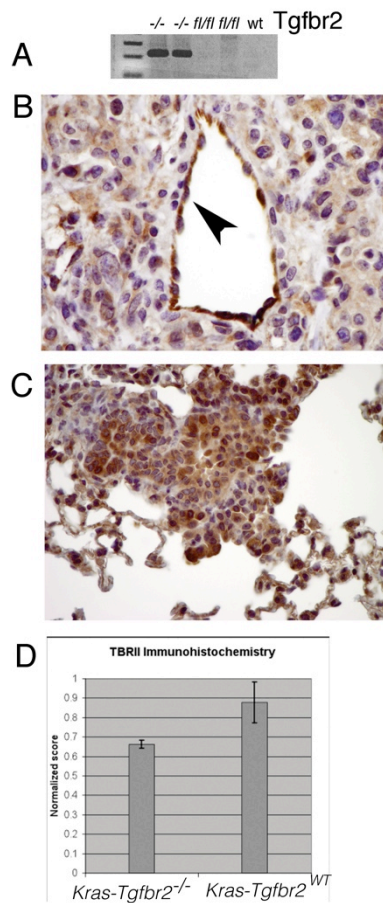


Supplemental Data

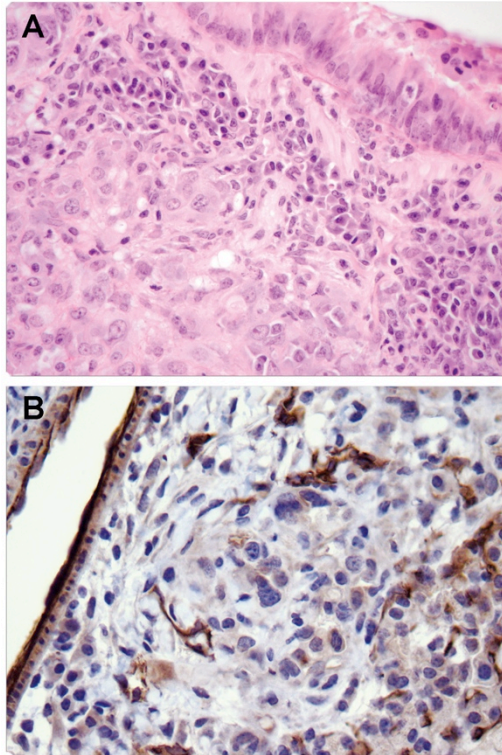
Progression of human bronchioloalveolar carcinoma to invasive adenocarcinoma is modeled in a transgenic mouse model of K-ras-induced lung cancer by loss of the TGF- β type II receptor

Alain C. Borczuk, Marieta Sole, Ping Lu, Jinli Chen, May-Lin Wilgus, Richard A. Friedman, Steven M. Albelda, Charles A. Powell.



Supplemental Figure 1. *Tgfr2* Recombination and TBR11 Expression in Mouse Lung

Mouse lungs were harvested for examination of *Tgfr2* recombination by DNA PCR (A). After intranasal administration of Adenoviral vector encoding Cre-recombinase, recombination was detected in *Kras-Tgfr2*^{-/-} animals (lanes 1,2), but not in untreated mice (lanes 3,4) or in *Kras-Tgfr2*^{WT} mice (lane 5). TBR11 immunostaining in *Kras-Tgfr2*^{-/-} tumors is reduced (B) in intensity when compared internally to endothelial staining (arrow), and to *Kras-Tgfr2*^{WT} tumor (C). The intensity of staining in tumor cells was 25% lower in *Kras-Tgfr2*^{-/-} mice (c), $P < .001$ (D). DAB immunohistochemistry, Original magnification x 150. We confirmed microarray data using quantitative real-time PCR for *Tgfr2* mRNA expression. *Tgfr2* expression was significantly reduced in *Kras-Tgfr2*^{-/-} vs. mouse lung tissue vs. *Kras-Tgfr2*^{WT} mouse tissue, $p < 0.05$.



Supplemental Figure 2. Tumor Microenvironment Inflammation and Neoangiogenesis in *Kras-Tgfr2^{-/-}* mouse lung tumors.

An exuberant inflammatory reaction of mononuclear cells and plasma cells was seen around tumor nests (A). Immunohistochemistry for CD31 reveals neo-vascularization as part of the stromal response (B).

A, Hematoxylin and eosin and B. DAB immunohistochemistry, Original magnification x 150.

Supplemental Table 1. *KrasTgfb2*^{-/-} Mouse Tumor Signature Genes Upregulated and Downregulated vs. *KrasTgfb2*^{WT} Tumors.

Genes UP in *KrasTgfb2*^{-/-} Tumors, sorted by Fold-Change (all p < .001, FDR < 1%)

Probe set	Gene symbol	Description	Fold-change
1449088_at	Fbp2	fructose biphosphatase 2	31.9174489
1440409_at	Gcnt3	glucosaminyl (N-acetyl) transferase 3, mucin type	27.3597398
1421227_at	Gzme	granzyme E	25.1154476
1449824_at	Prg4	proteoglycan 4 (megakaryocyte stimulating factor, articular superficial zone protein)	24.5662884
1419549_at	Arg1	arginase, liver	14.9723244
1418937_at	Dio2	deiodinase, iodothyronine, type II	13.8806717
1438239_at	Mid1	midline 1	13.3618425
1450171_x_at	Gzme	granzyme E	11.423847
1422571_at	Thbs2	thrombospondin 2	11.1651248
1449133_at	Sprr1a	small proline-rich protein 1A	10.9679516
1420992_at	Ankrd1	ankyrin repeat domain 1 (cardiac muscle)	10.8222895
1434092_at	Atg9b	ATG9 autophagy related 9 homolog B (<i>S. cerevisiae</i>)	10.1784824
1439016_x_at	Sprr2a	small proline-rich protein 2A	10.0384519
1455627_at	Col8a1	collagen, type VIII, alpha 1	9.9627195
1423062_at	Igfbp3	insulin-like growth factor binding protein 3	9.8940399
1448194_a_at	H19	H19 fetal liver mRNA	9.7649179
1438148_at	Cxcl3	chemokine (C-X-C motif) ligand 3	9.7006612
1419082_at	Serpinb2	serine (or cysteine) peptidase inhibitor, clade B, member 2	9.6569945
1450618_a_at	Sprr2a	small proline-rich protein 2A	9.3850808
1448470_at	Fbp1	fructose biphosphatase 1	9.1573505
1449939_s_at	Dlk1	delta-like 1 homolog (<i>Drosophila</i>)	9.009895
1444740_at	4930550L11Rik	RIKEN cDNA 4930550L11 gene	8.5839934
1416676_at	Kng1	kininogen 1	8.4688516
1420512_at	Dkk2	dickkopf homolog 2 (<i>Xenopus laevis</i>)	8.4075839
1419728_at	Cxcl5	chemokine (C-X-C motif) ligand 5	7.8364179
1418440_at	Col8a1	collagen, type VIII, alpha 1	7.5879764
1455965_at	Adamts4	a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 4	7.4833474
1434458_at	Fst	follistatin	7.0672372
1437273_at	Htra4	HtrA serine peptidase 4	6.9161742
1421365_at	Fst	follistatin	6.7574426
1422324_a_at	Pthlh	parathyroid hormone-like peptide	6.6869549
1434877_at	Nptx1	neuronal pentraxin 1	6.4834456
1447862_x_at	Thbs2	thrombospondin 2	6.4386222
1419418_a_at	Morc1	microorchidia 1	6.3532702
1422789_at	Aldh1a2	aldehyde dehydrogenase family 1, subfamily A2	6.3166832
1424966_at	Tmem40	transmembrane protein 40	6.1604117
1460227_at	Timp1	tissue inhibitor of metalloproteinase 1	6.1581517

1418872_at	Abcb1b	ATP-binding cassette, sub-family B (MDR/TAP), member 1B	6.1462338
1416103_at	Ywhaz	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	6.1450466
1429841_at	Megf10	multiple EGF-like-domains 10	6.0376384
1456084_x_at	Fmod	fibromodulin	5.9928384
1428055_at	Rian	RNA imprinted and accumulated in nucleus	5.9236717
1455736_at	Mybpc2	myosin binding protein C, fast-type	5.9119106
1428223_at	Mfsd2	major facilitator superfamily domain containing 2	5.8427332
1420664_s_at	Procr	protein C receptor, endothelial	5.8372559
1451416_a_at	Tgm1	transglutaminase 1, K polypeptide	5.7436458
1449166_at	S100a14	S100 calcium binding protein A14	5.7307791
1417466_at	Rgs5	regulator of G-protein signaling 5	5.6827024
1424599_at	Fgl1	fibrinogen-like protein 1	5.3830573
1441917_s_at	Tmem40	transmembrane protein 40	5.2466487
1439311_at	B830012L14Rik	RIKEN cDNA B830012L14 gene	5.222183
1450663_at	Thbs2	thrombospondin 2	5.2134928
1427020_at	Scara3	scavenger receptor class A, member 3	5.0479331
1428942_at	Mt2	metallothionein 2	4.9841902
1453480_at	Tmem213	transmembrane protein 213	4.9526994
1418283_at	Cldn4	claudin 4	4.8960081
1418207_at	Fxyd4	FXDY domain-containing ion transport regulator 4	4.8773428
1420352_at	Prss22	protease, serine, 22	4.8543256
1431094_at	1110006E14Rik	RIKEN cDNA 1110006E14 gene	4.8504944
1460285_at	Itga9	integrin alpha 9	4.8105446
1421207_at	Lif	leukemia inhibitory factor	4.7770897
1459253_at	Arrdc3	arrestin domain containing 3	4.7368358
1442590_at	Tnfrsf22	tumor necrosis factor receptor superfamily, member 22	4.6973812
1419820_at	Pkhd1	polycystic kidney and hepatic disease 1	4.6169568
1449254_at	Spp1	secreted phosphoprotein 1	4.6029751
1422053_at	Inhba	inhibin beta-A	4.5682854
1419775_at			4.410038
1437718_x_at	Fmod	fibromodulin	4.3741547
1437685_x_at	Fmod	fibromodulin	4.3639419
1416645_a_at	Afp	alpha fetoprotein	4.3573368
1450297_at	Il6	interleukin 6	4.338603
1449426_a_at	Anxa10	annexin A10	4.3121065
1422643_at	Moxd1	monooxygenase, DBH-like 1	4.3012068
1437324_x_at	Fmod	fibromodulin	4.2905134
1448755_at	Col15a1	collagen, type XV, alpha 1	4.2732373
1456789_at	Zfp462	zinc finger protein 462	4.2495062
1416658_at	Frzb	frizzled-related protein	4.2318307
1417013_at	Hspb8	heat shock protein 8	4.2239873
1433583_at	Zfp365	zinc finger protein 365	4.1108489
1418871_a_at	1810007E14Rik	RIKEN cDNA 1810007E14 gene	4.0920176

1456527_at	Hecw1	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 1	4.0863121
1425575_at	Epha3	Eph receptor A 3	4.0808995
1440001_at	Rian	RNA imprinted and accumulated in nucleus	4.0562552
1427126_at	Hspa1b	heat shock protein 1B	4.0528965
1460238_at	Msln	mesothelin	4.0383056
1427357_at	Cda	cytidine deaminase	4.0311373
1418304_at	Pcdh21	protocadherin 21	3.9982561
1423367_at	Wnt7a	wingless-related MMTV integration site 7A	3.9833712
1458453_at	Lmo7	LIM domain only 7	3.9719877
1426268_at	C130090K23Rik	RIKEN cDNA C130090K23 gene	3.9500467
1453839_a_at	Pi16	peptidase inhibitor 16	3.8930926
1424885_at	Klhdc8a	kelch domain containing 8A	3.8857463
1448595_a_at	Bex1	brain expressed gene 1	3.8471997
1427919_at	Srpx2	sushi-repeat-containing protein, X-linked 2	3.7563582
1423407_a_at	Fbln2	fibulin 2	3.752306
1417024_at	Hars	histidyl-tRNA synthetase	3.7364566
1416342_at	Tnc	tenascin C	3.7364369
1421172_at	Adam12	a disintegrin and metallopeptidase domain 12 (meltrin alpha)	3.6869575
1422179_at	Gjb4	gap junction protein, beta 4	3.6770818
1435264_at	Emilin2	elastin microfibril interfacier 2	3.6715322
1447819_x_at	Col8a1	collagen, type VIII, alpha 1	3.6583076
1423049_a_at	Tpm1	tropomyosin 1, alpha	3.6578841
1437197_at	Sorbs2	sorbin and SH3 domain containing 2	3.6467059
1438160_x_at	Slco4a1	solute carrier organic anion transporter family, member 4a1	3.5949683
1451258_at	Psca	prostate stem cell antigen	3.5762316
1427127_x_at	Hspa1b	heat shock protein 1B	3.5558739
1428636_at	Steap2	six transmembrane epithelial antigen of prostate 2	3.5535876
1429257_at	Meg3	maternally expressed 3	3.5437102
1422924_at	Tnfsf9	tumor necrosis factor (ligand) superfamily, member 9	3.5328774
1448894_at	Akr1b8	aldo-keto reductase family 1, member B8	3.5153091
1425668_a_at	St3gal4	ST3 beta-galactoside alpha-2,3-sialyltransferase 4	3.5128211
1424090_at	Sdcbp2	syndecan binding protein (syntenin) 2	3.4997309
1428774_at	Gpc6	glypican 6	3.487545
1435323_a_at	Mboat1	membrane bound O-acyltransferase domain containing 1	3.4724102
1452478_at	Alpk2	alpha-kinase 2	3.470486
1449152_at	Cdkn2b	cyclin-dependent kinase inhibitor 2B (p15, inhibits CDK4)	3.4564032
1425028_a_at	Tpm2	tropomyosin 2, beta	3.4472122
1450387_s_at	Ak3l1	adenylate kinase 3-like 1	3.4419271
1417308_at	Pkm2	pyruvate kinase, muscle	3.44155
1419431_at	Ereg	epiregulin	3.4338896
1449450_at	Ptges	prostaglandin E synthase	3.4197164
1440634_at			3.4103892
1447678_at	Hsd17b14	hydroxysteroid (17-beta) dehydrogenase 14	3.4039607

1434240_at	4632434I11Rik	RIKEN cDNA 4632434I11 gene	3.3990915
1431806_at	4931408D14Rik	RIKEN cDNA 4931408D14 gene	3.3886969
1423952_a_at	Krt7	keratin 7	3.3691578
1439793_at	Gja3	gap junction protein, alpha 3	3.365665
1448501_at	Tspan6	tetraspanin 6	3.3540149
1417343_at	Fxyd6	FXDY domain-containing ion transport regulator 6	3.3000008
1460042_at	Slc23a3	solute carrier family 23 (nucleobase transporters), member 3	3.272299
1428764_at	Meg3	maternally expressed 3	3.2652353
1421134_at	Areg	amphiregulin	3.2472546
1439827_at	Adamts12	a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 12	3.2347896
1417764_at	Ssr1	signal sequence receptor, alpha	3.2347596
1425182_x_at	Klk1b9	kallikrein 1-related peptidase b9	3.2269268
1423640_at	Synpr	synaptopodin	3.217273
1418449_at	Lad1	ladinin	3.2165174
1438966_x_at	Fmod	fibromodulin	3.215427
1427580_a_at	Rian	RNA imprinted and accumulated in nucleus	3.2144935
1424793_a_at	Pbp2	phosphatidylethanolamine binding protein 2	3.2121862
1438773_at	Steap2	six transmembrane epithelial antigen of prostate 2	3.1573318
1435190_at	Chl1	cell adhesion molecule with homology to L1CAM	3.1538038
1452963_at	9530077C05Rik	RIKEN cDNA 9530077C05 gene	3.1427113
1445824_at	Zfp458	zinc finger protein 458	3.1413536
1421375_a_at	S100a6	S100 calcium binding protein A6 (calcyclin)	3.1412828
1451346_at	Mtap	methylthioadenosine phosphorylase	3.1141466
1419738_a_at	Tpm2	tropomyosin 2, beta	3.113761
1437092_at	Clip4	CAP-GLY domain containing linker protein family, member 4	3.1135637
1437417_s_at	LOC100045283	similar to Glypican 6	3.095015
1418649_at	Egln3	EGL nine homolog 3 (C. elegans)	3.0911983
1436520_at	Ahnak2	AHNAK nucleoprotein 2	3.0846504
1455426_at	Epha3	Eph receptor A3	3.0834374
1450922_a_at	Tgfb2	transforming growth factor, beta 2	3.0813016
1419725_at	Slc26a4	solute carrier family 26, member 4	3.0794409
1421505_at	Mixl1	Mix1 homeobox-like 1 (Xenopus laevis)	3.0757815
1416588_at	Ptpn	protein tyrosine phosphatase, receptor type, N	3.0563055
1452388_at	Hspa1a	heat shock protein 1A	3.0509257
1422557_s_at	Mt1	metallothionein 1	3.0145891
1427440_a_at	Afm	afamin	3.0054842
1417156_at	Krt19	keratin 19	2.9864909
1452183_a_at	Meg3	maternally expressed 3	2.9734654
1458015_at	Megf11	multiple EGF-like-domains 11	2.9678932
1420558_at	Selp	selectin, platelet	2.9628507
1438824_at	Slc20a1	solute carrier family 20, member 1	2.9521411
1452906_at	Meg3	maternally expressed 3	2.9498669
1418626_a_at	Clu	clusterin	2.9371219

