]
A_52_P474528	7.781	0.00347	NAP066348-1		
A_51_P324633	7.775	0.00277	NM_007703	NM_007703	Mus musculus elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 3 (Elovl3), mRNA [NM_007703]
A_51_P291417	7.773	0.0147	NM_009378	NM_009378	Mus musculus thrombomodulin (Thbd), mRNA [NM_009378]
A_51_P117952	7.757	0.00634	NM_010479	NM_010479	Mus musculus heat shock protein 1A (Hspa1a), mRNA [NM_010479]

A_51_P505882	7.752	0.0179	AK052121	AK052121	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230048G05 product:unclassifiable, full insert sequence. [AK052121]
A_52_P500856	7.723	0.00672	NM_146197	NM_146197	Mus musculus cDNA sequence BC031140 (BC031140), mRNA [NM_146197]
A_51_P342567	7.703	0.00646	NM_031185	NM_031185	Mus musculus A kinase (PRKA) anchor protein (gravin) 12 (Akap12), mRNA [NM_031185]
A_51_P455997	7.694	0.0101	Y13832	Y13832	Mus musculus mRNA for GT12 protein. [Y13832]
A_52_P419679	7.676	0.0128	BC049975	BC049975	ENSMUST00000049922 [BC049975]
A_51_P164835	7.656	0.0262	NM_008909	NM_008909	Mus musculus periplakin (Ppl), mRNA [NM_008909]
A_51_P249989	7.598	0.0149	NM_145133	NM_145133	Mus musculus Traf2 binding protein (T2bp), mRNA [NM_145133]
A_51_P337308	7.588	0.0127	NM_011315	NM_011315	Mus musculus serum amyloid A 3 (Saa3), mRNA [NM_011315]
A_52_P363216	7.538	0.00209	NM_133219	NM_133219	Mus musculus glucosaminyl (N-acetyl) transferase 2, I-branching enzyme (Gcnt2), transcript variant 3, mRNA [NM_133219]
A_51_P479698	7.514	0.0139	NM_153558	NM_153558	Mus musculus lipocalin 13 (Lcn13), mRNA [NM_153558]
A_52_P1116002	7.513	0.0126	AK048761	AK048761	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230049N15 product:unclassifiable, full insert sequence [AK048761]
A_52_P696044	7.478	0.00485	XM_131399	XM_131399	PREDICTED: Mus musculus src homology 2 domain-containing transforming protein B (Shb), mRNA [XM_131399]
A_52_P419678	7.283	0.00622	BC049975	BC049975	ENSMUST00000049922 [BC049975]
A_51_P112966	7.257	0.00628	NM_009890	NM_009890	Mus musculus cholesterol 25-hydroxylase (Ch25h), mRNA [NM_009890]
A_52_P273935	7.254	0.000985	AK020313	AK020313	Mus musculus adult male epididymis cDNA, RIKEN full-length enriched library, clone:9230104K21 product:unknown EST, full insert sequence. [AK020313]
A_52_P304902	7.239	0.00446	NM_010479	NM_010479	Mus musculus heat shock protein 1A (Hspa1a), mRNA [NM_010479]
A_52_P615051	7.229	0.00666	XM_622889	XM_622889	PREDICTED: Mus musculus similar to LRRGT00049 (LOC547372), mRNA [XM_622889]
A_52_P318673	7.153	0.0147	NM_009117	NM_009117	Mus musculus serum amyloid A 1 (Saa1), mRNA [NM_009117]
A_52_P82741	7.115	0.0115	NM_010479	NM_010479	Mus musculus heat shock protein 1A (Hspa1a), mRNA [NM_010479]
A_52_P370274	7.035	0.0126	AK011999	AK011999	Mus musculus 10 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2610306O03 product:phosphodiesterase 4B, cAMP specific, full insert sequence. [AK011999]
A_52_P271725	7.023	0.00484	NM_001003934	NM_0010039	Mus musculus reticulon 3 (Rtn3), transcript variant 1, mRNA [NM_001003934]
A_51_P518051	7.012	0.00407	NM_176933	NM_176933	Mus musculus dual specificity phosphatase 4 (Dusp4), mRNA [NM_176933]
A_52_P418884	7	0.029	NM_017464	NM_017464	Mus musculus neural precursor cell expressed, developmentally down-regulated gene 9 (Nedd9), mRNA [NM_017464]
A_51_P307964	6.999	0.015	NM_010662	NM_010662	Mus musculus keratin complex 1, acidic, gene 13 (Krt1-13), mRNA [NM_010662]
A_52_P491569	6.993	0.00542	AK006055	AK006055	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700017B05 product:unknown EST, full insert sequence. [AK006055]
A_52_P135873	6.992	0.00485	XM_484695	XM_484695	PREDICTED: Mus musculus similar to novel protein (LOC433156), mRNA [XM_484695]
A_52_P61903	6.973	0.00128	AK014174	AK014174	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110043M12 product:choline kinase, full insert sequence. [AK014174]
A_51_P517843	6.952	0.00162	NM_027450	NM_027450	Mus musculus GLI pathogenesis-related 2 (Glipr2), mRNA [NM_027450]
A_52_P851862	6.94	0.0175	AK080781	AK080781	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130045J22 product:unclassifiable, full insert sequence. [AK080781]
A_51_P482990	6.934	0.0026	NM_145996	NM_145996	Mus musculus AT rich interactive domain 5A (Mrf1 like) (Arid5a), mRNA [NM_145996]
A_51_P254656	6.812	0.0026	NM_008230	NM_008230	Mus musculus histidine decarboxylase (Hdc), mRNA [NM_008230]
A_52_P438957	6.791	0.0113	AK019964	AK019964	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730465C04 product:ribosome binding protein 1, full insert sequence [AK019964]
A_51_P271503	6.765	0.00726	NM_008362	NM_008362	Mus musculus interleukin 1 receptor, type I (Il1r1), mRNA [NM_008362]
A_51_P318830	6.764	0.00988	NM_018803	NM_018803	Mus musculus synaptotagmin X (Syt10), mRNA [NM_018803]
A_51_P215489	6.76	0.00407	NM_153062	NM_153062	Mus musculus solute carrier family 37 (glycerol-3-phosphate transporter), member 1 (Slc37a1), mRNA [NM_153062]
A_51_P166886	6.739	0.024	NM_011314	NM_011314	Mus musculus serum amyloid A 2 (Saa2), mRNA [NM_011314]
A_51_P173678	6.708	0.0155	NM_029415	NM_029415	Mus musculus solute carrier family 10 (sodium/bile acid cotransporter family), member 6 (Slc10a6), mRNA [NM_029415]
A_51_P315042	6.702	0.00956	NM_016847	NM_016847	Mus musculus arginine vasopressin receptor 1A (Avpr1a), mRNA [NM_016847]
A_52_P350512	6.668	0.00128	NM_145996	NM_145996	Mus musculus AT rich interactive domain 5A (Mrf1 like) (Arid5a), mRNA [NM_145996]
A_52_P6070	6.644	0.00874	AK016443	AK016443	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4931408A02 product:hypothetical D-galactoside/L-rhamnose binding SUEL lectin domain containing protein, full insert sequence. [AK016443]
A_52_P1075998	6.604	0.00646	AK039892	AK039892	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430025G19 product:unclassifiable, full insert sequence. [AK039892]
A_51_P380861	6.599	0.00638	BC026435	BC026435	Mus musculus RIKEN cDNA 9130208E07 gene, mRNA (cDNA clone IMAGE:4237122), partial cds. [BC026435]
A_52_P1115511	6.54	0.00573	AK031392	AK031392	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030422H21 product:unknown EST, full insert sequence. [AK031392]
A_51_P331288	6.539	0.0168	NM_009731	NM_009731	Mus musculus aldo-keto reductase family 1, member B7 (Akr1b7), mRNA [NM_009731]
A_51_P384831	6.485	0.0421	NM_134164	NM_134164	Mus musculus synaptotagmin XII (Syt12), mRNA [NM_134164]
A_52_P533280	6.458	0.0157	NM_013637	NM_013637	Mus musculus protamine 1 (Prm1), mRNA [NM_013637]
A_52_P997209	6.448	0.00519	TC1448906		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (5%) [TC1448906]
A_51_P183571	6.439	0.0147	NM_008871	NM_008871	Mus musculus serine (or cysteine) proteinase inhibitor, clade E, member 1 (Serpine1), mRNA [NM_008871]
A_51_P340829	6.379	0.00737	NM_177604	NM_177604	Mus musculus expressed sequence AA986860 (AA986860), mRNA [NM_177604]
A_52_P49321	6.37	0.00277	BC068142	BC068142	Mus musculus a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 9, mRNA (cDNA clone IMAGE:30536534) [BC068142]
A_51_P351481	6.284	0.00634	NM_019937	NM_019937	Mus musculus cyclin L1 (Ccnl1), transcript variant 1, mRNA [NM_019937]
A_52_P597461	6.256	0.0132	NM_011386	NM_011386	Mus musculus SKI-like (Skil), mRNA [NM_011386]
A_52_P247927	6.247	0.00409	XM_488587	XM_488587	PREDICTED: Mus musculus RIKEN cDNA 2810442I21 gene (2810442I21Rik), mRNA [XM_488587]
A_52_P412417	6.217	0.00407	NM_009397	NM_009397	Mus musculus tumor necrosis factor, alpha-induced protein 3 (Tnfaip3), mRNA [NM_009397]
A_52_P391505	6.183	0.0111	NM_144513	NM_144513	Mus musculus GTL2, imprinted maternally expressed untranslated mRNA (Gtl2), mRNA [NM_144513]
A_51_P430833	6.167	0.00672	NM_008422	NM_008422	Mus musculus potassium voltage gated channel, Shaw-related subfamily, member 3 (Kcnc3), mRNA [NM_008422]
A_51_P458384	6.159	0.00187	NM_175121	NM_175121	Mus musculus solute carrier family 38, member 2 (Slc38a2), mRNA [NM_175121]
A_52_P423247	6.111	0.0208	NM_019840	NM_019840	Mus musculus phosphodiesterase 4B, cAMP specific (Pde4b), mRNA [NM_019840]
A_52_P621603	6.103	0.00849	NM_009450	NM_009450	Mus musculus tubulin, beta 2 (Tubb2), mRNA [NM_009450]
A_51_P486217	6.101	0.0117	NM_175638	NM_175638	Mus musculus protein kinase, lysine deficient 4 (Prkwnk4), mRNA [NM_175638]
A_52_P576230	6.099	0.0328	NM_001004468	NM_0010044	Mus musculus transforming, acidic coiled-coil containing protein 2 (Tacc2), transcript variant 3, mRNA [NM_001004468]
A_51_P185141	6.091	0.0115	NM_181072	NM_181072	Mus musculus myosin IE (Myo1e), mRNA [NM_181072]
A_52_P481493	6.019	0.00236	NM_010220	NM_010220	Mus musculus FK506 binding protein 5 (Fkbp5), mRNA [NM_010220]
A_52_P21574	6.001	0.00308	AK010339	AK010339	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:2410002J21 product:SIMILAR TO ENIGMA (LIM DOMAIN PROTEIN) homolog [Homo sapiens], full insert sequence [AK010339]
A_51_P511081	5.946	0.0122	NM_018869	NM_018869	Mus musculus G protein-coupled receptor kinase 5 (Gprk5), mRNA [NM_018869]
A_51_P306183	5.884	0.0046	NM_010757	NM_010757	Mus musculus v-maf musculoaponeurotic fibrosarcoma oncogene family, protein K (avian) (Mafk), mRNA [NM_010757]
A_51_P108923	5.873	0.00624	AK035046	AK035046	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430078N17 product:unclassifiable, full insert sequence. [AK035046]
A_51_P158538	5.853	0.00628	NM_011756	NM_011756	Mus musculus zinc finger protein 36 (Zfp36), mRNA [NM_011756]
A_52_P40191	5.838	0.00628	NM_021454	NM_021454	Mus musculus CDC42 effector protein (Rho GTPase binding) 5 (Cdc42ep5), mRNA [NM_021454]
A_52_P123772	5.819	0.00407	AK037161	AK037161	Mus musculus 6 days neonate skin cDNA, RIKEN full-length enriched library, clone:A030003B01 product:calcium binding protein P22, full insert sequence. [AK037161]
A_51_P157406	5.818	0.0335	NM_008963	NM_008963	Mus musculus prostaglandin D2 synthase (brain) (Ptgds), mRNA [NM_008963]
A_51_P170651	5.781	0.0441	S79463	S79463	M-Sema F=a factor in neural network development [mice, neonatal brain, mRNA, 3503 nt]. [S79463]
A_51_P395373	5.764	0.0357	NM_021464	NM_021464	Mus musculus protein tyrosine phosphatase, receptor type, T (Ptprt), mRNA [NM_021464]
A_52_P141488	5.76	0.00634	NM_018869	NM_018869	Mus musculus G protein-coupled receptor kinase 5 (Gprk5), mRNA [NM_018869]
A_52_P78684	5.756	0.018	AK084765	AK084765	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330040H18 product:unknown EST, full insert sequence. [AK084765]
A_51_P515768	5.71	0.00401	AK010339	AK010339	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:2410002J21 product:SIMILAR TO ENIGMA (LIM DOMAIN PROTEIN) homolog [Homo sapiens], full insert sequence [AK010339]
A_52_P503387	5.705	0.00672	NM_021897	NM_021897	Mus musculus transformation related protein 53 inducible nuclear protein 1 (Trp53inp1), mRNA [NM_021897]
A_51_P428578	5.698	0.014	NM_025459	NM_025459	Mus musculus RIKEN cDNA 1810015C04 gene (1810015C04Rik), mRNA [NM_025459]
A_52_P442710	5.678	0.019	NM_172399	NM_172399	Mus musculus RIKEN cDNA A930038C07 gene (A930038C07Rik), mRNA [NM_172399]
A_51_P136542	5.659	0.0359	NM_033601	NM_033601	Mus musculus B-cell leukemia/lymphoma 3 (Bcl3), mRNA [NM_033601]
A_51_P305936	5.643	0.00638	NM_031881	NM_031881	Mus musculus neural precursor cell expressed, developmentally down-regulated gene 4-like (Nedd4l), mRNA [NM_031881]
A_52_P148861	5.629	0.0126	NM_009743	NM_009743	Mus musculus Bcl2-like 1 (Bcl2l1), mRNA [NM_009743]
A_52_P165824	5.624	0.0147	NM_175443	NM_175443	Mus musculus ethanolamine kinase 2 (Etnk2), mRNA [NM_175443]

A_52_P568200	5.616	0.0428	BC021831	BC021831	Mus musculus, clone IMAGE:3983821, mRNA, partial cds [BC021831]
A_52_P303161	5.615	0.0262	NM_017379	NM_017379	Mus musculus tubulin, alpha 8 (Tuba8), mRNA [NM_017379]
A_51_P222280	5.613	0.0135	NM_019777	NM_019777	Mus musculus inhibitor of kappaB kinase epsilon (Ikbke), mRNA [NM_019777]
A_52_P496726	5.574	0.0386	NM_009026	NM_009026	Mus musculus RAS, dexamethasone-induced 1 (Rasd1), mRNA [NM_009026]
A_51_P117369	5.516	0.0167	NM_177201	NM_177201	Mus musculus PHD finger protein 8 (Phf8), mRNA [NM_177201]
A_51_P124254	5.504	0.0237	NM_009931	NM_009931	Mus musculus procollagen, type IV, alpha 1 (Col4a1), mRNA [NM_009931]
A_52_P4347	5.497	0.00211	NM_145125	NM_145125	Mus musculus bromodomain and WD repeat domain containing 1 (Brwd1), mRNA [NM_145125]
A_52_P158923	5.472	0.00308	NM_013594	NM_013594	Mus musculus methyl-CpG binding domain protein 1 (Mbd1), mRNA [NM_013594]
A_51_P197146	5.471	0.00749	AK017886	AK017886	Mus musculus adult male thymus cDNA, RIKEN full-length enriched library, clone:5830400J07 product:unknown EST, full insert sequence. [AK017886]
A_52_P366666	5.455	0.0284	NM_172442	NM_172442	Mus musculus deltex 4 homolog (Drosophila) (Dtx4), mRNA [NM_172442]
A_52_P530291	5.444	0.0121	NM_008842	NM_008842	Mus musculus proviral integration site 1 (Pim1), mRNA [NM_008842]
A_51_P352981	5.419	0.0269	AK030345	AK030345	Mus musculus adult male xiphoid cartilage cDNA, RIKEN full-length enriched library, clone:5230400M03 product:unclassifiable, full insert sequence [AK030345]
A_52_P135885	5.392	0.0114	TC1521899		Q96CB9 (Q96CB9) MGC22960 protein, partial (14%) [TC1521899]
A_52_P572476	5.376	0.0292	AK089247	AK089247	Mus musculus NOD-derived CD11c +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F630104J01 product:RETINOL DEHYDROGENASE homolog [Rattus norvegicus], full insert sequence [AK089247]
A_51_P485458	5.354	0.0131	NM_001005506	NM_0010055(	Mus musculus taxilin (Txln), mRNA [NM_001005506]
A_52_P714621	5.335	0.00675	AK008061	AK008061	Mus musculus adult male small intestine cDNA, RIKEN full-length enriched library, clone:2010003D24 product:unknown EST, full insert sequence. [AK008061]
A_52_P569499	5.331	0.00981	AK079406	AK079406	Mus musculus adult male bone cDNA, RIKEN full-length enriched library, clone:9830127M23 product:signal transducer and activator of transcription 3, full insert sequence [AK079406]
A_52_P131353	5.329	0.0148	NM_177343	NM_177343	Mus musculus calcium/calmodulin-dependent protein kinase ID (Camk1d), mRNA [NM_177343]
A_52_P594756	5.322	0.00981	NM_023048	NM_023048	Mus musculus ankyrin repeat and SOCS box-containing protein 4 (Asb4), mRNA [NM_023048]
A_51_P505662	5.311	0.0168	AK017096	AK017096	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933437F05 product:hypothetical NAD(P)-binding Rossmann-fold domains structure containing protein, full insert sequence. [AK017096]
A_51_P398673	5.285	0.00265	XM_138091	XM_138091	PREDICTED: similar to chromosome 14 open reading frame 43 [Mus musculus], mRNA sequence [XM_138091]
A_52_P144037	5.282	0.0271	NM_028900	NM_028900	Mus musculus golgi coiled coil 1 (Gcc1), mRNA [NM_028900]
A_51_P429040	5.275	0.0134	NM_146119	NM_146119	Mus musculus RIKEN cDNA 9130404D14 gene (9130404D14Rik), mRNA [NM_146119]
A_52_P33067	5.242	0.0286	AK080164	AK080164	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530073K21 product:unknown EST, full insert sequence. [AK080164]
A_51_P418884	5.235	0.0126	NM_001013789	NM_0010137	Mus musculus similar to hypothetical protein MGC37588 (LOC432823), mRNA [NM_001013789]
A_52_P448994	5.221	0.00765	AK086129	AK086129	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930007H16 product:unclassifiable, full insert sequence. [AK086129]
A_51_P118637	5.212	0.00611	NM_026083	NM_026083	Mus musculus RIKEN cDNA 3110050K21 gene (3110050K21Rik), mRNA [NM_026083]
A_52_P18060	5.21	0.00236	NM_175937	NM_175937	Mus musculus cytoplasmic polyadenylation element binding protein 2 (Cpeb2), mRNA [NM_175937]
A_52_P65165	5.203	0.000915	AK051654	AK051654	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130062D18 product:unclassifiable, full insert sequence. [AK051654]
A_52_P691533	5.201	0.00765	AK051672	AK051672	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130063P19 product:hypothetical protein, full insert sequence [AK051672]
A_52_P147487	5.197	0.0115	NM_007731	NM_007731	Mus musculus procollagen, type XIII, alpha 1 (Col13a1), mRNA [NM_007731]
A_52_P452689	5.196	0.00485	NM_007498	NM_007498	Mus musculus activating transcription factor 3 (Atf3), mRNA [NM_007498]
A_52_P445944	5.195	0.0046	AK043732	AK043732	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830026G02 product:hypothetical protein, full insert sequence. [AK043732]
A_52_P437662	5.194	0.0404	NM_013884	NM_013884	Mus musculus chondroitin sulfate proteoglycan 5 (Cspg5), mRNA [NM_013884]
A_51_P167562	5.193	0.014	NM_133362	NM_133362	Mus musculus erythroid differentiation regulator 1 (Erdr1), mRNA [NM_133362]
A_52_P403895	5.19	0.0123	TC1411223		Q91Z77 (Q91Z77) Lipogenin, partial (16%) [TC1411223]
A_51_P159610	5.182	0.0231	NM_207202	NM_207202	Mus musculus DNA segment, Chr X, Immunex 50, expressed (DXImx50e), mRNA [NM_207202]
A_51_P238303	5.174	0.0174	AK039003	AK039003	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230084D06 product:unclassifiable, full insert sequence. [AK039003]
A_52_P459046	5.154	0.00438	AK030917	AK030917	Mus musculus adult male thymus cDNA, RIKEN full-length enriched library, clone:5830454P10 product:unknown EST, full insert sequence. [AK030917]
A_52_P715191	5.152	0.00628	AK037579	AK037579	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130027H19 product:unknown EST, full insert sequence. [AK037579]
A_51_P324814	5.138	0.0114	NM_010664	NM_010664	Mus musculus keratin complex 1, acidic, gene 18 (Krt1-18), mRNA [NM_010664]
A_51_P469951	5.138	0.0375	NM_153070	NM_153070	Mus musculus SLIT-ROBO Rho GTPase activating protein 3 (Srgap3), transcript variant 2, mRNA [NM_153070]
A_51_P326191	5.133	0.00107	AY862185	AY862185	Mus musculus serine proteinase inhibitor 2A mRNA, complete cds [AY862185]
A_51_P242399	5.131	0.013	NM_031170	NM_031170	Mus musculus keratin complex 2, basic, gene 8 (Krt2-8), mRNA [NM_031170]
A_52_P582969	5.119	0.0162	AK052726	AK052726	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630036B16 product:NFkB p105 subunit; NFkB1, full insert sequence. [AK052726]
A_52_P527741	5.117	0.00959	NM_177371	NM_177371	Mus musculus tumor necrosis factor (ligand) superfamily, member 15 (Tnfsf15), mRNA [NM_177371]
A_51_P481325	5.094	0.00588	NM_010499	NM_010499	Mus musculus immediate early response 2 (Ier2), mRNA [NM_010499]
A_51_P201480	5.074	0.00726	NM_213659	NM_213659	Mus musculus signal transducer and activator of transcription 3 (Stat3), transcript variant 1, mRNA [NM_213659]
A_51_P128463	5.058	0.0026	BC048704	BC048704	Mus musculus RIKEN cDNA 2810043G13 gene, mRNA (cDNA clone IMAGE:6330338), partial cds [BC048704]
A_52_P474902	5.054	0.00619	AK006759	AK006759	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700051I12 product:hypothetical Collagen triple helix repeat containing protein, full insert sequence. [AK006759]
A_51_P199199	5.042	0.0165	NM_031376	NM_031376	Mus musculus phosphoinositide-3-kinase adaptor protein 1 (Pik3ap1), mRNA [NM_031376]
A_52_P1147595	5.028	0.0483	AK033690	AK033690	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130221J18 product:unknown EST, full insert sequence [AK033690]
A_51_P363657	5.027	0.0127	NM_028800	NM_028800	Mus musculus serine/threonine kinase 40 (Stk40), mRNA [NM_028800]
A_52_P43135	5.027	0.00875	AK016551	AK016551	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4932436L20 product:zinc finger protein 259, full insert sequence. [AK016551]
A_52_P323975	5.026	0.00401	NM_025648	NM_025648	Mus musculus phenylalanine-tRNA synthetase-like, alpha subunit (Farsla), mRNA [NM_025648]
A_52_P443846	5.023	0.0168	NM_026221	NM_026221	Mus musculus PTPRF interacting protein, binding protein 1 (liprin beta 1) (Ppfibp1), mRNA [NM_026221]
A_51_P387591	5.015	0.00943	NM_030612	NM_030612	Mus musculus nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, zeta (Nfkbiz), mRNA [NM_030612]
A_52_P223521	5.014	0.0126	AK086927	AK086927	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030012I19 product:unknown EST, full insert sequence. [AK086927]
A_52_P210246	4.997	0.00672	NM_178224	NM_178224	Mus musculus cystathionine beta-synthase (Cbs), transcript variant 2, mRNA [NM_178224]
A_51_P279606	4.977	0.00624	NM_009896	NM_009896	Mus musculus suppressor of cytokine signaling 1 (Socs1), mRNA [NM_009896]
A_51_P406583	4.976	0.00765	NM_181072	NM_181072	Mus musculus myosin IE (Myo1e), mRNA [NM_181072]
A_52_P536731	4.974	0.0205	NM_001004364	NM_0010043(	Mus musculus development and differentiation enhancing factor 2 (Ddef2), mRNA [NM_001004364]
A_51_P153113	4.972	0.000304	AK005653	AK005653	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700003O08 product:unclassifiable, full insert sequence. [AK005653]
A_51_P229676	4.964	0.00462	NM_011636	NM_011636	Mus musculus phospholipid scramblase 1 (Plscr1), mRNA [NM_011636]
A_52_P253748	4.961	0.0106	XM_133186	XM_133186	PREDICTED: similar to zinc finger protein 499 [Mus musculus], mRNA sequence [XM_133186]
A_52_P481319	4.946	0.0116	NAP027922-1		
A_51_P507801	4.941	0.0192	NM_028784	NM_028784	Mus musculus coagulation factor XIII, A1 subunit (F13a1), mRNA [NM_028784]
A_52_P425317	4.939	0.0348	AK016682	AK016682	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933406C10 product:unknown EST, full insert sequence [AK016682]
A_52_P27225	4.932	0.014	NM_201389	NM_201389	Mus musculus plectin 1 (Plec1), transcript variant 6, mRNA [NM_201389]
A_52_P658122	4.93	0.00875	NM_011809	NM_011809	Mus musculus E26 avian leukemia oncogene 2, 3' domain (Ets2), mRNA [NM_011809]
A_52_P123341	4.917	0.019	NM_134033	NM_134033	Mus musculus cDNA sequence BC018601 (BC018601), mRNA [NM_134033]
A_52_P138126	4.914	0.0176	NM_172976	NM_172976	Mus musculus 6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 3 (Pfkfb3), transcript variant 2, mRNA [NM_172976]
A_52_P280832	4.889	0.0115	NM_183035	NM_183035	Mus musculus defensin beta 34 (Defb34), mRNA [NM_183035]
A_52_P916092	4.866	0.0151	AK082362	AK082362	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230040I21 product:unclassifiable, full insert sequence. [AK082362]
A_52_P312102	4.861	0.00438	AK129018	AK129018	Mus musculus cDNA fis, clone TRACH3033868, highly similar to Homo sapiens semaphorin sem2 [AK129018]
A_52_P139378	4.859	0.0176	NM_145125	NM_145125	Mus musculus bromodomain and WD repeat domain containing 1 (Brwd1), mRNA [NM_145125]
A_52_P376502	4.854	0.0312	BC025011	BC025011	Mus musculus calcium/calmodulin-dependent protein kinase ID, mRNA (cDNA clone IMAGE:5052777), complete cds. [BC025011]
A_51_P500643	4.846	0.016	AK082964	AK082964	Mus musculus 12 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:C530025K05 product:unknown EST, full insert sequence [AK082964]
A_52_P217211	4.842	0.00401	NM_018820	NM_018820	Mus musculus SERTA domain containing 1 (Sertad1), mRNA [NM_018820]
A_52_P533724	4.835	0.0168	NM_026574	NM_026574	Mus musculus RIKEN cDNA 4632409L19 gene (4632409L19Rik), mRNA [NM_026574]
A_51_P150996	4.818	0.00457	AK032738	AK032738	Mus musculus 12 days embryo male wolffian duct includes surrounding region cDNA, RIKEN full-length enriched library, clone:6720422M22 product:unknown EST, full insert sequence [AK032738]
A_51_P320626	4.815	0.00717	AK038228	AK038228	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130088F22 product:unknown EST, full insert sequence. [AK038228]
A_51_P159453	4.813	0.0115	NM_009252	NM_009252	Mus musculus serine (or cysteine) proteinase inhibitor, clade A, member 3N (Serpina3n), mRNA [NM_009252]

A_52_P438656	4.812	0.0279	TC1507823		
A_51_P458067	4.803	0.00485	NM_011030	NM_011030	Mus musculus procollagen-proline, 2-oxoglutarate 4-dioxygenase (proline 4-hydroxylase), alpha 1 polypeptide (P4ha1), mRNA [NM_011030]
A_51_P236287	4.802	0.0126	AK087504	AK087504	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130307D12 product:similar to SCAFFOLD ATTACHMENT FACTOR B [Rattus norvegicus], full insert sequence [AK087504]
A_51_P143224	4.796	0.0137	NM_013594	NM_013594	Mus musculus methyl-CpG binding domain protein 1 (Mbd1), mRNA [NM_013594]
A_52_P1020510	4.785	0.011	AK082505	AK082505	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230057O21 product:unclassifiable, full insert sequence [AK082505]
A_51_P185584	4.784	0.024	XM_197073	XM_197073	PREDICTED: hypothetical protein XP_197073 [Mus musculus], mRNA sequence [XM_197073]
A_51_P321643	4.778	0.00484	NM_173371	NM_173371	Mus musculus hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase) (H6pd), mRNA [NM_173371]
A_51_P177392	4.757	0.0349	AB041546	AB041546	Mus musculus brain cDNA, clone MNCb-3527, similar to AF220152 TACC2 (Homo sapiens). [AB041546]
A_52_P251672	4.749	0.0174	AK122299	AK122299	Mus musculus mRNA for mKIAA0513 protein [AK122299]
A_52_P182919	4.747	0.0365	NM_054098	NM_054098	Mus musculus STEAP family member 4 (Steap4), mRNA [NM_054098]
A_52_P427377	4.722	0.0474	BC065117	BC065117	Mus musculus seizure related 6 homolog (mouse)-like, mRNA (cDNA clone MGC:86064 IMAGE:6840338), complete cds. [BC065117]
A_52_P81533	4.711	0.0273	AK089292	AK089292	Mus musculus B6-derived CD11 +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F730002C09 product:unclassifiable, full insert sequence. [AK089292]
A_51_P355852	4.697	0.0385	NM_008856	NM_008856	Mus musculus protein kinase C, eta (Prkch), mRNA [NM_008856]
A_52_P163796	4.687	0.00873	NM_011655	NM_011655	Mus musculus tubulin, beta 5 (Tubb5), mRNA [NM_011655]
A_52_P425839	4.686	0.00726	NM_181596	NM_181596	Mus musculus resistin like gamma (Retnlg), mRNA [NM_181596]
A_51_P268439	4.665	0.0282	NM_023061	NM_023061	Mus musculus melanoma cell adhesion molecule (Mcam), mRNA [NM_023061]
A_51_P166648	4.66	0.00853	AK016443	AK016443	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4931408A02 product:hypothetical D-galactoside/L-rhamnose binding SUEL lectin domain containing protein, full insert sequence. [AK016443]
A_51_P502054	4.659	0.00468	NM_145546	NM_145546	Mus musculus general transcription factor IIB (Gtf2b), mRNA [NM_145546]
A_51_P323418	4.658	0.0069	AK036907	AK036907	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930023J12 product:unknown EST, full insert sequence. [AK036907]
A_52_P444804	4.657	0.0258	NM_013742	NM_013742	Mus musculus cysteinyl-tRNA synthetase (Cars), mRNA [NM_013742]
A_52_P376804	4.655	0.0175	NM_030201	NM_030201	Mus musculus stress 70 protein chaperone, microsome-associated, human homolog (Stch), mRNA [NM_030201]
A_52_P627925	4.655	0.00107	AK028915	AK028915	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732470B18 product:CDNA FLJ12851 FIS, CLONE NT2RP2003401, WEAKLY SIMILAR TO UBIQUITIN CARBOXYL-TERMINAL HYDROLASE DUB-1 (EC 3.1.2.15) homolog [Homo sapiens], full inser...
A_52_P631762	4.654	0.00628	CA321876	CA321876	UI-M-FX0-ccg-c-16-0-UI.r1 NIH_BMAP_FX0 Mus musculus cDNA clone IMAGE: 6819113 5', mRNA sequence [CA321876]
A_52_P421947	4.637	0.00818	AK046628	AK046628	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430212B02 product:METASTASIS SUPPRESSOR PROTEIN homolog [Homo sapiens], full insert sequence. [AK046628]
A_52_P819789	4.637	0.0147	AK087146	AK087146	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030029P04 product:unclassifiable, full insert sequence [AK087146]
A_52_P183138	4.628	0.0186	NM_008668	NM_008668	Mus musculus Ngfi-A binding protein 2 (Nab2), mRNA [NM_008668]
A_52_P282068	4.623	0.0152	NM_011752	NM_011752	Mus musculus zinc finger protein 259 (Zfp259), mRNA [NM_011752]
A_52_P19167	4.617	0.0309	AK030432	AK030432	Mus musculus adult male pituitary gland cDNA, RIKEN full-length enriched library, clone:5330411I24 product:weakly similar to CDNA FLJ32736 FIS, CLONE TESTI2001237, WEAKLY SIMILAR TO RING CANAL PROTEIN [Homo sapiens], full insert sequence [AK030432]
A_51_P131175	4.613	0.0356	NM_013569	NM_013569	Mus musculus potassium voltage-gated channel, subfamily H (eag-related), member 2 (Kcnh2), mRNA [NM_013569]
A_52_P89858	4.609	0.00844	TC1469196		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (5%) [TC1469196]
A_52_P607230	4.604	0.0236	NM_010740	NM_010740	Mus musculus complement component 1, q subcomponent, receptor 1 (C1qr1), mRNA [NM_010740]
A_51_P137336	4.6	0.00264	NM_009864	NM_009864	Mus musculus cadherin 1 (Cdh1), mRNA [NM_009864]
A_52_P69867	4.59	0.00391	NM_028292	NM_028292	Mus musculus RIKEN cDNA 2700017M01 gene (2700017M01Rik), mRNA [NM_028292]
A_51_P507622	4.585	0.00737	NM_181593	NM_181593	Mus musculus inositol 1,4,5-trisphosphate 3-kinase C (Itpkc), mRNA [NM_181593]
A_51_P310886	4.566	0.00187	AK047015	AK047015	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930011I04 product:unclassifiable, full insert sequence. [AK047015]
A_52_P441937	4.566	0.0101	NM_178932	NM_178932	Mus musculus amine oxidase, copper containing 2 (retina-specific) (Aoc2), mRNA [NM_178932]
A_52_P580533	4.559	0.0355	AK076656	AK076656	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930403E08 product:hypothetical protein, full insert sequence. [AK076656]
A_52_P622941	4.559	0.0126	AK034948	AK034948	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430065F12 product:mitochondrial solute carrier protein, full insert sequence. [AK034948]
A_52_P300445	4.554	0.029	NM_018731	NM_018731	Mus musculus ATPase, H+/K+ transporting, alpha polypeptide (Atp4a), mRNA [NM_018731]
A_52_P552647	4.545	0.00646	AK017401	AK017401	Mus musculus 6 days neonate head cDNA, RIKEN full-length enriched library, clone:5430437C10 product:hypothetical protein, full insert sequence. [AK017401]
A_52_P1043533	4.534	0.00764	AK031320	AK031320	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030406G17 product:unknown EST, full insert sequence. [AK031320]
A_52_P473045	4.534	0.0167	AK077383	AK077383	Mus musculus 6 days neonate head cDNA, RIKEN full-length enriched library, clone:5430409E09 product:unknown EST, full insert sequence [AK077383]
A_52_P24477	4.524	0.00474	NM_133219	NM_133219	Mus musculus glucosaminyl (N-acetyl) transferase 2, I-branching enzyme (Gcnt2), transcript variant 3, mRNA [NM_133219]
A_52_P279110	4.521	0.0203	AK018637	AK018637	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130019P16 product:hypothetical protein, full insert sequence. [AK018637]
A_52_P818682	4.518	0.0172	AK020546	AK020546	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530006C21 product:unknown EST, full insert sequence. [AK020546]
A_51_P424959	4.512	0.0252	NM_007528	NM_007528	Mus musculus B-cell CLL/lymphoma 6, member B (Bcl6b), mRNA [NM_007528]
A_52_P397313	4.511	0.018	AK019923	AK019923	Mus musculus adult male pituitary gland cDNA, RIKEN full-length enriched library, clone:5330430I10 product:hypothetical protein, full insert sequence. [AK019923]
A_51_P471362	4.506	0.00942	NM_153784	NM_153784	Mus musculus cDNA sequence BC038613 (BC038613), mRNA [NM_153784]
A_52_P262338	4.505	0.0126	NM_175264	NM_175264	Mus musculus RIKEN cDNA 4931406H21 gene (4931406H21Rik), mRNA [NM_175264]
A_52_P664965	4.494	0.012	NAP026734-1		
A_51_P182116	4.493	0.045	NM_019466	NM_019466	Mus musculus Down syndrome critical region homolog 1 (human) (Dscr1), mRNA [NM_019466]
A_52_P455691	4.493	0.0101	NM_025845	NM_025845	Mus musculus PRP38 pre-mRNA processing factor 38 (yeast) domain containing B (Prpf38b), mRNA [NM_025845]
A_52_P513701	4.49	0.0194	TC1438815		Q8K0H2 (Q8K0H2) Chpt1 protein, partial (18%) [TC1438815]
A_52_P184149	4.486	0.00844	NM_008638	NM_008638	Mus musculus methylenetetrahydrofolate dehydrogenase (NAD+ dependent), methenyltetrahydrofolate cyclohydrolase (Mthfd2), mRNA [NM_008638]
A_52_P576854	4.481	0.0236	NM_027950	NM_027950	Mus musculus RIKEN cDNA 1700012B18 gene (1700012B18Rik), mRNA [NM_027950]
A_51_P175841	4.479	0.00515	NM_013528	NM_013528	Mus musculus glutamine fructose-6-phosphate transaminase 1 (Gfpt1), mRNA [NM_013528]
A_51_P345663	4.477	0.00468	AK019964	AK019964	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730465C04 product:ribosome binding protein 1, full insert sequence [AK019964]
A_52_P254470	4.476	0.00966	TC1416353		TENS_HUMAN (Q9HBL0) Tensin, partial (6%) [TC1416353]
A_51_P366450	4.471	0.00277	AJ005350	AJ005350	Mus musculus of ZT2 gene encoding zinc finger protein 125 [AJ005350]
A_52_P243090	4.468	0.0117	NM_144530	NM_144530	Mus musculus zinc finger CCCH type containing 11A (Zc3h11a), mRNA [NM_144530]
A_51_P129480	4.466	0.0122	NM_023052	NM_023052	Mus musculus chemokine (C-C motif) ligand 21c (leucine) (Ccl21c), mRNA [NM_023052]
A_51_P315785	4.464	0.0333	NM_009398	NM_009398	Mus musculus tumor necrosis factor alpha induced protein 6 (Tnfaip6), mRNA [NM_009398]
A_51_P431433	4.461	0.0152	NM_031997	NM_031997	Mus musculus transmembrane protein 2 (Tmem2), mRNA [NM_031997]
A_51_P424221	4.457	0.00107	XM_284454	XM_284454	PREDICTED: similar to interferon regulatory factor 2 binding protein 2 [Mus musculus], mRNA sequence [XM_284454]
A_52_P381262	4.452	0.0186	AK032926	AK032926	Mus musculus 12 days embryo male wolffian duct includes surrounding region cDNA, RIKEN full-length enriched library, clone:6720473M08 product:unknown EST, full insert sequence. [AK032926]
A_52_P656714	4.448	0.0175	NM_008580	NM_008580	Mus musculus mitogen activated protein kinase kinase kinase 5 (Map3k5), mRNA [NM_008580]
A_51_P202745	4.438	0.00672	NM_026083	NM_026083	Mus musculus RIKEN cDNA 3110050K21 gene (3110050K21Rik), mRNA [NM_026083]
A_52_P351925	4.428	0.0316	NM_170730	NM_170730	Mus musculus ankyrin 3, epithelial (Ank3), transcript variant 9, mRNA [NM_170730]
A_51_P160353	4.419	0.0268	AK036142	AK036142	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630039M02 product:unclassifiable, full insert sequence. [AK036142]
A_52_P681310	4.415	0.0115	NM_011113	NM_011113	Mus musculus urokinase plasminogen activator receptor (Plaur), mRNA [NM_011113]
A_52_P1197913	4.413	0.0126	NM_008655	NM_008655	Mus musculus growth arrest and DNA-damage-inducible 45 beta (Gadd45b), mRNA [NM_008655]
A_51_P401343	4.412	0.00438	NM_019500	NM_019500	Mus musculus claudin 14 (Cldn14), mRNA [NM_019500]
A_51_P464387	4.411	0.00892	NM_030704	NM_030704	Mus musculus heat shock 27kDa protein 8 (Hspb8), mRNA [NM_030704]
A_52_P445853	4.407	0.00817	NM_030558	NM_030558	Mus musculus carbonic anhydrase 15 (Car15), mRNA [NM_030558]
A_52_P202045	4.404	0.0192	AK078273	AK078273	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430558M03 product:low density lipoprotein receptor-related protein 1, full insert sequence. [AK078273]
A_52_P384049	4.4	0.0115	NM_181734	NM_181734	Mus musculus RIKEN cDNA 5830472M02 gene (5830472M02Rik), mRNA [NM_181734]
A_51_P514085	4.393	0.00609	NM_013606	NM_013606	Mus musculus myxovirus (influenza virus) resistance 2 (Mx2), mRNA [NM_013606]
A_51_P110529	4.391	0.0236	NM_008882	NM_008882	Mus musculus plexin A2 (Plxna2), mRNA [NM_008882]
A_51_P286018	4.388	0.0366	NM_021454	NM_021454	Mus musculus CDC42 effector protein (Rho GTPase binding) 5 (Cdc42ep5), mRNA [NM_021454]
A_52_P399204	4.387	0.00726	AK005066	AK005066	Mus musculus adult male liver cDNA, RIKEN full-length enriched library, clone:1300019J08 product:CDNA FLJ30055 FIS, CLONE ADRGL1000165, WEAKLY SIMILAR TO IMIDAZOLONEPROPIONASE (EC 3.5.2.7) homolog [Homo sapiens], full insert sequence. [AK005066]
A_52_P212869	4.386	0.00994	AK084259	AK084259	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230015J17 product:unknown EST, full insert sequence. [AK084259]
A_51_P446232	4.377	0.0426	NM_019813	NM_019813	Mus musculus drebrin 1 (Dbn1), mRNA [NM_019813]
A_51_P199968	4.375	0.0221	NM_028127	NM_028127	Mus musculus FERM domain containing 6 (Frmd6), mRNA [NM_028127]

A_52_P117352	4.369	0.00669	NM_008120	NM_008120	Mus musculus gap junction membrane channel protein alpha 4 (Gja4), mRNA [NM_008120]
A_52_P333567	4.362	0.0181	AK086734	AK086734	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930048G01 product:a disintegrin and metalloprotease domain 33, full insert sequence. [AK086734]
A_52_P535052	4.36	0.0413	NM_198023	NM_198023	Mus musculus REST corepressor 1 (Rcor1), mRNA [NM_198023]
A_51_P229675	4.354	0.00603	NM_011636	NM_011636	Mus musculus phospholipid scramblase 1 (Plscr1), mRNA [NM_011636]
A_51_P254646	4.342	0.00921	NM_030887	NM_030887	Mus musculus Jun dimerization protein 2 (Jundm2), mRNA [NM_030887]
A_52_P479435	4.334	0.00878	NM_013528	NM_013528	Mus musculus glutamine fructose-6-phosphate transaminase 1 (Gfpt1), mRNA [NM_013528]
A_51_P268053	4.323	0.0213	NM_008696	NM_008696	Mus musculus mitogen-activated protein kinase kinase kinase kinase 4 (Map4k4), mRNA [NM_008696]
A_51_P500984	4.321	0.00408	NM_008655	NM_008655	Mus musculus growth arrest and DNA-damage-inducible 45 beta (Gadd45b), mRNA [NM_008655]
A_51_P507851	4.32	0.00757	BC066807	BC066807	Mus musculus golgi coiled coil 1, mRNA (cDNA clone MGC:76506 IMAGE:30101518), complete cds. [BC066807]
A_51_P463187	4.306	0.00942	NM_194334	NM_194334	Mus musculus RIKEN cDNA 1810061M12 gene (1810061M12Rik), mRNA [NM_194334]
A_52_P427640	4.297	0.014	NAP014889-001		
A_52_P306305	4.292	0.0171	NM_009649	NM_009649	Mus musculus A kinase (PRKA) anchor protein 2 (Akap2), mRNA [NM_009649]
A_52_P1027713	4.283	0.00611	AK030935	AK030935	Mus musculus adult male thymus cDNA, RIKEN full-length enriched library, clone:5830463N04 product:unknown EST, full insert sequence. [AK030935]
A_52_P49797	4.282	0.00365	BE944806	BE944806	UI-M-BH3-awh-c-09-0-UI.s1 NIH_BMAP_M_S4 Mus musculus cDNA clone UI-M-BH3-awh-c-09-0-UI 3'. [BE944806]
A_52_P75882	4.279	0.0122	AK029810	AK029810	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930573I19 product:hypothetical DNA glycosylase structure containing protein, full insert sequence. [AK029810]
A_52_P1179988	4.274	0.0397	AK050242	AK050242	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730029M13 product:unclassifiable, full insert sequence. [AK050242]
A_51_P501278	4.271	0.0172	NM_139064	NM_139064	Mus musculus TNFAIP3 interacting protein 2 (Tnip2), mRNA [NM_139064]
A_51_P421140	4.268	0.0325	NM_026473	NM_026473	Mus musculus tubulin, beta 6 (Tubb6), mRNA [NM_026473]
A_51_P386046	4.264	0.00277	AK034280	AK034280	Mus musculus adult male diencephalon cDNA, RIKEN full-length enriched library, clone:9330171K14 product:hypothetical UBA [AK034280]
A_51_P436878	4.262	0.00401	NM_018820	NM_018820	Mus musculus SERTA domain containing 1 (Sertad1), mRNA [NM_018820]
A_52_P22073	4.259	0.0299	NM_010918	NM_010918	Mus musculus natural killer tumor recognition sequence (Nktr), mRNA [NM_010918]
A_52_P676518	4.253	0.0023	AK049591	AK049591	Mus musculus 7 days embryo whole body cDNA, RIKEN full-length enriched library, clone:C430048H18 product:golgi reassembly stacking protein 2, full insert sequence. [AK049591]
A_51_P148744	4.236	0.00643	NM_207277	NM_207277	Mus musculus RIKEN cDNA A930005I04 gene (A930005I04Rik), mRNA [NM_207277]
A_52_P593723	4.236	0.0217	NM_011030	NM_011030	Mus musculus procollagen-proline, 2-oxoglutarate 4-dioxygenase (proline 4-hydroxylase), alpha 1 polypeptide (P4ha1), mRNA [NM_011030]
A_52_P43028	4.223	0.0117	BC014761	BC014761	Mus musculus leucine rich repeat (in FLII) interacting protein 2, mRNA (cDNA clone MGC:25637 IMAGE:4217995), complete cds. [BC014761]
A_51_P503162	4.216	0.00603	NM_011803	NM_011803	Mus musculus Kruppel-like factor 6 (Klf6), mRNA [NM_011803]
A_52_P519105	4.216	0.00906	TC1542265		
A_52_P642239	4.213	0.0274	NM_031376	NM_031376	Mus musculus phosphoinositide-3-kinase adaptor protein 1 (Pik3ap1), mRNA [NM_031376]
A_52_P111728	4.21	0.0125	NAP105665-1		
A_52_P684050	4.209	0.0357	NM_028666	NM_028666	Mus musculus RIKEN cDNA 5430432M24 gene (5430432M24Rik), transcript variant 1, mRNA [NM_028666]
A_51_P408506	4.208	0.00737	BC008626	BC008626	Mus musculus intercellular adhesion molecule, mRNA (cDNA clone MGC:6195 IMAGE:3588949), complete cds [BC008626]
A_51_P253642	4.202	0.0117	NM_010121	NM_010121	Mus musculus eukaryotic translation initiation factor 2 alpha kinase 3 (Eif2ak3), mRNA [NM_010121]
A_51_P501218	4.202	0.00628	BC076612	BC076612	Mus musculus RIKEN cDNA 3110043O21 gene, mRNA (cDNA clone MGC:100148 IMAGE:30638238), complete cds. [BC076612]
A_52_P1114696	4.193	0.00589	AK018519	AK018519	Mus musculus adult male colon cDNA, RIKEN full-length enriched library, clone:9030419F21 product:unclassifiable, full insert sequence. [AK018519]
A_51_P503877	4.19	0.0159	XM_126724	XM_126724	PREDICTED: fetal Alzheimer antigen [Mus musculus], mRNA sequence [XM_126724]
A_51_P123613	4.187	0.00528	XM_620535	XM_620535	PREDICTED: Mus musculus nucleoporin 98 (Nup98), mRNA [XM_620535]
A_52_P405465	4.183	0.0441	NM_011081	NM_011081	Mus musculus phosphatidylinositol glycan, class A (Piga), mRNA [NM_011081]
A_52_P420138	4.18	0.0132	XM_620594	XM_620594	PREDICTED: Mus musculus similar to A-kinase anchor protein 13 isoform 2 (LOC546023), mRNA [XM_620594]
A_52_P276848	4.167	0.0283	AK035801	AK035801	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630005I06 product:hypothetical protein, full insert sequence. [AK035801]
A_51_P277321	4.166	0.0115	NM_146085	NM_146085	Mus musculus amyloid beta (A4) precursor protein-binding, family B, member 3 (Apbb3), mRNA [NM_146085]
A_51_P212491	4.16	0.0418	NM_133232	NM_133232	Mus musculus 6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 3 (Pfkfb3), transcript variant 1, mRNA [NM_133232]
A_52_P363110	4.16	0.00312	BC091652	BC091652	Mus musculus fibroblast growth factor receptor 2, mRNA (cDNA clone MGC:102519 IMAGE:5349249), complete cds [BC091652]
A_52_P209383	4.157	0.0474	NM_009365	NM_009365	Mus musculus transforming growth factor beta 1 induced transcript 1 (Tgfb1i1), mRNA [NM_009365]
A_52_P580792	4.148	0.0046	BC053389	BC053389	Mus musculus RIKEN cDNA 1700081L11 gene, mRNA (cDNA clone MGC:60856 IMAGE:30061629), complete cds. [BC053389]
A_52_P297113	4.145	0.0127	NM_013584	NM_013584	Mus musculus leukemia inhibitory factor receptor (Lifr), mRNA [NM_013584]
A_52_P64601	4.144	0.0167	NM_028722	NM_028722	Mus musculus RIKEN cDNA 4121402D02 gene (4121402D02Rik), mRNA [NM_028722]
A_51_P173071	4.129	0.00844	XM_129836	XM_129836	PREDICTED: PHD finger protein 3 [Mus musculus], mRNA sequence [XM_129836]
A_52_P44061	4.118	0.0175	XM_132015	XM_132015	PREDICTED: similar to BC037112 protein [Mus musculus], mRNA sequence [XM_132015]
A_52_P41292	4.111	0.0184	AK033726	AK033726	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130233G12 product:mitogen activated protein kinase kinase kinase 5, full insert sequence. [AK033726]
A_51_P440460	4.106	0.00998	NM_145070	NM_145070	Mus musculus huntingtin interacting protein 1 related (Hip1r), mRNA [NM_145070]
A_51_P520793	4.103	0.0262	AK006062	AK006062	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700017F11 product:NUCLEOPORIN P58 homolog [Rattus norvegicus], full insert sequence. [AK006062]
A_52_P190286	4.102	0.0147	NAP061435-1		
A_51_P156564	4.088	0.0293	XM_138271	XM_138271	PREDICTED: hypothetical protein LOC72805 [Mus musculus], mRNA sequence [XM_138271]
A_52_P630059	4.084	0.012	AJ250687	AJ250687	Mus musculus partial mRNA for mg638 protein. [AJ250687]
A_52_P973486	4.077	0.0126	BI247908	BI247908	602959848F1 NCI_CGAP_Li9 Mus musculus cDNA clone IMAGE:5125498 5', mRNA sequence [BI247908]
A_51_P464918	4.075	0.00128	NM_019453	NM_019453	Mus musculus Mediterranean fever (Mefv), mRNA [NM_019453]
A_51_P291033	4.067	0.0375	XM_355528	XM_355528	PREDICTED: RIKEN cDNA 1810009A16 [Mus musculus], mRNA sequence [XM_355528]
A_52_P1187549	4.066	0.0196	AK009643	AK009643	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310035P21 product:unknown EST, full insert sequence. [AK009643]
A_52_P411358	4.066	0.0208	XM_146248	XM_146248	PREDICTED: MYST histone acetyltransferase (monocytic leukemia) 3 [Mus musculus], mRNA sequence [XM_146248]
A_52_P145412	4.065	0.0123	NM_030168	NM_030168	Mus musculus RIKEN cDNA 4921505C17 gene (4921505C17Rik), mRNA [NM_030168]
A_52_P415167	4.065	0.0102	NM_019394	NM_019394	Mus musculus melanoma inhibitory activity 1 (Mia1), mRNA [NM_019394]
A_52_P153685	4.056	0.0489	AK129325	AK129325	Mus musculus mRNA for mKIAA1301 protein [AK129325]
A_52_P148428	4.055	0.00765	AK080940	AK080940	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430214H24 product:nuclear factor I/X, full insert sequence. [AK080940]
A_52_P44205	4.043	0.0252	NM_010367	NM_010367	Mus musculus membrane associated guanylate kinase, WW and PDZ domain containing 1 (Magi1), transcript variant 1, mRNA [NM_010367]
A_52_P171663	4.04	0.012	NM_018808	NM_018808	Mus musculus DnaJ (Hsp40) homolog, subfamily B, member 1 (Dnajb1), mRNA [NM_018808]
A_51_P302503	4.036	0.0109	NM_008654	NM_008654	Mus musculus myeloid differentiation primary response gene 116 (Myd116), mRNA [NM_008654]
A_51_P119016	4.02	0.0126	AK028915	AK028915	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732470B18 product:CDNA FLJ12851 FIS, CLONE NT2RP2003401, WEAKLY SIMILAR TO UBIQUITIN CARBOXYL-TERMINAL HYDROLASE DUB-1 (EC 3.1.2.15) homolog [Homo sapiens], full inser...
A_51_P143893	4.017	0.031	NM_054098	NM_054098	Mus musculus STEAP family member 4 (Steap4), mRNA [NM_054098]
A_52_P128612	4.011	0.0121	NAP123204-1		
A_52_P324566	4.01	0.0177	NM_021565	NM_021565	Mus musculus midnolin (Midn), mRNA [NM_021565]
A_51_P412160	4.009	0.00237	NM_172572	NM_172572	Mus musculus rhomboid, veinlet-like 6 (Drosophila) (Rhbdl6), mRNA [NM_172572]
A_52_P34397	4.008	0.0345	BC063047	BC063047	Mus musculus transcription factor E3, mRNA (cDNA clone MGC:66495 IMAGE:6813486), complete cds. [BC063047]
A_52_P605846	4.002	0.0071	NM_009883	NM_009883	Mus musculus CCAAT/enhancer binding protein (C/EBP), beta (Cebpb), mRNA [NM_009883]
A_52_P400436	3.995	0.0359	NM_025367	NM_025367	Mus musculus sphingosine kinase 1 (Sphk1), transcript variant 2, mRNA [NM_025367]
A_51_P159690	3.991	0.0325	AK039696	AK039696	Mus musculus adult male spinal cord cDNA, RIKEN full-length enriched library, clone:A330089M16 product:hypothetical protein, full insert sequence. [AK039696]
A_51_P199716	3.982	0.00277	U61362	U61362	Mus musculus groucho-related gene 1 protein (Grg1) mRNA, complete cds. [U61362]
A_51_P242400	3.982	0.0236	NM_031170	NM_031170	Mus musculus keratin complex 2, basic, gene 8 (Krt2-8), mRNA [NM_031170]
A_51_P149469	3.972	0.0154	NM_009608	NM_009608	Mus musculus actin, alpha, cardiac (Actc1), mRNA [NM_009608]
A_52_P103513	3.971	0.0326	BC083148	BC083148	Mus musculus ribosomal protein L13, mRNA (cDNA clone IMAGE:30458056) [BC083148]
A_52_P460537	3.966	0.0289	NM_020028	NM_020028	Mus musculus endothelial differentiation, lysophosphatidic acid G-protein-coupled receptor 4 (Edg4), mRNA [NM_020028]
A_52_P329314	3.962	0.00891	NM_175232	NM_175232	Mus musculus RIKEN cDNA 5830427D03 gene (5830427D03Rik), mRNA [NM_175232]
A_52_P1076265	3.961	0.00132	AK039955	AK039955	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430035C14 product:unclassifiable, full insert sequence. [AK039955]
A_52_P188827	3.955	0.000985	NM_181318	NM_181318	Mus musculus RasGEF domain family, member 1B (Rasgef1b), transcript variant 2, mRNA [NM_181318]

A_51_P447329	3.953	0.00988	NM_026646	NM_026646	Mus musculus solute carrier family 25 (mitochondrial carrier, glutamate), member 22 (Slc25a22), mRNA [NM_026646]
A_52_P219415	3.953	0.00213	NM_181820	NM_181820	Mus musculus transmembrane channel-like gene family 4 (Tmc4), mRNA [NM_181820]
A_51_P170508	3.948	0.00596	AK050835	AK050835	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030024C09 product:unknown EST, full insert sequence. [AK050835]
A_51_P183543	3.948	0.0139	X12807	X12807	Mouse Sp6 mRNA containing period repeat. [X12807]
A_51_P521171	3.94	0.0159	NM_176958	NM_176958	Mus musculus hypoxia-inducible factor 1, alpha subunit inhibitor (Hif1an), mRNA [NM_176958]
A_52_P283628	3.937	0.0406	NM_148945	NM_148945	Mus musculus ribosomal protein S6 kinase polypeptide 3 (Rps6ka3), mRNA [NM_148945]
A_51_P268843	3.935	0.0159	NM_028544	NM_028544	Mus musculus Ras interacting protein 1 (Rasip1), mRNA [NM_028544]
A_52_P355139	3.931	0.0153	AK088619	AK088619	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430021K16 product:hypothetical protein, full insert sequence [AK088619]
A_51_P454217	3.93	0.00187	NM_019408	NM_019408	Mus musculus nuclear factor of kappa light polypeptide gene enhancer in B-cells 2, p49/p100 (Nfkb2), mRNA [NM_019408]
A_51_P520966	3.929	0.0196	NM_015790	NM_015790	Mus musculus icos ligand (Icosl), mRNA [NM_015790]
A_51_P375201	3.921	0.00312	NM_013807	NM_013807	Mus musculus polo-like kinase 3 (Drosophila) (Plk3), mRNA [NM_013807]
A_51_P153486	3.915	0.0367	NM_018808	NM_018808	Mus musculus DnaJ (Hsp40) homolog, subfamily B, member 1 (Dnajb1), mRNA [NM_018808]
A_51_P181772	3.911	0.0101	NM_011212	NM_011212	Mus musculus protein tyrosine phosphatase, receptor type, E (Ptpre), mRNA [NM_011212]
A_51_P135037	3.909	0.0209	AK029838	AK029838	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4931409I21 product:prolactin regulatory element binding, full insert sequence [AK029838]
A_51_P323248	3.909	0.00732	NM_011521	NM_011521	Mus musculus syndecan 4 (Sdc4), mRNA [NM_011521]
A_52_P447323	3.905	0.0436	NM_011181	NM_011181	Mus musculus pleckstrin homology, Sec7 and coiled-coil domains 2 (Pscd2), mRNA [NM_011181]
A_51_P239654	3.903	0.0196	NM_010444	NM_010444	Mus musculus nuclear receptor subfamily 4, group A, member 1 (Nr4a1), mRNA [NM_010444]
A_51_P374863	3.898	0.014	NM_013742	NM_013742	Mus musculus cysteinyl-tRNA synthetase (Cars), mRNA [NM_013742]
A_51_P266683	3.897	0.0358	NM_010107	NM_010107	Mus musculus ephrin A1 (Efna1), mRNA [NM_010107]
A_52_P599578	3.894	0.00638	NM_145575	NM_145575	Mus musculus caldesmon 1 (Cald1), mRNA [NM_145575]
A_51_P116130	3.886	0.0193	NM_019803	NM_019803	Mus musculus ubiquitin-conjugating enzyme E2G 2 (Ube2g2), mRNA [NM_019803]
A_52_P141322	3.884	0.0241	NM_010117	NM_010117	Mus musculus rhomboid family 1 (Drosophila) (Rhbdf1), mRNA [NM_010117]
A_52_P240090	3.878	0.0168	TC1418521		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (5%) [TC1418521]
A_52_P335064	3.878	0.0147	NM_181390	NM_181390	Mus musculus musculoskeletal, embryonic nuclear protein 1 (Mustn1), mRNA [NM_181390]
A_52_P612440	3.877	0.0219	AK033032	AK033032	Mus musculus 11 days embryo gonad cDNA, RIKEN full-length enriched library, clone:7030414N10 product:unknown EST, full insert sequence. [AK033032]
A_51_P127425	3.87	0.00799	NM_013830	NM_013830	Mus musculus PRP4 pre-mRNA processing factor 4 homolog B (yeast) (Prpf4b), mRNA [NM_013830]
A_52_P67678	3.869	0.0202	NM_028788	NM_028788	Mus musculus RIKEN cDNA 1300002K09 gene (1300002K09Rik), mRNA [NM_028788]
A_52_P156765	3.865	0.0214	BC006046	BC006046	Mus musculus RIKEN cDNA 4931426K16 gene, mRNA (cDNA clone MGC:8192 IMAGE:3590641), complete cds. [BC006046]
A_52_P248764	3.864	0.0397	NM_145475	NM_145475	Mus musculus ceramide kinase (Cerk), mRNA [NM_145475]
A_52_P384916	3.861	0.0147	AB040458	AB040458	AB050901S3 Mus musculus MAIL gene for molecule possessing ankyrin-repeats induced by lipopolysaccharide, complete cds, exons 3 to 14 [AB040458]
A_52_P357745	3.852	0.043	AK089126	AK089126	Mus musculus 10 days neonate olfactory brain cDNA, RIKEN full-length enriched library, clone:E530004K11 product:hypothetical protein, full insert sequence. [AK089126]
A_51_P513211	3.847	0.0209	NM_138660	NM_138660	Mus musculus cancer susceptibility candidate 3 (Casc3), mRNA [NM_138660]
A_52_P37980	3.846	0.0244	AK037216	AK037216	Mus musculus 6 days neonate skin cDNA, RIKEN full-length enriched library, clone:A030011A13 product:unknown EST, full insert sequence. [AK037216]
A_51_P319460	3.845	0.0122	NM_011019	NM_011019	Mus musculus oncostatin M receptor (Osmr), mRNA [NM_011019]
A_52_P15166	3.845	0.00726	NAP108265-1		
A_52_P478790	3.84	0.0235	TC1505839		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (4%) [TC1505839]
A_52_P300808	3.839	0.0172	AK040094	AK040094	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430059E04 product:SIMILAR TO NICE-5 PROTEIN homolog [Homo sapiens], full insert sequence. [AK040094]
A_51_P233160	3.838	0.0301	NM_027309	NM_027309	Mus musculus LysM, putative peptidoglycan-binding, domain containing 2 (Lysmd2), mRNA [NM_027309]
A_52_P158800	3.836	0.0495	NM_010207	NM_010207	Mus musculus fibroblast growth factor receptor 2 (Fgfr2), transcript variant 1, mRNA [NM_010207]
A_51_P199175	3.834	0.012	AK002390	AK002390	Mus musculus adult male kidney cDNA, RIKEN full-length enriched library, clone:0610009F16 product:unknown EST, full insert sequence [AK002390]
A_51_P348456	3.833	0.00407	NM_011263	NM_011263	Mus musculus RE1-silencing transcription factor (Rest), mRNA [NM_011263]
A_52_P883557	3.831	0.0132	XM_136506	XM_136506	PREDICTED: similar to solute carrier family 30 (zinc transporter), member 10 isoform a [Mus musculus], mRNA sequence [XM_136506]
A_51_P262858	3.829	0.0385	NM_033620	NM_033620	Mus musculus par-3 (partitioning defective 3) homolog (C. elegans) (Pard3), transcript variant 3, mRNA [NM_033620]
A_52_P533750	3.825	0.00799	NM_144523	NM_144523	Mus musculus zinc finger protein 622 (Zfp622), mRNA [NM_144523]
A_51_P113769	3.823	0.0387	AK037868	AK037868	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130057G06 product:CYTOKINE-LIKE NUCLEAR FACTOR N-PAC homolog [Homo sapiens], full insert sequence. [AK037868]
A_51_P133327	3.823	0.0183	BC049928	BC049928	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 23, mRNA (cDNA clone MGC:54908 IMAGE:5321607), complete cds. [BC049928]
A_52_P24198	3.823	0.0139	XM_148990	XM_148990	PREDICTED: BAT2 domain containing 1 [Mus musculus], mRNA sequence [XM_148990]
A_52_P247974	3.821	0.0385	NAP027294-1		
A_52_P9600	3.819	0.0208	TC1462473		AF401588 ribosomal protein L34 {Ictalurus punctatus;} , partial (24%) [TC1462473]
A_51_P407515	3.818	0.019	AK018133	AK018133	Mus musculus adult male medulla oblongata cDNA, RIKEN full-length enriched library, clone:6330407A03 product:hypothetical Microbodies C-terminal targeting signal containing protein, full insert sequence. [AK018133]
A_52_P320279	3.811	0.00965	NM_213729	NM_213729	Mus musculus expressed sequence AI842396 (AI842396), mRNA [NM_213729]
A_52_P1084106	3.802	0.0107	AK047888	AK047888	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130020D17 product:unknown EST, full insert sequence. [AK047888]
A_52_P398989	3.802	0.0369	NM_139200	NM_139200	Mus musculus pleckstrin homology, Sec7 and coiled-coil domains, binding protein (Pscdbp), mRNA [NM_139200]
A_51_P468955	3.799	0.0154	NM_133825	NM_133825	Mus musculus DNA segment, Chr 1, ERATO Doi 622, expressed (D1Ertd622e), mRNA [NM_133825]
A_52_P590474	3.797	0.00646	NM_019937	NM_019937	Mus musculus cyclin L1 (Ccnl1), transcript variant 1, mRNA [NM_019937]
A_52_P441786	3.794	0.0106	NM_177007	NM_177007	Mus musculus RIKEN cDNA D430033A06 gene (D430033A06Rik), mRNA [NM_177007]
A_52_P796682	3.794	0.0267	NM_007633	NM_007633	Mus musculus cyclin E1 (Ccne1), mRNA [NM_007633]
A_52_P27725	3.793	0.0121	BC082597	BC082597	Mus musculus RIKEN cDNA D930016D06 gene, mRNA (cDNA clone IMAGE:30636965) [BC082597]
A_51_P271091	3.792	0.0116	AK038031	AK038031	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130072N09 product:unclassifiable, full insert sequence [AK038031]
A_52_P499523	3.792	0.0153	AK129238	AK129238	Mus musculus mRNA for mKIAA0917 protein [AK129238]
A_51_P296456	3.789	0.00674	AK019393	AK019393	Mus musculus 12 days embryo head cDNA, RIKEN full-length enriched library, clone:3010027A04 product:hypothetical Lysine-rich region containing protein, full insert sequence. [AK019393]
A_52_P1662	3.788	0.017	NM_009453	NM_009453	Mus musculus U2 small nuclear ribonucleoprotein auxiliary factor (U2AF) 1, related sequence 2 (U2af1-rs2), transcript variant 1, mRNA [NM_009453]
A_52_P340869	3.786	0.00401	AK018652	AK018652	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130026N02 product:SPORULATION-INDUCED TRANSCRIPT 4-ASSOCIATED PROTEIN SAPLB homolog [Homo sapiens], full insert sequence. [AK018652]
A_52_P166833	3.781	0.0242	AK088223	AK088223	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430007J19 product:sorting nexin 5, full insert sequence. [AK088223]
A_52_P556111	3.773	0.0151	NM_178682	NM_178682	Mus musculus RIKEN cDNA 4933426M11 gene (4933426M11Rik), mRNA [NM_178682]
A_52_P462257	3.77	0.00949	NM_177251	NM_177251	Mus musculus RIKEN cDNA D830014E11 gene (D830014E11Rik), mRNA [NM_177251]
A_52_P390668	3.769	0.0224	NM_008146	NM_008146	Mus musculus golgi autoantigen, golgin subfamily a, 3 (Golga3), mRNA [NM_008146]
A_52_P516021	3.769	0.0214	AK085713	AK085713	Mus musculus 10 days lactation, adult female mammary gland cDNA, RIKEN full-length enriched library, clone:D730024A01 product:unknown EST, full insert sequence [AK085713]
A_51_P396364	3.767	0.0126	NM_145990	NM_145990	Mus musculus CDK5 regulatory subunit associated protein 2 (Cdk5rap2), mRNA [NM_145990]
A_51_P125842	3.764	0.0114	NM_145402	NM_145402	Mus musculus transmembrane protein 51 (Tmem51), mRNA [NM_145402]
A_52_P137361	3.764	0.0215	NM_181820	NM_181820	Mus musculus transmembrane channel-like gene family 4 (Tmc4), mRNA [NM_181820]
A_52_P320686	3.764	0.0348	TC1531727		S43505 ribosomal protein L27, cytosolic - human {Homo sapiens;} , complete [TC1531727]
A_52_P590154	3.759	0.0175	NM_013786	NM_013786	Mus musculus hydroxysteroid (17-beta) dehydrogenase 9 (Hsd17b9), mRNA [NM_013786]
A_51_P172853	3.758	0.00588	NM_009841	NM_009841	Mus musculus CD14 antigen (Cd14), mRNA [NM_009841]
A_51_P504314	3.756	0.00981	NM_025845	NM_025845	Mus musculus PRP38 pre-mRNA processing factor 38 (yeast) domain containing B (Prpf38b), mRNA [NM_025845]
A_52_P684857	3.756	0.0285	NM_172592	NM_172592	Mus musculus splicing factor, arginine/serine-rich 12 (Sfrs12), mRNA [NM_172592]
A_51_P189361	3.75	0.0395	NM_027950	NM_027950	Mus musculus RIKEN cDNA 1700012B18 gene (1700012B18Rik), mRNA [NM_027950]
A_52_P83549	3.744	0.0354	NM_173371	NM_173371	Mus musculus hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase) (H6pd), mRNA [NM_173371]
A_52_P246168	3.743	0.0046	NM_008983	NM_008983	Mus musculus protein tyrosine phosphatase, receptor type, K (Ptprk), mRNA [NM_008983]
A_52_P527874	3.74	0.037	NM_199447	NM_199447	Mus musculus expressed sequence AA408556 (AA408556), mRNA [NM_199447]
A_51_P149349	3.734	0.00875	BC022652	BC022652	Mus musculus nuclear transcription factor, X-box binding-like 1, mRNA (cDNA clone MGC:31286 IMAGE:4219165), complete cds. [BC022652]
A_51_P267375	3.734	0.0415	AB054987	AB054987	Mus musculus pipk type II beta mRNA for Phosphatidyl inositol phosphate kinase type II beta, partial cds. [AB054987]
A_51_P267080	3.728	0.00957	NM_138302	NM_138302	Mus musculus endothelial cell growth factor 1 (platelet-derived) (Ecgf1), mRNA [NM_138302]

