

Supplemental material

Interactome analysis of the influenza A virus transcription/replication machinery identifies protein phosphatase 6 as a cellular factor required for efficient virus replication

Ashley York, Edward C. Hutchinson and Ervin Fodor

Sir William Dunn School of Pathology, University of Oxford, Oxford, United Kingdom

Correspondence should be addressed to Ervin Fodor (ervin.fodor@path.ox.ac.uk)

Running title: Influenza virus RNA polymerase interactome

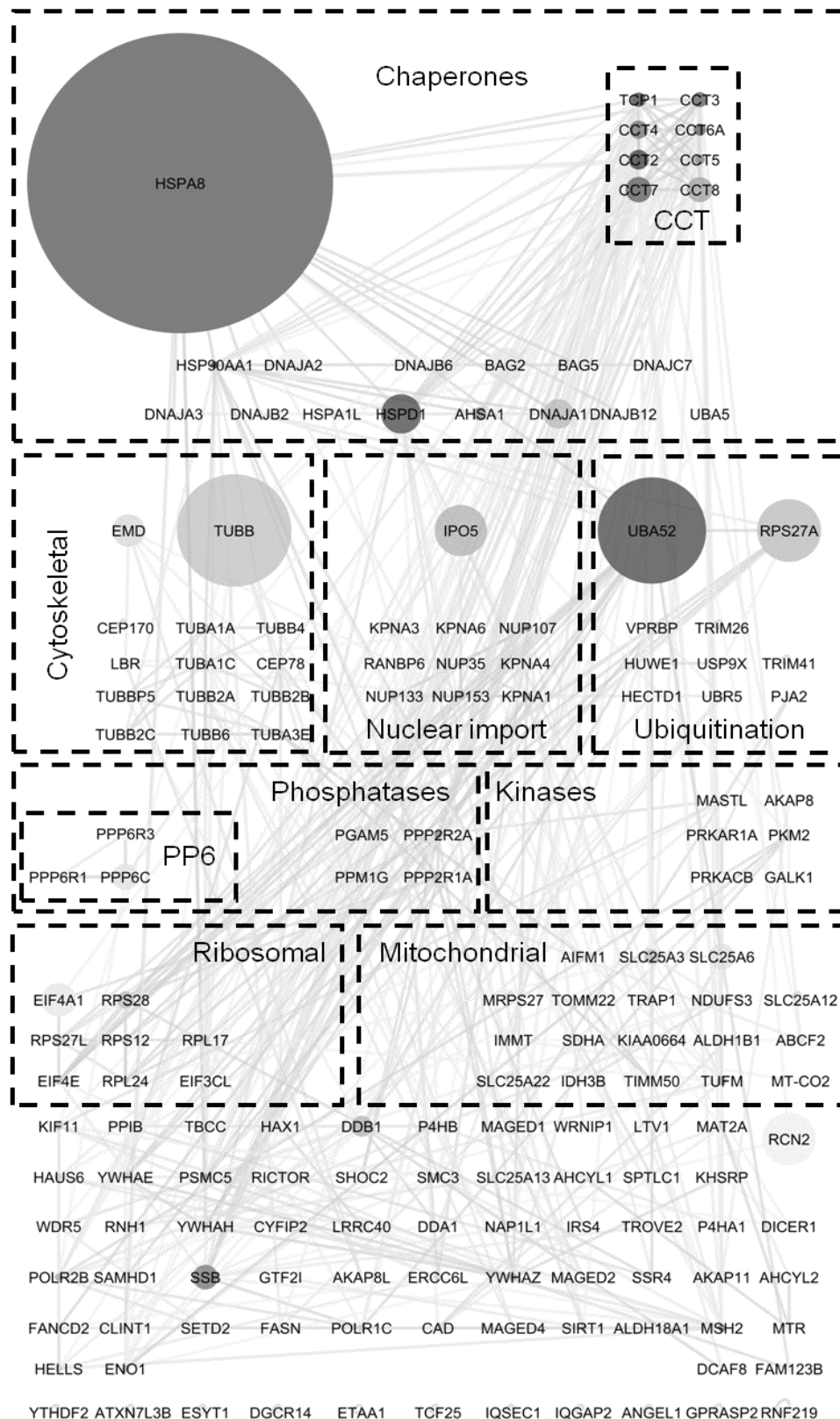


Fig S1. Interaction network of host proteins in the viral transcription/replication machinery interactome with node labelling. The interaction network of Figure 3B, with the short names of proteins shown. See the legend to Figure 3 for further details.

Supplemental Table 1. Raw SINQ scores for identified proteins

SINQ scores of identified proteins in PB2-Strep and WT (negative control) samples. Raw data from three experiments are shown. Decoy matches and common contaminants have been removed (see Materials and Methods for details).

^aUniProt ID of human protein or viral protein name.

Protein ^a	Description	Experiment 1		Experiment 2		Experiment 3	
		PB2-Strep	WT	PB2-Strep	WT	PB2-Strep	WT
HA	Influenza A/WSN/33 HA	8.928E-07	6.33E-07	2.87E-06	4.589E-06	1.713E-06	2.97E-06
M1	Influenza A/WSN/33 M1	1.229E-06	1.1E-05	5.1E-06	1.877E-05	1.076E-06	4.55E-05
NA	Influenza A/WSN/33 NA	1.626E-07	4.95E-08	3.24E-07	1.152E-07	5.163E-07	
NP	Influenza A/WSN/33 NP	0.0009755	7.56E-05	0.001128	4.572E-05	0.001287	4.65E-05
NS1	Influenza A/WSN/33 NS1	3.973E-06	5.45E-05	2.92E-05	0.000182	1.083E-05	0.000103
PA	Influenza A/WSN/33 PA	0.0001127	8.57E-07	7.93E-05	2.908E-06	6.666E-05	5.68E-07
PB1	Influenza A/WSN/33 PB1	0.00012	1.16E-06	0.000115	1.904E-06	0.0001014	1.08E-06
PB2-Strep	Influenza A/WSN/33 PB2-Strep	0.0001574	3.86E-06	0.000149	5.166E-06	0.0001229	1.47E-06
O00267	Transcription elongation factor SPT5	1.927E-07		8.67E-08	1.116E-07	1.246E-07	3.85E-07
O00410	Importin-5	2.349E-06		2.31E-06		1.99E-06	
O00505	Importin subunit alpha-4	8.294E-07		9.23E-07	1.501E-07	6.94E-07	
O00571	ATP-dependent RNA helicase DDX3X	3.957E-07	1.16E-06	4.69E-07	5.792E-06	1.169E-07	1.07E-05
O00629	Importin subunit alpha-3	6.319E-07		6.18E-07	7.277E-08	5.096E-07	
O00743	Serine/threonine-protein phosphatase 6 catalytic subunit	0.0000017		7.44E-07		9.832E-07	
O00763	Acetyl-CoA carboxylase 2	3.268E-07	6.09E-07	2.34E-08	4.399E-07		
O14654	Insulin receptor substrate 4	1.959E-07		2.84E-07	3.872E-08	3.534E-07	
O14979	Heterogeneous nuclear ribonucleoprotein D-like		1.03E-06	3.18E-08	6.364E-07	4.165E-09	1.07E-06
O43164	E3 ubiquitin-protein ligase Praja-2	1.766E-07		4.66E-07		3.729E-07	
O43390	Heterogeneous nuclear ribonucleoprotein R	7.728E-08	8.62E-07	6.16E-08	1.142E-06	1.199E-08	3.11E-06
O43865	Putative adenosylhomocysteinase 2	1.655E-08		8.83E-08		1.099E-07	
O60506	Heterogeneous nuclear ribonucleoprotein Q	1.158E-08	3.44E-07	5.56E-07	5.871E-06	2.774E-08	1.39E-05
O60518	Ran-binding protein 6	2.086E-08					
O60684	Importin subunit alpha-7	2.27E-08		5.22E-07	4.495E-08	4.087E-07	6.58E-08
O60814	Histone H2B type 1-K	2.081E-07	4.35E-05	4.8E-07	4.404E-06	1.723E-07	5.54E-06
O60884	DnaJ homolog subfamily A member 2	1.257E-07		2.48E-06	4.181E-08	1.477E-06	
O75153	Clustered mitochondria protein homolog	5.577E-08		4.91E-08		5.781E-08	
O75190	DnaJ homolog subfamily B member 6	1.871E-07		6.01E-07		1.414E-06	
O75367	Core histone macro-H2A.1		3.23E-07				
O75531	Barrier-to-autointegration factor		8.54E-08	7.24E-07	0.0000103	1.295E-07	3.2E-06
O95831	Apoptosis-inducing factor 1, mitochondrial	1.311E-07		4.48E-07	1.81E-07	3.624E-07	
P00915	Carbonic anhydrase 1	7.766E-08	9.99E-08				

