

**Table S2** Expression of 719 genes specific for liver metastasis in GSE62321 and GSE49355

Gene symbol	Gene ID	Description	Style
A1BG	1	alpha-1-B glycoprotein	up
AADAC	13	arylacetamide deacetylase	up
ABCC2	1244	ATP binding cassette subfamily C member 2	up
ABCG5	64240	ATP binding cassette subfamily G member 5	up
ABHD5	51099	abhydrolase domain containing 5	down
ACE	1636	angiotensin I converting enzyme	down
ACER3	55331	alkaline ceramidase 3	down
ACSM2A	123876	acyl-CoA synthetase medium-chain family member 2A	up
ACSM5	54988	acyl-CoA synthetase medium-chain family member 5	up
ACTL10	170487	actin like 10	up
ADAM8	101	ADAM metallopeptidase domain 8	up
ADAMTS8	11095	ADAM metallopeptidase with thrombospondin type 1 motif 8	down
ADGRL3	23284	adhesion G protein-coupled receptor L3	down
ADH4	127	alcohol dehydrogenase 4 (class II), pi polypeptide	up
ADRA2A	150	adrenoceptor alpha 2A	down
AGXT	189	alanine-glyoxylate aminotransferase	up
AHSG	197	alpha-2-HS-glycoprotein	up
AIFM3	150209	apoptosis inducing factor, mitochondria associated 3	down
AKR1C4	1109	aldo-keto reductase family 1, member C4	up
AKR1D1	6718	aldo-keto reductase family 1, member D1	up
ALB	213	albumin	up
ALCAM	214	activated leukocyte cell adhesion molecule	up
ALDH8A1	64577	aldehyde dehydrogenase 8 family member A1	up
ALDOB	229	aldolase, fructose-bisphosphate B	up
AMBP	259	alpha-1-microglobulin/bikunin precursor	up
AMDHD1	144193	amidohydrolase domain containing 1	up
AMIGO2	347902	adhesion molecule with Ig-like domain 2	up
AMPD2	271	adenosine monophosphate deaminase 2	up
ANAPC11	51529	anaphase promoting complex subunit 11	up
ANGPTL3	27329	angiopoietin like 3	up
ANKRD37	353322	ankyrin repeat domain 37	up
ANKZF1	55139	ankyrin repeat and zinc finger domain containing 1	up
AOX1	316	aldehyde oxidase 1	up
AP5M1	55745	adaptor related protein complex 5 mu 1 subunit	down
APCS	325	amyloid P component, serum	up
APOA1	335	apolipoprotein A1	up
APOA2	336	apolipoprotein A2	up
APOA5	116519	apolipoprotein A5	up
APOB	338	apolipoprotein B	up
APOC3	345	apolipoprotein C3	up
APOE	348	apolipoprotein E	up

**Table S2** (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
APOH	350	apolipoprotein H	up
APOL1	8542	apolipoprotein L1	up
APOM	55937	apolipoprotein M	up
AQP3	360	aquaporin 3 (Gill blood group)	up
AQP7	364	aquaporin 7	down
AQP9	366	aquaporin 9	up
ARG1	383	arginase 1	up
ARHGAP6	395	Rho GTPase activating protein 6	down
ARMCX1	51309	armadillo repeat containing, X-linked 1	down
ARRB2	409	arrestin beta 2	up
ASB9	140462	ankyrin repeat and SOCS box containing 9	up
ASGR2	433	asialoglycoprotein receptor 2	up
ATOX1	475	antioxidant 1 copper chaperone	up
ATP2B4	493	ATPase plasma membrane Ca <sup>2+</sup> transporting 4	down
ATP6V0D1	9114	ATPase H <sup>+</sup> transporting V0 subunit d1	down
B3GNT8	374907	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 8	down
BAD	572	BCL2 associated agonist of cell death	down
BAIAP2L1	55971	BAI1 associated protein 2 like 1	up
BCAP29	55973	B-cell receptor-associated protein 29	down
BCL7A	605	B-cell CLL/lymphoma 7A	up
BDKRB2	624	bradykinin receptor B2	down
BEX4	56271	brain expressed X-linked 4	down
BHLHB9	80823	basic helix-loop-helix domain containing, class B, 9	up
BMP3	651	bone morphogenetic protein 3	down
BMP5	653	bone morphogenetic protein 5	down
BNC2	54796	basonuclin 2	down
BNIP3	664	BCL2/adenovirus E1B 19kDa interacting protein 3	up
BOC	91653	BOC cell adhesion associated, oncogene regulated	down
BOD1L1	259282	biorientation of chromosomes in cell division 1 like 1	up
BSG	682	basigin (Ok blood group)	down
BTC	685	betacellulin	down
C10orf10	11067	chromosome 10 open reading frame 10	up
C11orf31	280636	chromosome 11 open reading frame 31	up
C14orf132	56967	chromosome 14 open reading frame 132	down
C15orf65	145788	chromosome 15 open reading frame 65	down
C16orf62	57020	chromosome 16 open reading frame 62	down
C17orf75	64149	chromosome 17 open reading frame 75	up
C1QTNF2	114898	C1q and tumor necrosis factor related protein 2	down
C1orf109	54955	chromosome 1 open reading frame 109	up
C2	717	complement component 2	up
C20orf194	25943	chromosome 20 open reading frame 194	down

