

Strained Cyclic Disulfides Enable Cellular Uptake by Reacting with the Transferrin Receptor

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Supporting Information

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Materials and General Methods

Reagents for synthesis were purchased from Fluka, Sigma-Aldrich, Apollo Scientific, TCI and Acros, buffers and salts of the best grade available from Fluka or Sigma-Aldrich and used as received. Unless stated otherwise, column chromatography was carried out on silica gel 60 (Fluka, 40-63 μm). Analytical TLC was performed on silica gel 60 (Fluka, 0.2 mm). DMEM/High glucose media with GlutaMAX, phosphate buffered saline (PBS), MEM Non-Essential Amino Acids, Penicillin Streptomycin and Trypsin-EDTA were obtained from Life Technologies. Protein concentration was determined using the Bradford assay (Bio-Rad). Transfections were performed using Lipofectamine 2000 (Invitrogen) for two days or Lipofectamine RNAiMAX (Invitrogen) for three days. ON-TARGETplus human TFRC siRNA (SMARTpool) was bought from GE Dharmacon. All the cloning was done using the Gateway technology (Thermo Scientific). All the plasmids were prepared using the GeneElute HP Plasmid Miniprep Kit (Sigma-Aldrich). For all PCR reactions Q5 High-Fidelity DNA Polymerase (New England BioLabs Inc.) was used as recommended by manufacturer. Purification of PCR products was achieved by running agarose gels followed by gel excision using QIAquick Gel Extraction Kit (Qiagen). For the BP and the LR reactions the Gateway BP Clonase Enzyme Mix and the Gateway LR Clonase Enzyme mix (Thermo Scientific) were used according to the protocol of the manufacturer. For the degradation of methylated template plasmids DpnI (New England BioLabs Inc.) was used. Propagation of the pENTR and pEXP plasmids were done via transformation into E. coli strain DH5 alpha using heatshock. HPLC purification was performed by Shimadzu Prominence using reverse phase Pathfinder AS column (Shimadzu, 3.5 μm , 150 x 4.6 mm). UHPLC-MS spectra were recorded using Dionex Ultimate 3000 UHPLC (Thermo Scientific) with a Thermo LCQ Fleet mass spectrometer using a Hypersil GOLD C18 column (Thermo Scientific, 1.9 μm , 50 x 2.1 mm) with a linear elution gradient from 95% H_2O / 5% MeCN to 10% H_2O / 90% MeCN in the presence of 0.1% TFA in 4.0 minutes at a flow rate of 0.75 mL/min. Reported are mass-per-charge ratio m/z (intensity in %, [assignment]). High-resolution MS and MS/MS spectra were acquired on Thermo QExactive Plus Quadrupole-Orbitrap mass spectrometer. ^1H and ^{13}C spectra were recorded (as indicated) either on a Bruker 300 MHz, 400 MHz or 500 MHz spectrometer and are reported as chemical shifts (δ) in ppm relative to TMS ($\delta = 0$). Proton spin multiplicities are reported as a singlet (s), doublet (d), triplet (t), quartet (q) and quintet (quint) with coupling constants (J) given in Hz, or multiplet (m). ^1H and ^{13}C resonances were assigned with the aid of additional information from 1D & 2D NMR spectra.

Experimental Details and Procedures

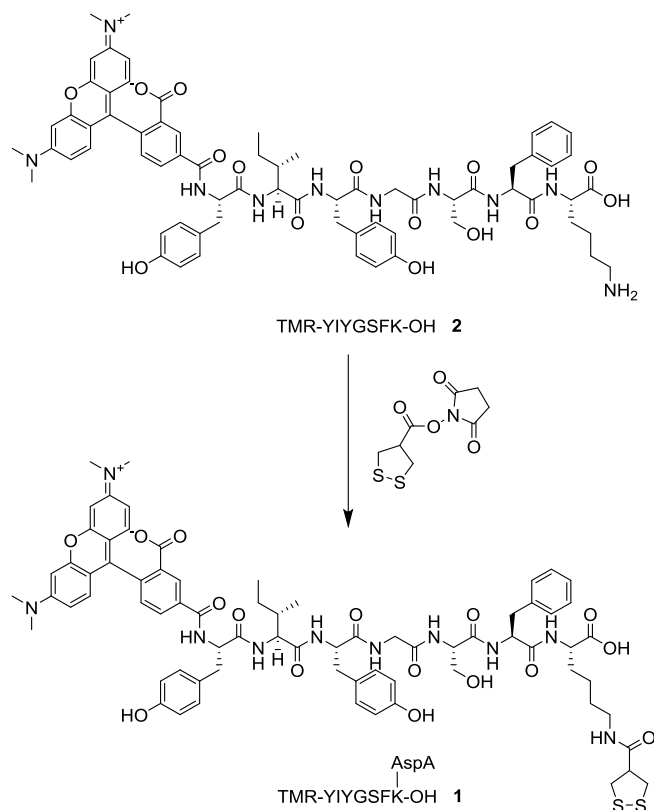
Asparagusic Acid NHS ester

This compound was prepared as previously reported in the literature¹.

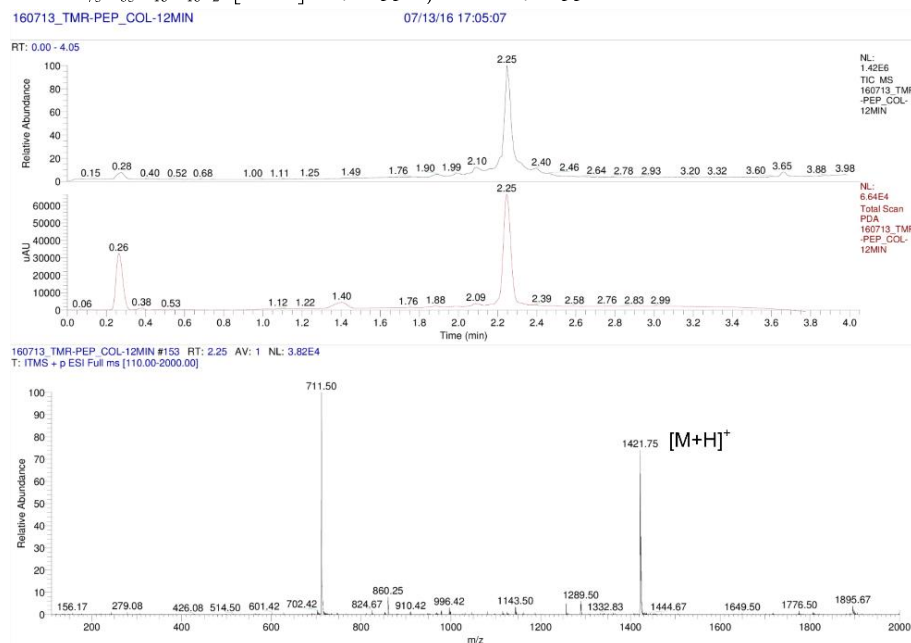
General synthesis of asparagusic acid modified (AspA) peptides

Peptide was solubilized in 0.1 M NaHCO_3 pH 8 (Merck) to a concentration of 1 mM. Asparagusic acid NHS ester was freshly solubilized in DMF (72 mM, 10x solution), an eightfold excess was added to the solubilized peptide and mixture was incubated at r.t. for indicated amount of time. AspA-modified peptide was then purified by HPLC using a linear gradient of 5% MeCN/95% H_2O to 100% MeCN in the presence of 0.1 % TFA. All peptides were characterized by high resolution MS/MS.

