

TABLE S2

Genes overexpressed in immortal cell lines			
UGCluster	Symbol	Name	GOabr
Hs.82302	HS6ST2	heparan sulfate 6-O-sulfotransferase 2	transferase activity
Hs.245644	GCHFR	GTP cyclohydrolase I feedback regulatory protein	
Hs.93868	PHF2	PHD finger protein 2	DNA binding nucleus regulation of transcription, DNA-dependent
Hs.306123	MAGEF1	melanoma antigen, family F, 1	
Hs.437433	C16orf34	chromosome 16 open reading frame 34	
Hs.196669	EBP	emopamil binding protein (sterol isomerase)	cholesterol delta-isomerase activity cholesterol biosynthesis drug transporter activity endoplasmic reticulum integral to plasma membrane isomerase activity skeletal development steroid delta-isomerase activity transmembrane receptor activity
Hs.502564	FLJ20719	hypothetical protein FLJ20719	
Hs.202453	MYC	v-myc myelocytomatosis viral oncogene homolog (avian)	cell cycle arrest cell proliferation iron ion homeostasis nucleus regulation of transcription from Pol II promoter transcription factor activity
Hs.349084	DNAH11	dynein, axonemal, heavy polypeptide 11	ATP binding axonemal dynein complex microtubule motor activity microtubule-based movement nucleotide binding
Hs.73980	TNNT1	troponin T1, skeletal, slow	
Hs.294101	PBX3	pre-B-cell leukemia transcription factor 3	anterior compartment specification carbon utilization by fixation of carbon dioxide embryonic development nucleus nucleus posterior compartment specification protein binding regulation of transcription, DNA-dependent regulation of transcriptional preinitiation complex formation ribose bisphosphate carboxylase complex ribose-bisphosphate carboxylase activity transcription factor activity
Hs.283693	MRPL1	mitochondrial ribosomal protein L1	RNA binding intracellular large ribosomal subunit mitochondrion protein biosynthesis structural constituent of ribosome
Hs.245540	ARL4	ADP-ribosylation factor-like 4	GTP binding GTPase activity nucleus small GTPase mediated signal transduction
Hs.5710	CREG	cellular repressor of E1A-stimulated genes	RNA polymerase II transcription factor activity cell proliferation development regulation of transcription from Pol II promoter transcription corepressor activity
Hs.109752	C6orf108	chromosome 6 open reading frame 108	cell proliferation nucleus
Hs.351871	MGC20262	hypothetical protein MGC20262	
Hs.390395	FLJ14007	hypothetical protein FLJ14007	molecular_function unknown
Hs.108973	DPM2	dolichyl-phosphate mannosyltransferase polypeptide 2, regulatory subunit	transferase activity, transferring glycosyl groups
Hs.436405	IDH3B	isocitrate dehydrogenase 3 (NAD+) beta	carbohydrate metabolism electron transporter activity isocitrate dehydrogenase (NAD+) activity isocitrate metabolism mitochondrion oxidoreductase activity tricarboxylic acid cycle
Hs.17719	KIAA0114	KIAA0114 gene product	
Hs.149255	PIP5K1A	phosphatidylinositol-4-phosphate 5-kinase, type I, alpha	1-phosphatidylinositol-4-phosphate 5-kinase activity cellular_component unknown glycerophospholipid metabolism kinase activity phosphorylation signal transduction transferase activity
Hs.42650	ZWINT	ZW10 interactor	nucleus
Hs.433413	ERH	enhancer of rudimentary homolog (Drosophila)	molecular_function unknown nucleobase, nucleoside, nucleotide and nucleic acid metabolism pyrimidine nucleoside metabolism regulation of cell cycle
Hs.47649	MCCC1	methylcrotonoyl-Coenzyme A carboxylase 1 (alpha)	ATP binding biotin binding biotin metabolism leucine catabolism ligase activity metabolism methylcrotonoyl-CoA carboxylase activity mitochondrial matrix
Hs.439171	LOC51668	HSPCO34 protein	
Hs.448580	SEC6L1	SEC6-like 1 (S. cerevisiae)	exocytosis intracellular protein transport protein transporter activity
Hs.288969	HSCARG	HSCARG protein	
Hs.173933	NFIA	nuclear factor I/A	DNA replication nucleus nucleus regulation of transcription, DNA-dependent regulation of transcription, DNA-dependent transcription transcription factor activity transcription factor activity viral genome replication
Hs.444840	C7orf24	chromosome 7 open reading frame 24	
Hs.501565	DHTKD1	dehydrogenase E1 and transketolase domain containing 1	metabolism oxidoreductase activity, acting on the aldehyde or oxo group of donors, disulfide as acceptor
Hs.425633	CKMT1	creatine kinase, mitochondrial 1 (ubiquitous)	creatine kinase activity mitochondrion transferase activity, transferring phosphorus-containing groups
Hs.167531	MCCC2	methylcrotonoyl-Coenzyme A carboxylase 2 (beta)	biotin carboxylase activity biotin carboxylase complex leucine catabolism ligase activity methylcrotonoyl-CoA carboxylase activity mitochondrion
Hs.183006	GLCE	glucuronoyl C5-epimerase	Golgi apparatus heparan sulfate proteoglycan biosynthesis heparin biosynthesis integral to membrane isomerase activity peptidoglycan biosynthesis racemase and epimerase activity, acting on carbohydrates and derivatives
Hs.163502	WDR34	WD repeat domain 34	
Hs.297681	SERPINA1	serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1	acute-phase response extracellular protein binding serine-type endopeptidase inhibitor activity
Hs.362996	KIAA0779	KIAA0779 protein	integral to membrane
Hs.460337	SURF5	surfeit 5	biological_process unknown cytoplasm cytoplasm molecular_function unknown soluble fraction
Hs.25647	FOS	v-fos FBJ murine osteosarcoma viral oncogene homolog	DNA binding DNA methylation cell growth and/or maintenance inflammatory response nucleus regulation of transcription from Pol II promoter specific RNA polymerase II transcription factor activity
Hs.20084	RXRA	retinoid X receptor, alpha	nucleus regulation of transcription, DNA-dependent retinoid-X receptor activity signal transduction steroid binding steroid hormone receptor activity transcription coactivator activity transcription factor activity vitamin metabolism
Hs.35962		CDNA clone IMAGE:4448513, partial cds	
Hs.443826	MGC4399	mitochondrial carrier protein	binding membrane mitochondrial inner membrane transport
Hs.5476	MCSC	mitochondrial Ca ²⁺ -dependent solute carrier	binding calcium ion binding membrane mitochondrial inner membrane transport

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UGCluster	Symbol	Name	GOabr
Hs.263925	NDE1	nudE nuclear distribution gene E homolog 1 (A. nidulans)	
Hs.435541	TBCD	tubulin-specific chaperone d	beta-tubulin folding co-chaperonin activity cytosol microtubule protein folding
Hs.443260	C20orf20	chromosome 20 open reading frame 20	
Hs.9880	PPIH	peptidyl prolyl isomerase H (cyclophilin H)	chaperone activity cyclosporin A binding isomerase activity nuclear mRNA splicing, via spliceosome peptidyl-prolyl cis-trans isomerase activity protein complex assembly protein folding snRNP protein-nucleus import spliceosome complex
Hs.103833	FLJ23469	hypothetical protein FLJ23469	catalytic activity metabolism
Hs.412433	AIP	aryl hydrocarbon receptor interacting protein	cytoplasm protein folding signal transducer activity transcription coactivator activity transcription factor binding
Hs.112058	SIVA	CD27-binding (Siva) protein	apoptosis defense response induction of apoptosis by extracellular signals receptor signaling protein activity
Hs.18799	FLOT2	flotillin 2	cell adhesion epidermis development flotillin complex integral to membrane plasma membrane protein binding
Hs.433506	ARPC1B	actin related protein 2/3 complex, subunit 1B, 41kDa	Arp2/3 protein complex cell motility structural constituent of cytoskeleton
Hs.79385		Human clone 23574 mRNA sequence	
Hs.512586	MOV10	Mov10, Moloney leukemia virus 10, homolog (mouse)	ATP binding development helicase activity
Hs.81848	RAD21	RAD21 homolog (S. pombe)	apoptosis cell cycle chromosome organization and biogenesis (sensu Eukarya) chromosome segregation double-strand break repair meiotic recombination mitosis nuclear chromosome protein binding
Hs.295866	DKFZP434N1923	hypothetical protein DKFZp434N1923	kinase activity
Hs.433328	P17.3	neuronal protein 17.3	NADH dehydrogenase activity integral to membrane mitochondrion oxidoreductase activity
Hs.30174	SNAPC5	small nuclear RNA activating complex, polypeptide 5, 19kDa	nucleus regulation of transcription, DNA-dependent transcription factor activity transcription from Pol II promoter transcription initiation from Pol III promoter
Hs.432121	PRDX2	peroxiredoxin 2	cytoplasm electron transporter activity oxidoreductase activity peroxidase activity response to oxidative stress thioredoxin peroxidase activity
Hs.365207	THRAP5	thyroid hormone receptor associated protein 5	RNA polymerase II transcription mediator activity androgen receptor signaling pathway ligand-dependent nuclear receptor transcription coactivator activity mediator complex nucleus nucleus receptor activity receptor activity regulation of transcription from Pol II promoter thyroid hormone receptor binding transcription coactivator activity transcription cofactor activity transcription from Pol II promoter transcription initiation from Pol II promoter transcriptional activator activity vitamin D receptor binding
Hs.19673	MAF1	homolog of yeast MAF1	
Hs.271614	C14orf122	chromosome 14 open reading frame 122	molecular_function unknown
Hs.29203	GBL	G protein beta subunit-like	
Hs.15977	NDUFB9	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 9, 22kDa	
Hs.10824	LRP16	LRP16 protein	
Hs.8015	USP21	ubiquitin specific protease 21	cellular_component unknown cysteine-type endopeptidase activity hydrolase activity protein modification ubiquitin thiolesterase activity ubiquitin-dependent protein catabolism
Hs.194143	BRCA1	breast cancer 1, early onset	DNA damage response, signal transduction by p53 class mediator resulting in transcription of p21 class mediator cell cycle checkpoint damaged DNA binding extracellular space gamma-tubulin ring complex intracellular negative regulation of cell cycle negative regulation of centriole replication nucleus positive regulation of DNA repair protein binding regulation of apoptosis regulation of cell proliferation regulation of transcription from Pol II promoter regulation of transcription from Pol III promoter transcription coactivator activity transcription factor complex transcriptional activator activity tubulin binding zinc ion binding
Hs.96055	E2F1	E2F transcription factor 1	G1 phase of mitotic cell cycle apoptosis negative regulation of transcription from Pol II promoter nucleus regulation of cell cycle regulation of transcription, DNA-dependent transcription corepressor activity transcription factor activity transcription factor complex
Hs.49932	C21orf45	chromosome 21 open reading frame 45	biological_process unknown cellular_component unknown molecular_function unknown
Hs.529909	HIST1H2BG	histone 1, H2bg	DNA binding chromosome chromosome organization and biogenesis (sensu Eukarya) nucleosome nucleosome assembly nucleus
Hs.323445	C9orf75	chromosome 9 open reading frame 75	
Hs.438550	KIAA0056	KIAA0056 protein	
Hs.181163	HMGN2	high-mobility group nucleosomal binding domain 2	DNA binding chromatin establishment and/or maintenance of chromatin architecture nucleus regulation of transcription, DNA-dependent
Hs.30212	TRIP15	thyroid receptor interacting protein 15	cytoplasm protein binding signal transducer activity signal transduction signalosome complex transcription from Pol II promoter
Hs.153850	CHTF18	CTF18, chromosome transmission fidelity factor 18 homolog (S. cerevisiae)	ATP binding DNA binding DNA replication DNA replication factor C complex nucleotide binding
Hs.528694	MCM8	MCM8 minichromosome maintenance deficient 8 (S. cerevisiae)	ATP binding DNA binding DNA replication DNA replication initiation DNA-dependent ATPase activity cell cycle nucleotide binding regulation of transcription, DNA-dependent
Hs.301005	H2AFV	H2A histone family, member V	
Hs.232400	HNRPA2B1	heterogeneous nuclear ribonucleoprotein A2/B1	
Hs.460184	MCM4	MCM4 minichromosome maintenance deficient 4 (S. cerevisiae)	ATP binding ATP binding DNA binding DNA replication DNA replication initiation DNA-dependent ATPase activity nucleotide binding nucleus nucleus regulation of transcription, DNA-dependent
Hs.69360	KIF2C	kinesin family member 2C	ATP binding cell proliferation centromeric DNA binding chromosome, pericentric region kinesin complex microtubule motor activity mitosis nucleus