P00918	Carbonic anhydrase 2	4.444E-08	5.68E-08						
P02545	Prelamin-A/C		1.89E-08	1.08E-06	1.143E-05	9.634E-08	8.37E-06		
P04406	Glyceraldehyde-3-phosphate dehydrogenase		1.2E-06	5.75E-07	3.821E-06	6.634E-07	1.75E-06		
P05141	ADP/ATP translocase 2	2.443E-06	1.63E-06	8.52E-07	1.956E-06	6.114E-07	8.36E-07		
P05165	Propionyl-CoA carboxylase alpha chain, mitochondrial	1.311E-05	3.42E-05	8.56E-06	5.866E-05	6.245E-06	4.35E-05		
P05166	Propionyl-CoA carboxylase beta chain, mitochondrial	1.762E-05	3.77E-05	6.5E-06	5.076E-05	8.075E-06	5.08E-05		
P06748	Nucleophosmin	9.709E-08	7.96E-06	4.52E-06	8.153E-05	9.964E-07	3.23E-05		
P07437	Tubulin beta chain	5.747E-07	5.33E-08	9.56E-06	3.704E-06	4.269E-06	1.73E-06		
P08107	Heat shock 70 kDa protein 1A/1B	8.283E-06	2.7E-06	1.49E-05	1.613E-05	1.221E-05	1.27E-05		
P08670	Vimentin		1.88E-06						
P09651	Heterogeneous nuclear ribonucleoprotein A1	3.048E-06	1.07E-05	1.1E-05	6.319E-05	4.878E-06	9.33E-05		
P09874	Poly [ADP-ribose] polymerase 1	2.577E-06	8.27E-06	8.78E-07	5.881E-06	7.44E-08	1.25E-05		
P0C0S5	Histone H2A.Z		3.05E-06	1.64E-07	9.269E-07				
P10155	60 kDa SS-A/Ro ribonucleoprotein	2.067E-07		8.08E-08		3.629E-07			
P10809	60 kDa heat shock protein, mitochondrial	9.024E-09		2.73E-06	9.099E-07	2.148E-06	3.62E-08		
P11021	78 kDa glucose-regulated protein		5.99E-07	6.47E-07	2.306E-06	5.381E-07	1.24E-06		
P11142	Heat shock cognate 71 kDa protein	1.383E-05	3.56E-06	1.42E-05	8.44E-06	1.114E-05	6.07E-06		
P11182	Branched-chain alpha-keto acid dehydrogenase complex component E2	1.906E-06	1.27E-05	4.23E-06	1.998E-05	2.619E-06	2.21E-05		
P11387	DNA topoisomerase 1		1.75E-07	9.89E-08	3.463E-06		2.33E-06		
P11388	DNA topoisomerase 2-alpha	3.12E-07	5.76E-06	1.78E-06	1.598E-05	6.105E-07	1.29E-05		
P11498	Pyruvate carboxylase, mitochondrial	8.731E-06	2.88E-05	1.71E-06	1.363E-05	1.397E-06	1.05E-05		
P12236	ADP/ATP translocase 3	3.426E-06	3.69E-08	1.98E-07	1.643E-07	4.365E-08	7.17E-07		
P12956	X-ray repair cross-complementing protein 6	1.163E-07	1.45E-06	3.68E-07	5.243E-06	4.332E-08	8.73E-06		
P13010	X-ray repair cross-complementing protein 5	3.164E-07	2.59E-06	2.75E-07	3.828E-06	7.185E-08	6.12E-06		
P14678	Small nuclear ribonucleoprotein-associated proteins B and B'		5.18E-07	1.81E-07	1.396E-06	2.202E-08	4.92E-07		
P14866	Heterogeneous nuclear ribonucleoprotein L	6.51E-07	7.59E-06	2.8E-06	3.136E-05	6.77E-07	2.83E-05		
P15880	40S ribosomal protein S2	1.077E-06	2.46E-06	1.97E-06	2.092E-06	1.747E-06	1.98E-06		
P16104	Histone H2AX	2.981E-06	2.87E-05		3.113E-08				
P16403	Histone H1.2	8.479E-07	5.66E-06	2.61E-07	1.749E-06	2.982E-07	1.03E-06		
P17612	cAMP-dependent protein kinase catalytic subunit alpha	1.862E-07	1.14E-07	1.44E-07		1.31E-08			
P17844	Probable ATP-dependent RNA helicase DDX5	4.979E-09	5.62E-07	3.23E-07	3.655E-06	1.773E-07	5.99E-06		
P17987	T-complex protein 1 subunit alpha	5.027E-07		5.64E-07		7.288E-07			
P19338	Nucleolin	1.163E-08	2.12E-06	4.92E-07	3.023E-06	2.864E-07	3.18E-06		
P20700	Lamin-B1	2.816E-07	1.64E-06	2.58E-06	2.353E-05	2.335E-07	2.6E-05		
P22061	Protein-L-isoaspartate(D-aspartate) O-methyltransferase		1.59E-06	6.5E-07	1.006E-05	2.84E-07	2.41E-06		
P22087	rRNA 2'-O-methyltransferase fibrillar		1.74E-07	1.11E-07	2.46E-06	2.993E-08	2.35E-06		
P22626	Heterogeneous nuclear ribonucleoproteins A2/B1	5.596E-06	7.16E-05	8.33E-06	0.0002229	7.06E-06	0.000135		
P22694	cAMP-dependent protein kinase catalytic subunit beta	8.702E-09		7.96E-09		2.737E-07			
P23246	Splicing factor, proline- and glutamine-rich		1.66E-07	3.65E-07	2.194E-06	3.073E-08	4.83E-06		

P23396	40S ribosomal protein S3	5.056E-06	8.44E-06	3.58E-06	1.123E-05	4.164E-06	5.8E-06
P26196	Probable ATP-dependent RNA helicase DDX6	1.27E-07	9.2E-07	1.74E-07	5.142E-06	2.371E-07	6.33E-06
P26368	Splicing factor U2AF 65 kDa subunit		2.27E-07	2.07E-07	2.398E-06		5.11E-06
P26599	Polypyrimidine tract-binding protein 1	9.447E-08	6.96E-06	9.84E-07	1.541E-05	1.768E-07	1.75E-05
P26641	Elongation factor 1-gamma	7.107E-08		1.51E-07	1.069E-06	1.153E-07	
P27708	CAD protein	6.754E-08		8.07E-08	2.026E-08	9.334E-08	
P30050	60S ribosomal protein L12	3.98E-07	1.8E-06	4.74E-06	4.123E-05	6.572E-07	4.22E-05
P31689	DnaJ homolog subfamily A member 1	5.794E-07		2.04E-06	1.504E-07	1.169E-06	3.11E-07
P31942	Heterogeneous nuclear ribonucleoprotein H3	1.987E-08	1.23E-06	6.57E-07	7.11E-06	1.564E-07	2.17E-06
P31943	Heterogeneous nuclear ribonucleoprotein H	5.95E-08	1.29E-06	5.77E-07	2.224E-06	7.657E-07	7.85E-06
P32969	60S ribosomal protein L9	9.301E-08	1.71E-07	2.15E-07	0.000012	1.336E-07	1.76E-05
P34931	Heat shock 70 kDa protein 1-like	5.774E-08					
P35268	60S ribosomal protein L22		4.39E-06	2.24E-06	1.644E-05	4.363E-07	1.05E-05
P38159	RNA-binding motif protein, X chromosome	8.015E-08	5.88E-06	3.22E-07	4.499E-06	2.649E-07	2.46E-06
P38646	Stress-70 protein, mitochondrial	1.923E-07	6.01E-06	3.8E-06	1.014E-05	2.302E-06	7.09E-06
P38919	Eukaryotic initiation factor 4A-III		5.79E-07	2.05E-09	8.541E-07		1.19E-06
P40227	T-complex protein 1 subunit zeta	2.467E-07		8.07E-07		4.803E-07	
P40939	Trifunctional enzyme subunit alpha, mitochondrial	1.912E-06	3.03E-07	1.32E-06	3.247E-06	9.642E-07	1.83E-06
P41159	Leptin	1.053E-07	3.09E-07				
P42166	Lamina-associated polypeptide 2, isoform alpha		3.76E-07				
P42677	40S ribosomal protein S27	3.002E-06	4.01E-06	9.92E-06	9.028E-06	1.198E-05	2.7E-06
P43243	Matrin-3	1.004E-08	1.53E-06	3.95E-07	3.63E-06	2.055E-07	2.7E-06
P45880	Voltage-dependent anion-selective channel protein 2		1.28E-06	6.26E-07	3.658E-06	5.216E-07	2.33E-06
P46013	Antigen KI-67		1.13E-07	3.59E-09	4.658E-08		
P46781	40S ribosomal protein S9	5.184E-07	6.93E-07	8.9E-07	3.707E-06	5.065E-07	2.27E-06
P48643	T-complex protein 1 subunit epsilon	1.627E-07		5.6E-07		4.998E-07	
P49368	T-complex protein 1 subunit gamma	2.634E-07		1.08E-06		5.873E-07	
P49411	Elongation factor Tu, mitochondrial	9.824E-07	1.57E-08	8.1E-08		2.053E-07	
P49916	DNA ligase 3		2.86E-07	1.36E-08	2.412E-07		1.99E-07
P50402	Emerin	1.79E-07		2.17E-06	6.308E-07	1.688E-06	
P50991	T-complex protein 1 subunit delta	1.074E-07		1.16E-06		9.794E-07	4.3E-08
P51571	Translocon-associated protein subunit delta	3.794E-07		2.15E-07		3.305E-07	
P51991	Heterogeneous nuclear ribonucleoprotein A3	1.052E-08	3.03E-06	8.33E-07	0.0000106	1.747E-07	1.69E-05
P52272	Heterogeneous nuclear ribonucleoprotein M	1.743E-07	3.23E-06	1.91E-07	1.377E-06	2.677E-08	2.1E-06
P52292	Importin subunit alpha-1		1.64E-06	2.74E-07	4.333E-06	1.136E-07	3.04E-06
P52294	Importin subunit alpha-5	2.269E-07		1.88E-07		8.174E-08	
P52597	Heterogeneous nuclear ribonucleoprotein F		2.28E-08	5.63E-07	1.081E-06	5.413E-07	4.79E-07
P55084	Trifunctional enzyme subunit beta, mitochondrial	1.839E-06	2.72E-08	1.58E-06	3.45E-06	8.028E-07	2.54E-06
P55884	Eukaryotic translation initiation factor 3 subunit B		2.91E-08			5.991E-09	

