Supplementary information S1 | **Cancer-gene set**

Symbol	Locuslink ID	Protein ID*	Chromosome band	Tumour types (somatic mutations)	Tumour types (germline mutations)	Cancer syndrome	Tissue type	Cancer molecular genetics	Mutation type	*Translocation partner*
ABL1	25	P00519	9q34.1	CML, ALL	–	–	L	Dom	T	*BCR, ETV6*
ABL2	27	P42684	1q24-q25	AML	–	–	L	Dom	T	*ETV6*
AF15Q14	57082	NP_065113	15q14	AML	–	–	L	Dom	T	*MLL*
AF1Q	10962	Q13015	1q21	ALL	–	–	L	Dom	T	*MLL*
AF3p21	51517	Q9NZQ3	3p21	ALL	–	–	L	Dom	T	*MLL*
AF5q31	27125	NP_055238	5q31	ALL	–	–	L	Dom	T	*MLL*
AKT2	208	P31751	19q13.1-q13.2	Ovarian, pancreatic	–	–	E	Dom	A	
ALK	238	Q9UM73	2p23	ALCL	–	–	L	Dom	T	*NPM1, TPM3, TFG, TPM4, ATIC, CLTC, MSN, ALO17*
ALO17	57714	XP_290769	17q25.3	ALCL	–	–	L	Dom	T	*ALK*
APC	324	P25054	5q21	Colorectal, pancreatic, desmoid, hepatoblastoma, glioma, other CNS	Colorectal, pancreatic, desmoid, hepatoblastoma, glioma, other CNS	Adenomatous polyposis coli; Turcot syndrome	E, M, O	Rec	D‡, Mis, N, F, S	–
ARHGEF12	23365	NP_056128	11q23.3	AML	–	–	L	Dom	T	*MLL*
ARHH	399	Q15669	4p13	NHL	–	–	L	Dom	T	*BCL6*
ARNT	405	P27540	1q21	AML	–	–	L	Dom	T	*ETV6*
ASPSCR1	79058	NP_076988	17q25	Alveolar soft part sarcoma	–	–	M	Dom	T	*TFE3*
ATF1	466	P18846	12q13	Malignant melanoma of soft parts, angiomatoid fibrous histiocytoma	–	–	E, M	Dom	T	*EWSR1*
ATIC	471	P31939	2q35	ALCL	–	–	L	Dom	T	*ALK*
ATM	472	Q13315	11q22.3	T-PLL	Leukaemia, lymphoma, medulloblastoma, glioma	Ataxia telangiectasia	L, O	Rec	D, Mis, N, F, S	–
BCL10	8915	O95999	1p22	MALT	–	–	L	Dom	T	*IGHα*
BCL11A	53335	NP_060484	2p13	B-CLL	–	–	L	Dom	T	*IGHα*
BCL11B	64919	NP_612808	14q32.1	T-ALL	–	–	L	Dom	T	*TLX3*
BCL2	596	P10415	18q21.3	NHL, CLL	–	–	L	Dom	T	*IGHα*
BCL3	602	P20749	19q13	CLL	–	–	L	Dom	T	*IGHα*
BCL5	603	I52586	17q22	CLL	–	–	L	Dom	T	*MYC*
BCL6	604	P41182	3q27	NHL, CLL	–	–	L	Dom	T, Mis	*IG* loci, *ZNFN1A1, LCP1, PIM1, TFRC, MHC2TA, NACA, HSPCB, HSPCA, HIST1H4I, IL21R, POU2AF1, ARHH, EIF4A2*
BCL7A	605	NP_066273	12q24.1	B-NHL	–	–	L	Dom	T	*MYC*
BCL9	607	O00512	1q21	B-ALL	–	–	L	Dom	T	*IGHα, IGLα*
BCR	613	P11274	22q11.21	CML, ALL	–	–	L	Dom	T	*ABL1, FGFR1*
BHD	201163	NP_659434	17p11.2		Renal, fibrofolliculomas, trichodiscomas	Birt–Hogg–Dube syndrome	E, M	Rec?	Mis, N, F	–
BIRC3	330	Q13489	11q22-q23	MALT	–	–	L	Dom	T	*MALT1*

BLM	641	P54132	15q26.1	–	Leukaemia, lymphoma, skin squamous cell, other cancers	Bloom Syndrome	L, E	Rec	Mis, N, F	–
BMPR1A	657	P36894	10q22.3	–	Gastrointestinal polyps	Juvenile polyposis	E	Rec	Mis, N, F	–
BRAF	673	P15056	7q34	Melanoma, colorectal, papillary thyroid, borderline ovarian, NSCLC, cholangiocarcinoma	–	–	E	Dom	M	–
BRCA1	672	P38398	17q21	Ovarian	Breast, ovarian	Hereditary breast/ ovarian	E	Rec	D, Mis, N, F, S	–
BRCA2	675	P51587	13q12	Breast, ovarian, pancreatic	Breast, ovarian, pancreatic, leukaemia (FANCB, FANCD1)	Hereditary breast/ ovarian	L, E	Rec	D, Mis, N,	– *F, S*
BRD4	23476	O60885	19p13.1	Lethal midline carcinoma of young people	–	–	E	Dom	T	*NUT*
BTG1	694	P31607	12q22	BCLL	–	–	L	Dom	T	*MYC*
CBFA2T1	862	Q06455	8q22	AML	–	–	L	Dom	T	*MLL, RUNX1*
CBFA2T3	863	NP_005178	16q24	AML	–	–	L	Dom	T	*RUNX1*