1450627_at	Ank	progressive ankylosis	2.9370954
1419292_at	Htra3	HtrA serine peptidase 3	2.936375
1438651_a_at	Aplnr	apelin receptor	2.9352952
1429021_at	Epha4	Eph receptor A4	2.9317696
1416872_at	Tspan6	tetraspanin 6	2.9224283
1420503_at	Slc6a14	solute carrier family 6 (neurotransmitter transporter), member 14	2.9118058
1416531_at	Gsto1	glutathione S-transferase omega 1	2.8934945
1434641_x_at	Sez6l2	seizure related 6 homolog like 2	2.8744613
1452614_at	Bcl2l15	BCL2-like 15	2.8610942
1434969_at	Brunol5	bruno-like 5, RNA binding protein (Drosophila)	2.8567139
1419130_at	Adat2	adenosine deaminase, tRNA-specific 2, TAD2 homolog (S. cerevisiae)	2.8486202
1439747_at	Ptges	prostaglandin E synthase	2.8480503
1419022_a_at	Eno1	enolase 1, alpha non-neuron	2.8348228
1450201_at	Proz	protein Z, vitamin K-dependent plasma glycoprotein	2.8313744
1449033_at	Tnfrsf11b	tumor necrosis factor receptor superfamily, member 11b (osteoprotegerin)	2.825635
1456429_at	Malt1	mucosa associated lymphoid tissue lymphoma translocation gene 1	2.8176999
1429239_a_at	Stard4	StAR-related lipid transfer (START) domain containing 4	2.8165635
1459187_at	9330161A08Rik	RIKEN cDNA 9330161A08 gene	2.816558
1456126_at	Malt1	mucosa associated lymphoid tissue lymphoma translocation gene 1	2.7933624
1434411_at	Col12a1	collagen, type XII, alpha 1	2.7799827
1428765_at	Meg3	maternally expressed 3	2.7769503
1451612_at	Mt1	metallothionein 1	2.7674432
1423771_at	Prkcdbp	protein kinase C, delta binding protein	2.7574346
1436188_a_at	Ndr4	N-myc downstream regulated gene 4	2.7566889
1452905_at	Meg3	maternally expressed 3	2.7507812
1439148_a_at	Pfkl	phosphofructokinase, liver, B-type	2.7364723
1424941_at	BC016579	cDNA sequence, BC016579	2.7357701
1427013_at	Car9	carbonic anhydrase 9	2.7351512
1426758_s_at	Meg3	maternally expressed 3	2.734319
1425675_s_at	Ceacam1	carcinoembryonic antigen-related cell adhesion molecule 1	2.7312245
1452218_at	Ccdc117	coiled-coil domain containing 117	2.7268617
1436879_x_at	Afp	alpha fetoprotein	2.7208074
1449449_at	Ptges	prostaglandin E synthase	2.7107987
1423948_at	Bag2	BCL2-associated athanogene 2	2.6946356
1415800_at	Gja1	gap junction protein, alpha 1	2.6845354
1417109_at	Tinagl1	tubulointerstitial nephritis antigen-like 1	2.6829255
1416200_at	Il33	interleukin 33	2.670938
1419023_x_at	Eno1	enolase 1, alpha non-neuron	2.6622305
1420804_s_at	Clec4d	C-type lectin domain family 4, member d	2.6532791
1452318_a_at	Hspa1b	heat shock protein 1B	2.6514003

1422914_at	Sp5	trans-acting transcription factor 5	2.6383491
1418393_a_at	Itga7	integrin alpha 7	2.6372012
1448169_at	Krt18	keratin 18	2.6349481
1415918_a_at	Tpi1	triosephosphate isomerase 1	2.6317889
1456344_at	Tnc	tenascin C	2.6247126
1435571_at	Mpzl3	myelin protein zero-like 3	2.6234122
1436216_s_at	2610204M08Rik	RIKEN cDNA 2610204M08 gene	2.62248
1422837_at	Scel	sciellin	2.6215308
1460465_at	A930038C07Rik	RIKEN cDNA A930038C07 gene	2.6214086
1428400_at	2200002K05Rik	RIKEN cDNA 2200002K05 gene	2.6179375
1433523_at	Radil	Ras association and DIL domains	2.6169677
1436359_at	Ret	ret proto-oncogene	2.6026488
1448265_x_at	Mpzl2	myelin protein zero-like 2	2.6020061
1419688_at	Gpc6	glypican 6	2.5987835
1426599_a_at	Slc2a1	solute carrier family 2 (facilitated glucose transporter), member 1	2.5981261
1419086_at	Fgfbp1	fibroblast growth factor binding protein 1	2.5712924
1452014_a_at	Igf1	insulin-like growth factor 1	2.5687379
1448568_a_at	Slc20a1	solute carrier family 20, member 1	2.5667844
1457030_at	Mirg	miRNA containing gene	2.5639236
1419207_at	Zfp37	zinc finger protein 37	2.5568267
1417234_at	Mmp11	matrix metalloproteinase 11	2.5541123
1449577_x_at	Tpm2	tropomyosin 2, beta	2.5503659
1427404_x_at	EG433182	predicted gene, EG433182	2.5464267
1459713_s_at	Ano1	anoctamin 1, calcium activated chloride channel	2.5435337
1434195_at	Prss35	protease, serine, 35	2.5279
1431795_a_at	Sema3b	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3B	2.5244261
1441438_at	Gpc6	glypican 6	2.5220221
1448395_at	Sfrp1	secreted frizzled-related protein 1	2.5206969
1448594_at	Wisp1	WNT1 inducible signaling pathway protein 1	2.5152154
1435659_a_at	Tpi1	triosephosphate isomerase 1	2.5051748
1440097_at	Mirg	miRNA containing gene	2.5017794
1441315_s_at	Slc19a2	solute carrier family 19 (thiamine transporter), member 2	2.4981513
1417389_at	Gpc1	glypican 1	2.4970308
1422860_at	Nts	neurotensin	2.4916793
1443732_at			2.4864067
1419613_at	Col7a1	collagen, type VII, alpha 1	2.4805353
1424507_at	Rin1	Ras and Rab interactor 1	2.4342041

Genes DOWN in *KrasTgfr2*^{-/-} Tumors, sorted by Fold-Change (all p <.001, FDR < 1%)

Probe set	Gene symbol	Description	Fold-change
1455869_at			0.0034693
1431213_a_at	LOC67527	murine leukemia retrovirus	0.0040569
1419905_s_at	Hpgd	hydroxyprostaglandin dehydrogenase 15 (NAD)	0.0422233
1446471_at			0.060439
1418429_at	Kif5b	kinesin family member 5B	0.0703627
1435514_at	Lztf1	leucine zipper transcription factor-like 1	0.0749609
1449533_at	Tmem100	transmembrane protein 100	0.0893155
1430642_at	2900001G08Rik	RIKEN cDNA 2900001G08 gene	0.098297
1456655_at			0.1011693
1435459_at	Fmo2	flavin containing monooxygenase 2	0.1015867
1422905_s_at	Fmo2	flavin containing monooxygenase 2	0.1040787
1430567_at	Spink5	serine peptidase inhibitor, Kazal type 5	0.1121542
1451527_at	Pcolce2	procollagen C-endopeptidase enhancer 2	0.1150064
1418697_at	Inmt	indolethylamine N-methyltransferase	0.1181934
1439475_at	Zfp429	zinc finger protein 429	0.1211038
1436043_at	Scn7a	sodium channel, voltage-gated, type VII, alpha	0.1233114
1453152_at	Mamdc2	MAM domain containing 2	0.1236891
1436044_at	Scn7a	sodium channel, voltage-gated, type VII, alpha	0.1242306
1435767_at	Scn3b	sodium channel, voltage-gated, type III, beta	0.1253479
1445929_at	100042424	predicted gene, 100042424	0.1298832
1437128_a_at	A630033E08Rik	RIKEN cDNA A630033E08 gene	0.1314668
1422640_at	Pcdhb9	protocadherin beta 9	0.1397838
1434152_at	Apol7c	apolipoprotein L 7c	0.1414799
1435943_at	Dpep1	dipeptidase 1 (renal)	0.14158
1416456_a_at	Chia	chitinase, acidic	0.1439568
1435642_at	Prr18	proline rich region 18	0.1444529
1417429_at	Fmo1	flavin containing monooxygenase 1	0.1467483
1421057_at	Dnase1l3	deoxyribonuclease 1-like 3	0.1488798
1429831_at	Pik3ap1	phosphoinositide-3-kinase adaptor protein 1	0.1492475
1449347_a_at	Xlr4b	X-linked lymphocyte-regulated 4B	0.151145
1454402_at	3110048L19Rik	RIKEN cDNA 3110048L19 gene	0.1549229
1460039_at	Clec1a	C-type lectin domain family 1, member a	0.1557879
1452666_a_at	Tmcc2	transmembrane and coiled-coil domains 2	0.1559726
1423226_at	Ms4a1	membrane-spanning 4-domains, subfamily A, member 1	0.1597834
1454966_at	Itga8	integrin alpha 8	0.1598427
1437932_a_at	Cldn1	claudin 1	0.1598543
1422188_s_at	Tcrg-V3	T-cell receptor gamma, variable 3	0.1604643
1433716_x_at	Gfra2	glial cell line derived neurotrophic factor family receptor alpha 2	0.1608052
1421979_at	Phex	phosphate regulating gene with homologies to endopeptidases on the X chromosome (hypophosphatemia, vitamin D resistant rickets)	0.163856
1439595_at	Tcra	T-cell receptor alpha chain	0.1658076

1444946_at			0.169717
1439376_x_at	Dmtf1	cyclin D binding myb-like transcription factor 1	0.1706176
1421195_at	Cckar	cholecystokinin A receptor	0.1714718
1435710_at	AI661384	expressed sequence AI661384	0.1726992
1449525_at	Fmo3	flavin containing monooxygenase 3	0.1733044
1418652_at	Cxcl9	chemokine (C-X-C motif) ligand 9	0.1752965
1446625_at	Tmem100	transmembrane protein 100	0.1762681
1421317_x_at	Myb	myeloblastosis oncogene	0.1764352
1423467_at	Ms4a4b	membrane-spanning 4-domains, subfamily A, member 4B	0.1770161
1453698_at	6030451C04Rik	RIKEN cDNA 6030451C04 gene	0.1785047
1460670_at	Riok3	RIO kinase 3 (yeast)	0.178837
1443270_at			0.1800947
1450912_at	Ms4a1	membrane-spanning 4-domains, subfamily A, member 1	0.1804682
1434171_at	C330011K17Rik	RIKEN cDNA C330011K17 gene	0.182648
1460407_at	Spib	Spi-B transcription factor (Spi-1/PU.1 related)	0.1830406
1449925_at	Cxcr3	chemokine (C-X-C motif) receptor 3	0.185063
1444487_at	Lrat	lecithin-retinol acyltransferase (phosphatidylcholine-retinol-O-acyltransferase)	0.1851926
1425814_a_at	Calcr1	calcitonin receptor-like	0.1861827
1449158_at	Kcnk2	potassium channel, subfamily K, member 2	0.1863895
1450194_a_at	Myb	myeloblastosis oncogene	0.186904
1446748_at	2010007H06Rik	RIKEN cDNA 2010007H06 gene	0.1870023
1437933_at	Hhip	Hedgehog-interacting protein	0.1870288
1455277_at	Hhip	Hedgehog-interacting protein	0.1874
1441218_at	Ttc21a	Tetratricopeptide repeat domain 21A	0.1877835
1438466_at	Dnahc7b	dynein, axonemal, heavy chain 7B	0.1891812
1419468_at	Clec14a	C-type lectin domain family 14, member a	0.1902567
1455656_at	Btla	B and T lymphocyte associated	0.1904622
1453841_at	2310050P20Rik	RIKEN cDNA 2310050P20 gene	0.1909626
1447551_x_at	Lphn3	latrophilin 3	0.1914319
1430190_at	1700041C02Rik	RIKEN cDNA 1700041C02 gene	0.1953136
1436649_at	Ikzf3	IKAROS family zinc finger 3	0.1971555
1456901_at	Adamts20	a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 20	0.1993594
1422812_at	Cxcr6	chemokine (C-X-C motif) receptor 6	0.2009945
1419467_at	Clec14a	C-type lectin domain family 14, member a	0.2021412
1426712_at	Slc6a15	solute carrier family 6 (neurotransmitter transporter), member 15	0.203103
1434280_at			0.2033148
1436296_x_at	Dnaic2	dynein, axonemal, intermediate chain 2	0.2035729
1440837_at	H2-Ob	histocompatibility 2, O region beta locus	0.2043204
1425947_at	Ifng	interferon gamma	0.2056106
1453435_a_at	Fmo2	flavin containing monooxygenase 2	0.2066628
1453752_at	Rpl17	ribosomal protein L17	0.2075471
1420437_at	Ido1	indoleamine 2,3-dioxygenase 1	0.2081165
1417839_at	Cldn5	claudin 5	0.2081276

1425854_x_at	Tcrb-J	T-cell receptor beta, joining region	0.2081527
1423292_a_at	Prx	periaxin	0.2123695
1417447_at	Tcf21	transcription factor 21	0.2128575
1449361_at	Tbx21	T-box 21	0.2136313
1435227_at	Bcl11b	B-cell leukemia/lymphoma 11B	0.2137278
1459661_at	AW492955	expressed sequence AW492955	0.2141378
1416967_at	Sox2	SRY-box containing gene 2	0.2147519
1452205_x_at	Tcrb-J	T-cell receptor beta, joining region	0.21714
1418723_at	Lpar3	lysophosphatidic acid receptor 3	0.217285
1439034_at	Spn	sialophorin	0.2177506
1425396_a_at	Lck	lymphocyte protein tyrosine kinase	0.2183305
1450753_at	Nkg7	natural killer cell group 7 sequence	0.2197857
1425470_at			0.2223831
1428808_at	Prickle2	prickle-like 2 (Drosophila)	0.2224194
1451355_at	Acer2	alkaline ceramidase 2	0.2250807
1453782_at	3021401C12Rik	RIKEN cDNA 3021401C12 gene	0.2264511
1418509_at	Cbr2	carbonyl reductase 2	0.2270593
1429209_at	Col23a1	collagen, type XXIII, alpha 1	0.2283534
1425294_at	Slamf8	SLAM family member 8	0.2284696
1430047_at	Brctd1	BRCT domain containing 1	0.2285136
1453571_at	Depdc6	DEP domain containing 6	0.2293921
1442447_at			0.22956
1457163_at	D730035F11Rik	RIKEN cDNA D730035F11 gene	0.2300395
1429210_at	Col23a1	collagen, type XXIII, alpha 1	0.2300537
1420544_at	Gcet2	germinal center expressed transcript 2	0.2310464
1428347_at	Cyfip2	cytoplasmic FMR1 interacting protein 2	0.2310704
1422725_at	Mak	male germ cell-associated kinase	0.2317289
1438089_a_at	Bclaf1	BCL2-associated transcription factor 1	0.2318858
1438392_at			0.2321138
1441845_at	Caps2	calcyphosphine 2	0.232671
1455383_at	Gm1381	gene model 1381, (NCBI)	0.2333865
1436675_at	Wdr63	WD repeat domain 63	0.2338249
1426772_x_at	Tcrb-J	T-cell receptor beta, joining region	0.2357704
1425832_a_at	Cxcr6	chemokine (C-X-C motif) receptor 6	0.2360076
1435939_s_at	Hepacam2	HEPACAM family member 2	0.2368312
1428599_at	Kndc1	kinase non-catalytic C-lobe domain (KIND) containing 1	0.2386031
1417597_at	Cd28	CD28 antigen	0.2392653
1429726_at	Slc16a9	solute carrier family 16 (monocarboxylic acid transporters), member 9	0.240293
1446850_at			0.2406479
1418770_at	Cd2	CD2 antigen	0.2411771
1418511_at	Dpt	dermatopontin	0.2412018
1429954_at	Clec4a3	C-type lectin domain family 4, member a3	0.2421667
1422771_at	Smad6	MAD homolog 6 (Drosophila)	0.2428451
1425226_x_at	Tcrb-J	T-cell receptor beta, joining region	0.2441147
1428735_at	Cd69	CD69 antigen	0.2444961

1432513_a_at	1700001C02Rik	RIKEN cDNA 1700001C02 gene	0.244609
1434141_at	Gucy1a3	guanylate cyclase 1, soluble, alpha 3	0.2465684
1424181_at	Sept6	septin 6	0.246618
1446656_at			0.2468658
1418788_at	Tek	endothelial-specific receptor tyrosine kinase	0.247148
1458500_at	AU021034	expressed sequence AU021034	0.2476488
1439795_at	Gpr64	G protein-coupled receptor 64	0.2477478
1435792_at	Csprs	component of Sp100-rs	0.2490504
1440911_at	Col23a1	collagen, type XXIII, alpha 1	0.2503838
1419192_at	Il4i1	interleukin 4 induced 1	0.2505003
1436600_at	Tox3	TOX high mobility group box family member 3	0.2506856
1418353_at	Cd5	CD5 antigen	0.2516648
1450339_a_at	Bcl11b	B-cell leukemia/lymphoma 11B	0.2520211
1439956_at	Ms4a6b	Membrane-spanning 4-domains, subfamily A, member 6B	0.2532025
1416194_at	Cyp4b1	cytochrome P450, family 4, subfamily b, polypeptide 1	0.2532843
1421040_a_at	Gsta2	glutathione S-transferase, alpha 2 (Yc2)	0.254388
1434962_x_at	Ccl27a	chemokine (C-C motif) ligand 27A	0.2544164
1456064_at	Kcna3	potassium voltage-gated channel, shaker-related subfamily, member 3	0.2549909
1436501_at	Mtus1	mitochondrial tumor suppressor 1	0.256365
1460107_at	Fam154b	family with sequence similarity 154, member B	0.2568012
1428960_at	4933434I06Rik	RIKEN cDNA 4933434I06 gene	0.2568111
1423298_at	Add3	adducin 3 (gamma)	0.2586354
1436598_at	Icos	inducible T-cell co-stimulator	0.2601276
1448792_a_at	Cyp2f2	cytochrome P450, family 2, subfamily f, polypeptide 2	0.2602653
1459601_at	Sik1	salt inducible kinase 1	0.2603179
1421358_at	H2-M3	histocompatibility 2, M region locus 3	0.2605341
1457241_at			0.2606807
1455161_at	AI504432	expressed sequence AI504432	0.2612565
1455859_at	A330021E22Rik	RIKEN cDNA A330021E22 gene	0.2626912
1445884_at			0.2627272
1433888_at	Atp2b2	ATPase, Ca ⁺⁺ transporting, plasma membrane 2	0.2632329
1428108_x_at	Tmcc2	transmembrane and coiled-coil domains 2	0.2634367
1452514_a_at	Kit	kit oncogene	0.2638025
1416225_at	Adh1	alcohol dehydrogenase 1 (class I)	0.2639571
1422606_at	C1qtnf3	C1q and tumor necrosis factor related protein 3	0.2639608
1456318_at	Clec1a	C-type lectin domain family 1, member a	0.2644667
1446484_at			0.2655188
1438052_at	A130071D04Rik	RIKEN cDNA A130071D04 gene	0.265719
1448949_at	Car4	carbonic anhydrase 4	0.2659727
1450357_a_at	Ccr6	chemokine (C-C motif) receptor 6	0.2662716
1437479_x_at	Tbx3	T-box 3	0.2668603
1444270_at	Rsph4a	radial spoke head 4 homolog A (Chlamydomonas)	0.2669952
1460555_at	Fam65b	family with sequence similarity 65, member B	0.2679967

