Supplementary Data

Identification of molecular targets of dietary grape-mediated chemoprevention of ultraviolet B skin carcinogenesis: *A comparative quantitative proteomics analysis*

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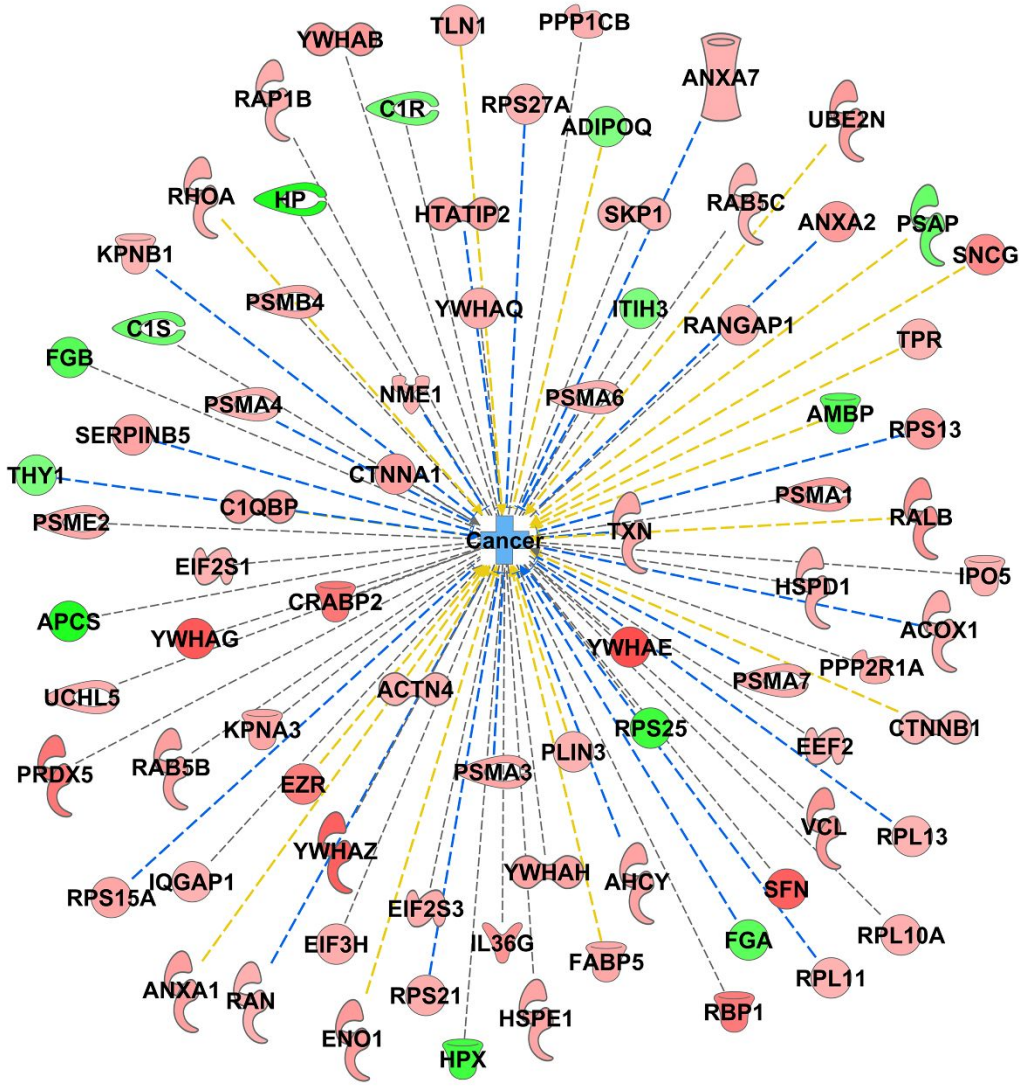

Supplementary Figure S1: Functional analysis of the secondary cut-off analysis utilizing IPA (5% GP / Ctl) show interactions of proteins which act to inhibit cancer. Indirect interactions are denoted by dashed lines. Blue lines suggest inhibition: orange suggest activation; yellow suggest inconsistent findings; grey indicates that an effect is not predicted. Fold change of protein expression 5% GP / Ctl is indicated by green=downregulated, red=upregulated. IPA, Ingenuity Pathway Analysis. GP, grape powder. Ctl, control diet.

