

TABLE I

## APOPTOSIS

25613 immediate early response 3	76095	IER3	6
29820 BCL2/adenovirus E1B 19kD-interacting protein 3-like	132955	BNIP3L	4
30040 beclin 1 (coiled-coil, myosin-like BCL2-interacting protein)	12272	BECN1	3
2159 BCL2/adenovirus E1B 19kD-interacting protein 3	79428	BNIP3	2
22264 APG5 (autophagy 5, <i>S. cerevisiae</i> )-like	11171	APG5L	2
24254 programmed cell death 6	80019	PDCD6	2
28216 CD27-binding (Siva) protein	112058	SIVA	2
692 apoptosis inhibitor 5	278602	API5	1
7353 ubiquitin-like 1 (sentrin)	81424	UBL1	1
30050 programmed cell death 8 (apoptosis-inducing factor)	18720	PDCD8	1

TABLE II

## CELL CYCLE

22569 cyclin B1	23960	CCNB1	26
21771 cullin 1	14541	CUL1	22
6856 pituitary tumor-transforming 1	252587	PTTG1	16
7838 D-type cyclin interacting protein 1	36794	DIP1	14
18706 mouse double minute 4, human homolog of; p53-binding protein	101874	MDM4	10
29800 cdc25A	1634	CDC25A	8
22670 mouse double minute 2, human homolog of, p-53 binding protein	170027	MDM2	7
29891 forkhead box O1A (rhabdomyosarcoma)	170133	FOXO1A	6
26262 v-mos Moloney murine sarcoma viral oncogene homolog	248146	MOS	5
26412 SMC1 (structural maintenance of chromosomes 1, yeast)-like 1	211602	SMC1L1	5
16525 polo (Drosophila)-like kinase	77597	PLK	4
17851 extra spindle poles, <i>S. cerevisiae</i> , homolog of	153479	KIAA0165	4
25231 tumor protein p53-binding protein, 1	170263	TP53BP1	4
3049 CDC28 protein kinase 1	77550	CKS1	3
1248 CDC45 (cell division cycle 45, <i>S. cerevisiae</i> , homolog)-like	114311	CDC45L	3
16711 minichromosome maintenance deficient ( <i>S. cerevisiae</i> ) 2 (mitotin)	57101	MCM2	3
4683 Fanconi anemia, complementation group c	37953	FANCC	2
4742 proliferation-associated 2G4, 38kD	5181	PA2G4	2

8256	119537	SAM68	2
GAP-associated tyrosine phosphoprotein p62 (Sam68)			
28165	279886	RANBPM	2
novel centrosomal protein RanBPM			
28192	75737	PCM1	2
pericentriolar material 1			
Mm.326	Hs.83758	CKS2	1
CDC protein kinase 2			
903	75462	BTG2	1
BTG family, member 2			
1466	180919	ID2	1
inhibitor of DNA binding 2, dominant negative helix-loop-helix protein			
1574	123141	WASL	1
Wiskott-Aldrich syndrome-like			
3141	75586	CCND2	1
cyclin D2			
4933	155462	MCM6	1
minichromosome maintenance deficient (mis5, <i>S. pombe</i> ) 6			
7906	161362	PIN1	1
protein (peptidyl-prolyl cis/trans isomerase) NIMA-interacting 1			
9648	19400	MAD2	1
MAD2 (mitotic arrest deficient, yeast, homolog)-like 2			
18268	73986	CLK2	1
CDC-like kinase 2			
18474	514	CCNH	1
cyclin H			
20858	122552	GTSE1	1
G2- and S-phase expressed 1			
22115	172405	CDC27	1
cdc27			
22711	79933	CCNI	1
cyclin I			
27557	150423	CDK9	1
cyclin-dependent kinase 9 (CDC2-related kinase)			
29724	279862	TOK-1	1
cdk inhibitor p21 binding protein			
30098	168481	MCM3AP	1
minichromosome maintenance deficient ( <i>S. cerevisiae</i> ) 3-associated protein			
41486	10028	CG1I	1
putative cyclin G1 interacting protein			

42149  
protein kinase Chk2

146329

RAD53

1

TABLE III

## CIRCADIAN RHYTHMS

26237	151573	CRY1	5
cryptochrome 1 (photolyase-like)			
30199	79658	CSNK1E	4
casein kinase 1, epsilon			
12177	74515	ARNTL	1
arylhydrocarbon receptor nuclear translocator-like			

TABLE IV

## CYTOSKELETON

3476	171271	CTNNB1	14
catenin (cadherin-associated protein), beta 1 (88kD))			
22171	194662	CNN3	8
calponin 3, acidic			
2654	85100	WDR1	6
WD repeat domain 1			
7756	182595	DNAL4	6
dynein, axonemal, light polypeptide 4			
4024	180370	CFL1	5
cofilin 1 (non-muscle)			
7	2064	VIM	4
vimentin			
24498	6895	ARPC3	4
actin related protein 2/3 complex, subunit 3 (21kD)			
3110	211577	KTN1	3
kinectin 1 (kinesin receptor)			
4143	104143	CLTA	3
clathrin, light polypeptide (Lca)			
3529	75546	CAPZA2	2
capping protein (actin filament) muscle Z-line, alpha 2			
3758	273219	BCAR1	2
breast cancer anti-estrogen resistance 1			
4338	25363	PSEN2	2
presenilin 2 (Alzheimer disease 4)			
4356	21223	CNN1	2
calponin 1, basic, smooth muscle			
4551	155191	VIL2	2
villin 2 (ezrin)			
22588	154567	SVIL	2
supervillin			
29052	183706	ADD1	2
adducin 1 (alpha)			
29864	82425	ARPC5	2
actin-related protein 2/3 complex, subunit 5 (16kD)			
104948	170453	TMOD	2
tropomodulin			

998	3260	PSEN1	1
presenilin 1 (Alzheimer disease 3)			
1106	44499	PNN	1
pinin, desmosome associated protein			
3414	211595	PTPN13	1
protein tyrosine phosphatase, non-receptor type 13 (APO-1/CD95 (Fas)-associated phosphatase)			
3940	95659	LLGL1	1
lethal giant larvae (drosophila) homolog 1			
4415	113319	KIF2	1
kinesin heavy chain member 2			
11869	430	PLS1	1
plastin 1 (I isoform)			
18962	178452	CTNNA1	1
catenin (cadherin-associated protein), alpha 1 (102kD)			
20354	117977	KNS2	1
kinesin 2 (60-70kD)			
20893	65248	DNCI1	1
dynein, cytoplasmic, intermediate polypeptide 1			
25405	40888	ARC	1
activity-regulated cytoskeleton-associated protein			
35738	166011	CTNND1	1
catenin (cadherin-associated protein), delta 1			
44216	125864	TMOD2	1
tropomodulin 2 (neuronal)			
92529	4552	UBQLN2	1
ubiquilin 2			

TABLE V

## SECRETORY PATHWAYS, EXOCYTOSIS, ENDOCYTOSIS, ETC

412 peroxiredoxin	180909	PRDX1	13
5885 transmembrane 9 superfamily member 2	28757	TM9SF2	10
25699 synaptophysin-like protein	80919	SYPL	8
28650 RAB6, member RAS oncogene family	286264	RAB6	8
42948 peroxiredoxin 2	146354	PRDX2	8
41650 staufer (RNA binding protein)	6113	STAU	6
2795 glycoprotein, synaptic 2	109051	GPSN2	5
1117 N-ethylmaleimide-sensitive factor	108802	NSF	4
1782 reticulocalbin 2, EF hand calcium binding domain	79088	RCN2	4
21961 ATPase, H <sup>+</sup> transporting, lysosomal (vacuolar proton pump), subunit 1	6551	ATP6S1	4
28912 peroxisome biogenesis factor 13	115240	PEX13	4
30197 synaptosomal-associated protein, 23kD	184376	SNAP23	4
930 cathepsin L2	87417	CTSL2	3
20476 ATPase, H <sup>+</sup> transporting, lysosomal (vacuolar proton pump) 42kD	86905	ATP6D	3
28629 RAB3 GTPase-activating protein	227881	RAB3GAP	3
28925 secretory carrier membrane protein 1	31218	SCAMP1	3
29968 RAB3D, member RAS oncogene family	251376	RAB3D	3
30041 coatamer protein complex, subunit alpha	75887	COPA	3



1358	75709	M6PR	2
mannose-6-phosphate receptor (cation dependent)			
1424	184161	EXT1	2
exostoses (multiple) 1			
7236	89674	DDOST	2
dolichyl-diphosphooligosaccharide-protein glycosyl transferase			
7515	7753	CALU	2
calumenin			
14530	3642	RAB1	2
RAB1, member of RAS oncogene family			
15868	7763	P115	2
vesicle docking protein p115			
21905	78305	RAB2	2
RAB2, member RAS oncogene family			
26422	102950	LOC51137	2
coat protein gamma - cop			
26497	15827	SNX11	2
sorting nexin 11			
28196	267812	SNX4	2
sorting nexin 4			
29296	227949	SEC13L1	2
SEC13 ( <i>S. cerevisiae</i> )-like 1			
29541	78089	ATP6S14	2
ATPase, vacuolar, 14kD			
382	154294	DLG1	1
discs, large ( <i>Drosophila</i> ) homolog 1			
488	78979	GLG1	1
Golgi apparatus protein			
1486	75290	ARF4	1
ADP-ribosylation factor 4			
1517	24167	SYBL1	1
synaptobrevin-like 1			
2277	76476	CTSH	1
cathepsin H			
2386	22215	SCG3	1
secretogranin III			
3479	7476	ATP6F	1
ATPase, H <sup>+</sup> transporting, lysosomal (vacuolar proton pump) 21kD			
4142	14894	TGN51	1
trans-Golgi network protein (46,48,51kD isoforms)			

