

<b>GENE</b>	<b>Locuslink</b>	<b>Description</b>	<b>E2F4</b>	<b>p107</b>	<b>p130</b>
<b><u>Apoptosis</u></b>					
AATF	26574	apoptosis antagonizing transcription factor		x	
GZMA	3001	granzyme A (granzyme 1, cytotoxic T-lymphocyte-associated serine esterase 3)	x	x	x
BRCA1	672	breast cancer 1, early onset	x	x	x
CASP8AP2	9994	CASP8 associated protein 2	x		
DDX41	51428	DEAD (Asp-Glu-Ala-Asp) box polypeptide 41		x	
ING3	54556	inhibitor of growth family, member 3	x		
<b><u>G1/S transition</u></b>					
CDC7	8317	CDC7 cell division cycle 7 (S. cerevisiae)	x		
CDC6	990	CDC6 cell division cycle 6 homolog (S. cerevisiae)	x	x	x
CDC25A	993	cell division cycle 25A	x	x	x
CDC25C	995	cell division cycle 25C	x	x	x
NPAT	4863	nuclear protein, ataxia-telangiectasia locus	x		
<b><u>DNA replication</u></b>					
FEN1	2237	flap structure-specific endonuclease 1	x	x	x
ORC6L	23594	origin recognition complex, subunit 6 homolog-like (yeast)	x	x	x
ORC3L	23595	origin recognition complex, subunit 3-like (yeast)	x	x	
MCM3	4172	MCM3 minichromosome maintenance deficient 3 (S. cerevisiae)	x		x
PCNA	5111	proliferating cell nuclear antigen	x	x	x
POLA	5422	polymerase (DNA directed), alpha	x		
PRIM2A	5558	primase, polypeptide 2A, 58kDa	x	x	
RFC3	5983	replication factor C (activator 1) 3, 38kDa	x	x	x
RFC5	5985	replication factor C (activator 1) 5, 36.5kDa	x	x	x
RRM1	6240	ribonucleotide reductase M1 polypeptide	x	x	x
BLM	641	Bloom syndrome	x	x	x
CDC45L	8318	CDC45 cell division cycle 45-like (S. cerevisiae)	x	x	x
MCM8	84515	MCM8 minichromosome maintenance deficient 8 (S. cerevisiae)	x	x	x
TOP2A	7153	topoisomerase (DNA) II alpha 170kDa	x	x	x
TOPBP1	11073	topoisomerase (DNA) II binding protein	x		
PPAT	5471	phosphoribosyl pyrophosphate amidotransferase	x		
TYMS	7298	thymidylate synthetase	x	x	x
<b><u>DNA repair</u></b>					