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UGcluster	Symbol	Name	GOabr
Hs.196769	CHC1	chromosome condensation 1	DNA packaging G1/S transition of mitotic cell cycle Ran guanyl-nucleotide exchange factor activity cell cycle chromatin binding condensed nuclear chromosome histone binding mitotic spindle assembly negative regulation of mitosis nuclear chromatin nucleus regulation of S phase of mitotic cell cycle
Hs.408219	BCL7B	B-cell CLL/lymphoma 7B	actin binding biological_process unknown cellular_component unknown
Hs.23642	HSU79266	protein predicted by clone 23627	
Hs.409582	LOC286257	hypothetical protein LOC286257	
Hs.289007	FLJ10803	hypothetical protein FLJ10803	
Hs.38178	KLIP1	KSHV latent nuclear antigen interacting protein 1	
Hs.89525	HDGF	hepatoma-derived growth factor (high-mobility group protein 1-like)	cell proliferation cytoplasm extracellular space growth factor activity heparin binding signal transduction
Hs.78996	PCNA	proliferating cell nuclear antigen	DNA binding DNA polymerase processivity factor activity DNA repair DNA replication cell proliferation delta-DNA polymerase cofactor complex nucleus regulation of DNA replication regulation of cell cycle
Hs.433180	Pfs2	DNA replication complex GINS protein PSF2	DNA replication nucleus
Hs.30035	SFRS10	splicing factor, arginine/serine-rich 10 (transformer 2 homolog, Drosophila)	RNA binding nuclear mRNA splicing, via spliceosome nucleus pre-mRNA splicing factor activity
Hs.444082	EZH2	enhancer of zeste homolog 2 (Drosophila)	DNA binding nucleus
Hs.79078	MAD2L1	MAD2 mitotic arrest deficient-like 1 (yeast)	cell cycle kinetochore mitosis mitotic checkpoint nucleus
Hs.374378	CKS1B	CDC28 protein kinase regulatory subunit 1B	cell proliferation regulation of cyclin dependent protein kinase activity
Hs.66196	NTHL1	nth endonuclease III-like 1 (E. coli)	DNA N-glycosylase activity DNA binding DNA-(apurinic or apyrimidinic site) lyase activity base-excision repair carbohydrate metabolism endonuclease activity hydrolase activity, acting on glycosyl bonds lyase activity nucleotide-excision repair, DNA incision, 5'-to lesion nucleus
Hs.301266	TCOF1	Treacher Collins-Franceschetti syndrome 1	nucleolus skeletal development transport transporter activity
Hs.59729	LOC56920	semaphorin sem2	development
Hs.439548	FLJ22875	hypothetical protein FLJ22875	
Hs.306791	POLD2	polymerase (DNA directed), delta 2, regulatory subunit 50kDa	DNA replication DNA-directed DNA polymerase activity nucleus transferase activity
Hs.77171	MCM5	MCM5 minichromosome maintenance deficient 5, cell division cycle 46 (S. cerevisiae)	ATP binding DNA binding DNA replication DNA replication initiation DNA-dependent ATPase activity nucleus regulation of cell cycle regulation of transcription, DNA-dependent
Hs.367676	DUT	dUTP pyrophosphatase	DNA replication dUTP diphosphatase activity dUTP metabolism hydrolase activity magnesium ion binding mitochondrion nucleotide metabolism nucleus
Hs.153752	CDC25B	cell division cycle 25B	M phase of mitotic cell cycle cytokinesis hydrolase activity intracellular intracellular mitosis positive regulation of cell proliferation protein amino acid dephosphorylation protein-tyrosine-phosphatase activity protein-tyrosine-phosphatase activity regulation of cell cycle
Hs.405925	DDA3	differential display and activated by p53	
Hs.79018	CHAF1A	chromatin assembly factor 1, subunit A (p150)	DNA repair DNA replication DNA replication-dependent nucleosome assembly cell cycle chromatin assembly complex chromatin binding histone-specific chaperone activity nucleus protein complex assembly regulation of transcription, DNA-dependent
Hs.30114	CDCA3	cell division cycle associated 3	biological_process unknown cellular_component unknown molecular_function unknown
Hs.126714	MHC2TA	MHC class II transactivator	
Hs.18616	MTB	more than blood homolog	
Hs.442658	AURKB	aurora kinase B	ATP binding cell cycle protein amino acid phosphorylation protein serine/threonine kinase activity transferase activity
Hs.59461	DKFZP434C245	DKFZP434C245 protein	
Hs.25292	JUNB	jun B proto-oncogene	RNA polymerase II transcription factor activity chromatin nucleus regulation of transcription from Pol II promoter transcription coactivator activity transcription corepressor activity transcription factor activity
Hs.434886	CDCA5	cell division cycle associated 5	
Hs.103106	LSM2	LSM2 homolog, U6 small nuclear RNA associated (S. cerevisiae)	RNA binding U6 snRNA binding nuclear mRNA splicing, via spliceosome nucleus pre-mRNA splicing factor activity small nucleolar ribonucleoprotein complex
Hs.438720	MCM7	MCM7 minichromosome maintenance deficient 7 (S. cerevisiae)	ATP binding DNA binding DNA replication DNA replication initiation DNA-dependent ATPase activity cell cycle chromatin nucleotide binding nucleus regulation of transcription, DNA-dependent
Hs.279413	POLD1	polymerase (DNA directed), delta 1, catalytic subunit 125kDa	3'-5' exonuclease activity DNA binding DNA repair DNA replication delta DNA polymerase activity hydrolase activity nucleotide binding nucleus response to UV transferase activity
Hs.445098	DEPDC1	DEP domain containing 1	intracellular signaling cascade
Hs.512656	PSPH	phosphoserine phosphatase	L-serine biosynthesis hydrolase activity magnesium ion binding metabolism phosphoserine phosphatase activity
Hs.147097	H2AFX	H2A histone family, member X	DNA binding chromosome chromosome organization and biogenesis (sensu Eukarya) nucleosome nucleosome assembly nucleus
Hs.226390	RRM2	ribonucleotide reductase M2 polypeptide	DNA replication cytoplasm deoxyribonucleoside diphosphate metabolism oxidoreductase activity ribonucleoside-diphosphate reductase activity
Hs.446554	RAD51	RAD51 homolog (RecA homolog, E. coli) (S. cerevisiae)	ATP binding DNA repair DNA-dependent ATPase activity damaged DNA binding meiotic recombination mitotic recombination nucleus protein binding protein homooligomerization activity
Hs.115474	RFC3	replication factor C (activator 1) 3, 38kDa	DNA binding DNA replication DNA replication factor C complex DNA strand elongation DNA-directed DNA polymerase activity delta-DNA polymerase cofactor complex enzyme activator activity nucleotide binding nucleus
Hs.35120	RFC4	replication factor C (activator 1) 4, 37kDa	ATP binding DNA binding DNA replication DNA replication factor C complex DNA strand elongation delta-DNA polymerase cofactor complex nucleotide binding nucleus

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UGCluster	Symbol	Name	GOabr
Hs.156346	TOP2A	topoisomerase (DNA) II alpha 170kDa	
Hs.77695	DLG7	discs, large homolog 7 (Drosophila)	cell-cell signaling cellular_component unknown molecular_function unknown
Hs.329989	PLK1	polo-like kinase 1 (Drosophila)	ATP binding mitosis nucleus protein amino acid phosphorylation protein serine/threonine kinase activity regulation of cell cycle transferase activity
Hs.350966	PTTG1	pituitary tumor-transforming 1	DNA metabolism DNA repair DNA replication and chromosome cycle cell growth and/or maintenance cell growth and/or maintenance chromosome segregation cysteine protease inhibitor activity cytoplasm cytoplasm mitosis nucleus nucleus protein binding spermatogenesis transcription factor activity transcription from Pol II promoter
Hs.9329	TPX2	TPX2, microtubule-associated protein homolog (Xenopus laevis)	ATP binding GTP binding cell proliferation mitosis nucleus spindle
Hs.1608	RPA3	replication protein A3, 14kDa	DNA repair DNA replication DNA replication factor A complex nucleic acid binding nucleus single-stranded DNA binding
Hs.250822	STK6	serine/threonine kinase 6	ATP binding cell cycle mitosis nucleus protein amino acid phosphorylation protein serine/threonine kinase activity spindle transferase activity
Hs.94542	ALKBH	alkB, alkylation repair homolog (E. coli)	DNA dealkylation
Hs.194698	CCNB2	cyclin B2	cytokinesis mitosis nucleus regulation of cell cycle
Hs.14559	C10orf3	chromosome 10 open reading frame 3	
Hs.48855	CDCA8	cell division cycle associated 8	
Hs.91728	PMSC1	polymyositis/scleroderma autoantigen 1, 75kDa	3'-5'-exoribonuclease activity RNA binding exonuclease activity hydrolase activity immune response nuclear exosome (RNase complex) nucleolus rRNA processing
Hs.479302	FOXM1	forkhead box M1	RNA polymerase II transcription factor activity nucleus regulation of transcription, DNA-dependent response to oxidative stress transcription factor activity transcription from Pol II promoter
Hs.339665		MRNA similar to RIKEN cDNA 2700049P18 gene (cDNA clone MGC:57827 IMAGE:6064384), complete cds	
Hs.85137	CCNA2	cyclin A2	cytokinesis mitosis mitotic G2 checkpoint nucleus regulation of cyclin dependent protein kinase activity
Hs.272822	RUVBL1	RuvB-like 1 (E. coli)	ATP binding DNA helicase activity DNA recombination hydrolase activity nucleotide binding nucleus regulation of transcription from Pol II promoter spermatogenesis transcription
Hs.91417	TOPBP1	topoisomerase (DNA) II binding protein	DNA metabolism DNA replication and chromosome cycle isomerase activity nucleus protein C-terminus binding
Hs.278544	ACAT2	acetyl-Coenzyme A acetyltransferase 2 (acetoacetyl Coenzyme A thiolase)	cytoplasm lipid metabolism
Hs.93002	UBE2C	ubiquitin-conjugating enzyme E2C	cell cycle cyclin catabolism cytokinesis ligase activity mitosis positive regulation of cell proliferation ubiquitin conjugating enzyme activity ubiquitin cycle ubiquitin-dependent protein catabolism ubiquitin-protein ligase activity ubiquitin-protein ligase activity
Hs.50758	SMC4L1	SMC4 structural maintenance of chromosomes 4-like 1 (yeast)	ATP binding ATP-binding cassette (ABC) transporter activity DNA supercoiling activity cell cycle chromosome organization and biogenesis (sensu Eukarya) condensin complex cytoplasm membrane mitosis mitotic chromosome condensation mitotic chromosome segregation nucleus protein heterodimerization activity transport
Hs.1594	CENPA	centromere protein A, 17kDa	DNA binding chromatin binding chromosome organization and biogenesis (sensu Eukarya) chromosome organization and biogenesis (sensu Eukarya) chromosome, pericentric region nucleosome nucleosome assembly nucleus nucleus
Hs.82906	CDC20	CDC20 cell division cycle 20 homolog (S. cerevisiae)	cytokinesis mitosis regulation of cell cycle spindle ubiquitin-dependent protein catabolism
Hs.178695	MAPK13	mitogen-activated protein kinase 13	ATP binding MAP kinase activity MP kinase activity antimicrobial humoral response (sensu Vertebrata) cell cycle protein amino acid phosphorylation protein kinase cascade protein serine/threonine kinase activity regulation of translation response to stress signal transduction transferase activity
Hs.242721	SLC22A3	solute carrier family 22 (extraneuronal monoamine transporter), member 3	integral to plasma membrane ion transport ion transporter activity membrane fraction organic cation transport organic cation transporter activity
Hs.81892	KIAA0101	KIAA0101 gene product	
Hs.298646	ATAD2	ATPase family, AAA domain containing 2	
Hs.164457	TK1	thymidine kinase 1, soluble	ATP binding DNA metabolism cytoplasm kinase activity thymidine kinase activity transferase activity
Hs.152759	ASK	activator of S phase kinase	intracellular kinase activity nucleic acid binding zinc ion binding
Hs.108106	UHRF1	ubiquitin-like, containing PHD and RING finger domains, 1	DNA binding regulation of transcription, DNA-dependent
Hs.104019	TACC3	transforming, acidic coiled-coil containing protein 3	cell growth and/or maintenance
Hs.179718	MYBL2	v-myb myeloblastosis viral oncogene homolog (avian)-like 2	anti-apoptosis chromatin development nucleus regulation of cell cycle regulation of transcription, DNA-dependent transcription factor activity transcription from Pol II promoter
Hs.187628	FLJ32535	butyrophilin 3	
Hs.510265	NUCKS	nuclear ubiquitous casein kinase and cyclin-dependent kinase substrate	nucleus
Hs.54089	BARD1	BRCA1 associated RING domain 1	nucleus
Hs.5199	HSPC150	HSPC150 protein similar to ubiquitin-conjugating enzyme	ligase activity ubiquitin conjugating enzyme activity ubiquitin cycle ubiquitin-protein ligase activity