Supplementary Table S1: Adjustment of TMT-labeled samples

Test Pool 1

TMT reagent	Normalization to minimum reporter ion	Volume to add	Digest mass added
126	1	87	24.4
127N	0.81	70.4	19.8
127C	0.58	50.1	14.1
128N	0.74	64.4	18.1
128C	0.84	73.6	20.7
129N	0.73	63.2	17.8
129C	0.9	78.6	22.1
130N	0.59	51.7	14.5
130C	0.93	81.1	22.8
131	0.98	84.8	23.8
		Total mass:	198.0 µg

Test Pool 2 semi-normalization

TMT reagent	Normalization to maximum reporter ion	Volume to add (87 µL maximum)	Digest mass added
126	0.48	87	24.4
127N	1.11	78.4	22
127C	1.65	52.7	14.8
128N	1.22	71.4	20.1
128C	0.88	87	24.4
129N	0.98	87	24.4
129C	0.93	87	24.4
130N	1	87	24.4
130C	0.9	87	24.4
131	0.65	87	24.4
		Total mass:	228.1 µg

Supplementary Table S2: HPLC gradients for a) offline fractionation and b) LC/MS/MS

a.

Time	%B
0	0
2	0
3	5
23	60
25	100
26	100
27	0
36	0

b.

Time (min)	%B	Flow (uL/min)
0	0	0.5
29	0	0.5
30	0	0.3
31	3	0.3
185	30	0.3
195	50	0.3
202	95	0.3
203	95	0.3
207	0	0.3
208	0	0.3
210	0	0.5
230	0	0.5

Supplementary Table S3: Antibodies used for immunoblotting

Gene Name	Supplier	Catalog Number	Dilution	Molecular Weight (kDa)
PSMA3	Proteintech	11887	1:500	28
PSMA6	Proteintech	11573	1:1000	28
PSMB7	Abclonal	A14771	1:1000	30
UCHL5	Proteintech	11527	1:500	38
APCS	Abclonal	A1996	1:500	30
Haptoglobin	Proteintech	16665	1:500	42
Fibrinogen alpha chain	Proteintech	20645	1:1000	60
Fibrinogen beta chain	Proteintech	16747	1:1000	50
AMBP	Abclonal	A1846	1:500	46
pERK1/2	Cell Signaling	9101	1:1000	42, 44
ERK1/2	Cell Signaling	9102	1:1000	42, 45
NF-κB	Invitrogen	510500	1:500	65
IkBα	Cell Signaling	9242	1:1000	39
B-Tubulin	Proteintech	10094	1:1000	55
β-Actin	Cell Signaling	4970, 3700	1:1000	45

Supplementary Table S5: Protein cut-off. A primary dataset (marked with X in 'FDR cut-off' section) was created by subjecting the 2,629 proteins to cut-off criteria: ≥3 unique peptides, fold change (5% GP / Control) ≥1.2, p-value ≤0.05, and q-value of ≤0.1. A secondary dataset that includes all the proteins presented in this table was created excluding the FDR-calculated q-value.