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
C3	718	complement component 3	up
C4A	720	complement component 4A (Rodgers blood group)	up
C4BPA	722	complement component 4 binding protein alpha	up
C4orf3	401152	chromosome 4 open reading frame 3	up
C5	727	complement component 5	up
C5AR1	728	complement component 5a receptor 1	up
C6	729	complement component 6	up
C6orf1	221491	chromosome 6 open reading frame 1	up
C7orf13	129790	chromosome 7 open reading frame 13	up
C8A	731	complement component 8 alpha subunit	up
C8B	732	complement component 8, beta polypeptide	up
C8orf4	56892	chromosome 8 open reading frame 4	down
C9	735	complement component 9	up
C9orf142	286257	chromosome 9 open reading frame 142	up
CA9	768	carbonic anhydrase 9	up
CACNA2D1	781	calcium voltage-gated channel auxiliary subunit alpha2delta 1	down
CALD1	800	caldesmon 1	down
CAMK2B	816	calcium/calmodulin dependent protein kinase II beta	down
CAST	831	calpastatin	down
CBLN2	147381	cerebellin 2 precursor	down
CBX8	57332	chromobox 8	up
CCL11	6356	C-C motif chemokine ligand 11	down
CCL18	6362	C-C motif chemokine ligand 18	up
CD163	9332	CD163 molecule	up
CD19	930	CD19 molecule	down
CD27	939	CD27 molecule	down
CD69	969	CD69 molecule	down
CD79B	974	CD79b molecule	down
CDC42EP3	10602	CDC42 effector protein 3	down
CDH2	1000	cadherin 2	up
CDKL1	8814	cyclin dependent kinase like 1	down
CDS1	1040	CDP-diacylglycerol synthase 1	down
CEP76	79959	centrosomal protein 76	up
CFHR2	3080	complement factor H related 2	up
CFHR4	10877	complement factor H related 4	up
CHDH	55349	choline dehydrogenase	up
CHMP1B	57132	charged multivesicular body protein 1B	down
CIDEC	63924	cell death inducing DFFA like effector c	down
CLIC4	25932	chloride intracellular channel 4	down
CLIP3	25999	CAP-Gly domain containing linker protein 3	down
CLMP	79827	CXADR-like membrane protein	down

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
CLRN3	119467	clarin 3	down
CLTB	1212	clathrin light chain B	down
CNDP1	84735	carnosine dipeptidase 1 (metallopeptidase M20 family)	up
CNPY2	10330	canopy FGF signaling regulator 2	up
CNRIP1	25927	cannabinoid receptor interacting protein 1	down
COL14A1	7373	collagen type XIV alpha 1	down
COL6A1	1291	collagen type VI alpha 1	down
COL6A2	1292	collagen type VI alpha 2	down
COLEC11	78989	collectin subfamily member 11	up
COLEC12	81035	collectin subfamily member 12	down
COX20	116228	COX20 cytochrome c oxidase assembly factor	up
COX7A1	1346	cytochrome c oxidase subunit 7A1	down
CPA3	1359	carboxypeptidase A3	down
CPB2	1361	carboxypeptidase B2	up
CPNE2	221184	copine 2	down
CPOX	1371	coproporphyrinogen oxidase	up
CPS1	1373	carbamoyl-phosphate synthase 1	up
CPXM2	119587	carboxypeptidase X (M14 family), member 2	down
CRACR2A	84766	calcium release activated channel regulator 2A	down
CRAT	1384	carnitine O-acetyltransferase	down
CREB3L1	90993	cAMP responsive element binding protein 3-like 1	down
CRK	1398	v-crk avian sarcoma virus CT10 oncogene homolog	down
CRP	1401	C-reactive protein, pentraxin-related	up
CTNND1	1500	catenin delta 1	down
CTSB	1508	cathepsin B	up
CUL7	9820	cullin 7	up
CWF19L1	55280	CWF19-like 1, cell cycle control (S. pombe)	up
CXCL14	9547	C-X-C motif chemokine ligand 14	down
CXCL16	58191	C-X-C motif chemokine ligand 16	up
CYP1B1	1545	cytochrome P450 family 1 subfamily B member 1	up
CYP2C8	1558	cytochrome P450 family 2 subfamily C member 8	up
CYP2E1	1571	cytochrome P450 family 2 subfamily E member 1	up
CYP4A11	1579	cytochrome P450 family 4 subfamily A member 11	up
CYP8B1	1582	cytochrome P450 family 8 subfamily B member 1	up
CYSLTR1	10800	cysteinyl leukotriene receptor 1	down
CYSTM1	84418	cysteine rich transmembrane module containing 1	down
CYYR1	116159	cysteine and tyrosine rich 1	down
DAAM2	23500	dishevelled associated activator of morphogenesis 2	down
DACT3	147906	dishevelled binding antagonist of beta catenin 3	down
DDR2	4921	discoidin domain receptor tyrosine kinase 2	down
DDX55	57696	DEAD-box helicase 55	up

Table S2 (continued)