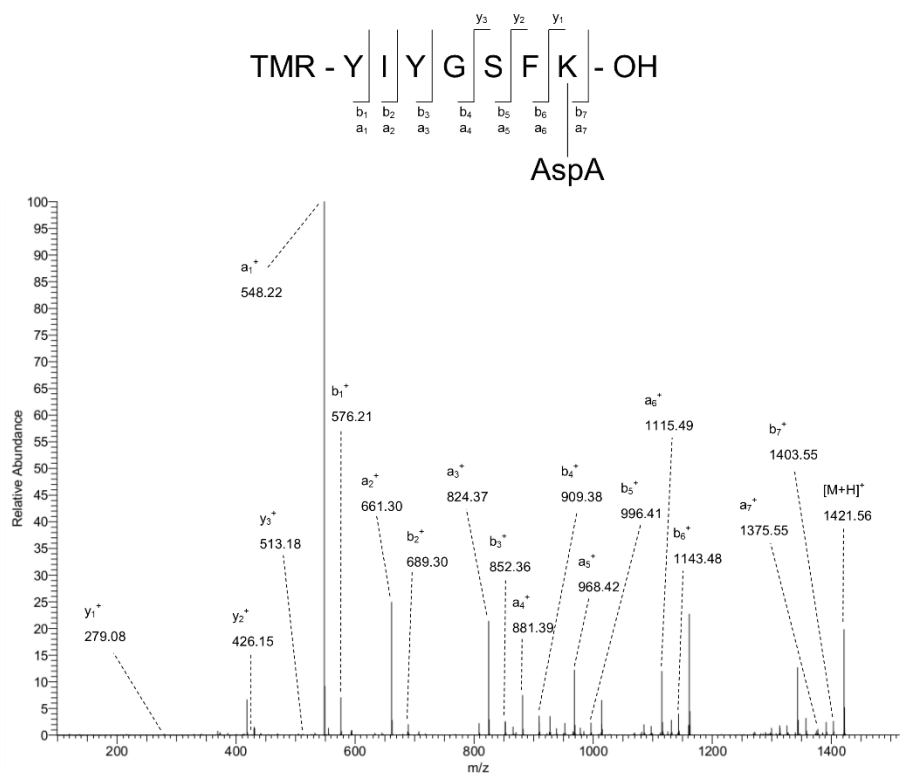
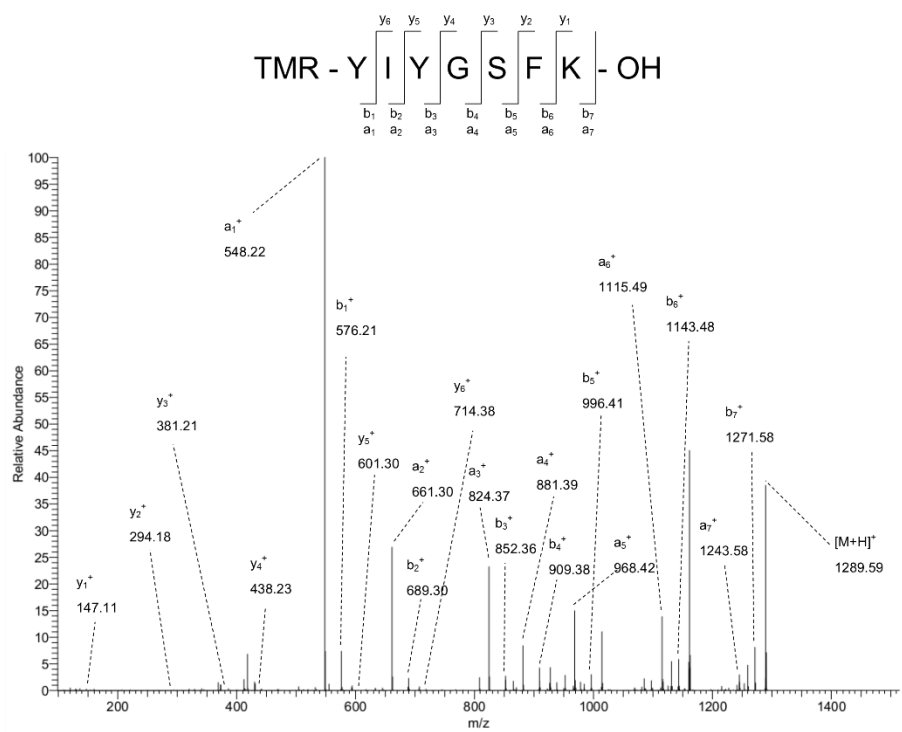
Synthesis of AspA tagged TMR-YIYGSKF (1)



TMR-YIYGSKF (2) (Anaspec, 400 μg , 0.3 μmol) was incubated with asparagusic acid NHS ester (2.5 μmol) for 2 hours. Conversion greater than 95% was observed. AspA tagged TMR-YIYGSKF (1) was purified using HPLC with UV/VIS detector at 556 nm. HRMS (ESI) m/z calculated for $\text{C}_{73}\text{H}_{85}\text{N}_{10}\text{O}_{16}\text{S}_2^+$ $[\text{M}+\text{H}]^+$: 1421.5581, found: 1421.5568.

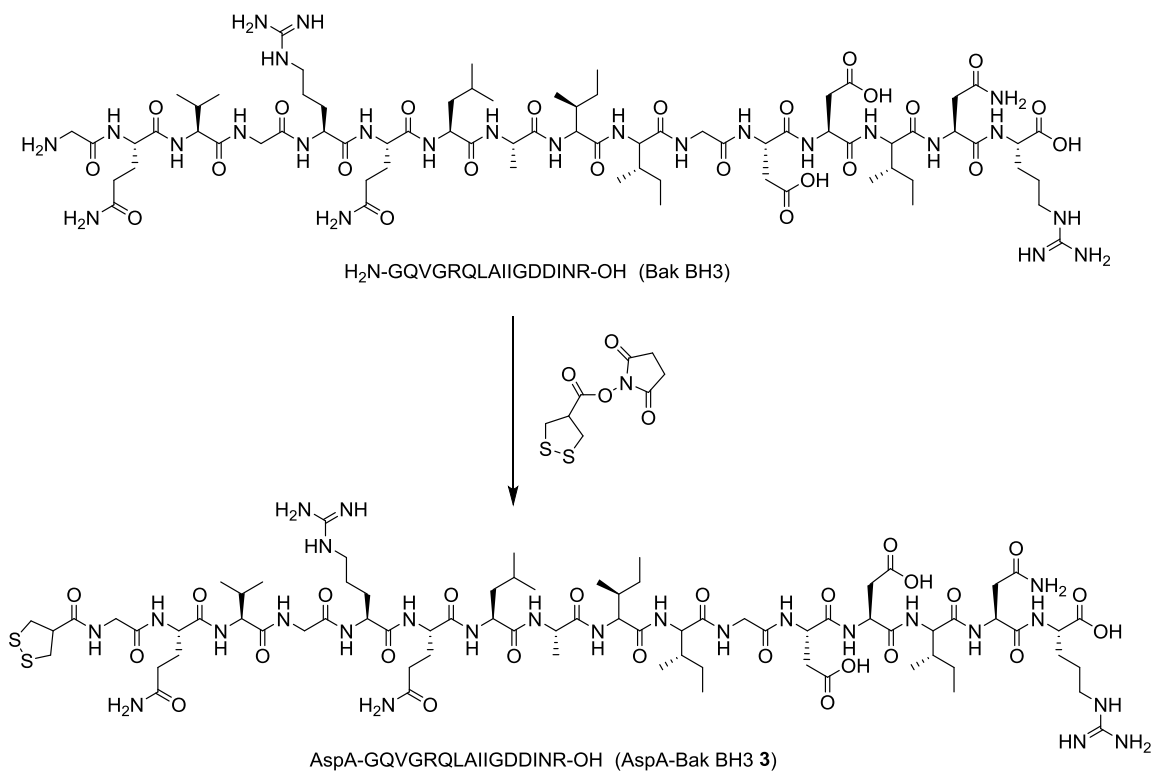


UHPLC-MS of compound 1.

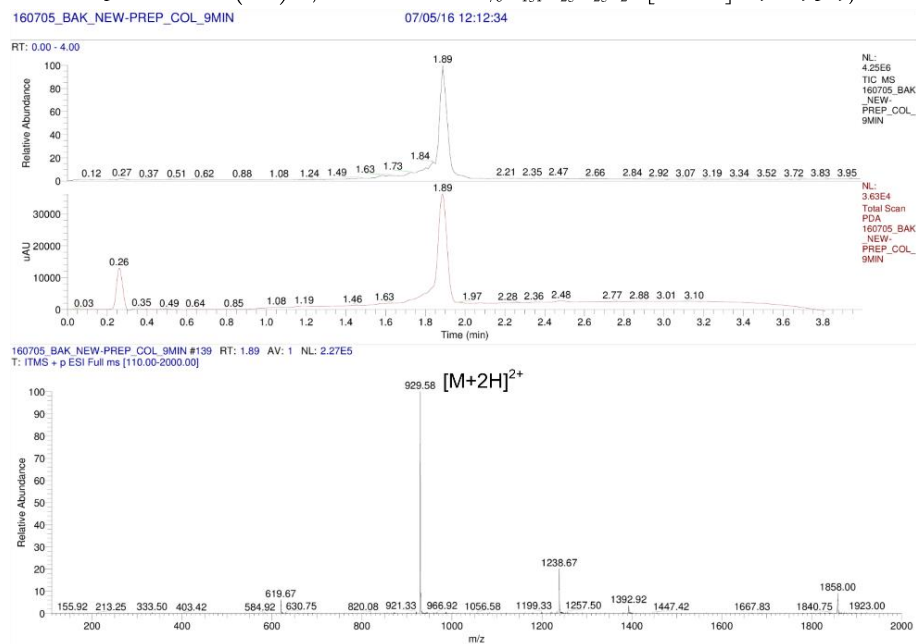


Annotated MS/MS spectra of compound 2 (top) and compound 1 (bottom).

