

**Supplementary table S1. Tyrosine kinase gene fusions in cancer.**

5' PARTNER	3' KINASE	DIAGNOSIS	OLIGO-MERIZATION	INHIBITORY DOMAIN DELETION	OTHER DOMAINS	REF
BCR	ABL1	CML ALL	CC #	MYR	Y177 #	1
NUP214	ABL1	T-ALL	Via nuclear pore #	MYR		2
ETV6	ABL1	MPN AML B-ALL	PNT	MYR		3,4
SFPQ	ABL1	B-ALL	CC	MYR , SH3		5,6
ZMIZ1	ABL1	B-ALL*	Pro	MYR		7
RCSD1	ABL1	B-ALL*	?	MYR , SH3		8
EML1	ABL1	T-ALL*	CC #	MYR		9
ETV6 / TEL	ARG / ABL2	AML	PNT	MYR		10,11
NPM1	ALK	ALCL DLBCL	New domain			12-14
CLTC / clathrin	ALK	DLBCL IMT	Via clathrin?			13,15
TFG	ALK	ALCL NSCLC	CC			13,16
TPM3	ALK	ALCL IMT	CC			13
TPM4	ALK	ALCL IMT Squamous cell carcinoma	CC			17
ATIC	ALK	ALCL	New domain			13
MYH9	ALK	ALCL*				18
ALO17	ALK	ALCL*	CC			19
CARS	ALK	IMT				13
RANBP2	ALK	IMT	CC			13
SEC31A	ALK	IMT DLBCL*				13,14
EML4	ALK	NSCLC	CC			13

5' PARTNER	3' KINASE	DIAGNOSIS	OLIGO-MERIZATION	INHIBITORY DOMAIN DELETION	OTHER DOMAINS	REF
KIF5B	ALK	Lung adenocarcinoma				20
Moesin / MSN	ALK	ALCL*	CC Via membrane?			21
SQSTM1	ALK	DLBCL*	PB1			22
ZNF198 / ZMYM2	FGFR1	8p11 MPN	New domain #			23
FGFR1OP / FOP	FGFR1	8p11 MPN	LisH Via centrosomes?			24
CEP110 / CEP1	FGFR1	8p11 MPN	CC			25
BCR	FGFR1	8p11 MPN	CC			26
LRRFIP1	FGFR1	8p11 MPN*	CC			27
FGFR1OP2	FGFR1	8p11 MPN*	CC			28
TRIM24 / TIF1	FGFR1	8p11 MPN*	CC			29
MYO18A	FGFR1	8p11 MPN*	CC			30
CUX1	FGFR1	8p11 MPN*	CC			31
CPSF6	FGFR1	8p11 MPN*				6
HERV-K Human endogenous retrovirus gene	FGFR1	8p11 MPN*				32
IGH enhancer	FGFR3	Multiple myeloma	No protein fusion!			33
ETV6 / TEL	FGFR3	AML after T lymphoma*	PNT			31
SPTBN1	FLT3	MPN*	CC	JM		34
ETV6 / TEL	FLT3	MPN*	PNT	JM		35
ETV6 / TEL	FRK	AML	PNT	SH3, SH2		36
ETV6	HCK	<i>Retroviral insertion screen in Ba/F3</i>	PNT			37
ETV6	JAK1	<i>Artificial construct in Ba/F3</i>	PNT	JH2		38
ETV6 / TEL	JAK2	ALL	PNT #	JH2		39

5' PARTNER	3' KINASE	DIAGNOSIS	OLIGO-MERIZATION	INHIBITORY DOMAIN DELETION	OTHER DOMAINS	REF
PCMI	JAK2	MPN AML ALL	CC	-		40-42
BCR	JAK2	MPN AML	CC	JH2 (2/3)		43-45
SEC31A	JAK2	Hodgkin lymphoma		JH2		46
SSBP2 <i>Tumor suppressor</i>	JAK2	B-ALL*	LisH	-		47
STRN3	JAK2		CC			Ref in 46
PAX5	JAK2	ALL		JH2		48
ETV6	JAK3	<i>Artificial construct in Ba/F3</i>	PNT	JH2		38
ETV6	LCK	<i>Retroviral inserion screen in Ba/F3</i>	PNT			37
ETV6 or EML1	MST1R / RON	<i>Retroviral inserion screen in Ba/F3</i>	PNT or CC			37
EML1	MERTK / c-MER	<i>Retroviral inserion screen in Ba/F3</i>	CC			37
TPR	MET	<i>Cell line*</i>	CC #	CBL binding site #		49
BCR	PDGFRA	MPN	CC	JM		50, 51
FIP1L1	PDGFRA	CEL/SM	-	JM #		52, 53
ETV6 / TEL	PDGFRA	CEL	PNT #	?		54
STRIATIN	PDGFRA	CEL	CC	JM		54
CDK5RAP2	PDGFRA	CEL*	CC	JM		55
KIF5B	PDGFRA	Hypereosinophilia*	CC	JM		56
RARA	PDGFRA	JMML*		JM		57
KDR / VERGRII	PDGFRA	Glioblastoma*		-	TM	58
ETV6 / TEL	PDGFRB	CMML	PNT #		TM #	59
CEV14 / TRIP11	PDGFRB	AML	CC		TM	60
RABAPTIN5	PDGFRB	CMML	CC		TM	61