UniProt ID	Gene names	Protein names	Unique peptides	Ratio	Fold Change	FDR cut-off
Ubiquitin Proteasome						
Q9R1P4	PSMA1	Proteasome subunit alpha type-1	10	1.58	1.58	X
O70435	PSMA3	Proteasome subunit alpha type-3	14	1.43	1.43	X
Q9R1P0	PSMA4	Proteasome subunit alpha type-4	10	1.23	1.23	X
Q9QUM9	PSMA6	Proteasome subunit alpha type-6	13	1.29	1.29	X
Q9Z2U0	PSMA7	Proteasome subunit alpha type-7	9	1.35	1.35	
P99026	PSMB4	Proteasome subunit beta type-4	6	1.36	1.36	X
P70195	PSMB7	Proteasome subunit beta type-7	5	1.28	1.28	X
Q9WUP7	UCHL5	Ubiquitin carboxyl-terminal hydrolase isozyme L5	4	1.31	1.31	X
P97372	PSME2	Proteasome activator complex subunit 2	3	1.39	1.39	
P62983	RPS27A	Ubiquitin-40S ribosomal protein S27a	8	1.21	1.21	
P63038	HSPD1	60 kDa heat shock protein, mitochondrial	30	1.35	1.35	
Q64433	HSPE1	10 kDa heat shock protein, mitochondrial	7	1.44	1.44	
Q9WTX5	SKP1	S-phase kinase-associated protein 1	7	1.24	1.24	
P61089	UBE2N	Ubiquitin-conjugating enzyme E2 N	6	1.58	1.58	
Acute Phase Response						
Q07456	AMBP	Alpha-1-microglobulin	9	0.61	-1.65	
P12246	APCS	Serum amyloid P-component	8	0.30	-3.37	
Q8CG16	C1RA	Complement C1r-A subcomponent	4	0.73	-1.38	
Q8CG14	C1S1	Complement C1s-A subcomponent	4	0.70	-1.43	
E9PV24	FGA	Fibrinogen alpha chain	27	0.63	-1.58	
Q8K0E8	FGB	Fibrinogen beta chain	37	0.62	-1.63	
Q61646	HP	Haptoglobin	20	0.46	-2.17	
Q91X72	HPX	Hemopexin	33	0.54	-1.85	
Q3U0P4	IL36G	Interleukin-36 gamma	3	1.72	1.72	
Q61704	ITIH3	Inter-alpha-trypsin inhibitor heavy chain H3	15	0.80	-1.25	
Q9JIW9	RALB	Ras-related protein Ral-B	4	1.76	1.76	X
Q99JI6	RAP1B	Ras-related protein Rap-1b	5	1.32	1.32	
Q00915	RBP1	Retinol-binding protein 1	4	2.14	2.14	X
Other Proteins						
O70456	SFN	14-3-3 protein sigma	17	2.56	2.56	
Q9CQV8	YWHAB	14-3-3 protein beta/alpha	5	1.64	1.64	
P62259	YWHAE	14-3-3 protein epsilon	13	2.83	2.83	
P61982	YWHAG	14-3-3 protein gamma;14-3-3 protein gamma, N-terminally processed	4	2.68	2.68	
P68510	YWHAH	14-3-3 protein eta	5	1.46	1.46	
P68254	YWHAQ	14-3-3 protein theta	7	1.32	1.32	
P63101	YWHAZ	14-3-3 protein zeta/delta	10	2.54	2.54	
Q9D2R0	AACS	Acetoacetyl-CoA synthetase	11	1.20	1.20	
Q6P542	ABCF1	ATP-binding cassette sub-family F member 1	6	1.23	1.23	
Q91V12	ACOT7	Cytosolic acyl coenzyme A thioester hydrolase	6	1.27	1.27	
Q9R0H0	ACOX1	Peroxisomal acyl-coenzyme A oxidase 1	5	1.35	1.35	
Q9Z2N8	ACTL6A	Actin-like protein 6A	7	1.29	1.29	
P57780	ACTN4	Alpha-actinin-4	21	1.23	1.23	
P03958	ADA	Adenosine deaminase	3	1.43	1.43	
Q60994	ADIPOQ	Adiponectin	4	0.83	-1.21	
P46664	ADSS	Adenylosuccinate synthetase isozyme 2	10	1.25	1.25	
P50247	AHCY	Adenosylhomocysteinase	19	1.47	1.47	X
A2AS37	AI182371		3	0.71	-1.40	