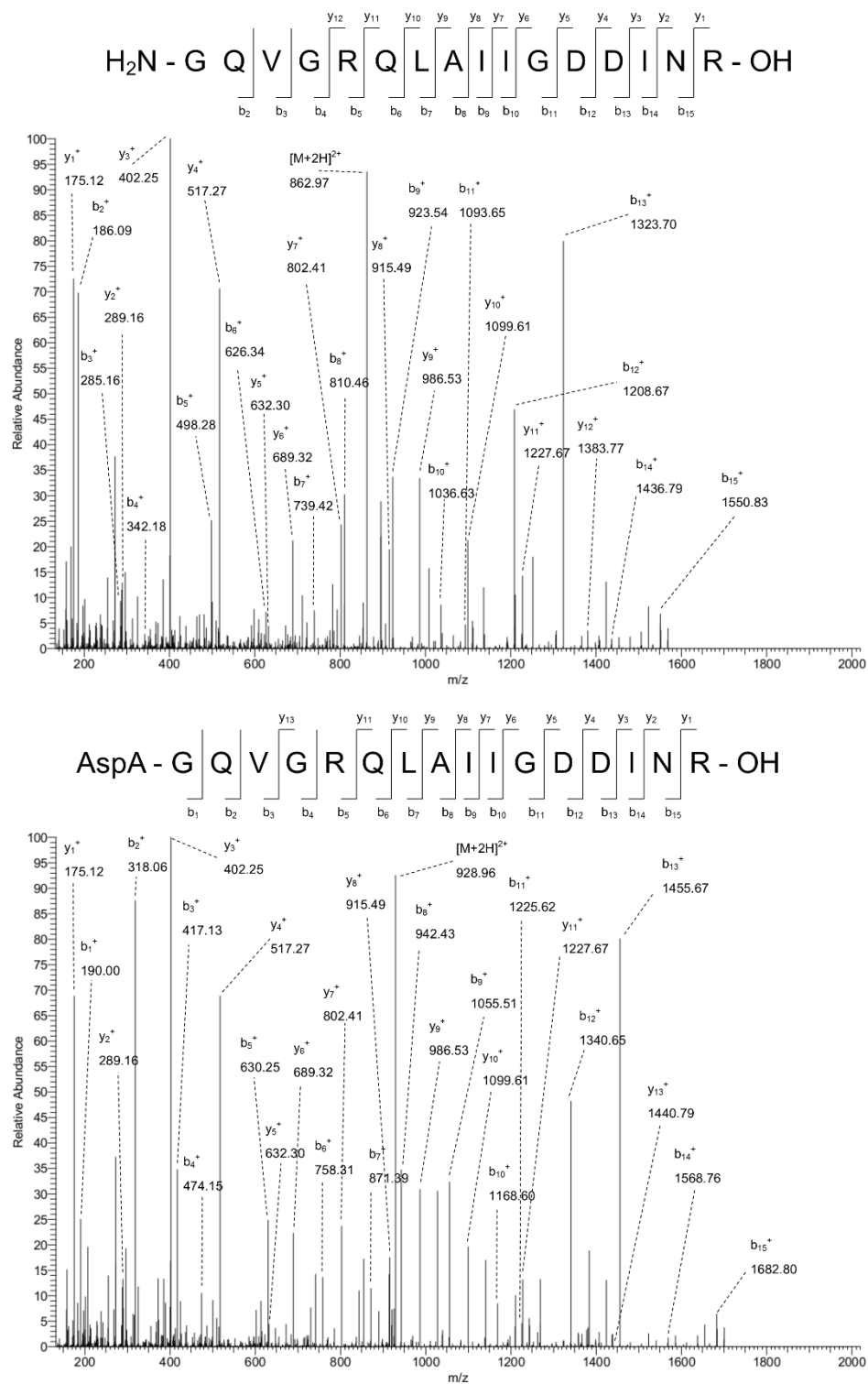
Synthesis of AspA tagged Bak BH3 (3)



GQVGRQLAIIGDDINR (GenScript, Bak BH3, 4.2 mg, 2.4 μmol) was incubated with asparagusic acid NHS ester (19.5 μmol) for 4 hours. Conversion greater than 95% was observed. AspA-GQVGRQLAIIGDDINR 3 (3.4 mg, 75 % yield) was purified using HPLC with UV/VIS detector at 205 nm. HRMS (ESI) m/z calculated for $\text{C}_{76}\text{H}_{131}\text{N}_{25}\text{O}_{25}\text{S}_2^{2+}$ $[\text{M}+2\text{H}]^{2+}$: 928.9589, found: 928.9590.

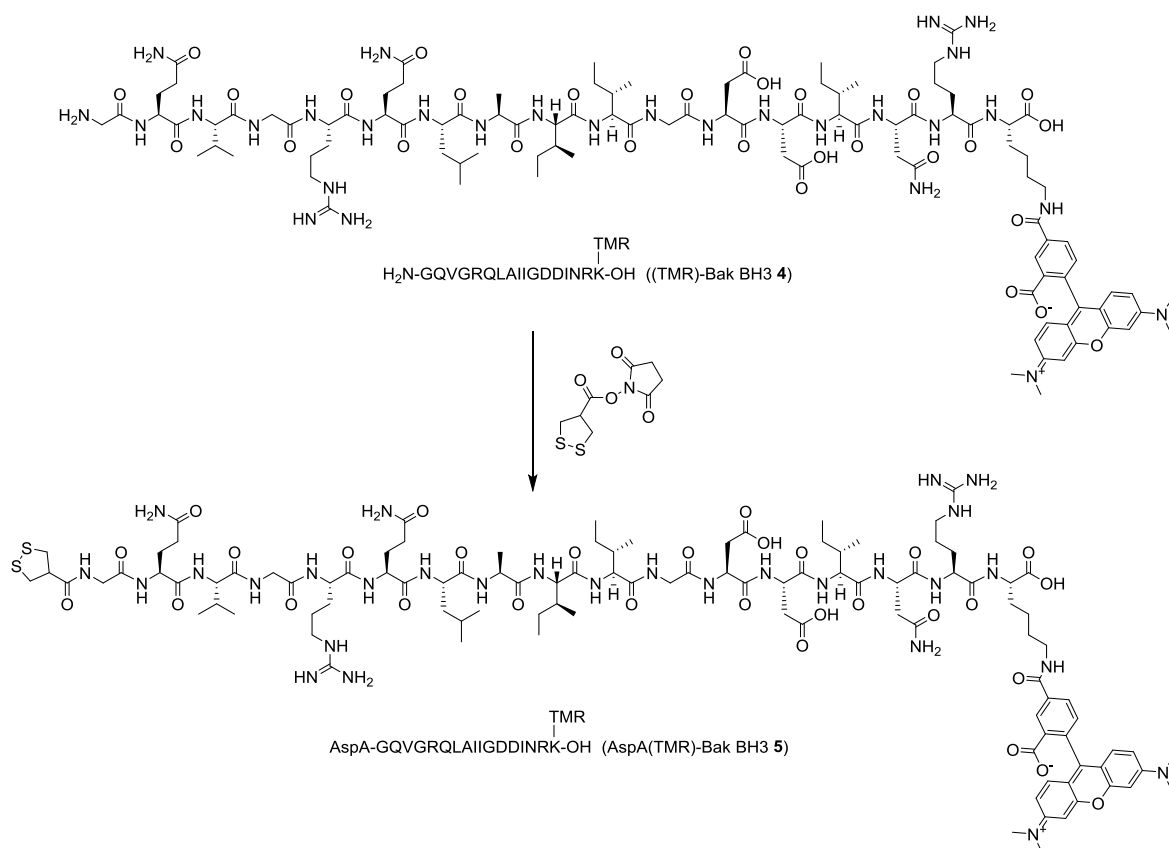


UHPLC-MS of compound 3.

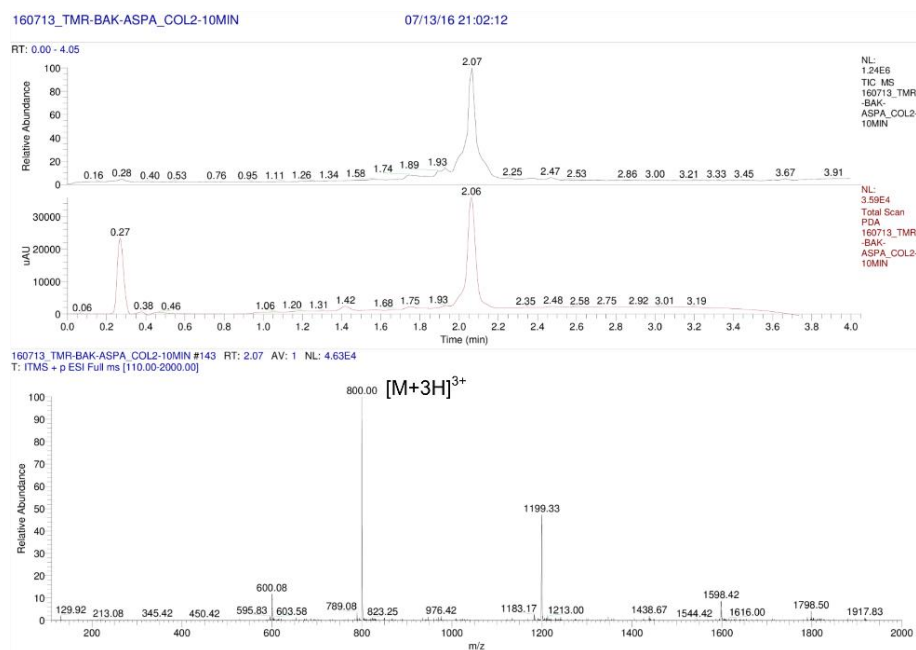


Annotated MS/MS spectra of Bak BH3 (top) and compound **3** (bottom).