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UGCluster	Symbol	Name	GOabr
Hs.334562	CDC2	cell division cycle 2, G1 to S and G2 to M	ATP binding cyclin-dependent protein kinase activity cytokinesis mitosis nucleus protein amino acid phosphorylation transferase activity traversing start control point of mitotic cell cycle
Hs.11355	TMPO	thymopoietin	DNA binding chromosome integral to membrane lamin binding nuclear membrane
Hs.94865	TEAD4	TEA domain family member 4	nucleus regulation of transcription, DNA-dependent transcription factor activity
Hs.388004	AHCY	S-adenosylhomocysteine hydrolase	adenosylhomocysteinase activity cytoplasm hydrolase activity one-carbon compound metabolism
Hs.75066	TSN	translin	DNA binding DNA recombination nucleus
Hs.512716	XRCC3	X-ray repair complementing defective repair in Chinese hamster cells 3	ATP binding DNA recombination DNA repair DNA-dependent ATPase activity damaged DNA binding nucleus
Hs.31854	KLP1	K562 cell-derived leucine-zipper-like protein 1	N-acetyltransferase activity nucleus transcription initiation transcriptional activator activity
Hs.523940		CDNA: FLJ22685 fis, clone HSI10917	
Hs.159087	RAD23B	RAD23 homolog B (S. cerevisiae)	nucleotide-excision repair nucleus single-stranded DNA binding
Hs.434953	HMGB2	high-mobility group box 2	
Hs.173255	SNRPA	small nuclear ribonucleoprotein polypeptide A	RNA binding snRNP U1 spliceosome complex
Hs.20830	KIFC1	kinesin family member C1	ATP binding microtubule associated complex microtubule motor activity mitotic chromosome segregation
Hs.104741	TOPK	T-LAK cell-originated protein kinase	ATP binding ATP binding cellular_component unknown mitosis protein amino acid phosphorylation protein amino acid phosphorylation protein kinase activity protein serine/threonine kinase activity transferase activity
Hs.153704	NEK2	NIMA (never in mitosis gene a)-related kinase 2	ATP binding centrosome cytokinesis meiosis nucleus protein amino acid phosphorylation protein serine/threonine kinase activity regulation of mitosis transferase activity
Hs.279905	NUSAP1	nucleolar and spindle associated protein 1	nucleus
Hs.75238	CHAF1B	chromatin assembly factor 1, subunit B (p60)	DNA repair DNA replication DNA replication-dependent nucleosome assembly G-protein coupled receptor protein signaling pathway cell cycle chromatin assembly complex chromatin binding heterotrimeric G-protein complex histone-specific chaperone activity nucleus protein complex assembly regulation of transcription, DNA-dependent signal transducer activity
Hs.226117	H1F0	H1 histone family, member 0	DNA binding chromosome chromosome organization and biogenesis (sensu Eukarya) nucleosome nucleosome assembly nucleus
Hs.93728	PBX2	pre-B-cell leukemia transcription factor 2	anterior compartment specification carbon utilization by fixation of carbon dioxide nucleus posterior compartment specification regulation of transcription, DNA-dependent ribulose biphosphate carboxylase complex ribulose-biphosphate carboxylase activity transcription factor activity
Hs.157148	MGC13204	hypothetical protein MGC13204	
Hs.528384	SLC29A2	solute carrier family 29 (nucleoside transporters), member 2	cell proliferation integral to plasma membrane membrane nucleobase, nucleoside, nucleotide and nucleic acid metabolism nucleolus nucleoside transport nucleoside transporter activity nucleoside transporter activity transport
Hs.179565	MCM3	MCM3 minichromosome maintenance deficient 3 (S. cerevisiae)	ATP binding DNA binding DNA replication DNA replication initiation DNA-dependent ATPase activity alpha DNA polymerase:primase complex cell cycle nucleus regulation of transcription, DNA-dependent
Hs.2314	MBL2	mannose-binding lectin (protein C) 2, soluble (opsonic defect)	antigen binding complement activation, classical pathway extracellular space heterophilic cell adhesion immune response mannose binding membrane sugar binding
Hs.448003	LOC200895	hypothetical protein LOC200895	dihydrofolate reductase activity glycine biosynthesis nucleotide biosynthesis
Hs.528307	CIT	citron (rho-interacting, serine/threonine kinase 21)	ATP binding intracellular intracellular signaling cascade protein amino acid phosphorylation protein serine/threonine kinase activity small GTPase regulatory/interacting protein activity
Hs.77204	CENPF	centromere protein F, 350/400ka (mitosin)	DNA replication and chromosome cycle kinetochore nucleus regulation of mitosis spindle
Hs.334828	FLJ10719	hypothetical protein FLJ10719	
Hs.294088	GAJ	GAJ protein	
Hs.78019	24432	hypothetical protein 24432	
Hs.8217	STAG2	stromal antigen 2	
Hs.133122	ZDHHC12	zinc finger, DHHC domain containing 12	integral to membrane metal ion binding
Hs.293636	SHMT1	serine hydroxymethyltransferase 1 (soluble)	L-serine catabolism cytosol glycine hydroxymethyltransferase activity glycine metabolism one-carbon compound metabolism transferase activity
Hs.49760	ORC6L	origin recognition complex, subunit 6 homolog-like (yeast)	DNA binding DNA replication nucleus
Hs.294584	LTB4DH	leukotriene B4 12-hydroxydehydrogenase	alcohol dehydrogenase activity, zinc-dependent cytoplasm leukotriene metabolism oxidoreductase activity zinc ion binding
Hs.434102	HMGB1	high-mobility group box 1	DNA unwinding chromatin nuclear chromosome regulation of transcription, DNA-dependent single-stranded DNA binding
Hs.152707	GBAS	glioblastoma amplified sequence	mitochondrion
Hs.118064		CDNA clone IMAGE:4099512, partial cds	
Hs.110713	DEK	DEK oncogene (DNA binding)	DNA binding GTP binding RNA binding SRP-dependent cotranslational membrane targeting cell growth and/or maintenance histone binding nucleus regulation of transcription from PoI II promoter signal recognition particle signal transduction specific RNA polymerase II transcription factor activity viral genome replication
Hs.183803	TRAP1	heat shock protein 75	ATP binding chaperone activity mitochondrion protein folding tumor necrosis factor receptor binding
Hs.118725	SEPHS2	selenophosphate synthetase 2	ATP binding catalytic activity cellular_component unknown selenide, water dikinase activity selenocysteine biosynthesis transferase activity
Hs.444619	DXS9879E	DNA segment on chromosome X (unique) 9879 expressed sequence proteasome (prosome, macropain)	biological_process unknown cellular_component unknown molecular_function unknown
Hs.251531	PSMA4	subunit, alpha type, 4	endopeptidase activity proteasome core complex (sensu Eukarya) ubiquitin-dependent protein catabolism

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Hs.380118	RBMX	RNA binding motif protein, X-linked	RNA binding biological_process unknown heterogeneous nuclear ribonucleoprotein complex
Hs.284170	HIBADH	3-hydroxyisobutyrate dehydrogenase	3-hydroxyisobutyrate dehydrogenase activity mitochondrion oxidoreductase activity pentose-phosphate shunt phosphogluconate dehydrogenase (decarboxylating) activity valine metabolism
Hs.430606	CS	citrate synthase	citrate (Si)-synthase activity mitochondrion transferase activity tricarboxylic acid cycle
Hs.288932	MAK3P	likely ortholog of mouse Mak3p homolog (S. cerevisiae)	N-acetyltransferase activity
Hs.350229	CASC3	cancer susceptibility candidate 3	biological_process unknown molecular_function unknown nucleus
Hs.75353	PMPCA	peptidase (mitochondrial processing) alpha	hydrolase activity mitochondrial inner membrane mitochondrial processing peptidase activity mitochondrion protein binding proteolysis and peptidolysis
Hs.182825	RPL35	ribosomal protein L35	
Hs.378103	RPS5	ribosomal protein S5	RNA binding cytosolic small ribosomal subunit (sensu Eukarya) intracellular protein biosynthesis structural constituent of ribosome
Hs.183556	SLC1A5	solute carrier family 1 (neutral amino acid transporter), member 5	dicarboxylic acid transport integral to plasma membrane membrane fraction neutral amino acid transport neutral amino acid transporter activity receptor activity sodium:dicarboxylate symporter activity symporter activity transport endoplasmic reticulum fatty acid biosynthesis integral to membrane iron ion binding oxidoreductase activity stearoyl-CoA 9-desaturase activity
Hs.119597	SCD	stearoyl-CoA desaturase (delta-9-desaturase)	
Hs.178292	POFUT1	protein O-fucosyltransferase 1	Notch signaling pathway O-glycan processing cytoplasm embryonic development fucose metabolism integral to Golgi membrane manganese ion binding peptide-O-fucosyltransferase activity regulation of transcription regulation of translation transferase activity, transferring glycosyl groups
Hs.434901	SNRPA1	small nuclear ribonucleoprotein polypeptide A'	RNA binding RNA splicing snRNP U2
Hs.408754	MAPRE1	microtubule-associated protein, RP/EB family, member 1	cell proliferation microtubule binding protein C-terminus binding regulation of cell cycle
Hs.142868		CDNA FLJ11143 fis, clone PLACE1006598	
Hs.430666	HSP70-4	likely ortholog of mouse heat shock protein, 70 kDa 4	ATP binding
Hs.250616	IDH3A	isocitrate dehydrogenase 3 (NAD+) alpha	carbohydrate metabolism isocitrate dehydrogenase (NAD+) activity mitochondrion oxidoreductase activity tricarboxylic acid cycle
Hs.118554	LACTB2	lactamase, beta 2	
Hs.411826	UBE2D3	ubiquitin-conjugating enzyme E2D 3 (UBC4/5 homolog, yeast)	ligase activity protein modification ubiquitin conjugating enzyme activity ubiquitin cycle ubiquitin-dependent protein catabolism ubiquitin-protein ligase activity ubiquitin-protein ligase activity
Hs.285290	COQ6	coenzyme Q6 homolog (yeast)	aromatic compound metabolism electron transport monooxygenase activity ubiquinone biosynthesis
Hs.85482	USP13	ubiquitin specific protease 13 (isopeptidase T-3)	cysteine-type endopeptidase activity hydrolase activity ubiquitin thiolesterase activity ubiquitin-dependent protein catabolism ubiquitin-specific protease activity
Hs.23255	NUP155	nucleoporin 155kDa	nuclear pore nucleocytoplasmic transport nucleocytoplasmic transporter activity nucleus transport transporter activity
Hs.444439	PAICS	phosphoribosylaminoimidazole carboxylase, phosphoribosylaminoimidazole succinocarboxamide synthetase	
Hs.79037	HSPD1	heat shock 60kDa protein 1 (chaperonin)	ATP binding heat shock protein activity mitochondrial matrix mitochondrial matrix protein import protein folding
Hs.8345	MGC4308	hypothetical protein MGC4308	
Hs.3945	C20orf45	chromosome 20 open reading frame 45	
Hs.3530	FUSIP1	FUS interacting protein (serine-arginine rich) 1	RNA binding RS domain binding assembly of spliceosomal tri-snRNP chaperone activity cytoplasm cytoplasm cytoplasmic transport mRNA processing mRNA-nucleus export negative regulation of nuclear mRNA splicing, via spliceosome nuclear mRNA 5'-splice site recognition nuclear mRNA splicing, via spliceosome nucleoplasm nucleus pre-mRNA splicing factor activity pre-mRNA splicing factor activity protein binding protein binding regulation of transcription spliceosome assembly
Hs.10724	MRPS35	mitochondrial ribosomal protein S35	mitochondrion structural constituent of ribosome
Hs.436803	VBP1	von Hippel-Lindau binding protein 1	chaperone activity prefoldin complex protein folding
Hs.355819	TIMM50	translocase of inner mitochondrial membrane 50 homolog (yeast)	
Hs.102558	MGC5352	hypothetical protein MGC5352	catalytic activity metabolism
Hs.211594	PSMC4	proteasome (prosome, macropain) 26S subunit, ATPase, 4	ATP binding ATPase activity hydrolase activity nucleotide binding proteasome complex (sensu Eukarya) proteolysis and peptidolysis
Hs.173162	NOC4	neighbor of COX4	mitochondrion molecular_function unknown nucleus
Hs.88977	EEF1E1	eukaryotic translation elongation factor 1 epsilon 1	protein biosynthesis
Hs.307544	HNRPK	heterogeneous nuclear ribonucleoprotein K	DNA binding RNA binding RNA processing heterogeneous nuclear ribonucleoprotein complex nucleoplasm
Hs.82389	MRPL48	mitochondrial ribosomal protein L48	intracellular protein biosynthesis ribosome structural constituent of ribosome
Hs.79769	PCDH1	protocadherin 1 (cadherin-like 1)	calcium ion binding cell adhesion cell-cell signaling homophilic cell adhesion integral to plasma membrane intercellular junction membrane neurogenesis protein binding
Hs.408302	C1orf37	chromosome 1 open reading frame 37	
Hs.22879	ANC_2H01	zinc finger protein ANC_2H01	nucleic acid binding nucleus zinc ion binding
Hs.439387	FOXK2	forkhead box K2	RNA polymerase II transcription factor activity nucleus regulation of transcription from Pol II promoter transcription factor activity
Hs.124027	SEPHS1	selenophosphate synthetase 1	ATP binding GTP binding protein modification selenide, water dikinase activity transferase activity

