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SUPPLEMENTARY MATERIAL

corresponding to:

Genome-wide gene expression analysis in mouse embryonic stem cells

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SUPPLEMENTARY TABLE 1

SEQUENCE OF QPCR PRIMERS

Gene	Size (bp)	Forward (5'→ 3')	Reverse (5'→ 3')
β-actin	500	ATGGATGACGATATCGCTG	ATGAGGTAGTCTGTCAGGT
Rex1	130	CGTGTAACATACACCATCCG	GAAATCCTCTTCCAGAATGG
Oct-4	800	TGGAGACTTTGCAGCCTGAG	TGAATGCATGGGAGAGCCCA
Nanog	363	AGGGTCTGCTACTGAGATGCTCTG	CAACCACTGGTTTTTCTGCCACCG
HNF-4	270	CTTCCTTCTTCATGCCAG	ACACGTCCCCATCTGAAG
TTR	225	CTCACCACAGATGAGAAG	GGCTGAGTCTCTCAATTC
FGF5	464	AAAGTCAATGGCTCCCACGAA	CTTCAGTCTGTACTTCACTGG
Wnt3	400	ACCTGGAGAAGGCTGGAAGT	AAAGTTGGGGGAGTTCTCGT

SUPPLEMENTARY TABLE 2

TOP 100 STEM CELL ENRICHED GENES (>4 FOLD VS. MURNA FROM ADULT TISSUE CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
1810036H07Rik	11.7	RIKEN cDNA 1810036H07 gene	**Spata19**	-11.3	spermatogenesis associated 19
Gkn1	11.1	gastrokine 1	**Hbb-bh1**	-11.1	AGENCOURT_10124687 NIH_MGC_134 cDNA clone IMAGE:6512013 5'
Lama1	9.5	laminin, alpha 1	**Wac**	-11.1	AGENCOURT_13596826 NIH_MGC_178 cDNA clone IMAGE:30300914 5'
Lamb11	7.9	laminin B1 subunit 1	**Klk1**	-10.9	kallikrein 6
Plod2	7.8	procollagen lysine, 2oxoglutarate 5dioxygenase 2	**Tnp1**	-10.7	transition protein 1
Pga5	7.4	pepsinogen 5, group I	**Sftpc**	-10.6	surfactant associated protein C
Hs3st1	7.4	heparan sulfate (glucosamine) 3Osulfotransferase 1	**Ldhc**	-10.5	lactate dehydrogenase 3, C chain, sperm specific
Sall4	7.0	8 days embryo whole body cDNA, RIKEN clone:5730441M18 product:hypothetical Zinc finger, C2H2 type containing protein	**Klk1b4_rep_1**	-10.4	nerve growth factor, alpha, mRNA (cDNA clone MGC:25388 IMAGE:4911885)
Tfpi	6.9	tissue factor pathway inhibitor	**Fbp3**	-10.2	mm53h04y1 Stratagene mouse embryonic carcinoma (#937317) cDNA clone IMAGE:532183 5' similar to gb:L10320 FRUCTOSE-1,6-BISPHOSPHATASE (HUMAN); gb:D42083 Mouse mRNA for fructose 1,6-bisphosphatase (MOUSE)
Loxl2	6.8	lysyl oxidaselike 2	**1700034E13Rik**	-10.1	RIKEN cDNA 1700034E13 gene
Serpinh1	6.8	serine (or cysteine) proteinase inhibitor, clade H, member 1	**H1fnt**	-10.0	RIKEN cDNA 1700026P10 gene
Mfge8	6.7	milk fat globuleEGF factor 8 protein	**AV046716.2**	-10.0	adult C57BL/6J testis cDNA clone 1700063E08
Glipr1	6.7	GLI pathogenesisrelated 1	**Sprr2f**	-9.8	small proline-rich protein 2F
Tinagl	6.7	tubulointerstitial nephritis antigenlike	**Klk1b26**	-9.7	kallikrein 8
Thumpd1	6.3	THUMP domain containing 1	**Hils1**	-9.6	histone H1-like protein in spermatids 1
Lamc1	6.3	laminin, gamma 1	**1700023A16Rik**	-9.5	adult male testis cDNA, RIKEN clone:1700023A16 product:hypothetical protein, full insert sequence
Kifc5a	6.3	kinesin family member C1	**Dnajb3**	-9.5	DnaJ (Hsp40) homolog, subfamily B, member 3
Plod1	6.1	procollagenlysine, 2oxoglutarate 5dioxygenase 1	**Gnai1**	-9.5	AGENCOURT_24959500 NIH_MGC_169 cDNA clone IMAGE:30917063 5'
Rab6	6.1	RAB6, member RAS oncogene family	**Dbil5**	-9.5	diazepam binding inhibitor-like 5
Ctgf	5.9	connective tissue growth factor	**1700024P04Rik**	-9.4	AGENCOURT_24359179 NIH_MGC_169 cDNA clone IMAGE:30918567 5'
Nid2	5.7	nidogen 2	**Calb1**	-9.3	calbindin-28K
Adam10_rep_1	5.7	cDNA clone IMAGE:6822796, containing frameshift errors	**4930571K23Rik**	-9.3	adult male testis cDNA, RIKEN clone:4930571K23 product:unknown EST, full insert sequence
Tmem44	5.7	adult male corpora quadrigemina cDNA, RIKEN clone:B230220N21 product:hypothetical protein, full insert sequence	**Aif1**	-9.3	allograft inflammatory factor 1
9130005N14Rik	5.7	RIKEN cDNA 9130005N14 gene	**Napsa**	-9.2	napsin A aspartic peptidase
Chm	5.7	Choroidermia	**Arrdc5**	-9.2	adult male testis cDNA, RIKEN clone:1700013E09 product:hypothetical Immunoglobulin structure containing protein, full insert sequence
Glipr2	5.7	GLI pathogenesisrelated 2	**BF532540.1**	-9.2	602074589F1 NCI_CGAP_Li9 cDNA clone IMAGE:4211254 5'
Ncl_rep_2	5.6	UIMHA0ctni110UIr1 NIH_BMAP_HA0 cDNA clone IMAGE:30699370 5'	**Cst8**	-9.2	cystatin 8 (cystatin-related epididymal spermatogenic)
BQ886458.1	5.6	AGENCOURT_8769591 NIH_MGC_130 cDNA clone IMAGE:6328844 5'	**Cst12**	-9.1	AGENCOURT_10614622 NIH_MGC_169 cDNA clone IMAGE:6742960 5'
F3	5.6	coagulation factor III	**Oaz3**	-9.1	ornithine decarboxylase antizyme 3
Ampd2	5.5	adenosine monophosphate deaminase 2 (isoform L)	**Cyp4b1**	-9.1	cytochrome P450, family 4, subfamily b, polypeptide 1
Ggta1	5.5	glycoprotein galactosyltransferase alpha 1, 3	**Fhl4**	-9.0	four and a half LIM domains 4
Fgfr1op2	5.5	FGFR1 oncogene partner 2	**1700023D19Rik**	-9.0	adult male testis cDNA, RIKEN clone:1700023D19 product:hypothetical protein, full insert sequence
Sema6d	5.4	sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6D, transcript variant 1	**Mcsp**	-9.0	mitochondrial capsule selenoprotein
Bmp2	5.4	bone morphogenetic protein 2, mRNA	**Msr2**	-9.0	Fc receptor-like protein 2 immunoglobulin short isoform mRNA

SUPPLEMENTARY TABLE 2 (CONTINUED)