A_52_P650325	3.727	0.011	AK090231	AK090231	Mus musculus 1 month neonate cerebellum cDNA, RIKEN full-length enriched library, clone:G630022L16 product:hypothetical protein, full insert sequence [AK090231]
A_52_P654841	3.727	0.0179	NM_011636	NM_011636	Mus musculus phospholipid scramblase 1 (Plscr1), mRNA [NM_011636]
A_52_P948237	3.725	0.0336	AK077237	AK077237	Mus musculus 11 days pregnant adult female ovary and uterus cDNA, RIKEN full-length enriched library, clone:5031409C01 product:unknown EST, full insert sequence. [AK077237]
A_52_P343839	3.716	0.00844	NM_028810	NM_028810	Mus musculus Rho family GTPase 3 (Rnd3), mRNA [NM_028810]
A_52_P242888	3.713	0.00484	BC071265	BC071265	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 50, mRNA (cDNA clone IMAGE:30295321) [BC071265]
A_52_P415168	3.709	0.00956	NM_019394	NM_019394	Mus musculus melanoma inhibitory activity 1 (Mia1), mRNA [NM_019394]
A_52_P169901	3.705	0.00611	NM_001009949	NM_0010094	Mus musculus mitochondrial carrier triple repeat 1 (Mcart1), mRNA [NM_001009949]
A_52_P16973	3.703	0.0187	AK081934	AK081934	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130088B05 product:unknown EST, full insert sequence. [AK081934]
A_52_P608322	3.702	0.0326	NM_010755	NM_010755	Mus musculus v-maf musculoaponeurotic fibrosarcoma oncogene family, protein F (avian) (Maff), mRNA [NM_010755]
A_51_P144349	3.699	0.00921	NM_172442	NM_172442	Mus musculus deltex 4 homolog (Drosophila) (Dtx4), mRNA [NM_172442]
A_52_P122393	3.698	0.0349	XM_147426	XM_147426	PREDICTED: similar to mKIAA0546 protein [Mus musculus], mRNA sequence [XM_147426]
A_52_P328044	3.693	0.0075	NM_011599	NM_011599	Mus musculus transducin-like enhancer of split 1, homolog of Drosophila E(spl) (Tle1), mRNA [NM_011599]
A_51_P163797	3.691	0.00956	XM_619147	XM_619147	PREDICTED: Mus musculus similar to TFNR (LOC544971), mRNA [XM_619147]
A_52_P590740	3.69	0.0411	BC056465	BC056465	Mus musculus transducin-like enhancer of split 3, homolog of Drosophila E(spl), mRNA (cDNA clone MGC:67232 IMAGE:5709252), complete cds. [BC056465]
A_51_P494078	3.687	0.00423	NM_053260	NM_053260	Mus musculus implantation serine protease 2 (Isp2), mRNA [NM_053260]
A_51_P160413	3.679	0.00849	NM_178691	NM_178691	Mus musculus RIKEN cDNA 9930028C20 gene (9930028C20Rik), mRNA [NM_178691]
A_51_P496780	3.677	0.0164	NM_175016	NM_175016	Mus musculus expressed sequence AU016977 (AU016977), mRNA [NM_175016]
A_52_P25812	3.674	0.0174	XM_204027	XM_204027	PREDICTED: PR domain containing 2, with ZNF domain [Mus musculus], mRNA sequence [XM_204027]
A_52_P1029561	3.671	0.0174	A_52_P1029561		
A_52_P811196	3.671	0.0126	AK029051	AK029051	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732485H10 product:unknown EST, full insert sequence. [AK029051]
A_52_P669510	3.669	0.0168	TC1447684		A11A_MOUSE (P98197) Potential phospholipid-transporting ATPase IH (ATPase class I type 11A) (ATPase IS) , partial (11%) [TC1447684]
A_52_P235319	3.667	0.012	NM_011212	NM_011212	Mus musculus protein tyrosine phosphatase, receptor type, E (Ptpre), mRNA [NM_011212]
A_52_P257426	3.664	0.0114	NM_133191	NM_133191	Mus musculus EPS8-like 2 (Eps8l2), mRNA [NM_133191]
A_51_P451346	3.663	0.00186	NAP032794-1		
A_52_P229943	3.658	0.0151	NM_178933	NM_178933	Mus musculus organic solute transporter beta (Ostb), mRNA [NM_178933]
A_51_P440923	3.654	0.00957	AI614438	AI614438	vg75c03.y1 Soares mouse NbMH Mus musculus cDNA clone IMAGE:871780 5'. [AI614438]
A_51_P511766	3.654	0.0478	AK039706	AK039706	Mus musculus adult male spinal cord cDNA, RIKEN full-length enriched library, clone:A330091J09 product:unclassifiable, full insert sequence. [AK039706]
A_52_P623738	3.648	0.00485	NM_001025613	NM_0010256	Mus musculus zinc finger, A20 domain containing 1 (Za20d1), transcript variant 1, mRNA [NM_001025613]
A_52_P2259	3.643	0.00257	D89901	D89901	Mus musculus mRNA for high-glycine tyrosine keratin type II.3, partial cds [D89901]
A_52_P498231	3.638	0.0139	NM_011349	NM_011349	Mus musculus sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3 F (Sema3f), mRNA [NM_011349]
A_52_P8391	3.637	0.0121	AK033629	AK033629	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130203L14 product:CARBOXYPEPTIDASE N (CARBOXYPEPTIDASE N SMALL SUBUNIT), full insert sequence [AK033629]
A_51_P276051	3.636	0.0166	NM_174850	NM_174850	Mus musculus RIKEN cDNA A930021H16 gene (A930021H16Rik), mRNA [NM_174850]
A_52_P468103	3.635	0.0167	TC1477839		Q6PCM1 (Q6PCM1) Jmjd1a protein, partial (9%) [TC1477839]
A_52_P276792	3.633	0.00407	NM_053202	NM_053202	Mus musculus forkhead box P1 (Foxp1), mRNA [NM_053202]
A_51_P221291	3.631	0.0133	NM_009229	NM_009229	Mus musculus syntrophin, basic 2 (Sntb2), mRNA [NM_009229]
A_52_P80944	3.631	0.0117	NM_011756	NM_011756	Mus musculus zinc finger protein 36 (Zfp36), mRNA [NM_011756]
A_51_P212713	3.629	0.0421	NM_023684	NM_023684	Mus musculus Lck interacting transmembrane adaptor 1 (Lime1), mRNA [NM_023684]
A_52_P487024	3.627	0.00921	NM_001005507	NM_0010055	Mus musculus RIKEN cDNA 9430023P16 gene (9430023P16Rik), mRNA [NM_001005507]
A_52_P51411	3.624	0.019	BI158793	BI158793	602921586F1 NCI_CGAP_Mam3 Mus musculus cDNA clone IMAGE:5062028 5', mRNA sequence [BI158793]
A_51_P374646	3.62	0.0253	AK050573	AK050573	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:C920001P18 product:unknown EST, full insert sequence [AK050573]
A_51_P236755	3.605	0.0244	NM_027085	NM_027085	Mus musculus chloride intracellular channel 3 (Clic3), mRNA [NM_027085]
A_52_P450183	3.601	0.0387	AK122234	AK122234	Mus musculus mRNA for mKIAA0277 protein [AK122234]
A_52_P70888	3.6	0.019	BC060623	BC060623	Mus musculus RIKEN cDNA E130013N09 gene, mRNA (cDNA clone IMAGE:6826655), partial cds [BC060623]
A_51_P504672	3.595	0.0026	NM_133665	NM_133665	Mus musculus myocyte enhancer factor 2D (Mef2d), mRNA [NM_133665]
A_52_P20639	3.591	0.0115	NM_023727	NM_023727	Mus musculus RIKEN cDNA 3322402L07 gene (3322402L07Rik), mRNA [NM_023727]
A_52_P526120	3.591	0.0121	AK031168	AK031168	Mus musculus 13 days embryo forelimb cDNA, RIKEN full-length enriched library, clone:5930420F13 product:methionine aminopeptidase 2, full insert sequence. [AK031168]
A_52_P510310	3.581	0.0238	AK046232	AK046232	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230358H22 product:serine (or cysteine) proteinase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 2, full insert sequence. [AK046232]
A_51_P514961	3.577	0.00634	NM_178892	NM_178892	Mus musculus TCDD-inducible poly(ADP-ribose) polymerase (Tiparp), mRNA [NM_178892]
A_52_P1172227	3.569	0.027	AK054191	AK054191	Mus musculus 2 days pregnant adult female oviduct cDNA, RIKEN full-length enriched library, clone:E230026L21 product:unclassifiable, full insert sequence. [AK054191]
A_52_P324965	3.567	0.0245	NM_199322	NM_199322	Mus musculus DOT1-like, histone H3 methyltransferase (S. cerevisiae) (Dot1l), mRNA [NM_199322]
A_51_P274189	3.564	0.0338	NM_175422	NM_175422	Mus musculus RIKEN cDNA 4631423B10 gene (4631423B10Rik), mRNA [NM_175422]
A_51_P138450	3.558	0.0159	NM_008122	NM_008122	Mus musculus gap junction membrane channel protein alpha 7 (Gja7), mRNA [NM_008122]
A_52_P459609	3.555	0.0376	AK083543	AK083543	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030042I05 product:unclassifiable, full insert sequence. [AK083543]
A_52_P233664	3.55	0.00634	AK020706	AK020706	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230102L03 product:unknown EST, full insert sequence. [AK020706]
A_51_P213544	3.547	0.0101	NM_010637	NM_010637	Mus musculus Kruppel-like factor 4 (gut) (Klf4), mRNA [NM_010637]
A_52_P517773	3.547	0.0403	NM_011203	NM_011203	Mus musculus protein tyrosine phosphatase, non-receptor type 12 (Ptpn12), mRNA [NM_011203]
A_52_P120740	3.542	0.0122	AK002701	AK002701	Mus musculus adult male kidney cDNA, RIKEN full-length enriched library, clone:0610030E20 product:hypothetical protein, full insert sequence. [AK002701]
A_52_P392456	3.537	0.0132	NM_028810	NM_028810	Mus musculus Rho family GTPase 3 (Rnd3), mRNA [NM_028810]
A_51_P361958	3.535	0.0478	NM_146793	NM_146793	Mus musculus olfactory receptor 1271 (Olfr1271), mRNA [NM_146793]
A_52_P352277	3.532	0.0291	NM_016769	NM_016769	Mus musculus MAD homolog 3 (Drosophila) (Smad3), mRNA [NM_016769]
A_52_P329207	3.53	0.00849	NM_007969	NM_007969	Mus musculus extracellular proteinase inhibitor (Expi), mRNA [NM_007969]
A_52_P285041	3.529	0.0205	NM_008122	NM_008122	Mus musculus gap junction membrane channel protein alpha 7 (Gja7), mRNA [NM_008122]
A_52_P948981	3.527	0.0191	BE687029	BE687029	uw09d10.x1 Soares mouse 3NbMS Mus musculus cDNA clone IMAGE:3416179 3'. [BE687029]
A_51_P178319	3.523	0.0154	NM_029466	NM_029466	Mus musculus ADP-ribosylation factor-like 8 (Arl8), mRNA [NM_029466]
A_52_P205797	3.521	0.0258	NM_177683	NM_177683	Mus musculus vestigial like 4 (Drosophila) (Vgll4), mRNA [NM_177683]
A_52_P389478	3.52	0.0142	AK036482	AK036482	Mus musculus adult male bone cDNA, RIKEN full-length enriched library, clone:9830115M01 product:hypothetical Lysine-rich region containing protein, full insert sequence [AK036482]
A_52_P682982	3.52	0.015	NM_013742	NM_013742	Mus musculus cysteinyl-tRNA synthetase (Cars), mRNA [NM_013742]
A_51_P199671	3.517	0.0122	NM_172472	NM_172472	Mus musculus transcription factor E3 (Tcfe3), mRNA [NM_172472]
A_51_P447785	3.517	0.0147	NM_028089	NM_028089	Mus musculus cytochrome P450, family 2, subfamily c, polypeptide 55 (Cyp2c55), mRNA [NM_028089]
A_52_P470211	3.517	0.0218	AK045733	AK045733	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230308H11 product:hypothetical Ankyrin repeat profile/Ankyrin-repeat/Ankyrin repeat region circular profile/Yeast DNA-binding domain containing protein, full..
A_52_P578562	3.517	0.03	NM_173865	NM_173865	Mus musculus solute carrier family 41, member 1 (Slc41a1), mRNA [NM_173865]
A_51_P405659	3.516	0.0216	NM_175342	NM_175342	Mus musculus RIKEN cDNA C330003B14 gene (C330003B14Rik), mRNA [NM_175342]
A_52_P377299	3.516	0.00588	AK048360	AK048360	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130052N13 product:hypothetical ATP/GTP-binding site motif A (P-loop)/Zinc finger, C2H2 type containing protein, full insert sequence. [AK048360]
A_52_P222775	3.515	0.0106	NM_016693	NM_016693	Mus musculus mitogen-activated protein kinase kinase kinase 6 (Map3k6), mRNA [NM_016693]
A_52_P502461	3.514	0.0148	NM_029862	NM_029862	Mus musculus RIKEN cDNA 5930434B04 gene (5930434B04Rik), mRNA [NM_029862]
A_52_P58080	3.511	0.0385	BC052785	BC052785	Mus musculus Rho guanine nucleotide exchange factor (GEF) 12, mRNA (cDNA clone IMAGE:1381374), complete cds. [BC052785]
A_52_P69656	3.508	0.00614	NM_008261	NM_008261	Mus musculus hepatic nuclear factor 4, alpha (Hnf4a), mRNA [NM_008261]
A_51_P194377	3.507	0.00409	NM_021567	NM_021567	Mus musculus poly(rC) binding protein 4 (Pcbp4), mRNA [NM_021567]
A_51_P271644	3.506	0.0191	NM_011246	NM_011246	Mus musculus RAS guanyl releasing protein 1 (Rasgrp1), mRNA [NM_011246]
A_51_P328769	3.497	0.00981	NM_182999	NM_182999	Mus musculus ring finger protein 20 (Rnf20), mRNA [NM_182999]
A_52_P3029	3.496	0.0115	NM_026644	NM_026644	Mus musculus 1-acylglycerol-3-phosphate O-acyltransferase 1 (lysophosphatidic acid acyltransferase, delta) (Agpat4), mRNA [NM_026644]
A_51_P204860	3.494	0.00981	NM_026221	NM_026221	Mus musculus PTPRF interacting protein, binding protein 1 (liprin beta 1) (Ppfibp1), mRNA [NM_026221]
A_51_P270339	3.494	0.0272	AK007777	AK007777	Mus musculus 10 day old male pancreas cDNA, RIKEN full-length enriched library, clone:1810044J04 product:B cell phosphoinositide 3-kinase adaptor, full insert sequence. [AK007777]

A_51_P209930	3.491	0.0398	NM_013648	NM_013648	Mus musculus reticulon 2 (Z-band associated protein) (Rtn2), transcript variant B, mRNA [NM_013648]
A_51_P511787	3.491	0.00442	NM_007609	NM_007609	Mus musculus caspase 11, apoptosis-related cysteine protease (Casp11), mRNA [NM_007609]
A_52_P423380	3.491	0.0174	NM_027870	NM_027870	Mus musculus armadillo repeat containing, X-linked 3 (Armcx3), mRNA [NM_027870]
A_52_P352024	3.488	0.0319	AK088795	AK088795	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430026B20 product:inferred: thyroid hormone receptor-associated protein complex component TRAP240 {Homo sapiens}, full insert sequence. [AK088795]
A_52_P518182	3.488	0.0485	NM_133853	NM_133853	Mus musculus membrane associated guanylate kinase, WW and PDZ domain containing 3 (Magi3), mRNA [NM_133853]
A_51_P252328	3.487	0.0168	AK076417	AK076417	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4831418F03 product:HYPOTHETICAL 28.4 KDA PROTEIN homolog [Homo sapiens], full insert sequence [AK076417]
A_51_P341108	3.483	0.0367	AF099018	AF099018	Mus musculus hepatocyte growth factor activator inhibitor type 1 (Hai1) mRNA, complete cds. [AF099018]
A_52_P547965	3.476	0.00107	NM_007690	NM_007690	Mus musculus chromodomain helicase DNA binding protein 1 (Chd1), mRNA [NM_007690]
A_51_P341736	3.474	0.025	NM_008610	NM_008610	Mus musculus matrix metalloproteinase 2 (Mmp2), mRNA [NM_008610]
A_52_P24439	3.474	0.0177	NM_023134	NM_023134	Mus musculus surfactant associated protein A1 (Sftpa1), mRNA [NM_023134]
A_51_P412200	3.473	0.00965	NM_010638	NM_010638	Mus musculus Kruppel-like factor 9 (Klf9), mRNA [NM_010638]
A_51_P315795	3.472	0.0197	NM_009451	NM_009451	Mus musculus tubulin, beta 4 (Tubb4), mRNA [NM_009451]
A_51_P411061	3.469	0.0182	XM_203796	XM_203796	PREDICTED: laminin, alpha 5 [Mus musculus], mRNA sequence [XM_203796]
A_52_P404329	3.467	0.00726	NM_011316	NM_011316	Mus musculus serum amyloid A 4 (Saa4), mRNA [NM_011316]
A_51_P339098	3.462	0.0493	BC031891	BC031891	Mus musculus serine (or cysteine) proteinase inhibitor, clade A, member 4, pseudogene 1, mRNA (cDNA clone IMAGE:5123840), containing frame-shift errors [BC031891]
A_51_P487791	3.46	0.0345	NM_007420	NM_007420	Mus musculus adrenergic receptor, beta 2 (Adrb2), mRNA [NM_007420]
A_51_P153079	3.459	0.0242	AK029462	AK029462	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4833441J24 product:HOTTL PROTEIN homolog [Homo sapiens], full insert sequence. [AK029462]
A_52_P1367	3.457	0.0272	TC1466953		O48239 (O48239) Cytochrome b (Fragment), partial (11%) [TC1466953]
A_51_P103320	3.455	0.0367	AK173162	AK173162	Mus musculus mRNA for mKIAA1380 protein [AK173162]
A_52_P512553	3.453	0.0143	AK131109	AK131109	Mus musculus premature mRNA for mFLJ00012 protein [AK131109]
A_52_P731686	3.452	0.034	AK085106	AK085106	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430037E19 product:hypothetical protein, full insert sequence. [AK085106]
A_52_P435042	3.451	0.0416	NM_145143	NM_145143	Mus musculus membrane protein, palmitoylated 4 (MAGUK p55 subfamily member 4) (Mpp4), mRNA [NM_145143]
A_51_P215863	3.449	0.0139	AK079230	AK079230	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530044O11 product:unknown EST, full insert sequence. [AK079230]
A_52_P325797	3.442	0.0392	TC1514005		
A_51_P373208	3.439	0.0413	AK079259	AK079259	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530062M13 product:KIAA0372 PROTEIN homolog [Homo sapiens], full insert sequence. [AK079259]
A_51_P154913	3.43	0.0196	AK037524	AK037524	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130023H07 product:unclassifiable, full insert sequence. [AK037524]
A_51_P425642	3.429	0.0424	NM_019518	NM_019518	Mus musculus GRP1 (general receptor for phosphoinositides 1)-associated scaffold protein (Grasp), mRNA [NM_019518]
A_52_P231170	3.426	0.00697	NM_172694	NM_172694	Mus musculus EGF-like-domain, multiple 5 (Egfl5), mRNA [NM_172694]
A_52_P460957	3.426	0.0192	NM_013498	NM_013498	Mus musculus cAMP responsive element modulator (Crem), mRNA [NM_013498]
A_51_P425573	3.425	0.0157	NM_178686	NM_178686	Mus musculus expressed sequence AU016693 (AU016693), mRNA [NM_178686]
A_52_P303862	3.425	0.0176	NM_054078	NM_054078	Mus musculus bromodomain adjacent to zinc finger domain, 2A (Baz2a), mRNA [NM_054078]
A_52_P593361	3.417	0.0139	NM_138679	NM_138679	Mus musculus ash1 (absent, small, or homeotic)-like (Drosophila) (Ash1l), mRNA [NM_138679]
A_51_P346938	3.41	0.0101	NM_029796	NM_029796	Mus musculus leucine-rich alpha-2-glycoprotein 1 (Lrg1), mRNA [NM_029796]
A_51_P367366	3.41	0.0151	NM_173368	NM_173368	Mus musculus RIKEN cDNA 5430439G14 gene (5430439G14Rik), mRNA [NM_173368]
A_51_P117711	3.406	0.0256	XM_148990	XM_148990	PREDICTED: BAT2 domain containing 1 [Mus musculus], mRNA sequence [XM_148990]
A_52_P162744	3.406	0.0182	NM_011714	NM_011714	Mus musculus bromodomain adjacent to zinc finger domain, 1B (Baz1b), mRNA [NM_011714]
A_51_P346165	3.404	0.017	NM_026644	NM_026644	Mus musculus 1-acylglycerol-3-phosphate O-acyltransferase 1 (lysophosphatidic acid acyltransferase, delta) (Agpat4), mRNA [NM_026644]
A_51_P435023	3.404	0.00277	NM_019713	NM_019713	Mus musculus Ras association (RalGDS/AF-6) domain family 1 (Rassf1), mRNA [NM_019713]
A_52_P133965	3.399	0.0464	BC059264	BC059264	Mus musculus jumonji domain containing 1A, mRNA (cDNA clone MGC:67610 IMAGE:6409698), complete cds. [BC059264]
A_51_P451957	3.397	0.0499	NM_009947	NM_009947	Mus musculus copine VI (Cpne6), mRNA [NM_009947]
A_52_P308465	3.397	0.0193	NM_172775	NM_172775	Mus musculus plexin B1 (Plxnb1), mRNA [NM_172775]
A_52_P154026	3.396	0.048	NM_001005426	NM_0010054	Mus musculus zinc finger, CW type with PWWP domain 1 (Zcwpw1), mRNA [NM_001005426]
A_52_P489385	3.394	0.0305	NAP027428-1		
A_52_P451355	3.393	0.024	NM_011372	NM_011372	Mus musculus ST6 (alpha-N-acetyl-neuraminyl-2,3-beta-galactosyl-1,3)-N-acetylgalactosaminide alpha-2,6-sialyltransferase 3 (St6galnac3), mRNA [NM_011372]
A_51_P217465	3.391	0.0308	NM_183148	NM_183148	Mus musculus expressed sequence C79267 (C79267), mRNA [NM_183148]
A_51_P291078	3.388	0.0416	NM_172710	NM_172710	Mus musculus RIKEN cDNA 2310045A20 gene (2310045A20Rik), mRNA [NM_172710]
A_51_P335969	3.386	0.00849	NM_010043	NM_010043	Mus musculus desmin (Des), mRNA [NM_010043]
A_51_P238943	3.385	0.00311	NM_198160	NM_198160	Mus musculus SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily c, member 2 (Smarcc2), mRNA [NM_198160]
A_52_P422494	3.384	0.00186	BC057864	BC057864	Mus musculus CD300 antigen like family member F, mRNA (cDNA clone MGC:67746 IMAGE:5318856), complete cds. [BC057864]
A_51_P291713	3.382	0.0145	NM_134094	NM_134094	Mus musculus neurocalcin delta (Ncald), mRNA [NM_134094]
A_51_P514300	3.381	0.0296	NM_009447	NM_009447	Mus musculus tubulin, alpha 4 (Tuba4), mRNA [NM_009447]
A_51_P298666	3.38	0.00616	BC057592	BC057592	Mus musculus splicing factor, arginine/serine-rich 15, mRNA (cDNA clone MGC:67163 IMAGE:6417362), complete cds. [BC057592]
A_52_P290544	3.379	0.00624	AK051380	AK051380	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130043G23 product:cyclin L, full insert sequence. [AK051380]
A_52_P204944	3.378	0.019	XM_132976	XM_132976	PREDICTED: Mus musculus C1q domain containing 1 (C1qdc1), mRNA [XM_132976]
A_52_P83303	3.377	0.00865	NM_024183	NM_024183	Mus musculus FIP1 like 1 (S. cerevisiae) (Fip1l1), mRNA [NM_024183]
A_51_P159284	3.373	0.0182	NM_146000	NM_146000	Mus musculus RIKEN cDNA D030060M11 gene (D030060M11Rik), mRNA [NM_146000]
A_52_P625508	3.367	0.0182	NM_009948	NM_009948	Mus musculus carnitine palmitoyltransferase 1b, muscle (Cpt1b), mRNA [NM_009948]
A_52_P659448	3.365	0.00407	AK078975	AK078975	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130430E04 product:hypothetical protein, full insert sequence. [AK078975]
A_51_P378312	3.364	0.00726	AK013079	AK013079	Mus musculus 10, 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2810411C16 product:hypothetical protein, full insert sequence. [AK013079]
A_52_P1069274	3.364	0.0216	TC1434196		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (5%) [TC1434196]
A_52_P420504	3.362	0.0263	NM_007392	NM_007392	Mus musculus actin, alpha 2, smooth muscle, aorta (Acta2), mRNA [NM_007392]
A_52_P628455	3.357	0.0184	NM_007968	NM_007968	Mus musculus Ewing sarcoma breakpoint region 1 (Ewsr1), mRNA [NM_007968]
A_51_P469789	3.354	0.0115	NM_016702	NM_016702	Mus musculus alanine-glyoxylate aminotransferase (Agxt), mRNA [NM_016702]
A_52_P177260	3.354	0.022	NM_007871	NM_007871	Mus musculus dynamin 2 (Dnm2), mRNA [NM_007871]
A_52_P306744	3.354	0.043	NM_146010	NM_146010	Mus musculus tetraspanin 8 (Tspan8), mRNA [NM_146010]
A_52_P153967	3.353	0.0123	NM_145605	NM_145605	Mus musculus kelch domain containing 4 (Klhdc4), mRNA [NM_145605]
A_51_P162307	3.35	0.00407	XM_129836	XM_129836	PREDICTED: PHD finger protein 3 [Mus musculus], mRNA sequence [XM_129836]
A_52_P585071	3.345	0.0377	BC032218	BC032218	Mus musculus LAS1-like (S. cerevisiae), mRNA (cDNA clone MGC:38305 IMAGE:5343167), complete cds. [BC032218]
A_51_P339023	3.338	0.0181	NM_175445	NM_175445	Mus musculus Ras association (RalGDS/AF-6) domain family 2 (Rassf2), mRNA [NM_175445]
A_51_P143103	3.337	0.0426	BC066048	BC066048	Mus musculus peroxisome proliferative activated receptor, gamma, coactivator-related 1, mRNA (cDNA clone MGC:90133 IMAGE:6825158), complete cds. [BC066048]
A_51_P174176	3.335	0.0175	NM_008878	NM_008878	Mus musculus serine (or cysteine) proteinase inhibitor, clade F, member 2 (Serpinf2), mRNA [NM_008878]
A_52_P475439	3.333	0.00646	NM_021791	NM_021791	Mus musculus double C2, gamma (Doc2g), mRNA [NM_021791]
A_52_P835592	3.332	0.0169	AK052047	AK052047	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230039L18 product:unknown EST, full insert sequence. [AK052047]
A_52_P9347	3.331	0.0284	BC049928	BC049928	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 23, mRNA (cDNA clone MGC:54908 IMAGE:5321607), complete cds. [BC049928]
A_52_P802796	3.327	0.0473	AK047643	AK047643	Mus musculus adult male corpus striatum cDNA, RIKEN full-length enriched library, clone:C030004G18 product:unclassifiable, full insert sequence. [AK047643]
A_52_P117029	3.326	0.0192	NM_001029979	NM_0010299	Mus musculus scaffold attachment factor B2 (Safb2), mRNA [NM_001029979]
A_52_P637303	3.326	0.0144	TC1542481		P66B_MOUSE (Q8VHR5) Transcriptional repressor p66 beta (p66/p68), partial (15%) [TC1542481]
A_51_P208240	3.324	0.00257	NM_019418	NM_019418	Mus musculus tumor necrosis factor (ligand) superfamily, member 14 (Tnfsf14), mRNA [NM_019418]
A_51_P454008	3.321	0.00669	NM_008489	NM_008489	Mus musculus lipopolysaccharide binding protein (Lbp), mRNA [NM_008489]
A_52_P467588	3.32	0.0168	NM_019834	NM_019834	Mus musculus G protein-coupled receptor kinase-interactor 2 (Git2), mRNA [NM_019834]
A_51_P116601	3.319	0.0364	NM_172447	NM_172447	Mus musculus RIKEN cDNA A330021E22 gene (A330021E22Rik), mRNA [NM_172447]
A_52_P646680	3.313	0.0162	NM_025707	NM_025707	Mus musculus BTB (POZ) domain containing 5 (Btbd5), mRNA [NM_025707]
A_51_P400868	3.309	0.049	NM_008816	NM_008816	Mus musculus platelet/endothelial cell adhesion molecule 1 (Pecam1), mRNA [NM_008816]

A_51_P235821	3.307	0.00891	NM_010286	NM_010286	Mus musculus TSC22 domain family 3 (Tsc22d3), mRNA [NM_010286]
A_52_P57557	3.305	0.034	ENSMUST00000030569		
A_51_P416408	3.303	0.0184	NM_181820	NM_181820	Mus musculus transmembrane channel-like gene family 4 (Tmc4), mRNA [NM_181820]
A_51_P221510	3.295	0.0163	NM_029784	NM_029784	Mus musculus RIKEN cDNA 6430514L14 gene (6430514L14Rik), mRNA [NM_029784]
A_51_P241705	3.294	0.0276	NM_011201	NM_011201	Mus musculus protein tyrosine phosphatase, non-receptor type 1 (Ptpn1), mRNA [NM_011201]
A_51_P519251	3.293	0.028	NM_019738	NM_019738	Mus musculus nuclear protein 1 (Nupr1), mRNA [NM_019738]
A_52_P114080	3.292	0.0305	NAP040991-1		
A_52_P382565	3.288	0.0495	ENSMUST00000079520		
A_52_P514391	3.287	0.0217	NM_009829	NM_009829	Mus musculus cyclin D2 (Ccnd2), mRNA [NM_009829]
A_52_P636343	3.284	0.0308	NM_178398	NM_178398	Mus musculus RIKEN cDNA 2510001I10 gene (2510001I10Rik), mRNA [NM_178398]
A_52_P553890	3.282	0.0222	BY557806	BY557806	BY557806 RIKEN full-length enriched, activated spleen Mus musculus cDNA clone F830006H04 3', mRNA sequence [BY557806]
A_51_P193173	3.28	0.0388	NM_146118	NM_146118	Mus musculus solute carrier family 25 (mitochondrial carrier, phosphate carrier), member 25 (Slc25a25), mRNA [NM_146118]
A_51_P110381	3.278	0.00875	NM_144943	NM_144943	Mus musculus CD 207 antigen (Cd207), mRNA [NM_144943]
A_52_P441340	3.278	0.00672	TC1505134		MMU23470 MEKK1 {Mus musculus;} , partial (11%) [TC1505134]
A_52_P149590	3.277	0.0095	NM_144848	NM_144848	Mus musculus epiplakin 1 (Eppk1), mRNA [NM_144848]
A_52_P547589	3.276	0.0325	NM_012031	NM_012031	Mus musculus sperm associated antigen 1 (Spag1), mRNA [NM_012031]
A_51_P432180	3.271	0.025	NM_134038	NM_134038	Mus musculus solute carrier family 16 (monocarboxylic acid transporters), member 6 (Slc16a6), transcript variant 2, mRNA [NM_134038]
A_52_P307922	3.269	0.0232	BC029674	BC029674	Mus musculus FMS-like tyrosine kinase 1, mRNA (cDNA clone MGC:36074 IMAGE:5368921), complete cds. [BC029674]
A_52_P552194	3.269	0.0439	NM_133990	NM_133990	Mus musculus interleukin 13 receptor, alpha 1 (Il13ra1), mRNA [NM_133990]
A_52_P391095	3.265	0.0318	NM_013498	NM_013498	Mus musculus cAMP responsive element modulator (Crem), mRNA [NM_013498]
A_51_P508402	3.261	0.0282	NM_177282	NM_177282	Mus musculus microtubule associated monoxygenase, calponin and LIM domain containing 2 (Mical2), mRNA [NM_177282]
A_52_P378084	3.26	0.0104	XM_620086	XM_620086	PREDICTED: Mus musculus similar to RNA binding motif protein 10 (LOC433739), mRNA [XM_620086]
A_52_P580895	3.26	0.0327	NM_028769	NM_028769	Mus musculus synovial apoptosis inhibitor 1, synoviolin (Synv1), mRNA [NM_028769]
A_52_P32733	3.257	0.0177	AK036827	AK036827	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930016G07 product:NFkB p105 subunit; NFkB1, full insert sequence [AK036827]
A_52_P259174	3.256	0.0224	ENSMUST00000064589		
A_51_P264956	3.252	0.00638	NM_008441	NM_008441	Mus musculus kinesin family member 1B (Kif1b), transcript variant 1, mRNA [NM_008441]
A_52_P51998	3.252	0.0123	AK085005	AK085005	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430023F04 product:unknown EST, full insert sequence. [AK085005]
A_52_P676271	3.252	0.0142	NM_009447	NM_009447	Mus musculus tubulin, alpha 4 (Tuba4), mRNA [NM_009447]
A_51_P371120	3.25	0.0263	NM_019787	NM_019787	Mus musculus SEC23B (S. cerevisiae) (Sec23b), mRNA [NM_019787]
A_51_P267933	3.248	0.0477	BC060623	BC060623	Mus musculus RIKEN cDNA E130013N09 gene, mRNA (cDNA clone IMAGE:6826655), partial cds [BC060623]
A_51_P383032	3.248	0.0221	NM_010819	NM_010819	Mus musculus C-type lectin domain family 4, member d (Clec4d), mRNA [NM_010819]
A_52_P430229	3.247	0.0147	AK090343	AK090343	Mus musculus 15 days embryo brain cDNA, RIKEN full-length enriched library, clone:G630056H24 product:hypothetical Ankyrin repeat profile/Ankyrin-repeat/Ankyrin repeat region circular profile/Yeast DNA-binding domain containing protein, full insert..
A_52_P1076387	3.244	0.015	AK053217	AK053217	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030042P04 product:unclassifiable, full insert sequence. [AK053217]
A_51_P402805	3.241	0.0262	AK029263	AK029263	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4832404P21 product:hypothetical ATP/GTP-binding site motif A (P-loop) containing protein, full insert sequence. [AK029263]
A_52_P397385	3.241	0.0197	AK032013	AK032013	Mus musculus adult male medulla oblongata cDNA, RIKEN full-length enriched library, clone:6330545A10 product:annexin A7, full insert sequence. [AK032013]
A_52_P274504	3.237	0.0182	AK083369	AK083369	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:C9200024D13 product:hypothetical Trp-Asp (WD) repeats profile/Trp-Asp (WD) repeats circular profile/G-protein beta WD-40 repeats containing protein, full...
A_52_P492284	3.236	0.0236	TC1547759		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (5%) [TC1547759]
A_52_P522023	3.233	0.0387	BC050856	BC050856	Mus musculus alkB, alkylation repair homolog (E. coli), mRNA (cDNA clone IMAGE:6507625), containing frame-shift errors [BC050856]
A_52_P559975	3.233	0.0413	NM_009909	NM_009909	Mus musculus interleukin 8 receptor, beta (Il8rb), mRNA [NM_009909]
A_52_P598774	3.233	0.00611	NM_001001182	NM_0010011	Mus musculus RIKEN cDNA 5830435C13 gene (5830435C13Rik), mRNA [NM_001001182]
A_51_P131494	3.228	0.0166	AK078027	AK078027	Mus musculus 11 days embryo head cDNA, RIKEN full-length enriched library, clone:6230415M23 product:unclassifiable, full insert sequence. [AK078027]
A_52_P597860	3.227	0.0277	NM_153423	NM_153423	Mus musculus WAS protein family, member 2 (Wasf2), mRNA [NM_153423]
A_51_P165185	3.223	0.0492	NM_016887	NM_016887	Mus musculus claudin 7 (Cldn7), mRNA [NM_016887]
A_51_P127800	3.221	0.0263	NM_029654	NM_029654	Mus musculus RIKEN cDNA 2410024A21 gene (2410024A21Rik), mRNA [NM_029654]
A_51_P299454	3.22	0.0397	NM_009743	NM_009743	Mus musculus Bcl2-like 1 (Bcl2l1), mRNA [NM_009743]
A_52_P391098	3.217	0.0325	NM_013498	NM_013498	Mus musculus cAMP responsive element modulator (Crem), mRNA [NM_013498]
A_51_P196862	3.21	0.0134	AK005066	AK005066	Mus musculus adult male liver cDNA, RIKEN full-length enriched library, clone:1300019J08 product:CDNA FLJ30055 FIS, CLONE ADRGL1000165, WEAKLY SIMILAR TO IMIDAZOLONEPROPIONASE (EC 3.5.2.7) homolog [Homo sapiens], full insert sequence. [AK005066]
A_51_P431047	3.209	0.0175	NM_009182	NM_009182	Mus musculus ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 3 (St8sia3), mRNA [NM_009182]
A_52_P647291	3.208	0.0214	AK048664	AK048664	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130097O10 product:cat eye syndrome chromosome region, candidate 2 homolog (human), full insert sequence. [AK048664]
A_52_P318683	3.207	0.00408	XM_140801	XM_140801	PREDICTED: UPF2 regulator of nonsense transcripts homolog [Mus musculus], mRNA sequence [XM_140801]
A_51_P312497	3.205	0.0139	NM_009726	NM_009726	Mus musculus ATPase, Cu++ transporting, alpha polypeptide (Atp7a), mRNA [NM_009726]
A_51_P304681	3.204	0.0375	NM_011802	NM_011802	Mus musculus caseinolytic protease X (E.coli) (Clpx), mRNA [NM_011802]
A_51_P255336	3.203	0.0276	NM_007661	NM_007661	Mus musculus cell division cycle 2-like 1 (Cdc2l1), mRNA [NM_007661]
A_52_P260468	3.202	0.0245	AK037032	AK037032	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930101F24 product:cat eye syndrome chromosome region, candidate 2 homolog (human), full insert sequence. [AK037032]
A_52_P574710	3.2	0.0181	BC064447	BC064447	Mus musculus Wolf-Hirschhorn syndrome candidate 1-like 1 (human), mRNA (cDNA clone MGC:69667 IMAGE:6844047), complete cds. [BC064447]
A_51_P160754	3.199	0.00737	NM_031159	NM_031159	Mus musculus apolipoprotein B editing complex 1 (Apobec1), mRNA [NM_031159]
A_52_P44054	3.199	0.0162	XM_132015	XM_132015	PREDICTED: similar to BC037112 protein [Mus musculus], mRNA sequence [XM_132015]
A_52_P566840	3.199	0.0305	NM_133776	NM_133776	Mus musculus G protein-coupled receptor 110 (Gpr110), mRNA [NM_133776]
A_52_P79513	3.197	0.0242	NM_023750	NM_023750	Mus musculus zinc finger protein 84 (Zfp84), mRNA [NM_023750]
A_51_P199314	3.195	0.0138	AK047403	AK047403	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930056I07 product:unknown EST, full insert sequence. [AK047403]
A_52_P360410	3.193	0.00965	AK082427	AK082427	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230050B21 product:hypothetical protein, full insert sequence. [AK082427]
A_52_P641629	3.19	0.0159	NM_019827	NM_019827	Mus musculus glycogen synthase kinase 3 beta (Gsk3b), mRNA [NM_019827]
A_52_P661565	3.19	0.0368	NM_013885	NM_013885	Mus musculus chloride intracellular channel 4 (mitochondrial) (Clic4), mRNA [NM_013885]
A_51_P184849	3.187	0.013	NM_008825	NM_008825	Mus musculus 6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 2 (Pfkfb2), mRNA [NM_008825]
A_51_P213781	3.18	0.0297	NM_172631	NM_172631	Mus musculus DNA segment, Chr 18, ERATO Doi 653, expressed (D18Ertd653e), mRNA [NM_172631]
A_52_P362128	3.18	0.0126	BC025640	BC025640	Mus musculus pygopus 2, mRNA (cDNA clone MGC:38193 IMAGE:5322622), complete cds. [BC025640]
A_51_P113068	3.177	0.0225	NM_153402	NM_153402	Mus musculus eukaryotic translation initiation factor 2C, 3 (Eif2c3), mRNA [NM_153402]
A_52_P167958	3.176	0.019	NM_207670	NM_207670	Mus musculus GRIP1 associated protein 1 (Gripap1), mRNA [NM_207670]
A_51_P192955	3.175	0.0167	BG921888	BG921888	BG921888 602820664F1 NCI_CGAP_Mam6 Mus musculus cDNA clone IMAGE:4949630 5', mRNA sequence [BG921888]
A_51_P313779	3.175	0.0141	NM_198248	NM_198248	Mus musculus zinc finger and BTB domain containing 40 (Zbtb40), mRNA [NM_198248]
A_52_P298145	3.172	0.0125	NM_026390	NM_026390	Mus musculus UBX domain containing 2 (Ubxd2), mRNA [NM_026390]
A_52_P1197206	3.167	0.022	A_52_P1197206		
A_52_P512806	3.167	0.0134	AK173210	AK173210	Mus musculus mRNA for mKIAA1594 protein [AK173210]
A_52_P1004080	3.166	0.0176	AK051046	AK051046	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030060M01 product:unknown EST, full insert sequence. [AK051046]
A_51_P379208	3.161	0.0368	NM_144527	NM_144527	Mus musculus coiled-coil domain containing 21 (Ccdc21), mRNA [NM_144527]
A_52_P632191	3.161	0.023	AK013866	AK013866	Mus musculus 12 days embryo head cDNA, RIKEN full-length enriched library, clone:3000003M19 product:nuclear transcription factor, X-box binding 1, full insert sequence. [AK013866]
A_52_P392598	3.16	0.0216	AK020134	AK020134	Mus musculus 12 days embryo male wolffian duct includes surrounding region cDNA, RIKEN full-length enriched library, clone:6720458D04 product:receptor (calcitonin) activity modifying protein 2, full insert sequence. [AK020134]
A_52_P580842	3.158	0.024	NAP039970-1		
A_52_P151467	3.156	0.0129	NM_027498	NM_027498	Mus musculus cDNA sequence BC033915 (BC033915), mRNA [NM_027498]
A_52_P14728	3.155	0.0275	TC1502356		
A_52_P413348	3.155	0.0026	XM_127674	XM_127674	PREDICTED: hypothetical protein LOC75698 [Mus musculus], mRNA sequence [XM_127674]
A_52_P563694	3.153	0.0125	AK033568	AK033568	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130001M15 product:RAT GROWTH AND TRANSFORMATION-DEPENDENT (FRAGMENT) homolog [Rattus norvegicus], full insert sequence [AK033568]
A_52_P59784	3.152	0.0342	AK051199	AK051199	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130015G08 product:GRP1 (general receptor for phosphoinositides 1)-associated scaffold protein, full insert sequence. [AK051199]

A_52_P604629	3.15	0.0147	NM_153287	NM_153287	Mus musculus AXIN1 up-regulated 1 (Axud1), mRNA [NM_153287]
A_52_P92246	3.15	0.0406	AK078408	AK078408	Mus musculus 12 days embryo male wolffian duct includes surrounding region cDNA, RIKEN full-length enriched library, clone:6720428K09 product:HOST CELL FACTOR HOMOLOG LCP (CDNA FLJ10909 FIS, CLONE OVARC1000091, WEAKLY SIMILAR TO HOST CELL FACTOR C1)...
A_51_P257058	3.149	0.00712	NM_029634	NM_029634	Mus musculus RIKEN cDNA 1500005N04 gene (1500005N04Rik), mRNA [NM_029634]
A_51_P385993	3.146	0.0139	NM_009045	NM_009045	Mus musculus v-rel reticuloendotheliosis viral oncogene homolog A (avian) (Rela), mRNA [NM_009045]
A_52_P428721	3.146	0.00347	AK122317	AK122317	Mus musculus mRNA for mKIAA0585 protein [AK122317]
A_52_P21506	3.144	0.0155	AK008121	AK008121	Mus musculus adult male small intestine cDNA, RIKEN full-length enriched library, clone:2010005H04 product:catenin alpha 1, full insert sequence. [AK008121]
A_51_P488554	3.137	0.0288	NM_026543	NM_026543	Mus musculus RIKEN cDNA 3010026O09 gene (3010026O09Rik), mRNA [NM_026543]
A_51_P218535	3.135	0.0114	XM_130232	XM_130232	PREDICTED: nebulin [Mus musculus], mRNA sequence [XM_130232]
A_52_P573552	3.135	0.0342	NM_144549	NM_144549	Mus musculus tribbles homolog 1 (Drosophila) (Trib1), mRNA [NM_144549]
A_52_P617327	3.135	0.0477	NM_019466	NM_019466	Mus musculus Down syndrome critical region homolog 1 (human) (Dscr1), mRNA [NM_019466]
A_52_P577072	3.131	0.0106	NM_011901	NM_011901	Mus musculus TAF7 RNA polymerase II, TATA box binding protein (TBP)-associated factor (Taf7), mRNA [NM_011901]
A_51_P113182	3.13	0.00915	NM_013584	NM_013584	Mus musculus leukemia inhibitory factor receptor (Lifr), mRNA [NM_013584]
A_52_P120803	3.13	0.0478	NM_013468	NM_013468	Mus musculus ankyrin repeat domain 1 (cardiac muscle) (Ankrd1), mRNA [NM_013468]
A_52_P175685	3.129	0.0499	NM_008390	NM_008390	Mus musculus interferon regulatory factor 1 (Irf1), mRNA [NM_008390]
A_52_P556390	3.129	0.0368	BC096528	BC096528	Mus musculus cDNA sequence BC053994, mRNA (cDNA clone IMAGE:6410707), partial cds [BC096528]
A_51_P236042	3.128	0.046	NM_008874	NM_008874	Mus musculus phospholipase C, beta 3 (Plcb3), mRNA [NM_008874]
A_52_P652950	3.128	0.0269	AK087905	AK087905	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330039D10 product:unclassifiable, full insert sequence. [AK087905]
A_52_P153541	3.127	0.0369	AK045164	AK045164	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130042H10 product:weakly similar to APOPTOSIS REGULATOR [Homo sapiens], full insert sequence. [AK045164]
A_51_P223458	3.126	0.0147	NM_025945	NM_025945	Mus musculus polymerase (RNA) III (DNA directed) polypeptide D (Polr3d), mRNA [NM_025945]
A_52_P362466	3.125	0.0211	AK019130	AK019130	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:2410115I17 product:Trf (TATA binding protein-related factor)-proximal protein homolog (Drosophila), full insert sequence. [AK019130]
A_52_P416684	3.122	0.0225	AK082645	AK082645	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230075M21 product:unknown EST, full insert sequence [AK082645]
A_52_P514306	3.121	0.018	NM_170756	NM_170756	Mus musculus spermatogenesis associated 2 (Spata2), mRNA [NM_170756]
A_51_P314547	3.119	0.0433	AK019935	AK019935	Mus musculus adult male pituitary gland cDNA, RIKEN full-length enriched library, clone:5330437D01 product:serine protease inhibitor 2-1, full insert sequence. [AK019935]
A_52_P354363	3.119	0.0144	NM_026574	NM_026574	Mus musculus RIKEN cDNA 4632409L19 gene (4632409L19Rik), mRNA [NM_026574]
A_51_P175580	3.118	0.0151	NM_021897	NM_021897	Mus musculus transformation related protein 53 inducible nuclear protein 1 (Trp53inp1), mRNA [NM_021897]
A_51_P432403	3.118	0.0435	NM_010207	NM_010207	Mus musculus fibroblast growth factor receptor 2 (Fgfr2), transcript variant 1, mRNA [NM_010207]
A_52_P14810	3.113	0.0208	BC030435	BC030435	Mus musculus chromodomain helicase DNA binding protein 3, mRNA (cDNA clone MGC:40857 IMAGE:5369285), complete cds. [BC030435]
A_51_P239737	3.108	0.0174	NM_011082	NM_011082	Mus musculus polymeric immunoglobulin receptor (Pigr), mRNA [NM_011082]
A_52_P358860	3.105	0.019	NM_008180	NM_008180	Mus musculus glutathione synthetase (Gss), mRNA [NM_008180]
A_52_P632397	3.104	0.00946	NM_172705	NM_172705	Mus musculus PHD finger protein 13 (Phf13), mRNA [NM_172705]
A_51_P382393	3.103	0.0046	NM_133753	NM_133753	Mus musculus RIKEN cDNA 1300002F13 gene (1300002F13Rik), mRNA [NM_133753]
A_52_P45834	3.102	0.024	NM_008775	NM_008775	Mus musculus platelet-activating factor acetylhydrolase, isoform 1b, alpha2 subunit (Pafah1b2), mRNA [NM_008775]
A_52_P151465	3.099	0.0117	NM_027498	NM_027498	Mus musculus cDNA sequence BC033915 (BC033915), mRNA [NM_027498]
A_51_P423091	3.098	0.0138	NM_008027	NM_008027	Mus musculus flotillin 1 (Flot1), mRNA [NM_008027]
A_52_P314741	3.098	0.0147	NM_177198	NM_177198	Mus musculus RIKEN cDNA 4833432P19 gene (4833432P19Rik), mRNA [NM_177198]
A_51_P195958	3.092	0.0287	NM_009344	NM_009344	Mus musculus pleckstrin homology-like domain, family A, member 1 (Phlda1), mRNA [NM_009344]
A_52_P192699	3.09	0.0115	NM_013584	NM_013584	Mus musculus leukemia inhibitory factor receptor (Lifr), mRNA [NM_013584]
A_51_P238722	3.087	0.0306	NM_010740	NM_010740	Mus musculus complement component 1, q subcomponent, receptor 1 (C1qr1), mRNA [NM_010740]
A_52_P282762	3.083	0.011	NM_010851	NM_010851	Mus musculus myeloid differentiation primary response gene 88 (Myd88), mRNA [NM_010851]
A_52_P12869	3.08	0.0402	AB029144	AB029144	Mus musculus mRNA for pUb-R3, complete cds. [AB029144]
A_52_P479051	3.079	0.00717	NM_010672	NM_010672	Mus musculus keratin associated protein 6-1 (Krtap6-1), mRNA [NM_010672]
A_52_P497193	3.079	0.0463	NM_021303	NM_021303	Mus musculus cDNA sequence AF155546 (AF155546), mRNA [NM_021303]
A_52_P142912	3.078	0.0118	NM_008825	NM_008825	Mus musculus 6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 2 (Pfkfb2), mRNA [NM_008825]
A_52_P509188	3.078	0.0286	AK129437	AK129437	Mus musculus mRNA for mKIAA1752 protein [AK129437]
A_51_P161225	3.076	0.0302	AK129220	AK129220	Mus musculus mRNA for mKIAA0801 protein [AK129220]
A_51_P197965	3.076	0.0115	AK037086	AK037086	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930111I12 product:adaptor protein complex AP-1, gamma 1 subunit, full insert sequence. [AK037086]
A_52_P616392	3.076	0.0221	NM_183426	NM_183426	Mus musculus strawberry notch homolog (Drosophila) (Stno), mRNA [NM_183426]
A_52_P267505	3.073	0.0372	NM_013851	NM_013851	Mus musculus ATP-binding cassette, sub-family A (ABC1), member 8b (Abca8b), mRNA [NM_013851]
A_51_P268094	3.072	0.0262	NM_009255	NM_009255	Mus musculus serine (or cysteine) proteinase inhibitor, clade E, member 2 (Serpine2), mRNA [NM_009255]
A_51_P269494	3.071	0.00423	NM_146153	NM_146153	Mus musculus thyroid hormone receptor associated protein 3 (Thrap3), mRNA [NM_146153]
A_51_P424550	3.071	0.0168	NM_194333	NM_194333	Mus musculus solute carrier family 23 (nucleobase transporters), member 3 (Slc23a3), mRNA [NM_194333]
A_52_P210893	3.071	0.0328	NM_019980	NM_019980	Mus musculus LPS-induced TN factor (Litaf), mRNA [NM_019980]
A_52_P619262	3.069	0.0368	AK122497	AK122497	Mus musculus mRNA for mKIAA1364 protein [AK122497]
A_52_P621732	3.069	0.0369	NM_177449	NM_177449	Mus musculus leucine rich repeat containing 29 (Lrrc29), mRNA [NM_177449]
A_52_P360756	3.067	0.0457	NAP031201-1		
A_52_P454703	3.066	0.0383	BC033430	BC033430	Mus musculus, clone IMAGE:5039804, mRNA [BC033430]
A_52_P174915	3.065	0.00729	NM_010288	NM_010288	Mus musculus gap junction membrane channel protein alpha 1 (Gja1), mRNA [NM_010288]
A_52_P395929	3.062	0.0135	TC1410863		Q7TNQ6 (Q7TNQ6) Ribosomal protein, large P2, partial (50%) [TC1410863]
A_52_P671769	3.061	0.0278	NM_176837	NM_176837	Mus musculus Rho GTPase activating protein 18 (Arhgap18), mRNA [NM_176837]
A_51_P455632	3.06	0.0196	NM_172675	NM_172675	Mus musculus syntaxin 16 (Stx16), mRNA [NM_172675]
A_52_P229770	3.056	0.011	XM_620617	XM_620617	PREDICTED: Mus musculus similar to type II cAMP-dependent protein kinase anchoring protein Ht31 (LOC546029), mRNA [XM_620617]
A_52_P819156	3.051	0.0288	AK046412	AK046412	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230380O10 product:hypothetical protein, full insert sequence. [AK046412]
A_51_P402575	3.05	0.0241	NM_172963	NM_172963	Mus musculus RIKEN cDNA 1110012J17 gene (1110012J17Rik), mRNA [NM_172963]
A_52_P444480	3.044	0.0349	NM_023438	NM_023438	Mus musculus gene model 644, (NCBI) (Gm644), mRNA [NM_023438]
A_52_P333222	3.04	0.00688	AK037089	AK037089	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930111L05 product:unknown EST, full insert sequence. [AK037089]
A_51_P304239	3.039	0.0326	NM_010729	NM_010729	Mus musculus lysyl oxidase-like 1 (Loxl1), mRNA [NM_010729]
A_51_P418317	3.039	0.0426	NM_025993	NM_025993	Mus musculus MIS12 homolog (yeast) (Mis12), mRNA [NM_025993]
A_52_P71869	3.036	0.023	NM_201389	NM_201389	Mus musculus plectin 1 (Plec1), transcript variant 6, mRNA [NM_201389]
A_52_P413826	3.034	0.0109	AK052617	AK052617	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630006C15 product:unknown EST, full insert sequence. [AK052617]
A_52_P504771	3.033	0.0126	NM_016882	NM_016882	Mus musculus squamous cell carcinoma antigen recognized by T-cells 1 (Sart1), mRNA [NM_016882]
A_51_P362429	3.032	0.0214	NM_013607	NM_013607	Mus musculus myosin, heavy polypeptide 11, smooth muscle (Myh11), mRNA [NM_013607]
A_52_P107234	3.032	0.0192	NM_177806	NM_177806	Mus musculus PRP39 pre-mRNA processing factor 39 homolog (yeast) (Prpf39), mRNA [NM_177806]
A_51_P192329	3.031	0.0297	NM_001001488	NM_0010014	Mus musculus ATPase, class I, type 8B, member 1 (Atp8b1), mRNA [NM_001001488]
A_52_P424037	3.029	0.0396	NM_019553	NM_019553	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 21 (Ddx21), mRNA [NM_019553]
A_51_P181538	3.026	0.0132	NM_145125	NM_145125	Mus musculus bromodomain and WD repeat domain containing 1 (Brwd1), mRNA [NM_145125]
A_52_P663440	3.025	0.0271	NM_029291	NM_029291	Mus musculus activating signal cointegrator 1 complex subunit 2 (Ascc2), mRNA [NM_029291]
A_51_P430952	3.023	0.0168	NM_009068	NM_009068	Mus musculus receptor (TNFRSF)-interacting serine-threonine kinase 1 (Ripk1), mRNA [NM_009068]
A_52_P876850	3.023	0.026	TC1436275		Q91Z77 (Q91Z77) Lipogenin, partial (9%) [TC1436275]
A_51_P386307	3.018	0.0282	NM_018856	NM_018856	Mus musculus cyclin L2 (Ccnl2), transcript variant 2, mRNA [NM_018856]
A_52_P223080	3.018	0.0344	NM_144892	NM_144892	Mus musculus nuclear receptor coactivator 5 (Ncoa5), mRNA [NM_144892]
A_52_P477533	3.014	0.0115	BC049362	BC049362	Mus musculus RIKEN cDNA 2310021P13 gene, mRNA (cDNA clone MGC:57092 IMAGE:6489956), complete cds. [BC049362]
A_52_P462171	3.011	0.00866	XM_354675	XM_354675	PREDICTED: retinoblastoma-binding protein 1 [Mus musculus], mRNA sequence [XM_354675]
A_51_P205209	3.007	0.0338	NM_018729	NM_018729	Mus musculus CD244 natural killer cell receptor 2B4 (Cd244), mRNA [NM_018729]

A_52_P670950	3.003	0.0244	NM_029337	NM_029337	Mus musculus E1A binding protein p400 (Ep400), mRNA [NM_029337]
A_51_P479786	3.001	0.0328	NM_013870	NM_013870	Mus musculus smoothelin (Smtn), mRNA [NM_013870]
A_52_P1027670	3.001	0.047	AK029063	AK029063	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732487N17 product:unknown EST, full insert sequence. [AK029063]
A_51_P400498	2.998	0.0406	AK078622	AK078622	Mus musculus adult male adrenal gland cDNA, RIKEN full-length enriched library, clone:7330405M08 product:IL-5 PROMOTER REII-REGION-BINDING PROTEIN homolog [Homo sapiens], full insert sequence. [AK078622]
A_51_P294550	2.996	0.0364	NM_019829	NM_019829	Mus musculus syntaxin 5A (Stx5a), mRNA [NM_019829]
A_51_P515137	2.995	0.0163	AA606396	AA606396	vo43g05.r1 Barstead mouse irradiated colon MPLRB7 Mus musculus cDNA clone IMAGE:1052696 5'. [AA606396]
A_52_P186119	2.994	0.0376	NM_009045	NM_009045	Mus musculus v-rel reticuloendotheliosis viral oncogene homolog A (avian) (Rela), mRNA [NM_009045]
A_51_P196925	2.993	0.0458	NM_009142	NM_009142	Mus musculus chemokine (C-X3-C motif) ligand 1 (Cx3cl1), mRNA [NM_009142]
A_51_P255395	2.992	0.0242	NM_007738	NM_007738	Mus musculus procollagen, type VII, alpha 1 (Col7a1), mRNA [NM_007738]
A_52_P308875	2.992	0.0466	AK049998	AK049998	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630044A22 product:hypothetical protein, MGC:7002, full insert sequence. [AK049998]
A_52_P426870	2.992	0.0395	AK032405	AK032405	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430538G05 product:BA108L7.8 (NOVEL PROTEIN (TRANSLATION OF CDNA FLJ10512 (EM:AK001374))) (CDNA FLJ10512 FIS, CLONE NT2RP2000658) homolog [Homo sapiens], full...
A_52_P270035	2.991	0.0203	NM_145936	NM_145936	Mus musculus TSPY-like 2 (Tspyl2), transcript variant 2, mRNA [NM_145936]
A_52_P590868	2.99	0.0247	AK044951	AK044951	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130015H10 product:translocase of inner mitochondrial membrane 23 homolog (yeast), full insert sequence. [AK044951]
A_52_P15008	2.987	0.014	NM_008551	NM_008551	Mus musculus MAP kinase-activated protein kinase 2 (Mapkapk2), mRNA [NM_008551]
A_52_P64924	2.987	0.0404	NM_011603	NM_011603	Mus musculus TATA box binding protein-like 1 (Tbpl1), mRNA [NM_011603]
A_51_P520794	2.982	0.0481	NM_170591	NM_170591	Mus musculus nucleoporin like 1 (Nupl1), mRNA [NM_170591]
A_52_P843919	2.98	0.00669	AK086179	AK086179	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930010N06 product:unknown EST, full insert sequence. [AK086179]
A_52_P329825	2.971	0.0378	NM_011877	NM_011877	Mus musculus protein tyrosine phosphatase, non-receptor type 21 (Ptpn21), mRNA [NM_011877]
A_52_P569759	2.971	0.0146	AK078508	AK078508	Mus musculus 12 days embryo female mullerian duct includes surrounding region cDNA, RIKEN full-length enriched library, clone:6820426C07 product:BETA-CENTRACTIN (ACTIN-RELATED PROTEIN 1B) (ARP1B) homolog [Homo sapiens], full insert sequence [AK078508]
A_51_P294807	2.97	0.0137	NM_013515	NM_013515	Mus musculus stomatin (Stom), mRNA [NM_013515]
A_51_P418081	2.968	0.0261	AK035477	AK035477	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530053J19 product:unknown EST, full insert sequence [AK035477]
A_51_P479659	2.966	0.0115	BC023025	BC023025	Mus musculus eukaryotic translation initiation factor 5B, mRNA (cDNA clone IMAGE:5362343). [BC023025]
A_52_P358612	2.965	0.0279	NM_019812	NM_019812	Mus musculus sirtuin 1 ((silent mating type information regulation 2, homolog) 1 (S. cerevisiae) (Sirt1), mRNA [NM_019812]
A_52_P290732	2.964	0.029	AK079778	AK079778	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430065G05 product:similar to NUCLEAR PRELAMIN A RECOGNITION FACTOR (CDNA FLJ10067 FIS, CLONE HEMBA1001526, WEAKLY SIMILAR TO PERIPLASMIC) [Homo sapiens], full insert...
A_52_P403420	2.964	0.0168	AK081492	AK081492	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130021C16 product:VACUOLAR ATP SYNTHASE SUBUNIT H (EC 3.6.3.14) (V-ATPASE H SUBUNIT) (VACUOLAR PROTON PUMP H SUBUNIT) (V-ATPASE 50/57 KDA SUBUNITS)
A_52_P424197	2.962	0.012	AK029131	AK029131	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732495I02 product:unknown EST, full insert sequence [AK029131]
A_51_P409988	2.961	0.0368	NM_026577	NM_026577	Mus musculus ADP-ribosylation factor-like 2-like 1 (Arl2l1), mRNA [NM_026577]
A_52_P553100	2.961	0.0168	AK040413	AK040413	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430092J05 product:syntrophin, basic 2, full insert sequence. [AK040413]
A_52_P201551	2.96	0.024	NM_173437	NM_173437	Mus musculus neuron navigator 1 (Nav1), mRNA [NM_173437]
A_51_P332559	2.959	0.00264	NM_001029979	NM_0010299	Mus musculus scaffold attachment factor B2 (Safb2), mRNA [NM_001029979]
A_51_P244408	2.955	0.0436	NM_139306	NM_139306	Mus musculus RIKEN cDNA 2410116I05 gene (2410116I05Rik), mRNA [NM_139306]
A_51_P472033	2.955	0.013	AK050552	AK050552	Mus musculus adult pancreas islet cells cDNA, RIKEN full-length enriched library,clone:C820015H15product:PROTEIN Z-DEPENDENT PROTEASE INHIBITOR PRECURSOR(PZ-DEPENDENT PROTEASE INHIBITOR)(PZI)(REGENERATION-ASSOCIATED SERPIN 1)(RASP-1)homolog
A_52_P3276	2.954	0.0381	NM_027519	NM_027519	Mus musculus RIKEN cDNA 6330406I15 gene (6330406I15Rik), mRNA [NM_027519]
A_52_P570652	2.953	0.0222	NM_153791	NM_153791	Mus musculus FLYWCH-type zinc finger 1 (Flywch1), mRNA [NM_153791]
A_52_P1155674	2.951	0.0233	AK040092	AK040092	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430058L20 product:unclassifiable, full insert sequence. [AK040092]
A_51_P280761	2.95	0.0231	XM_484142	XM_484142	PREDICTED: hypothetical protein B930060C03 [Mus musculus], mRNA sequence [XM_484142]
A_52_P627761	2.95	0.0318	NM_023154	NM_023154	Mus musculus ethylmalonic encephalopathy 1 (Ethe1), mRNA [NM_023154]
A_51_P504624	2.947	0.019	NM_133221	NM_133221	Mus musculus solute carrier family 24 (sodium/potassium/calcium exchanger), member 6 (Slc24a6), mRNA [NM_133221]
A_52_P779445	2.946	0.0144	AK049070	AK049070	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230096K16 product:hypothetical protein, full insert sequence [AK049070]
A_52_P875110	2.944	0.0145	AK020736	AK020736	Mus musculus adult male spinal cord cDNA, RIKEN full-length enriched library, clone:A330105O20 product:unknown EST, full insert sequence. [AK020736]
A_51_P417854	2.943	0.0348	NM_011227	NM_011227	Mus musculus RAB20, member RAS oncogene family (Rab20), mRNA [NM_011227]
A_52_P115191	2.942	0.00764	XM_486315	XM_486315	PREDICTED: Mus musculus similar to hypothetical protein 1 (rRNA external transcribed spacer) - mouse (LOC434481), mRNA [XM_486315]
A_52_P417148	2.942	0.0191	NM_029943	NM_029943	Mus musculus apurinic/apyrimidinic endonuclease 2 (Apex2), mRNA [NM_029943]
A_51_P172155	2.94	0.00844	NM_010401	NM_010401	Mus musculus histidine ammonia lyase (Hal), mRNA [NM_010401]
A_52_P211393	2.94	0.0172	BC059278	BC059278	Mus musculus protein tyrosine phosphatase, non-receptor type 11, mRNA (cDNA clone MGC:68154 IMAGE:2866038), complete cds. [BC059278]
A_52_P350012	2.939	0.0315	AK122378	AK122378	Mus musculus mRNA for mKIAA0818 protein [AK122378]
A_52_P536950	2.939	0.0163	AK030934	AK030934	Mus musculus adult male thymus cDNA, RIKEN full-length enriched library, clone:5830463J03 product:unknown EST, full insert sequence [AK030934]
A_52_P341489	2.938	0.0456	BC021422	BC021422	Mus musculus mRNA similar to hypothetical protein FLJ21657 (cDNA clone MGC:29320 IMAGE:5011629), complete cds [BC021422]
A_52_P416385	2.937	0.017	AK050084	AK050084	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730013O12 product:hypothetical protein, full insert sequence. [AK050084]
A_52_P434549	2.937	0.0209	NM_023190	NM_023190	Mus musculus apoptotic chromatin condensation inducer 1 (Acin1), transcript variant 2, mRNA [NM_023190]
A_51_P378856	2.934	0.0158	NM_019703	NM_019703	Mus musculus phosphofructokinase, platelet (Pfkp), mRNA [NM_019703]
A_52_P502919	2.934	0.0252	TC1420765		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (4%) [TC1420765]
A_51_P414779	2.931	0.0127	NM_007928	NM_007928	Mus musculus MAP/microtubule affinity-regulating kinase 2 (Mark2), mRNA [NM_007928]
A_51_P333060	2.93	0.0184	NM_148948	NM_148948	Mus musculus Dicer1, Dcr-1 homolog (Drosophila) (Dicer1), mRNA [NM_148948]
A_52_P1028125	2.929	0.0373	AK037378	AK037378	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130012M03 product:unclassifiable, full insert sequence. [AK037378]
A_52_P38228	2.929	0.00911	NM_029466	NM_029466	Mus musculus ADP-ribosylation factor-like 8 (Arl8), mRNA [NM_029466]
A_51_P439612	2.928	0.0368	NM_020266	NM_020266	Mus musculus DnaJ (Hsp40) homolog, subfamily B, member 10 (Dnajb10), transcript variant 1, mRNA [NM_020266]
A_51_P392967	2.926	0.0477	NM_053253	NM_053253	Mus musculus zinc finger, MYND domain containing 10 (Zmynd10), mRNA [NM_053253]
A_52_P1131754	2.925	0.0172	AK045806	AK045806	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230311M15 product:unclassifiable, full insert sequence. [AK045806]
A_51_P475672	2.924	0.0239	BC051230	BC051230	Mus musculus, clone IMAGE:3472087, mRNA. [BC051230]
A_52_P31687	2.921	0.0332	NM_011263	NM_011263	Mus musculus RE1-silencing transcription factor (Rest), mRNA [NM_011263]
A_51_P426994	2.918	0.0491	NM_153591	NM_153591	Mus musculus expressed sequence AI875199 (AI875199), mRNA [NM_153591]
A_52_P355889	2.918	0.0214	XM_145254	XM_145254	PREDICTED: RIKEN cDNA A630082K20 gene [Mus musculus], mRNA sequence [XM_145254]
A_51_P297984	2.915	0.015	BC049362	BC049362	Mus musculus RIKEN cDNA 2310021P13 gene, mRNA (cDNA clone MGC:57092 IMAGE:6489956), complete cds. [BC049362]
A_52_P676956	2.912	0.0402	NM_054096	NM_054096	Mus musculus toll-interleukin 1 receptor (TIR) domain-containing adaptor protein (Tirap), mRNA [NM_054096]
A_52_P279068	2.907	0.0271	NM_026367	NM_026367	Mus musculus G patch domain containing 2 (Gpatc2), mRNA [NM_026367]
A_51_P246924	2.902	0.0168	NM_026481	NM_026481	Mus musculus RIKEN cDNA 2700055K07 gene (2700055K07Rik), mRNA [NM_026481]
A_52_P176245	2.902	0.0362	NM_010258	NM_010258	Mus musculus GATA binding protein 6 (Gata6), mRNA [NM_010258]
A_51_P270286	2.901	0.0321	NM_146229	NM_146229	Mus musculus dynein, cytoplasmic, light intermediate chain 1 (Dnclic1), mRNA [NM_146229]
A_52_P438188	2.899	0.00864	NM_010587	NM_010587	Mus musculus intersectin 1 (SH3 domain protein 1A) (Itsn1), mRNA [NM_010587]
A_51_P332169	2.898	0.0459	NM_173390	NM_173390	Mus musculus NHS-like 1 (Nhsl1), mRNA [NM_173390]
A_52_P254231	2.898	0.0302	NM_153566	NM_153566	Mus musculus cDNA sequence BC023823 (BC023823), mRNA [NM_153566]
A_51_P200291	2.895	0.0217	NM_008146	NM_008146	Mus musculus golgi autoantigen, golgin subfamily a, 3 (Golga3), mRNA [NM_008146]
A_51_P371174	2.894	0.0426	NM_013863	NM_013863	Mus musculus Bcl2-associated athanogene 3 (Bag3), mRNA [NM_013863]
A_51_P175424	2.893	0.0147	NM_011797	NM_011797	Mus musculus carbonic anhydrase 14 (Car14), mRNA [NM_011797]
A_51_P365189	2.893	0.0193	NM_133990	NM_133990	Mus musculus interleukin 13 receptor, alpha 1 (Il13ra1), mRNA [NM_133990]
A_52_P883941	2.89	0.0231	AK048677	AK048677	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230002J17 product:unknown EST, full insert sequence [AK048677]
A_51_P495331	2.887	0.0328	XM_130232	XM_130232	PREDICTED: nebulin [Mus musculus], mRNA sequence [XM_130232]
A_51_P332717	2.886	0.0287	NM_011673	NM_011673	Mus musculus UDP-glucose ceramide glucosyltransferase (Ugcg), mRNA [NM_011673]
A_52_P627631	2.886	0.0285	XM_130753	XM_130753	PREDICTED: similar to Pim2 protein [Mus musculus], mRNA sequence [XM_130753]
A_51_P193336	2.885	0.0438	NM_016773	NM_016773	Mus musculus nucleobindin 2 (Nucb2), mRNA [NM_016773]
A_51_P484832	2.883	0.0203	NM_008014	NM_008014	Mus musculus protein phosphatase 1G (formerly 2C), magnesium-dependent, gamma isoform (Ppm1g), mRNA [NM_008014]
A_52_P504302	2.883	0.0275	NM_173180	NM_173180	Mus musculus peptidase (mitochondrial processing) alpha (Pmpca), mRNA [NM_173180]

A_51_P386189	2.882	0.0168	NM_016788	NM_016788	Mus musculus tyrosine kinase, non-receptor, 2 (Tnk2), mRNA [NM_016788]
A_51_P431046	2.882	0.0148	NM_009182	NM_009182	Mus musculus ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 3 (St8sia3), mRNA [NM_009182]
A_52_P279579	2.881	0.0196	NM_175521	NM_175521	Mus musculus RIKEN cDNA 6430598A04 gene (6430598A04Rik), mRNA [NM_175521]
A_51_P362566	2.88	0.0169	XM_127084	XM_127084	PREDICTED: thyroid hormone receptor interactor 11 [Mus musculus], mRNA sequence [XM_127084]
A_52_P162695	2.878	0.0174	NM_027514	NM_027514	Mus musculus poliovirus receptor (Pvr), mRNA [NM_027514]
A_51_P416689	2.877	0.0332	NM_010162	NM_010162	Mus musculus exostoses (multiple) 1 (Ext1), mRNA [NM_010162]
A_51_P427663	2.877	0.0404	NM_007725	NM_007725	Mus musculus calponin 2 (Cnn2), mRNA [NM_007725]
A_52_P437363	2.877	0.0148	AK004785	AK004785	Mus musculus adult male lung cDNA, RIKEN full-length enriched library, clone:1200015F06 product:myosin phosphatase, target subunit 1, full insert sequence. [AK004785]
A_51_P228295	2.875	0.0168	NM_001001880	NM_0010018	Mus musculus myelin protein zero-like 1 (Mpzl1), mRNA [NM_001001880]
A_52_P164570	2.872	0.0184	AK076088	AK076088	Mus musculus 10, 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2810004A21 product:hydroxysteroid (17-beta) dehydrogenase 12, full insert sequence. [AK076088]
A_51_P243695	2.868	0.00891	NM_153538	NM_153538	Mus musculus zinc finger, CCHC domain containing 6 (Zcchc6), mRNA [NM_153538]
A_52_P655663	2.867	0.0101	NM_010376	NM_010376	Mus musculus histocompatibility 13 (H13), mRNA [NM_010376]
A_51_P444447	2.866	0.043	NM_007679	NM_007679	Mus musculus CCAAT/enhancer binding protein (C/EBP), delta (Cebpd), mRNA [NM_007679]
A_52_P14342	2.863	0.05	BC082597	BC082597	Mus musculus RIKEN cDNA D930016D06 gene, mRNA (cDNA clone IMAGE:30636965) [BC082597]
A_52_P218369	2.862	0.0215	BC070412	BC070412	Mus musculus diaphanous homolog 1 (Drosophila), mRNA (cDNA clone MGC:86169 IMAGE:5705112), complete cds [BC070412]
A_52_P236883	2.86	0.0239	AK045715	AK045715	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230307D21 product:unknown EST, full insert sequence. [AK045715]
A_51_P246166	2.859	0.0101	NM_007969	NM_007969	Mus musculus extracellular proteinase inhibitor (Expi), mRNA [NM_007969]
A_52_P64707	2.859	0.017	NM_008260	NM_008260	Mus musculus forkhead box A3 (Foxa3), mRNA [NM_008260]
A_51_P255817	2.858	0.0151	NM_016741	NM_016741	Mus musculus scavenger receptor class B, member 1 (Scarb1), mRNA [NM_016741]
A_52_P512110	2.855	0.0279	XM_125687	XM_125687	PREDICTED: Mus musculus RIKEN cDNA D130073L02 gene (D130073L02Rik), mRNA [XM_125687]
A_52_P386979	2.854	0.0215	NM_054043	NM_054043	Mus musculus Musashi homolog 2 (Drosophila) (Msi2h), mRNA [NM_054043]
A_52_P947847	2.853	0.0213	AK041062	AK041062	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530076D18 product:unclassifiable, full insert sequence [AK041062]
A_52_P220879	2.852	0.0353	NM_009373	NM_009373	Mus musculus transglutaminase 2, C polypeptide (Tgm2), mRNA [NM_009373]
A_51_P152826	2.85	0.0344	NM_025872	NM_025872	Mus musculus golgi transport 1 homolog B (S. cerevisiae) (Golt1b), mRNA [NM_025872]
A_52_P706621	2.85	0.0368	AK017449	AK017449	Mus musculus 10 days neonate head cDNA, RIKEN full-length enriched library, clone:5530402M19 product:unknown EST, full insert sequence [AK017449]
A_51_P240903	2.848	0.0406	BC055076	BC055076	Mus musculus tensin 1, mRNA (cDNA clone MGC:60428 IMAGE:30055111), complete cds. [BC055076]
A_51_P380165	2.848	0.0252	NM_029337	NM_029337	Mus musculus E1A binding protein p400 (Ep400), mRNA [NM_029337]
A_51_P157537	2.847	0.0198	NM_178907	NM_178907	Mus musculus mitogen-activated protein kinase-activated protein kinase 3 (Mapkapk3), mRNA [NM_178907]
A_51_P409985	2.846	0.0262	NM_026577	NM_026577	Mus musculus ADP-ribosylation factor-like 2-like 1 (Arl2l1), mRNA [NM_026577]
A_51_P166762	2.844	0.0147	NM_011192	NM_011192	Mus musculus proteaseome (prosome, macropain) 28 subunit, 3 (Psme3), mRNA [NM_011192]
A_52_P86892	2.844	0.0287	NM_175024	NM_175024	Mus musculus RIKEN cDNA G630049C14 gene (G630049C14Rik), mRNA [NM_175024]
A_52_P406134	2.841	0.0163	AK083037	AK083037	Mus musculus 12 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:C530036C11 product:cyclin T1, full insert sequence. [AK083037]
A_51_P368332	2.84	0.0464	NM_011729	NM_011729	Mus musculus excision repair cross-complementing rodent repair deficiency, complementation group 5 (Ercc5), mRNA [NM_011729]
A_51_P449935	2.84	0.0262	NM_025310	NM_025310	Mus musculus FtsJ homolog 3 (E. coli) (Ftsj3), mRNA [NM_025310]
A_52_P470586	2.84	0.0474	NAP027971-1		
A_51_P468381	2.838	0.0134	NM_011221	NM_011221	Mus musculus purine rich element binding protein B (Purb), mRNA [NM_011221]
A_52_P76426	2.837	0.0122	BB533880	BB533880	BB533880 RIKEN full-length enriched, 0 day neonate lung Mus musculus cDNA clone E030032G20 3'. [BB533880]
A_51_P153063	2.835	0.0387	NM_029310	NM_029310	Mus musculus RIKEN cDNA 1700008G05 gene (1700008G05Rik), mRNA [NM_029310]
A_51_P513600	2.831	0.0156	NM_001026212	NM_0010262	Mus musculus endosulfine alpha (Ensa), transcript variant 2, mRNA [NM_001026212]
A_51_P264781	2.829	0.0318	5730553K21		5'-AMP-ACTIVATED PROTEIN KINASE, BETA-2 SUBUNIT (AMPK BETA-2 CHAIN) homolog [Rattus norvegicus] [5730553K21]
A_51_P418650	2.828	0.0401	NM_181403	NM_181403	Mus musculus RIKEN cDNA 5730409F24 gene (5730409F24Rik), mRNA [NM_181403]
A_52_P407239	2.828	0.0077	NM_011085	NM_011085	Mus musculus phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 1 (p85 alpha) (Pik3r1), transcript variant 2, mRNA [NM_011085]
A_52_P444785	2.828	0.0174	NM_201369	NM_201369	Mus musculus cDNA sequence BC037393 (BC037393), mRNA [NM_201369]
A_52_P540085	2.828	0.012	NM_011247	NM_011247	Mus musculus retinoblastoma binding protein 6 (Rbbp6), transcript variant 1, mRNA [NM_011247]
A_51_P364432	2.826	0.014	NM_024256	NM_024256	Mus musculus beta-1,3-glucuronyltransferase 3 (glucuronosyltransferase I) (B3gat3), mRNA [NM_024256]
A_51_P472659	2.826	0.0182	NM_026169	NM_026169	Mus musculus RIKEN cDNA 1200004M23 gene (1200004M23Rik), mRNA [NM_026169]
A_51_P343663	2.825	0.013	NM_019472	NM_019472	Mus musculus myosin X (Myo10), mRNA [NM_019472]
A_51_P510437	2.825	0.0167	NM_011017	NM_011017	Mus musculus solute carrier family 25 (mitochondrial carrier ornithine transporter), member 15 (Slc25a15), mRNA [NM_011017]
A_51_P118902	2.824	0.0415	NM_008551	NM_008551	Mus musculus MAP kinase-activated protein kinase 2 (Mapkapk2), mRNA [NM_008551]
A_52_P495514	2.824	0.0139	NM_153808	NM_153808	Mus musculus SMC5 structural maintenance of chromosomes 5-like 1 (yeast) (Smc5l1), mRNA [NM_153808]
A_52_P537466	2.824	0.0208	NM_145600	NM_145600	Mus musculus zinc finger protein 330 (Zfp330), mRNA [NM_145600]
A_52_P451300	2.823	0.0203	NM_033565	NM_033565	Mus musculus AF4/FMR2 family, member 4 (Aff4), mRNA [NM_033565]
A_52_P566867	2.823	0.0252	AK080820	AK080820	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230313B18 product:B-cell leukemia [AK080820]
A_52_P216311	2.822	0.0288	BC040101	BC040101	Mus musculus, Similar to afadin, clone IMAGE:4502283, mRNA. [BC040101]
A_51_P145376	2.821	0.0436	NM_001025613	NM_0010256	Mus musculus zinc finger, A20 domain containing 1 (Za20d1), transcript variant 1, mRNA [NM_001025613]
A_52_P152476	2.82	0.0295	NM_029546	NM_029546	Mus musculus PWP2 (periodic tryptophan protein) homolog, yeast (Pwp2h), mRNA [NM_029546]
A_52_P739682	2.817	0.0177	AK084329	AK084329	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230024G05 product:unclassifiable, full insert sequence. [AK084329]
A_52_P244	2.816	0.0352	AK017440	AK017440	Mus musculus 10 days neonate head cDNA, RIKEN full-length enriched library, clone:5530401N18 product:unknown EST, full insert sequence. [AK017440]
A_52_P17635	2.815	0.0349	BC024923	BC024923	Mus musculus RIKEN cDNA 1810006K21 gene, mRNA (cDNA clone MGC:28215 IMAGE:3990436), complete cds. [BC024923]
A_52_P68107	2.812	0.045	NM_012051	NM_012051	Mus musculus ets variant gene 3 (Etv3), mRNA [NM_012051]
A_51_P489153	2.811	0.0398	NM_023733	NM_023733	Mus musculus carnitine O-octanoyltransferase (Crot), mRNA [NM_023733]
A_51_P309338	2.81	0.018	NM_021022	NM_021022	Mus musculus ATP-binding cassette, sub-family B (MDR/TAP), member 11 (Abcb11), mRNA [NM_021022]
A_51_P229280	2.808	0.0122	X17373	X17373	M.musculus mRNA for centrosomin A. [X17373]
A_52_P481221	2.808	0.0213	XM_127674	XM_127674	PREDICTED: hypothetical protein LOC75698 [Mus musculus], mRNA sequence [XM_127674]
A_52_P282171	2.807	0.0155	NM_011445	NM_011445	Mus musculus SRY-box containing gene 6 (Sox6), transcript variant 1, mRNA [NM_011445]
A_52_P683306	2.806	0.0272	NM_146084	NM_146084	Mus musculus RIKEN cDNA 2610024E20 gene (2610024E20Rik), mRNA [NM_146084]
A_52_P134874	2.801	0.0258	AK050638	AK050638	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:C920026L21 product:hypothetical RING finger containing protein, full insert sequence. [AK050638]
A_52_P240659	2.8	0.034	NM_153413	NM_153413	Mus musculus dedicator of cyto-kinesis 3 (Dock3), mRNA [NM_153413]
A_51_P242634	2.799	0.0293	NM_130447	NM_130447	Mus musculus dual specificity phosphatase 16 (Dusp16), transcript variant 1, mRNA [NM_130447]
A_51_P516705	2.799	0.0167	NM_023913	NM_023913	Mus musculus endoplasmic reticulum (ER) to nucleus signalling 1 (Ern1), mRNA [NM_023913]
A_52_P331911	2.797	0.0291	NM_010120	NM_010120	Mus musculus eukaryotic translation initiation factor 1A (Eif1a), mRNA [NM_010120]
A_52_P475886	2.797	0.0122	NM_001024952	NM_0010249	Mus musculus RING CCCH (C3H) domains 1 (Rc3h1), mRNA [NM_001024952]
A_52_P443435	2.794	0.0208	NM_177121	NM_177121	Mus musculus RIKEN cDNA B930095G15 gene (B930095G15Rik), mRNA [NM_177121]
A_51_P117618	2.793	0.0364	NM_023154	NM_023154	Mus musculus ethylmalonic encephalopathy 1 (Ethe1), mRNA [NM_023154]
A_52_P634607	2.791	0.0108	NAP047296-1		
A_52_P1067	2.789	0.0245	AK089821	AK089821	Mus musculus activated spleen cDNA, RIKEN full-length enriched library, clone:F830028O17 product:unknown EST, full insert sequence [AK089821]
A_51_P125691	2.788	0.0415	NM_028023	NM_028023	Mus musculus cell division cycle associated 4 (Cdca4), mRNA [NM_028023]
A_52_P1165070	2.787	0.00407	AI549825	AI549825	ve82c04.y1 Soares_mammary_gland_NbMMG Mus musculus cDNA clone IMAGE:832710 5'. [AI549825]
A_52_P12283	2.786	0.0473	NM_026201	NM_026201	Mus musculus cell division cycle and apoptosis regulator 1 (Ccar1), mRNA [NM_026201]
A_52_P460050	2.786	0.0171	TC1483835		Q6P8V1 (Q6P8V1) D17Ertd288e protein, partial (82%) [TC1483835]
A_51_P248044	2.785	0.0159	NM_008483	NM_008483	Mus musculus laminin, beta 2 (Lamb2), mRNA [NM_008483]
A_52_P95387	2.784	0.0449	TC1467241		AF060089 proteasome subunit C8 {Mus musculus;} , partial (13%) [TC1467241]
A_52_P358388	2.783	0.025	NM_182939	NM_182939	Mus musculus protein phosphatase 4, regulatory subunit 2 (Ppp4r2), mRNA [NM_182939]