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Gene symbol	Gene ID	Description	Style
DHPS	1725	deoxyhypusine synthase	up
DHRS2	10202	dehydrogenase/reductase (SDR family) member 2	up
DHX8	1659	DEAH-box helicase 8	up
DIRC2	84925	disrupted in renal carcinoma 2	down
DIXDC1	85458	DIX domain containing 1	down
DLL1	28514	delta like canonical Notch ligand 1	down
DNAJB9	4189	DnaJ heat shock protein family (Hsp40) member B9	up
DOCK5	80005	dedicator of cytokinesis 5	down
DOK4	55715	docking protein 4	down
DPP7	29952	dipeptidyl peptidase 7	up
DPYS	1807	dihydropyrimidinase	up
DQX1	165545	DEAQ-box RNA dependent ATPase 1	down
DSG3	1830	desmoglein 3	up
DUS4L	11062	dihydrouridine synthase 4 like	up
E2F3	1871	E2F transcription factor 3	up
EBF1	1879	early B-cell factor 1	down
ECH1	1891	enoyl-CoA hydratase 1, peroxisomal	down
EDNRB	1910	endothelin receptor type B	down
EFNA2	1943	ephrin A2	down
EFTUD2	9343	elongation factor Tu GTP binding domain containing 2	up
EGFR	1956	epidermal growth factor receptor	down
EHD1	10938	EH domain containing 1	down
EHD2	30846	EH domain containing 2	down
EIF4G3	8672	eukaryotic translation initiation factor 4 gamma 3	down
EMCN	51705	endomucin	down
EMID1	129080	EMI domain containing 1	down
ENGASE	64772	endo-beta-N-acetylglucosaminidase	up
ENO2	2026	enolase 2	up
ENO3	2027	enolase 3	up
ENPEP	2028	glutamyl aminopeptidase	up
ENPP3	5169	ectonucleotide pyrophosphatase/phosphodiesterase 3	down
ENY2	56943	enhancer of yellow 2 homolog (Drosophila)	up
EPAS1	2034	endothelial PAS domain protein 1	down
EPB41L4A-AS1	114915	EPB41L4A antisense RNA 1	up
EPHA4	2043	EPH receptor A4	down
EPHB4	2050	EPH receptor B4	up
EPSTI1	94240	epithelial stromal interaction 1 (breast)	up
ERBIN	55914	erbb2 interacting protein	down
ERCC2	2068	excision repair cross-complementation group 2	up
ETV5	2119	ETS variant 5	up
EVA1A	84141	eva-1 homolog A, regulator of programmed cell death	up

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
F10	2159	coagulation factor X	up
F13B	2165	coagulation factor XIII B chain	up
F2	2147	coagulation factor II, thrombin	up
F3	2152	coagulation factor III, tissue factor	down
F5	2153	coagulation factor V	up
F9	2158	coagulation factor IX	up
FAM114A1	92689	family with sequence similarity 114 member A1	down
FAM131B	9715	family with sequence similarity 131 member B	up
FAM149B1	317662	family with sequence similarity 149 member B1	up
FAM214A	56204	family with sequence similarity 214 member A	down
FAM21C	253725	family with sequence similarity 21 member C	down
FAM43A	131583	family with sequence similarity 43 member A	down
FAM63A	55793	family with sequence similarity 63 member A	down
FANCE	2178	Fanconi anemia complementation group E	up
FBLIM1	54751	filamin binding LIM protein 1	down
FBLN2	2199	fibulin 2	down
FBXL2	25827	F-box and leucine-rich repeat protein 2	up
FCGR1A	2209	Fc fragment of IgG receptor Ia	up
FCGR1B	2210	Fc fragment of IgG receptor Ib	up
FCGR3A	2214	Fc fragment of IgG receptor IIIa	up
FCN3	8547	ficolin 3	up
FCRLB	127943	Fc receptor like B	up
FERMT2	10979	fermitin family member 2	down
FGA	2243	fibrinogen alpha chain	up
FGB	2244	fibrinogen beta chain	up
FGF7	2252	fibroblast growth factor 7	down
FGFBP1	9982	fibroblast growth factor binding protein 1	down
FGG	2266	fibrinogen gamma chain	up
FGL1	2267	fibrinogen like 1	up
FGR	2268	FGR proto-oncogene, Src family tyrosine kinase	up
FLRT2	23768	fibronectin leucine rich transmembrane protein 2	down
FLVCR1	28982	feline leukemia virus subgroup C cellular receptor 1	up
FMO3	2328	flavin containing monooxygenase 3	up
FOXF1	2294	forkhead box F1	down
FRG1HP	100132352	FSHD region gene 1 family member H, pseudogene	up
FSTL1	11167	follistatin like 1	down
FTCD	10841	formimidoyltransferase cyclodeaminase	up
FUT3	2525	fucosyltransferase 3 (Lewis blood group)	down
FUT6	2528	fucosyltransferase 6	down
G6PC	2538	glucose-6-phosphatase catalytic subunit	up
GABRE	2564	gamma-aminobutyric acid type A receptor epsilon subunit	up

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
GALNT7	51809	polypeptide N-acetylgalactosaminyltransferase 7	down
GAMT	2593	guanidinoacetate N-methyltransferase	up
GATM	2628	glycine amidinotransferase	up
GC	2638	GC, vitamin D binding protein	up
GCFC2	6936	GC-rich sequence DNA-binding factor 2	up
GFRA3	2676	GDNF family receptor alpha 3	down
GIMAP6	474344	GTPase, IMAP family member 6	down
GLA	2717	galactosidase alpha	up
GLYATL1	92292	glycine-N-acyltransferase like 1	up
GM2A	2760	GM2 ganglioside activator	up
GNAI1	2770	G protein subunit alpha i1	down
GNAL	2774	G protein subunit alpha L	down
GNAO1	2775	G protein subunit alpha o1	down
GNG2	54331	G protein subunit gamma 2	down
GNG4	2786	G protein subunit gamma 4	up
GOLGA8A	23015	golgin A8 family member A	up
GPATCH2	55105	G-patch domain containing 2	up
GPR137B	7107	G protein-coupled receptor 137B	up
GPR89B	51463	G protein-coupled receptor 89B	up
GRB7	2886	growth factor receptor bound protein 7	up
GREM1	26585	gremlin 1, DAN family BMP antagonist	down
GSKIP	51527	GSK3B interacting protein	down
GTF2IP20	441124	general transcription factor Ili pseudogene 20	up
GULP1	51454	GULP, engulfment adaptor PTB domain containing 1	down
GUSBP11	91316	glucuronidase, beta pseudogene 11	down
HADH	3033	hydroxyacyl-CoA dehydrogenase	down
HAMP	57817	hepcidin antimicrobial peptide	up
HAND1	9421	heart and neural crest derivatives expressed 1	down
HBA1	3039	hemoglobin subunit alpha 1	down
HBG1	3047	hemoglobin subunit gamma 1	down
HEXIM1	10614	hexamethylene bis-acetamide inducible 1	down
HFE2	148738	hemochromatosis type 2 (juvenile)	up
HHIP	64399	hedgehog interacting protein	down
HOTAIRM1	100506311	HOXA transcript antisense RNA, myeloid-specific 1	down
HOXA13	3209	homeobox A13	down
HOXD1	3231	homeobox D1	down
HP	3240	haptoglobin	up
HPD	3242	4-hydroxyphenylpyruvate dioxygenase	up
HPN	3249	hepsin	up
HPR	3250	haptoglobin-related protein	up
HPS4	89781	HPS4, biogenesis of lysosomal organelles complex 3 subunit 2	up