5396	278571	SORL1	1
sortilin-related receptor, L (DLR class) A repeats-containing			
19097	8517	PSCD2	1
pleckstrin homology, Sec7 and coiled-coil domain 2 (cytohesin-2)			
21752	75864	GP36B	1
endoplasmic reticulum glycoprotein			
23943	9006	VAPA	1
VAMP (vesicle-associated membrane protein)-associated protein			
24314	74571	ARF1	1
ADP-ribosylation factor 1			
24826	19012	RAB9P40	1
Rab9 effector p40			
26558	154546	STX5A	1
syntaxin 5A			
28151	127416	SYNJ1	1
synaptojanin			
28538	75932	NAPA	1
N-ethylmaleimide-sensitive factor attachment protein, alpha			
29045	77805	ATP6E	1
ATPase, H <sup>+</sup> transporting, lysosomal (vacuolar proton pump) 31kD			
29396	118249	BIG2	1
brefeldin A-inhibited guanine nucleotide-exchange protein 2			
29971	11183	SNX2	1
sorting nexin 2			

TABLE VI

## KINASES

29460 adenylate kinase 2	171811	AK2	6
3794 serine/threonine kinase	172052	STK18	4
29775 UMP-CMP kinase	11463	LOC51727	4
3242 glycerol kinase	1466	GK	3
188 phosphoglycerate kinase1	78771	PGK1	2
4082 ELKL motif kinase	157199	EMK1	2
12877 serine/threonine kinase 13 (aurora/IPL 1-like)	98338	STK13	2
29873 casein kinase 1, gamma 2	181390	CSNK1G2	2
30029 elongation factor-2 kinase	259855	HSU93850	2
42234 deoxyguanosine kinase	77494	DGUOK	2
6670 protein kinase, AMP-activated, gamma 1 non-catalytic subunit	3136	PRKAG1	1
9488 protein serine/threonine kinase Clk4	288417	CLK4	1
9653 growth arrest and DNA damage-inducible, gamma	9701	GADD456	1
28405 serum/glucocorticoid regulated kinase	159640	SGK	1
30039 protein kinase, cAMP-dependent, regulatory, type I, alpha (tissue specific extinguisher 1)	183037	PRKAR1A	1
30212 serine/threonine kinase 24 (Ste 20, yeast homolog)	168913	STK24	1
30360 phosphorylase kinase, beta	78060		1
36810 calcium/calmodulin-dependent protein kinase (CaM kinase) II gamma	250857	CAMK2G	1

42149  
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RAD53

1

TABLE VII

## MEMBRANE RECEPTORS, ION CHANNELS, ETC.

27872 tumor protein D52-like 2	154718	TPD52L2	9
53386 integrin, alpha 9	222	ITGA9	8
25232 integrin, alpha 6	227730	ITGA6	7
27365 FAT tumor suppressor ( <i>Drosophila</i> ) homolog	166994	FAT	7
34641 autocrine motility factor receptor	80731	AMFR	7
4046 membrane-spanning 4-domains, subfamily A, member 2	89751	MS4A2	5
814 erythrocyte membrane protein band 4.1-like 2	7857	EPB41L2	4
4603 CD36 antigen (collagen type I receptor, thrombospondin receptor)-like 1	180616	CD36L1	4
88349 small membrane protein 1	107979	SMP1	4
22477 aquaporin 9	104624	AQP9	4
1098 membrane component chromosome 11, surface marker 1	278672	M11S1	3
1396 solute carrier family 30 (zinc transporter), member 3	111967	SLC30A3	3
4114 solute carrier family 3 (activators of dibasic and neutral amino acid transport) member 2	79748	SLC3A2	3
4715 protein tyrosine phosphatase, receptor type, O	258609	PTPRO	3
14897 cadherin 2, N-cadherin (neuronal)	161	CDH2	3
37126 cadherin superfamily protein VR4-11 (protocadherin)	12450	LOC57123	3
228 Homer, neuronal intermediate early gene, 2	93564	HOMER-2B	2
945 protein tyrosine phosphatase, receptor type, E	31137	PTPRE	2

1268	1787	PLP1	2
proteolipid protein (Pelizaeus-Merzbacher disease, spastic paraplegia 2, uncomplicated)			
3771	198288	PTPRR	2
protein tyrosine phosphatase, receptor type, R			
4338	25363	PSEN2	2
presenilin 2 (Alzheimer disease 4)			
4489	158305	KCNH1	2
potassium voltage-gated channel, subfamily H, (eag-related), member 1			
4550	78629	ATP1B1	2
ATPase, Na <sup>+</sup> /K <sup>+</sup> transporting, beta 1 polypeptide			
7821	16611	TPD52L1	2
tumor protein D52-like 1			
13799	6527	GPR56	2
G protein-coupled receptor 56			
18503	11342	NINJ1	2
ninjurin 1			
21173	6418	LOC51210	2
seven transmembrane domain orphan receptor			
21482	84974	CLNS1A	2
chloride channel, nucleotide-sensitive, 1A			
21634	152009	GPR85	2
G protein-coupled receptor 85			
28535	82042	SLC23A1	2
solute carrier family 23 (nucleobase transporters), member 1			
28842	174139	CLCN3	2
chloride channel 3			
42255	1526	ATP2A2	2
ATPase Ca <sup>2+</sup> transporting, cardiac muscle, slow twitch 2			
198	112986	TMEM5	1
transmembrane protein 5			
424	76941	ATP1B3	1
ATPase, Na/K transporting, beta polypeptide			
784	277721	M17S2	1
membrane component, chromosome 17, surface marker 2 (ovarian carcinoma antigen CA125)			
806	54457	CD81	1
CD81 antigen (target of antiproliferative antibody 1)			
856	3337	TM4SF1	1
transmembrane 4 superfamily member 1			
998	3260	PSEN1	1
presenilin 1 (Alzheimer disease 3)			

2580 syndecan 1	82109	SDC1	1
2752 prolactin receptor	1906	PRLR	1
3249 EphA4	73964	EPHA4	1
4005 ephrin-B2	30942	EFNB2	1
4168 solute carrier family 12 (sodium/potassium/chloride transporter), member 2	110736	SLC12A2	1
4394 v-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog	81665	KIT	1
4658 cadherin 3, P-cadherin (placental)	2877	CDH3	1
4676 solute carrier family 7 (cationic amino acid transporter, Y+ system), member 2	153985	SLC7A2	1
5045 solute carrier family 16 (monocarboxylic acid transporter), member 2 (putative transporter)	75317	SLC16A2	1
7221 low density lipoprotein-related protein 1 (alpha-2-macroglobulin receptor)	89137	LRP1	1
7339 claudin 4	5372	CLDN4	1
9911 potassium intermediate/small conductance calcium-activated channel, subfamily N, member 4	10082	KCNN4	1
10100 transient receptor potential channel 4	262960	TRPC4	1
14926 ATPase, Cu <sup>2+</sup> transporting, alpha polypeptide (Menkes syndrome)	606	ATP7a	1
15125 stromal cell derived factor receptor 1	6354	SDFR1	1
18300 solute carrier family (cystine, dibasic and neutral amino acid transporter, activator of cystine, dibasic and neutral amino acid transport) member 1	239106	SLC3A1	1
18733 potassium voltage-gated channel, Isk-related family, member 3	193923 retired, 199199	KCNE3	1
22684 solute carrier family 35 (CMP-sialic acid transporter) member 1	82921	SLC35A1	1
25834 solute carrier family 6 (neurotransmitter transporter, taurine), member 6	1194	SLC6A6	1

27435	272260	LOC51310	1
hBOIT for potent brain-type organic ion transporter			
27801	112282	SLC30A4	1
solute carrier family (zinc transporter), member 4			
27861	9610	P2RX4	1
purinergic receptor P2X, ligand-gated ion channel, 4			
28063	15196	PMI	1
putative receptor protein			
28686	5599	EGFL5	1
EGF-like domain, multiple 5			
28484	100090	TSPAN-3	1
tetraspan 3			
28756	5944	SLC11A3	1
solute carrier family 11 (proton-coupled divalent metal ion transporters), member 3			
29350	1501	SDC2	1
syndecan 2 (heparan sulfate proteoglycan 1, cell surface-associated, fibroglycan)			
29373	211819	MMP23B	1
matrix metalloproteinase 23B			
31927	20709	TSPAN-5	1
tetraspan 5			
34411	83347	AAMP	1
angio-associated, migratory cell protein			
34564	157145	TETRAN	1
tetracycline transporter-like protein			
35670	248960	ABCC9	1
ATP-binding cassette, sub-family C (CFTR/MRP), member 9			
39089	87223	BMPR1B	1
bone morphogenetic protein receptor, type 1B			
41213	6129	ABCB9	1
ATP-binding cassette, sub-family B (MDR/TAP), member 9			
41495	239155	LOC51123	1
NY-REN-45 antigen			
42133	22958	HSA272268	1
calcium channel alpha 2-delta 3 subunit			
110329	8074	BAI3	1
brain-specific angiogenesis inhibitor 3			



