A Novel Method for Mapping Chimeric Protein-Protein Interactions Uncovers Selection Principles of Protein Fusion Events in Cancer

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Table S1: A number of gene occurrences in different biological pathways of ChiPPI networks and frequency of mutations

Gene	Occurrence	Frequency	Synonymous Mutations	NonSynonymous Mutations(cBioPortal)
UBC	336	0.939		0.4872
Elavl1	151	0.422		0.005187
HDAC1	116	0.324		0.003858
SUMO2	113	0.316		0.000701
HSP90AA1	111	0.31		0.008318
SUMO1	110	0.307		0.001515
Cul3	109	0.304		0.011197
Crebbp	109	0.304		0.040606
Grb2	108	0.302		0.002924
Ep300	107	0.299		0.034773
Nrf1	104	0.291		0.006727
SIRT7	103	0.288		0.003682
Hdac2	103	0.288		0.006409
RNF2	100	0.279		0.004045
ESR1	100	0.279		0.009682
Fn1	96	0.268		0.028333
TP53	94	0.263		0.363515
BMI1	94	0.263		0.004652
Cdk9	93	0.26		0.002258
Ezh2	92	0.257		0.009864
Cdk2	89	0.249		0.003091
Ubd	87	0.243		0.001121
Itga4	86	0.24		0.01953
Ctnnb1	85	0.237	6.1E-02	0.03547
app	85	0.237		0.009652
COPS5	84	0.235		0.003682
VCAM1	82	0.229		0.011606
Cand1	82	0.229		0.011697
Shc1	81	0.226		0.004258
Polr2a	81	0.226		0.013636
PLCG1	81	0.226		0.011318
Cul1	81	0.226		0.011909
Suz12	79	0.221		0.007606
Hdac3	77	0.215		0.004652
CUL2	77	0.215		0.008788
IKBKG	76	0.212		0.001015152
RPA3	74	0.207		0.001606
NEDD8	74	0.207		0.001166667
Map3k5	74	0.207		0.016394
Stat3	73	0.204		0.010273
Ilk	73	0.204		0.003560606
Rpa2	72	0.201		0.002
Rpa1	71	0.198		0.004485
Src	68	0.19		0.005682
NPM1	68	0.19		0.009606
Akt1	68	0.19		0.006848
Usp7	67	0.187		0.010879
Mapk1	67	0.187		0.005379
COPS6	66	0.184		0.003545
CUL5	65	0.182		0.007303
BRCA1	64	0.179		0.020318
RUNX1	63	0.176	5.4E-04	0.009242
Myc	63	0.176		0.006106
DCUN1D1	63	0.176		0.002288
Cul4b	63	0.176		0.009803
Cul4a	63	0.176		0.005121
CSNK1E	63	0.176		0.001606
SMAD3	62	0.173		0.007167
Stk24	61	0.17		0.005682
Calm1	61	0.17		0.002227
Ywhaz	60	0.168		0.002
Smad4	60	0.168		0.025621
Sin3A	60	0.168		0.017121
RIOK2	60	0.168		0.005288
PRMT1	60	0.168		0.002394
Ywhaq	59	0.165		0.002121

Whsc1	59	0.165		0.016591
Nono	59	0.165		0.008258
Ybx1	58	0.162		0.003303
Eed	58	0.162		0.004167
Dhx9	58	0.162		0.013333
Rela	57	0.159		0.005197
RB1	57	0.159		0.049515
HIST1H4A	57	0.159		0.000348
EEF2K	57	0.159		0.008591
SKP2	56	0.156		0.004652
Pik3r1	56	0.156		0.029955
HSPA8	56	0.156		0.007712
HNRNPUL1	56	0.156		0.010348
HIST1H3A	56	0.156		0.002121
Ube2i	55	0.154		0.001576
Tsg101	55	0.154		0.005212
Ncl	55	0.154		0.00647
HIST3H3	55	0.154		0.002394
Gsk3b	55	0.154		0.006152
Csnk1a1	55	0.154		0.002864
Traf3	54	0.151		0.006879
SF1	54	0.151		0.00853
Hnrnpa1	54	0.151		0.00397
Egfr	54	0.151		0.037212
Cd81	54	0.151		0.000894
AR	54	0.151		0.015924
Ywhag	53	0.148		0.002258
SMARCB1	53	0.148		0.006409
fus	53	0.148		0.005379
CAMK1	53	0.148		0.002652
XRCC6	52	0.145		0.006091
Top1	52	0.145		0.09379
SNW1	52	0.145		0.006258
HIST2H3C	52	0.145		0

Table S2: Enrichment analysis results for the highly frequent genes in ChiPPI networks and p-values (100 top cases shown)

#KEGG Pathway ID	p-value	Ensembl Gene ID
Cell cycle	3.45E-13	HDAC1|CREBBP|EP300|HDAC2|TP53|CDK2|CUL1|SMAD3|MYC|YWHAQ|YWHAZ|SMAD4|RB1|GSK3B|SKP2|YWHAG|YWHAE
Notch signaling pathway	0.000379426	HDAC1|CREBBP|EP300|HDAC2|SNW1
Wnt signaling pathway	7.20E-07	CREBBP|EP300|TP53|CUL1|CTNNB1|SMAD3|MYC|CSNK1E|SMAD4|GSK3B|CSNK1A1|CSNK2A2
TGF-beta signaling pathway	1.66E-05	CREBBP|EP300|CUL1|MAPK1|SMAD3|MYC|SMAD4|SP1
Adherens junction	5.20E-07	CREBBP|EP300|CTNNB1|MAPK1|SMAD3|SRC|SMAD4|EGFR|CSNK2A2
Jak-STAT signaling pathway	0.000220492	CREBBP|EP300|GRB2|STAT3|AKT1|MYC|PIK3R1|CBL|SOCS1
Long-term potentiation	0.01451705	CREBBP|EP300|MAPK1|CALM1
Melanogenesis	0.002251569	CREBBP|EP300|CTNNB1|MAPK1|CALM1|GSK3B
NOD-like receptor signaling pathway	0.008982182	HSP90AA1|IKBKG|MAPK1|RELA
Progesterone-mediated oocyte maturation	0.006293885	HSP90AA1|CDK2|MAPK1|AKT1|PIK3R1
MAPK signaling pathway	0.003223855	GRB2|TP53|IKBKG|MAP3K5|MAPK1|AKT1|MYC|RELA|HSPA8|EGFR
ErbB signaling pathway	1.93E-08	GRB2|SHC1|PLCG1|MAPK1|AKT1|SRC|MYC|GSK3B|PIK3R1|EGFR|CBL
Chemokine signaling pathway	0.000891832	GRB2|SHC1|IKBKG|STAT3|MAPK1|AKT1|RELA|GSK3B|PIK3R1
Dorso-ventral axis formation	0.004101055	GRB2|MAPK1|EGFR
Osteoclast differentiation	0.001394008	GRB2|IKBKG|MAPK1|AKT1|RELA|PIK3R1|SOCS1
Focal adhesion	1.33E-05	GRB2|FN1|ITGA4|CTNNB1|SHC1|ILK|MAPK1|AKT1|SRC|GSK3B|PIK3R1|EGFR
Gap junction	0.034622069	GRB2|MAPK1|SRC|EGFR
Natural killer cell mediated cytotoxicity	0.029806158	GRB2|SHC1|PLCG1|MAPK1|PIK3R1
T cell receptor signaling pathway	1.42E-05	GRB2|PLCG1|IKBKG|MAPK1|AKT1|RELA|GSK3B|PIK3R1|CBL
B cell receptor signaling pathway	6.40E-06	GRB2|IKBKG|MAPK1|AKT1|RELA|GSK3B|PIK3R1|CD81
Fc epsilon RI signaling pathway	0.00392886	GRB2|PLCG1|MAPK1|AKT1|PIK3R1
Neurotrophin signaling pathway	7.15E-11	GRB2|TP53|SHC1|PLCG1|MAP3K5|MAPK1|AKT1|YWHAQ|YWHAZ|CALM1|RELA|GSK3B|PIK3R1|YWHAG|YWHAE
Insulin signaling pathway	8.94E-05	GRB2|SHC1|MAPK1|AKT1|CALM1|GSK3B|PIK3R1|CBL|SOCS1
GnRH signaling pathway	0.011262894	GRB2|MAPK1|SRC|CALM1|EGFR
Ubiquitin	2.28E-07	CUL3|CUL1|CUL2|CUL5|CUL4B|CUL4A|BRCA1|UBE2I|SKP2|PARK2|CBL|SOCS1

mediated proteolysis		
Apoptosis	0.00660719	TP53|IKBKG|AKT1|RELA|PIK3R1
Bacterial invasion of epithelial cells	3.83E-05	FN1|CTNNB1|SHC1|ILK|SRC|PIK3R1|CBL
Oocyte meiosis	1.78E-05	CDK2|CUL1|MAPK1|YWHAQ|YWHAZ|CALM1|AR|YWHAG|YWHAE
Leukocyte transendothelial migration	0.01973229	ITGA4|CTNNB1|VCAM1|PLCG1|PIK3R1
VEGF signaling pathway	0.00350589	PLCG1|MAPK1|AKT1|SRC|PIK3R1
Fc gamma R-mediated phagocytosis	0.03584743	PLCG1|MAPK1|AKT1|PIK3R1
DNA replication	0.01285975	RPA3|RPA2|RPA1
Nucleotide excision repair	0.00027515	RPA3|RPA2|RPA1|CUL4B|CUL4A
Mismatch repair	0.00362395	RPA3|RPA2|RPA1
Homologous recombination	0.00638173	RPA3|RPA2|RPA1
Toll-like receptor signaling pathway	0.00249195	IKBKG|MAPK1|AKT1|RELA|PIK3R1|TRAF3
Adipocytokine signaling pathway	0.01381654	IKBKG|STAT3|AKT1|RELA
Toxoplasmosis	0.00031688	IKBKG|STAT3|MAPK1|AKT1|RELA|HSPA8|PIK3R1|SOCS1
mTOR signaling pathway	0.03406443	MAPK1|AKT1|PIK3R1
Type II diabetes mellitus	0.02771389	MAPK1|PIK3R1|SOCS1
Hedgehog signaling pathway	0.04110572	CSNK1E|GSK3B|CSNK1A1

Table S3: Protein domain determination results from Pfam, ELM, UniProt, CDD, SMART, Negatome, Prosite, Interpro, PRINTS, Superfamily, and PIRSF (100 cases shown) for the DDCOS table

#Cluster No.	amount	Id = Domain_1 --> Domain_1 name	... Id = Domain_N --> Domain_N name
CLUS00001	1	IPR023410 = 14-3-3 --> 14-3-3 protein	
CLUS00002	1	IPR006139 = 2-Hacid_dh --> D-isomer specific 2-hydroxyacid dehydrogenase, catalytic domain	
CLUS00003	1	IPR006140 = 2-Hacid_dh_C --> D-isomer specific 2-hydroxyacid dehydrogenase, NAD binding domain	
CLUS00004	1	IPR001078 = 2-oxoacid_dh --> 2-oxoacid dehydrogenases acyltransferase (catalytic domain)	
CLUS00009	1	IPR005123 = 2OG-FeII_Oxy --> 2OG-Fe(II) oxygenase superfamily	
CLUS00013	1	IPR002562 = 3_5_exonuc --> 3'-5' exonuclease	
CLUS00018	1	IPR006108 = 3HCDH --> 3-hydroxyacyl-CoA dehydrogenase, C-terminal domain	
CLUS00019	1	IPR006176 = 3HCDH_N --> 3-hydroxyacyl-CoA dehydrogenase, NAD binding domain	
CLUS00020	1	IPR008379 = 4_1_CTD --> 4.1 protein C-terminal domain (CTD)	
CLUS00022	1	IPR006683 = 4HBT --> Thioesterase superfamily	
CLUS00026	5	IPR020045 = 5_3_exonuc --> 5'-3' exonuclease, C-terminal SAM fold	IPR020046 = 5_3_exonuc_N --> 5'-3' exonuclease, N-terminal resolvase-like domain; IPR020045 = RNaseH_C --> T4 RNase H, C terminal; IPR006086 = XPGI --> Xeroderma pigmentosum G I-region; IPR006085 = XPGN --> Xeroderma pigmentosum G N-region (N-terminal domain)
CLUS00028	2	IPR008380 = 5_nucleotid --> 5' nucleotidase family	IPR008334 = 5_nucleotid_C --> 5'-nucleotidase, C-terminal domain
CLUS00033	4	IPR013079 = 6PF2K --> 6-phosphofructo-2-kinase	IPR001576 = PGK --> Phosphoglycerate kinase
CLUS00034	1	IPR006114 = 6PGD --> 6-phosphogluconate dehydrogenase, C-terminal domain	
CLUS00050	6	IPR001599 = A2M --> Alpha-2-macroglobulin family	IPR011626 = A2M_comp --> A-macroglobulin complement component; IPR002890 = A2M_N --> Alpha-2-macroglobulin family N-terminal region; IPR011625 = A2M_N_2 --> Alpha-2-macroglobulin family N-terminal region; IPR009048 = A2M_recep --> A-macroglobulin receptor; IPR015849 = A4_EXTRA --> Amyloid A4 extracellular domain
CLUS00058	3	IPR001365 = A_deaminase --> Adenosine/AMP deaminase	IPR013659 = A_deaminase_N --> Adenosine/AMP deaminase N-terminal; IPR002466 = ADEAMc --> tRNA -specific and double-stranded RNA adenosine deaminase (RNA-specific editase)
CLUS00065	7	IPR003959 = AAA --> ATPase family associated with various cellular activities (AAA)	IPR013093 = AAA_2 --> ATPase family associated with various cellular activities (AAA); IPR011703 = AAA_3 --> ATPase family associated with various cellular activities (AAA); IPR007421 = AAA_4 --> Divergent AAA domain; IPR011704 = AAA_5 --> ATPase family associated with various cellular activities (AAA); IPR013153 = AAA_PrkA --> PrkA AAA domain; IPR018631 = AAA-ATPase_like --> Predicted AAA-ATPase
CLUS00074	1	IPR012948 = AARP2CN --> AARP2CN (NUC121) domain	
CLUS00081	11	IPR001626 = ABC-3 --> ABC 3 transport family	IPR004147 = ABC1 --> ABC1 family; IPR013525 = ABC2_membrane --> ABC-2 type transporter; IPR001140 = ABC_membrane --> ABC transporter transmembrane region; IPR010509 = ABC_membrane_2 --> ABC transporter transmembrane region 2; IPR007487 = ABC_sub_bind --> ABC transporter substrate binding protein; IPR003439 = ABC_tran --> ABC transporter; IPR019195 = ABC_ATPase --> Predicted ATPase of the ABC class; IPR017195 = ABC_cobalt --> ABC-type cobalt transport system, permease component; IPR018632 = ABC_transp --> ABC nitrate/sulfonate/bicarbonate family transporter, ATPase subunit; IPR019196 = ABC_transp_aux --> ABC-type uncharacterized

			transport system
CLUS00088	5	IPR006693 = Abhydro_lipase --> ab-hydrolase associated lipase region	IPR000073 = Abhydrolase --> alpha/beta hydrolase fold; IPR003140 = Abhydrolase_2 --> Phospholipase/ Carboxylesterase; IPR013094 = Abhydrolase_3 --> alpha/beta hydrolase fold; IPR013595 = Abhydrolase_4 --> TAP-like protein
CLUS00095	1	IPR007138 = ABM --> Antibiotic biosynthesis monooxygenase	
CLUS00097	1	IPR000582 = ACBP --> Acyl CoA binding protein	
CLUS00098	15	IPR013537 = ACC_central --> Acetyl-CoA carboxylase, central region	IPR001095 = ACCA --> Acetyl co-enzyme A carboxylase carboxyltransferase alpha subunit; IPR003702 = AcetylCoA_hydro --> Acetyl-CoA hydrolase/transferase N-terminal domain; IPR000182 = Acetyltransf_1 --> Acetyltransferase (GNAT) family; IPR001447 = Acetyltransf_2 --> N-acetyltransferase; IPR002864 = Acyl-ACP_TE --> Acyl-ACP thioesterase; IPR009075 = Acyl-CoA_dh_1 --> Acyl-CoA dehydrogenase, C-terminal domain; IPR013107 = Acyl-CoA_dh_2 --> Acyl-CoA dehydrogenase, C-terminal domain; IPR006091 = Acyl-CoA_dh_M --> Acyl-CoA dehydrogenase, middle domain; IPR013786 = Acyl-CoA_dh_N --> Acyl-CoA dehydrogenase, N-terminal domain; IPR014043 = Acyl_transf_1 --> Acyl transferase domain; IPR003157 = Acyl_transf_2 --> Acyl transferase; IPR002656 = Acyl_transf_3 --> Acyltransferase family; IPR001792 = Acylphosphatase --> Acylphosphatase; IPR002123 = PlsC --> Phosphate acyltransferases
CLUS00107	1	IPR014788 = AChE_tetra --> Acetylcholinesterase tetramerisation domain	
CLUS00111	3	IPR001030 = Aconitase --> Aconitase family (aconitate hydratase)	IPR015929 = Aconitase_2_N --> Aconitate hydratase 2 N-terminus; IPR000573 = Aconitase_C --> Aconitase C-terminal domain
CLUS00118	2	IPR013747 = ACP_syn_III_C --> 3-Oxoacyl-[acyl-carrier-protein (ACP)] synthase III C terminal	IPR008278 = ACPS --> 4'-phosphopantetheinyl transferase superfamily
CLUS00121	1	IPR002912 = ACT --> ACT domain	
CLUS00125	1	IPR004000 = Actin --> Actin	
CLUS00126	1	IPR000472 = Activin_recp --> Activin types I and II receptor domain	
CLUS00132	1	IPR025652 = Acyl_CoA_thio --> Acyl-CoA thioesterase	
CLUS00179	1	IPR001114 = Adenylsucc_synt --> Adenylosuccinate synthetase	
CLUS00180	1	IPR013154 = ADH_N --> Alcohol dehydrogenase GroES-like domain	
CLUS00181	1	IPR002198 = adh_short --> short chain dehydrogenase	
CLUS00183	1	IPR015169 = Adhes-Ig_like --> Adhesion molecule, immunoglobulin-like	
CLUS00187	1	IPR000850 = ADK --> Adenylate kinase	
CLUS00188	1	IPR007862 = ADK_lid --> Adenylate kinase, active site lid	
CLUS00189	1	IPR000043 = AdoHcyase --> S-adenosyl-L-homocysteine hydrolase	
CLUS00190	1	IPR015878 = AdoHcyase_NAD --> S-adenosyl-L-homocysteine hydrolase, NAD binding domain	
CLUS00209	1	IPR008395 = Agenet --> Agenet domain	
CLUS00211	1	IPR007733 = Agouti --> Agouti protein	
CLUS00215	1	IPR009436 = AGTRAP --> Angiotensin II, type I receptor-associated protein (AGTRAP)	
CLUS00216	1	IPR015310 = Aha1_N --> Activator of Hsp90 ATPase, N-terminal	
CLUS00217	1	IPR000866 = AhpC-TSA --> AhpC/TSA family	
CLUS00221	1	IPR015317 = AHSP --> Alpha-haemoglobin stabilising protein	
CLUS00222	1	IPR002695 = AICARFT_IMPCHas --> AICARFT/IMPCHase bienzyme	
CLUS00227	1	IPR000031 = AIRC --> AIR carboxylase	
CLUS00228	2	IPR000728 = AIRS --> AIR synthase related protein, N-terminal domain	IPR010918 = AIRS_C --> AIR synthase related protein, C-terminal domain
CLUS00231	1	IPR018292 = AKAP_110 --> A-kinase anchor protein 110 kDa (AKAP 110)	
CLUS00232	2	IPR011079 = Ala_racemase_C --> Alanine racemase, C-terminal domain	IPR001608 = Ala_racemase_N --> Alanine racemase, N-terminal domain
CLUS00234	1	IPR001731 = ALAD --> Delta-aminolevulinic acid	