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.171834	PCTK1	PCTAIRE protein kinase 1	ATP binding protein amino acid phosphorylation protein amino acid phosphorylation protein serine/threonine kinase activity protein serine/threonine kinase activity regulation of cell cycle transferase activity
Hs.169615	FLJ20989	hypothetical protein FLJ20989	
Hs.434986	HRI	heme-regulated initiation factor 2-alpha kinase	ATP binding autophosphorylation eukaryotic translation initiation factor 2alpha kinase activity heme binding negative regulation of hemoglobin biosynthesis negative regulation of protein biosynthesis negative regulation of translational initiation by iron protein homodimerization activity response to external stimulus response to stress transferase activity
Hs.172589	PWP1	nuclear phosphoprotein similar to S. cerevisiae PWP1	nucleus transcription
Hs.77324	ETF1	eukaryotic translation termination factor 1	RNA binding cytoplasm protein biosynthesis regulation of translational termination translation release factor activity, codon specific
Hs.462306	UBE2S	ubiquitin-conjugating enzyme E2S	
Hs.458313		Transcribed sequence with strong similarity to protein ref:NP_060850.1 (H.sapiens) DEAD/H	
Hs.1578	BIRC5	baculoviral IAP repeat-containing 5 (survivin)	G2/M transition of mitotic cell cycle anti-apoptosis apoptosis cysteine protease inhibitor activity intracellular spindle microtubule
Hs.144057	GMPS	guanine monphosphate synthetase	
Hs.9075	STK17A	serine/threonine kinase 17a (apoptosis-inducing)	ATP binding apoptosis induction of apoptosis nucleus protein amino acid phosphorylation protein kinase cascade protein serine/threonine kinase activity transferase activity
Hs.420696	MRPL39	mitochondrial ribosomal protein L39	biological_process unknown mitochondrial ribosome mitochondrion structural constituent of ribosome
Hs.517832	DESR1	DESR1 protein	
Hs.119251	UQCRC1	ubiquinol-cytochrome c reductase core protein I	aerobic respiration electron transport inner membrane metalloendopeptidase activity mitochondrial electron transport chain mitochondrion oxidative phosphorylation oxidoreductase activity proteolysis and peptidolysis ubiquinol-cytochrome-c reductase activity
Hs.4209	MRPL37	mitochondrial ribosomal protein L37	catalase activity electron transport response to oxidative stress structural constituent of ribosome
Hs.95351	LIPE	lipase, hormone-sensitive	
Hs.101014	KIAA0092	transloklin	
Hs.410205	NUDT5	nudix (nucleoside diphosphate linked moiety X)-type motif 5	ADP-sugar diphosphatase activity D-ribose catabolism hydrolase activity intracellular magnesium ion binding protein binding
Hs.79162	SSRP1	structure specific recognition protein 1	DNA binding chromatin nucleus regulation of transcription, DNA-dependent
Hs.107513	DOCK11	dedicator of cytokinesis 11	
Hs.140443	LOC134492	similar to RIKEN cDNA 2700047N05	
Hs.43597		Data not found	
Hs.15265	HNRPR	heterogeneous nuclear ribonucleoprotein R	RNA binding heterogeneous nuclear ribonucleoprotein complex mRNA processing
Hs.385913	ANP32E	acidic (leucine-rich) nuclear phosphoprotein 32 family, member E	cytoplasmic vesicle nucleus phosphatase inhibitor activity
Hs.41706	DDX10	DEAD (Asp-Glu-Ala-Asp) box polypeptide 10	ATP binding ATP-dependent helicase activity RNA binding RNA helicase activity
Hs.310922	BCL2L13	BCL2-like 13 (apoptosis facilitator)	caspase activation caspase activator activity induction of apoptosis integral to membrane mitochondrion regulation of apoptosis
Hs.476302	HNRPC	heterogeneous nuclear ribonucleoprotein C (C1/C2)	RNA binding RNA splicing heterogeneous nuclear ribonucleoprotein complex
Hs.74047	ETFB	electron-transfer-flavoprotein, beta polypeptide	electron carrier activity electron transport mitochondrial matrix
Hs.82327	GSS	glutathione synthetase	ATP binding amino acid metabolism glutathione biosynthesis glutathione synthase activity ligase activity neurogenesis response to oxidative stress
Hs.3439	STOML2	stomatins (EPB72)-like 2	cytoskeleton membrane receptor binding
Hs.82508	THAP11	THAP domain containing 11	DNA binding nucleus
Hs.108371	E2F4	E2F transcription factor 4, p107/p130-binding	
Hs.315177	IFRD2	interferon-related developmental regulator 2	cell differentiation cell proliferation cellular_component unknown molecular_function unknown
Hs.310542	TOMM40	translocase of outer mitochondrial membrane 40 homolog (yeast)	anion transport integral to membrane intracellular protein transport mitochondrial outer membrane mitochondrial transport mitochondrion protein transporter activity protein-mitochondrial targeting voltage-dependent ion-selective channel activity
Hs.110757	D21S2056E	DNA segment on chromosome 21 (unique) 2056 expressed sequence	nucleus
Hs.182625	VAPB	VAMP (vesicle-associated membrane protein)-associated protein B and C	integral to plasma membrane protein complex assembly structural molecule activity
Hs.208388	FANCD2	Fanconi anemia, complementation group D2	biological_process unknown cellular_component unknown molecular_function unknown
Hs.159557	KPNA2	karyopherin alpha 2 (RAG cohort 1, importin alpha 1)	DNA metabolism G2 phase of mitotic cell cycle M phase specific microtubule process NLS-bearing substrate-nucleus import cytoplasm intracellular protein transport nuclear localization sequence binding nucleoplasm protein binding protein transporter activity regulation of DNA recombination
Hs.528652	C9orf86	chromosome 9 open reading frame 86	
Hs.411925	C9orf87	chromosome 9 open reading frame 87	
Hs.326725	FLJ22624	FLJ22624 protein	
Hs.2853	PCBP1	poly(rC) binding protein 1	RNA binding cytoplasm mRNA metabolism nucleus ribonucleoprotein complex single-stranded DNA binding
Hs.284286	MRPS24	mitochondrial ribosomal protein S24	biological_process unknown mitochondrial small ribosomal subunit mitochondrion structural constituent of ribosome

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.73527	CSNK2B	casein kinase 2, beta polypeptide	Wnt receptor signaling pathway protein kinase CK2 activity protein kinase CK2 complex protein kinase CK2 regulator activity protein serine/threonine kinase activity signal transduction transferase activity
Hs.6126	MANBAL	mannosidase, beta A, lysosomal-like	integral to membrane
Hs.226007	RDH11	retinol dehydrogenase 11 (all-trans and 9-cis)	endoplasmic reticulum integral to membrane intracellular metabolism oxidoreductase activity photoreceptor maintenance retinol dehydrogenase activity retinol metabolism
Hs.412842	C10orf7	chromosome 10 open reading frame 7	
Hs.28914	APRT	adenine phosphoribosyltransferase	
Hs.111024	SLC25A1	solute carrier family 25 (mitochondrial carrier; citrate transporter), member 1	binding citrate transporter activity integral to membrane mitochondrial citrate transport mitochondrial inner membrane mitochondrion transport transporter activity
Hs.158193	TLOC1	translocation protein 1	cotranslational membrane targeting endoplasmic reticulum integral to membrane protein transport protein transporter activity receptor activity
Hs.44298	MRPS17	mitochondrial ribosomal protein S17	intracellular mitochondrial small ribosomal subunit mitochondrion nucleic acid binding protein biosynthesis ribosome structural constituent of ribosome
Hs.283532	BM039	uncharacterized bone marrow protein BM039	
Hs.9194	UBADC1	ubiquitin associated domain containing 1	
Hs.184339	MELK	maternal embryonic leucine zipper kinase	ATP binding protein amino acid phosphorylation protein serine/threonine kinase activity transferase activity
Hs.436687	SET	SET translocation (myeloid leukemia associated)	DNA binding DNA replication cell growth and/or maintenance nucleosome assembly nucleus protein phosphatase inhibitor activity
Hs.28465		Clone IMAGE:5263527, mRNA	
Hs.76084	LMNB2	lamin B2	biological_process unknown intermediate filament nuclear lamina nucleus structural molecule activity
Hs.178576	CTNNBL1	catenin, beta like 1	
Hs.397638	WDR5	WD repeat domain 5	G-protein coupled receptor protein signaling pathway heterotrimeric G-protein complex signal transducer activity
Hs.151001	CIRH1A	cirrhosis, autosomal recessive 1A (cirhin)	nucleus
Hs.23476	CIZ1	CDKN1A interacting zinc finger protein 1	nucleic acid binding nucleus nucleus regulation of cell cycle zinc ion binding zinc ion binding
Hs.6879	DC13	DC13 protein	
Hs.4815	NUDT3	nudix (nucleoside diphosphate linked moiety X)-type motif 3	calcium-mediated signaling cell-cell signaling cyclic-nucleotide-mediated signaling diadenosine polyphosphate catabolism diphosphoinositol-polyphosphate diphosphatase activity hydrolase activity intracellular intracellular signaling cascade intracellular transport regulation of RNA-nucleus export
Hs.382044	MRPS2	mitochondrial ribosomal protein S2	intracellular mitochondrion protein biosynthesis small ribosomal subunit structural constituent of ribosome
Hs.446393	CPSF5	cleavage and polyadenylation specific factor 5, 25 kDa	RNA binding mRNA processing nucleus
Hs.119192	H2AFZ	H2A histone family, member Z	DNA binding chromosome chromosome organization and biogenesis (sensu Eukarya) nucleosome nucleosome assembly nucleus
Hs.164021	CXCL6	chemokine (C-X-C motif) ligand 6 (granulocyte chemotactic protein 2)	RNA binding RNA-dependent DNA replication RNA-directed DNA polymerase activity cell-cell signaling chemokine activity chemotaxis extracellular heparin binding immune response inflammatory response signal transduction transferase activity
Hs.440475	SDHA	succinate dehydrogenase complex, subunit A, flavoprotein (Fp)	
Hs.70704	C20orf129	chromosome 20 open reading frame 129	
Hs.62180	ANLN	anillin, actin binding protein (scraps homolog, Drosophila)	
Hs.270845	KIF23	kinesin family member 23	
Hs.278839	C20orf77	chromosome 20 open reading frame 77	
Hs.405958	CDC6	CDC6 cell division cycle 6 homolog (S. cerevisiae)	ATP binding DNA replication checkpoint cytokinesis cytoplasm negative regulation of DNA replication negative regulation of cell proliferation nucleotide binding nucleotide binding nucleus regulation of cyclin dependent protein kinase activity traversing start control point of mitotic cell cycle
Hs.73072	CCT6B	chaperonin containing TCP1, subunit 6B (zeta 2)	
Hs.403914	VASP	vasodilator-stimulated phosphoprotein	
Hs.17834	DONSON	downstream neighbor of SON	biological_process unknown cellular_component unknown molecular_function unknown
Hs.510847		MRNA; cDNA DKFZp779B0634 (from clone DKFZp779B0634)	
Hs.146449	NUP153	nucleoporin 153kDa	DNA binding nuclear pore nucleus transport transporter activity
Hs.436187	TRIP13	thyroid hormone receptor interactor 13	ATP binding nucleotide binding nucleus nucleus receptor activity transcription cofactor activity transcription from Pol II promoter
Hs.278338	GPSM2	G-protein signalling modulator 2 (AGS3-like, C. elegans)	
Hs.21331	FLJ10036	hypothetical protein FLJ10036	
Hs.438749		CDNA FLJ40955 fis, clone UTERU2011199	
Hs.516796		CDNA: FLJ21923 fis, clone HEP04081	
Hs.198271	NDUFA10	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 10, 42kDa	ATP binding NADH dehydrogenase (ubiquinone) activity NADH dehydrogenase activity energy pathways membrane fraction mitochondrion nucleobase, nucleoside, nucleotide and nucleic acid metabolism oxidoreductase activity phosphotransferase activity, alcohol group as acceptor
Hs.435982	FLJ10407	hypothetical protein FLJ10407	

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.409065	FEN1	flap structure-specific endonuclease 1	DNA replication UV protection damaged DNA binding double-strand break repair double-stranded DNA binding double stranded DNA specific exodeoxyribonuclease activity endonuclease activity exonuclease activity hydrolase activity nucleus
Hs.7744	NDUFV1	NADH dehydrogenase (ubiquinone) flavoprotein 1, 51kDa	NADH dehydrogenase (ubiquinone) activity NADH dehydrogenase activity energy pathways membrane fraction mitochondrial electron transport, NADH to ubiquinone mitochondrial inner membrane mitochondrion oxidoreductase activity
Hs.424099	EPPB9	B9 protein	
Hs.109059	MRPL12	mitochondrial ribosomal protein L12	RNA binding intracellular mitochondrial large ribosomal subunit mitochondrion protein biosynthesis protein biosynthesis ribosome structural constituent of ribosome structural constituent of ribosome
Hs.389101	RALY	RNA binding protein (autoantigenic, hnRNP-associated with lethal yellow)	RNA binding nucleus ribonucleoprotein complex
Hs.418450	MRPL11	mitochondrial ribosomal protein L11	intracellular mitochondrion protein biosynthesis ribosome structural constituent of ribosome
Hs.405860	MDH2	malate dehydrogenase 2, NAD (mitochondrial)	L-malate dehydrogenase activity mitochondrial matrix oxidoreductase activity tricarboxylic acid cycle
Hs.184877	SLC25A11	solute carrier family 25 (mitochondrial carrier; oxoglutarate carrier), member 11	
Hs.44017	MRPL41	mitochondrial ribosomal protein L41	structural constituent of ribosome
Hs.169919	ETFA	electron-transfer-flavoprotein, alpha polypeptide (glutaric aciduria II)	electron carrier activity electron transport mitochondrial matrix
Hs.430299	PXMP2	peroxisomal membrane protein 2, 22kDa	
Hs.109706	HN1	hematological and neurological expressed 1	
Hs.234896	GMNN	geminin, DNA replication inhibitor	cell cycle cell cycle arrest negative regulation of DNA replication
Hs.521070	ZNF3	zinc finger protein 3 (A8-51)	cell differentiation immune cell activation intracellular nucleic acid binding nucleus regulation of transcription, DNA-dependent regulation of transcription, DNA-dependent transcription factor activity zinc ion binding
Hs.448753		U93 scaRNA gene, complete sequence	
Hs.172052	PLK4	polo-like kinase 4 (Drosophila)	ATP binding cell cycle protein amino acid phosphorylation protein serine/threonine kinase activity transferase activity
Hs.118666	PP591	FAD-synthetase	Mo-molybdopterin cofactor biosynthesis metabolism transferase activity
Hs.145647		Transcribed sequences	
Hs.440835	SF1	splicing factor 1	DNA binding RNA binding RNA polymerase II transcription factor activity metal ion binding nuclear mRNA splicing, via spliceosome nucleus regulation of transcription, DNA-dependent spliceosome complex transcription corepressor activity
Hs.369523	DKFZp686A1710	hypothetical protein DKFZp686A17109	ATP binding protein amino acid phosphorylation protein serine/threonine kinase activity small GTPase regulatory/interacting protein activity
Hs.21635	TUBG1	tubulin, gamma 1	GTP binding centrosome condensed nuclear chromosome gamma-tubulin complex meiotic spindle assembly microtubule microtubule nucleation microtubule-based movement mitotic spindle assembly polar microtubule protein binding regulation of mitosis spindle pole body structural constituent of cytoskeleton
Hs.121025	C11orf5	chromosome 11 open reading frame 5	
Hs.356630	NUTF2	nuclear transport factor 2	cytosol intracellular protein transport nuclear pore nucleus protein transporter activity protein-nucleus import
Hs.388813	ZFP1	zinc finger protein 1 homolog (mouse)	nucleic acid binding nucleus zinc ion binding
Hs.47125	FLJ13912	hypothetical protein FLJ13912	
Hs.411433	FANCL	Fanconi anemia, complementation group L	DNA repair ligase activity nucleus
Hs.250745	RPC62	polymerase (RNA) III (DNA directed) (62kD)	DNA binding DNA-directed RNA polymerase III complex DNA-directed RNA polymerase activity DNA-directed RNA polymerase activity regulation of transcription from Pol III promoter transcription
Hs.406510	ATP5B	ATP synthase, H+ transporting, mitochondrial F1 complex, beta polypeptide	ATP binding ATP synthesis coupled proton transport energy pathways hydrogen-exporting ATPase activity, phosphorylative mechanism hydrogen-transporting ATP synthase activity, rotational mechanism hydrogen-transporting ATPase activity, rotational mechanism hydrolase activity hydrolase activity, acting on acid anhydrides, catalyzing transmembrane movement of substances mitochondrion nucleotide binding proton transport proton-transporting ATP synthase complex (sensu Eukarya) proton-transporting ATP synthase, catalytic core (sensu Eukarya) transporter activity
Hs.488473		Transcribed sequence with strong similarity to protein prf:2201310A (H.sapiens) 2201310A microsomal protein P58 [Homo sapiens]	
Hs.371698	RAE1	RAE1 RNA export 1 homolog (S. pombe)	RNA binding cytoskeleton mRNA-nucleus export nuclear outer membrane nuclear pore nucleus
Hs.114360	TSC22	transforming growth factor beta-stimulated protein TSC-22	nucleus regulation of transcription, DNA-dependent transcription factor activity transcription from Pol II promoter
Hs.128791	CGI-09	CGI-09 protein	regulation of translational initiation translation initiation factor activity
Hs.333786	PSMA2	proteasome (prosome, macropain) subunit, alpha type, 2	
Hs.18259	XAB1	XPA binding protein 1	ATP binding GTP binding nucleotide binding small GTPase mediated signal transduction
Hs.252457	MVD	mevalonate (diphospho) decarboxylase	ATP binding cholesterol biosynthesis diphosphomevalonate decarboxylase activity isoprenoid biosynthesis kinase activity lyase activity phosphorylation
Hs.75798	C20orf111	chromosome 20 open reading frame 111	