A_52_P489193	2.779	0.0328	NM_026131	NM_026131	Mus musculus PDZ and LIM domain 7 (Pdlim7), mRNA [NM_026131]
A_52_P979258	2.778	0.012	AK088509	AK088509	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430019C17 product:unknown EST, full insert sequence. [AK088509]
A_51_P152873	2.776	0.0271	NM_207670	NM_207670	Mus musculus GRIP1 associated protein 1 (Gripap1), mRNA [NM_207670]
A_52_P435118	2.776	0.0127	NM_146258	NM_146258	Mus musculus serologically defined colon cancer antigen 13 (Stard13), mRNA [NM_146258]
A_52_P747671	2.776	0.0424	AK085431	AK085431	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630024M05 product:unknown EST, full insert sequence [AK085431]
A_51_P500996	2.775	0.00849	XM_126674	XM_126674	PREDICTED: F-box protein FBL2 [Mus musculus], mRNA sequence [XM_126674]
A_52_P137331	2.775	0.00737	AK037934	AK037934	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130065C03 product:similar to UDP-GLUCURONIC ACID [AK037934]
A_52_P569958	2.775	0.017	XM_485285	XM_485285	PREDICTED: Mus musculus similar to myomegalin (LOC433631), mRNA [XM_485285]
A_51_P503192	2.773	0.0122	NM_175402	NM_175402	Mus musculus RNA binding motif protein 15B (Rbm15b), mRNA [NM_175402]
A_52_P545512	2.773	0.0495	AK086995	AK086995	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030018P04 product:unknown EST, full insert sequence. [AK086995]
A_52_P264318	2.771	0.0163	TC1477251		
A_52_P223508	2.77	0.0311	AK081581	AK081581	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130046P11 product:unknown EST, full insert sequence. [AK081581]
A_52_P1156757	2.768	0.0118	AK087207	AK087207	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030034G19 product:unknown EST, full insert sequence. [AK087207]
A_51_P341369	2.767	0.0481	NM_025861	NM_025861	Mus musculus PQ loop repeat containing 1 (Pqlc1), mRNA [NM_025861]
A_52_P568805	2.767	0.00579	NM_146093	NM_146093	Mus musculus DNA segment, Chr 19, ERATO Doi 721, expressed (D19Ertd721e), mRNA [NM_146093]
A_52_P345616	2.766	0.0245	NM_030197	NM_030197	Mus musculus RIKEN cDNA 2700078E11 gene (2700078E11Rik), mRNA [NM_030197]
A_51_P314363	2.765	0.0379	AK084643	AK084643	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330024O10 product:unclassifiable, full insert sequence. [AK084643]
A_52_P280899	2.765	0.0111	NM_028866	NM_028866	Mus musculus WD repeat domain 33 (Wdr33), mRNA [NM_028866]
A_51_P235816	2.764	0.0416	AF024519	AF024519	Mus musculus glucocorticoid-induced leucine zipper GILZ protein mRNA, complete cds. [AF024519]
A_51_P359137	2.764	0.0155	NM_021791	NM_021791	Mus musculus double C2, gamma (Doc2g), mRNA [NM_021791]
A_52_P135424	2.764	0.00646	AK032599	AK032599	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430630B04 product:serine/arginine repetitive matrix 1, full insert sequence. [AK032599]
A_52_P686091	2.764	0.00849	NM_011078	NM_011078	Mus musculus PHD finger protein 2 (Phf2), mRNA [NM_011078]
A_51_P297900	2.763	0.0242	NM_009306	NM_009306	Mus musculus synaptotagmin I (Syt1), mRNA [NM_009306]
A_52_P463109	2.763	0.0464	NM_053086	NM_053086	Mus musculus nucleolar and coiled-body phosphoprotein 1 (Nolc1), mRNA [NM_053086]
A_52_P586671	2.761	0.00986	NM_172518	NM_172518	Mus musculus F-box protein 42 (Fbxo42), mRNA [NM_172518]
A_52_P601980	2.761	0.0172	NM_152895	NM_152895	Mus musculus jumonji, AT rich interactive domain 1B (Rbp2 like) (Jarid1b), mRNA [NM_152895]
A_52_P200703	2.758	0.0197	NM_029078	NM_029078	Mus musculus RIKEN cDNA 2500001H09 gene (2500001H09Rik), mRNA [NM_029078]
A_52_P414267	2.758	0.024	BC065119	BC065119	Mus musculus RIKEN cDNA B930007L02 gene, mRNA (cDNA clone MGC:86055 IMAGE:6853519), complete cds. [BC065119]
A_51_P319917	2.756	0.0049	NM_007403	NM_007403	Mus musculus a disintegrin and metalloprotease domain 8 (Adam8), mRNA [NM_007403]
A_52_P381147	2.756	0.0403	NM_175127	NM_175127	Mus musculus F-box protein 28 (Fbxo28), mRNA [NM_175127]
A_52_P381484	2.753	0.0159	NM_133903	NM_133903	Mus musculus spondin 2, extracellular matrix protein (Spon2), mRNA [NM_133903]
A_52_P650215	2.753	0.0101	NM_029278	NM_029278	Mus musculus RIKEN cDNA 2610033H07 gene (2610033H07Rik), mRNA [NM_029278]
A_52_P245911	2.752	0.0459	NAP123224-1		
A_52_P581440	2.752	0.00765	NM_153423	NM_153423	Mus musculus WAS protein family, member 2 (Wasf2), mRNA [NM_153423]
A_51_P465409	2.751	0.0123	XM_110671	XM_110671	PREDICTED: myeloid [XM_110671]
A_52_P113126	2.751	0.0223	AK035288	AK035288	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530010F14 product:DnaJ (Hsp40) homolog, subfamily C, member 5, full insert sequence. [AK035288]
A_52_P520720	2.749	0.0275	AK089002	AK089002	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430035E23 product:hypothetical protein, full insert sequence. [AK089002]
A_51_P170346	2.748	0.00849	BC021356	BC021356	Mus musculus RIKEN cDNA 5830417I10 gene, mRNA (cDNA clone IMAGE:5012813), containing frame-shift errors. [BC021356]
A_52_P387818	2.748	0.0248	NM_019787	NM_019787	Mus musculus SEC23B (S. cerevisiae) (Sec23b), mRNA [NM_019787]
A_52_P676552	2.748	0.0354	AK029311	AK029311	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4832420A03 product:unknown EST, full insert sequence [AK029311]
A_52_P188338	2.745	0.0209	NM_134097	NM_134097	Mus musculus topoisomerase I binding, arginine/serine-rich (Topors), mRNA [NM_134097]
A_52_P115996	2.743	0.0334	AK050208	AK050208	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730026O12 product:similar to THYROID HORMONE RECEPTOR-ASSOCIATED PROTEIN COMPLEX COMPONENT TRAP150 [Homo sapiens], full insert sequence [AK050208]
A_52_P293013	2.742	0.0326	AK050344	AK050344	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730039N23 product:hypothetical protein, full insert sequence [AK050344]
A_52_P288750	2.741	0.0047	NM_001025605	NM_0010256	Mus musculus gene model 527, (NCBI) (Gm527), mRNA [NM_001025605]
A_51_P452629	2.739	0.0108	NM_011905	NM_011905	Mus musculus toll-like receptor 2 (Tlr2), mRNA [NM_011905]
A_52_P577853	2.739	0.0451	NM_177239	NM_177239	Mus musculus RIKEN cDNA C130067A03 gene (C130067A03Rik), mRNA [NM_177239]
A_52_P597800	2.739	0.0309	NM_007961	NM_007961	Mus musculus ets variant gene 6 (TEL oncogene) (Etv6), mRNA [NM_007961]
A_51_P214423	2.737	0.0146	BC049153	BC049153	Mus musculus RIKEN cDNA 2610024B07 gene, mRNA (cDNA clone IMAGE:6312095), partial cds [BC049153]
A_52_P19446	2.737	0.0308	AK079680	AK079680	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430010P18 product:5phosphorylase kinase, gamma 2 (testis), full insert sequence. [AK079680]
A_51_P140093	2.736	0.0266	NM_146018	NM_146018	Mus musculus folliculin (Flcn), mRNA [NM_146018]
A_52_P146485	2.735	0.0115	XM_484041	XM_484041	PREDICTED: chromodomain helicase DNA binding protein 3 [Mus musculus], mRNA sequence [XM_484041]
A_52_P973470	2.735	0.0115	TC1433510		
A_52_P581454	2.734	0.0162	NM_008847	NM_008847	Mus musculus phosphatidylinositol-4-phosphate 5-kinase, type 1 beta (Pip5k1b), mRNA [NM_008847]
A_51_P423085	2.73	0.031	NM_001004141	NM_0010041	Mus musculus cytochrome P450, family 2, subfamily j, polypeptide 11 (Cyp2j11), mRNA [NM_001004141]
A_52_P654148	2.729	0.0488	BC050924	BC050924	Mus musculus zinc finger protein 262, mRNA (cDNA clone IMAGE:6410695), partial cds [BC050924]
A_51_P460420	2.727	0.0487	BC085127	BC085127	Mus musculus hepatitis B virus x associated protein, mRNA (cDNA clone MGC:90806 IMAGE:6853428), complete cds. [BC085127]
A_51_P187716	2.726	0.0219	AK003350	AK003350	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1110003F06 product:unclassifiable, full insert sequence. [AK003350]
A_52_P301935	2.723	0.0369	XM_358706	XM_358706	PREDICTED: similar to hypothetical protein MGC34923 [Mus musculus], mRNA sequence [XM_358706]
A_51_P441979	2.721	0.0156	NM_008847	NM_008847	Mus musculus phosphatidylinositol-4-phosphate 5-kinase, type 1 beta (Pip5k1b), mRNA [NM_008847]
A_51_P458428	2.721	0.0426	NM_138606	NM_138606	Mus musculus proviral integration site 2 (Pim2), transcript variant 1, mRNA [NM_138606]
A_51_P312095	2.72	0.0444	BC028270	BC028270	Mus musculus AP2 associated kinase 1, mRNA (cDNA clone MGC:40785 IMAGE:5367262), complete cds. [BC028270]
A_52_P482849	2.718	0.0308	XM_618787	XM_618787	PREDICTED: Mus musculus RIKEN cDNA 2510012J08 gene (2510012J08Rik), mRNA [XM_618787]
A_51_P299216	2.717	0.00442	BC043315	BC043315	Mus musculus RIKEN cDNA 3230401M21 gene, mRNA (cDNA clone MGC:49340 IMAGE:5320618), complete cds. [BC043315]
A_51_P356425	2.717	0.0245	NM_009833	NM_009833	Mus musculus cyclin T1 (Ccnt1), mRNA [NM_009833]
A_51_P456466	2.716	0.0416	NM_021455	NM_021455	Mus musculus Williams-Beuren syndrome chromosome region 14 homolog (human) (Wbscr14), mRNA [NM_021455]
A_52_P51548	2.715	0.0354	AK037015	AK037015	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930038C16 product:par-3 (partitioning defective 3) homolog (C. elegans), full insert sequence. [AK037015]
A_51_P386304	2.714	0.0224	NM_018856	NM_018856	Mus musculus cyclin L2 (Ccnl2), transcript variant 2, mRNA [NM_018856]
A_52_P600518	2.713	0.0209	NM_010286	NM_010286	Mus musculus TSC22 domain family 3 (Tsc22d3), mRNA [NM_010286]
A_51_P428977	2.711	0.0321	BC023444	BC023444	Mus musculus cDNA clone MGC:32491 IMAGE:5053834, complete cds. [BC023444]
A_52_P438530	2.711	0.0451	NM_013852	NM_013852	Mus musculus ATP-binding cassette, sub-family F (GCN20), member 3 (Abcf3), mRNA [NM_013852]
A_52_P193429	2.708	0.0122	AK021360	AK021360	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930013B13 product:unknown EST, full insert sequence. [AK021360]
A_52_P472936	2.707	0.0369	BC048817	BC048817	Mus musculus RIKEN cDNA A730098D12 gene, mRNA (cDNA clone MGC:54931 IMAGE:3600898), complete cds. [BC048817]
A_51_P316616	2.706	0.022	NM_174992	NM_174992	Mus musculus cDNA sequence BC004728 (BC004728), mRNA [NM_174992]
A_52_P616047	2.705	0.0184	NM_009457	NM_009457	Mus musculus ubiquitin-activating enzyme E1, Chr X (Ube1x), mRNA [NM_009457]
A_51_P359272	2.703	0.0477	NM_009655	NM_009655	Mus musculus activated leukocyte cell adhesion molecule (Alcam), mRNA [NM_009655]
A_52_P867663	2.703	0.0404	AK029601	AK029601	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930412D03 product:unknown EST, full insert sequence. [AK029601]
A_51_P347467	2.702	0.0213	NM_028276	NM_028276	Mus musculus UTP14, U3 small nucleolar ribonucleoprotein, homolog A (yeast) (Utp14a), mRNA [NM_028276]
A_51_P438028	2.702	0.0349	AK020011	AK020011	Mus musculus adult male thymus cDNA, RIKEN full-length enriched library, clone:5830415L20 product:hypothetical Serine-rich region/Lysine-rich region containing protein, full insert sequence. [AK020011]
A_52_P622874	2.702	0.0293	NM_177133	NM_177133	Mus musculus RIKEN cDNA E330018D03 gene (E330018D03Rik), mRNA [NM_177133]
A_52_P762901	2.702	0.0485	AK038254	AK038254	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130090I05 product:unclassifiable, full insert sequence. [AK038254]
A_51_P320190	2.701	0.0162	XM_128010	XM_128010	PREDICTED: Mus musculus RIKEN cDNA 1500031N24 gene (1500031N24Rik), mRNA [XM_128010]
A_52_P367675	2.701	0.0111	NM_023190	NM_023190	Mus musculus apoptotic chromatin condensation inducer 1 (Acin1), transcript variant 2, mRNA [NM_023190]
A_51_P443482	2.7	0.0358	NM_146130	NM_146130	Mus musculus heterogeneous nuclear ribonucleoprotein A3 (Hnrpa3), transcript variant b, mRNA [NM_146130]

A_52_P574214	2.7	0.0403	NM_028244	NM_028244	Mus musculus RIKEN cDNA 2600005C20 gene (2600005C20Rik), mRNA [NM_028244]
A_52_P35240	2.699	0.0465	NM_178598	NM_178598	Mus musculus transgelin 2 (Tagln2), mRNA [NM_178598]
A_51_P394383	2.697	0.00726	BC004722	BC004722	Mus musculus RIKEN cDNA 2210401K01 gene, mRNA (cDNA clone IMAGE:3582796), partial cds [BC004722]
A_51_P296249	2.69	0.0406	NM_010226	NM_010226	Mus musculus forkhead-like 18 (Drosophila) (Fkhl18), mRNA [NM_010226]
A_52_P556602	2.69	0.00717	TC1533758		Q6PD54 (Q6PD54) XTP2 protein (Fragment), partial (4%) [TC1533758]
A_51_P228574	2.689	0.0217	NM_146214	NM_146214	Mus musculus tyrosine aminotransferase (Tat), mRNA [NM_146214]
A_52_P279143	2.689	0.0406	NM_019553	NM_019553	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 21 (Ddx21), mRNA [NM_019553]
A_51_P449956	2.688	0.0349	NM_019795	NM_019795	Mus musculus DnaJ (Hsp40) homolog, subfamily C, member 7 (Dnajc7), mRNA [NM_019795]
A_52_P91346	2.688	0.026	NM_027696	NM_027696	Mus musculus RIKEN cDNA 4933425I22 gene (4933425I22Rik), mRNA [NM_027696]
A_51_P309501	2.687	0.0203	NM_138602	NM_138602	Mus musculus PRA1 domain family 2 (Praf2), mRNA [NM_138602]
A_52_P1131666	2.687	0.0278	AK079436	AK079436	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930020G10 product:unclassifiable, full insert sequence. [AK079436]
A_51_P163233	2.684	0.0357	NM_028814	NM_028814	Mus musculus RIKEN cDNA 2810403A07 gene (2810403A07Rik), mRNA [NM_028814]
A_52_P177593	2.684	0.0126	BC065119	BC065119	Mus musculus RIKEN cDNA B930007L02 gene, mRNA (cDNA clone MGC:86055 IMAGE:6853519), complete cds. [BC065119]
A_51_P135322	2.682	0.0279	NM_019478	NM_019478	Mus musculus polyglutamine binding protein 1 (Pqbp1), mRNA [NM_019478]
A_51_P277884	2.682	0.0359	NM_010120	NM_010120	Mus musculus eukaryotic translation initiation factor 1A (Eif1a), mRNA [NM_010120]
A_52_P574527	2.682	0.0219	AK129313	AK129313	Mus musculus mRNA for mKIAA1227 protein [AK129313]
A_52_P126266	2.681	0.0186	NM_182997	NM_182997	Mus musculus protein kinase, AMP-activated, beta 2 non-catalytic subunit (Prkab2), mRNA [NM_182997]
A_51_P189343	2.679	0.0308	NM_144941	NM_144941	Mus musculus proline arginine rich coiled coil 1 (Parcc1), mRNA [NM_144941]
A_51_P193813	2.679	0.0392	NM_010196	NM_010196	Mus musculus fibrinogen, alpha polypeptide (Fga), mRNA [NM_010196]
A_51_P431916	2.678	0.0146	NM_011551	NM_011551	Mus musculus upstream binding transcription factor, RNA polymerase I (Ubtf), mRNA [NM_011551]
A_52_P218590	2.678	0.0274	TC1417713		
A_52_P18897	2.677	0.0135	NM_153787	NM_153787	Mus musculus BCL2-associated transcription factor 1 (Bclaf1), transcript variant 2, mRNA [NM_153787]
A_52_P281879	2.676	0.0117	NM_011551	NM_011551	Mus musculus upstream binding transcription factor, RNA polymerase I (Ubtf), mRNA [NM_011551]
A_52_P139217	2.673	0.0368	ENSMUST00000058512		
A_52_P495553	2.673	0.0167	XM_485202	XM_485202	PREDICTED: zinc finger and BTB domain containing 10 [Mus musculus], mRNA sequence [XM_485202]
A_52_P100222	2.672	0.00634	AK083989	AK083989	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130073K11 product:PROTEASOME (PROSOME, MACROPAIN) 26S SUBUNIT, ATPASE 2, full insert sequence. [AK083989]
A_51_P249348	2.671	0.0494	NM_153125	NM_153125	Mus musculus expressed sequence AU024582 (AU024582), mRNA [NM_153125]
A_52_P80548	2.67	0.0182	XM_283936	XM_283936	PREDICTED: hypothetical protein LOC66625 [Mus musculus], mRNA sequence [XM_283936]
A_51_P159552	2.669	0.028	AK173005	AK173005	Mus musculus premature mRNA for mKIAA0700 protein [AK173005]
A_51_P241269	2.669	0.0426	NM_009610	NM_009610	Mus musculus actin, gamma 2, smooth muscle, enteric (Actg2), mRNA [NM_009610]
A_51_P494775	2.669	0.0147	NM_198023	NM_198023	Mus musculus REST corepressor 1 (Rcor1), mRNA [NM_198023]
A_52_P634122	2.669	0.0293	NM_178383	NM_178383	Mus musculus transcription elongation factor B polypeptide 3 binding protein 1 (Tceb3bp1), transcript variant 2, mRNA [NM_178383]
A_52_P682341	2.669	0.0426	AK082101	AK082101	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230007H05 product:MEMBRANE-ASSOCIATED GUANYLATE KINASE-RELATED MAGI-3 homolog [Mus musculus], full insert sequence. [AK082101]
A_52_P102115	2.668	0.0109	AK013994	AK013994	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110004O05 product:cofilin 2, muscle, full insert sequence. [AK013994]
A_52_P727235	2.668	0.0436	XM_149459	XM_149459	PREDICTED: Mus musculus similar to protein of bilaterial origin like (XP376) (LOC230628), mRNA [XM_149459]
A_51_P157866	2.667	0.0121	NM_009832	NM_009832	Mus musculus cyclin K (Ccnk), mRNA [NM_009832]
A_51_P496162	2.667	0.0272	NM_008295	NM_008295	Mus musculus hydroxysteroid dehydrogenase-5, delta<5>-3-beta (Hsd3b5), mRNA [NM_008295]
A_52_P221900	2.667	0.0377	NM_177325	NM_177325	Mus musculus expressed sequence AW550801 (AW550801), mRNA [NM_177325]
A_51_P259296	2.666	0.034	NM_008509	NM_008509	Mus musculus lipoprotein lipase (Lpl), mRNA [NM_008509]
A_51_P218563	2.665	0.0283	NM_153566	NM_153566	Mus musculus cDNA sequence BC023823 (BC023823), mRNA [NM_153566]
A_52_P592111	2.665	0.0485	NM_028193	NM_028193	Mus musculus BRF1 homolog, subunit of RNA polymerase III transcription initiation factor IIIB (S. cerevisiae) (Brf1), mRNA [NM_028193]
A_52_P189030	2.664	0.0364	NM_013720	NM_013720	Mus musculus MAX gene associated (Mga), mRNA [NM_013720]
A_51_P380249	2.663	0.0101	NM_028722	NM_028722	Mus musculus RIKEN cDNA 4121402D02 gene (4121402D02Rik), mRNA [NM_028722]
A_52_P663005	2.663	0.0451	XM_358311	XM_358311	PREDICTED: zinc finger, SWIM domain containing 6 [Mus musculus], mRNA sequence [XM_358311]
A_51_P376454	2.661	0.0445	BI646741	BI646741	BI646741 603279769F1 NCI_CGAP_Mam3 Mus musculus cDNA clone IMAGE:5320025 5', mRNA sequence [BI646741]
A_51_P468126	2.661	0.0149	NM_024468	NM_024468	Mus musculus tripartite motif protein 39 (Trim39), mRNA [NM_024468]
A_52_P444368	2.657	0.0135	NM_033604	NM_033604	Mus musculus ring finger 111 (Rnf111), mRNA [NM_033604]
A_52_P55029	2.653	0.0213	NM_031159	NM_031159	Mus musculus apolipoprotein B editing complex 1 (Apobec1), mRNA [NM_031159]
A_51_P107243	2.652	0.0258	AK079264	AK079264	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530065M15 product:weakly similar to MHC CLASS I T7 ANTIGEN (FRAGMENT) [Mus musculus], full insert sequence. [AK079264]
A_52_P498608	2.652	0.0171	NM_016710	NM_016710	Mus musculus nucleosome binding protein 1 (Nsbp1), mRNA [NM_016710]
A_51_P467971	2.649	0.0216	NM_170728	NM_170728	Mus musculus ankyrin 3, epithelial (Ank3), transcript variant 1, mRNA [NM_170728]
A_51_P414746	2.648	0.0483	NM_139222	NM_139222	Mus musculus defensin beta 15 (Defb15), mRNA [NM_139222]
A_52_P326664	2.647	0.0367	NM_199252	NM_199252	Mus musculus unc-93 homolog A (C. elegans) (Unc93a), mRNA [NM_199252]
A_51_P404067	2.646	0.0464	NM_020048	NM_020048	Mus musculus Trf (TATA binding protein-related factor)-proximal protein homolog (Drosophila) (Trfp), mRNA [NM_020048]
A_51_P517423	2.645	0.0148	AK019388	AK019388	Mus musculus 12 days embryo head cDNA, RIKEN full-length enriched library, clone:3010025E17 product:HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN A0 (HNRNP A0) homolog [Homo sapiens], full insert sequence. [AK019388]
A_52_P326657	2.645	0.0488	NM_182783	NM_182783	Mus musculus cDNA sequence BC030183 (BC030183), mRNA [NM_182783]
A_51_P235117	2.644	0.0262	NM_144530	NM_144530	Mus musculus zinc finger CCCH type containing 11A (Zc3h11a), mRNA [NM_144530]
A_52_P1173999	2.644	0.0203	AI509818	AI509818	AI509818 vx29c09.y1 Soares_mammary_gland_NbMMG Mus musculus cDNA clone IMAGE:1265872 5' similar to gb:Z14044 M.musculus mRNA for valosin-containing protein (MOUSE);, mRNA sequence [AI509818]
A_52_P504068	2.644	0.043	NM_153599	NM_153599	Mus musculus cyclin-dependent kinase 8 (Cdk8), transcript variant 1, mRNA [NM_153599]
A_52_P553859	2.642	0.0168	TC1539197		JAK3_MOUSE (Q62137) Tyrosine-protein kinase JAK3 (Janus kinase 3) (JAK-3) , partial (3%) [TC1539197]
A_51_P355605	2.637	0.0411	AK042441	AK042441	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630091O15 product:unknown EST, full insert sequence. [AK042441]
A_51_P285790	2.635	0.0189	NM_173383	NM_173383	Mus musculus dead end homolog 1 (zebrafish) (Dnd1), mRNA [NM_173383]
A_52_P496608	2.633	0.0376	AK016466	AK016466	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4931420C21 product:hypothetical SEC7-like domain/SEC7 domain profile containing protein, full insert sequence. [AK016466]
A_51_P274436	2.629	0.019	NM_011485	NM_011485	Mus musculus steroidogenic acute regulatory protein (Star), mRNA [NM_011485]
A_51_P207962	2.628	0.0255	NM_008951	NM_008951	Mus musculus proteasome (prosome, macropain) 26S subunit, non-ATPase, 4 (Psmd4), mRNA [NM_008951]
A_51_P200915	2.626	0.0241	NM_023190	NM_023190	Mus musculus apoptotic chromatin condensation inducer 1 (Acin1), transcript variant 2, mRNA [NM_023190]
A_52_P116704	2.625	0.0049	TC1461913		Q9EQ72 (Q9EQ72) Guanylate-cyclase regulatory protein, partial (78%) [TC1461913]
A_52_P957500	2.625	0.0236	BF719154	BF719154	mab33d12.x1 Soares_NMEBA_branchial_arch Mus musculus cDNA clone IMAGE:3972143 3'. [BF719154]
A_51_P433091	2.623	0.0142	AK009365	AK009365	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310015K15 product:hypothetical protein, full insert sequence. [AK009365]
A_52_P780821	2.618	0.012	NM_054043	NM_054043	Mus musculus Musashi homolog 2 (Drosophila) (Msi2h), mRNA [NM_054043]
A_52_P407889	2.616	0.0462	AK013315	AK013315	Mus musculus 10, 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2810449M14 product:inferred: RIKEN cDNA 5730434B08 gene, full insert sequence. [AK013315]
A_52_P448972	2.615	0.0353	AK084417	AK084417	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230040O06 product:unclassifiable, full insert sequence. [AK084417]
A_52_P57078	2.615	0.0271	AK052455	AK052455	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430026I07 product:unknown EST, full insert sequence. [AK052455]
A_52_P130899	2.614	0.0319	NM_181327	NM_181327	Mus musculus myosin, heavy polypeptide 9, non-muscle (Myh9), transcript variant 2, mRNA [NM_181327]
A_52_P431981	2.614	0.022	AK122289	AK122289	Mus musculus mRNA for mKIAA0463 protein [AK122289]
A_52_P626438	2.614	0.0171	TC1465377		Q80V99 (Q80V99) Vps41 protein (Fragment), partial (5%) [TC1465377]
A_52_P599238	2.611	0.0383	NM_026274	NM_026274	Mus musculus RIKEN cDNA 4930470D19 gene (4930470D19Rik), mRNA [NM_026274]
A_52_P254607	2.61	0.014	NM_019442	NM_019442	Mus musculus serine/threonine kinase 19 (Stk19), mRNA [NM_019442]
A_51_P295192	2.609	0.0146	NM_010907	NM_010907	Mus musculus nuclear factor of kappa light chain gene enhancer in B-cells inhibitor, alpha (Nfkbia), mRNA [NM_010907]
A_52_P315022	2.609	0.0356	XM_619002	XM_619002	PREDICTED: Mus musculus similar to Nesprin 2 (Nuclear envelope spectrin repeat protein 2) (Syne-2) (Synaptic nuclear envelope protein 2) (Nucleus and actin connecting element protein) (NUANCE protein) (LOC544876), mRNA [XM_619002]
A_51_P350378	2.605	0.0187	TC1519646		
A_51_P493627	2.605	0.0371	NM_194334	NM_194334	Mus musculus RIKEN cDNA 1810061M12 gene (1810061M12Rik), mRNA [NM_194334]
A_51_P284741	2.604	0.0275	A_51_P284741		

A_52_P630774	2.603	0.0223	AK020044	AK020044	Mus musculus 13 days embryo forelimb cDNA, RIKEN full-length enriched library, clone:5930436O19 product:unknown EST, full insert sequence. [AK020044]
A_51_P394690	2.602	0.0291	NM_175036	NM_175036	Mus musculus leptin receptor overlapping transcript (Leprot), mRNA [NM_175036]
A_52_P609847	2.602	0.0486	AK043857	AK043857	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830041P05 product:unknown EST, full insert sequence. [AK043857]
A_52_P87964	2.602	0.0393	NM_183423	NM_183423	Mus musculus phospholipase A2, group XIIA (Pla2g12a), transcript variant 2, mRNA [NM_183423]
A_52_P222354	2.6	0.0274	XM_620758	XM_620758	PREDICTED: Mus musculus vacuolar protein sorting 13C (yeast) (Vps13c), mRNA [XM_620758]
A_51_P193612	2.598	0.0466	NM_175260	NM_175260	Mus musculus myosin, heavy polypeptide 10, non-muscle (Myh10), mRNA [NM_175260]
A_51_P388099	2.598	0.0168	NM_019693	NM_019693	Mus musculus HLA-B-associated transcript 1A (Bat1a), mRNA [NM_019693]
A_52_P566337	2.598	0.0424	AK021383	AK021383	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130112L15 product:BAT2-ISO (FRAGMENT) homolog [Homo sapiens], full insert sequence. [AK021383]
A_51_P470503	2.597	0.0255	NM_178069	NM_178069	Mus musculus DNA segment, Chr 16, Brigham & Women's Genetics 1547 expressed (D16Bwg1547e), mRNA [NM_178069]
A_52_P1187697	2.596	0.0162	AK039199	AK039199	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230106P21 product:unknown EST, full insert sequence. [AK039199]
A_52_P495565	2.596	0.0479	NM_007911	NM_007911	Mus musculus ephrin B3 (Efnb3), mRNA [NM_007911]
A_51_P486289	2.595	0.0455	AK122224	AK122224	Mus musculus mRNA for mKIAA0232 protein [AK122224]
A_51_P439876	2.594	0.0214	AK020498	AK020498	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430080K19 product:unknown EST, full insert sequence. [AK020498]
A_52_P432396	2.594	0.0257	AK050824	AK050824	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030022P06 product:hypothetical HMG-I and HMG-Y DNA-binding domain (A+T-hook)/Proline-rich region containing protein, full insert sequence. [AK050824]
A_52_P677276	2.593	0.0146	BC006830	BC006830	Mus musculus RIKEN cDNA 4833441J24 gene, mRNA (cDNA clone IMAGE:3597662), complete cds. [BC006830]
A_52_P646112	2.592	0.0159	BC011192	BC011192	Mus musculus ribosomal protein S13, mRNA (cDNA clone MGC:18694 IMAGE:4016679), complete cds. [BC011192]
A_52_P947954	2.592	0.0354	AK081157	AK081157	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930094C08 product:unknown EST, full insert sequence. [AK081157]
A_51_P159612	2.591	0.0331	NM_019487	NM_019487	Mus musculus heme binding protein 2 (Hebp2), mRNA [NM_019487]
A_51_P349888	2.591	0.0147	NM_007449	NM_007449	Mus musculus angiogenin, ribonuclease A family, member 2 (Ang2), mRNA [NM_007449]
A_52_P354298	2.59	0.0217	NM_007459	NM_007459	Mus musculus adaptor protein complex AP-2, alpha 2 subunit (Ap2a2), mRNA [NM_007459]
A_52_P457022	2.589	0.0318	AK075866	AK075866	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310005P07 product:CCR4-NOT transcription complex, subunit 4, full insert sequence [AK075866]
A_52_P1148065	2.586	0.0332	AK035394	AK035394	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530029O12 product:unknown EST, full insert sequence. [AK035394]
A_51_P209527	2.584	0.016	NM_009740	NM_009740	Mus musculus B-cell leukemia/lymphoma 10 (Bcl10), mRNA [NM_009740]
A_51_P510782	2.583	0.0375	NM_130859	NM_130859	Mus musculus caspase recruitment domain family, member 10 (Card10), mRNA [NM_130859]
A_52_P299283	2.582	0.0204	BC025527	BC025527	Mus musculus expressed sequence AI225782, mRNA (cDNA clone IMAGE:5323944), with apparent retained intron. [BC025527]
A_52_P424650	2.582	0.0325	AK052336	AK052336	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330030I03 product:similar to ARG/ABL-INTERACTING PROTEIN ARGBP2A [Homo sapiens], full insert sequence. [AK052336]
A_52_P94256	2.582	0.00407	NM_020494	NM_020494	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 24 (Ddx24), mRNA [NM_020494]
A_52_P335968	2.581	0.0372	XM_284494	XM_284494	PREDICTED: DEAD (Asp-Glu-Ala-Asp) box polypeptide 10 [Mus musculus], mRNA sequence [XM_284494]
A_52_P556636	2.581	0.00875	TC1486081		
A_51_P214859	2.58	0.0491	BC025493	BC025493	Mus musculus paxillin, mRNA (cDNA clone MGC:38099 IMAGE:5309957), complete cds [BC025493]
A_52_P225969	2.579	0.0424	AK047845	AK047845	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130005F20 product:dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 1a, full insert sequence. [AK047845]
A_52_P419405	2.579	0.0246	NM_133796	NM_133796	Mus musculus Rho GDP dissociation inhibitor (GDI) alpha (Arhgdia), mRNA [NM_133796]
A_52_P641185	2.578	0.0482	NM_011202	NM_011202	Mus musculus protein tyrosine phosphatase, non-receptor type 11 (Ptpn11), mRNA [NM_011202]
A_52_P480425	2.576	0.027	NM_145619	NM_145619	Mus musculus poly (ADP-ribose) polymerase family, member 3 (Parp3), mRNA [NM_145619]
A_51_P487424	2.575	0.0296	AK078857	AK078857	Mus musculus adult male colon cDNA, RIKEN full-length enriched library, clone:9030208A05 product:unclassifiable, full insert sequence. [AK078857]
A_51_P116309	2.574	0.0171	BC059264	BC059264	Mus musculus jumonji domain containing 1A, mRNA (cDNA clone MGC:67610 IMAGE:6409698), complete cds. [BC059264]
A_51_P392701	2.574	0.0185	AK036490	AK036490	Mus musculus adult male bone cDNA, RIKEN full-length enriched library, clone:9830117O07 product:unclassifiable, full insert sequence. [AK036490]
A_52_P859368	2.574	0.0238	AK036874	AK036874	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930020P17 product:unknown EST, full insert sequence. [AK036874]
A_52_P429308	2.573	0.0467	NM_025994	NM_025994	Mus musculus EF hand domain containing 2 (Efhd2), mRNA [NM_025994]
A_52_P685692	2.573	0.0391	AB049460	AB049460	Mus musculus ndrp mRNA for neuronal differentiaion related protein, complete cds. [AB049460]
A_52_P346556	2.572	0.0167	AK038627	AK038627	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230051H13 product:heat shock 70 kDa protein 4, full insert sequence. [AK038627]
A_52_P365011	2.572	0.0168	NM_010194	NM_010194	Mus musculus feline sarcoma oncogene (Fes), mRNA [NM_010194]
A_52_P544043	2.572	0.0236	BC013068	BC013068	Mus musculus proprotein convertase subtilisin/kexin type 5, mRNA (cDNA clone MGC:18501 IMAGE:4036159), complete cds. [BC013068]
A_51_P232913	2.571	0.0346	NM_009948	NM_009948	Mus musculus carnitine palmitoyltransferase 1b, muscle (Cpt1b), mRNA [NM_009948]
A_51_P492070	2.571	0.0351	NM_133953	NM_133953	Mus musculus splicing factor 3b, subunit 3 (Sf3b3), mRNA [NM_133953]
A_51_P497953	2.571	0.0368	NM_026666	NM_026666	Mus musculus ubinuclein 1 (Ubn1), mRNA [NM_026666]
A_52_P617817	2.571	0.0338	NM_008300	NM_008300	Mus musculus heat shock protein 4 (Hspa4), mRNA [NM_008300]
A_51_P199624	2.569	0.0237	BC058689	BC058689	Mus musculus cDNA clone MGC:65672 IMAGE:6807331, complete cds. [BC058689]
A_52_P601950	2.569	0.0236	AK052521	AK052521	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430041G10 product:NUANCE (FRAGMENT) homolog [Mus musculus], full insert sequence. [AK052521]
A_51_P233534	2.568	0.0451	NM_011782	NM_011782	Mus musculus a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 5 (aggrecanase-2) (Adamts5), mRNA [NM_011782]
A_51_P508088	2.568	0.0347	AB093218	AB093218	Mus musculus mRNA for mKIAA0236 protein [AB093218]
A_52_P171993	2.568	0.0232	AK012463	AK012463	Mus musculus 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2700060P05 product:proteasome (prosome, macropain) 26S subunit, non-ATPase, 7, full insert sequence. [AK012463]
A_51_P311379	2.566	0.00628	XM_486002	XM_486002	PREDICTED: trinucleotide repeat containing 6a [Mus musculus], mRNA sequence [XM_486002]
A_51_P313561	2.566	0.0388	NM_019390	NM_019390	Mus musculus lamin A (Lmna), transcript variant 2, mRNA [NM_019390]
A_52_P666646	2.566	0.0115	NM_178682	NM_178682	Mus musculus RIKEN cDNA 4933426M11 gene (4933426M11Rik), mRNA [NM_178682]
A_51_P266964	2.564	0.0151	NM_177732	NM_177732	Mus musculus solute carrier family 35 (UDP-glucuronic acid/UDP-N-acetylgalactosamine dual transporter), member D1 (Slc35d1), mRNA [NM_177732]
A_52_P363203	2.564	0.0305	AK090248	AK090248	Mus musculus 11 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:G630026F06 product:unknown EST, full insert sequence. [AK090248]
A_51_P264666	2.562	0.0406	NM_009926	NM_009926	Mus musculus procollagen, type XI, alpha 2 (Col11a2), mRNA [NM_009926]
A_52_P7183	2.562	0.0397	BC033455	BC033455	Mus musculus RIKEN cDNA 0610007L01 gene, mRNA (cDNA clone MGC:28353 IMAGE:4018584), complete cds. [BC033455]
A_52_P170610	2.561	0.019	NM_026390	NM_026390	Mus musculus UBX domain containing 2 (Ubxd2), mRNA [NM_026390]
A_52_P380250	2.56	0.0122	NM_145147	NM_145147	Mus musculus GTP binding protein 6 (putative) (Gtpbp6), mRNA [NM_145147]
A_52_P559478	2.559	0.025	XM_147426	XM_147426	PREDICTED: similar to mKIAA0546 protein [Mus musculus], mRNA sequence [XM_147426]
A_51_P203321	2.557	0.017	NM_145627	NM_145627	Mus musculus RNA binding motif protein 10 (Rbm10), mRNA [NM_145627]
A_52_P779578	2.557	0.00821	AK082454	AK082454	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230052F14 product:unclassifiable, full insert sequence. [AK082454]
A_51_P149818	2.556	0.0101	NM_026989	NM_026989	Mus musculus splicing factor, arginine/serine-rich 11 (Sfrs11), mRNA [NM_026989]
A_52_P525760	2.556	0.00981	NM_211355	NM_211355	Mus musculus RIKEN cDNA 1110034C04 gene (1110034C04Rik), mRNA [NM_211355]
A_52_P630098	2.554	0.0477	NAP025379-001		
A_52_P481320	2.553	0.046	NAP027922-1		
A_51_P307168	2.552	0.0387	BC060266	BC060266	Mus musculus dimethylarginine dimethylaminohydrolase 1, mRNA (cDNA clone IMAGE:5698949), complete cds. [BC060266]
A_52_P92689	2.551	0.0279	TC1435793		
A_51_P206563	2.549	0.0163	AK008751	AK008751	Mus musculus adult male stomach cDNA, RIKEN full-length enriched library, clone:2210018M11 product:CDNA FLJ13589 FIS, CLONE PLACE1009308, WEAKLY SIMILAR TO GLUCOSE REPRESSION MEDIATOR PROTEIN homolog [Homo sapiens], full insert sequence. [AK008751]
A_51_P281938	2.549	0.0331	NM_011489	NM_011489	Mus musculus signal transducer and activator of transcription 5B (Stat5b), mRNA [NM_011489]
A_52_P674209	2.549	0.0454	NM_023739	NM_023739	Mus musculus nuclear transcription factor, X-box binding 1 (Nfx1), mRNA [NM_023739]
A_52_P1196772	2.548	0.0324	AK087259	AK087259	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030040G24 product:hypothetical protein, full insert sequence. [AK087259]
A_51_P258465	2.547	0.0121	NM_153161	NM_153161	Mus musculus cDNA sequence BC037034 (BC037034), mRNA [NM_153161]
A_51_P246387	2.546	0.0206	NM_010918	NM_010918	Mus musculus natural killer tumor recognition sequence (Nktr), mRNA [NM_010918]
A_52_P289893	2.544	0.0341	NM_181650	NM_181650	Mus musculus PR domain containing 4 (Prdm4), mRNA [NM_181650]
A_51_P170725	2.543	0.0182	NM_028788	NM_028788	Mus musculus RIKEN cDNA 1300002K09 gene (1300002K09Rik), mRNA [NM_028788]
A_51_P452352	2.543	0.0378	NM_010925	NM_010925	Mus musculus novel nuclear protein 1 (Nnp1), mRNA [NM_010925]
A_52_P319606	2.54	0.0479	NM_178760	NM_178760	Mus musculus expressed sequence AI790205 (AI790205), mRNA [NM_178760]
A_52_P28624	2.539	0.0274	XM_621050	XM_621050	PREDICTED: Mus musculus similar to novel protein (LOC546341), mRNA [XM_621050]
A_52_P644925	2.539	0.0253	NM_198035	NM_198035	Mus musculus zinc finger and BTB domain containing 39 (Zbtb39), mRNA [NM_198035]
A_52_P309044	2.537	0.0115	NM_001012309	NM_0010123	Mus musculus expressed sequence AI851076 (AI851076), mRNA [NM_001012309]

A_51_P286034	2.536	0.0387	NM_134033	NM_134033	Mus musculus cDNA sequence BC018601 (BC018601), mRNA [NM_134033]
A_51_P446098	2.536	0.0244	NM_016799	NM_016799	Mus musculus serine/arginine repetitive matrix 1 (Srrm1), mRNA [NM_016799]
A_52_P313335	2.535	0.0236	NM_010897	NM_010897	Mus musculus neurofibromatosis 1 (Nf1), mRNA [NM_010897]
A_51_P202772	2.534	0.00942	XM_619357	XM_619357	PREDICTED: Mus musculus myeloid/lymphoid or mixed-lineage leukemia 2 (Mll2), mRNA [XM_619357]
A_51_P438527	2.533	0.0494	NM_028057	NM_028057	Mus musculus NAD(P)H:quinone oxidoreductase type 3, polypeptide A2 (Nqo3a2), mRNA [NM_028057]
A_52_P327537	2.533	0.0474	NM_010820	NM_010820	Mus musculus multiple PDZ domain protein (Mpdz), mRNA [NM_010820]
A_51_P332952	2.532	0.0383	NM_033398	NM_033398	Mus musculus phosphatidylserine receptor (Ptdsr), mRNA [NM_033398]
A_51_P461684	2.532	0.0397	NM_181444	NM_181444	Mus musculus retinoic acid induced 3 (Rai3), mRNA [NM_181444]
A_51_P238786	2.53	0.0442	NM_008562	NM_008562	Mus musculus myeloid cell leukemia sequence 1 (Mcl1), mRNA [NM_008562]
A_52_P264026	2.53	0.0343	NM_178116	NM_178116	Mus musculus calmodulin binding transcription activator 2 (Camta2), mRNA [NM_178116]
A_52_P467389	2.528	0.0319	NM_023044	NM_023044	Mus musculus solute carrier family 15, member 3 (Slc15a3), mRNA [NM_023044]
A_51_P313467	2.527	0.0292	NM_026295	NM_026295	Mus musculus CTD (carboxy-terminal domain, RNA polymerase II, polypeptide A) phosphatase, subunit 1 (Ctdp1), mRNA [NM_026295]
A_51_P263965	2.525	0.0139	NM_010442	NM_010442	Mus musculus heme oxygenase (decycling) 1 (Hmox1), mRNA [NM_010442]
A_52_P176234	2.524	0.0367	NM_011240	NM_011240	Mus musculus RAN binding protein 2 (Ranbp2), mRNA [NM_011240]
A_52_P685422	2.524	0.0259	AK122371	AK122371	Mus musculus mRNA for mKIAA0799 protein. [AK122371]
A_51_P322285	2.523	0.0357	AK029810	AK029810	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930573I19 product:hypothetical DNA glycosylase structure containing protein, full insert sequence. [AK029810]
A_52_P205282	2.523	0.0167	NM_021523	NM_021523	Mus musculus HECT, UBA and WWE domain containing 1 (Huwe1), mRNA [NM_021523]
A_52_P51564	2.521	0.012	NM_030113	NM_030113	Mus musculus Rho GTPase activating protein 10 (Arhgap10), mRNA [NM_030113]
A_51_P100505	2.519	0.0358	AK054424	AK054424	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330024G11 product:unclassifiable, full insert sequence. [AK054424]
A_52_P163795	2.519	0.0296	NM_011655	NM_011655	Mus musculus tubulin, beta 5 (Tubb5), mRNA [NM_011655]
A_52_P582281	2.519	0.035	NM_201226	NM_201226	Mus musculus leucine rich repeat containing 47 (Lrrc47), mRNA [NM_201226]
A_52_P335559	2.518	0.0404	AK047913	AK047913	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130021H21 product:unclassifiable, full insert sequence. [AK047913]
A_51_P193925	2.516	0.0241	XM_486234	XM_486234	PREDICTED: hypothetical protein LOC70413 [Mus musculus], mRNA sequence [XM_486234]
A_51_P180001	2.515	0.0279	BC096465	BC096465	Mus musculus cDNA clone IMAGE:30736929, partial cds [BC096465]
A_52_P587003	2.515	0.0323	NM_011755	NM_011755	Mus musculus zinc finger protein 35 (Zfp35), mRNA [NM_011755]
A_52_P671812	2.515	0.0349	NAP000123-003		
A_52_P226929	2.512	0.0184	NM_207653	NM_207653	Mus musculus CASP8 and FADD-like apoptosis regulator (Cflar), transcript variant 1, mRNA [NM_207653]
A_51_P239036	2.51	0.0302	NM_177185	NM_177185	Mus musculus RIKEN cDNA D130059P03 gene (D130059P03Rik), mRNA [NM_177185]
A_51_P394324	2.51	0.0283	NM_207636	NM_207636	Mus musculus fibronectin type III domain containing 3a (Fndc3a), mRNA [NM_207636]
A_51_P306229	2.509	0.0364	AK048477	AK048477	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130064E22 product:RANBP7 [AK048477]
A_52_P27576	2.509	0.0385	AK050247	AK050247	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730030N09 product:syntaxin binding protein 3, full insert sequence. [AK050247]
A_51_P378807	2.508	0.0293	AK017613	AK017613	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730434B08 product:inferred: RIKEN cDNA 5730434B08 gene, full insert sequence. [AK017613]
A_51_P425824	2.508	0.0282	NM_026125	NM_026125	Mus musculus RIKEN cDNA 1110035L05 gene (1110035L05Rik), mRNA [NM_026125]
A_52_P641341	2.508	0.032	NM_028428	NM_028428	Mus musculus fucosyltransferase 11 (Fut11), mRNA [NM_028428]
A_51_P485043	2.507	0.0376	NM_008302	NM_008302	Mus musculus heat shock protein 1, beta (Hspcb), mRNA [NM_008302]
A_52_P197722	2.507	0.044	NM_173731	NM_173731	Mus musculus 3-hydroxymethyl-3-methylglutaryl-Coenzyme A lyase-like 1 (Hmgcll1), mRNA [NM_173731]
A_51_P361906	2.505	0.0292	NM_029101	NM_029101	Mus musculus RIKEN cDNA 1110014J01 gene (1110014J01Rik), mRNA [NM_029101]
A_51_P139745	2.504	0.0131	NM_153151	NM_153151	Mus musculus acetyl-Coenzyme A acetyltransferase 3 (Acat3), mRNA [NM_153151]
A_52_P337550	2.503	0.0288	NM_178397	NM_178397	Mus musculus RIKEN cDNA 2210404D11 gene (2210404D11Rik), mRNA [NM_178397]
A_52_P630883	2.503	0.0292	NM_009469	NM_009469	Mus musculus Unc-51 like kinase 1 (C. elegans) (Ulk1), mRNA [NM_009469]
A_52_P440529	2.502	0.0426	AK045982	AK045982	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230330J06 product:unclassifiable, full insert sequence. [AK045982]
A_51_P201346	2.501	0.0493	NM_010786	NM_010786	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]
A_52_P385020	2.5	0.0226	TC1425352		
A_51_P205326	2.497	0.0209	NM_177743	NM_177743	Mus musculus RIKEN cDNA C730027P07 gene (C730027P07Rik), mRNA [NM_177743]
A_52_P1050539	2.497	0.0387	TC1430551		SUGT_MOUSE (Q9CX34) Suppressor of G2 allele of SKP1 homolog, partial (63%) [TC1430551]
A_51_P395473	2.496	0.0262	NM_153533	NM_153533	Mus musculus tensin like C1 domain-containing phosphatase (Tenc1), mRNA [NM_153533]
A_52_P475454	2.496	0.0354	NM_172991	NM_172991	Mus musculus RIKEN cDNA C030048B08 gene (C030048B08Rik), mRNA [NM_172991]
A_52_P494115	2.495	0.025	NM_139304	NM_139304	Mus musculus GATA zinc finger domain containing 2B (Gatad2b), mRNA [NM_139304]
A_52_P526537	2.495	0.0352	NM_181415	NM_181415	Mus musculus attractin like 1 (Atrnl1), mRNA [NM_181415]
A_51_P168123	2.493	0.0485	BC006060	BC006060	Mus musculus leucyl-tRNA synthetase, mRNA (cDNA clone MGC:8232 IMAGE:3591521), complete cds. [BC006060]
A_51_P325152	2.493	0.0479	NM_177374	NM_177374	Mus musculus RIKEN cDNA 6720458F09 gene (6720458F09Rik), mRNA [NM_177374]
A_52_P410518	2.491	0.0125	AK004463	AK004463	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1190003B21 product:PHENYLALANYL-TRNA SYNTHETASE ALPHA CHAIN (EC 6.1.1.20) (PHENYLALANINE- -TRNA LIGASE ALPHA CHAIN) (PHERS) (CML33) homolog [Homo sapiens], full...
A_51_P329043	2.488	0.0305	NM_011808	NM_011808	Mus musculus E26 avian leukemia oncogene 1, 5' domain (Ets1), mRNA [NM_011808]
A_52_P395575	2.488	0.0331	NM_010028	NM_010028	Mus musculus DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 3, X-linked (Ddx3x), mRNA [NM_010028]
A_51_P106259	2.487	0.0401	NM_133926	NM_133926	Mus musculus calcium/calmodulin-dependent protein kinase I (Camk1), mRNA [NM_133926]
A_51_P427990	2.486	0.0139	NM_026934	NM_026934	Mus musculus RIKEN cDNA 2610312B22 gene (2610312B22Rik), mRNA [NM_026934]
A_52_P187565	2.486	0.0288	XM_486437	XM_486437	PREDICTED: Mus musculus similar to hypothetical protein MGC37588 (LOC434589), mRNA [XM_486437]
A_52_P521042	2.486	0.0245	NM_153557	NM_153557	Mus musculus cDNA sequence BC029214 (BC029214), mRNA [NM_153557]
A_51_P331207	2.485	0.0147	NM_025464	NM_025464	Mus musculus RIKEN cDNA 1810021J13 gene (1810021J13Rik), mRNA [NM_025464]
A_51_P308275	2.484	0.0426	NM_011026	NM_011026	Mus musculus purinergic receptor P2X, ligand-gated ion channel 4 (P2rx4), mRNA [NM_011026]
A_52_P506344	2.484	0.0292	NM_024256	NM_024256	Mus musculus beta-1,3-glucuronyltransferase 3 (glucuronosyltransferase I) (B3gat3), mRNA [NM_024256]
A_51_P473940	2.482	0.0177	NM_177729	NM_177729	Mus musculus hypothetical protein 4930477M19 (4930477M19), mRNA [NM_177729]
A_52_P875364	2.482	0.046	AK041105	AK041105	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530083F19 product:unclassifiable, full insert sequence. [AK041105]
A_52_P354732	2.48	0.0241	NM_029742	NM_029742	Mus musculus RIKEN cDNA 2410127E18 gene (2410127E18Rik), mRNA [NM_029742]
A_51_P161148	2.478	0.0194	NM_138755	NM_138755	Mus musculus PHD finger protein 21A (Phf21a), mRNA [NM_138755]
A_51_P223929	2.478	0.0177	NM_138679	NM_138679	Mus musculus ash1 (absent, small, or homeotic)-like (Drosophila) (Ash1l), mRNA [NM_138679]
A_51_P411296	2.478	0.0279	NM_016714	NM_016714	Mus musculus nucleoporin 50 (Nup50), mRNA [NM_016714]
A_52_P29785	2.478	0.0279	NM_029802	NM_029802	Mus musculus ADP-ribosylation factor interacting protein 2 (Arfip2), mRNA [NM_029802]
A_52_P454397	2.478	0.0137	NM_019689	NM_019689	Mus musculus AT rich interactive domain 3B (Bright like) (Arid3b), mRNA [NM_019689]
A_52_P682465	2.478	0.0131	AK089360	AK089360	Mus musculus B6-derived CD11 +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F730014O09 product:40S RIBOSOMAL PROTEIN S28 homolog [Ictalurus punctatus], full insert sequence. [AK089360]
A_52_P159885	2.477	0.0358	NM_001024922	NM_0010249	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 49 (LOC234374), mRNA [NM_001024922]
A_51_P125368	2.476	0.0478	NM_008214	NM_008214	Mus musculus histidyl-tRNA synthetase (Hars), mRNA [NM_008214]
A_51_P352773	2.476	0.0415	NM_007848	NM_007848	Mus musculus defensin related cryptdin, related sequence 7 (Defcr-rs7), mRNA [NM_007848]
A_52_P577484	2.475	0.0275	NM_011448	NM_011448	Mus musculus SRY-box containing gene 9 (Sox9), mRNA [NM_011448]
A_52_P424563	2.474	0.0208	NM_134040	NM_134040	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 1 (Ddx1), mRNA [NM_134040]
A_52_P478729	2.474	0.016	NM_194348	NM_194348	Mus musculus cDNA sequence BC023754 (BC023754), mRNA [NM_194348]
A_52_P609448	2.474	0.0272	NM_145125	NM_145125	Mus musculus bromodomain and WD repeat domain containing 1 (Brwd1), mRNA [NM_145125]
A_51_P227718	2.47	0.0364	NM_145149	NM_145149	Mus musculus RAS guanyl releasing protein 4 (Rasgrp4), mRNA [NM_145149]
A_52_P79441	2.47	0.0331	XM_147426	XM_147426	PREDICTED: similar to mKIAA0546 protein [Mus musculus], mRNA sequence [XM_147426]
A_52_P620100	2.469	0.0383	AK031293	AK031293	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030403E12 product:chaperonin subunit 3 (gamma), full insert sequence. [AK031293]
A_51_P373112	2.468	0.0296	NM_145943	NM_145943	Mus musculus cDNA sequence BC031781 (BC031781), mRNA [NM_145943]
A_52_P126825	2.465	0.0123	XM_489778	XM_489778	PREDICTED: similar to Tce4 protein [Mus musculus], mRNA sequence [XM_489778]
A_51_P512765	2.464	0.0437	NM_026403	NM_026403	Mus musculus RIKEN cDNA 2610027L16 gene (2610027L16Rik), mRNA [NM_026403]

A_52_P284981	2.463	0.037	NM_007462	NM_007462	Mus musculus adenomatosis polyposis coli (Apc), mRNA [NM_007462]
A_52_P94201	2.463	0.0168	NM_009306	NM_009306	Mus musculus synaptotagmin I (Syt1), mRNA [NM_009306]
A_51_P293059	2.46	0.0183	NM_133722	NM_133722	Mus musculus RIKEN cDNA 2210412D01 gene (2210412D01Rik), mRNA [NM_133722]
A_51_P359462	2.46	0.0178	NM_178216	NM_178216	Mus musculus histone 2, H3c1 (Hist2h3c1), transcript variant 2, mRNA [NM_178216]
A_51_P408082	2.46	0.0163	NM_009692	NM_009692	Mus musculus apolipoprotein A-I (Apoa1), mRNA [NM_009692]
A_51_P456941	2.459	0.0297	NM_010500	NM_010500	Mus musculus immediate early response 5 (Ier5), mRNA [NM_010500]
A_52_P146848	2.459	0.0328	NM_016690	NM_016690	Mus musculus heterogeneous nuclear ribonucleoprotein D-like (Hnrpdl), mRNA [NM_016690]
A_52_P624648	2.459	0.0159	Y14041	Y14041	Mus musculus mRNA for CASH alpha protein. [Y14041]
A_52_P525837	2.457	0.0168	NM_175113	NM_175113	Mus musculus RIKEN cDNA 3300001M20 gene (3300001M20Rik), mRNA [NM_175113]
A_51_P313483	2.456	0.0245	NM_007890	NM_007890	Mus musculus dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 1a (Dyrk1a), mRNA [NM_007890]
A_52_P443988	2.456	0.00826	NM_019923	NM_019923	Mus musculus inositol 1,4,5-triphosphate receptor 2 (Itpr2), transcript variant 1, mRNA [NM_019923]
A_52_P174328	2.455	0.0418	NM_178080	NM_178080	Mus musculus RIKEN cDNA 9430063L05 gene (9430063L05Rik), mRNA [NM_178080]
A_52_P5765	2.454	0.043	NM_029457	NM_029457	Mus musculus SUMO/sentrin specific protease 2 (Senp2), mRNA [NM_029457]
A_51_P251154	2.453	0.0215	BC016624	BC016624	Mus musculus, Similar to actin, beta, clone IMAGE:4501052, mRNA. [BC016624]
A_51_P347862	2.453	0.0425	NM_134156	NM_134156	Mus musculus actinin, alpha 1 (Actn1), mRNA [NM_134156]
A_51_P418116	2.452	0.0416	NM_146162	NM_146162	Mus musculus cDNA sequence BC025600 (BC025600), mRNA [NM_146162]
A_52_P201245	2.452	0.0364	NM_133902	NM_133902	Mus musculus serine dehydratase-like (Sdsl), mRNA [NM_133902]
A_52_P597726	2.451	0.019	NM_201372	NM_201372	Mus musculus RIKEN cDNA D630044F24 gene (D630044F24Rik), mRNA [NM_201372]
A_51_P220615	2.45	0.0376	AF150755	AF150755	Mus musculus microtubule-actin crosslinking factor (Macf) mRNA, complete cds. [AF150755]
A_51_P354698	2.45	0.018	NM_030238	NM_030238	Mus musculus dynein, cytoplasmic, heavy chain 1 (Dnchc1), mRNA [NM_030238]
A_51_P388158	2.45	0.0277	NM_018749	NM_018749	Mus musculus eukaryotic translation initiation factor 3, subunit 7 (zeta) (Eif3s7), mRNA [NM_018749]
A_51_P417952	2.45	0.0474	NM_013662	NM_013662	Mus musculus sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6B (Sema6b), mRNA [NM_013662]
A_51_P489413	2.449	0.0274	NM_025881	NM_025881	Mus musculus Luc7 homolog (S. cerevisiae)-like (Luc7l), transcript variant 1, mRNA [NM_025881]
A_52_P398018	2.449	0.0316	AK089856	AK089856	Mus musculus activated spleen cDNA, RIKEN full-length enriched library, clone:F830033L24 product:hypothetical protein, MNCb-1213, full insert sequence. [AK089856]
A_51_P223036	2.448	0.047	NM_027968	NM_027968	Mus musculus F-box protein 30 (Fbxo30), mRNA [NM_027968]
A_52_P649074	2.447	0.0209	XM_620758	XM_620758	PREDICTED: Mus musculus vacuolar protein sorting 13C (yeast) (Vps13c), mRNA [XM_620758]
A_52_P272534	2.446	0.0325	XM_618778	XM_618778	PREDICTED: Mus musculus similar to heterogeneous nuclear ribonucleoprotein A2/B1 isoform 2 (LOC544705), mRNA [XM_618778]
A_51_P129108	2.444	0.0131	AK036335	AK036335	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630059A20 product:CYCLIC-AMP-DEPENDENT TRANSCRIPTION FACTOR ATF-6 ALPHA (ACTIVATING TRANSCRIPTION FACTOR 6 ALPHA) (ATF6-ALPHA) homolog [Homo sapiens]
A_51_P366277	2.442	0.0102	BC058699	BC058699	Mus musculus nucleolar protein 8, mRNA (cDNA clone IMAGE:6850044), partial cds [BC058699]
A_51_P249335	2.441	0.046	NM_145565	NM_145565	Mus musculus serine dehydratase (Sds), mRNA [NM_145565]
A_52_P380369	2.441	0.0209	NM_199015	NM_199015	Mus musculus DNA segment, Chr 14, ERATO Doi 668, expressed (D14Ertd668e), mRNA [NM_199015]
A_52_P621271	2.439	0.0175	NM_138679	NM_138679	Mus musculus ash1 (absent, small, or homeotic)-like (Drosophila) (Ash1l), mRNA [NM_138679]
A_52_P84315	2.439	0.0139	BC034239	BC034239	Mus musculus mRNA similar to KIAA1416 protein (cDNA clone MGC:25585 IMAGE:4007312), complete cds. [BC034239]
A_51_P387632	2.437	0.0463	NM_022885	NM_022885	Mus musculus solute carrier family 30 (zinc transporter), member 5 (Slc30a5), mRNA [NM_022885]
A_52_P208703	2.434	0.0494	AK122210	AK122210	Mus musculus mRNA for mKIAA0144 protein. [AK122210]
A_52_P663132	2.433	0.0454	AK046746	AK046746	Mus musculus 4 days neonate thymus cDNA, RIKEN full-length enriched library, clone:B630006A20 product:hypothetical protein, full insert sequence [AK046746]
A_52_P350554	2.432	0.0179	NM_008420	NM_008420	Mus musculus potassium voltage gated channel, Shab-related subfamily, member 1 (Kcnb1), mRNA [NM_008420]
A_52_P496022	2.432	0.0252	NAP070416-1		
A_52_P97680	2.432	0.0174	AK005563	AK005563	Mus musculus adult female placenta cDNA, RIKEN full-length enriched library, clone:1600029O10 product:hypothetical Appr-1'-p processing enzyme family containing protein, full insert sequence. [AK005563]
A_52_P297457	2.431	0.0351	BC066053	BC066053	Mus musculus RIKEN cDNA 0610030E20 gene, mRNA (cDNA clone IMAGE:6827710), partial cds [BC066053]
A_52_P472397	2.431	0.0482	AK020013	AK020013	Mus musculus adult male thymus cDNA, RIKEN full-length enriched library, clone:5830416C23 product:catenin beta, full insert sequence. [AK020013]
A_52_P676913	2.43	0.0453	NM_010817	NM_010817	Mus musculus proteasome (prosome, macropain) 26S subunit, non-ATPase, 7 (Psmd7), mRNA [NM_010817]
A_52_P189038	2.429	0.0188	BQ444719	BQ444719	UI-M-ER0-bxm-f-07-0-UI.r1 NIH_BMAP_ER0 Mus musculus cDNA clone IMAGE:5710086 5', mRNA sequence [BQ444719]
A_52_P249514	2.426	0.0174	NM_011331	NM_011331	Mus musculus chemokine (C-C motif) ligand 12 (Ccl12), mRNA [NM_011331]
A_51_P113747	2.425	0.0115	AK017529	AK017529	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730409A01 product:SPLICING FACTOR 3B SUBUNIT 3 (SPLICEOSOME ASSOCIATED PROTEIN 130)(SAP 130)(SF3B130)(PRE-MRNA SPLICING FACTOR SF3B 130 KDA SUBUNIT)homolog
A_51_P206144	2.425	0.0359	NM_133733	NM_133733	Mus musculus RIKEN cDNA 9030425E11 gene (9030425E11Rik), mRNA [NM_133733]
A_52_P72186	2.425	0.0257	NAP070792-1		
A_51_P211732	2.423	0.0301	NM_008977	NM_008977	Mus musculus protein tyrosine phosphatase, non-receptor type 2 (Ptpn2), mRNA [NM_008977]
A_52_P349298	2.423	0.0392	NM_027434	NM_027434	Mus musculus RIKEN cDNA 2610304G08 gene (2610304G08Rik), mRNA [NM_027434]
A_51_P158400	2.421	0.0135	XM_130233	XM_130233	PREDICTED: membrane-associated nucleic acid binding protein [Mus musculus], mRNA sequence [XM_130233]
A_52_P577497	2.418	0.00915	XM_129997	XM_129997	PREDICTED: TAF3 RNA polymerase II, TATA box binding protein (TBP)-associated factor [Mus musculus], mRNA sequence [XM_129997]
A_52_P407751	2.417	0.0425	NM_148932	NM_148932	Mus musculus nuclear pore membrane protein 121 (Pom121), mRNA [NM_148932]
A_52_P68337	2.417	0.0399	NAP030834-1		
A_52_P176960	2.416	0.0345	NM_009595	NM_009595	Mus musculus v-abl Abelson murine leukemia viral oncogene 2 (arg, Abelson-related gene) (Abl2), mRNA [NM_009595]
A_52_P266540	2.415	0.0285	XM_355528	XM_355528	PREDICTED: RIKEN cDNA 1810009A16 [Mus musculus], mRNA sequence [XM_355528]
A_52_P533161	2.412	0.0486	NM_178688	NM_178688	Mus musculus actin-binding LIM protein 1 (Ablim1), mRNA [NM_178688]
A_52_P66107	2.412	0.0293	AK019206	AK019206	Mus musculus 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2700038M07 product:WSB-1, full insert sequence [AK019206]
A_52_P87987	2.411	0.0263	NM_177106	NM_177106	Mus musculus RIKEN cDNA F830004M19 gene (F830004M19Rik), mRNA [NM_177106]
A_51_P133252	2.409	0.0403	AK076014	AK076014	Mus musculus 10 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2610030J19 product:solute carrier family 27 (fatty acid transporter), member 3, full insert sequence. [AK076014]
A_51_P164207	2.408	0.0193	NM_011842	NM_011842	Mus musculus metastasis-associated gene family, member 2 (Mta2), mRNA [NM_011842]
A_51_P189722	2.408	0.028	NM_172549	NM_172549	Mus musculus calcineurin binding protein 1 (Cabin1), mRNA [NM_172549]
A_52_P335984	2.408	0.0156	NM_022027	NM_022027	Mus musculus synaptic nuclear envelope 1 (Syne1), transcript variant 2, mRNA [NM_022027]
A_52_P59544	2.408	0.0306	AK036220	AK036220	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630046J20 product:hypothetical RNA-binding region RNP-1 (RNA recognition motif) containing protein, full insert sequence [AK036220]
A_52_P610403	2.408	0.0328	TC1517582		SF01_MOUSE (Q64213) Splicing factor 1 (Zinc finger protein 162) (Transcription factor ZFM1) (mZFM) (Zinc finger gene in MEN1 locus) (Mammalian branch point binding protein mBBP) (BBP) (CW17), partial (16%) [TC1517582]
A_51_P274544	2.407	0.0168	NM_138946	NM_138946	Mus musculus ribosomal protein S18 (Rps18), transcript variant 2, mRNA [NM_138946]
A_51_P258566	2.405	0.0234	AK046448	AK046448	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230385P13 product:transformed mouse 3T3 cell double minute 4, full insert sequence. [AK046448]
A_51_P233478	2.403	0.0152	NM_009480	NM_009480	Mus musculus upstream transcription factor 1 (Usf1), mRNA [NM_009480]
A_51_P288193	2.402	0.0126	NM_007569	NM_007569	Mus musculus B-cell translocation gene 1, anti-proliferative (Btg1), mRNA [NM_007569]
A_51_P405693	2.402	0.0234	NM_009297	NM_009297	Mus musculus suppressor of Ty 6 homolog (S. cerevisiae) (Supt6h), mRNA [NM_009297]
A_51_P249627	2.401	0.0191	NM_029791	NM_029791	Mus musculus bicaudal D homolog 2 (Drosophila) (Bicd2), mRNA [NM_029791]
A_51_P100289	2.4	0.0189	NM_020493	NM_020493	Mus musculus serum response factor (Srf), mRNA [NM_020493]
A_51_P211943	2.4	0.0486	NM_023742	NM_023742	Mus musculus deltex 2 homolog (Drosophila) (Dtx2), mRNA [NM_023742]
A_52_P535255	2.4	0.0282	NM_026780	NM_026780	Mus musculus CCNDBP1 interactor (Cbpin), mRNA [NM_026780]
A_51_P328645	2.399	0.012	BC089366	BC089366	Mus musculus RIKEN cDNA C130032J12 gene, mRNA (cDNA clone IMAGE:6850209), partial cds [BC089366]
A_52_P79763	2.399	0.0261	NM_146153	NM_146153	Mus musculus thyroid hormone receptor associated protein 3 (Thrap3), mRNA [NM_146153]
A_52_P633193	2.398	0.0279	AK017528	AK017528	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730408P04 product:SELENOPROTEIN T, full insert sequence. [AK017528]
A_51_P436817	2.397	0.0221	BC052075	BC052075	Mus musculus downstream of Stk11, mRNA (cDNA clone IMAGE:6401342), partial cds [BC052075]
A_51_P492488	2.396	0.0175	NM_178204	NM_178204	Mus musculus histone1, H3d (Hist1h3d), mRNA [NM_178204]
A_52_P979844	2.396	0.0189	AK034548	AK034548	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430004G04 product:unclassifiable, full insert sequence. [AK034548]
A_51_P118715	2.391	0.0168	NM_026274	NM_026274	Mus musculus RIKEN cDNA 4930470D19 gene (4930470D19Rik), mRNA [NM_026274]
A_51_P241653	2.391	0.0112	AK029243	AK029243	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4831440D22 product:unclassifiable, full insert sequence. [AK029243]
A_51_P313157	2.391	0.0282	AK220242	AK220242	Mus musculus mRNA for mFLJ00261 protein. [AK220242]
A_52_P454361	2.391	0.0484	AK077437	AK077437	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730408P20 product:histidyl tRNA synthetase, full insert sequence. [AK077437]