TABLE VIII

## MITOCHONDRIA

28733	74649	COX6C	13
cytochrome c oxidase subunit VIc			
28748	76205	CYP11A	11
cytochrome P450, subfamily XIA (cholesterol side chain cleavage)			
27561	74649	COX6C	9
cytochrome c oxidase subunit VIc			
7039	31334	TOM	3
putative mitochondrial outer membrane protein import receptor			
26949	169919	ETFa	3
electron-transfer-flavoprotein, alpha polypeptide (glutamic aciduria II)			
2368	20716	TIM17	2
translocase of inner mitochondrial membrane 17 (yeast) homolog A			
22227	3577	SDHC	2
succinate dehydrogenase complex, subunit c, integral membrane protein, 15kD			
29900	3273	TsFM	2
Ts translation elongation factor, mitochondrial			
43786	3462	COX7C	2
cytochrome c oxidase subunit VIIc			
116988	149894	MTIF2	2
mitochondrial translational initiation factor 2			
3533	211929	TXN2	1
thioredoxin, mitochondrial			
3711	93201	GPD2	1
glycerol-3-phosphate dehydrogenase 2 (mitochondrial)			
7319	95998	FRDA	1
Friedrich ataxia			
14663	107476	ATP5JG	1
ATP synthase, H <sup>+</sup> transporting, mitochondrial F1F0, subunit g			
21826	109571	TIMM10	1
translocase of inner mitochondrial membrane 10 (yeast) homolog			
22514	89761	ATP5D	1
ATP synthase, H <sup>+</sup> transporting mitochondrial F1 complex, delta subunit			
24463	21198	TOMM70A	1
translocase of outer mitochondrial membrane 70 (yeast) homolog A			
28336	30661	ETFDH	1
electron-transferring-flavoprotein dehydrogenase			

29828	74649	COX6C	1
cytochrome c oxidase subunit VIc			
29884	76893	BDH	1
3-hydroxybutyrate, dehydrogenase (heart, mitochondrial)			
30200	74047	ETFB	1
electron-transfer-flavoprotein, beta polypeptide			
41766	75133	TCF6L1	1
transcription factor 6-like 1 (mitochondrial transcription factor 1-like)			

TABLE XI

## STRUCTURAL NUCLEAR PROTEINS

6343	173205	NPM1	19
nucleophosmin (nucleolar phosphoprotein B23, numatrin)			
35698	172108	NUP88	14
nucleoporin 88kD			
963	82124	LAMB1	8
laminin, beta 1			
6957	79110	NCL	6
nucleolin			
7141	78996	PCNA	6
proliferating cell nuclear antigen			
168	278367	NPM1P14	5
nucleophosmin 1 (nucleolar phosphoprotein B23, numatrin) pseudogene 14 )			
89137	808	HNRPF	5
heterogeneous nuclear ribonucleoprotein F			
2283	172609	NUCB1	3
nucleobindin 1			
13356	9082	NUP54	3
nucleoporin p54			
10303	119908	NOP5/NOP58	2
nucleolar protein NOP5/NOP58			
25575	78825	MATR3	2
matrin 3			
28964	211608	NUP153	2
nucleoporin 153kD			
4503	169984	NP220	1
nuclear protein			
4907	79110	NCL	1
nucleolin			
7516	243886	NASP	1
nuclear autoantigenic sperm protein (histone-binding)			
22667	151734	PP15	1
nuclear transport factor 2 (placental protein 15)			
24729	4747	DKC1	1
dyskeratonin congenita 1 dyskenin			
26718	21479	UBN1	1
ubiquitin 1			

TABLE X

## PHOSPHATASES

28909	227777	PTP4A1	19
protein tyrosine phosphatase type IVA, member 1			
6355	82911	PTP4A2	18
protein tyrosine phosphatase type IVA, member 2			
27978	91448	MKP-L	10
MKP1-like protein tyrosine phosphatase			
29800	1634	CDC25A	8
cdc25A			
7793	79081	PPP1CC	4
protein phosphatase 1, catalytic subunit, gamma isoform			
3766	57764	PPM1A	3
protein phosphatase 1A (formerly 2C), magnesium-dependent, alpha isoform			
4715	258609	PTPRO	3
protein tyrosine phosphatase, receptor type, O			
945	31137	PTPRE	2
protein tyrosine phosphatase, receptor type, E			
3771	198288	PTPRR	2
protein tyrosine phosphatase, receptor type, R			
4420	155693	PTPN21	2
protein tyrosine phosphatase, non-receptor type 21			
6510	35	PTPN7	2
protein tyrosine phosphatase, non-receptor type 7			
28030	3843	DUSP7	2
dual specificity phosphatase 7			
28618	179574	PPP2R2A	2
protein phosphatase 2 (formerly 2A), regulatory subunit B (PR52), alpha isoform			
28918	5687	PPM1B	2
protein phosphatase 1B (formerly 2C), magnesium-dependent, beta isoform			
985	82829	PTPN2	1
protein tyrosine phosphatase, non-receptor type 2			
2395	118244	PPP2R5D	1
protein phosphatase 2, regulatory subunit B (B56), delta isoform			
3414	211595	PTPN13	1
protein tyrosine phosphatase, non-receptor type 13 (APO-1/CD95 (Fas)-associated phosphatase)			
27163	16533	MYPT1	1
myosin phosphatase, target subunit 1			
29545	78016	PNKP	1

polynucleotide kinase 3'-phosphatase

30252                      6979 retired, 272458                      1  
protein phosphatase 3 (formerly 2B), catalytic subunit, alpha isoform (calcineurin A alpha)

61848                      100980                      PPM1D                      1  
protein phosphatase 1D magnesium-dependent, delta isoform

TABLE XI

## PROTEIN DEGRADATION

19060	118797	UBE2D3	44
ubiquitin conjugating enzyme E2D 3 (homologous to yeast UBC4/5)			
21771	14541	CUL1	22
cullin 1			
1570	108332	UBE2D2	12
ubiquitin conjugating enzyme E2D2 (homologous to yeast UBC4/5)			
21114	22466	USP19	9
ubiquitin specific protease 19			
396	77578	USP9X	8
ubiquitin specific protease 9, X chromosome (Drosophila fat facets related)			
24156	76917	FBXO8	7
F-box only protein			
24280	23168	USP15	7
ubiquitin-specific protease 15			
27558	193725	PSMD5	6
proteasome (prosome, macropain) 26S subunit, non-ATPase, 5			
5203	28505	UBE2H	4
ubiquitin-conjugating enzyme E2H (homologous to yeast UBC8)			
29012	24307	FBXW3	4
f-box and WD-40 domain protein 3			
28017	21229	FBXW1B	3
f-box and WD-40 domain protein 1B			
24874	3887	PSMD1	2
proteasome (prosome, macropain) 26S subunit, non-ATPase, 1			
27496	35086	USP1	2
ubiquitin specific protease 1			
27541	80612	UBE2A	2
ubiquitin-conjugating enzyme E2A (RAD 6 homolog)			
28232	27197	KIAA0797	2
SUMO-1-specific protease			
89830	93002	UBCH10	2
ubiquitin carrier protein E2-C			
2141	152978	PSME3	1
proteasome (prosome, macropain) activator subunit 3 (PA28 gamma; Ki)			
2982	82646	HSPF1	1
heat shock 40kD protein 1			

3571	3759	USP5	1
ubiquitin specific protease 5 (isopeptidase T)			
8911	78596	PSMB5	1
proteasome (prosome, macropain) subunit, beta type, 5			
12194	9736	PSMD3	1
proteasome (prosome, macropain) 26S subunit, non-ATPase, 3			
12665	78946	CUL3	1
cullin 3			
12914	125902	USP2	1
ubiquitin specific protease 2			
22276	183874	CUL4A	1
cullin 4A			
26234	75981	USP14	1
ubiquitin-specific protease 14 (tRNA-guanine transglycosylase)			
27423	180686	UBE3A	1
ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman syndrome)			
28269	226573	IKBKB	1
inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase, beta			
34837	75748	PSMB1	1
proteasome (prosome, macropain) subunit, beta type, 1			
92529	4552	UBQLN2	1
ubiquilin 2			