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.90107	ADRM1	adhesion regulating molecule 1	cell adhesion integral to plasma membrane membrane fraction protein binding
Hs.75682	RCD-8	autoantigen	biological_process unknown molecular_function unknown nucleus
Hs.1063	SNRPC	small nuclear ribonucleoprotein polypeptide C	RNA binding RNA splicing snRNP U1 zinc ion binding
Hs.82426	KIAA0247	KIAA0247	integral to membrane
Hs.356739	PPP6C	protein phosphatase 6, catalytic subunit	G1/S transition of mitotic cell cycle hydrolase activity manganese ion binding protein amino acid dephosphorylation protein serine/threonine phosphatase activity
Hs.95577	CDK4	cyclin-dependent kinase 4	ATP binding G1/S transition of mitotic cell cycle cyclin-dependent protein kinase activity cytokinesis protein amino acid phosphorylation protein kinase activity regulation of cell cycle transferase activity
Hs.150555	HSU79274	protein predicted by clone 23733	
Hs.154672	MTHFD2	methylene tetrahydrofolate dehydrogenase (NAD+ dependent), methenyltetrahydrofolate cyclohydrolase	electron transporter activity folic acid and derivative biosynthesis hydrolase activity magnesium ion binding methenyltetrahydrofolate cyclohydrolase activity methylenetetrahydrofolate dehydrogenase (NAD+) activity mitochondrion one-carbon compound metabolism oxidoreductase activity
Hs.34045	CDC44	cell division cycle associated 4	
Hs.75850	WASF1	WAS protein family, member 1	actin binding actin cytoskeleton actin filament polymerization cell motility protein complex assembly
Hs.58488	CTNNA1	catenin (cadherin-associated protein), alpha-like 1	apoptosis
Hs.99987	ERCC2	excision repair cross-complementing rodent repair deficiency, complementation group 2 (xeroderma pigmentosum D)	ATP binding ATP-dependent DNA helicase activity DNA binding hydrolase activity hydrolase activity, acting on acid anhydrides, in phosphorus-containing anhydrides magnesium ion binding nucleotide-excision repair nucleus perception of sound regulation of transcription, DNA-dependent
Hs.425427	LYAR	hypothetical protein FLJ20425	
Hs.367821	DTYMK	deoxythymidylate kinase (thymidylate kinase)	ATP binding DNA metabolism cell cycle dTDP biosynthesis dTTP biosynthesis kinase activity nucleotide biosynthesis thymidylate kinase activity transferase activity
Hs.87491	TYMS	thymidylate synthetase	
Hs.141347	MGC33864	ADP-ribosylation-like factor 6-interacting protein 6	
Hs.119960		Data not found	
Hs.318526	FLJ12661	hypothetical protein FLJ12661	
Hs.446311	MGC10911	hypothetical protein MGC10911	
Hs.13340	HAT1	histone acetyltransferase 1	DNA packaging acyltransferase activity histone acetyltransferase activity internal protein amino acid acetylation nucleus protein binding transferase activity
Hs.146161	MGC2408	hypothetical protein MGC2408	S-adenosylmethionine-dependent methyltransferase activity
Hs.291898	MRPL16	mitochondrial ribosomal protein L16	intracellular protein biosynthesis ribosome structural constituent of ribosome
Hs.94308	RAB35	RAB35, member RAS oncogene family	
Hs.408355	LRP11	low density lipoprotein receptor-related protein 11	
Hs.18528	SSNA1	Sjogren's syndrome nuclear autoantigen 1	nucleus
Hs.374491	PA2G4	proliferation-associated 2G4, 38kDa	cell cycle arrest cell proliferation hydrolase activity methionyl aminopeptidase activity nucleus proteolysis and peptidolysis
Hs.172865	CSTF1	cleavage stimulation factor, 3' pre-RNA, subunit 1, 50kDa	RNA binding RNA processing mRNA cleavage mRNA polyadenylation nucleus
Hs.442609	MRPL38	mitochondrial ribosomal protein L38	
Hs.433208	MGC11257	hypothetical protein MGC11257	
Hs.401703	C20orf52	chromosome 20 open reading frame 52	integral to membrane
Hs.29874	RNF135	ring finger protein 135	
Hs.103834	MGC5576	hypothetical protein MGC5576	
Hs.306122	GPSN2	glycoprotein, synaptic 2	integral to membrane
Hs.19236	NDUFB5	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 5, 16kDa	NADH dehydrogenase (ubiquinone) activity NADH dehydrogenase activity mitochondrial electron transport, NADH to ubiquinone mitochondrion oxidoreductase activity
Hs.444536	SLC5A8	solute carrier family 5 (iodide transporter), member 8	membrane transport transporter activity
Hs.339697	GRINA	glutamate receptor, ionotropic, N-methyl D-aspartate-associated protein 1 (glutamate binding)	receptor activity
Hs.296422	COASY	Coenzyme A synthase	ATP binding cellular_component unknown coenzyme A biosynthesis dephospho-CoA kinase activity nucleotide binding pantetheine-phosphate adenylyltransferase activity transferase activity
Hs.12106	MMAB	methylmalonic aciduria (cobalamin deficiency) type B	
Hs.130607	MVK	mevalonate kinase (mevalonic aciduria)	ATP binding biosynthesis cholesterol biosynthesis cytoplasm isoprenoid biosynthesis mevalonate kinase activity peroxisome protein amino acid phosphorylation transferase activity
Hs.348495	HIST3H2A	histone 3, H2a	DNA binding chromosome organization and biogenesis (sensu Eukarya) nucleosome nucleosome assembly nucleus
Hs.513334		Transcribed sequence with weak similarity to protein ref:NP_055131.1 (H.sapiens) calcium-regulated heat-stable protein	
Hs.95583	NET-7	transmembrane 4 superfamily member tetraspan NET-7	integral to plasma membrane membrane fraction
Hs.144949	ZNF313	zinc finger protein 313	nucleic acid binding nucleus zinc ion binding
Hs.399981	C20orf178	chromosome 20 open reading frame 178	molecular_function unknown
Hs.443292	CPS1	carbamoyl-phosphate synthetase 1, mitochondrial	ATP binding arginine biosynthesis carbamoyl-phosphate synthase (ammonia) activity ligase activity mitochondrion pyrimidine base biosynthesis urea cycle

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.137594	HIST1H2BL	histone 1, H2bl	DNA binding chromosome chromosome organization and biogenesis (sensu Eukarya) nucleosome nucleosome assembly nucleus
Hs.2178	HIST2H2BE	histone 2, H2be	DNA binding chromosome chromosome organization and biogenesis (sensu Eukarya) nucleosome nucleosome assembly nucleus
Hs.519945	HIST1H2BJ	histone 1, H2bj	DNA binding chromosome chromosome organization and biogenesis (sensu Eukarya) nucleosome nucleosome assembly nucleus
Hs.301636	PEX6	peroxisomal biogenesis factor 6	ATP binding ATPase activity, coupled cytoplasm nucleic acid binding nucleotide binding peroxisome peroxisome organization and biogenesis
Hs.153591	ALG3	asparagine-linked glycosylation 3 homolog (yeast, alpha-1,3-mannosyltransferase)	endoplasmic reticulum integral to endoplasmic reticulum membrane mannosyltransferase activity protein amino acid glycosylation transferase activity, transferring glycosyl groups
Hs.380875	TEB4	similar to <i>S. cerevisiae</i> SSM4	
Hs.1973	CCNF	cyclin F	cytokinesis mitosis nucleus regulation of cell cycle
Hs.289271	CYC1	cytochrome c-1	electron transport electron transporter, transferring electrons from CoQH2-cytochrome c reductase complex and cytochrome c oxidase complex activity heme binding integral to membrane mitochondrial electron transport chain mitochondrion
Hs.157818	KCNAB1	potassium voltage-gated channel, shaker-related subfamily, beta member 1	
Hs.83765	DHFR	dihydrofolate reductase	cellular_component unknown dihydrofolate reductase activity glycine biosynthesis nucleotide biosynthesis one-carbon compound metabolism oxidoreductase activity
Hs.204891	IL11RA	interleukin 11 receptor, alpha	integral to plasma membrane transmembrane receptor activity
Hs.433291	ARD1	ARD1 homolog, N-acetyltransferase (<i>S. cerevisiae</i>)	DNA packaging N-acetyltransferase activity acyltransferase activity chromosome organization and biogenesis (sensu Eukarya) internal protein amino acid acetylation nucleus transferase activity
Hs.502	TAP2	transporter 2, ATP-binding cassette, sub-family B (MDR/TAP)	ATP binding ATP-binding cassette (ABC) transporter activity MHC class I protein binding TAP complex antigen presentation, endogenous peptide antigen antigen processing, endogenous antigen via MHC class I cytosol cytosol to ER transport endoplasmic reticulum lumen homoaconitate hydratase activity integral to membrane intracellular protein transport nucleotide binding peptide antigen binding peptide antigen transporter activity peptide transport phosphate binding protein complex assembly protein heterodimerization activity tapasin binding
Hs.2985	EMD	emerin (Emery-Dreifuss muscular dystrophy)	integral to membrane muscle contraction muscle development nuclear membrane
Hs.237971	XTP3TPA	XTP3-transactivated protein A	
Hs.444776	PTE1	peroxisomal acyl-CoA thioesterase	acyl-CoA metabolism acyl-CoA thioesterase II activity antimicrobial humoral response (sensu Vertebrata) hydrolase activity lipid metabolism palmitoyl-CoA hydrolase activity peroxisome serine esterase activity
Hs.344400	MPHOSPH6	M-phase phosphoprotein 6	M phase of mitotic cell cycle nucleus regulation of cell cycle
Hs.75313	AKR1B1	aldo-keto reductase family 1, member B1 (aldose reductase)	
Hs.15106	C14orf1	chromosome 14 open reading frame 1	biological_process unknown integral to membrane molecular_function unknown
Hs.11806	DHCR7	7-dehydrocholesterol reductase	7-dehydrocholesterol reductase activity cholesterol biosynthesis endoplasmic reticulum integral to membrane oxidoreductase activity
Hs.213289	LDLR	low density lipoprotein receptor (familial hypercholesterolemia)	O-linked glycosylation calcium ion binding cholesterol metabolism coated pit endocytosis integral to plasma membrane lipid metabolism lipid transport lipid transporter activity lipoprotein binding low-density lipoprotein receptor activity transmembrane receptor activity
Hs.3686		Data not found	
Hs.129055	ODF2	outer dense fiber of sperm tails 2	structural molecule activity
Hs.181466	FLJ14502	TRAF4 associated factor 1	
Hs.24641	CKAP2	cytoskeleton associated protein 2	
Hs.166887	CPNE1	copine I	calcium-dependent phospholipid binding lipid metabolism transporter activity vesicle-mediated transport
Hs.83758	CKS2	CDC28 protein kinase regulatory subunit 2	cell cycle cyclin-dependent protein kinase activity cytokinesis regulation of cyclin dependent protein kinase activity
Hs.398111	LOC93081	hypothetical protein BC015148	
Hs.75069	SHMT2	serine hydroxymethyltransferase 2 (mitochondrial)	L-serine metabolism glycine hydroxymethyltransferase activity glycine metabolism mitochondrion one-carbon compound metabolism transferase activity
Hs.3104		Data not found	
Hs.435935	HSPC129	hypothetical protein HSPC129	
Hs.35086	USP1	ubiquitin specific protease 1	cysteine-type endopeptidase activity hydrolase activity ubiquitin thioesterase activity ubiquitin-dependent protein catabolism ubiquitin-specific protease activity
Hs.24529	CHEK1	CHK1 checkpoint homolog (<i>S. pombe</i>)	ATP binding DNA damage response, signal transduction resulting in cell cycle arrest cell cycle condensed nuclear chromosome gametogenesis meiotic recombination negative regulation of cell proliferation nucleus protein amino acid phosphorylation protein serine/threonine kinase activity regulation of cyclin dependent protein kinase activity response to DNA damage stimulus transferase activity
Hs.408312	TP53	tumor protein p53 (Li-Fraumeni syndrome)	DNA damage response, signal transduction resulting in induction of apoptosis DNA recombination DNA repair apoptosis cell cycle checkpoint induction of apoptosis by hormones negative regulation of cell cycle nuclease activity nucleus regulation of transcription, DNA-dependent transcription factor activity
Hs.383396	RRM1	ribonucleotide reductase M1 polypeptide	DNA replication oxidoreductase activity ribonucleoside-diphosphate reductase activity ribonucleoside-diphosphate reductase complex
Hs.193725	PSMD5	proteasome (prosome, macropain) 26S subunit, non-ATPase, 5	proteasome complex (sensu Eukarya)
Hs.20555	MRE11A	MRE11 meiotic recombination 11 homolog A (<i>S. cerevisiae</i>)	3'-5' exonuclease activity double-strand break repair via nonhomologous end-joining double-stranded DNA binding hydrolase activity manganese ion binding meiosis meiotic recombination nucleoplasm regulation of mitotic recombination single-stranded DNA specific endonuclease activity telomerase-dependent telomere maintenance
Hs.419170	GPR126	G protein-coupled receptor 126	G-protein coupled receptor activity membrane neuropeptide signaling pathway receptor activity