Q9JII6	AKR1A1	Alcohol dehydrogenase [NADP(+)]	13	1.32	1.32	
P45376	AKR1B1	Aldose reductase	13	1.46	1.46	
P45377	AKR1B8	Aldose reductase-related protein 2	4	1.33	1.33	
P10518	ALAD	Delta-aminolevulinic acid dehydratase	4	1.28	1.28	
P10107	ANXA1	Annexin A1	26	1.54	1.54	
P07356	ANXA2	Annexin A2	24	1.60	1.60	
Q3TET3	ANXA3	Annexin A3	11	1.40	1.40	
P48036	ANXA5	Annexin A5	15	3.05	3.05	
Q07076	ANXA7	Annexin A7	13	1.27	1.27	
Q921D0	ANXA8	Annexin A8	18	1.64	1.64	X
P51910	APOD	Apolipoprotein D	4	0.72	-1.38	
Q99PT1	ARHGDIA	Rho GDP-dissociation inhibitor 1	10	1.38	1.38	
Q61599	ARHGDIB	Rho GDP-dissociation inhibitor 2	7	1.62	1.62	
Q9CQW2	ARL8B	ADP-ribosylation factor-like protein 8B	3	1.30	1.30	
Q61024	ASNS	Asparagine synthetase [glutamine-hydrolyzing]	15	1.24	1.24	
Q09PK2	ASPRV1	Retroviral-like aspartic protease 1	4	2.10	2.10	
Q9CY64	BLVRA	Biliverdin reductase A	6	1.24	1.24	
Q9CQC6	BZW1	Basic leucine zipper and W2 domain-containing protein 1	4	1.51	1.51	X
Q8R5L1	C1QBP	Complement component 1 Q subcomponent-binding protein, mitochondrial	5	1.53	1.53	
Q8K182	C8A	Complement component C8 alpha chain	6	0.75	-1.33	
Q9D6N1	CA13	Carbonic anhydrase 13	5	1.38	1.38	
P62204	CALM1	Calmodulin	5	2.57	2.57	
Q9JM83	CALM4	Calmodulin-4	7	2.15	2.15	
P35564	CANX	Calnexin	25	1.43	1.43	
O88456	CAPNS1	Calpain small subunit 1	5	1.32	1.32	
Q5RKN9	CAPZA1	F-actin-capping protein subunit alpha-1	7	1.27	1.27	X
P47757	CAPZB	F-actin-capping protein subunit beta	15	1.31	1.31	X
Q9ER72	CARS	Cysteine--tRNA ligase, cytoplasmic	8	1.38	1.38	
O89094	CASP14	Caspase-14	5	1.70	1.70	
Q8K354	CBR3	Carbonyl reductase [NADPH] 3	12	1.21	1.21	
P06909	CFH	Complement factor H	37	0.63	-1.59	
P18760	CFL1	Cofilin-1	13	1.23	1.23	
Q61362	CHI3L1	Chitinase-3-like protein 1	3	1.54	1.54	
P30275	CKMT1	Creatine kinase U-type, mitochondrial	5	1.36	1.36	
Q9Z1Q5	CLIC1	Chloride intracellular channel protein 1	11	1.26	1.26	X
Q9DBP5	CMPK1	UMP-CMP kinase	4	1.25	1.25	
P61924	COPZ1	Coatomer subunit zeta-1	4	1.24	1.24	
Q9CQI6	COTL1	Coactosin-like protein	11	1.28	1.28	
P52825	CPT2	Carnitine O-palmitoyltransferase 2, mitochondrial	9	1.35	1.35	
P22935	CRABP2	Cellular retinoic acid-binding protein 2	3	2.16	2.16	
P56567	CSTA	Cystatin-A;Cystatin-A, N-terminally processed	8	1.73	1.73	
Q62426	CSTB	Cystatin-B	3	1.56	1.56	
P26231	CTNNA1	Catenin alpha-1	10	1.50	1.50	
Q02248	CTNNB1	Catenin beta-1	11	1.20	1.20	
Q91YL7	CWH43	PGAP2-interacting protein	3	1.30	1.30	
P56395	CYB5A	Cytochrome b5	3	1.45	1.45	
Q9DAR7	DCPS	m7GpppX diphosphatase	4	1.34	1.34	
A2ADY9	DDI2	Protein DDI1 homolog 2	6	1.36	1.36	
P54823	DDX6	Probable ATP-dependent RNA helicase DDX6	8	1.37	1.37	
O35290	EAR3	Eosinophil cationic-type ribonuclease 3	5	0.69	-1.46	
O70251	EEF1B	Elongation factor 1-beta	8	1.65	1.65	
Q80T06	EEF1D	Elongation factor 1-delta	10	1.62	1.62	
P58252	EEF2	Elongation factor 2	55	1.20	1.20	
Q6ZWX6	EIF2S1	Eukaryotic translation initiation factor 2 subunit 1	10	1.21	1.21	