TABLE XII

## PROTEIN SYNTHESIS

12858	129673	EIF4A1	26
eukaryotic translation initiation factor 4A, isoform 1			
28839	78592	EIF2B1	15
eukaryotic translation initiation factor 2B, subunit (alpha, 26kD)			
43239	29797	RPL10	13
ribosomal protein L10			
35618	158688	IF2	7
translation initiation factor			
5290	82202	RPL17	6
ribosomal protein L17			
6957	77039	RPS3A	6
ribosomal protein S3A			
22723	184776	RPL23A	6
ribosomal protein L23a			
525	183684	EIF4G2	4
eukaryotic translation initiation factor 4 gamma, 2			
3428	184582	RPL24	4
ribosomal protein L24			
16323	173912	EIF4A2	4
eukaryotic translation initiation factor 4A, isoform 2			
3486	119598	RPL3	3
ribosomal protein L3			
725	99858	RPL7A	3
ribosomal protein L7a			
880	106673	EIF3S6	3
eukaryotic translation initiation factor 3, subunit 6 (48kD)			
16775	180450	RPS24	3
ribosomal protein S24			
29192	181311	NARS	3
asparaginyl-tRNA synthetase			
1129	182426	RPS2	2
ribosomal protein S2			
4419	180946	RPL5	2
ribosomal protein L5			
13020	119122	RPL13A	2
ribosomal protein L13a			



29144 threonyl-tRNA synthase	84131	TARS	2
43452 ribosomal protein S12	82148	RPS12	2
104828 eukaryotic translation initiation factor 3, subunit 2 (beta, 36kD)	192023	EIF3S2	2
588 ribosomal protein L6	174131	RPL6	1
2235 ribosomal protein L29	183698	RPL29	1
12144 ribosomal protein L23-like	3254	RPL23L	1
13427 eukaryotic translation initiation factor 4 gamma, 1	211568	EIF4G1	1
13917 ribosomal protein L22	288353	RPL22	1
14244 ribosomal protein L9	157850	RPL9	1
14245 ribosomal protein, large P2	251247	RPLP2	1
22363 similar to arginyl-tRNA synthetase (arginine-tRNA ligase)	15395	LOC57038	1
22399 eukaryotic translation initiation factor 2, subunit 1 (alpha, 35kD)	81613	EIF2S1	1
24174 alanyl-tRNA synthetase	75102	AARS	1
27403 phenylalanine-tRNA synthetase-like	23111	FARSL	1
28922 phenylalanyl-tRNA synthetase beta-subunit	9081	PheHB	1
28985 ribosomal protein L27	111611	RPL27	1
29041 eukaryotic translation initiation factor 2B, subunit 2 (beta, 39kD)	17001	EIF2B2	1
29676 eukaryotic translation initiation factor 5A	119140	EIF5A	1
37581 ribosomal protein S29	539	RPS29	1
39130 ribosomal protein S10	76230	RPS10	1

TABLE XIII

## SECRETED PROTEINS

21702	274404	PLAT	26
plasminogen activator, tissue			
321	313	SPP1	12
secreted phosphoprotein 1 osteopontin, bone sialoprotein I (early T-lymphocyte activation 1)			
18213	169300	TGFB2	10
transforming growth factor, beta 2			
96671	61418	MFAP1	6
microfibrillar-associated protein 1			
935	118684	SDF2	4
stromal cell-derived factor 2			
795	173894	CSF1	3
colony stimulating factor			
1100	1734	INHHA	2
inhibin, alpha			
35439	111779	SPARC	2
secreted protein, acidic, cysteine-rich (osteonectin)			
1381	250867	ZP3A	1
zona pellucida glycoprotein 3A (sperm receptor)			
2970	621	LGALS3	1
lectin, galactose-binding, soluble, 3 (galectin 3)			
4352	83164	COL15A1	1
collagen, type XV alpha 1			
10805	211933	COL13A1	1
collagen, type XIII, alpha 1			
22194	1908	PRG1	1
proteoglycan 1, secretory granule			
23835	9914	FST	1
follistatin			
25347	11494	FBLN5	1
fibulin 5			
34692	180884	CPB1	1
carboxypeptidase B1 (tissue)			
88793	90765	FGA	1
fibrinogen, A alpha polypeptide lectin, galactoside-binding, soluble, 3 (galectin 3)			

TABLE XIV

## SIGNALLING PATHWAYS

1603 retinoblastoma-binding protein 4	16003	RBBP4	90
28262 regulator of G protein signaling 2, 24kD	78944	RGS2	29
22327 thyroid hormone receptor interactor 12	138617	TRIP12	8
28761 serine/threonine kinase (Ste 20, yeast homolog)	155206	STK25	8
21396 amyloid beta precursor protein-binding protein 1, 59kD	61828	APPBP1	6
44606 regulator of G-protein signaling 17	268562	RGSZ2	6
25789 RAP1A, member of RAS oncogene family	865	RAP1A	5
2533 phosphoinositide-3-kinase, regulatory subunit 4, p150	83050	PIK3R4	4
3794 serine/threonine kinase	172052	STK18	4
13835 chimerin (chimaerin) 1	169965	CHN1	4
28598 Janus kinase 1 (a protein tyrosine kinase)	50651	JAK1	4
28836 PTPL1-associated RhoGAP1	70983	PARG1	4
41040 GAP-like protein	82035	LOC51306	4
695 spectrin SH3 domain binding protein 1	24752	SSH3BP1	3
1781 lymphocyte cytosolic protein 2 (SH2-containing leukocyte protein of 76 kD)	2488	LCP2	3
2012 epidermal growth factor receptor pathway substrate 8	2132	EPS8	3
4558 v-yes-1 Yamaguchi sarcoma viral oncogene homolog 1	194148	YES1	3
7353 ubiquitin-like 1 (sentrin)	81424	UBL1	3

10331	76090	TNFAIP1	3
tumor necrosis factor alpha-induced protein 1 (endothelial)			
22073	70312	CRK	3
v-crk avian sarcoma virus CT10 oncogene homolog			
27560	156764	RAP1B	3
RAP1B (member of RAS oncogene family)			
29194	5392	DKFZP343L1021	3
potassium channel modulatory factor			
30021	8108	DAB1	3
disabled (Drosophila) homolog 1			
30217	10803	SIP2-28	3
calcium and integrin binding protein (DNA-dependent protein kinase interacting protein)			
304	75770	RB1	2
retinoblastoma 1 (including osteosarcoma)			
1803	146847	TANK	2
TRAF family member-associated NFKB activator			
2489	181015	STAT6	2
signal transducer and activator of transcription 6, interleukin-4 induced			
2998	121033	NEDD1	2
neural precursor cell expressed, developmentally down-regulated 1			
3758	273219	BCAR1	2
breast cancer anti-estrogen resistance 1			
3948	142258	STAT3	2
signal transducer and activator of transcription 3 (acute-phase response factor)			
4082	157199	EMK1	2
ELKL motif kinase			
4475	159494	BTK	2
Bruton agammaglobulinemia tyrosine kinase			
6456	57856	PFTK1	2
PFTAIRE protein kinase 1			
15185	79067	MAD1	2
MAD (mothers against decapentaplegic, Drosophila) homolog 1			
21209	27181	NRBF-2	2
nuclear receptor binding factor-2			
21876	20447	PAK4	2
protein kinase related <i>S. cerevisiae</i> STE20, effector for cdc42Hs			
22029	272736	NRBP	2
nuclear receptor binding protein			
22322	50612	GNA14	2
guanine nucleotide binding protein (G protein), alpha 14			

27923	118021	ABR	2
active BCR-related gene			
28618	179574	PPP2R2A	2
protein phosphatase 2 (formerly 2A), regulatory subunit B (PR52), alpha isoform			
29873	181390	CSNK1G2	2
casein kinase 1, gamma 2			
30126	107014	MIR16	2
membrane interacting protein of RGS16			
38665	6241	PIK3R1	2
phosphoinositide-3-kinase regulatory sub-unit, polypeptide 1 (p85 alpha)			
968	100221	NR1H2	1
nuclear receptor family 1, group H, member 2			
1059	3446	MAP2K1	1
mitogen-activated protein kinase kinase 1			
2038	220689	G3BP	1
Ras-GTPase-activating protein SH3-domain-binding protein			
3414	211595	PTPN13	1
protein tyrosine phosphatase, non-receptor type 13 (APO-1/CD95 (Fas)-associated phosphatase)			
4521	8375	TRAF4	1
TNF receptor-associated factor 4			
8385	861	MAPK3	1
mitogen-activated protein kinase 3			
9488	2888417	CLK4	1
protein serine/threonine kinase Clk4			
9590	96200	NAKAP95	1
neighbour of A-kinase anchoring protein 95			
15985	21970	GNG3LG	1
guanine nucleotide binding protein (G protein), gamma 3, linked			
22612	30327	MAPKAPK5	1
mitogen-activated protein kinase-activated protein kinase 5			
22724	27182	PLAA	1
phospholipase A2-activating protein			
23755	279582	LOC51128	1
GTP-binding protein Sara			
23846	6685	TRIP8	1
thyroid hormone receptor interactor 8			
27307	179915	GNG3	1
guanine nucleotide binding protein (G protein), gamma 3			
27491	75217	MAP2K4	1