TOP 100 STEM CELL ENRICHED GENES (>4 FOLD VS. MURNA FROM ADULT TISSUE CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
Sox21	5.4	SRYbox containing gene 21	**Cypt4**	-8.9	RIKEN cDNA 1700009B20 gene
Wars	5.4	tryptophanyltRNA synthetase	**Tekt1**	-8.9	tektin 1
Foxa2	5.4	forkhead box A2	**Pfn3**	-8.9	profilin 3
BY736119.1	5.4	RIKEN blastocyst cDNA clone I1C0019J17 5'	**1700012B09Rik**	-8.9	RIKEN cDNA 1700012B09 gene
Psrc1	5.3	RIKEN cDNA 5430413I02 gene (5430413I02Rik)	**Aldh1a1**	-8.8	aldehyde dehydrogenase family 1, subfamily A1
Igsf3	5.3	mc37h02r1 Soares mouse p3NMF19.5 cDNA clone IMAGE:350739 5'.	**Odf4**	-8.7	outer dense fiber of sperm tails 4
Myl3	5.3	Mmusculus mRNA for ventricular alkali myosin light chain	**Sftpa1**	-8.7	surfactant associated protein A1
Flrt3	5.3	fibronectin leucine rich transmembrane protein 3	**1700074P13Rik**	-8.7	RIKEN cDNA 1700074P13 gene
Znrf3	5.2	K0994F063N NIA Mouse Neural Stem Cell (Undifferentiated) cDNA Library	**1700008F21Rik**	-8.7	RIKEN cDNA 1700008F21 gene
Pafah1b1	5.2	L0010F103 NIA Mouse E125 Female Mesonephros and Gonads cDNA Library cDNA clone L0010F10 3'.	**4921526K24Rik**	-8.7	RIKEN cDNA 4921526K24 gene
Ctsl	5.2	cathepsin L	**Spata4**	-8.7	spermatogenesis associated 4
Mcm5	5.2	minichromosome maintenance deficient 5, cell division cycle 46 (S cerevisiae)	**Pabpc2**	-8.7	poly A binding protein, cytoplasmic 2
BF143178.1	5.2	601788075F1 NCI_CGAP_Lu30 cDNA clone IMAGE:4015866 5'	**NM_028513.2**	-8.7	actin related protein M2
Zfp68	5.1	zinc finger protein 68	**Spata3**	-8.7	spermatogenesis associated 3
Picalm_rep_1	5.1	phosphatidylinositol binding clathrin assembly protein	**Cst13**	-8.6	cystatin 13
Tars	5.0	threonyltRNA synthetase	**Mesp1**	-8.6	mesoderm posterior 1
Nle1	5.0	notchless homolog 1 (Drosophila)	**Galntl5**	-8.4	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase-like 5
Hexa	5.0	hexosaminidase A, mRNA	**Iqcf5**	-8.4	AGENCOURT_10614623 NIH_MGC_169 cDNA clone IMAGE:6743008 5'
Adamts9_rep_1	5.0	a disintegrinlike and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 9, mRNA	**1700003M02Rik**	-8.4	adult male testis cDNA, RIKEN clone:1700003M02 product:hypothetical protein, full insert sequence
Pofut2	5.0	protein Ofucosyltransferase 2	**Pdcl2**	-8.4	phosducin-like 2
Depdc1a	5.0	DEP domain containing 1a	**Iqcf4**	-8.4	IQ motif containing F4
Klf3	4.9	4 days neonate male adipose cDNA, RIKEN clone:B430304G02 product:Kruppellike factor 3 (basic), full insert sequence	**Svs5**	-8.3	seminal vesicle secretion 5
Chchd4	4.9	coiledcoilhelixcoiledcoilhelix domain containing 4	**Spata20**	-8.3	spermatogenesis associated 20
Glg1	4.9	golgi apparatus protein 1	**1700001C02Rik**	-8.3	RIKEN cDNA 1700001C02 gene
Dennd2c	4.9	RIKEN cDNA A930010I20 gene (A930010I20Rik)	**Daf2**	-8.3	decay accelerating factor 2
Txndc1	4.9	thioredoxin domain containing 1	**Cyp2f2**	-8.3	cytochrome P450, family 2, subfamily f, polypeptide 2
Nomo1	4.9	nodal modulator 1	**1700012F11Rik**	-8.3	AGENCOURT_24954767 NIH_MGC_169 cDNA clone IMAGE:30919760 5'
Mid1	4.9	me51e03r1 Soares mouse embryo NbME13.5 14.5 cDNA clone IMAGE:391036 5'.	**BC021608**	-8.2	cDNA sequence BC021608
P4hb	4.9	prolyl 4hydroxylase, beta polypeptide	**Nt5c1b**	-8.2	5'-nucleotidase, cytosolic IB
Txndc12	4.9	thioredoxin domain containing 12 (endoplasmic reticulum)	**Rent1_rep_1**	-8.2	uk53c08x1 Sugano mouse kidney mkia cDNA clone IMAGE:1972718 3'.
Mfap3	4.9	microfibrillarassociated protein 3	**1700060E18Rik**	-8.2	RIKEN cDNA 1700060E18 gene
Msmb	4.8	Betamicroseminoprotein	**Aqp7**	-8.2	aquaporin 7
Asah1	4.8	Nacylsphingosine amidohydrolase 1	**Rent1**	-8.2	uk53c08x1 Sugano mouse kidney mkia cDNA clone IMAGE:1972718 3'.
Fbxo15	4.8	ES cells cDNA, RIKEN clone:C330024E13 product:fbox only protein 15, full insert sequence	**1700016M24Rik**	-8.2	adult male testis cDNA, RIKEN clone:1700016M24 product:hypothetical ARM repeat structure containing protein, full insert sequence
Rcn1	4.8	reticulocalbin 1	**1700019I23Rik**	-8.2	RIKEN cDNA 1700019I23 gene

SUPPLEMENTARY TABLE 2 (CONTINUED)

TOP 100 STEM CELL ENRICHED GENES (>4 FOLD VS. MURNA FROM ADULT TISSUE CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
Mcm4	4.8	minichromosome maintenance deficient 4 homolog (S cerevisiae)	**Txndc2**	-8.2	thioredoxin domain containing 2 (spermatozoa)
Ccdc22	4.8	DNA segment, Chr X, Immunex 40, expressed	**BC061237**	-8.1	cDNA sequence BC061237
Serpinb6c	4.8	serine (or cysteine) proteinase inhibitor, clade B, member 6c	**AI323469.1**	-8.1	mj87e03x1 Soares mouse p3NMF19.5 cDNA clone IMAGE:483100 3' similar to gb:U37222 Mus musculus 30kDa adipocyte complement-related protein Acrp30 (MOUSE)
Dnajc10	4.8	DnaJ (Hsp40) homolog, subfamily C, member 10	**1700093K21Rik**	-8.1	RIKEN cDNA 1700093K21 gene
Zfp84_rep_1	4.8	zinc finger protein 84	**4931420D14Rik**	-8.1	RIKEN cDNA 4931420D14 gene
Prim1	4.8	DNA primase, p49 subunit	**Cyp17a1**	-8.1	cytochrome P450, family 17, subfamily a, polypeptide 1
Anxa2	4.8	annexin A2	**1700029H14Rik**	-8.1	RIKEN cDNA 1700029H14 gene
Msh2	4.8	mutS homolog 2 (E coli)	**Inmt**	-8.0	indolethylamine N-methyltransferase
Fhl2	4.8	four and a half LIM domains 2	**1700013N18Rik**	-8.0	RIKEN cDNA 1700013N18 gene
Hmmr	4.7	hyaluronan mediated motility receptor (RHAMM)	**1700010A17Rik**	-8.0	RIKEN cDNA 1700010A17 gene
Fus	4.7	fusion, derived from t(12;16) malignant liposarcoma (human)	**Scgb3a2**	-8.0	secretoglobin, family 3A, member 2
Bag2	4.7	Bcl2associated athanogene 2	**Plcz1**	-8.0	phospholipase C, zeta 1
AI892353.1	4.7	mm56b11y2 Stratagene mouse embryonic carcinoma	**4933439G12Rik**	-7.9	adult male testis cDNA, RIKEN clone:4933439G12 product:unknown EST, full insert sequence
Stx3_rep_1	4.7	syntaxin 3, transcript variant A, mRNA	**Spp2**	-7.9	secreted phosphoprotein 2
Xpnpep1	4.7	Xprolyl aminopeptidase (aminopeptidase P) 1, soluble	**Fabp4**	-7.9	fatty acid binding protein 4, adipocyte
Ube2c	4.7	ubiquitinconjugating enzyme E2C	**1700023I07Rik**	-7.9	adult male testis cDNA, RIKEN clone:1700023I07 product:weakly similar to PROTEIN PHOSPHATASE INHIBITOR 2 (IPP-2) [Rattus norvegicus], full insert sequence
Bmp2_rep_1	4.7	bone morphogenetic protein 2, mRNA	**Pmp2**	-7.9	adult male testis cDNA, RIKEN clone:4933402K11 product:TESTIS LIPID BINDING PROTEIN (TLBP) (15 KDA PERFORATORIAL PROTEIN) (PERF 15) homolog [Rattus norvegicus], full insert sequence
Mcm2	4.7	minichromosome maintenance deficient 2 mitotin (S cerevisiae)	**CN838541.1**	-7.9	AGENCOURT_24959451 NIH_MGC_169 cDNA clone IMAGE:30917012 5'
St3gal4	4.7	ST3 betagalactoside alpha2,3sialyltransferase 4	**Txndc8**	-7.9	thioredoxin domain containing 8
Xlr	4.6	601782404F1 NCI_CGAP_Lu30 cDNA clone IMAGE:4010520 5'	**Actg2**	-7.9	actin, gamma 2, smooth muscle, enteric
Polk	4.6	polymerase (DNA directed), kappa	**Wbscr25**	-7.9	adult male testis cDNA, RIKEN clone:4933439O14 product:unknown EST, full insert sequence
BG862892.1	4.6	602797571F1 NCI_CGAP_Mam4 cDNA clone IMAGE:4918840 5'	**AA509743.1**	-7.9	vh52b04r1 Soares_mammary_gland_NbMMG cDNA clone IMAGE:890575 5' similar to gb:J05096_rna1 SODIUM/POTASSIUM-TRANSPORTING ATPASE ALPHA-1 CHAIN (HUMAN)
Ifi30	4.6	interferon gamma inducible protein 30	**Plunc**	-7.8	palate, lung, and nasal epithelium carcinoma associated
Cenpa	4.6	centromere autoantigen A	**Cklfsf2a**	-7.8	chemokine-like factor super family 2A
Pik3cb	4.6	phosphatidylinositol 3kinase, catalytic, beta polypeptide	**Tgtp**	-7.8	T-cell specific GTPase, mRNA (cDNA clone MGC:102656 IMAGE:3988138)
Fkbp9	4.6	FK506 binding protein 9	**BC061127**	-7.8	protamine 3
A630042L21Rik	4.6	RIKEN cDNA A630042L21 gene	**4930583C14Rik**	-7.8	RIKEN cDNA 4930583C14 gene
Fut8	4.6	fucosyltransferase 8	**2410116G06Rik**	-7.8	RIKEN cDNA 2410116G06 gene
Ddah2	4.6	dimethylarginine dimethylaminohydrolase 2	**4930578I06Rik**	-7.8	RIKEN cDNA 4930578I06 gene
Iqcc	4.6	IQ motif containing C, mRNA (cDNA clone IMAGE:5364085)	**Tsnaxip1**	-7.7	translin-associated factor X (Tsnax) interacting protein 1
CF982811.1	4.6	maj93e11y1 McCarrey Eddy type A spermatogonia Mus musculus cDNA	**Nalp14**	-7.7	RIKEN cDNA 4921520L01 gene