CBFB	865	Q13951	16q22	AML	–	–	L	Dom	T	*MYH11*
CBL	867	P22681	11q23.3	AML	–	–	L	Dom	T	*MLL*
CCND1	595	P24385	11q13	CLL, B-ALL, breast	–	–	L, E	Dom	T	*IGHα, FSTL3*
CDH1	999	P12830	16q22.1	Lobular breast, gastric	Gastric	Familial gastric carcinoma	E	Rec	Mis, N, F, S	–
CDK4	1019	P11802	12q14	–	Melanoma	Familial malignant melanoma	E	Dom	Mis	–
CDKN2A-p14^{ARF}	1029	NP_478102	9p21	Melanoma, multiple other	Melanoma, pancreatic	Familial malignant melanoma	L, E, M, O	Rec	D, S	–
CDKN2A -p16^{INK4A}	1029	P42771	9p21	Melanoma, multiple other	Melanoma, pancreatic	Familial malignant melanoma	L, E, M, O	Rec	D, Mis, N, F, S	–
CDX2	1045	Q99626	13q12.3	AML	–	–	L	Dom	T	*ETV6*
CEBPA	1050	NP_004355	11p15.5	AML, MDS	–	–	L	Dom	Mis, N, F	–
CEP1	11064	NP_008949	9q33	MPD/NHL	–	–	L	Dom	T	*FGFR1*
CHIC2	26511	NP_036242	4q11-q12	AML	–	–	L	Dom	T	*ETV6*
CHN1	1123	P15882	2q31-q32.1	Extraskeletal myxoid chondrosarcoma	–	–	M	Dom	T	*TAF15*
CLTC	1213	Q00610	17q11-qter	ALCL	–	–	L	Dom	T	*ALK*
COL1A1	1277	P02452	17q21.31-q22	Dermatofibrosarcoma protuberans	–	–	M	Dom	T	*PDGFB*
COPEB	1316	Q99612	10p15	Prostatic, glioma	–	–	E, O	Rec	Mis, N	–
COX6C	1345	P09669	8q22-q23	Uterine leiomyoma	–	–	M	Dom	T	*HMGA2*
CREBBP	1387	Q92793	16p13.3	AL, AML	–	–	L	Dom	T	*MLL, MORF, RUNXBP2*
CTNNB1	1499	P35222	3p22-p21.3	Colorectal, ovarian, hepatoblastoma, others	–	–	E, M, O	Dom	H, Mis	–
CYLD	1540	NP_056062	16q12-q13	Cylindroma	Cylindroma	Familial cylindromatosis	E	Rec	Mis, N, F, S	–
D10S170	8030	NP_005427	10q21	Papillary thyroid, CML	–	–	E	Dom	T	*RET, PDGFRB*
DDB2	1643	Q92466	11p12	–	Skin basal cell, skin squamous cell, melanoma	Xeroderma pigmentosum E	E	Rec	M, N	–
DDIT3	1649	P35638	12q13.1-q13.2	Liposarcoma	–	–	M	Dom	T	*FUS*

DDX10	1662	Q13206	11q22-q23	AML[§]	–	–	L	Dom	T	*NUP98*
DEK	7913	P35659	6p23	AML	–	–	L	Dom	T	*NUP214*
EGFR	1956	P00533	7p12.3-p12.1	Glioma	–	–	O	Dom	A, O[‖]	–
EIF4A2	1974	Q14240	3q27.3	NHL	–	–	L	Dom	T	*BCL6*
ELKS	23085	NP_055879	12p13.3	Papillary thyroid	–	–	E	Dom	T	*RET*
ELL	8178	P55199	19p13.1	AL	–	–	L	Dom	T	*MLL*
EP300	2033	Q09472	22q13	Colorectal, breast, pancreatic, AML	–	–	L, E	Rec	T	*MLL, RUNXBP2*
EPS15	2060	P42566	1p32	ALL	–	–	L	Dom	T	*MLL*
ERBB2	2064	P04626	17q21.1	Breast, ovarian, other tumour types	–	–	E	Dom	A	–
ERCC2	2068	P18074	19q13.2-q13.3	–	Skin basal cell, skin squamous cell, melanoma	Xeroderma pigmentosum D	E	Rec	M, N, F, S	–
ERCC3	2071	P19447	2q21	–	Skin basal cell, skin squamous cell, melanoma	Xeroderma pigmentosum B	E	Rec	M, S	–
ERCC4	2072	Q92889	16p13.3-p13.13	–	Skin basal cell, skin squamous cell, melanoma	Xeroderma pigmentosum F	E	Rec	M, N, F	–
ERCC5	2073	P28715	13q33	–	Skin basal cell, skin squamous cell, melanoma	Xeroderma pigmentosum G	E	Rec	M, N, F	–
ERG	2078	P11308	21q22.3	Ewing's sarcoma	–	–	M	Dom	T	*EWSR1*
ETV1	2115	P50549	7p22	Ewing's sarcoma	–	–	M	Dom	T	*EWSR1*
ETV4	2118	P43268	17q21	Ewing's sarcoma	–	–	M	Dom	T	*EWSR1*
ETV6	2120	P41212	12p13	Congenital fibrosarcoma, multiple leukaemia and lymphoma, secretory breast	–	–	L, E, M	Dom	T	*NTRK3, RUNX1, PDGFRB, ABL1, MN1, ABL2, FACL6, CHIC2, ARNT, JAK2, EVI1, CDX2, STL*