		dehydratase	
CLUS00235	2	IPR007698 = AlaDh_PNT_C --> Alanine dehydrogenase/PNT, C-terminal domain	IPR007886 = AlaDh_PNT_N --> Alanine dehydrogenase/PNT, N-terminal domain
CLUS00241	2	IPR000674 = Ald_Xan_dh_C --> Aldehyde oxidase and xanthine dehydrogenase, a/b hammerhead domain	IPR008274 = Ald_Xan_dh_C2 --> Aldehyde oxidase and xanthine dehydrogenase, molybdopterin binding domain
CLUS00244	1	IPR023210 = Aldo_ket_red --> Aldo/keto reductase family	
CLUS00246	1	IPR001303 = Aldolase_II --> Class II Aldolase and Adducin N-terminal domain	
CLUS00263	2	IPR010483 = Alpha-2-MRAP_C --> Alpha-2-macroglobulin RAP, C-terminal domain	IPR009066 = Alpha-2-MRAP_N --> Alpha-2-macroglobulin RAP, N-terminal domain
CLUS00267	1	IPR006047 = Alpha-amylase --> Alpha amylase, catalytic domain	
CLUS00271	1	IPR015341 = Alpha-mann_mid --> Alpha mannosidase, middle domain	
CLUS00273	1	IPR008152 = Alpha_adaptinC2 --> Adaptin C-terminal domain	
CLUS00278	1	IPR004166 = Alpha_kinase --> Alpha-kinase family	
CLUS00279	1	IPR000933 = Alpha_L_fucos --> Alpha-L-fucosidase	
CLUS00286	1	IPR007798 = Amelin --> Ameloblastin precursor (Amelin)	
CLUS00287	1	IPR004116 = Amelogenin --> Amelogenin	
CLUS00295	2	IPR006680 = Amidohydro_1 --> Amidohydrolase family	IPR006992 = Amidohydro_2 --> Amidohydrolase
CLUS00298	1	IPR002937 = Amino_oxidase --> Flavin containing amine oxidoreductase	
CLUS00299	5	IPR004839 = Aminotran_1_2 --> Aminotransferase class I and II	IPR005814 = Aminotran_3 --> Aminotransferase class-III; IPR001544 = Aminotran_4 --> Aminotransferase class IV; IPR000192 = Aminotran_5 --> Aminotransferase class-V; IPR000653 = DegT_DnrJ_EryC1 --> DegT/DnrJ/EryC1/StrS aminotransferase family
CLUS00309	1	IPR005533 = AMOP --> AMOP domain	
CLUS00311	1	IPR007865 = AMP_N --> Aminopeptidase P, N-terminal domain	
CLUS00312	1	IPR006828 = AMPKBI --> 5'-AMP-activated protein kinase, beta subunit, complex-interacting region	
CLUS00314	1	IPR000020 = ANATO --> Anaphylotoxin-like domain	
CLUS00320	1	IPR002110 = Ank --> Ankyrin repeat	
CLUS00329	1	IPR011417 = ANTH --> ANTH domain	
CLUS00336	1	IPR013155 = Anticodon_1 --> Anticodon-binding domain	
CLUS00363	1	IPR013022 = AP_endonuc_2 --> Xylose isomerase-like TIM barrel	
CLUS00371	1	IPR014786 = APC2 --> Anaphase promoting complex (APC) subunit 2	
CLUS00391	2	IPR007904 = APOBEC_C --> APOBEC-like C-terminal domain	IPR013158 = APOBEC_N --> APOBEC-like N-terminal domain
CLUS00396	1	IPR000074 = Apolipoprotein --> Apolipoprotein A1/A4/E domain	
CLUS00398	1	IPR002891 = APS_kinase --> Adenylylsulphate kinase	
CLUS00405	1	IPR003313 = AraC_binding --> AraC-like ligand binding domain	
CLUS00424	1	IPR010504 = Arfaptin --> Arfaptin-like domain	
CLUS00425	1	IPR001164 = ArfGap --> Putative GTPase activating protein for Arf	
CLUS00428	1	IPR005148 = Arg_tRNA_synt_N --> Arginyl tRNA synthetase N terminal domain	
CLUS00429	1	IPR006035 = Arginase --> Arginase family	
CLUS00433	1	IPR001606 = ARID --> BRIGHT, ARID (A/T-rich interaction domain) domain	
CLUS00435	1	IPR000225 = Arm --> Armadillo/beta-catenin-like repeat	
CLUS00439	2	IPR011022 = Arrestin_C --> Arrestin (or S-antigen), C-terminal domain	IPR011021 = Arrestin_N --> Arrestin (or S-antigen), N-terminal domain
CLUS00455	1	IPR007374 = ASCH --> ASCH domain	
CLUS00465	1	IPR001962 = Asn_synthase --> Asparagine synthase	
CLUS00475	2	IPR006034 = Asparaginase --> Asparaginase	IPR000246 = Asparaginase_2 --> Asparaginase
CLUS00484	1	IPR017956 = AT_hook --> AT hook motif	
CLUS00492	1	IPR005144 = ATP-cone --> ATP cone domain	

CLUS00494	1	IPR013650 = ATP-grasp_2 --> ATP-grasp domain	
CLUS00496	1	IPR022414 = ATP-gua_Ptrans --> ATP:guanido phosphotransferase, C-terminal catalytic domain	
CLUS00497	1	IPR022413 = ATP-gua_PtransN --> ATP:guanido phosphotransferase, N-terminal domain	
CLUS00499	4	IPR000131 = ATP-synt --> ATP synthase	IPR000793 = ATP-synt_ab_C --> ATP synthase alpha/beta chain, C terminal domain; IPR004100 = ATP-synt_ab_N --> ATP synthase alpha/beta family, beta-barrel domain; IPR020546 = ATP-synt_DE_N --> ATP synthase, Delta/Epsilon chain, beta-sandwich domain

Table S4: Randomly selected PPI interactors (top 100 cases shown) that have been used to build the DDCOS table

gene1	domains1		gene2:	domains2		Number interactions	Score (gene1, gene2)
ID3	HLH	E2F4	COILS	E2F_TDP		2	1.8256
YWHAZ	14-3-3	USP8	COILS	RHOD	USP8_dimer	3	13.5922
KCMF1	zf-C2H2	zf-ZZ	PSMD12	PINT		2	1.5296
C22orf28	TM	CA9	Carb_anhydrase	TM		2	-4.6297
2-Sep	COILS	Ras	SNX24	PX		2	-1.3829
COPS7B	COILS	PINT	IRF5	IRF		2	4.0909
INPP5D	IPPc	SH2	PIK3R1	COILS	RhoGAP, SH2, SH3	8	14.9473
TMCO7	DUF2411	DUF2435	UBE2S	UBCc		1	3.0215
NRF1	Nrf1_ activ_bdg	MTFMT	Formyl_trans_C	Formyl_trans_N		1	5.5865
FKBP8	FKBP_C	TM	PRKAA1	S_TKc		2	0.5071
REL	IPT	RHD	FOXP3	COILS	FH, zf-C2H2	6	5.7914
SMAD9	DWA	DWB	ZNF557	KRAB	zf-C2H2	2	1.4512
RBCK1	COILS	RING	zf-RBZ	SHARPIN	zf-RBZ	3	7.1247
STOM	Band_7	TM	FBXO6	FBOX		2	1.6039
TRIM17	BBOX	COILS	PRY	RING	SPRY, UBE2W, TM, UBCc	10	8.0268
SRC	SH2	SH3	TyrKc	ERBB3	FU, Recep_L_domain, TM,TyrKc	12	35.2076
7-Sep	COILS	TRA2A	RRM			1	0.5087
ASCC2	CUE	SRF	MADS			1	3.1297
IRF7	IRF	PIAS4	SAP	zf-MIZ		2	5.4793
TRIM33	BBC	BBOX	BROMO	PHD	RING, UBE2I,UBCc	5	16.8758
RBL1	Cyclin	RBFA	Rb_C	SNRPD3	Sm	3	6.9754
ATF3	BRLZ	HDAC6	Hist_deacetyl	zf-UBP		2	5.3859
OPTN	COILS	RAB14	RAB			1	-0.4647
SRC	SH2	SH3	TyrKc	DNM2	DYNc, GED, PH	9	21.2951
SPTBN2	CH	PH	SPEC	KDM5C	ARID, JmjC, JmjN, PHD, zf-C5HC2	12	-3.315
KDR	IG_like	IGc2	TM	TyrKc	Ig, SHC2, PTB, SH2	9	11.0634
NR1I2	HOLI	zf-C4	PRMT1	MTS	Methyltransf_11	4	8.7754
AP2B1	Alpha_adaptinC2	B2-adapt-app_C	VCAM1	C2-set	IGc2, TM,ig	8	10.0508
TXNRD1	Glutaredoxin	Pyr_redox	Pyr_redox_2	Pyr_redox_dim	POU2F2, HOX, Pou	4	4.2015
CEBPD	BRLZ	SMAD4	DWA	DWB		1	2.9474
RANBP3	RanBD	TROVE2	TROVE			1	4.6056
HADHB	Thiolase_C	Thiolase_N	ketoacyl-synt	GRK5	Pkinase, RGS, S_TK_X, S_TKc	8	13.0973
CUL1	Cullin	Cullin_Nedd8	HSD17B10	adh_short		2	5.116
NRF1	Nrf1_activ_bdg	MRPL12	Ribosomal_L12			1	6.6851
APP	A4_EXTRA	COILS	Ku	TM	CMTM3, MARVEL,TM	8	-2.3323
SIAH2	RING	USP19	CS	DUF1872	TM	3	2.762
ACTR8	Actin	NFRKB	COILS			1	0.2882
ICOS	TM	ICOSLG	C2-set_2	TM	ig	3	-6.2003
MAGED1	COILS	IRAK1	Death	Pkinase	Pkinase_Tyr	3	1.4189
ANXA1	ANX	CSAD	Aminotran_5			1	2.6161
PAWR	COILS	DAPK3	COILS	S_TKc		2	-0.0225
BIRC2	BIR	CARD	RING	DZIP3	COILS, RING	6	7.1277
NUF2	COILS	ZWINT	COILS			1	-0.7182
GSTZ1	GST_C	GST_N	BAG3	BAG	WW	2	5.7362
PRPF8	JAB_MPN	PRO8NT	PROCN	RRM_4	U5_2-snRNA_bdg, U6-snRNA_bdg, SUMO1,UBQ	6	21.4987
TMSB4X	THY	ACTA1	Actin			1	2.3676
PDXDC1	COILS	GIPC1	PDZ			1	-0.3607

CTBP2	2-Hacid_dh	2-Hacid_dh_C	TRNT1	PolyA_pol		2	10.3745
IKBKB	Pkinase	Pkinase_Tyr	TP73	P53	SAM_1	4	7.2907
BRCA1	BRCT	COILS	RING	BRIP1	DEXDc,HELICc	6	7.411
ACVR2B	Activin_recp	Pkinase	Pkinase_Tyr	TM	INHBB,TGFB	4	5.6192
ATAD3A	AAA	PRKCD	C1	C2	S_TK_X, S_TKc	4	2.1479
ELAVL1	RRM	HIBADH	2-Hacid_dh_C	NAD_binding_2		2	2.772
GNAQ	G-alpha	ADRBK1	PH	RGS	S_TK_X, S_TKc	4	8.399
GNB2L1	WD40	PRKCE	C1	C2	S_TK_X, S_TKc	4	0.9464
NFKBIA	Ank	RWDD3	RWD			1	-1.1809
RAN	RAN	EXOSC2	S1			1	4.3825
HNRNPD	CBFNT	RRM	SMURF1	C2	HECTc,WW	6	13.0354
UBE2D1	UBCc	UBTD1	UBQ			1	3.068
ELK1	Ets	MAPK8	Pkinase	Pkinase_Tyr	S_TKc	3	2.5106
EXOSC8	RNase_PH	RNase_PH_C	CWC22	MA3	MIF4G	2	6.9934
RPS5	Ribosomal_S7	SMURF1	C2	HECTc	WW	3	5.9317
YBX1	CSD	CSP	IFIT3	TPR		2	3.7731
ADAR	ADEAMc	dsrm	z-alpha	ELAVL1	RRM	3	5.5648
FBXO6	FBOX	LNPEP	TM			-0.55321	-0.55321
SGK1	S_TK_X	S_TKc	RABAC1	TM		2	-1.2327
TOP2B	HATPase_c	TOP2c	TOP4c	ESR1	HOLI, zf-C4	4	10.5975
APP	A4_EXTRA	COILS	Ku	TM	OBFC1,STN1_2,tRNA_anti	8	14.2487
DDX17	DEXDc	HELICc	CSNK2A1	S_TKc		2	1.944
U2AF2	RRM	GLIS2	zf-C2H2			1	-0.1054
HTRA2	PDZ	TM	Tryp_SPc	VPS4B	AAA, MIT,Vps4_C	9	-4.8253
HDGF	PWWP	PSIP1	COILS	PWWP		2	2.6632
ATF2	BRLZ	zf-C2H2	RB1	Cyclin	RBFA,Rb_C	6	10.836
SENP2	Peptidase_C48	TM	NUP153	Nup_retrotrp_bd	zf-RBZ	4	5.4399
FOS	BRLZ	UBR1	zf-UBR1			1	2.3878
ITGA4	Int_alpha	TM	HIST1H1C	H15		2	1.6394
UBE2B	UBCc	AHCYL1	AdoHcyase	AdoHcyase_NAD		2	7.0648
COPB2	WD40	COPG2	Gamma-COP			1	2.2192
BRCA1	BRCT	COILS	RING	SMARCC2	COILS, Chromo, SANT,SWIRM	12	19.1354
MBIP	COILS	TADA2A	SANT	SWIRM	zf-ZZ	3	3.8788
STUB1	COILS	TPR	Ubox	VHL	VHL	3	9.0443
PSMD11	PAM	PINT	TLE1	WD40		2	4.1727
TRA2A	RRM	DHX15	AAA	DEXDc	HA2, HELICc	4	6.3353
CCDC99	COILS	NEK9	S_TKc			1	0.6957
MYBL2	SANT	HIPK2	S_TKc			1	1.1624
NHP2L1	Ribosomal_L7Ae	ITGA4	Int_alpha	TM		2	1.831
SECISBP2	Ribosomal_L7Ae	ATXN7L3	SCA7			1	2.9009
MAP2K6	S_TKc	MAP3K5	COILS	S_TKc		2	2.4474
HADHB	Thiolase_C	Thiolase_N	ketoacyl-synt	ADRB2	TM	3	-3.8406
AMFR	CUE	RING	TM	CYP2E1	TM, p450	6	-5.8791
FBXW11	Beta-TrCP_D	FBOX	WD40	TRIM21	BBOX, PRY, RING, SPRY	12	9.0653
KAT2A	BROMO	PCAF_N	WDR5	WD40		2	3.4974
JAK1	B41	COILS	SH2	STYKc	TyrKc,INSR, FU, Recep_L_domain, TM,TyrKc,fn3	25	52.7748
HOXA1	HOX	SMOC1	KAZAL	SPARC_Ca_bdg	TY	3	-3.3294
VASP	VASP_tetra	WH1	PAAF1	WD40		2	0.8241
CDK2	Pkinase	Pkinase_Tyr	S_TKc	LGALS3BP	BACK, SR	6	1.9214
NEDD8	UBQ	KPNA2	Arm			1	1.7773

Table S5: Randomly selected non-interactors (100 cases shown) for the random dataset

gene1:	domains1		gene2:	domains2		Number interactions	score(gene1, gene2)
ICAM2	TM	KIAA2013	TM			1	-2.5009
RAB21	RAB	ZNF287	KRAB	SCAN	zf-C2H2	1	-1.3431
ABCB6	AAA	TM	NEBL	LIM	NEBU, SH3	6	-5.7668
EPN1	ENTH	UIM	FOXC2	FH		1	-0.1672
RPRM	TM	ZNF383	KRAB	zf-C2H2		2	-7.5056
GUSB	Glyco_hydro_2	Glyco_hydro_2_C	Glyco_hydro_2_N	TM	REEP5, TM	1	-2.5009
NR2C1	HOLI	zf-C4	ARID4B	ARID	COILS, Chromo, RBB1NT, TUDOR	8	14.9538
SHMT1	Aminotran_1_2	SHMT	SP4	zf-C2H2		2	-3.6191
CSF3R	Lep_receptor_Ig	TM	fn3	ZNF384	PNP_UDP_1, zf-C2H2	3	-7.2236
FDPS	polyprenyl_synt	SASH1	COILS	SAM_1	SH3	1	-1.3554
GPA33	IGc2	IGv	TM	ASCC1	KH	1	-0.9612
STAM	SH3	UIM	VHS	THUMPD2	MTS, Methyltransf_11, THUMP, UPF0020	2	-0.126
C17orf101	P4Hc	TM	TRRAP	PI3Kc		1	-1.1843
FAM173A	TM	NEK9	S_TKc			1	-0.7506
BNIPL	SEC14	NPDC1	TM			1	-1.8775
HOXB9	HOX	SNX3	PX			1	-1.9587
PTGER4	TM	ZNF41	KRAB	zf-C2H2		2	-7.5056
TRPV6	Ank	TM	RPS4Y1	RS4NT	S4	4	-1.0025
RAB13	RAB	PTPRR	PTPc	TM		1	-1.5812
DCAF7	WD40	VAMP8	TM			1	-1.818
B3GNT1	TM	CACNA1I	COILS	TM		2	-4.2297
HIC1	BTB	zf-C2H2	FBN2	EGF	EGF_CA,TM	5	-11.0881
C2	CCP	Tryp_SPc	VWA	SFTPD	CLECT	2	-0.1639
ZNF71	zf-C2H2	PFN1	PROF			1	-1.377
BTBD1	BACK	BTB	PHR	CLDN1	TM	3	-6.3921
RBM19	RRM	LPCAT2	EFh	PlsC	TM	3	-0.1439
PIGV	TM	CYP4V2	TM	p450		2	-5.0715
GALNT2	RICIN	TM	HTRA3	IB	KAZAL, PDZ, Tryp_SPc	5	-10.3571
SHISA5	TM	PIGW	TM			1	-2.5009
VRK2	Pkinase	Pkinase_Tyr	TM	TMEM184C	TM	3	-3.9855
ZNF770	zf-C2H2	NUMBL	COILS	PTB		2	-2.1412
CBLC	Cbl_N	Cbl_N2	Cbl_N3	RING	SH2, CBX3, ChSh,Chromo	3	4.1782
ZNF682	KRAB	zf-C2H2	CFHR3	CCP		1	-2.9526
ERMP1	TM	ZCWPW1	COILS	PWWP	zf-CW	3	-7.3852
ATAD1	AAA	COILS	OS9	COILS	TM	4	-3.3709
ZNF676	KRAB	zf-C2H2	MTMR4	COILS	FYVE	4	-7.3804
SLC4A8	Band_3_cyto	TM	GIGYF1	COILS	GYF	3	-6.4657
APOBEC1	APOBEC_C	APOBEC_N	MYOC	COILS	OLF	1	-2.0793
IL17RC	TM	PER3	PAC	PAS		2	-3.8776
KCTD13	BTB	EHBP1L1	CH			1	-1.157
SEL1L	Sel1	TM	fn2	ACP1	LMWPc,TM	4	-4.7834
LYPLA1	Abhydrolase_2	Abhydrolase_3	TRPC5	Ank	TM	2	-4.2658
STK16	Pkinase	Pkinase_Tyr	SENP1	COILS	Peptidase_C48	4	0.9055
H2AFY	H2A	Macro	RSRC1	COILS		2	-0.1737
NLRP3	LRR	LRR_RI	NACHT	PCYT1A	COILS,CTP_transf_2	2	-1.6498
MLLT10	COILS	PHD	TM	FCAMR	TM, ig	6	-12.3036
GOLGA4	COILS	GRIP	MYO10	B41	IQ, MYSc, MyTH4, PH	6	-5.1996
NOD2	CARD	LRR	NACHT	TNFRSF10A	Death, TM, TNFR	8	-0.788
CCDC86	COILS	SNX27	PDZ	PX	RA	3	-2.0107
LCAT	TM	IGF2BP1	KH	RRM		2	-1.5081

PSMC2	AAA	COILS	FRS3	IRS		1	-0.5752
IL13RA1	IL6Ra-bind	TM	CD68	TM		2	-4.0599
KLHL26	BACK	BTB	Kelch	ABI3BP	TM, fn3	5	-12.5765
UGT2B7	Glyco_tran_28_C	TM	XKR6	TM		2	-6.4578
HCRTR1	TM	ARHGEF9	PH	RhoGEF	SH3	3	-3.3269
RCOR1	COILS	SANT	PLOD1	P4Hc		2	1.4143
MAN2B1	Alpha-mann_mid	Glyco_hydro_38	Glyco_hydro_38C	DDX43	DEXDc,HELICc, KH	4	2.3932
SDK2	IGc2	TM	fn3	ig	Pspn, TGFB	3	-4.1752
DEPDC1	DEP	RhoGAP	ITGB5	EGF	EGF_2, INB, Integrin_B_tail, Integrin_b_cyt, PSI, TM,VWA	5	-8.324
EDNRB	TM	ZNF383	KRAB	zf-C2H2		2	-7.5056
STK10	COILS	S_TKc	PSENEN	TM		2	-2.4794
TMEM50A	TM	E4F1	zf-C2H2			1	-3.0159
HIST1H1D	H15	CAMKK2	S_TKc			1	2.7797
NAV3	AAA	CH	COILS	ATP2A1	Cation_ATPase_N, Hydrolase, Hydrolase_3, TM	8	-7.393
FAM189A1	TM	NFKBIL1	Ank	COILS		2	-3.5331
LEPREL1	P4Hc	AHCYL1	AdoHcyase	AdoHcyase_NAD		2	5.7568
KITLG	TM	TSPAN3	TM			1	-2.5009
TRAIP	COILS	RING	SRPRB	Arf	GTP_EFTU,TM	6	-2.28
SOAT1	TM	ZNF485	KRAB	zf-C2H2		2	-7.5056
SPOCK2	KAZAL	SPARC_Ca_bdg	TY	PACSIN3	COILS, FCH, SH3	3	-6.7088
AMY2A	Alpha-amylase	NRCAM	IGc2	TM	Fn3, ig	2	0.1058
TSPAN10	TM	C19orf12	TM			1	-2.5009
F2	Gla	KR	Tryp_SPc	MTF1	zf-C2H2	1	-4.7699
SPEF1	CH	COILS	SGOL1	COILS	Shugoshin_N	3	-0.7263
TSPAN9	TM	AKR1A1	Aldo_ket_red			1	-2.5706
TRMT112	Trm112p	ZDHHC12	TM			1	-1.8775
SH2D4A	SH2	STX2	SynN	TM	t_SNARE	2	0.0123
SFI1	COILS	RSPH9	TM			1	-1.7288
CMTM7	MARVEL	TM	AICDA	APOBEC_C	APOBEC_N	1	-2.3294
IRF3	IRF	KCNRG	BTB			1	0.7267
ATP10D	Hydrolase	TM	IRF8	IRF		1	-1.5097
LARP4	La	RRM	CSTF2	RRM		2	3.9464
SNX6	BAR	PX	Vps5	PTH1R	HormR, TM	3	-2.5887
ZSCAN4	zf-C2H2	CBS	CBS			1	-2.8239
COL8A2	C1q	PODXL2	COILS	TM		2	-6.1244
ICAM3	IG_like	TM	ig	NMRAL1	TrkA_N, adh_short	3	-5.5598
TMEM139	TM	GSTM1	GST_C	GST_N		1	-2.0888
CTGF	CT	IB	TSP1	VWC	MSMB, TM	4	-9.5449
KDELC1	CAP10	IG_FLMN	OR7A5	TM		1	-0.4252
RRNAD1	COILS	CSN2	COILS			1	-0.7182
DPYSL3	Amidohydro_1	PLA2G2A	PA2c	TM		1	-1.7821
SESTD1	SPEC	ZNF608	zf-C2H2			1	-1.0268
GPR101	TM	PCDHB7	CA	Cadherin_2	TM	3	-8.2087
MAN1B1	Glyco_hydro_47	TM	IGFLR1	TM		2	-4.0217
ZNF334	zf-C2H2	HOMER2	COILS	WH1		2	-2.4108
FBXO22	FBOX	FIST_C	MATR3	COILS	RRM, zf-C2H2, zf-U1	3	0.0353
MEOX1	HOX	HSD17B10	adh_short			1	-1.7684