mitogen-activated protein kinase 4			
27592	159613	AIB3	1
thyroid hormone receptor binding protein			
28015	15456	PDZK1	1
PDZ domain-containing 1			
28084	74576	GDI1	1
GDP dissociation inhibitor 1			
28163	13014	ARFGAP1	1
ADP-ribosylation factor GTPase activating protein 1			
28269	226573	IKBKB	1
inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase, beta			
28414	5464	SMAP	1
thyroid hormone receptor coactivating protein			
28479	81915	LAP18	1
leukemia-associated phosphoprotein p18 (stathmin)			
28692	109727	KIAA0733	1
TAK1-binding protein 2; KIAA0733 protein			
29725	75074	MAPKAPK2	1
mitogen-activated protein kinase-activated protein kinase 2			
30039	183037	PRKAR1A	1
protein kinase, cAMP-dependent, regulatory, type I, alpha (tissue specific extinguisher 1)			
30212	168913	STK24	1
serine/threonine kinase 24 (Ste 20, yeast homolog)			
31240	2890	PRKCG	1
protein kinase C, gamma			
31533	4994	TOB2	1
transducer of ERBB2, 2			
32714	46571	SH3D1B	1
SH3 domain protein 1B			
36776	244542	SHB	1
SHB adaptor protein (a Src homology 2 protein)			
36810	250857	CAMK2G	1
calcium/calmodulin-dependent protein kinase (CaM kinase) II gamma			
38878	78993	IQGAP2	1
IQ motif containing GTPase activating protein 2			
39038	6453	ITPK1	1
inositol-1,3,4-trisphosphate 5/6 kinase			
42149	146329	RAD53	1
protein kinase Chk2			

TABLE XV

## DNA, CHROMATIN

18516 H3 histone, family 3B (H3.3B)	180877	H3F3B	21
29663 topoisomerase (DNA)1	317	TOP1	14
89136 heterogeneous nuclear protein similar to rat helix destabilizing protein	249247	FBRNP	13
631 high-mobility group (non-histone chromosomal) protein 1	144321	HMG1	10
3797 nucleosome assembly protein 1-like 1	179662	NAP1L1	7
29186 HIRA interacting protein (dnaJ-like)	21189	HIRIP4	6
2805 homolog of yeast DNA-crosslink repair gene SNM1	1560	KIAA0086	5
7814 DNA (cytosine-5-)-methyltransferase 1	77462	DNMT1	5
27218 MORF-related gene X	173714	KIAA0026	5
916 H2A histone family, member Z	119192	H2AFZ	4
2025 survival of motor neuron 1, telomeric	77306	SMN1	4
29825 SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 5	9456	SMARCA5	4
34988 exonuclease 1	47504	EXO1	4
1693 high mobility group (non-histone chromosomal) protein 2	80684	HMG2	3
911 high-mobility group (non-histone chromosomal) protein 17	181163	HMG17	2
2831 nucleosome assembly protein 1-like 4	78103	NAP1L4	2
6461 HIV-1 Rev binding protein	171545	HRB	2
21772 SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 2	250581	SMARCD2	2

24350	226117	H1F0	2
H1 histone family, member 0			
29504	182255	NHP2L1	2
non-histone chromosome protein 2 ( <i>S. cerevisiae</i> )-like 1			
69	263812	NUDC	1
nuclear distribution gene C homolog			
340	19114	HMG4	1
high-mobility group (non-histone chromosomal) protein 4			
2485	15164	C1D	1
nuclear DNA-binding protein			
2627	84981	XRCC5	1
X-ray repair complementing repair in Chinese hamster cells 5 (double-strand-break rejoining; Ku autoantigen, 80kD)			
4347	98493	XRCC1	1
X-ray repair complementing defective repair in Chinese hamster cells 1			
5001	241565	DNMT3A	1
DNA (cytosine-5-)-methyl transferase 3 alpha			
5875	42343	MOF	1
member of MYST family histone acetyltransferases, homolog of <i>Drosophila</i> MOF			
6509	923	SSBP	1
single-stranded DNA binding protein			
6979	97681	DNMT2	1
DNA (cytosine-5-)-methyltransferase 2			
7516	243886	NASP	1
nuclear autoantigenic sperm protein (histone-binding)			
8709	78353	SRPK2	1
SFRS protein kinase 2 (protein kinase, serine/arginine-specific, 2)			
9199	99185	POLE2	1
polymerase (DNA directed), epsilon 2			
15694	172350	HIRA	1
HIR (histone cell cycle regulation defective, <i>S. cerevisiae</i> ) homolog A			
23809	17368	HIRIP5	1
HIRIP5 protein			
25289	100669	RAD51L	1
RAD51 ( <i>S. cerevisiae</i> )-like 1			
25150	92260	HMG2L1	1
high mobility group protein 2-like 1			
26116	159971	SMARCB1	1
SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily b, member 1			
28426	21907	HBOA	1



## histone acetyltransferase

28968	285860	NCBP2	1
nuclear cap binding protein subunit 2, 20kD			
29546	274350	ACTL6	1
actin-like 6			
30098	168481	MCM3AP	1
minichromosome maintenance deficient ( <i>S. cerevisiae</i> ) 3-associated protein			
30998	27590	MORF	1
histone acetyltransferase			
34371	96264	ATRX	1
alpha thalassemia/mental retardation syndrome X-linked (RAD54 ( <i>S. cerevisiae</i> ) homolog)			

TABLE XVI

## RNA, TRANSCRIPTION

31	16003	RBBP4	90
retinoblastoma-binding protein 4			
2411	6727	KIAA0660	63
Ras GTP-ase activating protein SH3 domain-binding protein 2			
28261	99908	NCOA4	15
nuclear receptor coactivator 4			
18459	147916	DDX3	11
DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 3			
27213	258561	GTF2B	11
general transcription factor IIB			
14198	75878	EDR2	10
early development regulator 2 (homolog of polyhomeotic 2)			
21953	129548	HNRPK	10
heterogeneous nuclear ribonucleoprotein K			
118	20985	SAP30	9
Sin3-associated polypeptide, 30kD			
4303	77256	EZH2	9
enhancer of zeste (Drosophila) homolog 2			
379	2331	E2F5	8
E2F transcription factor 5, p130-binding homolog			
4381	74592	SATB1	8
special AT-rich sequence binding protein 1			
12267	169900	PABPC4	8
poly(A)-binding protein, cytoplasmic 4 (inducible form)			
18210	3248	MSH6	8
mutS (E. coli) homolog 6			
24859	28166	CRSP8	8
cofactor required for Sp1 transcriptional activation, subunit 8 (34kD)			
27235	169363	GLE1L	8
GLE (yeast homolog)-like, RNA export mediator			
1538	101025	BTF3	7
basic transcription factor 3			
29685	74711	SPF31	7
splicing factor similar to dnaJ			
2115	103804	HNRPU	6
heterogeneous nuclear ribonucleoprotein U (scaffold attachment factor)			

7335	2110	ZNF9	6
zinc finger protein 9 (a cellular retroviral nucleic acid binding protein)			
19101	76053	DDX5	6
DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 5 (RNA helicase, 68kD)			
42944	182643	TCEB1L	6
transcription elongation factor B (SIII), polypeptide 1-like			
566	153138	ORC5L	5
origin recognition complex, subunit 5 (yeast homolog)-like			
966	74861	PC4	5
activated RNA polymerase II transcription cofactor 4			
2904	3776	ZNF216	5
zinc finger protein 216			
6787	167460	SFRS3	5
splicing factor, arginine/serine-rich 3			
27118	30299	IMP-2	5
IGF-II mRNA binding protein 2			
27927	249495	HNRPA1	5
heterogeneous nuclear ribonucleoprotein A1			
34296	91142	KHSRP	5
KH-type splicing regulatory protein (FUSE binding protein 2			
87235	78869	TCEA1	5
transcription elongation factor A (SII), 1			
925	79353	TFDP1	4
transcription factor Dp-1			
2591	182225	RBM3	4
RNA binding motif protein 3			
2904	3776	ZNF216	4
zinc finger protein 216			
4563	211581	MTF1	4
metal-regulatory transcription factor 1			
16533	171880	POLR2A	4
polymerase (RNA) II (DNA directed) polypeptide A (220kD)			
27509	83126	TAF2I	4
TATA box binding protein (TBP)-associated factor, RNA polymerase II, I, 28kD			
28910	26703	POP2	4
POP2 (yeast homolog)			
603	86948	SNRPD1	3
small nuclear ribonucleoprotein D1 polypeptide (16kD)			
1246	80645	IRF1	3
interferon regulatory factor			