P61247	40S ribosomal protein S3a	1.265E-07	2.03E-06	8.21E-07	1.719E-06	7.966E-07	3.53E-07
Q5T6W5	Heterogeneous nuclear ribonucleoprotein K	6.531E-08	3.07E-06	4.36E-08	2.35E-07		5.81E-07
P62081	40S ribosomal protein S7	1.679E-07	9.66E-08	1.16E-06	2.165E-05	2.231E-07	3.34E-05
P62140	Serine/threonine-protein phosphatase PP1-beta catalytic subunit	1.701E-08	7.49E-07	2.23E-08	2.049E-07		3.79E-07
P62241	40S ribosomal protein S8	7.112E-07	2.54E-06	3.8E-07	2.077E-06	5.723E-07	1.04E-06
P62244	40S ribosomal protein S15a	7.33E-07	7.32E-06	1.46E-06	1.033E-05	8.154E-07	1.04E-05
P62249	40S ribosomal protein S16	1.264E-06	2.51E-06	1.61E-06	7.502E-06	2.566E-06	3.98E-06
P62263	40S ribosomal protein S14	1.152E-07	2.07E-06	3E-06	1.277E-05	4.344E-06	8.24E-06
P62266	40S ribosomal protein S23		1.12E-07			1.207E-07	
P62277	40S ribosomal protein S13		1.09E-07	5.23E-07	1.357E-06	3.842E-07	4.39E-07
P62280	40S ribosomal protein S11	3.438E-06	3.01E-06	9.38E-07	1.335E-06	9.94E-07	9.35E-07
P62314	Small nuclear ribonucleoprotein Sm D1	1.349E-06	2.39E-07	5.29E-08	3.828E-06		2.13E-05
P62701	40S ribosomal protein S4, X isoform	8.853E-07	1.37E-05	2.58E-06	0.0000131	2.005E-06	1.81E-05
P62753	40S ribosomal protein S6	1.858E-07	4.57E-07	3.18E-07	5.662E-07	4.692E-07	5.08E-07
P62805	Histone H4	5.7E-07	9.37E-05	4.06E-07	1.297E-05	1.943E-07	1.4E-05
P62829	60S ribosomal protein L23	4.833E-06	6.65E-06	5.78E-06	1.772E-05	4.801E-06	7.69E-06
P62899	60S ribosomal protein L31	1.632E-07		9.38E-07	1.529E-06	7.354E-08	1.99E-06
P62913	60S ribosomal protein L11	4.667E-07	1.68E-06	1.87E-07	4.186E-06	3.211E-07	3.38E-06
P62987	Ubiquitin-60S ribosomal protein L40	5.933E-06	2.69E-06	4.02E-06	2.968E-06		
P62995	Transformer-2 protein homolog beta	8.357E-08	4.49E-07	7.68E-09	1.009E-06		1.39E-06
P63173	60S ribosomal protein L38	3.985E-07	2.1E-06	3.1E-06	2.297E-06	9.6E-07	1.55E-05
P63261	Actin, cytoplasmic 2	3.057E-07	1.01E-05				
P67809	Nuclease-sensitive element-binding protein 1	5.384E-08	7.16E-08	5.04E-07	9.164E-07	3.356E-07	6.83E-08
P68104	Elongation factor 1-alpha 1	4.513E-06	6.89E-06	2.4E-06	1.991E-05	1.839E-06	1.1E-05
P68363	Tubulin alpha-1B chain	1.016E-07	1.22E-08	4E-08	3.418E-07	2.601E-07	6.02E-07
P68371	Tubulin beta-4B chain	1.102E-06	5.81E-07	2.5E-06	9.213E-07	8.245E-07	6.97E-08
P68431	Histone H3.1		2.28E-06				
P78527	DNA-dependent protein kinase catalytic subunit	3.258E-09		3.63E-08	9.075E-08	2.963E-08	4.17E-08
P81605	Dermcidin	1.737E-06	2.91E-07	4.01E-07	2.347E-06	7.03E-06	1.31E-05
P84098	60S ribosomal protein L19	5.472E-08	9.14E-08	7.79E-07	1.368E-06	7.198E-07	1.13E-07
P84103	Serine/arginine-rich splicing factor 3	9.121E-08	2.27E-06	1.22E-06	1.527E-05		7.45E-06
P84243	Histone H3.3		7.59E-07				
Q00325	Phosphate carrier protein, mitochondrial	1.225E-06		1.88E-07	2.674E-07		
Q00610	Clathrin heavy chain 1	3.122E-09	2.23E-08	3.75E-08	6.349E-07	3.383E-08	1.79E-07
Q00839	Heterogeneous nuclear ribonucleoprotein U	1.546E-07	2.9E-06	5.86E-07	6.314E-06	1.943E-07	7.3E-06
Q02878	60S ribosomal protein L6	1.435E-08	5.36E-08				
Q02880	DNA topoisomerase 2-beta	6.495E-07	5.43E-06	9.57E-07	0.0000113	4.146E-07	1.17E-05
Q02978	Mitochondrial 2-oxoglutarate/malate carrier protein	1.07E-07	8.63E-08				
Q03252	Lamin-B2		5.19E-08	1.68E-06	1.815E-05	1.298E-07	1.27E-05

Q92841	Probable ATP-dependent RNA helicase DDX17		4.28E-07	3.64E-07	1.372E-06	1.467E-07	2.01E-06
Q96D09	G-protein coupled receptor-associated sorting protein 2	4.305E-08		5.52E-07		4.177E-07	
Q96EY1	DnaJ homolog subfamily A member 3, mitochondrial	7.543E-08		3.38E-07	1.308E-07	1.983E-07	
Q96HN2	Putative adenosylhomocysteinase 3	4.207E-07		9.01E-08		1.781E-07	
Q96PK6	RNA-binding protein 14		7.27E-07		9.445E-07	9.455E-09	3.97E-07
Q96RQ3	Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial	1.628E-06	7.89E-06	4.86E-07	4.008E-06	3.966E-07	4.34E-06
Q99623	Prohibitin-2	2.172E-08	7.06E-08	9.47E-07	4.115E-06	5.857E-07	1.99E-06
Q99832	T-complex protein 1 subunit eta	1.115E-06		1.13E-06		1.045E-06	
Q9BQ70	Transcription factor 25	1.839E-08		4.24E-07		7.565E-08	
Q9BQE3	Tubulin alpha-1C chain	3.596E-07	1.45E-07	2.26E-07	2.114E-08	2.128E-07	
Q9BVA1	Tubulin beta-2B chain	3.498E-08		3.42E-07	4.799E-08	7.389E-07	
Q9BY77	Polymerase delta-interacting protein 3		1.06E-06	2.17E-07	2.322E-06	1.89E-07	1.12E-06
Q9H0S4	Probable ATP-dependent RNA helicase DDX47		2.91E-08	3.58E-07	2.855E-06		3.28E-06
Q9HAV7	GrpE protein homolog 1, mitochondrial		5.63E-06	1.35E-06	1.423E-05	9.459E-07	7.06E-06
Q9HCC0	Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial	5.077E-06	1.25E-05	2.21E-06	0.0000157	1.192E-06	1.78E-05
Q9HCD5	Nuclear receptor coactivator 5	1.177E-07	1.17E-06	6.66E-07	5.527E-06	4.8E-07	7.83E-06
Q9NW64	Pre-mRNA-splicing factor RBM22		2.18E-08				
Q9NZI8	Insulin-like growth factor 2 mRNA-binding protein 1	4.228E-08	1.05E-06	3.39E-07	2.354E-06	2.097E-07	9.54E-07
Q9UJS0	Calcium-binding mitochondrial carrier protein Aralar2	3.475E-08		2.28E-07		2.774E-07	
Q9UKD2	mRNA turnover protein 4 homolog		1.84E-06	1.34E-06	1.101E-05		1.88E-05
S4R3H4	Apoptotic chromatin condensation inducer in the nucleus	2.892E-08	9.73E-08	2.6E-07	1.559E-06	2.091E-08	1.95E-06
Q9UNK9	Protein angel homolog 1	6.009E-08		2.98E-07		1.953E-07	
Q9Y2A7	Nck-associated protein 1	1.403E-07	6.24E-07	2.38E-07	1.653E-06	1.828E-07	7.03E-07
Q9Y4B6	Protein VPRBP	7.165E-07		3.88E-07		2.13E-07	
Q9Y5A9	YTH domain family protein 2	2.057E-08		3.13E-07		4.164E-07	
Q9Y5B9	FACT complex subunit SPT16	3.639E-07	8.17E-06	1.44E-06	1.066E-05	1.251E-07	1.26E-05
Q9Y5V3	Melanoma-associated antigen D1	1.039E-06		6.92E-07	4.865E-09	5.203E-07	
D6R9P3	Heterogeneous nuclear ribonucleoprotein A/B		5.57E-07	6.49E-07	5.745E-06	4.07E-07	2.48E-06
K7EII5	Acetyl-CoA carboxylase 1 (Fragment)		3.46E-06				
M2	Influenza A/WSN/33 M2			3.83E-07	3.073E-06	9.249E-07	
A6NKZ8	Putative tubulin beta chain-like protein ENSP00000290377			2.79E-07		2.254E-07	
B5ME19	Eukaryotic translation initiation factor 3 subunit C-like protein			6.18E-09			
O00148	ATP-dependent RNA helicase DDX39A				5.513E-07		
O00165	HCLS1-associated protein X-1			1.71E-06	4.655E-08	1.191E-07	
O00255	Menin			4.13E-08	9.9E-08		
O00422	Histone deacetylase complex subunit SAP18			8.71E-07	9.389E-06		6.92E-07
O00425	Insulin-like growth factor 2 mRNA-binding protein 3			3.14E-09	1.665E-07	3.558E-09	2.85E-07
O00483	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 4			2.88E-07	2.021E-07		
O00541	Pescadillo homolog			2.39E-08	1.337E-07		2.42E-07

O15027	Protein transport protein Sec16A	2.06E-08		7.747E-09	
O15160	DNA-directed RNA polymerases I and III subunit RPAC1	1.92E-08			
O15269	Serine palmitoyltransferase 1	4.25E-08			
O15355	Protein phosphatase 1G	2.64E-07		3.102E-07	
O15498	Synaptobrevin homolog YKT6	1.08E-08	2.353E-07		
O43143	Putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX15	1.82E-09	1.635E-07	1.096E-08	4.19E-07
O43172	U4/U6 small nuclear ribonucleoprotein Prp4		5.767E-07		5.84E-07
O43175	D-3-phosphoglycerate dehydrogenase	3.92E-07	4.045E-07	1.844E-07	9.78E-08
O43290	U4/U6.U5 tri-snRNP-associated protein 1	3.04E-08	1.932E-07		
O43347	RNA-binding protein Musashi homolog 1		8.315E-08		
O43395	U4/U6 small nuclear ribonucleoprotein Prp3		4.219E-07		
O43423	Acidic leucine-rich nuclear phosphoprotein 32 family member C	4.5E-08			
O43719	HIV Tat-specific factor 1	3.18E-08	5.483E-08	9.454E-08	
O43823	A-kinase anchor protein 8	5.95E-08		5.817E-08	
O43837	Isocitrate dehydrogenase [NAD] subunit beta, mitochondrial	1.11E-08			
O43913	Origin recognition complex subunit 5	4.1E-08	1.157E-06		2.51E-06
O43929	Origin recognition complex subunit 4	5.62E-08	1.588E-06		8.73E-07
O60264	Sucrose nonfermenting protein 2 homolog		8.765E-08		
O60832	H/ACA ribonucleoprotein complex subunit 4	2.98E-08	4.842E-07		7.52E-07
O75152	Zinc finger CCCH domain-containing protein 11A	8.93E-09	5.989E-07		
O75400	Pre-mRNA-processing factor 40 homolog A		3.695E-07	4.749E-08	3.66E-08
O75475	PC4 and SFRS1-interacting protein	8.03E-07	6.455E-06		7.49E-06
O75489	NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial	2E-08			
O75494	Serine/arginine-rich splicing factor 10	3.3E-09	5.288E-07		
O75533	Splicing factor 3B subunit 1	2.45E-08	1.105E-07	4.883E-08	2.77E-08
O75746	Calcium-binding mitochondrial carrier protein Aralar1	2.73E-09		2.195E-08	
O75964	ATP synthase subunit g, mitochondrial	3.95E-07	4.02E-07		
O94776	Metastasis-associated protein MTA2	3.17E-08			
O94906	Pre-mRNA-processing factor 6	2.33E-08	3.554E-07	3.315E-09	7.75E-08
O95071	E3 ubiquitin-protein ligase UBR5	4.85E-08		3.491E-08	
O95218	Zinc finger Ran-binding domain-containing protein 2	6E-08	2.317E-07		
O95232	Luc7-like protein 3	5E-08	3.586E-07		2.17E-07
O95251	Histone acetyltransferase KAT7	1.55E-08	1.127E-07		
O95758	Polypyrimidine tract-binding protein 3		6.314E-09		
O95816	BAG family molecular chaperone regulator 2	2.13E-06		8.646E-07	
O96019	Actin-like protein 6A	4.08E-08	6.526E-07		
O96028	Histone-lysine N-methyltransferase NSD2		6.061E-08		
P00403	Cytochrome c oxidase subunit 2	1.17E-07			
P02788	Lactotransferrin		1.591E-08		