1429177_x_at	Sox17	SRY-box containing gene 17	0.2696664
1431577_at	5430437J10Rik	RIKEN cDNA 5430437J10 gene	0.2700653
1449216_at	Itgae	integrin alpha E, epithelial-associated	0.2708613
1458589_at			0.27225
1452284_at	Ptprz1	protein tyrosine phosphatase, receptor type Z, polypeptide 1	0.2729896
1437096_at	Ttc29	tetratricopeptide repeat domain 29	0.273269
1441172_at			0.2735332
1434372_at	AW112010	expressed sequence AW112010	0.2737569
1439833_at	Sept3	septin3	0.2753125
1454897_at	6330509M05Rik	RIKEN cDNA 6330509M05 gene	0.2755753
1446591_at	Gm1574	gene model 1574, (NCBI)	0.2755888
1457694_at	6430537H07Rik	RIKEN cDNA 6430537H07 gene	0.2759113
1435582_at	Wdfy4	WD repeat and FYVE domain containing 4	0.276085
1417995_at	Ptpn22	protein tyrosine phosphatase, non-receptor type 22 (lymphoid)	0.2768855
1418057_at	Tiam1	T-cell lymphoma invasion and metastasis 1	0.2773649
1425005_at	Klrc1	killer cell lectin-like receptor subfamily C, member 1	0.2787951
1456711_at	4932425I24Rik	RIKEN cDNA 4932425I24 gene	0.2801954
1421855_at	Fgl2	fibrinogen-like protein 2	0.2808363
1434083_a_at	Elmod1	ELMO domain containing 1	0.2810835
1443337_at			0.2819053
1442472_at	Ttc21a	Tetratricopeptide repeat domain 21A	0.2819208
1422230_s_at	Cyp2a5	cytochrome P450, family 2, subfamily a, polypeptide 5	0.2820351
1434441_at	1110018J18Rik	RIKEN cDNA 1110018J18 gene	0.2833026
1419178_at	Cd3g	CD3 antigen, gamma polypeptide	0.2834045
1455379_at	Dnali1	dynein, axonemal, light intermediate polypeptide 1	0.2845025
1445787_at	5033413D22Rik	RIKEN cDNA 5033413D22 gene	0.2848977
1429366_at	Lrrc34	leucine rich repeat containing 34	0.2852993
1427063_at	5330417C22Rik	RIKEN cDNA 5330417C22 gene	0.2854206
1440165_at	Ptprc	protein tyrosine phosphatase, receptor type, C	0.2855004
1425084_at	Gimap7	GTPase, IMAP family member 7	0.2858245
1438083_at	Hhip	Hedgehog-interacting protein	0.2858741
1418741_at	Itgb7	integrin beta 7	0.2860747
1439808_at	A130090K04Rik	RIKEN cDNA A130090K04 gene	0.2864086
1416713_at	Tppp3	tubulin polymerization-promoting protein family member 3	0.2868963
1453496_at	Fam162b	family with sequence similarity 162, member B	0.2871668
1424719_a_at	Mapt	microtubule-associated protein tau	0.2878359
1457896_at	Esrrg	estrogen-related receptor gamma	0.2882544
1457170_at	Lrrc36	leucine rich repeat containing 36	0.2885028
1425471_x_at			0.2899364
1454622_at	Slc38a5	solute carrier family 38, member 5	0.29036
1433969_at	Cdkl4	cyclin-dependent kinase-like 4	0.2909525
1450928_at	Id4	inhibitor of DNA binding 4	0.2910873
1415855_at	Kitl	kit ligand	0.2919662

1424324_at	Esco1	establishment of cohesion 1 homolog 1 (S. cerevisiae)	0.2924049
1435343_at	Dock10	dedicator of cytokinesis 10	0.2932318
1424250_a_at	Arhgef3	Rho guanine nucleotide exchange factor (GEF) 3	0.2932483
1446750_at	Impact	imprinted and ancient	0.2935899
1455028_at	Mapt	microtubule-associated protein tau	0.2941011
1452408_at			0.2944429
1435906_x_at	Gbp2	guanylate binding protein 2	0.2945358
1452815_at	P2ry10	purinergic receptor P2Y, G-protein coupled 10	0.2948227
1416246_a_at	Coro1a	coronin, actin binding protein 1A	0.2949375
1430534_at	Rnase6	ribonuclease, RNase A family, 6	0.2956707
1444078_at	Cd8a	CD8 antigen, alpha chain	0.297194
1422866_at	Col13a1	collagen, type XIII, alpha 1	0.2972095
1426505_at	Evi2a	ecotropic viral integration site 2a	0.2972278
1436576_at	Fam26f	family with sequence similarity 26, member F	0.2973393
1435701_at			0.2982573
1433939_at	Aff3	AF4/FMR2 family, member 3	0.2988602
1422637_at	Rassf5	Ras association (RalGDS/AF-6) domain family member 5	0.299008
1430012_at	1110050K14Rik	RIKEN cDNA 1110050K14 gene	0.2998568
1438238_at	2010315B03Rik	RIKEN cDNA 2010315B03 gene	0.3007511
1448029_at	Tbx3	T-box 3	0.3009888
1448529_at	Thbd	thrombomodulin	0.301501
1426112_a_at	Cd72	CD72 antigen	0.3018895
1438676_at	Mpa2l	macrophage activation 2 like	0.3019317
1418858_at	Aox3	aldehyde oxidase 3	0.302276
1416714_at	Irf8	interferon regulatory factor 8	0.3027999
1426530_a_at	Klh5	kelch-like 5 (Drosophila)	0.3028459
1448737_at	Tspan7	tetraspanin 7	0.3030256
1435553_at	Pdzd2	PDZ domain containing 2	0.303106
1454824_s_at	Mtus1	mitochondrial tumor suppressor 1	0.3037337
1457401_at	Dnahc9	dynein, axonemal, heavy chain 9	0.3039674
1447541_s_at	Itgae	integrin alpha E, epithelial-associated	0.304077
1428283_at	Cyp2s1	cytochrome P450, family 2, subfamily s, polypeptide 1	0.3042217
1436941_at	Fam55c	family with sequence similarity 55, member C	0.3048734
1439971_at	6330439K17Rik	RIKEN cDNA 6330439K17 gene	0.3054182
1419706_a_at	Akap12	A kinase (PRKA) anchor protein (gravin) 12	0.3054216
1421923_at	Sh3bp5	SH3-domain binding protein 5 (BTK-associated)	0.305642
1439680_at	Tnfsf10	tumor necrosis factor (ligand) superfamily, member 10	0.3059195
1456907_at	Cxcl9	chemokine (C-X-C motif) ligand 9	0.3061602
1418240_at	Gbp2	guanylate binding protein 2	0.3066884
1442122_at	AI451458	expressed sequence AI451458	0.3076404
1422808_s_at	Dock2	dedicator of cyto-kinesis 2	0.3078084
1424234_s_at	Meox2	mesenchyme homeobox 2	0.3079922
1436569_at	Prex2	phosphatidylinositol-3,4,5-trisphosphate-dependent Rac exchange factor 2	0.308188

1455970_at	Pde5a	phosphodiesterase 5A, cGMP-specific	0.3082388
1420421_s_at	Klrb1b	killer cell lectin-like receptor subfamily B member 1B	0.308401
1432083_a_at	Lrrc23	leucine rich repeat containing 23	0.3086615
1423437_at	Gsta3	glutathione S-transferase, alpha 3	0.3088741
1457376_at			0.3091921
1453109_at	Arsk	arylsulfatase K	0.3103815
1448862_at	Icam2	intercellular adhesion molecule 2	0.3105682
1429074_at	1700026D08Rik	RIKEN cDNA 1700026D08 gene	0.3110524
1460427_a_at	Adam28	a disintegrin and metallopeptidase domain 28	0.3113792
1439814_at	Atp8b4	ATPase, class I, type 8B, member 4	0.3123684
1451006_at	Xdh	xanthine dehydrogenase	0.3124572
1435207_at	Dixdc1	DIX domain containing 1	0.3126235
1434528_at	Aard	alanine and arginine rich domain containing protein	0.3128595
1438122_at	2900006K08Rik	RIKEN cDNA 2900006K08 gene	0.313024
1443327_at	D130043K22Rik	RIKEN cDNA D130043K22 gene	0.3135656
1456328_at	Bank1	B-cell scaffold protein with ankyrin repeats 1	0.3136662
1426159_x_at	Tcrb-J	T-cell receptor beta, joining region	0.3140646
1442873_at			0.3140971
1449498_at	Marco	macrophage receptor with collagenous structure	0.3146302
1432075_a_at	Tekt1	tektin 1	0.3148621
1448786_at	1100001H23Rik	RIKEN cDNA 1100001H23 gene	0.3149896
1455256_at	Tnik	TRAF2 and NCK interacting kinase	0.3152151
1433743_at	Dach1	dachshund 1 (Drosophila)	0.3153155
1455872_at	Fam167a	family with sequence similarity 167, member A	0.3161179
1424923_at	Serpina3g	serine (or cysteine) peptidase inhibitor, clade A, member 3G	0.3163963
1424340_at	Lrrc48	leucine rich repeat containing 48	0.3164234
1442331_at			0.3166493
1459815_at	Zmynd12	zinc finger, MYND domain containing 12	0.3174985
1456061_at	Gimap8	GTPase, IMAP family member 8	0.3175515
1431079_at	C1qtnf2	C1q and tumor necrosis factor related protein 2	0.3177207
1447495_at	Fank1	fibronectin type 3 and ankyrin repeat domains 1	0.3180075
1447806_s_at	Srpk3	serine/arginine-rich protein specific kinase 3	0.3184601
1447927_at	Mpa2l	macrophage activation 2 like	0.3199628
1420579_s_at	Cfr	cystic fibrosis transmembrane conductance regulator homolog	0.3200102
1424010_at	Mfap4	microfibrillar-associated protein 4	0.3201937
1424375_s_at	Gimap4	GTPase, IMAP family member 4	0.3202721
1416468_at	Aldh1a1	aldehyde dehydrogenase family 1, subfamily A1	0.3211727
1418754_at	Adcy8	adenylate cyclase 8	0.3213064
1455074_at	Efcab1	EF hand calcium binding domain 1	0.3215377
1450047_at	Hs6st2	heparan sulfate 6-O-sulfotransferase 2	0.3219181
1417171_at	Itk	IL2-inducible T-cell kinase	0.3219902
1435992_at	Iqca	IQ motif containing with AAA domain	0.3222156
1452352_at	Ctla2b	cytotoxic T lymphocyte-associated protein 2 beta	0.322433
1429870_at	Tnik	TRAF2 and NCK interacting kinase	0.3225466

1435361_at	Sema3g	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3G	0.3229102
1456156_at	Lepr	leptin receptor	0.3232095
1453145_at	4933439C20Rik	RIKEN cDNA 4933439C20 gene	0.3234425
1427018_at	Tsnaxip1	translin-associated factor X (Tsnax) interacting protein 1	0.3235031
1441972_at	Itga1	integrin alpha 1	0.3236888
1427486_at	Ptpnb	protein tyrosine phosphatase, receptor type, B	0.3237383
1441589_at			0.3240482
1437249_at	Skap1	src family associated phosphoprotein 1	0.3244576
1417643_at	Rsph1	radial spoke head 1 homolog (Chlamydomonas)	0.3249036
1442233_at			0.3256556
1439141_at	Gpr18	G protein-coupled receptor 18	0.3259672
1419033_at	Papola	poly (A) polymerase alpha	0.3261546
1458341_x_at	Pde5a	phosphodiesterase 5A, cGMP-specific	0.3262556
1435144_at			0.3263787
1420872_at	Gucy1b3	guanylate cyclase 1, soluble, beta 3	0.3264779
1418826_at	Ms4a6b	membrane-spanning 4-domains, subfamily A, member 6B	0.3269475
1442223_at	Enah	enabled homolog (Drosophila)	0.3269896
1443161_at			0.327397
1453144_at	4933439C20Rik	RIKEN cDNA 4933439C20 gene	0.3281794
1443937_at			0.3285007
1459847_x_at	Gfra2	glial cell line derived neurotrophic factor family receptor alpha 2	0.3286932
1427301_at	Cd48	CD48 antigen	0.3287478
1430165_at	Stk17b	serine/threonine kinase 17b (apoptosis-inducing)	0.3291569
1456472_at	Armc4	armadillo repeat containing 4	0.3293469
1449602_at			0.3293689
1442113_at	5330417C22Rik	RIKEN cDNA 5330417C22 gene	0.3297835
1434326_x_at	Coro2b	coronin, actin binding protein, 2B	0.3300074
1448908_at	Ppap2b	phosphatidic acid phosphatase type 2B	0.3308949
1447231_at			0.3313427
1435465_at	Kbtbd11	kelch repeat and BTB (POZ) domain containing 11	0.3315864
1447174_at			0.3320599
1459354_at			0.3321307
1445204_at			0.3325926
1425291_at	Foxj1	forkhead box J1	0.3334432
1417963_at	Pltp	phospholipid transfer protein	0.3342914
1451604_a_at	Acvr1l	activin A receptor, type II-like 1	0.3346633
1421186_at	Ccr2	chemokine (C-C motif) receptor 2	0.334947
1416564_at	Sox7	SRY-box containing gene 7	0.3349945
1443894_at	Evi2a	ecotropic viral integration site 2a	0.3351301
1458229_at	Robo2	roundabout homolog 2 (Drosophila)	0.336362
1436037_at	Itga4	integrin alpha 4	0.3366796
1416318_at	Serpnb1a	serine (or cysteine) peptidase inhibitor, clade B, member 1a	0.336944

1438183_x_at	Sord	sorbitol dehydrogenase	0.3370763
1456836_at	Itk	IL2-inducible T-cell kinase	0.3371245
1424037_at	Itpka	inositol 1,4,5-trisphosphate 3-kinase A	0.3371329
1436481_at	Atp7b	ATPase, Cu ⁺⁺ transporting, beta polypeptide	0.3374777
1449175_at	Gpr65	G-protein coupled receptor 65	0.3376103
1418930_at	Cxcl10	chemokine (C-X-C motif) ligand 10	0.337996
1454850_at	Tbc1d10c	TBC1 domain family, member 10c	0.3385069
1437421_at	6330509M05Rik	RIKEN cDNA 6330509M05 gene	0.338692
1420569_at	Chad	chondroadherin	0.3387546
1424800_at	Enah	enabled homolog (Drosophila)	0.3390789
1429672_at	5830407E08Rik	RIKEN cDNA 5830407E08 gene	0.3400657
1443137_at			0.3401667
1435331_at	Pyhin1	pyrin and HIN domain family, member 1	0.3405198
1418094_s_at	Car4	carbonic anhydrase 4	0.3405832
1452353_at	Gpr155	G protein-coupled receptor 155	0.3406932
1439753_x_at	Six4	sine oculis-related homeobox 4 homolog (Drosophila)	0.3408375
1446569_at			0.3416205
1450241_a_at	Evi2a	ecotropic viral integration site 2a	0.3428897
1436367_at	Ptprb	protein tyrosine phosphatase, receptor type, B	0.3429514
1448301_s_at	Serpib1a	serine (or cysteine) peptidase inhibitor, clade B, member 1a	0.3438123
1452117_a_at	Fyb	FYN binding protein	0.3438223
1448452_at	Irf8	interferon regulatory factor 8	0.3440471
1452405_x_at	A130082M07Rik	RIKEN cDNA A130082M07 gene	0.3443532
1416411_at	Gstm2	glutathione S-transferase, mu 2	0.3447761
1439361_at			0.3448962
1424374_at	Gimap4	GTPase, IMAP family member 4	0.3454467
1452348_s_at	Ifi205	interferon activated gene 205	0.345461
1427345_a_at	Sult1a1	sulfotransferase family 1A, phenol-preferring, member 1	0.3455062
1426288_at	Lrp4	low density lipoprotein receptor-related protein 4	0.3456761
1423436_at	Gsta3	glutathione S-transferase, alpha 3	0.3457551
1422545_at	Tbx2	T-box 2	0.3463205
1460419_a_at	Prkcb	protein kinase C, beta	0.3472138
1422029_at	Ccl20	chemokine (C-C motif) ligand 20	0.3472446
1434423_at	Gulp1	GULP, engulfment adaptor PTB domain containing 1	0.3472725
1422828_at	Cd3d	CD3 antigen, delta polypeptide	0.3476715
1441683_at			0.347776
1455269_a_at	Coro1a	coronin, actin binding protein 1A	0.3481198
1435229_at	Gramd1b	GRAM domain containing 1B	0.348856
1435420_at	Slc4a5	solute carrier family 4, sodium bicarbonate cotransporter, member 5	0.3490031
1439066_at	Angpt1	angiopoietin 1	0.3496813
1451547_at	Iyd	iodotyrosine deiodinase	0.3503344