5' PARTNER	3' KINASE	DIAGNOSIS	OLIGO-MERIZATION	INHIBITORY DOMAIN DELETION	OTHER DOMAINS	REF
CCDC6 / H4	PDGFRB	MDS*	CC		TM	62
PDE4DIP / myomegalin	PDGFRB	MDS*	CC <sup>#</sup>		TM	63
TP53BP1	PDGFRB	MPN			TM	64
NIN	PDGFRB	MPN*	CC	JM		65
HCMOGT-1 / CYTSB	PDGFRB	JMML*	CC		TM	66
HIP1	PDGFRB	CMML	(CC), Talin <sup>#</sup>		TM	67
KIAA1509 / CCDC88C	PDGFRB	MPN*	CC		TM	68
TROPOMYOSIN TPM3	PDGFRB	CEL*	CC		TM	69
NDE1	PDGFRB	CMML*	CC		TM	70
GIT2	PDGFRB	MPN*	ANK		TM	71
GPIAP1 / CAPRIN1	PDGFRB	CEL*	CC		TM	71
PRKG2	PDGFRB	MPN	CC <sup>#</sup>	JM <sup>#</sup>		71, 72
Myosine / MYO18A	PDGFRB	MPN*	CC		TM	73
SART3	PDGFRB	MPN*	CC		TM	74
ERC1	PDGFRB	AML*	CC		TM	75
SPTBN1	PDGFRB	MPN*	Breakpoint not determined			72
WDR48	PDGFRB	MPN*			TM	76
GOLGA4	PDGFRB	MPN*	CC		TM	76
BIN2	PDGFRB	MPN*	CC	JM		76
KANK1 Tumor suppressor?	PDGFRB	Thrombocythemia*	CC & KOD <sup>#</sup>	-	(IG5), TM	77
NCOA4 / ELE1	RET	Papillary thyroid carcinomas		JM		Ref in 78
KTN1	RET	Papillary thyroid carcinomas *	CC	JM		78,79

5' PARTNER	3' KINASE	DIAGNOSIS	OLIGO-MERIZATION	INHIBITORY DOMAIN DELETION	OTHER DOMAINS	REF
PRKAR1A Tumor suppressor	RET	Papillary thyroid carcinomas *		JM		Ref in 78
H4 / CCDC6	RET	Papillary thyroid carcinomas	CC #	JM		79
TRIM24 / HTIF1	RET	Papillary thyroid carcinomas	CC	JM		79
TRIM33 / RFG7	RET	Papillary thyroid carcinomas *	CC	JM		79
RFP / TRIM27	RET	Papillary thyroid carcinomas	CC	JM		Ref in 78
PCM1 / MBD1	RET	Papillary thyroid carcinomas *	CC	JM		79
GOLGA5 / RFG5	RET	Papillary thyroid carcinomas *	CC	JM		79
HOOK3	RET	Papillary thyroid carcinomas *	CC	JM		80
ELKS	RET	Papillary thyroid carcinomas	CC	JM		Ref in 78
ERC1	RET	Papillary thyroid carcinomas	CC	JM		78,79
RFG8	RET	Papillary thyroid carcinomas	Data not available			81
FIG	ROS	<i>Glioblastoma cell line*</i>	CC #			82
ITK	SYK	Peripheral T-cell lymphoma		Inter SH2 domain	PH #	83
ETV6 / TEL	SYK	MDS*	PNT #	Inter SH2 domain		84
ETV6 or EML1	TNK1	<i>Retroviral insertion screen in Ba/F3</i>	PNT or CC			37
Tropomyosin / TPM3	TRKA / NTRK1	Colon carcinoma* Papillary thyroid carcinomas	CC		TM	85,86
TPR	TRKA / NTRK1	Papillary thyroid carcinomas	CC		TM	86
TFG	TRKA / NTRK1	Papillary thyroid carcinomas	CC		TM	86
ETV6 / TEL	TRKC / NTRK3	AML* Fibrosarcoma Mesoblastic nephroma Secretory breast carcinoma	PNT #			87
ETV6	TYK2	<i>Artificial construct in Ba/F3</i>	PNT	JH2		38

Fusions are listed according to the TK gene names in the alphabetic order.

Keys: \* single case; #, confirmed experimentally; (domain): present but not important.

**Abbreviations:** ALCL, anaplastic large cell lymphoma; ALL, acute lymphoblastic leukemia; AML, acute myeloid leukemia; CC, coiled coil domain; CEL, chronic eosinophilic leukemia; CMML, chronic myelomonocytic leukemia; DLBCL, Diffuse large B-cell lymphoma; IMF, Inflammatory myofibroblastic tumor; JM, intracellular juxtamembrane domain; JMML, juvenile myelomonocytic leukemia; MDS, myelodysplastic syndrome; MPN, myeloproliferative disorder; NSCLC, non-small cell lung carcinoma; PNT, pointed domain (also called SAM); SH2/SH3, Src-homology domain 2/3; TM, transmembrane domain.

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