P04279	Semenogelin-1		6.794E-07			
P04350	Tubulin beta-4A chain	2.01E-07	9.934E-09	1.457E-07		
P04637	Cellular tumor antigen p53	9.29E-08	6.293E-08	5.19E-08	3.86E-07	
P04843	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1	2.73E-07	2.159E-06	3.556E-07	1.03E-06	
P04844	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 2		6.582E-08			
P05023	Sodium/potassium-transporting ATPase subunit alpha-1	1.06E-07	9.121E-08	7.52E-08		
P05114	Non-histone chromosomal protein HMG-14	6E-08	8.679E-07			
P05204	Non-histone chromosomal protein HMG-17	2.38E-07	7.085E-07			
P05388	60S acidic ribosomal protein P0	8.49E-07	5.277E-06	2.29E-07	2.14E-06	
P05455	Lupus La protein	1.26E-06	5.743E-07	8.024E-07		
P06576	ATP synthase subunit beta, mitochondrial	6.86E-07	3.323E-06	4.081E-07	4.56E-06	
P06730	Eukaryotic translation initiation factor 4E	2.73E-07		3.59E-07		
P07237	Protein disulfide-isomerase	4.04E-08		2.659E-08		
P07814	Bifunctional glutamate/proline--tRNA ligase	1.48E-08	1.002E-07	1.779E-08		
P07900	Heat shock protein HSP 90-alpha	1.18E-07	4.903E-08	2.168E-07		
P07910	Heterogeneous nuclear ribonucleoproteins C1/C2	1.51E-07	1.465E-06	1.072E-07	4.39E-06	
P08238	Heat shock protein HSP 90-beta	1.57E-07	1.269E-07	3.541E-08	1.95E-07	
P08579	U2 small nuclear ribonucleoprotein B''	1.16E-07	1.78E-07			
P08621	U1 small nuclear ribonucleoprotein 70 kDa	1.26E-07	1.505E-06	1.179E-08	2.96E-06	
P08708	40S ribosomal protein S17	3.5E-07	1.93E-06			
P08865	40S ribosomal protein SA	1.07E-06	2.197E-06	7.76E-07	7.57E-07	
P09012	U1 small nuclear ribonucleoprotein A	9.43E-08	9.861E-07		1.19E-06	
P09622	Dihydrolipoyl dehydrogenase, mitochondrial	1.77E-09	7.967E-07			
P09661	U2 small nuclear ribonucleoprotein A'	1.24E-07	6.538E-07			
P10644	cAMP-dependent protein kinase type I-alpha regulatory subunit	6.78E-07		5.997E-07		
P11908	Ribose-phosphate pyrophosphokinase 2		9.869E-08			
P11940	Polyadenylate-binding protein 1	1.51E-07	1.012E-06	1.215E-07	3.96E-07	
P12268	Inosine-5'-monophosphate dehydrogenase 2	1.04E-07	3.762E-07			
P12273	Prolactin-inducible protein	2.14E-08	1.966E-06	3.369E-08	1.45E-06	
P13489	Ribonuclease inhibitor	4.45E-08				
P13639	Elongation factor 2	3.56E-09	4.602E-08	3.288E-09		
P13674	Prolyl 4-hydroxylase subunit alpha-1	3.42E-07		2.42E-07		
P14868	Aspartate--tRNA ligase, cytoplasmic	4.08E-08	1.512E-07			
P14923	Junction plakoglobin	1.82E-08	6.764E-08	7.536E-08	8.97E-07	
P15924	Desmoplakin	5.17E-09	2.436E-08	6.8E-08	5.79E-07	
P15927	Replication protein A 32 kDa subunit	2.13E-08	7.411E-07		3.81E-07	
P16615	Sarcoplasmic/endoplasmic reticulum calcium ATPase 2	4.76E-08	1.541E-07	2.144E-08		
P16989	Y-box-binding protein 3	9.62E-08	1.612E-07	5.322E-08		
P17096	High mobility group protein HMG-I/HMG-Y	2.64E-07	1.028E-06			

P18085	ADP-ribosylation factor 4	1.14E-07	4.51E-07		
P18754	Regulator of chromosome condensation	6.99E-07	6.081E-06		6.5E-06
P21796	Voltage-dependent anion-selective channel protein 1	6.26E-07	3.757E-06	4.952E-07	2.65E-06
P22695	Cytochrome b-c1 complex subunit 2, mitochondrial	2.36E-08	6.593E-08		
P23284	Peptidyl-prolyl cis-trans isomerase B	3.65E-07			
P24539	ATP synthase F(0) complex subunit B1, mitochondrial	4.32E-08	7.921E-07	1.475E-07	
P25398	40S ribosomal protein S12	5.74E-08			
P25686	DnaJ homolog subfamily B member 2	2.41E-08			
P25705	ATP synthase subunit alpha, mitochondrial	1.08E-06	6.711E-06	1.457E-06	6.3E-06
P27348	14-3-3 protein theta		1.024E-07		
P27635	60S ribosomal protein L10	5.1E-07	4.012E-07	2.432E-07	
P27694	Replication protein A 70 kDa DNA-binding subunit	2.18E-07	2.259E-06	2.799E-08	2.93E-06
P27816	Microtubule-associated protein 4	6.03E-09	2.516E-08		
P27824	Calnexin	5.21E-08	1.271E-07		
P28288	ATP-binding cassette sub-family D member 3		4.642E-07		
P30153	Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha	5.7E-08			
P30876	DNA-directed RNA polymerase II subunit RPB2	4.85E-08		2.319E-08	
P31040	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial	9.39E-08		1.288E-07	
P31350	Ribonucleoside-diphosphate reductase subunit M2	9.67E-08	1.367E-06		
P31483	Nucleolysin TIA-1 isoform p40		6.545E-07		
P35232	Prohibitin	6.22E-07	2.736E-06	4.122E-07	
P35637	RNA-binding protein FUS	2.43E-07	1.541E-06		1.45E-06
P36507	Dual specificity mitogen-activated protein kinase kinase 2	1.17E-07	2.635E-07	4.309E-08	
P36542	ATP synthase subunit gamma, mitochondrial	4.82E-07	2.393E-07	2.332E-07	1.34E-06
P36873	Serine/threonine-protein phosphatase PP1-gamma catalytic subunit	2.05E-07	1.714E-06	7.23E-08	1.58E-06
P36957	2-oxoglutarate dehydrogenase complex component E2	1.09E-07	1.646E-06	1.604E-07	1.24E-07
P37108	Signal recognition particle 14 kDa protein	2.01E-07	5.42E-06		2.93E-06
P39019	40S ribosomal protein S19	4.01E-06	6.963E-06	1.256E-06	3.55E-06
P41252	Isoleucine--tRNA ligase, cytoplasmic		6.934E-09		
P42167	Lamina-associated polypeptide 2, isoforms beta/gamma	1.41E-06	0.0000112	6.069E-08	7.23E-06
P43694	Transcription factor GATA-4	1.33E-08	1.063E-07		
P45973	Chromobox protein homolog 5		2.91E-07		
P46060	Ran GTPase-activating protein 1		1.075E-07		
P46776	60S ribosomal protein L27a	2.76E-07	2.963E-07	1.846E-07	9.2E-07
P46777	60S ribosomal protein L5	1.33E-07	7.037E-06	3.549E-09	6.22E-06
P46782	40S ribosomal protein S5	2.04E-06	6.638E-06	3.537E-07	9.86E-07
P46783	40S ribosomal protein S10	1.7E-06	4.806E-06	4.198E-06	4.67E-06
P48047	ATP synthase subunit O, mitochondrial	4.03E-07	2.656E-06	1.844E-07	6.96E-07
P49327	Fatty acid synthase	3.93E-09			