1448021_at	Fam46c	family with sequence similarity 46, member C	0.351097
1427996_at	BC028528	cDNA sequence BC028528	0.351525
1448330_at	Gstm1	glutathione S-transferase, mu 1	0.3515989
1425213_at	Fam81a	family with sequence similarity 81, member A	0.3518324
1416111_at	Cd83	CD83 antigen	0.3519716
1424965_at	Lpxn	leupaxin	0.3519963
1419135_at	Ltb	lymphotoxin B	0.3522801
1444614_x_at	6430537H07Rik	RIKEN cDNA 6430537H07 gene	0.3524195
1439864_at	Ccdc40	coiled-coil domain containing 40	0.3527031
1419674_a_at	Dpep1	dipeptidase 1 (renal)	0.3531672
1453128_at	Lyve1	lymphatic vessel endothelial hyaluronan receptor 1	0.353592
1457917_at	Lck	lymphocyte protein tyrosine kinase	0.3537926
1425888_at	Klra17	killer cell lectin-like receptor, subfamily A, member 17	0.3539178
1451605_at	Dyx1c1	dyslexia susceptibility 1 candidate 1 homolog (human)	0.3542741
1455279_at	Gm1060	gene model 1060, (NCBI)	0.354601
1435959_at	Arhgap15	Rho GTPase activating protein 15	0.3549064
1429809_at	Tmtc2	transmembrane and tetratricopeptide repeat containing 2	0.3558773
1437282_at			0.3566568
1458148_at	Nlrc3	NLR family, CARD domain containing 3	0.356732
1420534_at	Gucy1a3	guanylate cyclase 1, soluble, alpha 3	0.3572338
1441531_at	Plcb4	phospholipase C, beta 4	0.3575731
1424801_at	Enah	enabled homolog (Drosophila)	0.3575961
1449081_at	Ces3	carboxylesterase 3	0.3581743
1448502_at	Slc16a7	solute carrier family 16 (monocarboxylic acid transporters), member 7	0.3589877
1429175_at	Tmem178	transmembrane protein 178	0.3597659
1430419_at	2310031A07Rik	RIKEN cDNA 2310031A07 gene	0.3598194
1441075_at	Nostrin	nitric oxide synthase trafficker	0.3600452
1453868_at	Ccdc11	coiled-coil domain containing 11	0.3604075
1454806_at	Fam49a	family with sequence similarity 49, member B	0.3604595
1455180_at	Gcom1	GRINL1A complex locus	0.3605443
1428535_at	9430020K01Rik	RIKEN cDNA 9430020K01 gene	0.3609048
1427044_a_at	Amph	amphiphysin	0.3613105
1416007_at	Satb1	special AT-rich sequence binding protein 1	0.3616661
1439194_at	C030048H21Rik	RIKEN cDNA C030048H21 gene	0.3618983
1457797_at	AI605517	expressed sequence AI605517	0.3620942
1428117_x_at	Dynl1	dynein light chain Tctex-type 1	0.3628712
1445399_at	Klrb1b	killer cell lectin-like receptor subfamily B member 1B	0.3631418
1440840_at	D630004K10Rik	RIKEN cDNA D630004K10 gene	0.3633981
1424233_at	Meox2	mesenchyme homeobox 2	0.363777
1450639_at	Slc28a2	solute carrier family 28 (sodium-coupled nucleoside transporter), member 2	0.3643618
1444197_at	Rinl	Ras and Rab interactor-like	0.3643974
1440685_at			0.364978

1449038_at	Hsd11b1	hydroxysteroid 11-beta dehydrogenase 1	0.3653389
1437614_x_at	Zdhhc14	zinc finger, DHHC domain containing 14	0.3653441
1427892_at	Myo1g	myosin IG	0.3664658
1447792_x_at	Gpr174	G protein-coupled receptor 174	0.3664741
1439145_at	Lck	lymphocyte protein tyrosine kinase	0.3670471
1426396_at	Cd247	CD247 antigen	0.3671197
1418484_at	Tekt2	tektin 2	0.3682224
1456862_at	Six4	sine oculis-related homeobox 4 homolog (Drosophila)	0.3687269
1434873_a_at	Centb1	centaurin, beta 1	0.3693429
1441761_at	Sla	src-like adaptor	0.3693442
1424718_at	Mapt	microtubule-associated protein tau	0.36935
1441353_at	Nav2	neuron navigator 2	0.369547
1436294_at	Ankrd29	ankyrin repeat domain 29	0.3702332
1445763_at	1700013F07Rik	RIKEN cDNA 1700013F07 gene	0.3714524
1429543_at	6230424C14Rik	RIKEN cDNA 6230424C14 gene	0.3718204
1448557_at	Fam13c	family with sequence similarity 13, member C	0.3719149
1424542_at	S100a4	S100 calcium binding protein A4	0.3723421
1444137_at	A430108G06Rik	RIKEN cDNA A430108G06 gene	0.3734828
1440621_at			0.3737055
1456033_at	Tbx4	T-box 4	0.3741465
1442091_at			0.3746782
1458974_at			0.3750973
1460482_at	3110047P20Rik	RIKEN cDNA 3110047P20 gene	0.3754123
1449049_at	Tlr1	toll-like receptor 1	0.3755282
1417679_at	Gfi1	growth factor independent 1	0.3755951
1455292_x_at	Rsl1	regulator of sex limited protein 1	0.3760322
1438031_at	Rasgrp3	RAS, guanyl releasing protein 3	0.3773002
1419063_at	Ugt8a	UDP galactosyltransferase 8A	0.3782413
1420459_at	Ripply3	rippy3 homolog (zebrafish)	0.3784329
1440229_at	2310034G01Rik	RIKEN cDNA 2310034G01 gene	0.3787338
1453486_a_at	Scube2	signal peptide, CUB domain, EGF-like 2	0.3788606
1445980_at			0.3795571
1456418_at	Kcnj13	potassium inwardly-rectifying channel, subfamily J, member 13	0.3799376
1429842_at	Mdh1b	malate dehydrogenase 1B, NAD (soluble)	0.3800601
1455392_at	Prr18	proline rich region 18	0.3803189
1420819_at	Sla	src-like adaptor	0.3804063
1435771_at	Plcb4	phospholipase C, beta 4	0.3808233
1441317_x_at	Jakmip1	janus kinase and microtubule interacting protein 1	0.380897
1429673_at	5830407E08Rik	RIKEN cDNA 5830407E08 gene	0.3812698
1422788_at	Slc43a3	solute carrier family 43, member 3	0.3814335
1446751_s_at	Impact	imprinted and ancient	0.3817435
1456686_at			0.3818491
1429181_at	1700009P17Rik	RIKEN cDNA 1700009P17 gene	0.3819784
1416416_x_at	Gstm1	glutathione S-transferase, mu 1	0.3820974
1436312_at	Ikzf1	IKAROS family zinc finger 1	0.3822893

1417360_at	Mlh1	mutL homolog 1 (E. coli)	0.3823195
1429642_at	Anubl1	AN1, ubiquitin-like, homolog (Xenopus laevis)	0.3827888
1440464_at	Elavl1	ELAV (embryonic lethal, abnormal vision, Drosophila)-like 1 (Hu antigen R)	0.3841831
1440695_at			0.3844298
1415999_at	Hey1	hairy/enhancer-of-split related with YRPW motif 1	0.3845534
1417414_at	Sept3	septin 3	0.3851765
1439018_at	Fhdc1	FH2 domain containing 1	0.3852822
1418489_a_at	Calcl	calcitonin receptor-like	0.3854454
1436171_at	Arhgap30	Rho GTPase activating protein 30	0.3864568
1434939_at	Foxf1a	forkhead box F1a	0.3865404
1442582_at	Gcet2	germinal center expressed transcript 2	0.3868763
1433169_at	5830456J23Rik	RIKEN cDNA 5830456J23 gene	0.3872125
1424921_at	Brd4	bromodomain containing 4	0.3876291
1436285_at	Ccdc113	coiled-coil domain containing 113	0.3879451
1438532_at	Hmcn1	hemicentin 1	0.3882543
1455618_x_at	Tspan33	tetraspanin 33	0.3884066
1460255_at	Tnfsf13b	tumor necrosis factor (ligand) superfamily, member 13b	0.3884911
1455080_at	Ppp1r16b	protein phosphatase 1, regulatory (inhibitor) subunit 16B	0.3885601
1442646_at			0.389364
1446426_at			0.38977
1452892_at	Stk33	serine/threonine kinase 33	0.3901631
1422542_at	Gpr34	G protein-coupled receptor 34	0.3901823
1417702_a_at	Hnmt	histamine N-methyltransferase	0.3902754
1455771_at	Bzap1	benzodiazapine receptor associated protein 1	0.3905792
1446140_at			0.3907806
1419334_at	Ctla4	cytotoxic T-lymphocyte-associated protein 4	0.3911456
1448729_a_at	sept-4	septin 4	0.3918004
1457541_at	Akap14	A kinase (PRKA) anchor protein 14	0.3920394
1436814_at	1810010D01Rik	RIKEN cDNA 1810010D01 gene	0.3921713
1426208_x_at	Plagl1	pleiomorphic adenoma gene-like 1	0.3922748
1440305_at			0.3927009
1437356_at	Gpr183	G protein-coupled receptor 183	0.392849
1437176_at	Nlrc5	NLR family, CARD domain containing 5	0.3929818
1450521_a_at	Tcrg-V4	T-cell receptor gamma, variable 4	0.3931745
1438027_at			0.3934834
1418582_at	Cbfa2t3	core-binding factor, runt domain, alpha subunit 2, translocated to, 3 (human)	0.3942685
1457094_at	She	src homology 2 domain-containing transforming protein E	0.3944487
1434929_at	BC035044	cDNA sequence BC035044	0.3946678
1429452_x_at	4933439C20Rik	RIKEN cDNA 4933439C20 gene	0.3951526
1427034_at	Ace	angiotensin I converting enzyme (peptidyl-dipeptidase A) 1	0.3951553
1423259_at	Id4	inhibitor of DNA binding 4	0.3952751
1417496_at	Cp	ceruloplasmin	0.3961175

1445837_at			0.3961865
1450033_a_at	Stat1	signal transducer and activator of transcription 1	0.3965303
1448545_at	Sdc2	syndecan 2	0.396615
1436876_at	Rgs7bp	regulator of G-protein signalling 7 binding protein	0.3966554
1440472_at	Spag17	sperm associated antigen 17	0.3966625
1420515_a_at	Pglyrp2	peptidoglycan recognition protein 2	0.3972035
1420659_at	Slamf6	SLAM family member 6	0.3973039
1426951_at	Crim1	cysteine rich transmembrane BMP regulator 1 (chordin like)	0.397672
1435261_at	4732416N19Rik	RIKEN cDNA 4732416N19 gene	0.3982582
1419907_s_at	Fcrla	Fc receptor-like A	0.398321
1448117_at	Kitl	kit ligand	0.3985417
1422727_at	Nme5	non-metastatic cells 5, protein expressed in (nucleoside-diphosphate kinase)	0.3986362
1438310_at			0.398742
1449235_at	Fasl	Fas ligand (TNF superfamily, member 6)	0.3992008
1452904_at	1700026L06Rik	RIKEN cDNA 1700026L06 gene	0.3996634
1459536_at	Calcr1	calcitonin receptor-like	0.3998518
1459913_at	Tnfsf10	tumor necrosis factor (ligand) superfamily, member 10	0.3999482
1418394_a_at	Cd97	CD97 antigen	0.3999959
1423478_at	Prkcb	protein kinase C, beta	0.4000875
1441979_at	BC060267	cDNA sequence BC060267	0.4006435
1434295_at	Rasgrp1	RAS guanyl releasing protein 1	0.4010133
1449988_at	Gimap1	GTPase, IMAP family member 1	0.4010438
1441887_x_at	EG622976	predicted gene, EG622976	0.4010569
1455132_at	A430107D22Rik	RIKEN cDNA A430107D22 gene	0.4012836
1439906_at			0.4017941
1460218_at	Cd52	CD52 antigen	0.4021589
1434647_at	Egflam	EGF-like, fibronectin type III and laminin G domains	0.4025256
1419510_at	Es22	esterase 22	0.402904
1422953_at	Fpr2	formyl peptide receptor 2	0.4029205
1419858_at			0.4029358
1421101_a_at	Ldb2	LIM domain binding 2	0.4030268
1436172_at	Samd9l	sterile alpha motif domain containing 9-like	0.4033177
1419188_s_at	Ccl27a	chemokine (C-C motif) ligand 27A	0.4035886
1458362_at	D730005E14Rik	RIKEN cDNA D730005E14 gene	0.4044992
1456766_at	Ccdc151	coiled-coil domain containing 151	0.404798
1418776_at	5830443L24Rik	RIKEN cDNA 5830443L24 gene	0.4050712
1427325_s_at	Akna	AT-hook transcription factor	0.4054466
1416255_at	Gja4	gap junction protein, alpha 4	0.4055285
1440481_at	Stat1	signal transducer and activator of transcription 1	0.405716
1426832_at	Ddx26b	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 26B	0.4060351
1424029_at	Tspyl4	TSPY-like 4	0.4060712
1419306_at	Ccdc96	coiled-coil domain containing 96	0.4063573
1438975_x_at	Zdhhc14	zinc finger, DHHC domain containing 14	0.4066659

1436821_at	Plcxd3	phosphatidylinositol-specific phospholipase C, X domain containing 3	0.4067374
1417391_a_at	Il16	interleukin 16	0.406839
1440808_x_at	Cd163l1	CD163 molecule-like 1	0.4070005
1429514_at	Ppap2b	phosphatidic acid phosphatase type 2B	0.4072513
1436815_x_at	1810010D01Rik	RIKEN cDNA 1810010D01 gene	0.4073937
1421188_at	Ccr2	chemokine (C-C motif) receptor 2	0.4074455
1449591_at	Casp4	caspase 4, apoptosis-related cysteine peptidase	0.4076543
1420660_at	Lrrc6	leucine rich repeat containing 6 (testis)	0.4081963
1440798_x_at	Lrrc6	leucine rich repeat containing 6 (testis)	0.4087499
1418204_s_at	Aif1	allograft inflammatory factor 1	0.4091072
1436593_at	1700016K19Rik	RIKEN cDNA 1700016K19 gene	0.4093109
1439843_at	Camk4	calcium/calmodulin-dependent protein kinase IV	0.4095071
1455422_x_at	sept-4	septin 4	0.4098665
1451567_a_at	Ifi203	interferon activated gene 203	0.4099731
1437015_x_at	Pla2g1b	phospholipase A2, group IB, pancreas	0.4102734
1425890_at	Ly6i	lymphocyte antigen 6 complex, locus I	0.4114638
1435378_at	2210020M01Rik	RIKEN cDNA 2210020M01 gene	0.411502
1425335_at	Cd8a	CD8 antigen, alpha chain	0.4132922
1417470_at	Apobec3	apolipoprotein B mRNA editing enzyme, catalytic polypeptide 3	0.4134449
1458607_at			0.4138064
1426044_a_at	Prkcq	protein kinase C, theta	0.4144725
1451506_at	Mef2c	myocyte enhancer factor 2C	0.4147259
1449078_at	St3gal6	ST3 beta-galactoside alpha-2,3-sialyltransferase 6	0.4151709
1434380_at	Gbp6	guanylate binding protein 6	0.416065
1439557_s_at	Ldb2	LIM domain binding 2	0.4162404
1441418_at			0.4163871
1433626_at	Plscr4	phospholipid scramblase 4	0.4171266
1460014_at	Trem14	triggering receptor expressed on myeloid cells-like 4	0.4176092
1438324_at	9330182L06Rik	RIKEN cDNA 9330182L06 gene	0.4176779
1429224_at	Pnma1	paraneoplastic antigen MA1	0.4181819
1444470_x_at			0.418325
1419315_at	Slamf9	SLAM family member 9	0.4183554
1419043_a_at	ligp1	interferon inducible GTPase 1	0.4192
1448409_at	Lrmp	lymphoid-restricted membrane protein	0.4197214
1435825_at	Acvrl1	activin A receptor, type II-like 1	0.4201616
1439589_at			0.4204506
1441445_at	Per3	period homolog 3 (Drosophila)	0.4212391
1453913_a_at	Tap2	transporter 2, ATP-binding cassette, sub-family B (MDR/TAP)	0.4218411
1453429_at	EG665787	predicted gene, EG665787	0.4221652
1444426_at	Cass4	Cas scaffolding protein family member 4	0.4223024
1446440_at			0.4225084
1422889_at	Pcdh18	protocadherin 18	0.4225888
1434793_at	Wdr78	WD repeat domain 78	0.422951

1426574_a_at	Add3	adducin 3 (gamma)	0.4233088
1429524_at	Myo1f	myosin IF	0.4236711
1440811_x_at	Cd8a	CD8 antigen, alpha chain	0.4237896
1422620_s_at	Ppap2a	phosphatidic acid phosphatase type 2A	0.4238665
1441109_at	5430414B12Rik	RIKEN cDNA 5430414B12 gene	0.4242011
1419762_at	Ubd	ubiquitin D	0.4249814
1443026_at			0.425149
1444283_at	Gimap7	GTPase, IMAP family member 7	0.4254331
1423672_at	Ttc30b	tetratricopeptide repeat domain 30B	0.4256976
1420955_at	Vsnl1	visinin-like 1	0.426135
1455747_at	Ggt5	gamma-glutamyltransferase 5	0.4264036
1421917_at	Pdgfra	platelet derived growth factor receptor, alpha polypeptide	0.4265393
1419567_at	Fank1	fibronectin type 3 and ankyrin repeat domains 1	0.427273
1455150_at	Hecw2	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 2	0.4272734
1426640_s_at	Trib2	tribbles homolog 2 (Drosophila)	0.4273303
1453121_at	Tekt4	tektin 4	0.4273835
1455251_at	Itga1	integrin alpha 1	0.4274506
1427287_s_at	Itpr2	inositol 1,4,5-triphosphate receptor 2	0.4278517
1418392_a_at	Gbp3	guanylate binding protein 3	0.4281599
1417497_at	Cp	ceruloplasmin	0.4289605
1417803_at	1110032A04Rik	RIKEN cDNA 1110032A04 gene	0.4289614
1419810_x_at	Arhgap9	Rho GTPase activating protein 9	0.4292459
1441165_s_at	Clstn2	calsyntenin 2	0.4294201
1441375_at			0.429928
1433490_s_at	Epb4.1l2	erythrocyte protein band 4.1-like 2	0.4299556
1451053_a_at	Mdm1	transformed mouse 3T3 cell double minute 1	0.4301851
1435426_s_at	Pisd	phosphatidylserine decarboxylase	0.4302888
1436999_at	5033414K04Rik	RIKEN cDNA 5033414K04 gene	0.430417
1449473_s_at	Cd40	CD40 antigen	0.4306102
1437221_at	Rrm2b	ribonucleotide reductase M2 B (TP53 inducible)	0.4307159
1437361_at	OTTMUSG00000002043	predicted gene, OTTMUSG00000002043	0.4311567
1420723_at	Vnn3	vanin 3	0.4311836
1434069_at	Prex1	phosphatidylinositol-3,4,5-trisphosphate-dependent Rac exchange factor 1	0.4313307
1426285_at	Lama2	laminin, alpha 2	0.4315086
1424443_at	Tm6sf1	transmembrane 6 superfamily member 1	0.4316091
1418990_at	Ms4a4d	membrane-spanning 4-domains, subfamily A, member 4D	0.4317889
1438658_a_at	S1pr3	sphingosine-1-phosphate receptor 3	0.4318608
1435682_at	Lars2	leucyl-tRNA synthetase, mitochondrial	0.4320178
1419392_at	Pclo	piccolo (presynaptic cytomatrix protein)	0.4321385
1422701_at	Zap70	zeta-chain (TCR) associated protein kinase	0.4322176
1417872_at	Fhl1	four and a half LIM domains 1	0.4328898
1439221_s_at	Cd40	CD40 antigen	0.4336556
1419300_at	Flt1	FMS-like tyrosine kinase 1	0.4337058