PIR51	10635	RAD51-interacting protein	x	x	x
FEN1	2237	flap structure-specific endonuclease 1	x	x	x
MRE11A	4361	MRE11 meiotic recombination 11 homolog A ( <i>S. cerevisiae</i> )	x	x	x
ATM	472	ataxia telangiectasia mutated (includes complementation groups A, C and D)	x		
PCNA	5111	proliferating cell nuclear antigen	x	x	x
FANCL	55120	Fanconi anemia, complementation group L	x		
FLJ10858	55247	DNA glycosylase hFPG2		<u>x</u>	
PRKDC	5591	protein kinase, DNA-activated, catalytic polypeptide	x		x
RAD51	5888	RAD51 homolog (RecA homolog, <i>E. coli</i> ) ( <i>S. cerevisiae</i> )	x		
BLM	641	Bloom syndrome	x	<u>x</u>	x
BRCA1	672	breast cancer 1, early onset	x	<u>x</u>	x
XRCC2	7516	X-ray repair complementing defective repair in Chinese hamster cells 2	x		
BRIP1	83990	BRCA1 interacting protein C-terminal helicase 1	x		x
CSPG6	9126	chondroitin sulfate proteoglycan 6 (bamacan)	x	<u>x</u>	x
EXO1	9156	exonuclease 1	x	<u>x</u>	x
DCLRE1B	64858	DNA cross-link repair 1B (PSO2 homolog, <i>S. cerevisiae</i> )	x	<u>x</u>	x
DCLRE1C	64421	DNA cross-link repair 1C (PSO2 homolog, <i>S. cerevisiae</i> )	x	<u>x</u>	x
FANCD2	2177	Fanconi anemia, complementation group D2	x	<u>x</u>	x
LOC81691	81691	exonuclease NEF-sp	x	<u>x</u>	x
RECQL	5965	RecQ protein-like (DNA helicase Q1-like)	x	<u>x</u>	x
<b><i>Cell cycle checkpoints</i></b>					
CHEK2	11200	CHK2 checkpoint homolog ( <i>S. pombe</i> )	x	<u>x</u>	x
MAD2L1	4085	MAD2 mitotic arrest deficient-like 1 (yeast)	x		x
GTSE1	51512	G-2 and S-phase expressed 1	x	<u>x</u>	x
BRCA1	672	breast cancer 1, early onset	x	<u>x</u>	x
BUB1B	701	BUB1 budding uninhibited by benzimidazoles 1 homolog beta (yeast)	x	<u>x</u>	x
CDC45L	8318	CDC45 cell division cycle 45-like ( <i>S. cerevisiae</i> )	x	<u>x</u>	x
PPM1G	5496	protein phosphatase 1G (formerly 2C), magnesium-dependent, gamma isoform		<u>x</u>	
<b><i>Mitosis</i></b>					
SMC4L1	10051	SMC4 structural maintenance of chromosomes 4-like 1 (yeast)	x	<u>x</u>	
KNTC2	10403	kinetochore associated 2	x	<u>x</u>	x
CENPE	1062	centromere protein E, 312kDa	x		x
CENPF	1063	centromere protein F, 350/400ka (mitosin)	x	<u>x</u>	x
KIF2C	11004	kinesin family member 2C	x	<u>x</u>	x
INCENP	3619	inner centromere protein antigens 135/155kDa	x	<u>x</u>	x

KIF22	3835	kinesin family member 22	x		x
MAD2L1	4085	MAD2 mitotic arrest deficient-like 1 (yeast)	x		x
PLK1	5347	polo-like kinase 1 (Drosophila)	x	<u>x</u>	x
KNSL7	56992	kinesin-like 7	x	<u>x</u>	x
HCAP-G	64151	chromosome condensation protein G	x	<u>x</u>	x
CENPH	64946	centromere protein H	x	<u>x</u>	x
BUB1B	701	BUB1 budding uninhibited by benzimidazoles 1 homolog beta (yeast)	x	<u>x</u>	x
TERF1	7013	telomeric repeat binding factor (NIMA-interacting) 1	x		
CDC23	8697	CDC23 (cell division cycle 23, yeast, homolog)	x	<u>x</u>	x
CCNB1	891	cyclin B1	x	<u>x</u>	x
CCNG2	901	cyclin G2	x	<u>x</u>	x
CSPG6	9126	chondroitin sulfate proteoglycan 6 (bamacan)	x	<u>x</u>	x
CCNB2	9133	cyclin B2	x		x
NOLC1	9221	nucleolar and coiled-body phosphoprotein 1	x		x
MPHOSP1	9585	M-phase phosphoprotein 1	x	<u>x</u>	x
CDC2	983	cell division cycle 2, G1 to S and G2 to M	x		
CDC25A	993	cell division cycle 25A	x	<u>x</u>	x
CDC25B	994	cell division cycle 25B	x	<u>x</u>	x
CDC25C	995	cell division cycle 25C	x	<u>x</u>	x
MIS12	79003	homolog of yeast Mis12	x	<u>x</u>	x
TIMELESS	8914	timeless homolog (Drosophila)	x		
RAD54B	25788	RAD54 homolog B (S. cerevisiae)	x	<u>x</u>	x
CDCA3	83461	cell division cycle associated 3	x	<u>x</u>	x