SUPPLEMENTARY TABLE 3

EARLY DIFFERENTIATION GENES: TOP 100 DIFFERENTIALLY EXPRESSED GENES (>4 FOLD IN 3-DAY-OLD EBS VS. MES3 EMBRYONIC STEM CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
1810036H07Rik	12.0	RIKEN cDNA 1810036H07 gene (1810036H07Rik)	**Fbp3**	-11.2	mm53h04y1 Stratagene mouse embryonic carcinoma (#937317) cDNA clone IMAGE:532183 5' similar to gb:L10320 FRUCTOSE-1,6-BISPHOSPHATASE (HUMAN); gb:D42083 Mouse mRNA for fructose 1,6-bisphosphatase (MOUSE);.
Gkn1	11.1	gastrokine 1 (Gkn1)	**Hbb-bh1**	-11.0	AGENCOURT_10124687 NIH_MGC_134 cDNA clone IMAGE:6512013 5'
Lama1	9.7	laminin, alpha 1 (Lama1)	**Klk1**	-11.0	kallikrein 6
Pga5	8.1	pepsinogen 5, group I (Pga5)	**Spata19**	-10.9	spermatogenesis associated 19
Fst	7.9	follistatin (Fst)	**4930571K23Rik**	-10.8	adult male testis cDNA, RIKEN clone:4930571K23 product:unknown EST, full insert sequence
Aqp8	7.9	aquaporin 8 (Aqp8)	**Cyp4b1**	-10.6	cytochrome P450, family 4, subfamily b, polypeptide 1
Lamb1-1	7.6	laminin B1 subunit 1 (Lamb1-1)	**AV046716.2**	-10.6	adult C57BL/6J testis cDNA clone 1700063E08
Plod2	7.5	procollagen lysine, 2-oxoglutarate 5-dioxygenase 2 (Plod2)	**Klk1b4_rep_1**	-10.5	nerve growth factor, alpha, mRNA (cDNA clone MGC:25388 IMAGE:4911885)
Hs3st1	7.4	heparan sulfate (glucosamine) 3-O-sulfotransferase 1 (Hs3st1)	**1700034E13Rik**	-10.4	RIKEN cDNA 1700034E13 gene
AA162974.1	6.8	ms31e12r1 Stratagene mouse skin (#937313) cDNA clone IMAGE:608590 5' similar to gb:D44464 Mouse mRNA for uridine phosphorylase (MOUSE);.	**H1fnt**	-10.4	RIKEN cDNA 1700026P10 gene
Mfge8	6.8	milk fat globule-EGF factor 8 protein (Mfge8)	**Wac**	-10.2	AGENCOURT_13596826 NIH_MGC_178 cDNA clone IMAGE:30300914 5'
Slc9a3r1	6.7	solute carrier family 9 (sodium/hydrogen exchanger), isoform 3 regulator 1 (Slc9a3r1)	**Hils1**	-10.2	histone H1-like protein in spermatids 1
Serpinh1	6.6	serine (or cysteine) proteinase inhibitor, clade H, member 1 (Serpinh1)	**Dnajb3**	-10.1	DnaJ (Hsp40) homolog, subfamily B, member 3
Tinagl	6.6	tubulointerstitial nephritis antigen-like (Tinagl)	**Pcp4**	-10.0	Purkinje cell protein 4
Sall4	6.6	8 days embryo whole body cDNA, RIKEN clone:5730441M18 product:hypothetical Zinc finger, C2H2 type containing protein, full insert sequence	**Tnp1**	-9.9	transition protein 1
Mrps12	6.5	mitochondrial ribosomal protein S12	**Tekt1**	-9.6	tektin 1
Cited2	6.5	Cbp/p300-interacting transactivator, with Glu/Asp-rich carboxy-terminal domain, 2 (Cited2), mRNA	**Arpm2**	-9.4	actin related protein M2
Thumpd1	6.5	THUMP domain containing 1 (Thumpd1)	**1700003M02Rik**	-9.4	adult male testis cDNA, RIKEN clone:1700003M02 product:hypothetical protein, full insert sequence
Rcn3	6.4	reticulocalbin 3, EF-hand calcium binding domain (Rcn3)	**Mcsp**	-9.4	mitochondrial capsule selenoprotein
Glipr1	6.4	GLI pathogenesis-related 1 (glioma) (Glipr1)	**1700023D19Rik**	-9.4	adult male testis cDNA, RIKEN clone:1700023D19 product:hypothetical protein, full insert sequence
Tmem44	6.4	adult male corpora quadrigemina cDNA, RIKEN clone:B230220N21 product:hypothetical protein, full insert sequence	**4921526K24Rik**	-9.4	RIKEN cDNA 4921526K24 gene
Plod1	6.3	procollagen-lysine, 2-oxoglutarate 5-dioxygenase 1 (Plod1)	**Sprr2f**	-9.3	small proline-rich protein 2F
Lamc1	6.3	laminin, gamma 1 (Lamc1)	**Aldh1a1**	-9.2	aldehyde dehydrogenase family 1, subfamily A1
Myl3	6.2	Mmusculus mRNA for ventricular alkali myosin light chain	**Cyp17a1**	-9.2	cytochrome P450, family 17, subfamily a, polypeptide 1
Tfpi	6.1	tissue factor pathway inhibitor (Tfpi)	**Oaz3**	-9.1	ornithine decarboxylase antizyme 3
Loxl2	6.0	lysyl oxidase-like 2 (Loxl2)	**Daf2**	-9.0	decay accelerating factor 2
Rab6	5.9	RAB6, member RAS oncogene family (Rab6)	**1700023A16Rik**	-9.0	adult male testis cDNA, RIKEN clone:1700023A16 product:hypothetical protein, full insert sequence
Nid2	5.9	nidogen 2 (Nid2)	**Arrdc5**	-9.0	adult male testis cDNA, RIKEN clone:1700013E09 product:hypothetical Immunoglobulin structure containing protein, full insert sequence
1700108E19Rik	5.8	601664719F1 NCI_CGAP_Mam1 cDNA clone IMAGE:3964781 5'	**Cyp2f2**	-9.0	cytochrome P450, family 2, subfamily f, polypeptide 2
Sema6d	5.8	sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6D (Sema6d), transcript variant 1	**Cst12**	-8.9	AGENCOURT_10614622 NIH_MGC_169 cDNA clone IMAGE:6742960 5'
Kit	5.8	kit oncogene (Kit)	**Spata3**	-8.7	spermatogenesis associated 3
Chm	5.7	choroidermia (Chm)	**AI323469.1**	-8.7	mj87e03x1 Soares mouse p3NMF19.5 cDNA clone IMAGE:483100 3' similar to gb:U37222 Mus musculus 30kDa adipocyte complement-related protein Acrp30 (MOUSE);.
Fgfr1op2	5.7	FGFR1 oncogene partner 2 (Fgfr1op2)	**Sftpa1**	-8.7	surfactant associated protein A1
2410124H12Rik	5.7	RIKEN ES cells cDNA clone 2410124H12 5'	**BC021608**	-8.7	cDNA sequence BC021608