1443447_at			0.4338238
1441068_at	A130001G05Rik	RIKEN cDNA A130001G05 gene	0.4340536
1442862_at	Ccdc88c	coiled-coil domain containing 88C	0.4340677
1422904_at	Fmo2	flavin containing monooxygenase 2	0.4342103
1460601_at	Myrip	myosin VIIA and Rab interacting protein	0.4345251
1436502_at	Mtus1	mitochondrial tumor suppressor 1	0.4347563
1438705_at	Cbfa2t3	core-binding factor, runt domain, alpha subunit 2, translocated to, 3 (human)	0.4348758
1419697_at	Cxcl11	chemokine (C-X-C motif) ligand 11	0.4353317
1423410_at	Meig1	meiosis expressed gene 1	0.4367576
1422638_s_at	Rassf5	Ras association (RalGDS/AF-6) domain family member 5	0.436807
1444092_at	9430025M13Rik	RIKEN cDNA 9430025M13 gene	0.4368493
1440244_at	Erg	avian erythroblastosis virus E-26 (v-ets) oncogene related	0.4371984
1456331_at	9130023H24Rik	RIKEN cDNA 9130023H24 gene	0.4374999
1421930_at	Icos	inducible T-cell co-stimulator	0.4375421
1435560_at	Irgal	integrin alpha L	0.4375805
1416016_at	Psmb9	proteasome (prosome, macropain) subunit, beta type 9 (large multifunctional peptidase 2)	0.4377748
1431074_a_at	Pitpnc1	phosphatidylinositol transfer protein, cytoplasmic 1	0.4383556
1420404_at	Cd86	CD86 antigen	0.4386731
1443448_x_at			0.4392674
1445404_at	Kif27	kinesin family member 27	0.4393431
1457177_at			0.4395005
1448147_at	Tnfrsf19	tumor necrosis factor receptor superfamily, member 19	0.439661
1422124_a_at	Ptprc	protein tyrosine phosphatase, receptor type, C	0.4397988
1456621_at	Fam13a	family with sequence similarity 13, member A	0.43981
1434621_at	Tmem204	transmembrane protein 204	0.4400843
1435353_a_at	Sfi1	Sfi1 homolog, spindle assembly associated (yeast)	0.4402787
1423213_at	Plxnc1	plexin C1	0.4405444
1452592_at	Mgst2	microsomal glutathione S-transferase 2	0.4406489
1442276_at			0.4409439
1452249_at	Prickle1	prickle like 1 (Drosophila)	0.4428126
1450570_a_at	Cd19	CD19 antigen	0.4428733
1420377_at	St8sia2	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 2	0.4430883
1445561_at			0.4434932
1425436_x_at	Klra9	killer cell lectin-like receptor subfamily A, member 9	0.4436236
1458134_at			0.4438554
1449556_at	H2-T23	histocompatibility 2, T region locus 23	0.4439199
1450696_at	Psmb9	proteasome (prosome, macropain) subunit, beta type 9 (large multifunctional peptidase 2)	0.4441769
1442411_at			0.4443201
1448713_at	Stat4	signal transducer and activator of transcription 4	0.4444766
1441708_at	Spag16	sperm associated antigen 16	0.4448274

1422653_at	Cep70	centrosomal protein 70	0.4448943
1419588_at	Spag1	sperm associated antigen 1	0.4476809
1428751_at	Pacrg	PARK2 co-regulated	0.4477048
1443643_at			0.4477783
1417676_a_at	Ptpro	protein tyrosine phosphatase, receptor type, O	0.4484943
1416296_at	Il2rg	interleukin 2 receptor, gamma chain	0.4494903
1434539_at	Lrrn3	leucine rich repeat protein 3, neuronal	0.4496577
1455271_at	OTTMUSG00000014994	predicted gene, OTTMUSG00000014994	0.4500313
1444214_at	Tubb1	tubulin, beta 1	0.4502682
1430579_at	Tnik	TRAF2 and NCK interacting kinase	0.4504968
1425102_a_at	Ace2	angiotensin I converting enzyme (peptidyl-dipeptidase A) 2	0.450573
1435066_at	Pitpnc1	phosphatidylinositol transfer protein, cytoplasmic 1	0.4511727
1446476_at	Tcra	T-cell receptor alpha chain	0.4512633
1439761_x_at	D830026I12Rik	RIKEN cDNA D830026I12 gene	0.4514473
1424208_at	Ptger4	prostaglandin E receptor 4 (subtype EP4)	0.4518313
1437064_at	Ar	androgen receptor	0.4524603
1419186_a_at	St8sia4	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 4	0.4537179
1436570_at			0.4549251
1441629_at			0.4550529
1437025_at	Cd28	CD28 antigen	0.4550764
1460651_at	Lat	linker for activation of T cells	0.4569666
1422730_at	Limd1	LIM domains containing 1	0.4571705
1443783_x_at	H2-Aa	histocompatibility 2, class II antigen A, alpha	0.4587491
1447788_s_at	Tspyl3	TSPY-like 3	0.4595612
1436787_x_at	1110069O07Rik	RIKEN cDNA 1110069O07 gene	0.4613067

Supplemental Table 2. Human Lung Adenocarcinoma Patient Characteristics

	Non-Invasive AC	Invasive AC
Patients	17	23
Age	67 (10) (53-90)	67 (8) (57-88)
Sex (female)	15 (88%)	15 (65%)
<u>T Stage</u>		
1A	12	8
1B	2	3
2A	1	11
3	2	
4		1
<u>N Stage</u>		
0	17	18
1		1
2		4
3		
<u>Stage Grouping</u>		
IA	14	9
IB	1	8
IIA		1
IIB	2	
IIIA		5
IIIB		

Supplemental Table 3. Biological Process Ontology for Mouse *KrasTgfb2*^{-/-} Mouse Tumor Signature Genes

A GO Biological Process group was considered to be significantly differentially regulated between *KrasTbr2*^{-/-} and *KrasTgfb2*^{WT} tumors if the Fisher (LS) statistic and the Kolmogorov-Smirnov (KS) statistic p values were less than 0.00001 and the Efron-Tibshirani's GSA test P-value was less than 0.005.

GO category	GO term	Number of genes
GO:0001816	cytokine production	97
GO:0001817	regulation of cytokine production	67
GO:0002697	regulation of immune effector process	57
GO:0002703	regulation of leukocyte mediated immunity	48
GO:0002706	regulation of lymphocyte mediated immunity	46
GO:0002819	regulation of adaptive immune response	42
GO:0002822	regulation of adaptive immune response based on somatic recombination of immune receptors built from immunoglobulin superfamily domains	42
GO:0002828	regulation of T-helper 2 type immune response	5
GO:0007398	ectoderm development	73
GO:0008544	epidermis development	69
GO:0016052	carbohydrate catabolic process	61
GO:0030217	T cell differentiation	86
GO:0031294	lymphocyte costimulation	9
GO:0042035	regulation of cytokine biosynthetic process	32
GO:0042089	cytokine biosynthetic process	42
GO:0042092	T-helper 2 type immune response	5
GO:0042098	T cell proliferation	57
GO:0042102	positive regulation of T cell proliferation	25
GO:0042107	cytokine metabolic process	42
GO:0042108	positive regulation of cytokine biosynthetic process	16
GO:0042129	regulation of T cell proliferation	36
GO:0043370	regulation of CD4-positive, alpha beta T cell differentiation	7
GO:0043372	positive regulation of CD4-positive, alpha beta T cell differentiation	7
GO:0045058	T cell selection	21
GO:0045191	regulation of isotype switching	12
GO:0045577	regulation of B cell differentiation	14
GO:0045619	regulation of lymphocyte differentiation	44

GO:0045844	positive regulation of striated muscle development	9
GO:0046631	alpha-beta T cell activation	40
GO:0048291	isotype switching to IgG isotypes	10
GO:0048302	regulation of isotype switching to IgG isotypes	10
GO:0048636	positive regulation of muscle development	9
GO:0050673	epithelial cell proliferation	37
GO:0050863	regulation of T cell activation	70
GO:0050870	positive regulation of T cell activation	54

Supplemental Table 4. *KrasTgfb2*^{-/-} five-week Mouse Stroma Signature Genes

Upregulated and Downregulated vs. nine-week *KrasTgfb2*^{WT} Stroma.

Genes UP in *KrasTgfb2*^{-/-} STROMA, sorted by Fold-change (all P<.01, FDR < 25%)

Probe set	Gene symbol	Description	Fold-change
1449526_a_at	Gdpd3	glycerophosphodiester phosphodiesterase domain containing 3	237.26
1457769_at	H60a	histocompatibility 60a	137.90
1424509_at	Cd177	CD177 antigen	115.82
1449088_at	Fbp2	fructose biphosphatase 2	81.29
1455627_at	Col8a1	collagen, type VIII, alpha 1	79.75
1420549_at	Gbp1	guanylate binding protein 1	70.84
1422571_at	Thbs2	thrombospondin 2	70.10
1450344_a_at	Ptger3	prostaglandin E receptor 3 (subtype EP3)	63.96
1419549_at	Arg1	arginase, liver	63.15
1450618_a_at	Sprr2a	small proline-rich protein 2A	59.88
1418724_at	Cfi	complement component factor	53.30
1420512_at	Dkk2	dickkopf homolog 2 (<i>Xenopus laevis</i>)	52.82
1440145_at	H60a	histocompatibility 60a	46.61
1416676_at	Kng1	kininogen 1	45.60
1438148_at	Cxcl3	chemokine (C-X-C motif) ligand 3	44.16
1416658_at	Frzb	frizzled-related protein	43.84
1452968_at	Cthrc1	collagen triple helix repeat containing 1	39.40
1449906_at	Selp	selectin, platelet	39.36
1417795_at	Chl1	cell adhesion molecule with homology to L1CAM	36.68
1418207_at	Fxyd4	FXYP domain-containing ion transport regulator 4	35.02
1449133_at	Sprr1a	small proline-rich protein 1A	34.99
1421365_at	Fst	follistatin	34.95
1419082_at	Serpib2	serine (or cysteine) peptidase inhibitor, clade B, member 2	33.39
1418440_at	Col8a1	collagen, type VIII, alpha 1	30.67
1449984_at	Cxcl2	chemokine (C-X-C motif) ligand 2	27.05
1439827_at	Adams12	a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 12	25.65
1449254_at	Spp1	secreted phosphoprotein 1	22.58
1439016_x_at	Sprr2a	small proline-rich protein 2A	22.45
1449033_at	Tnfrsf11b	tumor necrosis factor receptor superfamily, member 11b (osteoprotegerin)	22.42
1450663_at	Thbs2	thrombospondin 2	20.49
1425182_x_at			19.22
1440173_x_at	Selp	selectin, platelet	18.79
1421134_at	Areg	amphiregulin	17.72
1420330_at	Clec4e	C-type lectin domain family 4, member e	17.29
1419130_at	Adat2	adenosine deaminase, tRNA-specific 2, TAD2 homolog (<i>S. cerevisiae</i>)	17.20
1424885_at	Klhc8a	kelch domain containing 8A	16.82
1422643_at	Moxd1	monooxygenase, DBH-like 1	16.72
1449166_at	S100a14	S100 calcium binding protein A14	16.62
1434877_at	Nptx1	neuronal pentraxin 1	14.98

1457827_at	Arsj	arylsulfatase J	14.57
1455649_at	Ttc9	tetratricopeptide repeat domain 9	14.47
1429841_at	Megf10	multiple EGF-like-domains 10	14.24
1449153_at	Mmp12	matrix metalloproteinase 12	13.82
1422324_a_at	Pthlh	parathyroid hormone-like peptide	13.56
1451899_a_at	Gtf2ird1	general transcription factor II I repeat domain-containing 1	12.94
1434817_s_at	Rprd2	regulation of nuclear pre-mRNA domain containing 2	12.26
1442279_at			12.02
1445824_at	Zfp458	zinc finger protein 458	11.87
1435190_at	Chl1	cell adhesion molecule with homology to L1CAM	11.76
1434275_at	Nkd2	naked cuticle 2 homolog (Drosophila)	11.58
1460259_s_at			11.54
1423367_at	Wnt7a	wingless-related MMTV integration site 7A	11.28
1424966_at	Tmem40	transmembrane protein 40	11.28
1460285_at	Itga9	integrin alpha 9	11.05
1425191_at	Ocel1	occludin/ELL domain containing 1	10.93
1447862_x_at	Thbs2	thrombospondin 2	10.91
1415803_at	Cx3cl1	chemokine (C-X3-C motif) ligand 1	10.84
1434458_at	Fst	follicle-stimulating hormone	10.70
1443682_at			10.68
1416103_at	Ywhaz	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	10.58
1458268_s_at	Igfbp3	insulin-like growth factor binding protein 3	10.44
1435323_a_at	Mboat1	membrane bound O-acyltransferase domain containing 1	10.27
1429273_at	Bmper	BMP-binding endothelial regulator	10.13
1448194_a_at	H19	H19 fetal liver mRNA	9.76
1420558_at	Selp	selectin, platelet	9.74
1422026_at	Pi16	peptidase inhibitor 16	9.72
1448395_at	Sfrp1	secreted frizzled-related protein 1	9.68
1445546_at	A1844685	expressed sequence A1844685	8.99
1454995_at	Ddah1	dimethylarginine dimethylaminohydrolase 1	8.86
1429178_at	Odz3	odd Oz/ten-m homolog 3 (Drosophila)	8.52
1423349_at	Socs5	suppressor of cytokine signaling 5	8.52
1421207_at	Lif	leukemia inhibitory factor	8.42
1421217_a_at	Lgals9	lectin, galactose binding, soluble 9	8.34
1431004_at	Loxl2	lysyl oxidase-like 2	8.01
1415951_at	Fkbp10	FK506 binding protein 10	7.96
1458015_at	Megf11	multiple EGF-like-domains 11	7.94
1460465_at	A930038C0 7Rik	RIKEN cDNA A930038C07 gene	7.84
1455607_at	Rspo3	R-spondin 3 homolog (Xenopus laevis)	7.62
1456351_at	Brd8	bromodomain containing 8	7.38
1457117_at	Nfe2l2	nuclear factor, erythroid derived 2, like 2	7.36
1426865_a_at	Ncam1	neural cell adhesion molecule 1	7.29
1449249_at	Pcdh7	protocadherin 7	7.27
1440007_at	D930003E1 8Rik	RIKEN cDNA D930003E18 gene	7.27
1442115_at	Fam38b	family with sequence similarity 38, member B	7.23
1420664_s_at	Procr	protein C receptor, endothelial	7.20
1434382_at	Serinc2	serine incorporator 2	7.08
1423495_at	Decr2	2-4-dienoyl-Coenzyme A reductase 2, peroxisomal	6.98

1424793_a_at	Pbp2	phosphatidylethanolamine binding protein 2	6.96
1419431_at	Ereg	epiregulin	6.94
1452985_at	Uaca	uveal autoantigen with coiled-coil domains and ankyrin repeats	6.83
1436003_at	Vcam1	vascular cell adhesion molecule 1	6.81
1440739_at	Vegfc	vascular endothelial growth factor C	6.77
1451416_a_at	Tgm1	transglutaminase 1, K polypeptide	6.65
1442590_at	Tnfrsf22	tumor necrosis factor receptor	6.65
1419417_at	Vegfc	vascular endothelial growth factor C	6.54
1453480_at	Tmem213	transmembrane protein 213	6.53
1448470_at	Fbp1	fructose biphosphatase 1	6.48
1424097_at	Elov17	ELOVL family member 7, elongation of long chain fatty acids (yeast)	6.34
1418349_at	Hbegf	heparin-binding EGF-like growth factor	6.15
1437218_at	Fn1	fibronectin 1	5.83
1426600_at	Slc2a1	solute carrier family 2 (facilitated glucose transporter), member 1	5.80
1438620_x_at	Sfrp1	secreted frizzled-related protein 1	5.78
1428584_a_at	Haghl	hydroxyacylglutathione hydrolase-like	5.75
1417024_at	Hars	histidyl-tRNA synthetase	5.57
1439882_at	Sec23ip	Sec23 interacting protein	5.55
1452432_at	Tfpi	tissue factor pathway inhibitor	5.46
1456748_a_at	Nipsnap1	4-nitrophenylphosphatase domain and non-neuronal SNAP25-like protein homolog 1 (C. elegans)	5.46
1448894_at	Akr1b8	aldo-keto reductase family 1, member B8	5.45
1434046_at	AA467197	expressed sequence AA467197	5.26
1426981_at	Pcsk6	proprotein convertase subtilisin/kexin type 6	5.17
1453470_a_at	Gna13	guanine nucleotide binding protein, alpha 13	5.13
1429958_x_at	Haghl	hydroxyacylglutathione hydrolase-like	5.02
1449298_a_at	Pde1a	phosphodiesterase 1A, calmodulin-dependent	4.96
1460302_at	Thbs1	thrombospondin 1	4.95
1418025_at	Bhlhe40	basic helix-loop-helix family, member e40	4.91
1448276_at	Tspan4	tetraspanin 4	4.71
1449305_at	F10	coagulation factor X	4.62
1456653_a_at	Mthfd1l	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1-like	4.62
1450839_at	D0H4S114	DNA segment, human D4S114	4.61
1416342_at	Tnc	tenascin C	4.60
1428630_x_at	Haghl	hydroxyacylglutathione hydrolase-like	4.59
1427357_at	Cda	cytidine deaminase	4.54
1450625_at	Col5a2	collagen, type V, alpha 2	4.52
1424086_at	Oaf	OAF homolog (Drosophila)	4.49
1436942_at	A930035D0 4Rik	RIKEN cDNA A930035D04 gene	4.48
1440409_at	Gcnt3	glucosaminyl (N-acetyl) transferase 3, mucin type	4.45
1448754_at	Rbp1	retinol binding protein 1, cellular	4.41
1442529_at			4.39
1436345_at	5730559C1 8Rik	RIKEN cDNA 5730559C18 gene	4.39
1447284_at	Trem1	triggering receptor expressed on myeloid cells 1	4.38
1448025_at			4.34