### **Cytokinesis**

CENPE	1062	centromere protein E, 312kDa	x		x
CETN1	1068	centrin, EF-hand protein, 1	x		
INCENP	3619	inner centromere protein antigens 135/155kDa	x	<u>x</u>	x
NEK2	4751	NIMA (never in mitosis gene a)-related kinase 2	x	<u>x</u>	x
NEK7	140609	NIMA (never in mitosis gene a)-related kinase 7	x		x
CDC7	8317	CDC7 cell division cycle 7 (S. cerevisiae)	x		
CDC23	8697	CDC23 (cell division cycle 23, yeast, homolog)	x	<u>x</u>	x
CCNB1	891	cyclin B1	x	<u>x</u>	x
CCNG2	901	cyclin G2	x	<u>x</u>	x
CCNB2	9133	cyclin B2	x		x
CDC2	983	cell division cycle 2, G1 to S and G2 to M	x	<u>x</u>	
CDC6	990	CDC6 cell division cycle 6 homolog (S. cerevisiae)	x	<u>x</u>	x

CDC25A	993	cell division cycle 25A	x	<u>x</u>	x
CDC25B	994	cell division cycle 25B	x	<u>x</u>	x
CDC25C	995	cell division cycle 25C	x	<u>x</u>	x
PRC1	9055	protein regulator of cytokinesis 1	x		x

***Chromosome organization and biogenesis***

SMC4L1	10051	SMC4 structural maintenance of chromosomes 4-like 1 (yeast)	x	<u>x</u>	
CENPA	1058	centromere protein A, 17kDa	x	<u>x</u>	x
CBX5	23468	chromobox homolog 5 (HP1 alpha homolog, Drosophila)	x		
BMI1	648	B lymphoma Mo-MLV insertion region (mouse)	x	<u>x</u>	x
MGC5528	79075	defective in sister chromatid cohesion homolog 1 (S. cerevisiae)	x	<u>x</u>	x
SUV39H1	6839	suppressor of variegation 3-9 homolog 1 (Drosophila)			
HIST1H2A	3013	histone 1, H2ad	x	<u>x</u>	x
HIST1H2A	8330	histone 1, H2ak	x	<u>x</u>	x
HIST2H2A	8337	histone 2, H2aa		<u>x</u>	x
HIST1H2B	8339	histone 1, H2bg		<u>x</u>	x
HIST1H2B	8340	histone 1, H2bl	x	<u>x</u>	x
HIST1H2B	8341	histone 1, H2bn	x	<u>x</u>	x
HIST1H2B	8342	histone 1, H2bm	x	<u>x</u>	x
HIST1H2B	8345	histone 1, H2bh		<u>x</u>	
HIST1H2B	8348	histone 1, H2bo	x	<u>x</u>	x
HIST1H2A	85235	histone 1, H2ah	x	<u>x</u>	x
HIST1H2B	85236	histone 1, H2bk	x	<u>x</u>	x
HIST1H2B	8970	histone 1, H2bj	x	<u>x</u>	x
HIST3H2A	92815	histone 3, H2a	x		x
HIST1H3B	8358	histone 1, H3b	x	<u>x</u>	
HIST1H3F	8968	histone 1, H3f	x		
HIST2H4	8370	histone 2, H4	x		x
HIST1H2B	8343	histone 1, H2bf	x	<u>x</u>	x
HIST1H3D	8351	histone 1, H3d	x	<u>x</u>	x
HIST1H3C	8355	histone 1, H3g	x	<u>x</u>	x
HIST1H2A	8969	histone 1, H2ag	x	<u>x</u>	x
HIST1H2A	8329	histone 1, H2ai	x	<u>x</u>	x
HIST1H2A	8331	histone 1, H2aj	x	<u>x</u>	x
HIST1H2A	8336	histone 1, H2am	x	<u>x</u>	x
HIST1H3C	8352	histone 1, H3c	x		x
HIST1H3I	8354	histone 1, H3i	x	<u>x</u>	x