EVI1	2122	Q03112	3q26	AML, CML	–	–	L	Dom	T	*RUNX1, ETV6*
EWSR1	2130	NP_005234	22q12	Ewing's sarcoma, desmoplastic small round cell, ALL	–	–	L, M	Dom	T	*FLI1, ERG, ZNF278, NR4A3, TEC, FEV, ATF1, ETV1, ETV4, WT1, ZNF384*
EXT1	2131	NP_000118	8q24.11-q24.13	–	Exostoses, osteosarcoma	Multiple exostoses type 1	M	Rec	Mis, N, F, S	–
EXT2	2132	Q93063	11p12-p11	–	Exostoses, osteosarcoma	Multiple exostoses type 2	M	Rec	Mis, N, F, S	–
FACL6	23305	NP_056071	5q31	AML, AEL	–	–	L	Dom	T	*ETV6*
FANCA	2175	NP_000126	16q24.3	–	AML, leukaemia	Fanconi anaemia A	L	Rec	D, Mis, N, F, S	–
FANCC	2176	Q00597	9q22.3	–	AML, leukaemia	Fanconi anaemia C	L	Rec	D, Mis, N, F, S	–
FANCD2	2177	NP_149075	3p26	–	AML, leukaemia	Fanconi anaemia D2	L	Rec	D, Mis, N, F	–
FANCE	2178	NP_068741	6p21-p22	–	AML, leukaemia	Fanconi anaemia E	L	Rec	N, F, S	–
FANCF	2188	Q9NPI8	11p15	–	AML, leukaemia	Fanconi anaemia F	L	Rec	N, F	–
FANCG	2189	O15287	9p13	–	AML, leukaemia	Fanconi anaemia G	L	Rec	Mis, N, F, S	–
FEV	54738	NP_059991	2q36	Ewing's sarcoma	–	–	M	Dom	T	*EWSR1*
FGFR1	2260	P11362	8p11.2-p11.1	MPD/NHL	–	–	L	Dom	T	*BCR, FOP, ZNF198, CEP1*

FGFR1OP	11116	NP_008976	6q27	MPD/NHL	–	–	L	Dom	T	*FGFR1*
FGFR2	2263	P21802	10q26	Gastric	–	–	E	Dom	Mis	–
FGFR3	2261	P22607	4p16.3	Bladder, MM	–	–	L, E	Dom	Mis, T	*IGHα*
FH	2271	P07954	1q42.1	–	Leiomyomatosis, renal	Hereditary leiomyomatosis and renal-cell cancer	E, M	Rec	Mis, N, F	–
FIP1L1	81608	NP_112179	4q12	Idiopathic hypereosinophilic syndrome	–	–	L	Dom	T	*PDGFRA*
FLI1	2313	Q01543	11q24	Ewing's sarcoma	–	–	M	Dom	T	*EWSR1*
FLT3	2322	P36888	13q12	AML, ALL	–	–	L	Dom	Mis, O	–
FLT4	2324	P35916	5q35.3	Angiosarcoma	–	–	M	Dom	Mis	–
FNBP1	23048	XP_052666	9q23	AML	–	–	L	Dom	T	*MLL*
FOXO1A	2308	Q12778	13q14.1	Alveolar rhabdomyosarcomas	–	–	M	Dom	T	*PAX3*
FOXO3A	2309	O43524	6q21	AL	–	–	L	Dom	T	*MLL*
FSTL3	10272	O95633	19p13	B-CLL	–	–	L	Dom	T	*CCND1*
FUS	2521	P35637	16p11.2	Liposarcoma	–	–	M	Dom	T	*DDIT3*
GAS7	8522	O60861	17p	AML[§]	–	–	L	Dom	T	*MLL*
GATA1	2623	P15976	Xp11.23	Megakaryoblastic leukaemia of Down syndrome	–	–	L	Dom	Mis, F	–
GMPS	8833	P49915	3q24	AML	–	–	L	Dom	T	*MLL*
GNAS	2778	P04895	20q13.2	Pituitary adenoma	–	–	E	Dom	Mis	–
GOLGA5	9950	NP_005104	14q	Papillary thyroid	–	–	E	Dom	T	*RET*
GPC3	2719	P51654	Xq26.1	–	Wilms' tumour	Simpson–Golabi–Behmel syndrome	O	Rec	*T, D, Mis, N, F, S*	–
GPHN	10243	Q9NQX3	14q24	AL	–	–	L	Dom	T	*MLL*
GRAF	23092	NP_055886	5q31	AML, MDS	–	–	L	Dom	T, F, S	*MLL*
HEI10	57820	NP_067001	14q11.1	Uterine leiomyoma	–	–	M	Dom	T	*HMGA2*
HIP1	3092	O00291	7q11.23	CMML	–	–	L	Dom	T	*PDGFRB*
HIST1H4I	8294	NP_003486	6p21.3	NHL	–	–	L	Dom	T	*BCL6*
HLF	3131	Q16534	17q22	ALL	–	–	L	Dom	T	*TCF3*
HMGA2	8091	P52926	12q15	Lipoma	–	–	M	Dom	T	*LHFP, RAD51L1, LPP, HEI10, COX6C*
HOXA11	3207	P31270	7p15-p14.2	CML	–	–	L	Dom	T	*NUP98*
HOXA13	3209	P31271	7p15-p14.2	AML	–	–	L	Dom	T	*NUP98*
HOXA9	3205	P31269	7p15-p14.2	AML[§]	–	–	L	Dom	T	*NUP98*
HOXC13	3229	P31276	12q13.3	AML	–	–	L	Dom	T	*NUP98*
HOXD11	3237	P31277	2q31-q32	AML	–	–	L	Dom	T	*NUP98*
HOXD13	3239	P35453	2q31-q32	AML[§]	–	–	L	Dom	T	*NUP98*