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.75133	TFAM	transcription factor A, mitochondrial	DNA-dependent DNA replication mitochondrion regulation of transcription from Pol I promoter transcription factor activity transcription from mitochondrial promoter
Hs.115285	DLAT	dihydrolipoamide S-acetyltransferase (E2 component of pyruvate dehydrogenase complex)	acetyl-CoA biosynthesis acyltransferase activity dihydrolipoalysine-residue acetyltransferase activity glycolysis metabolism mitochondrion protein binding pyruvate dehydrogenase complex (sensu Eukarya) transferase activity
Hs.435326	BAF53A	BAF53	actin filament chromatin binding chromatin remodeling motor activity nucleus response to pest/pathogen/parasite signal transduction structural constituent of cytoskeleton
Hs.168625	APRIN	androgen-induced proliferation inhibitor	ATP binding DNA binding DNA binding cell proliferation negative regulation of cell proliferation nucleus nucleus regulation of transcription, DNA-dependent
Hs.389996	CHCHD2	coiled-coil-helix-coiled-coil-helix domain containing 2	
Hs.99014		Clone IMAGE:5441520, mRNA	
Hs.77783	PKMYT1	membrane-associated tyrosine- and threonine-specific cdc2-inhibitory kinase	ATP binding Golgi apparatus endoplasmic reticulum membrane fraction protein amino acid phosphorylation protein serine/threonine kinase activity regulation of cyclin dependent protein kinase activity regulation of mitosis transferase activity
Hs.207134	EPB41L4B	erythrocyte membrane protein band 4.1 like 4B	cytoskeleton
Hs.36708	BUB1B	BUB1 budding uninhibited by benzimidazoles 1 homolog beta (yeast)	ATP binding anaphase-promoting complex cell cycle kinetochore mitosis mitotic checkpoint nucleus protein amino acid phosphorylation protein serine/threonine kinase activity transferase activity
Hs.347524	MGC24665	hypothetical protein MGC24665	
Hs.4854		Data not found	
Hs.196177	PHKG2	phosphorylase kinase, gamma 2 (testis)	ATP binding ATP binding calmodulin binding energy pathways glycogen biosynthesis phosphorylase kinase activity phosphorylase kinase activity phosphorylase kinase complex phosphorylase kinase complex protein amino acid phosphorylation protein amino acid phosphorylation protein kinase activity protein serine/threonine kinase activity transferase activity
Hs.19192	CDK2	cyclin-dependent kinase 2	ATP binding G2/M transition of mitotic cell cycle cell cycle cyclin-dependent protein kinase activity cytokinesis cytoplasm mitosis nucleus positive regulation of cell proliferation protein amino acid phosphorylation protein serine/threonine kinase activity regulation of DNA replication transferase activity traversing start control point of mitotic cell cycle
Hs.108112	POLE3	polymerase (DNA directed), epsilon 3 (p17 subunit)	DNA binding DNA replication epsilon DNA polymerase activity nucleus
Hs.22302	GTF3C4	general transcription factor IIIC, polypeptide 4, 90kDa	H3/H4 histone acetyltransferase activity RNA polymerase III transcription factor activity enzyme activator activity transcription factor TFIIC complex transcription initiation from Pol III promoter
Hs.435166	LBR	lamin B receptor	DNA binding integral to nuclear inner membrane lamin binding nucleus receptor activity
Hs.314623	BCL11A	B-cell CLL/lymphoma 11A (zinc finger protein)	cytoplasm hemoipoiesis nucleic acid binding nucleus regulation of transcription, DNA-dependent zinc ion binding
Hs.460		Data not found	
Hs.406913	FLJ38753	hypothetical protein FLJ38753	
Hs.443495	CYB5-M	cytochrome b5 outer mitochondrial membrane precursor	
Hs.407477	PEX13	peroxisome biogenesis factor 13	integral to membrane integral to peroxisomal membrane intracellular protein transport membrane fraction peroxisome peroxisome receptor docking protein transporter activity
Hs.443139	KIAA1833	hypothetical protein KIAA1833	
Hs.512742	KIAA1815	KIAA1815	
Hs.446414	CD47	CD47 antigen (Rh-related antigen, integrin-associated signal transducer)	cell-matrix adhesion integral to plasma membrane integrin-mediated signaling pathway protein binding
Hs.502773	SIPL	SIPL protein	
Hs.355533	ADK	adenosine kinase	adenosine kinase activity kinase activity magnesium ion binding purine ribonucleoside salvage ribonucleoside monophosphate biosynthesis transferase activity
Hs.284275	PAK2	p21 (CDKN1A)-activated kinase 2	ATP binding negative regulation of protein kinase activity protein amino acid phosphorylation protein serine/threonine kinase activity signal transduction transferase activity
Hs.203637	PLS1	plastin 1 (I isoform)	actin cytoskeleton actin filament binding brush border calcium ion binding structural constituent of cytoskeleton
Hs.389649	DDX48	DEAD (Asp-Glu-Ala-Asp) box polypeptide 48	ATP binding ATP-dependent helicase activity DNA binding RNA binding nucleus rRNA processing
Hs.406492	KIAA0738	KIAA0738 gene product	
Hs.27278		Transcribed sequence with weak similarity to protein pdb:2RMA (H.sapiens) S Chain S, Cyclophilin A	
Hs.387567	ACLY	ATP citrate lyase	ATP binding ATP catabolism ATP citrate synthase activity citrate (Si)-synthase activity citrate lyase complex citrate metabolism coenzyme A metabolism lipid biosynthesis magnesium ion binding metabolism transferase activity tricarboxylic acid cycle
Hs.283127		Similar to diaphanous homolog 3 (Drosophila), clone IMAGE:5277415, mRNA	
Hs.124085	NRXN2	neurexin 2	cell adhesion integral to membrane protein binding
Hs.3566	NOB1P	likely ortholog of mouse nin one binding protein	
Hs.311097	XPO4	exportin 4	intracellular protein transport nucleus protein transporter activity
Hs.435733	CDCA7	cell division cycle associated 7	
Hs.407135	ADA	adenosine deaminase	adenosine deaminase activity antimicrobial humoral response (sensu Vertebrata) hydrolase activity nucleotide metabolism purine ribonucleoside monophosphate biosynthesis

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.434059	ETV4	ets variant gene 4 (E1A enhancer binding protein, E1AF)	nucleus nucleus regulation of transcription, DNA-dependent regulation of transcription, DNA-dependent transcription factor activity transcriptional activator activity
Hs.173724	CKB	creatine kinase, brain	creatine kinase activity cytoplasm transferase activity, transferring phosphorus-containing groups
Hs.212957	TSBF1	tumor suppressor TSBF1	intracellular zinc ion binding
Genes overexpressed in tumor tissue and tumor cultures			
UGCluster	Symbol	Name	GOabr
Hs.12702	ARID5B	AT rich interactive domain 5B (MRF1-like)	DNA binding nucleus regulation of transcription, DNA-dependent
Hs.390463	SYTL2	synaptotagmin-like 2	
Hs.365706	MGP	matrix Gla protein	calcium ion binding cartilage condensation extracellular matrix extracellular matrix structural constituent ossification regulation of bone mineralization structural constituent of bone
Hs.439040	RPESP	RPE-spondin	
Hs.80342	KRT15	keratin 15	epidermis development intermediate filament structural constituent of cytoskeleton
Hs.2256	MMP7	matrix metalloproteinase 7 (matrilysin, uterine)	calcium ion binding collagen catabolism extracellular matrix extracellular space hydrolase activity matrilysin activity zinc ion binding
Hs.79404	D4S234E	DNA segment on chromosome 4 (unique) 234 expressed sequence	Golgi apparatus integral to membrane nucleus
Hs.259412	DJ465N24.2.1	hypothetical protein DJ465N24.2.1	
Hs.293748		CDNA FLJ26063 fis, clone PRS04788	
Hs.410774	RUNX1	runt-related transcription factor 1 (acute myeloid leukemia 1; aml1 oncogene)	ATP binding cell growth and/or maintenance development nucleus regulation of transcription, DNA-dependent transcription factor activity
Hs.386078	MYLK	myosin, light polypeptide kinase	ATP binding calmodulin binding kinase activity myosin-light-chain kinase activity protein amino acid phosphorylation protein serine/threonine kinase activity signal transducer activity transferase activity
Hs.300642	AKT3	v-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)	
Hs.211573	HSPG2	heparan sulfate proteoglycan 2 (perlecan)	basement membrane extracellular space structural molecule activity
Hs.65436	LOXL1	lysyl oxidase-like 1	copper ion binding electron transporter activity extracellular oxidoreductase activity protein modification protein-lysine 6-oxidase activity
Hs.169487	MAFB	v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (avian)	DNA binding nucleus regulation of transcription, DNA-dependent sensory organ development
Hs.433845	KRT5	keratin 5 (epidermolysis bullosa simplex, Dowling-Meara/Kobner/Weber-Cockayne types)	epidermis development intermediate filament structural constituent of cytoskeleton
Hs.409934	HLA-DQB1	major histocompatibility complex, class II, DQ beta 1	MHC class II receptor activity MHC class II receptor activity antigen presentation, exogenous antigen antigen processing, exogenous antigen via MHC class II immune response immune response integral to membrane
Hs.351874	HLA-DOA	major histocompatibility complex, class II, DO alpha	MHC class II receptor activity antigen presentation, exogenous antigen antigen processing, exogenous antigen via MHC class II immune response integral to membrane plasma membrane
Hs.26204	KIAA1295	KIAA1295 protein	
Hs.412559	FLJ21127	hypothetical protein FLJ21127	
Hs.410037	CTGF	connective tissue growth factor	DNA metabolism cell adhesion cell growth and/or maintenance cell motility epidermis development extracellular matrix extracellular space heparin binding insulin-like growth factor binding plasma membrane protein binding regulation of cell growth response to wounding soluble fraction
Hs.15535	TCEB3	transcription elongation factor B (SIII), polypeptide 3 (110kDa, elongin A)	defense response nucleus protein binding regulation of transcription from Pol II promoter transcription transcriptional elongation regulator activity
Hs.181244	HLA-A	major histocompatibility complex, class I, A	MHC class I receptor activity antigen presentation, endogenous antigen antigen processing, endogenous antigen via MHC class I immune response integral to plasma membrane
Hs.240443		MRNA; cDNA DKFZp686L01105 (from clone DKFZp686L01105)	
Hs.433995		CDNA FLJ26120 fis, clone SYN00419	
Hs.169294	TCF7	transcription factor 7 (T-cell specific, HMG-box)	DNA binding RNA polymerase II transcription factor activity Wnt receptor signaling pathway immune response nucleus regulation of transcription from Pol II promoter regulation of transcription, DNA-dependent
Hs.250615	CYP2A7	cytochrome P450, family 2, subfamily A, polypeptide 7	electron transport endoplasmic reticulum membrane microsome monooxygenase activity oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen, reduced flavin or flavoprotein as one donor, and incorporation of one atom of oxygen oxygen binding
Hs.429994	KIAA1010	scaffold protein TUBA	
Hs.8850	ADAM12	a disintegrin and metalloproteinase domain 12 (meltrin alpha)	
Hs.409202	JAG1	jagged 1 (Alagille syndrome)	Notch binding Notch signaling pathway angiogenesis calcium ion binding calcium ion binding cell communication cell fate determination development endothelial cell differentiation extracellular growth factor activity hemoipoiesis integral to plasma membrane keratinocyte differentiation myoblast differentiation neurogenesis regulation of cell migration regulation of cell proliferation structural molecule activity
Hs.93675	C10orf10	chromosome 10 open reading frame 10	
Hs.434044	PRKCDBP	protein kinase C, delta binding protein	