A_51_P377045	2.39	0.0146	AK090111	AK090111	Mus musculus bladder RCB-0544 MBT-2 cDNA, RIKEN full-length enriched library, clone:G430136C21 product:unknown EST, full insert sequence. [AK090111]
A_51_P469411	2.39	0.0236	NM_011632	NM_011632	Mus musculus Tnf receptor-associated factor 3 (Traf3), mRNA [NM_011632]
A_51_P327261	2.389	0.043	NM_021327	NM_021327	Mus musculus TNFAIP3 interacting protein 1 (Tnip1), mRNA [NM_021327]
A_52_P445608	2.389	0.0376	XM_128275	XM_128275	PREDICTED: similar to BRD1 protein [Mus musculus], mRNA sequence [XM_128275]
A_51_P305250	2.388	0.0196	NM_027008	NM_027008	Mus musculus potassium channel tetramerisation domain containing 5 (Kctd5), mRNA [NM_027008]
A_51_P387450	2.387	0.0325	AK081803	AK081803	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130078H13 product:SIMILAR TO SPECTRIN SH3 DOMAIN BINDING PROTEIN 1 homolog [Homo sapiens], full insert sequence. [AK081803]
A_52_P287954	2.386	0.0272	AK082146	AK082146	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230013N09 product:unknown EST, full insert sequence [AK082146]
A_51_P230507	2.385	0.0451	BC006925	BC006925	Mus musculus elongation factor RNA polymerase II 2, mRNA (cDNA clone MGC:11987 IMAGE:3601737), complete cds. [BC006925]
A_52_P185217	2.382	0.0485	NM_026040	NM_026040	Mus musculus serum response factor binding protein 1 (Srfbp1), mRNA [NM_026040]
A_51_P116137	2.381	0.0306	NM_008377	NM_008377	Mus musculus leucine-rich repeats and immunoglobulin-like domains 1 (Lrig1), mRNA [NM_008377]
A_52_P162697	2.381	0.0196	NM_027514	NM_027514	Mus musculus poliovirus receptor (Pvr), mRNA [NM_027514]
A_51_P458230	2.38	0.027	AK054427	AK054427	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330024N10 product:unknown EST, full insert sequence. [AK054427]
A_52_P600750	2.379	0.0479	NAP056541-1		
A_51_P457306	2.378	0.0115	NM_015775	NM_015775	Mus musculus transmembrane protease, serine 2 (Tmprss2), mRNA [NM_015775]
A_52_P140528	2.376	0.0494	AK081024	AK081024	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930069K15 product:unknown EST, full insert sequence. [AK081024]
A_51_P145232	2.375	0.0168	ENSMUST00000072181		GB|AL670999.4|CAD83017.1 bM168F16.1 (novel protein similar to high-mobility group box 1 (Hmgb1)) [Mus musculus] [NP1082721]
A_51_P236013	2.375	0.0267	NM_172281	NM_172281	Mus musculus ring finger protein 40 (Rnf40), mRNA [NM_172281]
A_52_P113129	2.375	0.0167	NM_016775	NM_016775	Mus musculus DnaJ (Hsp40) homolog, subfamily C, member 5 (Dnajc5), mRNA [NM_016775]
A_51_P119469	2.374	0.0275	NM_053204	NM_053204	Mus musculus Rab6 interacting protein 2 (Rab6ip2), transcript variant 1, mRNA [NM_053204]
A_51_P229076	2.374	0.0205	NM_009847	NM_009847	Mus musculus CD2-associated protein (Cd2ap), mRNA [NM_009847]
A_51_P478486	2.374	0.0397	AK032815	AK032815	Mus musculus 12 days embryo male wolffian duct includes surrounding region cDNA, RIKEN full-length enriched library, clone:6720457F16 product:RNA-BINDING PROTEIN FUS (PIGPEN PROTEIN) homolog [Mus musculus], full insert sequence. [AK032815]
A_51_P514449	2.374	0.0184	NM_030676	NM_030676	Mus musculus nuclear receptor subfamily 5, group A, member 2 (Nr5a2), mRNA [NM_030676]
A_52_P672453	2.374	0.0332	NM_027541	NM_027541	Mus musculus PRP3 pre-mRNA processing factor 3 homolog (yeast) (Prpf3), mRNA [NM_027541]
A_51_P357533	2.373	0.0158	BC080307	BC080307	Mus musculus transmembrane protein 44, mRNA (cDNA clone MGC:90554 IMAGE:5721210), complete cds. [BC080307]
A_52_P237102	2.373	0.0262	AK085462	AK085462	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630029P09 product:unknown EST, full insert sequence. [AK085462]
A_52_P344704	2.373	0.0441	NM_022801	NM_022801	Mus musculus MAP/microtubule affinity-regulating kinase 3 (Mark3), transcript variant 2, mRNA [NM_022801]
A_51_P460793	2.372	0.0334	BC056383	BC056383	Mus musculus LUC7-like 2 (S. cerevisiae), mRNA (cDNA clone MGC:73932 IMAGE:6853955), complete cds. [BC056383]
A_52_P345078	2.372	0.0479	NM_177602	NM_177602	Mus musculus RIKEN cDNA B930090D16 gene (B930090D16Rik), mRNA [NM_177602]
A_52_P300416	2.371	0.0275	NM_133761	NM_133761	Mus musculus MAD homolog 4 interacting transcription coactivator 1 (Mitc1), mRNA [NM_133761]
A_52_P811745	2.37	0.0112	AK079715	AK079715	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430024O06 product:unknown EST, full insert sequence [AK079715]
A_52_P232346	2.369	0.0474	TC1479950		RNP2_MOUSE (Q8VH51) RNA-binding region containing protein 2 (Coactivator of activating protein-1 and estrogen receptors) (Coactivator of AP-1 and ERs) (Transcription coactivator CAPER), partial (12%) [TC1479950]
A_51_P179504	2.368	0.0355	U72672	U72672	Mus musculus angiogenin-3 precursor mRNA, complete cds [U72672]
A_51_P396375	2.367	0.0308	NM_011586	NM_011586	Mus musculus myosin XVIIIa (Myo18a), mRNA [NM_011586]
A_52_P351594	2.366	0.0404	NM_023799	NM_023799	Mus musculus meningioma expressed antigen 5 (hyaluronidase) (Mgea5), mRNA [NM_023799]
A_51_P431737	2.365	0.0442	NM_145953	NM_145953	Mus musculus cystathionase (cystathionine gamma-lyase) (Cth), mRNA [NM_145953]
A_51_P120024	2.364	0.0291	NM_001008548	NM_0010085	Mus musculus phosphodiesterase 2A, cGMP-stimulated (Pde2a), mRNA [NM_001008548]
A_51_P292008	2.364	0.0375	NM_008161	NM_008161	Mus musculus glutathione peroxidase 3 (Gpx3), mRNA [NM_008161]
A_51_P221802	2.361	0.0139	NM_133780	NM_133780	Mus musculus translocated promoter region (Tpr), mRNA [NM_133780]
A_52_P456977	2.361	0.0115	NM_016874	NM_016874	Mus musculus deformed epidermal autoregulatory factor 1 (Drosophila) (Deaf1), mRNA [NM_016874]
A_52_P501767	2.361	0.0224	AK012272	AK012272	Mus musculus 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2700022N21 product:U1 small nuclear ribonucleoprotein 70 kDa polypeptide A, full insert sequence. [AK012272]
A_52_P637034	2.361	0.0451	XM_135706	XM_135706	PREDICTED: similar to mKIAA0268 protein [Mus musculus], mRNA sequence [XM_135706]
A_51_P411297	2.359	0.0457	NM_016714	NM_016714	Mus musculus nucleoporin 50 (Nup50), mRNA [NM_016714]
A_51_P246844	2.358	0.0267	NM_007379	NM_007379	Mus musculus ATP-binding cassette, sub-family A (ABC1), member 2 (Abca2), mRNA [NM_007379]
A_51_P250788	2.357	0.0202	NM_146078	NM_146078	Mus musculus ubiquitin protein ligase E3 component n-recognin 2 (Ubr2), mRNA [NM_146078]
A_51_P488799	2.357	0.0146	NM_173761	NM_173761	Mus musculus YTH domain family 1 (Ythdf1), mRNA [NM_173761]
A_52_P480544	2.355	0.0261	AK029774	AK029774	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930546L23 product:weakly similar to SIMILAR TO KARYOPHERIN BETA 2B, TRANSPORTIN [Mus musculus], full insert sequence [AK029774]
A_51_P440568	2.354	0.0308	NM_019442	NM_019442	Mus musculus serine/threonine kinase 19 (Stk19), mRNA [NM_019442]
A_51_P297694	2.353	0.044	NM_133701	NM_133701	Mus musculus RIKEN cDNA 2610031L17 gene (2610031L17Rik), mRNA [NM_133701]
A_52_P410520	2.35	0.0264	BC006862	BC006862	Mus musculus phenylalanine-tRNA synthetase-like, alpha subunit, mRNA (cDNA clone MGC:11787 IMAGE:3595108), complete cds. [BC006862]
A_52_P303407	2.348	0.0213	9430025N12		unknown EST [9430025N12]
A_52_P269630	2.347	0.0193	AB022157	AB022157	Mus musculus Cctd gene for chaperonin containing TCP-1 delta subunit, complete cds [AB022157]
A_52_P283501	2.347	0.0384	TC1480513		ROXN_HUMAN (Q9UGR2) Rotavirus 'X' associated non-structural protein (RoXaN), partial (98%) [TC1480513]
A_51_P238094	2.346	0.0244	NM_024444	NM_024444	Mus musculus cytochrome P450, family 4, subfamily f, polypeptide 18 (Cyp4f18), mRNA [NM_024444]
A_52_P17098	2.346	0.021	AK078849	AK078849	Mus musculus adult male colon cDNA, RIKEN full-length enriched library, clone:9030019P22 product:CDNA FLJ32798 FIS, CLONE TESTI2002498, MODERATELY SIMILAR TO DANIO RERIO P55-RELATED MAGUK PROTEIN DLG3 (DLG3) MRNA homolog [Homo sapiens], full insert...
A_52_P212756	2.345	0.0354	NM_172843	NM_172843	Mus musculus torsin A interacting protein 2 (Tor1aip2), mRNA [NM_172843]
A_51_P299339	2.344	0.0416	NM_023184	NM_023184	Mus musculus Kruppel-like factor 15 (Klf15), mRNA [NM_023184]
A_51_P192939	2.343	0.0344	AK047023	AK047023	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930011M15 product:unclassifiable, full insert sequence. [AK047023]
A_51_P435817	2.342	0.0462	NM_028603	NM_028603	Mus musculus RIKEN cDNA 2410081M15 gene (2410081M15Rik), mRNA [NM_028603]
A_52_P394767	2.342	0.0381	NM_173761	NM_173761	Mus musculus YTH domain family 1 (Ythdf1), mRNA [NM_173761]
A_52_P633410	2.341	0.0188	NM_020590	NM_020590	Mus musculus gamma-aminobutyric acid (GABA(A)) receptor-associated protein-like 1 (Gabarapl1), mRNA [NM_020590]
A_52_P315280	2.34	0.0262	NM_010918	NM_010918	Mus musculus natural killer tumor recognition sequence (Nktr), mRNA [NM_010918]
A_52_P118638	2.339	0.0147	NM_177103	NM_177103	Mus musculus SUMO/sentrin specific protease 5 (Senp5), mRNA [NM_177103]
A_52_P464437	2.338	0.0451	NM_013735	NM_013735	Mus musculus transformation related protein 53 binding protein 1 (Trp53bp1), mRNA [NM_013735]
A_52_P964651	2.338	0.0261	BI415875	BI415875	602988091F1 NCI_CGAP_Lu33 Mus musculus cDNA clone IMAGE:5144063 5', mRNA sequence [BI415875]
A_51_P284918	2.336	0.0438	BC028776	BC028776	Mus musculus serologically defined colon cancer antigen 33 like, mRNA (cDNA clone IMAGE:1067302), partial cds. [BC028776]
A_52_P289325	2.336	0.0485	NM_010863	NM_010863	Mus musculus myosin IB (Myo1b), mRNA [NM_010863]
A_52_P585552	2.336	0.0162	AK042505	AK042505	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630097K09 product:SORTING NEXIN 10, full insert sequence. [AK042505]
A_51_P146063	2.335	0.0147	NM_025441	NM_025441	Mus musculus serologically defined colon cancer antigen 1 (Sdccag1), transcript variant 1, mRNA [NM_025441]
A_51_P183154	2.334	0.0406	AK049897	AK049897	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630007P21 product:DJ782L23.1 (HOOK1) (FRAGMENT) homolog [Homo sapiens], full insert sequence. [AK049897]
A_51_P308844	2.333	0.0485	NM_153529	NM_153529	Mus musculus neuritin 1 (Nrn1), mRNA [NM_153529]
A_52_P392591	2.333	0.0397	NM_027931	NM_027931	Mus musculus threonyl-tRNA synthetase-like 1 (Tarsl1), mRNA [NM_027931]
A_52_P475229	2.333	0.0282	NM_029337	NM_029337	Mus musculus E1A binding protein p400 (Ep400), mRNA [NM_029337]
A_52_P348189	2.331	0.0221	NM_027221	NM_027221	Mus musculus keratinocyte associated protein 3 (Krtcap3), mRNA [NM_027221]
A_52_P625431	2.331	0.0328	XM_619102	XM_619102	PREDICTED: Mus musculus similar to heterogeneous nuclear ribonucleoprotein A0 (LOC544935), mRNA [XM_619102]
A_52_P198289	2.329	0.0345	NAP099819-001		
A_52_P561934	2.329	0.0285	NM_011308	NM_011308	Mus musculus nuclear receptor co-repressor 1 (Ncor1), mRNA [NM_011308]
A_52_P475450	2.328	0.0438	NM_172991	NM_172991	Mus musculus RIKEN cDNA C030048B08 gene (C030048B08Rik), mRNA [NM_172991]
A_52_P584975	2.328	0.0488	NM_134002	NM_134002	Mus musculus casein kinase 1, gamma 2 (Csnk1g2), mRNA [NM_134002]
A_52_P338492	2.326	0.012	NM_170757	NM_170757	Mus musculus RIKEN cDNA A630007B06 gene (A630007B06Rik), mRNA [NM_170757]
A_52_P537124	2.326	0.0194	NM_145400	NM_145400	Mus musculus ubiquitination factor E4A, UFD2 homolog (S. cerevisiae) (Ube4a), mRNA [NM_145400]
A_52_P247282	2.325	0.0279	BC065080	BC065080	Mus musculus RIKEN cDNA 2700008N14 gene, mRNA (cDNA clone MGC:86072 IMAGE:6826791), complete cds. [BC065080]
A_51_P343913	2.324	0.00921	XM_283217	XM_283217	PREDICTED: similar to mKIAA0177 protein [Mus musculus], mRNA sequence [XM_283217]
A_51_P114005	2.323	0.0412	BC051924	BC051924	Mus musculus glutathione S-transferase, mu 7, mRNA (cDNA clone MGC:62165 IMAGE:5692787), complete cds. [BC051924]

A_51_P291815	2.322	0.0271	NM_009614	NM_009614	Mus musculus a disintegrin and metalloproteinase domain 15 (metargidin) (Adam15), mRNA [NM_009614]
A_52_P116102	2.322	0.0297	AK053780	AK053780	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130308D14 product:triosephosphate isomerase, full insert sequence. [AK053780]
A_51_P178124	2.32	0.0205	NM_016882	NM_016882	Mus musculus squamous cell carcinoma antigen recognized by T-cells 1 (Sart1), mRNA [NM_016882]
A_52_P1028593	2.32	0.0393	AK085597	AK085597	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630045C10 product:unclassifiable, full insert sequence. [AK085597]
A_51_P157112	2.319	0.0277	NM_008458	NM_008458	Mus musculus serine (or cysteine) proteinase inhibitor, clade A, member 3C (Serpina3c), mRNA [NM_008458]
A_51_P369897	2.318	0.0383	NM_144833	NM_144833	Mus musculus zinc finger protein 410 (Zfp410), mRNA [NM_144833]
A_51_P371001	2.318	0.014	NM_145539	NM_145539	Mus musculus transmembrane 4 superfamily member 4 (Tm4sf4), mRNA [NM_145539]
A_52_P56471	2.318	0.0193	NM_007912	NM_007912	Mus musculus epidermal growth factor receptor (Egfr), transcript variant 2, mRNA [NM_007912]
A_52_P681495	2.318	0.0469	NM_027930	NM_027930	Mus musculus RIKEN cDNA 2610016C23 gene (2610016C23Rik), mRNA [NM_027930]
A_51_P172131	2.317	0.0427	NM_026821	NM_026821	Mus musculus DNA segment, Chr 4, Brigham & Women's Genetics 0951 expressed (D4Bwg0951e), mRNA [NM_026821]
A_51_P431823	2.317	0.0239	NM_027521	NM_027521	Mus musculus RIKEN cDNA 6330406L22 gene (6330406L22Rik), mRNA [NM_027521]
A_51_P502119	2.316	0.023	NM_028066	NM_028066	Mus musculus coagulation factor XI (F11), mRNA [NM_028066]
A_51_P193794	2.315	0.0356	NM_008512	NM_008512	Mus musculus low density lipoprotein receptor-related protein 1 (Lrp1), mRNA [NM_008512]
A_52_P142208	2.315	0.0224	NM_023423	NM_023423	Mus musculus RIKEN cDNA 6330407G11 gene (6330407G11Rik), mRNA [NM_023423]
A_51_P239699	2.313	0.0141	AK021284	AK021284	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230038D11 product:hypothetical SET-domain of transcriptional regulators (TRX, EZ, ASH1 etc) containing protein, full insert sequence [AK021284]
A_52_P35304	2.313	0.017	NM_007692	NM_007692	Mus musculus choline kinase beta (Chkb), mRNA [NM_007692]
A_52_P626020	2.31	0.0297	AK085322	AK085322	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630011L08 product:unknown EST, full insert sequence. [AK085322]
A_51_P166277	2.309	0.0292	NM_175229	NM_175229	Mus musculus serine/arginine repetitive matrix 2 (Srrm2), mRNA [NM_175229]
A_52_P652671	2.307	0.0182	NM_019424	NM_019424	Mus musculus Hermansky-Pudlak syndrome 1 homolog (human) (Hps1), mRNA [NM_019424]
A_51_P292057	2.305	0.0421	NM_030732	NM_030732	Mus musculus transducin (beta)-like 1X-linked receptor 1 (Tbl1xr1), mRNA [NM_030732]
A_51_P232901	2.304	0.0115	NM_009923	NM_009923	Mus musculus cyclic nucleotide phosphodiesterase 1 (Cnp1), mRNA [NM_009923]
A_51_P121412	2.303	0.0427	NM_026404	NM_026404	Mus musculus solute carrier family 35, member A4 (Slc35a4), mRNA [NM_026404]
A_51_P220806	2.303	0.043	NM_008110	NM_008110	Mus musculus growth differentiation factor 9 (Gdf9), mRNA [NM_008110]
A_52_P543040	2.302	0.0497	NM_028276	NM_028276	Mus musculus UTP14, U3 small nucleolar ribonucleoprotein, homolog A (yeast) (Utp14a), mRNA [NM_028276]
A_51_P332217	2.301	0.0375	NM_181418	NM_181418	Mus musculus Usher syndrome 1C binding protein 1 (Ushbp1), mRNA [NM_181418]
A_51_P139748	2.299	0.0224	NM_009338	NM_009338	Mus musculus acetyl-Coenzyme A acetyltransferase 2 (Acat2), mRNA [NM_009338]
A_51_P423976	2.299	0.0315	NM_013498	NM_013498	Mus musculus cAMP responsive element modulator (Crem), mRNA [NM_013498]
A_52_P12919	2.297	0.0372	NM_177326	NM_177326	Mus musculus p21 (CDKN1A)-activated kinase 2 (Pak2), mRNA [NM_177326]
A_51_P314774	2.296	0.0242	BC035255	BC035255	Mus musculus RIKEN cDNA 5430405G24 gene, mRNA (cDNA clone IMAGE:5364695), with apparent retained intron [BC035255]
A_52_P254884	2.295	0.0128	AK017864	AK017864	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730572E09 product:similar to SIMILAR TO T54 PROTEIN [Homo sapiens], full insert sequence. [AK017864]
A_51_P457130	2.294	0.0293	NM_144832	NM_144832	Mus musculus cDNA sequence BC017643 (BC017643), mRNA [NM_144832]
A_52_P142420	2.293	0.0282	1110065M07		unknown EST [1110065M07]
A_52_P489131	2.293	0.0292	AK078573	AK078573	Mus musculus 11 days embryo gonad cDNA, RIKEN full-length enriched library, clone:7030407O06 product:unclassifiable, full insert sequence [AK078573]
A_52_P132353	2.292	0.0292	AK085783	AK085783	Mus musculus 16 days neonate heart cDNA, RIKEN full-length enriched library, clone:D830009A19 product:unknown EST, full insert sequence. [AK085783]
A_52_P205522	2.292	0.0172	NM_009442	NM_009442	Mus musculus transcription termination factor 1 (Ttf1), mRNA [NM_009442]
A_51_P391825	2.291	0.0273	NM_016699	NM_016699	Mus musculus exosome component 10 (Exosc10), mRNA [NM_016699]
A_52_P58006	2.291	0.0438	NM_133225	NM_133225	Mus musculus acyl-Coenzyme A binding domain containing 3 (Acbd3), mRNA [NM_133225]
A_52_P395220	2.29	0.0221	NM_026609	NM_026609	Mus musculus leptin receptor overlapping transcript-like 1 (Leprotl1), mRNA [NM_026609]
A_51_P513163	2.288	0.0371	NM_198102	NM_198102	Mus musculus RIKEN cDNA G430041M01 gene (G430041M01Rik), mRNA [NM_198102]
A_52_P528772	2.288	0.0433	AK019079	AK019079	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310009M23 product:microtubule-associated protein 4, full insert sequence. [AK019079]
A_52_P569594	2.287	0.0464	AK081447	AK081447	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130018I10 product:SERINE-ARGININE-RICH SPLICING REGULATORY PROTEIN SRRP86 homolog [Rattus norvegicus], full insert sequence. [AK081447]
A_52_P517140	2.285	0.0126	NM_199306	NM_199306	Mus musculus WD and tetratricopeptide repeats 1 (Wdtc1), mRNA [NM_199306]
A_51_P350332	2.284	0.0488	AK079238	AK079238	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530046L18 product:RNA binding protein gene with multiple splicing, full insert sequence [AK079238]
A_51_P497451	2.284	0.0426	NM_178660	NM_178660	Mus musculus RNA binding motif, single stranded interacting protein (Rbms3), mRNA [NM_178660]
A_52_P309737	2.284	0.0346	TC1428425		CRK7_HUMAN (Q9NYV4) Cell division cycle 2-related protein kinase 7 (CDC2-related protein kinase 7) (CrkRS) , partial (81%) [TC1428425]
A_51_P259459	2.283	0.0431	NM_010908	NM_010908	Mus musculus nuclear factor of kappa light chain gene enhancer in B-cells inhibitor, beta (Nfkbib), mRNA [NM_010908]
A_51_P415755	2.283	0.014	AK052232	AK052232	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330011G23 product:weakly similar to SEMAPHORIN 6A PRECURSOR (SEMAPHORIN VIA) (SEMA VIA) (SEMAPHORIN Q) (SEMA Q) [Mus musculus], full insert sequence. [AK052232]
A_51_P357696	2.281	0.0172	AK013342	AK013342	Mus musculus 10, 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2810454F19 product:RNA-BINDING PROTEIN SIAHBP (FRAGMENT) homolog [Rattus norvegicus], full insert sequence. [AK013342]
A_52_P478451	2.28	0.0436	AK077013	AK077013	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4932409G22 product:HSGCN1 (FRAGMENT) homolog [Homo sapiens], full insert sequence. [AK077013]
A_52_P456490	2.279	0.0409	AK032072	AK032072	Mus musculus adult male medulla oblongata cDNA, RIKEN full-length enriched library, clone:6330571L03 product:unknown EST, full insert sequence. [AK032072]
A_52_P550613	2.279	0.0401	AK044252	AK044252	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930003K06 product:unclassifiable, full insert sequence [AK044252]
A_51_P441974	2.277	0.0131	NM_008847	NM_008847	Mus musculus phosphatidylinositol-4-phosphate 5-kinase, type 1 beta (Pip5k1b), mRNA [NM_008847]
A_51_P519319	2.277	0.0485	NM_007658	NM_007658	Mus musculus cell division cycle 25 homolog A (S. cerevisiae) (Cdc25a), mRNA [NM_007658]
A_52_P62617	2.276	0.017	XM_484794	XM_484794	PREDICTED: Mus musculus hypothetical gene supported by AK028012 (LOC433237), mRNA [XM_484794]
A_52_P867124	2.273	0.0438	AK040628	AK040628	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430110K16 product:unknown EST, full insert sequence. [AK040628]
A_51_P202964	2.272	0.0168	NM_009974	NM_009974	Mus musculus casein kinase II, alpha 2, polypeptide (Csnk2a2), mRNA [NM_009974]
A_51_P370099	2.272	0.0426	NM_008808	NM_008808	Mus musculus platelet derived growth factor, alpha (Pdgfa), mRNA [NM_008808]
A_52_P600531	2.272	0.0462	AK129243	AK129243	Mus musculus mRNA for mKIAA0945 protein [AK129243]
A_52_P636523	2.271	0.0175	NM_010897	NM_010897	Mus musculus neurofibromatosis 1 (Nf1), mRNA [NM_010897]
A_52_P120842	2.27	0.0067	NM_010763	NM_010763	Mus musculus mannosidase, alpha, class 1A, member 2 (Man1a2), mRNA [NM_010763]
A_51_P131025	2.268	0.0469	NM_026890	NM_026890	Mus musculus RIKEN cDNA 1500001L15 gene (1500001L15Rik), mRNA [NM_026890]
A_51_P303332	2.267	0.026	BC020137	BC020137	Mus musculus RIKEN cDNA 1500032H18 gene, mRNA (cDNA clone MGC:28063 IMAGE:3709157), complete cds. [BC020137]
A_51_P435911	2.267	0.0284	NM_133943	NM_133943	Mus musculus hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 7 (Hsd3b7), mRNA [NM_133943]
A_52_P392112	2.267	0.0467	NM_178363	NM_178363	Mus musculus YLP motif containing 1 (Ylpm1), mRNA [NM_178363]
A_51_P456590	2.265	0.0356	NM_025375	NM_025375	Mus musculus Williams Beuren syndrome chromosome region 22 (Wbscr22), mRNA [NM_025375]
A_52_P577729	2.265	0.0465	AK076142	AK076142	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:2900057K09 product:unknown EST, full insert sequence. [AK076142]
A_51_P410112	2.263	0.0122	NM_139153	NM_139153	Mus musculus centaurin, gamma 3 (Centg3), mRNA [NM_139153]
A_51_P267740	2.259	0.0304	NM_026934	NM_026934	Mus musculus RIKEN cDNA 2610312B22 gene (2610312B22Rik), mRNA [NM_026934]
A_52_P356343	2.259	0.0304	NM_153574	NM_153574	Mus musculus RIKEN cDNA D430015B01 gene (D430015B01Rik), mRNA [NM_153574]
A_51_P324110	2.258	0.0417	NM_144808	NM_144808	Mus musculus solute carrier family 39 (zinc transporter), member 14 (Slc39a14), mRNA [NM_144808]
A_51_P332676	2.258	0.0245	NM_028404	NM_028404	Mus musculus DNA topoisomerase 1, mitochondrial (Top1mt), mRNA [NM_028404]
A_52_P159191	2.258	0.0436	XM_287445	XM_287445	PREDICTED: hypothetical protein LOC100563 [Mus musculus], mRNA sequence [XM_287445]
A_51_P432460	2.257	0.0175	NM_026731	NM_026731	Mus musculus protein phosphatase 1, regulatory (inhibitor) subunit 14A (Ppp1r14a), mRNA [NM_026731]
A_51_P115268	2.256	0.0217	XM_132817	XM_132817	PREDICTED: RIKEN cDNA 5730521P14 [Mus musculus], mRNA sequence [XM_132817]
A_52_P172711	2.255	0.0271	AK080470	AK080470	Mus musculus 7 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:A730032F10 product:serine racemase, full insert sequence. [AK080470]
A_52_P647393	2.255	0.0384	NM_153158	NM_153158	Mus musculus RIKEN cDNA E130308A19 gene (E130308A19Rik), transcript variant 1, mRNA [NM_153158]
A_51_P154997	2.254	0.0399	NM_134155	NM_134155	Mus musculus breast cancer metastasis-suppressor 1 (Brms1), mRNA [NM_134155]
A_52_P519022	2.253	0.031	TC1517240		
A_51_P270577	2.252	0.0449	NM_027355	NM_027355	Mus musculus ring fnger protein 168 (Rnf168), mRNA [NM_027355]
A_52_P96782	2.251	0.0316	NM_028459	NM_028459	Mus musculus Wiskott-Aldrich syndrome-like (human) (Wasl), mRNA [NM_028459]
A_51_P159980	2.25	0.0476	AK084370	AK084370	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230033F14 product:unknown EST, full insert sequence [AK084370]
A_52_P131490	2.25	0.0404	NM_174874	NM_174874	Mus musculus autophagy-related 4B-like (yeast) (Atg4bl), mRNA [NM_174874]
A_52_P527924	2.25	0.0115	NM_028247	NM_028247	Mus musculus solute carrier family 16 (monocarboxylic acid transporters), member 10 (Slc16a10), mRNA [NM_028247]

A_51_P151722	2.249	0.0473	AK086241	AK086241	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930015M12 product:hypothetical protein, full insert sequence. [AK086241]
A_51_P513959	2.249	0.024	NM_198609	NM_198609	Mus musculus cDNA sequence BC003885 (BC003885), mRNA [NM_198609]
A_52_P56634	2.249	0.0186	NM_022012	NM_022012	Mus musculus mitogen activated protein kinase kinase kinase 11 (Map3k11), mRNA [NM_022012]
A_51_P412270	2.248	0.0476	AK220459	AK220459	Mus musculus mRNA for mKIAA4052 protein [AK220459]
A_52_P82209	2.247	0.022	NM_198703	NM_198703	Mus musculus protein kinase, lysine deficient 1 (Prkwnk1), mRNA [NM_198703]
A_51_P493602	2.245	0.0334	XM_129248	XM_129248	PREDICTED: RIKEN cDNA E430027O22 [Mus musculus], mRNA sequence [XM_129248]
A_51_P482925	2.243	0.0326	NM_175363	NM_175363	Mus musculus periphilin 1 (Pphln1), transcript variant 2, mRNA [NM_175363]
A_51_P502906	2.243	0.044	NM_177544	NM_177544	Mus musculus angiogenin, ribonuclease A family, member 4 (Ang4), mRNA [NM_177544]
A_52_P258537	2.243	0.0266	NM_144883	NM_144883	Mus musculus RIKEN cDNA 5430407P10 gene (5430407P10Rik), mRNA [NM_144883]
A_51_P368705	2.242	0.0451	NM_026574	NM_026574	Mus musculus RIKEN cDNA 4632409L19 gene (4632409L19Rik), mRNA [NM_026574]
A_51_P382849	2.242	0.0477	NM_010330	NM_010330	Mus musculus embigin (Emb), mRNA [NM_010330]
A_51_P197252	2.241	0.0479	NM_025884	NM_025884	Mus musculus coiled-coil domain containing 16 (Ccdc16), mRNA [NM_025884]
A_51_P277524	2.24	0.0344	NM_017476	NM_017476	Mus musculus A kinase (PRKA) anchor protein 8-like (Akap8l), mRNA [NM_017476]
A_52_P427494	2.239	0.0406	NM_029868	NM_029868	Mus musculus RIKEN cDNA 5330440M15 gene (5330440M15Rik), mRNA [NM_029868]
A_51_P305731	2.238	0.0278	NM_138303	NM_138303	Mus musculus Yip1 domain family, member 2 (Yipf2), mRNA [NM_138303]
A_52_P354823	2.238	0.0452	NM_008320	NM_008320	Mus musculus interferon consensus sequence binding protein 1 (Icsbp1), mRNA [NM_008320]
A_51_P249867	2.235	0.0386	NM_026382	NM_026382	Mus musculus RIKEN cDNA 6530403A03 gene (6530403A03Rik), mRNA [NM_026382]
A_52_P299832	2.234	0.0474	NM_018797	NM_018797	Mus musculus plexin C1 (Plxnc1), mRNA [NM_018797]
A_51_P228974	2.233	0.0381	NM_025671	NM_025671	Mus musculus RIKEN cDNA 5730405M13 gene (5730405M13Rik), mRNA [NM_025671]
A_51_P314895	2.233	0.0454	NM_146014	NM_146014	Mus musculus cerebral cavernous malformation 2 homolog (human) (Ccm2), mRNA [NM_146014]
A_51_P285960	2.23	0.0348	NM_018758	NM_018758	Mus musculus amyloid beta (A4) precursor protein-binding, family A, member 3 (Apba3), mRNA [NM_018758]
A_51_P493234	2.23	0.0276	NM_007752	NM_007752	Mus musculus ceruloplasmin (Cp), mRNA [NM_007752]
A_52_P686344	2.23	0.0481	NM_001014974	NM_0010149	Mus musculus tubulin tyrosine ligase-like family, member 4 (Ttll4), mRNA [NM_001014974]
A_52_P803823	2.23	0.0346	AK077900	AK077900	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030426L02 product:retinoblastoma binding protein 2, full insert sequence. [AK077900]
A_52_P624757	2.228	0.0279	NAP000004-017		
A_52_P90257	2.228	0.0331	TC1410711		A30241 ribosomal protein L7a - mouse {Mus musculus;} , partial (48%) [TC1410711]
A_51_P452382	2.227	0.0364	NM_009284	NM_009284	Mus musculus signal transducer and activator of transcription 6 (Stat6), mRNA [NM_009284]
A_52_P628590	2.225	0.0332	NM_027514	NM_027514	Mus musculus poliovirus receptor (Pvr), mRNA [NM_027514]
A_52_P635608	2.225	0.0402	NAP071064-1		
A_51_P146407	2.224	0.047	NM_138598	NM_138598	Mus musculus DNA segment, Chr 11, Wayne State University 99, expressed (D11Wsu99e), mRNA [NM_138598]
A_51_P407004	2.224	0.0203	NM_025774	NM_025774	Mus musculus Prkr interacting protein 1 (IL11 inducible) (Prkrip1), mRNA [NM_025774]
A_52_P562147	2.224	0.021	TC1449811		Q9B8V4 (Q9B8V4) Cytochrome oxidase subunit I (Fragment), partial (5%) [TC1449811]
A_51_P159771	2.222	0.0414	NM_007692	NM_007692	Mus musculus choline kinase beta (Chkb), mRNA [NM_007692]
A_51_P195062	2.222	0.032	NM_178627	NM_178627	Mus musculus polymerase (DNA-directed), delta interacting protein 3 (Poldip3), mRNA [NM_178627]
A_52_P596357	2.222	0.0433	AK054546	AK054546	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330039N10 product:ring finger protein 25, full insert sequence. [AK054546]
A_52_P228491	2.22	0.0291	NM_001025067	NM_0010250	Mus musculus leucine-rich repeats and immunoglobulin-like domains 2 (Lrig2), mRNA [NM_001025067]
A_52_P452019	2.22	0.0454	XM_357781	XM_357781	PREDICTED: ubiquitin specific protease 31 [Mus musculus], mRNA sequence [XM_357781]
A_52_P43266	2.218	0.044	NM_013924	NM_013924	Mus musculus activator of basal transcription (Abt1), mRNA [NM_013924]
A_52_P65295	2.217	0.0159	AK084936	AK084936	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430015D21 product:hypothetical protein, full insert sequence. [AK084936]
A_51_P157033	2.216	0.019	NM_178692	NM_178692	Mus musculus RIKEN cDNA C130074G19 gene (C130074G19Rik), mRNA [NM_178692]
A_51_P259555	2.216	0.0473	NM_172876	NM_172876	Mus musculus G patch domain containing 3 (Gpatc3), mRNA [NM_172876]
A_51_P448881	2.216	0.0376	NM_145528	NM_145528	Mus musculus DNA segment, Chr 2, ERATO Doi 391, expressed (D2Ertd391e), mRNA [NM_145528]
A_51_P434527	2.215	0.0205	XM_129246	XM_129246	PREDICTED: tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase 2 [Mus musculus], mRNA sequence [XM_129246]
A_51_P133078	2.214	0.0217	NM_008942	NM_008942	Mus musculus aminopeptidase puromycin sensitive (Npepps), mRNA [NM_008942]
A_51_P277994	2.214	0.0212	NM_145227	NM_145227	Mus musculus 2'-5' oligoadenylate synthetase 2 (Oas2), mRNA [NM_145227]
A_52_P581138	2.214	0.0205	NM_212450	NM_212450	Mus musculus DNA segment, Chr 2, ERATO Doi 485, expressed (D2Ertd485e), mRNA [NM_212450]
A_51_P296925	2.213	0.0457	AK010350	AK010350	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:2410003B16 product:strain Swiss Webster/NIH actin-associated protein palladin mRNA, full insert sequence. [AK010350]
A_52_P398307	2.213	0.0215	TC1515471		UBP7_HUMAN (Q93009) Ubiquitin carboxyl-terminal hydrolase 7 (Ubiquitin thiolesterase 7) (Ubiquitin-specific processing protease 7) (Deubiquitinating enzyme 7) (Herpesvirus associated ubiquitin-specific protease) , partial (5%) [TC1515471]
A_52_P372142	2.211	0.0436	NM_178707	NM_178707	Mus musculus zinc finger protein 592 (Zfp592), mRNA [NM_178707]
A_52_P488768	2.211	0.0385	AK044073	AK044073	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830087J06 product:hypothetical Uncharacterized protein family UPF0066 (VIRR) containing protein, full insert sequence. [AK044073]
A_52_P566390	2.21	0.0483	AK220333	AK220333	Mus musculus mRNA for mKIAA0321 protein [AK220333]
A_51_P211998	2.209	0.0451	NM_028943	NM_028943	Mus musculus RIKEN cDNA 4933405A16 gene (4933405A16Rik), mRNA [NM_028943]
A_51_P355996	2.207	0.0375	NM_145444	NM_145444	Mus musculus cDNA sequence BC016076 (BC016076), mRNA [NM_145444]
A_52_P77764	2.207	0.0372	NM_007514	NM_007514	Mus musculus solute carrier family 7 (cationic amino acid transporter, y+ system), member 2 (Slc7a2), mRNA [NM_007514]
A_52_P341708	2.205	0.0369	AK081879	AK081879	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130084F15 product:unknown EST, full insert sequence. [AK081879]
A_52_P495162	2.205	0.0385	NM_153562	NM_153562	Mus musculus cDNA sequence BC023814 (BC023814), mRNA [NM_153562]
A_52_P669331	2.205	0.0346	BC037150	BC037150	Mus musculus eukaryotic translation initiation factor 5B, mRNA (cDNA clone IMAGE:5148558), partial cds. [BC037150]
A_52_P76629	2.205	0.0411	TC1465597		Q8R4C3 (Q8R4C3) Csr1, partial (41%) [TC1465597]
A_51_P227785	2.204	0.0351	AK033046	AK033046	Mus musculus adult male eyeball cDNA, RIKEN full-length enriched library, clone:7530408C15 product:unclassifiable, full insert sequence [AK033046]
A_51_P329855	2.204	0.0477	NM_183149	NM_183149	Mus musculus zinc finger protein 598 (Zfp598), mRNA [NM_183149]
A_51_P413097	2.204	0.0353	NM_027421	NM_027421	Mus musculus RIKEN cDNA 2810417D08 gene (2810417D08Rik), mRNA [NM_027421]
A_51_P464478	2.202	0.0397	NM_010557	NM_010557	Mus musculus interleukin 4 receptor, alpha (Il4ra), transcript variant 2, mRNA [NM_010557]
A_52_P270145	2.202	0.0431	NM_026046	NM_026046	Mus musculus zinc finger protein 329 (Zfp329), mRNA [NM_026046]
A_52_P197666	2.201	0.0349	NM_021521	NM_021521	Mus musculus trinucleotide repeat containing 11 (THR-associated protein) (Tnrc11), mRNA [NM_021521]
A_51_P124719	2.2	0.0298	NM_001025156	NM_0010251	Mus musculus RIKEN cDNA 4633402D15 gene (4633402D15Rik), transcript variant 1, mRNA [NM_001025156]
A_51_P126476	2.2	0.0494	NM_010863	NM_010863	Mus musculus myosin IB (Myo1b), mRNA [NM_010863]
A_52_P409961	2.2	0.0186	NM_028399	NM_028399	Mus musculus cyclin T2 (Ccnt2), mRNA [NM_028399]
A_52_P673519	2.2	0.0261	XM_356077	XM_356077	PREDICTED: Mus musculus NIMA (never in mitosis gene a)-related expressed kinase 1 (Nek1), mRNA [XM_356077]
A_52_P61786	2.197	0.0288	NM_008211	NM_008211	Mus musculus H3 histone, family 3B (H3f3b), mRNA [NM_008211]
A_51_P123091	2.195	0.0124	NM_029274	NM_029274	Mus musculus WW domain binding protein 7 (Wbp7), mRNA [NM_029274]
A_51_P286321	2.195	0.0249	NM_026760	NM_026760	Mus musculus RIKEN cDNA 2310036O22 gene (2310036O22Rik), mRNA [NM_026760]
A_52_P183418	2.195	0.0335	XM_489778	XM_489778	PREDICTED: similar to Tce4 protein [Mus musculus], mRNA sequence [XM_489778]
A_52_P421728	2.19	0.0321	XM_354671	XM_354671	PREDICTED: HECT domain containing 1 [Mus musculus], mRNA sequence [XM_354671]
A_52_P485007	2.19	0.0346	AK129274	AK129274	Mus musculus mRNA for mKIAA1062 protein. [AK129274]
A_52_P230688	2.189	0.0466	NM_025620	NM_025620	Mus musculus RIKEN cDNA 2210417D09 gene (2210417D09Rik), mRNA [NM_025620]
A_51_P229911	2.188	0.0247	NM_080435	NM_080435	Mus musculus adenylate cyclase 4 (Adcy4), mRNA [NM_080435]
A_51_P376623	2.188	0.012	XM_127084	XM_127084	PREDICTED: thyroid hormone receptor interactor 11 [Mus musculus], mRNA sequence [XM_127084]
A_52_P627099	2.187	0.00638	NM_177124	NM_177124	Mus musculus trinucleotide repeat containing 6b (Tnrc6b), transcript variant 2, mRNA [NM_177124]
A_52_P423384	2.186	0.0383	NM_172549	NM_172549	Mus musculus calcineurin binding protein 1 (Cabin1), mRNA [NM_172549]
A_52_P509906	2.184	0.0368	NM_026298	NM_026298	Mus musculus RIKEN cDNA 4930553F24Rik (4930553F24Rik), mRNA [NM_026298]
A_52_P142496	2.183	0.0493	AK036565	AK036565	Mus musculus adult male bone cDNA, RIKEN full-length enriched library, clone:9830134E18 product:hypothetical Phosphopantetheine attachment site/G-protein beta WD-40 repeats containing protein, full insert sequence. [AK036565]
A_52_P189567	2.183	0.0383	NM_011278	NM_011278	Mus musculus ring finger protein 4 (Rnf4), mRNA [NM_011278]
A_51_P160284	2.18	0.0474	NM_011552	NM_011552	Mus musculus Treacher Collins Franceschetti syndrome 1, homolog (Tcof1), mRNA [NM_011552]

A_51_P365980	2.18	0.0373	NM_175149	NM_175149	Mus musculus RIKEN cDNA 2310022B05 gene (2310022B05Rik), mRNA [NM_175149]
A_52_P336259	2.178	0.0223	XM_485576	XM_485576	PREDICTED: similar to myeloid [XM_485576]
A_52_P479500	2.178	0.0232	NM_008942	NM_008942	Mus musculus aminopeptidase puromycin sensitive (Npepps), mRNA [NM_008942]
A_52_P490071	2.178	0.0467	NM_146550	NM_146550	Mus musculus olfactory receptor 810 (Olfr810), mRNA [NM_146550]
A_52_P438467	2.177	0.0211	ENSMUST00000086680		
A_52_P489202	2.177	0.0294	NM_001001499	NM_0010014	Mus musculus RIKEN cDNA 4732465J04 gene (4732465J04Rik), mRNA [NM_001001499]
A_52_P268134	2.176	0.0345	XM_622950	XM_622950	PREDICTED: Mus musculus similar to High glucose-regulated protein 8 (LOC547403), mRNA [XM_622950]
A_51_P499054	2.174	0.0423	AK029710	AK029710	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930488N09 product:hypothetical protein, full insert sequence [AK029710]
A_51_P112557	2.173	0.0286	NM_009085	NM_009085	Mus musculus RNA polymerase 1-1 (Rpo1-1), mRNA [NM_009085]
A_51_P164667	2.173	0.0216	NM_008211	NM_008211	Mus musculus H3 histone, family 3B (H3f3b), mRNA [NM_008211]
A_52_P641597	2.172	0.0345	NM_145931	NM_145931	Mus musculus zinc finger CCCH type containing 7 (Zc3h7), mRNA [NM_145931]
A_51_P141264	2.171	0.0358	NM_021559	NM_021559	Mus musculus zinc finger protein 191 (Zfp191), mRNA [NM_021559]
A_51_P177583	2.17	0.0346	NM_133691	NM_133691	Mus musculus RIKEN cDNA 2410104I19 gene (2410104I19Rik), mRNA [NM_133691]
A_52_P649356	2.17	0.0406	NM_027889	NM_027889	Mus musculus vacuolar protein sorting 11 (yeast) (Vps11), mRNA [NM_027889]
A_51_P205943	2.169	0.0376	NM_010414	NM_010414	Mus musculus Huntington disease gene homolog (Hdh), mRNA [NM_010414]
A_52_P286018	2.169	0.0419	NAP102645-1		
A_51_P293656	2.167	0.0466	AK021410	AK021410	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130302O19 product:RRN3 homolog [Homo sapiens], full insert sequence. [AK021410]
A_51_P336998	2.164	0.0372	NM_010376	NM_010376	Mus musculus histocompatibility 13 (H13), mRNA [NM_010376]
A_52_P537663	2.161	0.00553	NM_173378	NM_173378	Mus musculus transformation related protein 53 binding protein 2 (Trp53bp2), mRNA [NM_173378]
A_51_P101621	2.159	0.0274	NM_025702	NM_025702	Mus musculus RIKEN cDNA 3526402H21 gene (3526402H21Rik), mRNA [NM_025702]
A_52_P357177	2.156	0.038	NM_178902	NM_178902	Mus musculus mitochondrial tumor suppressor 1 (Mtus1), transcript variant 2, mRNA [NM_178902]
A_51_P179241	2.155	0.019	NM_020285	NM_020285	Mus musculus tumor-suppressing subchromosomal transferable fragment 4 (Tssc4), transcript variant 1, mRNA [NM_020285]
A_51_P197259	2.155	0.0269	NM_007638	NM_007638	Mus musculus chaperonin subunit 7 (eta) (Cct7), mRNA [NM_007638]
A_52_P423296	2.155	0.0309	NM_199314	NM_199314	Mus musculus serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 11 (Serpina11), mRNA [NM_199314]
A_51_P305437	2.154	0.0469	NM_009037	NM_009037	Mus musculus reticulocalbin 1 (Rcn1), mRNA [NM_009037]
A_52_P105840	2.15	0.024	AK122308	AK122308	Mus musculus mRNA for mKIAA0554 protein [AK122308]
A_51_P290074	2.148	0.0262	NM_021272	NM_021272	Mus musculus fatty acid binding protein 7, brain (Fabp7), mRNA [NM_021272]
A_52_P374669	2.144	0.0139	XM_359326	XM_359326	PREDICTED: jumonji, AT rich interactive domain 1A (Rbp2 like) [Mus musculus], mRNA sequence [XM_359326]
A_52_P573497	2.144	0.0393	NM_181324	NM_181324	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 6 (Ddx6), mRNA [NM_181324]
A_51_P141546	2.143	0.0185	NM_011016	NM_011016	Mus musculus orosomucoid 2 (Orm2), mRNA [NM_011016]
A_51_P363564	2.143	0.0477	NM_173378	NM_173378	Mus musculus transformation related protein 53 binding protein 2 (Trp53bp2), mRNA [NM_173378]
A_52_P272318	2.142	0.041	TC1497099		
A_52_P455295	2.141	0.0436	NM_145151	NM_145151	Mus musculus HCF-binding transcription factor Zhangfei (Zf), mRNA [NM_145151]
A_51_P283464	2.137	0.0385	NM_133788	NM_133788	Mus musculus isoprenylcysteine carboxyl methyltransferase (Icmt), mRNA [NM_133788]
A_51_P367780	2.136	0.0417	NM_029981	NM_029981	Mus musculus ADAMTS-like 2 (Adamtsl2), mRNA [NM_029981]
A_52_P624362	2.134	0.0497	NM_146110	NM_146110	Mus musculus angio-associated migratory protein (Aamp), mRNA [NM_146110]
A_52_P36261	2.131	0.0338	TC1453818		Q8R4C3 (Q8R4C3) Csr1, partial (37%) [TC1453818]
A_51_P147712	2.13	0.0444	AK042293	AK042293	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630079E18 product:hypothetical D111/G-patch domain/Aminoacyl-transfer RNA synthetases class-I/Glutamic acid-rich region/SWAP / SURP containing protein, full insert...
A_52_P186352	2.13	0.0407	TC1515090		
A_52_P788260	2.129	0.043	TC1417120		Q5T0S6 (Q5T0S6) Palmitoyl-protein thioesterase 1 (Ceroid-lipofuscinosis, neuronal 1, infantile) (Fragment), partial (5%) [TC1417120]
A_51_P423030	2.128	0.0402	NM_054081	NM_054081	Mus musculus metastasis associated 1 (Mta1), mRNA [NM_054081]
A_51_P169920	2.126	0.0392	NM_021303	NM_021303	Mus musculus cDNA sequence AF155546 (AF155546), mRNA [NM_021303]
A_51_P295708	2.123	0.0379	NM_026748	NM_026748	Mus musculus RIKEN cDNA 1110015K06 gene (1110015K06Rik), mRNA [NM_026748]
A_51_P504337	2.122	0.0311	NM_009848	NM_009848	Mus musculus ectonucleoside triphosphate diphosphohydrolase 1 (Entpd1), mRNA [NM_009848]
A_51_P427530	2.12	0.0483	NM_025700	NM_025700	Mus musculus phosphoglucomutase 1 (Pgm1), mRNA [NM_025700]
A_51_P326764	2.119	0.0386	NM_133225	NM_133225	Mus musculus acyl-Coenzyme A binding domain containing 3 (Acbd3), mRNA [NM_133225]
A_52_P11413	2.119	0.0482	XM_129477	XM_129477	PREDICTED: hypothetical protein LOC67886 [Mus musculus], mRNA sequence [XM_129477]
A_51_P349691	2.117	0.0281	NM_133979	NM_133979	Mus musculus expressed sequence AI604832 (AI604832), mRNA [NM_133979]
A_52_P675052	2.117	0.0331	XM_148244	XM_148244	PREDICTED: golgi autoantigen, golgin subfamily b, macrogolgin 1 [Mus musculus], mRNA sequence [XM_148244]
A_51_P280532	2.115	0.0259	NM_033618	NM_033618	Mus musculus suppressor of Ty 16 homolog (S. cerevisiae) (Supt16h), mRNA [NM_033618]
A_51_P430929	2.114	0.045	NM_153782	NM_153782	Mus musculus cDNA sequence BC029169 (BC029169), mRNA [NM_153782]
A_51_P115098	2.11	0.0262	AK008369	AK008369	Mus musculus adult male small intestine cDNA, RIKEN full-length enriched library, clone:2010109N14 product:unknown EST, full insert sequence. [AK008369]
A_51_P112789	2.106	0.0256	NM_018748	NM_018748	Mus musculus golgi autoantigen, golgin subfamily a, 4 (Golga4), mRNA [NM_018748]
A_51_P204247	2.106	0.00638	NM_146148	NM_146148	Mus musculus complement component 8, alpha polypeptide (C8a), mRNA [NM_146148]
A_52_P113285	2.105	0.0463	AK049476	AK049476	Mus musculus 7 days embryo whole body cDNA, RIKEN full-length enriched library, clone:C430015M08 product:hypothetical FKBP-type peptidyl-prolyl cis-trans isomerase domain profile/FKBP-type peptidyl-prolyl cis-trans isomerase (PPIase) containing...
A_52_P599055	2.105	0.0362	NM_172599	NM_172599	Mus musculus DNA segment, Chr 14, ERATO Doi 436, expressed (D14Ertd436e), mRNA [NM_172599]
A_51_P418725	2.103	0.0283	NM_024413	NM_024413	Mus musculus pleckstrin homology domain containing, family F (with FYVE domain) member 1 (Plekhf1), mRNA [NM_024413]
A_51_P315720	2.102	0.0371	NM_028312	NM_028312	Mus musculus coiled-coil domain containing 12 (Ccdc12), mRNA [NM_028312]
A_51_P238448	2.101	0.0477	NM_007632	NM_007632	Mus musculus cyclin D3 (Ccnd3), mRNA [NM_007632]
A_51_P249259	2.098	0.0328	BC071254	BC071254	Mus musculus cDNA clone IMAGE:5010343, partial cds. [BC071254]
A_52_P81461	2.097	0.0449	NM_023799	NM_023799	Mus musculus meningioma expressed antigen 5 (hyaluronidase) (Mgea5), mRNA [NM_023799]
A_52_P135276	2.094	0.0234	NM_207220	NM_207220	Mus musculus expressed sequence AI428855 (AI428855), mRNA [NM_207220]
A_51_P139848	2.093	0.0296	NM_011712	NM_011712	Mus musculus WW domain binding protein 5 (Wbp5), mRNA [NM_011712]
A_52_P467096	2.093	0.0271	NM_018748	NM_018748	Mus musculus golgi autoantigen, golgin subfamily a, 4 (Golga4), mRNA [NM_018748]
A_51_P271336	2.092	0.0168	NM_197940	NM_197940	Mus musculus RIKEN cDNA 5730509C05 gene (5730509C05Rik), mRNA [NM_197940]
A_52_P543080	2.09	0.0172	XM_619002	XM_619002	PREDICTED: Mus musculus similar to Nesprin 2 (Nuclear envelope spectrin repeat protein 2) (Syne-2) (Synaptic nuclear envelope protein 2) (Nucleus and actin connecting element protein) (NUANCE protein) (LOC544876), mRNA [XM_619002]
A_51_P291139	2.089	0.0152	XM_110787	XM_110787	PREDICTED: Mus musculus UPF3 regulator of nonsense transcripts homolog B (yeast) (Upf3b), mRNA [XM_110787]
A_52_P4046	2.089	0.0398	AK122243	AK122243	Mus musculus mRNA for mKIAA0314 protein. [AK122243]
A_51_P415029	2.087	0.0448	NM_008715	NM_008715	Mus musculus DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 26 (Ddx26), mRNA [NM_008715]
A_52_P269365	2.085	0.0283	NM_145625	NM_145625	Mus musculus eukaryotic translation initiation factor 4B (Eif4b), mRNA [NM_145625]
A_52_P67396	2.084	0.0167	AK019143	AK019143	Mus musculus 10 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2600001P13 product:hypothetical Tetratricopeptide repeat (TPR) structure containing protein, full insert sequence. [AK019143]
A_51_P476783	2.083	0.0445	X12801	X12801	Murine mRNA fragment for calmodulin-binding protein alpha-fodrin. [X12801]
A_52_P625244	2.082	0.0308	AK220549	AK220549	Mus musculus mRNA for mKIAA4216 protein [AK220549]
A_51_P300207	2.081	0.0456	AK079586	AK079586	Mus musculus adult male spinal cord cDNA, RIKEN full-length enriched library, clone:A330018M22 product:inferred: Mus musculus, Similar to 60S ribosomal protein L30 isolog, clone MGC:6735 IMAGE:3590401, mRNA, complete cds / Similar to 60S ribosomal...
A_52_P258338	2.081	0.0399	NM_178061	NM_178061	Mus musculus MOB1, Mps One Binder kinase activator-like 2B (yeast) (Mobkl2b), mRNA [NM_178061]
A_52_P628928	2.079	0.043	NM_001002764	NM_0010027	Mus musculus expressed sequence AI317223 (AI317223), mRNA [NM_001002764]
A_51_P152773	2.078	0.0371	NM_146201	NM_146201	Mus musculus zinc finger protein 553 (Zfp553), mRNA [NM_146201]
A_52_P338162	2.078	0.0432	NM_138303	NM_138303	Mus musculus Yip1 domain family, member 2 (Yipf2), mRNA [NM_138303]
A_52_P860150	2.076	0.0406	AK086814	AK086814	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030002K24 product:unclassifiable, full insert sequence. [AK086814]
A_51_P321405	2.075	0.0288	NM_026714	NM_026714	Mus musculus RIKEN cDNA 0610037D15 gene (0610037D15Rik), mRNA [NM_026714]
A_52_P146043	2.075	0.0492	NM_009333	NM_009333	Mus musculus transcription factor 7-like 2, T-cell specific, HMG-box (Tcf7l2), mRNA [NM_009333]
A_52_P114141	2.074	0.0372	NAP046391-1		
A_52_P279852	2.074	0.034	AK081551	AK081551	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130039J16 product:mitochondrial ribosomal protein L52, full insert sequence. [AK081551]

A_52_P130787	2.07	0.0306	NM_013568	NM_013568	Mus musculus potassium voltage-gated channel, shaker-related, subfamily, member 6 (Kcna6), mRNA [NM_013568]
A_52_P323182	2.068	0.0341	TC1486015		
A_52_P181038	2.067	0.0291	L25109	L25109	Mus musculus LIS mRNA, partial cds. [L25109]
A_52_P476431	2.065	0.0257	NM_021292	NM_021292	Mus musculus Ellis van Creveld gene homolog (human) (Evc), mRNA [NM_021292]
A_52_P521419	2.065	0.0323	NM_139139	NM_139139	Mus musculus DnaJ (Hsp40) homolog, subfamily C, member 17 (Dnajc17), mRNA [NM_139139]
A_52_P608318	2.065	0.0482	NM_019640	NM_019640	Mus musculus phosphatidylinositol transfer protein, beta (Pitpnb), mRNA [NM_019640]
A_52_P523480	2.064	0.0395	NM_009055	NM_009055	Mus musculus regulatory factor X, 1 (influences HLA class II expression) (Rfx1), mRNA [NM_009055]
A_51_P194999	2.063	0.0385	NM_027931	NM_027931	Mus musculus threonyl-tRNA synthetase-like 1 (Tarsl1), mRNA [NM_027931]
A_52_P225117	2.063	0.0443	D86419	D86419	Mus musculus mRNA for glycine tyrosine-rich hair keratin protein, complete cds. [D86419]
A_52_P598912	2.062	0.04	NM_178085	NM_178085	Mus musculus Rab6 interacting protein 2 (Rab6ip2), transcript variant 2, mRNA [NM_178085]
A_51_P477440	2.061	0.0499	NM_001029982	NM_0010299	Mus musculus Sec23 interacting protein (Sec23ip), mRNA [NM_001029982]
A_52_P584236	2.061	0.0487	NM_009682	NM_009682	Mus musculus adaptor-related protein complex 3, sigma 2 subunit (Ap3s2), mRNA [NM_009682]
A_52_P684722	2.06	0.0283	NM_026337	NM_026337	Mus musculus RIKEN cDNA 5730555F13 gene (5730555F13Rik), transcript variant 2, mRNA [NM_026337]
A_52_P162466	2.059	0.0203	AK122317	AK122317	Mus musculus mRNA for mKIAA0585 protein [AK122317]
A_52_P83623	2.059	0.0336	AK049228	AK049228	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:C330014P03 product:RAP GUANINE NUCLEOTIDE EXCHANGE FACTOR homolog [Homo sapiens], full insert sequence. [AK049228]
A_51_P342318	2.058	0.0434	NM_026409	NM_026409	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 55 (Ddx55), mRNA [NM_026409]
A_51_P447976	2.056	0.0046	BC046309	BC046309	Mus musculus RIKEN cDNA 4930431B09 gene, mRNA (cDNA clone IMAGE:6306854), partial cds [BC046309]
A_51_P220062	2.055	0.0338	NM_008609	NM_008609	Mus musculus matrix metalloproteinase 15 (Mmp15), mRNA [NM_008609]
A_51_P346104	2.055	0.0284	NM_024499	NM_024499	Mus musculus small glutamine-rich tetratricopeptide repeat (TPR)-containing, alpha (Sgta), mRNA [NM_024499]
A_52_P296382	2.048	0.024	BC053914	BC053914	Mus musculus E74-like factor 1, mRNA (cDNA clone IMAGE:30067070). [BC053914]
A_51_P317794	2.047	0.0444	NM_178363	NM_178363	Mus musculus YLP motif containing 1 (Ylpm1), mRNA [NM_178363]
A_52_P634329	2.044	0.0379	NAP027055-1		
A_51_P500056	2.04	0.0406	NM_019923	NM_019923	Mus musculus inositol 1,4,5-triphosphate receptor 2 (Itpr2), transcript variant 1, mRNA [NM_019923]
A_51_P458262	2.038	0.0147	NM_011888	NM_011888	Mus musculus chemokine (C-C motif) ligand 19 (Ccl19), mRNA [NM_011888]
A_51_P516362	2.038	0.0451	NM_027889	NM_027889	Mus musculus vacuolar protein sorting 11 (yeast) (Vps11), mRNA [NM_027889]
A_52_P232830	2.037	0.0258	BC013089	BC013089	Mus musculus E26 avian leukemia oncogene 1, 5' domain, mRNA (cDNA clone IMAGE:3499941), partial cds [BC013089]
A_51_P235853	2.036	0.0468	NM_145425	NM_145425	Mus musculus expressed sequence AV249152 (AV249152), mRNA [NM_145425]
A_52_P684813	2.036	0.0466	AK036738	AK036738	Mus musculus adult male bone cDNA, RIKEN full-length enriched library, clone:9830169C09 product:ALANYL-TRNA SYNTHETASE (EC 6.1.1.7) (ALANINE--TRNA LIGASE) (ALARS) homolog [Homo sapiens], full insert sequence. [AK036738]
A_52_P270446	2.035	0.0313	BC016522	BC016522	Mus musculus TAO kinase 1, mRNA (cDNA clone MGC:29021 IMAGE:3495957), complete cds. [BC016522]
A_52_P545491	2.029	0.043	AK084157	AK084157	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230004F12 product:POTASSIUM CHANNEL MODULATORY FACTOR homolog [Homo sapiens], full insert sequence. [AK084157]
A_51_P312175	2.028	0.0376	NM_175091	NM_175091	Mus musculus tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase (Tnks), mRNA [NM_175091]
A_51_P321651	2.028	0.0356	NM_028221	NM_028221	Mus musculus RIKEN cDNA 2310065K24 gene (2310065K24Rik), mRNA [NM_028221]
A_51_P402583	2.028	0.045	NM_008156	NM_008156	Mus musculus glycosylphosphatidylinositol specific phospholipase D1 (Gpld1), mRNA [NM_008156]
A_52_P109959	2.028	0.0291	NAP058846-1		
A_51_P286527	2.027	0.044	NM_010578	NM_010578	Mus musculus integrin beta 1 (fibronectin receptor beta) (Itgb1), mRNA [NM_010578]
A_52_P27103	2.027	0.0459	NM_025383	NM_025383	Mus musculus RIKEN cDNA 1110005F07 gene (1110005F07Rik), mRNA [NM_025383]
A_52_P316355	2.021	0.013	NM_009333	NM_009333	Mus musculus transcription factor 7-like 2, T-cell specific, HMG-box (Tcf7l2), mRNA [NM_009333]
A_52_P35377	2.02	0.0284	NM_018807	NM_018807	Mus musculus pleiomorphic adenoma gene-like 2 (Plagl2), mRNA [NM_018807]
A_52_P386408	2.02	0.0213	NM_028312	NM_028312	Mus musculus coiled-coil domain containing 12 (Ccdc12), mRNA [NM_028312]
A_51_P194224	2.018	0.0491	NM_029162	NM_029162	Mus musculus zinc finger protein 509 (Zfp509), mRNA [NM_029162]
A_51_P267836	2.016	0.0427	NM_008877	NM_008877	Mus musculus plasminogen (Plg), mRNA [NM_008877]
A_51_P331702	2.016	0.0283	NM_011417	NM_011417	Mus musculus SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 4 (Smarca4), mRNA [NM_011417]
A_51_P380581	2.016	0.0342	NM_057172	NM_057172	Mus musculus far upstream element (FUSE) binding protein 1 (Fubp1), mRNA [NM_057172]
A_51_P153294	2.015	0.0383	AK084469	AK084469	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330004B22 product:unknown EST, full insert sequence. [AK084469]
A_51_P384618	2.014	0.047	NM_026144	NM_026144	Mus musculus dehydrodolichyl diphosphate synthase (Dhdds), mRNA [NM_026144]
A_51_P436796	2.014	0.0451	NM_016784	NM_016784	Mus musculus pleiotropic regulator 1, PRL1 homolog (Arabidopsis) (Plrg1), mRNA [NM_016784]
A_51_P295442	2.013	0.0301	NM_021605	NM_021605	Mus musculus NIMA (never in mitosis gene a)-related expressed kinase 7 (Nek7), mRNA [NM_021605]
A_51_P428483	2.013	0.025	NM_181849	NM_181849	Mus musculus fibrinogen, B beta polypeptide (Fgb), mRNA [NM_181849]
A_51_P456478	2.013	0.0295	NM_134034	NM_134034	Mus musculus expressed sequence AW011752 (AW011752), mRNA [NM_134034]
A_51_P393934	2.01	0.0441	NM_007656	NM_007656	Mus musculus kangai 1 (suppression of tumorigenicity 6, prostate) (Kai1), mRNA [NM_007656]
A_52_P640413	2.005	0.0416	NM_145580	NM_145580	Mus musculus hypothetical protein MGC30332 (MGC30332), mRNA [NM_145580]
A_52_P566208	2.004	0.0335	AK014593	AK014593	Mus musculus 0 day neonate skin cDNA, RIKEN full-length enriched library, clone:4632426C10 product:unclassifiable, full insert sequence. [AK014593]
A_51_P462862	2.003	0.0338	NM_145557	NM_145557	Mus musculus RIKEN cDNA 9430015G10 gene (9430015G10Rik), mRNA [NM_145557]
A_52_P110052	2.003	0.0272	NM_010045	NM_010045	Mus musculus Duffy blood group (Dfy), mRNA [NM_010045]
A_52_P364140	2.003	0.0464	NM_010577	NM_010577	Mus musculus integrin alpha 5 (fibronectin receptor alpha) (Itga5), mRNA [NM_010577]
A_52_P476484	2.003	0.0499	NM_177474	NM_177474	Mus musculus DNA segment, Chr 19, Brigham & Women's Genetics 1357 expressed (D19Bwg1357e), mRNA [NM_177474]
A_52_P308681	2.002	0.0438	NM_029705	NM_029705	Mus musculus Machado-Joseph disease (spinocerebellar ataxia 3, olivopontocerebellar ataxia 3, autosomal dominant, ataxin 3) homolog (human) (Mjd), mRNA [NM_029705]
A_52_P97670	2.002	0.0147	AK085232	AK085232	Mus musculus 13 days embryo stomach cDNA, RIKEN full-length enriched library, clone:D530031C13 product:hypothetical protein, full insert sequence. [AK085232]
A_52_P178018	-2	0.0189	NM_009234	NM_009234	Mus musculus SRY-box containing gene 11 (Sox11), mRNA [NM_009234]
A_52_P308723	-2.004	0.0234	AB159607	AB159607	Mus musculus Hag2 mRNA for hypothetical protein, complete cds [AB159607]
A_52_P451334	-2.004	0.0274	AK047131	AK047131	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930025E15 product:hypothetical protein, full insert sequence [AK047131]
A_52_P544686	-2.004	0.0182	AK007029	AK007029	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700089D09 product:unclassifiable, full insert sequence. [AK007029]
A_51_P216839	-2.008	0.0196	AK081049	AK081049	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930074P22 product:unclassifiable, full insert sequence. [AK081049]
A_51_P297858	-2.008	0.0331	NM_172840	NM_172840	Mus musculus VWA-like domains, matrilins and collagens (Amaco), mRNA [NM_172840]
A_52_P1179569	-2.008	0.0431	AK005614	AK005614	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700001N15 product:unclassifiable, full insert sequence. [AK005614]
A_52_P795220	-2.008	0.0271	AK087599	AK087599	Mus musculus 2 days pregnant adult female oviduct cDNA, RIKEN full-length enriched library, clone:E230022A01 product:hypothetical protein, full insert sequence. [AK087599]
A_51_P434059	-2.012	0.0388	NM_001001496	NM_0010014	Mus musculus gap junction membrane channel protein alpha 6 (Gja6), mRNA [NM_001001496]
A_51_P450248	-2.012	0.0203	NM_007957	NM_007957	Mus musculus extraembryonic, spermatogenesis, homeobox 1 (Esx1), mRNA [NM_007957]
A_52_P437105	-2.012	0.0474	NAP113249-1		
A_52_P588316	-2.012	0.0355	AK029781	AK029781	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930553D05 product:unknown EST, full insert sequence. [AK029781]
A_52_P747362	-2.012	0.0245	AK053933	AK053933	Mus musculus 2 days pregnant adult female oviduct cDNA, RIKEN full-length enriched library, clone:E230003B12 product:unknown EST, full insert sequence [AK053933]
A_52_P67574	-2.016	0.031	AK038727	AK038727	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230057H21 product:hypothetical protein, full insert sequence. [AK038727]
A_52_P488649	-2.02	0.0285	AK029106	AK029106	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732493D10 product:hypothetical protein, full insert sequence. [AK029106]
A_52_P595711	-2.02	0.0491	AK017470	AK017470	Mus musculus 6 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5630401D24 product:hypothetical SAM (and some other nucleotide) binding motif containing protein, full insert sequence. [AK017470]
A_52_P40466	-2.024	0.0466	AK015209	AK015209	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930427C17 product:unknown EST, full insert sequence [AK015209]
A_51_P190361	-2.028	0.0193	AK053419	AK053419	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130016E03 product:FIBRINOGEN SILENCER BINDING PROTEIN homolog [Homo sapiens], full insert sequence. [AK053419]
A_51_P160223	-2.037	0.0265	NAP057140-1		
A_51_P347240	-2.037	0.0123	NM_027178	NM_027178	Mus musculus peptidylprolyl isomerase (cyclophilin) like 5 (Ppil5), mRNA [NM_027178]
A_51_P483483	-2.037	0.0352	NM_028726	NM_028726	Mus musculus RIKEN cDNA 4632404H12 gene (4632404H12Rik), mRNA [NM_028726]
A_51_P224485	-2.041	0.0277	NM_008024	NM_008024	Mus musculus forkhead box L1 (Foxl1), mRNA [NM_008024]
A_52_P115763	-2.041	0.0208	AK049146	AK049146	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:C330007E15 product:unknown EST, full insert sequence. [AK049146]
A_52_P309084	-2.041	0.0123	AK047398	AK047398	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930055M19 product:unknown EST, full insert sequence. [AK047398]
A_51_P492165	-2.045	0.00217	XM_143587	XM_143587	PREDICTED: Mus musculus B-cell scaffold protein with ankyrin repeats 1 (Bank1), mRNA [XM_143587]

A_51_P142744	-2.049	0.0484	NM_172294	NM_172294	Mus musculus sulfatase 1 (Sulf1), mRNA [NM_172294]
A_51_P282279	-2.049	0.0187	AK080348	AK080348	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630061O03 product:unclassifiable, full insert sequence. [AK080348]
A_51_P365952	-2.049	0.0483	NM_010067	NM_010067	Mus musculus DNA methyltransferase 2 (Dnmt2), mRNA [NM_010067]
A_52_P384465	-2.049	0.0252	AK083103	AK083103	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630014L05 product:myelin-associated oligodendrocytic basic protein, full insert sequence. [AK083103]
A_52_P1012558	-2.053	0.0379	AK089133	AK089133	Mus musculus 10 days neonate olfactory brain cDNA, RIKEN full-length enriched library, clone:E530011J04 product:hypothetical protein, full insert sequence. [AK089133]
A_52_P177054	-2.053	0.0213	NM_016971	NM_016971	Mus musculus interleukin 22 (Il22), mRNA [NM_016971]
A_51_P125663	-2.058	0.0345	NM_145592	NM_145592	Mus musculus dickkopf homolog 4 (Xenopus laevis) (Dkk4), mRNA [NM_145592]
A_51_P143682	-2.058	0.043	NM_021346	NM_021346	Mus musculus zinc finger protein 318 (Zfp318), transcript variant 2, mRNA [NM_021346]
A_51_P262453	-2.058	0.0495	AK021406	AK021406	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130209G04 product:hypothetical protein, full insert sequence. [AK021406]
A_51_P517608	-2.058	0.0122	NM_026333	NM_026333	Mus musculus RIKEN cDNA 2010106E10 gene (2010106E10Rik), mRNA [NM_026333]
A_52_P301115	-2.058	0.0341	AK042749	AK042749	Mus musculus 7 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:A730020N04 product:CUG triplet repeat,RNA binding protein 2, full insert sequence. [AK042749]
A_52_P462472	-2.058	0.0234	XM_205178	XM_205178	PREDICTED: similar to mKIAA2022 protein [Mus musculus], mRNA sequence [XM_205178]
A_52_P980224	-2.058	0.00278	AK084027	AK084027	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130077D15 product:unknown EST, full insert sequence. [AK084027]
A_52_P531917	-2.062	0.0398	AK052280	AK052280	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330020A13 product:hypothetical protein, full insert sequence. [AK052280]
A_52_P72831	-2.062	0.0209	NM_207679	NM_207679	Mus musculus trophinin (Tro), transcript variant 2, mRNA [NM_207679]
A_51_P288009	-2.066	0.012	NM_009604	NM_009604	Mus musculus cholinergic receptor, nicotinic, gamma polypeptide (Chrng), mRNA [NM_009604]
A_51_P350942	-2.066	0.0353	NM_146594	NM_146594	Mus musculus olfactory receptor 1100 (Olfr1100), mRNA [NM_146594]
A_51_P427132	-2.066	0.0184	NM_177076	NM_177076	Mus musculus F-box and leucine-rich repeat protein 13 (Fbxl13), mRNA [NM_177076]
A_52_P995445	-2.07	0.0127	AK031225	AK031225	Mus musculus 13 days embryo forelimb cDNA, RIKEN full-length enriched library, clone:5930433C01 product:unclassifiable, full insert sequence. [AK031225]
A_51_P507533	-2.079	0.0366	AK077039	AK077039	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4932427P06 product:hypothetical Endonuclease [AK077039]
A_52_P65719	-2.079	0.0397	TC1480545		Q6GQX9 (Q6GQX9) Tce1 protein, partial (18%) [TC1480545]
A_51_P398021	-2.083	0.0433	NM_144803	NM_144803	Mus musculus cholinergic receptor, nicotinic, alpha polypeptide 2 (neuronal) (Chrna2), mRNA [NM_144803]
A_52_P156034	-2.083	0.0147	AK052571	AK052571	Mus musculus 13 days embryo stomach cDNA, RIKEN full-length enriched library, clone:D530031E19 product:hypothetical protein, full insert sequence. [AK052571]
A_51_P275808	-2.088	0.015	NM_025863	NM_025863	Mus musculus tripartite motif-containing 59 (Trim59), mRNA [NM_025863]
A_52_P35477	-2.088	0.0496	AK036217	AK036217	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630046G05 product:F-BOX PROTEIN FBL2 homolog [Rattus norvegicus], full insert sequence. [AK036217]
A_51_P257841	-2.092	0.0284	NM_028494	NM_028494	Mus musculus RIKEN cDNA 1700034I23 gene (1700034I23Rik), mRNA [NM_028494]
A_51_P485287	-2.092	0.0172	AK010580	AK010580	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:2410024F20 product:unclassifiable, full insert sequence. [AK010580]
A_52_P544302	-2.092	0.0206	AK004585	AK004585	Mus musculus adult male lung cDNA, RIKEN full-length enriched library, clone:1200003N10 product:hypothetical protein, full insert sequence. [AK004585]
A_52_P668652	-2.092	0.0236	AK046230	AK046230	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230358D11 product:hypothetical protein, full insert sequence. [AK046230]
A_52_P6187	-2.096	0.017	AK044661	AK044661	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930030L01 product:phytoceramidase, alkaline, full insert sequence. [AK044661]
A_52_P137145	-2.105	0.00634	AK031401	AK031401	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030423J02 product:CDNA FLJ14936 FIS, CLONE PLACE1010194, WEAKLY SIMILAR TO SPLICING FACTOR, ARGININE/SERINE-RICH 2 homolog [Homo sapiens], full insert sequence....
A_52_P650151	-2.105	0.0131	AK084177	AK084177	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230005G05 product:FMS-like tyrosine kinase 1, full insert sequence. [AK084177]
A_51_P239884	-2.11	0.0368	NM_172865	NM_172865	Mus musculus mannosidase, endo-alpha (Manea), mRNA [NM_172865]
A_51_P481592	-2.11	0.0493	NM_001004140	NM_0010041	Mus musculus cytoskeleton associated protein 2 (Ckap2), mRNA [NM_001004140]
A_51_P503202	-2.11	0.0168	AK016218	AK016218	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930564D02 product:hypothetical protein, full insert sequence [AK016218]
A_52_P40345	-2.11	0.0152	NM_028104	NM_028104	Mus musculus protein phosphatase 1, regulatory (inhibitor) subunit 14D (Ppp1r14d), mRNA [NM_028104]
A_51_P350578	-2.114	0.00956	AK014627	AK014627	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4731417B20 product:hypothetical protein, full insert sequence. [AK014627]
A_51_P285462	-2.119	0.0341	NM_146276	NM_146276	Mus musculus olfactory receptor 1394 (Olfr1394), mRNA [NM_146276]
A_52_P663666	-2.119	0.0436	AK085506	AK085506	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630035O08 product:unknown EST, full insert sequence [AK085506]
A_52_P223239	-2.123	0.0272	AK040159	AK040159	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430071A18 product:unknown EST, full insert sequence. [AK040159]
A_52_P300595	-2.123	0.0264	NM_028568	NM_028568	Mus musculus RIKEN cDNA 1700094E07 gene (1700094E07Rik), mRNA [NM_028568]
A_52_P427579	-2.123	0.0212	NM_053149	NM_053149	Mus musculus hemogen (Hemgn), mRNA [NM_053149]
A_52_P493493	-2.123	0.0395	NM_010727	NM_010727	Mus musculus ligand of numb-protein X 1 (Lnx1), mRNA [NM_010727]
A_52_P947821	-2.123	0.0171	AK039334	AK039334	Mus musculus adult male spinal cord cDNA, RIKEN full-length enriched library, clone:A330025H08 product:unknown EST, full insert sequence. [AK039334]
A_51_P416308	-2.128	0.0122	XM_110968	XM_110968	PREDICTED: dynein, axonemal, heavy polypeptide 9 [Mus musculus], mRNA sequence [XM_110968]
A_52_P407191	-2.128	0.026	NM_198621	NM_198621	Mus musculus gene model 443, (NCBI) (Gm443), mRNA [NM_198621]
A_52_P629709	-2.128	0.019	NM_146450	NM_146450	Mus musculus olfactory receptor 1314 (Olfr1314), mRNA [NM_146450]
A_52_P38436	-2.132	0.0131	AK083201	AK083201	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630027D21 product:SIMILAR TO BAI1-ASSOCIATED PROTEIN 2 homolog [Homo sapiens], full insert sequence. [AK083201]
A_52_P463295	-2.132	0.011	NM_146637	NM_146637	Mus musculus olfactory receptor 1141 (Olfr1141), mRNA [NM_146637]
A_52_P643172	-2.137	0.0187	NM_026674	NM_026674	Mus musculus anterior pharynx defective 1c homolog (C. elegans) (Aph1c), mRNA [NM_026674]
A_51_P458800	-2.141	0.0122	A_51_P458800		
A_52_P1147469	-2.141	0.0139	AK009831	AK009831	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310045N14 product:unknown EST, full insert sequence. [AK009831]
A_52_P70280	-2.141	0.0198	AK079589	AK079589	Mus musculus adult male spinal cord cDNA, RIKEN full-length enriched library, clone:A330032N15 product:unknown EST, full insert sequence. [AK079589]
A_52_P287550	-2.146	0.0406	NM_133922	NM_133922	Mus musculus RIKEN cDNA A930040G15 gene (A930040G15Rik), mRNA [NM_133922]
A_52_P399584	-2.146	0.00617	NM_181589	NM_181589	Mus musculus RIKEN cDNA 2610318C08 gene (2610318C08Rik), mRNA [NM_181589]
A_52_P554436	-2.146	0.00957	NM_027100	NM_027100	Mus musculus RWD domain containing 2 (Rwdd2), mRNA [NM_027100]
A_51_P486569	-2.151	0.00446	NM_146385	NM_146385	Mus musculus olfactory receptor 1347 (Olfr1347), mRNA [NM_146385]
A_52_P259365	-2.151	0.034	NM_199156	NM_199156	Mus musculus taste receptor, type 2, member 130 (Tas2r130), mRNA [NM_199156]
A_52_P129615	-2.155	0.00891	AK082649	AK082649	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230077C14 product:TGF-BETA INDUCED APOTOSIS PROTEIN 2 homolog [Homo sapiens], full insert sequence [AK082649]
A_51_P240404	-2.16	0.0434	AK122444	AK122444	Mus musculus mRNA for mKIAA1107 protein [AK122444]
A_51_P360040	-2.16	0.018	NM_028848	NM_028848	Mus musculus RIKEN cDNA 4930513F16 gene (4930513F16Rik), mRNA [NM_028848]
A_51_P318637	-2.174	0.0177	NM_020026	NM_020026	Mus musculus UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 3 (B3galt3), mRNA [NM_020026]
A_52_P201494	-2.174	0.0162	AK030316	AK030316	Mus musculus 11 days pregnant adult female ovary and uterus cDNA, RIKEN full-length enriched library, clone:5031428K02 product:similar to CDNA FLJ14503 FIS, CLONE NT2RM1000252, WEAKLY SIMILAR TO H.SAPIENS E-MAP-115 MRNA [Homo sapiens], full insert...
A_52_P351231	-2.174	0.0299	AK037485	AK037485	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130021C03 product:unknown EST, full insert sequence. [AK037485]
A_51_P217697	-2.179	0.0149	AK006127	AK006127	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700019L03 product:hypothetical protein, full insert sequence. [AK006127]
A_52_P963805	-2.179	0.0261	AK053347	AK053347	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130011C12 product:unclassifiable, full insert sequence. [AK053347]
A_52_P21887	-2.183	0.0165	AK034918	AK034918	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430062G01 product:slit homolog 2 (Drosophila), full insert sequence. [AK034918]
A_52_P225912	-2.183	0.0163	NM_130866	NM_130866	Mus musculus olfactory receptor 78 (Olfr78), mRNA [NM_130866]
A_51_P378371	-2.188	0.0395	TC1497602		T08796 tropomyosin - human (fragment) (Homo sapiens;} , partial (98%) [TC1497602]
A_52_P121502	-2.188	0.0345	NM_026385	NM_026385	Mus musculus transmembrane 4 superfamily member 11 (Tm4sf11), mRNA [NM_026385]
A_51_P150302	-2.193	0.0469	NM_019465	NM_019465	Mus musculus cytotoxic and regulatory T cell molecule (Crtam), mRNA [NM_019465]
A_51_P223546	-2.193	0.0159	NM_175460	NM_175460	Mus musculus nicotinamide nucleotide adenylyltransferase 2 (Nmnat2), mRNA [NM_175460]
A_51_P303696	-2.193	0.0147	XM_484950	XM_484950	PREDICTED: similar to hypothetical protein FLJ35728 [Mus musculus], mRNA sequence [XM_484950]
A_51_P378511	-2.193	0.0123	BC018510	BC018510	ENSMUST00000062877 [BC018510]
A_52_P144286	-2.193	0.045	NM_177768	NM_177768	Mus musculus cDNA sequence BC038156 (BC038156), mRNA [NM_177768]
A_52_P38403	-2.193	0.0196	AK035969	AK035969	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630022D15 product:ethanol decreased 2, full insert sequence. [AK035969]
A_52_P534609	-2.193	0.0151	AK041889	AK041889	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630044M15 product:unclassifiable, full insert sequence. [AK041889]
A_52_P592195	-2.193	0.0245	AK011044	AK011044	Mus musculus 13 days embryo liver cDNA, RIKEN full-length enriched library, clone:2510038J07 product:zinc finger protein 192, full insert sequence. [AK011044]
A_52_P614453	-2.193	0.046	AK017289	AK017289	Mus musculus 6 days neonate head cDNA, RIKEN full-length enriched library, clone:5430410E06 product:unknown EST, full insert sequence. [AK017289]
A_52_P681659	-2.193	0.0198	XM_485258	XM_485258	PREDICTED: hypothetical protein XP_485258 [Mus musculus], mRNA sequence [XM_485258]
A_51_P184300	-2.198	0.0186	NM_010087	NM_010087	Mus musculus dystrobrevin alpha (Dtna), transcript variant 2, mRNA [NM_010087]
A_51_P229217	-2.198	0.0175	AK083791	AK083791	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130011C11 product:unknown EST, full insert sequence. [AK083791]
A_51_P466828	-2.198	0.0406	AK039192	AK039192	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230106M15 product:hypothetical Pleckstrin homology (PH) domain containing protein, full insert sequence. [AK039192]