HRAS	3265	P01112	11p15.5	Infrequent sarcomas, rare other types	–	–	L, M	Dom	Mis	–
HRPT2	3279	NP_013522	1q21-q31	Parathyroid adenoma	Parathyroid adenoma, mulitiple ossifying jaw fibroma	Hyperparathyroidism jaw tumour syndrome	E, M	Rec	Mis, N, F	–
HSPCA	3320	P07900	1q21.2-q22	NHL	–	–	L	Dom	T	*BCL6*
HSPCB	3326	P08238	6p12	NHL	–	–	L	Dom	T	*BCL6*

IGHα	3492	–	14q32.33	MM, Burkitt's lymphoma, NHL, CLL, B-ALL, MALT	–	–	L	Dom	T	*MYC, FGFR3, PAX5, IRTA1, IRF4, CCND1, BCL9, BCL6, BCL8, BCL2, BCL3, BCL10, BCL11A. LHX4*
IGKα	50802	–	2p12	Burkitt's lymphoma	–	–	L	Dom	T	*MYC*
IGLα	3535	–	22q11.1-q11.2	Burkitt's lymphoma	–	–	L	Dom	T	*BCL9, MYC*
IL21R	50615	Q9HBE5	16p11	NHL	–	–	L	Dom	T	*BCL6*
IRF4	3662	Q15306	6p25-p23	MM	–	–	L	Dom	T	*IGHα*
IRTA1	83417	NP_112572	1q21	B-NHL	–	–	L	Dom	T	*IGHα*
JAK2	3717	O60674	9p24	ALL, AML	–	–	L	Dom	T	*ETV6*
KIT	3815	P10721	4q12	GIST, AML, TGCT	GIST, epithelioma	Familial gastrointestinal stromal	L, M, O	Dom	Mis, O	–
KRAS2	3845	NP_004976	12p12.1	Pancreatic, colorectal, lung, thyroid, AML, others	–	–	L, E, M, O	Dom	Mis	–
LAF4	3899	P51826	2q11.2-q12	ALL	–	–	L	Dom	T	*MLL*
LASP1	3927	Q14847	17q11-q21.3	AML	–	–	L	Dom	T	*MLL*
LCK	3932	NP_005347	1p35-p34.3	T-ALL	–	–	L	Dom	T	*TRBα*
LCP1	3936	P13796	13q14.1-q14.3	NHL	–		L	Dom	T	*BCL6*
LCX	80312	XP_167612	10q21	AML	–	–	L	Dom	T	*MLL*
LHFP	10186	NP_005771	13q12	Lipoma	–	–	M	Dom	T	*HMGA2*
LMO1	4004	P25800	11p15	T-ALL	–	–	L	Dom	T	*TRDα*
LMO2	4005	P25791	11p13	T-ALL	–	–	L	Dom	T	*TRDα*
LPP	4026	NP_005569	3q28	Lipoma, leukaemia	–	–	L, M	Dom	T	*HMGA2, MLL*
LYL1	4066	P12980	19p13.2-p13.1	T-ALL	–	–	L	Dom	T	*TRBα*
MADH4	4089	Q13485	18q21.1	Colorectal, pancreatic, small intestine	Gastrointestinal polyps	Juvenile polyposis	E	Rec	D, Mis, N, F	–
MALT1	10892	Q9UDY8	18q21	MALT	–	–	L	Dom	T	*BIRC3*
MAML2	84441	XP_045716	11q22-q23	Salivary-gland mucoepidermoid	–	–	E	Dom	T	*MECT1*
MAP2K4	6416	P45985	17p11.2	Pancreatic, breast, colorectal	–	–	E	Rec	D, Mis, N	–
MDS1	4197	Q13465	3q26	MDS, AML	–	–	L	Dom	T	*RUNX1*
MECT1	94159	AAK93832.1	19p13	Salivary-gland mucoepidermoid	–	–	E	Dom	T	*MAML2*
MEN1	4221	O00255	11q13	Parathyroid	Parathyroid adenoma, pituitary adenoma, pancreatic islet cell, carcinoid	Multiple endocrine neoplasia type 1	E	Rec	D, Mis, N, F, S	–
MET	4233	P08581	7q31	Papillary renal, head-neck squamous cell	Papillary renal	Familial papillary renal	E	Dom	Mis	–
MHC2TA	4261	P33076	16p13	NHL	–	–	L	Dom	T	*BCL6*
MLF1	4291	P58340	3q25.1	AML	–	–	L	Dom	T	*NPM1*
MLH1	4292	P40692	3p21.3	Colorectal, endometrial, ovarian, CNS	Colorectal, endometrial, ovarian, CNS	Hereditary non-polyposis colorectal, Turcot syndrome	E, O	Rec	D, Mis, N, F, S	–
MLL	4297	Q03164	11q23	AML, ALL	–	–	L	Dom	T, O	*MLL, MLLT1, MLLT2, MLLT3, MLLT4, MLLT7, MLLT10, MLLT6, ELL, EPS15, AF1Q, CREBBP,*

										SH3GL1, FNBP1, PNUTL1, MSF, GPHN, GMPS, SSH3BP1, ARHGEF12, GAS7, FOXO3A, LAF4, LCX, SEPT6, LPP, CBFA2T1, GRAF, EP300, PICALM
MLLT1	4298	Q03111	19p13.3	AL	–	–	L	Dom	T	*MLL*
MLLT10	8028	P55197	10p12	AL	–	–	L	Dom	T	*MLL, PICALM*
MLLT2	4299	P51825	4q21	AL	–	–	L	Dom	T	*MLL*
MLLT3	4300	P42568	9p22	ALL	–	–	L	Dom	T	*MLL*