1417599_at	Cd276	CD276 antigen	4.34
1431094_at	1110006E1 4Rik	RIKEN cDNA 1110006E14 gene	4.29
1434129_s_at	Lhfpl2	lipoma HMGIC fusion partner-like 2	4.25
1424613_at	Gprc5b	G protein-coupled receptor, family C, group 5, member B	4.25
1429974_at	Tbx18	T-box18	4.21
1459886_at			4.18
1426501_a_at	Tifa	TRAF-interacting protein with forkhead-associated domain	4.17
1439493_at	Zfp827	zinc finger protein 827	4.12
1423693_at	Cela1	chymotrypsin-like elastase family, member 1	4.11
1439944_at			4.11
1431033_x_at	Agl	amylo-1,6-glucosidase, 4-alpha-glucanotransferase	4.02
1417040_a_at	Bok	BCL2-related ovarian killer protein	4.01
1419647_a_at	Ier3	immediate early response 3	4.01
1437283_at	Tnpo2	transportin 2 (importin 3, karyopherin beta 2b)	3.99
1455587_at	Fam167b	family with sequence similarity 167, member B	3.97
1431032_at	Agl	amylo-1,6-glucosidase, 4-alpha-glucanotransferase	3.96
1448251_at	9030425E1 1Rik	RIKEN cDNA 9030425E11 gene	3.95
1432331_a_at	Prrx2	paired related homeobox 2	3.93
1422789_at	Aldh1a2	aldehyde dehydrogenase family 1, subfamily A2	3.91
1431422_a_at	Dusp14	dual specificity phosphatase 14	3.89
1418941_at	Pcdhb22	protocadherin beta 22	3.81
1424400_a_at			3.81
1435264_at	Emilin2	elastin microfibril interfacier 2	3.77
1452183_a_at	Meg3	maternally expressed 3	3.75
1418571_at	Tnfrsf12a	tumor necrosis factor receptor superfamily, member 12a	3.73
1424369_at	Psmf1	proteasome (prosome, macropain) inhibitor subunit 1	3.71
1449450_at	Ptges	prostaglandin E synthase	3.68
1436920_at	Pcdh17	protocadherin 17	3.65
1419609_at	Ccr1	chemokine (C-C motif) receptor 1	3.65
1454847_at	Lhfpl2	lipoma HMGIC fusion partner-like 2	3.64
1454822_x_at	Apcdd1	adenomatosis polyposis coli down-regulated 1	3.64
1429088_at	Lbh	limb-bud and heart	3.63
1435435_at	Cttnbp2	cortactin binding protein 2	3.62
1429843_at	Grrp1	glycine/arginine rich protein 1	3.61
1417595_at	Meox1	mesenchyme homeobox 1	3.60
1419123_a_at	Pdgfc	platelet-derived growth factor, C polypeptide	3.58
1452730_at	Rps4y2	ribosomal protein S4, Y-linked 2	3.57
1416273_at	Tnfaip2	tumor necrosis factor, alpha-induced protein 2	3.57
1423171_at	Gpr88	G-protein coupled receptor 88	3.56
1429240_at	Stard4	StAR-related lipid transfer (START) domain containing 4	3.55
1423503_at	Jam3	junction adhesion molecule 3	3.55
1417343_at	Fxyd6	FXYP domain-containing ion transport regulator 6	3.53
1418283_at	Cldn4	claudin 4	3.52
1427884_at	Col3a1	collagen, type III, alpha 1	3.37
1418626_a_at	Clu	clusterin	3.30
1417439_at	Cd248	CD248 antigen, endosialin	3.29
1428780_at	Tha1	threonine aldolase 1	3.26
1452521_a_at	Plaur	plasminogen activator, urokinase receptor	3.26
1451332_at	Zfp521	zinc finger protein 521	3.24

1416686_at	Plod2	procollagen lysine, 2-oxoglutarate 5-dioxygenase 2	3.24
1418572_x_at	Tnfrsf12a	tumor necrosis factor receptor superfamily, member 12a	3.23
1423992_at	Gatad2a	GATA zinc finger domain containing 2A	3.23
1423380_s_at	Nfatc4	nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 4	3.20
1439516_at	2610201A1 3Rik	RIKEN cDNA 2610201A13 gene	3.20
1449360_at	Csf2rb2	colony stimulating factor 2 receptor, beta 2, low-affinity (granulocyte-macrophage)	3.16
1450976_at	Ndrp1	N-myc downstream regulated gene 1	3.16
1447223_at			3.14
1440975_at	Mxra7	matrix-remodelling associated 7	3.12
1434033_at	Tle1	transducin-like enhancer of split 1, homolog of Drosophila E(spl)	3.11
1455090_at	Angptl2	angiopoietin-like 2	3.11
1455179_at	Mpp7	membrane protein, palmitoylated 7 (MAGUK p55 subfamily member 7)	3.09
1423319_at	Hhex	hematopoietically expressed homeobox	3.08
1422125_at	Htr2b	5-hydroxytryptamine (serotonin) receptor 2B	3.06
1417290_at	Lrg1	leucine-rich alpha-2-glycoprotein 1	3.05
1426546_at	Tesk2	testis-specific kinase 2	3.05
1421824_at	Bace1	beta-site APP cleaving enzyme 1	3.04
1448568_a_at	Slc20a1	solute carrier family 20, member 1	3.04
1416474_at	Igdcc4	immunoglobulin superfamily, DCC subclass, member 4	3.04
1434211_at	Sh3bgrl2	SH3 domain binding glutamic acid-rich protein like 2	3.02
1416531_at	Gsto1	glutathione S-transferase omega 1	3.02
1419087_s_at	Sf3a1	splicing factor 3a, subunit 1	3.01
1423216_a_at	2510049I19 Rik	RIKEN cDNA 2510049I19 gene	3.00
1435110_at	Unc5b	unc-5 homolog B (C. elegans)	2.98
1416409_at	Acox1	acyl-Coenzyme A oxidase 1, palmitoyl	2.98
1418323_at	Fem1b	feminization 1 homolog b (C. elegans)	2.97
1455468_at	Dpy19l3	dpy-19-like 3 (C. elegans)	2.96
1426875_s_at	Srxn1	sulfiredoxin 1 homolog (S. cerevisiae)	2.96
1457042_at	AI256396	EST AI256396	2.96
1417688_at	Fam20c	family with sequence similarity 20, member C	2.96
1416687_at	Plod2	procollagen lysine, 2-oxoglutarate 5-dioxygenase 2	2.95
1448654_at	Mtch2	mitochondrial carrier homolog 2 (C. elegans)	2.88
1425764_a_at	Bcat2	branched chain aminotransferase 2, mitochondrial	2.87
1424109_a_at	Glo1	glyoxalase 1	2.86
1419534_at	Olr1	oxidized low density lipoprotein (lectin-like) receptor 1	2.85
1425951_a_at	Clec4n	C-type lectin domain family 4, member n	2.83
1438530_at	Tfpi	tissue factor pathway inhibitor	2.82
1434413_at	Igf1	insulin-like growth factor 1	2.80
1460466_at	1700047I17 Rik1	RIKEN cDNA 1700047I17 gene 1	2.80
1438097_at	Rab20	RAB20, member RAS oncogene family	2.78
1442350_at			2.77
1436541_at	2310008H0 9Rik	RIKEN cDNA 2310008H09 gene	2.77
1433778_at	Tnks	tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase	2.76

1448933_at	Pcdhb17	protocadherin beta 17	2.76
1425582_a_at	Emcn	endomucin	2.75
1421034_a_at	Il4ra	interleukin 4 receptor, alpha	2.75
1451127_at	Vopp1	vesicular, overexpressed in cancer, prosurvival protein 1	2.75
1425558_at	Klc3	kinesin light chain 3	2.74
1428902_at	Chst11	carbohydrate sulfotransferase 11	2.74
1445758_at			2.74
1418456_a_at	Cxcl14	chemokine (C-X-C motif) ligand 14	2.74
1435385_at	Tshz2	teashirt zinc finger family member 2	2.66
1449025_at	lfit3	interferon-induced protein with tetratricopeptide repeats 3	2.66
1429321_at	Rnf149	ring finger protein 149	2.64
1420352_at	Prss22	protease, serine, 22	2.63
1439747_at	Ptges	prostaglandin E synthase	2.59
1429395_at	Gstcd	glutathione S-transferase, C-terminal domain containing	2.59
1455112_at	Aifm2	apoptosis-inducing factor, mitochondrion-associated 2	2.58
1426388_s_at	Ryk	receptor-like tyrosine kinase	2.58
1449315_at	Odz3	odd Oz/ten-m homolog 3 (Drosophila)	2.56
1436512_at			2.55
1423702_at	H1f0	H1 histone family, member 0	2.54
1417308_at	Pkm2	pyruvate kinase, muscle	2.53
1424186_at	Ccdc80	coiled-coil domain containing 80	2.53
1415977_at	Isyna1	myo-inositol 1-phosphate synthase A1	2.52
1436431_at	1700025G0 4Rik	RIKEN cDNA 1700025G04 gene	2.52
1456111_at	Fam55d	family with sequence similarity 55, member D	2.51
1443827_x_at	Fam20c	family with sequence similarity 20, member C	2.51
1434889_at	Plekha7	pleckstrin homology domain containing, family A member 7	2.51
1426968_a_at	Rdh10	retinol dehydrogenase 10 (all-trans)	2.50
1454788_at			2.48
1418490_at	Sdsl	serine dehydratase-like	2.46
1416805_at	1110032E2 3Rik	RIKEN cDNA 1110032E23 gene	2.43
1416334_at	Wwox	WW domain-containing oxidoreductase	2.42
1454667_at	Snx8	sorting nexin 8	2.41
1442434_at	D8Ert82e	DNA segment, Chr 8, ERATO Doi 82, expressed	2.39
1453187_at	Ociad2	OCIA domain containing 2	2.36
1417129_a_at	Meis2	Meis homeobox 2	2.36
1439786_at	Gab2	growth factor receptor	2.34
1428671_at	2200002D0 1Rik	RIKEN cDNA 2200002D01 gene	2.33
1417312_at	Dkk3	dickkopf homolog 3 (Xenopus laevis)	2.32
1428120_at	Fbxw9	F-box and WD-40 domain protein 9	2.30
1452997_at	6820431F20 Rik	RIKEN cDNA 6820431F20 gene	2.30
1429040_at	6820431F20 Rik	RIKEN cDNA 6820431F20 gene	2.30
1438214_at	Trps1	trichorhinophalangeal syndrome I (human)	2.29
1417492_at	Ctsb	cathepsin B	2.29
1425546_a_at	Trf	transferrin	2.27
1460205_at	Dcakd	dephospho-CoA kinase domain containing	2.27
1417094_at	Acot7	acyl-CoA thioesterase 7	2.27

1416473_a_at	Igdcc4	immunoglobulin superfamily, DCC subclass, member 4	2.27
1438815_at	Hist2h2aa1	histone cluster 2	2.27
1418431_at	Kif5b	kinesin family member 5B	2.26
1454765_at	Gtf3c3	general transcription factor IIIC, polypeptide 3	2.25
1460726_at		adenylosuccinate synthetase, non muscle	2.21
1450129_a_at	Socs6	suppressor of cytokine signaling 6	2.21
1436895_at	Arap2	ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 2	2.20
1460677_at	Spats2	spermatogenesis associated, serine-rich 2	2.20
1420965_a_at	Enc1	ectodermal-neural cortex 1	2.19
1417092_at	Pth1r	parathyroid hormone 1 receptor	2.18
1424356_a_at	Metrn1	meteorin, glial cell differentiation regulator-like	2.18
1439615_at	Gan	giant axonal neuropathy	2.18
1441891_x_at	Elovl7	ELOVL family member 7, elongation of long chain fatty acids (yeast)	2.17
1418365_at	Ctsh	cathepsin H	2.17
1424839_a_at	Nsun4	NOL1/NOP2/Sun domain family, member 4	2.17
1416378_at	Pnkp	polynucleotide kinase 3'-phosphatase	2.14
1437606_at	9530048O09Rik	RIKEN cDNA 9530048O09 gene	2.13
1435679_at	Optn	optineurin	2.12
1427994_at			2.10
1421375_a_at	S100a6	S100 calcium binding protein A6 (calcyclin)	2.10
1458683_at	Sirpb1	signal-regulatory protein beta 1	2.08
1444089_at	Spnb2	spectrin beta 2	2.08
1426553_at	Dnajc14	DnaJ (Hsp40) homolog, subfamily C, member 14	2.04
1441894_s_at	Grasp	GRP1 (general receptor for phosphoinositides 1)-associated scaffold protein	2.02
1423706_a_at	Pgd	phosphogluconate dehydrogenase	2.02
1424478_at	Bbs2	Bardet-Biedl syndrome 2 (human)	2.01
1442118_at			1.99
1417201_at	Nt5c2	5'-nucleotidase, cytosolic II	1.99
1424874_a_at	Ptbp1	polypyrimidine tract binding protein 1	1.98
1448656_at	Cacnb3	calcium channel, voltage-dependent, beta 3 subunit	1.98
1456952_at			1.98
1422650_a_at	Riok3	RIO kinase 3 (yeast)	1.98
1434754_at	Garnl4	GTPase activating RANGAP domain-like 4	1.97
1435549_at	Trpm4	transient receptor potential cation channel, subfamily M, member 4	1.96
1428391_at	Rab3il1	RAB3A interacting protein (rabin3)-like 1	1.95
1423960_at	Lpcat3	lysophosphatidylcholine acyltransferase 3	1.95
1448663_s_at	Mvd	mevalonate (diphospho) decarboxylase	1.92
1435940_at	Dclk1	doublecortin-like kinase 1	1.91
1456036_x_at	Gsto1	glutathione S-transferase omega 1	1.89
1449311_at	Bach1	BTB and CNC homology 1	1.89
1451036_at	Spg21	spastic paraplegia 21 homolog (human)	1.88
1431856_a_at	C1qtnf6	C1q and tumor necrosis factor related protein 6	1.88
1433575_at	Sox4	SRY-box containing gene 4	1.84
1455978_a_at	Matn2	matriilin 2	1.82
1422842_at	Xrn2	5'-3' exoribonuclease 2	1.81
1433548_at	Mare	alpha globin regulatory element containing gene	1.80

1422878_at	Syt12	synaptotagmin XII	1.80
1416995_at	Pacsin3	protein kinase C and casein kinase substrate in neurons 3	1.79
1455545_at	1110065P2 ORik	RIKEN cDNA 1110065P20 gene	1.77
1425528_at	Prrx1	paired related homeobox 1	1.76
1425045_at	Jmjd7	jumonji domain containing 7	1.74
1434206_s_at	Ppp2r5c	protein phosphatase 2, regulatory subunit B (B56), gamma isoform	1.73
1436747_at	Fam100b	family with sequence similarity 100, member B	1.71
1422507_at	Cstb	cystatin B	1.70
1424214_at	9130213B0 5Rik	RIKEN cDNA 9130213B05 gene	1.70
1435571_at	Mpzi3	myelin protein zero-like 3	1.68
1417147_at	Fam69b	family with sequence similarity 69, member B	1.68
1417501_at	Fbxo6	F-box protein 6	1.66
1424271_at	Dclk1	doublecortin-like kinase 1	1.65
1417700_at	Rab38	RAB38, member of RAS oncogene family	1.64
1417902_at	Slc19a2	solute carrier family 19 (thiamine transporter), member 2	1.63
1436120_at	Setdb2	SET domain, bifurcated 2	1.63
1429110_a_at	Nsun4	NOL1/NOP2/Sun domain family, member 4	1.61
1415988_at	Hdlbp	high density lipoprotein (HDL) binding protein	1.61
1422508_at	Atp6v1a	ATPase, H ⁺ transporting, lysosomal V1 subunit A	1.59
1422549_at	Arl2	ADP-ribosylation factor-like 2	1.53
1426567_a_at	Pqlc1	PQ loop repeat containing 1	1.52
1438407_at	Dsel	dermatan sulfate epimerase-like	1.47
1441940_x_at	Klhdc8a	kelch domain containing 8A	1.43
1451791_at	Tfpi	tissue factor pathway inhibitor	1.43

Genes DOWN in *KrasTgfr2^{-/-}* STROMA, sorted by Fold-change(all P<.01,FDR<25%)

Probe set	Gene symbol	Description	Fold-change
1434171_at	Zfp874	zinc finger protein 874	0.014
1431213_a_at	Gm3579		0.000
1455869_at			0.000
1444092_at	9430025M13Rik	RIKEN cDNA 9430025M13 gene	0.032
1437128_a_at	A630033E08Rik	RIKEN cDNA A630033E08 gene	0.008
1457945_at			0.015
1440339_at	Enpp1	ectonucleotide pyrophosphatase/phosphodiesterase 1	0.008
1435514_at	Lztlf1	leucine zipper transcription factor-like 1	0.036
1440188_at			0.037
1435682_at	Lars2	leucyl-tRNA synthetase, mitochondrial	0.152
1435491_at	9830167H18Rik	RIKEN cDNA 9830167H18 gene	0.337
1417360_at	Mlh1	mutL homolog 1 (E. coli)	0.226
1426417_at	Yipf4	Yip1 domain family, member 4	0.117
1446471_at			0.023
1439475_at	Zfp429	zinc finger protein 429	0.011
1455219_at	1110030E23Rik	RIKEN cDNA 1110030E23 gene	0.369
1446750_at	Impact	imprinted and ancient	0.174
1440464_at	Elavl1	ELAV (embryonic lethal, abnormal vision, Drosophila)-like 1 (Hu antigen R)	0.244
1440471_x_at			0.354
1458607_at			0.272
1434962_x_at	Ccl27a	chemokine (C-C motif) ligand 27A	0.057
1456655_at			0.032
1437221_at	Rrm2b	ribonucleotide reductase M2 B (TP53 inducible)	0.246
1458318_at			0.199
1454402_at	3110048L19Rik	zinc finger pseudogene	0.034
1438238_at	2010315B03Rik	RIKEN cDNA 2010315B03 gene	0.244
1460628_at	Eme2	essential meiotic endonuclease 1 homolog 2 (S. pombe)	0.085
1449337_at	Tdo2	tryptophan 2,3-dioxygenase	0.282
1434441_at	1110018J18Rik	RIKEN cDNA 1110018J18 gene	0.330
1418429_at	Kif5b	kinesin family member 5B	0.039
1457163_at	D730035F11Rik	RIKEN cDNA D730035F11 gene	0.082
1456331_at	9130023H24Rik	RIKEN cDNA 9130023H24 gene	0.301
1422011_s_at			0.438
1456663_x_at	Tm2d2	TM2 domain containing 2	0.393
1436337_at	4930420K17Rik	RIKEN cDNA 4930420K17 gene	0.372
1426472_at	Zfp52	zinc finger protein 52	0.196
1417470_at	Apobec3	apolipoprotein B mRNA editing enzyme, catalytic polypeptide 3	0.139
1426218_at	Glcci1	glucocorticoid induced transcript 1	0.351
1452508_x_at	Ptms	parathymosin	0.414
1460670_at	Riok3	RIO kinase 3 (yeast)	0.211
1428920_at	Hmg20a	high mobility group 20A	0.695
1434333_a_at	Prkd2	protein kinase D2	0.659
1452565_x_at	LOC641050	hypothetical protein LOC641050	0.184
1429925_at	Clec12b	C-type lectin domain family 12, member B	0.289