A_52_P399140	-2.198	0.0135	NM_028411	NM_028411	Mus musculus RIKEN cDNA 2900055D14 gene (2900055D14Rik), mRNA [NM_028411]
A_52_P520429	-2.198	0.025	AK013921	AK013921	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3100002L24 product:similar to KRUPPEL-RELATED ZINC FINGER PROTEIN F80-L [Mus musculus], full insert sequence. [AK013921]
A_52_P70692	-2.203	0.0252	AK045312	AK045312	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130064M09 product:unclassifiable, full insert sequence. [AK045312]
A_51_P260020	-2.208	0.0132	AK019536	AK019536	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4921504N20 product:ZINC FINGER PROTEIN 9 (FRAGMENT) homolog [Rattus norvegicus], full insert sequence [AK019536]
A_51_P509651	-2.208	0.00501	NM_028760	NM_028760	Mus musculus RIKEN cDNA 1200008O12 gene (1200008O12Rik), mRNA [NM_028760]
A_51_P243941	-2.212	0.0115	AK015073	AK015073	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930404A10 product:hypothetical protein, full insert sequence [AK015073]
A_51_P151133	-2.217	0.0478	NM_177162	NM_177162	Mus musculus RIKEN cDNA 9930032O22 gene (9930032O22Rik), mRNA [NM_177162]
A_52_P162099	-2.217	0.00468	NM_001004140	NM_0010041	Mus musculus cytoskeleton associated protein 2 (Ckap2), mRNA [NM_001004140]
A_52_P508277	-2.217	0.0208	ENSMUST00000064708		
A_52_P595663	-2.222	0.0121	NM_026412	NM_026412	Mus musculus DNA segment, Chr 2, ERATO Doi 750, expressed (D2Ertd750e), mRNA [NM_026412]
A_52_P679711	-2.222	0.0316	NM_029198	NM_029198	Mus musculus RIKEN cDNA 4930538K18 gene (4930538K18Rik), mRNA [NM_029198]
A_52_P420665	-2.232	0.00278	NM_198166	NM_198166	Mus musculus urotensin 2 domain containing (Uts2d), mRNA [NM_198166]
A_52_P673489	-2.232	0.0228	AK004741	AK004741	Mus musculus adult male lung cDNA, RIKEN full-length enriched library, clone:1200013E08 product:raf-related oncogene, full insert sequence. [AK004741]
A_52_P1067575	-2.237	0.0127	AK019492	AK019492	Mus musculus 0 day neonate skin cDNA, RIKEN full-length enriched library, clone:4632411P08 product:unclassifiable, full insert sequence. [AK019492]
A_52_P319541	-2.237	0.0354	AK042296	AK042296	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630079M02 product:NOPAR2 homolog [Homo sapiens], full insert sequence [AK042296]
A_52_P75935	-2.237	0.0227	AK048573	AK048573	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130078G20 product:hypothetical protein, full insert sequence. [AK048573]
A_51_P240811	-2.242	0.0132	NM_009290	NM_009290	Mus musculus wingless-related MMTV integration site 8A (Wnt8a), mRNA [NM_009290]
A_51_P354609	-2.242	0.0214	NM_145152	NM_145152	Mus musculus leucine rich repeat containing 3 (Lrrc3), mRNA [NM_145152]
A_52_P218765	-2.242	0.0379	BC022630	BC022630	Mus musculus TBC1 domain family, member 2, mRNA (cDNA clone IMAGE:4206225), with apparent retained intron. [BC022630]
A_52_P594177	-2.242	0.0174	XM_134537	XM_134537	PREDICTED: RIKEN cDNA 2310061F22 [Mus musculus], mRNA sequence [XM_134537]
A_52_P673307	-2.242	0.0332	NM_153780	NM_153780	Mus musculus RIKEN cDNA 2610044O15 gene (2610044O15Rik), mRNA [NM_153780]
A_51_P284503	-2.262	0.0208	AA763224	AA763224	vv88g04.r1 Stratagene mouse skin (#937313) Mus musculus cDNA clone IMAGE:1229526 5'. [AA763224]
A_52_P269704	-2.262	0.0241	NAP042167-1		
A_52_P676782	-2.262	0.0384	AK044508	AK044508	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930017K23 product:G PROTEIN-COUPLED RECEPTOR 37, full insert sequence. [AK044508]
A_51_P113178	-2.268	0.0351	NM_175398	NM_175398	Mus musculus RIKEN cDNA 6530418L21 gene (6530418L21Rik), mRNA [NM_175398]
A_51_P162116	-2.268	0.0351	NM_177878	NM_177878	Mus musculus cDNA sequence BC038925 (BC038925), mRNA [NM_177878]
A_52_P618132	-2.268	0.0463	NM_172865	NM_172865	Mus musculus mannosidase, endo-alpha (Manea), mRNA [NM_172865]
A_51_P308397	-2.273	0.0137	AK006714	AK006714	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700047K16 product:inferred: Mus musculus, Similar to zinc finger protein 135 (clone pHZ-17), clone MGC:7841 IMAGE:3500812, mRNA, complete cds, full insert sequence....
A_52_P1116115	-2.273	0.019	AK034051	AK034051	Mus musculus adult male diencephalon cDNA, RIKEN full-length enriched library, clone:9330151L07 product:unclassifiable, full insert sequence. [AK034051]
A_52_P183826	-2.273	0.00672	NM_178788	NM_178788	Mus musculus dCMP deaminase (Dctd), mRNA [NM_178788]
A_52_P635898	-2.273	0.0387	NM_010864	NM_010864	Mus musculus myosin Va (Myo5a), mRNA [NM_010864]
A_51_P422540	-2.278	0.0162	NM_028829	NM_028829	Mus musculus progestin and adipoQ receptor family member VIII (Paqr8), mRNA [NM_028829]
A_52_P843185	-2.278	0.0112	AK040871	AK040871	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530032D04 product:unknown EST, full insert sequence. [AK040871]
A_51_P384936	-2.283	0.0383	NM_027442	NM_027442	Mus musculus RIKEN cDNA 5330420D20 gene (5330420D20Rik), mRNA [NM_027442]
A_51_P133138	-2.288	0.0243	Y09632	Y09632	Mus musculus mRNA for rabkinesin-6. [Y09632]
A_51_P216211	-2.288	0.0441	NM_197992	NM_197992	Mus musculus polycomb group ring finger 1 (Pcgf1), mRNA [NM_197992]
A_51_P379687	-2.288	0.0397	NM_029288	NM_029288	Mus musculus RIKEN cDNA 1700001E04 gene (1700001E04Rik), mRNA [NM_029288]
A_51_P445468	-2.288	0.0321	NM_146690	NM_146690	Mus musculus olfactory receptor 1472 (Olfr1472), mRNA [NM_146690]
A_51_P521176	-2.288	0.0273	NM_025886	NM_025886	Mus musculus RIKEN cDNA 2400009B11 gene (2400009B11Rik), mRNA [NM_025886]
A_52_P112190	-2.288	0.0283	XM_485782	XM_485782	PREDICTED: Mus musculus similar to monoclonal antibody kappa light chain (LOC434039), mRNA [XM_485782]
A_52_P615247	-2.288	0.0282	AK087744	AK087744	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330014L15 product:unknown EST, full insert sequence. [AK087744]
A_52_P476454	-2.294	0.0176	TC1482326		HSGLR gastric lipase precursor {Homo sapiens;} , partial (43%) [TC1482326]
A_52_P613528	-2.294	0.0204	NM_027218	NM_027218	Mus musculus C-type lectin domain family 4, member b (Clec4b), mRNA [NM_027218]
A_52_P373504	-2.299	0.0436	AK034560	AK034560	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430006H18 product:hypothetical protein, full insert sequence. [AK034560]
A_51_P305854	-2.304	0.0378	NM_146978	NM_146978	Mus musculus olfactory receptor 1258 (Olfr1258), mRNA [NM_146978]
A_52_P345966	-2.304	0.0351	XM_145847	XM_145847	PREDICTED: Mus musculus deubiquitinating enzyme 6 (Dub6), mRNA [XM_145847]
A_51_P202440	-2.315	0.0351	NM_011243	NM_011243	Mus musculus retinoic acid receptor, beta (Rarb), mRNA [NM_011243]
A_51_P156740	-2.32	0.00692	NM_011851	NM_011851	Mus musculus 5' nucleotidase, ecto (Nt5e), mRNA [NM_011851]
A_51_P196390	-2.32	0.0228	NM_007439	NM_007439	Mus musculus anaplastic lymphoma kinase (Alk), mRNA [NM_007439]
A_52_P67250	-2.32	0.0451	AK014547	AK014547	Mus musculus 0 day neonate skin cDNA, RIKEN full-length enriched library, clone:4632403M07 product:unknown EST, full insert sequence [AK014547]
A_51_P230439	-2.326	0.0239	NM_008905	NM_008905	Mus musculus protein tyrosine phosphatase, receptor-type, F interacting protein, binding protein 2 (Ppfibp2), mRNA [NM_008905]
A_51_P273433	-2.326	0.0441	NM_008926	NM_008926	Mus musculus protein kinase, cGMP-dependent, type II (Prkg2), mRNA [NM_008926]
A_52_P57686	-2.326	0.0236	BC027759	BC027759	Mus musculus RIKEN cDNA 1700009P13 gene, mRNA (cDNA clone MGC:38426 IMAGE:5346317), complete cds. [BC027759]
A_52_P664783	-2.331	0.0264	AK041992	AK041992	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630051F18 product:KPL2 homolog [Rattus norvegicus], full insert sequence. [AK041992]
A_52_P79132	-2.331	0.0159	TC1490224		
A_52_P1194909	-2.336	0.0217	AK014075	AK014075	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110023J12 product:unknown EST, full insert sequence. [AK014075]
A_52_P29765	-2.336	0.0448	AK002667	AK002667	Mus musculus adult male kidney cDNA, RIKEN full-length enriched library, clone:0610025L17 product:hypothetical protein, full insert sequence. [AK002667]
A_51_P124606	-2.342	0.0456	NM_010874	NM_010874	Mus musculus N-acetyltransferase 2 (arylamine N-acetyltransferase) (Nat2), mRNA [NM_010874]
A_52_P364279	-2.342	0.0237	NM_198026	NM_198026	Mus musculus IQ motif containing C (Iqcc), mRNA [NM_198026]
A_51_P514379	-2.347	0.0208	NM_009577	NM_009577	Mus musculus zinc finger protein interacting with K protein 1 (Zik1), mRNA [NM_009577]
A_52_P212479	-2.347	0.0204	NM_182929	NM_182929	Mus musculus regulating synaptic membrane exocytosis 3 (Rims3), mRNA [NM_182929]
A_52_P463977	-2.347	0.00847	NM_197986	NM_197986	Mus musculus RIKEN cDNA 1110007F12 gene (1110007F12Rik), mRNA [NM_197986]
A_52_P623296	-2.347	0.0128	AK043379	AK043379	Mus musculus 7 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:A730090B12 product:biregional cell adhesion molecule-related/down-regulated by oncogenes (Cdon)binding protein, full insert sequence. [AK043379]
A_51_P233145	-2.353	0.0245	NM_023546	NM_023546	Mus musculus spermiogenesis specific transcript on the Y 2 (Ssty2), mRNA [NM_023546]
A_52_P164821	-2.353	0.0215	NAP017963-001		
A_52_P354373	-2.353	0.0387	AK012387	AK012387	Mus musculus 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2700047H13 product:hypothetical protein, full insert sequence. [AK012387]
A_51_P150912	-2.358	0.0233	NM_011497	NM_011497	Mus musculus aurora kinase A (Aurka), mRNA [NM_011497]
A_52_P14842	-2.358	0.0151	TC1462411		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (5%) [TC1462411]
A_52_P254754	-2.358	0.0372	TC1462532		
A_52_P115967	-2.364	0.0348	AK045110	AK045110	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130033J21 product:transcription factor (p38 interacting protein), full insert sequence. [AK045110]
A_52_P668837	-2.364	0.025	AK053485	AK053485	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130101M22 product:unknown EST, full insert sequence. [AK053485]
A_51_P396272	-2.37	0.0289	NM_008703	NM_008703	Mus musculus neuromedin B receptor (Nmbr), mRNA [NM_008703]
A_52_P1131953	-2.37	0.0338	AK037994	AK037994	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130070B12 product:unclassifiable, full insert sequence. [AK037994]
A_52_P285564	-2.37	0.045	NAP027435-1		
A_52_P401684	-2.37	0.0438	NM_026521	NM_026521	Mus musculus RIKEN cDNA 3110006P09 gene (3110006P09Rik), mRNA [NM_026521]
A_51_P474431	-2.381	0.0192	NM_023117	NM_023117	Mus musculus cell division cycle 25 homolog B (S. cerevisiae) (Cdc25b), mRNA [NM_023117]
A_52_P217690	-2.381	0.0305	AK033731	AK033731	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130401K15 product:serine (or cysteine) proteinase inhibitor, clade B (ovalbumin), member 6, full insert sequence [AK033731]
A_52_P963388	-2.381	0.0493	AK035276	AK035276	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530008G10 product:unclassifiable, full insert sequence. [AK035276]
A_52_P987826	-2.381	0.00976	AK034409	AK034409	Mus musculus adult male diencephalon cDNA, RIKEN full-length enriched library, clone:9330187K05 product:unclassifiable, full insert sequence. [AK034409]
A_51_P472516	-2.387	0.0125	NM_173412	NM_173412	Mus musculus RIKEN cDNA 1700009B20 gene (1700009B20Rik), mRNA [NM_173412]
A_51_P373550	-2.392	0.00799	NM_130456	NM_130456	Mus musculus nephrosis 2 homolog, podocin (human) (Nphs2), mRNA [NM_130456]
A_52_P431269	-2.392	0.0179	NM_198302	NM_198302	Mus musculus RNA binding motif protein 11 (Rbm11), mRNA [NM_198302]
A_52_P116184	-2.398	0.0241	AK045720	AK045720	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230307H16 product:BM-021 (MSTP044) homolog [Homo sapiens], full insert sequence. [AK045720]

A_52_P526265	-2.398	0.0292	BC087940	BC087940	Mus musculus RIKEN cDNA 2410008B13 gene, mRNA (cDNA clone MGC:107325 IMAGE:30302907), complete cds. [BC087940]
A_52_P59124	-2.398	0.0489	NM_027836	NM_027836	Mus musculus membrane-spanning 4-domains, subfamily A, member 7 (Ms4a7), transcript variant 1, mRNA [NM_027836]
A_52_P592346	-2.398	0.0273	NM_029831	NM_029831	Mus musculus RIKEN cDNA 1700127D06 gene (1700127D06Rik), mRNA [NM_029831]
A_51_P104172	-2.404	0.0128	NM_153802	NM_153802	Mus musculus zinc finger protein 128 (Zfp128), mRNA [NM_153802]
A_51_P503797	-2.41	0.0247	NM_178611	NM_178611	Mus musculus leukocyte-associated Ig-like receptor 1 (Lair1), mRNA [NM_178611]
A_51_P236267	-2.415	0.0126	NM_009183	NM_009183	Mus musculus ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 4 (St8sia4), mRNA [NM_009183]
A_51_P255373	-2.415	0.0483	AK077895	AK077895	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030419N23 product:unknown EST, full insert sequence [AK077895]
A_52_P389874	-2.415	0.0046	NM_011918	NM_011918	Mus musculus LIM domain binding 3 (Ldb3), mRNA [NM_011918]
A_52_P595619	-2.415	0.0279	NM_197989	NM_197989	Mus musculus RIKEN cDNA 1810009O10 gene (1810009O10Rik), mRNA [NM_197989]
A_52_P711505	-2.415	0.0378	TC1507774		
A_51_P416822	-2.421	0.0353	AK034610	AK034610	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430014J21 product:Hedgehog-interacting protein, full insert sequence. [AK034610]
A_52_P218792	-2.421	0.0388	NM_146051	NM_146051	Mus musculus RIKEN cDNA 3830406C13 gene (3830406C13Rik), transcript variant 1, mRNA [NM_146051]
A_51_P133137	-2.427	0.0114	NM_009004	NM_009004	Mus musculus kinesin family member 20A (Kif20a), mRNA [NM_009004]
A_52_P209884	-2.427	0.0351	AK040679	AK040679	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530014E19 product:angiopoietin-like 3, full insert sequence [AK040679]
A_51_P406126	-2.433	0.033	AK019577	AK019577	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930414L22 product:unknown EST, full insert sequence. [AK019577]
A_51_P104608	-2.439	0.0122	NM_030098	NM_030098	Mus musculus ribonuclease, RNase A family, 6 (Rnase6), mRNA [NM_030098]
A_51_P327920	-2.439	0.0379	AK030273	AK030273	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933440L10 product:hypothetical protein, full insert sequence. [AK030273]
A_51_P359586	-2.439	0.0342	XM_284750	XM_284750	PREDICTED: 6-phosphofructo-2-kinase [XM_284750]
A_51_P175567	-2.445	0.044	AK077691	AK077691	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730524L20 product:thymus expressed gene 3, full insert sequence [AK077691]
A_52_P230733	-2.445	0.0242	AK017287	AK017287	Mus musculus 6 days neonate head cDNA, RIKEN full-length enriched library, clone:5430409I18 product:GUANINE NUCLEOTIDE EXCHANGE FACTOR (CLLL7 PROTEIN) homolog [Homo sapiens], full insert sequence. [AK017287]
A_52_P671794	-2.445	0.0488	NM_178711	NM_178711	Mus musculus phospholipid scramblase 4 (Plscr4), mRNA [NM_178711]
A_51_P124755	-2.451	0.0472	NM_183147	NM_183147	Mus musculus shadow of prion protein (Sprn), mRNA [NM_183147]
A_52_P1059771	-2.451	0.0212	AK035413	AK035413	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530035J10 product:unclassifiable, full insert sequence. [AK035413]
A_52_P432815	-2.451	0.0196	AK086714	AK086714	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930047C07 product:hypothetical AAA ATPase superfamily containing protein, full insert sequence. [AK086714]
A_52_P51176	-2.451	0.024	AK018949	AK018949	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700110E08 product:VITRIN, full insert sequence. [AK018949]
A_52_P875445	-2.451	0.0358	AK050303	AK050303	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730036A08 product:unclassifiable, full insert sequence. [AK050303]
A_51_P220150	-2.457	0.0413	BC023373	BC023373	Mus musculus mRNA similar to angiopoietin-like factor (cDNA clone MGC:32448 IMAGE:5043159), complete cds. [BC023373]
A_51_P300446	-2.457	0.0295	L36434	L36434	Mus Musculus basic domain/leucine zipper transcription factor mRNA, 3' end of cds. [L36434]
A_52_P173766	-2.457	0.0289	NM_010498	NM_010498	Mus musculus iduronate 2-sulfatase (Ids), mRNA [NM_010498]
A_51_P398303	-2.463	0.0452	AK036256	AK036256	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630048N03 product:unclassifiable, full insert sequence. [AK036256]
A_51_P434301	-2.463	0.0262	NM_026656	NM_026656	Mus musculus mucolipin 2 (Mcoln2), transcript variant 1, mRNA [NM_026656]
A_51_P461364	-2.463	0.0282	NM_024198	NM_024198	Mus musculus glutathione peroxidase 7 (Gpx7), mRNA [NM_024198]
A_52_P596115	-2.463	0.0302	NM_172681	NM_172681	Mus musculus RIKEN cDNA D930015E06 gene (D930015E06Rik), mRNA [NM_172681]
A_52_P628546	-2.463	0.0358	AK037097	AK037097	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930113M05 product:unknown EST, full insert sequence [AK037097]
A_52_P723494	-2.463	0.00921	AK082734	AK082734	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230098N23 product:unclassifiable, full insert sequence. [AK082734]
A_52_P971745	-2.463	0.014	AK083098	AK083098	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630012D20 product:unclassifiable, full insert sequence [AK083098]
A_51_P418429	-2.469	0.0199	NM_026253	NM_026253	Mus musculus RIKEN cDNA 4930442L21 gene (4930442L21Rik), mRNA [NM_026253]
A_52_P236207	-2.469	0.0327	BC058107	BC058107	Mus musculus RIKEN cDNA 2410089E03 gene, mRNA (cDNA clone MGC:67280 IMAGE:6824838), complete cds. [BC058107]
A_52_P827677	-2.469	0.0227	AK045215	AK045215	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130048D10 product:unclassifiable, full insert sequence. [AK045215]
A_51_P372456	-2.475	0.0385	NM_026621	NM_026621	Mus musculus RIKEN cDNA 2810046M22 gene (2810046M22Rik), mRNA [NM_026621]
A_52_P541161	-2.475	0.0446	NM_022881	NM_022881	Mus musculus regulator of G-protein signaling 18 (Rgs18), mRNA [NM_022881]
A_51_P142371	-2.481	0.0368	NM_010606	NM_010606	Mus musculus potassium inwardly-rectifying channel, subfamily J, member 6 (Kcnj6), transcript variant Girk2A-1, mRNA [NM_010606]
A_51_P282673	-2.488	0.044	NM_175098	NM_175098	Mus musculus RIKEN cDNA 6330407D12 gene (6330407D12Rik), mRNA [NM_175098]
A_51_P333712	-2.488	0.044	NM_013875	NM_013875	Mus musculus phosphodiesterase 7B (Pde7b), mRNA [NM_013875]
A_52_P153522	-2.488	0.019	AK020340	AK020340	Mus musculus adult male epididymis cDNA, RIKEN full-length enriched library, clone:9230112K08 product:weakly similar to CYSTEINE-RICH SECRETORY PROTEIN-1 PRECURSOR, full insert sequence. [AK020340]
A_52_P169614	-2.488	0.0185	AK045883	AK045883	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230317G11 product:myelin oligodendrocyte glycoprotein, full insert sequence. [AK045883]
A_52_P499499	-2.488	0.012	NM_029021	NM_029021	Mus musculus RIKEN cDNA 4833422F24 gene (4833422F24Rik), mRNA [NM_029021]
A_52_P598827	-2.488	0.0279	AK036105	AK036105	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630036G20 product:phosphatidylinositol 3 kinase, regulatory subunit, polypeptide 3 (p55), full insert sequence. [AK036105]
A_51_P360622	-2.494	0.0291	NM_144917	NM_144917	Mus musculus RNA binding motif and ELMO domain 1 (Rbed1), mRNA [NM_144917]
A_51_P361022	-2.5	0.0044	NM_023223	NM_023223	Mus musculus cell division cycle 20 homolog (S. cerevisiae) (Cdc20), mRNA [NM_023223]
A_52_P335606	-2.506	0.00844	NM_178023	NM_178023	Mus musculus proline rich membrane anchor 1 (Prima1), transcript variant II, mRNA [NM_178023]
A_52_P501707	-2.506	0.0365	AK014986	AK014986	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4921530L18 product:unknown EST, full insert sequence [AK014986]
A_52_P564444	-2.506	0.0165	NM_178796	NM_178796	Mus musculus RIKEN cDNA A530064D06 gene (A530064D06Rik), mRNA [NM_178796]
A_52_P486464	-2.513	0.0288	BC088739	BC088739	Mus musculus RIKEN cDNA D630040G17 gene, mRNA (cDNA clone IMAGE:30468634), partial cds [BC088739]
A_52_P669682	-2.513	0.0463	XM_484646	XM_484646	PREDICTED: Mus musculus similar to hypothetical protein 4932415M13 (LOC433121), mRNA [XM_484646]
A_51_P108990	-2.519	0.0368	NM_145825	NM_145825	Mus musculus centrin 4 (Cetn4), mRNA [NM_145825]
A_51_P153513	-2.519	0.015	NM_027564	NM_027564	Mus musculus RIKEN cDNA 4921507P07 gene (4921507P07Rik), mRNA [NM_027564]
A_52_P546676	-2.519	0.024	NM_173861	NM_173861	Mus musculus CKT2 protein (Ckt2), mRNA [NM_173861]
A_51_P262998	-2.525	0.00638	NM_016707	NM_016707	Mus musculus B-cell CLL/lymphoma 11A (zinc finger protein) (Bcl11a), mRNA [NM_016707]
A_52_P1068013	-2.525	0.0261	AK029983	AK029983	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4932412K07 product:unclassifiable, full insert sequence. [AK029983]
A_52_P214956	-2.525	0.0485	NM_172414	NM_172414	Mus musculus RIKEN cDNA 2810002I04 gene (2810002I04Rik), mRNA [NM_172414]
A_52_P218271	-2.525	0.0198	AK080508	AK080508	Mus musculus 7 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:A730063M14 product:unknown EST, full insert sequence [AK080508]
A_52_P281186	-2.525	0.0279	U36186	U36186	Mus musculus meprin beta subunit isoform (Mep-1beta) mRNA, unique 5' region and partial cds. [U36186]
A_52_P671029	-2.525	0.0402	AK021265	AK021265	Mus musculus 12 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:C530001D20 product:procollagen, type XI, alpha 1, full insert sequence. [AK021265]
A_51_P279247	-2.532	0.0411	AK015067	AK015067	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930403N07 product:weakly similar to HYPOTHETICAL 51.4 KDA PROTEIN [Macaca fascicularis], full insert sequence [AK015067]
A_51_P329928	-2.532	0.0376	NM_013750	NM_013750	Mus musculus pleckstrin homology-like domain, family A, member 3 (Phlda3), mRNA [NM_013750]
A_52_P1188270	-2.532	0.0474	AK042362	AK042362	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630085D23 product:unknown EST, full insert sequence [AK042362]
A_52_P625321	-2.532	0.0491	NM_144532	NM_144532	Mus musculus calcium binding protein 4 (Cabp4), mRNA [NM_144532]
A_52_P105481	-2.538	0.0379	NM_176917	NM_176917	Mus musculus RIKEN cDNA A730091E08 gene (A730091E08Rik), mRNA [NM_176917]
A_52_P596008	-2.545	0.0485	NM_015753	NM_015753	Mus musculus zinc finger homeobox 1b (Zfhx1b), mRNA [NM_015753]
A_51_P492743	-2.551	0.0274	AK004937	AK004937	Mus musculus adult male liver cDNA, RIKEN full-length enriched library, clone:1300007O09 product:hypothetical GroEL-like chaperone, apical domain/GroEL-like chaperones, ATPase domain structure containing protein, full insert sequence. [AK004937]
A_52_P552971	-2.551	0.0246	NM_001007577	NM_0010075	Mus musculus RIKEN cDNA A630018P17 gene (A630018P17Rik), mRNA [NM_001007577]
A_51_P152216	-2.558	0.0474	NM_025693	NM_025693	Mus musculus transmembrane protein 41a (Tmem41a), mRNA [NM_025693]
A_52_P120813	-2.558	0.0143	NM_009348	NM_009348	Mus musculus tectorin beta (Tectb), mRNA [NM_009348]
A_52_P149336	-2.558	0.0175	XM_193936	XM_193936	PREDICTED: M-phase phosphoprotein 1 [Mus musculus], mRNA sequence [XM_193936]
A_52_P76104	-2.558	0.045	AK077096	AK077096	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933404M01 product:unknown EST, full insert sequence [AK077096]
A_51_P142350	-2.564	0.0292	AK016986	AK016986	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933430A16 product:similar to DC11 [Homo sapiens], full insert sequence. [AK016986]
A_52_P398279	-2.564	0.0478	BC051161	BC051161	Mus musculus RIKEN cDNA 6330505F04 gene, mRNA (cDNA clone MGC:56742 IMAGE:6466142), complete cds [BC051161]
A_52_P518764	-2.564	0.0456	AK173256	AK173256	Mus musculus mRNA for mKIAA1764 protein [AK173256]
A_51_P191199	-2.571	0.0489	NM_027863	NM_027863	Mus musculus glycophorin C (Gypc), mRNA [NM_027863]
A_51_P365666	-2.571	0.0205	AK078884	AK078884	Mus musculus adult male colon cDNA, RIKEN full-length enriched library, clone:9030616J04 product:BRAIN-ENRICHED MEMBRANE-ASSOCIATED PROTEIN TYROSINE PHOSPHATASE 2 (EC 3.1.3.48) (BEM-2) (PROTEIN-TYROSINE-PHOSPHATASE)
A_51_P503729	-2.571	0.0233	NM_010488	NM_010488	Mus musculus ELAV (embryonic lethal, abnormal vision, Drosophila)-like 4 (Hu antigen D) (Elavl4), mRNA [NM_010488]
A_51_P246653	-2.577	0.018	NM_020008	NM_020008	Mus musculus C-type lectin domain family 7, member a (Clec7a), mRNA [NM_020008]

A_51_P276943	-2.584	0.0416	NM_016696	NM_016696	Mus musculus glypican 1 (Gpc1), mRNA [NM_016696]
A_51_P370363	-2.584	0.03	AK006560	AK006560	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700030L22 product:unknown EST, full insert sequence. [AK006560]
A_51_P505521	-2.584	0.0162	BC019757	BC019757	Mus musculus histone 1, H4i, mRNA (cDNA clone IMAGE:4205460), partial cds. [BC019757]
A_52_P126782	-2.584	0.0156	NM_011820	NM_011820	Mus musculus gamma-glutamyltransferase-like activity 1 (Ggtla1), mRNA [NM_011820]
A_51_P165504	-2.591	0.00745	NM_007855	NM_007855	Mus musculus twist homolog 2 (Drosophila) (Twist2), mRNA [NM_007855]
A_51_P160160	-2.597	0.0375	AK017624	AK017624	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730437C12 product:unknown EST, full insert sequence [AK017624]
A_51_P254045	-2.597	0.0474	NM_011634	NM_011634	Mus musculus TRAF-interacting protein (Traip), mRNA [NM_011634]
A_52_P539440	-2.597	0.0177	AK006022	AK006022	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700016E02 product:unknown EST, full insert sequence. [AK006022]
A_51_P195153	-2.604	0.0149	NM_013882	NM_013882	Mus musculus G two S phase expressed protein 1 (Gtse1), mRNA [NM_013882]
A_52_P309451	-2.611	0.0413	AK078837	AK078837	Mus musculus adult male colon cDNA, RIKEN full-length enriched library, clone:9030011E03 product:P24B PROTEIN PRECURSOR (INTEGRAL TYPE I PROTEIN) (SIMILAR TO INTEGRAL TYPE I PROTEIN) homolog [Homo sapiens], full insert sequence [AK078837]
A_52_P260754	-2.618	0.0308	NM_177654	NM_177654	Mus musculus cDNA sequence BC034902 (BC034902), mRNA [NM_177654]
A_52_P528041	-2.618	0.0474	AB056117	AB056117	Mus musculus mRNA for anti-c-erbB-2/p185 monoclonal antibody SER4 heavy chain variable region, partial cds. [AB056117]
A_52_P617930	-2.618	0.0184	NM_172953	NM_172953	Mus musculus serine (or cysteine) proteinase inhibitor, clade A, member 5 (Serpina5), mRNA [NM_172953]
A_52_P770459	-2.618	0.0369	AK015448	AK015448	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930452L02 product:unknown EST, full insert sequence [AK015448]
A_52_P883511	-2.618	0.0279	AK037270	AK037270	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130002E19 product:unclassifiable, full insert sequence. [AK037270]
A_51_P251387	-2.625	0.0193	AK086750	AK086750	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930049G07 product:inferred: signaling molecule ATTP, Ubiquitin conjugating enzyme motif containing, full insert sequence [AK086750]
A_52_P364294	-2.632	0.0359	NM_011302	NM_011302	Mus musculus retinoschisis 1 homolog (human) (Rs1h), mRNA [NM_011302]
A_52_P37477	-2.632	0.0168	NM_198651	NM_198651	Mus musculus RIKEN cDNA 4430402I18 gene (4430402I18Rik), mRNA [NM_198651]
A_51_P184306	-2.639	0.0408	XM_283466	XM_283466	PREDICTED: Mus musculus RIKEN cDNA 4930560E09 gene (4930560E09Rik), mRNA [XM_283466]
A_51_P259975	-2.639	0.0314	NM_023113	NM_023113	Mus musculus aspartoacylase (aminoacylase) 2 (Aspa), mRNA [NM_023113]
A_52_P166735	-2.639	0.028	AK047625	AK047625	Mus musculus adult male corpus striatum cDNA, RIKEN full-length enriched library, clone:C030003F23 product:unknown EST, full insert sequence. [AK047625]
A_52_P860172	-2.639	0.0416	AK085134	AK085134	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430042D16 product:unknown EST, full insert sequence. [AK085134]
A_51_P510916	-2.653	0.0275	AK013921	AK013921	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3100002L24 product:similar to KRUPPEL-RELATED ZINC FINGER PROTEIN F80-L [Mus musculus], full insert sequence. [AK013921]
A_52_P372418	-2.653	0.0283	BB654303	BB654303	BB654303 RIKEN full-length enriched, 2 days neonate thymus thymic cells Mus musculus cDNA clone C920023E16 5', mRNA sequence [BB654303]
A_51_P135296	-2.66	0.0245	XM_127913	XM_127913	PREDICTED: hypothetical protein LOC223825 [Mus musculus], mRNA sequence [XM_127913]
A_52_P518087	-2.66	0.0406	AK053270	AK053270	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130003N19 product:unknown EST, full insert sequence [AK053270]
A_51_P399106	-2.667	0.043	NM_145448	NM_145448	Mus musculus RIKEN cDNA 9030617O03 gene (9030617O03Rik), mRNA [NM_145448]
A_51_P300867	-2.674	0.0476	NM_177395	NM_177395	Mus musculus mitogen-activated protein kinase kinase kinase 9 (Map3k9), mRNA [NM_177395]
A_52_P495471	-2.674	0.0255	NM_026904	NM_026904	Mus musculus anaphase promoting complex subunit 10 (Anapc10), mRNA [NM_026904]
A_51_P301998	-2.681	0.0364	NM_018881	NM_018881	Mus musculus flavin containing monooxygenase 2 (Fmo2), mRNA [NM_018881]
A_51_P207591	-2.688	0.0291	NM_013473	NM_013473	Mus musculus annexin A8 (Anxa8), mRNA [NM_013473]
A_51_P358397	-2.688	0.0179	BC087897	BC087897	Mus musculus ATP/GTP binding protein-like 3, mRNA (cDNA clone IMAGE:6595330), complete cds. [BC087897]
A_51_P414243	-2.688	0.025	NM_153540	NM_153540	Mus musculus expressed sequence C85492 (C85492), mRNA [NM_153540]
A_52_P105302	-2.688	0.0168	AK038365	AK038365	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130099A10 product:peptide N-glycanase homolog (S.cerevisiae), full insert sequence. [AK038365]
A_52_P27336	-2.688	0.033	AK044668	AK044668	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930031D14 product:alpha-N-acetylglucosaminidase (Sanfilippo disease IIIB), full insert sequence [AK044668]
A_52_P370534	-2.688	0.0482	AK122269	AK122269	Mus musculus mRNA for mKIAA0386 protein [AK122269]
A_51_P372059	-2.695	0.0196	AK044315	AK044315	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930007D05 product:hypothetical protein, full insert sequence. [AK044315]
A_52_P151443	-2.695	0.0201	NM_009863	NM_009863	Mus musculus cell division cycle 7 (S. cerevisiae) (Cdc7), mRNA [NM_009863]
A_51_P160581	-2.703	0.0368	NM_029426	NM_029426	Mus musculus BR serine/threonine kinase 2 (Brsk2), transcript variant 1, mRNA [NM_029426]
A_52_P210101	-2.703	0.0151	AK083703	AK083703	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030068H21 product:weakly similar to FKSG15 [Mus musculus], full insert sequence. [AK083703]
A_52_P67892	-2.703	0.0305	BC032927	BC032927	Mus musculus, clone IMAGE:3465495, mRNA [BC032927]
A_52_P884092	-2.703	0.0292	AK082796	AK082796	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:C330020G15 product:unclassifiable, full insert sequence [AK082796]
A_51_P485918	-2.71	0.0305	BC021897	BC021897	Mus musculus RIKEN cDNA 2900042B11 gene, mRNA (cDNA clone MGC:28078 IMAGE:3710627), complete cds. [BC021897]
A_51_P349221	-2.717	0.0433	NM_178165	NM_178165	Mus musculus Fc receptor-like 1 (Fcrl1), mRNA [NM_178165]
A_51_P254354	-2.725	0.0182	NM_053235	NM_053235	Mus musculus vomeronasal 1 receptor, C5 (V1rc5), mRNA [NM_053235]
A_52_P148491	-2.725	0.0168	AK082411	AK082411	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230048B01 product:unknown EST, full insert sequence [AK082411]
A_52_P590781	-2.732	0.0449	NM_024244	NM_024244	Mus musculus RIKEN cDNA 1200015N20 gene (1200015N20Rik), mRNA [NM_024244]
A_52_P714830	-2.74	0.0319	AK028495	AK028495	Mus musculus 0 day neonate skin cDNA, RIKEN full-length enriched library, clone:4632404B13 product:hypothetical Tyrosine-rich region containing protein, full insert sequence. [AK028495]
A_51_P516085	-2.747	0.0137	NM_009345	NM_009345	Mus musculus deoxynucleotidyltransferase, terminal (Dntt), mRNA [NM_009345]
A_51_P219166	-2.755	0.0474	NM_027756	NM_027756	Mus musculus microfibrillar-associated protein 3-like (Mfap3l), mRNA [NM_027756]
A_51_P475523	-2.755	0.0427	NM_009764	NM_009764	Mus musculus breast cancer 1 (Brca1), mRNA [NM_009764]
A_51_P507723	-2.755	0.0371	AK088307	AK088307	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430010N24 product:unknown EST, full insert sequence [AK088307]
A_51_P135012	-2.762	0.00875	NM_027897	NM_027897	Mus musculus rhophilin, Rho GTPase binding protein 2 (Rhpn2), mRNA [NM_027897]
A_52_P172131	-2.762	0.00638	AK034150	AK034150	Mus musculus adult male diencephalon cDNA, RIKEN full-length enriched library, clone:9330159M15 product:unknown EST, full insert sequence [AK034150]
A_52_P242069	-2.762	0.0284	XM_620413	XM_620413	PREDICTED: Mus musculus similar to EC2-V2R pheromone receptor protein (LOC545910), mRNA [XM_620413]
A_52_P615375	-2.778	0.0297	NM_178218	NM_178218	Mus musculus histone 3, H2a (Hist3h2a), mRNA [NM_178218]
A_51_P338705	-2.786	0.0379	NM_181404	NM_181404	Mus musculus ankyrin repeat domain 15 (Ankrd15), mRNA [NM_181404]
A_51_P398766	-2.786	0.0282	NM_010259	NM_010259	Mus musculus guanylate nucleotide binding protein 1 (Gbp1), mRNA [NM_010259]
A_51_P451151	-2.786	0.0167	NM_026785	NM_026785	Mus musculus ubiquitin-conjugating enzyme E2C (Ube2c), mRNA [NM_026785]
A_52_P739307	-2.786	0.0262	AK051876	AK051876	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230014I24 product:retinoblastoma binding protein 2, full insert sequence. [AK051876]
A_51_P312952	-2.793	0.0228	NM_028034	NM_028034	Mus musculus RIKEN cDNA 2410004F06 gene (2410004F06Rik), mRNA [NM_028034]
A_51_P117924	-2.801	0.0409	NM_010456	NM_010456	Mus musculus homeo box A9 (Hoxa9), mRNA [NM_010456]
A_51_P492742	-2.801	0.0148	AK004937	AK004937	Mus musculus adult male liver cDNA, RIKEN full-length enriched library, clone:1300007O09 product:hypothetical GroEL-like chaperone, apical domain/GroEL-like chaperones, ATPase domain structure containing protein, full insert sequence. [AK004937]
A_52_P564962	-2.801	0.0295	NAP096478-001		
A_52_P523657	-2.809	0.0409	AK045335	AK045335	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130066B01 product:unclassifiable, full insert sequence. [AK045335]
A_52_P656096	-2.809	0.0466	TC1536898		
A_52_P8100	-2.809	0.0479	NM_023564	NM_023564	Mus musculus phospholipid scramblase 3 (Plscr3), mRNA [NM_023564]
A_52_P939208	-2.809	0.0196	AK032387	AK032387	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430532D13 product:unclassifiable, full insert sequence. [AK032387]
A_51_P221176	-2.817	0.0386	AK010712	AK010712	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:2410066K11 product:hypothetical TPR repeat containing protein, full insert sequence. [AK010712]
A_51_P453043	-2.817	0.0432	NM_030210	NM_030210	Mus musculus acetoacetyl-CoA synthetase (Aacs), mRNA [NM_030210]
A_51_P295757	-2.825	0.0499	NM_145515	NM_145515	Mus musculus MAP/microtubule affinity-regulating kinase 1 (Mark1), mRNA [NM_145515]
A_51_P463440	-2.825	0.0483	NM_130450	NM_130450	Mus musculus ELOVL family member 6, elongation of long chain fatty acids (yeast) (Elovl6), mRNA [NM_130450]
A_52_P365660	-2.825	0.0358	NM_178725	NM_178725	Mus musculus RIKEN cDNA 6430556C10 gene (6430556C10Rik), mRNA [NM_178725]
A_52_P638513	-2.825	0.0351	NM_133677	NM_133677	Mus musculus RIKEN cDNA 2310061J03 gene (2310061J03Rik), mRNA [NM_133677]
A_51_P339934	-2.833	0.014	NM_010910	NM_010910	Mus musculus neurofilament, light polypeptide (Nefl), mRNA [NM_010910]
A_52_P645122	-2.833	0.0292	NAP029013-1		
A_52_P1012467	-2.841	0.0249	AK084694	AK084694	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330030N21 product:unclassifiable, full insert sequence. [AK084694]
A_52_P548000	-2.849	0.0325	AK049952	AK049952	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630020A22 product:similar to DIACYLGLYCEROL KINASE, THETA (EC 2.7.1.107) (DIGLYCERIDE KINASE) (DGK- THETA) (DAG KINASE THETA) [Homo sapiens], full insert sequence....
A_51_P400645	-2.857	0.0449	AK045417	AK045417	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230116F16 product:similar to POLYPEPTIDE N-ACETYLGALACTOSAMINYLTRANSFERASE (EC 2.4.1.41) (PROTEIN- UDP ACETYLGALACTOSAMINYLTRANSFERASE)...
A_52_P190506	-2.857	0.0126	AK017820	AK017820	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730543M03 product:mitochondrial ribosomal protein L15, full insert sequence. [AK017820]
A_52_P574945	-2.857	0.0246	XM_483938	XM_483938	PREDICTED: Mus musculus RIKEN cDNA 1500026H17 gene (1500026H17Rik), mRNA [XM_483938]
A_51_P134262	-2.874	0.0147	NM_028539	NM_028539	Mus musculus RIKEN cDNA 1700052K11 gene (1700052K11Rik), mRNA [NM_028539]
A_51_P187842	-2.874	0.0258	NM_025829	NM_025829	Mus musculus eukaryotic translation initiation factor 4E member 3 (Eif4e3), mRNA [NM_025829]

A_52_P802927	-2.874	0.023	XM_488771	XM_488771	PREDICTED: Mus musculus hypothetical protein A830060N17 (A830060N17), mRNA [XM_488771]
A_52_P90507	-2.874	0.0209	NM_172499	NM_172499	Mus musculus RIKEN cDNA 4931419K03 gene (4931419K03Rik), mRNA [NM_172499]
A_51_P242403	-2.882	0.0441	NM_013580	NM_013580	Mus musculus lactate dehydrogenase 3, C chain, sperm specific (Ldh3), mRNA [NM_013580]
A_51_P327491	-2.89	0.0162	NM_007468	NM_007468	Mus musculus apolipoprotein A-IV (Apoa4), mRNA [NM_007468]
A_51_P348334	-2.89	0.0216	NM_011144	NM_011144	Mus musculus peroxisome proliferator activated receptor alpha (Ppara), mRNA [NM_011144]
A_51_P137836	-2.907	0.0212	AK089449	AK089449	Mus musculus B6-derived CD11 +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F730031O13 product:unclassifiable, full insert sequence. [AK089449]
A_51_P415059	-2.907	0.0147	NM_011496	NM_011496	Mus musculus aurora kinase B (Aurkb), mRNA [NM_011496]
A_52_P511243	-2.907	0.0416	TC1479186		SP10_HUMAN (P23497) Nuclear autoantigen Sp-100 (Speckled 100 kDa) (Nuclear dot-associated Sp100 protein) (Lysp100b), partial (3%) [TC1479186]
A_51_P481563	-2.915	0.0159	AK035983	AK035983	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630024L03 product:hypothetical protein, full insert sequence. [AK035983]
A_52_P296864	-2.915	0.0207	AK014032	AK014032	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110009H23 product:unknown EST, full insert sequence. [AK014032]
A_52_P480088	-2.915	0.0344	AK003879	AK003879	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1110020P08 product:weakly similar to collagen alpha 1(III) chain (fragment) [Gallus gallus], full insert sequence. [AK003879]
A_52_P78830	-2.915	0.0078	NM_138313	NM_138313	Mus musculus Bcl2 modifying factor (Bmf), mRNA [NM_138313]
A_52_P159336	-2.924	0.0271	AK085208	AK085208	Mus musculus 13 days embryo stomach cDNA, RIKEN full-length enriched library, clone:D530014J08 product:LPS-responsive beige-like anchor, full insert sequence. [AK085208]
A_52_P619911	-2.924	0.0244	AK041604	AK041604	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630024E20 product:weakly similar to HYPOTHETICAL 39.6 KDA PROTEIN [Homo sapiens], full insert sequence [AK041604]
A_51_P231193	-2.933	0.0257	AK017511	AK017511	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730406O19 product:ethanol decreased 2, full insert sequence. [AK017511]
A_51_P320606	-2.933	0.0203	NM_023746	NM_023746	Mus musculus DNA segment, Chr 13, Wayne State University 14, expressed (D13Wsu14e), mRNA [NM_023746]
A_51_P323397	-2.933	0.022	AK006854	AK006854	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700061I17 product:hypothetical protein, full insert sequence. [AK006854]
A_52_P597618	-2.933	0.0345	NM_007981	NM_007981	Mus musculus acyl-CoA synthetase long-chain family member 1 (Acsl1), mRNA [NM_007981]
A_52_P628067	-2.933	0.0111	NM_013538	NM_013538	Mus musculus cell division cycle associated 3 (Cdca3), mRNA [NM_013538]
A_52_P308843	-2.941	0.0122	AK012843	AK012843	Mus musculus 10, 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2810030E01 product:unknown EST, full insert sequence. [AK012843]
A_52_P354432	-2.941	0.0372	NM_026086	NM_026086	Mus musculus haloacid dehalogenase-like hydrolase domain containing 4 (Hdhd4), mRNA [NM_026086]
A_52_P630905	-2.941	0.0368	XM_354862	XM_354862	PREDICTED: Mus musculus RIKEN cDNA B230220E17 gene (B230220E17Rik), mRNA [XM_354862]
A_52_P231729	-2.959	0.0364	U96752	U96752	Mus musculus major histocompability complex Q1b mRNA, complete cds. [U96752]
A_52_P542502	-2.959	0.0455	NM_172417	NM_172417	Mus musculus RIKEN cDNA 2310042D19 gene (2310042D19Rik), mRNA [NM_172417]
A_51_P222013	-2.967	0.0118	NM_178045	NM_178045	Mus musculus Ras association (RalGDS/AF-6) domain family 4 (Rassf4), mRNA [NM_178045]
A_51_P237512	-2.967	0.0159	NM_025377	NM_025377	Mus musculus RIKEN cDNA 1110001A07 gene (1110001A07Rik), mRNA [NM_025377]
A_51_P251664	-2.967	0.0338	NM_009973	NM_009973	Mus musculus casein delta (Csnd), mRNA [NM_009973]
A_52_P247462	-2.967	0.0175	NM_177351	NM_177351	Mus musculus RIKEN cDNA C630028N24 gene (C630028N24Rik), mRNA [NM_177351]
A_51_P103237	-2.976	0.0283	NM_015755	NM_015755	Mus musculus hormonally upregulated Neu-associated kinase (Hunk), mRNA [NM_015755]
A_52_P127184	-2.976	0.0289	NM_028916	NM_028916	Mus musculus EF-hand domain (C-terminal) containing 2 (Efhc2), mRNA [NM_028916]
A_51_P519700	-2.985	0.0479	NM_008624	NM_008624	Mus musculus muscle and microspikes RAS (Mras), mRNA [NM_008624]
A_52_P139650	-2.985	0.0154	NM_025581	NM_025581	Mus musculus RIKEN cDNA 2810433K01 gene (2810433K01Rik), mRNA [NM_025581]
A_52_P5491	-2.985	0.0375	NM_172862	NM_172862	Mus musculus Fras1 related extracellular matrix protein 2 (Frem2), mRNA [NM_172862]
A_51_P218548	-2.994	0.0172	AK016943	AK016943	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933427C01 product:hypothetical Arginine-rich region containing protein, full insert sequence. [AK016943]
A_51_P389421	-3.003	0.0123	NM_023480	NM_023480	Mus musculus fumarylacetoacetate hydrolase domain containing 1 (Fahd1), mRNA [NM_023480]
A_51_P481298	-3.003	0.0282	AK085985	AK085985	Mus musculus 16 days neonate heart cDNA, RIKEN full-length enriched library, clone:D830038I01 product:unknown EST, full insert sequence. [AK085985]
A_52_P258374	-3.003	0.0349	AK084008	AK084008	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130076B16 product:hypothetical Cullin family containing protein, full insert sequence [AK084008]
A_52_P378493	-3.003	0.0294	NM_001017433	NM_0010174	Mus musculus RIKEN cDNA 1700021K02 gene (1700021K02Rik), transcript variant 1, mRNA [NM_001017433]
A_51_P454782	-3.012	0.0493	NM_027548	NM_027548	Mus musculus serine (or cysteine) proteinase inhibitor, clade B, member 7 (Serpinb7), mRNA [NM_027548]
A_52_P971782	-3.012	0.0277	AK036911	AK036911	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930023M23 product:unclassifiable, full insert sequence. [AK036911]
A_51_P124095	-3.021	0.0306	NM_019633	NM_019633	Mus musculus recombinant antineuraminidase single chain Ig VH and VL domains (LOC56304), mRNA [NM_019633]
A_52_P187227	-3.021	0.0476	NM_177888	NM_177888	Mus musculus zinc finger protein 78 (Zfp78), transcript variant 2, mRNA [NM_177888]
A_52_P370964	-3.03	0.015	NM_028908	NM_028908	Mus musculus RIKEN cDNA 4933403G14 gene (4933403G14Rik), mRNA [NM_028908]
A_52_P5823	-3.03	0.044	AK029387	AK029387	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4833426D18 product:hypothetical Zinc finger, C2H2 type containing protein, full insert sequence. [AK029387]
A_52_P923083	-3.03	0.0494	AK033275	AK033275	Mus musculus 15 days embryo male testis cDNA, RIKEN full-length enriched library, clone:8030482B03 product:cytosolic 5' nucleotidase, type 1A, full insert sequence. [AK033275]
A_51_P234956	-3.049	0.000836	NM_008510	NM_008510	Mus musculus chemokine (C motif) ligand 1 (Xcl1), mRNA [NM_008510]
A_51_P297915	-3.049	0.0224	NM_175305	NM_175305	Mus musculus leucine rich repeat containing 19 (Lrrc19), mRNA [NM_175305]
A_52_P1138659	-3.058	0.00875	AK009224	AK009224	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310008D08 product:flavin containing monooxygenase 2, full insert sequence. [AK009224]
A_52_P403246	-3.058	0.0355	AK081899	AK081899	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130085M10 product:hypothetical protein, full insert sequence [AK081899]
A_51_P519008	-3.067	0.0398	NM_177595	NM_177595	Mus musculus RIKEN cDNA 9430023B20 gene (9430023B20Rik), mRNA [NM_177595]
A_51_P490955	-3.077	0.034	AK050452	AK050452	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730049F21 product:weakly similar to DNA-BINDING PROTEIN (FRAGMENT) [Homo sapiens], full insert sequence. [AK050452]
A_52_P139819	-3.077	0.021	NM_178404	NM_178404	Mus musculus zinc finger CCCH type containing 6 (Zc3h6), mRNA [NM_178404]
A_52_P589169	-3.086	0.0464	BC048855	BC048855	Mus musculus RIKEN cDNA 2010111I01 gene, mRNA (cDNA clone MGC:55091 IMAGE:5251413), complete cds. [BC048855]
A_52_P20727	-3.096	0.0184	NM_175340	NM_175340	Mus musculus NHL repeat containing 1 (Nhlrc1), mRNA [NM_175340]
A_52_P197402	-3.106	0.0106	XM_137322	XM_137322	PREDICTED: hypothetical protein LOC74694 [Mus musculus], mRNA sequence [XM_137322]
A_52_P391639	-3.106	0.0131	AK005560	AK005560	Mus musculus adult female placenta cDNA, RIKEN full-length enriched library, clone:1600029I14 product:hypothetical protein, full insert sequence. [AK005560]
A_51_P450373	-3.115	0.0372	AK010113	AK010113	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310068J16 product:hypothetical protein, full insert sequence. [AK010113]
A_51_P260265	-3.125	0.0165	NM_010469	NM_010469	Mus musculus homeo box D4 (Hoxd4), mRNA [NM_010469]
A_51_P410451	-3.125	0.0155	NM_028006	NM_028006	Mus musculus epsilon-tubulin 1 (Tube1), mRNA [NM_028006]
A_51_P520585	-3.125	0.00423	NM_026967	NM_026967	Mus musculus Ras homolog enriched in brain like 1 (Rhebl1), mRNA [NM_026967]
A_52_P150683	-3.125	0.0281	AK030809	AK030809	Mus musculus adult male thymus cDNA, RIKEN full-length enriched library, clone:5830410K04 product:monocytic adaptor, full insert sequence [AK030809]
A_52_P150651	-3.135	0.0139	AK030656	AK030656	Mus musculus 6 days neonate head cDNA, RIKEN full-length enriched library, clone:5430405C01 product:PUTATIVE 13 S GOLGI TRANSPORT COMPLEX 90KD SUBUNIT BRAIN-SPECIFIC ISOFORM homolog [Homo sapiens], full insert sequence. [AK030656]
A_51_P194099	-3.145	0.0486	NM_009381	NM_009381	Mus musculus thyroid hormone responsive SPOT14 homolog (Rattus) (Thrsp), mRNA [NM_009381]
A_51_P309170	-3.155	0.0172	AK084086	AK084086	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130085G03 product:similar to MSZF76 (FRAGMENT) [Mus musculus], full insert sequence. [AK084086]
A_52_P268662	-3.155	0.017	AK076366	AK076366	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732468I02 product:phospholipase A2, group IB, pancreas, receptor, full insert sequence. [AK076366]
A_52_P27496	-3.155	0.0175	NM_198423	NM_198423	Mus musculus cDNA sequence BC060615 (BC060615), mRNA [NM_198423]
A_51_P126102	-3.175	0.0348	NM_007674	NM_007674	Mus musculus caudal type homeo box 4 (Cdx4), mRNA [NM_007674]
A_51_P166155	-3.175	0.0168	NM_020567	NM_020567	Mus musculus geminin (Gmnn), mRNA [NM_020567]
A_51_P453088	-3.175	0.0479	NM_174987	NM_174987	Mus musculus RIKEN cDNA 1810063B05 gene (1810063B05Rik), mRNA [NM_174987]
A_52_P891683	-3.175	0.0333	AK041553	AK041553	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630020L11 product:unclassifiable, full insert sequence. [AK041553]
A_51_P151516	-3.195	0.0325	AK045519	AK045519	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230208H11 product:unknown EST, full insert sequence. [AK045519]
A_52_P368780	-3.195	0.0317	ENSMUST00000084077		
A_52_P75027	-3.195	0.0197	BC025186	BC025186	Mus musculus cDNA clone MGC:32466 IMAGE:5044645, complete cds. [BC025186]
A_51_P108973	-3.205	0.0171	NM_028890	NM_028890	Mus musculus RIKEN cDNA 4931414P19 gene (4931414P19Rik), mRNA [NM_028890]
A_51_P153614	-3.215	0.0142	NM_027759	NM_027759	Mus musculus fibrous sheath-interacting protein 1 (Fsip1), mRNA [NM_027759]
A_52_P553299	-3.215	0.0441	AK040647	AK040647	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530006C07 product:hypothetical RING finger containing protein, full insert sequence. [AK040647]
A_52_P660713	-3.215	0.025	BC062190	BC062190	Mus musculus cDNA sequence BC026590, mRNA (cDNA clone IMAGE:30244293), partial cds [BC062190]
A_51_P311199	-3.226	0.0267	NM_013669	NM_013669	Mus musculus synaptosomal-associated protein 91 (Snap91), mRNA [NM_013669]
A_52_P675617	-3.226	0.0247	BC087897	BC087897	Mus musculus ATP/GTP binding protein-like 3, mRNA (cDNA clone IMAGE:6595330), complete cds. [BC087897]
A_51_P514700	-3.236	0.0369	NM_025565	NM_025565	Mus musculus spindle pole body component 25 homolog (S. cerevisiae) (Spbc25), mRNA [NM_025565]
A_52_P167357	-3.247	0.0127	NM_139147	NM_139147	Mus musculus Rab40b, member RAS oncogene family (Rab40b), mRNA [NM_139147]
A_51_P223891	-3.257	0.0202	AK011097	AK011097	Mus musculus 13 days embryo liver cDNA, RIKEN full-length enriched library, clone:2510042P03 product:4930506L13RIK PROTEIN homolog [Mus musculus], full insert sequence. [AK011097]
A_51_P427232	-3.257	0.00611	NM_183088	NM_183088	Mus musculus RIKEN cDNA 2410018M08 gene (2410018M08Rik), mRNA [NM_183088]

A_52_P249672	-3.257	0.0271	AK014716	AK014716	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4833417J20 product:unknown EST, full insert sequence [AK014716]
A_51_P176042	-3.268	0.0274	NM_013631	NM_013631	Mus musculus pyruvate kinase liver and red blood cell (Pklr), mRNA [NM_013631]
A_51_P125629	-3.279	0.015	NM_173402	NM_173402	Mus musculus regulator of G-protein signaling 12 (Rgs12), mRNA [NM_173402]
A_52_P361611	-3.279	0.0283	XM_622111	XM_622111	PREDICTED: Mus musculus hypothetical protein LOC (LOC544673), mRNA [XM_622111]
A_51_P330724	-3.3	0.0484	AK012503	AK012503	Mus musculus 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2700068H02 product:unclassifiable, full insert sequence. [AK012503]
A_52_P124440	-3.3	0.0323	AK078326	AK078326	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430599B16 product:hypothetical Tudor domain containing protein, full insert sequence. [AK078326]
A_52_P448805	-3.3	0.0397	AK047471	AK047471	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930074B15 product:weakly similar to CG8929 PROTEIN [Drosophila melanogaster], full insert sequence [AK047471]
A_51_P152550	-3.311	0.037	NM_178378	NM_178378	Mus musculus IQ motif containing G (Iqcg), mRNA [NM_178378]
A_52_P1109289	-3.311	0.0375	TC1435238		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (5%) [TC1435238]
A_52_P330214	-3.311	0.00634	NM_016925	NM_016925	Mus musculus Fanconi anemia, complementation group A (Fanca), mRNA [NM_016925]
A_52_P1083427	-3.322	0.0352	AK020414	AK020414	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430013L17 product:unknown EST, full insert sequence. [AK020414]
A_52_P278497	-3.322	0.0274	NM_201256	NM_201256	Mus musculus eukaryotic translation initiation factor 4E binding protein 3 (Eif4ebp3), mRNA [NM_201256]
A_52_P563584	-3.333	0.0499	AK016265	AK016265	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930570G19 product:unknown EST, full insert sequence. [AK016265]
A_52_P18854	-3.344	0.045	BY753085	BY753085	BY753085 RIKEN full-length enriched, adult inner ear Mus musculus cDNA clone F930102C14 5'. [BY753085]
A_52_P333117	-3.344	0.0451	AK020257	AK020257	Mus musculus adult male colon cDNA, RIKEN full-length enriched library, clone:9030617G22 product:inversin, full insert sequence. [AK020257]
A_52_P588189	-3.344	0.0276	AK037072	AK037072	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930108J08 product:protein kinase, interferon inducible double stranded RNA dependent activator, full insert sequence [AK037072]
A_51_P135416	-3.356	0.0146	XM_619790	XM_619790	PREDICTED: Mus musculus RIKEN cDNA 2700082O15 gene (2700082O15Rik), mRNA [XM_619790]
A_51_P155604	-3.356	0.0219	NM_201256	NM_201256	Mus musculus eukaryotic translation initiation factor 4E binding protein 3 (Eif4ebp3), mRNA [NM_201256]
A_51_P445745	-3.356	0.0493	AK047237	AK047237	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930041D05 product:unclassifiable, full insert sequence. [AK047237]
A_52_P134075	-3.367	0.0335	NM_024289	NM_024289	Mus musculus oxysterol binding protein-like 5 (Osbpl5), mRNA [NM_024289]
A_52_P143671	-3.367	0.0118	BC080700	BC080700	Mus musculus RIKEN cDNA E130306D19 gene, mRNA (cDNA clone MGC:91189 IMAGE:30472977), complete cds. [BC080700]
A_51_P338878	-3.378	0.0345	NM_027571	NM_027571	Mus musculus purinergic receptor P2Y, G-protein coupled 12 (P2ry12), mRNA [NM_027571]
A_51_P430973	-3.39	0.0177	NM_027995	NM_027995	Mus musculus progestin and adipoQ receptor family member VII (Paqr7), mRNA [NM_027995]
A_51_P264132	-3.401	0.0185	NM_027789	NM_027789	Mus musculus RIKEN cDNA 5430416O09 gene (5430416O09Rik), mRNA [NM_027789]
A_51_P428595	-3.401	0.0493	AK032310	AK032310	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430518I24 product:hypothetical protein, full insert sequence. [AK032310]
A_52_P185054	-3.401	0.019	AK004111	AK004111	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1110035H17 product:hypothetical protein, full insert sequence. [AK004111]
A_52_P384394	-3.401	0.0162	BC079650	BC079650	Mus musculus Bcl2 modifying factor, mRNA (cDNA clone MGC:90616 IMAGE:6847314), complete cds. [BC079650]
A_52_P293222	-3.413	0.0325	AK042378	AK042378	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630086I18 product:PPAR GAMMA COACTIVATOR-1BETA PROTEIN, full insert sequence. [AK042378]
A_52_P601446	-3.413	0.0499	AK049314	AK049314	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:C330022A02 product:tripartite motif protein 27, full insert sequence. [AK049314]
A_52_P642136	-3.425	0.0172	AK085917	AK085917	Mus musculus 16 days neonate heart cDNA, RIKEN full-length enriched library, clone:D830028M12 product:unknown EST, full insert sequence [AK085917]
A_52_P670275	-3.425	0.0192	BC054123	BC054123	Mus musculus kinesin family member 14, mRNA (cDNA clone IMAGE:6509974), partial cds [BC054123]
A_51_P240857	-3.436	0.0394	NM_144807	NM_144807	Mus musculus choline phosphotransferase 1 (Chpt1), mRNA [NM_144807]
A_51_P415809	-3.436	0.02	NM_026954	NM_026954	Mus musculus tumor suppressor candidate 1 (Tusc1), mRNA [NM_026954]
A_52_P341128	-3.436	0.0263	AK088215	AK088215	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430007G18 product:protein tyrosine phosphatase, receptor type, C, full insert sequence. [AK088215]
A_51_P368341	-3.448	0.0397	M28513	M28513	Mouse zinc finger protein (mfg1) mRNA, partial cds. [M28513]
A_51_P156857	-3.46	0.0309	NM_134133	NM_134133	Mus musculus RIKEN cDNA 2010002N04 gene (2010002N04Rik), mRNA [NM_134133]
A_51_P394847	-3.46	0.0115	XM_488664	XM_488664	PREDICTED: hypothetical protein LOC76024 [Mus musculus], mRNA sequence [XM_488664]
A_52_P315890	-3.46	0.014	NM_175252	NM_175252	Mus musculus RIKEN cDNA 6720457D02 gene (6720457D02Rik), mRNA [NM_175252]
A_52_P336768	-3.46	0.0118	BB111701	BB111701	BB111701 RIKEN full-length enriched, adult male urinary bladder Mus musculus cDNA clone 9530031F04 3'. [BB111701]
A_52_P129672	-3.472	0.0377	AK085153	AK085153	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430045C01 product:ALDOSE 1-EPIMERASE (EC 5.1.3.3) homolog [Sus scrofa], full insert sequence [AK085153]
A_51_P240986	-3.484	0.0155	NM_198604	NM_198604	Mus musculus pleckstrin homology domain containing, family G (with RhoGef domain) member 6 (Plekhg6), mRNA [NM_198604]
A_51_P389050	-3.484	0.0393	XM_135854	XM_135854	PREDICTED: hypothetical protein LOC75404 [Mus musculus], mRNA sequence [XM_135854]
A_51_P424893	-3.484	0.0196	NM_009688	NM_009688	Mus musculus baculoviral IAP repeat-containing 4 (Birc4), mRNA [NM_009688]
A_51_P431885	-3.484	0.0463	NM_198412	NM_198412	Mus musculus DnaJ (Hsp40) homolog, subfamily C, member 6 (Dnajc6), mRNA [NM_198412]
A_51_P471798	-3.484	0.0146	AK045812	AK045812	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230312B02 product:unclassifiable, full insert sequence [AK045812]
A_51_P261991	-3.497	0.0167	NM_007540	NM_007540	Mus musculus brain derived neurotrophic factor (Bdnf), mRNA [NM_007540]
A_52_P686130	-3.497	0.0339	NM_007504	NM_007504	Mus musculus ATPase, Ca++ transporting, cardiac muscle, fast twitch 1 (Atp2a1), mRNA [NM_007504]
A_51_P257938	-3.521	0.0182	NM_020047	NM_020047	Mus musculus tumor-associated calcium signal transducer 2 (Tacstd2), mRNA [NM_020047]
A_51_P386503	-3.521	0.0202	NM_026185	NM_026185	Mus musculus RIKEN cDNA 1300007F04 gene (1300007F04Rik), mRNA [NM_026185]
A_51_P464588	-3.521	0.0139	NM_138664	NM_138664	Mus musculus open reading frame 28 (ORF28), mRNA [NM_138664]
A_52_P289091	-3.534	0.0478	NM_007813	NM_007813	Mus musculus cytochrome P450, family 2, subfamily b, polypeptide 13 (Cyp2b13), mRNA [NM_007813]
A_51_P513530	-3.546	0.0292	NM_017407	NM_017407	Mus musculus sperm associated antigen 5 (Spag5), mRNA [NM_017407]
A_52_P115950	-3.546	0.0236	AK036853	AK036853	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930018I23 product:hypothetical protein, full insert sequence. [AK036853]
A_52_P499640	-3.546	0.0179	NM_213615	NM_213615	Mus musculus RIKEN cDNA A530032D15Rik gene (A530032D15Rik), mRNA [NM_213615]
A_51_P293938	-3.559	0.0344	AK004534	AK004534	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1190017B18 product:hypothetical P-loop containing nucleotide triphosphate hydrolases structure containing protein, full insert sequence. [AK004534]
A_51_P327206	-3.559	0.0178	NM_011839	NM_011839	Mus musculus mab-21-like 2 (C. elegans) (Mab21l2), mRNA [NM_011839]
A_51_P454422	-3.559	0.0131	AB093296	AB093296	Mus musculus mRNA for mKIAA1409 protein [AB093296]
A_52_P1135379	-3.559	0.0261	TC1449385		Q6NRA1 (Q6NRA1) LOC431926 protein (Fragment), partial (5%) [TC1449385]
A_52_P517970	-3.559	0.0367	AK006126	AK006126	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700019J19 product:unknown EST, full insert sequence. [AK006126]
A_52_P618379	-3.559	0.0389	NM_028756	NM_028756	Mus musculus solute carrier family 35, member A5 (Slc35a5), mRNA [NM_028756]
A_51_P378501	-3.571	0.0432	A_51_P378501		
A_51_P489268	-3.584	0.00115	AJ237585	AJ237585	Mus musculus mRNA for hypothetical protein expressed in thymocytes (clone MFT.M05.13 [AJ237585]
A_52_P164236	-3.584	0.0171	AK042588	AK042588	Mus musculus 7 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:A730008H17 product:ACTIN-BINDING PROTEIN FRABIN-GAMMA homolog [Mus musculus], full insert sequence. [AK042588]
A_52_P207163	-3.584	0.00634	AK049134	AK049134	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:C330006C18 product:similar to X-LINKED ECTODYSPLASIN-A RECEPTOR [Homo sapiens], full insert sequence. [AK049134]
A_52_P57719	-3.584	0.0318	NM_001025572	NM_0010255	Mus musculus ankyrin repeat domain 12 (Ankrd12), mRNA [NM_001025572]
A_51_P398376	-3.636	0.0258	NM_021364	NM_021364	Mus musculus C-type lectin domain family 5, member a (Clec5a), mRNA [NM_021364]
A_52_P330868	-3.636	0.00957	XM_619068	XM_619068	PREDICTED: Mus musculus similar to spermatogenesis associated glutamate (E)-rich protein 4b (LOC544917), mRNA [XM_619068]
A_52_P1164127	-3.676	0.0302	AK052085	AK052085	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230044L08 product:hypothetical protein, full insert sequence. [AK052085]
A_52_P527822	-3.676	0.0332	NM_011395	NM_011395	Mus musculus solute carrier family 22 (organic cation transporter), member 3 (Slc22a3), mRNA [NM_011395]
A_51_P340805	-3.69	0.0148	AI508699	AI508699	vb39b03.y1 Soares mouse lymph node NbMLN Mus musculus cDNA clone IMAGE:751277 5'. [AI508699]
A_51_P358633	-3.69	0.0208	NM_010790	NM_010790	Mus musculus maternal embryonic leucine zipper kinase (Melk), mRNA [NM_010790]
A_51_P342652	-3.717	0.0126	NM_008339	NM_008339	Mus musculus CD79B antigen (Cd79b), mRNA [NM_008339]
A_51_P448741	-3.745	0.00853	NM_009425	NM_009425	Mus musculus tumor necrosis factor (ligand) superfamily, member 10 (Tnfsf10), mRNA [NM_009425]
A_51_P505571	-3.745	0.019	NM_133709	NM_133709	Mus musculus chordin-like 2 (Chrdl2), mRNA [NM_133709]
A_51_P130639	-3.774	0.0276	NM_026643	NM_026643	Mus musculus RIKEN cDNA 2410017P07 gene (2410017P07Rik), mRNA [NM_026643]
A_51_P345121	-3.774	0.0182	BC030679	BC030679	Mus musculus CD8 antigen, alpha chain, mRNA (cDNA clone MGC:41580 IMAGE:1247019), complete cds. [BC030679]
A_51_P382700	-3.774	0.0188	NM_026059	NM_026059	Mus musculus RIKEN cDNA 2900005J15 gene (2900005J15Rik), mRNA [NM_026059]
A_51_P173692	-3.802	0.048	NM_177250	NM_177250	Mus musculus leucine rich repeat neuronal 6D (Lrrn6d), mRNA [NM_177250]
A_51_P345159	-3.802	0.0182	NM_026024	NM_026024	Mus musculus ubiquitin-conjugating enzyme E2T (putative) (Ube2t), mRNA [NM_026024]
A_51_P279437	-3.831	0.016	NM_029662	NM_029662	Mus musculus major facilitator superfamily domain containing 2 (Mfsd2), mRNA [NM_029662]
A_52_P298112	-3.831	0.0182	XM_622288	XM_622288	PREDICTED: Mus musculus nebulette (Nebl), mRNA [XM_622288]
A_51_P241413	-3.846	0.00692	AK021025	AK021025	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430316H17 product:hypothetical protein, full insert sequence. [AK021025]
A_51_P279841	-3.846	0.0252	NM_008528	NM_008528	Mus musculus B-cell linker (Blnk), mRNA [NM_008528]