Table S6: Threshold values for PPI networks of fusions (examples)

Genes of the fusion	Amount of		Average number of the interactors per fusion		
	Interactors without fusion	fusions	active	missing	False-positives
EWSR1/ERG	649	13	513.85	135.15	4.31
SQSTM1/ALK	278	1	62	216	0
BCR/ABL1	204	44	179.84	24.16	4.57
FUS/ERG	377	1	342	35	0
NDRG1/ERG	177	2	105	72	26
VCL, ALK	no chimeras				
TFG/ALK	180	5	47	133	3.6
KMT2A/GAS7	116	6	110	6	0
STRN, ALK	no chimeras				
TPM3/ALK	173	1	146	27	0
TPM4/ALK	135	2	108	27	0
SLC45A3, ERG	no chimeras				
TMPRSS2/ERG	82	7	77.29	4.71	0
SEC31A, ALK	no chimeras				
PPFIBP1/ALK	91	2	37	54	0
UBC/MYC	1335	2	1088	247	48.5
RBM10/UBC	896	2	742.5	153.5	6.5
APBB1/UBC	914	2	13	901	13
COPS5/HNRNPH3	812	3	672	140	24
FN1, ALK	no chimeras				
JAZF1, SUZ12	no chimeras				
KMT2A/EP300	518	1	513	5	0
ASPSCR1/TFE3	60	3	44	16	0.67
BCOR/CCNB3	88	2	86	2	0
BCR/FGFR1	103	4	96	7	0
BCR/PDGFRA	99	1	70	29	14
CREBBP/KAT6A	317	4	244.75	72.25	13.75
ERG/EWSR1	649	13	513.85	135.15	4.31
ETV6/ABL1	200	1	197	3	0
ETV6/ACSL6	34	2	1	33	1
ETV6/NTRK3	45	5	38.8	6.2	0
EWSR1/ATF1	613	9	570.11	42.89	0
EWSR1/ETV4	603	2	35.5	567.5	24.5
EWSR1/FLI1	610	16	475.44	134.56	3
EWSR1/NR4A3	597	2	575.5	21.5	0
EWSR1/PATZ1	610	6	591.67	18.33	0
FUS/ATF1	338	2	323	15	0
FUS/CREB3L2	330	7	241.29	88.71	7
FUS/DDIT3	384	4	288.5	95.5	16.75
KMT2A/AFDN	147	3	139.67	7.33	0
KMT2A/AFF1	115	56	89.84	25.16	7.66
KMT2A/CBL	326	1	209	117	0

KMT2A/EPS15	225	1	207	18	0
KMT2A/MAML2	100	4	91	9	1.5
KMT2A/MLLT1	115	9	89	26	2.78
KMT2A/MLLT10	103	8	90.38	12.62	3.62
KMT2A/MLLT3	124	6	93.5	30.5	4.67
KMT2A/MLLT6	120	1	112	8	0
MN1/ETV6	36	2	16.5	19.5	3.5
NPM1/RARA	657	1	224	433	0
NR4A3/TAF15	63	3	44	19	40
NR4A3/TFG	122	1	22	100	0
NUP98/DDX10	81	4	59.5	21.5	0
NUP98/HOXA9	80	1	37	43	0
NUP98/HOXC13	83	1	22	61	0
PAX3/FOXO1	73	8	49.25	23.75	1.88
PAX5/ETV6	43	1	39	4	0
PAX7/FOXO1	59	2	57	2	0
PICALM/MLLT10	104	4	56.25	47.75	6.25
PML/RARA	285	9	254.11	30.89	13
RUNX1/RUNX1T1	109	20	59.15	49.85	4.45
SS18/SSX1	49	5	45.6	3.4	0
SS18/SSX2	59	21	42	17	3.67

Table S7: A list of fusions of gene1 and gene2 and their corresponding number of interactors, number of missing interactors and number of identified cancer pathways using the GO enrichment analysis

Gene1	Gene2	No. of interactors	No of interactors studied	No. of missing interactors	number of cancer pathways
ACBD6	RRP15	15	14	1	0
ACSL3	ETV1	30	20	10	13
ACTB	GLI1	185	158	27	31
ACTG1	MEPCE	259	259	0	17
ACTN4	MLL	130	119	11	12
AFF1	MLL	99	96	3	8
AGPAT5	MCPH1	27	27	0	3
AGTRAP	BRAF	46	40	6	37
AKAP9	BRAF	71	67	4	42
ALK	MSN	119	94	25	38
ANKHD1	PCDH1	15	12	3	0
APBB1	UBC	9667	9663	4	66
ARFIP1	FHDC1	19	18	1	0
ARID1A	MAST2	59	55	4	6
ASPSCR1	TFE3	34	32	2	3
ATF1	EWSR1	230	201	29	18
ATG4C	FBXO38	19	17	2	1
ATIC	ALK	95	86	9	35
BBS9	PKD1L1	1	1	0	0
BCAS4	BCAS3	2	2	0	0
BCR	ABL1	182	175	7	39
BCR	JAK2	139	123	16	41
BIRC3	MALT1	91	77	14	19
BRAF	AKAP9	71	67	4	42
BSG	NFIX	37	19	18	0
C2orf44	ALK	63	52	11	34
CALM1	RALA	252	247	5	32
CANT1	ETV4	15	15	0	1
CARS	ALK	80	59	21	29
CCDC6	RET	47	41	6	15
CCND1	TACSTD2	79	72	7	16
CD74	ROS1	9	8	1	1
CDH11	USP6	16	9	7	4
CDK6	MLL	175	159	16	11
CDKN1A	GAPDH	152	348	-196	30
CHCHD7	PLAG1	7	5	2	2
CIC	DUX4	14	11	3	0
CLCN6	BRAF	40	38	2	37
CLTC	ALK	160	148	12	45
CLTC	TFE3	133	128	5	23
CNBP	USP6	61	49	12	5
COL1A1	PDGFB	44	38	6	7
COL1A1	USP6	41	29	12	8
COL1A2	PLAG1	15	13	2	3
COPS5	HNRNPH3	847	841	6	15
CREB3L2	FUS	119	101	18	10
CREB3L2	PPARG	109	97	12	9
CREBBP	KAT6A	291	289	2	32
CRTC1	MAML2	10	10	0	0
CRTC3	MAML2	8	8	0	0
CTAGE5	GEMIN2	33	33	0	1
CTNNB1	PLAG1	243	231	12	31
CYTH1	EIF3H	66	64	2	6
DACH1	SMAD4	157	153	4	17
DAZAP1	MEF2D	59	58	1	14

DDIT3	FUS	159	139	20	17
DDX10	NUP98	44	44	0	9
DDX5	ETV4	169	155	14	19
DDX5	PIK3CA	205	184	21	42
DHX35	ITCH	122	109	13	23
EIF3E	RSPO2	83	79	4	4
EIF3K	CYP39A1	48	45	3	5
EIF4E2	HJURP	31	31	0	1
ELL	MLL	92	87	5	7
EML4	ALK	54	44	10	32
EPC1	PHF1	41	37	4	3
ERC1	RET	53	47	6	21
ERO1L	FERMT2	56	46	10	5
ESRP1	RAF1	115	109	6	42
ETV6	ABL1	157	154	3	34
ETV6	ACSL6	26	23	3	5
ETV6	ITPR2	28	24	4	5
ETV6	JAK2	114	102	12	33
ETV6	NTRK3	35	30	5	10
ETV6	RUNX1	92	89	3	18
EWSR1	ATF1	230	201	29	18
EWSR1	CREB1	308	272	36	25
EWSR1	DDIT3	273	237	36	27
EWSR1	ERG	296	267	29	13
EWSR1	ETV1	231	201	30	28
EWSR1	ETV4	231	202	29	15
EWSR1	FEV	218	189	29	15
EWSR1	FLI1	232	202	30	14
EWSR1	NFATC1	242	213	29	15
EWSR1	NFATC2	242	213	29	21
EWSR1	NR4A3	222	193	29	15
EWSR1	PATZ1	227	194	33	14
EWSR1	PBX1	247	211	36	14
EWSR1	POU5F1	277	228	49	15
EWSR1	SMARCA5	298	269	29	19
EWSR1	SP3	248	206	42	16
EWSR1	WT1	235	199	36	15
EWSR1	YY1	332	244	88	18
EWSR1	ZNF384	223	192	31	15
EWSR1	ZNF444	219	189	30	15
EZR	ROS1	94	78	16	36
FAM131B	BRAF	42	40	2	37
FBXL18	RNF216	32	31	1	2

Table S8: Clustering coefficient, betweenness centrality for PPIs found in normal, random and unified networks of two parental proteins of fusions

fusion ID	Domain	Clustering Coefficient	Betweenness Centrality
1	14-3-3	0.306683478	4771.693851
10010	FIST_C	1	0
10017	Fmp27_GFWDK	1	0
10024	FumaraseC_C	0.494567404	139.1618418
10026	G8	0.833333333	0.550190765
10027	GalKase_gal_bdg	0.558404558	34.33866934
10033	GluR_Homer-bdg	1	0
10036	Glyco_transf_64	0.658119658	17.2274655
10054	Hat1_N	0.685897436	25.23489569
10073	Ig_Tie2_1	0.879120879	0.320459302
10075	IL12p40_C	0	0.666666667
10085	Involucrin_N	0.815789474	1.101894812
10091	KASH	0.830107527	2.441404283
10096	KLRAQ	0.861111111	0.134932041
10099	TMEM189_B_dmain	0.637362637	4.023854834
10108	Lig_chan-Glu_bd	0.722969024	28.54575142
10119	MAGUK_N_PEST	0.619608668	104.760248
10122	Matrilin_ccoil	0.637426901	3.90761286
10123	MCC-bdg_PDZ	0.475085911	153.6953616
10133	Membr_traf_MHD	0.585227273	21.93983955
10134	MENTAL	1	0
10143	Misat_Tub_SegII	0.555688241	250.8426078
10146	MitoNEET_N	0.646723647	5.937592722
10150	MMtag	0.72	3.787560653
10180	NADH-G_4Fe-4S_3	0.651178451	28.24187615
10183	NADH_4Fe-4S	0.383275261	67.24389001
10186	NARG2_C	0.486166008	15.63267574
10195	Nefa_Nip30_N	0.778947368	103.9863172
10204	NMDAR2_C	0.828609987	6.761739938
10207	Nrf1_activ_bdg	0.791666667	1.309462831
10214	Nup_retrotrp_bd	0.796234773	8.466862309
10216	OAS1_C	0.74789916	6.824415831
10218	Ofd1_CTDD	0.682352941	16.2319712
1023	CDC37_C	0.637404027	131.2534486
10234	PACT_coil_coil	0.747493734	13.90273606
1024	CDC37_M	0.634873323	138.3837428
1025	CDC37_N	0.637404027	131.2534486
1027	CDC48_2	0.388559427	1719.117016
1028	CDC48_N	0.916666667	0.048516711
10281	Plug_translocon	0.715909091	10.71655715
10284	PNPOx_C	0.522875817	15.00024794
10288	PP1c_bdg	0.804597701	2.774368141
10289	PP28	0.822222222	0.295591062
10294	PRCC	0.847619048	0.785277941
10295	Proteasome_A_N	0.415410539	1355.995429
1030	Cdc6_C	0.694352159	19.32939054
10306	CENP-F_C_Rb_bdg	0.71541502	5.903594789
10311	RFC-E_C	0.733333333	11.75409088
10313	Rhodopsin_N	0.822222222	0.606174192
10321	RNA_GG_bind	0.825757576	3.08257322
10325	Rod_C	0.742424242	0.670974093
10332	RRM	0.124896445	87808.28817
10333	RRM_4	0.734164071	60.20201538
10336	muHD	0.881422925	0.798970135
10347	SLBB	0.383275261	67.24389001
10351	SPARC_Ca_bdg	0.647619048	11.02610968
10365	Syntaxin-18_N	0.833333333	1.095996091
10368	TAF8_C	0.812865497	1.26293389
10380	Thiol-ester_cl	0.598006645	25.0122324
10408	U5_2-snRNA_bdg	0.734164071	60.20201538
10409	U6-snRNA_bdg	0.734164071	60.20201538
10410	UBA_e1_thiolCys	0.507271172	520.4596336
10417	UPF0547	0.833333333	0.105775791
1042	CDT1	0.873399716	3.212276229
10436	Vps39_1	0.695652174	9.349559169
10438	WAC_Acf1_DNA_bd	0.915789474	0.3926115
10446	WWbp	0.8	0.764594884

10456	YchF-GTPase_C	0.765227021	11.19199798
10467	zf-4CXXC_R1	0.771428571	13.21490834
10468	zf-C3H1	0.313799574	4991.832125
10470	zf-CCHH	0.678030303	17.14431459
10471	zf-CHCC	0.719327731	7.957137493
10472	zf-FCS	0.76969697	19.52778797
10477	4.1m	0.61005661	105.0553237
10480	ADAM_CR	0.66252588	43.58660846
10481	A_deamin	0.772187282	21.6555041
10482	Cofilin_ADF	0.389949627	1449.376237
10483	Serum_albumin	0.424950787	736.9668247
10484	Annexin	0.415841921	1431.923602
10486	APPLE	0.666666667	0.05424099
10487	AWS	0.697032031	41.92992328
10488	Aamy	0.730769231	1.833862442
10489	Alpha-amylase_C	0.4	17.44383821
10491	Amidase_2	0.666666667	0.821366626
10493	B41	0.321953306	4481.313031
10494	B561	0.888888889	0.144991216
10495	BBC	0.405191428	1739.454561
10496	zf-B_box	0.281331069	7062.956422
10497	BCL	0.525559366	391.1349005
1050	CENP-B_dimeris	0.76	11.88620885
10500	Big_2	0.62962963	9.072532637
10501	LBP_BPI_CETP	0.472268908	42.88520128
10504	bZIP_2	0.332093083	4008.036772

Table S9: Fusion ID, the number of genes, the number of nodes, the number of edges and corresponding missing interactors

Fusion ID	Gene1	Gene2	Gene 1		Gene 2		Fusion			Missing interactors
			nodes	edges	nodes	edges	nodes	edges	number	names of interactors (list)
EU216071	BCR	ABL1	51	234	127	843	108	597	48	PCNA, HSPD1, PAG1, GPX1, CDKN1B, RAD9A, IL3, PSMD4, GAB2, TOPBP1, STON2, HOXA9, SHD, TERF1, CSNK2A2, WASF1, BAG1, YWHAQ, GAB3, RYBP, SFN, MYC, HSPA4, PDE4D, YTHDC1, JUN, TSG101, UBC, HSP90AA1, BCR, ABL1, SHE, HSPA8, CAT, AP2M1, PSMA7, DDB1, RFX1, YWHAB, STK4, AP2A1, ATM, MAPT, PFDN4, TUB, CREB1, VPS28, UNC119
AJ298917	FGFR1	BCR	27	75	52	258	44	188	34	HSPD1, SHB, IL3, GAB2, HOXA9, ERCC3, FGF1, FGF23, CSNK2A2, FDPS, FGFR1, PPP2R1B, STAT3, CDC42, MYC, HSPA4, UBC, TSG101, BCR, HSP90AA1, HSPA8, RAC1, AP2M1, TP53, FGF2, KPNB1, IGSF21, FRS3, CTPS2, INPP5D, FRS2, BNIP2, VPS28, UNC119
Z35761	ETV6	ABL1	27	85	128	867	83	452	68	PCNA, HSPD1, SIN3A, CDKN1B, PSMA4, MTOR, GAB2, DOK2, FLI1, SHD, CABLES2, TERF1, WASF1, BAG1, YWHAQ, GAB3, XPO1, SFN, HSPA4, SUMO2, PDE4D, HSPA8, SUMO1, AP2M1, EVL, TP53, DDB1, ST5, YWHAH, AP2A1, MAPT, KAT5, SOX2, PAG1, GPX1, RAN, BCAR1, RAD9A, PSMD4, ETV6, TOPBP1, IRF8, STON2, YWHAG, SKP1, RYBP, UBE2I, YTHDC1, JUN, UBC, HSP90AA1, ABL1, CAT, SHE, PRKDC, PSMA7, L3MBTL1, YWHAB, RFX1, STK4, YWHAZ, BMP2K, ATM, YWHAE, PFDN4, TUB, CREB1, HDAC3
EF428110	PRKAR1A	RARA	65	206	106	570	64	204	104	MMS19, PRDX6, PLEKHF2, SET, PRPF31, TOP2B, WTIP, HDAC4, PRKAR1A, NKX2-1, SMARCD3, TDG, RXRA, AJUBA, NCOA1, GSK3B, AKAP4, MAPK6, HR, BAG1, USP7, ASXL2, CUL3, MAPK1, IRX4, FOXO1, SUZ12, RXRG, MED25, GADD45A, MED6,

										PRKACA, RUVBL1, SUMO1, TRIM32, NRBF2, MED1, NCOA6, RSF1, ASXL1, PRAME, ARPC3, NPRL2, PYCARD, C2orf88, AKAP1, SKI, PJA2, PRKX, RUNX1, ARID1A, POU2F1, C2orf44, CAPN11, LRIF1, SPI1, TRIP4, LIMD1, NPM1, PSMC5, MRTO4, MEN1, SOX2, ARFGEF2, RARA, KAT2B, BAHD1, UBE2M, CBS, BAP1, MECR, HDAC9, UBD, GADD45G, AKAP11, NCOR2, SRC, OXSR1, NR0B2, SAP130, PFDN5, RFC2, UBC, ITGB1BP2, PRAM1, HSP90AA4P, SIRT5, TADA3, RFC4, PPP1CA, RAC3, TAB1, MCRS1, ZBED1, SIAH1, KAT2A, NR2E3, NRIP1, GABARAPL1, ARFGEF1, HDAC2, SETD7, UBE3A, HDAC3
U41743	NPM1	RARA	355	4318	105	554	172	986	274	MMS19, RPL10, ELMO2, NSUN2, PPP1CC, SMARCD3, ENO1, UBL4A, IMPG1, HSPB1, ASXL2, RYK, MAP1B, SMN1, SLC25A3, RXRG, COPS6, PSMD1, SUMO1, TP53, MRPL18, MRPL10, AFF1, COPB1, OTUB1, CHCHD3, LRIF1, GZMM, SIRT7, PSMC5, MRTO4, NUP98, C1QBP, FANCA, VASP, RARA, RPLP0, HNRNPA0, PCBP1, CTNNBL1, ATP5A1, CPSF3, GADD45G, TCP1, IRF1, LYAR, SAP130, CDKN1A, CHCHD6, COPS2, PRAM1, LAMP2, PARK7, BOLA2, RPS5, MRPL38, IPO9, CUL2, SNRPD1, SUMO3, USP36, USP15, DNAJA2, NPM3, GNAI2, PRDX6, MYCBP, COPS5, PHKG2, HDAC4, ACY1, PRKAR1A, RPS6, Nup62, EIF2S1, CBX4, CUL4A, RXRA, CAND1, AJUBA, HAND2, CPSF1, MAPK6, HR, CDC14A, SDPR, MAPK1, IRX4, ACACA, SUMO2, IMPDH2, MED25, PYGB, GADD45A, CUL5, RUVBL1, PPM1G, DNAJA1, ASXL1, CSNK2B, SPI1, EIF5A, PADI4, COPE, MRPL52, NAP1L4, SIRT1, MRPL19, PPIL4, HIST3H3, RPL5, MRPL46, SREK1, PAPOLG, ITGB1BP2,