1432161_a_at	Ptar1	protein prenyltransferase alpha subunit repeat containing 1	0.292
1420661_a_at	4933439F18Rik	RIKEN cDNA 4933439F18 gene	0.421
1433913_at	C80913	expressed sequence C80913	0.213
1435660_at	LOC664787	similar to Sp110 nuclear body protein	0.193
1435909_at	C030034I22Rik	RIKEN cDNA C030034I22 gene	0.341
1455973_at	Gm11992	predicted gene 11992	0.329
1457233_at	Dnaja2	DnaJ (Hsp40) homolog, subfamily A, member 2	0.443
1439376_x_at	Dmtf1	cyclin D binding myb-like transcription factor 1	0.034
1443640_at	Zfp617	zinc finger protein 617	0.211
1436294_at	Ankrd29	ankyrin repeat domain 29	0.334
1452272_a_at	Gfer	growth factor, erv1 (<i>S. cerevisiae</i>)-like (augmenter of liver regeneration)	0.306
1426471_at	Zfp52	zinc finger protein 52	0.289
1437516_at			0.458
1453571_at	Depdc6	DEP domain containing 6	0.211
1453824_at	Ccdc76	coiled-coil domain containing 76	0.518
1451191_at	Crabp2	cellular retinoic acid binding protein II	0.131
1444031_at	Camk2d	calcium/calmodulin-dependent protein kinase II, delta	0.149
1421854_at	Fgl2	fibrinogen-like protein 2	0.468
1442153_at			0.305
1445884_at			0.337
1440114_x_at	Kank3	KN motif and ankyrin repeat domains 3	0.486
1437614_x_at	Zdhhc14	zinc finger, DHHC domain containing 14	0.208
1434554_at	Trim37	tripartite motif-containing 37	0.774
1452535_at	Igh-6	immunoglobulin heavy chain 6 (heavy chain of IgM)	0.074
1441073_at	NA	NA	0.271
1441910_x_at	Ccne1	cyclin E1	0.359
1442411_at			0.250
1417283_at	Lynx1	Ly6/neurotoxin 1	0.294
1438975_x_at	Zdhhc14	zinc finger, DHHC domain containing 14	0.221
1437222_x_at	Rrm2b	ribonucleotide reductase M2 B (TP53 inducible)	0.261
1440927_x_at	Apol11b	apolipoprotein L 11b	0.174
1421358_at	H2-M3	histocompatibility 2, M region locus 3	0.260
1422730_at	Limd1	LIM domains containing 1	0.328
1451456_at	Hjrup	Holliday junction recognition protein	0.291
1417619_at	Gadd45gip1	growth arrest and DNA-damage-inducible, gamma interacting protein 1	0.392
1442897_at	Fam13b	family with sequence similarity 13, member B	0.469
1444845_at	Scfd1	Sec1 family domain containing 1	0.284
1424824_at	Slain1	SLAIN motif family, member 1	0.457
1435872_at			0.246
1447946_at	Adam23	a disintegrin and metallopeptidase domain 23	0.183
1424324_at	Esco1	establishment of cohesion 1 homolog 1 (<i>S. cerevisiae</i>)	0.401
1419188_s_at	Ccl27a	chemokine (C-C motif) ligand 27A	0.202
1438258_at	Vldlr	very low density lipoprotein receptor	0.406
1420693_at	Myom1	myomesin 1	0.309
1445349_at			0.594
1435293_at	Adam22	a disintegrin and metallopeptidase domain 22	0.368
1434145_s_at	Serhl	serine hydrolase-like	0.193
1445201_at	Zfp53	zinc finger protein 53	0.765

1438037_at	Herc5	hect domain and RLD 5	0.669
1437911_at	6330416L07Rik	RIKEN cDNA 6330416L07 gene	0.393
1438641_x_at	Fam57b	family with sequence similarity 57, member B	0.415
1441305_at	Nedd4l	neural precursor cell expressed, developmentally down-regulated gene 4-like	0.678
1441111_at			0.039
1438031_at	Rasgrp3	RAS, guanyl releasing protein 3	0.253
1441747_at			0.384
1436621_at	RP23-157O10.7	P140 gene	0.766
1453752_at	Rpl17	ribosomal protein L17	0.087
1435521_at	Msi2	Musashi homolog 2 (Drosophila)	0.467
1424336_at	Ppcdc	phosphopantothenoylecysteine decarboxylase	0.104
1457386_at			0.305
1427306_at	Ryr1	ryanodine receptor 1, skeletal muscle	0.121
1444260_at			0.218
1435520_at	Msi2	Musashi homolog 2 (Drosophila)	0.503
1458455_at	Abra	actin-binding Rho activating protein	0.132
1421230_a_at	Msi2	Musashi homolog 2 (Drosophila)	0.417
1451972_at			0.261
1434326_x_at	Coro2b	coronin, actin binding protein, 2B	0.264
1425584_x_at			0.371
1438931_s_at			0.706
1439173_at	Hook1	hook homolog 1 (Drosophila)	0.278
1426371_at	Far1	fatty acyl CoA reductase 1	0.638
1421931_at	Icos	inducible T-cell co-stimulator	0.180
1418642_at	Lcp2	lymphocyte cytosolic protein 2	0.280
1425012_at	Gng5	guanine nucleotide binding protein (G protein), gamma 5	0.311
1429466_s_at			0.376
1425469_a_at			0.490
1417141_at	Igtp	interferon gamma induced GTPase	0.575
1451629_at	Lbh	limb-bud and heart	0.397
1428974_s_at	Lztf1	leucine zipper transcription factor-like 1	0.383
1439361_at			0.448
1423180_at	Kcnb1	potassium voltage gated channel, Shab-related subfamily, member 1	0.436
1428026_at	Tshz2	teashirt zinc finger family member 2	0.403

Supplemental Table 5. Immune Response and Development Pathway Genes Differentially Expressed in Stroma of *KrasTbr2^{-/-}* vs. *KrasTbr2^{wt}* Murine Lung Tumors.

Development Genes

Embryonic development

Gatad2a
Gna13
Gtf2ird1
Hhex
Htr2b
Meg3
Nfe2l2
Rdh10
Wnt7a

Morphogenesis of embryonic epithelium

Aldh1a2
Crabp2
Fem1b
Hhex
Tbx18
Vegfc

Organ morphogenesis

Ereg
Frzb
Hhex
Rdh10
Vegfc
Wnt7a

Lung development

Aldh1a2
Ctsh
Hhex
Igf1
Meg3
Rdh10
Tnc

Somitogenesis/Skeletal muscle devel.

Aldh1a2
Chst11

Brain/Nervous sytem development

Aldh1a2
Dclk1
Enc1
Hhex
Htr2b
Igf1
Meis2
Rdh10
Unc5b
Wnt7a

Digestive/Pancreas development

Aldh1a2
Cela1
Hhex
Igf1
Meis2
Sfrp1
Sox4

Gonad development

Ereg
Rdh10
Sfrp1
Wnt7a

Heart development

Aldh1a2
Hhex
Htr2b
Nfatc4
Sox4
Vcam1

Prostate development

Fem1b
Igf1
Sfrp1

Crabp2

Frzb

Prrx1

Prrx2

Pth1r

Rdh10

Sfrp1

Tbx18

Wnt7a

Wwox

Tnc

Misc organ development

Areg (breast)

Dkk3(adrenal)

Igf1 (breast)

Red- Genes upregulated in *KrasTgfr2*^{-/-} vs. *KrasTgfr2*^{WT}
Green- Genes downregulated in *KrasTgfr2*^{-/-} vs. *KrasTgfr2*^{WT}

Immune Response Genes

Immune response

1427994_at

Adss

Ccr1

Cd276

Clec4E

Clec4n

Cx3cl1

Cxcl14

Cxcl2

Cxcl3

Enpp2

Ereg

H60a

Herc5 (innate)

Icos

Il4ra

Lcp2

Lif

NM_007686

Procr

Ptms

Trpm4

Inflammatory response

Cd276

Cela1

Cx3cl1

Cxcl2

Cxcl3

Nfatc4

Olr1

Selp

Spp1

Thbs1

Leukocyte chemotaxis

Ccr1

Cd177

Cx3cl1

Cxcl3

S100a14

Cellular response to IL4

Arg1

Ctsb

Regulation/Cellular response to TGF-B

Arg1

Cx3cl1

Sfrp1

Wnt7a

Positive and negative T cell regulation

Cd276

Kng1

Vcam1

T cell signaling

Cacnb3

Icos

T cell differentiation

Sox4

T cell cytotoxicity

H2-M3

Negative regulation Th1, Positive regulation Th2

Il4ra

Positive regulation Th1, negative regulation Th2

Socs5

Increased in activated T cells

Nfatc4

Induction of IL2/IL4

Nfatc4

Negative regulation of IL2

Cd276

Selp
Trem1

NK cell cytotoxicity
H2-M3
H60a

Red- Genes upregulated in *KrasTgfr2*^{-/-} vs. *KrasTgfr2*^{WT}
Green- Genes downregulated in *KrasTgfr2*^{-/-} vs. *KrasTgfr2*^{WT}

Supplemental Table 6. Mouse Model Gene Sets used in GSEA validation of *KrasTgfr2*^{-/-} model.

Tgfr2_UP	mKrasLAT1_UP	Lkb1_UP	P53_UP	HIF2a_UP
ABCB1B	AASS	AASS	AAK1	AAK1
ADAM12	ACADL	ACAD9	ABCA1	ABI3
ADAMTS12	ACE2	ACADVL	ABCB1B	ACAS2L
ADAMTS4	ACLY	ACAT1	ABCB6	ACIN1
ADAT2	ACSL4	ACE2	ABCF3	ADAMTS8
AFM	ACSL5	ACYP1	ABHD1	ADAMTSL2
AFP	ACTN1	ADCY3	ABR	ADH1
AHNAK2	ACTN4	ADI1	ACE	AGA
AK3L1	ADAM19	AFP	ACNAT2	AIF1
AKR1B8	ADCY7	AGRN	ACO1	AMY2
ALDH1A2	ADIPOR2	AI413582	ACP2	ANXA6
ALPK2	ADSSL1	AI506816	ACSF2	APLP1
ANK	AES	AKR1C12	ACSS2	APOBEC1
ANKRD1	AI506816	AKR1C13	ADAMTSL5	ARID5B
ANO1	AI596198	AKR1E1	ADAP2	ART3
ANXA10	AK1	AKR7A5	ADARB1	ASPN
APLNR	ALDOA	ALB	ADIPOR1	ATP6V0E
AREG	ALDOC	ALDH1A7	ADRB2	AW112010
ARG1	ANK3	AMHR2	ADRM1	BC026657
ARRDC3	ANXA4	ANXA5	AGAP1	BHC80
ATG9B	APEX1	ANXA6	AGAP3	C1QA
B830012L14RIK	APOC1	AP4S1	AGFG2	C1QB
BAG2	APRT	APOBEC1	AHCYL2	C1QTNF5
BC016579	ARCN1	APOBEC3	AHR	C1QTNF7
BCL2L15	AREG	APOC1	AI506816	CARD4
BEX1	ARF6	ARIH2	AKR1A4	CAV3
BRUNOL5	ARG1	ARL1	AKR1D1	CCL19
C130090K23RIK	ARG2	ARPC5	ALDH18A1	CD52
CAR9	ARGLU1	ASNS	ALDH2	CD83
CCDC117	ARL8B	ATP5J2	ALK	CD86
CDA	ATOX1	ATP6V0E2	AMBP	CDC27
CDKN2B	ATP11A	ATP6V1E1	ANAPC2	CDH11
CEACAM1	ATP1A1	ATXN10	ANG2	CFH
CHL1	ATP1B1	AURKAIP1	ANKZF1	CFH
CLDN4	ATP5C1	AUTS2	ANXA7	CFH
CLEC4D	ATP5F1	AW209491	AP1G2	CILP
CLIP4	ATP6V0A1	B230118H07RIK	APBB2	CKLFSF3
CLU	ATP6V0C	BCKDHA	APH1A	CLCA3

COL12A1	ATP6V0D1	BCL2L14	ARF3	COL14A1
COL15A1	ATP6V1C1	BCL2L15	ARF6	COL2A1
COL7A1	ATXN10	BCL3	ARFGAP1	COLEC12
COL8A1	AU021092	BET1	ARFGAP2	COMP
CXCL3	AVPI1	BET1L	ARGLU1	CPXM1
CXCL5	AXIN1	BNIP1	ARHGEF18	CPXM2
DIO2	AXL	C80913	ARHGEF2	CREB3L3
DKK2	AZIN1	CADPS2	ARHGEF7	CRHR2
DLK1	B3GAT3	CAMK1	ARID1A	CSRP3
EG433182	B4GALNT1	CAP1	ARNT	CX3CR1
EGLN3	BASP1	CAR4	ARRB2	CXCL10
EMILIN2	BCL2A1A	CAR8	ARRDC4	CXCL13
ENO1	BCL2A1A	CAST	ASAP1	CXCL3
EPHA3	BEX1	CBR1	ASH1L	CYGB
EPHA4	BEX4	CBR3	ATOH7	DAAM1
EREG	BHLHE40	CBX6	ATP13A2	DEPDC6
FBLN2	BMP4	CCT5	ATP2A1	DSCAM
FBP1	BOP1	CCT7	ATP2B2	DXBAY18
FBP2	BRAF	CD177	ATXN10	EBF2
FGFBP1	BRD7	CD53	AXL	ETOH11
FGL1	BSG	CD97	B230208H17RIK	ETV1
FMOD	BST1	CDH16	B3GNT9	EXT1
FRZB	BTG1	CES3	B3GNTL1	FCGR2B
FST	BTG3	CHCHD4	BACE1	FCRL3
FXYD4	BXDC2	CHCHD6	BACE2	FGD5
FXYD6	C1QB	CHDH	BAP1	FGL2
GCNT3	C1QC	CHI3L1	BAT1A	GAL
GJA1	C330027C09RIK	CIAO1	BAZ2A	GPR124
GJA3	C77080	CIITA	BC002230	GPR65
GJB4	CAMSAP1	CLASP2	BC017647	GRIT
GPC1	CAPZA3	CLPB	BC025446	HDH
GPC6	CAR8	CNBP	BCL2L11	HEYL
GSTO1	CASK	CNPY2	BCL2L15	HIST1H2BC
GZME	CCL6	COL1A1	BMP8B	HPS4
H19	CCL9	COL1A2	BRD4	ICA1
HARS	CCND1	COL5A1	BRDT	IFI205
HECW1	CCR5	COL5A2	BSDC1	IGF1
HSD17B14	CCT3	COPS7A	BTC	IL10RA
HSPA1A	CD14	COX5B	C030018P15RIK	IL18BP
HSPA1B	CD44	CPSF3	C130036L24RIK	IL1B
HSPB8	CD63	CRELD1	C130090K23RIK	IL2RG
HTRA3	CD68	CRYBG3	C80068	ITCH
HTRA4	CD74	CTH	CABC1	ITGA1

IGF1	CD9	CUBN	CABP7	ITGB5
IGFBP3	CDK2AP2	CUEDC1	CACHD1	ITM2C
IL33	CDKN1A	CUL7	CACNA1A	JAM3
IL6	CEACAM1	D10WSU52E	CAMK1D	KCNMB2
INHBA	CEBPA	D17H6S56E-5	CAP1	KCTD12
ITGA7	CFB	D17WSU104E	CAR10	KHDRBS3
ITGA9	CH25H	DDAH2	CBLN1	KLK11
KLHDC8A	CHCHD7	DDC	CC2D1A	LEO1
KLK1B9	CHD4	DDIT4L	CCDC45	LRRC25
KNG1	CHI3L1	DFNA5	CCDC64	LY86
KRT18	CHI3L3	DHRS4	CCDC71	LY96
KRT19	CHIA	DMXL1	CD4	MAMDC2
KRT7	CHL1	DNAJA1	CDC2L1	MAN2A1
LAD1	CHRNB1	DNAJA4	CDC73	MAN2A1
LIF	CISD1	DPP4	CDCA4	MATN2
LMO7	CITED2	DPP7	CDKN2A	MB
LOC100045283	CKMT1	DST	CEACAM10	MCTS1
MALT1	CKS2	DSTYK	CER1	MDK
MBOAT1	CLCN5	EAR1	CHST15	MFAP5
MEG3	CLDN3	ECHDC2	CITED4	MMP3
MEGF10	CLDN7	EHD4	CLDN23	MRPL55
MEGF11	CLDND1	EIF4B	CML3	MS4A4B
MFSD2	CLIC1	ELF5	CNPY2	MS4A4D
MID1	CLIP4	ELK3	COL4A1	MS4A6B
MIRG	CLU	EPDR1	COL5A1	
MIXL1	CLU	ERAF	COX18	
MMP11	CNDP2	ERDR1	CPLX4	
MORC1	CNIH2	ETFB	CPSF1	
MOXD1	COL15A1	FAHD1	CRAMP1L	
MPZL2	COL18A1	FAM125A	CUEDC2	
MPZL3	COTL1	FAM132A	CXADR	
MSLN	CPOX	FAM20B	CYGB	
MT1	CRB3	FBLN2	CYP2C38	
MT2	CRLF1	FCRLS	CYP3A44	
MTAP	CRYGD	FGF1	D10ERTD641E	
MYBPC2	CSF2	FKBP11	D2ERTD63E	
NA	CSF2RB2	FKBP4	D4ERTD117E	
NDRG4	CSRP2	FMC1	DCAF8	
NPTX1	CSTB	FNBP1	DCK	
NTS	CTAGE5	FRYL	DCX	
PBP2	CTNND2	FUBP1	DFFA	
PCDH21	CTSA	FURIN	DFFB	
PFKL	CTSB	GABARAPL1	DHCR24	