1323	82575	SNRPB2	3
small nuclear ribonucleoprotein polypeptide "B"			
1951	75104	RNPS1	3
RNA binding protein S1, serine-rich domain			
4929	797	NFYA	3
nuclear transcription factor Y, alpha			
6743	83469	NFE2L1	3
nuclear factor (erythroid-derived-2)-like 1			
7861	170311	HNRPDL	3
heterogeneous nuclear ribonucleoprotein D-like			
14644	75066	TSN	3
translin			
15928	279784	PREB	3
prolactin regulatory element binding			
16767	75598	HNRPA2B1	3
heterogeneous nuclear ribonucleoprotein A2/B1			
18643	166204	PHF1	3
PHD finger protein 1			
22249	108139	ZNF212	3
zinc finger protein 212			
25450	109643	PAIP1	3
polyadenylate binding protein-interacting protein 1			
28343	110713	DEK	3
DEK oncogene (DNA binding)			
29253	171185	P38IP	3
transcription factor (p38 interacting protein)			
39082	121044	TAF1B	3
TATA box binding protein (TBP)-associated factor, RNA polymerase I, B, 63kD			
161	34012	BRCA2	2
breast cancer 2, early onset			
304	75770	RB1	2
retinoblastoma 1 (including osteosarcoma)			
641	181243	ATF4	2
activating transcription factor 4 (tax-responsive enhancer element B67)			
809	115541	SRP14	2
signal recognition particle 14kD (homologous Alu RNA-binding protein)			
850	180394	SRP14	2
signal recognition particle 14kD			
2655	15020	QK1	2

homolog of mouse quaking QK1 (KH domain RNA binding protein)

3466	198166	ATF2	2
activating transcription factor 2			
3879	197540	HIF1A	2
hypoxia-inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor)			
3931	42712	MAX	2
MAX protein			
8581	11776	HPRP3P	2
U4/U6-associated RNA splicing factor			
8884	81328	NFKBIA	2
nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha			
15781	93649	USF2	2
upstream transcription factor 2, c-fos interacting			
21209	27181	NRBF-2	2
nuclear receptor binding factor-2			
21841	73965	SFRS2	2
splicing factor, arginine/serine-rich 2			
22029	272736	NRBP	2
nuclear receptor binding protein			
22718	149923	XBP1	2
X-box binding protein 1			
28295	64542	CFIM	2
pre-mRNA cleavage factor Im(68kD)			
29089	2853	PCBP1	2
poly(rC)-binding protein 1			
29737	79026	MLF2	2
myeloid leukemia factor 2			
29841	79024	HNRPM	2
heterogeneous nuclear ribonucleoprotein M			
29915	184167	SFRS7	2
splicing factor, arginine/serine-rich 7 (35kD)			
30019	193989	TARDBP	2
TAR DNA binding protein			
30029	259855	HSU93850	2
elongation factor-2 kinase			
30929	24644	TAF2C1	2
TATA box binding protein (TBP)-associated factor, RNA polymerase II, C1, 130kD			
38869	75251	DDXBP1	2
DEAD/H (Asp-Glu-Ala-Asp/His) box binding protein 1			

89123	2815	POU6F1	2
POU domain, class 6, transcription factor 1			
24	81361	HNRPAB	1
heterogeneous nuclear ribonucleoprotein A/B			
439	153768	U3-55K	1
U3 SnoRNP-associated 55-kDa protein			
460	70186	SUPT5H	1
suppressor of Ty ( <i>S. cerevisiae</i> ) 5 homolog			
542	6106	RBM4	1
RNA binding motif protein 4			
968	100221	NR1H2	1
nuclear receptor family 1, group H, member 2			
1025	155396	NFE2L2	1
nuclear factor (erythroid-derived 2)-like 2			
1466	180919	ID2	1
inhibitor of DNA binding 2, dominant negative helix-loop-helix protein			
1661	174051	SNRP70	1
small nuclear ribonucleoprotein 70kD polypeptide (RNP antigen)			
1764	78915	GABPB1	1
GA-binding protein transcription factor, beta subunit 1 (53kD)			
2706	460	ATF	1
activating transcription factor 3			
2984	30035	SFRS10	1
splicing factor, arginine/serine-rich (transformer 2 <i>Drosophila</i> homolog) 10			
3182	14453	ICSBP1	1
interferon consensus sequence binding protein 1			
3451	89764	FMR1	1
fragile X mental retardation			
3680	7797	TINF2	1
TERF1 (TRF1)-interacting nuclear factor 2			
4808	306	HIVEP1	1
human immunodeficiency virus I enhancer-binding protein 1			
4888	41587	RAD50	1
RAD50 ( <i>S. cerevisiae</i> ) homolog			
9558	173854	PAXIP1L	1
PAX transcription activation domain interacting protein 1 like			
12553	115474	RFC3	1
replication factor C (activator 1) 3 (38kD)			
12604	31176	SIRT1	1
Sir2-like 1			

12848	49346	SRP54	1
signal recognition particle 54kD			
13120	96103	TAF2D	1
TATA box binding protein (TBP)-associated factor, RNA polymerase II, D, 100kD			
18892	2985	EMD	1
emerin (Emery-Dreifuss muscular dystrophy)			
19170	78935	MNPEP	1
methionine aminopeptidase; eIF-2-associated p67			
21203	194718	ZNF265	1
zinc finger protein 265methionine aminopeptidase; eIF-2-associated p67			
21534	75117	ILF2	1
interleukin enhancer binding factor 2, 45kD			
21649	119018	NRF	1
transcription factor NRF			
21740	245710	HNRPH1	1
heterogeneous nuclear ribonucleoprotein H1(H)			
21811	184693	TCEB1	1
transcription elongation factor B (SIII), polypeptide 1 (15kD, elongin C)			
22162	209450	SPF45	1
splicing factor (45kD)			
22421	75839	ZNF6	1
zinc finger protein 6 (CMPX1)			
25228	96334	RNF11	1
ring finger protein 11			
22617	79625	HNRPD	1
heterogeneous nuclear ribonucleoprotein D (AU-rich element RNA-binding protein 1, 37kD)			
22700	89578	GTF2H1	1
general transcription factor IIH, polypeptide 1 (62kD subunit)			
23805	12719	RENT1	1
regulator of nonsense transcripts 1			
24102	108371	E2F4	1
E2F transcription factor 4, p107/p130-binding			
24431	123057	TAF2K	1
TATA box binding protein (TBP)-associated factor, RNA polymerase II, K, 18kD			
25364	195614	SF3B3	1
splicing factor 3b, subunit 3, 130kD			
25642	227280	LSM5	1
U6 snRNA-associated Sm-like protein			
25779	77897	SF3A3	1

splicing factor 3a, subunit 3, 60kD			
27220	168157	NFYC	1
nuclear transcription factor Y, gamma			
27600	237825	SRP72	1
signal recognition particle 72kD			
27706	6856	ASH2L	1
ash 2 (absent, small, or homeotic, Drosophila, homolog)-like			
28018	821	ZFP92	1
zinc finger protein homologous to Zfp92 in mouse			
28028	154583	RBM10	1
RNA binding motif protein 10			
28200	112722	SLU7	1
step II splicing factor SLU7			
28961	9605	CFIM25	1
pre-mRNA cleavage factor Im (25kD)			
29452	2943	SRP19	1
signal recognition particle 19kD			
29466	21599	KLF7	1
Kruppel-like factor 7 (ubiquitous)			
29563	93868	PHF2	1
PHD finger protein 2			
29655	273307	SRP68	1
signal recognition particle 68kD			
29877	80248	RPMS	1
RNA-binding protein gene with multiple splicing			
30036	25732	EIF4G3	1
eukaryotic translation initiation factor 4 gamma, 3			
30714	27801	ZNF278	1
zinc finger protein 278			
34091	145078	ROD1	1
regulator of differentiation (in <i>S. pombe</i> ) 1			
35851	23964	SAP18	1
sin3-associated, 18kD			
36718	256549	NUBP2	1
nucleotide binding protein 2 ( <i>E. coli</i> MinD like)			
43331	166975	SFRS5	1
splicing factor, arginine/serine-rich 5			
44728	125244	RAD51L3	1
RAD51 ( <i>S. cerevisiae</i> )-like 3			



46507	164915	SNAPC3	1
small nuclear RNA activating complex, polypeptide 3, 50kD			
100210	89421	CIR	1
CBF1 interacting co-repressor			
105175	79440	KOC1	1
IGF-II mRNA-binding protein			

TABLE XVII

## HETEROGENEOUS

22706	198365	BPGM	51
2,3-bisphosphoglycerate mutase			
7719	431	BMI1	27
murine leukemia viral (bmi-1) oncogene homolog			
28848	54642	TGR	26
dTP-4-keto-6-deoxy-D-glucose 4-reductase			
77432	179526	VDUP1	19
upregulated by 1,25-dihydroxyvitamin D-3			
9745	234489	LDHB	18
lactate dehydrogenase B			
14816	125031	CEPT1	16
choline/ethanolamine phosphotransferase			
22317	110480	DC12	10
DC12 protein			
28047	20597	LCP	10
host cell factor homolog			
25377	2879	CPA1	9
carboxypeptidase A1 (pancreatic)			
27872	154718	TPD52L2	9
tumor protein D52-like 2			
683	125078	OAZ1	8
ornithine decarboxylase antizyme 1			
22491	80686	PFDN5	8
prefoldin 5			
28621	16758	Spir-1	8
Spir-1 protein			
3065	268555	XRNZ	7
5'-3' exonuclease 2			
11815	77965	CYP	7
Clk-associating RS-cyclophilin			
17009	75447	RALBP1	7
ral binding protein 1			
1089	79284	MEST	6
mesoderm specific transcript (mouse) homolog			
11223	250	XDH	6
xanthene dehydrogenase			