A_52_P338066	-3.846	0.0148	NM_023137	NM_023137	Mus musculus ubiquitin D (Ubd), mRNA [NM_023137]
A_51_P450033	-3.876	0.00726	NM_007659	NM_007659	Mus musculus cell division cycle 2 homolog A (S. pombe) (Cdc2a), mRNA [NM_007659]
A_52_P354123	-3.876	0.00184	NM_026967	NM_026967	Mus musculus Ras homolog enriched in brain like 1 (Rhebl1), mRNA [NM_026967]
A_52_P58558	-3.876	0.0486	BC053727	BC053727	Mus musculus cyclin E2, mRNA (cDNA clone MGC:60620 IMAGE:30061057), complete cds. [BC053727]
A_52_P96748	-3.876	0.00484	AK011097	AK011097	Mus musculus 13 days embryo liver cDNA, RIKEN full-length enriched library, clone:2510042P03 product:4930506L13RIK PROTEIN homolog [Mus musculus], full insert sequence. [AK011097]
A_52_P174421	-3.891	0.00484	NM_008079	NM_008079	Mus musculus galactosylceramidase (Galc), mRNA [NM_008079]
A_51_P130015	-3.906	0.0152	NM_007900	NM_007900	Mus musculus ect2 oncogene (Ect2), mRNA [NM_007900]
A_52_P582619	-3.906	0.0277	AK031835	AK031835	Mus musculus adult male medulla oblongata cDNA, RIKEN full-length enriched library, clone:6330415G19 product:hypothetical protein, full insert sequence. [AK031835]
A_52_P826021	-3.906	0.0373	NM_020283	NM_020283	Mus musculus UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 1 (B3galt1), mRNA [NM_020283]
A_51_P185869	-3.922	0.015	NM_175000	NM_175000	Mus musculus hemoglobin, theta 1 (Hbq1), mRNA [NM_175000]
A_51_P248122	-3.922	0.0156	NM_133234	NM_133234	Mus musculus Bcl-2 binding component 3 (Bbc3), mRNA [NM_133234]
A_51_P497152	-3.937	0.0385	NM_013518	NM_013518	Mus musculus fibroblast growth factor 9 (Fgf9), mRNA [NM_013518]
A_52_P236937	-3.937	0.0243	AK082113	AK082113	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230008N15 product:phosphodiesterase 1C, full insert sequence. [AK082113]
A_52_P715388	-3.937	0.0302	AK083690	AK083690	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030067L12 product:hypothetical protein, full insert sequence. [AK083690]
A_51_P332355	-3.953	0.0101	NM_139303	NM_139303	Mus musculus kinesin family member 18A (Kif18a), mRNA [NM_139303]
A_51_P344249	-3.953	0.0126	NM_009685	NM_009685	Mus musculus amyloid beta (A4) precursor protein-binding, family B, member 1 (Apbb1), mRNA [NM_009685]
A_51_P176225	-3.968	0.0168	AK041703	AK041703	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630031B14 product:unknown EST, full insert sequence. [AK041703]
A_51_P367374	-3.968	0.0267	NM_028739	NM_028739	Mus musculus RIKEN cDNA 4933404G15 gene (4933404G15Rik), mRNA [NM_028739]
A_52_P1052401	-3.968	0.0168	AK031914	AK031914	Mus musculus adult male medulla oblongata cDNA, RIKEN full-length enriched library, clone:6330443K16 product:chromatin accessibility complex 1, full insert sequence. [AK031914]
A_51_P513311	-3.984	0.0146	NM_009107	NM_009107	Mus musculus retinoid X receptor gamma (Rxrg), mRNA [NM_009107]
A_52_P626035	-3.984	0.0253	AK081626	AK081626	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130055D19 product:unknown EST, full insert sequence. [AK081626]
A_52_P462239	-4	0.0482	AK084087	AK084087	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130085P08 product:unknown EST, full insert sequence. [AK084087]
A_52_P867713	-4	0.0266	AK050998	AK050998	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030052H06 product:unknown EST, full insert sequence. [AK050998]
A_51_P389539	-4.016	0.0187	NM_054053	NM_054053	Mus musculus monogenic, audiogenic seizure susceptibility 1 (Mass1), mRNA [NM_054053]
A_52_P65084	-4.016	0.0216	NM_019446	NM_019446	Mus musculus BarH-like 1 (Drosophila) (Barhl1), mRNA [NM_019446]
A_51_P230103	-4.032	0.0256	NM_009689	NM_009689	Mus musculus baculoviral IAP repeat-containing 5 (Birc5), transcript variant 1, mRNA [NM_009689]
A_52_P148120	-4.032	0.0148	BC057898	BC057898	Mus musculus expressed sequence AI586015, mRNA (cDNA clone IMAGE:5029976), complete cds [BC057898]
A_51_P455459	-4.049	0.031	AK016534	AK016534	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4932422M17 product:hypothetical protein, full insert sequence. [AK016534]
A_52_P259817	-4.065	0.016	NM_029692	NM_029692	Mus musculus uridine phosphorylase 2 (Upp2), mRNA [NM_029692]
A_52_P443776	-4.065	0.0477	XM_138362	XM_138362	PREDICTED: Mus musculus similar to IgE antibody heavy chain (VDJ) (LOC238440), mRNA [XM_138362]
A_52_P602719	-4.082	0.0279	NM_007832	NM_007832	Mus musculus deoxycytidine kinase (Dck), mRNA [NM_007832]
A_52_P265945	-4.098	0.0177	AK021231	AK021231	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:C330050A14 product:unknown EST, full insert sequence. [AK021231]
A_52_P535122	-4.098	0.0155	BU609786	BU609786	UI-M-DJ2-bvz-j-24-0-UI.r1 NIH_BMAP_DJ2 Mus musculus cDNA clone UI-M-DJ2-bvz-j-24-0-UI 5', mRNA sequence [BU609786]
A_52_P188656	-4.115	0.0139	AK077530	AK077530	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730439E01 product:hypothetical ATP-dependent protease La (LON) domain containing protein, full insert sequence. [AK077530]
A_52_P65305	-4.115	0.0203	NM_027321	NM_027321	Mus musculus leucine rich repeat containing 39 (Lrrc39), transcript variant 1, mRNA [NM_027321]
A_51_P159986	-4.132	0.0262	NM_146680	NM_146680	Mus musculus olfactory receptor 1423 (Olfr1423), mRNA [NM_146680]
A_51_P514405	-4.132	0.0368	NM_019741	NM_019741	Mus musculus solute carrier family 2 (facilitated glucose transporter), member 5 (Slc2a5), mRNA [NM_019741]
A_52_P627833	-4.149	0.0383	NM_008588	NM_008588	Mus musculus mesoderm posterior 1 (Mesp1), mRNA [NM_008588]
A_51_P516012	-4.167	0.0191	NM_008745	NM_008745	Mus musculus neurotrophic tyrosine kinase, receptor, type 2 (Ntrk2), transcript variant 2, mRNA [NM_008745]
A_52_P506407	-4.167	0.0216	NM_011087	NM_011087	Mus musculus paired-Ig-like receptor A1 (Pira1), mRNA [NM_011087]
A_52_P653565	-4.167	0.0182	XM_354731	XM_354731	PREDICTED: similar to anti-DNA antibody heavy chain variable region [Mus musculus], mRNA sequence [XM_354731]
A_52_P429723	-4.184	0.0308	NM_008604	NM_008604	Mus musculus membrane metallo endopeptidase (Mme), mRNA [NM_008604]
A_51_P133920	-4.202	0.0171	NM_172823	NM_172823	Mus musculus leishmanolysin-like (metallopeptidase M8 family) (Lmln), mRNA [NM_172823]
A_51_P325198	-4.202	0.0126	AK014026	AK014026	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110009E18 product:hypothetical protein, full insert sequence. [AK014026]
A_51_P369862	-4.219	0.0163	NM_178772	NM_178772	Mus musculus arylacetamide deacetylase-like 1 (Aadacl1), mRNA [NM_178772]
A_52_P90265	-4.219	0.0128	NM_011671	NM_011671	Mus musculus uncoupling protein 2 (mitochondrial, proton carrier) (Ucp2), mRNA [NM_011671]
A_51_P315820	-4.237	0.0451	XM_196763	XM_196763	PREDICTED: protease, serine-like 1 [Mus musculus], mRNA sequence [XM_196763]
A_52_P33382	-4.237	0.019	XM_356935	XM_356935	PREDICTED: Mus musculus similar to hemoglobin alpha chain - slender loris (LOC383229), mRNA [XM_356935]
A_51_P391367	-4.255	0.0458	NM_031182	NM_031182	Mus musculus transcription factor AP4 (Tcfap4), mRNA [NM_031182]
A_52_P433847	-4.255	0.0449	NM_009514	NM_009514	Mus musculus pre-B lymphocyte gene 3 (Vpreb3), mRNA [NM_009514]
A_52_P297765	-4.274	0.00891	XM_134539	XM_134539	PREDICTED: RIKEN cDNA 2310031A18 [Mus musculus], mRNA sequence [XM_134539]
A_52_P438210	-4.274	0.0397	AK085237	AK085237	Mus musculus 13 days embryo stomach cDNA, RIKEN full-length enriched library, clone:D530033I21 product:iduronate 2-sulfatase, full insert sequence [AK085237]
A_52_P663526	-4.292	0.0126	NM_145497	NM_145497	Mus musculus cDNA sequence BC016495 (BC016495), mRNA [NM_145497]
A_52_P544435	-4.31	0.022	XM_485775	XM_485775	PREDICTED: Mus musculus similar to immunoglobulin light chain precursor (LOC434031), mRNA [XM_485775]
A_52_P325388	-4.329	0.00823	AK080904	AK080904	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430203J24 product:hypothetical Tetratricopeptide repeat (TPR) structure containing protein, full insert sequence. [AK080904]
A_52_P67270	-4.329	0.0352	NM_175120	NM_175120	Mus musculus RIKEN cDNA 4930515G01 gene (4930515G01Rik), mRNA [NM_175120]
A_52_P607060	-4.348	0.0478	AK042301	AK042301	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630080F05 product:unknown EST, full insert sequence [AK042301]
A_51_P381683	-4.367	0.0286	NM_007377	NM_007377	Mus musculus apoptosis-associated tyrosine kinase (Aatk), mRNA [NM_007377]
A_51_P454257	-4.367	0.0318	AK049111	AK049111	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:C330002D13 product:similar to CDNA FLJ20583 FIS, CLONE KAT09685 [Homo sapiens], full insert sequence. [AK049111]
A_51_P255945	-4.386	0.0152	NM_153587	NM_153587	Mus musculus ribosomal protein S6 kinase, polypeptide 5 (Rps6ka5), mRNA [NM_153587]
A_52_P460393	-4.425	0.0277	NM_146232	NM_146232	Mus musculus cDNA sequence BC014805 (BC014805), mRNA [NM_146232]
A_51_P163624	-4.444	0.0301	AK044029	AK044029	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830082A06 product:weakly similar to DOPAMINE RECEPTOR D4 (FRAGMENT) [Homo sapiens], full insert sequence. [AK044029]
A_52_P218458	-4.444	0.0485	NM_172544	NM_172544	Mus musculus neurexin III (Nrxn3), mRNA [NM_172544]
A_51_P167660	-4.484	0.019	NM_175157	NM_175157	Mus musculus RIKEN cDNA 2610204G22 gene (2610204G22Rik), mRNA [NM_175157]
A_51_P332419	-4.545	0.0379	NM_026700	NM_026700	Mus musculus RIKEN cDNA 2610510B01 gene (2610510B01Rik), transcript variant 2, mRNA [NM_026700]
A_52_P242194	-4.566	0.00638	AK039886	AK039886	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430025D19 product:TUBULIN EPSILON CHAIN (EPSILON TUBULIN) homolog [Homo sapiens], full insert sequence. [AK039886]
A_51_P152532	-4.587	0.0351	XM_620516	XM_620516	PREDICTED: Mus musculus ring finger and KH domain containing 3 (Rkhd3), mRNA [XM_620516]
A_51_P346893	-4.587	0.0267	NM_019578	NM_019578	Mus musculus exostoses (multiple)-like 1 (Extl1), mRNA [NM_019578]
A_52_P152412	-4.608	0.0306	NM_026020	NM_026020	Mus musculus ribosomal protein, large P2 (Rplp2), mRNA [NM_026020]
A_51_P274138	-4.63	0.0277	AK009071	AK009071	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310001K24 product:hypothetical protein, full insert sequence. [AK009071]
A_52_P107947	-4.63	0.0236	XM_484944	XM_484944	PREDICTED: RIKEN cDNA B230369F24 gene [Mus musculus], mRNA sequence [XM_484944]
A_52_P454430	-4.63	0.0308	AK081094	AK081094	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930085E10 product:hypothetical Neutral zinc metallopeptidases, zinc-binding region containing protein, full insert sequence. [AK081094]
A_52_P319438	-4.651	0.0208	BC039642	BC039642	Mus musculus cDNA clone IMAGE:5352548, partial cds. [BC039642]
A_51_P354706	-4.673	0.0213	NM_010094	NM_010094	Mus musculus left right determination factor 1 (Lefty1), mRNA [NM_010094]
A_51_P405129	-4.673	0.0451	NM_025725	NM_025725	Mus musculus RIKEN cDNA 4921513E08 gene (4921513E08Rik), mRNA [NM_025725]
A_52_P319361	-4.673	0.00401	NM_029494	NM_029494	Mus musculus RAB30, member RAS oncogene family (Rsb30), mRNA [NM_029494]
A_51_P461067	-4.695	0.0404	X87228	X87228	Mus musculus mRNA for immunoglobulin heavy chain (IGH gene). [X87228]
A_52_P452660	-4.717	0.0416	NM_172053	NM_172053	Mus musculus a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 16 (Adamts16), mRNA [NM_172053]
A_52_P620472	-4.717	0.037	AK044036	AK044036	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830082K12 product:unknown EST, full insert sequence. [AK044036]
A_51_P375207	-4.739	0.043	AK083150	AK083150	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630018D16 product:unknown EST, full insert sequence. [AK083150]
A_51_P154485	-4.762	0.014	NM_145141	NM_145141	Mus musculus Fc receptor-like mucin-like 1 (Fcrlm1), mRNA [NM_145141]
A_51_P322000	-4.762	0.0147	XM_130308	XM_130308	PREDICTED: similar to low density lipoprotein receptor-related protein 2 [Mus musculus], mRNA sequence [XM_130308]
A_52_P139569	-4.762	0.0293	AK017269	AK017269	Mus musculus 6 days neonate head cDNA, RIKEN full-length enriched library, clone:5430405D20 product:unknown EST, full insert sequence. [AK017269]

A_51_P377557	-4.785	0.0379	NM_029794	NM_029794	Mus musculus DNA segment, Chr 11, ERATO Doi 636, expressed (D11Ertd636e), transcript variant 2, mRNA [NM_029794]
A_52_P36591	-4.785	0.00965	TC1434027		Q7TP79 (Q7TP79) Aa2-245, partial (5%) [TC1434027]
A_51_P367416	-4.808	0.0353	NM_172513	NM_172513	Mus musculus cDNA sequence BC049806 (BC049806), mRNA [NM_172513]
A_51_P217498	-4.831	0.0308	NM_009204	NM_009204	Mus musculus solute carrier family 2 (facilitated glucose transporter), member 4 (Slc2a4), mRNA [NM_009204]
A_52_P112641	-4.831	0.0372	NM_198611	NM_198611	Mus musculus UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 4 (B3gnt4), mRNA [NM_198611]
A_52_P515620	-4.831	0.0243	AK017181	AK017181	Mus musculus 11 days pregnant adult female ovary and uterus cDNA, RIKEN full-length enriched library, clone:5033421B08 product:unclassifiable, full insert sequence. [AK017181]
A_51_P144531	-4.854	0.0381	NM_172776	NM_172776	Mus musculus hypothetical protein D630002G06 (D630002G06), mRNA [NM_172776]
A_52_P215170	-4.854	0.0175	NM_134247	NM_134247	Mus musculus peroxisomal acyl-CoA thioesterase 2B (Pte2b), mRNA [NM_134247]
A_52_P676589	-4.878	0.012	AK034561	AK034561	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430006K02 product:inferred: transmembrane receptor {Mus musculus}; frizzled homolog 8 (Drosophila) homolog {GNF expression},...
A_51_P282930	-4.902	0.0209	NM_011281	NM_011281	Mus musculus RAR-related orphan receptor gamma (Rorc), mRNA [NM_011281]
A_51_P283473	-4.902	0.0284	NM_026271	NM_026271	Mus musculus RIKEN cDNA 1110018M03 gene (1110018M03Rik), mRNA [NM_026271]
A_51_P455128	-4.926	0.0106	AK016201	AK016201	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930563E19 product:hypothetical G-protein beta WD-40 repeats containing protein, full insert sequence [AK016201]
A_51_P123745	-4.95	0.0121	BC025823	BC025823	Mus musculus cDNA sequence BC011467, mRNA (cDNA clone MGC:37865 IMAGE:5100525), complete cds. [BC025823]
A_51_P516006	-4.975	0.0245	AK018789	AK018789	Mus musculus adult male cerebellum cDNA, RIKEN full-length enriched library, clone:1500040I13 product:DJ245M18.1 (PLACENTAL PROTEIN DIFF40) (FRAGMENT) homolog [Homo sapiens], full insert sequence. [AK018789]
A_52_P802967	-4.975	0.0398	AK035497	AK035497	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530056L18 product:unclassifiable, full insert sequence. [AK035497]
A_52_P122649	-5.102	0.00588	NM_175647	NM_175647	Mus musculus doublesex and mab-3 related transcription factor like family A1 (Dmrta1), mRNA [NM_175647]
A_52_P285470	-5.102	0.0153	XM_130308	XM_130308	PREDICTED: similar to low density lipoprotein receptor-related protein 2 [Mus musculus], mRNA sequence [XM_130308]
A_51_P408071	-5.128	0.0479	XM_132322	XM_132322	PREDICTED: similar to mKIAA0166 protein [Mus musculus], mRNA sequence [XM_132322]
A_52_P58560	-5.155	0.0348	NM_009830	NM_009830	Mus musculus cyclin E2 (Ccne2), mRNA [NM_009830]
A_52_P223224	-5.181	0.0464	AK049355	AK049355	Mus musculus ES cells cDNA, RIKEN full-length enriched library, clone:C330027B16 product:hydroxysteroid 17-beta dehydrogenase 11, full insert sequence [AK049355]
A_52_P795452	-5.263	0.0306	AK045332	AK045332	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130065O22 product:unclassifiable, full insert sequence. [AK045332]
A_52_P483336	-5.319	0.0426	NM_007641	NM_007641	Mus musculus membrane-spanning 4-domains, subfamily A, member 1 (Ms4a1), mRNA [NM_007641]
A_52_P582068	-5.319	0.0212	X79554	X79554	M.musculus BALB/c IgG light chain variable region mRNA. [X79554]
A_51_P317031	-5.376	0.0175	NM_025779	NM_025779	Mus musculus RIKEN cDNA 9030408N13 gene (9030408N13Rik), mRNA [NM_025779]
A_51_P137991	-5.405	0.0071	NM_009525	NM_009525	Mus musculus wingless-related MMTV integration site 5B (Wnt5b), mRNA [NM_009525]
A_51_P251487	-5.405	0.0193	NM_025719	NM_025719	Mus musculus RIKEN cDNA 4921504I05 gene (4921504I05Rik), mRNA [NM_025719]
A_51_P269792	-5.405	0.0332	NM_009014	NM_009014	Mus musculus RAD51-like 1 (S. cerevisiae) (Rad51l1), mRNA [NM_009014]
A_51_P369252	-5.405	0.0143	BC066148	BC066148	Mus musculus RIKEN cDNA 4632434I11 gene, mRNA (cDNA clone MGC:76476 IMAGE:30086532), complete cds. [BC066148]
A_51_P516133	-5.495	4.60E-05	NM_015786	NM_015786	Mus musculus histone 1, H1c (Hist1h1c), mRNA [NM_015786]
A_51_P451106	-5.525	0.0147	NM_009765	NM_009765	Mus musculus breast cancer 2 (Brca2), mRNA [NM_009765]
A_51_P480169	-5.525	0.00603	NM_053190	NM_053190	Mus musculus endothelial differentiation, sphingolipid G-protein-coupled receptor, 8 (Edg8), mRNA [NM_053190]
A_51_P256093	-5.556	0.0158	NM_011943	NM_011943	Mus musculus mitogen activated protein kinase kinase 6 (Map2k6), mRNA [NM_011943]
A_51_P387235	-5.556	0.0125	NM_021524	NM_021524	Mus musculus pre-B-cell colony-enhancing factor 1 (Pbef1), mRNA [NM_021524]
A_52_P645632	-5.556	0.00737	AK029856	AK029856	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4931413K24 product:SENTRIN [AK029856]
A_52_P563825	-5.65	0.022	NM_020283	NM_020283	Mus musculus UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 1 (B3galt1), mRNA [NM_020283]
A_52_P1164335	-5.682	0.000947	AK047624	AK047624	Mus musculus adult male corpus striatum cDNA, RIKEN full-length enriched library, clone:C030003D06 product:unclassifiable, full insert sequence. [AK047624]
A_52_P32353	-5.682	0.00672	AK006785	AK006785	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700054M17 product:unclassifiable, full insert sequence. [AK006785]
A_52_P875556	-5.682	0.0282	AK083287	AK083287	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730007N01 product:unclassifiable, full insert sequence [AK083287]
A_52_P1052029	-5.714	0.0425	AK031632	AK031632	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030463P07 product:unclassifiable, full insert sequence. [AK031632]
A_52_P93284	-5.714	0.0117	NM_008506	NM_008506	Mus musculus lung carcinoma myc related oncogene 1 (Lmyc1), mRNA [NM_008506]
A_51_P342926	-5.747	0.0115	NM_012050	NM_012050	Mus musculus osteomodulin (Omd), mRNA [NM_012050]
A_52_P102248	-5.747	0.0252	XM_620516	XM_620516	PREDICTED: Mus musculus ring finger and KH domain containing 3 (Rkhd3), mRNA [XM_620516]
A_52_P13786	-5.78	0.014	AK031009	AK031009	Mus musculus adult male thymus cDNA, RIKEN full-length enriched library, clone:5830487P08 product:unclassifiable, full insert sequence. [AK031009]
A_52_P222815	-5.814	0.0139	AB041802	AB041802	Mus musculus brain cDNA, clone MNCb-1723. [AB041802]
A_52_P49014	-5.814	0.0379	NM_009170	NM_009170	Mus musculus sonic hedgehog (Shh), mRNA [NM_009170]
A_52_P578043	-5.814	0.0262	AK173011	AK173011	Mus musculus mRNA for mKIAA0730 protein. [AK173011]
A_52_P268764	-5.882	0.024	BC054374	BC054374	Mus musculus fructosamine 3 kinase, mRNA (cDNA clone MGC:62582 IMAGE:6313660), complete cds. [BC054374]
A_51_P157083	-5.917	0.0165	NM_008086	NM_008086	Mus musculus growth arrest specific 1 (Gas1), mRNA [NM_008086]
A_51_P408649	-5.952	0.0123	NM_145463	NM_145463	Mus musculus transmembrane protein 46 (Tmem46), mRNA [NM_145463]
A_51_P511669	-5.952	0.0286	NM_146288	NM_146288	Mus musculus olfactory receptor 122 (Olfr122), mRNA [NM_146288]
A_52_P360330	-5.952	0.0366	AK051573	AK051573	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130058C17 product:DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 26, full insert sequence. [AK051573]
A_52_P591310	-5.952	0.0375	AK077862	AK077862	Mus musculus 13 days embryo forelimb cDNA, RIKEN full-length enriched library, clone:5930427E13 product:homeo box D13, full insert sequence [AK077862]
A_52_P354844	-5.988	0.0166	AK029268	AK029268	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4832407L12 product:similar to X-LINKED ECTODYSPLASIN-A RECEPTOR [Homo sapiens], full insert sequence [AK029268]
A_52_P56397	-6.061	0.0325	XM_131720	XM_131720	PREDICTED: hypothetical protein LOC69885 [Mus musculus], mRNA sequence [XM_131720]
A_52_P532769	-6.098	0.0294	XM_356617	XM_356617	PREDICTED: similar to immunoglobulin gamma heavy chain [Mus musculus], mRNA sequence [XM_356617]
A_51_P268697	-6.135	0.0494	NM_148938	NM_148938	Mus musculus solute carrier family 1 (glial high affinity glutamate transporter), member 3 (Slc1a3), mRNA [NM_148938]
A_51_P451574	-6.173	0.0113	NM_012006	NM_012006	Mus musculus cytosolic acyl-CoA thioesterase 1 (Cte1), mRNA [NM_012006]
A_52_P202770	-6.173	0.0179	NM_172301	NM_172301	Mus musculus cyclin B1 (Ccnb1), mRNA [NM_172301]
A_51_P230098	-6.289	0.0196	NM_023209	NM_023209	Mus musculus PDZ binding kinase (Pbk), mRNA [NM_023209]
A_52_P481477	-6.289	0.0168	NM_009239	NM_009239	Mus musculus trans-acting transcription factor 4 (Sp4), mRNA [NM_009239]
A_51_P317214	-6.329	0.0184	NM_146256	NM_146256	Mus musculus cDNA sequence BC034099 (BC034099), mRNA [NM_146256]
A_51_P341725	-6.452	0.00954	NM_008588	NM_008588	Mus musculus mesoderm posterior 1 (Mesp1), mRNA [NM_008588]
A_52_P795158	-6.452	0.0453	AK036287	AK036287	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630053N09 product:unclassifiable, full insert sequence. [AK036287]
A_52_P276348	-6.579	0.0026	AK007397	AK007397	Mus musculus 10 day old male pancreas cDNA, RIKEN full-length enriched library, clone:1810009C16 product:ADH5A homolog [Mus musculus], full insert sequence. [AK007397]
A_51_P274137	-6.897	0.0369	AK009071	AK009071	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310001K24 product:hypothetical protein, full insert sequence. [AK009071]
A_52_P28960	-6.897	0.0131	NM_013526	NM_013526	Mus musculus growth differentiation factor 6 (Gdf6), mRNA [NM_013526]
A_52_P426634	-7.092	0.0186	AK006094	AK006094	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700018M17 product:hypothetical Proline-rich region containing protein, full insert sequence. [AK006094]
A_51_P516125	-7.143	0.00236	BC013561	BC013561	Mus musculus cDNA clone IMAGE:3492058, partial cds. [BC013561]
A_51_P357735	-7.194	0.0175	NM_008382	NM_008382	Mus musculus inhibin beta E (Inhbe), mRNA [NM_008382]
A_52_P1107474	-7.194	0.0275	AK020954	AK020954	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230104C14 product:unknown EST, full insert sequence. [AK020954]
A_52_P385824	-7.194	0.0285	BC052397	BC052397	Mus musculus sema domain, seven thrombospondin repeats (type 1 and type 1-like), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 5B, mRNA (cDNA clone MGC:63446 IMAGE:5719939), complete cds [BC052397]
A_51_P305003	-7.353	0.0168	AK081588	AK081588	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130047N21 product:neurotrophic tyrosine kinase, receptor, type 1, full insert sequence [AK081588]
A_52_P40504	-7.353	0.0046	AK034741	AK034741	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430030N05 product:hypothetical protein, full insert sequence. [AK034741]
A_52_P85805	-7.407	0.00672	NM_009525	NM_009525	Mus musculus wingless-related MMTV integration site 5B (Wnt5b), mRNA [NM_009525]
A_51_P258493	-7.463	0.0213	NM_011067	NM_011067	Mus musculus period homolog 3 (Drosophila) (Per3), mRNA [NM_011067]
A_51_P501260	-7.463	0.0233	NM_145713	NM_145713	Mus musculus histone 1, H1d (Hist1h1d), mRNA [NM_145713]
A_51_P290981	-7.519	0.0107	NM_007824	NM_007824	Mus musculus cytochrome P450, family 7, subfamily a, polypeptide 1 (Cyp7a1), mRNA [NM_007824]
A_52_P6328	-7.519	0.0162	NM_021524	NM_021524	Mus musculus pre-B-cell colony-enhancing factor 1 (Pbef1), mRNA [NM_021524]
A_51_P191893	-7.576	0.00634	AK054069	AK054069	Mus musculus 2 days pregnant adult female oviduct cDNA, RIKEN full-length enriched library, clone:E230016C02 product:hypothetical protein, full insert sequence [AK054069]
A_52_P360308	-7.634	0.0128	AK040984	AK040984	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530055M08 product:unknown EST, full insert sequence. [AK040984]
A_52_P628870	-7.634	0.0232	AK076297	AK076297	Mus musculus 0 day neonate skin cDNA, RIKEN full-length enriched library, clone:4632427K15 product:weakly similar to collagen alpha 1(III) chain (fragment) [Gallus gallus], full insert sequence. [AK076297]
A_51_P375088	-7.692	0.00757	NM_028910	NM_028910	Mus musculus olfactory receptor 701 (Olfr701), mRNA [NM_028910]
A_51_P496253	-7.692	0.00484	NM_010484	NM_010484	Mus musculus solute carrier family 6 (neurotransmitter transporter, serotonin), member 4 (Slc6a4), mRNA [NM_010484]

A_51_P372550	-8	0.00186	BC023116	BC023116	Mus musculus cell growth regulator with EF hand domain 1, mRNA (cDNA clone MGC:28551 IMAGE:4206019), complete cds. [BC023116]
A_52_P707683	-8	0.0168	AK087612	AK087612	Mus musculus 2 days pregnant adult female oviduct cDNA, RIKEN full-length enriched library, clone:E230024J12 product:unknown EST, full insert sequence. [AK087612]
A_52_P635250	-8.197	0.0267	AK051570	AK051570	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130057M20 product:hypothetical protein, full insert sequence. [AK051570]
A_51_P128621	-8.475	0.0141	BC080704	BC080704	Mus musculus expressed sequence C87414, mRNA (cDNA clone MGC:91124 IMAGE:30476802), complete cds. [BC080704]
A_51_P146970	-8.547	0.0126	NM_145831	NM_145831	Mus musculus doublesex and mab-3 related transcription factor 2 (Dmrt2), mRNA [NM_145831]
A_52_P972003	-8.547	0.0184	AK050309	AK050309	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730036E19 product:unclassifiable, full insert sequence [AK050309]
A_52_P188215	-8.621	0.00407	AK034089	AK034089	Mus musculus adult male diencephalon cDNA, RIKEN full-length enriched library, clone:9330155K08 product:hypothetical P-loop containing nucleotide triphosphate hydrolases structure containing protein, full insert sequence. [AK034089]
A_52_P320181	-8.929	0.0126	AK083075	AK083075	Mus musculus 12 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:C530044G15 product:GLYCOGEN PHOSPHORYLASE (EC 2.4.1.1) (ALPHA-GLUCAN PHOSPHORYLASE) (STARCH PHOSPHORYLASE) homolog [Mus musculus] [AK083075]
A_51_P196844	-9.009	0.00788	NM_027881	NM_027881	Mus musculus oxysterol binding protein-like 3 (Osbpl3), mRNA [NM_027881]
A_52_P577315	-10	0.00875	AK043892	AK043892	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830047E08 product:unknown EST, full insert sequence. [AK043892]
A_52_P373666	-10.081	0.0441	AK038182	AK038182	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130084L21 product:unknown EST, full insert sequence. [AK038182]
A_51_P431531	-10.395	0.0122	NM_001013368	NM_0010133	Mus musculus RIKEN cDNA 4432406C08 gene (4432406C08Rik), mRNA [NM_001013368]
A_52_P609120	-10.776	0.00484	NM_020271	NM_020271	Mus musculus pyridoxal (pyridoxine, vitamin B6) phosphatase (Pdxp), mRNA [NM_020271]
A_52_P75584	-11.274	0.0349	AK044272	AK044272	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930004L03 product:hypothetical Immunoglobulin structure containing protein, full insert sequence. [AK044272]
A_52_P682045	-11.751	0.0101	NM_053097	NM_053097	Mus musculus camello-like 3 (Caml3), mRNA [NM_053097]
A_51_P114722	-12.285	0.0156	NM_019545	NM_019545	Mus musculus hydroxyacid oxidase (glycolate oxidase) 3 (Hao3), mRNA [NM_019545]
A_52_P160078	-12.788	0.0127	NM_009516	NM_009516	Mus musculus wee 1 homolog (S. pombe) (Wee1), mRNA [NM_009516]
A_52_P163021	-12.87	0.0114	NM_182959	NM_182959	Mus musculus solute carrier family 17 (sodium-dependent inorganic phosphate cotransporter), member 8 (Slc17a8), mRNA [NM_182959]
A_52_P164136	-13.333	0.00457	NM_178917	NM_178917	Mus musculus arrestin domain containing 3 (Arrdc3), mRNA [NM_178917]
A_52_P208681	-14.245	0.0145	M10466	M10466	Mouse alpha-globin mRNA. [M10466]
A_52_P255489	-14.749	0.00726	AK081112	AK081112	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930089F23 product:inferred: ubiquitin specific protease 2, full insert sequence. [AK081112]
A_52_P301821	-15.408	0.00278	NM_053078	NM_053078	Mus musculus DNA segment, human D4S114 (D0H4S114), mRNA [NM_053078]
A_52_P278538	-15.552	0.0177	NM_008218	NM_008218	Mus musculus hemoglobin alpha, adult chain 1 (Hba-a1), mRNA [NM_008218]
A_51_P172663	-15.601	0.0104	NM_016808	NM_016808	Mus musculus ubiquitin specific protease 2 (Usp2), transcript variant 1, mRNA [NM_016808]
A_51_P389265	-16	0.0286	NM_054088	NM_054088	Mus musculus adiponutrin (Adpn), mRNA [NM_054088]
A_51_P374468	-16.103	0.00401	NM_008220	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_52_P1101427	-16.42	0.00209	AI595560	AI595560	vc99c10.x1 Knowles Solter mouse 2 cell Mus musculus cDNA clone IMAGE:791154 3'. [AI595560]
A_52_P48976	-17.986	0.00701	AK033890	AK033890	Mus musculus adult male diencephalon cDNA, RIKEN full-length enriched library, clone:9330110N14 product:unknown EST, full insert sequence [AK033890]
A_52_P84027	-18.622	0.00981	NM_007824	NM_007824	Mus musculus cytochrome P450, family 7, subfamily a, polypeptide 1 (Cyp7a1), mRNA [NM_007824]
A_51_P374476	-19.194	0.00941	NM_008220	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_51_P315925	-19.646	0.0169	NM_020013	NM_020013	Mus musculus fibroblast growth factor 21 (Fgf21), mRNA [NM_020013]
A_52_P260346	-20.576	0.00949	NM_008220	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_51_P123895	-20.877	0.00136	NM_053078	NM_053078	Mus musculus DNA segment, human D4S114 (D0H4S114), mRNA [NM_053078]
A_52_P213909	-22.321	0.00596	NM_008220	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_51_P199168	-30.12	0.0221	NM_007702	NM_007702	Mus musculus cell death-inducing DNA fragmentation factor, alpha subunit-like effector A (Cidea), mRNA [NM_007702]
A_52_P235347	-40.486	0.00277	NM_020013	NM_020013	Mus musculus fibroblast growth factor 21 (Fgf21), mRNA [NM_020013]
A_51_P420489	-40.984	0.0106	NM_134246	NM_134246	Mus musculus peroxisomal acyl-CoA thioesterase 2A (Pte2a), mRNA [NM_134246]
A_52_P531610	-42.017	0.012	AK030395	AK030395	Mus musculus adult male pituitary gland cDNA, RIKEN full-length enriched library, clone:5330407B06 product:similar to ALANINE:GLYOXYLATE AMINOTRANSFERASE 2 HOMOLOG 1, SPLICE FORM 1 [Homo sapiens], full insert sequence [AK030395]
A_52_P639461	-56.18	0.00145	AK017227	AK017227	Mus musculus adult male xiphoid cartilage cDNA, RIKEN full-length enriched library, clone:5230400J22 product:carbonic anhydrase 3, full insert sequence. [AK017227]
A_52_P681391	-56.497	0.00217	NM_008059	NM_008059	Mus musculus G0/G1 switch gene 2 (G0s2), mRNA [NM_008059]
A_52_P1156957	-123.153	0.00391	BB505010	BB505010	BB505010 RIKEN full-length enriched, 0 day neonate kidney Mus musculus cDNA clone D630050P18 3'. [BB505010]

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Supplemental Table 10: Comparison of non-supervised DNA-microarray analysis of 3 and 9 months old *tg* 1223/*IKK βΔ hep* livers.
The differentially up- and downregulated mRNAs expressed in 3 month-old *tg* 1223/*Ikk βΔ hep* when compared to
9 month-old *tg* 1223/*Ikk βΔ hep* livers are indicated. Genes were selected based on a minimum fold change of 2.

Gene Name	Fold change	P-value	Common	Genbank	Description
A_51_P36318	54.11	0.0184	NM_008176	NM_008176	Mus musculus chemokine (C-X-C motif) ligand 1 (Cxcl1), mRNA [NM_008176]
A_51_P42831	40.75	0.042	AK016003	AK016003	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930539N22 product:unclassifiable, full insert sequence. [AK016003]
A_51_P22377	40.64	0.0395	NM_145434	NM_145434	Mus musculus nuclear receptor subfamily 1, group D, member 1 (Nr1d1), mRNA [NM_145434]
A_52_P14138	37.61	0.0184	AK035674	AK035674	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530085A06 product:similar to CUB DOMAIN CONTAINING PROTEIN 1 [Homo sapiens], full insert sequence. [AK035674]
A_52_P19717	36.46	0.0205	TC1491116		
A_51_P28871	33.49	0.0177	NM_146031	NM_146031	Mus musculus cDNA sequence BC006965 (BC006965), mRNA [NM_146031]
A_52_P56584	32.82	0.0365	NM_0010041	NM_00100415	Mus musculus similar to solute carrier family 7 (cationic amino acid transporter, y+ system), member 3 (LOC245128), mRNA [NM_001004153]
A_51_P43673	30.16	0.031	NM_028799	NM_028799	Mus musculus transglutaminase 5 (Tgm5), mRNA [NM_028799]
A_51_P40294	29.56	0.00669	NM_009114	NM_009114	Mus musculus S100 calcium binding protein A9 (calgranulin B) (S100a9), mRNA [NM_009114]
A_52_P60172	27.48	0.024	AK052688	AK052688	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630023O13 product:complement component factor h, full insert sequence. [AK052688]
A_52_P43814	27.44	0.0387	NM_021323	NM_021323	Mus musculus ubiquitin specific protease 29 (Usp29), mRNA [NM_021323]
A_52_P53673	24.5	0.01	NM_0010043	NM_00100436	Mus musculus development and differentiation enhancing factor 2 (Ddef2), mRNA [NM_001004364]
A_52_P14456	23.5	0.014	AK129457	AK129457	Mus musculus mRNA for mKIAA1853 protein [AK129457]
A_51_P35694	23.3	0.0225	XM_355438	XM_355438	PREDICTED: similar to Ring finger protein 29 (predicted) [Mus musculus], mRNA sequence [XM_355438]
A_52_P37467	23.13	0.0427	NAP123498-1		
A_52_P53435	23.11	0.0259	AK041855	AK041855	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630042F09 product:annexin A7, full insert sequence. [AK041855]
A_51_P25682	22.18	0.0117	NM_013650	NM_013650	Mus musculus S100 calcium binding protein A8 (calgranulin A) (S100a8), mRNA [NM_013650]
A_52_P14976	22.13	0.0332	NM_181072	NM_181072	Mus musculus myosin IE (Myo1e), mRNA [NM_181072]
A_51_P18357	21.17	0.0395	NM_008871	NM_008871	Mus musculus serine (or cysteine) proteinase inhibitor, clade E, member 1 (Serpine1), mRNA [NM_008871]
A_52_P13487	20.99	0.0162	AK050638	AK050638	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:C920026L21 product:hypothetical RING finger containing protein, full insert sequence. [AK050638]
A_52_P11139	20.95	0.0223	NM_011062	NM_011062	Mus musculus 3-phosphoinositide dependent protein kinase-1 (Pdpk1), mRNA [NM_011062]
A_51_P32622	20.49	0.0237	NM_013932	NM_013932	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 25 (Ddx25), mRNA [NM_013932]
A_52_P36041	17.48	0.0177	AK082427	AK082427	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230050B21 product:hypothetical protein, full insert sequence. [AK082427]
A_51_P16035	16.9	0.00669	AK036142	AK036142	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630039M02 product:unclassifiable, full insert sequence. [AK036142]
A_51_P39438	16.9	0.0162	BC004722	BC004722	Mus musculus RIKEN cDNA 2210401K01 gene, mRNA (cDNA clone IMAGE:3582796), partial cds [BC004722]
A_51_P21023	15.8	0.0215	AK079318	AK079318	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630020I17 product:unclassifiable, full insert sequence [AK079318]
A_52_P40858	15.72	0.0449	NM_021314	NM_021314	Mus musculus transforming, acidic coiled-coil containing protein 2 (Tacc2), transcript variant 2, mRNA [NM_021314]
A_52_P31636	15.55	0.0205	NAP102845-1		
A_51_P15920	15.54	0.0302	NM_008416	NM_008416	Mus musculus Jun-B oncogene (Junb), mRNA [NM_008416]
A_52_P51830	15.13	0.0427	AK035513	AK035513	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530058N05 product:reversion induced LIM gene, full insert sequence. [AK035513]
A_51_P11165	14.92	0.0436	BC060623	BC060623	Mus musculus RIKEN cDNA E130013N09 gene, mRNA (cDNA clone IMAGE:6826655), partial cds [BC060623]
A_51_P16688	14.8	0.0453	NM_011314	NM_011314	Mus musculus serum amyloid A 2 (Saa2), mRNA [NM_011314]
A_52_P9347	14.54	0.0195	BC049928	BC049928	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 23, mRNA (cDNA clone MGC:54908 IMAGE:5321607), complete cds. [BC049928]
A_52_P51892	13.9	0.0352	BC014765	BC014765	Mus musculus integrin alpha 1, mRNA (cDNA clone IMAGE:4234622), containing frame-shift errors. [BC014765]
A_52_P10460	12.82	0.0365	XM_284236	XM_284236	PREDICTED: similar to hypothetical protein [Mus musculus], mRNA sequence [XM_284236]
A_52_P86025	12.51	0.00555	AK085706	AK085706	Mus musculus 10 days lactation, adult female mammary gland cDNA, RIKEN full-length enriched library, clone:D730020C15 product:unclassifiable, full insert sequence. [AK085706]
A_52_P86384	12.1	0.0119	AK036508	AK036508	Mus musculus adult male bone cDNA, RIKEN full-length enriched library, clone:9830123L04 product:unclassifiable, full insert sequence [AK036508]
A_52_P42583	11.81	0.00563	NM_181596	NM_181596	Mus musculus resistin like gamma (Retnlg), mRNA [NM_181596]
A_52_P29282	11.79	0.0329	AK040524	AK040524	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430105C13 product:N-ACETYLGLUCOSAMINE-6-SULFATASE PRECURSOR (EC 3.1.6.14) (G6S) (GLUCOSAMINE-6-SULFATASE) homolog [Homo sapiens], full insert sequence. [AK040524]
A_51_P21548	11.51	0.0346	NM_153062	NM_153062	Mus musculus solute carrier family 37 (glycerol-3-phosphate transporter), member 1 (Slc37a1), mRNA [NM_153062]
A_51_P39636	11.4	0.0181	NM_145990	NM_145990	Mus musculus CDK5 regulatory subunit associated protein 2 (Cdk5rap2), mRNA [NM_145990]
A_51_P47445	11.34	0.0381	NM_007707	NM_007707	Mus musculus suppressor of cytokine signaling 3 (Socs3), mRNA [NM_007707]
A_52_P66075	11.19	0.0205	XM_194622	XM_194622	PREDICTED: similar to CCG1 [Mus musculus], mRNA sequence [XM_194622]
A_52_P85936	11.17	0.014	AK036874	AK036874	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930020P17 product:unknown EST, full insert sequence. [AK036874]
A_51_P23469	11.01	0.0208	AK028745	AK028745	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732452C17 product:unknown EST, full insert sequence [AK028745]
A_51_P31883	10.97	0.0368	NM_018803	NM_018803	Mus musculus synaptotagmin X (Syt10), mRNA [NM_018803]
A_51_P24809	10.85	0.0208	AK044873	AK044873	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130009H05 product:unknown EST, full insert sequence. [AK044873]
A_52_P11394	10.84	0.0483	AK019832	AK019832	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930588G05 product:unknown EST, full insert sequence. [AK019832]
A_52_P39259	10.45	0.0462	AK020134	AK020134	Mus musculus 12 days embryo male wolffian duct includes surrounding region cDNA, RIKEN full-length enriched library, clone:6720458D04 product:receptor (calcitonin) activity modifying protein 2, full insert sequence. [AK020134]
A_52_P8492	10.43	0.0202	AK031727	AK031727	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030497O13 product:hypothetical Uncharacterized protein family UPF0066 (VIRR) containing protein, full insert sequence. [AK031727]
A_52_P11059	10.31	0.0177	AK082948	AK082948	Mus musculus 12 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:C530019F01 product:zinc finger protein 288, full insert sequence [AK082948]
A_51_P49002	10.22	0.0444	NM_009450	NM_009450	Mus musculus tubulin, beta 2 (Tubb2), mRNA [NM_009450]
A_52_P54487	10.17	0.0233	AK122283	AK122283	Mus musculus mRNA for mKIAA0439 protein [AK122283]
A_52_P44436	10.11	0.01	NM_033604	NM_033604	Mus musculus ring finger 111 (Rnf111), mRNA [NM_033604]
A_52_P10759	10.06	0.0462	AK039892	AK039892	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430025G19 product:unclassifiable, full insert sequence. [AK039892]
A_51_P17192	9.901	0.0208	AK041629	AK041629	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630025O09 product:hypothetical protein, full insert sequence. [AK041629]
A_52_P38522	9.847	0.0278	NM_030690	NM_030690	Mus musculus retinoic acid induced 14 (Rai14), mRNA [NM_030690]
A_52_P27172	9.783	0.014	NM_0010039	NM_00100393	Mus musculus reticulon 3 (Rtn3), transcript variant 1, mRNA [NM_001003934]
A_52_P16549	9.709	0.0212	NM_011385	NM_011385	Mus musculus Sloan-Kettering viral oncogene homolog (Ski), mRNA [NM_011385]
A_52_P27172	9.783	0.027	BC060623	BC060623	Mus musculus RIKEN cDNA E130013N09 gene, mRNA (cDNA clone IMAGE:6826655), partial cds [BC060623]
A_51_P24359	9.63	0.0316	NM_139311	NM_139311	Mus musculus myeloid/lymphoid or mixed lineage-leukemia translocation to 6 homolog (Drosophila) (Mllt6), mRNA [NM_139311]
A_52_P70888	9.665	0.027	BC060623	BC060623	Mus musculus RIKEN cDNA E130013N09 gene, mRNA (cDNA clone IMAGE:6826655), partial cds [BC060623]
A_51_P24359	9.63	0.0316	NM_139311	NM_139311	Mus musculus myeloid/lymphoid or mixed lineage-leukemia translocation to 6 homolog (Drosophila) (Mllt6), mRNA [NM_139311]
A_52_P86797	9.594	0.0139	AK083469	AK083469	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030022M18 product:unclassifiable, full insert sequence. [AK083469]
A_52_P55601	9.583	0.0205	AY138582	AY138582	Mus musculus mixed-lineage leukemia 3 protein (Mll3) mRNA, partial cds [AY138582]
A_51_P33993	9.349	0.0493	XM_130232	XM_130232	PREDICTED: nebulin [Mus musculus], mRNA sequence [XM_130232]
A_51_P37831	9.29	0.0158	AK013079	AK013079	Mus musculus 10, 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2810411C16 product:hypothetical protein, full insert sequence. [AK013079]
A_51_P16979	9.038	0.0287	XM_354666	XM_354666	PREDICTED: similar to Hypothetical protein KIAA1218 [Mus musculus], mRNA sequence [XM_354666]
A_52_P40534	8.997	0.0117	U76762	U76762	Mus musculus fps [U76762]
A_51_P51784	8.981	0.0208	NM_027450	NM_027450	Mus musculus GLI pathogenesis-related 2 (Glipr2), mRNA [NM_027450]
A_52_P92519	8.942	0.0423	NM_007570	NM_007570	Mus musculus B-cell translocation gene 2, anti-proliferative (Btg2), mRNA [NM_007570]
A_52_P16712	8.859	0.0387	AK046651	AK046651	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430220G02 product:hypothetical protein, full insert sequence. [AK046651]
A_52_P94898	8.817	0.0331	BE687029	BE687029	uw09d10.x1 Soares mouse 3NbMS Mus musculus cDNA clone IMAGE:3416179 3'. [BE687029]
A_52_P11640	8.614	0.026	AK046092	AK046092	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230341H14 product:unclassifiable, full insert sequence [AK046092]
A_52_P60189	8.598	0.0119	AK080005	AK080005	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530045N10 product:similar to HYPOTHETICAL ZINC FINGER PROTEIN KIAA0296 [Homo sapiens], full insert sequence. [AK080005]
A_52_P33881	8.519	0.0332	AK027938	AK027938	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1110027I03 product:hypothetical Zinc finger, C2H2 type containing protein, full insert sequence. [AK027938]
A_51_P19725	8.495	0.0306	AK082620	AK082620	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230070D10 product:hypothetical protein, full insert sequence. [AK082620]
A_52_P65927	8.342	0.0493	NM_172903	NM_172903	Mus musculus mannosidase 2, alpha 2 (Man2a2), mRNA [NM_172903]
A_52_P40775	8.332	0.0177	AK009137	AK009137	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310004G06 product:hypothetical Glycerophosphoryl diester phosphodiesterase/Glycosyl hydrolase, starch-binding domain containing protein, full insert sequence. [AK009137]

A_52_P46675	8.296	0.0381	AK011526	AK011526	Mus musculus 10 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2610024D04 product:hypothetical protein, full insert sequence. [AK011526]
A_52_P73168	8.265	0.0204	AK085106	AK085106	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430037E19 product:hypothetical protein, full insert sequence. [AK085106]
A_51_P19608	8.258	0.0406	NM_173437	NM_173437	Mus musculus neuron navigator 1 (Nav1), mRNA [NM_173437]
A_52_P35202	8.135	0.0306	AK088795	AK088795	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430026B20 product:inferred: thyroid hormone receptor-associated protein complex component TRAP240 {Homo sapiens}, full insert sequence. [AK088795]
A_52_P15354	8.131	0.0238	AK045164	AK045164	Mus musculus 9.5 days embryo parthenogenote cDNA, RIKEN full-length enriched library, clone:B130042H10 product:weakly similar to APOPTOSIS REGULATOR [Homo sapiens], full insert sequence. [AK045164]
A_51_P17739	8.04	0.0406	AB041546	AB041546	Mus musculus brain cDNA, clone MNCb-3527, similar to AF220152 TACC2 (Homo sapiens). [AB041546]
A_52_P11433	7.972	0.0287	XM_622106	XM_622106	PREDICTED: Mus musculus RIKEN cDNA 9530033F24 gene (9530033F24Rik), mRNA [XM_622106]
A_52_P59957	7.959	0.0212	NM_145575	NM_145575	Mus musculus caldesmon 1 (Cald1), mRNA [NM_145575]
A_52_P81955	7.944	0.0464	AK048651	AK048651	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130093M03 product:unclassifiable, full insert sequence [AK048651]
A_52_P57419	7.939	0.0287	NM_028170	NM_028170	Mus musculus RIKEN cDNA 1700030K09 gene (1700030K09Rik), mRNA [NM_028170]
A_51_P31088	7.935	0.0471	AK047015	AK047015	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930011I04 product:unclassifiable, full insert sequence. [AK047015]
A_52_P97680	7.933	0.0204	AK005563	AK005563	Mus musculus adult female placenta cDNA, RIKEN full-length enriched library, clone:1600029O10 product:hypothetical Appr-1'-p processing enzyme family containing protein, full insert sequence. [AK005563]
A_51_P25715	7.932	0.0416	AK046591	AK046591	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430114K07 product:hypothetical Uncharacterised protein family Hly-III/UPF0073 containing protein, full insert sequence. [AK046591]
A_52_P10276	7.879	0.0382	AK029063	AK029063	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732487N17 product:unknown EST, full insert sequence. [AK029063]
A_52_P11315	7.859	0.0288	AK046587	AK046587	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430110I16 product:unclassifiable, full insert sequence. [AK046587]
A_52_P62709	7.836	0.014	NM_177124	NM_177124	Mus musculus trinucleotide repeat containing 6b (Tnrc6b), transcript variant 2, mRNA [NM_177124]
A_51_P38246	7.829	0.0117	AK018447	AK018447	Mus musculus 16 days embryo lung cDNA, RIKEN full-length enriched library, clone:8430428J23 product:hypothetical protein, full insert sequence [AK018447]
A_52_P11473	7.789	0.0205	AK018358	AK018358	Mus musculus 12 days embryo female mullerian duct includes surrounding region cDNA, RIKEN full-length enriched library, clone:6820402I19 product:unclassifiable, full insert sequence. [AK018358]
A_52_P32936	7.763	0.0471	NM_0010255	NM_00102556	Mus musculus choline kinase alpha (Chka), transcript variant 2, mRNA [NM_001025566]
A_52_P79441	7.745	0.0367	XM_147426	XM_147426	PREDICTED: similar to mKIAA0546 protein [Mus musculus], mRNA sequence [XM_147426]
A_52_P26976	7.68	0.0117	BC040811	BC040811	Mus musculus RNA binding motif protein 28, mRNA (cDNA clone MGC:49120 IMAGE:4015830), complete cds. [BC040811]
A_52_P8391	7.67	0.0453	AK033629	AK033629	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130203L14 product:CARBOXYPEPTIDASE N (CARBOXYPEPTIDASE N SMALL SUBUNIT), full insert sequence [AK033629]
A_52_P17269	7.596	0.0295	AK028870	AK028870	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732465E10 product:unknown EST, full insert sequence. [AK028870]
A_52_P20528	7.594	0.0212	NM_021523	NM_021523	Mus musculus HECT, UBA and WWE domain containing 1 (Huwe1), mRNA [NM_021523]
A_52_P63432	7.578	0.0332	NAP027055-1		
A_52_P21631	7.514	0.0415	BC040101	BC040101	Mus musculus, Similar to afadin, clone IMAGE:4502283, mRNA. [BC040101]
A_52_P46769	7.506	0.0119	NM_175836	NM_175836	Mus musculus spectrin beta 2 (Spnb2), transcript variant 1, mRNA [NM_175836]
A_51_P39152	7.504	0.0235	NM_023598	NM_023598	Mus musculus AT rich interactive domain 5B (Mrf1 like) (Arid5b), mRNA [NM_023598]
A_52_P45126	7.481	0.014	AK042968	AK042968	Mus musculus 7 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:A730044B04 product:SIMILAR TO HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN R (FRAGMENT) homolog [Mus musculus], full insert sequence [AK042968]
A_51_P49533	7.435	0.026	XM_130232	XM_130232	PREDICTED: nebulin [Mus musculus], mRNA sequence [XM_130232]
A_52_P41638	7.435	0.0215	AK050084	AK050084	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730013O12 product:hypothetical protein, full insert sequence. [AK050084]
A_52_P11002	7.376	0.0233	AK051484	AK051484	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130052C04 product:unclassifiable, full insert sequence. [AK051484]
A_52_P12659	7.256	0.0415	AK042102	AK042102	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630058G12 product:hypothetical protein, full insert sequence. [AK042102]
A_51_P23894	7.251	0.025	NM_198160	NM_198160	Mus musculus SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily c, member 2 (Smarcc2), mRNA [NM_198160]
A_52_P67651	7.222	0.0306	AK049591	AK049591	Mus musculus 7 days embryo whole body cDNA, RIKEN full-length enriched library, clone:C430048H18 product:golgi reassembly stacking protein 2, full insert sequence. [AK049591]
A_52_P34952	7.218	0.0414	AK047447	AK047447	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930063N02 product:speckle-type POZ protein, full insert sequence. [AK047447]
A_52_P19344	7.215	0.0139	XM_149469	XM_149469	PREDICTED: Mus musculus RIKEN cDNA E130102H24 gene (E130102H24Rik), mRNA [XM_149469]
A_52_P57594	7.195	0.0238	NAP028427-1		
A_52_P37284	7.164	0.0264	AK005295	AK005295	Mus musculus adult male cerebellum cDNA, RIKEN full-length enriched library, clone:1500019P14 product:neural-salient serine/arginine-rich, full insert sequence. [AK005295]
A_52_P81868	7.139	0.0332	AK020546	AK020546	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530006C21 product:unknown EST, full insert sequence. [AK020546]
A_52_P21286	7.133	0.0305	AK084259	AK084259	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230015J17 product:unknown EST, full insert sequence. [AK084259]
A_52_P10763	7.131	0.0265	AK053217	AK053217	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030042P04 product:unclassifiable, full insert sequence. [AK053217]
A_52_P22843	7.089	0.0181	AK088871	AK088871	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430029H16 product:muscleblind-like (Drosophila), full insert sequence. [AK088871]
A_52_P43454	7.062	0.0287	NM_023190	NM_023190	Mus musculus apoptotic chromatin condensation inducer 1 (Acin1), transcript variant 2, mRNA [NM_023190]
A_52_P56348	6.985	0.0433	AK013614	AK013614	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:2900035A08 product:phosphatidylinositol 3-kinase, C2 domain containing, alpha polypeptide, full insert sequence. [AK013614]
A_52_P33584	6.982	0.0299	BB667837	BB667837	BB667837 RIKEN full-length enriched, adult male liver tumor Mus musculus cDNA clone C730046C01 3', mRNA sequence [BB667837]
A_52_P10124	6.975	0.0241	AK083709	AK083709	Mus musculus 9 days embryo whole body cDNA, RIKEN full-length enriched library, clone:D030069G09 product:unclassifiable, full insert sequence. [AK083709]
A_52_P74710	6.972	0.0446	AK035013	AK035013	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430073L23 product:hypothetical protein, full insert sequence. [AK035013]
A_51_P20148	6.966	0.0215	NM_213659	NM_213659	Mus musculus signal transducer and activator of transcription 3 (Stat3), transcript variant 1, mRNA [NM_213659]
A_52_P64118	6.964	0.014	NM_011202	NM_011202	Mus musculus protein tyrosine phosphatase, non-receptor type 11 (Ptpn11), mRNA [NM_011202]
A_52_P93104	6.908	0.0204	AK088797	AK088797	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430026C01 product:unclassifiable, full insert sequence. [AK088797]
A_52_P47503	6.906	0.0195	AK088515	AK088515	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430019E12 product:DEUBIQUITINATING ENZYME UBP109 homolog [Rattus norvegicus], full insert sequence. [AK088515]
A_51_P23370	6.888	0.01	AK038056	AK038056	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130074J23 product:unclassifiable, full insert sequence. [AK038056]
A_52_P27906	6.875	0.0452	NM_026367	NM_026367	Mus musculus G patch domain containing 2 (Gpatc2), mRNA [NM_026367]
A_52_P57129	6.862	0.0195	NM_026988	NM_026988	Mus musculus RIKEN cDNA 2610009E16 gene (2610009E16Rik), mRNA [NM_026988]
A_51_P48545	6.824	0.0256	NM_0010055	NM_00100550	Mus musculus taxilin (Txln), mRNA [NM_001005506]
A_51_P47058	6.811	0.014	BC052715	BC052715	Mus musculus leucyl-tRNA synthetase, mRNA (cDNA clone MGC:63355 IMAGE:6836462), complete cds. [BC052715]
A_52_P47003	6.757	0.0119	AK041011	AK041011	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530060J16 product:hypothetical protein, full insert sequence. [AK041011]
A_51_P50597	6.718	0.0382	AK038328	AK038328	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130096B12 product:unclassifiable, full insert sequence. [AK038328]
A_52_P81252	6.712	0.0162	NM_172599	NM_172599	Mus musculus DNA segment, Chr 14, ERATO Doi 436, expressed (D14Ertd436e), mRNA [NM_172599]
A_52_P95750	6.698	0.0117	BF719154	BF719154	mab33d12.x1 Soares_NMEBA_branchial_arch Mus musculus cDNA clone IMAGE:3972143 3'. [BF719154]
A_52_P38064	6.631	0.0157	NM_028410	NM_028410	Mus musculus protein-kinase, interferon-inducible double stranded RNA dependent inhibitor, repressor of (P58 repressor) (Prkrir), mRNA [NM_028410]
A_52_P83559	6.631	0.0274	AK052047	AK052047	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230039L18 product:unknown EST, full insert sequence. [AK052047]
A_51_P10724	6.621	0.0406	AK079264	AK079264	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530065M15 product:weakly similar to MHC CLASS I T7 ANTIGEN (FRAGMENT) [Mus musculus], full insert sequence. [AK079264]
A_52_P35483	6.592	0.0288	AK053294	AK053294	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130008B18 product:unknown EST, full insert sequence. [AK053294]
A_52_P45104	6.539	0.0318	NM_133795	NM_133795	Mus musculus tetratricopeptide repeat domain 1 (Ttc1), mRNA [NM_133795]
A_51_P18457	6.511	0.0221	NM_173755	NM_173755	Mus musculus RIKEN cDNA B230113M03 gene (B230113M03Rik), mRNA [NM_173755]
A_52_P66791	6.501	0.0317	NM_033590	NM_033590	Mus musculus protocadherin gamma subfamily A, 7 (Pcdhga7), mRNA [NM_033590]
A_52_P27684	6.492	0.027	AK035801	AK035801	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630005I06 product:hypothetical protein, full insert sequence. [AK035801]
A_52_P81119	6.487	0.0173	AK029051	AK029051	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732485H10 product:unknown EST, full insert sequence. [AK029051]
A_52_P41612	6.464	0.0224	AK020483	AK020483	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430072K23 product:unknown EST, full insert sequence. [AK020483]
A_52_P27914	6.445	0.00563	NM_019553	NM_019553	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 21 (Ddx21), mRNA [NM_019553]
A_51_P15287	6.415	0.026	NM_207670	NM_207670	Mus musculus GRIP1 associated protein 1 (Gripap1), mRNA [NM_207670]
A_51_P48382	6.372	0.0205	AK043980	AK043980	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830062H15 product:unclassifiable, full insert sequence. [AK043980]
A_51_P38914	6.301	0.0487	AK038166	AK038166	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130083J18 product:unclassifiable, full insert sequence. [AK038166]
A_52_P94784	6.254	0.0195	AK041062	AK041062	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530076D18 product:unclassifiable, full insert sequence [AK041062]
A_52_P33849	6.21	0.0286	NM_170757	NM_170757	Mus musculus RIKEN cDNA A630007B06 gene (A630007B06Rik), mRNA [NM_170757]
A_52_P62610	6.206	0.0215	AK041725	AK041725	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630032J15 product:weakly similar to hypothetical protein DKFZp434C229.1 [Homo sapiens], full insert sequence. [AK041725]
A_52_P92689	6.201	0.0435	TC1435793		
A_52_P23735	6.17	0.042	AF095690	AF095690	AF095690 Mus musculus fibronectin (Fn) gene, alternatively spliced products, partial cds [AF095690]
A_52_P58487	6.167	0.0321	NM_152895	NM_152895	Mus musculus jumonji, AT rich interactive domain 1B (Rbp2 like) (Jarid1b), mRNA [NM_152895]
A_51_P12425	6.165	0.0374	NM_009931	NM_009931	Mus musculus procollagen, type IV, alpha 1 (Col4a1), mRNA [NM_009931]
A_52_P34411	6.145	0.00669	NM_028774	NM_028774	Mus musculus ring finger protein (C3H2C3 type) 6 (Rnf6), mRNA [NM_028774]

A_52_P163466	6.141	0.014	AK012005	AK012005	Mus musculus 10 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2610307N17 product:hypothetical protein, full insert sequence. [AK012005]
A_52_P504066	6.125	0.0332	NM_153599	NM_153599	Mus musculus cyclin-dependent kinase 8 (Cdk8), transcript variant 1, mRNA [NM_153599]
A_51_P151726	6.11	0.0259	AK086241	AK086241	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930015M12 product:hypothetical protein, full insert sequence. [AK086241]
A_52_P321796	6.088	0.0205	AK003606	AK003606	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1110011E08 product:signal recognition particle 9 kDa, full insert sequence. [AK003606]
A_51_P484586	6.083	0.0295	AK080157	AK080157	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530072D20 product:unclassifiable, full insert sequence. [AK080157]
A_52_P267786	6.06	0.0415	Z83808	Z83808	M.musculus mRNA for cytoplasmic dynein heavy chain (partial, ID mdhc10). [Z83808]
A_51_P161226	6.058	0.014	AK129220	AK129220	Mus musculus mRNA for mKIAA0801 protein [AK129220]
A_51_P279606	6.017	0.0491	NM_009896	NM_009896	Mus musculus suppressor of cytokine signaling 1 (Socs1), mRNA [NM_009896]
A_52_P105186	6.011	0.0139	AK041551	AK041551	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630020J17 product:unknown EST, full insert sequence. [AK041551]
A_51_P267935	5.972	0.0433	BC060623	BC060623	Mus musculus RIKEN cDNA E130013N09 gene, mRNA (cDNA clone IMAGE:6826655), partial cds [BC060623]
A_52_P547275	5.959	0.0313	AK018161	AK018161	Mus musculus adult male medulla oblongata cDNA, RIKEN full-length enriched library, clone:6330411N01 product:hypothetical Src homology 3 (SH3) domain/Repeat in HS1/Cortactin containing protein, full insert sequence. [AK018161]
A_51_P144715	5.946	0.015	NM_178930	NM_178930	Mus musculus golgi-specific brefeldin A-resistance factor 1 (Gbf1), mRNA [NM_178930]
A_52_P612445	5.945	0.0406	AK033032	AK033032	Mus musculus 11 days embryo gonad cDNA, RIKEN full-length enriched library, clone:7030414N10 product:unknown EST, full insert sequence. [AK033032]
A_52_P474555	5.919	0.0241	AK042559	AK042559	Mus musculus 7 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:A730005L09 product:unknown EST, full insert sequence. [AK042559]
A_52_P491845	5.914	0.00563	NM_011640	NM_011640	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]
A_52_P318685	5.902	0.014	XM_140801	XM_140801	PREDICTED: UPF2 regulator of nonsense transcripts homolog [Mus musculus], mRNA sequence [XM_140801]
A_52_P102115	5.891	0.0299	AK013994	AK013994	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110004O05 product:cofilin 2, muscle, full insert sequence. [AK013994]
A_52_P340865	5.891	0.0204	AK018652	AK018652	Mus musculus adult male cecum cDNA, RIKEN full-length enriched library, clone:9130026N02 product:SPORULATION-INDUCED TRANSCRIPT 4-ASSOCIATED PROTEIN SAPLB homolog [Homo sapiens], full insert sequence. [AK018652]
A_52_P580795	5.881	0.0256	BC053389	BC053389	Mus musculus RIKEN cDNA 1700081L11 gene, mRNA (cDNA clone MGC:60856 IMAGE:30061629), complete cds. [BC053389]
A_52_P315025	5.872	0.0446	XM_619002	XM_619002	PREDICTED: Mus musculus similar to Nesprin 2 (Nuclear envelope spectrin repeat protein 2) (Syne-2) (Synaptic nuclear envelope protein 2) (Nucleus and actin connecting element protein) (NUANCE protein) (LOC544876), mRNA [XM_619002]
A_52_P702355	5.861	0.042	AK035426	AK035426	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530039I19 product:similar to PUTATIVE SERINE-RICH PROTEIN (FRAGMENT) [Homo sapiens], full insert sequence. [AK035426]
A_52_P138905	5.855	0.0205	NM_177116	NM_177116	Mus musculus RIKEN cDNA C230029D21 gene (C230029D21Rik), mRNA [NM_177116]
A_52_P672235	5.85	0.0215	BC020092	BC020092	Mus musculus cDNA clone IMAGE:3987110, partial cds. [BC020092]
A_52_P234155	5.835	0.0346	NM_177124	NM_177124	Mus musculus trinucleotide repeat containing 6b (Tnrc6b), transcript variant 2, mRNA [NM_177124]
A_51_P196105	5.825	0.0278	AK054377	AK054377	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330021A06 product:unclassifiable, full insert sequence. [AK054377]
A_51_P461745	5.75	0.021	NM_028207	NM_028207	Mus musculus dual specificity phosphatase 3 (vaccinia virus phosphatase VH1-related) (Dusp3), mRNA [NM_028207]
A_52_P538515	5.743	0.0117	BC049181	BC049181	Mus musculus R3H domain (binds single-stranded nucleic acids), mRNA (cDNA clone IMAGE:6314270), complete cds. [BC049181]
A_51_P250595	5.738	0.0169	AK048952	AK048952	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230085I19 product:hypothetical Gram-positive cocci surface protein 'anchoring' hexapeptide/dDENN domain/uDENN domain/Serine phosphorylation site in HPr protein/DENN...
A_51_P113745	5.704	0.0117	AK017529	AK017529	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730409A01 product:SPLICING FACTOR 3B SUBUNIT 3 (SPLICEOSOME ASSOCIATED PROTEIN 130) (SAP 130) (SF3B130) (PRE-MRNA SPLICING FACTOR SF3B 130 KDA SUBUNIT)
A_52_P491505	5.692	0.0256	NM_008576	NM_008576	Mus musculus ATP-binding cassette, sub-family C (CFTR/MRP), member 1 (Abcc1), mRNA [NM_008576]
A_52_P406135	5.672	0.0438	AK083037	AK083037	Mus musculus 12 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:C530036C11 product:cyclin T1, full insert sequence. [AK083037]
A_51_P169175	5.643	0.0195	NM_009875	NM_009875	Mus musculus cyclin-dependent kinase inhibitor 1B (P27) (Cdkn1b), mRNA [NM_009875]
A_51_P178945	5.602	0.0406	X03944	X03944	Mouse simple repetitive DNA (sqr family) transcript (clone pmlc 4) with conserved GACA/GATA repeats. [X03944]
A_52_P785145	5.602	0.0259	AK054415	AK054415	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330023G08 product:phosphatidylinositol 3-kinase, C2 domain containing, gamma polypeptide, full insert sequence. [AK054415]
A_52_P559485	5.601	0.0316	XM_147426	XM_147426	PREDICTED: similar to mKIAA0546 protein [Mus musculus], mRNA sequence [XM_147426]
A_52_P861655	5.574	0.0215	AK037060	AK037060	Mus musculus adult female vagina cDNA, RIKEN full-length enriched library, clone:9930105C24 product:unknown EST, full insert sequence. [AK037060]
A_52_P214975	5.568	0.0452	AK031369	AK031369	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030414B09 product:unknown EST, full insert sequence. [AK031369]
A_52_P462605	5.55	0.0373	NM_010668	NM_010668	Mus musculus keratin complex 2, basic, gene 17 (Krt2-17), mRNA [NM_010668]
A_52_P405795	5.547	0.0117	AK054073	AK054073	Mus musculus 2 days pregnant adult female oviduct cDNA, RIKEN full-length enriched library, clone:E230016I09 product:RETINOBLASTOMA-BINDING PROTEIN 1-RELATED PROTEIN homolog [Rattus norvegicus], full insert sequence [AK054073]
A_51_P153065	5.525	0.0487	NM_029310	NM_029310	Mus musculus RIKEN cDNA 1700008G05 gene (1700008G05Rik), mRNA [NM_029310]
A_52_P133995	5.51	0.0431	NM_007924	NM_007924	Mus musculus elongation factor RNA polymerase II (Ell), mRNA [NM_007924]
A_52_P116385	5.509	0.0205	AK088546	AK088546	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430019P06 product:unknown EST, full insert sequence. [AK088546]
A_52_P577075	5.504	0.0241	NM_011901	NM_011901	Mus musculus TAF7 RNA polymerase II, TATA box binding protein (TBP)-associated factor (Taf7), mRNA [NM_011901]
A_52_P101255	5.481	0.0119	AK086883	AK086883	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030007O21 product:unclassifiable, full insert sequence. [AK086883]
A_51_P119015	5.466	0.0302	AK028915	AK028915	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732470B18 product:CDNA FLJ12851 FIS, CLONE NT2RP2003401, WEAKLY SIMILAR TO UBIQUITIN CARBOXYL-TERMINAL HYDROLASE DUB-1 (EC 3.1.2.15) homolog [Homo sapiens], full inser...
A_52_P503795	5.464	0.0174	NM_016919	NM_016919	Mus musculus procollagen, type V, alpha 3 (Col5a3), mRNA [NM_016919]
A_52_P784235	5.464	0.026	AK039175	AK039175	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230104L24 product:unknown EST, full insert sequence. [AK039175]
A_52_P296465	5.451	0.0205	NM_028315	NM_028315	Mus musculus RIKEN cDNA 2810028N01 gene (2810028N01Rik), mRNA [NM_028315]
A_52_P593955	5.451	0.0205	AK082951	AK082951	Mus musculus 12 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:C530020I04 product:PARASPECKLE PROTEIN 1 ALPHA ISOFORM homolog [Homo sapiens], full insert sequence. [AK082951]
A_52_P649075	5.442	0.0256	XM_620758	XM_620758	PREDICTED: Mus musculus vacuolar protein sorting 13C (yeast) (Vps13c), mRNA [XM_620758]
A_52_P327145	5.423	0.0443	AK031552	AK031552	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030450I04 product:hypothetical protein, full insert sequence. [AK031552]
A_51_P136545	5.409	0.0274	NM_033601	NM_033601	Mus musculus B-cell leukemia/lymphoma 3 (Bcl3), mRNA [NM_033601]
A_52_P341405	5.361	0.0215	NM_153530	NM_153530	Mus musculus RIKEN cDNA 4930429A22 gene (4930429A22Rik), mRNA [NM_153530]
A_51_P397535	5.356	0.0246	NM_029660	NM_029660	Mus musculus RIKEN cDNA 1700012H05 gene (1700012H05Rik), mRNA [NM_029660]
A_52_P113175	5.339	0.0395	AK045806	AK045806	Mus musculus adult male corpora quadrigemina cDNA, RIKEN full-length enriched library, clone:B230311M15 product:unclassifiable, full insert sequence. [AK045806]
A_52_P115675	5.339	0.0395	AK087207	AK087207	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030034G19 product:unknown EST, full insert sequence. [AK087207]
A_52_P247605	5.324	0.0489	AK039890	AK039890	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430025F06 product:inferred: PCTAIRE2 {Rattus norvegicus}, full insert sequence. [AK039890]
A_52_P236095	5.316	0.0205	AK017529	AK017529	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730409A01 product:SPLICING FACTOR 3B SUBUNIT 3 (SPLICEOSOME ASSOCIATED PROTEIN 130) (SAP 130) (SF3B130) (PRE-MRNA SPLICING FACTOR SF3B 130 KDA SUBUNIT)
A_52_P427265	5.291	0.0205	AK053383	AK053383	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130013D04 product:meiotic check point regulator, full insert sequence. [AK053383]
A_52_P509185	5.251	0.0373	AK129437	AK129437	Mus musculus mRNA for mKIAA1752 protein [AK129437]
A_51_P279715	5.205	0.022	NM_145923	NM_145923	Mus musculus expressed sequence AA536743 (AA536743), mRNA [NM_145923]
A_51_P464535	5.197	0.0169	NM_153412	NM_153412	Mus musculus pleckstrin homology-like domain, family B, member 2 (Phldb2), mRNA [NM_153412]
A_51_P271095	5.189	0.0139	AK038190	AK038190	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130085J21 product:unclassifiable, full insert sequence. [AK038190]
A_52_P306385	5.176	0.014	NM_178709	NM_178709	Mus musculus RIKEN cDNA D130054N24 gene (D130054N24Rik), mRNA [NM_178709]
A_51_P500645	5.158	0.0212	AK082964	AK082964	Mus musculus 12 days embryo spinal cord cDNA, RIKEN full-length enriched library, clone:C530025K05 product:unknown EST, full insert sequence [AK082964]
A_51_P347465	5.147	0.0287	NM_028276	NM_028276	Mus musculus UTP14, U3 small nucleolar ribonucleoprotein, homolog A (yeast) (Utp14a), mRNA [NM_028276]
A_52_P346555	5.118	0.0205	AK038627	AK038627	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230051H13 product:heat shock 70 kDa protein 4, full insert sequence. [AK038627]
A_51_P479755	5.117	0.0265	NM_009239	NM_009239	Mus musculus trans-acting transcription factor 4 (Sp4), mRNA [NM_009239]
A_51_P219075	5.11	0.0401	NM_010496	NM_010496	Mus musculus inhibitor of DNA binding 2 (Id2), mRNA [NM_010496]
A_52_P620435	5.098	0.026	AK019968	AK019968	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730501K14 product:similar to CGI-90 PROTEIN [Homo sapiens], full insert sequence. [AK019968]
A_52_P163825	5.075	0.0193	NM_028310	NM_028310	Mus musculus RIKEN cDNA 2810006K23 gene (2810006K23Rik), mRNA [NM_028310]
A_52_P343855	5.07	0.0332	NM_178661	NM_178661	Mus musculus cAMP responsive element binding protein 3-like 2 (Creb3l2), mRNA [NM_178661]
A_52_P169735	5.067	0.0215	AK081934	AK081934	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130088B05 product:unknown EST, full insert sequence. [AK081934]
A_52_P543085	5.047	0.0423	XM_619002	XM_619002	PREDICTED: Mus musculus similar to Nesprin 2 (Nuclear envelope spectrin repeat protein 2) (Syne-2) (Synaptic nuclear envelope protein 2) (Nucleus and actin connecting element protein) (NUANCE protein) (LOC544876), mRNA [XM_619002]
A_52_P410525	5.026	0.0263	AK017332	AK017332	Mus musculus 6 days neonate head cDNA, RIKEN full-length enriched library, clone:5430423O14 product:hypothetical P-loop containing nucleotide triphosphate hydrolases structure containing protein, full insert sequence. [AK017332]
A_52_P465175	5.022	0.0241	AK014060	AK014060	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110018C07 product:unknown EST, full insert sequence. [AK014060]
A_52_P33045	5.015	0.0488	NM_080446	NM_080446	Mus musculus helicase (DNA) B (Helb), mRNA [NM_080446]
A_52_P22595	5.009	0.0204	D89901	D89901	Mus musculus mRNA for high-glycine tyrosine keratin type II.3, partial cds [D89901]
A_52_P879875	5.003	0.0241	NM_177106	NM_177106	Mus musculus RIKEN cDNA F830004M19 gene (F830004M19Rik), mRNA [NM_177106]
A_52_P652454	4.993	0.0453	AK038775	AK038775	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230061N24 product:hypothetical ARM repeat structure containing protein, full insert sequence. [AK038775]
A_52_P491364	4.968	0.026	AK051853	AK051853	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230010O12 product:HIGH-RISK HUMAN PAPILLOMA VIRUSES E6 ONCOPROTEINS TARGETED PROTEIN E6TP1 ALPHA homolog [Homo sapiens], full insert sequence. [AK051853]
A_52_P620494	4.951	0.0438	AK051384	AK051384	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130045C05 product:unclassifiable, full insert sequence. [AK051384]
A_52_P472584	4.936	0.0238	XM_622097	XM_622097	PREDICTED: Mus musculus ribosome binding protein 1 (Rrbp1), mRNA [XM_622097]