Q9Z0N1	EIF2S3X	Eukaryotic translation initiation factor 2 subunit 3, X-linked	11	1.34	1.34	
Q91WK2	EIF3H	Eukaryotic translation initiation factor 3 subunit H	5	1.30	1.30	
O55135	EIF6	Eukaryotic translation initiation factor 6	6	1.40	1.40	
P17182	ENO1	Alpha-enolase	17	1.61	1.61	
Q8BGB7	ENOPH1	Enolase-phosphatase E1	3	1.24	1.24	
P57759	ERP29	Endoplasmic reticulum resident protein 29	5	2.57	2.57	
Q9D1Q6	ERP44	Endoplasmic reticulum resident protein 44	11	1.21	1.21	
Q9D952	EVPL	Envoplakin	10	1.21	1.21	
P26040	EZR	Ezrin	19	2.05	2.05	
P04117	FABP4	Fatty acid-binding protein, adipocyte	14	1.86	1.86	
Q05816	FABP5	Fatty acid-binding protein, epidermal	15	1.40	1.40	
Q61554	FBN1	Fibrillin-1	12	0.78	-1.28	
Q920E5	FDPS	Farnesyl pyrophosphate synthase	9	1.37	1.37	
Q9QXC1	FETUB	Fetuin-B	10	0.63	-1.58	
P30416	FKBP4	Peptidyl-prolyl cis-trans isomerase FKBP4	10	1.54	1.54	X
Q9JJ28	FLII	Protein flightless-1 homolog	11	1.30	1.30	
Q61598	GDI2	Rab GDP dissociation inhibitor beta	25	1.30	1.30	X
Q9CPU0	GLO1	Lactoylglutathione lyase	6	1.33	1.33	
Q9CPV4	GLOD4	Glyoxalase domain-containing protein 4	11	1.34	1.34	X
Q64521	GPD2	Glycerol-3-phosphate dehydrogenase	18	1.24	1.24	
P19157	GSTP1	Glutathione S-transferase P 1	5	2.02	2.02	
Q9D3B1	HACD2	Very-long-chain (3R)-3-hydroxyacyl-CoA dehydratase 2	3	1.36	1.36	
Q8CBB6	HIST1H2BQ	Histone H2B	7	0.56	-1.78	
P00493	HPRT1	Hypoxanthine-guanine phosphoribosyltransferase	7	1.45	1.45	X
Q3U816	HTATIP2	Oxidoreductase HTATIP2	3	1.51	1.51	
P58044	IDI1	Isopentenyl-diphosphate Delta-isomerase 1	5	2.43	2.43	
A0A0B4J1H9	IGKV1-132	Immunoglobulin kappa variable 1-132	3	0.50	-2.00	
Q8BKC5	IPO5	Importin-5	18	1.26	1.26	
Q9JKF1	IQGAP1	Ras GTPase-activating-like protein IQGAP1	57	1.22	1.22	
O35344	KPNA3	Importin subunit alpha-4	4	1.42	1.42	
P70168	KPNB1	Importin subunit beta-1	22	1.21	1.21	
Q91XL1	LRG1	Leucine-rich HEV glycoprotein	6	0.60	-1.65	
Q9DB27	MCTS1	Malignant T-cell-amplified sequence 1	3	1.31	1.31	X
Q6ZQI3	MLEC	Malectin	9	1.37	1.37	
P62774	MTPN	Myotrophin	4	2.00	2.00	
Q99JF5	MVD	Diphosphomevalonate decarboxylase	3	1.47	1.47	X
Q9R008	MVK	Mevalonate kinase	7	1.31	1.31	
Q6ZWQ9	MYL12A	Myosin regulatory light chain 12B	9	1.37	1.37	
Q9CZ42	NAXD	ATP-dependent (S)-NAD(P)H-hydrate dehydratase	7	0.78	-1.28	
P15532	NME1	Nucleoside diphosphate kinase A	3	1.22	1.22	
Q01768	NME2	Nucleoside diphosphate kinase	6	1.70	1.70	
Q9R1J0	NSDHL	Sterol-4-alpha-carboxylate 3-dehydrogenase, decarboxylating	6	1.25	1.25	
E9Q7G0	NUMA1	Nuclear mitotic apparatus protein 1	19	1.31	1.31	
P29758	OAT	Ornithine aminotransferase, mitochondrial	7	1.35	1.35	
Q9CZ30	OLA1	Obg-like ATPase 1	13	1.23	1.23	X
Q62422	OSTF1	Osteoclast-stimulating factor 1	3	1.87	1.87	
P09103	P4HB	Protein disulfide-isomerase	33	1.57	1.57	
P50580	PA2G4	Proliferation-associated protein 2G4	21	1.30	1.30	
Q6PHQ9	PABPC4	Polyadenylate-binding protein	8	1.25	1.25	
Q9DBJ1	PGAM1	Phosphoglycerate mutase 1	6	2.36	2.36	
P53810	PITPNA	Phosphatidylinositol transfer protein alpha isoform	7	1.56	1.56	
Q60963	PLA2G7	Platelet-activating factor acetylhydrolase	6	0.71	-1.40	