18203	151461	EED	6
embryonic ectoderm development			
20930	7874	MKLN1	6
muskelin 1, intracellular mediator containing kelch motifs			
22149	469	SDHA	6
succinate dehydrogenase complex, subunit A, flavoprotein (Fp)			
1141	89525	HDGF	5
hepatoma-derived growth factor (high-mobility group protein 1-like)			
3093	21858	TNRC3	5
trinucleotide repeat containing 3			
3363	78575	PSAP	5
prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy)			
3865	236361	HSRNASEB	5
Seb4D			
4296	153221	SSXT	5
synovial sarcoma translocated to X chromosome			
12468	152707	GBAS	5
glioblastoma amplified sequence			
21802	6353	MRG15	5
MORF-related gene 15			
22478	8740	BM029	5
uncharacterized bone marrow protein BM029			
28750	13980	UTX	5
ubiquitously transcribed tetratricopeptide repeat gene, X chromosome			
28979	75682	RCD-8	5
autoantigen			
29174	78442	SREBP	5
cleavage activating protein			
29879	82113	DUT	5
dUTP pyrophosphatase			
730	169283	HUMNDME	4
NADP-dependent malic enzyme			
2442	93659	ERP70	4
protein disulfide isomerase related protein (calcium-binding protein, intestinal related)			
2701	181195	MRJ	4
MRJ gene for a member of the DNAJ protein family			
6775	223014	LOC51582	4
antizyme inhibitor			
21473	15627	NIT2	4
Nit protein 2			

21686	32675	TBCE	4
tubulin-specific chaperone e			
23219	206097	TC21	4
oncogene TC21			
27809	277401	BAZ2A	4
bromodomain adjacent to zinc finger domain, 2A			
27897	94	HSJ2	4
heat shock protein DNAJ-like 2			
28502	7957	ADAR	4
adenosine deaminase, RNA specific			
28797	75416	DAZAP2	4
DAZ associated protein			
28805	145279	SET	4
SET translocation (myeloid leukemia-associated)			
28808	91161	PFDN14	4
prefoldin 4			
29988	281680	HSA250303	4
peroxosomal trans 2-enoyl CoA reductase; putative short chain alcohol dehydrogenase			
30069	5437	TAX1BP1	4
Tax 1 (human T-cell leukemia virus type I) binding protein 1			
35796	179747	EVI5	4
ecotropic viral integration site 5			
38211	35093	LBC	4
lymphoid blast crisis oncogene			
41853	279815	CSAD	4
cysteine sulfinic acid decarboxylase-related protein 2			
808	57904	MAGOH	3
mago-nashi (Drosophila) homolog, proliferation-associated			
826	166982	PIGF	3
phosphatidyl inositol glycan, class F			
1989	76253	SCA2	3
spinocerebellar ataxia 2 (olivopontocerebellar ataxia 2, autosomal dominant, ataxin 2)			
2585	75922	BRI3	3
brain protein I3			
3131	74635	DLD	3
dihydrolipoamide dehydrogenase			
3576	1708	CCT3	3
chaperonin containing TCP1, subunit 3 (gamma)			
7880	262476	AMD1	3

## S-adenosylmethionine decarboxylase 1

9307	89643	TKT	3
transketolase (Wernicke-Korsakoff syndrome)			
18675	82314	HPRT1	3
hypoxanthine phosphoribosyl transferase 1 (Lesch-Nyhan syndrome)			
18921	106357	VCP	3
valosin-containing protein			
20294	118725	SPS2	3
selenophosphate synthetase 2			
22179	26813	LOC51290	3
CDA14			
22632	75725	TAGLN2	3
transgelin 2			
27129	76173	HSU52521	3
arfaptin 1			
28066	119222	ST13	3
suppression of tumorigenicity 13 (colon carcinoma) (Hsp70-interacting protein)			
29405	279919	RBX1	3
ring-box 1			
29812	90606	SEP15	3
15kDa selenoprotein			
29996	3229	CDO1	3
cysteine dioxygenase, type I			
38579	47005	LRPDIT	3
low density lipoprotein receptor related protein-deleted in tumor			
40285	166184	ITSN2	3
intersectin 2			
42873	12461	LCHN	3
LCHN protein			
140	100623	PLCB3NP	2
phospholipase C, beta 3, neighbor pseudogene			
426	226795	GSTP1	2
glutathione S-transferase pi			
757	77273	ARHA	2
RAS homolog gene family, member A			
914	108809	CCT7	2
chaperonin containing TCP1, subunit 7 (eta)			
1514	180878	LPL	2
lipoprotein lipase			

1786	28914	APRT	2
adenine phosphoribosyl transferase			
3238	83918	AMPD3	2
adenosine monophosphate deaminase (isoform E)			
3830	754	FPGS	2
folylpolyglutamate synthase			
4067	95697	LOC51599	2
LISCH protein			
5567	75807	CLIM1	2
carboxyterminal LIM domain protein 1			
6586	75108	RNH	2
ribonuclease/angiogenin inhibitor			
7729	155247	ALDOC	2
aldolase C, fructose-bisphosphate			
7821	16611	TPD52L1	2
tumor protein D52-like 1			
12882	187579	HSD17B7	2
hydroxysteroid (17-beta) dehydrogenase 7			
12970	1197	HSPE1	2
heat shock 10kD protein 1 (chaperonin 10)			
14722	74405	YWHAQ	2
tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide			
15295	113	EPHX2	2
epoxide hydrolase 2, cytoplasmic			
18161	3833	PAPSS1	2
3-prime-phosphoadenosine 5-prime-phosphosulfonate synthase 1			
18688	74137	TMP21	2
transmembrane trafficking protein			
18898	112594	LOC51230	2
hepatocellular carcinoma-associated antigen 58			
19154	182217	SUCLA2	2
succinate-CoA ligase, ADP-forming, beta subunit			
20921	70337	IGSF4	2
immunoglobulin superfamily, member 4			
21119	76507	PIG7	2
LPS-induced TNF-alpha factor			
21669	173611	NDUFS2	2
NADH dehydrogenase (ubiquitous) Fe-S protein (49kD) (NADH-coenzyme Q reductase)			
24397	92381	NUDT4	2
nudix (nucleotide diphosphate linked moiety X)-type motif 4			

24455	84318	RPA1	2
replication protein A1 (70kD)			
24972	80680	MVP	2
major vault protein			
25125	77498	PRPSAP1	2
phosphoribosyl pyrophosphate synthetase-associated protein 1			
25319	106469	SUPV3L1	2
suppressor of var1 ( <i>S. cerevisiae</i> )3-like 1			
25412	227150	LSFR2	2
linked to Surfeit genes in <i>Fugu rubripes</i> 2; LSFR2 gene 2			
26364	159140	B4GALT6	2
UDP-Gal: beta GlcNAc beta 1,4-galactosyltransferase, polypeptide 6			
27424	111988	SET07	2
PR/SET domain containing protein 07			
27836	104019	TACC3	2
transforming, acidic coiled-coil containing protein 3			
28107	174185	ENPP2	2
ectonucleotide pyrophosphatase/phosphodiesterase 2 (autotaxin)			
28219	227107	CDIPT	2
CDP-diacylglycerol-inositol 3-phosphatidylinositol synthase)			
28962	154890	FACL2	2
fatty-acid-Coenzyme A ligase, long-chain 2			
29131	31819	HT014	2
thioredoxin-related protein			
29609	25664	DOC-1R	2
tumor suppressor deleted in oral cancer-related 1			
29628	8526	BETA3GNT1	2
i-beta-1,3-N-acetylglucosaminyltransferase			
29847	76038	IDI1	2
isopentenyl-diphosphate delta isomerase			
30078	69469	GA17	2
dendritic cell protein			
30728	208514 retired, 7351		2
cyclic AMP phosphoprotein, 19kD			
		ARPP-19	
34879	127950	BRL	2
BR140-like gene			
35105	19673	HSGT1	2
suppressor of <i>S. cerevisiae</i> gcr2			
40331	194688	BAZ1B	2

## bromodomain adjacent to zinc finger domain, 1B

43040	81964	SEC24C	2
SEC24 ( <i>S. cerevisiae</i> ) related gene family, member C			
43591	7918	HSMNP1	2
uncharacterized hypothalamus protein			
46676	183655	SEC22A	2
sec22 homolog			
90115	12540	LYPLA1	2
lysophospholipase I			
597	6793	PAFAH1B3	1
platelet activating factor acetylhydrolase, isoform Ib, gamma subunit (29kD)			
1336	250502	CA8	1
carbonic anhydrase VIII			
1777	79037	HSPD1	1
heat shock 60kD protein 1 (chaperonin)			
1863	24930	TBCA	1
tubulin-specific chaperone a			
2033	109760	NDUFB3	1
NADH dehydrogenase (ubiquinone) 1 beta complex, 3 (12kD, B12)			
2118	77854	RGN	1
regucalcin (senescence marker protein-30)			
2212	76768	P4HA1	1
procollagen-proline, 2-oxoglutarate 4-dioxygenase (proline 4-hydroxylase), alpha polypeptide I			
2733	81886	AUH	1
AU RNA-binding protein/enoyl Coenzyme A hydratase			
2734	28491	SAT	1
spermidine/spermine N1-acetyltransferase			
2817	12953	PPFIBP2	1
PTPRF interacting protein binding protein 2 (liprin beta 2)			
3010	110837	FAAH	1
fatty acid amide hydrolase			
3204	48876	FDFT1	1
farnesyl-diphosphate farnesyltransferase			
3308	75544	YWHAH	1
tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, eta polypeptide			
3317	183868	GUSB	1
glucuronidase, beta			
3401	94376	PCSK5	1
proprotein convertase subtilisin/kexin type 5			