SUPPLEMENTARY TABLE 3 (CONTINUED)

EARLY DIFFERENTIATION GENES: TOP 100 DIFFERENTIALLY EXPRESSED GENES (>4 FOLD IN 3-DAY-OLD EBS VS. MES3 EMBRYONIC STEM CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
9130005N14Rik	5.6	RIKEN cDNA 9130005N14 gene	**1700074P13Rik**	-8.7	RIKEN cDNA 1700074P13 gene
Flrt3	5.6	fibronectin leucine rich transmembrane protein 3	**Gnai1**	-8.7	AGENCOURT_24959500 NIH_MGC_169 cDNA clone IMAGE:30917063 5'
Nid1	5.6	nidogen 1	**Actg2**	-8.6	actin, gamma 2, smooth muscle, enteric
Glipr2	5.6	GLI pathogenesis-related 2	**Fhl4**	-8.6	four and a half LIM domains 4
BF143178.1	5.5	601788075F1 NCI_CGAP_Lu30 cDNA clone IMAGE:4015866 5'	**Ldhc**	-8.6	lactate dehydrogenase 3, C chain, sperm specific
Oasl2	5.5	2'-5' oligoadenylate synthetase-like 2	**Aqp7**	-8.6	aquaporin 7
Ccnd2	5.4	cyclin D2	**1700019I23Rik**	-8.6	RIKEN cDNA 1700019I23 gene
Col4a2	5.4	procollagen, type IV, alpha 2	**BC061237**	-8.5	cDNA sequence BC061237
Bmp2_rep_1	5.4	bone morphogenetic protein 2, mRNA	**Spata20**	-8.5	spermatogenesis associated 20
Igsf3	5.4	mc37h02r1 Soares mouse p3NMF19.5 cDNA clone IMAGE:350739 5'.	**Odf4**	-8.5	outer dense fiber of sperm tails 4
Sox21	5.4	SRY-box containing gene 21	**Aif1**	-8.4	allograft inflammatory factor 1
BG915840.1	5.3	602815484F1 NCI_CGAP_Mam4 cDNA clone IMAGE:4937540 5'	**Galntl5**	-8.4	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase-like 5
Lin28	5.3	lin-28 homolog (C elegans)	**Mbd3l1**	-8.4	methyl-CpG binding domain protein 3-like 1
F3	5.3	coagulation factor III	**Iqcf4**	-8.4	IQ motif containing F4
Txndc12	5.3	thioredoxin domain containing 12 (endoplasmic reticulum)	**Pfn3**	-8.3	profilin 3
Hba-x	5.3	hemoglobin X, alpha-like embryonic chain in Hba complex	**1700060E18Rik**	-8.3	RIKEN cDNA 1700060E18 gene
Ncl_rep_1	5.3	UI-M-HA0-ctn-i-11-0-UIr1 NIH_BMAP_HA0 cDNA clone IMAGE:30699370 5'	**1700024P04Rik**	-8.3	AGENCOURT_24359179 NIH_MGC_169 cDNA clone IMAGE:30918567 5'
BQ886458.1	5.3	AGENCOURT_8769591 NIH_MGC_130 cDNA clone IMAGE:6328844 5'	**Mesp1**	-8.3	mesoderm posterior 1
Adam10_rep_1	5.2	cDNA clone IMAGE:6822796, containing frame-shift errors	**Nt5c1b**	-8.3	5'-nucleotidase, cytosolic IB
Gata6	5.2	GATA binding protein 6	**Myh11**	-8.3	myosin, heavy polypeptide 11, smooth muscle
2010012C16Rik	5.1	RIKEN cDNA 2010012C16 gene	**Spata4**	-8.2	spermatogenesis associated 4
Chchd4	5.1	coiled-coil-helix-coiled-coil-helix domain containing 4	**1700003H04Rik**	-8.2	AGENCOURT_24954890 NIH_MGC_169 cDNA clone IMAGE:30919764 5'
Ctgf	5.1	connective tissue growth factor	**2410116G06Rik**	-8.2	RIKEN cDNA 2410116G06 gene
Ggta1	5.1	glycoprotein galactosyltransferase alpha 1, 3	**Spag4l**	-8.2	sperm associated antigen 4-like
Spock1	5.0	16 days embryo head cDNA, RIKEN clone:C130052K11 product:SPOCK PROTEIN PRECURSOR (TESTICAN) homolog [Mus musculus], full insert sequence	**Wfdc2**	-8.2	WAP four-disulfide core domain 2
Rhox5	5.0	placentae and embryos oncofetal gene	**Msr2**	-8.2	Fc receptor-like protein 2 immunoglobulin short isoform, mRNA
Zfp68	4.9	zinc finger protein 68	**Plcz1**	-8.2	phospholipase C, zeta 1
Kdelr3	4.9	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 3	**Napsa**	-8.2	napsin A aspartic peptidase
Ctsl	4.9	cathepsin L	**Inmt**	-8.1	indolethylamine N-methyltransferase
BY736119.1	4.9	RIKEN blastocyst cDNA clone I1C0019J17 5'	**Pabpc2**	-8.1	poly A binding protein, cytoplasmic 2
Zfp84	4.8	zinc finger protein 84	**Cklfsf2a**	-8.1	chemokine-like factor super family 2A
Psrc1	4.8	RIKEN cDNA 5430413I02 gene	**Spag9**	-8.1	602914124F1 NCI_CGAP_Li9 cDNA clone IMAGE:5055221 5'
Nsbp1	4.8	nucleosome binding protein 1	**Upb1**	-8.1	ureidopropionase, beta
Mcm5	4.8	minichromosome maintenance deficient 5, cell division cycle 46 (S cerevisiae)	**1700016M24Rik**	-8.1	adult male testis cDNA, RIKEN clone:1700016M24 product:hypothetical ARM repeat structure containing protein, full insert sequence
Fkbp9	4.8	FK506 binding protein 9 (Fkbp9)	**1700012B07Rik**	-8.0	RIKEN cDNA 1700012B07 gene, mRNA (cDNA clone IMAGE:6774204), containing frame-shift errors

SUPPLEMENTARY TABLE 3 (CONTINUED)