MLLT4	4301	P55196	6q27	AL	–	–	L	Dom	T	*MLL*
MLLT6	4302	P55198	17q21	AL	–	–	L	Dom	T	*MLL*
MLLT7	4303	NP_005929	Xq13.1	AL	–	–	L	Dom	T	*MLL*
MN1	4330	Q10571	22q13	AML, meningioma	–	–	L, O	Dom	T	*ETV6*
MSF	10801	NP_006631	17q25	AML[§]	–	–	L	Dom	T	*MLL*
MSH2	4436	P43246	2p22-p21	Colorectal, endometrial, ovarian	Colorectal, endometrial, ovarian	Hereditary non-polyposis colorectal	E	Rec	D, Mis, N, F, S	–
MSH6	2956	P52701	2p16	Colorectal	Colorectal, endometrial, ovarian	Hereditary non-polyposis colorectal	E	Rec	Mis, N, F, S	–
MSN	4478	P26038	Xq11.2-q12	ALCL	–	–	L	Dom	T	*ALK*
MUTYH	4595	NP_036354	1p34.3-1p32.1		Colorectal	Adenomatous polyposis coli	E	Rec	M	–
MYC	4609	P01106	8q24.12-q24.13	Burkitt's lymphoma, amplified in other cancers, B-CLL	–	–	L, E	Dom	A, T	*IGKα, BCL5, BCL7A, BTG1, TRAα, IGHα*
MYCL1	4610	P12524	1p34.3	Small cell lung	–	–	E	Dom	A	–
MYCN	4613	P04198	2p24.1	Neuroblastoma	–	–	O	Dom	A	–
MYH11	4629	P35749	16p13.13-p13.12	AML	–	–	L	Dom	T	*CBFB*
MYH9	4627	P35579	22q13.1	ALCL	–	–	L	Dom	T	*ALK*
MYST4	23522	NP_036462	10q22	AML	–	–	L	Dom	T	*CREBBP*
NACA	4666	NP_005585	12q23-q24.1	NHL	–	–	L	Dom	T	*BCL6*
NBS1	4683	NP_002476	8q21	–	NHL, glioma, medulloblastoma, rhabdomyosarcoma	Nijmegen breakage syndrome	L, E, M, O	Rec	Mis, N, F	–
NCOA2	10499	Q15596	8q13.1	AML	–	–	L	Dom	T	*RUNXBP2*
NCOA4	8031	Q13772	10q11.2	Papillary thyroid	–	–	E	Dom	T	*RET*
NF1	4763	P21359	17q12	Neurofibroma, glioma	Neurofibroma, glioma	Neurofibromatosis type 1	O	Rec	D, Mis, N, F, S, O	–
NF2	4771	P35240	22q12.2	Meningioma, acoustic neuroma	Meningioma, acoustic neuroma	Neurofibromatosis type 2	O	Rec	D, Mis, N, F, S, O	–
NOTCH1	4851	P46531	9q34.3	T-ALL	–	–	L	Dom	T	*TRBα*
NPM1	4869	P06748	5q35	NHL, APL, AML	–	–	L	Dom	T	*ALK, RARA, MLF1*
NR4A3	8013	Q92570	9q22	Extraskeletal myxoid chondrosarcoma	–	–	M	Dom	T	*EWSR1*
NRAS	4893	P01111	1p13.2	Melanoma, MM, AML, thyroid	–	–	L, E	Dom	Mis	–
NSD1	64324	NP_071900	5q35	AML	–	–	L	Dom	T	*NUP98*

NTRK1	4914	P04629	1q21-q22	Papillary thyroid	–	–	E	Dom	T	*TPM3, TPR, TFG*
NTRK3	4916	Q16288	15q25	Congenital fibrosarcoma, secretory breast	–	–	E, M	Dom	T	*ETV6*
NUMA1	4926	NP_006176	11q13	APL	–	–	L	Dom	T	*RARA*
NUP214	8021	P35658	9q34.1	AML	–	–	L	Dom	T	*DEK, SET*
NUP98	4928	P52948	11p15	AML	–	–	L	Dom	T	*HOXA9, NSD1, WHSC1L1, DDX10, TOP1, HOXD13, PMX1, HOXA13, HOXD11, HOXA11, RAP1GDS1*
NUT	256646	XP_171724	15q13	Lethal midline carcinoma of young people	–	–	E	Dom	T	*BRD4*
OLIG2	10215	Q13516	21q22.11	T-ALL	–	–	L	Dom	T	*TRAα*
PAX3	5077	P23760	2q35	Alveolar rhabdomyosarcoma	–	–	M	Dom	T	*FOXO1A*
PAX5	5079	Q02548	9p13	NHL	–	–	L	Dom	T	*IGHα*
PAX7	5081	P23759	1p36.2-p36.12	Alveolar rhabdomyosarcoma	–	–	M	Dom	T	*FOXO1A*
PAX8	7849	Q06710	2q12-q14	Follicular thyroid	–	–	E	Dom	T	*PPARG*
PBX1	5087	NP_002576	1q23	Pre-B-ALL	–	–	L	Dom	T	*TCF3*
PCM1	5108	NP_006188	8p22-p21.3	Papillary thyroid	–	–	E	Dom	T	*RET*
PDGFB	5155	P01127	22q12.3-q13.1	DFSP	–	–	M	Dom	T	*COL1A1*
PDGFRA	5156	P16234	4q11-q13	GIST	–	–	M, O	Dom	Mis, O	–
PDGFRB	5159	NP_002600	5q31-q32	MPD, AML, CMML, CML	–	–	L	Dom	T	*ETV6, TRIP11, HIP1, RAB5EP, H4*
PICALM	8301	Q13492	11q14	T-ALL, AML	–	–	L	Dom	T	*MLLT10, MLL*