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
HPSE	10855	heparanase	down
HPX	3263	hemopexin	up
HRG	3273	histidine rich glycoprotein	up
HSD11B1	3290	hydroxysteroid (11-beta) dehydrogenase 1	up
HSPA6	3310	heat shock protein family A (Hsp70) member 6	up
HSPB7	27129	heat shock protein family B (small) member 7	down
HYAL1	3373	hyaluronoglucosaminidase 1	up
ID1	3397	inhibitor of DNA binding 1, HLH protein	down
ID3	3399	inhibitor of DNA binding 3, HLH protein	down
IDH3A	3419	isocitrate dehydrogenase 3 (NAD(+)) alpha	down
IFI44L	10964	interferon induced protein 44 like	up
IGF2BP3	10643	insulin like growth factor 2 mRNA binding protein 3	up
IGFBP1	3484	insulin like growth factor binding protein 1	up
IGFBP2	3485	insulin like growth factor binding protein 2	up
IGHA1	3493	immunoglobulin heavy constant alpha 1	down
IGHD	3495	immunoglobulin heavy constant delta	down
IGHG1	3500	immunoglobulin heavy constant gamma 1 (G1m marker)	down
IGK	50802	immunoglobulin kappa locus	down
IGKC	3514	immunoglobulin kappa constant	down
IPLL3P	91353	immunoglobulin lambda like polypeptide 3, pseudogene	down
IPLL5	100423062	immunoglobulin lambda like polypeptide 5	down
IPLV1-44	28823	immunoglobulin lambda variable 1-44	down
IKZF3	22806	IKAROS family zinc finger 3	down
IL18	3606	interleukin 18	down
IL1RAP	3556	interleukin 1 receptor accessory protein	up
IL7R	3575	interleukin 7 receptor	down
INAFM2	100505573	InaF motif containing 2	down
INHBE	83729	inhibin beta E	up
INO80B	83444	INO80 complex subunit B	up
ITFG2	55846	integrin alpha FG-GAP repeat containing 2	up
ITGA8	8516	integrin subunit alpha 8	down
ITIH1	3697	inter-alpha-trypsin inhibitor heavy chain 1	up
ITIH2	3698	inter-alpha-trypsin inhibitor heavy chain 2	up
ITIH3	3699	inter-alpha-trypsin inhibitor heavy chain 3	up
ITIH4	3700	inter-alpha-trypsin inhibitor heavy chain family member 4	up
ITSN1	6453	intersectin 1	down
JADE3	9767	jade family PHD finger 3	up
JAM3	83700	junctional adhesion molecule 3	down
JAML	120425	junction adhesion molecule like	down
JMJD7-PLA2G4B	8681	JMJD7-PLA2G4B readthrough	up
JPH2	57158	junctophilin 2	down

Table S2 (continued)



Table S2 (continued)

Gene symbol	Gene ID	Description	Style
JUND	3727	JunD proto-oncogene, AP-1 transcription factor subunit	down
KANK2	25959	KN motif and ankyrin repeat domains 2	down
KBTBD12	166348	kelch repeat and BTB domain containing 12	down
KCNAB2	8514	potassium voltage-gated channel subfamily A regulatory beta subunit 2	up
KCNH2	3757	potassium voltage-gated channel subfamily H member 2	up
KDM3A	55818	lysine demethylase 3A	up
KIF12	113220	kinesin family member 12	up
KIF20B	9585	kinesin family member 20B	up
KLHL13	90293	kelch like family member 13	down
KLHL23	151230	kelch like family member 23	up
KLHL7	55975	kelch like family member 7	up
KLRD1	3824	killer cell lectin like receptor D1	down
KNG1	3827	kininogen 1	up
KRT6B	3854	keratin 6B	up
L1CAM	3897	L1 cell adhesion molecule	down
L3MBTL1	26013	l(3)mbt-like 1 (Drosophila)	up
LAMC2	3918	laminin subunit gamma 2	up
LBP	3929	lipopolysaccharide binding protein	up
LECT2	3950	leukocyte cell derived chemotaxin 2	up
LETM1	3954	leucine zipper and EF-hand containing transmembrane protein 1	down
LINC00094	266655	long intergenic non-protein coding RNA 94	up
LINC00911	100996280	long intergenic non-protein coding RNA 911	up
LINC00959	387723	long intergenic non-protein coding RNA 959	down
LINC00982	440556	long intergenic non-protein coding RNA 982	up
LIPA	3988	lipase A, lysosomal acid type	up
LOC100288911	100288911	uncharacterized LOC100288911	down
LOC100505501	100505501	uncharacterized LOC100505501	down
LOC101927263	101927263	uncharacterized LOC101927263	down
LOC101928881	101928881	uncharacterized LOC101928881	up
LOC284112	284112	uncharacterized LOC284112	down
LOC389834	389834	ankyrin repeat domain 57 pseudogene	down
LOC389906	389906	zinc finger protein 839 pseudogene	up
LOC81691	81691	exonuclease NEF-sp	up
LOXL1	4016	lysyl oxidase like 1	up
LPA	4018	lipoprotein(a)	up
LPGAT1	9926	lysophosphatidylglycerol acyltransferase 1	up
LRCH2	57631	leucine-rich repeats and calponin homology (CH) domain containing 2	down
LRG1	116844	leucine-rich alpha-2-glycoprotein 1	up
LRP3	4037	LDL receptor related protein 3	up
LRP4	4038	LDL receptor related protein 4	up
LRRC32	2615	leucine rich repeat containing 32	up