A_52_P41130	4.918	0.0452	AK083363	AK083363	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:C920023H23 product:tuberous sclerosis 1, full insert sequence. [AK083363]
A_52_P56287	4.916	0.0316	BC020150	BC020150	Mus musculus mRNA similar to RIKEN cDNA 2810026P18 gene (cDNA clone MGC:28336 IMAGE:4016483), complete cds. [BC020150]
A_52_P92307	4.899	0.0171	AK034786	AK034786	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430038F14 product:unclassifiable, full insert sequence. [AK034786]
A_52_P23068	4.888	0.0208	NM_025620	NM_025620	Mus musculus RIKEN cDNA 2210417D09 gene (2210417D09Rik), mRNA [NM_025620]
A_52_P33625	4.869	0.014	XM_485576	XM_485576	PREDICTED: similar to myeloid [XM_485576]
A_52_P58792	4.867	0.0491	NM_009274	NM_009274	Mus musculus serine/arginine-rich protein specific kinase 2 (Srpk2), mRNA [NM_009274]
A_51_P170344	4.866	0.0162	BC021356	BC021356	Mus musculus RIKEN cDNA 5830417I10 gene, mRNA (cDNA clone IMAGE:5012813), containing frame-shift errors. [BC021356]
A_52_P42456	4.864	0.0154	NM_134040	NM_134040	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 1 (Ddx1), mRNA [NM_134040]
A_52_P63319	4.854	0.0267	AK017528	AK017528	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730408P04 product:SELENOPROTEIN T, full insert sequence. [AK017528]
A_52_P27576	4.849	0.0381	AK050247	AK050247	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730030N09 product:syntaxin binding protein 3, full insert sequence. [AK050247]
A_52_P19887	4.831	0.0332	AK029395	AK029395	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4833429F02 product:similar to GLE1 [Homo sapiens], full insert sequence. [AK029395]
A_52_P19087	4.827	0.0287	AK033329	AK033329	Mus musculus 15 days embryo male testis cDNA, RIKEN full-length enriched library, clone:8030495M18 product:unknown EST, full insert sequence. [AK033329]
A_51_P43265	4.816	0.0326	NM_008369	NM_008369	Mus musculus interleukin 3 receptor, alpha chain (Il3ra), mRNA [NM_008369]
A_51_P38745	4.791	0.0471	AK081803	AK081803	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130078H13 product:SIMILAR TO SPECTRIN SH3 DOMAIN BINDING PROTEIN 1 homolog [Homo sapiens], full insert sequence. [AK081803]
A_52_P94055	4.786	0.0175	NM_023662	NM_023662	Mus musculus pericentriolar material 1 (Pcm1), mRNA [NM_023662]
A_52_P93089	4.778	0.0274	AK021030	AK021030	Mus musculus 10 days neonate medulla oblongata cDNA, RIKEN full-length enriched library, clone:B830007D08 product:unknown EST, full insert sequence. [AK021030]
A_51_P114774	4.777	0.0252	NM_170588	NM_170588	Mus musculus copine I (Cpne1), transcript variant 1, mRNA [NM_170588]
A_51_P27454	4.666	0.0205	NM_138946	NM_138946	Mus musculus ribosomal protein S18 (Rps18), transcript variant 2, mRNA [NM_138946]
A_52_P62550	4.666	0.0395	NM_009948	NM_009948	Mus musculus carnitine palmitoyltransferase 1b, muscle (Cpt1b), mRNA [NM_009948]
A_52_P65785	4.66	0.0468	AK049586	AK049586	Mus musculus 7 days embryo whole body cDNA, RIKEN full-length enriched library, clone:C430047N04 product:ATP-DEPENDENT HELICASE DDX8 (RNA HELICASE HRH1) (DEAH-BOX PROTEIN 8) homolog [Homo sapiens], full insert sequence. [AK049586]
A_52_P57749	4.659	0.0295	XM_129997	XM_129997	PREDICTED: TAF3 RNA polymerase II, TATA box binding protein (TBP)-associated factor [Mus musculus], mRNA sequence [XM_129997]
A_52_P13301	4.658	0.0241	U59758	U59758	Mus musculus p53-variant (p53) mRNA, partial cds. [U59758]
A_51_P24769	4.655	0.0305	NM_173036	NM_173036	Mus musculus G protein-coupled receptor 97 (Gpr97), mRNA [NM_173036]
A_52_P67438	4.645	0.0259	AK087243	AK087243	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030038D23 product:hypothetical protein, full insert sequence. [AK087243]
A_52_P42465	4.636	0.0427	AK052336	AK052336	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330030I03 product:similar to ARG/ABL-INTERACTING PROTEIN ARGBP2A [Homo sapiens], full insert sequence. [AK052336]
A_52_P54304	4.633	0.0287	NM_028276	NM_028276	Mus musculus UTP14, U3 small nucleolar ribonucleoprotein, homolog A (yeast) (Utp14a), mRNA [NM_028276]
A_52_P87511	4.629	0.0221	AK020736	AK020736	Mus musculus adult male spinal cord cDNA, RIKEN full-length enriched library, clone:A330105O20 product:unknown EST, full insert sequence. [AK020736]
A_52_P61096	4.626	0.0241	AK082114	AK082114	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230008O04 product:weakly similar to UBIQUITIN CARBOXYL-TERMINAL HYDROLASE 64E (EC 3.1.2.15) (UBIQUITIN THIOLESTERASE 64E) (UBIQUITIN-SPECIFIC PROCESSING PROTEASE
A_51_P32164	4.614	0.035	NM_173371	NM_173371	Mus musculus hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase) (H6pd), mRNA [NM_173371]
A_52_P32910	4.588	0.014	NM_134077	NM_134077	Mus musculus RIKEN cDNA 1700009P03 gene (1700009P03Rik), mRNA [NM_134077]
A_52_P42248	4.587	0.0414	TC1434594		Q9C171 (Q9C171) Non-catalytic protein 1, partial (4%) [TC1434594]
A_52_P29814	4.582	0.0241	NM_026390	NM_026390	Mus musculus UBX domain containing 2 (Ubxd2), mRNA [NM_026390]
A_51_P37704	4.579	0.0205	AK090111	AK090111	Mus musculus bladder RCB-0544 MBT-2 cDNA, RIKEN full-length enriched library, clone:G430136C21 product:unknown EST, full insert sequence. [AK090111]
A_52_P61903	4.57	0.0291	AK014174	AK014174	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110043M12 product:choline kinase, full insert sequence. [AK014174]
A_52_P74885	4.562	0.0247	BU511373	BU511373	AGENCOURT_10129125 NIH_MGC_134 Mus musculus cDNA clone IMAGE:6506165 5', mRNA sequence [BU511373]
A_52_P63077	4.556	0.0273	AK020044	AK020044	Mus musculus 13 days embryo forelimb cDNA, RIKEN full-length enriched library, clone:5930436O19 product:unknown EST, full insert sequence. [AK020044]
A_52_P10768	4.547	0.0432	AK028731	AK028731	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732447J23 product:ZAP3 protein, full insert sequence. [AK028731]
A_52_P10126	4.543	0.0453	AK087200	AK087200	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030033M16 product:unclassifiable, full insert sequence. [AK087200]
A_52_P32015	4.542	0.0441	XM_489237	XM_489237	PREDICTED: Mus musculus hypothetical LOC434314 (LOC434314), mRNA [XM_489237]
A_52_P36167	4.533	0.027	NM_010863	NM_010863	Mus musculus myosin IB (Myo1b), mRNA [NM_010863]
A_51_P110934	4.506	0.0259	NM_172803	NM_172803	Mus musculus dedicator of cytokinesis 4 (Dock4), mRNA [NM_172803]
A_52_P62643	4.487	0.0432	TC1465377		Q80V99 (Q80V99) Vps41 protein (Fragment), partial (5%) [TC1465377]
A_52_P33508	4.486	0.00821	AK009182	AK009182	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310006C03 product:hypothetical Cadherin domain containing protein, full insert sequence. [AK009182]
A_52_P11519	4.479	0.0208	XM_486315	XM_486315	PREDICTED: Mus musculus similar to hypothetical protein 1 (rRNA external transcribed spacer) - mouse (LOC434481), mRNA [XM_486315]
A_52_P18842	4.472	0.0443	BC047992	BC047992	Mus musculus proline synthetase co-transcribed, mRNA (cDNA clone MGC:59396 IMAGE:6504579), complete cds. [BC047992]
A_51_P14122	4.468	0.0452	AK083925	AK083925	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130062O14 product:unclassifiable, full insert sequence [AK083925]
A_52_P94795	4.468	0.0367	AK081157	AK081157	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930094C08 product:unknown EST, full insert sequence. [AK081157]
A_52_P86015	4.46	0.0352	AK086814	AK086814	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030002K24 product:unclassifiable, full insert sequence. [AK086814]
A_52_P96372	4.456	0.0221	AK053988	AK053988	Mus musculus 2 days pregnant adult female oviduct cDNA, RIKEN full-length enriched library, clone:E230011A12 product:unknown EST, full insert sequence. [AK053988]
A_51_P28170	4.443	0.014	NM_010613	NM_010613	Mus musculus KH-type splicing regulatory protein (Khsrp), mRNA [NM_010613]
A_51_P23872	4.43	0.0306	NM_010740	NM_010740	Mus musculus complement component 1, q subcomponent, receptor 1 (C1qr1), mRNA [NM_010740]
A_52_P79513	4.421	0.0287	NM_023750	NM_023750	Mus musculus zinc finger protein 84 (Zfp84), mRNA [NM_023750]
A_52_P28841	4.419	0.0433	NM_009442	NM_009442	Mus musculus transcription termination factor 1 (Ttf1), mRNA [NM_009442]
A_52_P42194	4.416	0.0195	NM_178046	NM_178046	Mus musculus supervillin (Svil), transcript variant 2, mRNA [NM_178046]
A_52_P65021	4.383	0.0205	NM_029278	NM_029278	Mus musculus RIKEN cDNA 2610033H07 gene (2610033H07Rik), mRNA [NM_029278]
A_52_P11876	4.382	0.0452	AK039199	AK039199	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230106P21 product:unknown EST, full insert sequence. [AK039199]
A_52_P11235	4.368	0.0452	AK088646	AK088646	Mus musculus 2 days neonate thymus thymic cells cDNA, RIKEN full-length enriched library, clone:E430022H22 product:unknown EST, full insert sequence. [AK088646]
A_52_P88356	4.357	0.0371	AK047935	AK047935	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130022G24 product:unclassifiable, full insert sequence. [AK047935]
A_51_P40560	4.305	0.048	NM_010884	NM_010884	Mus musculus N-myc downstream regulated gene 1 (Ndrg1), mRNA [NM_010884]
A_51_P34477	4.302	0.0441	AK051922	AK051922	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230019K20 product:hypothetical Proline-rich region containing protein, full insert sequence. [AK051922]
A_52_P45124	4.286	0.0204	U49949	U49949	Mus musculus putative protein kinase YSK2 mRNA, partial cds. [U49949]
A_51_P51598	4.278	0.0443	AK031703	AK031703	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030494A18 product:unknown EST, full insert sequence [AK031703]
A_52_P68441	4.265	0.0273	NM_023292	NM_023292	Mus musculus pseudouridine synthase 3 (Pus3), mRNA [NM_023292]
A_52_P14277	4.264	0.0467	AK030381	AK030381	Mus musculus adult male pituitary gland cDNA, RIKEN full-length enriched library, clone:5330405C09 product:hypothetical EF-hand containing protein, full insert sequence [AK030381]
A_51_P25539	4.262	0.0367	NM_007738	NM_007738	Mus musculus procollagen, type VII, alpha 1 (Col7a1), mRNA [NM_007738]
A_51_P11565	4.245	0.0195	NM_029408	NM_029408	Mus musculus IQ motif containing D (Iqcd), mRNA [NM_029408]
A_52_P83571	4.242	0.0456	AK043497	AK043497	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830001K22 product:unknown EST, full insert sequence. [AK043497]
A_52_P12369	4.238	0.0418	AK021412	AK021412	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130304I02 product:hypothetical protein, full insert sequence. [AK021412]
A_51_P44392	4.232	0.0175	BQ944428	BQ944428	AGENCOURT_8864714 NCI_CGAP_Mam2 Mus musculus cDNA clone IMAGE:6440104 5', mRNA sequence [BQ944428]
A_51_P10892	4.229	0.0453	AK035046	AK035046	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430078N17 product:unclassifiable, full insert sequence. [AK035046]
A_52_P53948	4.229	0.0295	NM_026130	NM_026130	Mus musculus signal recognition particle receptor ('docking protein') (Srpr), mRNA [NM_026130]
A_52_P12345	4.196	0.0495	BC020150	BC020150	Mus musculus mRNA similar to RIKEN cDNA 2810026P18 gene (cDNA clone MGC:28336 IMAGE:4016483), complete cds. [BC020150]
A_51_P13217	4.195	0.0416	AK041121	AK041121	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530084A08 product:hypothetical Spectrin repeat containing protein, full insert sequence. [AK041121]
A_51_P15150	4.188	0.0208	NM_207671	NM_207671	Mus musculus zinc finger protein 318 (Zfp318), transcript variant 1, mRNA [NM_207671]
A_51_P20448	4.183	0.0491	NM_028807	NM_028807	Mus musculus RIKEN cDNA 1200009I06 gene (1200009I06Rik), mRNA [NM_028807]
A_52_P56995	4.131	0.0316	XM_485285	XM_485285	PREDICTED: Mus musculus similar to myomegalin (LOC433631), mRNA [XM_485285]
A_52_P61781	4.127	0.0332	NM_008300	NM_008300	Mus musculus heat shock protein 4 (Hspa4), mRNA [NM_008300]
A_51_P45235	4.122	0.0215	NM_010925	NM_010925	Mus musculus novel nuclear protein 1 (Nnp1), mRNA [NM_010925]
A_52_P52633	4.11	0.0373	AK050063	AK050063	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730009F21 product:hypothetical protein, full insert sequence. [AK050063]
A_51_P48765	4.103	0.0215	AK020355	AK020355	Mus musculus adult male epididymis cDNA, RIKEN full-length enriched library, clone:9230118B16 product:ZINC FINGER PROTEIN 36 (ZINC FINGER PROTEIN KOX18) (FRAGMENT) homolog [Homo sapiens], full insert sequence. [AK020355]
A_52_P17526	4.097	0.0382	AK083867	AK083867	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130028A11 product:MRNA, SIMILAR TO RAT MYOMEGALIN, COMPLETE CDS homolog [Homo sapiens], full insert sequence. [AK083867]
A_52_P44873	4.091	0.0435	AK037905	AK037905	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130061H03 product:hypothetical Lysine-rich region containing protein, full insert sequence. [AK037905]
A_52_P26797	4.074	0.0174	AY036118	AY036118	Mus musculus ETS-related transcription factor ERF (Erf1) mRNA, complete cds. [AY036118]

A_51_P29090	4.068	0.0205	AK040404	AK040404	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430091O22 product:hypothetical RNA-binding region RNP-1 (RNA recognition motif) containing protein, full insert sequence. [AK040404]
A_52_P5549	4.059	0.0204	NM_026583	NM_026583	Mus musculus RIKEN cDNA 5830415L20 gene (5830415L20Rik), mRNA [NM_026583]
A_52_P19894	4.05	0.0193	NM_153118	NM_153118	Mus musculus formin binding protein 1-like (Fnbp1l), mRNA [NM_153118]
A_52_P49959	4.042	0.0433	AK047035	AK047035	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930013A05 product:unclassifiable, full insert sequence. [AK047035]
A_52_P48236	4.032	0.0368	NM_013680	NM_013680	Mus musculus synapsin I (Syn1), mRNA [NM_013680]
A_51_P33892	4.02	0.0446	NM_010509	NM_010509	Mus musculus interferon (alpha and beta) receptor 2 (Ifnar2), mRNA [NM_010509]
A_52_P81145	4.009	0.045	AK037765	AK037765	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130048D16 product:unclassifiable, full insert sequence. [AK037765]
A_52_P29021	4.007	0.0401	AK040611	AK040611	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430109D20 product:myeloid ecotropic viral integration site-related gene 1, full insert sequence [AK040611]
A_52_P18785	3.995	0.0195	NM_197987	NM_197987	Mus musculus tripartite motif protein 37 (Trim37), mRNA [NM_197987]
A_52_P10827	3.994	0.0367	AK011173	AK011173	Mus musculus 10 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2600009K23 product:hypothetical protein, full insert sequence. [AK011173]
A_52_P81978	3.967	0.0345	AK087146	AK087146	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030029P04 product:unclassifiable, full insert sequence [AK087146]
A_52_P33354	3.955	0.046	AK078562	AK078562	Mus musculus 11 days embryo gonad cDNA, RIKEN full-length enriched library, clone:7030402E17 product:DNA segment, Chr 4, ERATO Doi 681, expressed, full insert sequence. [AK078562]
A_52_P13542	3.95	0.0244	AK032599	AK032599	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430630B04 product:serine/arginine repetitive matrix 1, full insert sequence. [AK032599]
A_52_P54549	3.944	0.0452	AK084157	AK084157	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230004F12 product:POTASSIUM CHANNEL MODULATORY FACTOR homolog [Homo sapiens], full insert sequence. [AK084157]
A_52_P32712	3.942	0.0298	AK038782	AK038782	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230062I15 product:unknown EST, full insert sequence [AK038782]
A_52_P53714	3.939	0.0195	AK047235	AK047235	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930041B10 product:hypothetical DHHC-type Zn-finger containing protein, full insert sequence. [AK047235]
A_51_P41795	3.933	0.014	NM_013662	NM_013662	Mus musculus sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6B (Sema6b), mRNA [NM_013662]
A_52_P31103	3.86	0.0162	AK016943	AK016943	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933427C01 product:hypothetical Arginine-rich region containing protein, full insert sequence. [AK016943]
A_52_P55159	3.839	0.027	NM_172952	NM_172952	Mus musculus gephyrin (Gphn), mRNA [NM_172952]
A_52_P65496	3.836	0.0314	BC080788	BC080788	Mus musculus eukaryotic translation initiation factor 3, subunit 1 alpha, mRNA (cDNA clone MGC:91206 IMAGE:4166214), complete cds. [BC080788]
A_51_P31661	3.829	0.0433	NM_174992	NM_174992	Mus musculus cDNA sequence BC004728 (BC004728), mRNA [NM_174992]
A_52_P28847	3.806	0.0332	TC1435025		
A_52_P34707	3.792	0.0308	XM_622132	XM_622132	PREDICTED: Mus musculus hypothetical protein LOC (LOC544771), mRNA [XM_622132]
A_52_P23639	3.789	0.0352	AK039631	AK039631	Mus musculus adult male spinal cord cDNA, RIKEN full-length enriched library, clone:A330075M10 product:hypothetical protein, full insert sequence. [AK039631]
A_51_P43452	3.781	0.0287	XM_129246	XM_129246	PREDICTED: tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase 2 [Mus musculus], mRNA sequence [XM_129246]
A_52_P46628	3.767	0.0162	NM_175187	NM_175187	Mus musculus RIKEN cDNA 2810446P07 gene (2810446P07Rik), mRNA [NM_175187]
A_52_P13897	3.76	0.0432	NM_030014	NM_030014	Mus musculus hook homolog 1 (Drosophila) (Hook1), mRNA [NM_030014]
A_52_P62909	3.757	0.0259	TC1419321		CIRP_HUMAN (Q14011) Cold-inducible RNA-binding protein (Glycine-rich RNA-binding protein CIRP) (A18 hnRNP), partial (6%) [TC1419321]
A_51_P29113	3.749	0.0365	XM_110787	XM_110787	PREDICTED: Mus musculus UPF3 regulator of nonsense transcripts homolog B (yeast) (Upf3b), mRNA [XM_110787]
A_52_P23443	3.713	0.0299	AK076429	AK076429	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4832405A21 product:par-3 (partitioning defective 3) homolog (C. elegans), full insert sequence. [AK076429]
A_52_P33596	3.713	0.0382	XM_284494	XM_284494	PREDICTED: DEAD (Asp-Glu-Ala-Asp) box polypeptide 10 [Mus musculus], mRNA sequence [XM_284494]
A_52_P31106	3.699	0.0386	BC031202	BC031202	Mus musculus plexin B2, mRNA (cDNA clone MGC:37720 IMAGE:5066347), complete cds. [BC031202]
A_52_P63655	3.672	0.048	AK053008	AK053008	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930013H11 product:unknown EST, full insert sequence [AK053008]
A_52_P63109	3.669	0.0108	NM_146176	NM_146176	Mus musculus CCR4-NOT transcription complex, subunit 3 (Cnot3), mRNA [NM_146176]
A_51_P35915	3.657	0.027	AK038077	AK038077	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130076H01 product:unclassifiable, full insert sequence. [AK038077]
A_52_P54891	3.63	0.0205	NM_009817	NM_009817	Mus musculus calpastatin (Cast), mRNA [NM_009817]
A_52_P44783	3.618	0.0259	AK042707	AK042707	Mus musculus 7 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:A730017L22 product:unknown EST, full insert sequence. [AK042707]
A_52_P64528	3.612	0.0215	TC1410591		COXO_MOUSE (P17665) Cytochrome c oxidase polypeptide VIIc, mitochondrial precursor , partial (60%) [TC1410591]
A_52_P11912	3.609	0.0436	BC052838	BC052838	Mus musculus similar to RIKEN cDNA 1110067D22, mRNA (cDNA clone MGC:60745 IMAGE:30049363), complete cds. [BC052838]
A_51_P32255	3.601	0.0423	AF133818	AF133818	Mus musculus ZFP265 (Zfp265) mRNA, partial cds. [AF133818]
A_52_P29638	3.595	0.0284	BC053914	BC053914	Mus musculus E74-like factor 1, mRNA (cDNA clone IMAGE:30067070). [BC053914]
A_52_P69867	3.595	0.0299	NM_028292	NM_028292	Mus musculus RIKEN cDNA 2700017M01 gene (2700017M01Rik), mRNA [NM_028292]
A_52_P58113	3.593	0.0195	NM_212450	NM_212450	Mus musculus DNA segment, Chr 2, ERATO Doi 485, expressed (D2Ertd485e), mRNA [NM_212450]
A_52_P59510	3.584	0.0212	U63712	U63712	Mus musculus testis-specific HMG-box protein m-tsHMG precursor mRNA, partial cds, and mitochondrial transcription factor m-mtTFA precursor mRNA, nuclear mRNA encoding mitochondrial protein, partial cds. [U63712]
A_52_P76426	3.568	0.0423	BB533880	BB533880	BB533880 RIKEN full-length enriched, 0 day neonate lung Mus musculus cDNA clone E030032G20 3'. [BB533880]
A_51_P20463	3.566	0.0352	AK032255	AK032255	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430512F19 product:CALCIUM-TRANSPORTING ATPASE TYPE 2C, MEMBER 1 (EC 3.6.3.8) (ATPASE 2C1) (ATP-DEPENDENT CA2+ PUMP PMR1) homolog [Rattus norvegicus], full insert...
A_52_P65781	3.543	0.0485	AK030767	AK030767	Mus musculus 8 days embryo whole body cDNA, RIKEN full-length enriched library, clone:5730585A15 product:mitogen activated protein kinase 8, full insert sequence. [AK030767]
A_52_P56728	3.537	0.0286	XM_146275	XM_146275	PREDICTED: Mus musculus similar to glial growth factor beta 1a (LOC244406), mRNA [XM_146275]
A_52_P20110	3.535	0.0452	NM_029117	NM_029117	Mus musculus RIKEN cDNA A330015D16 gene (A330015D16Rik), mRNA [NM_029117]
A_52_P29039	3.527	0.0286	AK030538	AK030538	Mus musculus adult male pituitary gland cDNA, RIKEN full-length enriched library, clone:5330429B06 product:vesicle transport through interaction with t-SNAREs 1 homolog, full insert sequence. [AK030538]
A_52_P44899	3.527	0.0438	AK086129	AK086129	Mus musculus 15 days embryo head cDNA, RIKEN full-length enriched library, clone:D930007H16 product:unclassifiable, full insert sequence. [AK086129]
A_51_P30622	3.511	0.0304	AK048477	AK048477	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130064E22 product:RANBP7 [AK048477]
A_52_P23660	3.505	0.037	BC066170	BC066170	Mus musculus excision repaiross-complementing rodent repair deficiency, complementation group 8, mRNA (cDNA clone IMAGE:30100859) [BC066170]
A_52_P10281	3.493	0.0308	AK037378	AK037378	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130012M03 product:unclassifiable, full insert sequence. [AK037378]
A_51_P15846	3.491	0.045	AK035967	AK035967	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630022C18 product:unknown EST, full insert sequence [AK035967]
A_52_P13019	3.478	0.0452	TC1453087		AF333027 Ras association domain family 1 isoform C {Mus musculus;} , partial (28%) [TC1453087]
A_51_P27057	3.477	0.0433	NM_027355	NM_027355	Mus musculus ring fnger protein 168 (Rnf168), mRNA [NM_027355]
A_52_P42385	3.469	0.0332	NM_026171	NM_026171	Mus musculus nuclear VCP-like (Nvl), mRNA [NM_026171]
A_52_P32502	3.468	0.0443	AK020822	AK020822	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930007B11 product:unknown EST, full insert sequence. [AK020822]
A_52_P48691	3.455	0.0385	TC1492305		MUSPTPASE protein tyrosine phosphatase {Mus musculus;} , partial (5%) [TC1492305]
A_52_P69995	3.445	0.0443	AK081401	AK081401	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130014E20 product:unclassifiable, full insert sequence. [AK081401]
A_52_P46993	3.436	0.0414	NM_027375	NM_027375	Mus musculus RIKEN cDNA 2600014C01 gene (2600014C01Rik), mRNA [NM_027375]
A_51_P31991	3.434	0.042	NM_007403	NM_007403	Mus musculus a disintegrin and metalloprotease domain 8 (Adam8), mRNA [NM_007403]
A_51_P32676	3.422	0.0382	NM_133225	NM_133225	Mus musculus acyl-Coenzyme A binding domain containing 3 (Acbd3), mRNA [NM_133225]
A_52_P86048	3.419	0.0369	A_52_P860487		
A_52_P39794	3.416	0.0374	AK080294	AK080294	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630038B17 product:similar to NPAT (E14 AND A-T PROTEINS) [Homo sapiens], full insert sequence [AK080294]
A_51_P18315	3.392	0.0493	AK049897	AK049897	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630007P21 product:DJ782L23.1 (HOOK1) (FRAGMENT) homolog [Homo sapiens], full insert sequence. [AK049897]
A_51_P38977	3.372	0.014	NM_026988	NM_026988	Mus musculus RIKEN cDNA 2610009E16 gene (2610009E16Rik), mRNA [NM_026988]
A_52_P71146	3.365	0.0326	TC1523491		Q80XJ7 (Q80XJ7) Aldo-keto reductase family 1, member A4 (Aldehyde reductase), partial (20%) [TC1523491]
A_52_P66669	3.333	0.0346	TC1473353		
A_52_P10922	3.332	0.045	NM_175690	NM_175690	Mus musculus RIKEN cDNA A730027B03 gene (A730027B03Rik), mRNA [NM_175690]
A_51_P14981	3.329	0.0235	NM_026989	NM_026989	Mus musculus splicing factor, arginine/serine-rich 11 (Sfrs11), mRNA [NM_026989]
A_52_P94256	3.317	0.0178	NM_020494	NM_020494	Mus musculus DEAD (Asp-Glu-Ala-Asp) box polypeptide 24 (Ddx24), mRNA [NM_020494]
A_52_P23949	3.312	0.0427	NM_211355	NM_211355	Mus musculus RIKEN cDNA 1110034C04 gene (1110034C04Rik), mRNA [NM_211355]
A_52_P48541	3.312	0.0241	BC046759	BC046759	Mus musculus high mobility group box 2, mRNA (cDNA clone MGC:57916 IMAGE:5693598), complete cds. [BC046759]
A_52_P32082	3.306	0.0228	NM_177199	NM_177199	Mus musculus RIKEN cDNA 5730405G21 gene (5730405G21Rik), mRNA [NM_177199]
A_51_P36811	3.305	0.0415	NM_028211	NM_028211	Mus musculus RIKEN cDNA 2210016L21 gene (2210016L21Rik), mRNA [NM_028211]
A_52_P97670	3.305	0.0371	AK085232	AK085232	Mus musculus 13 days embryo stomach cDNA, RIKEN full-length enriched library, clone:D530031C13 product:hypothetical protein, full insert sequence. [AK085232]
A_51_P33071	3.291	0.0491	NM_025287	NM_025287	Mus musculus speckle-type POZ protein (Spop), mRNA [NM_025287]
A_52_P23616	3.281	0.0367	NM_028188	NM_028188	Mus musculus RUN and SH3 domain containing 1 (Rusc1), mRNA [NM_028188]
A_52_P21897	3.274	0.0205	NM_173369	NM_173369	Mus musculus cylindromatosis (turban tumor syndrome) (Cyld), mRNA [NM_173369]
A_52_P23555	3.267	0.0395	NM_023472	NM_023472	Mus musculus ankyrin repeat, family A (RFXANK-like), 2 (Ankra2), mRNA [NM_023472]
A_52_P93627	3.266	0.0449	J00623	J00623	MUSRGEB3 Mus musculus 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene and internal transcribed spacer 1, complete sequence; and 28S ribosomal RNA gene, partial sequence [J00623]

A_52_P49656	3.261	0.046	NM_175108	NM_175108	Mus musculus AHNAK nucleoprotein (desmoyokin) (Ahnak), transcript variant 2, mRNA [NM_175108]
A_52_P68246	3.259	0.0241	AK089360	AK089360	Mus musculus B6-derived CD11 +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F730014O09 product:40S RIBOSOMAL PROTEIN S28 homolog [Ictalurus punctatus], full insert sequence. [AK089360]
A_52_P42181	3.248	0.0225	AK033274	AK033274	Mus musculus 15 days embryo male testis cDNA, RIKEN full-length enriched library, clone:8030481P22 product:hepatocyte growth factor, full insert sequence [AK033274]
A_52_P38241	3.24	0.0356	TC1533506		Q80T07 (Q80T07) Polypirimidine tract binding protein, partial (8%) [TC1533506]
A_52_P42285	3.217	0.0423	M77174	M77174	Mouse perlecan mRNA, complete cds. [M77174]
A_51_P40626	3.21	0.0184	NM_0010018	NM_00100180	Mus musculus zinc finger protein 36, C3H type-like 2 (Zfp36l2), transcript variant 1, mRNA [NM_001001806]
A_51_P41308	3.207	0.0373	XM_137955	XM_137955	PREDICTED: apolipoprotein B [Mus musculus], mRNA sequence [XM_137955]
A_52_P26889	3.194	0.0212	AK036524	AK036524	Mus musculus adult male bone cDNA, RIKEN full-length enriched library, clone:9830126N17 product:SWI [AK036524]
A_52_P66947	3.193	0.0452	NM_172495	NM_172495	Mus musculus nuclear receptor coactivator 7 (Ncoa7), mRNA [NM_172495]
A_52_P19796	3.175	0.0493	AJ539223	AJ539223	Mus musculus mRNA for erythroid differentiation regulator (edr gene). [AJ539223]
A_51_P51360	3.139	0.0466	NM_0010262	NM_00102621	Mus musculus endosulfine alpha (Ensa), transcript variant 2, mRNA [NM_001026212]
A_52_P24456	3.139	0.0493	AK029289	AK029289	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4832414O22 product:hypothetical DEAD [AK029289]
A_52_P13804	3.131	0.0299	NM_0010108	NM_00101083	Mus musculus protein phosphatase 1, regulatory (inhibitor) subunit 13 like (Ppp1r13l), mRNA [NM_001010836]
A_52_P22477	3.127	0.014	NM_010470	NM_010470	Mus musculus heterochromatin protein 1, binding protein 3 (Hp1bp3), mRNA [NM_010470]
A_51_P34391	3.112	0.0386	XM_283217	XM_283217	PREDICTED: similar to mKIAA0177 protein [Mus musculus], mRNA sequence [XM_283217]
A_51_P25115	3.105	0.0195	BC016624	BC016624	Mus musculus, Similar to actin, beta, clone IMAGE:4501052, mRNA. [BC016624]
A_52_P47905	3.096	0.0205	NM_010672	NM_010672	Mus musculus keratin associated protein 6-1 (Krtap6-1), mRNA [NM_010672]
A_51_P38847	3.092	0.0204	NM_010110	NM_010110	Mus musculus ephrin B1 (Efnb1), mRNA [NM_010110]
A_52_P45664	3.053	0.0443	NM_010208	NM_010208	Mus musculus Gardner-Rasheed feline sarcoma viral (Fgr) oncogene homolog (Fgr), mRNA [NM_010208]
A_52_P75384	3.052	0.0215	NM_181278	NM_181278	Mus musculus RIKEN cDNA B230219D22 gene (B230219D22Rik), mRNA [NM_181278]
A_51_P38571	3.049	0.0453	NM_026862	NM_026862	Mus musculus RIKEN cDNA 1190003K14 gene (1190003K14Rik), mRNA [NM_026862]
A_51_P39872	3.026	0.0406	NM_010228	NM_010228	Mus musculus FMS-like tyrosine kinase 1 (Flt1), mRNA [NM_010228]
A_52_P93918	3.005	0.0464	AK049439	AK049439	Mus musculus 7 days embryo whole body cDNA, RIKEN full-length enriched library, clone:C430011G05 product:unknown EST, full insert sequence. [AK049439]
A_51_P46120	3.004	0.0264	BC023187	BC023187	Mus musculus cell division cycle 27 homolog (S. cerevisiae), mRNA (cDNA clone MGC:36343 IMAGE:4954387), complete cds. [BC023187]
A_51_P33649	2.995	0.0352	NM_146087	NM_146087	Mus musculus casein kinase 1, alpha 1 (Csnk1a1), mRNA [NM_146087]
A_52_P58911	2.989	0.0215	NM_027494	NM_027494	Mus musculus zinc finger, CCHC domain containing 8 (Zcchc8), mRNA [NM_027494]
A_52_P49851	2.958	0.0427	NP063118		GB|X66236.1|CAA46966.1 185 kDa glycophosphoprotein [NP063118]
A_52_P60519	2.952	0.0259	NM_029648	NM_029648	Mus musculus DNA segment, Chr 19, ERATO Doi 737, expressed (D19Ertd737e), mRNA [NM_029648]
A_51_P20849	2.95	0.0464	AK040256	AK040256	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430080N01 product:unknown EST, full insert sequence [AK040256]
A_52_P14604	2.94	0.0195	NM_009333	NM_009333	Mus musculus transcription factor 7-like 2, T-cell specific, HMG-box (Tcf7l2), mRNA [NM_009333]
A_52_P49285	2.94	0.0373	NM_175836	NM_175836	Mus musculus spectrin beta 2 (Spnb2), transcript variant 1, mRNA [NM_175836]
A_52_P17698	2.937	0.0305	NM_175680	NM_175680	Mus musculus RIKEN cDNA 9530080O11 gene (9530080O11Rik), mRNA [NM_175680]
A_52_P26012	2.935	0.0376	NM_026476	NM_026476	Mus musculus RIKEN cDNA 2610101N10 gene (2610101N10Rik), mRNA [NM_026476]
A_52_P79627	2.933	0.0332	TC1419971		P97692 (P97692) Rattus norvegicus L1 retrotransposon ORF2 (Fragment), partial (3%) [TC1419971]
A_51_P19199	2.923	0.014	AK087549	AK087549	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130318F19 product:unclassifiable, full insert sequence. [AK087549]
A_51_P43191	2.922	0.049	NM_011551	NM_011551	Mus musculus upstream binding transcription factor, RNA polymerase I (Ubtf), mRNA [NM_011551]
A_52_P58091	2.922	0.0493	NM_176848	NM_176848	Mus musculus F-box only protein 2 (Fbxo2), mRNA [NM_176848]
A_52_P67351	2.912	0.0287	XM_356077	XM_356077	PREDICTED: Mus musculus NIMA (never in mitosis gene a)-related expressed kinase 1 (Nek1), mRNA [XM_356077]
A_52_P12751	2.909	0.042	NAP045521-1		
A_51_P38126	2.899	0.0373	NM_008761	NM_008761	Mus musculus FXYD domain-containing ion transport regulator 5 (Fxyd5), mRNA [NM_008761]
A_51_P14409	2.887	0.0259	NM_030696	NM_030696	Mus musculus solute carrier family 16 (monocarboxylic acid transporters), member 3 (Slc16a3), mRNA [NM_030696]
A_52_P33972	2.881	0.024	NM_146087	NM_146087	Mus musculus casein kinase 1, alpha 1 (Csnk1a1), mRNA [NM_146087]
A_51_P47980	2.869	0.0367	NM_015806	NM_015806	Mus musculus mitogen-activated protein kinase 6 (Mapk6), mRNA [NM_015806]
A_52_P28833	2.856	0.0262	NAP030873-1		
A_51_P37691	2.854	0.0237	AK220535	AK220535	Mus musculus mRNA for mKIAA4190 protein [AK220535]
A_51_P38359	2.841	0.0279	XM_148244	XM_148244	PREDICTED: golgi autoantigen, golgin subfamily b, macrogolgin 1 [Mus musculus], mRNA sequence [XM_148244]
A_51_P25078	2.822	0.0375	NM_146078	NM_146078	Mus musculus ubiquitin protein ligase E3 component n-recognin 2 (Ubr2), mRNA [NM_146078]
A_52_P47775	2.813	0.0332	AK076264	AK076264	Mus musculus 0 day neonate skin cDNA, RIKEN full-length enriched library, clone:4632404G05 product:CASEIN KINASE I, ALPHA ISOFORM (EC 2.7.1.-) (CKI-ALPHA) (CK1) homolog [Bos taurus], full insert sequence [AK076264]
A_52_P62606	2.772	0.0493	AK040994	AK040994	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530057H05 product:similar to DJ620E11.1.1 (NOVEL HELICASE C-TERMINAL DOMAIN AND SNF2 N-TERMINAL DOMAINS CONTAINING PROTEIN, SIMILAR TO KIAA0308 (ISOFORM 1))...
A_52_P65330	2.761	0.0415	TC1541923		TGR1_MOUSE (Q64729) TGF-beta receptor type I precursor (TGFR-1) (TGF-beta type I receptor) (ESK2) , partial (17%) [TC1541923]
A_52_P57505	2.736	0.0495	AK087326	AK087326	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030045C03 product:similar to MSZF23-1 (FRAGMENT) [Mus musculus], full insert sequence. [AK087326]
A_51_P37311	2.721	0.0478	NM_145943	NM_145943	Mus musculus cDNA sequence BC031781 (BC031781), mRNA [NM_145943]
A_52_P28008	2.72	0.0252	AK078356	AK078356	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:6530406M20 product:mitogen-activated protein kinase kinase 1 interacting protein 1, full insert sequence. [AK078356]
A_52_P37593	2.715	0.0395	AK029391	AK029391	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4833429A22 product:unclassifiable, full insert sequence. [AK029391]
A_52_P41060	2.698	0.0235	NM_011948	NM_011948	Mus musculus mitogen activated protein kinase kinase kinase 4 (Map3k4), mRNA [NM_011948]
A_52_P64001	2.663	0.0443	NM_144510	NM_144510	Mus musculus inhibitor of growth family, member 4 (Ing4), mRNA [NM_144510]
A_51_P10507	2.652	0.0195	NM_011311	NM_011311	Mus musculus S100 calcium binding protein A4 (S100a4), mRNA [NM_011311]
A_52_P29221	2.65	0.0415	NM_178791	NM_178791	Mus musculus RIKEN cDNA E130203B14 gene (E130203B14Rik), mRNA [NM_178791]
A_51_P39432	2.649	0.0385	NM_207636	NM_207636	Mus musculus fibronectin type III domain containing 3a (Fndc3a), mRNA [NM_207636]
A_52_P10757	2.639	0.0332	NM_025822	NM_025822	Mus musculus arginine/serine-rich coiled-coil 1 (Rsrc1), mRNA [NM_025822]
A_52_P33674	2.608	0.0259	NAP050809-1		
A_52_P34852	2.561	0.0256	NAP061133-1		
A_51_P40720	2.543	0.0346	AK220459	AK220459	Mus musculus mRNA for mKIAA4052 protein [AK220459]
A_51_P43669	2.537	0.0493	XM_137955	XM_137955	PREDICTED: apolipoprotein B [Mus musculus], mRNA sequence [XM_137955]
A_51_P16237	2.53	0.0441	AK079828	AK079828	Mus musculus 0 day neonate thymus cDNA, RIKEN full-length enriched library, clone:A430078A13 product:unknown EST, full insert sequence. [AK079828]
A_52_P18807	2.51	0.0305	NM_146200	NM_146200	Mus musculus eukaryotic translation initiation factor 3, subunit 8 (Eif3s8), mRNA [NM_146200]
A_52_P29804	2.48	0.0287	NM_145979	NM_145979	Mus musculus chromodomain helicase DNA binding protein 4 (Chd4), mRNA [NM_145979]
A_52_P34625	2.477	0.0302	NM_027275	NM_027275	Mus musculus RIKEN cDNA 2810422B04 gene (2810422B04Rik), mRNA [NM_027275]
A_52_P29417	2.472	0.0238	NM_026476	NM_026476	Mus musculus RIKEN cDNA 2610101N10 gene (2610101N10Rik), mRNA [NM_026476]
A_51_P31332	2.46	0.0274	NM_009852	NM_009852	Mus musculus CD6 antigen (Cd6), mRNA [NM_009852]
A_51_P48207	2.447	0.0425	NM_175654	NM_175654	Mus musculus histone 1, H4d (Hist1h4d), mRNA [NM_175654]
A_51_P27182	2.44	0.0443	NM_028834	NM_028834	Mus musculus RIKEN cDNA 2210009G21 gene (2210009G21Rik), mRNA [NM_028834]
A_52_P39483	2.44	0.0376	AK049588	AK049588	Mus musculus 7 days embryo whole body cDNA, RIKEN full-length enriched library, clone:C430048D14 product:hypothetical Acyl-CoA N-acyltransferases (Nat) structure containing protein, full insert sequence. [AK049588]
A_52_P24751	2.428	0.0256	NM_207659	NM_207659	Mus musculus hook homolog 3 (Drosophila) (Hook3), mRNA [NM_207659]
A_52_P42606	2.404	0.0205	NM_0010180	NM_00101808	Mus musculus similar to RIKEN cDNA 6030426L16 (LOC245297), mRNA [NM_001018086]
A_52_P35238	2.396	0.0287	AK084287	AK084287	Mus musculus 12 days embryo eyeball cDNA, RIKEN full-length enriched library, clone:D230018D13 product:SESTRIN 3 homolog [Homo sapiens], full insert sequence [AK084287]
A_51_P22896	2.383	0.0332	NM_023219	NM_023219	Mus musculus solute carrier family 5 (neutral amino acid transporters, system A), member 4b (Slc5a4b), mRNA [NM_023219]
A_52_P44203	2.383	0.023	NM_008452	NM_008452	Mus musculus Kruppel-like factor 2 (lung) (Klf2), mRNA [NM_008452]
A_52_P59901	2.367	0.043	NM_207682	NM_207682	Mus musculus kinesin family member 1B (Kif1b), transcript variant 2, mRNA [NM_207682]
A_52_P36092	2.36	0.0241	NM_148930	NM_148930	Mus musculus RNA binding motif protein 5 (Rbm5), mRNA [NM_148930]
A_51_P41205	2.32	0.0215	NM_178192	NM_178192	Mus musculus histone 1, H4a (Hist1h4a), mRNA [NM_178192]
A_52_P50875	2.261	0.0373	NM_008175	NM_008175	Mus musculus granulin (Grn), mRNA [NM_008175]
A_52_P43266	2.159	0.0256	NM_013924	NM_013924	Mus musculus activator of basal transcription (Abt1), mRNA [NM_013924]

A_51_P166642	2.118	0.0212	AK016443	AK016443	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4931408A02 product:hypothetical D-galactoside/L-rhamnose binding SUEL lectin domain containing protein, full insert sequence. [AK016443]
A_51_P159552	2.083	0.0381	AK173005	AK173005	Mus musculus premature mRNA for mKIAA0700 protein [AK173005]
A_52_P566002	2.018	0.0215	XM_355941	XM_355941	PREDICTED: TAO kinase 2 [Mus musculus], mRNA sequence [XM_355941]
A_51_P416272	2.017	0.0471	AK038734	AK038734	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230058J24 product:hypothetical protein, full insert sequence. [AK038734]
A_52_P381211	1.993	0.0395	AK020089	AK020089	Mus musculus 11 days embryo head cDNA, RIKEN full-length enriched library, clone:6230424B18 product:unknown EST, full insert sequence. [AK020089]
A_52_P310111	1.967	0.0259	XM_135033	XM_135033	PREDICTED: hypothetical protein XP_135033 [Mus musculus], mRNA sequence [XM_135033]
A_51_P135801	1.924	0.0418	NM_025282	NM_025282	Mus musculus myocyte enhancer factor 2C (Mef2c), mRNA [NM_025282]
A_52_P528371	1.918	0.0443	NAP122751-1		
A_51_P210811	1.701	0.046	AK089446	AK089446	Mus musculus B6-derived CD11 +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F730031I09 product:hypothetical protein, full insert sequence [AK089446]
A_52_P456811	1.64	0.0433	AK053813	AK053813	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130309O17 product:endothelial differentiation, sphingolipid G-protein-coupled receptor, 5, full insert sequence. [AK053813]
A_52_P76492	-2.16	0.0415	AV036172	AV036172	AV036172 AV036172 Mus musculus adult C57BL/6J placenta Mus musculus cDNA clone 1600017H06, mRNA sequence [AV036172]
A_51_P361672	-2.174	0.0252	AK047998	AK047998	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130028L17 product:hypothetical protein, full insert sequence. [AK047998]
A_51_P307322	-2.433	0.0306	NM_009030	NM_009030	Mus musculus retinoblastoma binding protein 4 (Rbbp4), mRNA [NM_009030]
A_51_P412302	-2.433	0.0215	AK013783	AK013783	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:2900074J03 product:inferred: ubiquitin specific protease {Homo sapiens}, full insert sequence. [AK013783]
A_51_P246772	-2.558	0.0261	NM_030261	NM_030261	Mus musculus sestrin 3 (Sesn3), mRNA [NM_030261]
A_52_P418762	-2.564	0.0382	AK007939	AK007939	Mus musculus 10 day old male pancreas cDNA, RIKEN full-length enriched library, clone:1810063B05 product:unknown EST, full insert sequence. [AK007939]
A_52_P909312	-2.597	0.0467	NM_011694	NM_011694	Mus musculus voltage-dependent anion channel 1 (Vdac1), mRNA [NM_011694]
A_52_P373972	-2.725	0.0282	XM_140436	XM_140436	PREDICTED: Mus musculus ring finger and KH domain containing 2 (Rkhd2), mRNA [XM_140436]
A_51_P330512	-2.849	0.0204	NM_147020	NM_147020	Mus musculus olfactory receptor 1515 (Olfr1515), mRNA [NM_147020]
A_51_P467412	-2.899	0.0287	NM_008722	NM_008722	Mus musculus nucleophosmin 1 (Npm1), mRNA [NM_008722]
A_52_P649782	-2.967	0.0493	AK038897	AK038897	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230073E17 product:ankyrin repeat and SOCS box-containing protein 3, full insert sequence. [AK038897]
A_51_P460862	-3.077	0.0287	NM_145401	NM_145401	Mus musculus protein kinase, AMP-activated, gamma 2 non-catalytic subunit (Prkag2), mRNA [NM_145401]
A_51_P210952	-3.115	0.0381	NM_011693	NM_011693	Mus musculus vascular cell adhesion molecule 1 (Vcam1), mRNA [NM_011693]
A_51_P214302	-3.125	0.0448	NM_145462	NM_145462	Mus musculus DNA segment, Chr 14, ERATO Doi 500, expressed (D14Ertd500e), mRNA [NM_145462]
A_52_P614512	-3.311	0.0195	AK014194	AK014194	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110048G13 product:unknown EST, full insert sequence. [AK014194]
A_51_P378772	-3.333	0.0435	NM_029090	NM_029090	Mus musculus RIKEN cDNA 1200013P24 gene (1200013P24Rik), mRNA [NM_029090]
A_52_P495862	-3.333	0.0398	NM_010658	NM_010658	Mus musculus v-maf musculoaponeurotic fibrosarcoma oncogene family, protein B (avian) (Mafb), mRNA [NM_010658]
A_52_P634852	-3.333	0.0139	NM_011779	NM_011779	Mus musculus coronin, actin binding protein 1C (Coro1c), mRNA [NM_011779]
A_52_P432932	-3.367	0.0344	NAP000003-006		
A_52_P555082	-3.413	0.0467	NAP112590-1		
A_51_P162252	-3.436	0.0416	NM_011695	NM_011695	Mus musculus voltage-dependent anion channel 2 (Vdac2), mRNA [NM_011695]
A_51_P438142	-3.436	0.0381	NM_153058	NM_153058	Mus musculus microtubule-associated protein, RP/EB family, member 2 (Mapre2), mRNA [NM_153058]
A_51_P312842	-3.448	0.0287	NM_023605	NM_023605	Mus musculus f-box only protein 9 (Fbxo9), mRNA [NM_023605]
A_52_P652312	-3.534	0.0346	NM_153058	NM_153058	Mus musculus microtubule-associated protein, RP/EB family, member 2 (Mapre2), mRNA [NM_153058]
A_51_P318052	-3.584	0.037	NM_146316	NM_146316	Mus musculus olfactory receptor 726 (Olfr726), mRNA [NM_146316]
A_51_P128922	-3.636	0.0367	NM_020559	NM_020559	Mus musculus aminolevulinic acid synthase 1 (Alas1), mRNA [NM_020559]
A_51_P455092	-3.774	0.0284	XM_129769	XM_129769	PREDICTED: carbamoyl-phosphate synthetase 1 [Mus musculus], mRNA sequence [XM_129769]
A_51_P235812	-3.861	0.0205	AF024519	AF024519	Mus musculus glucocorticoid-induced leucine zipper GILZ protein mRNA, complete cds. [AF024519]
A_52_P562262	-3.861	0.0453	ENSMUST00000036819		
A_52_P681552	-3.891	0.0456	XM_149291	XM_149291	PREDICTED: similar to N-acetylated alpha-linked acidic dipeptidase 2 [Mus musculus], mRNA sequence [XM_149291]
A_51_P328812	-3.937	0.0238	NM_183152	NM_183152	Mus musculus RIKEN cDNA 6330514A18 gene (6330514A18Rik), mRNA [NM_183152]
A_51_P295892	-4.049	0.014	NM_028934	NM_028934	Mus musculus RIKEN cDNA 4930452B06 gene (4930452B06Rik), mRNA [NM_028934]
A_52_P308862	-4.082	0.027	NM_025926	NM_025926	Mus musculus DnaJ (Hsp40) homolog, subfamily B, member 4 (Dnajb4), mRNA [NM_025926]
A_51_P249312	-4.098	0.0414	NM_028705	NM_028705	Mus musculus hect domain and RLD 3 (Herc3), mRNA [NM_028705]
A_51_P279432	-4.132	0.048	NM_029662	NM_029662	Mus musculus major facilitator superfamily domain containing 2 (Mfsd2), mRNA [NM_029662]
A_51_P319072	-4.149	0.0415	NM_026159	NM_026159	Mus musculus RIKEN cDNA 0610039N19 gene (0610039N19Rik), mRNA [NM_026159]
A_52_P102782	-4.184	0.0332	AK014500	AK014500	Mus musculus 14 days embryo liver cDNA, RIKEN full-length enriched library, clone:4432416O06 product:cytoplasmic dynein heavy chain, full insert sequence. [AK014500]
A_51_P327492	-4.202	0.0467	NM_007468	NM_007468	Mus musculus apolipoprotein A-IV (Apoa4), mRNA [NM_007468]
A_51_P376202	-4.237	0.049	NM_146948	NM_146948	Mus musculus olfactory receptor 342 (Olfr342), mRNA [NM_146948]
A_52_P655502	-4.274	0.0495	AK082719	AK082719	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230095I09 product:hyperpolarization-activated, cyclic nucleotide-gated K+ 3, full insert sequence. [AK082719]
A_52_P359502	-4.292	0.0365	AK009645	AK009645	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310036D04 product:unknown EST, full insert sequence. [AK009645]
A_52_P129752	-4.329	0.0332	NM_020559	NM_020559	Mus musculus aminolevulinic acid synthase 1 (Alas1), mRNA [NM_020559]
A_52_P354242	-4.405	0.0367	NM_175124	NM_175124	Mus musculus leucine rich repeat containing 28 (Lrrc28), mRNA [NM_175124]
A_51_P398022	-4.63	0.0295	NM_144803	NM_144803	Mus musculus cholinergic receptor, nicotinic, alpha polypeptide 2 (neuronal) (Chrna2), mRNA [NM_144803]
A_52_P803052	-4.63	0.0331	NAP107236-1		
A_51_P259972	-4.673	0.0433	NM_023113	NM_023113	Mus musculus aspartoacylase (aminoacylase) 2 (Aspa), mRNA [NM_023113]
A_52_P333822	-4.739	0.0205	XM_356935	XM_356935	PREDICTED: Mus musculus similar to hemoglobin alpha chain - slender loris (LOC383229), mRNA [XM_356935]
A_51_P362532	-4.902	0.0491	XM_143616	XM_143616	PREDICTED: hypothetical protein XP_143616 [Mus musculus], mRNA sequence [XM_143616]
A_51_P400262	-4.95	0.0367	NM_172479	NM_172479	Mus musculus solute carrier family 38, member 5 (Slc38a5), mRNA [NM_172479]
A_51_P440312	-4.95	0.0225	NM_145572	NM_145572	Mus musculus glycogen synthase 2 (Gys2), mRNA [NM_145572]
A_51_P199402	-5.181	0.0332	NM_021371	NM_021371	Mus musculus calneuron 1 (Caln1), mRNA [NM_021371]
A_51_P130012	-5.348	0.0205	NM_007900	NM_007900	Mus musculus ect2 oncogene (Ect2), mRNA [NM_007900]
A_51_P273682	-5.525	0.0352	NM_028803	NM_028803	Mus musculus glucan (1,4-alpha-), branching enzyme 1 (Gbe1), mRNA [NM_028803]
A_52_P535122	-5.682	0.0264	BU609786	BU609786	UI-M-DJ2-bvz-j-24-0-UI.r1 NIH_BMAP_DJ2 Mus musculus cDNA clone UI-M-DJ2-bvz-j-24-0-UI 5', mRNA sequence [BU609786]
A_51_P299282	-5.882	0.035	NM_053261	NM_053261	Mus musculus inositol (myo)-1(or 4)-monophosphatase 2 (Impa2), mRNA [NM_053261]
A_52_P483102	-5.917	0.0229	NM_015763	NM_015763	Mus musculus lipin 1 (Lpin1), transcript variant 2, mRNA [NM_015763]
A_51_P181892	-6.024	0.0274	NM_028113	NM_028113	Mus musculus RIKEN cDNA 2600011E07 gene (2600011E07Rik), mRNA [NM_028113]
A_51_P479812	-6.289	0.0299	NM_028894	NM_028894	Mus musculus ring finger protein 127 (Rnf127), mRNA [NM_028894]
A_52_P106292	-6.329	0.0418	NM_172587	NM_172587	Mus musculus CDC14 cell division cycle 14 homolog B (S. cerevisiae) (Cdc14b), mRNA [NM_172587]
A_51_P111332	-6.452	0.0299	NM_00101037	NM_00101378	Mus musculus aldo-keto reductase family 1, member C19 (Akr1c19), mRNA [NM_001013785]
A_51_P273602	-6.536	0.0215	NM_146125	NM_146125	Mus musculus inositol 1,4,5-trisphosphate 3-kinase A (Itpka), mRNA [NM_146125]
A_51_P302202	-6.536	0.0215	NM_007771	NM_007771	Mus musculus cryptochrome 1 (photolyase-like) (Cry1), mRNA [NM_007771]
A_52_P483102	-6.623	0.0241	NM_015763	NM_015763	Mus musculus lipin 1 (Lpin1), transcript variant 2, mRNA [NM_015763]
A_51_P510762	-6.711	0.0452	AK040702	AK040702	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530016O06 product:hypothetical SUR2-type hydroxylase/desaturase catalytic domain containing protein, full insert sequence. [AK040702]
A_52_P265582	-6.711	0.0254	AK003102	AK003102	Mus musculus adult male heart cDNA, RIKEN full-length enriched library, clone:1010001B21 product:unclassifiable, full insert sequence. [AK003102]
A_52_P460832	-6.711	0.0463	NM_177303	NM_177303	Mus musculus RIKEN cDNA B430119L13 gene (B430119L13Rik), mRNA [NM_177303]
A_52_P483102	-6.803	0.0193	NM_015763	NM_015763	Mus musculus lipin 1 (Lpin1), transcript variant 2, mRNA [NM_015763]
A_51_P375202	-7.092	0.0435	AK083150	AK083150	Mus musculus adult male hippocampus cDNA, RIKEN full-length enriched library, clone:C630018D16 product:unknown EST, full insert sequence. [AK083150]
A_52_P215502	-7.092	0.0205	NM_173442	NM_173442	Mus musculus glucosaminyl (N-acetyl) transferase 1, core 2 (Gcnt1), mRNA [NM_173442]
A_52_P130072	-7.246	0.0471	BC094431	BC094431	Mus musculus cDNA clone IMAGE:30659200, containing frame-shift errors [BC094431]
A_52_P433842	-7.246	0.0199	NM_009514	NM_009514	Mus musculus pre-B lymphocyte gene 3 (Vpreb3), mRNA [NM_009514]
A_52_P568892	-7.407	0.0368	NM_010597	NM_010597	Mus musculus potassium voltage-gated channel, shaker-related subfamily, beta member 1 (Kcnab1), mRNA [NM_010597]
A_52_P309492	-7.463	0.0452	NM_025905	NM_025905	Mus musculus RIKEN cDNA 1600012K10 gene (1600012K10Rik), mRNA [NM_025905]

A_52_P42972	-7.519	0.014	NM_008604	NM_008604	Mus musculus membrane metallo endopeptidase (Mme), mRNA [NM_008604]
A_52_P42050	-7.752	0.0252	NM_007771	NM_007771	Mus musculus cryptochrome 1 (photolyase-like) (Cry1), mRNA [NM_007771]
A_51_P25576	-7.937	0.0352	NM_026424	NM_026424	Mus musculus RIKEN cDNA 1500041J02 gene (1500041J02Rik), mRNA [NM_026424]
A_52_P36652	-8.264	0.0497	NM_026424	NM_026424	Mus musculus RIKEN cDNA 1500041J02 gene (1500041J02Rik), mRNA [NM_026424]
A_51_P28293	-8.929	0.0215	NM_011281	NM_011281	Mus musculus RAR-related orphan receptor gamma (Rorc), mRNA [NM_011281]
A_51_P21749	-9.091	0.014	NM_009204	NM_009204	Mus musculus solute carrier family 2 (facilitated glucose transporter), member 4 (Slc2a4), mRNA [NM_009204]
A_52_P66352	-9.434	0.0287	NM_145497	NM_145497	Mus musculus cDNA sequence BC016495 (BC016495), mRNA [NM_145497]
A_52_P48008	-9.709	0.0306	AK003879	AK003879	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1110020P08 product:weakly similar to collagen alpha 1(III) chain (fragment) [Gallus gallus], full insert sequence. [AK003879]
A_51_P45003	-9.901	0.0405	NM_007659	NM_007659	Mus musculus cell division cycle 2 homolog A (S. pombe) (Cdc2a), mRNA [NM_007659]
A_51_P17604	-10.02	0.0204	NM_013631	NM_013631	Mus musculus pyruvate kinase liver and red blood cell (Pklr), mRNA [NM_013631]
A_51_P39498	-10.537	0.014	AF180471	AF180471	Mus musculus Lpin1 (Kiaa0188) mRNA, complete cds [AF180471]
A_51_P51470	-13.459	0.0264	NM_025565	NM_025565	Mus musculus spindle pole body component 25 homolog (S. cerevisiae) (Spbc25), mRNA [NM_025565]
A_52_P20868	-13.605	0.0224	M10466	M10466	Mouse alpha-globin mRNA. [M10466]
A_52_P27853	-14.472	0.026	NM_008218	NM_008218	Mus musculus hemoglobin alpha, adult chain 1 (Hba-a1), mRNA [NM_008218]
A_52_P25981	-15.408	0.0205	NM_029692	NM_029692	Mus musculus uridine phosphorylase 2 (Upp2), mRNA [NM_029692]
A_51_P37447	-16.447	0.0228	NM_008220	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_51_P25609	-16.75	0.0237	NM_011943	NM_011943	Mus musculus mitogen activated protein kinase kinase 6 (Map2k6), mRNA [NM_011943]
A_52_P21390	-17.094	0.0233	NM_008220	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_51_P38723	-17.483	0.0195	NM_021524	NM_021524	Mus musculus pre-B-cell colony-enhancing factor 1 (Pbef1), mRNA [NM_021524]
A_52_P26034	-17.889	0.0205	NM_008220	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_52_P11014	-20.79	0.0215	AI595560	AI595560	vc99c10.x1 Knowles Solter mouse 2 cell Mus musculus cDNA clone IMAGE:791154 3'. [AI595560]
A_51_P37446	-22.321	0.00669	NM_008220	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_52_P16007	-25.84	0.0119	NM_009516	NM_009516	Mus musculus wee 1 homolog (S. pombe) (Wee1), mRNA [NM_009516]
A_51_P17266	-27.473	0.0233	NM_016808	NM_016808	Mus musculus ubiquitin specific protease 2 (Usp2), transcript variant 1, mRNA [NM_016808]
A_52_P16302	-28.09	0.0237	NM_182959	NM_182959	Mus musculus solute carrier family 17 (sodium-dependent inorganic phosphate cotransporter), member 8 (Slc17a8), mRNA [NM_182959]
A_52_P6328	-29.499	0.0226	NM_021524	NM_021524	Mus musculus pre-B-cell colony-enhancing factor 1 (Pbef1), mRNA [NM_021524]
A_52_P25548	-41.667	0.0157	AK081112	AK081112	Mus musculus 10 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:B930089F23 product:inferred: ubiquitin specific protease 2, full insert sequence. [AK081112]
A_52_P30182	-47.619	0.0139	NM_053078	NM_053078	Mus musculus DNA segment, human D4S114 (D0H4S114), mRNA [NM_053078]
A_51_P12389	-68.966	0.0125	NM_053078	NM_053078	Mus musculus DNA segment, human D4S114 (D0H4S114), mRNA [NM_053078]

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Supplemental Table 11A: The 100 strongest up- or downregulated genes in 9 month-old *tg* 1223 livers are shown in comparison to aged matched C57BL/6 livers.
Gene were selected based on a t-test comparison of 9 month-old*tg* 1223 livers in comparison to age-matched C57BL/6 livers with an FDR (false discovery rate) (Benjamini-Hochberg correction) threshold of 0.05. The 100 mRNAs with highest and 100 mRNAs lowest fold change expression between the two liver types were chosen.

AgilentID	FC	*p*-value	RefSeq	Description
A_52_P11569	22.63	0.0313	BB505010	BB505010 RIKEN full-length enriched, 0 day neonate kidney Mus musculus cDNA clone D630050P18 3'. [BB505010]
A_52_P44908	16.14	0.0225	NM_174993	Mus musculus fragile X mental retardation 1 neighbor (Fmr1nb), mRNA [NM_174993]
A_51_P51600	15.74	0.00684	AK018789	Mus musculus adult male cerebellum cDNA, RIKEN full-length enriched library, clone:1500040I13 product:DJ245M18.1 (PLACENTAL PROTEIN DIFF40) (FRAGMENT) homolog [AK018789]
A_52_P21390	12.84	0.0434	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_51_P38926	12.07	0.031	NM_054088	Mus musculus adiponutrin (Adpn), mRNA [NM_054088]
A_51_P37446	11.82	0.0333	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_51_P42048	11.29	0.0376	NM_134246	Mus musculus peroxisomal acyl-CoA thioesterase 2A (Pte2a), mRNA [NM_134246]
A_51_P51601	10.63	0.00144	NM_008745	Mus musculus neurotrophic tyrosine kinase, receptor, type 2 (Ntrk2), transcript variant 2, mRNA [NM_008745]
A_51_P21749	8.417	0.0422	NM_009204	Mus musculus solute carrier family 2 (facilitated glucose transporter), member 4 (Slc2a4), mRNA [NM_009204]
A_51_P31123	7.029	0.0462	XM_484178	PREDICTED: Mus musculus immunoglobulin heavy chain 1a (serum IgG2a) (Igh-1a), mRNA [XM_484178]
A_51_P27198	6.718	0.0183	NM_144936	Mus musculus transmembrane protein 45b (Tmem45b), mRNA [NM_144936]
A_51_P49045	6.24	0.0302	NM_178373	Mus musculus cell death-inducing DFFA-like effector c (Cidec), mRNA [NM_178373]
A_51_P37508	5.552	0.0304	NM_028910	Mus musculus olfactory receptor 701 (Olfr701), mRNA [NM_028910]
A_52_P74106	5.449	0.0174	NM_212451	Mus musculus immunoglobulin heavy chain (gamma polypeptide) (Ighg), mRNA [NM_212451]
A_52_P16007	5.397	0.00663	NM_009516	Mus musculus wee 1 homolog (S. pombe) (Wee1), mRNA [NM_009516]
A_51_P14453	5.344	0.0365	NM_172776	Mus musculus hypothetical protein D630002G06 (D630002G06), mRNA [NM_172776]
A_51_P50967	5.241	0.0225	NM_0010247	Mus musculus similar to immunoglobulin heavy chain variable region (LOC238447), mRNA [NM_001024700]
A_52_P23534	4.808	0.0105	NM_020013	Mus musculus fibroblast growth factor 21 (Fgf21), mRNA [NM_020013]
A_52_P54443	4.492	0.00803	XM_485775	PREDICTED: Mus musculus similar to immunoglobulin light chain precursor (LOC434031), mRNA [XM_485775]
A_51_P27943	4.37	0.0469	NM_029662	Mus musculus major facilitator superfamily domain containing 2 (Mfsd2), mRNA [NM_029662]
A_51_P18764	4.306	0.0256	NM_0010247	Mus musculus similar to immunoglobulin heavy chain variable region (LOC238447), mRNA [NM_001024700]
A_51_P25849	4.152	0.0213	NM_011067	Mus musculus period homolog 3 (Drosophila) (Per3), mRNA [NM_011067]
A_51_P12389	3.955	0.0277	NM_053078	Mus musculus DNA segment, human D4S114 (D0H4S114), mRNA [NM_053078]
A_51_P46344	3.901	0.0194	NM_130450	Mus musculus ELOVL family member 6, elongation of long chain fatty acids (yeast) (Elovl6), mRNA [NM_130450]
A_51_P19409	3.587	0.0172	NM_009381	Mus musculus thyroid hormone responsive SPOT14 homolog (Rattus) (Thrsp), mRNA [NM_009381]
A_51_P18015	3.467	0.0434	NM_0010247	Mus musculus similar to immunoglobulin heavy chain variable region (LOC238447), mRNA [NM_001024700]
A_51_P32749	3.234	0.00454	NM_007468	Mus musculus apolipoprotein A-IV (Apoa4), mRNA [NM_007468]
A_52_P47232	3.026	0.00255	NM_011414	Mus musculus secretory leukocyte protease inhibitor (Slpi), mRNA [NM_011414]
A_52_P90265	3.024	0.021	NM_011671	Mus musculus uncoupling protein 2 (mitochondrial, proton carrier) (Ucp2), mRNA [NM_011671]
A_52_P33382	3.009	0.0466	XM_356935	PREDICTED: Mus musculus similar to hemoglobin alpha chain - slender loris (LOC383229), mRNA [XM_356935]
A_52_P33806	3.008	0.0363	NM_023137	Mus musculus ubiquitin D (Ubd), mRNA [NM_023137]
A_52_P6328	3	0.0352	NM_021524	Mus musculus pre-B-cell colony-enhancing factor 1 (Pbef1), mRNA [NM_021524]
A_51_P23182	2.946	0.039	AK047983	Mus musculus 16 days embryo head cDNA, RIKEN full-length enriched library, clone:C130026I21 product:hypothetical Sp100 domain containing protein, full insert sequence. [AK047983]
A_51_P25576	2.911	0.041	NM_026424	Mus musculus RIKEN cDNA 1500041J02 gene (1500041J02Rik), mRNA [NM_026424]
A_52_P23620	2.853	0.00572	BC058107	Mus musculus RIKEN cDNA 2410089E03 gene, mRNA (cDNA clone MGC:67280 IMAGE:6824838), complete cds. [BC058107]
A_52_P30182	2.824	0.0383	NM_053078	Mus musculus DNA segment, human D4S114 (D0H4S114), mRNA [NM_053078]
A_51_P51608	2.778	0.00943	NM_009345	Mus musculus deoxynucleotidyltransferase, terminal (Dntt), mRNA [NM_009345]
A_51_P14274	2.695	0.0264	NM_172294	Mus musculus sulfatase 1 (Sulf1), mRNA [NM_172294]
A_51_P50067	2.588	0.0262	NM_007769	Mus musculus deleted in malignant brain tumors 1 (Dmbt1), mRNA [NM_007769]
A_51_P15448	2.567	0.0148	NM_145141	Mus musculus Fc receptor-like mucin-like 1 (Fcrlm1), mRNA [NM_145141]
A_52_P67315	2.542	0.0319	NM_178729	Mus musculus F-box and leucine-rich repeat protein 5 (Fbxl5), mRNA [NM_178729]
A_51_P32992	2.454	0.0231	NM_013750	Mus musculus pleckstrin homology-like domain, family A, member 3 (Phlda3), mRNA [NM_013750]
A_52_P12264	2.437	0.0422	NM_175647	Mus musculus doublesex and mab-3 related transcription factor like family A1 (Dmrta1), mRNA [NM_175647]
A_52_P31804	2.271	0.0284	BC023946	Mus musculus acetyl-Coenzyme A carboxylase alpha, mRNA (cDNA clone IMAGE:5151139), with apparent retained intron [BC023946]
A_52_P38582	2.255	0.007	BC052397	Mus musculus sema domain, seven thrombospondin repeats (type 1 and type 1-like), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 5B, [BC052397]
A_51_P24634	2.252	0.0418	NM_022879	Mus musculus myosin, light polypeptide 7, regulatory (Myl7), mRNA [NM_022879]
A_51_P42723	2.225	0.021	NM_183088	Mus musculus RIKEN cDNA 2410018M08 gene (2410018M08Rik), mRNA [NM_183088]
A_51_P57219	2.224	0.0443	NM_145962	Mus musculus pantothenate kinase 3 (Pank3), mRNA [NM_145962]
A_51_P47675	2.19	0.0462	NM_198640	Mus musculus expressed sequence AI324046 (AI324046), mRNA [NM_198640]
A_52_P30949	2.163	0.0443	NM_025905	Mus musculus RIKEN cDNA 1600012K10 gene (1600012K10Rik), mRNA [NM_025905]
A_51_P45027	2.159	0.0418	NM_027237	Mus musculus RIKEN cDNA 2010003K11 gene (2010003K11Rik), mRNA [NM_027237]
A_51_P32749	2.055	0.0166	NM_007468	Mus musculus apolipoprotein A-IV (Apoa4), mRNA [NM_007468]
A_51_P32112	2.053	0.0304	NM_007988	Mus musculus fatty acid synthase (Fasn), mRNA [NM_007988]
A_52_P32849	2.024	0.0293		
A_52_P66352	2.01	0.049	NM_145497	Mus musculus cDNA sequence BC016495 (BC016495), mRNA [NM_145497]
A_52_P23172	2.003	0.0444	U96752	Mus musculus major histocompability complex Q1b mRNA, complete cds. [U96752]
A_52_P33535	1.988	0.0163	AK018456	Mus musculus 16 days embryo lung cDNA, RIKEN full-length enriched library, clone:8430435B07 product:unclassifiable, full insert sequence [AK018456]
A_52_P66224	1.957	0.0104	NM_0010123	Mus musculus expressed sequence AI132487 (AI132487), mRNA [NM_001012310]
A_52_P26606	1.95	0.00736	NM_177715	Mus musculus potassium channel tetramerisation domain containing 12 (Kctd12), mRNA [NM_177715]
A_52_P85805	1.937	0.00977	NM_009525	Mus musculus wingless-related MMTV integration site 5B (Wnt5b), mRNA [NM_009525]
A_51_P27255	1.924	0.0231	NM_011498	Mus musculus basic helix-loop-helix domain containing, class B2 (Bhlhb2), mRNA [NM_011498]
A_51_P15544	1.921	0.0365	NM_011076	Mus musculus ATP-binding cassette, sub-family B (MDR/TAP), member 1A (Abcb1a), mRNA [NM_011076]
A_52_P10629	1.913	0.0105	NM_172587	Mus musculus CDC14 cell division cycle 14 homolog B (S. cerevisiae) (Cdc14b), mRNA [NM_172587]
A_51_P40863	1.89	0.0203	NM_015747	Mus musculus solute carrier family 20, member 1 (Slc20a1), mRNA [NM_015747]
A_51_P43264	1.867	0.0298	NM_021274	Mus musculus chemokine (C-X-C motif) ligand 10 (Cxcl10), mRNA [NM_021274]
A_51_P35470	1.853	0.0365	NM_010094	Mus musculus left right determination factor 1 (Lefty1), mRNA [NM_010094]
A_51_P40168	1.848	0.0469	NM_145375	Mus musculus transmembrane 6 superfamily member 1 (Tm6sf1), mRNA [NM_145375]
A_52_P61524	1.839	0.00825	AK087744	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330014L15 product:unknown EST, full insert sequence. [AK087744]
A_52_P32294	1.821	0.0446		
A_51_P49715	1.819	0.0479	NM_013518	Mus musculus fibroblast growth factor 9 (Fgf9), mRNA [NM_013518]
A_52_P35412	1.78	0.00983	NM_026967	Mus musculus Ras homolog enriched in brain like 1 (Rhebl1), mRNA [NM_026967]
A_51_P48332	1.762	0.00983	NM_008979	Mus musculus protein tyrosine phosphatase, non-receptor type 22 (lymphoid) (Ptpn22), mRNA [NM_008979]
A_51_P28276	1.746	0.0334	NM_011066	Mus musculus period homolog 2 (Drosophila) (Per2), mRNA [NM_011066]
A_51_P22037	1.745	0.00726	NM_133751	Mus musculus RIKEN cDNA 1700060H10 gene (1700060H10Rik), mRNA [NM_133751]
A_51_P52058	1.71	0.0302	NM_026967	Mus musculus Ras homolog enriched in brain like 1 (Rhebl1), mRNA [NM_026967]
A_52_P40570	1.697	0.0384	AK041034	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530065E19 product:hypothetical protein, full insert sequence. [AK041034]
A_52_P52557	1.69	0.0181	NM_010642	Mus musculus kallikrein 21 (Klk21), mRNA [NM_010642]
A_51_P10460	1.679	0.0346	NM_030098	Mus musculus ribonuclease, RNase A family, 6 (Rnase6), mRNA [NM_030098]
A_52_P67711	1.677	0.0406	NM_011210	Mus musculus protein tyrosine phosphatase, receptor type, C (Ptprc), mRNA [NM_011210]
A_51_P29710	1.655	0.0356	NM_011671	Mus musculus uncoupling protein 2 (mitochondrial, proton carrier) (Ucp2), mRNA [NM_011671]
A_51_P23501	1.65	0.0412	AK008551	Mus musculus adult male small intestine cDNA, RIKEN full-length enriched library, clone:2010309G21 product:Mus musculus germline J and C regions of immuoglobulin lambda-2 and germline J and C regions of the immuoglobulin lambda-4 pseudo-gene
A_51_P37191	1.646	0.0321	NM_177715	Mus musculus potassium channel tetramerisation domain containing 12 (Kctd12), mRNA [NM_177715]
A_51_P48926	1.62	0.0403	AJ237585	Mus musculus mRNA for hypothetical protein expressed in thymocytes (clone MFT.M05.13 [AJ237585]
A_51_P50732	1.616	0.0205	NM_198295	Mus musculus thioredoxin domain containing 10 (Txndc10), mRNA [NM_198295]
A_51_P22872	1.61	0.0445	NM_009147	Mus musculus SEC23A (S. cerevisiae) (Sec23a), mRNA [NM_009147]
A_51_P33480	1.579	0.0274	AK014771	Mus musculus 0 day neonate head cDNA, RIKEN full-length enriched library, clone:4833426H19 product:weakly similar to DJ388M5.4 (PUTATIVE GS2 LIKE PROTEIN) [Homo sapiens], full insert sequence. [AK014771]
A_52_P66819	1.573	0.0274	NM_021461	Mus musculus MAP kinase-interacting serine/threonine kinase 1 (Mknk1), mRNA [NM_021461]
A_52_P33841	1.572	0.0183	NM_011725	Mus musculus X-linked lymphocyte-regulated complex (Xlr), mRNA [NM_011725]
A_52_P57071	1.566	0.0309	NM_010379	Mus musculus histocompatibility 2, class II antigen A, beta 1 (H2-Ab1), mRNA [NM_010379]
A_51_P46580	1.564	0.041	NM_178651	Mus musculus solute carrier family 30 (zinc transporter), member 9 (Slc30a9), mRNA [NM_178651]
A_51_P51435	1.557	0.0258	NM_011725	Mus musculus X-linked lymphocyte-regulated complex (Xlr), mRNA [NM_011725]
A_52_P82092	1.532	0.0174	AI450469	mu72a05.y1 Soares mouse lymph node NbMLN Mus musculus cDNA clone IMAGE:644912 5'. [AI450469]
A_51_P27188	1.502	0.0428	NM_016678	Mus musculus reversion-inducing-cysteine-rich protein with kazal motifs (Reck), mRNA [NM_016678]
A_52_P26613	1.492	0.0305	NM_008013	Mus musculus fibrinogen-like protein 2 (Fgl2), mRNA [NM_008013]
A_52_P16727	1.477	0.033	NM_172308	Mus musculus methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1-like (Mthfd1l), mRNA [NM_172308]
A_51_P11487	1.474	0.0248	NM_026079	Mus musculus inhibitor of kappa light polypeptide enhancer in B-cells, kinase complex-associated protein (Ikbkap), mRNA [NM_026079]

