

**Supplemental Figure S1C.**

**Proteins identified in both the Molm14 and TF-1 screens.**

	TF1:ITD # of peptides	TF1 # of peptides	Molm14 # of peptides	IgG # of peptides	Subcellular Location	Function
2',3'-cyclic-nucleotide 3'-phosphodiesterase OS=Homo sapiens GN=CNP PE=1 SV=2	4	0	2	0	membranes	Microtubule distribution
40S ribosomal protein S27 OS=Homo sapiens GN=RPS27 PE=1 SV=3	26	6	2	0	cytoplasm/nucleus	Component of ribosome
60S ribosomal protein L4 OS=Homo sapiens GN=RPL4 PE=1 SV=5	42	9	43	11	cytoplasm/nucleus	Component of ribosome
Annexin A2 OS=Homo sapiens GN=ANXA2 PE=1 SV=2	5	1	12	6	membranes/secreted	Stress response
ATP-dependent RNA helicase DDX18 OS=Homo sapiens GN=DDX18 PE=1 SV=2	14	6	28	14	Nucleus	
Calnexin OS=Homo sapiens GN=CANX PE=1 SV=2	46	4	6	1	ER/membranes	Interacts with glycoproteins in the Golgi
Cell division cycle protein 16 homolog OS=Homo sapiens GN=CDC16 PE=1 SV=2	3	1	2	0	centrosome/mitotic spindle	Controls progression through G1
Coatmer subunit alpha OS=Homo sapiens GN=COPA PE=1 SV=2	18	0	6	1	cytoplasm/Golgi	ER to Golgi transport
Constitutive activator of peroxisome proliferator-activated receptor gamma OS=Homo sapiens GN=FAM120B PE=1 SV=1	6	0	5	1	Nucleus	
Cytoplasmic dynein 1 heavy chain 1 OS=Homo sapiens GN=DYNC1H1 PE=1 SV=5	4	0	10	0	cytoplasm	Vesicle motility
Cytoskeleton-associated protein 4 OS=Homo sapiens GN=CKAP4 PE=1 SV=2	9	2	5	1	ER/membranes/cytoplasm	Anchoring of the ER to microtubules
Cytoskeleton-associated protein 5 OS=Homo sapiens GN=CKAP5 PE=1 SV=3	10	0	36	14	centrosome/mitotic spindle	Spindle pole organization
Dedicator of cytokinesis protein 2 OS=Homo sapiens GN=DOCK2 PE=1 SV=2	6	0	16	1	cytoplasm/membrane	GEF: activation of RAC1 & RAC2
DNA topoisomerase 2-beta OS=Homo sapiens GN=TOP2B PE=1 SV=3	18	5	144	70	cytoplasm/nucleus	Breakage and re-joining of ds DNA
Dnaj homolog subfamily A member 1 OS=Homo sapiens GN=DNAJA1 PE=1 SV=2	5	1	2	0	cytoplasm/ER/nucleus	Co-chaperone for HSPA8/Hsc70
Dnaj homolog subfamily A member 2 OS=Homo sapiens GN=DNAJA2 PE=1 SV=1	6	0	2	1	membranes	Chaperone binding
Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1 OS=Homo sapiens GN=RPN1 PE=1 SV=1	14	3	17	6	ER	Glycosylation
Endoplasmic reticulum chaperone protein 90B1 OS=Homo sapiens GN=HSP90B1 PE=1 SV=1	3	0	5	2	ER	Chaperone
Enhancer of mRNA-decapping protein 4 OS=Homo sapiens GN=EDC4 PE=1 SV=1	3	0	4	2	cytoplasm/nucleus	mRNA degradation
Eukaryotic translation initiation factor 2 subunit 2-like protein OS=Homo sapiens PE=1 SV=1	3	0	16	8	cytoplasm	Protein synthesis
Ezrin OS=Homo sapiens GN=EZR PE=1 SV=4	6	3	4	1	cytoplasm/cell projections	Formation of microvilli & membrane ruffles
Far upstream element-binding protein 1 OS=Homo sapiens GN=FUBP1 PE=1 SV=3	6	0	4	2	Nucleus	
Flt cytokine receptor OS=Homo sapiens GN=FLT3 PE=1 SV=2	609	0	69	0	membrane/ER	Cell differentiation/proliferation
Fragile X mental retardation syndrome-related protein 1 OS=Homo sapiens GN=FXR1 PE=1 SV=3	6	1	10	0	cytoplasm	RNA-binding protein
GRIP and coiled-coil domain-containing protein 2 OS=Homo sapiens GN=GCC2 PE=1 SV=3	3	0	47	11	cytoplasm/Golgi	ER to Golgi transport
Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-2 OS=Homo sapiens GN=GNB2 PE=1 SV=3	4	2	5	1	cytoplasm	GTPase activity
Heat shock protein HSP 90-alpha OS=Homo sapiens GN=HSP90AA1 PE=1 SV=5	66	2	14	7	cytoplasm/membrane	Chaperone
Heterogeneous nuclear ribonucleoprotein U-like protein 2 OS=Homo sapiens GN=HNRNPUL2 PE=1 SV=1	6	1	8	3	Nucleus	
Histone H1.5 OS=Homo sapiens GN=HIST1H1B PE=1 SV=3	28	6	3	1	Nucleus	
Hsp90 co-chaperone Cdc37 OS=Homo sapiens GN=CDC37 PE=1 SV=1	19	0	2	0	cytoplasm	Co-chaperone with Hsp90
Importin-7 OS=Homo sapiens GN=IPO7 PE=1 SV=1	17	0	21	3	cytoplasm/nucleus	Nuclear protein import