P43883	PLIN2	Perilipin-2	5	1.58	1.58	
Q9DBG5	PLIN3	Perilipin-3	11	1.23	1.23	
Q9R0E2	PLOD1	Procollagen-lysine,2-oxoglutarate 5-dioxygenase 1	6	0.69	-1.44	
Q99K51	PLS3	Plastin-3	20	1.65	1.65	
Q9D819	PPA1	Inorganic pyrophosphatase	14	1.34	1.34	
Q9R269	PPL	Periplakin	10	1.47	1.47	X
P62141	PPP1CB	Serine/threonine-protein phosphatase PP1-beta catalytic subunit	3	1.28	1.28	X
Q76MZ3	PPP2R1A	Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform	10	1.38	1.38	
P63328	PPP3CA	Serine/threonine-protein phosphatase 2B catalytic subunit alpha isoform	4	1.74	1.74	
P99029	PRDX5	Peroxiredoxin-5, mitochondrial	11	2.19	2.19	
Q6GT24	PRDX6	Peroxiredoxin-6	14	1.39	1.39	
Q8BFQ1	PSAP	Prosaposin	6	0.68	-1.47	
Q99LS3	PSPH	Phosphoserine phosphatase	3	1.92	1.92	X
Q9EPB4	PYCARD	Apoptosis-associated speck-like protein containing a CARD	6	3.29	3.29	
Q8BVI4	QDPR	Dihydropteridine reductase	4	1.39	1.39	X
P61027	RAB10	Ras-related protein Rab-10	6	1.57	1.57	
P46638	RAB11B	Ras-related protein Rab-11B;Ras-related protein Rab-11A	9	1.65	1.65	X
Q91V41	RAB14	Ras-related protein Rab-14	9	1.21	1.21	
P53994	RAB2A	Ras-related protein Rab-2A	8	1.23	1.23	X
Q3TXV4	RAB31	Ras-related protein Rab-31	3	1.84	1.84	X
Q6PHN9	RAB35	Ras-related protein Rab-35	4	1.35	1.35	
P35276	RAB3D	Ras-related protein Rab-3D	3	1.55	1.55	
P61021	RAB5B	Ras-related protein Rab-5B	3	1.52	1.52	
Q8C266	RAB5C	Ras-related protein Rab-5C	6	1.25	1.25	
P35279	RAB6A	Ras-related protein Rab-6A;Ras-related protein Rab-6B	8	1.29	1.29	
P51150	RAB7A	Ras-related protein Rab-7a	12	1.32	1.32	
P55258	RAB8A	Ras-related protein Rab-8A	5	1.38	1.38	
Q91WG2	RABEP2	Rab GTPase-binding effector protein 2	5	1.23	1.23	
P62827	RAN	GTP-binding nuclear protein Ran	12	1.25	1.25	
P46061	RANGAP1	Ran GTPase-activating protein 1	11	1.30	1.30	
Q8BK67	RCC2	Protein RCC2	14	1.27	1.27	
Q9QUI0	RHOA	Transforming protein RhoA	6	1.38	1.38	
O35292	RNASE2B	Ribonuclease 2B	4	0.46	-2.18	
P53026	RPL10A	60S ribosomal protein L10a	7	1.28	1.28	
Q9CXW4	RPL11	60S ribosomal protein L11	8	1.21	1.21	
P47963	RPL13	60S ribosomal protein L13	9	1.21	1.21	
Q5M8M8	RPL29	60S ribosomal protein L29	7	0.80	-1.25	
Q921R2	RPS13	40S ribosomal protein S13	7	1.53	1.53	
P62245	RPS15A	40S ribosomal protein S15a	8	1.42	1.42	
Q9CQR2	RPS21	40S ribosomal protein S21	5	1.30	1.30	
P62852	RPS25	40S ribosomal protein S25	4	0.54	-1.86	
P50543	S100A11	Protein S100-A11	3	1.32	1.32	
Q99JZ4	SAR1A	GTP-binding protein SAR1a	8	1.54	1.54	
Q8BH69	SEPHS1	Selenide, water dikinase 1	3	1.24	1.24	
Q8R121	SERPINA10	Protein Z-dependent protease inhibitor	6	0.69	-1.44	
P70124	SERPINB5	Serpin B5	21	1.45	1.45	X
Q6P6K7	SERPINB6C	Serpinb6c protein	7	1.50	1.50	
O08800	SERPINB8	Serpin B8	6	1.23	1.23	