A_52_P51769	1.468	0.0144	AK054507	Mus musculus 2 days pregnant adult female ovary cDNA, RIKEN full-length enriched library, clone:E330033P12 product:unknown EST, full insert sequence. [AK054507]
A_51_P47932	1.437	0.0356	NM_080575	Mus musculus acetyl-Coenzyme A synthetase 2 (AMP forming)-like (Acas2l), mRNA [NM_080575]
A_52_P33278	1.405	0.0407	AK016231	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930565N07 product:Mus musculus, clone MGC:8305 IMAGE:3593825, mRNA, complete cds, full insert sequence. [AK016231]
A_51_P50220	-2.857	0.00139	AK035099	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430088F20 product:hypothetical Ankyrin repeat profile/Serine-rich region/Ankyrin-repeat/Ankyrin repeat region circular
A_52_P30632	-2.857	0.0482	AK050118	Mus musculus adult male liver tumor cDNA, RIKEN full-length enriched library, clone:C730016P09 product:unknown EST, full insert sequence [AK050118]
A_51_P19333	-2.865	0.0407	NM_016773	Mus musculus nucleobindin 2 (Nucb2), mRNA [NM_016773]
A_52_P36597	-2.865	0.0161	NM_0010011	Mus musculus cDNA sequence BC066028 (BC066028), mRNA [NM_001001180]
A_51_P23581	-2.874	0.0196	AF024519	Mus musculus glucocorticoid-induced leucine zipper GILZ protein mRNA, complete cds. [AF024519]
A_52_P47905	-2.874	0.0321	NM_010672	Mus musculus keratin associated protein 6-1 (Krtap6-1), mRNA [NM_010672]
A_51_P39444	-2.882	0.0372	AK032385	Mus musculus adult male olfactory brain cDNA, RIKEN full-length enriched library, clone:6430531D06 product:similar to ELKS [Homo sapiens], full insert sequence. [AK032385]
A_51_P22151	-2.89	0.0247	NM_029784	Mus musculus RIKEN cDNA 6430514L14 gene (6430514L14Rik), mRNA [NM_029784]
A_52_P27172	-2.89	0.0469	NM_0010039	Mus musculus reticulon 3 (Rtn3), transcript variant 1, mRNA [NM_001003934]
A_52_P42465	-2.89	0.0103	AK052336	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330030I03 product:similar to ARG/ABL-INTERACTING PROTEIN ARGBP2A [Homo sapiens], full insert sequence. [AK052336]
A_51_P12002	-2.933	0.0183	AK004863	Mus musculus adult male liver cDNA, RIKEN full-length enriched library, clone:1300002P07 product:similar to ALCOHOL DEHYDROGENASE 2 (EC 1.1.1.1) [Peromyscus maniculatus], full insert sequence. [AK004863]
A_51_P43104	-2.933	0.00983	NM_009182	Mus musculus ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 3 (St8sia3), mRNA [NM_009182]
A_51_P15150	-2.941	0.00899	NM_207671	Mus musculus zinc finger protein 318 (Zfp318), transcript variant 1, mRNA [NM_207671]
A_52_P14842	-2.941	0.0304	AK080940	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430214H24 product:nuclear factor I/X, full insert sequence. [AK080940]
A_52_P32982	-2.941	0.00719	NM_011877	Mus musculus protein tyrosine phosphatase, non-receptor type 21 (Ptpn21), mRNA [NM_011877]
A_52_P61043	-2.967	0.0304	NM_054078	Mus musculus bromodomain adjacent to zinc finger domain, 2A (Baz2a), mRNA [NM_054078]
A_52_P61903	-2.967	0.000437	AK014174	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110043M12 product:choline kinase, full insert sequence. [AK014174]
A_51_P51425	-2.976	0.0359	NM_023716	Mus musculus RIKEN cDNA 2410129E14 gene (2410129E14Rik), mRNA [NM_023716]
A_52_P81119	-2.976	0.0108	AK029051	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732485H10 product:unknown EST, full insert sequence. [AK029051]
A_52_P14456	-2.985	0.00255	AK129457	Mus musculus mRNA for mKIAA1853 protein [AK129457]
A_51_P21913	-2.994	0.0436	NM_183313	Mus musculus hypothetical protein D930018N13 (D930018N13), mRNA [NM_183313]
A_51_P23894	-3.012	0.019	NM_198160	Mus musculus SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily c, member 2 (Smarcc2), mRNA [NM_198160]
A_52_P60723	-3.012	0.0311	NM_010740	Mus musculus complement component 1, q subcomponent, receptor 1 (C1qr1), mRNA [NM_010740]
A_52_P94401	-3.021	0.0104	NM_177708	Mus musculus reticulon 4 receptor-like 1 (Rtn4rl1), mRNA [NM_177708]
A_51_P43104	-3.03	0.0311	NM_009182	Mus musculus ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 3 (St8sia3), mRNA [NM_009182]
A_51_P43246	-3.049	0.00256	NM_026731	Mus musculus protein phosphatase 1, regulatory (inhibitor) subunit 14A (Ppp1r14a), mRNA [NM_026731]
A_51_P46482	-3.049	0.0179	NM_015787	Mus musculus histone 1, H1e (Hist1h1e), mRNA [NM_015787]
A_52_P43454	-3.049	0.0104	NM_023190	Mus musculus apoptotic chromatin condensation inducer 1 (Acin1), transcript variant 2, mRNA [NM_023190]
A_51_P12584	-3.058	0.00617	NM_145402	Mus musculus transmembrane protein 51 (Tmem51), mRNA [NM_145402]
A_52_P18414	-3.058	0.00515	NM_145564	Mus musculus F-box only protein 21 (Fbxo21), mRNA [NM_145564]
A_51_P23675	-3.086	0.0347	NM_027085	Mus musculus chloride intracellular channel 3 (Clic3), mRNA [NM_027085]
A_52_P13937	-3.086	0.0142	NM_145125	Mus musculus bromodomain and WD repeat domain containing 1 (Brwd1), mRNA [NM_145125]
A_52_P62160	-3.086	0.0455	NM_009450	Mus musculus tubulin, beta 2 (Tubb2), mRNA [NM_009450]
A_51_P33909	-3.096	0.0232	BC031891	Mus musculus serine (or cysteine) proteinase inhibitor, clade A, member 4, pseudogene 1, mRNA (cDNA clone IMAGE:5123840), containing frame-shift errors [BC031891]
A_52_P69867	-3.096	0.023	NM_028292	Mus musculus RIKEN cDNA 2700017M01 gene (2700017M01Rik), mRNA [NM_028292]
A_51_P40560	-3.106	0.0118	NM_010884	Mus musculus N-myc downstream regulated gene 1 (Ndrg1), mRNA [NM_010884]
A_51_P11736	-3.125	0.0428	NM_177201	Mus musculus PHD finger protein 8 (Phf8), mRNA [NM_177201]
A_51_P21950	-3.125	0.00763	NM_177388	Mus musculus solute carrier family 41, member 2 (Slc41a2), mRNA [NM_177388]
A_51_P31190	-3.125	0.039	NM_172498	Mus musculus PTK2 protein tyrosine kinase 2 beta (Ptk2b), mRNA [NM_172498]
A_52_P18060	-3.135	0.0262	NM_175937	Mus musculus cytoplasmic polyadenylation element binding protein 2 (Cpeb2), mRNA [NM_175937]
A_51_P10775	-3.165	0.0231	AK033357	Mus musculus 16 days embryo lung cDNA, RIKEN full-length enriched library, clone:8430403D15 product:unknown EST, full insert sequence. [AK033357]
A_51_P38319	-3.165	0.0264	NM_008804	Mus musculus phosphodiesterase 9A (Pde9a), mRNA [NM_008804]
A_52_P41801	-3.165	0.0111	NM_009652	Mus musculus thymoma viral proto-oncogene 1 (Akt1), mRNA [NM_009652]
A_52_P61699	-3.165	0.00837	NM_180600	Mus musculus RIKEN cDNA 3010021M21 gene (3010021M21Rik), mRNA [NM_180600]
A_52_P30386	-3.175	0.00716	NM_054078	Mus musculus bromodomain adjacent to zinc finger domain, 2A (Baz2a), mRNA [NM_054078]
A_51_P44495	-3.195	0.0115	NM_172953	Mus musculus serine (or cysteine) proteinase inhibitor, clade A, member 5 (Serpina5), mRNA [NM_172953]
A_52_P97348	-3.195	0.0108	BI247908	602959848F1 NCI_CGAP_Li9 Mus musculus cDNA clone IMAGE:5125498 5', mRNA sequence [BI247908]
A_52_P14148	-3.215	0.0294	NM_018869	Mus musculus G protein-coupled receptor kinase 5 (Gprk5), mRNA [NM_018869]
A_51_P26735	-3.236	0.00763	NM_175478	Mus musculus leucine rich repeat and fibronectin type III domain containing 3 (Lrfn3), mRNA [NM_175478]
A_51_P40565	-3.236	0.0347	NM_175342	Mus musculus RIKEN cDNA C330003B14 gene (C330003B14Rik), mRNA [NM_175342]
A_51_P33826	-3.247	0.0233	NM_011619	Mus musculus troponin T2, cardiac (Tnnt2), mRNA [NM_011619]
A_51_P16664	-3.257	0.0129	AK016443	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4931408A02 product:hypothetical D-galactoside/L-rhamnose binding SUEL lectin domain containing protein, full insert sequence. [AK016443]
A_51_P14434	-3.268	0.0196	NM_172442	Mus musculus deltex 4 homolog (Drosophila) (Dtx4), mRNA [NM_172442]
A_51_P31883	-3.268	0.0179	NM_018803	Mus musculus synaptotagmin X (Syt10), mRNA [NM_018803]
A_51_P26809	-3.279	0.00515	NM_009255	Mus musculus serine (or cysteine) proteinase inhibitor, clade E, member 2 (Serpine2), mRNA [NM_009255]
A_51_P38005	-3.289	0.049	XM_147419	PREDICTED: disco interacting protein 2 homolog [Mus musculus], mRNA sequence [XM_147419]
A_52_P67726	-3.3	0.0287	BC031891	Mus musculus serine (or cysteine) proteinase inhibitor, clade A, member 4, pseudogene 1, mRNA (cDNA clone IMAGE:5123840), containing frame-shift errors [BC031891]
A_51_P34953	-3.322	0.0322	NM_030698	Mus musculus tripartite motif protein 26 (Trim26), transcript variant 2, mRNA [NM_030698]
A_51_P51108	-3.322	0.0299	NM_018869	Mus musculus G protein-coupled receptor kinase 5 (Gprk5), mRNA [NM_018869]
A_51_P16688	-3.333	0.0475	NM_011314	Mus musculus serum amyloid A 2 (Saa2), mRNA [NM_011314]
A_52_P35901	-3.333	0.00195	AK129480	Mus musculus mRNA for mKIAA3015 protein [AK129480]
A_51_P49616	-3.344	0.00515	NM_008295	Mus musculus hydroxysteroid dehydrogenase-5, delta<5>-3-beta (Hsd3b5), mRNA [NM_008295]
A_51_P43083	-3.378	0.00825	NM_008422	Mus musculus potassium voltage gated channel, Shaw-related subfamily, member 3 (Kcnc3), mRNA [NM_008422]
A_52_P58053	-3.46	0.0403	AK076656	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930403E08 product:hypothetical protein, full insert sequence. [AK076656]
A_52_P12239	-3.534	0.0183	XM_147426	PREDICTED: similar to mKIAA0546 protein [Mus musculus], mRNA sequence [XM_147426]
A_52_P66496	-3.546	0.0257		
A_51_P11052	-3.597	0.0231	NM_008882	Mus musculus plexin A2 (Plxna2), mRNA [NM_008882]
A_51_P36783	-3.663	0.049	XM_355574	PREDICTED: guanine nucleotide binding protein, alpha inhibiting 1 [Mus musculus], mRNA sequence [XM_355574]
A_52_P44271	-3.663	0.0334	NM_172399	Mus musculus RIKEN cDNA A930038C07 gene (A930038C07Rik), mRNA [NM_172399]
A_51_P45491	-3.704	0.0183	AK085143	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430043A01 product:SIMILAR TO VESICLE-ASSOCIATED CALMODULIN-BINDING PROTEIN homolog [Mus musculus], full insert sequence [AK085143]
A_51_P13733	-3.731	0.00454	NM_009864	Mus musculus cadherin 1 (Cdh1), mRNA [NM_009864]
A_51_P34154	-3.731	0.00258	NM_010068	Mus musculus DNA methyltransferase 3B (Dnmt3b), transcript variant 3, mRNA [NM_010068]
A_52_P53062	-3.774	0.0224	AB050203	Mus musculus Capn8 mRNA for stomach specific calpain nCL-2', complete cds. [AB050203]
A_51_P50840	-3.846	0.00983	NM_177282	Mus musculus microtubule associated monooxygenase, calponin and LIM domain containing 2 (Mical2), mRNA [NM_177282]
A_51_P47888	-3.876	0.00617	NM_146213	Mus musculus cDNA sequence BC026374 (BC026374), mRNA [NM_146213]
A_52_P18414	-3.953	0.0231	NM_008638	Mus musculus methylenetetrahydrofolate dehydrogenase (NAD+ dependent), methenyltetrahydrofolate cyclohydrolase (Mthfd2), mRNA [NM_008638]
A_51_P13131	-4	0.05	NM_027997	Mus musculus serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 9 (Serpina9), mRNA [NM_027997]
A_51_P46400	-4.049	0.0174	NM_021488	Mus musculus ghrelin (Ghrl), mRNA [NM_021488]
A_52_P59746	-4.098	0.049	NM_011386	Mus musculus SKI-like (Skil), mRNA [NM_011386]
A_52_P6070	-4.132	0.007	AK016443	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4931408A02 product:hypothetical D-galactoside/L-rhamnose binding SUEL lectin domain containing protein, full insert sequence. [AK016443]
A_51_P40081	-4.167	0.0189	NM_175543	Mus musculus RAB11 family interacting protein 4 (class II) (Rab11fip4), mRNA [NM_175543]
A_51_P31590	-4.255	0.0231	NM_011817	Mus musculus growth arrest and DNA-damage-inducible 45 gamma (Gadd45g), mRNA [NM_011817]
A_51_P48621	-4.484	0.0363	NM_175638	Mus musculus protein kinase, lysine deficient 4 (Prkwnk4), mRNA [NM_175638]
A_51_P12948	-4.525	0.00983	NM_023052	Mus musculus chemokine (C-C motif) ligand 21c (leucine) (Ccl21c), mRNA [NM_023052]
A_52_P32936	-4.525	0.0166	NM_0010255	Mus musculus choline kinase alpha (Chka), transcript variant 2, mRNA [NM_001025566]
A_51_P14292	-4.762	0.0385	NM_013490	Mus musculus choline kinase alpha (Chka), transcript variant 1, mRNA [NM_013490]
A_51_P41149	-5.376	0.0227	AK015502	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4930465A12 product:hypothetical protein, full insert sequence. [AK015502]
A_51_P45620	-5.464	0.0356	NM_011575	Mus musculus trefoil factor 3, intestinal (Tff3), mRNA [NM_011575]
A_52_P30316	-5.65	0.0231	NM_017379	Mus musculus tubulin, alpha 8 (Tuba8), mRNA [NM_017379]
A_51_P31504	-5.814	0.0108	NM_016847	Mus musculus arginine vasopressin receptor 1A (Avpr1a), mRNA [NM_016847]
A_51_P30227	-6.369	0.0294	NM_007887	Mus musculus deubiquitinating enzyme 1 (Dub1), mRNA [NM_007887]
A_52_P26765	-7.194	0.0174	NM_007489	Mus musculus aryl hydrocarbon receptor nuclear translocator-like (Arntl), mRNA [NM_007489]
A_52_P53673	-7.246	0.0315	NM_0010043	Mus musculus development and differentiation enhancing factor 2 (Ddef2), mRNA [NM_001004364]
A_51_P16035	-7.407	0.0101	AK036142	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630039M02 product:unclassifiable, full insert sequence. [AK036142]
A_51_P32463	-8.065	0.0196	NM_007703	Mus musculus elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 3 (Elovl3), mRNA [NM_007703]
A_52_P62294	-8.065	0.0376	AK034948	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430065F12 product:mitochondrial solute carrier protein, full insert sequence. [AK034948]
A_52_P43766	-8.403	0.0377	NM_013884	Mus musculus chondroitin sulfate proteoglycan 5 (Cspg5), mRNA [NM_013884]
A_52_P50085	-8.621	0.0262	NM_146197	Mus musculus cDNA sequence BC031140 (BC031140), mRNA [NM_146197]

Supplemental Table 11B: The 100 strongest up- or downregulated genes in 9 month-old *tg 1223/Ikk Δ hep* livers are shown in comparison to aged matched C57BL/6 livers.
Gene were selected based on a t-test comparison of 9 month-old*tg 1223/Ikk fΔ hep* livers in comparison to age-matched C57BL/6 livers with an FDR (false discovery rate) (Benjamini-Hochberg correction) threshold of 0.05. The 100 mRNAs with highest and 100 mRNAs lowest fold change expression between the two liver types were chosen.

AgilentID	FC	p-value	RefSeq	Description
A_52_P21486	82.08	8.99E-06	NM_183257	Mus musculus hepcidin antimicrobial peptide 2 (Hamp2), mRNA [NM_183257]
A_51_P24928	19.5	0.0184	NM_011267	Mus musculus regulator of G-protein signaling 16 (Rgs16), mRNA [NM_011267]
A_51_P24930	16.66	0.0391	NM_011994	Mus musculus ATP-binding cassette, sub-family D (ALD), member 2 (Abcd2), mRNA [NM_011994]
A_51_P37446	12.52	0.0176	NM_008220	Mus musculus hemoglobin, beta adult major chain (Hbb-b1), mRNA [NM_008220]
A_51_P32749	12.13	0.0142	NM_007468	Mus musculus apolipoprotein A-IV (Apoa4), mRNA [NM_007468]
A_52_P16007	8.457	0.0429	NM_009516	Mus musculus wee 1 homolog (S. pombe) (Wee1), mRNA [NM_009516]
A_51_P27943	7.948	0.0375	NM_029662	Mus musculus major facilitator superfamily domain containing 2 (Mfsd2), mRNA [NM_029662]
A_51_P45442	7.941	0.00442	AB093296	Mus musculus mRNA for mKIAA1409 protein [AB093296]
A_51_P32749	6.537	0.0053	NM_007468	Mus musculus apolipoprotein A-IV (Apoa4), mRNA [NM_007468]
A_51_P50964	5.891	0.0313	NM_009221	Mus musculus synuclein, alpha (Snca), mRNA [NM_009221]
A_51_P41677	5.14	0.0109	NM_198024	Mus musculus RIKEN cDNA C130037N17 gene (C130037N17Rik), mRNA [NM_198024]
A_52_P64852	4.933	0.00794	NM_172119	Mus musculus deiodinase, iodothyronine type III (Dio3), mRNA [NM_172119]
A_51_P21749	4.765	0.0208	NM_009204	Mus musculus solute carrier family 2 (facilitated glucose transporter), member 4 (Slc2a4), mRNA [NM_009204]
A_52_P16727	4.734	0.0375	NM_172308	Mus musculus methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1-like (Mthfd1l), mRNA [NM_172308]
A_52_P66881	4.439	0.0113	NM_199007	Mus musculus shugoshin-like 2 (S. pombe) (Sgol2), mRNA [NM_199007]
A_52_P24790	4.118	0.0187	BC082551	Mus musculus leptin receptor, mRNA (cDNA clone MGC:105189 IMAGE:30621706), complete cds [BC082551]
A_51_P31868	3.997	0.00793	AF031816	Mus musculus hybrid receptor gp250 precursor, mRNA, partial cds [AF031816]
A_51_P39498	3.649	0.0316	AF180471	Mus musculus Lpin1 (Kiaa0188) mRNA, complete cds [AF180471]
A_52_P48310	3.474	0.0115	NM_015763	Mus musculus lipin 1 (Lpin1), transcript variant 2, mRNA [NM_015763]
A_52_P66728	3.31	0.0498	NM_172856	Mus musculus longevity assurance homolog 6 (S. cerevisiae) (Lass6), mRNA [NM_172856]
A_52_P48310	3.071	0.0429	NM_015763	Mus musculus lipin 1 (Lpin1), transcript variant 2, mRNA [NM_015763]
A_51_P25609	2.979	0.0251	NM_011943	Mus musculus mitogen activated protein kinase kinase 6 (Map2k6), mRNA [NM_011943]
A_52_P51519	2.896	0.0259	AK006574	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700031A10 product:ring finger protein 39, full insert sequence. [AK006574]
A_52_P64978	2.578	0.0145	AK038897	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230073E17 product:ankyrin repeat and SOCS box-containing protein 3, full insert sequence. [AK038897]
A_52_P12975	2.519	0.0454	NM_020559	Mus musculus aminolevulinic acid synthase 1 (Alas1), mRNA [NM_020559]
A_52_P43384	2.482	0.0471	NM_009514	Mus musculus pre-B lymphocyte gene 3 (Vpreb3), mRNA [NM_009514]
A_51_P42858	2.477	0.00714	NM_009647	Mus musculus adenylate kinase 3 alpha-like 1 (Ak3l1), mRNA [NM_009647]
A_51_P11068	2.414	0.0384	NM_009104	Mus musculus ribonucleotide reductase M2 (Rrm2), mRNA [NM_009104]
A_52_P62597	2.403	0.0364	AK035049	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430079B08 product:unknown EST, full insert sequence [AK035049]
A_52_P49643	1.954	0.0257		
A_52_P55715	1.948	0.0127	NM_177368	Mus musculus RIKEN cDNA 8430438D04 gene (8430438D04Rik), mRNA [NM_177368]
A_51_P34212	1.696	0.0452	NM_153392	Mus musculus RIKEN cDNA 4922503N01 gene (4922503N01Rik), mRNA [NM_153392]
A_52_P49350	1.657	0.0331		
A_51_P40487	1.587	0.0413	NM_201639	Mus musculus desmuslin (Dmn), transcript variant 1, mRNA [NM_201639]
A_51_P46744	1.532	0.0385	NM_172453	Mus musculus expressed sequence AI449441 (AI449441), mRNA [NM_172453]
A_51_P16041	1.496	0.0365	NM_178691	Mus musculus RIKEN cDNA 9930028C20 gene (9930028C20Rik), mRNA [NM_178691]
A_51_P50597	-4.348	0.00459	AK038328	Mus musculus 16 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A130096B12 product:unclassifiable, full insert sequence. [AK038328]
A_51_P18354	-4.444	0.0262	X12807	Mouse Sp6 mRNA containing period repeat. [X12807]
A_51_P16979	-4.464	0.0371	XM_354666	PREDICTED: similar to Hypothetical protein KIAA1218 [Mus musculus], mRNA sequence [XM_354666]
A_51_P47888	-4.484	0.0154	NM_146213	Mus musculus cDNA sequence BC026374 (BC026374), mRNA [NM_146213]
A_52_P13545	-4.505	0.00636		Q9ERK2 (Q9ERK2) Neprilysin-like peptidase gamma, partial (3%) [TC1475295]
A_52_P10124	-4.545	0.0331	AK082460	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230052K08 product:unclassifiable, full insert sequence. [AK082460]
A_51_P50209	-4.566	0.0452	BC024137	Mus musculus cDNA sequence BC024137, mRNA (cDNA clone IMAGE:5136153), partial cds [BC024137]
A_52_P25742	-4.587	0.0471	NM_133191	Mus musculus EPS8-like 2 (Eps8l2), mRNA [NM_133191]
A_52_P14148	-4.608	0.00941	NM_018869	Mus musculus G protein-coupled receptor kinase 5 (Gprk5), mRNA [NM_018869]
A_51_P21892	-4.63	0.044	AK003565	Mus musculus 18-day embryo whole body cDNA, RIKEN full-length enriched library, clone:1110008E08 product:hypothetical protein, full insert sequence. [AK003565]
A_52_P86025	-4.63	0.0176	AK085706	Mus musculus 10 days lactation, adult female mammary gland cDNA, RIKEN full-length enriched library, clone:D730020C15 product:unclassifiable, full insert sequence. [AK085706]
A_51_P31818	-4.695	0.0128	XM_159553	PREDICTED: Mus musculus similar to RIKEN cDNA 9530057J20 gene (LOC546232), mRNA [XM_159553]
A_52_P21724	-4.695	0.0268	NM_028292	Mus musculus RIKEN cDNA 2700017M01 gene (2700017M01Rik), mRNA [NM_028292]
A_51_P48471	-4.717	0.0337	AK035336	Mus musculus adult male urinary bladder cDNA, RIKEN full-length enriched library, clone:9530019D10 product:hypothetical protein, full insert sequence. [AK035336]
A_51_P25715	-4.739	0.0481	AK046591	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430114K07 product:hypothetical Uncharacterised protein family Hly-III/UPF0073 containing protein, full insert sequence. [AK046591]
A_51_P22226	-4.762	0.00443	XM_283022	PREDICTED: Mus musculus zinc finger protein, subfamily 1A, 3 (Aiolos) (Zfpn1a3), mRNA [XM_283022]
A_52_P27694	-4.762	0.00539	NM_027419	Mus musculus RIKEN cDNA 2810408A11 gene (2810408A11Rik), mRNA [NM_027419]
A_52_P75584	-4.785	0.0374	AK044272	Mus musculus adult retina cDNA, RIKEN full-length enriched library, clone:A930004L03 product:hypothetical Immunoglobulin structure containing protein, full insert sequence. [AK044272]
A_51_P37576	-4.831	0.0429	X14489	M.musculus thymidylate synthase (TS) gene exons 5 - 7. [X14489]
A_52_P21862	-4.878	0.0101		
A_52_P11961	-4.902	0.0425	AK034829	Mus musculus 12 days embryo embryonic body between diaphragm region and neck cDNA, RIKEN full-length enriched library, clone:9430044C01 product:unclassifiable, full insert sequence. [AK034829]
A_52_P72372	-4.902	0.0383	AK086918	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030011O19 product:unknown EST, full insert sequence. [AK086918]
A_51_P48458	-4.95	0.0375	AK080157	Mus musculus adult male aorta and vein cDNA, RIKEN full-length enriched library, clone:A530072D20 product:unclassifiable, full insert sequence. [AK080157]
A_52_P70793	-4.95	0.0413	AK087356	Mus musculus 0 day neonate lung cDNA, RIKEN full-length enriched library, clone:E030049E21 product:unclassifiable, full insert sequence. [AK087356]
A_51_P19418	-5	0.0115	AK053909	Mus musculus 0 day neonate eyeball cDNA, RIKEN full-length enriched library, clone:E130320D18 product:hypothetical Src homology 3 (SH3) domain profile and Repeat in HS1/Cortactin containing protein, full insert sequence. [AK053909]
A_51_P22578	-5.102	0.0452	NM_173767	Mus musculus RIKEN cDNA 3830422K02 gene (3830422K02Rik), mRNA [NM_173767]
A_51_P50101	-5.102	0.0323	NM_010892	Mus musculus NIMA (never in mitosis gene a)-related expressed kinase 2 (Nek2), mRNA [NM_010892]
A_51_P28920	-5.128	0.0375	NM_080468	Mus musculus leucine-rich repeat-containing G protein-coupled receptor 8 (Lgr8), mRNA [NM_080468]
A_51_P26809	-5.181	0.0145	NM_009255	Mus musculus serine (or cysteine) proteinase inhibitor, clade E, member 2 (Serpine2), mRNA [NM_009255]
A_51_P31190	-5.181	0.0101	NM_172498	Mus musculus PTK2 protein tyrosine kinase 2 beta (Ptk2b), mRNA [NM_172498]
A_52_P31636	-5.181	0.0366		
A_51_P34733	-5.208	0.00734	AK012530	Mus musculus 11 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2700078F24 product:unknown EST, full insert sequence. [AK012530]
A_51_P19211	-5.236	0.0429	NM_0010247	Mus musculus gene model 293, (NCBI) (Gm293), mRNA [NM_001024701]
A_52_P51255	-5.263	0.0053	AK131109	Mus musculus premature mRNA for miFLJ00012 protein [AK131109]
A_51_P17192	-5.291	0.00865	AK041629	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630025O09 product:hypothetical protein, full insert sequence. [AK041629]
A_52_P32972	-5.348	0.00912	NM_144550	Mus musculus DNA segment, Chr 16, ERATO Doi 480, expressed (D16Ertd480e), mRNA [NM_144550]
A_51_P20977	-5.376	0.044	NM_011127	Mus musculus paired related homeobox 1 (Prrx1), transcript variant 1, mRNA [NM_011127]
A_52_P43092	-5.376	0.00943	AK042386	Mus musculus 3 days neonate thymus cDNA, RIKEN full-length enriched library, clone:A630086P05 product:hypothetical protein, full insert sequence. [AK042386]
A_51_P18827	-5.405	0.0238	NM_054042	Mus musculus CD248 antigen, endosialin (Cd248), mRNA [NM_054042]
A_52_P54487	-5.435	0.0334	AK122283	Mus musculus mRNA for mKIAA0439 protein [AK122283]
A_51_P46766	-5.495	0.0429	NM_019987	Mus musculus intestinal cell kinase (Ick), mRNA [NM_019987]
A_52_P44523	-5.495	0.0469	NM_011123	Mus musculus proteolipid protein (myelin) 1 (Plp1), mRNA [NM_011123]
A_51_P26735	-5.618	0.0429	NM_175478	Mus musculus leucine rich repeat and fibronectin type III domain containing 3 (Lrfn3), mRNA [NM_175478]
A_51_P34952	-5.618	0.0436	NM_029145	Mus musculus ribonuclease, RNase A family, 10 (non-active) (Rnase10), mRNA [NM_029145]
A_52_P23953	-5.747	0.0405	NM_181595	Mus musculus protein phosphatase 1, regulatory (inhibitor) subunit 9A (Ppp1r9a), mRNA [NM_181595]
A_51_P18695	-5.78	0.00734	NM_009618	Mus musculus a disintegrin and metalloprotease domain 2 (Adam2), mRNA [NM_009618]
A_51_P38182	-5.78	0.0142	NM_008046	Mus musculus follistatin (Fst), mRNA [NM_008046]
A_51_P32248	-5.814	0.0408	AK052698	Mus musculus 0 day neonate kidney cDNA, RIKEN full-length enriched library, clone:D630026G14 product:hypothetical protein, full insert sequence. [AK052698]
A_51_P35406	-5.848	0.0193	NM_011197	Mus musculus prostaglandin F2 receptor negative regulator (Ptgfrn), mRNA [NM_011197]
A_51_P21135	-5.988	0.0137	NM_146358	Mus musculus olfactory receptor 677 (Olfr677), mRNA [NM_146358]
A_52_P42465	-6.098	0.0429	AK052336	Mus musculus 13 days embryo heart cDNA, RIKEN full-length enriched library, clone:D330030I03 product:similar to ARG/ABL-INTERACTING PROTEIN ARGBP2A [Homo sapiens], full insert sequence. [AK052336]
A_52_P46223	-6.098	0.0331	AK084087	Mus musculus 12 days embryo spinal ganglion cDNA, RIKEN full-length enriched library, clone:D130085P08 product:unknown EST, full insert sequence. [AK084087]
A_52_P20438	-6.211	0.0368	NM_175186	Mus musculus lin-9 homolog (C. elegans) (Lin9), mRNA [NM_175186]
A_51_P27610	-6.25	0.0421	NM_173022	Mus musculus cDNA sequence BC048403 (BC048403), mRNA [NM_173022]
A_52_P11477	-6.289	0.0272	AK034071	Mus musculus adult male diencephalon cDNA, RIKEN full-length enriched library, clone:9330154C14 product:unclassifiable, full insert sequence. [AK034071]
A_51_P14292	-6.329	0.0365	NM_013490	Mus musculus choline kinase alpha (Chka), transcript variant 1, mRNA [NM_013490]
A_52_P57247	-6.329	0.0237	AK089247	Mus musculus NOD-derived CD11c +ve dendritic cells cDNA, RIKEN full-length enriched library, clone:F630104J01 product:RETINOL DEHYDROGENASE homolog [Rattus norvegicus], full insert sequence [AK089247]

A_51_P51425	-6.369	0.0246	NM_023716	Mus musculus RIKEN cDNA 2410129E14 gene (2410129E14Rik), mRNA [NM_023716]
A_52_P42004	-6.369	0.00995	NM_013490	Mus musculus choline kinase alpha (Chka), transcript variant 1, mRNA [NM_013490]
A_51_P37990	-6.579	0.0421	NM_009651	Mus musculus A kinase (PRKA) anchor protein 4 (Akap4), mRNA [NM_009651]
A_52_P29142	-6.579	0.00636	NM_172476	Mus musculus transmembrane channel-like gene family 7 (Tmc7), mRNA [NM_172476]
A_52_P35075	-6.667	0.0311	NM_015730	Mus musculus cholinergic receptor, nicotinic, alpha polypeptide 4 (Chrna4), mRNA [NM_015730]
A_51_P23469	-6.757	0.0429	AK028745	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4732452C17 product:unknown EST, full insert sequence [AK028745]
A_51_P37781	-7.299	0.0165	AK005861	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:1700011E24 product:hypothetical protein, full insert sequence. [AK005861]
A_52_P12579	-7.576	0.0413		
A_52_P55203	-7.692	0.0284	NM_144961	Mus musculus myosin, heavy polypeptide 2, skeletal muscle, adult (Myh2), mRNA [NM_144961]
A_52_P92012	-7.752	0.0278	XM_355574	PREDICTED: guanine nucleotide binding protein, alpha inhibiting 1 [Mus musculus], mRNA sequence [XM_355574]
A_51_P23816	-7.813	0.0376	NM_009217	Mus musculus somatostatin receptor 2 (Sstr2), mRNA [NM_009217]
A_52_P63736	-8	0.0457		PRTP_MOUSE (P16675) Lysosomal protective protein precursor (Cathepsin A) (Carboxypeptidase C) (Protective protein for beta-galactosidase) , partial (82%) [TC1414410]
A_51_P46315	-8.13	0.0423	NM_009809	Mus musculus caspase 14 (Casp14), mRNA [NM_009809]
A_51_P20614	-8.403	0.0322	NM_133733	Mus musculus RIKEN cDNA 9030425E11 gene (9030425E11Rik), mRNA [NM_133733]
A_51_P13959	-8.547	0.0256	NM_0010039	Mus musculus F-box and leucine-rich repeat protein 10 (Fbxl10), transcript variant 1, mRNA [NM_001003953]
A_51_P42708	-8.547	0.00485	NM_0010043	Mus musculus development and differentiation enhancing factor 2 (Ddef2), mRNA [NM_001004364]
A_51_P45062	-8.621	0.0114	NM_009434	Mus musculus pleckstrin homology-like domain, family A, member 2 (Phlda2), mRNA [NM_009434]
A_52_P42525	-8.696	0.00442		
A_51_P27116	-8.772	0.0445	NM_147068	Mus musculus olfactory receptor 166 (Olfr166), mRNA [NM_147068]
A_51_P36144	-9.174	0.0451	NM_028903	Mus musculus RIKEN cDNA 4933425F03 gene (4933425F03Rik), mRNA [NM_028903]
A_52_P11407	-9.346	0.0137	AK089858	Mus musculus activated spleen cDNA, RIKEN full-length enriched library, clone:F830033N10 product:unclassifiable, full insert sequence. [AK089858]
A_52_P63694	-9.346	0.0375	BC030896	Mus musculus platelet-derived growth factor, D polypeptide, mRNA (cDNA clone MGC:31518 IMAGE:4489485), complete cds [BC030896]
A_51_P48223	-9.434	0.0191	NM_138313	Mus musculus Bcl2 modifying factor (Bmf), mRNA [NM_138313]
A_51_P36394	-9.709	0.0462	NM_007669	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), mRNA [NM_007669]
A_52_P11235	-9.709	0.0429	AK038908	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230074D02 product:weakly similar to SUPER CYSTEINE RICH PROTEIN (FRAGMENT) [Homo sapiens], full insert sequence. [AK038908]
A_52_P66338	-10.267	0.0368	AK043698	Mus musculus 10 days neonate cortex cDNA, RIKEN full-length enriched library, clone:A830021G02 product:GL009 homolog [Homo sapiens], full insert sequence. [AK043698]
A_52_P61903	-10.395	0.0401	AK014174	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110043M12 product:choline kinase, full insert sequence. [AK014174]
A_51_P31413	-10.449	0.0375	NM_021481	Mus musculus trehalase (brush-border membrane glycoprotein) (Treh), mRNA [NM_021481]
A_52_P53673	-10.493	0.00865	NM_0010043	Mus musculus development and differentiation enhancing factor 2 (Ddef2), mRNA [NM_001004364]
A_51_P18268	-10.56	4.63E-05	NM_145157	Mus musculus defensin beta 19 (Defb19), mRNA [NM_145157]
A_52_P78423	-11.038	0.00987	AK039175	Mus musculus adult male hypothalamus cDNA, RIKEN full-length enriched library, clone:A230104L24 product:unknown EST, full insert sequence. [AK039175]
A_52_P34066	-11.669	0.023	NM_010800	Mus musculus basic helix-loop-helix domain containing, class B, 8 (Bhlhb8), mRNA [NM_010800]
A_52_P38148	-11.71	0.0145	NM_133903	Mus musculus spondin 2, extracellular matrix protein (Spon2), mRNA [NM_133903]
A_51_P46317	-11.862	0.0278	AK020329	Mus musculus adult male epididymis cDNA, RIKEN full-length enriched library, clone:9230110F15 product:hypothetical protein, full insert sequence. [AK020329]
A_52_P32936	-12.151	0.0327	NM_0010255	Mus musculus choline kinase alpha (Chka), transcript variant 2, mRNA [NM_001025566]
A_51_P26356	-12.563	0.0129	NM_175440	Mus musculus protease, serine 27 (Prss27), mRNA [NM_175440]
A_51_P11693	-12.755	0.0491	NM_133664	Mus musculus ladinin (Lad1), mRNA [NM_133664]
A_51_P49398	-13.123	0.0144	NM_021509	Mus musculus monooxygenase, DBH-like 1 (Moxd1), mRNA [NM_021509]
A_51_P13939	-13.193	0.0273	AK034152	Mus musculus adult male diencephalon cDNA, RIKEN full-length enriched library, clone:9330159N05 product:hypothetical protein, full insert sequence. [AK034152]
A_52_P26765	-14.368	0.000429	NM_007489	Mus musculus aryl hydrocarbon receptor nuclear translocator-like (Arntl), mRNA [NM_007489]
A_51_P16035	-15.848	0.0333	AK036142	Mus musculus 16 days neonate cerebellum cDNA, RIKEN full-length enriched library, clone:9630039M02 product:unclassifiable, full insert sequence. [AK036142]
A_52_P18637	-16.077	0.0364		Q8K0H2 (Q8K0H2) Chpt1 protein, partial (18%) [TC1486688]
A_52_P53062	-18.762	0.0238	AB050203	Mus musculus Capn8 mRNA for stomach specific calpain nCL-2', complete cds. [AB050203]
A_51_P38740	-26.385	0.0496	NM_026535	Mus musculus serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 12 (Serpina12), mRNA [NM_026535]
A_51_P15695	-36.101	0.0382	NM_013459	Mus musculus adipsin (Adn), mRNA [NM_013459]
A_51_P32463	-75.758	0.0176	NM_007703	Mus musculus elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 3 (Elovl3), mRNA [NM_007703]

Haybaeck et al., Supplemental Table 11

Supplemental Table 12A: GO-analysis of the 100 most up- and downregulated mRNAs based on a non-supervised DNA-microarray analysis of 9 month-old *tg* 1223 livers in comparison to aged matched C57BL/6 livers.

Genes were selected based on a t-test comparison of 9 month-old *tg* 1223 livers in comparison to age-matched C57BL/6 livers with an FDR (false discovery rate) (Benjamini-Hochberg correction) threshold of 0.05. The 100 mRNAs with highest and 100 mRNAs with lowest fold change expression between the two liver types were chosen.

Category	Genes in Category	% of Genes in Category	Genes in List in Category	% of Genes in List in Category	p-Value
GO:19538: protein metabolism	3553	22.42	31	30.69	0.0333
GO:44267: cellular protein metabolism	3529	22.27	30	29.7	0.0497
GO:43283: biopolymer metabolism	3230	20.38	29	28.71	0.0284
GO:43412: biopolymer modification	2001	12.63	21	20.79	0.0138
GO:6464: protein modification	1934	12.2	19	18.81	0.0354
GO:44249: cellular biosynthesis	1204	7.597	13	12.87	0.042
GO:16265: death	611	3.855	9	8.911	0.016
GO:8219: cell death	604	3.811	9	8.911	0.0149
GO:6952: defense response	737	4.65	9	8.911	0.0454
GO:12501: programmed cell death	571	3.603	8	7.921	0.0293
GO:6915: apoptosis	562	3.546	8	7.921	0.027
GO:6955: immune response	604	3.811	8	7.921	0.0389
GO:51186: cofactor metabolism	217	1.369	6	5.941	0.00265
GO:6732: coenzyme metabolism	191	1.205	6	5.941	0.00139
GO:48534: hemopoietic or lymphoid organ development	165	1.041	4	3.96	0.0212
GO:30097: hemopoiesis	165	1.041	4	3.96	0.0212
GO:51188: cofactor biosynthesis	108	0.681	4	3.96	0.00502
GO:9108: coenzyme biosynthesis	97	0.612	4	3.96	0.00342
GO:6470: protein amino acid dephosphorylation	182	1.148	4	3.96	0.0291
GO:6631: fatty acid metabolism	164	1.035	4	3.96	0.0208
GO:6725: aromatic compound metabolism	109	0.688	4	3.96	0.00519
GO:16311: dephosphorylation	185	1.167	4	3.96	0.0306
GO:1775: cell activation	161	1.016	4	3.96	0.0196
GO:45321: immune cell activation	159	1.003	4	3.96	0.0188
GO:6633: fatty acid biosynthesis	64	0.404	3	2.97	0.0079
GO:16053: organic acid biosynthesis	73	0.461	3	2.97	0.0113
GO:46394: carboxylic acid biosynthesis	73	0.461	3	2.97	0.0113
GO:6752: group transfer coenzyme metabolism	61	0.385	3	2.97	0.00692
GO:8632: apoptotic program	63	0.398	3	2.97	0.00757
GO:48511: rhythmic process	52	0.328	3	2.97	0.00443
GO:7623: circadian rhythm	29	0.183	3	2.97	0.000814
GO:30333: antigen processing	60	0.379	3	2.97	0.00661
GO:30217: T cell differentiation	36	0.227	2	1.98	0.022
GO:9396: folic acid and derivative biosynthesis	6	0.0379	2	1.98	0.000593
GO:42157: lipoprotein metabolism	47	0.297	2	1.98	0.0361
GO:6304: DNA modification	42	0.265	2	1.98	0.0293
GO:6338: chromatin remodeling	50	0.315	2	1.98	0.0404
GO:6760: folic acid and derivative metabolism	10	0.0631	2	1.98	0.00175
GO:30300: regulation of cholesterol absorption	5	0.0315	2	1.98	0.000397
GO:48002: antigen presentation, peptide antigen	10	0.0631	2	1.98	0.00175

GO:7586: digestion	19	0.12	2	1.98	0.00641
GO:44241: lipid digestion	7	0.0442	2	1.98	0.000827
GO:30299: cholesterol absorption	7	0.0442	2	1.98	0.000827
GO:50892: intestinal absorption	8	0.0505	2	1.98	0.0011
GO:15669: gas transport	13	0.082	2	1.98	0.003
GO:15671: oxygen transport	13	0.082	2	1.98	0.003
GO:6839: mitochondrial transport	15	0.0946	2	1.98	0.004
GO:7179: transforming growth factor beta receptor signaling pathway	55	0.347	2	1.98	0.048
GO:17015: regulation of transforming growth factor beta receptor signaling pathway	8	0.0505	2	1.98	0.0011
GO:1824: blastocyst development	4	0.0252	1	0.99	0.0253
GO:1832: blastocyst growth	4	0.0252	1	0.99	0.0253
GO:1833: inner cell mass cell proliferation	4	0.0252	1	0.99	0.0253
GO:46548: retinal rod cell development	2	0.0126	1	0.99	0.0127
GO:30856: regulation of epithelial cell differentiation	7	0.0442	1	0.99	0.0438
GO:30858: positive regulation of epithelial cell differentiation	1	0.00631	1	0.99	0.00637
GO:42093: T-helper cell differentiation	1	0.00631	1	0.99	0.00637
GO:45063: T-helper 1 cell differentiation	1	0.00631	1	0.99	0.00637
GO:48589: developmental growth	8	0.0505	1	0.99	0.0499
GO:42176: regulation of protein catabolism	8	0.0505	1	0.99	0.0499
GO:9894: regulation of catabolism	8	0.0505	1	0.99	0.0499
GO:30497: fatty acid elongation	2	0.0126	1	0.99	0.0127
GO:42095: interferon-gamma biosynthesis	4	0.0252	1	0.99	0.0253
GO:9257: 10-formyltetrahydrofolate biosynthesis	2	0.0126	1	0.99	0.0127
GO:15937: coenzyme A biosynthesis	5	0.0315	1	0.99	0.0315
GO:30162: regulation of proteolysis	5	0.0315	1	0.99	0.0315
GO:16584: nucleosome spacing	5	0.0315	1	0.99	0.0315
GO:9256: 10-formyltetrahydrofolate metabolism	2	0.0126	1	0.99	0.0127
GO:15936: coenzyme A metabolism	7	0.0442	1	0.99	0.0438
GO:1812: positive regulation of type I hypersensitivity	8	0.0505	1	0.99	0.0499
GO:48004: antigen presentation, endogenous peptide antigen	3	0.0189	1	0.99	0.019
GO:48005: antigen presentation, exogenous peptide antigen	7	0.0442	1	0.99	0.0438
GO:15893: drug transport	5	0.0315	1	0.99	0.0315
GO:8333: endosome to lysosome transport	3	0.0189	1	0.99	0.019
GO:45022: early endosome to late endosome transport	6	0.0379	1	0.99	0.0376
GO:7034: vacuolar transport	8	0.0505	1	0.99	0.0499
GO:7041: lysosomal transport	3	0.0189	1	0.99	0.019
GO:7040: lysosome organization and biogenesis	5	0.0315	1	0.99	0.0315
GO:8543: fibroblast growth factor receptor signaling pathway	5	0.0315	1	0.99	0.0315
GO:186: activation of MAPKK activity	5	0.0315	1	0.99	0.0315

Supplemental Table 12B: GO-analysis of the 100 most up- and downregulated mRNAs based on a non-supervised DNA-microarray analysis of 9 month-old *tg* 1223/*Ikk βΔ hep* livers in comparison to aged matched C57BL/6 livers.

Genes were selected based on a t-test comparison of 9 month-old *tg* 1223/*Ikk βΔ hep* livers in comparison to age-matched C57BL/6 livers with an FDR (false discovery rate) (Benjamini-Hochberg correction) threshold of 0.05. The 100 mRNAs with highest and 100 mRNAs with lowest fold change expression between the two liver types were chosen.

Category	Genes in Category	% of Genes in Category	Genes in List in Category	% of Genes in List in Category	p-Value
GO:44260: cellular macromolecule metabolism	3574	22.55	19	33.93	0.0342
GO:19538: protein metabolism	3553	22.42	20	35.71	0.0162
GO:44267: cellular protein metabolism	3529	22.27	19	33.93	0.0303
GO:6508: proteolysis	744	4.695	6	10.71	0.0466
GO:6629: lipid metabolism	631	3.982	7	12.5	0.00654
GO:44255: cellular lipid metabolism	508	3.205	5	8.929	0.0332
GO:51239: regulation of organismal physiological process	182	1.148	3	5.357	0.0265
GO:6631: fatty acid metabolism	164	1.035	3	5.357	0.0202
GO:6725: aromatic compound metabolism	109	0.688	3	5.357	0.00673
GO:51338: regulation of transferase activity	96	0.606	2	3.571	0.0453
GO:45859: regulation of protein kinase activity	96	0.606	2	3.571	0.0453
GO:7178: transmembrane receptor protein serine/threonine kinase signaling pathway	88	0.555	2	3.571	0.0387
GO:46483: heterocycle metabolism	69	0.435	2	3.571	0.0247
GO:6869: lipid transport	68	0.429	3	5.357	0.00178
GO:19935: cyclic-nucleotide-mediated signaling	65	0.41	2	3.571	0.0221
GO:19933: cAMP-mediated signaling	59	0.372	2	3.571	0.0184
GO:7187: G-protein signaling, coupled to cyclic nucleotide second messenger	58	0.366	2	3.571	0.0179
GO:7188: G-protein signaling, coupled to cAMP nucleotide second messenger	52	0.328	2	3.571	0.0145
GO:7548: sex differentiation	50	0.315	2	3.571	0.0135
GO:42157: lipoprotein metabolism	47	0.297	2	3.571	0.012
GO:45137: development of primary sexual characteristics	29	0.183	2	3.571	0.00468
GO:8406: gonad development	29	0.183	2	3.571	0.00468
GO:7586: digestion	19	0.12	2	3.571	0.00202
GO:9262: deoxyribonucleotide metabolism	16	0.101	2	3.571	0.00143
GO:6957: complement activation, alternative pathway	14	0.0883	1	1.786	0.0484
GO:8584: male gonad development	13	0.082	1	1.786	0.045
GO:46546: development of primary male sexual characteristics	13	0.082	1	1.786	0.045
GO:6584: catecholamine metabolism	13	0.082	1	1.786	0.045
GO:18958: phenol metabolism	13	0.082	1	1.786	0.045
GO:79: regulation of cyclin dependent protein kinase activity	13	0.082	1	1.786	0.045
GO:15669: gas transport	13	0.082	1	1.786	0.045
GO:15671: oxygen transport	13	0.082	1	1.786	0.045
GO:7193: G-protein signaling, adenylate cyclase inhibiting pathway	12	0.0757	1	1.786	0.0416
GO:9411: response to UV	12	0.0757	1	1.786	0.0416
GO:42553: cellular nerve ensheathment	11	0.0694	1	1.786	0.0382
GO:7272: ionic insulation of neurons by glial cells	11	0.0694	1	1.786	0.0382
GO:42552: myelination	11	0.0694	1	1.786	0.0382
GO:9263: deoxyribonucleotide biosynthesis	11	0.0694	1	1.786	0.0382
GO:6783: heme biosynthesis	11	0.0694	1	1.786	0.0382

GO:6779: porphyrin biosynthesis	11	0.0694	1	1.786	0.0382
GO:9132: nucleoside diphosphate metabolism	11	0.0694	1	1.786	0.0382
GO:7271: synaptic transmission, cholinergic	11	0.0694	1	1.786	0.0382
GO:9221: pyrimidine deoxyribonucleotide biosynthesis	10	0.0631	1	1.786	0.0348
GO:6760: folic acid and derivative metabolism	10	0.0631	1	1.786	0.0348
GO:9219: pyrimidine deoxyribonucleotide metabolism	10	0.0631	1	1.786	0.0348
GO:30890: positive regulation of B cell proliferation	10	0.0631	1	1.786	0.0348
GO:1778: plasma membrane repair	9	0.0568	1	1.786	0.0314
GO:9620: response to fungi	9	0.0568	1	1.786	0.0314
GO:42176: regulation of protein catabolism	8	0.0505	1	1.786	0.0279
GO:9894: regulation of catabolism	8	0.0505	1	1.786	0.0279
GO:50892: intestinal absorption	8	0.0505	2	3.571	0.000339
GO:44241: lipid digestion	7	0.0442	2	3.571	0.000255
GO:30299: cholesterol absorption	7	0.0442	2	3.571	0.000255
GO:9396: folic acid and derivative biosynthesis	6	0.0379	1	1.786	0.021
GO:45736: negative regulation of cyclin dependent protein kinase activity	6	0.0379	1	1.786	0.021
GO:9186: deoxyribonucleoside diphosphate metabolism	5	0.0315	1	1.786	0.0175
GO:30300: regulation of cholesterol absorption	5	0.0315	2	3.571	0.000122
GO:9130: pyrimidine nucleoside monophosphate biosynthesis	3	0.0189	1	1.786	0.0106
GO:9177: pyrimidine deoxyribonucleoside monophosphate biosynthesis	3	0.0189	1	1.786	0.0106
GO:6231: dTMP biosynthesis	3	0.0189	1	1.786	0.0106
GO:9157: deoxyribonucleoside monophosphate biosynthesis	3	0.0189	1	1.786	0.0106
GO:9129: pyrimidine nucleoside monophosphate metabolism	3	0.0189	1	1.786	0.0106
GO:9176: pyrimidine deoxyribonucleoside monophosphate metabolism	3	0.0189	1	1.786	0.0106
GO:46073: dTMP metabolism	3	0.0189	1	1.786	0.0106
GO:9162: deoxyribonucleoside monophosphate metabolism	3	0.0189	1	1.786	0.0106
GO:9257: 10-formyltetrahydrofolate biosynthesis	2	0.0126	1	1.786	0.00705
GO:5984: disaccharide metabolism	2	0.0126	1	1.786	0.00705
GO:9256: 10-formyltetrahydrofolate metabolism	2	0.0126	1	1.786	0.00705
GO:50832: defense response to fungi	2	0.0126	1	1.786	0.00705
GO:5991: trehalose metabolism	1	0.00631	1	1.786	0.00353
GO:16244: non-apoptotic programmed cell death	1	0.00631	1	1.786	0.00353
GO:43070: regulation of non-apoptotic programmed cell death	1	0.00631	1	1.786	0.00353
GO:43071: positive regulation of non-apoptotic programmed cell death	1	0.00631	1	1.786	0.00353

Haybaeck et al., Supplemetal Table 12

Supplemental Table 13: (A) *Tg*1223 mouse identification number (mouse ID), mouse age and sex, numbers of HCC/entire liver and HCC characteristics (size, cytological features) are described. We have divided the cytological variants found in HCC based on the diameter of hepatocytes and the mitosis frequency detected. Small cell: hepatocytes with a diameter < 18 μm. Medium cell: hepatocytes with a diameter from 18 to < 21 μm. *Large cell*: hepatocytes with a diameter > 21 μm. *Clear cell*: Broad transparent cytoplasmic rim with strong increase of cytoplasm to nuclear ratio. All liver tumors were well differentiated HCC.

Mouse ID	Age (months)	Number of tumors	Largest tumor (mm)	Cytological variants	Sex (F/M)
1	12	4	2	Medium cell	F
2	12	2	5	Medium cell	M
3	12	3	4	Medium cell	F
4	12	2	12	Large cell	M
5	12	1	4	Medium cell	F
6	12	2	8	Large cell	M
7	18	7	9	Medium cell	M
8	18	10	11	Clear cell	M
9	18	2	25	Medium cell	M
10	18	1	4	Medium cell	F
11	18	3	12	Medium cell	F
12	18	1	16	Large cell	F
13	18	8	5	Clear cell	F
14	18	4	22	Medium cell	M
15	18	4	18	Small cell	M
16	18	5	9	Medium cell	M
17	18	10	4	Clear cell	F
18	18	2	17	Large cell	F

19	18	7	10	Medium cell	M
20	18	7	15	Clear cell	M
21	18	3	5	Small cell	M
22	18	5	7	Medium cell	M
23	18	2	6	Clear cell	F
24	18	2	3	Medium cell	F

(B) *Tg*1223/*tnfr1*$^{-/-}$ mouse identification number, mouse age and sex, numbers of HCC/mouse liver and HCC characteristics (size, histological features) are indicated. *Large cell*: liver cell diameter > 21 μm. *Medium cell*: liver cell diameter 18 to < 21 μm. *Small cell*: liver cell diameter < 18 μm. *Clear cell*: hepatocytes with broad, foamy and transparent cytoplasm (these cells belong to the large cell category).

Mouse ID	Age (months)	Number of tumors	Largest tumor (mm)	Tumour histology	Sex (F/M)
19	18	4	18	Medium cell	M
20	18	4	17	Medium cell	F
21	18	1	12	Clear cell	F
22	18	5	23	Medium cell	F

Haybaeck et al., Supplemental Table 13

Supplemental Table 14: Hepatocytes are the major LT responsive liver cell type. Nuclear p65 translocation was analyzed in hepatocytes and NPC and mRNA expression of selected NF-κB target genes was quantified in C57BL/6 or knockout livers. **(-)** indicates that the number of cells with nuclear p65 translocation does not exceed the ones of the background controls. **(+)** indicates that nuclear p65 translocation does exceed the background controls. **(%)** indicates the percentage of a particular cell type displaying nuclear p65 translocation.

Acute PBS or TNFα administration

Mouse genotype	Nuclear p65 translocation in hepatocytes	Nuclear p65 translocation in NPC	Upregulation of NF-κB target genes	Treatment
C57BL/6	- + (95±3%)	- + (73±6%)	- +	PBS TNFα
tnfr1$^{-/-}$	- -	- -	- - (*)	PBS TNFα
Ikkβ$^{\Delta hep}$	- -	- + (62±7%)	- +	PBS TNFα
ltβr$^{-/-}$	- +	- +	- +	PBS TNFα

Acute rat IgG or 3C8 administration

C57BL/6	- + (90±3%)	- + (35±10%)	- +	rat IgG 3C8
tnfr1$^{-/-}$	- + (86±3%)	- + (38±9%)	- +	rat IgG 3C8
Ikkβ$^{\Delta hep}$	- -	- -	- -	rat IgG 3C8
ltβr$^{-/-}$	- -	- -	- -	rat IgG 3C8

(*) CCL2 was upregulated in all TNFα treated *tnfr1*$^{-/-}$ mice investigated (Fig. 6A). This upregulation was however abolished in *tnfr1/2*$^{-/-}$ mice (see also Supplemental Fig. 14).

Haybaeck et al., Supplemental Table 14

Rebuttal Figure 1

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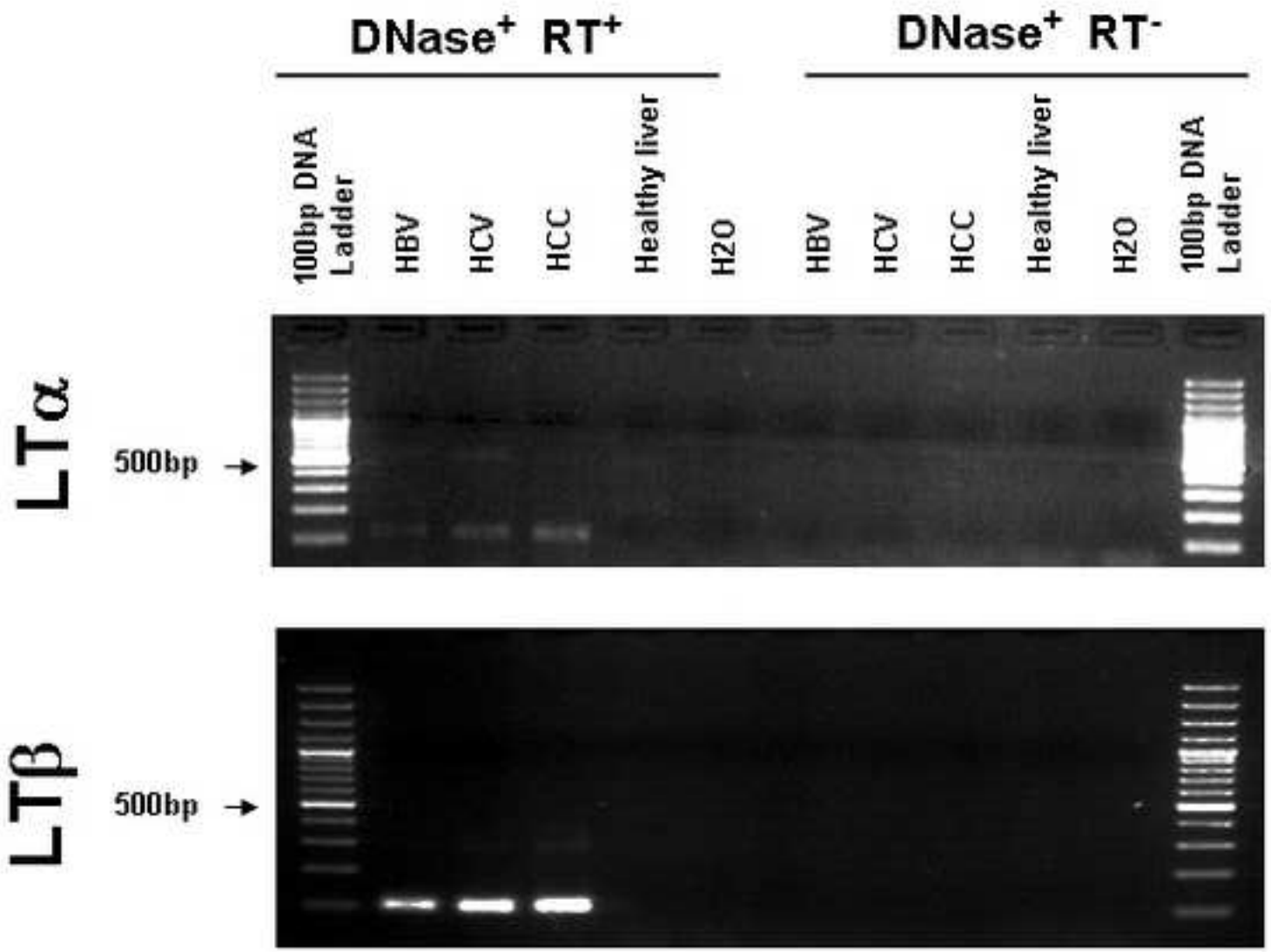

Haybaeck et al., Rebuttal Fig. 1

Rebuttal Figure 2

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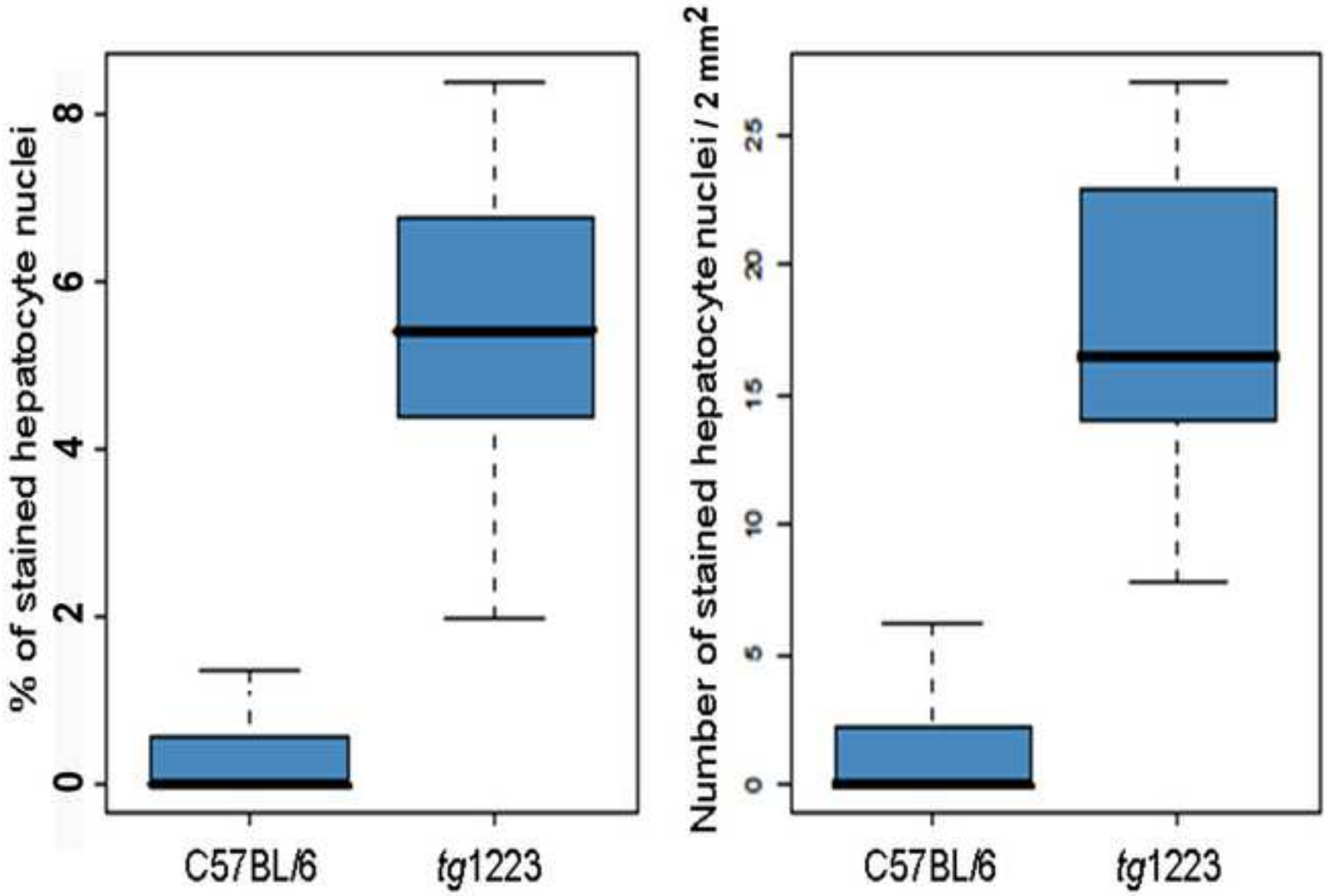

Haybaeck et al., Rebuttal Fig. 2

Rebuttal Figure 3

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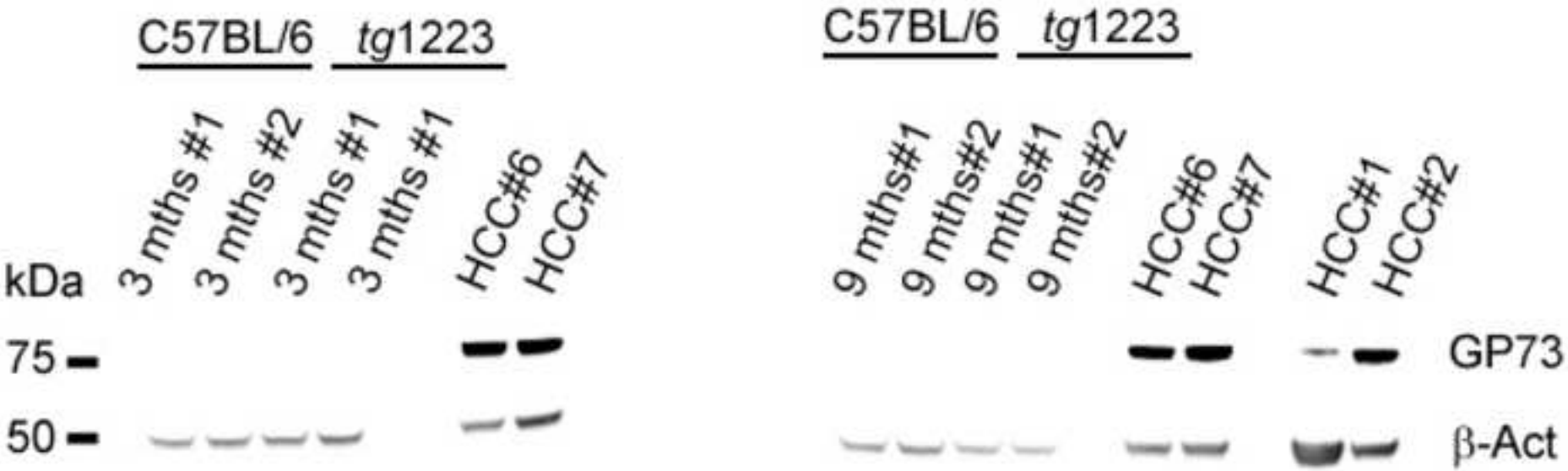

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Rebuttal Figure 4
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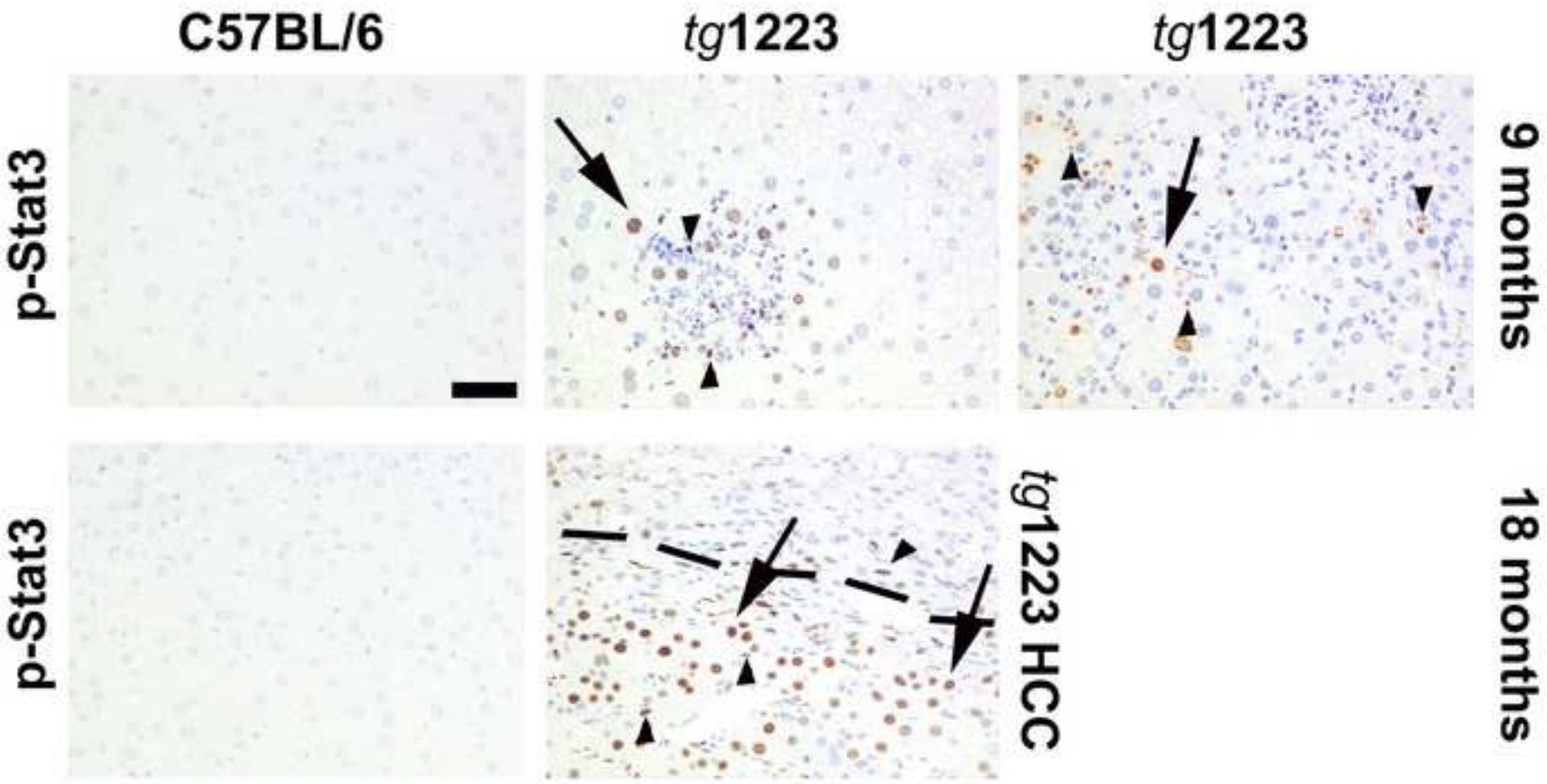

Haybaeck et al., Rebuttal Fig. 4

Letter of Rebuttal

Rebuttal Figure legends

Rebuttal Figure 1: LTα and LTβ mRNA expression after DNase$^+$ RT$^+$ treatment. Real time PCR products specific for human LTα and LTβ loaded on a 1% agarose gel. Samples are derived from human HBV- or HCV-infected livers or HCC as well as healthy control livers. DNase$^+$ RT$^+$ pretreatment: DNase treatment of purifed human RNA, followed by reverse transcription and subsequent real time PCR analysis. DNase$^+$ RT$^-$: DNase treatment of purifed human RNA, without reverse transcription but with subsequent real time PCR analysis. Possible DNA contamination of RNA was ruled out by performing a DNase$^+$ RT$^-$ control experiment (right panels of the Figure). For further details see material and methods. 100bp DNA ladder was loaded on the first and the last lane (as indicated). Arrows indicate the size of 500bp. H_2O also served as control.

Rebuttal Figure 2: Increase of hepatocyte proliferation rate in *tg*1223 livers. Box plot analysis based on counting Ki67$^+$ hepatocyte nuclei of *tg*1223 and C57BL/6 mice. Ki67$^+$ hepatocyte nuclei were counted in 10 representative high power fileds (40x)/mouse resulting in an investigated area of 2mm^2 liver section/mouse. 9 month-old *tg*1223 (n=4) and C57BL/6 (n=4) livers were investigated. The percentage of Ki67$^+$ hepatocyte nuclei of the total number of hepatocyte nuclei investigated is shown (left panel). Absolute counts of Ki67$^+$ hepatocytes are demonstrated in the right panel. The number of Ki67$^+$ hepatocyte nuclei was significantly higher (P<0.002656) in *tg*1223 livers when compared to C57BL/6 livers. The horizontal bars represent the mean of Ki67$^+$ hepatocyte nuclei.

Rebuttal Figure 3: GP73 expression is not upregulated by LTβR signaling. Immunoblot analysis for GP73 protein expression in C57BL/6 and *tg*1223 liver homogenates derived from different time points (3 and 9 months). For control we used HCC homogenates of *tg*1223 livers (12 or 18 months). Strong to moderate signal intensities were detected in all *tg*1223 HCC. No positive signal was found in liver homogenates of 3 and 9 month-old *tg*1223 or C57BL/6 livers. β-Actin (β-Act) served as a loading control (kDa: kilo Dalton).

Rebuttal Figure 4: Immunohistological analysis for p-STAT3$^+$ hepatocytes and non-parenchymal cells in inflamed livers and HCC of *tg*1223 and C57BL/6 mice.
(upper row) p-Stat 3$^+$ hepatocytes (arrows) and non-parenchymal cells (arrowheads) are found in the vicinity of an inflammatory focus in 9 month-old, inflamed *tg*1223 (middle and right panel) but not in age matched C57BL/6 livers (upper row, left panel).
(lower row) p-Stat 3$^+$ hepatocytes (arrows) and non-parenchymal cells (arrowheads) are detected in a *tg*1223 HCC (right panel) whereas no p-Stat3$^+$ hepatocytes are detectable in C57BL/6 livers at 18 months of age (left panel). The tumor border is indicated by a dashed line (scale bar: 50μm).