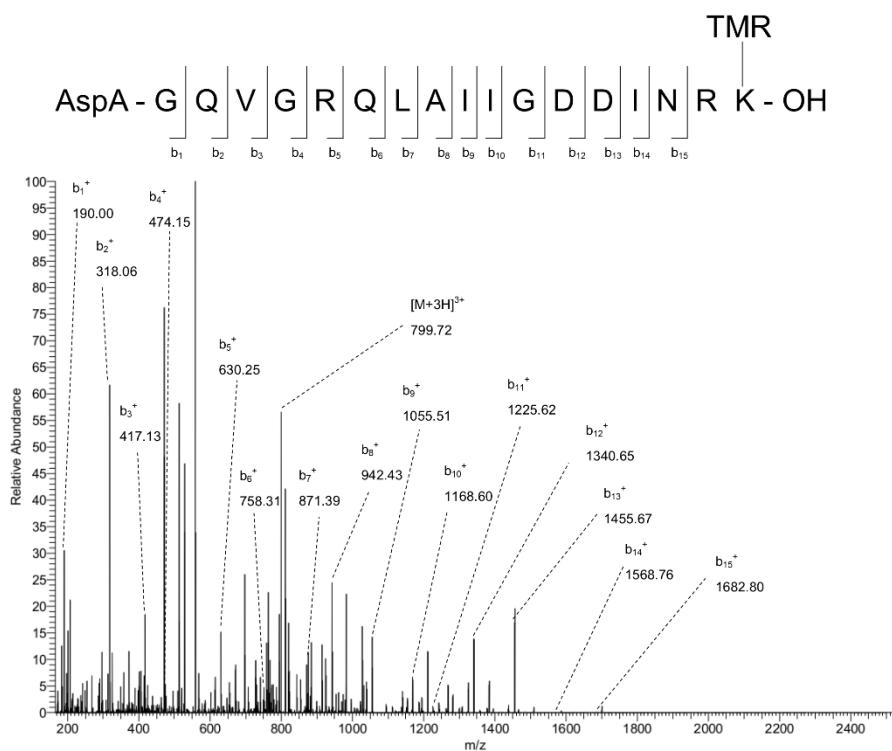
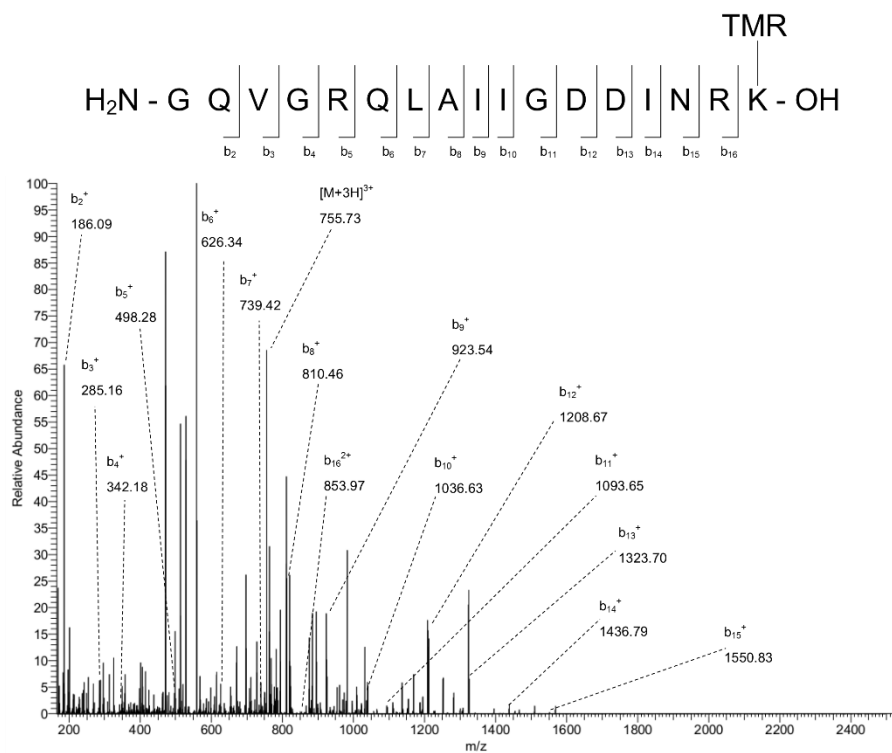
Synthesis of AspA tagged Bak BH3-TMR (5)



GQVGRQLAIIGDDINRK(TMR) 4 (Anaspec, Bak BH3-TMR, 350 μ g, 0.15 μ mol) was incubated with asparagusic acid NHS ester (1.25 μ mol) for 4 hours. Conversion greater than 95% was observed. AspA-GQVGRQLAIIGDDINRK(TMR) 5 was purified using HPLC with UV/VIS detector at 556 nm. HRMS (ESI) m/z calculated for $C_{107}H_{164}N_{29}O_{30}S_2^{3+}$ $[M+3H]^{3+}$: 799.7208, found: 799.7272.

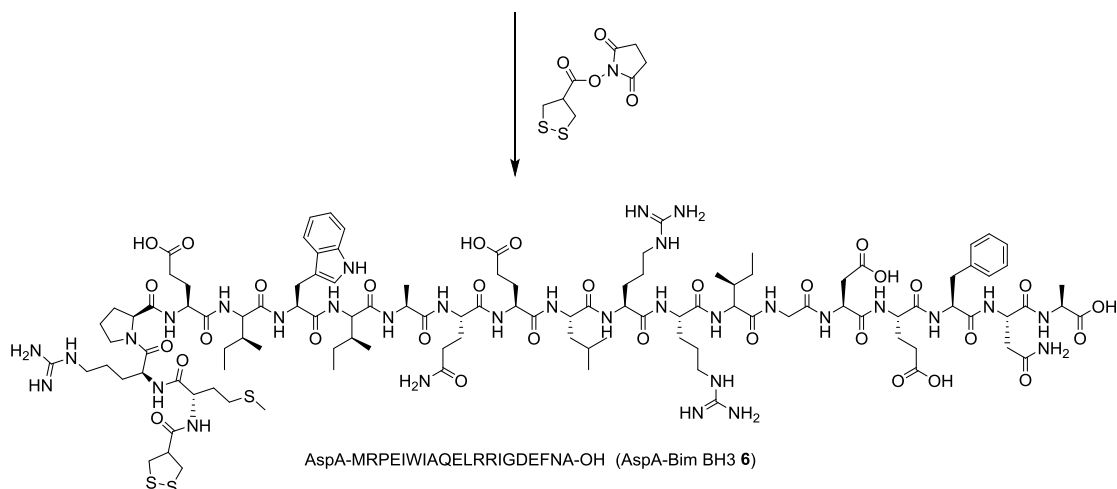
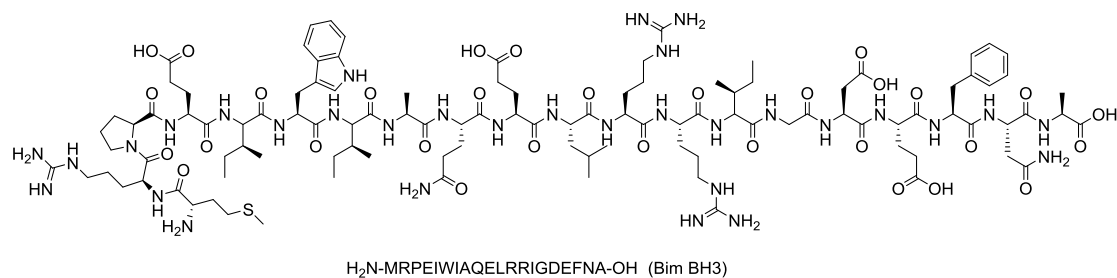


UHPLC-MS of compound 5.