Q91VW3	SH3BGRL 3	SH3 domain-binding glutamic acid-rich-like protein3	4	3.38	3.38	
P50431	SHMT1	Serine hydroxymethyltransferase, cytosolic	12	1.36	1.36	
P57787	SLC16A3	Monocarboxylate transporter 4	3	1.28	1.28	
Q8VEM8	SLC25A3	Phosphate carrier protein, mitochondrial	13	1.31	1.31	
Q9Z0F7	SNCG	Gamma-synuclein	3	1.86	1.86	
Q6NZD2	SNX1	Sorting nexin-1	6	1.22	1.22	
Q9CWK8	SNX2	Sorting nexin-2	15	1.26	1.26	
Q9D8U8	SNX5	Sorting nexin-5	4	1.47	1.47	
Q6P8X1	SNX6	Sorting nexin-6	5	1.30	1.30	
P16546	SPTAN1	Spectrin alpha chain, non-erythrocytic 1	20	1.29	1.29	
Q6P069	SRI	Sorcin	6	1.33	1.33	
Q64674	SRM	Spermidine synthase	7	1.20	1.20	
Q8BL97	SRSF7	Serine/arginine-rich splicing factor 7	4	0.73	-1.37	
Q497J0	STFA1	Stefin-1	7	1.37	1.37	
P35173	STFA3	Stefin-3	7	1.69	1.69	
Q80X82	SYMPK	Symplekin	3	1.35	1.35	
Q9WVA4	TAGLN2	Transgelin-2	9	1.42	1.42	
Q93092	TALDO1	Transaldolase	15	1.52	1.52	
Q9D1E6	TBCB	Tubulin-folding cofactor B	7	1.23	1.23	
Q9JHF5	TCIRG1	V-type proton ATPase subunit a	5	0.77	-1.31	
P01831	THY1	Thy-1 membrane glycoprotein	3	0.81	-1.24	
Q8BH58	TIPRL	TIP41-like protein	3	1.40	1.40	X
P40142	TKT	Transketolase	27	1.22	1.22	
P26039	TLN1	Talin-1	88	1.27	1.27	
Q9D1D4	TMED10	Transmembrane emp24 domain-containing protein10	5	1.67	1.67	
Q8BXN9	TMEM87A	Transmembrane protein 87A	6	1.20	1.20	
Q8BFY9	TNPO1	Transportin-1	10	1.29	1.29	
P17751	TPI1	Triosephosphate isomerase	19	1.40	1.40	
Q7M739	TPR	Nucleoprotein TPR	6	1.21	1.21	X
P63028	TPT1	Translationally-controlled tumor protein	9	1.31	1.31	
E9PY51	TRAPPC8	Trafficking protein particle complex 8	3	1.40	1.40	
P10639	TXN	Thioredoxin	7	1.41	1.41	
Q3KQM4	U2AF2	Splicing factor U2AF 65 kDa subunit	5	1.37	1.37	
Q9CRB3	URAH	5-hydroxyisourate hydrolase	5	1.28	1.28	
E9Q6R7	UTRN	Utrophin	4	0.72	-1.39	
Q64727	VCL	Vinculin	40	1.68	1.68	
Q9QZ88	VPS29	Vacuolar protein sorting-associated protein 29	4	1.49	1.49	X
Q00519	XDH	Xanthine dehydrogenase/oxidase	40	1.21	1.21	
Q3UE92	XPNPEP1	Xaa-Pro aminopeptidase 1	18	1.23	1.23	
Q9CQW1	YKT6	Synaptobrevin homolog YKT6	7	1.62	1.62	X