HIST1H4L	8368	histone 1, H4I		<u>X</u>	
<b><u>Centrosome</u></b>					
CETN1	1068	centrin, EF-hand protein, 1	X		
NEK2	4751	NIMA (never in mitosis gene a)-related kinase 2	X	<u>X</u>	X
PCNT2	5116	pericentrin 2 (kendrin)	X	<u>X</u>	X
KNSL7	56992	kinesin-like 7	X	<u>X</u>	X
BRCA1	672	breast cancer 1, early onset	X	<u>X</u>	X
MPHOSP1	9585	M-phase phosphoprotein 1	X	<u>X</u>	X
<b><u>Mitochondrial biogenesis</u></b>					
ABCB6	10058	ATP-binding cassette, sub-family B (MDR/TAP), member 6	X		X
COX8	1351	cytochrome c oxidase subunit VIII	X		X
MRP63	78988	mitochondrial ribosomal protein 63	X	<u>X</u>	X
MRPL27	51264	mitochondrial ribosomal protein L27	X	<u>X</u>	X
MRPL37	51253	mitochondrial ribosomal protein L37	X	<u>X</u>	X
MRPL46	26589	mitochondrial ribosomal protein L46	X		X
MRPL51	51258	mitochondrial ribosomal protein L51		<u>X</u>	
MRPS11	64963	mitochondrial ribosomal protein S11	X	<u>X</u>	X
MUT	4594	methylmalonyl Coenzyme A mutase	X	<u>X</u>	X
SUCLG1	8802	succinate-CoA ligase, GDP-forming, alpha subunit	X	<u>X</u>	X
SLC25A14	9016	solute carrier family 25 (mitochondrial carrier, brain), member 14	X		X
TIMM8A	1678	translocase of inner mitochondrial membrane 8 homolog A (yeast)	X		
TIMM23	10431	translocase of inner mitochondrial membrane 23 homolog (yeast)	X	<u>X</u>	
MRPL32	64983	mitochondrial ribosomal protein L32			X
MRPL4	51073	mitochondrial ribosomal protein L4		<u>X</u>	
NDUFS3	4722	NADH dehydrogenase (ubiquinone) Fe-S protein 3, 30kDa (NADH-coenzyme Q reductase)			X
<b><u>mRNA processing</u></b>					
CSTF1	1477	cleavage stimulation factor, 3' pre-RNA, subunit 1, 50kDa	X	<u>X</u>	X
CSTF3	1479	cleavage stimulation factor, 3' pre-RNA, subunit 3, 77kDa	X	<u>X</u>	X
CSTF2T	23283	cleavage stimulation factor, 3' pre-RNA, subunit 2, 64kDa, tau variant	X	<u>X</u>	
LSM3	27258	LSM3 homolog, U6 small nuclear RNA associated (S. cerevisiae)	X	<u>X</u>	
LSM4	25804	LSM4 homolog, U6 small nuclear RNA associated (S. cerevisiae)	X	<u>X</u>	
LSM5	23658	LSM5 homolog, U6 small nuclear RNA associated (S. cerevisiae)	X	<u>X</u>	X
SFRS2	6427	splicing factor, arginine/serine-rich 2	X	<u>X</u>	X
SNRPD2	6633	small nuclear ribonucleoprotein D2 polypeptide 16.5kDa	X	<u>X</u>	X

SFRS1	6426	splicing factor, arginine/serine-rich 1 (splicing factor 2, alternate splicing factor)	x	<u>x</u>	x
DHX35	60625	DEAH (Asp-Glu-Ala-His) box polypeptide 35	x		x
DDX10	1662	DEAD (Asp-Glu-Ala-Asp) box polypeptide 10	x		x
DDX21	9188	DEAD (Asp-Glu-Ala-Asp) box polypeptide 21	x	<u>x</u>	x
RPL26	6154	ribosomal protein L26	x		
PPM1G	5496	protein phosphatase 1G (formerly 2C), magnesium-dependent, gamma isoform		<u>x</u>	
WBP4	11193	WW domain binding protein 4 (formin binding protein 21)			x