EARLY DIFFERENTIATION GENES: TOP 100 DIFFERENTIALLY EXPRESSED GENES (>4 FOLD IN 3-DAY-OLD EBS VS. MES3 EMBRYONIC STEM CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
Hexa	4.8	hexosaminidase A (Hexa), mRNA	**Plunc**	-8.0	palate, lung, and nasal epithelium carcinoma associated
P4hb	4.8	prolyl 4-hydroxylase, beta polypeptide (P4hb)	**4930583C14Rik**	-8.0	RIKEN cDNA 4930583C14 gene
Mid1	4.8	me51e03r1 Soares mouse embryo NbME13.5 14.5 cDNA clone IMAGE:391036 5'.	**Svs5**	-8.0	seminal vesicle secretion 5
Ampd2_rep_1	4.8	adenosine monophosphate deaminase 2 (isoform L) (Ampd2)	**1700010A17Rik**	-8.0	RIKEN cDNA 1700010A17 gene
Asah1	4.8	N-acylsphingosine amidohydrolase 1 (Asah1)	**Wbscr25**	-8.0	adult male testis cDNA, RIKEN clone:4933439O14 product:unknown EST, full insert sequence
Kdelr3_rep_1	4.8	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 3 (Kdelr3)	**Rent1_rep_1**	-8.0	uk53c08x1 Sugano mouse kidney mkia cDNA clone IMAGE:1972718 3'.
Nle1	4.8	notchless homolog 1 (Drosophila) (Nle1)	**Tsnaxip1**	-7.9	translin-associated factor X (Tsnax) interacting protein 1
Pofut2	4.8	protein O-fucosyltransferase 2 (Pofut2)	**1700093K21Rik**	-7.9	RIKEN cDNA 1700093K21 gene
Srm	4.8	spermidine synthase (Srm)	**1700057K13Rik**	-7.8	adult male testis cDNA, RIKEN clone:1700057K13 product:hypothetical protein, full insert sequence
Depdc1a	4.8	DEP domain containing 1a (Depdc1a)	**1700067P10Rik**	-7.8	RIKEN cDNA 1700067P10 gene
Kifc5a	4.7	kinesin family member C1 (Kifc1)	**Txndc2**	-7.8	thioredoxin domain containing 2 (spermatozoa)
Prim1	4.7	DNA primase, p49 subunit (Prim1)	**Cyp2d26**	-7.8	cytochrome P450, family 2, subfamily d, polypeptide 26
Drp2	4.7	dystrophin related protein 2 (Drp2)	**Pdcl2**	-7.7	phosducin-like 2
Xlr	4.7	601782404F1 NCI_CGAP_Lu30 cDNA clone IMAGE:4010520 5'	**Scgb3a2**	-7.7	secretoglobin, family 3A, member 2
BG862892.1	4.7	602797571F1 NCI_CGAP_Mam4 cDNA clone IMAGE:4918840 5'	**Spata16**	-7.7	spermatogenesis associated 16
Gale	4.7	galactose-4-epimerase, UDP (Gale)	**1700025F22Rik**	-7.7	RIKEN cDNA 1700025F22 gene
Barx1	4.7	BarH-like homeobox 1 (Barx1)	**1700016C15Rik**	-7.7	RIKEN adult male testis cDNA clone 1700016C15 5'
Picalm_rep_1	4.7	phosphatidylinositol binding clathrin assembly protein (Picalm)	**1700049K14Rik**	-7.7	RIKEN cDNA 1700049K14 gene
BM230263.2	4.6	K0292G03-3 NIA Mouse Unfertilized Egg cDNA Library (Long) cDNA clone NIA:K0292G03 IMAGE:30053546 3'	**1700029H14Rik**	-7.7	RIKEN cDNA 1700029H14 gene
AI892353.1	4.6	mm56b11y2 Stratagene mouse embryonic carcinoma (#937317) cDNA clone IMAGE:532413 5' similar to gb:Y00345_cds1 POLYADENYLATE-BINDING PROTEIN (HUMAN); gb:X65553 M.musculus mRNA for poly(A) binding protein (MOUSE);.	**Acsm1**	-7.7	butyryl Coenzyme A synthetase 1, mRNA (cDNA clone MGC:25954 IMAGE:4238964)
Pla2g12b	4.6	phospholipase A2, group XIIB (Pla2g12b)	**1700030B21Rik**	-7.6	RIKEN cDNA 1700030B21 gene
Fbxo15	4.6	ES cells cDNA, RIKEN clone:C330024E13 product:f-box only protein 15, full insert sequence	**Hsd3b4**	-7.6	hydroxysteroid dehydrogenase-4, delta<5>-3-beta
Tk1	4.6	thymidine kinase 1 (Tk1)	**Ptpn20**	-7.6	protein tyrosine phosphatase, non-receptor type 20
Msmb	4.6	beta-microseminoprotein (Msmb)	**Cst13**	-7.6	cystatin 13
BC003812.1	4.6	X-linked lymphocyte-regulated 3a, mRNA (cDNA clone MGC:6120 IMAGE:3601144)	**Rent1**	-7.6	uk53c08x1 Sugano mouse kidney mkia cDNA clone IMAGE:1972718 3'.
Txndc1	4.6	thioredoxin domain containing 1 (Txndc1)	**Cyp2e1**	-7.6	cytochrome P450, family 2, subfamily e, polypeptide 1
Bmp2	4.6	bone morphogenetic protein 2 (Bmp2), mRNA	**Cst8**	-7.6	cystatin 8 (cystatin-related epididymal spermatogenic)
Rcn1	4.6	reticulocalbin 1 (Rcn1)	**Oxct2b**	-7.6	3-oxoacid CoA transferase 2B
Wars	4.6	tryptophanyl-tRNA synthetase (Wars)	**Abp1**	-7.6	amiloride binding protein 1 (amine oxidase, copper-containing)
Gjb5	4.6	gap junction membrane channel protein beta 5 (Gjb5)	**BC089597**	-7.6	cis-retinol/3alpha hydroxysterol short-chain dehydrogenase-like
AW540001.1	4.6	C0127C09-3 NIA Mouse E75 Extraembryonic Portion cDNA Library cDNA clone C0127C09 3'	**Tesp1**	-7.5	testicular serine protease 1

SUPPLEMENTARY TABLE 4

EARLY DIFFERENTIATION GENES: TOP 100 DIFFERENTIALLY EXPRESSED GENES (>4 FOLD IN 7-DAY-OLD EBS VS. MES3 EMBRYONIC STEM CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
1810036H07Rik	11.9	RIKEN cDNA 1810036H07 gene	**Apoc3**	-27.0	apolipoprotein C-III
Gkn1	10.7	gastrokine 1	**Gzmn**	-26.5	granzyme N
Lama1	9.9	laminin, alpha 1	**Kcnj16**	-25.0	potassium inwardly-rectifying channel, subfamily J, member 16
Fst	8.1	follistatin	**F13a1**	-24.3	coagulation factor XIII, A1 subunit
Lamb1-1	7.9	laminin B1 subunit 1	**Hsd3b1**	-24.0	hydroxysteroid dehydrogenase-1, delta<5>-3-beta
Pga5	7.4	pepsinogen 5, group I	**Myom1**	-22.4	myomesin 1
Hs3st1	7.0	heparan sulfate (glucosamine) 3-O-sulfotransferase 1	**Camk2b**	-22.3	Similar to calcium/calmodulin-dependent protein kinase (CaM kinase) II beta, clone IMAGE:5359535
Slc9a3r1	6.8	solute carrier family 9 (sodium/hydrogen exchanger), isoform 3 regulator 1	**4931440B09Rik**	-22.1	RIKEN cDNA 4931440B09 gene
Tinagl	6.7	Tubulointerstitial nephritis antigen-like	**Htatip**	-22.0	HIV-1 tat interactive protein, homolog (human)
Glipr1	6.7	GLI pathogenesis-related 1 (glioma)	**Adh6-ps1**	-21.9	adult male liver cDNA, RIKEN clone:1300002P07 product:similar to ALCOHOL DEHYDROGENASE 2 (EC 11.1.1) [Peromyscus maniculatus], full insert sequence
Rcn3	6.6	reticulocalbin 3, EF-hand calcium binding domain	**BB069309.1**	-21.8	RIKEN 15 days embryo male testis cDNA clone 8030481K09 3', mRNA sequence
Aqp8	6.6	aquaporin 8	**Pip5k3**	-21.6	RIKEN 12 days embryo spinal ganglion cDNA clone D130068I18 3'
Sema6d	6.5	sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6D, transcript variant 1	**C030023E24Rik**	-21.1	RIKEN adult male corpora quadrigemina cDNA clone B230340H06 3'
Mfge8	6.5	milk fat globule-EGF factor 8 protein	**BB030016.1**	-21.0	RIKEN adult male thymus cDNA clone 5830450I24 3', mRNA sequence
Thumpd1	6.5	THUMP domain containing 1	**Epb4.1l4b**	-20.4	erythrocyte protein band 41-like 4b
Nid2	6.5	nidogen 2	**Tenr**	-13.0	testis nuclear RNA binding protein
Tmem44	6.4	adult male corpora quadrigemina cDNA, RIKEN clone:B230220N21 product:hypothetical protein, full insert sequence	**Daf2**	-11.9	decay accelerating factor 2
Kit	6.4	kit oncogene	**Klk1**	-11.8	kallikrein 6
Plod2	6.4	procollagen lysine, 2-oxoglutarate 5-dioxygenase 2	**Spata19**	-11.6	spermatogenesis associated 19
Serpinh1	6.3	serine (or cysteine) proteinase inhibitor, clade H, member 1	**Wac**	-11.3	AGENCOURT_13596826 NIH_MGC_178 cDNA clone IMAGE:30300914 5'
Loxl2	6.1	lysyl oxidase-like 2	**1700016M24Rik**	-11.1	adult male testis cDNA, RIKEN clone:1700016M24 product:hypothetical ARM repeat structure containing protein, full insert sequence
Plod1	6.1	procollagen-lysine, 2-oxoglutarate 5-dioxygenase 1	**AV046716.2**	-11.0	adult C57BL/6J testis cDNA clone 1700063E08
Mrps12	6.1	mitochondrial ribosomal protein S12	**Spata16_rep_1**	-11.0	spermatogenesis associated 16
Myl3	6.0	Mmusculus mRNA for ventricular alkali myosin light chain	**1700023D19Rik**	-10.8	adult male testis cDNA, RIKEN clone:1700023D19 product:hypothetical protein, full insert sequence
F3	6.0	coagulation factor III	**H1fnt**	-10.8	RIKEN cDNA 1700026P10 gene
Lamc1	6.0	laminin, gamma 1	**Fbp3**	-10.8	mm53h04y1 Stratagene mouse embryonic carcinoma (#937317) cDNA clone IMAGE:532183 5' similar to gb:L10320 FRUCTOSE-1,6-BISPHOSPHATASE (HUMAN); gb:D42083 Mouse mRNA for fructose 1,6-bisphosphatase (MOUSE)
Tfpi	5.9	tissue factor pathway inhibitor	**Pcp4**	-10.8	Purkinje cell protein 4
Sall4	5.9	8 days embryo whole body cDNA, RIKEN clone:5730441M18 product:hypothetical Zinc finger, C2H2 type containing protein, full insert sequence	**1700034E13Rik**	-10.8	RIKEN cDNA 1700034E13 gene
Oasl2	5.9	2'-5' oligoadenylate synthetase-like 2	**Hbb-bh1**	-10.6	AGENCOURT_10124687 NIH_MGC_134 cDNA clone IMAGE:6512013 5'
Nid1	5.8	nidogen 1	**Plunc**	-10.6	palate, lung, and nasal epithelium carcinoma associated
BG915840.1	5.8	602815484F1 NCI_CGAP_Mam4 cDNA clone IMAGE:4937540 5'	**1700024P04Rik**	-10.5	AGENCOURT_24359179 NIH_MGC_169 cDNA clone IMAGE:30918567 5'
2410124H12Rik	5.8	RIKEN ES cells cDNA clone 2410124H12 5'	**Klk1b4_rep_1**	-10.4	nerve growth factor, alpha, mRNA (cDNA clone MGC:25388 IMAGE:4911885)
9130005N14Rik	5.8	RIKEN cDNA 9130005N14 gene (9130005N14Rik)	**Dnajb3**	-10.3	DnaJ (Hsp40) homolog, subfamily B, member 3
Fgfr1op2	5.8	FGFR1 oncogene partner 2	**Cyp17a1**	-10.3	cytochrome P450, family 17, subfamily a, polypeptide 1