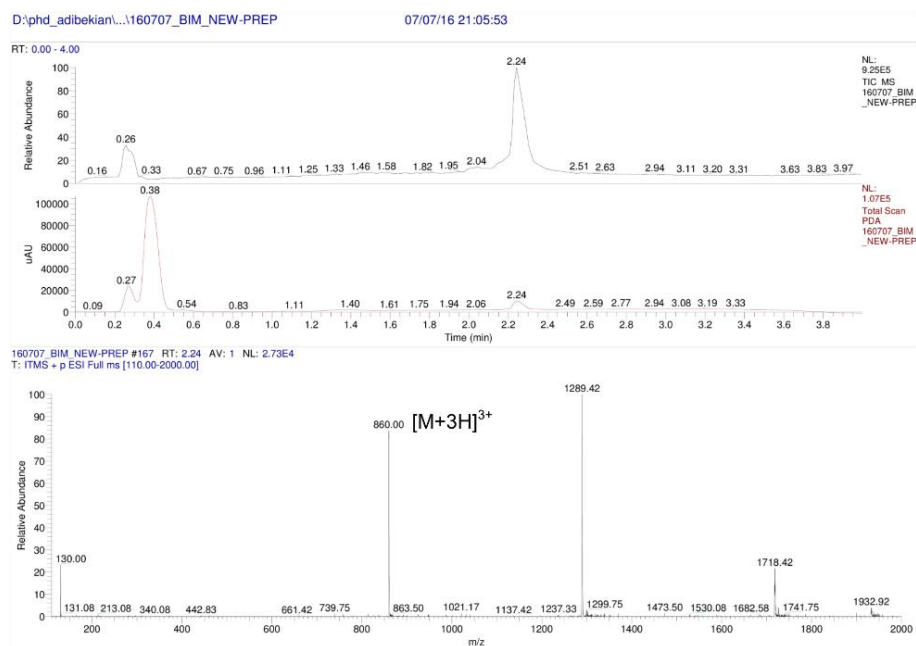


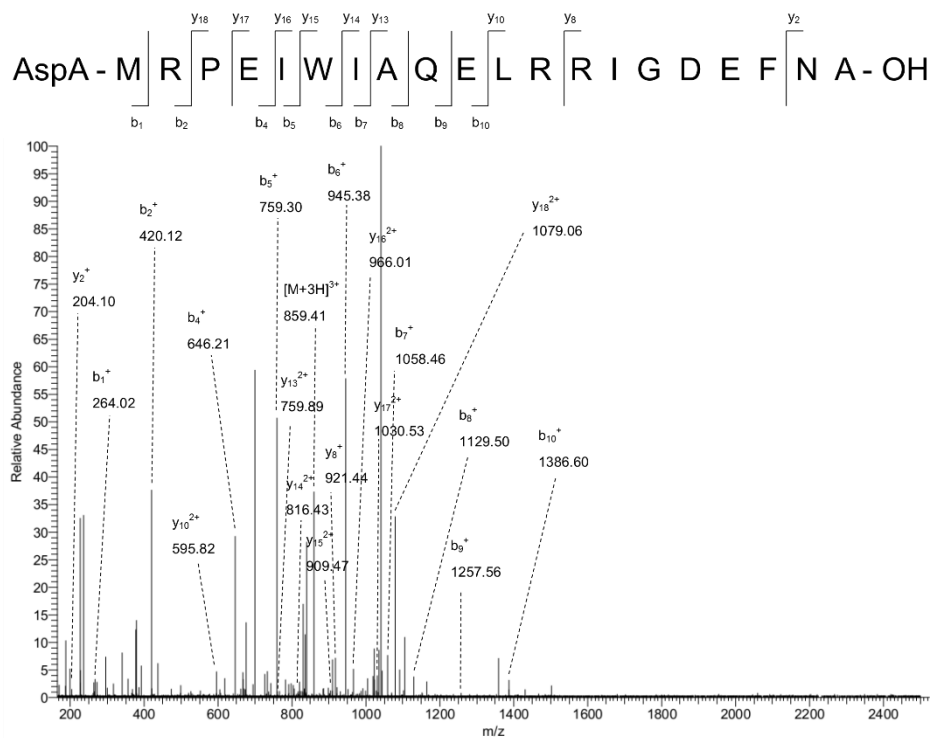
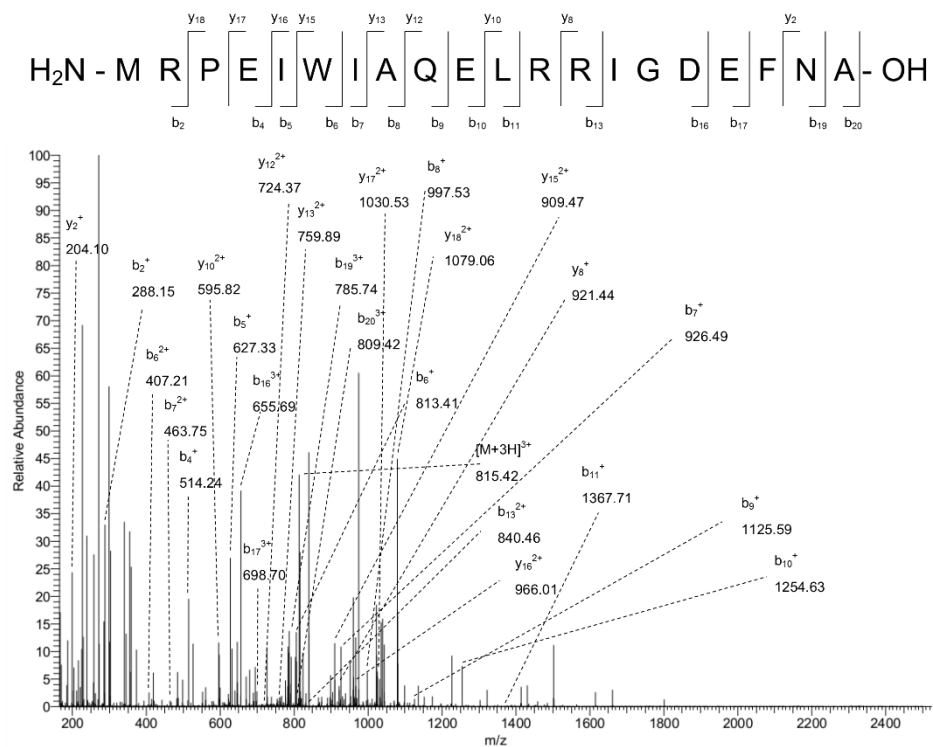
Annotated MS/MS spectra of compound 4 (top) and compound 5 (bottom).

Synthesis of AspA tagged Bim BH3 (6)



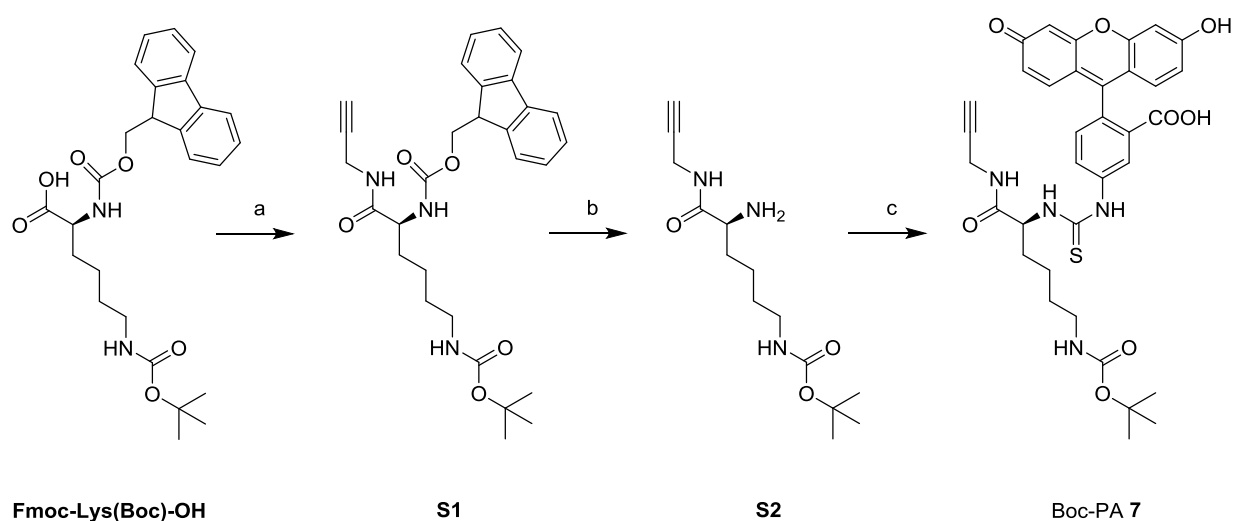
MRPEIWIAQELRRIGDEFNA (GenScript, Bim BH3, 3.6 mg, 1.5 μmol) was incubated with asparagusic acid NHS ester (11.8 μmol) for 8 hours. Conversion greater than 95% was observed. AspA-MRPEIWIAQELRRIGDEFNA 6 (2.7 mg, 71 % yield) was purified using HPLC with UV/VIS detector at 205 nm. HRMS (ESI) m/z calculated for $\text{C}_{112}\text{H}_{177}\text{N}_{32}\text{O}_{32}\text{S}_3^{3+}$ $[\text{M}+3\text{H}]^{3+}$: 859.4118, found: 859.4114.





Annotated MS/MS spectra of Bim BH3 (top) and compound **6** (bottom).

Synthesis of Boc-PA (7)



Scheme S1. a) HBTU, Propargylamine, Triethylamine, CH₂Cl₂/DMF, 2 hours, r.t., 91%; b) Piperidine/DBU, CH₂Cl₂, 1 hour, r.t., 87%; c) Carboxyfluorescein isothiocyanate, Triethylamine, DMF, 2 hours, r.t., **90%**.

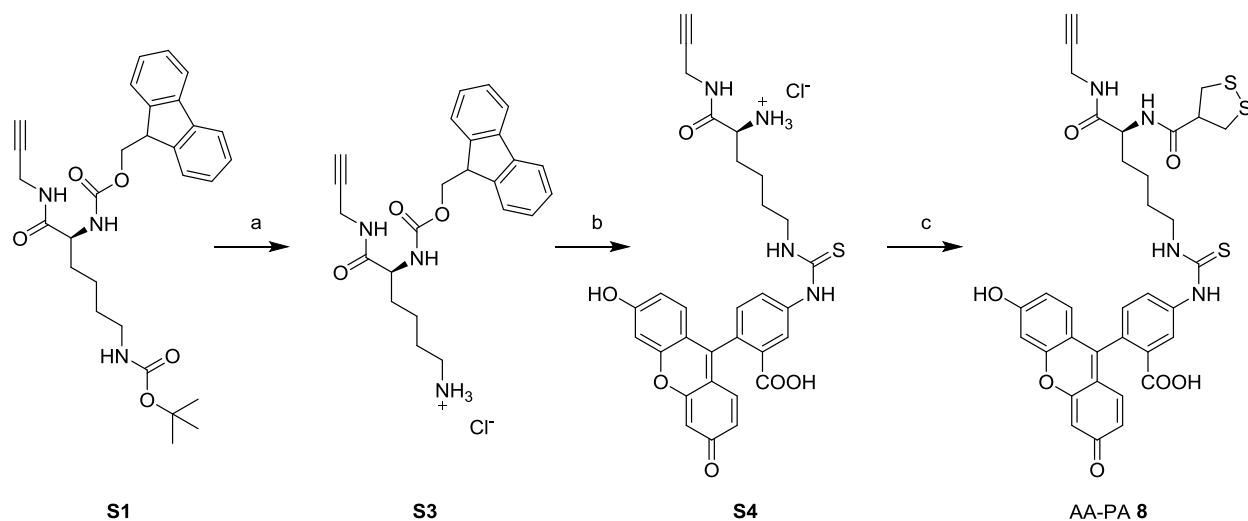
Compound S1. Fmoc-Lys(Boc)-OH (1004.0 mg, 2.14 mmol) was dissolved in 75 mL of dry CH₂Cl₂ and 15 mL of dry DMF. To the resulting solution triethylamine (360 μ L, 2.58 mmol) and HBTU (900.4 mg, 2.37 mmol) were added. The reaction mixture was stirred at r.t. for 20 minutes, then propargylamine (170 μ L, 2.65 mmol) was added. The reaction mixture was stirred at r.t. for two hours, until TLC control (CH₂Cl₂/MeOH 95:5, $R_{f\text{prod}} = 0.4$) showed complete conversion. 50 mL of CH₂Cl₂ were added and the solution was extracted with water (3 $\times$ 40 mL) and 5% LiCl in water (2 $\times$ 40 mL). The organic phase was dried over sodium sulphate, filtered and the solvent was evaporated under reduced pressure. The resulting oil was dissolved in MeOH (20 mL) and the solution added dropwise to 100 mL of cold water. The solid formed was collected by filtration, washed and triturated with acetonitrile. Compound **S1** was obtained as a colourless solid (982 mg, 91%) after 12 hours drying in vacuum. ¹H NMR (400 MHz, CDCl₃): 7.76 (d, ³J(H,H) = 7.4 Hz, 2H), 7.58 (d, ³J(H,H) = 7.4 Hz, 2H), 7.39 (t, ³J(H,H) = 7.4 Hz, 2H), 7.30 (t, ³J(H,H) = 7.4 Hz, 2H), 6.63 (s br, 1H), 5.57 (s br, 1H), 4.64 (s br, 1H), 4.41 (d, ³J(H,H) = 5.9 Hz, 2H), 4.22-4.18 (m, 2H), 4.01 (s br, 2H), 3.10 (d, ³J(H,H) = 5.0 Hz, 2H), 2.15 (s, 1H), 1.90-1.83 (m, 1H), 1.72-1.65 (m, 1H), 1.53-1.48 (m, 2H), 1.43 (s, 9H), 1.38-1.33 (m, 2H). ¹³C NMR (100 MHz, CDCl₃): 171.6 (C), 156.5 (C), 156.3 (C), 143.9 (C), 141.4 (C), 127.9 (CH), 127.2 (CH), 125.2 (CH), 120.1 (CH), 79.4 (C), 79.3 (C), 71.9 (CH), 67.2 (CH₂), 54.8 (CH), 40.0 (CH₂), 32.1 (CH₂), 29.7 (CH₂), 29.3 (CH₂), 28.6 (CH₃), 22.6 (CH₂). UHPLC-MS: m/z = 406 (100, [M-Boc+H]⁺).