P49756	RNA-binding protein 25	2.11E-08	8.835E-07	6.296E-08	2.65E-07
P49790	Nuclear pore complex protein Nup153	1.15E-08			
P50990	T-complex protein 1 subunit theta	9.29E-07	3.48E-08	1.104E-06	
P51532	Transcription activator BRG1	2.04E-08	9.361E-08		1.85E-07
P51659	Peroxisomal multifunctional enzyme type 2	4.1E-08	2.872E-07		
P52701	DNA mismatch repair protein Msh6	5.67E-08	1.329E-07	5.837E-08	
P52907	F-actin-capping protein subunit alpha-1	1.07E-07	8.98E-08	4.626E-08	
P52926	High mobility group protein HMGI-C	1.65E-08	1.573E-07		
P54886	Delta-1-pyrroline-5-carboxylate synthase	4.39E-07	1.084E-07	3.333E-07	
P55209	Nucleosome assembly protein 1-like 1	1.83E-07	2.191E-08		
P55265	Double-stranded RNA-specific adenosine deaminase	1.32E-08	1.18E-07		1.73E-07
P55316	Forkhead box protein G1		6.953E-08		
P55795	Heterogeneous nuclear ribonucleoprotein H2	7.36E-09	2.861E-07		
P56270	Myc-associated zinc finger protein		1.402E-07		
P57740	Nuclear pore complex protein Nup107	2.52E-08		4.199E-08	
P60866	40S ribosomal protein S20	2.14E-06	5.186E-06	5.676E-07	4.55E-06
P60891	Ribose-phosphate pyrophosphokinase 1	4.75E-08	1.518E-07	9.088E-08	
P61081	NEDD8-conjugating enzyme Ubc12	3.34E-08	9.183E-07		
P61254	60S ribosomal protein L26	1.07E-07	1.499E-06	3.495E-07	2.81E-06
P61964	WD repeat-containing protein 5	2.08E-08			
P61978	Heterogeneous nuclear ribonucleoprotein K	1.73E-06	2.494E-06	4.042E-07	3.5E-06
P62136	Serine/threonine-protein phosphatase PP1-alpha catalytic subunit	6.68E-08	2.666E-06	1.375E-09	4.17E-07
P62195	26S protease regulatory subunit 8	1.12E-07	2.071E-08		
P62258	14-3-3 protein epsilon	2.86E-07	6.632E-08		
P62269	40S ribosomal protein S18	2.66E-06	8.364E-06	1.591E-06	8.11E-07
P62304	Small nuclear ribonucleoprotein E	1.57E-07	3.008E-07	2.167E-07	2.26E-06
P62306	Small nuclear ribonucleoprotein F	3.29E-07	2.511E-07		
P62316	Small nuclear ribonucleoprotein Sm D2	1.74E-06	1.464E-05	3.655E-07	7.15E-06
P62318	Small nuclear ribonucleoprotein Sm D3	2E-07		1.855E-07	3.98E-06
P62424	60S ribosomal protein L7a		2.878E-07		
P62750	60S ribosomal protein L23a	4.5E-07	3.194E-06	3.362E-07	3.7E-06
P62826	GTP-binding nuclear protein Ran	8.72E-07	5.695E-06	5.849E-08	7.1E-06
P62851	40S ribosomal protein S25	1.44E-06	2.982E-06	1.273E-06	2.19E-06
P62857	40S ribosomal protein S28	4.04E-07		9.335E-07	
P62888	60S ribosomal protein L30	6.12E-08	0.0000047	1.527E-08	1.18E-06
P62979	Ubiquitin-40S ribosomal protein S27a	1.13E-07	3.086E-07	4.594E-06	1.24E-06
P63104	14-3-3 protein zeta/delta	1.58E-08		8.154E-08	
P78371	T-complex protein 1 subunit beta	8.53E-07	7.572E-07	7.676E-07	1.29E-07
P78549	Endonuclease III-like protein 1		2.707E-07		

Q00059	Transcription factor A, mitochondrial	2.36E-07	1.339E-06		8.62E-07
Q00587	Cdc42 effector protein 1	1.55E-07		7.523E-08	
Q01081	Splicing factor U2AF 35 kDa subunit	2.69E-07	3.155E-06		2.12E-06
Q01105	Protein SET	3.48E-07	2.516E-06	3.531E-07	1.38E-06
Q01130	Serine/arginine-rich splicing factor 2	2.27E-08	1.465E-06		
Q02218	2-oxoglutarate dehydrogenase, mitochondrial	2.41E-08	2.202E-08		
Q02447	Transcription factor Sp3		1.087E-07		
Q04837	Single-stranded DNA-binding protein, mitochondrial	5.55E-07	1.204E-06		
Q04917	14-3-3 protein eta	1.6E-07			
Q05D32	CTD small phosphatase-like protein 2		1.357E-07		
Q07021	Complement component 1 Q subcomponent-binding protein, mitochondrial	1.15E-06	2.33E-06	3.884E-07	1.46E-06
Q07065	Cytoskeleton-associated protein 4	8.93E-08	6.701E-08		
Q08170	Serine/arginine-rich splicing factor 4	3.69E-08	5.625E-07		2.14E-07
Q09028	Histone-binding protein RBBP4	2.11E-08	3.186E-07		5.31E-07
Q12788	Transducin beta-like protein 3		6.979E-08		
Q12874	Splicing factor 3A subunit 3	5.79E-08	2.828E-07		
Q13011	Delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase, mitochondrial	1.78E-08	8.838E-07		
Q13112	Chromatin assembly factor 1 subunit B	2.5E-08	1.093E-07		5.89E-07
Q13148	TAR DNA-binding protein 43	5.25E-07	4.395E-06	8.169E-08	3.52E-06
Q13185	Chromobox protein homolog 3	1.69E-08	2.557E-07		
Q13242	Serine/arginine-rich splicing factor 9	3.53E-07	2.594E-06		4.87E-07
Q13243	Serine/arginine-rich splicing factor 5	3.13E-08	1.841E-07		
Q13247	Serine/arginine-rich splicing factor 6	1.63E-07	3.412E-06		2.08E-06
Q13257	Mitotic spindle assembly checkpoint protein MAD2A	3.46E-07	4.126E-07	4.155E-07	
Q13330	Metastasis-associated protein MTA1	2.3E-08	1.278E-07		
Q13415	Origin recognition complex subunit 1	2.41E-08	3.287E-07		2.67E-07
Q13416	Origin recognition complex subunit 2	5.18E-08	1.185E-06		1.23E-06
Q13435	Splicing factor 3B subunit 2	1.36E-08	5.607E-08		
Q13595	Transformer-2 protein homolog alpha	9.44E-09	5.843E-07		6.72E-07
Q13617	Cullin-2	2.21E-08	1.302E-07		
Q13620	Cullin-4B	7.14E-08	1.669E-07		
Q13885	Tubulin beta-2A chain	2.9E-07		6.402E-08	
Q14011	Cold-inducible RNA-binding protein	1.8E-07	7.726E-07		7.71E-07
Q14151	Scaffold attachment factor B2	2.31E-08	5.093E-07	2.165E-08	3.6E-07
Q14157	Ubiquitin-associated protein 2-like	9.74E-08	5.312E-08	6.709E-09	
Q14204	Cytoplasmic dynein 1 heavy chain 1	8.65E-09	5.191E-08		
Q14444	Caprin-1		1.645E-07		
Q14498	RNA-binding protein 39	1.59E-07	5.575E-07	1.036E-07	4.36E-07
Q14669	E3 ubiquitin-protein ligase TRIP12		2.235E-08		

Q14677	Clathrin interactor 1	4.11E-08		4.848E-08	
Q14739	Lamin-B receptor	1.49E-08			
Q14807	Kinesin-like protein KIF22		2.933E-07		
Q14839	Chromodomain-helicase-DNA-binding protein 4		3.581E-08		
Q14978	Nucleolar and coiled-body phosphoprotein 1	5.27E-07	5.996E-06	1.313E-07	3.34E-06
Q15007	Pre-mRNA-splicing regulator WTAP	2.63E-08	1.275E-07		
Q15029	116 kDa U5 small nuclear ribonucleoprotein component	1.92E-08	2.557E-07	2.285E-08	1.15E-08
Q15365	Poly(rC)-binding protein 1	2.38E-07	1.004E-06	1.768E-07	8E-07
Q15459	Splicing factor 3A subunit 1	2.26E-08	1.587E-07	2.577E-08	
Q16630	Cleavage and polyadenylation specificity factor subunit 6		1.054E-07		
Q16775	Hydroxyacylglutathione hydrolase, mitochondrial	1.75E-07	3.135E-06	1.273E-07	4.69E-07
Q27J81	Inverted formin-2	1.83E-08	7.853E-08		
Q2NKX8	DNA excision repair protein ERCC-6-like	2.18E-08			
Q2TAY7	WD40 repeat-containing protein SMU1		1.14E-07		4.65E-07
Q3ZCQ8	Mitochondrial import inner membrane translocase subunit TIM50	2.98E-07	1.968E-08	1.503E-07	
Q53GQ0	Estradiol 17-beta-dehydrogenase 12	1.05E-08	2.4E-07		
Q53GS9	U4/U6.U5 tri-snRNP-associated protein 2	9.86E-09	5.566E-07		5.36E-07
Q562R1	Beta-actin-like protein 2		3.391E-07		
Q5JTV8	Torsin-1A-interacting protein 1	7.07E-09	1.712E-08		
Q5SW79	Centrosomal protein of 170 kDa	1.82E-08		1.677E-08	
Q5T4S7	E3 ubiquitin-protein ligase UBR4	7.53E-09	1.806E-08		
Q5T8P6	RNA-binding protein 26		5.624E-08		
Q5UIP0	Telomere-associated protein RIF1	7.99E-08	6.731E-07		7.5E-07
Q5W0B1	RING finger protein 219	5.89E-07		4.759E-07	
Q6P1J9	Parafibromin	2.08E-08	3.689E-08		
Q6P2Q9	Pre-mRNA-processing-splicing factor 8	7.76E-10	9.625E-08		
Q6PJT7	Zinc finger CCCH domain-containing protein 14	1.12E-07	6.978E-07		
Q6R327	Rapamycin-insensitive companion of mTOR	3.57E-08		1.169E-08	
Q6YN16	Hydroxysteroid dehydrogenase-like protein 2	5.01E-08	1.545E-07	1.088E-07	
Q7Z4H7	HAUS augmin-like complex subunit 6	9.07E-08		1.667E-07	
Q7Z739	YTH domain family protein 3		4.819E-08	3.372E-08	
Q86U42	Polyadenylate-binding protein 2	8.07E-07	1.201E-05	1.271E-06	1.87E-05
Q86UA1	Pre-mRNA-processing factor 39	1.93E-08	6.753E-08		
Q86UY6	N-alpha-acetyltransferase 40		4.835E-07		
Q86V15	Zinc finger protein castor homolog 1	1.66E-09	2.931E-08		
Q86YP4	Transcriptional repressor p66-alpha		1.223E-07		
Q8IWS0	PHD finger protein 6	1.03E-08	6.008E-08		
Q8N1F7	Nuclear pore complex protein Nup93	7.09E-08	5.778E-07	7.658E-08	1.96E-07
Q8N5D0	WD and tetratricopeptide repeats protein 1	2.86E-08	3.593E-08	3.464E-08	