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
LRRTM2	26045	leucine rich repeat transmembrane neuronal 2	down
LRSAM1	90678	leucine rich repeat and sterile alpha motif containing 1	up
LSAMP	4045	limbic system-associated membrane protein	down
LUZP1	7798	leucine zipper protein 1	down
LXN	56925	latexin	down
LYRM4	57128	LYR motif containing 4	up
MAFB	9935	MAF bZIP transcription factor B	up
MAGI1	9223	membrane associated guanylate kinase, WW and PDZ domain containing 1	down
MAGI3	260425	membrane associated guanylate kinase, WW and PDZ domain containing 3	down
MAGOHB	55110	mago homolog B, exon junction complex core component	up
MAP7D2	256714	MAP7 domain containing 2	up
MAPK6	5597	mitogen-activated protein kinase 6	down
MARCO	8685	macrophage receptor with collagenous structure	up
MAT1A	4143	methionine adenosyltransferase 1A	up
MAX	4149	MYC associated factor X	down
MB21D2	151963	Mab-21 domain containing 2	up
MBL2	4153	mannose binding lectin 2	up
MCL1	4170	myeloid cell leukemia 1	down
MCTP2	55784	multiple C2 domains, transmembrane 2	down
MCTS1	28985	malignant T-cell amplified sequence 1	up
ME1	4199	malic enzyme 1	up
ME2	4200	malic enzyme 2	down
MEOX1	4222	mesenchyme homeobox 1	down
METTL2B	55798	methyltransferase like 2B	up
MFN2	9927	mitofusin 2	down
MFSD12	126321	major facilitator superfamily domain containing 12	up
MICAL2	9645	microtubule associated monooxygenase, calponin and LIM domain containing 2	down
MIR145	406937	microRNA 145	down
MMP2	4313	matrix metalloproteinase 2	down
MMP24-AS1	101410538	MMP24 antisense RNA 1	down
MPHOSPH9	10198	M-phase phosphoprotein 9	up
MPZ	4359	myelin protein zero	down
MR1	3140	major histocompatibility complex, class I-related	up
MROH1	727957	maestro heat like repeat family member 1	up
MRV1	10335	murine retrovirus integration site 1 homolog	down
MSR1	4481	macrophage scavenger receptor 1	up
MTDH	92140	metadherin	up
MTFR1	9650	mitochondrial fission regulator 1	up
MTPAP	55149	mitochondrial poly(A) polymerase	up
MTUS1	57509	microtubule associated tumor suppressor 1	down

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
MUC1	4582	mucin 1, cell surface associated	down
MUC13	56667	mucin 13, cell surface associated	down
MVP	9961	major vault protein	down
MYO7A	4647	myosin VIIA	up
MZB1	51237	marginal zone B and B1 cell specific protein	down
N4BP2L2	10443	NEDD4 binding protein 2-like 2	up
NABP1	64859	nucleic acid binding protein 1	up
NCF2	4688	neutrophil cytosolic factor 2	up
NCKAP5L	57701	NCK associated protein 5 like	up
NDN	4692	necdin, MAGE family member	down
NDNF	79625	neuron-derived neurotrophic factor	down
NEFL	4747	neurofilament, light polypeptide	down
NEIL1	79661	nei like DNA glycosylase 1	up
NIPAL3	57185	NIPA like domain containing 3	down
NMRAL1	57407	NmrA-like family domain containing 1	up
NMT1	4836	N-myristoyltransferase 1	up
NNMT	4837	nicotinamide N-methyltransferase	up
NOC3L	64318	NOC3 like DNA replication regulator	up
NOC4L	79050	nucleolar complex associated 4 homolog	up
NPC1L1	29881	NPC1 like intracellular cholesterol transporter 1	up
NPY	4852	neuropeptide Y	down
NRAV	100506668	negative regulator of antiviral response (non-protein coding)	up
NRXN3	9369	neurexin 3	down
NSG1	27065	neuron specific gene family member 1	down
NTHL1	4913	nth-like DNA glycosylase 1	up
NUDT11	55190	nudix hydrolase 11	down
NUDT14	256281	nudix hydrolase 14	up
OBSCN	84033	obscurin, cytoskeletal calmodulin and titin-interacting RhoGEF	up
OCA2	4948	OCA2 melanosomal transmembrane protein	up
OGDHL	55753	oxoglutarate dehydrogenase-like	up
OLFML2A	169611	olfactomedin like 2A	down
OLR1	4973	oxidized low density lipoprotein receptor 1	up
ONECUT2	9480	one cut homeobox 2	up
OR7E14P	10819	olfactory receptor family 7 subfamily E member 14 pseudogene	down
ORM1	5004	orosomucoid 1	up
P2RX5	5026	purinergic receptor P2X 5	down
P2RY1	5028	purinergic receptor P2Y1	down
P4HA1	5033	prolyl 4-hydroxylase subunit alpha 1	up
PAAF1	80227	proteasomal ATPase associated factor 1	up
PAFAH2	5051	platelet activating factor acetylhydrolase 2	down
PALLD	23022	palladin, cytoskeletal associated protein	down