										LGALS1, DSTN, HDAC5, DCUN1D1, PSMD12, NR2E3, SLC25A5, EIF3E, YWHAE, MRPL24, IPO5, UBE3A, MRPL39, ARRB1, RPL10L, CENPA, RIOK2, TXN, MRPL12, RPS28, TDG, ICT1, HSPA5, JUNB, CDT1, CFL1, YWHAQ, CBX8, SRRT, USP7, XPO1, CUL3, KIF11, RPLP1, MED6, COPG1, PHB, NRBF2, RPS12, MED1, SLAIN2, CCT2, RSF1, FBXO6, MRPL50, PRAME, PPP2R1A, SKI, POU2F1, PSME3, NPM1, EEF1B2, RRP1B, HIST1H3A, CDKN2A, HIST1H1C, MRPL28, MECR, POLR2E, DOCK4, SENP3, APEX1, PPA1, EEF2K, RPL6, MRPS26, MRPL11, AKAP11, RPS4X, NIPSNAP1, EIF3M, HIST1H4A, SAMM50, KCTD2, RANBP6, TXNDC12, TUBA1C, STK38, H2AFX, RFC4, BAG2, KAT2A, CSNK1A1, NRIP1, TTC27, RPL24, HOXA7, MRPL54, NKX2-1, MRPL49, MRPS30, SNRPF, NCAPG, CSNK2A1, NUDCD1, CHCHD4, EIF3H, RPL14, BAG1, FBXO25, SPIN1, CSDA, HSPA4, FOXO1, MRPL37, PAN2, SUZ12, EIF3G, FANCC, RELA, TRRAP, H1FX, TRIM32, CDK5RAP3, NUDT21, HIST1H1A, S100A11, NCOA6, HIST2H2AC, TEX15, PRKAA1, PARD6B, MRPL53, HIST2H2BE, TRIP4, OSBP, TRMT61A, UQCRH, KAT2B, PSMD4, KCTD5, BAP1, EEF1G, MRPL44, DNAJC13, NR0B2, TFAP2A, CPSF2, CDC37, UBC, PPP2CA, HSP90AA1, TADA3, S100A10, PA2G4, NAP1L1, RAC3, DYRK2, TAB1, CUL1, FMNL1, SIAH1, YWHAZ, TOP1, HJURP, MRPL43, SNRPD2, HDAC3, ARMCX3
M73779	PML	RARA	155	1246	105	537	108	518	121	MMS19, SIN3A, HDAC4, NKX2-1, CDK1, SMARCD3, GATA2, CSNK2A1, ZNF506, MTOR, PSMA3, FOS, RUNX3, RXRA, AJUBA, MAPK6, MAF, HR, BAG1, USP7, ASXL2, NR2C1, MAPK1, IRX4, FOXO1, SUMO2, RXRG, SUZ12, MED25, TERT, IKBKE,

										LMNA, GADD45A, MED6, RELA, TERF2IP, RUVBL1, NFATC1, PIAS1, SUMO1, TRIM32, TGIF1, TP53, RPL11, IER3, NRBF2, MED1, SRF, CDK6, SAP25, NCOA6, CSNK2A1P, RSF1, ASXL1, PRAME, MAP2K4, RNF111, PCBD2, SKI, SMAD3, PSME3, KAT5, TCF4, LRIF1, CCNT1, TRIP4, SATB1, NPM1, SPI1, PSMC5, PLSCR1, MRTO4, CASP8AP2, SIAH2, RARA, KAT2B, AURKA, EIF4E, BAP1, TOPBP1, MECR, UBE2U, POLR2E, SIRT1, PML, ELF4, GADD45G, SKP1, TOPORS, NR0B2, UBE2I, MED7, ADH1B, MYC, MAGEA2, SAP130, JUN, SENP6, UBC, ITGB1BP2, PRAM1, TADA3, ZFYVE9, RFC4, H2AFX, PIAS2, RAC3, RBX1, NR4A1, CUL1, KAT2A, SIAH1, NR2E3, NRIP1, HHEX, RNF4, DAXX, MAPK11, HDAC7, UBE3A, HDAC3
AF012304	NUMA1	RARA	48	213	106	570	82	381	69	MMS19, HDAC4, NKX2-1, SMARCD3, TDG, AJUBA, ACTR1A, TERF1, HR, BAG1, USP7, TERF2, YWHAQ, ASXL2, IRX4, FOXO1, SUMO2, SUZ12, MED25, LMNA, GADD45A, MED6, SMC1A, TERF2IP, RUVBL1, SUMO1, SMC3, TRIM32, NRBF2, MED1, DDB1, CDK6, RSF1, ASXL1, PRAME, SKI, LRIF1, SPI1, DYNLL1, NPM1, SIRT7, TRIP4, MRTO4, NUP98, RARA, KAT2B, BAP1, MECR, KIAA0101, GADD45G, BANF1, NR0B2, CBX6, SAP130, UBC, ITGB1BP2, PRAM1, TADA3, HSP90AA1, PIM1, RAC3, YEATS4, HDAC5, KAT2A, SIAH1, NRIP1, NUMA1, HDAC3, RPAP1
AF041811	ETV6	NTRK3	27	85	10	14	9	12	29	SHC1, SUMO2, HDAC6, UBC, SIN3A, SOX2, ELAVL1, NTRK3, IRAK3, HSP90AA1, SOCS3, SOCS1, GAB2, SUMO1, ETV6, FLI1, PTPN1, IRF8, L3MBTL1, HDAC9, NTF3, FRS2, SKP1, CRKL, KAT5, UBE2I, ACTA1, FBXL6, HDAC3
DQ841178	PAX5	ETV6	9	12	27	85	10	16	27	SUMO2, HDAC6, RB1, UBC, SIN3A, SOX2, ELAVL1, SOCS3,

										SOCS1, SUMO1, GAB2, ETV6, FLI1, IRF8, L3MBTL1, HDAC9, PAX5, SKP1, CRKL, MYB, KAT5, DAXX, ID3, UBE2I, HDAC3, FBXL6, ACTA1
AA828778	CREBBP	CREBBP	258	2396	258	2396	8	12	251	VDR, LIG4, SMAD1, CDC16, HCK, YY1, ZCCHC12, TDG, FOS, KLF13, DEK, RPA2, ACTA2, NPAS2, ABCA1, SP3, ANAPC7, TACC2, MYBL1, JUNB, SMARCB1, TBX21, TCF3, CSNK2A2, PPARGC1A, SREBF1, PTMA, NEUROG1, CPSF6, NCOA3, KLF1, HIST4H4, WDR5, CDC27, NFKB2, EPAS1, PYGO2, STAT2, NFE2, IFNAR2, MAFK, TP53, REL, CDC20, EWSR1, IRF5, CEBPD, FOXO3, CSK, CITED2, MYH9, KHDRBS1, EP300, ATF2, MDC1, HNF1A, KAT5, APC, BCL6, MSX1, TLR2, XRCC6, TBP, PSMC5, DDX5, GRIP1, NUP98, SREBF2, STAT6, TRERF1, SETD1A, HIST1H3A, KLF5, RARA, ING1, CARM1, IKBKG, SMARCC2, MEIS1, GLI3, SMAD2, SMARCC1, PML, MIER1, ZBTB2, CEBPB, PAPOLA, KPNA6, HMGA1, SND1, HIST1H4A, FGFR1, HOXB7, IRF1, MYC, KAT6A, PELP1, CREBBP, PTMS, CDKN1A, JUN, IRF3, HOXB3, IRF9, E2F1, RBBP7, RPS6KA1, NCOR1, NPAT, PHOX2A, AR, MAPK10, ETS2, N4BP2, HDAC2, HOXB9, CCNC, RPS6KA5, HOXB2, DAXX, IRF7, HOXA10, ONECUT1, ATF1, RBBP4, MGMT, MTDH, RAD23A, ESR2, ELAVL1, LYN, NKX2-1, ETS1, NCOA2, TCF12, E2F3, CSNK2A1, HIPK2, AKT1, NFATC4, MAP3K5, CNTN2, SH3GL1, SERTAD1, NCOA1, GTF2B, HOXB6, PPARG, CHUK, MAF, SNIP1, ATF4, CITED1, STAT3, HNF4A, FOXO1, ATG3, MED25, HBP1, HIF1A, RELA, FOSL1, CTBP1, MED21, TP73, NFYB, FOXO4, RUVBL1, TGS1, HOXD12, ANAPC2, KPNA2, KLF8, SRF, ZNF639, STAT1, NCOA6, MYBL2, PTOV1, TAF6L, SMAD3,

										HOXD13, RUNX1, ATF3, HOXD4, CUX1, HIST2H2BE, PRLR, TRIM28, HMGB2, TRIP4, HDAC1, POU1F1, NLK, MDM2, KAT2B, ATXN3, EGR1, HOXB4, NFATC2, ANAPC5, MKNK1, RPS6KA3, HOXA9, KDM3B, SS18L1, IKBKB, MSH2, FOSB, GCM1, MAML1, HIST3H3, NCOR2, SP1, SRC, CDK2, GATA1, PBX1, RPS6KA2, CCNE1, HDAC6, RUNX2, UBC, EBF1, HOXD10, SMARCA2, FOXM1, POLR2A, PLAGL1, HMGB1, NFE2L2, RAC3, HTT, PIAS3, MSH6, HES6, MTF1, PARP1, NR5A1, KLF4, NR3C1, POT1, AIRE, MECOM, CDK8, MYOD1, MYB, ESR1, CREB1, DDX17, HDAC3
AB084281	KAT6A	ASXL2	31	154	7	13	7	9	31	PRPF40A, HDAC1, WDR5, ATN1, HIST2H3C, UBC, H3F3C, HDAC4, ELAVL1, HIST1H3A, SIRT5, RERE, BAP1, TP53, MAFK, UBE2U, ATXN1, HIST1H4I, MEAF6, EP300, HDAC8, HIST3H3, RUNX1, HDAC2, HIST1H4A, ASXL2, ING5, TRAF6, HDAC3, KAT6A, HSPA4
AY222643	CREB3L2	PPARG	13	22	83	442	39	111	57	FABP1, ZBTB3, COPS5, RB1, RND1, BCAS2, ESR2, HDAC4, NLK, ELAVL1, RGS16, RAD54L2, SMARCD3, DNTTIP2, RXRA, CEBPB, PPARG, GADD45G, FHOD1, CDC34, MED24, PPARGC1A, SP1, CREB3L2, PTP4A1, MAFF, NCOA4, NR0B2, TFAP2A, MSX2, SUMO2, SERPINH1, UBC, RELA, ZNHIT3, MIF4GD, ZBTB9, CEP19, NR0B1, SUMO1, PIAS1, CLU, MED1, NCOA6, MED14, NR2E3, KCTD13, TNP1, ZBTB5, NRIP1, ANP32A, GCFC2, EDF1, KAT5, HDAC3, LRIF1, TRIP4
AY678451	DAZAP1	MEF2D	20	81	32	122	8	8	42	HDAC1, MAPK7, COPS5, MEN1, HDAC4, ELAVL1, MEF2A, KAT2B, DAZ1, CARM1, NFATC2, RAD52, SENP3, CAND1, MEF2D, SP1, YWHAQ, PRMT5, CUL3, SUMO2, SNCA, UBC, ASH2L, RBBP5, MAPK14, SIRT5, CUL5, PRKACA, NEDD8, SUMO1, CUL2, CUL4B, CDK6, CUL1,

										HDAC5, DAZAP1, EP300, ASCL1, DAZL, HDAC3, ITCH, ITGA4
EU236945	CD74	ROS1	5	7	6	8	5	5	7	PTPN6, ROS1, IKBKG, UBC, MIF, PTPN11, CD74
X85960	TFG	NTRK1	45	171	33	107	17	30	60	SHC1, PLSCR1, RGS19, COPS5, GIPC1, BABAM1, RAD21, MST4, RIOK2, SH2B1, STK24, MYOT, MYCN, CUL4A, PALM2-AKAP2, PTPN1, UBD, ARL15, NTF3, CAND1, EEF2K, GBP2, SP1, CUL3, TRAF6, MYC, HSPA4, CAV1, TP53RK, CRMP1, CDC37, COPS6, UBC, TSG101, NGF, HSP90AA1, BRE, KIAA1377, CUL5, MATK, PIAS2, NEDD8, PPP1CA, CDK9, NTRK1, SH2B2, CUL2, CUL4B, STAT5B, VRK1, STK4, CUL1, DCUN1D1, SHC3, ARHGAP32, FRS2, RAP1A, GPRASP1, EHBP1L1, TFG
S74529	EWSR1	WT1	214	1100	18	32	34	42	196	HNRNPUL1, C11orf16, SMNDC1, YBX1, NDUFV1, CDK4, RIOK2, PRTFDC1, STK24, GNPDA1, WWP2, E2F8, RALYL, PRMT1, ITGA5, RNF168, MRPS9, GPBP1L1, NDUFB1, WBP4, USP7, RFX3, CUL3, WT1, CPSF6, ILK, SMN1, TONSL, COPS6, EPAS1, CUEDC2, DYNLL2, MATK, CUL4B, TP53, EWSR1, RHOXF2, EP300, PRUNE2, SRSF5, SERP2, SMAD4, MSC, SIRT7, HIST1H2BN, PLSCR1, FUS, MEN1, C19orf57, MST4, DFFA, TMEM126A, POLR3A, HLTF, PCBP1, U2AF2, UBD, CD2BP2, EEF2K, TRAF3, HAS1, MBD3, HMGN4, HMGA1, PAWR, YY1AP1, PTK2B, NTNG2, KEL, DNAJB3, TSG101, IRF3, DVL3, CCDC7, MYO1F, CSNK1E, CDK9, CUL2, MNS1, C10orf12, SNRPC, GORASP2, MYOZ2, CSNK1A1, KCNMB1, CCDC91, MCAT, CALM1, CXADR, MAGEA11, ARHGDIA, NONO, HDAC2, CPSF7, NPM3, TAOK1, PUF60, RASL11B, EPT1, CAMK1, KHDRBS2, COPS5, RAD23A, PHKG2, HERPUD1, ELAVL1, HSPA2, AGT, ELK1, POU4F1, SFXN1, BNIP3L, MDFI, MVK, CUL4A, CHERP, CD177,

										ACTL6A, KRR1, CAND1, MRPS18B, GSK3B, ECD, HNRNPA1, CD81, HSPA4, DMRTB1, SUZ12, VPS72, ATN1, HBP1, MAPK1IP1L, CUL5, BARD1, FAM131C, DNMT1, WWP1, KXD1, LILRA3, RNF183, TRIM5, MYL6, ELAVL4, WDR37, SUPT4H1, CFDP1, NBPF3, SSBP2, CDK12, CIAO1, NDUFA5, CETP, RAD21, TDRD3, MTMR9, MTCP1, EGR1, BLZF1, TRIM37, FXR2, NDRG1, NPPB, MRP63, PDHX, ELAVL3, WTAP, CEBPA, UBE2I, CDK2, CNST, HAX1, BAD, RPS15A, RMND5B, SF3B4, SF1, UBC, RBPMS, PRRC2A, NSUN4, TULP2, POLR2A, NEDD8, PGLS, SAP30BP, EZH2, DCUN1D1, CUL1, TPGS2, RAB37, DHX9, ZNF165, TMSB4Y, RPL31, HDAC3, ITGA4
AF327066	EWSR1	FLI1	214	1100	15	42	30	33	198	HNRNPUL1, C11orf16, SMNDC1, YBX1, NDUFV1, CDK4, RIOK2, PRTFDC1, STK24, GNPDA1, WWP2, E2F8, RALYL, PRMT1, ERCC5, FLI1, ITGA5, RNF168, MRPS9, GPBP1L1, NDUFB1, WBP4, USP7, RFX3, CUL3, CPSF6, ILK, SMN1, KLF1, TONSL, COPS6, EPAS1, CUEDC2, DYNLL2, MATK, SUMO1, CUL4B, TP53, EWSR1, RHOXF2, EP300, PRUNE2, SRSF5, SERP2, SMAD4, MSC, SIRT7, HIST1H2BN, PLSCR1, FUS, C19orf57, MST4, DFFA, TMEM126A, POLR3A, HLTF, ETV6, PCBP1, UBD, CD2BP2, EEF2K, TRAF3, HAS1, MBD3, HMGN4, HMGA1, YY1AP1, PTK2B, NTNG2, KEL, DNAJB3, TSG101, IRF3, CCDC7, MYO1F, CSNK1E, PIAS2, SMAD9, CDK9, CUL2, MNS1, C10orf12, SNRPC, GORASP2, MYOZ2, CSNK1A1, KCNMB1, CCDC91, MCAT, CALM1, CXADR, MAGEA11, ARHGDIA, NONO, HDAC2, CPSF7, FASN, PUF60, RASL11B, EPT1, CAMK1, KHDRBS2, COPS5, RAD23A, PHKG2, HERPUD1, ELAVL1, HSPA2, AGT, ELK1, POU4F1, SFXN1, BNIP3L, MDFI, MVK,

										CUL4A, CHERP, CD177, ACTL6A, KRR1, CAND1, MRPS18B, GSK3B, ECD, HNRNPA1, CD81, DMRTB1, SUZ12, VPS72, ATN1, HBP1, MAPK1IP1L, CUL5, BARD1, FAM131C, PIAS1, WWP1, SRF, KXD1, LILRA3, RNF183, TRIM5, MYL6, ELAVL4, WDR37, SMAD3, SUPT4H1, CFDP1, NBPF3, SSBP2, CDK12, NDUFA5, CETP, RAD21, TDRD3, MTMR9, ATXN3, MTCP1, BLZF1, TRIM37, FXR2, NDRG1, NPPB, MRP63, PDHX, ELAVL3, CEBPA, UBE2I, CDK2, CNST, HAX1, GATA1, BAD, RPS15A, RMND5B, SF3B4, SF1, UBC, RBPMS, PRRC2A, NSUN4, TULP2, POLR2A, NEDD8, PGLS, SAP30BP, EZH2, DCUN1D1, CUL1, FMNL1, TPGS2, RAB37, DHX9, ZNF165, TMSB4Y, RPL31, HDAC3, ITGA4
S72621	EWSR1	ERG	214	1100	37	124	34	51	216	HNRNPUL1, C11orf16, ACTB, SMNDC1, YBX1, NDUFV1, CDK4, RIOK2, PRTFDC1, STK24, GNPDA1, WWP2, E2F8, RALYL, PRMT1, ERCC5, ITGA5, RNF168, MRPS9, GPBP1L1, NDUFB1, WBP4, USP7, RFX3, CUL3, CPSF6, ILK, SMN1, TONSL, RPS18, COPS6, EPAS1, CUEDC2, DYNLL2, MATK, CUL4B, TP53, PRPF8, EWSR1, RHOXF2, EP300, PRUNE2, SRSF5, HNRNPM, SERP2, SMAD4, XRCC6, MSC, SIRT7, HIST1H2BN, PLSCR1, FUS, DDX5, C19orf57, MST4, DFFA, RPLP0, TMEM126A, ERG, POLR3A, HLTF, PCBP1, ATP5A1, UBD, CD2BP2, EEF2K, TRAF3, HAS1, MBD3, HMGN4, HMGA1, YY1AP1, PTK2B, NTNG2, KEL, JUN, DNAJB3, TSG101, IRF3, CCDC7, MYO1F, CSNK1E, CDK9, CUL2, RPL7A, MNS1, C10orf12, SNRPC, GORASP2, MYOZ2, CSNK1A1, AR, KCNMB1, CCDC91, MCAT, DNAJA2, ETS2, CALM1, CXADR, DDX3X, MAGEA11, ARHGDIA, NONO, XRCC4, HDAC2, CPSF7,