PIM1	5292	P11309	6p21.2	NHL	–	–	L	Dom	T	*BCL6*
PML	5371	P29590	15q22	APL	–	–	L	Dom	T	*RARA*
PMS1	5378	P54277	2q31-q33	–	Colorectal, endometrial, ovarian	Hereditary non-polyposis colorectal cancer	E	Rec	Mis, N	–
PMS2	5395	P54278	7p22	–	Colorectal, endometrial, ovarian, medulloblastoma, glioma	Hereditary non-polyposis colorectal cancer, Turcot syndrome	E	Rec	Mis, N, F	–
PMX1	5396	P54821	1q24	AML	–	–	L	Dom	T	*NUP98*
PNUTL1	5413	NP_002679	22q11.2	AML	–	–	L	Dom	T	*MLL*
POU2AF1	5450	Q16633	11q23.1	NHL	–	–	L	Dom	T	*BCL6*
PPARG	5468	P37231	3p25	Follicular thyroid	–	–	E	Dom	T	*PAX8*
PRCC	5546	Q92733	1q21.1	Papillary renal	–	–	E	Dom	T	*TFE3*
PRKAR1A	5573	P10644	17q23-q24	Papillary thyroid	Myxoma, endocrine, papillary thyroid	Carney complex	E, M	Dom, Rec	T, Mis, N, F, S	*RET*
PRO1073	29005	Q9UHZ2	11q31.1	Renal-cell carcinoma (childhood epithelioid)	–	–	E	Dom	T	*TFEB*
PSIP2	11168	NP_150091	9p22.2	AML	–	–	L	Dom	T	*NUP98*
PTCH	5727	Q13635	9q22.3	Skin basal cell, medulloblastoma	Skin basal cell, medulloblastoma	Nevoid basal-cell carcinoma syndrome	E, M	Rec	Mis, N, F, S	–
PTEN	5728	O00633	10q23.3	Glioma, prostatic, endometrial	Harmartoma, glioma, prostatic, endometrial	Cowden syndrome, Bannayan–Riley–Ruvalcaba syndrome	L, E, M, O	Rec	D, Mis, N, F, S	–

PTPN11	5781	Q06124	12q24.1	JMML, AML, MDS	–	–	L	Dom	Mis	–
RAB5EP	9135	NP_004694	17p13	CMML	–	–	L	Dom	T	*PDGFRB*
RAD51L1	5890	NP_002868	14q23-q24.2	Lipoma, uterine leiomyoma	–	–	M	Dom	T	*HMGA2*
RAP1GDS1	5910	P52306	4q21-q25	T-ALL	–	–	L	Dom	T	*NUP98*
RARA	5914	P10276	17q12	APL	–	–	L	Dom	T	*PML, ZNF145, TIF1, NUMA1, NPM1*
RB1	5925	P06400	13q14	Retinoblastoma, sarcoma, breast, small-cell lung	Retinoblastoma, sarcoma, breast, small-cell lung	Familial retinoblastoma	L, E, M, O	Rec	D, Mis, N, F, S	–
RECQL4	9401	O94761	8q24.3	–	Osteosarcoma, skin basal and sqamous cell	Rothmund–Thompson syndrome	M	Rec	N, F, S	–
REL	5966	Q04864	2p13-p12	Hodgkin Lymphoma	–	–	L	Dom	A	–
RET	5979	P07949	10q11.2	Medullary thyroid, papillary thyroid, pheochromocytoma	Medullary thyroid, papillary thyroid, pheochromocytoma	Multiple endocrine neoplasia 2A/2B	E, O	Dom	T, Mis, N, F	*H4, PRKAR1A, NCOA4, PCM1, GOLGA5, TRIM33*
RPL22	6146	P35268	3q26	AML, CML	–	–	L	Dom	T	*RUNX1*
RUNX1	861	Q01196	21q22.3	AML, pre-B-ALL	–	–	L	Dom	T	*RPL22, MDS1, EVI1, CBFA2T3, CBFA2T1, ETV6*
RUNXBP2	799	NP_006757	8p11	AML	–	–	L	Dom	T	*CREBBP, NCOA2, EP300*
SBDS	51119	Q9Y3A5	7q11	–	AML, MDS	Schwachman–Diamond syndrome	L	Rec	Gene conversion	–
SDHB	6390	P21912	1p36.1-p35	–	Paraganglioma, pheochromocytoma	Familial paraganglioma	O	Rec	Mis, N, F	–
SDHC	6391	O75609	1q21	–	Paraganglioma, pheochromocytoma	Familial paraganglioma	O	Rec	Mis, N, F	–
SDHD	6392	O14521	11q23	–	Paraganglioma, pheochromocytoma	Familial paraganglioma	O	Rec	Mis, N, F, S	–
SEPT6	23157	NP_055944	Xq24	AML	–	–	L	Dom	T	*MLL*
SET	6418	Q01105	9q34	AML	–	–	L	Dom	T	*NUP214*
SFPQ	6421	P23246	1p34.3	Papillary renal cell	–	–	E	Dom	T	*TFE3*
SH3GL1	6455	Q99961	19p13.3	AL	–	–	L	Dom	T	*MLL*
SMARCB1	6598	Q12824	22q11	Malignant rhabdoid	Malignant rhabdoid	Rhabdoid predisposition syndrome	M	Rec	D, N, F, S	–