Q8NC51	Plasminogen activator inhibitor 1 RNA-binding protein	5.26E-08	7.955E-08	5.39E-08	2.94E-07
Q8NCA5	Protein FAM98A		3.672E-07		1.05E-06
Q8NDX6	Zinc finger protein 740		9.611E-07		
Q8NF91	Nesprin-1		5.408E-09		
Q8NFH5	Nucleoporin NUP53	7.17E-08	4.111E-08		
Q8WV44	E3 ubiquitin-protein ligase TRIM41	4.76E-08		3.972E-08	
Q8WWY3	U4/U6 small nuclear ribonucleoprotein Prp31		7.305E-08		
Q8WXF1	Paraspeckle component 1		5.068E-08		
Q8WXI9	Transcriptional repressor p66-beta		1.867E-07		
Q92552	28S ribosomal protein S27, mitochondrial	2.37E-08			
Q92598	Heat shock protein 105 kDa	2.81E-08	2.348E-08		
Q92621	Nuclear pore complex protein Nup205		1.499E-08		
Q92769	Histone deacetylase 2		3.859E-07		
Q92785	Zinc finger protein ubi-d4		3.216E-07		
Q92879	CUGBP Elav-like family member 1	3.68E-08	1.928E-07		1.06E-06
Q92922	SWI/SNF complex subunit SMARCC1		1.266E-07		1.04E-07
Q92945	Far upstream element-binding protein 2	5.47E-08			
Q92979	Ribosomal RNA small subunit methyltransferase NEP1	2.96E-07	6.958E-06		9.44E-06
Q93008	Probable ubiquitin carboxyl-terminal hydrolase FAF-X	5.86E-08		3.949E-08	
Q93034	Cullin-5	1.35E-07	1.479E-06	2.37E-07	6.62E-07
Q96AG4	Leucine-rich repeat-containing protein 59	6.21E-08	4.163E-08		
Q96C36	Pyrroline-5-carboxylate reductase 2	2.31E-08	2.029E-07		
Q96DF8	Protein DGCR14	7.72E-08			
Q96EB6	NAD-dependent protein deacetylase sirtuin-1	1.34E-08			
Q96GA3	Protein LTV1 homolog	5.26E-09			
Q96GX5	Serine/threonine-protein kinase greatwall	1.13E-08			
Q96P16	Regulation of nuclear pre-mRNA domain-containing protein 1A	1.71E-08	1.498E-07		
Q96S55	ATPase WRNIP1	2.09E-08		3.265E-08	
Q96ST2	Protein IWS1 homolog	6.34E-08	4.074E-07		9.32E-07
Q96T37	Putative RNA-binding protein 15	1.29E-08	1.82E-07		1.35E-07
Q96T58	Msx2-interacting protein		1.884E-08		
Q96T88	E3 ubiquitin-protein ligase UHRF1	2.05E-08	7.668E-07		3.02E-07
Q99459	Cell division cycle 5-like protein	1.8E-09	2.631E-07		
Q99615	DnaJ homolog subfamily C member 7	1.53E-07		5.882E-08	
Q99986	Serine/threonine-protein kinase VRK1		5.031E-07		9.98E-07
Q9BQ67	Glutamate-rich WD repeat-containing protein 1	1.06E-08	3.194E-07		
Q9BQG0	Myb-binding protein 1A	2.85E-09	1.751E-08		1.87E-07
Q9BSJ8	Extended synaptotagmin-1	3.6E-09			
Q9BUF5	Tubulin beta-6 chain	6.63E-07	9.413E-08	4.983E-07	

Q9BUJ2	Heterogeneous nuclear ribonucleoprotein U-like protein 1	5.35E-08	8.987E-08	1.339E-08	
Q9BUQ8	Probable ATP-dependent RNA helicase DDX23	3.51E-08	9.544E-09		2.35E-07
Q9BW61	DET1- and DDB1-associated protein 1	2.91E-07			
Q9BWF3	RNA-binding protein 4	1.87E-08	8.548E-07		1.5E-07
Q9BXP5	Serrate RNA effector molecule homolog	9.25E-08	1.315E-07		
Q9BXW9	Fanconi anemia group D2 protein	6.64E-09			
Q9BZC1	CUGBP Elav-like family member 4		4.329E-07		
Q9BZE1	39S ribosomal protein L37, mitochondrial	4.25E-08	8.13E-08		
Q9GZZ9	Ubiquitin-like modifier-activating enzyme 5	1.06E-07		3.488E-08	
Q9H078	Caseinolytic peptidase B protein homolog	3.81E-07	2.696E-07	2.951E-07	
Q9H0A0	N-acetyltransferase 10	3.58E-09	1.492E-08		
Q9H307	Pinin	3.33E-08	4.03E-07		
Q9H3P2	Negative elongation factor A		9.331E-08		
Q9H9A6	Leucine-rich repeat-containing protein 40	4.97E-07		7.5E-07	
Q9HCN4	GPN-loop GTPase 1	1.42E-07	9.577E-08		
Q9NQ29	Putative RNA-binding protein Luc7-like 1	5.04E-08	9.049E-08		
Q9NRG9	Aladin		1.363E-07		
Q9NRZ9	Lymphoid-specific helicase	6.87E-08			
Q9NS69	Mitochondrial import receptor subunit TOM22 homolog	2.75E-07			
Q9NSI2	Protein FAM207A	3.74E-08	9.238E-07		
Q9NTI5	Sister chromatid cohesion protein PDS5 homolog B	8.85E-09	2.49E-08		
Q9NUU7	ATP-dependent RNA helicase DDX19A	5.55E-08	1.681E-07		
Q9NVH2	Integrator complex subunit 7		2.685E-08		
Q9NVI7	ATPase family AAA domain-containing protein 3A	1.37E-07	3.034E-07	1.005E-07	
Q9NXW2	DnaJ homolog subfamily B member 12	8.88E-08			
Q9NYF8	Bcl-2-associated transcription factor 1	1.88E-08	1.996E-07		
Q9NZB2	Constitutive coactivator of PPAR-gamma-like protein 1	6.74E-09	6.685E-08		
Q9P035	Very-long-chain (3R)-3-hydroxyacyl-[acyl-carrier protein] dehydratase 3	8.52E-09	2.894E-07		
Q9P2D1	Chromodomain-helicase-DNA-binding protein 7	1.3E-09	4.677E-08		
Q9UBD5	Origin recognition complex subunit 3	1.47E-08	9.177E-07		1.01E-06
Q9UBU9	Nuclear RNA export factor 1	3.79E-08	2.26E-07		
Q9UFC0	Leucine-rich repeat and WD repeat-containing protein 1	1.92E-08	1.115E-06		4.62E-07
Q9UG63	ATP-binding cassette sub-family F member 2	3.51E-08			
Q9UHX1	Poly(U)-binding-splicing factor PUF60	5.42E-08	8.64E-07	1.774E-08	3.43E-07
Q9UJV9	Probable ATP-dependent RNA helicase DDX41	1.42E-08	6.601E-08		
Q9UJZ1	Stomatin-like protein 2, mitochondrial	9.13E-08	1.27E-07		
Q9UKA9	Polypyrimidine tract-binding protein 2	2.07E-08	3.814E-08		
Q9UL15	BAG family molecular chaperone regulator 5	3.02E-08			
Q9ULT8	E3 ubiquitin-protein ligase HECTD1	6.44E-09			

Q9ULX6	A-kinase anchor protein 8-like	3.78E-07		2.874E-07	
Q9UMS4	Pre-mRNA-processing factor 19	1.21E-07	2.575E-06	8.506E-08	2.66E-06
Q9UNF1	Melanoma-associated antigen D2	2.83E-08			
Q9UPN7	Serine/threonine-protein phosphatase 6 regulatory subunit 1	1.21E-07		5.194E-08	
Q9UPY3	Endoribonuclease Dicer	1.08E-08			
Q9UQ13	Leucine-rich repeat protein SHOC-2	4.03E-08			
Q9UQ35	Serine/arginine repetitive matrix protein 2		3.949E-08		
Q9UQR1	Zinc finger protein 148		1.171E-07		
Q9Y230	RuvB-like 2	5.38E-07	6.788E-07	3.426E-07	7.37E-07
Q9Y265	RuvB-like 1	6.88E-07	1.462E-06	4.84E-07	1.27E-06
Q9Y277	Voltage-dependent anion-selective channel protein 3	3.27E-08	5.001E-07		
Q9Y2K7	Lysine-specific demethylase 2A		1.039E-07		1.52E-07
Q9Y2W1	Thyroid hormone receptor-associated protein 3	2.68E-08	1.829E-07		
Q9Y333	U6 snRNA-associated Sm-like protein LSm2	3.23E-07	2.912E-06		
Q9Y383	Putative RNA-binding protein Luc7-like 2	3.05E-08	1.436E-07		4.97E-07
Q9Y3F4	Serine-threonine kinase receptor-associated protein	1.91E-08	3.828E-07	6.745E-08	
Q9Y3I0	tRNA-splicing ligase RtcB homolog	2.47E-08	8.477E-08		
Q9Y3Z3	Deoxynucleoside triphosphate triphosphohydrolase SAMHD1	6.79E-08			
Q9Y5M8	Signal recognition particle receptor subunit beta	8.6E-08	1.696E-07		
Q9Y6G9	Cytoplasmic dynein 1 light intermediate chain 1	1.42E-08	1.147E-07		
Q9Y6K1	DNA (cytosine-5)-methyltransferase 3A		6.196E-08		
Q9Y6V7	Probable ATP-dependent RNA helicase DDX49		6.272E-08		
Q9Y6W5	Wiskott-Aldrich syndrome protein family member 2		2.176E-07		
A8MQB8	Fragile X mental retardation protein 1		8.231E-08		
E9PAU2	Ribonucleoprotein PTB-binding 1	3.24E-08	1.076E-07		
E9PCY5	DNA topoisomerase 2 (Fragment)	1.11E-06	0.000013	4.87E-07	1.2E-05
H3BUF6	Ataxin-2-like protein	1.86E-08	9.027E-08		
M0QZM1	Heterogeneous nuclear ribonucleoprotein M (Fragment)		6.325E-08		
Q59FY4	Acetyl-CoA carboxylase 1 (Fragment)		2.65E-08		
Q5T6W1	Heterogeneous nuclear ribonucleoprotein K		8.042E-08		1.49E-07
S4R3J4	Heterogeneous nuclear ribonucleoprotein R		1.708E-08		
O75694	Nuclear pore complex protein Nup155			4.105E-09	5.23E-08
O95433	Activator of 90 kDa heat shock protein ATPase homolog 1			4.934E-07	
P04908	Histone H2A type 1-B/E				1.8E-06
P05089	Arginase-1			3.825E-08	3.08E-07
P05109	Protein S100-A8			8.004E-08	8.55E-06
P06702	Protein S100-A9				7.4E-06
P06733	Alpha-enolase			4.452E-08	
P0CG38	POTE ankyrin domain family member I			4.781E-08	2.56E-07