										FASN, PUF60, HNRNPU, RASL11B, EPT1, HNRPDL, CAMK1, KHDRBS2, NME1, COPS5, RAD23A, PHKG2, HERPUD1, ELAVL1, HSPA2, AGT, ELK1, POU4F1, SFXN1, BNIP3L, MDFI, EIF2S1, MVK, CUL4A, CHERP, CD177, ACTL6A, KRR1, CAND1, MRPS18B, GSK3B, ECD, HNRNPA1, CD81, HSPA4, DMRTB1, SUZ12, VPS72, ATN1, HNRNPA2B1, HBP1, MAPK1IP1L, CUL5, HSPA8, BARD1, FAM131C, WWP1, DNAJA1, KXD1, LILRA3, RNF183, TRIM5, TRIM21, MYL6, ELAVL4, WDR37, XRCC5, SUPT4H1, CFDP1, NBPF3, SSBP2, CDK12, NDUFA5, CETP, RAD21, TDRD3, MTMR9, ATXN3, MTCP1, BLZF1, NEDD4, TRIM37, FXR2, NDRG1, NPPB, MRP63, PDHX, ELAVL3, CEBPA, CDK2, CNST, HAX1, BAD, TPM1, RPS15A, RMND5B, SF3B4, SF1, UBC, RBPMS, PRRC2A, NSUN4, TULP2, POLR2A, NEDD8, PRKDC, DNAJA4, PGLS, SAP30BP, EZH2, DCUN1D1, CUL1, TPGS2, RAB37, DHX9, ZNF165, TMSB4Y, RPL31, HDAC3, ITGA4
L21756	RUNX1	MECOM	67	448	17	58	14	27	61	HDAC1, YAP1, VDR, SMAD1, KAT6B, SOX2, RBM14, SIN3A, HDAC4, ELAVL1, KAT2B, CDK1, ETS1, TCF12, SPEN, HIPK2, UXT, PRMT1, FOS, AES, SMAD2, SIRT1, SMARCC1, SMAD5, PAX5, CBFB, MBD3, ELF4, CEBPB, NOTCH1, SMARCB1, TCF3, NCOR2, STUB1, TRAF6, MYC, KAT6A, EFNA2, TAL1, JUN, UBC, RUNX1T1, NR4A2, CTBP1, ELF2, CBFA2T2, FHL2, DNMT1, UBE2L6, SIAH1, EP300, C17orf79, MECOM, SMAD3, RUNX1, HDAC2, MYOD1, SUV39H1, CTBP2, SMAD4, HDAC3
D13979	RUNX1	RUNX1T1	66	431	40	141	31	98	60	VDR, YAP1, SMAD1, TAF9B, KAT6B, C19orf57, WBP11, SIN3A, SOX2, ELAVL1, CDK1, TCF12, UXT, HIPK2, PRMT1, FOS, UBE2E2, AES, SMAD2,

										SMARCC1, SMAD5, PAX5, CBFB, OTUD4, ELF4, CEBPB, NECAB2, NOTCH1, SMARCB1, NCOR2, THRAP3, NEUROG1, STUB1, TRAF6, MYC, EFNA2, TAL1, JUN, ATN1, UBC, RBPJ, RUNX1T1, CTBP1, ELF2, CBFA2T2, FHL2, KPNB1, UBE2L6, ABI3, SIAH1, PCBD2, TAL2, C17orf79, SMAD3, RUNX1, MYOD1, HDAC2, CTBP2, CEP170P1, HDAC3
EU093086	RUNX1	SH3D19	67	448	6	10	13	20	60	HDAC1, YAP1, VDR, SH3YL1, SMAD1, KAT6B, SOX2, RBM14, SIN3A, ELAVL1, SH3D19, CDK1, ETS1, TCF12, SPEN, HIPK2, UXT, PRMT1, FOS, AES, SMAD2, SMARCC1, SMAD5, PAX5, CBFB, ELF4, CEBPB, NOTCH1, SMARCB1, TCF3, NCOR2, CDC42, STUB1, TRAF6, MYC, KAT6A, EFNA2, TAL1, JUN, UBC, RUNX1T1, NR4A2, CTBP1, NCOR1, ELF2, CBFA2T2, FHL2, DNMT1, UBE2L6, SIAH1, EP300, C17orf79, SMAD3, RUNX1, HDAC2, MYOD1, SUV39H1, CTBP2, HDAC3, GRB2
AY633656	PAX3	NCOA1	16	36	70	507	14	46	71	VDR, FOXA2, PPARD, COPS5, ESR2, NKX2-1, NCOA2, PRMT1, FOS, RXRA, NCOA1, GTF2B, PPARG, PPARGC1A, YWHAQ, STAT3, HNF4A, NR1I2, RARG, HIF1A, KANK2, RARB, MEOX2, TP53, SMARCE1, NCOA6, MEOX1, IPO13, TEAD2, TRIM21, PAX3, HDAC10, MSX1, TRIP4, HDAC1, DDX5, SNW1, STAT6, STAT5A, THRB, KAT2B, CARM1, PSMD4, ESRRG, NFKB1, RAD23B, BCL3, C16orf53, SRA1, UBE2L3, AHR, ANIB1, PGR, JUN, UBC, PPARA, CCND1, NR1H4, RORA, NR2F6, TEAD1, Ciita, NR4A1, NR3C1, NR5A1, POU3F2, AR, CXADR, SOX10, DAXX, DDX17
BC008826	PAX3	FOXO1	16	36	31	131	15	40	32	HDAC1, LRPPRC, SIRT2, IRF3, UBC, NLK, HOXA5, PSMD4, MEOX2, TXNRD1, AKT1, SIRT1, MEOX1, YWHAG, IPO13, RAD23B, CEBPB, TSC2, YWHAZ, POU3F2, AR, SMAD3, SRC, HOXA11, PAX3, SOX10, DAXX,

										SMAD4, ATG7, MSX1, HDAC10, FOXO1
AF009227	ODZ4	NRG1	2	1	6	10	6	10	3	CAND1, ODZ4, NRG1
AF060929	MLLT10	PICALM	11	20	27	91	12	15	27	ATP6V1E1, FLOT1, DDIT3, UBC, SEC24D, ELAVL1, ILF3, MLLT10, MLLT3, NDEL1, SS18, LAMTOR3, PICALM, YEATS4, PELI2, EEF1A1, SIRT1, AFF1, CLTC, AP2A1, SMARCB1, ATP6V1F, DNM2, MLLT1, HIP1R, HNRPDL, ITGA4
AF373587	MLLT1	MLL	26	83	72	383	3	2	84	SET, SIN3A, ELL2, CSNK2A1, CBX4, PAF1, NCL, MAP3K5, CSNK2A2, SMARCB1, KAT8, CBX8, CTR9, BRD4, ACACA, WDR5, ASH2L, TCEB1, CTBP1, TP53, SBF1, E2F6, MLLT6, AFF1, DOT1L, PPP1R15A, H3F3A, WDR61, E2f2, RUNX1, SVIL, HIST1H1B, INS, CCNT1, SIRT7, HDAC1, CDC73, SIRT2, MEN1, SNW1, AFF4, BMI1, MTM1, HIST1H3A, ELL, RFX5, MLL, TAF6, HDAC9, SIRT1, HCFC1, CBFB, HIST3H3, MED26, HIST1H4A, LEO1, CXXC1, KAT6A, BCOR, PPIE, CREBBP, HIST2H3C, UBC, ASB2, RBBP5, TCEB2, MLLT10, MLLT3, HCFC2, POLR2A, MLLT4, AVP, CDK9, PSIP1, RNF2, CHD1, E2F4, TOP1, RFXAP, HDAC2, MYB, HDAC7, MLLT1, OXT
DQ299936	FRYL	MLL	13	28	73	396	3	2	82	SET, MMS19, SIN3A, DISC1, CBX4, PAF1, NCL, MAP3K5, ABCF1, NOTCH1, CSNK2A2, SMARCB1, KAT8, CBX8, CTR9, WDR5, ASH2L, TCEB1, CTBP1, GRK5, TP53, SBF1, E2F6, PELI2, AFF1, DOT1L, PPP1R15A, H3F3A, WDR61, E2f2, RUNX1, SVIL, INS, CCNT1, SIRT7, HDAC1, CDC73, SIRT2, MEN1, SNW1, AFF4, BMI1, MTM1, ELL, HIST1H3A, FRYL, MLL, TAF6, HDAC9, HOMER3, HCFC1, YWHAG, CBFB, HIST3H3, BAK1, HIST1H4A, LEO1, CXXC1, KAT6A, PPIE, CREBBP, HIST2H3C, UBC, ASB2, TCEB2, RBBP5, MLLT3, HCFC2, POLR2A, MLLT4, AVP, CDK9, PSIP1, YWHAB, RNF2, E2F4, TOP1, HDAC2, MYB, MLLT1, HDAC7, OXT
DQ437655	ELL	MLL	18	53	72	388	3	2	81	SET, SIN3A, CBX4, NARG2, PAF1,

										KIAA0947, NCL, MAP3K5, CSNK2A2, SMARCB1, KAT8, CBX8, CTR9, WDR5, ASH2L, TCEB1, MCM2, CTBP1, SBF1, TP53, E2F6, AFF1, DOT1L, PPP1R15A, TFPT, H3F3A, WDR61, E2f2, RUNX1, SVIL, INS, CCNT1, SIRT7, HDAC1, SIRT2, CDC73, MEN1, SNW1, AFF4, BMI1, MTM1, ELL, HIST1H3A, MLL, TAF6, ZHX1, HDAC9, HCFC1, CBFB, HIST3H3, MED26, HIST1H4A, LEO1, EAF2, CXXC1, KAT6A, PPIE, CREBBP, HIST2H3C, UBC, ASB2, RBBP5, TCEB2, MLLT3, EAF1, HCFC2, POLR2A, MLLT4, AVP, CDK9, PSIP1, RNF2, USPL1, E2F4, TOP1, SNF8, HDAC2, MYB, MLLT1, HDAC7, OXT
AF492830	CDK6	MLL	97	360	73	396	5	4	163	SIN3A, DDIT3, CDK4, CDKN1B, SRSF2, SLBP, ANKRD12, KIF26B, ATF6B, PAF1, CSNK2A2, SMARCB1, CDKN2D, KAT8, PPARGC1A, MEF2D, CBX8, CTR9, WDR5, NFATC3, SRSF11, ASH2L, RBL2, TCEB1, TP53, CDK6, AFF1, LPIN1, UHRF2, PPP1R15A, KLF10, TPX2, FOXO3, H3F3A, WDR61, SRSF1, SVIL, ZFP36, INS, CCNT1, SIRT7, PPHLN1, SIRT2, MEN1, AFF4, MTM1, ELL, HIST1H3A, ZEB1, CDKN2A, TAF6, CBY1, ZNF174, SENP3, NIPBL, PML, CBFB, POGZ, HIST1H4A, LEO1, TRA2A, MYC, CXXC1, KAT6A, CREBBP, SYNPO2, CDKN1A, RBBP5, TCEB2, HCFC2, MLLT3, EIF4ENIF1, CDK9, CCNA2, ATXN1, EBF4, SRSF7, HDAC2, ABI2, SOX10, MLLT1, OXT, SET, CASC3, ELAVL1, PRX, N4BP1, CLASRP, ELK1, CCND2, CBX4, NCL, MAP3K5, CDKN2C, CDC6, CDK7, MSL3, SNIP1, TRAK1, TCEB3B, CDK5R1, MCM2, CTBP1, ZSCAN1, SBF1, E2F6, FBXO7, HIST1H1A, SOX5, CCND3, DOT1L, ISL1, TJP2, E2f2, RUNX1, PPM1B, UCHL1, HDAC1, SSBP2, RB1, CDC73, SNW1, MZF1, BMI1, RBL1, ZNF335, MLL, MCM10, HSF1, VGLL4, HDAC9, SIRT1, HCFC1, TRA2B,

										HIST3H3, TFDP1, CDK2, CCNE1, PPIE, CDC37, HIST2H3C, ASB2, UBC, ZMYM3, HSP90AA1, ZNF101, PPP2CA, CCND1, FOXM1, POLR2A, MLLT4, AVP, EZH2, PSIP1, RNF2, E2F4, TOP1, srsf12, RBM23, NUMA1, MYB, DEDD2, HDAC7
DQ387206	MLL	MLLT4	72	392	43	127	12	11	101	SET, LMO2, SIN3A, PVRL3, CTNNA1, EPHA7, RRAS2, CBX4, PAF1, NCL, MAP3K5, SMARCB1, CSNK2A2, KAT8, YWHAQ, HNRNPA1, CBX8, ARRB2, PVRL1, CTR9, EPHB3, WDR5, EPHB6, ASH2L, TCEB1, TJP1, CTBP1, HRAS, TP53, SBF1, E2F6, AFF1, DOT1L, PPP1R15A, RAP1A, H3F3A, WDR61, E2f2, RUNX1, PVRL2, SVIL, INS, CCNT1, SIRT7, HDAC1, RAP1GAP, CDC73, SIRT2, MEN1, SNW1, AFF4, SSX2IP, BMI1, MTM1, ELL, HIST1H3A, NRAS, MLL, TAF6, PFN1, SMAD2, HDAC9, HCFC1, YWHAG, CBFB, RIT1, HIST3H3, HIST1H4A, LEO1, KAT6A, CXXC1, PPIE, CREBBP, HIST2H3C, UBC, ASB2, TCEB2, RBBP5, MLLT3, HCFC2, POLR2A, MLLT4, AVP, CDK9, USP9X, PSIP1, YWHAB, RNF2, EPHB2, E2F4, TOP1, YWHAE, HDAC2, MYB, F11R, MLLT1, HDAC7, GRB2, ITGA4, RIN1, OXT
L22179	MLL	AFF1	72	386	26	95	22	36	68	SET, SIN3A, ELL2, CBX4, PAF1, MAP3K5, SMARCB1, CSNK2A2, KAT8, CBX8, ASH2L, TCEB1, RELA, CTBP1, TP53, E2F6, AFF1, PPP1R15A, DDX6, H3F3A, WDR61, E2f2, RUNX1, INS, CCNT1, NPM1, SIRT7, HDAC1, CDC73, SIRT2, MEN1, SNW1, SIAH2, AFF4, MTM1, BMI1, HIST1H3A, ELL, MLL, CARM1, TAF6, HDAC9, CBFB, HIST3H3, HIST1H4A, MED26, LEO1, PPIE, PCSK1, UBC, HIST2H3C, TCEB2, MLLT3, HCFC2, EAF1, AVP, CDK9, PSIP1, RNF2, HEXIM1, E2F4, SIAH1, TOP1, HDAC2, MYB, MLLT1, HDAC7, OXT
AY187922	MLL	EPS15	73	396	105	522	6	7	172	ACTB, TRAF2, SIN3A, MAP4, IQGAP1, AGFG2, PAF1, HSPA5, VPRBP, TUBB,

										SMARCB1, CSNK2A2, KAT8, RNF11, CBX8, UBQLN1, CTR9, HIST4H4, NAGPA, WDR5, SKP2, ASH2L, TCEB1, KRT38, AP2M1, KRT14, TP53, AFF1, AGFG1, PPP1R15A, AP2A1, H3F3A, WDR61, KRT9, SVIL, KRT82, INS, AP1B1, CCNT1, SIRT7, KRTAP9-3, KRT16, SIRT2, MEN1, AFF4, MTM1, SH3BP4, ELL, HIST1H3A, TGFB1, TAF6, UBE2E1, AP2S1, CBFB, KRT85, CD4, HIST1H4A, KRT33B, LEO1, CXXC1, KAT6A, KRT34, CREBBP, TCEB2, RBBP5, MLLT3, HCFC2, ABL1, KRT79, CDK9, CRK, UBE2H, PARK2, HSPA1B, KRT73, RAB11FIP2, UBE2D2, BMP2K, GJA1, NONO, HDAC2, PRDX1, CRKL, MLLT1, OXT, SET, RAD23A, LAPTM5, EPN1, ELAVL1, KRT3, CCT3, KRT37, AP2A2, CBX4, NECAP2, NCL, MAP3K5, STAM2, KRT6A, SPG20, SNAP91, DNM2, KRT1, HGS, FCHO2, EPN3, HSPA8, CTBP1, EPS15, KRT36, USP8, SCAMP1, E2F6, SBF1, DOT1L, KRT10, PCCB, RUNX1, E2f2, OCLN, HSPA1L, KRT4, UBE2D3, HDAC1, CDC73, VSIG8, SNW1, BMI1, KRT86, MCCC2, MLL, CTNNB1, PSMD4, NEDD4, HDAC9, STON2, NUMB, HCFC1, REPS2, KRT35, HIST3H3, KRT5, SLC6A3, HSPA9, KRT75, TFAP2A, PPIE, KRT17, KRT83, UBE2D1, ASB2, UBC, HIST2H3C, C9orf86, POLR2A, KRT32, MLLT4, AVP, PSIP1, NECAP1, RNF2, CLINT1, AP2B1, UBQLN2, E2F4, TOP1, MYB, KRT2, HDAC7, ITGA4, GRB2
AY187923	MLL	MLLT10	73	396	11	20	9	10	71	SET, SIN3A, ELAVL1, DISC1, CBX4, PAF1, MAP3K5, SMARCB1, CSNK2A2, KAT8, CBX8, WDR5, ASH2L, TCEB1, CTBP1, NDEL1, TP53, SBF1, E2F6, AFF1, DOT1L, PPP1R15A, H3F3A, WDR61, E2f2, RUNX1, INS, CCNT1, SIRT7, HDAC1, CDC73, SIRT2, MEN1, SNW1, AFF4, MTM1, BMI1, HIST1H3A, ELL, MLL, SS18, TAF6, HDAC9, CBFB, HIST3H3,

										HIST1H4A, LEO1, KAT6A, CXXC1, PPIE, UBC, HIST2H3C, TCEB2, RBBP5, MLLT10, MLLT3, HCFC2, POLR2A, AVP, MLLT4, CDK9, YEATS4, PSIP1, RNF2, E2F4, TOP1, HDAC2, MYB, MLLT1, HDAC7, OXT
AF477006	MLL	PICALM	73	396	27	91	8	9	92	SET, FLOT1, DDIT3, SIN3A, LAMTOR3, CBX4, PAF1, NCL, MAP3K5, SMARCB1, CSNK2A2, KAT8, CBX8, ATP6V1F, DNM2, CTR9, WDR5, SEC24D, ASH2L, TCEB1, CTBP1, CD55, PICALM, TP53, SBF1, E2F6, PELI2, CLTC, AFF1, DOT1L, PPP1R15A, AP2A1, H3F3A, WDR61, E2f2, RUNX1, SVIL, INS, CCNT1, SIRT7, HDAC1, CDC73, SIRT2, MEN1, SNW1, AFF4, PLCG1, BMI1, MTM1, ELL, HIST1H3A, MLL, TAF6, EEF1A1, HDAC9, SIRT1, HCFC1, CBFB, HIST3H3, SEC24C, HIST1H4A, LEO1, KAT6A, CXXC1, ATP6V1E1, PPIE, CREBBP, HIST2H3C, UBC, ASB2, TCEB2, RBBP5, ILF3, SH3GLB2, MLLT3, HCFC2, POLR2A, AVP, MLLT4, CDK9, PSIP1, RNF2, E2F4, TOP1, HDAC2, MYB, MLLT1, HDAC7, HIP1R, HNRPDL, ITGA4, OXT
AF297747	MLL	GMPS	73	396	27	90	18	32	81	SET, SUMO4, SIN3A, CBX4, PAF1, MAP3K5, GMPS, APRT, DDA1, SMARCB1, CSNK2A2, KAT8, USP7, CBX8, CUL3, SUMO2, ASH2L, TCEB1, TSTA3, CTBP1, TP53, SBF1, E2F6, COASY, AFF1, DOT1L, PPP1R15A, H3F3A, RCN1, ENO2, WDR61, E2f2, RUNX1, SVIL, INS, CCNT1, SIRT7, HDAC1, CDC73, SIRT2, MEN1, SNW1, AFF4, BABAM1, MTM1, BMI1, AHCY, HIST1H3A, ELL, MLL, TCEAL1, TAF6, HDAC9, CBFB, HIST3H3, HIST1H4A, LEO1, KAT6A, CXXC1, PSMD5, PPIE, MTAP, UBC, HIST2H3C, PNP, TCEB2, MLLT3, HCFC2, PPME1, POLR2A, AVP, CDK9, PSIP1, RNF2, E2F4, TOP1, HDAC2, MYB, MLLT1, HDAC7, OXT
AF231997	MLL	GAS7	73	396	21	30	8	9	87	ABI1, SET, SFPQ,

										SIN3A, CBX4, PAF1, MAP3K5, SMARCB1, CSNK2A2, KAT8, CREB3L2, CBX8, WDR5, ASH2L, TCEB1, CTBP1, TP53, SBF1, E2F6, AFF1, DOT1L, PPP1R15A, KHDRBS1, H3F3A, WDR61, E2f2, RUNX1, GAPDH, SVIL, INS, CCNT1, SIRT7, DIAPH1, ATXN1L, HDAC1, CDC73, SIRT2, MEN1, SNW1, AFF4, SF3A1, MTM1, BMI1, ELL, HIST1H3A, RPLP0, MLL, TAF6, NCKAP1L, PACSIN1, HDAC9, GAS7, WASF2, CBFB, HIST3H3, HIST1H4A, LEO1, KAT6A, CXXC1, PPIE, SF1, UBC, HIST2H3C, TCEB2, RBBP5, MLLT3, HCFC2, APBB1IP, POLR2A, CYFIP1, AVP, MLLT4, CDK9, PSIP1, RNF2, FMNL1, WAS, E2F4, TOP1, HDAC2, NCKAP1, MYB, MLLT1, HDAC7, HNRNPU, CYFIP2, OXT
FM165195	MLL	ACTN4	73	396	57	205	6	8	121	VDR, SHC1, SET, ACTN4, MAPK7, SIN3A, ELAVL1, VCP, TXN, PSMA3, CBX4, TRIM3, PAF1, NCL, MAP3K5, SMARCB1, CSNK2A2, KAT8, CBX8, USP6NL, CD81, CTR9, HGS, WDR5, PDLIM1, SKP2, CAMK2A, ASH2L, UBTF, TCEB1, TJP1, ACTN2, CTBP1, ACTN1, KPNA2, SLC2A4, TP53, SBF1, E2F6, TRAF3IP1, STAT1, AFF1, DOT1L, UBASH3B, PPP1R15A, H3F3A, NOS3, MYOZ1, WDR61, E2f2, RUNX1, SVIL, INS, CAMK2B, CCNT1, SIRT7, HDAC1, CDC73, SIRT2, MEN1, SNW1, AFF4, BMI1, MTM1, ELL, HIST1H3A, MEF2A, CDKN2A, MLL, UCHL5, SF3A3, TAF6, GSN, HDAC9, UBD, ATXN7, HCFC1, CBFB, HIST3H3, INO80, HIST1H4A, ICAM1, LEO1, SACS, CXXC1, KAT6A, PPIE, ISG15, CREBBP, HIST2H3C, UBC, ASB2, TCEB2, RBBP5, MLLT3, HCFC2, POLR2A, AVP, MLLT4, COIL, CDK9, IGSF8, PSIP1, SLC9A3R2, RNF2, HDAC5, FMNL1, E2F4, MYOZ2, TOP1, POT1, GJA1, HDAC2, ESR1, MYB, RPS27, MLLT1, HDAC7, COL17A1, ITGA4, OXT
DA624159	TFG	GPR128	45	171	1	0	3	2	44	PIN1, PLSCR1, COPS5, BABAM1, RAD21,