SUPPLEMENTARY TABLE 4 (CONTINUED)

EARLY DIFFERENTIATION GENES: TOP 100 DIFFERENTIALLY EXPRESSED GENES (>4 FOLD IN 7-DAY-OLD EBS VS. MES3 EMBRYONIC STEM CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
Hba-x	5.7	hemoglobin X, alpha-like embryonic chain in Hba complex	**4930571K23Rik**	-10.3	adult male testis cDNA, RIKEN clone:4930571K23 product:unknown EST, full insert sequence
Ggta1	5.6	glycoprotein galactosyltransferase alpha 1, 3	**Arpm2**	-10.2	actin related protein M2
AA162974.1	5.6	ms31e12r1 Stratagene mouse skin (#937313) cDNA clone IMAGE:608590 5' similar to gb:D44464 Mouse mRNA for uridine phosphorylase (MOUSE)	**Cyp4b1**	-10.1	cytochrome P450, family 4, subfamily b, polypeptide 1
Igsf3	5.4	mc37h02r1 Soares mouse p3NMF19.5 cDNA clone IMAGE:350739 5'	**Tnp1**	-10.1	transition protein 1
9430080K19Rik	5.4	mitogen-activated protein kinase kinase kinase kinase 4	**Hils1**	-10.0	histone H1-like protein in spermatids 1
Psrc1	5.4	RIKEN cDNA 5430413I02 gene	**1700060E18Rik**	-10.0	RIKEN cDNA 1700060E18 gene
Cited2	5.4	Cbp/p300-interacting transactivator, with Glu/Asp-rich carboxy-terminal domain, 2, mRNA	**Cyp2f2**	-10.0	cytochrome P450, family 2, subfamily f, polypeptide 2
Sox21	5.4	SRY-box containing gene 21	**Ldhc**	-9.7	lactate dehydrogenase 3, C chain, sperm specific
Txndc12	5.4	thioredoxin domain containing 12 (endoplasmic reticulum)	**1700003M02Rik**	-9.7	adult male testis cDNA, RIKEN clone:1700003M02 product:hypothetical protein, full insert sequence
Zfp68	5.3	zinc finger protein 68	**Tekt1**	-9.7	tektin 1
Chm	5.3	Choroidermia	**Sftpa1**	-9.7	surfactant associated protein A1
Bmp2_rep_1	5.2	bone morphogenetic protein 2, mRNA	**Cklfsf2a**	-9.6	chemokine-like factor super family 2A
Drp2	5.2	dystrophin related protein 2	**Spata3**	-9.5	spermatogenesis associated 3
Glipr2	5.2	GLI pathogenesis-related 2	**Aldh1a1**	-9.5	aldehyde dehydrogenase family 1, subfamily A1
Xlr	5.2	601782404F1 NCI_CGAP_Lu30 cDNA clone IMAGE:4010520 5'	**2410116G06Rik**	-9.4	RIKEN cDNA 2410116G06 gene
Chchd4	5.2	coiled-coil-helix-coiled-coil-helix domain containing 4	**Svs5**	-9.4	seminal vesicle secretion 5
BF143178.1	5.2	601788075F1 NCI_CGAP_Lu30 cDNA clone IMAGE:4015866 5'	**Sprr2f**	-9.4	small proline-rich protein 2F
Ncl	5.1	UI-M-HA0-ctn-i-11-0-Ulr1 NIH_BMAP_HA0 cDNA clone IMAGE:30699370 5'	**Oaz3**	-9.4	ornithine decarboxylase antizyme 3
Ampd2	5.1	adenosine monophosphate deaminase 2 (isoform L)	**Nalp14**	-9.3	RIKEN cDNA 4921520L01 gene
Mcm5	5.1	minichromosome maintenance deficient 5, cell division cycle 46 (S cerevisiae)	**1700013N18Rik**	-9.3	RIKEN cDNA 1700013N18 gene
Rab6	5.1	RAB6, member RAS oncogene family	**Pabpc2**	-9.3	poly A binding protein, cytoplasmic 2
Ctgf	5.1	connective tissue growth factor	**1700112P19Rik**	-9.3	RIKEN cDNA 1700112P19 gene (1700112P19Rik)
Calu	5.0	calumenin mRNA	**Calb1**	-9.2	calbindin-28K
Pofut2	5.0	protein O-fucosyltransferase 2	**1700016H13Rik**	-9.2	RIKEN cDNA 1700016H13 gene, mRNA (cDNA clone MGC:58408 IMAGE:6705673)
2610305D13Rik	5.0	RIKEN cDNA 2610305D13 gene	**Cst13**	-9.2	cystatin 13
Gucy2c	5.0	guanylate cyclase 2c, mRNA	**4921526K24Rik**	-9.1	RIKEN cDNA 4921526K24 gene
Depdc1a	5.0	DEP domain containing 1a	**Hsd3b4**	-9.1	hydroxysteroid dehydrogenase-4, delta<5>-3-beta
Picalm	5.0	phosphatidylinositol binding clathrin assembly protein	**Cst12**	-9.0	AGENCOURT_10614622 NIH_MGC_169 cDNA clone IMAGE:6742960 5'
Flrt3	4.9	fibronectin leucine rich transmembrane protein 3	**1700019I23Rik**	-9.0	RIKEN cDNA 1700019I23 gene
Rcn1	4.9	reticulocalbin 1	**Galntl5**	-9.0	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase-like 5
Fut8	4.9	fucosyltransferase 8	**Spata4**	-8.9	spermatogenesis associated 4
Fkbp9	4.9	FK506 binding protein 9	**1700019D03Rik**	-8.9	RIKEN cDNA 1700019D03 gene
BC003812.1	4.9	X-linked lymphocyte-regulated 3a, mRNA (cDNA clone MGC:6120 IMAGE:3601144)	**1700023A16Rik**	-8.9	adult male testis cDNA, RIKEN clone:1700023A16 product:hypothetical protein, full insert sequence
C330012H03Rik	4.9	RIKEN 12 days embryo, embryonic body between diaphragm region and neck cDNA clone 9430063O03 3'	**Gnai1**	-8.9	AGENCOURT_24959500 NIH_MGC_169 cDNA clone IMAGE:30917063 5'
Mcm4	4.8	minichromosome maintenance deficient 4 homolog (S cerevisiae)	**6230424C14Rik**	-8.8	adult male cecum cDNA, RIKEN clone:9130410H17 product:unknown EST, full insert sequence