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.426967	PIK3CD	phosphoinositide-3-kinase, catalytic, delta polypeptide	inositol/phosphatidylinositol kinase activity phosphatidylinositol 3-kinase activity phosphatidylinositol 3-kinase activity phosphatidylinositol-4,5-bisphosphate 3-kinase activity phosphoinositide 3-kinase complex phosphoinositide 3-kinase complex protein amino acid phosphorylation signal transduction signal transduction transferase activity
Hs.372031	PMP22	peripheral myelin protein 22	integral to plasma membrane mechanosensory behavior membrane fraction negative regulation of cell proliferation perception of sound peripheral nervous system development synaptic transmission
Hs.30559		CDNA FLJ46906 fis, clone BRHIP2020930	
Hs.80395	MAL	mal, T-cell differentiation protein	channel/pore class transporter activity endosome hemocyte development insoluble fraction integral to plasma membrane membrane fraction signal transduction
Hs.179526	TXNIP	thioredoxin interacting protein	biological_process unknown cellular_component unknown molecular_function unknown
Hs.1074	SFTPC	surfactant, pulmonary-associated protein C	extracellular space regulation of liquid surface tension respiratory gaseous exchange
Hs.284135		Hypothetical protein MGC3036 (MGC3036), mRNA	
Hs.443435	CDH11	cadherin 11, type 2, OB-cadherin (osteoblast)	calcium ion binding cell adhesion homophilic cell adhesion homophilic cell adhesion integral to membrane membrane ossification protein binding
Hs.434488	CSPG2	chondroitin sulfate proteoglycan 2 (versican)	calcium ion binding cell recognition development extracellular matrix heterophilic cell adhesion hyaluronic acid binding sugar binding
Hs.9585		CDNA FLJ30010 fis, clone 3NB692000154	
Hs.57209	LBH	likely ortholog of mouse limb-bud and heart gene	
Hs.435795	IGFBP7	insulin-like growth factor binding protein 7	extracellular insulin-like growth factor binding negative regulation of cell proliferation regulation of cell growth
Hs.322735	YARS	tyrosyl-tRNA synthetase	ATP binding apoptosis cell motility cytoplasm extracellular space interleukin-8 receptor binding ligase activity protein biosynthesis signal transducer activity soluble fraction tRNA binding tyrosine-tRNA ligase activity tyrosyl-tRNA aminoacylation
Hs.372463	MACF1	microtubule-actin crosslinking factor 1	actin binding actin filament binding calcium ion binding calcium ion binding cell cycle arrest cytoskeleton cytoskeleton microtubule binding microtubule binding
Hs.244318	DAPK1	death-associated protein kinase 1	ATP binding actin cytoskeleton apoptosis calcium/calmodulin-dependent protein kinase activity calmodulin binding calmodulin-dependent protein kinase I activity induction of apoptosis by extracellular signals protein amino acid phosphorylation protein kinase cascade protein serine/threonine kinase activity signal transduction transferase activity
Hs.15432	DOC1	downregulated in ovarian cancer 1	biological_process unknown molecular_function unknown myosin
Hs.270532	PEX12	peroxisomal biogenesis factor 12	integral to membrane integral to peroxisomal membrane peroxisome protein binding zinc ion binding
Hs.512776	C14orf141	chromosome 14 open reading frame 141	
Hs.105689	LTBP2	latent transforming growth factor beta binding protein 2	calcium ion binding extracellular matrix extracellular space extracellular transport growth factor binding protein secretion protein targeting regulation of cell cycle transforming growth factor beta receptor signaling pathway
Hs.10862	AK3	adenylate kinase 3	ATP binding GTP binding adenylate kinase activity kinase activity mitochondrion nucleobase, nucleoside, nucleotide and nucleic acid metabolism transferase activity
Hs.207428	FARP1	FERM, RhoGEF (ARHGEF) and pleckstrin domain protein 1 (chondrocyte-derived)	Rho guanyl-nucleotide exchange factor activity cytoskeleton
Hs.318501	TRIM22	tripartite motif-containing 22	immune response intracellular nucleus regulation of transcription, DNA-dependent response to virus transcription corepressor activity transcription factor activity zinc ion binding
Hs.368746	NRP2	neuropilin 2	angiogenesis axon guidance cell adhesion cell adhesion electron transport electron transporter activity integral to membrane integral to membrane membrane fraction neurogenesis receptor activity receptor activity semaphorin receptor activity vascular endothelial growth factor receptor activity vascular endothelial growth factor receptor activity
Hs.367877	MMP2	matrix metalloproteinase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)	calcium ion binding collagen catabolism extracellular matrix extracellular space gelatinase A activity hydrolase activity zinc ion binding
Hs.418138	FN1	fibronectin 1	acute-phase response cell adhesion cell migration collagen binding extracellular extracellular matrix structural constituent heparin binding response to wounding
Hs.432914		CDNA FLJ46049 fis, clone SYNOV2020463	
Hs.14691	MGC19764	hypothetical protein MGC19764	
Hs.387251	EVI5	ecotropic viral integration site 5	cell proliferation development protein binding
Hs.250692	HLF	hepatic leukemia factor	cell growth and/or maintenance development double-stranded DNA binding nucleus regulation of transcription, DNA-dependent transcription from Pol II promoter
Hs.396853	JMY	junction-mediating and regulatory protein	
Hs.135226	CTSB	cathepsin B	cathepsin B activity hydrolase activity intracellular lysosome proteolysis and peptidolysis
Hs.484782	DFFA	DNA fragmentation factor, 45kDa, alpha polypeptide	DNA fragmentation apoptosis caspase-activated deoxyribonuclease activity cytosol intracellular signaling cascade nucleus protein binding
Hs.448589	ANKRD1	ankyrin repeat domain 1 (cardiac muscle)	DNA binding defense response nucleus nucleus signal transduction
Hs.387385	SMURF2	E3 ubiquitin ligase SMURF2	ligase activity negative regulation of transcription nucleus regulation of transforming growth factor beta receptor signaling pathway ubiquitin cycle ubiquitin-dependent protein catabolism ubiquitin-protein ligase activity
Hs.98998	TNC	tenascin C (hexabrachion)	cell adhesion extracellular matrix protein binding

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.82028	TGFBR2	transforming growth factor, beta receptor II (70/80kDa)	ATP binding integral to membrane positive regulation of cell proliferation protein amino acid phosphorylation receptor activity transferase activity transmembrane receptor protein serine/threonine kinase signaling pathway type II transforming growth factor beta receptor activity
Hs.321164	NPAS2	neuronal PAS domain protein 2	
Hs.512682	CEACAM1	carcinoembryonic antigen-related cell adhesion molecule 1 (biliary glycoprotein)	immune response integral to membrane integral to plasma membrane membrane fraction molecular_function unknown pregnancy
Hs.511397	MCAM	melanoma cell adhesion molecule	cell adhesion integral to plasma membrane morphogenesis protein binding
Hs.197081	AKAP12	A kinase (PRKA) anchor protein (gravin) 12	kinase activity
Hs.370771	CDKN1A	cyclin-dependent kinase inhibitor 1A (p21, Cip1)	cell cycle arrest cell cycle arrest cyclin-dependent protein kinase inhibitor activity cyclin-dependent protein kinase inhibitor activity induction of apoptosis by intracellular signals kinase activity negative regulation of cell proliferation nucleus nucleus protein kinase activity regulation of cyclin dependent protein kinase activity
Hs.432677	KRT6B	keratin 6B	cytoskeleton organization and biogenesis ectoderm development intermediate filament intermediate filament structural constituent of cytoskeleton structural molecule activity
Hs.76353	SERPINA3	serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 3	DNA binding acute-phase response chymotrypsin inhibitor activity extracellular inflammatory response intracellular protein binding regulation of lipid metabolism
Hs.212787	KIAA0303	KIAA0303 protein	ATP binding protein amino acid phosphorylation protein binding protein kinase activity protein serine/threonine kinase activity transferase activity
Hs.407912	COL4A2	collagen, type IV, alpha 2	collagen collagen type IV extracellular matrix organization and biogenesis extracellular matrix structural constituent
Hs.278573	CD59	CD59 antigen p18-20 (antigen identified by monoclonal antibodies 16.3A5, EJ16, EJ30, EL32 and G344)	blood coagulation cell surface receptor linked signal transduction immune response membrane fraction plasma membrane
Hs.386793	GPX3	glutathione peroxidase 3 (plasma)	electron transporter activity extracellular glutathione peroxidase activity oxidoreductase activity peroxidase activity response to lipid hydroperoxide soluble fraction
Hs.436922	KCNRG	potassium channel regulator	ion channel activity membrane potassium ion transport protein binding voltage-gated potassium channel activity voltage-gated potassium channel complex
Hs.434494	SYNJ2	synaptojanin 2	inositol/phosphatidylinositol phosphatase activity
Hs.183428	SSPN	sarcospan (Kras oncogene-associated gene)	cell adhesion cytoskeleton dystrophin-associated glycoprotein complex integral to plasma membrane muscle contraction
Hs.162757	LRP1	low density lipoprotein-related protein 1 (alpha-2-macroglobulin receptor)	calcium ion binding cell proliferation coated pit endocytosis integral to plasma membrane lipid metabolism lipid transporter activity lipoprotein binding membrane fraction receptor activity
Hs.435800	VIM	vimentin	cytoplasm intermediate filament intermediate filament protein binding structural constituent of cytoskeleton structural molecule activity
Hs.128087	F2R	coagulation factor II (thrombin) receptor	G-protein coupled receptor protein signaling pathway Golgi apparatus STAT protein nuclear translocation apoptosis blood coagulation caspase activation cell motility integral to plasma membrane morphogenesis positive regulation of I-kappaB kinase/NF-kappaB cascade receptor binding regulation of cell cycle response to wounding rhodopsin-like receptor activity signal transduction thrombin receptor activity tyrosine phosphorylation of STAT protein
Hs.437040	PTPN21	protein tyrosine phosphatase, non-receptor type 21	cytoskeleton hydrolase activity protein amino acid dephosphorylation protein-tyrosine-phosphatase activity structural molecule activity
Hs.170399	RAPH1	Ras association (RalGDS/AF-6) and pleckstrin homology domains 1	
Hs.95120	CYGB	cytoglobin	cytoplasm oxygen transport oxygen transporter activity transport
Hs.359394		Hypothetical protein LOC283666, mRNA (cDNA clone IMAGE:4415549), partial cds	
Hs.31595	CLDN11	claudin 11 (oligodendrocyte transmembrane protein)	integral to membrane structural molecule activity tight junction
Hs.76530	F2	coagulation factor II (thrombin)	STAT protein nuclear translocation acute-phase response apoptosis calcium ion binding caspase activation chymotrypsin activity development extracellular space fibrinolysis hydrolase activity platelet activation proteolysis and peptidolysis receptor binding regulation of blood coagulation regulation of cell cycle response to wounding soluble fraction thrombin activity trypsin activity tyrosine phosphorylation of STAT protein
Hs.418083	RBP4	retinol binding protein 4, plasma	
Hs.415997	COL6A1	collagen, type VI, alpha 1	cell adhesion collagen type VI extracellular matrix extracellular matrix structural constituent protein binding
Hs.420269	COL6A2	collagen, type VI, alpha 2	cell-cell adhesion extracellular matrix extracellular matrix organization and biogenesis extracellular matrix structural constituent protein binding, bridging
Hs.280226	APOB	apolipoprotein B (including Ag(x) antigen)	extracellular lipid transport lipid transporter activity
Hs.389964	GPNMB	glycoprotein (transmembrane) nmb	integral to membrane negative regulation of cell proliferation
Hs.170915	FLJ10948	hypothetical protein FLJ10948	catalytic activity metabolism
Hs.235860	FOXP1	forkhead box P1	nucleic acid binding nucleus regulation of transcription, DNA-dependent transcription factor activity zinc ion binding
Hs.14880		CDNA FLJ39417 fis, clone PLACE6016942	
Hs.2006	GSTM3	glutathione S-transferase M3 (brain)	establishment of blood/nerve barrier glutathione transferase activity metabolism transferase activity
Hs.26670	MGC17330	HGFL gene	
Hs.15053	HCMOGT-1	sperm antigen HCMOGT-1	
Hs.111779	SPARC	secreted protein, acidic, cysteine-rich (osteonectin)	basement membrane calcium ion binding collagen binding ossification
Hs.129895	TBX3	T-box 3 (unlar mammary syndrome)	RNA polymerase II transcription factor activity morphogenesis nucleus regulation of transcription from Pol II promoter skeletal development transcription factor activity