PI16	CTSC	GADD45GIP1	DLL4
PKHD1	CTSD	GALC	DLX1AS
PKM2	CTSH	GALK2	DLX6
PRG4	CTSK	GARS	DNAJB3
PRKCDBP	CTSS	GDF15	DNMT3A
PROCR	CTSZ	GDPD3	DOPEY2
PROZ	CXCL1	GFER	DPYS
PRSS22	CYB5R1	GIT2	DQX1
PRSS35	CYB5R3	GJB3	DSCAML1
PSCA	CYBA	GLCCI1	DSP
PTGES	CYHR1	GNB1	DUSP10
PTHLH	CYTSB	GNE	DUSP12
PTPRN	D15ERTD50E	GOT2	DVL3
RADIL	D17WSU104E	GPBP1	E330009J07RIK
RET	DAP	GPT2	EGLN3
RGS5	DLK1	GRB2	EIF5
RIAN	DSC2	GRCC10	EML5
RIN1	DSCAML1	GSTA3	EPB4.1L1
S100A14	DUSP6	GSTK1	EPC1
S100A6	EAR1	GSTM1	EPS15L1
SCARA3	EAR2	GSTM2	ERDR1
SCEL	EDEM1	GSTM4	ERI3
SDCBP2	EEF1B2	GSTT1	ERMAP
SELP	EEF1D	GTF2H4	ERN2
SEMA3B	EEF2	H13	ESPN
SERPINB2	EG622147	H2-AA	ESRP2
SEZ6L2	EHD1	H2-EB1	ESYT3
SFRP1	EHMT2	H2-Q7	ETL4
SLC19A2	EIF1AY	HAUS2	FAM122A
SLC20A1	EIF2AK4	HCFC1	FAM160B1
SLC23A3	EIF3E	HDC	FAM178A
SLC26A4	EIF4B	HDHD2	FAM189B
SLC2A1	EIF4G1	HHEX	FAM60A
SLC6A14	ELF5	HIBADH	FAM83H
SLCO4A1	ELL2	HIST3H2A	FARP1
SORBS2	ELOVL1	HK1	FARP2
SP5	ENO1	HMGA2	FBLIM1
SPP1	ENTPD1	HNMT	FBXO42
SPRR1A	EPCAM	HNRNPAB	FBXW8
SPRR2A	EPHA7	HRSP12	FCRLA
SRPX2	ERH	HSPBP1	FGB
SSR1	ERRFI1	ICA1	FGF12
ST3GAL4	ES31	ID2	FGF5

STARD4	ESRP1	IDH3B	FKBP1B
STEAP2	ETV2	IGSF8	FMOD
SYNPR	F10	IL34	FN1
TGFB2	F3	IL4I1	FNBP4
TGM1	F7	IMMT	FOXC2
THBS2	FAM117A	ING3	FOXH1
TIMP1	FAM162A	ISY1	FOXO1
TINAGL1	FAM3C	IVD	FOXO3
TMEM213	FAM49B	JAGN1	FOXP1
TMEM40	FASN	JMJD8	FUBP1
TNC	FBP2	KBTBD2	FURIN
TNFRSF11B	FCER1G	KCTD14	FUT2
TNFRSF22	FCGR2B	KCTD2	GABRB2
TNFSF9	FKBP2	KLF6	GALNT10
TPI1	FKBP4	KLHDC2	GALNT4
TPM1	FMR1	KLHL22	GATAD2B
TPM2	FNTA	KPTN	GDAP10
TSPAN6	FPR2	LAMP2	GDF11
WISP1	FUCA1	LAPTM4B	GDI1
WNT7A	FV1	LASS4	GLB1
YWHAZ	G6PDX	LDHB	GLO1
ZFP365	GABPB1	LONP2	GLTPD1
ZFP37	GADD45A	LOX	GM10345
ZFP458	GALNT3	LOXL1	GMCL1
ZFP462	GAPDH	LPGAT1	GNAI2
	GARS	LZTR1	GNRHR
	GAS5	MACF1	GON4L
	GCH1	MAF1	GPD1
	GGCX	MAP3K7	GPR133
	GJA1	MCCC1	GRINA
	GJA3	MED1	GRK4
	GJB2	MEF2D	GRWD1
	GJB3	MFHAS1	GSR
	GLRX	MGA	H2AFY
	GM10039	MIA3	HAUS2
	GM4736	MKLN1	HAX1
	GM4770	MKRN2	HDAC3
	GNB2L1	MLC1	HDAC7
	GNE	MRI1	HDGF
	GNL3	MRPL44	HEATR7A
	GNS	MRPL46	HECTD3
	GOLM1	MRPL49	HIP1R
	GP49A	MRPS12	HNRNPK

GPI1	MRPS33	HNRNPL
GPR177	MRRF	HOXB7
GPR56	MS4A8A	HOXD9
GRHPR	MSRB2	HPCAL1
GRINA	MTHFD2	HPD
GSTT1	MTMR7	HSPA2
H13	MXI1	HSPG2
H19	MYCN	HTR3B
H2-AA	NA	ID4
H2-AB1	NAGK	IGF2
H2-DMA	NCAPH2	IGF2BP2
H2-DMB1	NDUFA12	IGSF6
H2-EA	NDUFA13	IGSF8
H2-EB1	NDUFA3	IKBKAP
H2-M1	NDUFA5	IL27RA
H2-M9	NDUFA7	INPP5B
HAP1	NDUFA9	ISOC1
HC	NDUFB2	ITGA5
HDC	NDUFS5	JAG1
HDLBP	NDUFV1	JARID2
HEXA	NDUFV3	JUND
HHEX	NEAT1	KALRN
HIBADH	NIPAL2	KCNIP4
HIF1A	NIPSNAP1	KCNJ10
HIST1H2AB	NIT1	KCNU1
HIST1H3F	NME3	KIF17
HK1	NUDT1	KIFC2
HK2	NUDT19	KLB
HMGB3	OXSRI	KLC3
HMGNI	PAICS	KLF6
HNF1B	PAIP2	KLHDC3
HNRNPA1	PAIP2B	KRT20
HOXD1	PAPOLA	LAD1
HPN	PARD6G	LAMA5
HRSP12	PCBD1	LARGE
HSPA1B	PCCA	LARP5
HSPA5	PCK2	LCN5
HSPA8	PCNP	LENG8
HSPA9	PDE8A	LEPR
HSPH1	PDIA6	LIG3
IBSP	PDRG1	LIN37
ID2	PECR	LMNB1
IFI30	PF4	LUC7L2

IGFBP3	PFDN5	MAFB
IGH	PGPEP1	MAGI1
IGH-3	PHB	MAP1LC3B
IGH-6	PHGDH	MAP2K7
IGHG	PHXR4	MAP3K12
IGK	PI4K2A	MAP3K7
IGK-V1	PI4K2B	MAPK10
IL11	PIAS3	MARE
IL13RA2	PIP5K1A	MARK1
IL18	PITPNA	MBOAT2
IL4RA	PKDCC	MCPT-PS1
INHBB	PKHD1	MDP1
IQGAP1	PKIB	MED1
ITGA4	PLA2G1B	MED26
ITGA8	PLAGL1	MEF2D
ITGAX	PLEC1	MIOS
ITGB2	PMEPA1	MLPH
ITIH4	POLR1C	MMP17
ITM2C	PRDX2	MMP20
ITPR2	PRDX3	MNT
KCNJ15	PRMT2	MSL2
KCNK1	PRSS23	MTA3
KDELR1	PRUNE	MTF1
KLF5	PTK2B	MTHFR
KLHDC2	PTP4A2	MTSS1
KNG1	PTTG1	MUC13
KRAS	PXN	MYH1
KRT18	PYCRL	MYH9
KRT7	QPCT	MYO10
KRT8	RAB31	MYO15
KRT81	RABL4	MYO9B
LAMB3	RASD2	MYPOP
LAMC1	RBM39	MYST2
LAMC2	RBP4	NA
LAP3	RCAN1	NAPB
LAPTM5	RDH10	NCKIPSD
LAS1L	RELL1	NCOA1
LBP	RENBP	NCOR2
LCN2	RFK	NDRG2
LCP1	RGS5	NDST1
LDHA	RNASEH2C	NFATC1
LGALS3	RNF181	NFATC4
LILRB4	ROS1	NFIA

LITAF	RPA3	NFIB
LOC630322	RPL17	NFKBIA
LPCAT1	RPL36AL	NGF
LPCAT3	RPN1	NISCH
LRG1	RPS21	NLGN2
LRP2	RPS9	NOMO1
LRRFIP1	SCO2	NOP16
LSR	SCRN2	NOVA1
LY6D	SEC13	NR1I2
LY75	SERBP1	NTF3
MAN1A	SFRS7	NUBP2
MANF	SFXN2	NUP62
MAP2K1	SGCE	OC90
MAP3K11	SGK1	OCLN
MAPK1	SH3GLB1	OGG1
MAPRE1	SHMT1	OPRD1
MARCO	SLC12A2	ORF19
MATN4	SLC15A1	OSBPL6
MBTD1	SLC1A3	OSCAR
MCPT8	SLC20A1	OVGP1
MDFI	SLC23A1	P2RX7
MDFIC	SLC2A3	PABPN1
ME1	SLC35A5	PACS2
MEF2B	SLC39A8	PAM
MEG3	SLC40A1	PARK2
MLEC	SLC7A2	PARP4
MMP12	SLCO3A1	PARS2
MMP2	SMARCE1	PBX2
MPEG1	SNAP47	PCGF6
MRC1	SNHG11	PCYT1A
MRPL15	SNRNP27	PDE8A
MRPS18B	SOAT1	PEX5
MRPS34	SOD1	PFN1
MSR1	SOX13	PGD
MT1	SPATA13	PHEX
MT2	SPON1	PHF1
MTIF2	SPR	PHF13
MTX1	SPTLC2	PHXR4
MUC1	SRPK1	PI4K2B
MX1	SSBP1	PIAS3
MYCN	ST3GAL6	PICK1
MYH7	ST6GALNAC3	PIGO
NAGK	STAMBPL1	PIK3CG

NAPSA	STBD1	PION
NCL	STX19	PIP
NDUFAF4	STX3	PIP5K1A
NEK1	STX8	PIP5K1C
NEK4	SUSD4	PITPNC1
NFIL3	SYNGR1	PITPNM1
NMT1	TAGLN2	PIWIL1
NNT	TBC1D24	PKD2L2
NOP56	TGFBI	PLA2G1B
NPC2	TGOLN1	PLCD1
NPDC1	TMED6	PLD4
NR2F1	TMEM19	PLEC1
NUCB2	TMEM27	PLS1
NUDT4	TMEM54	PNMT
NUP88	TMEM87A	POLR2A
OBFC2A	TMEM93	POLR3A
ORM1	TMOD3	POU5F1
OSBPL1A	TOMM7	PPAT
OSTF1	TPP1	PPCDC
PABPC1	TRAP1	PPIG
PAFAH1B3	TRAPPC5	PPP2R1A
PAPOLA	TRAPPC6A	PPP2R4
PCBD1	TRF	PRELP
PCYOX1	TRIM16	PRKACB
PCYT1A	TRIM34	PRLR
PDIA6	TRMT1	PRODH
PDK3	TSHZ1	PRPF6
PFDN1	TST	PRSS22
PFDN2	TTC27	PRSS29
PFKL	TTC39B	PRX
PFN1	TWF2	PSAPL1
PGK1	TXNL4A	PSMB2
PGLS	UFD1L	PSMD11
PGLYRP1	UQCR	PSMD9
PHB2	UROS	PSME3
PHLDA1	USE1	PTF1A
PHLDA2	USP39	PTPN21
PIGA	USP47	PTPN5
PIP4K2C	UXS1	PTPRF
PIP5K1B	VAMP3	PUM1
PISD	VARS	PVR
PKHD1	VPS37C	PVT1
PKM2	WDTC1	PXN

PLA2G5	ZFAND5	PYGL
PLA2G7	ZFP622	PYY
PLBD1	ZFP68	R3HDM1
PLD3	ZFP821	R74862
PLIN2	ZFYVE21	RAB15
PLP2	ZWINT	RAB17
PLXNB2	40429	RAB22A
POLG	1110002N22RIK	RAB27A
POLR1C	1110005A03RIK	RAB8B
POLR2E	1200016E24RIK	RAD51L1
POLRMT	1700022C21RIK	RBBP4
PON2	2310016E02RIK	RBM39
PPARG	2410015M20RIK	RBM47
PPP1R14B	3110049J23RIK	RBM9
PPP2R5C	4930444A02RIK	RCAN3
PRAMEL4	5330417C22RIK	RCOR1
PRCC	5430437P03RIK	RD3
PRDX4	9130404D08RIK	REEP3
PRDX5		REM1
PRELID1		RFXANK
PRNP		RHOX6
PSAP		RHOX9
PSAT1		RNF10
PSCA		RNF112
PSEN1		RPS6
PSMB5		RRAGA
PSMD4		RUSC1
PSMD5		SAMD11
PSME1		SCAMP2
PTGR1		SCLT1
PTGS1		SCNN1A
PTPRF		SDC3
RABGGTB		SDCCAG1
RAP1GAP		SDCCAG3
RBP4		SEC1
RDH11		SERAC1
REEP6		SERPINB8
RELB		SHARPIN
RFK		SHKBP1
RNASSET2A		SHROOM1
RNF149		SHROOM3
RNF181		SIDT2
RNF4		SIGLEC5

ROS1	SIRT4
RPL10A	SLC12A9
RPL14	SLC22A17
RPL28	SLC24A6
RPL3	SLC25A29
RPL36	SLC25A37
RPL37	SLC26A1
RPL6	SLC26A3
RPL8	SLC26A8
RPRM	SLC28A3
RPS18	SLC2A2
RPS2	SLC39A9
RPS8	SLC3A1
RRBP1	SLC43A3
S100A1	SLC4A3
S100G	SLC4A4
SAT1	SLC6A18
SCAMP1	SLC6A6
SCD1	SLC8A2
SCG3	SLC9A3R2
SDC1	SNW1
SEC23B	SNX22
SERPINE1	SNX6
SERPINE2	SOX21
SFRS6	SPARC
SFTPB	SPATA19
SH3RF1	SPEN
SHC1	SPINT1
SHMT1	SPIRE2
SIRPA	SPSB1
SIVA1	SRR
SLAIN1	STAB1
SLC12A2	STAP2
SLC15A2	STAT5A
SLC16A1	STK10
SLC25A39	STMN3
SLC25A5	STS
SLC2A4	STX1A
SLC31A1	SUPT5H
SLC34A2	SUV420H1
SLC38A2	SYNGR3
SLC4A4	SYPL
SLCO6C1	SYT13

SLPI	TADA3L
SND1	TAF1C
SNX10	TAF7
SOAT1	TCF25
SOCS2	TCFAP4
SOCS3	TCRB-J
SPG21	TEKT2
SPINT1	TFIP11
SPP1	TFPT
SSR4	TIMP3
ST13	TMCO4
ST3GAL4	TMCO6
ST6GAL1	TMED2
ST7	TMEM120B
STARD10	TMEM80
STXBP2	TMEM82
TACSTD2	TMEM87A
TANK	TMOD3
TAOK3	TNFRSF19
TBC1D24	TNIP1
TCFCP2L1	TNKS1BP1
TCRB-J	TNMD
TES	TNP2
TGFBI	TNRC6B
TGIF1	TOB2
TGOLN1	TOM1
THBS1	TOPORS
TM2D2	TPBG
TMEM30A	TPCN1
TMEM30B	TPM1
TMEM49	TPM3
TMEM50B	TPP1
TMEM56	TPRGL
TMEM62	TRAF3
TNFAIP1	TRIM34
TNFSF9	TRIOBP
TNNT1	TRIP11
TOB1	TRIP6
TOM1L1	TRPC2
TPI1	TSNAX
TPM4	TSPAN5
TROVE2	TTC13
TSPAN8	TTC28

TSR1	TUBB3
TSTA3	TUFT1
TULP2	TXNDC5
TYROBP	UBE3B
UBQLN2	UBL7
UBXN1	UBR4
UOX	UBXN10
USP52	UFD1L
V165-D-J-C MU	UNC45A
VAMP2	UPF2
VAMP8	USF2
VASP	USH1C
VEGFB	USP48
VIL1	USP7
WBP5	UXS1
XBP1	VAMP5
ZDHHC3	VAPB
ZDHHC6	VPS11
ZFP1	VPS13C
ZFP143	VTN
ZFP282	WBSCR27
ZFP42	WDR1
ZNHIT3	WDTC1
0610010K14RIK	WNK4
1100001G20RIK	YLPM1
1110008P14RIK	YPEL1
1190002H23RIK	YWHAB
1600029D21RIK	YY1
1810046J19RIK	ZBTB7C
2410004N09RIK	ZC3H3
4933407C03RIK	ZC3H7A
5730469M10RIK	ZDHHC14
6330416G13RIK	ZFAND3
6820431F20RIK	ZFAND5
9130213B05RIK	ZFHX3
A630007B06RIK	ZFP109
AA516738	ZFP295
	ZFP704
	ZP2
	40430
	1300010F03RIK
	1300018I17RIK
	1700019L03RIK

1700028P14RIK
1700088E04RIK
2210415F13RIK
2210419D22RIK
2310044G17RIK
2410075B13RIK
2600001M11RIK
4921517L17RIK
4933407C03RIK
4933417A18RIK
9030425E11RIK
9030624J02RIK
9130404D08RIK
A030005L19RIK
A2LD1
A830023I12RIK
AA517545
ZP2

40430

1300010F03RIK
1300018I17RIK
1700019L03RIK
1700028P14RIK
1700088E04RIK
2210415F13RIK
2210419D22RIK
2310044G17RIK
2410075B13RIK
2600001M11RIK
4921517L17RIK
4933407C03RIK
4933417A18RIK
9030425E11RIK
9030624J02RIK
9130404D08RIK
A030005L19RIK
A2LD1
A830023I12RIK
AA517545