SMO	6608	Q99835	7q31-q32	Skin basal cell	–	–	E	Dom	Mis	–
SS18	6760	Q15532	18q11.2	Synovial sarcoma	–	–	M	Dom	T	*SSX1, SSX2*
SS18L1	26039	O75177	20q13.3	Synovial sarcoma	–	–	M	Dom	T	*SSX1*
SSH3BP1	10006	NP_005461	10p11.2	AML	–	–	L	Dom	T	*MLL*
SSX1	6756	Q16384	Xp11.23-p11.22	Synovial sarcoma	–	–	M	Dom	T	*SS18*
SSX2	6757	Q16385	Xp11.23-p11.22	Synovial sarcoma	–	–	M	Dom	T	*SS18*
SSX4	6759	O60224	Xp11.23	Synovial sarcoma	–	–	M	Dom	T	*SS18*
STK11	6794	Q15831	19p13.3	NSCLC	Jejunal harmartoma, ovarian, testicular, pancreatic	Peutz–Jeghers syndrome	E, M, O	Rec	D, Mis, N, F, S	–
STL	7955	NO PROTEIN	6q23	B-ALL	–	–	L	Dom	T	*ETV6*
SUFU	51684	NP_057253	10q24.32	Medulloblastoma	Medulloblastoma	Medulloblastoma predisposition	O	Rec	D, F, S	–
TAF15	8148	Q92804	17q11.1-q11.2	Extraskeletal myxoid chondrosarcomas, ALL	–	–	L, M	Dom	T	*TEC, CHN1, ZNF384*

TAL1	6886	P17542	1p32	Lymphoblastic leukaemia/ biphasic	–	–	L	Dom	T	*TRDα*
TAL2	6887	Q16559	9q31	T-ALL	–	–	L	Dom	T	*TRBα*
TCF1	6927	P20823	12q24.2	Hepatic adenoma, hepatocellular carcinoma	Hepatic adenoma, hepatocellular carcinoma	Familial hepatic adenoma	E	Rec	Mis, F	–
TCF12	6938	Q99081	15q21	Extraskeletal myxoid chondrosarcoma	–	–	M	Dom	T	*TEC*
TCF3	6929	P15923	19p13.3	pre-B-ALL	–	–	L	Dom	T	*PBX1, HLF, TFPT*
TCL1A	8115	NP_068801	14q32.1	T-CLL	–	–	L	Dom	T	*TRAα*
TEC	7006	P42680	4p12	Extraskeletal myxoid chondrosarcoma	–	–	M	Dom	T	*EWSR1, TAF15, TCF12*
TFE3	7030	P19532	Xp11.22	Papillary renal, alveolar soft part sarcoma	–	–	E	Dom	T	*SFPQ, ASPSCR1, PRCC*
TFEB	7942	P19484	6p21	Renal (childhood epithelioid)	–	–	E,M	Dom	T	*ALPHA*
TFG	10342	NP_006061	3q11-q12	Papillary thyroid, ALCL	–	–	E, L	Dom	T	*NTRK1, ALK*
TFPT	29844	NP_037474	19q13	Pre-B-ALL	–	–	L	Dom	T	*TCF3*
TFRC	7037	P02786	3q29	NHL	–	–	L	Dom	T	*BCL6*
TIF1	8805	O15164	7q32-q34	APL	–	–	L	Dom	T	*RARA*
TLX1	3195	P31314	10q24	T-ALL	–	–	L	Dom	T	*TRBα, TRDα*
TLX3	30012	O43711	5q35.1	T-ALL	–	–	L	Dom	T	*BCL11B*
TNFRSF6	355	P25445	10q24.1	TGCT, nasal NK/T lymphoma, skin squamous-cell carcinoma (burn-scar related)	–	–	L, E, O	Rec	Mis	–
TOP1	7150	P11387	20q12-q13.1	AML[§]	–	–	L	Dom	T	*NUP98*
TP53	7157	P04637	17p13	Breast, colorectal, lung, sarcoma, adrenocortical, glioma, multiple other types	Breast, sarcoma, adrenocortical carcinoma, glioma, multiple other types	Li–Fraumeni syndrome	L, E, M, O	Rec	Mis, N, F	–
TPM3	7170	P06753	1q22-q23	Papillary thyroid, ALCL	–	–	E, L	Dom	T	*NTRK1, ALK*
TPM4	7171	P07226	19p13.1	ALCL	–	–	L	Dom	T	*ALK*
TPR	7175	P12270	1q25	Papillary thyroid	–	–	E	Dom	T	*NTRK1*
TRAα	6955	–	14q11.2	T-ALL	–	–	L	Dom	T	*ATL, OLIG2, MYC, TCL1A*
TRBα	6957	–	7q35	T-ALL	–	–	L	Dom	T	*HOX11, LCK, NOTCH1, TAL2, LYL1*
TRDα	6964	–	14q11	T-cell leukaemia	–	–	L	Dom	T	*TAL1, HOX11, TLX1, LMO1, LMO2*
TRIM33	51592	Q9UPN9	1p13	Papillary thyroid	–	–	E	Dom	T	*RET*
TRIP11	9321	NP_004230	14q31-q32	AML	–	–	L	Dom	T	*PDGFRB*
TSC1	7248	Q92574	9q34	–	Hamartoma, renal cell	Tuberous sclerosis 1	E, O	Rec	D, Mis, N, F, S	–
TSC2	7249	P49815	16p13.3	–	Hamartoma, renal cell	Tuberous sclerosis 2	E, O	Rec	D, Mis, N, F, S	–