Compound S2. Compound **S1** (576.6 mg, 1.14 mmol) was suspended in 35 mL of dry CH₂Cl₂. 1 mL (862 mg, 10.1 mmol) of piperidine was added and a clear solution was obtained. The reaction was stirred at room temperature for 30 minutes. TLC control (CH₂Cl₂/MeOH 95:5, $R_{f\text{prod}} = 0.01$) revealed incomplete deprotection so 1 mL (1018 mg, 6.69 mmol) of DBU was added. After 30 minutes TLC control revealed no traces of starting material. The reaction mixture was extracted with water (3 $\times$ 40 mL), the organic phase was dried over sodium sulphate, filtered and the solvent was evaporated under reduced pressure. The resulting colourless solid was purified by column chromatography (SiO₂, CH₂Cl₂/MeOH 90:10, $R_{f\text{prod}} = 0.1$), yielding compound **S2** as colourless solid (280.3 mg, 87%). ¹H NMR (400 MHz, CDCl₃): 7.56 (s, 1H), 4.56 (s, 1H), 4.04 (dd, ³J(H,H) = 5.3 Hz, ³J(H,H) = 2.4 Hz, 2H), 3.38-4.35 (dd, ³J(H,H) = 7.9 Hz, ³J(H,H) = 4.3 Hz, 1H), 3.12 (q, ³J(H,H) = 6.0 Hz, 2H), 2.22 (t, ³J(H,H) = 2.5 Hz, 1H), 1.91-1.79 (m, 1H), 1.64-1.37 (m, 14H). ¹³C NMR (100 MHz, CD₃OD): 174.8 (C), 156.2 (C), 79.9 (C), 79.3 (C), 71.4 (CH), 55.0 (CH), 40.3 (CH₂), 34.6 (CH₂), 30.0 (CH₂), 28.9 (CH₂), 28.6 (CH₃), 22.9 (CH₂). UHPLC-MS: m/z = 284 (100, [M+H]⁺).

Compound Boc-PA 7. Carboxyfluorescein isothiocyanate (106.0 mg, 0.27 mmol) was dissolved in 5 mL of dry DMF. To the resulting solution was added dropwise compound **S2** (79.0 mg, 0.28 mmol), dissolved in 2 mL of dry DMF. The reaction mixture was stirred for 30 minutes, then 100 μ L (72.6 mg, 0.72 mmol) of triethylamine were added. The reaction mixture was stirred overnight at r.t.

Reaction control by TLC ($\text{CH}_2\text{Cl}_2/\text{MeOH}$ 90:10, $R_{f\text{prod}} = 0.2$), revealed complete reaction. The solvent was removed under reduced pressure and the obtained orange oil was purified by column chromatography (SiO_2 , $\text{CH}_2\text{Cl}_2/\text{MeOH}$ 90:10, $R_{f\text{prod}} = 0.2$), yielding compound **7** as an orange crystalline solid (165.8 mg, 90%). ^1H NMR (400 MHz, CD_3OD): 8.29 (d, $^4J(\text{H,H}) = 1.8$ Hz, 1H), 7.83 (dd, $^3J(\text{H,H}) = 8.3$ Hz, $^4J(\text{H,H}) = 1.8$ Hz, 1H), 7.14 (d, $^3J(\text{H,H}) = 8.3$ Hz, 1H), 6.72-6.62 (m, 4H), 6.54 (dd, $^3J(\text{H,H}) = 8.7$ Hz, $^4J(\text{H,H}) = 2.4$ Hz, 2H), 5.00 (s, 1H), 4.00 (qd, $^3J(\text{H,H}) = 17.5$ Hz, $^4J(\text{H,H}) = 2.5$ Hz, 2H), 3.06 (t, $^3J(\text{H,H}) = 6.9$ Hz, 2H), 2.60 (t, $^4J(\text{H,H}) = 2.5$ Hz, 1H), 1.96-1.74 (m, 2H), 1.61-1.36 (m, 14H). ^{13}C NMR (100 MHz, CDCl_3): 183.0 (C), 174.2 (C), 171.2 (C), 164.9 (C), 161.6 (C), 158.6 (C), 154.2 (C), 149.5 (C), 142.6 (C), 131.5 (CH), 130.3 (CH), 129.0 (C), 125.5 (CH), 119.5 (CH), 113.7 (CH), 111.5 (C), 103.5 (CH), 80.4 (C), 79.9 (C), 72.3 (CH), 58.9 (CH), 41.2 (CH_2), 33.4 (CH_2), 30.7 (CH_2), 29.5 (CH_2), 28.8 (CH_3), 23.9 (CH_2). UHPLC-MS: $m/z = 673$ (100, $[\text{M}+\text{H}]^+$). HRMS (ESI) m/z calculated for $\text{C}_{35}\text{H}_{37}\text{N}_4\text{O}_8\text{S}^+ [\text{M}+\text{H}]^+$: 673.2327, found: 673.2322.

Synthesis of AA-PA (**8**)



Scheme S2: a) Acetyl chloride, MeOH, 1 hour, r.t., 89%; b) 1. Carboxyfluorescein isothiocyanate, Triethylamine, DMF, 2 hours, r.t.; 2. Piperidine, DMF, 12 hours, r.t., 98%; c) Asparagusic acid NHS, $\text{CH}_2\text{Cl}_2/\text{MeOH}$, 4 hours, r.t., 11%.

Compound S3. Compound **S1** (203.3 mg, 0.40 mmol) was dissolved in 20 mL of MeOH. To the resulting clear solution 2 mL of acetyl chloride were added dropwise. The reaction mixture was stirred one hour at r.t., until TLC control ($\text{CH}_2\text{Cl}_2/\text{MeOH}$ 90:10, $R_{f\text{prod}} = 0.0$) showed complete cleavage of the Boc group. The solvent was evaporated under reduced pressure to a volume of 2 mL, then dripped in 150 mL of Et₂O. The resulting solid was filtered, washed with Et₂O and dried in vacuum, yielding 157.6 mg (89%) of compound **S3** as a colourless solid. ^1H NMR (400 MHz, CD_3OD): 7.79 (d, $^3J(\text{H,H}) = 7.5$ Hz, 2H), 7.66 (t, $^3J(\text{H,H}) = 7.7$ Hz, 2H), 7.38 (t, $^3J(\text{H,H}) = 7.4$ Hz, 2H), 7.31 (t, $^3J(\text{H,H}) = 7.4$ Hz, 2H), 4.39 (d, $^3J(\text{H,H}) = 6.5$ Hz, 2H), 4.20 (t, $^3J(\text{H,H}) = 6.6$ Hz, 1H), 4.08 (dd, $^3J(\text{H,H}) = 8.8$ Hz, $^3J(\text{H,H}) = 5.2$ Hz, 1H), 3.96 (d, $^3J(\text{H,H}) = 6.3$ Hz, $^4J(\text{H,H}) = 2.2$ Hz, 2H), 2.91 (t, $^3J(\text{H,H}) = 7.0$ Hz, 2H), 2.59 (t, $^3J(\text{H,H}) = 2.2$ Hz, 1H), 1.85-1.76 (m, 1H), 1.69-1.62 (m, 3H), 1.52-1.34 (m, 2H). ^{13}C NMR (100 MHz, CD_3OD): 174.3 (C), 158.4 (C), 145.3 (C), 142.6 (C), 128.8 (CH), 128.2 (CH), 126.1 (CH), 120.9 (CH), 80.4 (C), 72.30 (CH), 67.86 (CH_2), 56.03 (CH), 48.40 (CH), 40.5 (CH_2), 32.6 (CH_2), 29.5 (CH_2), 28.0 (CH_2), 23.8 (CH_2). UHPLC-MS: $m/z = 406$ (100, $[\text{M}+\text{H}]^+$).