L-lactate dehydrogenase B chain OS=Homo sapiens GN=LDHB PE=1 SV=2	2	0	5	2	cytoplasm	Pyruvate fermentation
Low affinity immunoglobulin gamma Fc region receptor II-a OS=Homo sapiens GN=FCGR2A PE=1 SV=4	10	0	9	4	membranes	Binds Fc-gamma receptor/phagocytosis
Lupus La protein OS=Homo sapiens GN=SSB PE=1 SV=2	4	0	24	10	Nucleus	
Mannosyl-oligosaccharide glucosidase OS=Homo sapiens GN=MOGS PE=1 SV=5	4	2	2	0	ER	N-glycan degradation
Nucleolar protein 56 OS=Homo sapiens GN=NOP56 PE=1 SV=4	3	1	23	4	cytoplasm/nucleus	Ribosomal biogenesis
Nucleolar protein 6 OS=Homo sapiens GN=NOL6 PE=1 SV=2	5	0	4	2	Nucleus	
Pescadillo homolog OS=Homo sapiens GN=PES1 PE=1 SV=1	7	1	6	2	Nucleus	
Phenylalanyl-tRNA synthetase beta chain OS=Homo sapiens GN=FARSB PE=1 SV=3	5	1	7	1	cytoplasm	Protein synthesis
Phosphorylase b kinase gamma catalytic chain, testis/liver isoform OS=Homo sapiens GN=PHKG2 PE=1 SV=1	5	0	5	2	cytoplasm	Glycogen breakdown
Phosphorylase b kinase regulatory subunit alpha, liver isoform OS=Homo sapiens GN=PHKA2 PE=1 SV=1	40	0	39	19	membranes	Serine phosphorylation
Profilin-1 OS=Homo sapiens GN=PFN1 PE=1 SV=2	4	1	4	2	cytoplasm	Actin binding
Protein arginine N-methyltransferase 5 OS=Homo sapiens GN=PRMT5 PE=1 SV=4	3	0	6	2	cytoplasm/Golgi/nucleus	Methyltransferase
Protein furry homolog OS=Homo sapiens GN=FRY PE=1 SV=1	4	1	6	3	cytoplasm	Actin cytoskeleton dynamics
Protein kinase C iota type OS=Homo sapiens GN=PRKCI PE=1 SV=2	3	0	5	2	cytoplasm/membrane	Phospholipid binding
Protein-L-isoaspartate(D-aspartate) O-methyltransferase OS=Homo sapiens GN=PCMT1 PE=1 SV=3	13	3	6	1	cytoplasm/ER	Methyltransferase; chromatin regulator
Rab GTPase-activating protein 1 OS=Homo sapiens GN=RABGAP1 PE=1 SV=3	39	0	41	18	cytoplasm	Rab GTPase activator
Ras-related protein Rab-5C OS=Homo sapiens GN=RAB5C PE=1 SV=2	4	1	5	2	membranes	Vesicular traffic
Ras-related protein Rap-1b OS=Homo sapiens GN=RAP1B PE=1 SV=1	4	0	5	2	plasma membrane	GTPase activity; cell polarity
Ribonuclease inhibitor OS=Homo sapiens GN=RNH1 PE=1 SV=2	8	2	4	1	cytoplasm	endonuclease
Ribosomal L1 domain-containing protein 1 OS=Homo sapiens GN=RSL1D1 PE=1 SV=3	4	0	7	0	Nucleus	
RNA-binding protein 42 OS=Homo sapiens GN=RBM42 PE=1 SV=1	2	1	7	1	cytoplasm/nucleus	RNA binding
SAM domain and HD domain-containing protein 1 OS=Homo sapiens GN=SAMHD1 PE=1 SV=2	19	9	2	1	Nucleus	
Serpin H1 OS=Homo sapiens GN=SERPINH1 PE=1 SV=2	3	0	2	1	ER	Chaperone; binds collagen
Signal transducer and activator of transcription 1-alpha/beta OS=Homo sapiens GN=STAT1 PE=1 SV=2	3	0	5	0	cytoplasm/nucleus	Response to cytokines & growth factors
Sister chromatid cohesion protein PDS5 homolog A OS=Homo sapiens GN=PDS5A PE=1 SV=1	4	1	5	1	Nucleus	
Spermatogenesis-associated protein 5 OS=Homo sapiens GN=SPATA5 PE=1 SV=2	3	0	10	5	cytoplasm/mitochondrion	spermatogenesis
Splicing factor, arginine/serine-rich 6 OS=Homo sapiens GN=SFRS6 PE=1 SV=2	8	0	3	1	Nucleus	
Structural maintenance of chromosomes protein 4 OS=Homo sapiens GN=SMC4 PE=1 SV=2	7	2	6	3	cytoplasm/nucleus	DNA condensation
Transducin beta-like protein 2 OS=Homo sapiens GN=TBL2 PE=1 SV=1	7	1	6	3	ER	Stress response
Tripartite motif-containing protein 9 OS=Homo sapiens GN=TRIM9 PE=1 SV=1	6	0	8	0	cytoplasm	Signal for proteasomal degradation
Tubulin alpha-4A chain OS=Homo sapiens GN=TUBA4A PE=1 SV=1	4	0	9	1	cytoplasm	Component of microtubules
Tubulin beta-6 chain OS=Homo sapiens GN=TUBB6 PE=1 SV=1	5	0	5	1	cytoplasm	Component of microtubules
Tyrosine-protein phosphatase non-receptor type 6 OS=Homo sapiens GN=PTPN6 PE=1 SV=1	6	2	3	1	cytoplasm/nucleus	Modulates signaling by tyrosine kinases
U5 small nuclear ribonucleoprotein 200 kDa helicase OS=Homo sapiens GN=SNRNP200 PE=1 SV=2	7	0	13	4	Nucleus	