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.390242	IRS1	insulin receptor substrate 1	cytoplasm insulin receptor binding protein binding signal transducer activity signal transduction transmembrane receptor protein tyrosine kinase docking protein activity
Hs.166254	VMP1	likely ortholog of rat vacuole membrane protein 1	
Hs.512612	PHKG1	phosphorylase kinase, gamma 1 (muscle)	
Hs.405819		Transcribed sequence with weak similarity to protein ref:NP_060312.1 (H.sapiens) hypothetical protein FLJ20489 [Homo sapiens]	
Hs.512708	TGM2	transglutaminase 2 (C polypeptide, protein-glutamine-gamma-glutamyltransferase)	acyltransferase activity calcium ion binding cellular_component unknown peptide cross-linking protein-glutamine gamma-glutamyltransferase activity transferase activity
Hs.297604	PIP5K1B	phosphatidylinositol-4-phosphate 5-kinase, type I, beta	1-phosphatidylinositol-4-phosphate 5-kinase activity 1-phosphatidylinositol-4-phosphate 5-kinase activity cellular_component unknown kinase activity phosphorylation transferase activity
Hs.9728	ALEX1	ALEX1 protein	
Hs.150276	CYP3A5	cytochrome P450, family 3, subfamily A, polypeptide 5	electron transport endoplasmic reticulum membrane membrane fraction microsome monooxygenase activity oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen, reduced flavin or flavoprotein as one donor, and incorporation of one atom of oxygen oxygen binding steroid metabolism xenobiotic metabolism
Hs.131842	C6orf133	chromosome 6 open reading frame 133	ligase activity ubiquitin cycle ubiquitin-protein ligase activity
Hs.183706	ADD1	adducin 1 (alpha)	actin binding actin cytoskeleton calmodulin binding calmodulin binding cytoskeleton cytoskeleton organization and biogenesis membrane structural constituent of cytoskeleton
Hs.241545	LOC51063	hypothetical protein LOC51063	
Hs.7972	RIPX	rap2 interacting protein x	
Hs.156727	ANKH	ankylosis, progressive homolog (mouse)	inorganic diphosphate transporter activity inorganic phosphate transporter activity integral to membrane locomotory behavior outer membrane outer membrane perception of sound phosphate transport regulation of bone mineralization regulation of bone mineralization skeletal development transport
Hs.6421	DKFZP761N0912	hypothetical protein DKFZp761N09121	
Hs.208641	ACTA2	actin, alpha 2, smooth muscle, aorta	actin filament motor activity muscle development striated muscle thin filament structural constituent of cytoskeleton structural constituent of muscle
Hs.54073		Transcribed sequences	
Hs.436349	RTN4	reticulon 4	endoplasmic reticulum integral to endoplasmic reticulum membrane negative regulation of anti-apoptosis negative regulation of axon extension nuclear membrane protein binding regulation of apoptosis
Hs.291564		Transcribed sequence with moderate similarity to protein sp:P39194 (H.sapiens) ALU7_HUMAN Alu subfamily SQ sequence contamination warning entry	
Hs.17377	CORO1C	coronin, actin binding protein, 1C	actin binding actin cytoskeleton phagocytosis signal transduction
Hs.369110	CCNI	cyclin I	spermatogenesis
Hs.154210	EDG1	endothelial differentiation, sphingolipid G-protein-coupled receptor, 1	G-protein coupled receptor protein signaling pathway integral to membrane lysosphingolipid and lysophosphatidic acid receptor activity receptor activity
Hs.437058	STAT5A	signal transducer and activator of transcription 5A	JAK-STAT cascade immune response intracellular signaling cascade nucleus regulation of transcription from Pol II promoter signal transducer activity transcription factor activity
Hs.126608	NR3C1	nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor)	cytoplasm glucocorticoid receptor activity inflammatory response mitochondrial matrix nucleus regulation of transcription, DNA-dependent signal transduction steroid binding transcription factor activity transcription from Pol II promoter
Hs.188614		Transcribed sequences	
Hs.436421	CTNND2	catenin (cadherin-associated protein), delta 2 (neural plakophilin-related arm-repeat protein)	cell adhesion cytoskeleton development neuronal cell adhesion protein binding structural molecule activity
Hs.499465		Transcribed sequence with weak similarity to protein ref:NP_060312.1 (H.sapiens) hypothetical protein FLJ20489 [Homo sapiens]	
Hs.118962	FUBP1	far upstream element (FUSE) binding protein 1	DNA binding nucleus regulation of transcription, DNA-dependent
Hs.446658	AF5Q31	ALL1 fused gene from 5q31	transcription factor activity transcription from Pol II promoter
Hs.17240	LOC155435	hypothetical protein LOC155435	
Hs.437866	KIAA1915	KIAA1915 protein	
Hs.271511	ZNF160	zinc finger protein 160	DNA binding hemoipoiesis intracellular nucleic acid binding nucleus nucleus regulation of transcription, DNA-dependent regulation of transcription, DNA-dependent zinc ion binding
Hs.454758	MUM1	melanoma associated antigen (mutated) 1	biological_process unknown cellular_component unknown molecular_function unknown
Hs.130873	ACP1	acid phosphatase 1, soluble	hydrolase activity protein amino acid dephosphorylation protein-tyrosine-phosphatase activity
Hs.271609		Full length insert cDNA YN68A11	
Hs.408351		CDNA FLJ37584 fis, clone BRCOC2004950	
Hs.46452	SCGB2A2	secretoglobin, family 2A, member 2	biological_process unknown cellular_component unknown steroid binding
Hs.4099	NRD1	nardilysin (N-arginine dibasic convertase)	hydrolase activity nardilysin activity neuromuscular junction development proteolysis and peptidolysis

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.25328	PHC3	polyhomeotic like 3 (Drosophila)	
Hs.14248	STN2	stonin 2	clathrin vesicle coat endocytosis intracellular protein transport membrane
Hs.133160		Clone IMAGE:5742072, mRNA	
Hs.38959		Transcribed sequence with weak similarity to protein sp:P39194 (H.sapiens) ALU7_HUMAN Alu subfamily SQ sequence contamination warning entry	
Hs.285643		CDNA FLJ14364 fis, clone HEMBA1000918	
Hs.444951		Transcribed sequence with moderate similarity to protein ref:NP_060312.1 (H.sapiens) hypothetical protein FLJ20489 [Homo sapiens]	
Hs.136370		Transcribed sequences	
Hs.272034		Transcribed sequence with weak similarity to protein ref:NP_060265.1 (H.sapiens) hypothetical protein FLJ20378 [Homo sapiens]	
Hs.113876		Transcribed sequence with moderate similarity to protein sp:P39188 (H.sapiens) ALU1_HUMAN Alu subfamily J sequence contamination warning entry	
Hs.444548	NP220	NP220 nuclear protein	RNA binding RNA splicing cytoplasm double-stranded DNA binding nucleic acid binding nucleoplasm nucleus zinc ion binding
Hs.528329	UBXD4	UBX domain containing 4	
Hs.129228	GALK2	galactokinase 2	
Hs.487857		Transcribed sequence with weak similarity to protein sp:P39188 (H.sapiens) ALU1_HUMAN Alu subfamily J sequence contamination warning entry	
Hs.372327		Transcribed sequence with moderate similarity to protein sp:P39191 (H.sapiens) ALU4_HUMAN Alu subfamily SB2 sequence contamination warning entry	
Hs.262009		Transcribed sequence with moderate similarity to protein ref:NP_071431.1 (H.sapiens) cytokine receptor-like factor 2; cytokine receptor CRL2 precursor [Homo sapiens]	
Hs.445862	RAB30	RAB30, member RAS oncogene family	GTP binding GTPase activity Golgi stack small GTPase mediated signal transduction
Hs.182579	LAP3	leucine aminopeptidase 3	cytoplasm hydrolase activity leucyl aminopeptidase activity magnesium ion binding manganese ion binding prolyl aminopeptidase activity proteolysis and peptidolysis zinc ion binding
Hs.276976		MRNA; cDNA DKFZp686K1098 (from clone DKFZp686K1098)	
Hs.432157		Transcribed sequences	
Hs.6654	KIAA0657	KIAA0657 protein	
Hs.493756	PRO2852	hypothetical protein PRO2852	
Hs.166091	LIG4	ligase IV, DNA, ATP-dependent	ATP binding DNA ligase (ATP) activity DNA recombination DNA repair DNA replication intracellular nucleic acid binding
Hs.446430	hnRNPA3	heterogeneous nuclear ribonucleoprotein A3	
Hs.169228	DLK1	delta-like 1 homolog (Drosophila)	calcium ion binding development extracellular space integral to membrane membrane fraction soluble fraction
Hs.411490	LOC116228	hypothetical protein LOC116228	
Hs.135742	SFXN1	sideroflexin 1	cation transport cation transporter activity integral to membrane iron ion transport mitochondrion transport
Hs.436020	DIO2	deiodinase, iodothyronine, type II	hydrolase activity membrane selenium binding selenocysteine incorporation thyroid hormone generation thyroxine 5'-deiodinase activity thyroxine 5'-deiodinase activity
Hs.356564		CDNA FLJ37830 fis, clone BRSSN2009395	
Hs.388373	TRIP12	thyroid hormone receptor interactor 12	cytosol intracellular ligase activity protein ubiquitination thyroid hormone receptor binding ubiquitin-protein ligase activity
Hs.439334		MRNA; cDNA DKFZp564H172 (from clone DKFZp564H172)	
Hs.315379	WSB1	WD repeat and SOCS box-containing 1	cellular_component unknown intracellular signaling cascade molecular_function unknown
Hs.122708	LMTK2	lemur tyrosine kinase 2	ATP binding autophosphorylation integral to membrane protein binding protein phosphatase inhibitor activity protein serine/threonine kinase activity protein-tyrosine kinase activity
Hs.169054		CDNA FLJ43532 fis, clone PLACE7001022	
Hs.7327	CLDN1	claudin 1	cell adhesion integral to plasma membrane structural molecule activity tight junction
Hs.158357	UNC5CL	unc-5 homolog C (C. elegans)-like	signal transduction
Hs.93738	ZNF608	zinc finger protein 608	nucleic acid binding nucleus zinc ion binding

TABLE S2

UGCluster	Symbol	Name	GOabr
Hs.15711	KIF13B	kinesin family member 13B	ATP binding T-cell activation cytoskeleton microtubule associated complex microtubule motor activity microtubule-based movement protein kinase binding protein targeting signal transduction
Hs.448341	ZNF292	zinc finger protein 292	
Hs.83623		MRNA; cDNA DKFZp686K10163 (from clone DKFZp686K10163)	
Hs.16193		MRNA; cDNA DKFZp586B211 (from clone DKFZp586B211)	
Hs.440734	ATRX	alpha thalassemia/mental retardation syndrome X-linked (RAD54 homolog, <i>S. cerevisiae</i>)	
Hs.372494		Transcribed sequence with moderate similarity to protein sp:P39189 (H.sapiens) ALU2_HUMAN Alu subfamily SB sequence contamination warning entry	
Hs.5734	MGEA5	meningioma expressed antigen 5 (hyaluronidase)	glycoprotein catabolism hyaluronoglucosaminidase activity
Hs.122140	FLJ22557	hypothetical protein FLJ22557	
Hs.446708		CDNA FLJ36015 fis, clone TEST12016162	
Hs.43141	LOC284058	hypothetical protein LOC284058	
Hs.180878	LPL	lipoprotein lipase	circulation extracellular fatty acid metabolism heparin binding hydrolase activity lipid catabolism lipid transporter activity lipoprotein lipase activity
Hs.438669	INSR	insulin receptor	ATP binding carbohydrate metabolism cell growth and/or maintenance development energy pathways epidermal growth factor receptor activity integral to plasma membrane protein amino acid phosphorylation receptor activity receptor signaling protein tyrosine kinase activity signal transduction transferase activity transmembrane receptor protein tyrosine kinase signaling pathway transmembrane receptor protein tyrosine kinase signaling protein activity
Hs.19221		Hypothetical protein DKFZp566G1424 (DKFZP566G1424), mRNA	
Hs.164969	ANKRD10	ankyrin repeat domain 10	
Hs.406505	POLR2J2	DNA directed RNA polymerase II polypeptide J-related gene	DNA binding DNA-directed RNA polymerase activity transcription
Hs.64173	ATP6V1B1	ATPase, H+ transporting, lysosomal 56/58kDa, V1 subunit B, isoform 1 (Renal tubular acidosis with deafness)	ATP binding ATP synthesis coupled proton transport cytoplasm energy coupled proton transport, against electrochemical gradient excretion hydrogen-exporting ATPase activity, phosphorylative mechanism hydrogen-transporting ATP synthase activity, rotational mechanism hydrogen-transporting ATPase activity, rotational mechanism hydrolase activity hydrolase activity, acting on acid anhydrides, catalyzing transmembrane movement of substances perception of sound plasma membrane proton-transporting two-sector ATPase complex
Hs.8364	PDK4	pyruvate dehydrogenase kinase, isoenzyme 4	ATP binding [pyruvate dehydrogenase (lipoamide)] kinase activity glucose metabolism mitochondrion protein kinase activity signal transduction transferase activity
Hs.78224	RNASE1	ribonuclease, RNase A family, 1 (pancreatic)	RNA binding endonuclease activity extracellular hydrolase activity pancreatic ribonuclease activity
Hs.205126	PIGR	polymeric immunoglobulin receptor	integral to plasma membrane protein secretion protein transporter activity
Hs.83918	AMPD3	adenosine monophosphate deaminase (isoform E)	AMP catabolism AMP deaminase activity hydrolase activity nucleotide metabolism purine ribonucleoside monophosphate biosynthesis
Hs.8230	ADAMTS1	a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 1	extracellular matrix heparin binding hydrolase activity integrin binding integrin-mediated signaling pathway metalloendopeptidase activity negative regulation of cell proliferation proteolysis and peptidolysis zinc ion binding
Hs.64016	PROS1	protein S (alpha)	blood coagulation calcium ion binding endopeptidase inhibitor activity extracellular
Hs.378063	APBB1	amyloid beta (A4) precursor protein-binding, family B, member 1 (Fe65)	actin filament-based movement axonogenesis axonogenesis beta-amyloid binding beta-amyloid binding cell cycle arrest growth cone growth cone histone acetyltransferase binding lamellipodium lamellipodium negative regulation of S phase of mitotic cell cycle negative regulation of cell growth negative regulation of thymidylate synthase biosynthesis nucleus protein stabilization regulation of transcription signal transduction signal transduction synapse synapse transcription factor binding
Hs.384598	SERPING1	serine (or cysteine) proteinase inhibitor, clade G (C1 inhibitor), member 1, (angioedema, hereditary)	blood coagulation circulation complement activation, classical pathway extracellular serine-type endopeptidase inhibitor activity
Hs.119651	GPC3	glypican 3	cell growth and/or maintenance extracellular matrix integral to plasma membrane morphogenesis