3439	172813	P85SPR	1
PAK interacting exchange factor beta			
3496	138381	FNTA	1
farnesyltransferase CAAX box, alpha			
3545	167927	ICA1	1
islet cell autoantigen 1 (69kD)			
3655	172210	MUF1	1
MUF1 protein			
3820	12492	LOC55907	1
CMP-N-acetylneuraminic acid synthase			
3987	75279	LAMA2	1
lamina, alpha 2 (merosin, congenital muscular dystrophy)			
4859	40500	RER1	1
similar to S.cerevisiae RER1			
4877	11170	SIP	1
SYT interacting protein			
6384	241363	HABP2	1
hyaluronan-binding protein 2			
6874	3196	SURF1	1
surfeit 1			
7046	118126	PPGB	1
protective protein for beta-galactosidase (galactosialidosis)			
7138	261285	PLRG1	1
pleiotropic regulator 1 (PRL1, Arabidopsis homolog)			
7508	268763	BCRP1	1
breakpoint cluster region protein, uterine leiomyoma 1; barrier to autointegration factor			
9382	118131	MTHFS	1
5,10-methenyltetrahydrofolate synthetase (5-formyl tetrahydrofolate cyclo-ligase)			
9738	180895	KIAA0765	1
putative brain nuclearly-targeted protein			
9811	103180	DC2	1
DC2 protein			
9859	82399	LDLC	1
low density lipoprotein receptor defect c complementing			
10125	108881	CDV-1	1
CDV-1 protein			
10709	28309	UGDH	1
UDP-glucose dehydrogenase			
11204	69855	D1S155E	1
NRAS-related gene			

11761	33251	PPIE	1
peptidylprolyl isomerase (cyclophilin E) E			
12261	7833	SELENBP1	1
selenium binding protein 1			
12975	78221	MYCBP	1
c-myc binding protein			
14486	35660	BUP	1
BUP protein			
14910	24485	CSPG6	1
chondroitin sulfate proteoglycan 6 (bamacan)			
15259	75212	ODC1	1
ornithine decarboxylase 1			
15622	81848	RAD21	1
RAD21 (S. pombe) homolog			
16831	173724	CKB	1
creatine kinase, brain			
17185	18069	PRSC1	1
protease, cysteine, 1 (legumain)			
18096	271752	BPNT1	1
3'(2'), 5'-bisphosphate nucleotidase 1			
18522	259785	CPT1A	1
carnitine palmitoyl transferase I, liver			
19039	597	GOT1	1
glutamic-oxaloacetic transaminase 1, soluble (aspartate aminotransferase 1)			
19169	18792	TXNL	1
thioredoxin-like, 32kD			
19187	250655	PTMA	1
prothymosin, alpha (gene sequence 28)			
20260	150748	MLYCD	1
malonyl-CoA decarboxylase			
20634	157113	COQ7	1
coenzyme Q, 7 (rat, yeast) homolog			
20929	266933	HERC2	1
hect domain and RLD2			
21145	92186	LCCP	1
Leman coiled-coil protein			
21440	14089	QPP	1
quiescent cell proline dipeptidase			
21537	75313	AKR1B1	1

## aldo-keto reductase family 1, member B1 (aldose reductase)

21556 calpastatin	279607	CAST	1
21580 fucosidase, alpha-L-1, tissue	576	FUCA1	1
21652 uncharacterized bone marrow protein BM045	8750	BM045	1
22049 cystine-rich protein (intestinal)	17409	CRIP1	1
22147 GTP binding protein 2	13011	GTPBP2	1
22244 tetratricopeptide repeat domain 2	5542	TTC2	1
22508 metaxin 1	247551	MTX1	1
22596 tissue specific transplantation antigen P35B	264428	TSTA3	1
22691 Ewing sarcoma breakpoint region 1	129953	EWSR1	1
23335 YME1 ( <i>S. cerevisiae</i> )-like 1	206521	YME1L1	1
23780 phosphogluconate dehydrogenase	75880	PGD	1
23814 TBP-interacting protein	184786	KIAA0829	1
24331 ASB-3 protein	9893	LOC51130	1
24611 protein S (alpha)	64016	PROS1	1
24680 aspartyl aminopeptidase	258551	DNPEP	1
24948 bromodomain-containing 4	278675	BRD4	1
25808 guanine monophosphate reductase	1435	GMPR	1
26166 acid phosphatase 1, soluble	75393	ACP1	1
27367 tafazzin (cardiomyopathy, dilated 3A (X-linked); endocardial fibroelastosis 2; Barth syndrome	79021	TA2	1

27689	6947	HYPB	1
huntingtin interacting protein B			
27746	5198	DSCR2	1
Down syndrome critical region gene 2			
27969	21293	UAP1	1
UDP-N-acetylglucosamine pyrophosphorylase 1			
28052	28423	UBP1	1
upstream binding protein 1 (LBP-1a)			
28188	83919	GCS1	1
glucosidase I			
28293	198271	NDUFA10	1
NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 10 (42kD)			
28301	19904	CTH	1
cystathionase (cystathionine gamma-lyase)			
28366	1508	IDE	1
insulin-degrading enzyme			
28440	89626	PTH1H	1
parathyroid hormone-like hormone			
28518	10086	LOC51330	1
Fn14 for type I transmembrane protein			
28659	13501	PES1	1
pescadillo (zebrafish) homolog 1, containing BRCT domain			
28760	288031	SC5DL	1
sterol-C5-desaturase (fungal ERG3, delta-5 desaturase)-like			
28867	1117	TPP2	1
tripeptidyl peptidase II			
28950	15871	LOC51205	1
LPAP for lysophosphatidic acid phosphatase			
28966	55601	HCF-2	1
host cell factor 2			
28981	33642	ARCN1	1
archain 1			
29016	86386	MCL1	1
myeloid cell leukemia sequence 1 (BCL-2 related)			
29082	62180	LOC54443	1
anillin			
29138	22857	CHP1	1
chord domain-containing protein 1			
29201	1691	GBE1	1

glucan (1,4-alpha-), branching enzyme 1 (glycogen branching enzyme, Andersen disease, glycogen storage disease type IV)

29381 kinesin-like 4	119324	KNSL4	1
29418 for protein disulfide isomerase-related	76901	PDIR	1
29450 prenyl protein protease RCE1	55613	RCE1	1
29601 5'-nucleotidase (purine), cytosolic type B	138593	NT5B	1
29794 cold shock domain protein	1139	CSDA	1
29815 methionine adenosyl transferase II, alpha	77502	MAT2A	1
29823 microsomal glutathione S-transferase 3	111811	MGST3	1
29824 aminopeptidase puromycin sensitive	132243	NPEPPS	1
30119 sterol-C4-methyl oxidase-like	239926	SC4MOL	1
30133 16.7kD protein	180859	LOC51142	1
30152 REV1 protein	110347	REV1	1
30263 FACL5 for fatty acid coenzyme A ligase 5	11638	LOC51703	1
31308 ectonucleoside triphosphate diphosphohydrolase 2	123036	ENTPD2	1
31436 Meis (mouse) homolog 2	104105	MEIS2	1
3261 cornichon-like	201673	CNIL	1
32906 paired basic amino acid cleaving system 4	170414	PACE4	1
34248 disabled (Drosophila) homolog 2 (mitogen-responsive phosphoprotein)	81988	DAB2	1
34663 NTF2-related export protein 1	24563	NXT1	1
34775 pyruvate dehydrogenase (lipoamide) alpha 1	1023	PDHA1	1

34830	75694	MPI	1
mannose phosphate isomerase			
35853	240013	COMT	1
catechol-O-methyltransferase			
36241	7771	REA	1
B-cell associated protein			
36441	22934	LOC55892	1
myoneurin			
38306	20815	EMP	1
macrophage erythroblast attacher			
38929	41716	ESM1	1
endothelial cell-specific molecule			
40124	128291	PDE10A	1
phosphodiesterase 10A			
41494	18747	RPP20	1
POP7 (processing of precursor, <i>S. cerevisiae</i> ) homolog			
41502	75653	FH	1
fumarate hydratase			
42188	155001	UNC13	1
UNC13 ( <i>c. elegans</i> )-like			
43745	247452	D6S82E	1
HLA-B associated transcript-5			
45205	112594	LOC51230	1
hepatocellular carcinoma-associated antigen 58			
46764	152981	CDS1	1
CDP-diacylglycerol synthase (phosphatidate cytidyl transferase) 1			
86572	259737	FN5	1
FN5 protein			
116015	279865	TPT	1
trans-prenyltransferase			