### **Cytoskeleton**

KIF20A	10112	kinesin family member 20A	x	<u>x</u>	x
KIF2C	11004	kinesin family member 2C	x	<u>x</u>	x
KIF4A	24137	kinesin family member 4A	x	<u>x</u>	x
STOML2	30968	stomatin (EPB72)-like 2		<u>x</u>	x
KIF22	3835	kinesin family member 22	x		x
GTSE1	51512	G-2 and S-phase expressed 1	x	<u>x</u>	x
KNSL7	56992	kinesin-like 7	x	<u>x</u>	x
ACTA2	59	actin, alpha 2, smooth muscle, aorta	x		
DKFZP434	81930	kinesin family member 18A	x		
CSPG6	9126	chondroitin sulfate proteoglycan 6 (bamacan)	x	<u>x</u>	x
MPHOSP1	9585	M-phase phosphoprotein 1	x	<u>x</u>	x
MGC3248	84516	dynactin 4	x		
TMOD2	29767	tropomodulin 2 (neuronal)	x		
KIF14	9928	kinesin family member 14	x	<u>x</u>	

### **Endoplasmic reticulum/Golgi apparatus**

CGI-100	50999	CGI-100 protein	x	<u>x</u>	x
PSMA1	5682	proteasome (prosome, macropain) subunit, alpha type, 1	x	<u>x</u>	x
SRPR	6734	signal recognition particle receptor ('docking protein')	x		x
ALG8	79053	asparagine-linked glycosylation 8 homolog (yeast, alpha-1,3-glucosyltransferase)	x	<u>x</u>	x
USP5	8078	ubiquitin specific protease 5 (isopeptidase T)	x	<u>x</u>	
COPS7A	50813	COP9 constitutive photomorphogenic homolog subunit 7A (Arabidopsis)		<u>x</u>	
B3GAT2	135152	beta-1,3-glucuronyltransferase 2 (glucuronosyltransferase S)		<u>x</u>	
SREBF2	6721	sterol regulatory element binding transcription factor 2		<u>x</u>	
STX18	53407	syntaxin 18			x
GMPPB	29925	GDP-mannose pyrophosphorylase B	x		
GBF1	8729	golgi-specific brefeldin A resistance factor 1	x		

<b><u>Immune response</u></b>					
BAT4	7918	HLA-B associated transcript 4	x		
STAM	8027	signal transducing adaptor molecule (SH3 domain and ITAM motif) 1		<u>x</u>	
SP2	6668	Sp2 transcription factor		<u>x</u>	
ASB10	136371	ankyrin repeat and SOCS box-containing 10		<u>x</u>	
MAP3K7	6885	mitogen-activated protein kinase kinase kinase 7	x	<u>x</u>	x
CIP29	84324	cytokine induced protein 29 kDa	x		
<b><u>Signal transduction</u></b>					
MAP4K3	8491	mitogen-activated protein kinase kinase kinase kinase 3	x		
EPHA1	2041	EphA1	x		
MAP3K4	4216	mitogen-activated protein kinase kinase kinase 4	x		
ASB10	136371	ankyrin repeat and SOCS box-containing 10		<u>x</u>	
STAM	8027	signal transducing adaptor molecule (SH3 domain and ITAM motif) 1		<u>x</u>	
<b><u>Stress response</u></b>					
HSPA1B	3304	heat shock 70kDa protein 1B		<u>x</u>	
MAP3K4	4216	mitogen-activated protein kinase kinase kinase 4	x		
PPM1G	5496	protein phosphatase 1G (formerly 2C), magnesium-dependent, gamma isoform		<u>x</u>	
MAP4K3	8491	mitogen-activated protein kinase kinase kinase kinase 3	x		
STCH	6782	stress 70 protein chaperone, microsomal-associated, 60kDa		<u>x</u>	
MAP3K7	6885	mitogen-activated protein kinase kinase kinase 7	x	<u>x</u>	x
<b><u>Ubiquitination</u></b>					
BMSC-Ubl	84993	bone marrow stromal cell-derived ubiquitin-like	x		
UBL1	7341	ubiquitin-like 1 (sentrin)	x		
USP1	7398	ubiquitin specific protease 1	x	<u>x</u>	
HSPC150	29089	HSPC150 protein similar to ubiquitin-conjugating enzyme	x	<u>x</u>	x
UCHL5	51377	ubiquitin carboxyl-terminal hydrolase L5	x		x
UBE2D3	7323	ubiquitin-conjugating enzyme E2D 3 (UBC4/5 homolog, yeast)		<u>x</u>	
FBXO5	26271	F-box only protein 5	x		
PSMA5	5686	proteasome (prosome, macropain) subunit, alpha type, 5	x		x
RNF44	22838	ring finger protein 44	x		
<b><u>Transcriptional regulator</u></b>					
E2F3	1871	E2F transcription factor 3	x	<u>x</u>	x
E2F2	1870	E2F transcription factor 2		<u>x</u>	