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
PAMR1	25891	peptidase domain containing associated with muscle regeneration 1	down
PANK2	80025	pantothenate kinase 2	up
PANK3	79646	pantothenate kinase 3	down
PARP10	84875	poly(ADP-ribose) polymerase family member 10	up
PARVA	55742	parvin alpha	down
PATZ1	23598	POZ/BTB and AT hook containing zinc finger 1	up
PBX1	5087	PBX homeobox 1	down
PCDH18	54510	protocadherin 18	down
PCDH20	64881	protocadherin 20	down
PCDH7	5099	protocadherin 7	down
PCSK5	5125	proprotein convertase subtilisin/kexin type 5	down
PCSK7	9159	proprotein convertase subtilisin/kexin type 7	down
PDCD4-AS1	282997	PDCD4 antisense RNA 1	down
PDGFRA	5156	platelet derived growth factor receptor alpha	down
PDZRN3	23024	PDZ domain containing ring finger 3	down
PECAM1	5175	platelet and endothelial cell adhesion molecule 1	down
PELI2	57161	pellino E3 ubiquitin protein ligase family member 2	down
PEX10	5192	peroxisomal biogenesis factor 10	up
PF4	5196	platelet factor 4	up
PFKFB3	5209	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 3	up
PGBD5	79605	piggyBac transposable element derived 5	up
PGK1	5230	phosphoglycerate kinase 1	up
PGR	5241	progesterone receptor	down
PHGDH	26227	phosphoglycerate dehydrogenase	up
PI3	5266	peptidase inhibitor 3	down
PIAS2	9063	protein inhibitor of activated STAT 2	down
PIK3R2	5296	phosphoinositide-3-kinase regulatory subunit 2	up
PIPOX	51268	pipecolic acid and sarcosine oxidase	up
PKIG	11142	protein kinase (cAMP-dependent, catalytic) inhibitor gamma	down
PLA2G15	23659	phospholipase A2 group XV	up
PLA2G2A	5320	phospholipase A2 group IIA	down
PLA2G4A	5321	phospholipase A2 group IVA	down
PLAGL2	5326	PLAG1 like zinc finger 2	up
PLAT	5327	plasminogen activator, tissue type	down
PLEK2	26499	pleckstrin 2	up
PLEKHH3	79990	pleckstrin homology, MyTH4 and FERM domain containing H3	up
PLEKHO1	51177	pleckstrin homology domain containing O1	down
PLEKHS1	79949	pleckstrin homology domain containing S1	up
PLG	5340	plasminogen	up
PLGLB2	5342	plasminogen-like B2	up
PLS1	5357	plastin 1	down

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
PLSCR3	57048	phospholipid scramblase 3	up
PMP22	5376	peripheral myelin protein 22	down
POFUT1	23509	protein O-fucosyltransferase 1	up
POLB	5423	polymerase (DNA) beta	up
POLR1C	9533	polymerase (RNA) I subunit C	up
POLR2D	5433	polymerase (RNA) II subunit D	up
PON1	5444	paraoxonase 1	up
PON3	5446	paraoxonase 3	up
POSTN	10631	periostin	up
POT1	25913	protection of telomeres 1	up
PP7080	25845	uncharacterized LOC25845	down
PPBP	5473	pro-platelet basic protein	up
PPM1L	151742	protein phosphatase, Mg <sup>2+</sup> /Mn <sup>2+</sup> dependent 1L	down
PPP1R14D	54866	protein phosphatase 1 regulatory inhibitor subunit 14D	down
PPP1R35	221908	protein phosphatase 1 regulatory subunit 35	up
PPP1R9A	55607	protein phosphatase 1 regulatory subunit 9A	down
PPP2CB	5516	protein phosphatase 2 catalytic subunit beta	down
PRAP1	118471	proline-rich acidic protein 1	up
PRDM6	93166	PR domain 6	down
PRKG2	5593	protein kinase, cGMP-dependent, type II	down
PROC	5624	protein C, inactivator of coagulation factors Va and VIIIa	up
PROSC	11212	proline synthetase co-transcribed homolog (bacterial)	down
PROSER2	254427	proline and serine rich 2	up
PRPF40B	25766	pre-mRNA processing factor 40 homolog B	up
PRUNE2	158471	prune homolog 2 (Drosophila)	down
PTBP3	9991	polypyrimidine tract binding protein 3	up
PTGER3	5733	prostaglandin E receptor 3	down
PTK2	5747	protein tyrosine kinase 2	up
PTPMT1	114971	protein tyrosine phosphatase, mitochondrial 1	up
PTPN18	26469	protein tyrosine phosphatase, non-receptor type 18	down
PTPRCAP	5790	protein tyrosine phosphatase, receptor type C associated protein	down
PYGB	5834	phosphorylase, glycogen; brain	down
PYGM	5837	phosphorylase, glycogen, muscle	down
RAB27B	5874	RAB27B, member RAS oncogene family	down
RAD54L2	23132	RAD54-like 2 (S. cerevisiae)	up
RAP1A	5906	RAP1A, member of RAS oncogene family	down
RASD2	23551	RASD family member 2	down
RASSF10	644943	Ras association domain family member 10	up
RBMS2	5939	RNA binding motif single stranded interacting protein 2	down
RBP4	5950	retinol binding protein 4	up
RCAN1	1827	regulator of calcineurin 1	down