										MST4, RIOK2, STK24, MYOT, CUL4A, PALM2-AKAP2, UBD, ARL15, CAND1, C14orf1, EEF2K, TRAF3, GBP2, CUL3, CDK2, CRMP1, TP53RK, GPR128, COPS6, UBC, TSG101, BRE, KIAA1377, CUL5, NEDD8, PPP1CA, CDK9, CUL2, CUL4B, STAT5B, VRK1, STK4, CUL1, DCUN1D1, GPRASP1, TRIM25, EHBP1L1, TFG, GRB2
AJ295163	FUS	ATF1	96	719	13	31	6	6	102	ATF1, HNRNPA3, COPS5, PHKG2, IL7R, STK25, DYNC1H1, YBX1, RIOK2, STK24, CSNK2A1, PRMT1, CUL4A, UBL4A, TAF15, RXRA, CAND1, DGCR8, MRPS18B, CSNK2A2, WBP4, TCF3, CUL3, SUMO2, TP53RK, EIF6, COPS6, CAMK2A, RPLP1, LMNA, CUL5, RELA, SQSTM1, PSMB7, SUMO1, FOSL2, CUL4B, NKD2, EWSR1, GABPA, SRSF9, SARNP, OTUB1, CSNK2B, SUV39H1, TARDBP, TCF4, UPF1, RBMX, SPI1, SIRT7, ATXN1L, FUS, WHSC1, TP63, KIAA0182, TDRD3, LARS, KHDRBS3, EEF1A1, HNF1B, MDH1, UBD, TNIP1, USF2, EEF2K, MBD3, ZMYM2, SRA1, UBE2I, CDK2, RGNEF, ESRRA, CREBBP, SAFB2, SF1, SF3A2, UBC, ILF3, SRSF10, PIK3R2, RPS6KA1, CSNK1E, PA2G4, PTBP2, NEDD8, SRRM1, CDK9, CUL2, SAP30BP, STK4, CUL1, DCUN1D1, CSNK1A1, SUMO3, NONO, ESR1, THRA, HNRNPU, GRB2, ITGA4, CAMK1
AJ549094	FUS	CREB3L2	96	719	13	22	12	23	96	RND1, HNRNPA3, COPS5, PHKG2, IL7R, ELAVL1, YBX1, RGS16, RIOK2, STK24, PRMT1, CUL4A, UBL4A, TAF15, RXRA, CAND1, DGCR8, MRPS18B, WBP4, TCF3, CREB3L2, CUL3, SUMO2, TP53RK, EIF6, COPS6, RPLP1, LMNA, CUL5, RELA, SQSTM1, CEP19, PSMB7, SUMO1, CUL4B, NKD2, GULP1, ZNF212, SRSF9, SARNP, OTUB1, SUV39H1, TARDBP, TCF4, UPF1, RBMX, SPI1, SIRT7, ATXN1L, FUS, TP63, KIAA0182, TDRD3, LARS, KHDRBS3, EEF1A1, GAS7, UBD, MDH1, TNIP1, USF2, EEF2K,

										MBD3, PTP4A1, UBE2I, CDK2, RGNEF, ESRRA, SAFB2, SF1, SF3A2, UBC, ILF3, SRSF10, PIK3R2, RPS6KA1, CSNK1E, PA2G4, PTBP2, NEDD8, SRRM1, CDK9, CUL2, SAP30BP, STK4, CUL1, DCUN1D1, CSNK1A1, SUMO3, GCFC2, NONO, THRA, HNRNPU, GRB2, ITGA4, CAMK1
S77574	FUS	ERG	96	719	37	124	7	6	125	NME1, HNRNPA3, COPS5, ACTB, PHKG2, IL7R, STK25, DYNC1H1, YBX1, RIOK2, STK24, PRMT1, EIF2S1, CUL4A, UBL4A, TAF15, RXRA, CAND1, TUBB, DGCR8, MRPS18B, WBP4, TCF3, CUL3, HSPA4, SUMO2, TP53RK, EIF6, RPS18, COPS6, RPLP1, HNRNPA2B1, LMNA, CUL5, RELA, HSPA8, SQSTM1, PSMB7, SUMO1, CUL4B, NKD2, DNAJA1, PRPF8, EWSR1, TRIM21, SRSF9, XRCC5, HNRNPM, SARNP, OTUB1, SUV39H1, TARDBP, TCF4, UPF1, RBMX, XRCC6, SPI1, SIRT7, ATXN1L, FUS, DDX5, WHSC1, TP63, KIAA0182, APP, TDRD3, RPLP0, ERG, LARS, PCBP1, KHDRBS3, NEDD4, EEF1A1, ATP5A1, MDH1, UBD, TNIP1, USF2, EEF2K, MBD3, ZMYM2, UBE2I, CDK2, RGNEF, TPM1, ESRRA, SAFB2, JUN, SF1, SF3A2, UBC, ILF3, SRSF10, PIK3R2, RPS6KA1, CSNK1E, PA2G4, PTBP2, NEDD8, SRRM1, PRKDC, CDK9, DNAJA4, CUL2, SAP30BP, RPL7A, STK4, CUL1, DCUN1D1, PARP1, CSNK1A1, SUMO3, AR, DNAJA2, ETS2, DDX3X, NONO, XRCC4, ESR1, THRA, HNRNPU, HNRPDL, GRB2, ITGA4, CAMK1
AY764156	NIN	PDGFRB	7	14	42	175	10	14	39	SHC1, VAV1, ELAVL1, AURKA, KRTAP4-12, ETV6, VAV2, NEDD4, IRF8, SLA, MFGE8, PIK3R1, GSK3B, SNX4, SRC, AMOT, CAV3, VAV3, COPA, CAV1, UBC, NCK2, GRB14, HSP90AA1, PRKACA, SNX2, SNX1, SH2B2, CRK, ADRBK1, PDCD6IP, PDGFRB, TNK2, RASA1, PTPN11, ERRFI1, NIN, SLC9A3R1, GRB2

										SHC1, TPM3, FKBP5, TPM4, HSPD1, SUMO4, HSP90AB1, ELAVL1, MAP3K1, MTIF2, GAK, PTN, MCM3, MAP3K5, JAK2, PIK3R1, MEP1B, HSPB1, EIF4A2, KYNU, STAT3, CUL3, IRS4, MAPK1, ILK, KRT74, PAN2, KRT18, MAPK8IP3, MYBPC3, TP73, SOCS1, THOC1, SOCS5, KXD1, PIK3CB, TFPT, MCC, TNK2, DYT10, MDC1, RAB35, PRKAA1, NEK2, ERRFI1, TRAP1, CAP1, ZC3HC1, SEPT9, CDC123, MGEA5, PLCG1, RAD21, PLCB2, FKBP4, IKBKG, SEC23IP, CENPF, FBXO5, MAP3K4, EPHA1, MAGED2, HDAC8, SP1, IRS1, CDK2, SMC6, TPM1, SF3A2, UBC, CDK13, HSP90AA1, UBASH3A, ALK, MAP2K7, LRRK2, JAK3, RAD17, EPHB2, SHC3, EIF4B, PRDX1, FASN, PDX1, TPM2,
AF362886	TPM3	ALK	43	181	49	111	5	4	87	IRF7, GRB2
										RPL10, ELMO2, NSUN2, ANXA2, YBX1, PPP1CC, YY1, ENO1, UBL4A, PTN, TAF3, IMPG1, HSPB1, RYK, ARRB2, IRS4, ILK, MAP1B, SMN1, SLC25A3, PKM2, COPS6, EIF2AK2, MYBPC3, KDR, PSMD1, SUMO1, HNRNPH1, ADRBK1, TP53, MRPL18, MRPL10, AFF1, RNH1, DYT10, EP300, EEF2, COPB1, GRWD1, MC4R, OTUB1, CHCHD3, NOS2, GZMM, SIRT7, PSMC5, NUP98, C1QBP, FANCA, VASP, PLCB2, RARA, PRPF6, RPLP0, HNRNPA0, IKBKG, RCOR1, PCBP1, CTNNBL1, ATP5A1, PML, CPSF3, USF2, TCP1, CD4, PRKCZ, ZYX, IRF1, LYAR, CDKN1A, CHCHD6, COPS2, LAMP2, PARK7, BOLA2, RPS5, MRPL38, RPS6KA1, CSNK1E, IPO9, PSMC4, TAB2, CUL2, JAK3, C20orf11, SNRPD1, SUMO3, JAK1, USP36, USP15, DNAJA2, NPM3, FASN, GNAI2, IRF7, SHC1, PRDX6, MYCBP, RBBP4, COPS5, PHKG2, ACY1, PRKAR1A, RPS6, Nup62, EIF2S1, CBX4, CUL4A, AKT1, MAP3K5, CAND1, JAK2, PIK3R1, HAND2, CPSF1, CDC14A,
D45915	NPM1	ALK	356	4334	49	111	17	26	382	STAT3, NOP56, SDPR,

									MAPK1, HIVEP2, ACACA, SUMO2, IMPDH2, PYGB, MAPK8IP3, CUL5, SQSTM1, BARD1, PPM1G, DNAJA1, SOCS5, TNK2, TRIM21, CSNK2B, ZC3HC1, HDAC1, EIF5A, PADI4, COPE, PLCG1, MDM2, MRPL52, NAP1L4, SIRT1, MRPL19, GOLGA3, PPID, PPIL4, DICER1, HIST3H3, RPL5, MRPL46, EEF1D, SREK1, EIF4A1, UNC5C, CDK13, PAPOLG, DZIP1, LGALS1, ALK, DSTN, HDAC5, DCUN1D1, GRB7, PSMD12, SLC25A5, EIF3E, YWHAE, MRPL24, IPO5, NUMA1, ESR1, PDX1, SWAP70, MRPL39, SURF4, ARRB1, GRB2, RPL10L, HSPD1, CENPA, PRKCI, RIOK2, KCTD17, MRPL12, TXN, MTIF2, RPS28, CALU, GAK, ICT1, HSPA5, LIMCH1, JUNB, CDT1, CFL1, EIF3I, YWHAQ, CBX8, PTPN14, SRRT, CUL3, XPO1, CPSF6, HNRNPR, KRT74, KIF11, EPAS1, RPLP1, COPG1, PHB, RPS12, CCT2, SLAIN2, FBXO6, MRPL50, PIK3CB, PPP2R1A, RAB35, HNRNPM, SRSF1, GAPDH, ERRFI1, PSME3, NPM1, PROS1, TCERG1, RRP1B, EEF1B2, PTRF, HIST1H3A, TUBB3, CDKN2A, HIST1H1C, MRPL28, DOCK4, POLR2E, APEX1, SENP3, TPR, EEF2K, PPA1, MRPL11, MRPS26, RPL6, TUFM, AKAP11, RPS4X, OSBPL1A, HMGA1, NIPSNAP1, IRS1, HIST1H4A, EIF3M, SAMM50, ICAM1, GOLGA2, KCTD2, WDR26, RANBP6, TXNDC12, TUBA1C, STK38, KEAP1, H2AFX, BAG2, MAP2K7, NUP50, EPHB2, SHC3, CSNK1A1, DDX3X, HDAC2, TTC27, HNRNPU, RPL24, HOXA7, HSP90AB1, PRDX4, MRPL54, VCP, MAP3K1, MRPL49, MRPS30, NUDCD1, CSNK2A1, NCAPG, SNRPF, FGD6, CHCHD4, NCL, MEP1B, EIF3H, RPL14, PC, FBXO25, SPIN1, CSDA, CD81, HSPA4, PAN2, MRPL37, CTTN, EIF3G, FANCC, KRT18,

										KPNA1, RELA, TRRAP, PRKCA, GRN, SOCS1, H1FX, CDK5RAP3, NUDT21, DHX15, BANP, HIST1H1A, S100A11, CLTC, DOT1L, CBX2, TEX15, HIST2H2AC, PARD6B, PRKAA1, MRPL53, MID1, HIST2H2BE, TRIM28, OSBP, DDX21, ARHGAP5, PTBP1, TRMT61A, RB1, UQCRH, APP, KCTD5, PSMD4, CASKIN1, CENPF, EEF1G, EEF1A1, MAP3K4, MRPL44, EPHA1, HMGA2, DNAJC13, CDK2, SMC6, TFAP2A, CPSF2, CDC37, AGR2, UBC, PPP2CA, HSP90AA1, PA2G4, S100A10, UBASH3A, LLGL1, NAP1L1, DYRK2, IGSF8, RAD17, CUL1, TAB1, PARP1, FMNL1, SIAH1, TOP1, YWHAZ, HJURP, EIF4B, MRPL43, GZF1, SNRPD2, ARMCX3, ITGA4
AF125093	TFG	ALK	45	171	49	111	21	26	73	SHC1, COPS5, HSPD1, MAP3K1, RIOK2, STK24, MYOT, CUL4A, PTN, MAP3K5, CAND1, JAK2, MEP1B, C14orf1, STAT3, CUL3, IRS4, MAPK1, KRT74, TP53RK, COPS6, KRT18, MAPK8IP3, KIAA1377, CUL5, SOCS1, CUL4B, STAT5B, VRK1, SOCS5, DYT10, RAB35, PRKAA1, ERRFI1, EHBP1L1, TFG, PLSCR1, BABAM1, MST4, RAD21, IKBKG, PALM2-AKAP2, ARL15, UBD, EEF2K, MAP3K4, EPHA1, GBP2, IRS1, SMC6, CRMP1, TSG101, UBC, CDK13, BRE, HSP90AA1, UBASH3A, NEDD8, ALK, CDK9, PPP1CA, CUL2, MAP2K7, STK4, DCUN1D1, CUL1, RAD17, SHC3, EPHB2, GPRASP1, TRIM25, PDX1, IRF7
AF295356	MSN	ALK	71	404	49	111	22	33	99	SHC1, HSPD1, ELAVL1, PAFAH1B2, MAP3K1, ASNS, STK24, MTIF2, FH, GAK, PTN, MAP3K5, ICAM2, HSPA5, JAK2, PIK3R1, MEP1B, VCL, TERF1, PDHA1, SELPLG, FASLG, PTMA, STAT3, CD81, IRS4, MAPK1, BID, ILK, KRT74, NCF4, RHOA, PAPSS1, ICAM3, KRT18, MAPK8IP3, TSC1, SOCS1, PPP1R2, TATDN1, DHX15, SOCS5, GSS, PIK3CB, TNK2, HADHA, DYT10,

										RAB35, PRKAA1, ERRFI1, SLC9A3R1, SIRT7, NAE1, ZC3HC1, SELL, PFAS, AHCY, PLCB2, NCF1, IKBKG, MAPK8, UBD, MAP3K4, EPHA1, DCPS, NSFL1C, PDIA4, IRS1, ICAM1, CDK2, SMC6, SPN, ISG15, UBC, CDK13, GTF3C4, HSP90AA1, MSN, ATIC, H2AFX, UBASH3A, ALK, S100A16, MAP2K7, IGSF8, JAK3, RAD17, EPHB2, SHC3, CDK11B, GINS3, FADD, ARHGDIA, EIF4B, PDX1, IRF7, GRB2, ITGA4, EZR
AF310722	TPM4	ALK	44	178	49	111	2	1	92	SHC1, TRIP6, TPM3, TPM4, HSPD1, ILF2, MAP3K1, SRSF2, MTIF2, GAK, TXN2, PTN, AKT1, PSMA6, MAP3K5, JAK2, PIK3R1, MEP1B, STAT3, CORO1C, SRXN1, IRS4, MAPK1, ILK, KRT74, PAN2, KRT18, MAPK8IP3, G3BP1, MYBPC3, DBN1, PSMD1, SOCS1, SNRNP70, SOCS5, PIK3CB, TNK2, MYH9, DYT10, KIAA1598, ATF2, RAB35, PRKAA1, DCTN2, ERRFI1, CAP1, ZC3HC1, TCERG1, PRKCDBP, PLCG1, PLCB2, IKBKG, CENPF, PACSIN1, TPM3P4, UBD, SIRT1, HNRNPK, MAP3K4, EPHA1, HDAC8, SP1, IRS1, CDK2, ZYX, PSMC2, SMC6, SULT1A1, SERPINH1, TPM1, TELO2, UBC, CDK13, ILF3, HSP90AA1, UBASH3A, ALK, MAP2K7, PCMT1, PSMD2, JAK3, RAD17, EPHB2, SHC3, EIF4B, CDH2, FASN, PDX1, TPM2, IRF7, GRB2, ARRB1
DQ845346	PAX5	FOXP1	9	12	11	24	5	5	16	SUMO2, RB1, PAX5, ELAVL1, GATAD2B, NCOR2, IL3RA, CTBP1, RUNX1, MTA1, FOXP4, MYB, ID3, DAXX, MYC, FOXP1
DQ845345	PAX5	ZNF521	9	12	6	9	2	1	14	HDAC1, TBP, SMAD1, ZNF521, RB1, PAX5, ELAVL1, EP300, RUNX1, LYST, MYB, ID3, DAXX, SMAD4
EF071958	NUP98	PHF23	36	140	3	3	2	1	37	NXF1, HDAC1, HNRNPUL1, CDC73, NUP98, PRSS23, HDAC11, ARFGEF2, CSNK2A1, NUP133, PAF1, TPR, NFX1, RAE1, MOB1A, HDAC8, USP7, NUP88, TNPO1, PHF23, NUP107, CREBBP, QRICH2,

										UBC, RAPGEF3, LMNA, TNPO2, SUMO1, KPNB1, ECT2, PTTG1, EP300, PARP11, NUMA1, APC, SIRT7, NPM1
AY662674	NUP98	PRRX2	36	140	1	0	5	5	33	NXF1, HDAC1, HNRNPUL1, CDC73, NUP98, ARFGEF2, CSNK2A1, NUP133, PRRX2, PAF1, TPR, RAE1, MOB1A, HDAC8, USP7, NUP88, TNPO1, NUP107, QRICH2, UBC, RAPGEF3, LMNA, TNPO2, SUMO1, KPNB1, ECT2, PTTG1, EP300, PARP11, NUMA1, APC, NPM1, SIRT7
L03357	PRKAR1A	RET	65	206	26	74	22	32	66	SHC1, PLEKHF2, SET, PRPF31, PRKAR1A, ELAVL1, DOK2, NUAK1, GSK3B, AKAP4, MAPK6, DOK5, STAT3, CUL3, DOK4, PRKACA, ARPC3, NPRL2, PYCARD, C2orf88, AKAP1, RET, PJA2, PRKX, DOK6, NRTN, C2orf44, CAPN11, NPM1, HDAC1, MEN1, CBLC, SOX2, ARFGEF2, AKAP10, BAHD1, UBE2M, CBS, IKBKG, SMAD2, HDAC9, UBD, GFRA1, AKAP11, CBL, OXSR1, SRC, CCNE1, DOK1, RFC2, PFDN5, UBC, SAFB, HSP90AA4P, SIRT5, HSP90AA1, PPP1CA, CRK, TAB1, MCRS1, ZBED1, GRB7, FRS2, GABARAPL1, ARFGEF1, SETD7
M16029	TRIM27	RET	90	408	26	74	28	43	88	SHC1, TRIM31, UCHL3, PIAS4, DOK2, TUBGCP4, UBE2Z, USP2, CHUK, DOK5, TBK1, HR, MBD2, USP7, STAT3, UBE2A, DOK4, MBD4, RNF25, IKBKE, CUL5, MED21, PIAS1, TRIM32, TP53, DNMT1, CUL4B, UBE2L6, TRIM29, MAGEL2, TRIM21, RET, DOK6, TRAF5, NRTN, EID1, HDAC1, UBE2D3, RB1, TRIM43, UBE2O, BMI1, UBE2T, IKBKG, TRIM27, UCHL5, UBE2E2, UBE2E1, UBE2U, UBD, IKBKB, ATXN7, GFRA1, MBD3, UBE2J1, EPC1, UBE2W, SRC, FXYD6, UBE2I, GTF2F1, DOK1, HDAC6, TAL1, UBE2D1, BEGAIN, UBC, PRAM1, SIRT5, HSP90AA1, MAGED4B, PIAS2, CRK, UBE2N, RBX1, UBE2H, GRB7, MCRS1, OTUB2, FRS2,