SUPPLEMENTARY TABLE 4 (CONTINUED)

EARLY DIFFERENTIATION GENES: TOP 100 DIFFERENTIALLY EXPRESSED GENES (>4 FOLD IN 7-DAY-OLD EBS VS. MES3 EMBRYONIC STEM CELLS). FOLD CHANGE IN NORMALIZED MICROARRAY SIGNAL INTENSITY

Gene Name	Fold	Description	Gene Name	Fold	Description
P4hb	4.8	prolyl 4-hydroxylase, beta polypeptide (P4hb)	**Napsa**	-8.8	napsin A aspartic peptidase
2010012C16Rik	4.8	RIKEN cDNA 2010012C16 gene (2010012C16Rik)	**1700003H04Rik**	-8.7	AGENCOURT_24954890 NIH_MGC_169 cDNA clone IMAGE:30919764 5'
Zfp84	4.8	zinc finger protein 84 (Zfp84)	**Mcsp**	-8.7	mitochondrial capsule selenoprotein
1700108E19Rik	4.8	601664719F1 NCI_CGAP_Mam1 cDNA clone IMAGE:3964781 5'	**Tesp1**	-8.7	testicular serine protease 1
Lin28	4.8	lin-28 homolog (C elegans) (Lin28)	**Odf4**	-8.7	outer dense fiber of sperm tails 4
Fbxo15	4.8	ES cells cDNA, RIKEN clone:C330024E13 product:f-box only protein 15, full insert sequence	**Cypt4**	-8.7	RIKEN cDNA 1700009B20 gene
Ccnd2	4.8	cyclin D2 (Ccnd2)	**Actg2**	-8.7	actin, gamma 2, smooth muscle, enteric
Mid1	4.8	me51e03r1 Soares mouse embryo NbME13.5 14.5 cDNA clone IMAGE:391036 5'.	**Cst8**	-8.6	cystatin 8 (cystatin-related epididymal spermatogenic)
AW540001.1	4.8	C0127C09-3 NIA Mouse E75 Extraembryonic Portion cDNA Library cDNA clone C0127C09 3'.	**Spag9**	-8.6	602914124F1 NCI_CGAP_Li9 cDNA clone IMAGE:5055221 5'
Klf3	4.8	4 days neonate male adipose cDNA, RIKEN clone:B430304G02 product:Kruppel-like factor 3 (basic), full insert sequence	**Mylc2pl**	-8.6	myosin light chain 2, precursor lymphocyte-specific
Pole2	4.8	polymerase (DNA directed), epsilon 2 (p59 subunit) (Pole2)	**Iqcf4**	-8.6	IQ motif containing F4
Barx1	4.7	BarH-like homeobox 1 (Barx1)	**Cdh16**	-8.5	cadherin 16
Kifc5a	4.7	kinesin family member C1 (Kifc1)	**Txndc2**	-8.5	thioredoxin domain containing 2 (spermatozoa)
Cyp2s1	4.7	cytochrome P450, family 2, subfamily s, polypeptide 1 (Cyp2s1)	**Plcz1**	-8.5	phospholipase C, zeta 1
Glcci1	4.7	vl65a08x1 Knowles Solter mouse blastocyst B1 cDNA clone IMAGE:977078 3'.	**Aif1**	-8.5	allograft inflammatory factor 1
Plod3	4.7	procollagen-lysine, 2-oxoglutarate 5-dioxygenase 3 (Plod3)	**AI323469.1**	-8.5	mj87e03x1 Soares mouse p3NMF19.5 cDNA clone IMAGE:483100 3' similar to gb:U37222 Mus musculus 30kDa adipocyte complement-related protein Acrp30 (MOUSE)
Dennd2c	4.7	RIKEN cDNA A930010I20 gene (A930010I20Rik)	**Arrdc5**	-8.5	adult male testis cDNA, RIKEN clone:1700013E09 product:hypothetical Immunoglobulin structure containing protein, full insert sequence
Serpina10_rep_1	4.7	serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 10 (Serpina10)	**4930503B20Rik**	-8.5	adult male testis cDNA, RIKEN clone:1700013A07 product:similar to DNAJ-LIKE PROTEIN [Rattus norvegicus], full insert sequence
Kdelr3_rep_1	4.7	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 3 (Kdelr3)	**4933439G12Rik**	-8.5	adult male testis cDNA, RIKEN clone:4933439G12 product:unknown EST, full insert sequence
Pik3cb	4.7	phosphatidylinositol 3-kinase, catalytic, beta polypeptide (Pik3cb)	**Kcnab2**	-8.5	potassium voltage-gated channel, shaker-related subfamily, beta member 2
Cmtm7	4.7	chemokine-like factor super family 7 (Cklfsf7)	**1700001C02Rik**	-8.5	RIKEN cDNA 1700001C02 gene
Foxa2	4.6	forkhead box A2 (Foxa2)	**1700029I08Rik_rep_1**	-8.4	RIKEN cDNA 1700029I08 gene
Asah1	4.6	N-acylsphingosine amidohydrolase 1 (Asah1)	**Nt5c1b**	-8.4	5'-nucleotidase, cytosolic IB
Ctsl	4.6	cathepsin L (Ctsl)	**1700074P13Rik**	-8.4	RIKEN cDNA 1700074P13 gene
Mcm2	4.6	minichromosome maintenance deficient 2 mitotin (S cerevisiae) (Mcm2)	**1700008F21Rik**	-8.4	RIKEN cDNA 1700008F21 gene
Mcm3	4.6	minichromosome maintenance deficient 3 (S cerevisiae) (Mcm3)	**4921511C04Rik**	-8.4	RIKEN cDNA 4921511C04 gene
Kdelr3	4.6	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 3 (Kdelr3)	**1700021K02Rik**	-8.4	RIKEN cDNA 1700021K02 gene (1700021K02Rik), transcript variant 5
Ihh	4.6	Indian hedgehog (Ihh)	**Spag4l**	-8.4	sperm associated antigen 4-like
Cdc6	4.6	cell division cycle 6 homolog (S. cerevisiae) (Cdc6), transcript variant 2, mRNA	**1700025F22Rik**	-8.4	RIKEN cDNA 1700025F22 gene (1700025F22Rik)
Pafah1b1	4.6	L0010F10-3 NIA Mouse E125 Female Mesonephros and Gonads cDNA Library cDNA clone L0010F10 3'.	**Aqp7**	-8.4	aquaporin 7
Adamts9	4.6	a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 9, mRNA (cDNA clone IMAGE:30536534)	**Acr**	-8.4	Preproacrosin

SUPPLEMENTARY TABLE 5

SUPPLEMENTARY TABLECLUSTER SHOWING GROUPS OF GENES
THAT ARE ANNOTATED TO COMMON FUNCTIONAL CATEGORIES DESCRIBED IN THE GENE ONTOLOGY

Cluster 1 (22 genes)