P14618	Pyruvate kinase PKM	1.968E-08	
P18621	60S ribosomal protein L17	2.61E-07	
P30837	Aldehyde dehydrogenase X, mitochondrial	5.498E-08	
P31153	S-adenosylmethionine synthase isoform type-2	5.197E-09	
P31944	Caspase-14		5.74E-07
P42766	60S ribosomal protein L35	2.87E-07	9.44E-07
P43246	DNA mismatch repair protein Msh2	1.154E-08	
P51570	Galactokinase	4.288E-08	
P52732	Kinesin-like protein KIF11	1.346E-08	
P60842	Eukaryotic initiation factor 4A-I	1.258E-06	1.45E-07
P63151	Serine/threonine-protein phosphatase 2A 55 kDa regulatory subunit B alpha	4.484E-09	
P78347	General transcription factor II-I	2.811E-08	
P83731	60S ribosomal protein L24	1.323E-07	
Q01469	Fatty acid-binding protein, epidermal		6.07E-07
Q02413	Desmoglein-1	2.023E-08	4.43E-07
Q06830	Peroxiredoxin-1	5.369E-08	3.13E-07
Q12931	Heat shock protein 75 kDa, mitochondrial	8.542E-09	
Q13576	Ras GTPase-activating-like protein IQGAP2	5.185E-09	
Q15517	Corneodesmosin	5.758E-08	1.95E-07
Q15814	Tubulin-specific chaperone C	3.814E-08	
Q16891	Mitochondrial inner membrane protein	2.285E-08	
Q5JTW2	Centrosomal protein of 78 kDa	9.066E-09	
Q6DN90	IQ motif and SEC7 domain-containing protein 1	2.797E-08	
Q6PEY2	Tubulin alpha-3E chain	5.639E-08	
Q6UWP8	Suprabasin	6.112E-09	2.22E-07
Q71UM5	40S ribosomal protein S27-like	4.192E-07	
Q86V81	THO complex subunit 4		7.19E-07
Q8N680	Zinc finger and BTB domain-containing protein 2		3.98E-07
Q8WUM0	Nuclear pore complex protein Nup133	2.792E-08	
Q96EP5	DAZ-associated protein 1		8.34E-07
Q96F07	Cytoplasmic FMR1-interacting protein 2	4.105E-08	
Q96GX2	Putative ataxin-7-like protein 3B	2.295E-07	
Q96HS1	Serine/threonine-protein phosphatase PGAM5, mitochondrial	9.367E-08	
Q96JG8	Melanoma-associated antigen D4	8.785E-08	
Q96P63	Serpin B12	5.153E-09	2.87E-07
Q99707	Methionine synthase	6.509E-09	
Q9BYW2	Histone-lysine N-methyltransferase SETD2	4.887E-09	
Q9H936	Mitochondrial glutamate carrier 1	9.311E-08	
Q9NY74	Ewing's tumor-associated antigen 1	9.502E-09	

Q9UKA4	A-kinase anchor protein 11	7.25E-09
Q9UQE7	Structural maintenance of chromosomes protein 3	1.545E-09
Q9Y2X9	Zinc finger protein 281	3.905E-08

Supplemental Table 2. Identity and relative SINQ scores of proteins that co-purified with PB2-Strep

Protein SINQ scores were normalised and non-specific binding proteins were removed (see Materials and Methods for details). Identified protein SINQ scores were normalised to PB2-Strep SINQ score.

^aUniProt ID of human protein or viral protein name.

^bShort gene name for each identified protein.

^cMean SINQ score of each protein (missing data did not contribute to the mean).

^dSD ($N > 2$) or half-range ($N = 2$).

^eNumber of experiments in which the protein was identified.

Protein ^a	Short Name ^b	Description	Mean SINQ Score ^c	(+/-) ^d	N ^e
NP	NP	Influenza A/WSN/33 NP	8.076611961	2.183442	3
PB2-Strep	PB2-Strep	Influenza A/WSN/33 PB2-Strep	1		3
PB1	PB1	Influenza A/WSN/33 PB1	0.786299188	0.033873	3
PA	PA	Influenza A/WSN/33 PA	0.596522858	0.103631	3
P11142	HSPA8	Heat shock cognate 71 kDa protein	0.091249799	0.003725	3
P07437	TUBB	Tubulin beta chain	0.034142773	0.0302	3
P62987	UBA52	Ubiquitin-60S ribosomal protein L40	0.032312034	0.005382	2
P62979	RPS27A	Ubiquitin-40S ribosomal protein S27a	0.019067003	0.018313	2
Q14257	RCN2	Reticulocalbin-2	0.015968216	0.013516	3
O00410	IPO5	Importin-5	0.015526085	0.000637	3
P10809	HSPD1	60 kDa heat shock protein, mitochondrial	0.011939713	0.010298	3
O95816	BAG2	BAG family molecular chaperone regulator 2	0.010648861	0.003614	2
P60842	EIF4A1	Eukaryotic initiation factor 4A	0.010235964		1
P68371	TUBB4B	Tubulin beta-4B chain	0.010159805	0.005726	3
O60884	DNAJA2	DnaJ homolog subfamily A member 2	0.009808361	0.008133	3
P50402	EMD	Emerin	0.009800935	0.007514	3
P31689	DNAJA1	DnaJ homolog subfamily A member 1	0.008964199	0.005032	3
O00743	PPP6C	Serine/threonine-protein phosphatase 6 catalytic subunit	0.007929034	0.002908	3
P12236	SLC25A6	ADP/ATP translocase 3	0.007816372	0.012091	3
Q99832	CCT7	T-complex protein 1 subunit eta	0.007711209	0.000724	3
P50990	CCT8	T-complex protein 1 subunit theta	0.007604392	0.001379	2
P05455	SSB	Lupus La protein	0.007476909	0.000948	2
Q16531	DDB1	DNA damage-binding protein 1	0.006396893	0.000712	3
O00165	HAX1	HCLS1-associated protein X-1	0.006218454	0.005249	2
P78371	CCT2	T-complex protein 1 subunit beta	0.005982113	0.000264	2
O00505	KPNA3	Importin subunit alpha-4	0.00569974	0.000459	3

O75190	DNAJB6	DnaJ homolog subfamily B member 6	0.005574937	0.005329	3
P50991	CCT4	T-complex protein 1 subunit delta	0.005464235	0.004143	3
Q9Y5V3	MAGED1	Melanoma-associated antigen D1	0.005157536	0.001266	3
P62857	RPS28	40S ribosomal protein S28	0.005152026	0.002444	2
Q9H9A6	LRRC40	Leucine-rich repeat-containing protein 40	0.004716811	0.001386	2
P10644	PRKAR1A	cAMP-dependent protein kinase type I-alpha regulatory subunit	0.004710566	0.000169	2
P49368	CCT3	T-complex protein 1 subunit gamma	0.004568045	0.002795	3
Q00325	SLC25A3	Phosphate carrier protein, mitochondrial	0.004522392	0.00326	2
P17987	CCT1	T-complex protein 1 subunit alpha	0.004301543	0.001441	3
Q9BUF5	TUBB6	Tubulin beta-6 chain	0.004248102	0.000194	2
O00629	KPNA4	Importin subunit alpha-3	0.004101055	7.49E-05	3
Q5H9R7	PPP6R3	Serine/threonine-protein phosphatase 6 regulatory subunit 3	0.004039222	0.001902	3
O95433	AHSA1	Activator of 90 kDa heat shock protein ATPase homolog 1	0.004014646		1
Q5W0B1	RNF219	RING finger protein 219	0.003909317	3.71E-05	2
P40227	CCT6A	T-complex protein 1 subunit zeta	0.003627412	0.001935	3
Q71UM5	RPS27L	40S ribosomal protein S27-like	0.003410903		1
Q9Y4B6	VPRBP	Protein VPRBP	0.00296147	0.001444	3
P48643	CCT5	T-complex protein 1 subunit epsilon	0.002952142	0.001669	3
Q9BVA1	TUBB2B	Tubulin beta-2B chain	0.002841552	0.002934	3
P54886	ALDH18A1	Delta-1-pyrroline-5-carboxylate synthase	0.00282716	0.000115	2
P49411	TUFM	Elongation factor Tu, mitochondrial	0.002818283	0.003018	3
Q5TAQ9	DCAF8	DDB1- and CUL4-associated factor 8	0.002624835	0.00183	3
NA	NA	Influenza A/WSN/33 NA	0.002469202	0.001605	3
Q96D09	GPRASP2	G-protein coupled receptor-associated sorting protein 2	0.002457759	0.001898	3
P23284	PPIB	Peptidyl-prolyl cis-trans isomerase B	0.002449062		1
Q9ULX6	AKAP8L	A-kinase anchor protein 8-like	0.002435664	9.72E-05	2
O43164	PJA2	E3 ubiquitin-protein ligase Praja-2	0.002427387	0.001131	3
P06730	EIF4E	Eukaryotic translation initiation factor 4E	0.002376757	0.000544	2
O60684	KPNA6	Importin subunit alpha-7	0.002322559	0.001888	3
O95831	AIFM1	Apoptosis-inducing factor 1, mitochondrial	0.00226055	0.001237	3
P51571	SSR4	Translocon-associated protein subunit delta	0.002180429	0.000655	3
O15355	PPM1G	Protein phosphatase 1G	0.00214739	0.000377	2
P13674	P4HA1	Prolyl 4-hydroxylase subunit alpha-1	0.002131323	0.000162	2
P18621	RPL17	60S ribosomal protein L17	0.002123678		1
O14654	IRS4	Insulin receptor substrate 4	0.002007418	0.000821	3
Q9BW61	DDA1	DET1- and DDB1-associated protein 1	0.001947721		1
P62258	YWHAE	14-3-3 protein epsilon	0.00191622		1
Q9Y5A9	YTHDF2	YTH domain family protein 2	0.001873114	0.001641	3
Q96GX2	ATXN7L3B	Putative ataxin-7-like protein 3B	0.001867372		1