										UBE2D2, EIF3E, UBE2E3, MAGEA11, DAXX, FBF1, UBE2D4, MAGEF1
X15786	GOLGA5	RET	4	3	26	74	6	5	25	SHC1, DOK1, DOK4, UBC, OCRL, SIRT5, HSP90AA1, IKBKG, DOK2, CRK, GRB7, MCRS1, GFRA1, GRB10, FRS2, CBL, DOK5, RET, SRC, DOK6, NRTN, STAT3, RAB1A, GOLGA5, GRB2
DQ104207	HOOK3	RET	10	28	26	74	5	4	31	SHC1, SCFD1, DOK1, DOK4, HOOK1, UBC, VPS16, SIRT5, HSP90AA1, HOOK2, AKTIP, IKBKG, HOOK3, VPS41, CRK, DOK2, GRB7, MCRS1, GFRA1, GRB10, FRS2, CBL, DOK5, RET, SRC, DOK6, NRTN, CUL3, STAT3, FAM160A2, GRB2
AJ303089	RBM15	MKL1	16	44	14	44	10	16	19	SUMO2, TPM1, RRN3, ACTB, UBC, SOX2, KDM3A, UBE3C, RBM15, SUMO1, ALYREF, MAPK8, SRF, MKL1, GSK3B, SMAD3, SSRP1, HDAC3, SIRT7
X77754	CCND1	TACSTD2	76	455	4	3	14	26	66	PPP1CB, NPDC1, PCNA, NEUROD1, ELAVL1, PPP1CC, CDK4, CDK1, CDKN1B, ORC4, PSMA6, MCM3, ATP6V1B1, NCOA1, USP2, MCM6, CRYAB, PRMT5, XPO1, STAT3, HERC5, MAPK1, RABEP1, RBL2, MCM2, DBC1, HSPA8, TP73, FBXO4, CDK6, AKAP8, UHRF2, ATF2, CARD11, HDAC1, RB1, THRB, KAT2B, CDKN2A, MCM10, TACSTD2, FBXO5, SKP1, SP1, ITLN1, CDK2, RFC1, CDKN1A, CDK5, UBC, LPL, CCND1, CUL7, RBX1, CUL1, FBXO31, TSC2, AR, CDKN1C, MCM7, HDAC2, MAPK11, SIRT3, HDAC3, CCNDBP1, CAMK1
Y08643	COL1A1	PDGFB	27	50	17	23	7	7	35	MMP2, ELAVL1, BRCA1, SPARC, TXN, IGFBP3, MDFI, ITGA2, COL5A1, PDGFA, ACHE, PDGFRA, COL7A1, COL1A2, COL3A1, COL4A1, Pkd1, VWF, PDAP1, THBS1, ITGB1, PRELP, UBC, CAPN1, BARD1, MAG, COL1A1, PDGFB, COL6A1, C12orf57, NRP1, RNH1, COL2A1, LYVE1, ADIPOQ
EU314929	TMPRSS2	ETV5	1	0	17	30	3	2	16	AMH, SUMO2, SEZ6L2, CCR5, UBC, CISH, HDAC11, ELAVL1, ETV5, AR, SLC22A2, APP, TMPRSS2,

										CYP3A5, DHRS7, HOXD9
EU432099	TMPRSS2	ERG	1	0	37	124	6	6	33	NME1, DDX5, ACTB, RPLP0, ERG, PCBP1, EIF2S1, NEDD4, ATP5A1, HSPA4, TPM1, JUN, RPS18, UBC, HNRNPA2B1, HSPA8, PRKDC, DNAJA4, PRPF8, DNAJA1, RPL7A, AR, TRIM21, DNAJA2, ETS2, HNRNPM, TMPRSS2, XRCC5, DDX3X, XRCC4, HNRNPU, XRCC6, HNRPDL
EU236946	SLC34A2	ROS1	1	0	6	8	2	1	6	PTPN6, ROS1, IKBKG, VAV3, PTPN11, SLC34A2

Table S10: Fusions incorporating parental proteins which are interactors, change their PPI networks and reduce the number of interactors in the fusion networks w.r.t. networks of parental proteins

gene1	gene2	mutations	Domains of gene1	Domains of gene2	interactions
CHN2	INSR	t(7;19)(p15.2;p13.2)	C1,RhoGAP,SH2	FU,TyrKc,TM,fn3,Recep_L_domain	0
CMKLR1	HNF1A	t(12;12)(q23;q24)	TM	HOX	0
SSX1	SYT4	t(X;18)(p11.2;q11.2)	KRAB	TM,C2	0
SSX1	SS18L1	t(X;20)(p11.2;q13.3)	KRAB	.	0
PAFAH1B2	IGH@	t(11;14)(q32;q23)	.	.	0
FOXP1	ABL1	t(3;9)(p13;q34)	FH,zf-C2H2	FABD,SH3,TyrKc,SH2	0
FOXP1	ETV1	t(3;7)(p14.1;p21.3)	FH,zf-C2H2	Ets	0
CTNNA3	ARHGAP21	t(10;10)(p12;q21)	.	PDZ,PH,RhoGAP	0
BCR	JAK2	t(9;22)(p24;q11)	PH,Bcr-Abl_Oligo,RhoGAP,RhoGEF,C2	B41,STYKc,TyrKc,SH2	0
BCR	PDGFRA	t(4;22)(q12;q11)	PH,Bcr-Abl_Oligo,RhoGAP,RhoGEF,C2	IG_like,IGc2,TyrKc,TM,ig	0
EIF4G3	LRRC8D	t(1;1)(p22;p36)	eIF5C,COILS,MA3,MIF4G	LRR,LRR_TYP,TM	0
DCAF7	PRR11	t(17;17)(q22;q23)	WD40	.	0
TPM3	PDGFRB	t(1;5)(q21;q32),t(1;5)(q21;q33)	TM	IGc2,TyrKc,TM,ig	0
C18orf45	HM13	t(18;20)(q11;q15)	TM	PSN,TM	0
DEPDC1B	ELOVL7	t(5;5)(q12;q12)	DEP,RhoGAP	TM	0
FRYL	SH2D1A	t(X;4)(q25;p12)	COILS	SH2	0
DHX35	ITCH	t(20;20)(q11;q12)	DEXDc,HELICc,HA2	HECTc,C2,WW	0
DIRC3	HSPBAP1	t(2;3)(q35;q21)	.	JmjC	0
RBM6	CSF1R	t(3;5)(p21;q33)	RRM,G-patch,zf-C2H2	IG_like,IGc2,TyrKc,TM,ig	0
DLEU2	PSPC1	t(13;13)(q12;q14)	.	RRM,COILS	0
BCAS3	HOXB9	t(17;17)(q21;q23)	WD40	HOX	0
BCAS3	ARHGAP15	t(2;17)(q22;q23)	WD40	PH,RhoGAP	0
RPN1	EVI1	t(3;3)(q21;q26)	TM,COILS	zf-C2H2	0
RPN1	PRDM16	t(1;3)(p36;q21)	TM,COILS	SET,zf-C2H2	0
PPFIBP1	ALK	t(2;12)(p23;p11)	COILS,SAM_1	LDLa,TyrKc,MAM,Pkinase_Tyr	0
RARA	PKIA	t(8;17)(q21;q21)	HOLI,TM,zf-C4	.	0
RARA	MLL	t(5;11)(q31;q23)	HOLI,TM,zf-C4	BROMO,PostSET,COILS,FYRC,FYRN,AT_hook,PHD,SET,zf-CXXC	0
MYC	IGH@	t(8;14)(q24.21;q32.33)	HLH	.	0
MYC	KRT18P6	t(8;14)(q24;q11)	HLH	.	0
MYC	BCL7A	t(8;14;12)(q24;q32;q24)	HLH	.	0
MYC	ZBTB5	t(8;9)(q24;p13)	HLH	BTB,zf-C2H2	0
MYC	ZCCHC7	t(8;9)(q24;p13)	HLH	zf-C2HC	0
EDA	NM_203447.1	t(X;9)(q13;p24)	TM,TNF	.	0
EXOC4	PTEN	t(7;10)(q33;q23)	.	DSPc,Y_phosphatase	0
EPCAM	DLEC1	t(2;3)(p21;p22)	TY,TM,Thyroglobulin_1	.	0
ETV6	MECOM	t(3;12)(q26;p13)	Ets,SAM_PNT	.	0
ETV6	ITPR2	t(12;12)(p11;p13)	Ets,SAM_PNT	TM,COILS,MIR	0
ETV6	INO80D	t(2;12)(q33;p13)	Ets,SAM_PNT	.	0
ETV6	NCOA2	t(8;12)(q13;p13)	Ets,SAM_PNT	PAC,DUF1518,HLH,Nuc_rec_co-act,PAS,SRC-1	0
ETV6	ARNT	t(1;12)(q21;p13)	Ets,SAM_PNT	PAC,HLH,PAS	0
ETV6	JAK2	t(9;12)(p24;p13)	Ets,SAM_PNT	B41,STYKc,TyrKc,SH2	0
ETV6	EVI1	t(3;12)(q26;p13)	Ets,SAM_PNT	zf-C2H2	0
ETV6	NKAIN2	t(6;12)(q23;p13)	Ets,SAM_PNT	TM	0
ETV6	GOT1	t(10;12)(q24;p13)	Ets,SAM_PNT	Aminotran_1_2	0
ETV6	ABL2	t(1;12)(q25;p13),t(1;10;12)(q25;p13;p13)	Ets,SAM_PNT	FABD,SH3,TyrKc,SH2	0
ETV6	PER1	t(12;17)(p13;p13.1)	Ets,SAM_PNT	PAC,PAS	0
ETV6	FLT3	t(12;13)(p13;q12)	Ets,SAM_PNT	IG_like,TyrKc,TM,ig	0
ETV6	SYK	t(9;12)(q22;p12)	Ets,SAM_PNT	TyrKc,SH2	0
ETV6	BAZ2A	t(12;12)(p13;q13)	Ets,SAM_PNT	BROMO,COILS,DDT,AT_hook,MBD	0

				,PHD	
ETV6	MDS2	t(1;12)(p36;p13)	Ets,SAM_PNT	.	0
ETV6	FGFR3	t(4;12)(p16;p13)	Ets,SAM_PNT	IG_like,IGc2,TyrKc,TM,ig,Pkinase,Pkinase_Tyr	0
ETV6	CDX2	t(12;13)(p13;q12)	Ets,SAM_PNT	HOX	0
ETV6	MDS1	t(3;12)(q26;p13)	Ets,SAM_PNT	SET,zf-C2H2	0
ETV6	PRDM16	t(1;12)(p36;p13)	Ets,SAM_PNT	SET,zf-C2H2	0
ETV6	FRK	t(6;12)(q22;p13)	Ets,SAM_PNT	SH3,TyrKc,SH2	0
ETV6	STL	t(6;12)(q22;p13)	Ets,SAM_PNT	.	0
ETV6	PDGFRA	t(4;12)(q12;p13)	Ets,SAM_PNT	IG_like,IGc2,TyrKc,TM,ig	0
ESRRA	C11orf20	t(11;11)(q13;q13)	HOLI,zf-C4	.	0
ERBB2	PGAP3	t(17;17)(q12;q12)	FU,TyrKc,TM,Recep_L_domain	TM	0
NDE1	PDGFRB	t(5;16)(q32;p13),t(5;16)(q33;p13)	.	IGc2,TyrKc,TM,ig	0
CAPNS1	WDR62	t(19;19)(q13;q13)	EFh	WD40	0
MECOM	ETV6	t(3;12)(q26;q13)	.	Ets,SAM_PNT	0
CDKN1A	CD9	t(6;12)(p21;p13)	.	TM	0
FBXO25	BET1L	t(8;11)(p23;p15)	.	TM	0
DEK	NUP214	t(6;9)(p22;q34)	COILS,DEK_C,SAP	WD40	0
FKBP5	ERG	t(6;21)(p21;q22)	FKBP_C	Ets,SAM_PNT	0
KTN1	RET	t(10;14)(q11.2;q22.1)	TM,COILS	CA,TyrKc,TM	0
ARID1A	MAST2	t(1;1)(p34;p36)	BRIGHT,ARID	S_TK_X,S_TKc,DUF1908,PDZ	0
MEF2C	MLL	t(5;11)(q14;q23)	MADS	BROMO,PostSET,COILS,FYRC,FYRN,AT_hook,PHD,SET,zf-CXXC	0
RYK	ATP5O	t(3;21)(q22;q22)	TyrKc,TM,WIF	.	0
Lamp1	MCF2L	t(13;13)(q34;q34)	TM	SEC14,SH3,SPEC,COILS,PH,RhoGEF	0
GRHPR	BCL6	t(3;9)(q27;p13)	2-Hacid_dh,2-Hacid_dh_C,NAD_binding_2	BTB,zf-C2H2	0
GRPR	SDC2	t(X;8)(p22.2;q23)	TM	4.1m,TM	0
Nap1l1	MLLT10	t(10;12)(p12;q21)	COILS	TM,COILS,PHD	0
SNX2	ABL1	t(5;9)(q23;q34),t(3;9)(p14;q34)	PX,Vps5	FABD,SH3,TyrKc,SH2	0
MYO18A	FGFR1	t(8;17)(p11;q23)	MYSc,COILS,IQ,PDZ	IG_like,IGc2,TyrKc,TM	0
MYO18A	PDGFRB	t(5;17)(q32;q11)	MYSc,COILS,IQ,PDZ	IGc2,TyrKc,TM,ig	0
C6orf204	PDGFRB	t(5;6)(q32;q23)	COILS	IGc2,TyrKc,TM,ig	0
TCF3	TFPT	t(19;19)(p13;q13)	COILS,HLH	.	0
TCF3	NOP2	t(12;19)(p13.3;p13.3)	COILS,HLH	.	0
TCF3	HLF	t(17;19)(q22;p13)	COILS,HLH	BRLZ	0
ERBB3	CRADD	t(12;12)(q13;q22)	FU,TyrKc,TM,Recep_L_domain	Death,CARD	0
RABEP1	PDGFRB	t(5;17)(q32;p13),t(5;17)(q33;p13)	Rab5-bind	IGc2,TyrKc,TM,ig	0
HSPE1	MOB4	t(2;2)(q33;q33)	Cpn10	.	0
SMG6	ERG	t(17;21)(p13.1;q22.3)	PINc,COILS,EST1	Ets,SAM_PNT	0
IGH@	CNN3	t(1;14)(p21;q32)	.	CH	0
IGH@	PAFAH1B2	t(11;14)(q23;q32)	.	.	0
IGH@	FOXP1	t(3;14)(p13;q32)	.	FH,zf-C2H2	0
IGH@	MYC	t(8;14)(q24;q32),t(8;14;18)(q24;q32;q21)	.	HLH	0
IGH@	ETV6	t(12;14)(p13;q32)	.	Ets,SAM_PNT	0
IGH@	BCL6	t(3;14)(q27;q32)	.	BTB,zf-C2H2	0
IGH@	MAFB	t(14;20)(q32;q12)	.	BRLZ	0
IGH@	MIR125B1	t(11;14)(q24;q32)	.	.	0
IGH@	CDK6	t(7;14)(q21;q32)	.	S_TKc	0
IGH@	CCND3	t(6;14)(p21;q32)	.	Cyclin,Cyclin_C	0
IGH@	MYCN	t(2;14)(p24;q32)	.	HLH	0
IGH@	NBEAP1	t(14;15)(q32;q11-13)	.	.	0

Table S11: Domain pairs, number of appearances and their frequencies (from the DDCOS table)

Domain name	A number of appearances of domains in interactors	frequency(Pi)
14-3-3	8	0.000536229
2-Hacid_dh	4	0.000268114
2-Hacid_dh_C	5	0.000335143
2-oxoacid_dh	4	0.000268114
2OG-FeII_Oxy	5	0.000335143
3_5_exonuc	5	0.000335143
3HCDH	4	0.000268114
3HCDH_N	4	0.000268114
4_1_CTD	4	0.000268114
4HBT	8	0.000536229
XPGI	4	0.000268114
5_nucleotid_C	1	6.70E-05
PGAM	15	0.001005429
6PGD	1	6.70E-05
A2M_comp	13	0.000871372
A_deaminase	11	0.000737315
AAA	144	0.009652121
AARP2CN	3	0.000201086
ABC_tran	4	0.000268114
Abhydrolase	57	0.003820631
ABM	3	0.000201086
ACBP	7	0.0004692
PlsC	36	0.00241303
AChE_tetra	2	0.000134057
Aconitase_C	3	0.000201086
ACP_syn_III_C	1	6.70E-05
ACT	3	0.000201086
Actin	25	0.001675716
Activin_recp	12	0.000804343
Acyl_CoA_thio	1	6.70E-05
Adenylsucc_synt	2	0.000134057
ADH_N	16	0.001072458
adh_short	62	0.004155775
Adhes-Ig_like	1	6.70E-05
ADK	9	0.000603258
ADK_lid	2	0.000134057
AdoHcyase	3	0.000201086
AdoHcyase_NAD	3	0.000201086
Agenet	4	0.000268114
Agouti	2	0.000134057
AGTRAP	1	6.70E-05
Aha1_N	2	0.000134057
AhpC-TSA	13	0.000871372
AHSP	1	6.70E-05
AICARFT_IMPCHas	1	6.70E-05
AIRC	1	6.70E-05
AIRS	4	0.000268114
AKAP_110	2	0.000134057
Ala_racemase_N	1	6.70E-05
ALAD	1	6.70E-05
AlaDh_PNT_C	4	0.000268114
Ald_Xan_dh_C2	2	0.000134057
Aldo_ket_red	18	0.001206515
Aldolase_II	4	0.000268114
Alpha-2-MRAP_C	1	6.70E-05
Alpha-amylase	4	0.000268114
Alpha-mann_mid	4	0.000268114
Alpha_adaptinC2	9	0.000603258
Alpha_kinase	6	0.000402172
Alpha_L_fucos	2	0.000134057
Amelin	1	6.70E-05
Amelogenin	2	0.000134057
Amidohydro_1	11	0.000737315
Amino_oxidase	12	0.000804343
Aminotran_5	35	0.002346002
AMOP	4	0.000268114
AMP_N	2	0.000134057

AMPKBI	2	0.000134057
ANATO	6	0.000402172
Ank	237	0.015885783
ANTH	1	6.70E-05
Anticodon_1	6	0.000402172
AP_endonuc_2	1	6.70E-05
APC2	1	6.70E-05
APOBEC_C	12	0.000804343
Apolipoprotein	4	0.000268114
APS_kinase	2	0.000134057
AraC_binding	1	6.70E-05
Arfaptin	5	0.000335143
ArfGap	24	0.001608687
Arg_tRNA_synt_N	1	6.70E-05
Arginase	3	0.000201086
ARID	15	0.001005429
Arm	29	0.00194383
Arrestin_C	11	0.000737315
ASCH	2	0.000134057
Asn_synthase	3	0.000201086
Asparaginase	4	0.000268114
AT_hook	29	0.00194383
ATP-cone	1	6.70E-05
ATP-grasp_2	3	0.000201086
ATP-gua_Ptrans	4	0.000268114
ATP-gua_PtransN	4	0.000268114
ATP-synt_ab_C	7	0.0004692
Aurora-A_bind	1	6.70E-05
Autophagy_N	1	6.70E-05
AXH	2	0.000134057

Table S12: Correlation coefficient matrix for ChiPPI with respect to IDDI, iPfam, DOMINE

iPfam	DOMINE	IDDI	ChiPPI	
			1	ChiPPI
		1	0.57	IDDI
	1	0.42	0.56	DOMINE
1	0.35	0.38	0.64	iPfam