Gene Name	Description
5031439A09Rik	RIKEN cDNA 5031439A09 gene (5031439A09Rik)
Col1a1	procollagen, type I, alpha 1 (Col1a1)
Shoc2	soc-2 (suppressor of clear) homolog (C elegans) (Shoc2)
Ctla2a	cytotoxic T lymphocyte-associated protein 2 alpha (Ctla2a)
Col3a1	procollagen, type III, alpha 1 (Col3a1)
Nrp1	neuropilin 1 (Nrp1)
Slc16a1	Mmusculus mRNA for monocarboxyalate transporter
Pmp22	peripheral myelin protein (Pmp22)
F2r	coagulation factor II (thrombin) receptor (F2r)
2610001E17Rik	RIKEN cDNA 2610001E17 gene (2610001E17Rik)
Vldlr	very low density lipoprotein receptor (Vldlr)
Dlk1	delta-like 1 homolog (Drosophila) (Dlk1)
Hiatl1	RIKEN cDNA 5730414C17 gene (5730414C17Rik)
Slit2	slit homolog 2 (Drosophila) (Slit2)
Matr3	matrin 3, mRNA (cDNA clone MGC:28206 IMAGE:3989914)
Mrg1	myeloid ecotropic viral integration site-related gene 1 (Mrg1)
Hmga2	high mobility group AT-hook 2 (Hmga2)
Sfrs2	splicing factor Sc35 (Pr264) mRNA, partial cds, alternatively spliced
Tgfbi	transforming growth factor, beta induced (Tgfbi)
App	hippocampal amyloid precursor protein mRNA
D0H4S114	DNA segment, human D4S114 (D0H4S114)
Rps2	ui64g11x1 Sugano mouse liver mlia cDNA clone

Cluster 2 (18 genes)

Gene Name	Description
Nrk	Nik related kinase (Nrk)
Tbx2	T-box 2 (Tbx2)
Amot	angiomotin (Amot)
2810051F02Rik	RIKEN cDNA 2810051F02 gene (2810051F02Rik)
Calcb	calcitonin-related polypeptide, beta (Calcb)
Slco1a1	solute carrier organic anion transporter family, member 1a1 (Slco1a1)
Msx2	homeo box, msh-like 2 (Msx2)
Msr2	Fc receptor-like protein 2 immunoglobulin short isoform (Fcrh2) mRNA
Kdr	Mmusculus Flk-1 mRNA
BY759545.1	RIKEN 13 days embryo liver cDNA clone I920036M10 3'
1700018C11Rik	RIKEN cDNA 1700018C11 gene (1700018C11Rik)
Capn6	calpain 6 (Capn6)
Alcam	UI-M-BH3-asm-e-08-0-UIs1 NIH_BMAP_M_S4 cDNA clone UI-M-BH3-asm-e-08-0-UI 3'.
Msx1	homeo box, msh-like 1 (Msx1)
Atoh8	atonal homolog 8 (Drosophila) (Atoh8)
Pyy	peptide YY (Pyy)
Prss12	protease, serine, 12 neurotrypsin (motopsin) (Prss12)
W71826.1	me45a08r1 Soares mouse embryo NbME13.5 14.5 cDNA clone IMAGE:390422 5'.

Cluster 3 (18 genes)

Gene Name	Description
Hbb	mb84h05r1 Soares mouse p3NMF19.5 cDNA clone
Igfbp5	insulin-like growth factor binding protein 5 (Igfbp5), mRNA
8030466E21Rik	unc-5 homolog C (C elegans) (Unc5c)
Fgb	fibrinogen, B beta polypeptide (Fgb)
Tlx1	T-cell leukemia, homeobox 1 (Tlx1)
Hbb-bh1	AGENCOURT_10124687 NIH_MGC_134 cDNA clone IMAGE:6512013 5'
Krt2-1	keratin complex 2, basic, gene 1 (Krt2-1)
Tdo2	tryptophan 2,3-dioxygenase (Tdo2)
Hba-x	hemoglobin X, alpha-like embryonic chain in Hba complex (Hba-x)
Comt	ma46f02r1 Soares mouse p3NMF19.5 cDNA clone
Rhox6	placenta specific homeobox 1 (Psx1)
Rspo3	thrombospondin, type I, domain 2 (Thsd2)
BQ032190.1	UI-1-CF0-apq-b-05-0-UIs1 NCI_CGAP_PITr1 cDNA clone UI-1-CF0-apq-b-05-0-UI 3'
Slc13a4	solute carrier family 13 (sodium/sulfate symporters), member 4 (Slc13a4)
Isl1	ISL1 transcription factor, LIM/homeodomain (islet 1) (Isl1)
Igf2	insulin-like growth factor 2 (Igf2)
Hapln1	cartilage link protein (Crtl1) mRNA
Myct1	myc target 1 (Myct1)

Cluster 4 (16 genes)

Gene Name	Description
Zfp207	RIKEN pooled tissues, spleen and thymus lymphocytes cDNA clone I6C0068G10 3'
Serpinb12	serine (or cysteine) proteinase inhibitor, clade B (ovalbumin), member 12 (Serpinb12)
Acsm1	butyryl Coenzyme A synthetase 1, mRNA (cDNA clone MGC:25954 IMAGE:4238964)
Olfr1403	olfactory receptor 1403 (Olfr1403)
Fabp1	fatty acid binding protein 1, liver (Fabp1)
Cyp1a2	cytochrome P450, family 1, subfamily a, polypeptide 2 (Cyp1a2)
Ulk2	RIKEN 0 day neonate lung cDNA clone E030037L18 3'
Olfr954	olfactory receptor 954 (Olfr954)
Ush3a	Usher syndrome 3A homolog (human) (Ush3a), mRNA
AI507531.1	vj76h02x1 Knowles Solter mouse blastocyst B1 cDNA clone IMAGE:934995 3'.
BY103204.1	RIKEN pooled tissues, adult spleen, etc cDNA clone K630149L12 5'
Slc12a4	RIKEN 0 day neonate kidney cDNA clone D630040N05 3'
Fgfbp1	fibroblast growth factor binding protein 1 (Fgfbp1)
AV240709.2	RIKEN 10 day neonate skin cDNA clone 4732442L07 3'
Slc15a4	RIKEN B16 F10Y cells cDNA clone G370092P18 3'
Chrnb2	12 days embryo spinal ganglion cDNA, RIKEN

Cluster 5 (16 genes)

Gene Name	Description
Gabrg1	RIKEN adult male hypothalamus cDNA clone A230092H19 3'
BB260391.1	RIKEN 7 days neonate cerebellum cDNA clone A730094F18 3'
Psmd11	adult male testis cDNA, RIKEN clone:1700089D09 product:unclassifiable, full insert sequence
Klhl21	10 day old male pancreas cDNA, RIKEN
Map4k5	adult male testis cDNA, RIKEN clone:4931403G20 product:unknown EST, full insert sequence
Tm4sf4	transmembrane 4 superfamily member 4 (Tm4sf4)
Srgap2	UI-M-BH3-awc-c-12-0-UIs4 NIH_BMAP_M_S4 cDNA clone UI-M-BH3-awc-c-12-0-UI 3'.
BB668107.1	RIKEN 2 days neonate thymus thymic cells cDNA clone C920025J10 3'
BY755242.1	RIKEN RCB-1283 B16 melanoma cDNA cDNA clone G430107I07 3'
Rhbg	Rhesus blood group-associated B glycoprotein (Rhbg)
Dspg3	dermatan sulphate proteoglycan 3 (Dspg3)
2900024J01Rik	adult male hippocampus cDNA, RIKEN clone:2900024J01 product:unknown EST, full insert sequence
Ltb4r2	leukotriene B4 receptor 2 (Ltb4r2)
BB156955.1	RIKEN 16 days neonate thymus cDNA clone A130034B11 3', mRNA sequence
CA456872.1	AGENCOURT_10737396 NIH_MGC_152 cDNA clone IMAGE:6746735 5'
3000003F02Rik	RIKEN cDNA 3000003F02 gene (3000003F02Rik)

Cluster 6 (13 genes)

Gene Name	Description
Tcf15	transcription factor 15 (Tcf15)
AW047251.1	UI-M-BH1-amb-h-10-0-UI.s1 NIH_BMAP_M_S2 cDNA clone UI-M-BH1-amb-h-10-0-UI 3', mRNA sequer
Nnmt	nicotinamide N-methyltransferase (Nnmt)
Raly	(clones EcDNA1 and EcDNA4) RNA-binding protein mRNA sequence
Mmp3	matrix metalloproteinase 3 (Mmp3)
Ccl7	chemokine (C-C motif) ligand 7 (Ccl7)
Cbr3	carbonyl reductase 3 (Cbr3)
Ifit3	interferon-induced protein with tetratricopeptide repeats 3 (Ifit3)
Gdap1l1	ganglioside-induced differentiation-associated protein 1-like 1 (Gdap1l1)
Pou3f1	POU domain, class 3, transcription factor 1 (Pou3f1)
Mdfi	MyoD family inhibitor (Mdfi)
Ptpn11	protein tyrosine phosphatase SH-PTP2
Ltb	lymphotoxin B (Ltb)