A6NKZ8	TBB	Putative tubulin beta chain-like protein ENSP00000290377	0.001852663	1.87E-05	2
Q9NS69	TOMM22	Mitochondrial import receptor subunit TOM22 homolog	0.001845174		1
Q9BQE3	TUBA1C	Tubulin alpha-1C chain	0.00184362	0.000397	3
Q3ZCQ8	TIMM50	Mitochondrial import inner membrane translocase subunit TIM50	0.001610467	0.000388	2
P10155	TROVE2	60 kDa SS-A/Ro ribonucleoprotein	0.001602436	0.001232	3
Q96HN2	AHCYL2	Putative adenosylhomocysteinase 3	0.001575258	0.00104	3
Q12899	TRIM26	Tripartite motif-containing protein 26	0.001550826		1
Q96EY1	DNAJA3	DnaJ homolog subfamily A member 3, mitochondrial	0.001451599	0.000902	3
Q9UJS0	SLC25A13	Calcium-binding mitochondrial carrier protein Aralar2	0.001335348	0.001032	3
Q9UNK9	ANGEL1	Protein angel homolog 1	0.001322951	0.00084	3
P07900	HSP90AA1	Heat shock protein HSP 90-alpha	0.001276455	0.000488	2
P04350	TUBB4A	Tubulin beta-4A chain	0.001266686	8.12E-05	2
Q13885	TUBB2A	Tubulin beta-2A chain	0.001232641	0.000712	2
P55209	NAP1L1	Nucleosome assembly protein 1-like 1	0.001223861		1
Q9BQ70	TCF25	Transcription factor 25	0.001191177	0.001451	3
P52294	KPNA1	Importin subunit alpha-5	0.001121115	0.000406	3
P83731	RPL24	60S ribosomal protein L24	0.001076485		1
Q04917	YWHAH	14-3-3 protein eta	0.001073056		1
Q7Z4H7	HAUS6	HAUS augmin-like complex subunit 6	0.000982249	0.000374	2
P31040	SDHA	Succinate dehydrogenase flavoprotein subunit, mitochondrial	0.000838648	0.000209	2
Q00587	CDC42EP1	Cdc42 effector protein 1	0.000824493	0.000212	2
P00403	MT-CO2	Cytochrome c oxidase subunit 2	0.000781501		1
P22694	PRKACB	cAMP-dependent protein kinase catalytic subunit beta	0.00077855	0.001254	3
Q96HS1	PGAM5	Serine/threonine-protein phosphatase PGAM5, mitochondrial	0.000762164		1
Q9H936	SLC25A22	Mitochondrial glutamate carrier 1	0.000757608		1
Q99615	DNAJC7	DnaJ homolog subfamily C member 7	0.00075237	0.000274	2
P62195	PSMC5	26S protease regulatory subunit 8	0.00075134		1
Q96JG8	MAGED4	Melanoma-associated antigen D4	0.000714809		1
Q9UPN7	PPP6R1	Serine/threonine-protein phosphatase 6 regulatory subunit 1	0.000617811	0.000195	2
Q7Z6Z7	HUWE1	E3 ubiquitin-protein ligase HUWE1	0.00061249	0.000273	3
Q9NXW2	DNAJB12	DnaJ homolog subfamily B member 12	0.000595241		1
P27708	CAD	CAD protein	0.000576443	0.000168	3
Q71U36	TUBA1A	Tubulin alpha-1A chain	0.000531576	0.000295	2
O43865	AHCYL1	Putative adenosylhomocysteinase 2	0.00053033	0.000398	3
Q13509	TUBB3	Tubulin beta-3 chain	0.000526449	0.00026	3
Q96DF8	DGCR14	Protein DGCR14	0.00051756		1
Q9GZZ9	UBA5	Ubiquitin-like modifier-activating enzyme 5	0.000498137	0.000214	2
Q8NFH5	NUP35	Nucleoporin NUP53	0.000480697		1
Q5JTC6	AMER1	APC membrane recruitment protein 1	0.000475951	0.000225	2

Q9NRZ9	HELLS	Lymphoid-specific helicase	0.000460389		1
Q6PEY2	TUBA3E	Tubulin alpha-3E chain	0.000458828		1
Q9Y3Z3	SAMHD1	Deoxynucleoside triphosphate triphosphohydrolase SAMHD1	0.000455027		1
P30837	ALDH1B1	Aldehyde dehydrogenase X, mitochondrial OS=Homo sapiens	0.000447356		1
O43823	AKAP8	A-kinase anchor protein 8	0.000436187	3.71E-05	2
P63104	YWHAZ	14-3-3 protein zeta/delta	0.000384816	0.000279	2
O75153	CLUH	Clustered mitochondria protein homolog	0.000384686	7.53E-05	3
P25398	RPS12	40S ribosomal protein S12	0.000384517		1
P30153	PPP2R1A	Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform	0.000381702		1
P34931	HSPA1L	Heat shock 70 kDa protein 1-like	0.000366836		1
Q92945	KHSRP	Far upstream element-binding protein 2	0.000366756		1
P06733	ENO1	Alpha-enolase OS=Homo sapiens	0.000362246		1
Q93008	USP9X	Probable ubiquitin carboxyl-terminal hydrolase FAF-X	0.000357006	3.57E-05	2
P51570	GALK1	Galactokinase	0.000348902		1
Q14677	CLINT1	Clathrin interactor 1	0.000334935	5.95E-05	2
Q96F07	CYFIP2	Cytoplasmic FMR1-interacting protein 2	0.000334011		1
Q8WV44	TRIM41	E3 ubiquitin-protein ligase TRIM41	0.000320945	2.24E-06	2
Q9Y2X9	ZNF281	Zinc finger protein 281	0.000317738		1
Q15814	TBCC	Tubulin-specific chaperone C	0.000310334		1
O95071	UBR5	E3 ubiquitin-protein ligase UBR5	0.000304627	2.06E-05	2
O43423	ANP32C	Acidic leucine-rich nuclear phosphoprotein 32 family member C	0.000301542		1
P13489	RNH1	Ribonuclease inhibitor	0.000297922		1
O15269	SPTLC1	Serine palmitoyltransferase 1	0.000284517		1
Q9UQ13	SHOC2	Leucine-rich repeat protein SHOC-2	0.000270107		1
P30876	POLR2B	DNA-directed RNA polymerase II subunit RPB2	0.000256711	6.8E-05	2
P57740	NUP107	Nuclear pore complex protein Nup107	0.000255113	8.65E-05	2
P07237	P4HB	Protein disulfide-isomerase	0.000243399	2.7E-05	2
Q9UG63	ABCF2	ATP-binding cassette sub-family F member 2	0.000235255		1
P78347	GTF2I	General transcription factor II-I	0.000228723		1
Q6DN90	IQSEC1	IQ motif and SEC7 domain-containing protein 1	0.000227583		1
Q8WUM0	NUP133	Nuclear pore complex protein Nup133	0.000227177		1
O94776	MTA2	Metastasis-associated protein MTA2	0.000212131		1
Q96S55	WRNIP1	ATPase WRNIP1 OS=Homo sapiens	0.000202972	6.27E-05	2
Q9UL15	BAG5	BAG family molecular chaperone regulator 5	0.000202413		1
Q9UNF1	MAGED2	Melanoma-associated antigen D2	0.000189611		1
Q16891	IMMT	Mitochondrial inner membrane protein	0.000185924		1
Q6R327	RICTOR	Rapamycin-insensitive companion of mTOR	0.000167164	7.2E-05	2
P25686	DNAJB2	DnaJ homolog subfamily B member 2	0.000161394		1
P14618	PKM	Pyruvate kinase PKM	0.00016013		1

Q92552	MRPS27	28S ribosomal protein S27, mitochondrial	0.000159115		1
Q2NKX8	ERCC6L	DNA excision repair protein ERCC-6-like	0.000145845		1
P61964	WDR5	WD repeat-containing protein 5	0.000139276		1
O75489	NDUFS3	NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial	0.000134182		1
O60518	RANBP6	Ran-binding protein 6	0.000132529		1
Q5SW79	CEP170	Centrosomal protein of 170 kDa	0.000129118	7.33E-06	2
O15160	POLR1C	DNA-directed RNA polymerases I and III subunit RPAC1	0.000128954		1
P52732	KIF11	Kinesin-like protein KIF11	0.00010952		1
O15027	SEC16A	Protein transport protein Sec16A	0.000100418	3.74E-05	2
Q14739	LBR	Lamin-B receptor	0.000100134		1
O75746	SLC25A12	Calcium-binding mitochondrial carrier protein Aralar1	9.84624E-05	8.01E-05	2
P43246	MSH2	DNA mismatch repair protein Msh2	9.38975E-05		1
Q96EB6	SIRT1	NAD-dependent protein deacetylase sirtuin-1	8.98794E-05		1
P49790	NUP153	Nuclear pore complex protein Nup153	7.73458E-05		1
Q9NY74	ETAA1	Ewing's tumor-associated antigen 1	7.73149E-05		1
Q96GX5	MASTL	Serine/threonine-protein kinase greatwall	7.55362E-05		1
O43837	IDH3B	Isocitrate dehydrogenase [NAD] subunit beta, mitochondrial	7.45979E-05		1
Q5JTW2	CEP78	Centrosomal protein of 78 kDa	7.37673E-05		1
Q9UPY3	DICER1	Endoribonuclease Dicer	7.25201E-05		1
Q12931	TRAP1	Heat shock protein 75 kDa, mitochondrial	6.95037E-05		1
Q9UKA4	AKAP11	A-kinase anchor protein 11	5.8991E-05		1
Q99707	MTR	Methionine synthase	5.29618E-05		1
Q9BXW9	FANCD2	Fanconi anemia group D2 protein	4.45308E-05		1
Q9ULT8	HECTD1	E3 ubiquitin-protein ligase HECTD1	4.31568E-05		1
P31153	MAT2A	S-adenosylmethionine synthase isoform type-2	4.22864E-05		1
Q13576	IQGAP2	Ras GTPase-activating-like protein IQGAP2	4.21888E-05		1
B5ME19	EIF3CL	Eukaryotic translation initiation factor 3 subunit C-like protein	4.14343E-05		1
Q9BYW2	SETD2	Histone-lysine N-methyltransferase SETD2	3.9764E-05		1
P63151	PPP2R2A	Serine/threonine-protein phosphatase 2A 55 kDa regulatory subunit B alpha isoform	3.64849E-05		1
Q96GA3	LTV1	Protein LTV1 homolog	3.52212E-05		1
P49327	FASN	Fatty acid synthase	2.63271E-05		1
Q9BSJ8	ESYT1	Extended synaptotagmin-1	2.41354E-05		1
Q9UQE7	SMC3	Structural maintenance of chromosomes protein 3	1.25712E-05		1