TSHR	7253	P16473	14q31	Toxic thyroid adenoma	Thyroid adenoma	–	E	Dom	Mis	–
VHL	7428	P40337	3p25	Renal, hemangioma, pheochromocytoma	Renal, hemangioma, pheochromocytoma	von Hippel–Lindau syndrome	E, M, O	Rec	D, Mis, N, F, S	–

WAS	7454	P42768	Xp11.23-p11.22	–	Lymphoma	Wiskott–Aldrich syndrome	L	Rec	Mis, N, F, S	–
WHSC1L1	54904	NP_060248	8p12	AML	–	–	L	Dom	T	*NUP98*
WRN	7486	Q14191	8p12-p11.2	–	Osteosarcoma, meningioma, others	Werner syndrome	L, E, M, O	Rec	Mis, N, F, S	–
WT1	7490	NP_000369	11p13	Wilms', desmoplastic small round cell	Wilms'	Denys–Drash syndrome, Frasier syndrome, Familial Wilms' tumour	O	Rec	D, Mis, N, F, S	*EWSR1*
XPA	7507	P23025	9q22.3	–	Skin basal cell, skin squamous cell, melanoma	Xeroderma pigmentosum A	E	Rec	Mis, N, F, S	–
XPC	7508	Q01831	3p25	–	Skin basal cell, skin squamous cell, melanoma	Xeroderma pigmentosum C	E	Rec	Mis, N, F, S	–
ZNF145	7704	Q05516	11q23.1	APL	–	–	L	Dom	T	*RARA*
ZNF198	7750	Q9UBW7	13q11-q12	MPD/NHL	–	–	L	Dom	T	*FGFR1*
ZNF278	23598	NP_055138	22q12-q14	Ewing's sarcoma	–	–	M	Dom	T	*EWSR1*
ZNF384	171017	NP_597733	12p13	ALL	–	–	L	Dom	T	*EWSR1, TAF15*
ZNFN1A1	10320	NP_006051	7p12	ALL, DLBCL	–	–	L	Dom	T	*BCL6*

*From Swiss-Prot/Refseq. [‡]D (large deletion) covers the abnormalities that result in allele loss/loss of heterozygosity at many recessive cancer genes. [§]Refers to cases of acute myeloid leukaemia that are associated with treatment. [‖]O (other) in the 'mutation type' column refers primarily to small in-frame deletions/insertions, as found in *KIT*/*PDGFRA*, and larger duplications/insertions, as found in *FLT3* and *EGFR*. Note that where an inversion/large deletion has been shown to result in a fusions protein, these have been listed under translocations. The Wellcome Trust Sanger Institute web version of the cancer-gene set can be found at http://www.sanger.ac.uk/genetics/CPG/Census/. A, amplification; AEL, acute eosinophilic leukaemia; AL, acute leukaemia; ALCL, anaplastic large-cell lymphoma; ALL, acute lymphocytic leukaemia; AML, acute myelogenous leukaemia; APL, acute promyelocytic leukaemia; B-ALL, B-cell acute lymphocytic leukaemia; B-CLL, B-cell lymphocytic leukaemia; B-NHL, B-cell non-Hodgkin's lymphoma; CLL, chronic lymphatic leukaemia; CML, chronic myeloid leukaemia; CMML, chronic myelomonocytic leukaemia; CNS, central nervous system; D, large deletion; DFSP, dermatofibrosarcoma protuberans; DLBCL, diffuse large B-cell lymphoma; Dom, dominant; E, epithelial; F, frameshift; GIST, gastrointestinal stromal tumour; JMML, juvenile myelomonocytic leukaemia; L, leukaemia/lymphoma; M, mesenchymal; MALT, mucosa-associated lymphoid tissue; MDS, myelodysplastic syndrome; MM, multiple myeloma; Mis, missense; N, nonsense; NHL, non-Hodgkin's lymphoma; NK/T, natural killer T cell; NSCLC, non-small-cell lung cancer; O, other; pre-B-ALL, pre-B-cell acute lymphoblastic leukaemia; Rec, recessive; S, splice site; T, translocation; T-ALL, T-cell acute lymphoblastic leukaemia; T-CLL, T-cell chronic lymphocytic leukaemia; TGCT, testicular germ-cell tumour; T-PLL, T-cell prolymphocytic leukaemia.