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
RCSD1	92241	RCSD domain containing 1	down
RDH16	8608	retinol dehydrogenase 16 (all-trans)	up
RECK	8434	reversion inducing cysteine rich protein with kazal motifs	down
REEP2	51308	receptor accessory protein 2	down
RETNLB	84666	resistin like beta	down
RGS4	5999	regulator of G-protein signaling 4	up
RGS5	8490	regulator of G-protein signaling 5	down
RHBDD1	84236	rhomboid domain containing 1	up
RHNO1	83695	RAD9-HUS1-RAD1 interacting nuclear orphan 1	up
RHPN1	114822	rhophilin, Rho GTPase binding protein 1	up
RNASE6	6039	ribonuclease A family member k6	up
RNF113A	7737	ring finger protein 113A	up
RNF138	51444	ring finger protein 138	down
RNF144A	9781	ring finger protein 144A	down
RNF219	79596	ring finger protein 219	up
RPA3	6119	replication protein A3	up
RPAP3	79657	RNA polymerase II associated protein 3	up
RPIA	22934	ribose 5-phosphate isomerase A	up
RPL13	6137	ribosomal protein L13	up
RPL14	9045	ribosomal protein L14	up
RPL35A	6165	ribosomal protein L35a	up
RPL36	25873	ribosomal protein L36	up
RPRM	56475	reprimin, TP53 dependent G2 arrest mediator candidate	down
RPS21	6227	ribosomal protein S21	up
RRP1	8568	ribosomal RNA processing 1	up
RUNX1T1	862	RUNX1 translocation partner 1	down
S1PR1	1901	sphingosine-1-phosphate receptor 1	down
SAA1	6288	serum amyloid A1	up
SAA4	6291	serum amyloid A4, constitutive	up
SCARB1	949	scavenger receptor class B member 1	up
SCNN1A	6337	sodium channel epithelial 1 alpha subunit	down
SCP2	6342	sterol carrier protein 2	down
SCRG1	11341	stimulator of chondrogenesis 1	down
SDCCAG3	10807	serologically defined colon cancer antigen 3	up
SDK1	221935	sidekick cell adhesion molecule 1	down
SDS	10993	serine dehydratase	up
SEC14L2	23541	SEC14 like lipid binding 2	up
SEC14L4	284904	SEC14 like lipid binding 4	up
SEMA4D	10507	semaphorin 4D	up
SERPINA1	5265	serpin family A member 1	up
SERPINA10	51156	serpin family A member 10	up

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
SERPINA3	12	serpin family A member 3	up
SERPINA5	5104	serpin family A member 5	up
SERPINA6	866	serpin family A member 6	up
SERPINC1	462	serpin family C member 1	up
SERPIND1	3053	serpin family D member 1	up
SERPINF2	5345	serpin family F member 2	up
SERTAD4-AS1	574036	SERTAD4 antisense RNA 1	down
SFRP2	6423	secreted frizzled related protein 2	down
SGCD	6444	sarcoglycan delta	down
SGCE	8910	sarcoglycan epsilon	down
SGSM1	129049	small G protein signaling modulator 1	down
SHFM1	7979	split hand/foot malformation (ectrodactyly) type 1	up
SIGLEC7	27036	sialic acid binding Ig like lectin 7	up
SLAMF7	57823	SLAM family member 7	down
SLC13A5	284111	solute carrier family 13 member 5	up
SLC16A14	151473	solute carrier family 16 member 14	down
SLC16A4	9122	solute carrier family 16 member 4	up
SLC17A5	26503	solute carrier family 17 member 5	down
SLC22A7	10864	solute carrier family 22 member 7	up
SLC23A2	9962	solute carrier family 23 member 2	up
SLC25A14	9016	solute carrier family 25 member 14	up
SLC25A24	29957	solute carrier family 25 member 24	down
SLC25A29	123096	solute carrier family 25 member 29	up
SLC25A47	283600	solute carrier family 25 member 47	up
SLC27A5	10998	solute carrier family 27 member 5	up
SLC28A2	9153	solute carrier family 28 member 2	down
SLC2A1	6513	solute carrier family 2 member 1	up
SLC2A2	6514	solute carrier family 2 member 2	up
SLC30A4	7782	solute carrier family 30 member 4	down
SLC39A4	55630	solute carrier family 39 member 4	up
SLC3A2	6520	solute carrier family 3 member 2	up
SLC7A6OS	84138	solute carrier family 7 member 6 opposite strand	up
SLC9A3	6550	solute carrier family 9 member A3	down
SLC9A7	84679	solute carrier family 9 member A7	up
SLCO1B3	28234	solute carrier organic anion transporter family member 1B3	up
SMAD9	4093	SMAD family member 9	down
SMTN	6525	smoothelin	down
SNHG7	84973	small nucleolar RNA host gene 7	up
SNORA24	677809	small nucleolar RNA, H/ACA box 24	up
SNRPE	6635	small nuclear ribonucleoprotein polypeptide E	up
SNRPG	6637	small nuclear ribonucleoprotein polypeptide G	up