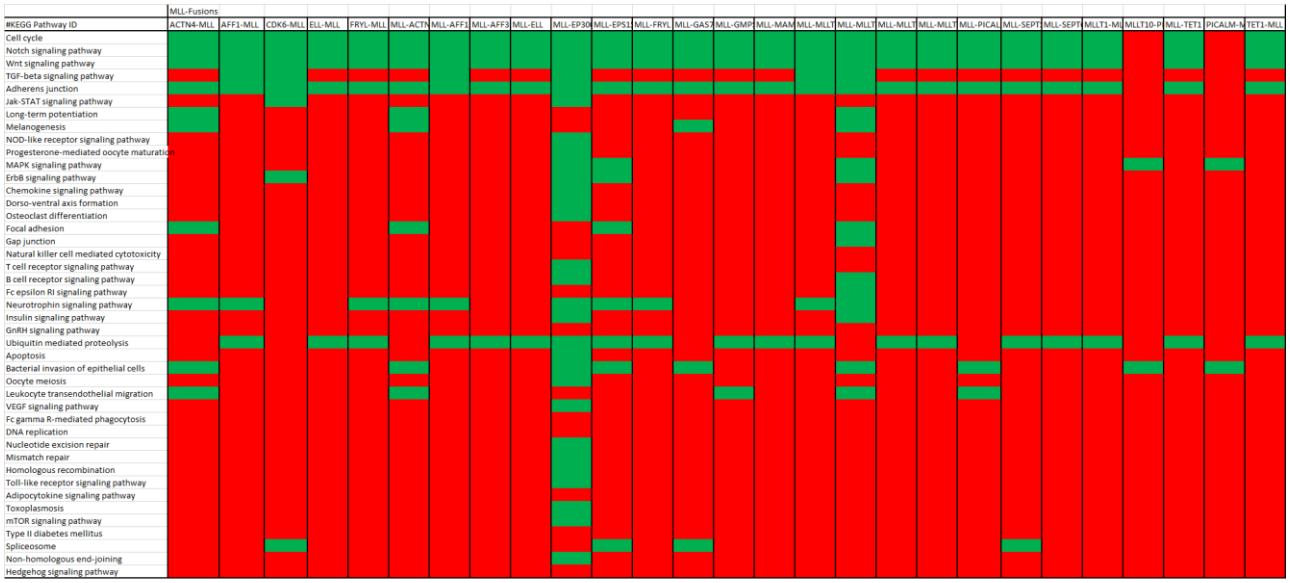

Figure S1: Enrichment results for MLL_fusions

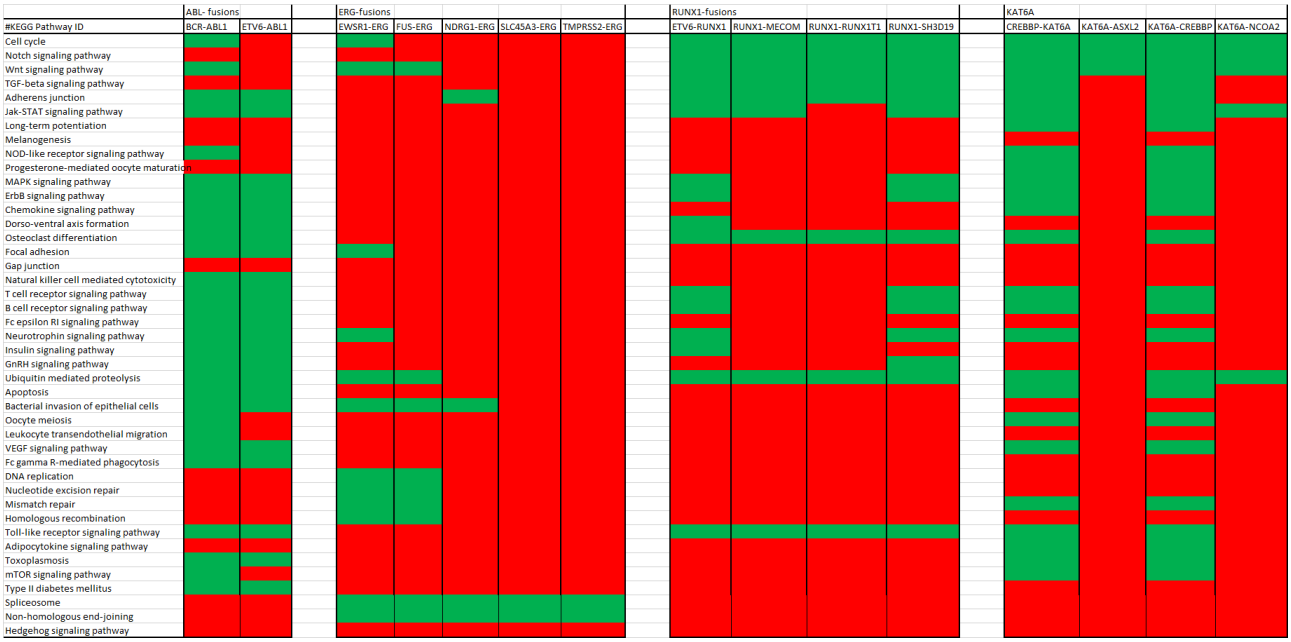

Figure S2: Enrichment results for ABL_fusions, ERG_fusions, RUNX1-fusions, KAT6A

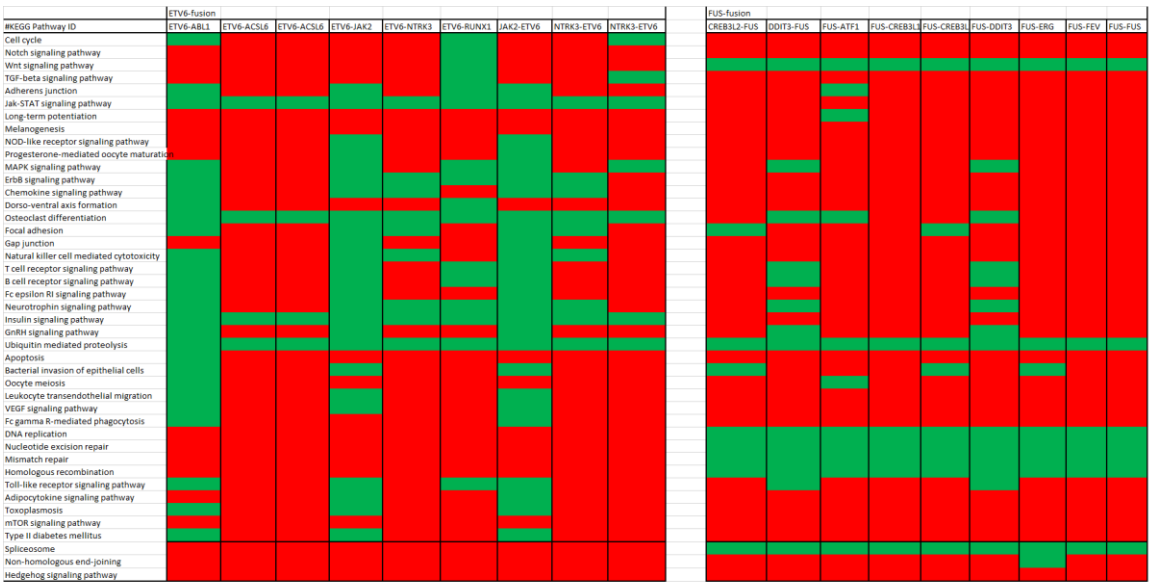

Figure S3: Enrichment results for ETV6_fusions, FUS-fusion

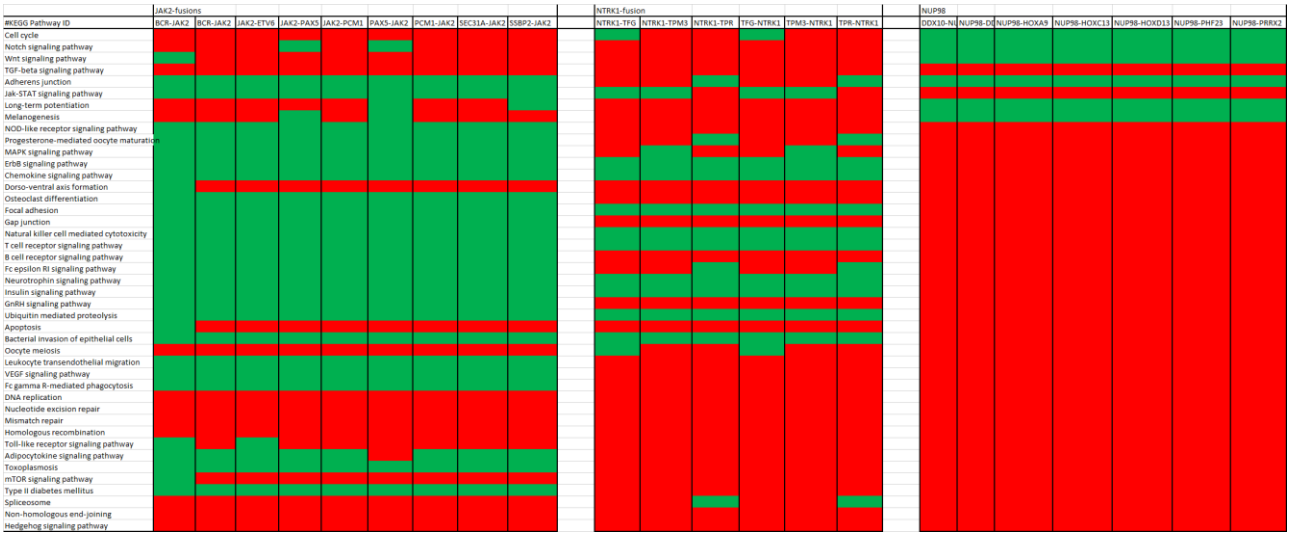

Figure S4: Enrichment results for JAK2-fusions, NTRK1-fusion, NUP98

Figure S5: Enrichment results for PAX3, PAX5, SS18, TGF

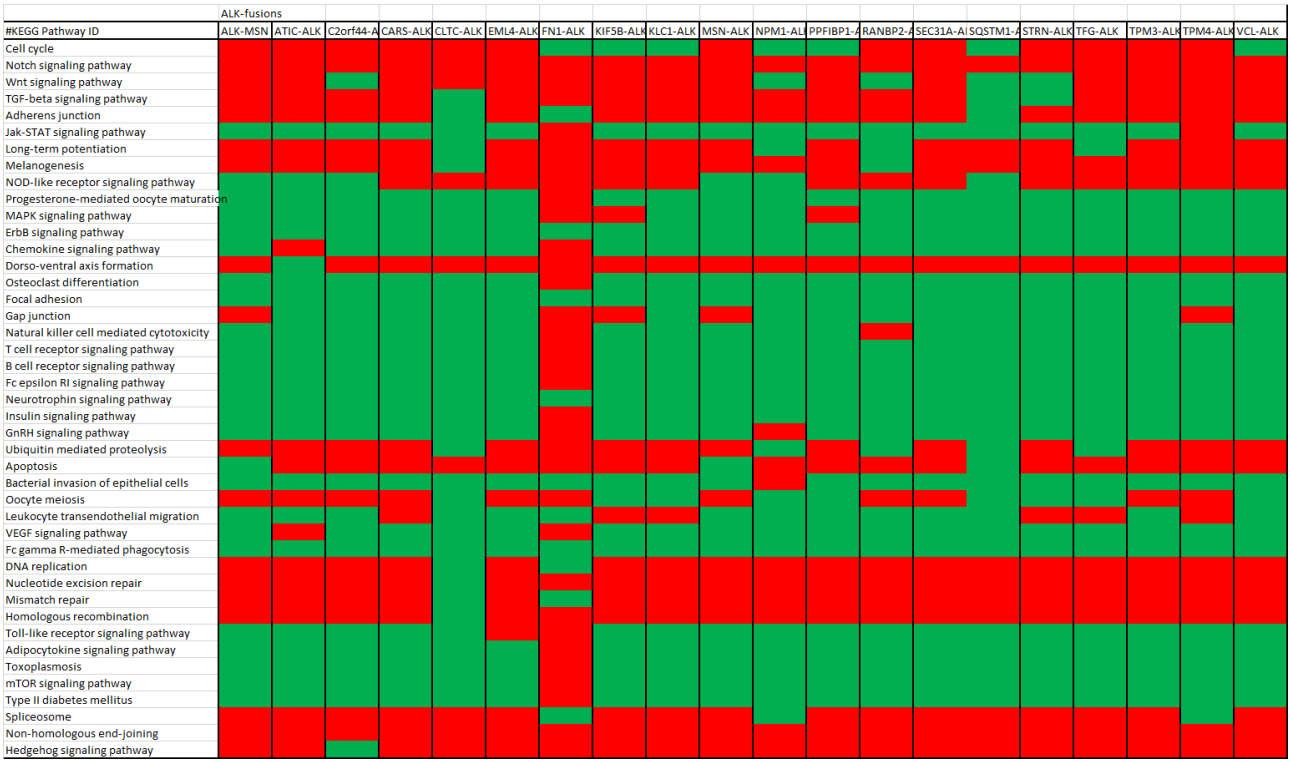

Figure S6: Enrichment results for ALK-fusions

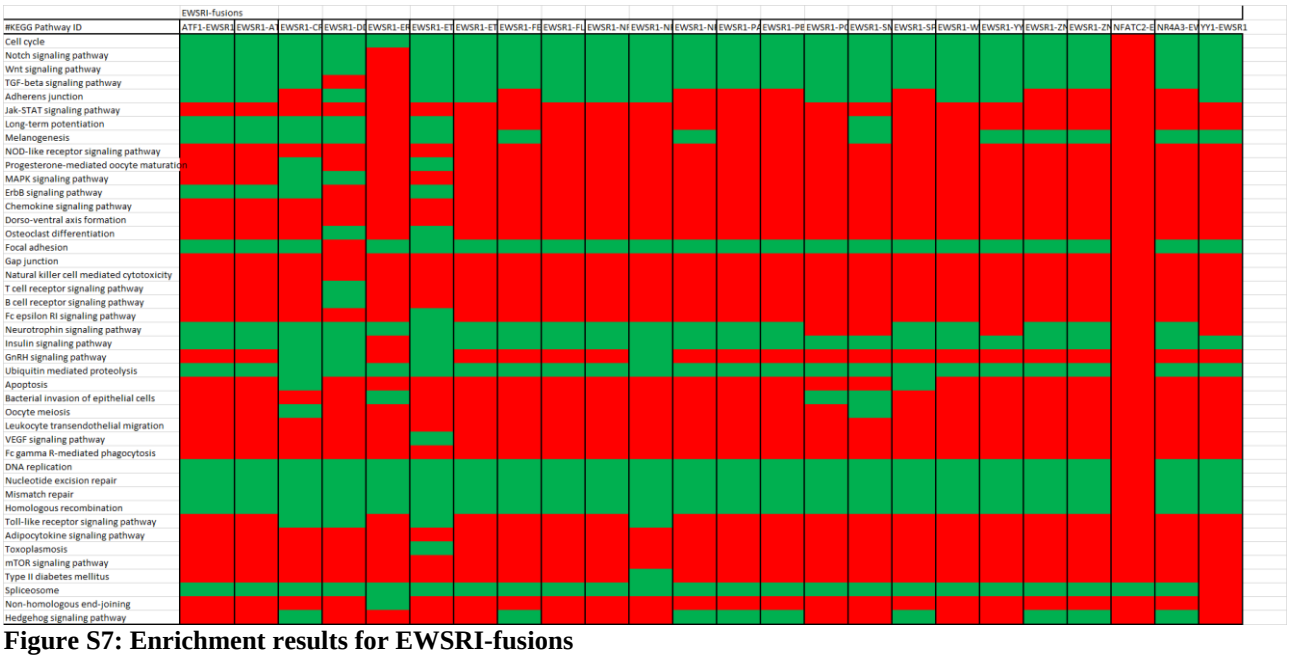

Figure S7: Enrichment results for EWSRI-fusions

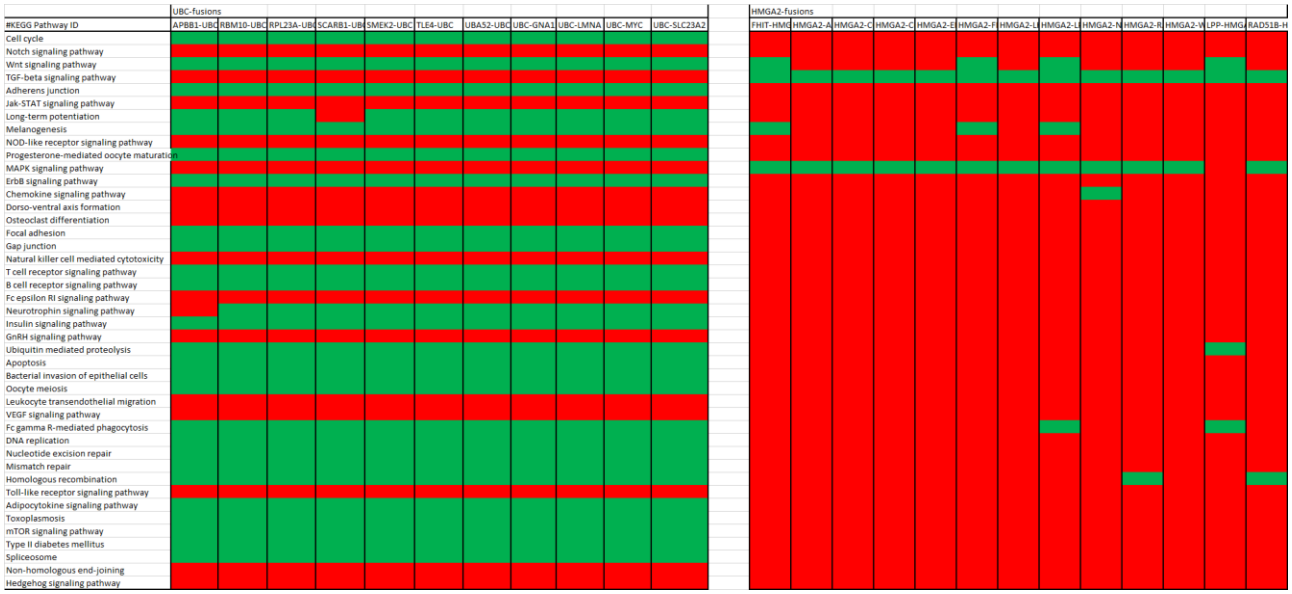

Figure S8: Enrichment results for UBC-fusions, HMGA2-fusions

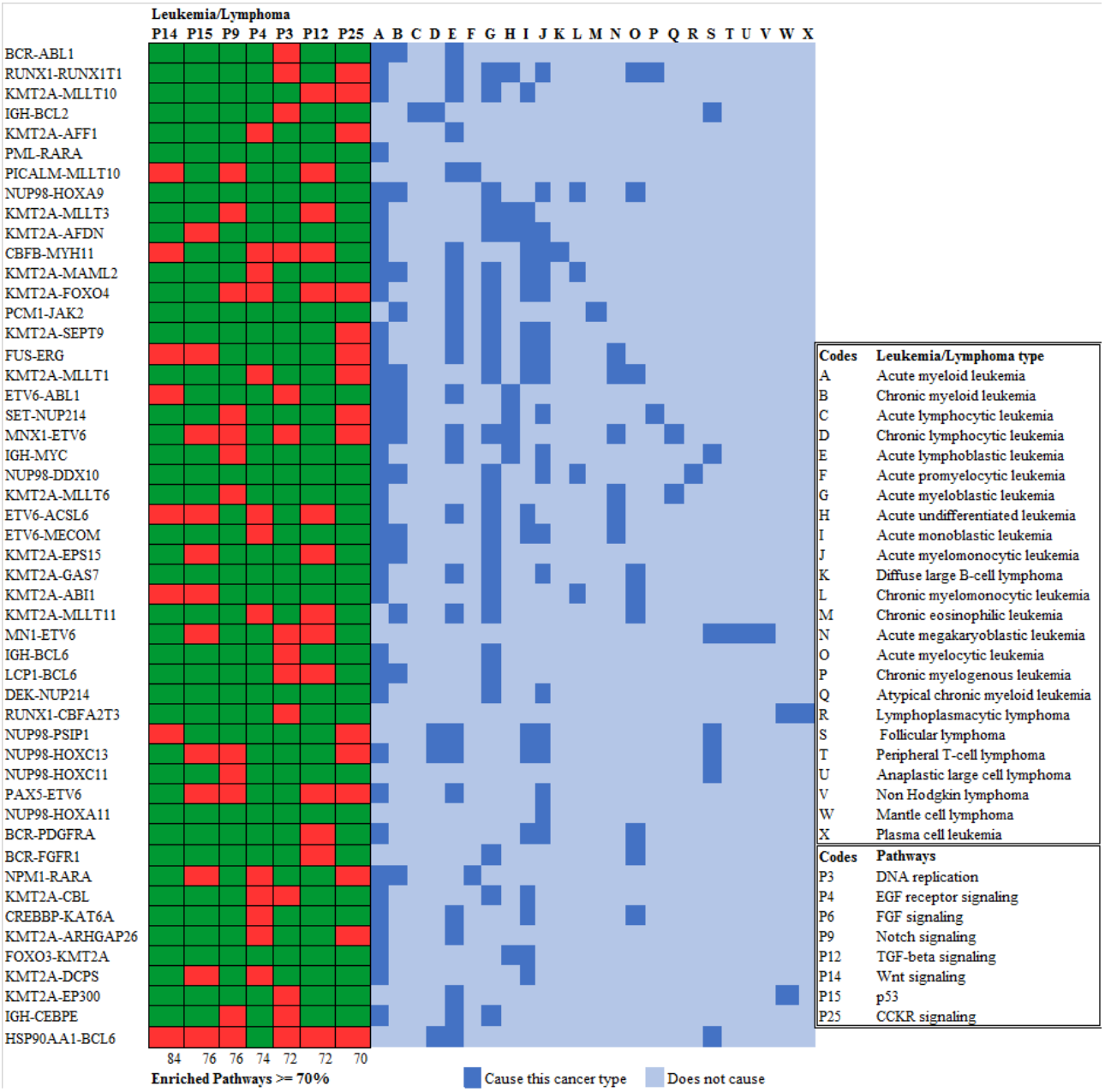

Figure S9: The enrichment result for fusion transcripts from different leukemia and lymphoma types.