TCERG1	10915	transcription elongation regulator 1 (CA150)	x	<u>x</u>	x
LOC11564	115648	similar to hypothetical protein FLJ13659			x
M96	22823	likely ortholog of mouse metal response element binding transcription factor 2	x	<u>x</u>	
IRF3	3661	interferon regulatory factor 3	x	<u>x</u>	
NFYA	4800	nuclear transcription factor Y, alpha	x		
RBL1	5933	retinoblastoma-like 1 (p107)	x	<u>x</u>	x
BMI1	648	B lymphoma Mo-MLV insertion region (mouse)	x	<u>x</u>	x
BRCA1	672	breast cancer 1, early onset	x	<u>x</u>	x
TAF11	6882	TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 2	x	<u>x</u>	x
ZNF85	7639	zinc finger protein 85 (HPF4, HTF1)	x	<u>x</u>	x
CIP29	84324	cytokine induced protein 29 kDa	x		
EED	8726	embryonic ectoderm development	x		
BAZ1B	9031	bromodomain adjacent to zinc finger domain, 1B	x	<u>x</u>	x
ASH2L	9070	ash2 (absent, small, or homeotic)-like (Drosophila)	x	<u>x</u>	
ZNF300	91975	kruppel-like zinc finger protein	x	<u>x</u>	x
ZNF254	9534	zinc finger protein 254	x		
DMTF1	9988	cyclin D binding myb-like transcription factor 1	x	<u>x</u>	x
SSA2	6738	Sjogren syndrome antigen A2 (60kDa, ribonucleoprotein autoantigen SS-A/Ro)	x		x
ATF2	1386	activating transcription factor 2		<u>x</u>	
TCF19	6941	transcription factor 19 (SC1)	x		x
RAM2	55536	transcription factor RAM2		<u>x</u>	x
RBL2	5934	retinoblastoma-like 2 (p130)		<u>x</u>	
SREBF2	6721	sterol regulatory element binding transcription factor 2		<u>x</u>	
ZNF442	79973	zinc finger protein 442	x		
GTL3	29105	likely ortholog of mouse gene trap locus 3	x		x
<b><u>Cell proliferation</u></b>					
NBR2	10230	neighbor of BRCA1 gene 2	x	<u>x</u>	x
AP4B1	10717	adaptor-related protein complex 4, beta 1 subunit	x	<u>x</u>	x
PLK4	10733	polo-like kinase 4 (Drosophila)	x	<u>x</u>	x
SLC31A1	1317	solute carrier family 31 (copper transporters), member 1		<u>x</u>	
GRIN2D	2906	glutamate receptor, ionotropic, N-methyl D-aspartate 2D	x	<u>x</u>	x
FTSJ2	29960	FtsJ homolog 2 (E. coli)	x	<u>x</u>	x
KPNB1	3837	karyopherin (importin) beta 1	x		
CGI-141	51026	CGI-141 protein	x	<u>x</u>	x
PLSCR1	5359	phospholipid scramblase 1			x
BRIX	55299	BRIX	x		

VPS35	55737	vacuolar protein sorting 35 (yeast)	x	<u>x</u>	x
NUP107	57122	nuclear pore complex protein	x	<u>x</u>	x
PXF	5824	peroxisomal farnesylated protein			
RBM15	64783	RNA binding motif protein 15	x	<u>x</u>	x
SMC6L1	79677	SMC6 structural maintenance of chromosomes 6-like 1 (yeast)		<u>x</u>	
GSG2	83903	haspin	x	<u>x</u>	
GBF1	8729	golgi-specific brefeldin A resistance factor 1	x		
IER5	51278	immediate early response 5	x	<u>x</u>	x
FGF22	27006	fibroblast growth factor 22	x		
FSCN1	6624	fascin homolog 1, actin-bundling protein (Strongylocentrotus purpuratus)		<u>x</u>	