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
SNX32	254122	sorting nexin 32	up
SOS2	6655	SOS Ras/Rho guanine nucleotide exchange factor 2	down
SOSTDC1	25928	sclerostin domain containing 1	down
SOX9-AS1	400618	SOX9 antisense RNA 1	up
SPINK4	27290	serine peptidase inhibitor, Kazal type 4	down
SPTAN1	6709	spectrin alpha, non-erythrocytic 1	up
SRCAP	10847	Snf2-related CREBBP activator protein	up
STAMBPL1	57559	STAM binding protein like 1	up
STK31	56164	serine/threonine kinase 31	up
STON1	11037	stonin 1	down
STXBP5	134957	syntaxin binding protein 5	down
SULT2A1	6822	sulfotransferase family 2A member 1	up
SULT2B1	6820	sulfotransferase family 2B member 1	up
SUPT3H	8464	SPT3 homolog, SAGA and STAGA complex component	up
SYK	6850	spleen tyrosine kinase	up
TAF1A	9015	TATA-box binding protein associated factor, RNA polymerase I subunit A	up
TBL3	10607	transducin beta like 3	up
TCEAL7	56849	transcription elongation factor A like 7	down
TCF4	6925	transcription factor 4	down
TDO2	6999	tryptophan 2,3-dioxygenase	up
TF	7018	transferrin	up
TFF1	7031	trefoil factor 1	down
TGFB11	7041	transforming growth factor beta 1 induced transcript 1	down
THBS1	7057	thrombospondin 1	down
THBS4	7060	thrombospondin 4	down
THSD1	55901	thrombospondin type 1 domain containing 1	up
TIPIN	54962	TIMELESS interacting protein	up
TJP2	9414	tight junction protein 2	up
TM4SF4	7104	transmembrane 4 L six family member 4	up
TMEM119	338773	transmembrane protein 119	down
TMEM131	23505	transmembrane protein 131	down
TMEM133	83935	transmembrane protein 133	down
TMEM182	130827	transmembrane protein 182	up
TMEM185B	79134	transmembrane protein 185B	up
TMEM191A	84222	transmembrane protein 191A (pseudogene)	up
TMEM27	57393	transmembrane protein 27	up
TMEM45A	55076	transmembrane protein 45A	up
TMEM88	92162	transmembrane protein 88	down
TMEM8B	51754	transmembrane protein 8B	down
TMEM9B	56674	TMEM9 domain family member B	down
TMTC1	83857	transmembrane and tetratricopeptide repeat containing 1	down

Table S2 (continued)



Table S2 (continued)

Gene symbol	Gene ID	Description	Style
TOMM20	9804	translocase of outer mitochondrial membrane 20	up
TPM2	7169	tropomyosin 2 (beta)	down
TPSAB1	7177	tryptase alpha/beta 1	down
TPSB2	64499	tryptase beta 2 (gene/pseudogene)	down
TPSG1	25823	tryptase gamma 1	down
TRDV3	28516	T cell receptor delta variable 3	down
TRIM59	286827	tripartite motif containing 59	up
TRMT10B	158234	tRNA methyltransferase 10B	up
TRPA1	8989	transient receptor potential cation channel subfamily A member 1	down
TSEN2	80746	tRNA splicing endonuclease subunit 2	up
TSNARE1	203062	t-SNARE domain containing 1	up
TSPAN11	441631	tetraspanin 11	down
TTC39C	125488	tetratricopeptide repeat domain 39C	up
TTR	7276	transthyretin	up
TUB	7275	tubby bipartite transcription factor	up
TULP3	7289	tubby like protein 3	up
TUSC3	7991	tumor suppressor candidate 3	down
TWSG1	57045	twisted gastrulation BMP signaling modulator 1	down
TYMS	7298	thymidylate synthetase	down
TYROBP	7305	TYRO protein tyrosine kinase binding protein	up
UBQLN1	29979	ubiquilin 1	up
UGT2B4	7363	UDP glucuronosyltransferase family 2 member B4	up
UGT3A1	133688	UDP glycosyltransferase family 3 member A1	up
UNC93A	54346	unc-93 homolog A (C. elegans)	up
UPB1	51733	beta-ureidopropionase 1	up
UQCC2	84300	ubiquinol-cytochrome c reductase complex assembly factor 2	up
USP53	54532	ubiquitin specific peptidase 53	down
UTP23	84294	UTP23, small subunit processome component	up
VAT1L	57687	vesicle amine transport 1-like	down
VNN1	8876	vanin 1	up
VTN	7448	vitronectin	up
VWF	7450	von Willebrand factor	down
WDR24	84219	WD repeat domain 24	up
WDR72	256764	WD repeat domain 72	up
WDR83	84292	WD repeat domain 83	up
WDYHV1	55093	WDYHV motif containing 1	up
WFDC1	58189	WAP four-disulfide core domain 1	down
WFDC3	140686	WAP four-disulfide core domain 3	up
WIF1	11197	WNT inhibitory factor 1	up
WLS	79971	wntless Wnt ligand secretion mediator	down
WNT3	7473	Wnt family member 3	up

Table S2 (continued)

Table S2 (continued)

Gene symbol	Gene ID	Description	Style
WNT9A	7483	Wnt family member 9A	down
XKRX	402415	XK related, X-linked	up
YEATS4	8089	YEATS domain containing 4	up
ZDHHC14	79683	zinc finger DHHC-type containing 14	down
ZDHHC24	254359	zinc finger DHHC-type containing 24	up
ZEB1	6935	zinc finger E-box binding homeobox 1	down
ZFAND1	79752	zinc finger AN1-type containing 1	up
ZFP36	7538	ZFP36 ring finger protein	down
ZNF182	7569	zinc finger protein 182	up
ZNF251	90987	zinc finger protein 251	up
ZNF415	55786	zinc finger protein 415	down
ZNF420	147923	zinc finger protein 420	up
ZNF502	91392	zinc finger protein 502	up
ZNF511	118472	zinc finger protein 511	up
ZNF579	163033	zinc finger protein 579	up
ZNF623	9831	zinc finger protein 623	up
ZNF655	79027	zinc finger protein 655	down
ZNF91	7644	zinc finger protein 91	down
ZNF93	81931	zinc finger protein 93	up
ZNRD1	30834	zinc ribbon domain containing 1	up
ZP3	7784	zona pellucida glycoprotein 3 (sperm receptor)	up
ZSCAN18	65982	zinc finger and SCAN domain containing 18	down
ZXDB	158586	zinc finger, X-linked, duplicated B	up