Compound S4. Compound **S3** (118.7 mg, 0.27 mmol), carboxyfluorescein isothiocyanate (101.7 mg, 0.27 mmol) and triethylamine (40 μL , 0.28 mmol) were dissolved in 20 mL of dry DMF. The reaction mixture was stirred for 1 hour, then additional triethylamine was added (80 μL , 0.56 mmol). After one hour UHPLC-MS analysis revealed no residual traces of compound **S3**. Piperidine (100 μL , 1.01 mmol) was added and the reaction mixture was stirred overnight at r.t. The reaction mixture was added dropwise to 200 mL of cold Et₂O, yielding an orange solid. The solid was filtered and dissolved in 70 mL of water. The resulting solution was extracted with CH_2Cl_2 (3 $\times$ 40 mL), then water was removed under reduced pressure. 5 mL of 10% HCl in water were added to the residue and evaporated again under reduced pressure, yielding compound **S4** as an orange solid (160.6 mg, 98%). ^1H NMR (400 MHz, CD_3OD): 8.54 (d, $^4J(\text{H,H}) = 1.9$ Hz, 1H), 8.09 (dd, $^3J(\text{H,H}) = 8.3$ Hz, $^4J(\text{H,H}) = 1.9$ Hz, 1H), 7.61 (d, $^3J(\text{H,H}) = 9.2$ Hz, 2H), 7.40 (d, $^3J(\text{H,H}) = 8.3$ Hz, 1H), 7.34 (d, $^4J(\text{H,H}) = 2.2$ Hz, 2H), 7.19 (dd, $^3J(\text{H,H}) = 9.2$ Hz, $^4J(\text{H,H}) = 2.2$ Hz, 2H), 4.06 (t, $^3J(\text{H,H}) = 2.4$

Hz, 2H), 3.88 (t, 3J (H,H) = 6.5 Hz, 1H), 3.69 (s, 2H), 2.67 (t, 3J (H,H) = 2.4 Hz, 1H), 2.00-1.88 (m, 2H), 1.85-1.70 (m, 2H), 1.63-1.46 (m, 2H). ^{13}C NMR (100 MHz, CD_3OD): 171.9 (C), 169.8 (C), 167.8 (C), 160.5 (C), 143.7 (C), 134.2 (CH), 132.4 (C), 131.2 (C), 129.1 (CH), 129.0 (CH), 128.8 (CH), 120.7 (CH), 118.1 (C), 103.3 (CH), 80.2 (C), 72.8 (CH), 54.4 (CH), 44.9 (CH_2), 32.3 (CH_2), 29.6 (CH_2), 29.6 (CH_2), 23.2 (CH_2). UHPLC-MS: m/z = 573 (100, $[\text{M}+\text{H}]^+$).

Compound AA-PA 8. Compound **S4** (75.2 mg, 0.12 mmol) and asparagusic acid NHS ester (30.5 mg, 0.12 mmol) were dissolved in 10 mL of $\text{CH}_2\text{Cl}_2/\text{MeOH}$ 50:50. Triethylamine (17 μL , 0.12 mmol) was added and the reaction stirred at r.t. After one hour triethylamine (17 μL , 0.12 mmol) and asparagusic acid NHS ester (15.0 mg, 0.06 mmol) were added to have full consumption of the amine (controlled by UHPLC-MS). Solvent was removed under reduced pressure and the resulting oil was purified by column chromatography (SiO_2 , $\text{CH}_2\text{Cl}_2/\text{MeOH}$ 95:5 + 0.1% acetic acid, $R_{\text{f prod}} = 0.2$). The crude product was further purified by semi-preparative HPLC using JASCO LC-2000 Plus system equipped with quaternary pump (JASCO PU-2089) and UV/VIS detector (JASCO UV-2077 Plus) and a Phenomenex Jupiter Proteo (250x10 mm, 4.0 μm particles size, flow 3.0 mL/min) column, yielding compound **8** as an orange crystalline solid (9.67 mg, 11%). ^1H NMR (400 MHz, $\text{CD}_3\text{OD}/\text{DMSO}-d_6$): 8.24 (s, 1H), 7.82 (d, 3J (H,H) = 7.8 Hz, 1H), 7.20 (d, 3J (H,H) = 7.8 Hz, 1H), 6.80-6.75 (m, 4H), 6.65 (d, 3J (H,H) = 7.8 Hz, 2H), 4.35 (dd, 3J (H,H) = 9.0 Hz, 3J (H,H) = 5.2 Hz, 1H), 3.98 (dd, 3J (H,H) = 5.5 Hz, 4J (H,H) = 2.5 Hz, 2H), 3.65 (s br, 2H), 3.43-3.38 (m, 2H), 3.25-3.22 (m, 2H), 2.67 (t, 4J (H,H) = 2.5 Hz, 1H), 1.88-1.83 (m, 1H), 1.78-1.66 (m, 3H), 1.55-1.42 (m, 2H). ^{13}C NMR (100 MHz, $\text{CD}_3\text{OD}/\text{DMSO}-d_6$): 182.6 (C), 173.9 (C), 173.8 (C), 170.5 (C), 162.4 (C), 154.7 (C), 142.7 (C), 131.2 (CH), 130.8 (CH), 129.2 (C), 126.2 (CH), 120.1 (CH), 118.7 (C), 116.4 (C), 114.4 (CH), 112.2 (C), 103.5 (CH), 80.8 (C), 72.6 (CH), 54.7 (CH), 52.9 (CH), 45.1 (CH_2), 43.3 (CH_2), 32.8 (CH_2), 29.6 (CH_2), 29.4 (CH_2), 24.2 (CH_2). 171.9 (C), 169.8 (C), 167.8 (C), 164.6 (C), 160.8 (C), 160.6 (C), 143.7 (C), 134.2 (CH), 132.4 (C), 131.17 (CH), 128.8 (CH), 128.1 (C), 126.3 (CH), 120.7 (CH), 118.1 (C), 103.3 (CH), 80.2 (C), 72.8 (CH), 54.4 (CH), 44.9 (CH_2), 32.3 (CH_2), 29.6 (CH_2), 29.6 (CH_2), 23.2 (CH_2). UHPLC-MS: m/z = 705 (100, $[\text{M}+\text{H}]^+$). HRMS (ESI) m/z calculated for $\text{C}_{34}\text{H}_{33}\text{N}_4\text{O}_7\text{S}_3^+$ $[\text{M}+\text{H}]^+$: 705.1506, found: 705.1504.

Cell culture and preparation of lysates

HeLa Kyoto, Caco-2, MCF7, WM164, U-87 MG and A431 cells were maintained in DMEM media. PC-3 cells were maintained in DMEM/F-12 (1:1) media. All media were supplemented with 10% fetal calf serum (FCS), non-essential amino acids and penicillin streptomycin. Cells were grown at 37 °C under 5% CO_2 atmosphere. Cells were harvested by scraping, centrifuged at 1'500 xg for five minutes at 4 °C and resuspended in PBS. Cells were lysed by sonication to form cell lysates and protein concentration was determined using the Bradford assay.

Cloning and site-directed mutagenesis

The TFRC-WT gene (BC001188) was amplified from a HeLa cDNA library that was generated by RNA extraction and subsequent reverse transcription (Bio-Rad, iScript cDNA synthesis kit). The gene was flanked with Attb-recombination sites using the following primers: forward 5'-GGG GAC AAG TTT GTA CAA AAA AGC AGG CTC CAT GAT GGA TCA AGC TAG ATC AGC ATT CTC-3' and reverse 5'-GGG GAC CAC TTT GTA CAA GAA AGC TGG GTC AAA CTC ATT GTC AAT GTC CCA AAC GTC ACC-3'. Purification of PCR products was achieved by running agarose gel (1%) followed by gel excision. The purified product was used for the recombination into the pDONR221 Gateway Vector (Thermo Scientific). The resulting TFRC-pENTR was used for PCR based site directed mutagenesis to generate the single-mutated pENTR vectors TFRC-C556S-pENTR (forward 5'-TTC AGC TTT TGC GAG GAC ACA GAT TAT CCT TAT-3' and reverse 5'-AAA GCT GAA AGA AAC TGC TGG GAT TCC AGA ATA-3') and TFRC-C558S-pENTR (forward 5'-TTT AGC GAG GAC ACA GAT TAT CCT TAT TTG GGT ACC-3' and reverse 5'-CTC GCT AAA ACA GAA AGA AAC TGC TGG GAT-3'). The double mutation TFRC-C556S-C558S-pENTR was prepared by using the TFRC-C556S-pENTR and applying the following primers: forward 5'-TTT AGC GAG GAC ACA GAT TAT CCT TAT TTG GGT ACC-3' and reverse 5'-CTC GCT AAA GCT GAA AGA AAC TGC TGG GAT-3'. After each PCR-based site directed mutagenesis, the PCR reaction was incubated with DpnI (37 °C, 12 hours) in order to degrade the template plasmid. To get the C-terminal mCherry- and V5-tagged pEXP vectors for transfection, LR recombination was performed using the pENTR and either the pcDNA 6.2/V5-DEST Gateway Vector (Thermo Scientific) or pcDNA 6.2/mCherry-DEST Gateway Vector (plasmid was generously donated by the Gruenberg laboratory, UniGe).

Western blots

Western blot was performed with a Trans-Blot Turbo transfer system (Bio-Rad) on nitrocellulose membrane. Membrane was blocked with 5% milk in Tris-Buffered Saline with 0.1% Tween (TBST) for 30 minutes. Primary antibody (Invitrogen, V5 epitope tag 1/5000;

Zymed, TFRC 1/1000; Sigma, α -tubulin 1/500; Cell Signaling, β -actin 1/1000) in 5% milk in TBST was added and incubated overnight at 4 °C. Membrane was washed three times for five minutes with TBST and incubated with secondary HRP antibody (GE Healthcare, 1/2000 in 5% milk in TBST) for one hour at r.t. Membrane was washed three times for five minutes with TBST and visualized with a Fusion Solo (Vilber Lourmat) after ECL (Witec AG).

SDS-PAGE-based peptide uptake fluorescence assay

HeLa Kyoto cells were seeded (200'000 cells/mL) in a 12-well plate and left overnight to attach. The wells were washed one time with PBS and treated with either H₂O, 1 μ M **1**, 1 μ M **2**, 1 μ M **4** or 1 μ M **5** for two hours in media without FCS. Cells were washed two times with PBS and trypsinized for 10 minutes at 37 °C under 5% CO₂ atmosphere. Trypsin was stopped with the addition of culture media and cells were centrifuged at 1'500 x g for five minutes at 4 °C and resuspended in PBS. SDS-PAGE nonreducing loading buffer (4x) was added and proteins were minimally separated using an 18% SDS-PAGE gel. Gels were visualized at 625nm using a Hitachi FMBIO II Multi-View fluorescence scanner, then gels were fully run and stained using Coomassie.

Peptide cellular uptake time course experiment

HeLa Kyoto cells were seeded (150'000 cells/mL) in a 24-well plate containing a coverslip and left overnight to attach. The wells were washed one time with PBS and treated with either 3 μ M **1** or 3 μ M **2** for 0, 20, 60 or 120 minutes in media without FCS. Cells were washed 10 times with PBS⁺⁺ (PBS supplemented with 0.1 g/L CaCl₂ and 0.1 g/L MgCl₂) and fixed with 4% paraformaldehyde for 20 minutes at r.t. Cells were washed six times with PBS⁺⁺, one time with water and then mounted on a slide with ProLong Gold antifade mountant with DAPI (Life Technologies). Cells were visualized with an LSM 700 confocal microscope (Zeiss).

Preparation of proteomes for SDS-PAGE experiments

Lysate (2 mg/mL, 50 μ L) was treated with indicated compound or DMSO or H₂O for one hour at r.t. Sample was then treated with either 100 μ M AA-PA **8**, 100 μ M Boc-PA **7** or DMSO (1 μ L of 50x stock in DMSO) for one hour at r.t. Click chemistry was initiated by the addition of TMRazide (125 μ M, 25x stock in DMSO), tris(2-carboxyethyl)phosphine hydrochloride (TCEP, Alfa Aesar, 1 mM, fresh 50x stock in water), tris[(1-benzyl-1H-1,2,3-triazol-4-yl)methyl]amine (TBTA, Sigma-Aldrich, 100 μ M, 16x stock in DMSO:Butanol 1:4), and copper(II) sulfate (1 mM, 50x stock in water) to the lysate and incubated in the dark for one hour at r.t. SDS-PAGE nonreducing loading buffer (4x) was added or when indicated reducing loading buffer (4x) was added and proteins were heat treated for 5 minutes at 95 °C. Proteins were separated using a 10% SDS-PAGE gel. Gels were visualized as described above, then stained using Coomassie. Images were quantified with ImageJ.

In situ labeling experiment

HeLa Kyoto cells were seeded (450'000 cells/mL) in a 6 cm Petri dish and left overnight to attach. The plate was washed one time with PBS and DMSO, 10 μ M Boc-PA **7** or 10 μ M AA-PA **8** was added (500x stock in DMSO) and cells were incubated for one hour at 37 °C in media without FCS. Lysate preparation, click chemistry, nonreducing SDS-PAGE and visualization were performed as described above.

Cell viability assay

HeLa Kyoto (50'000 cells/mL), Caco-2 (75'000 cells/mL), MCF7 (75'000 cells/mL) and WM164 (50'000 cells/mL) cells were seeded in a 96-well plate and allowed to attach overnight. Cells were incubated with indicated concentrations of either asparagusic acid, Bak BH3, **3**, Bim BH3, **6**, staurosporine, **1**, **2**, H₂O or DMSO for 36 hours in media without FCS. Cells were imaged using a SpectraMax i3 equipped with a SpectraMax MiniMax imaging cytometer (Molecular Devices), counted with ImageJ and EC₅₀ values were calculated with GraphPad Prism (V6.03).

Annexin V staining for cell microscopy

HeLa Kyoto cells were seeded (50'000 cells/mL) in a 24-well plate containing a poly-lysine coated coverslip and left overnight to attach. Cells were washed one time with PBS and incubated with H₂O, 1 μ M staurosporine, 50 μ M Bak BH3, 50 μ M **3**, 50 μ M Bim BH3, 50 μ M **6** or 50 μ M asparagusic acid for 24 hours in media without FCS (or four hours for staurosporine). Cells were washed one time with PBS⁺⁺ and coverslips were transferred to a wet box. Cells were stained with Annexin-V-FLUOS staining kit (Roche) for 30 minutes,

washed two times with PBS⁺⁺ and fixed with 4% paraformaldehyde for 20 minutes at r.t. Cells were washed three times with PBS⁺⁺, one time with water and then mounted on a slide with ProLong Gold antifade mountant with DAPI (Life Technologies). Cells were visualized with an LSM 700 confocal microscope (Zeiss).

Detection of DNA double strand breaks (γ H2AX)

HeLa Kyoto cells were seeded (100'000 cells/mL) in a 12-well plate and left overnight to attach. The wells were washed one time with PBS and treated with either H₂O, 1 μ M staurosporine, 100 μ M Bak BH3, 100 μ M 3 or 100 μ M asparagusic acid for 24 hours (or eight hours for staurosporine) in media without FCS at 37 °C. Cells were collected, centrifuged at 1'500 x g for five minutes, resuspended in PBS and centrifuged once more. Cell lysates were prepared and SDS-PAGE reducing loading buffer (4x) was added and proteins were separated using an 18% SDS-PAGE gel. Proteins were transferred to a nitrocellulose membrane and blocked with 5% milk in TBST for one hour. Membrane was washed three times for five minutes with TBST and incubated with either rabbit polyclonal antibody against γ H2AX (pSer¹³⁹ H2AX)(Sigma, 1/1000 in 5% BSA in TBST) or rabbit polyclonal antibody against β -Actin (Cell Signaling, 1/1000 in 5% milk in TBST) for five hours at r.t. Membrane was washed three times for five minutes with TBST and incubated with anti-rabbit HRP antibody (GE Healthcare, 1/2000 in 5% milk in TBST) for one hour at r.t. Membrane was washed three times for five minutes with TBST and visualized after ECL.

Visualization of AA-PA 8 cellular uptake

HeLa Kyoto (150'000 cells/mL), A431 (150'000 cells/mL), PC-3 (150'000 cells/mL), MCF7 (250'000 cells/mL), Caco-2 (250'000 cells/mL) and U-87 MG (250'000 cells/mL) cells were seeded in a 24-well plate containing a coverslip and left overnight to attach. The wells were washed one time with PBS and treated with either Boc-PA 7 or AA-PA 8 at indicated concentration for one hour in media without FCS at 37 °C. Cells were washed three times with PBS⁺⁺ and fixed with 4% paraformaldehyde for 20 minutes at r.t. Cells were washed six times with PBS⁺⁺, one time with water and then mounted on a slide with ProLong Gold antifade mountant with DAPI (Life Technologies). Cells were visualized with an LSM 700 confocal microscope (Zeiss).

Visualization of AA-PA 8 cellular uptake in the presence of FCS

HeLa Kyoto cells were seeded (150'000 cells/mL) in a 24-well plate containing a coverslip and left overnight to attach. The wells were washed one time with PBS and treated with either 10 μ M Boc-PA 7 or 10 μ M AA-PA 8 for indicated amount of time in media containing indicated concentration of FCS at 37 °C. Cells were washed three times with PBS⁺⁺ and fixed with 4% paraformaldehyde for 20 minutes at r.t. Cells were washed six times with PBS⁺⁺, one time with water and then mounted on a slide with ProLong Gold antifade mountant with DAPI (Life Technologies). Cells were visualized with an LSM 700 confocal microscope (Zeiss).

Visualization of AA-PA 8 and Dextran colocalization

HeLa Kyoto cells were seeded (150'000 cells/mL) in a 24-well plate containing a coverslip and left overnight to attach. The wells were washed one time with PBS and treated with 10 μ M AA-PA 8 and 0.5 mg/mL Dextran Cascade Blue (Molecular Probes, 10 kDa) for one hour in media without FCS at 37 °C. Cells were washed three times with PBS⁺⁺ and fixed with 4% paraformaldehyde for 20 minutes at r.t. Cells were washed six times with PBS⁺⁺, one time with water and then mounted on a slide with ProLong Gold antifade mountant (Life Technologies). Cells were visualized with an LSM 700 confocal microscope (Zeiss).

Visualization of transferrin uptake

HeLa Kyoto cells were seeded (150'000 cells/mL) in a 24-well plate containing a coverslip and left overnight to attach. The wells were washed one time with PBS and treated with 50 μ g/mL transferrin-Alexa Fluor 555 conjugate (Molecular Probes) for one hour in media without FCS at 37 °C. Cells were washed three times with PBS⁺⁺ and fixed with 4% paraformaldehyde for 20 minutes at r.t. Cells were washed three times with PBS⁺⁺, blocked and permeabilized with a 5% bovine serum albumin (BSA), 0.05% saponin solution in PBS⁺⁺ for 30 minutes and washed one time with PBS⁺⁺ 0.1% BSA. Mouse monoclonal V5-directed antibody (Invitrogen, 1/400 in PBS⁺⁺ 0.1% BSA) was added and incubated for one hour at r.t. Cells were washed three times with PBS⁺⁺ 0.1% BSA and incubated for one hour with anti-mouse IgG Alexa Fluor 488 (Jackson, 1/200 in PBS⁺⁺ 0.1% BSA). Cells were washed three times with PBS⁺⁺ 0.1% BSA, one time with PBS, one time with water and then mounted on a slide with ProLong Gold antifade mountant with DAPI (Life Technologies). Cells were visualized with an LSM 700 confocal microscope (Zeiss).

AA-PA 8 target identification using LC-MS/MS

HeLa Kyoto, MCF7 and Caco-2 cells were seeded (350'000 cells/mL) in a 10 cm Petri dish and left overnight or two days to attach and grow. The dishes were washed one time with PBS and treated with either DMSO, 10 μ M Boc-PA 7 or 10 μ M AA-PA 8, for one hour in media without FCS at 37 °C. Cells were washed two times with PBS and cell lysates were prepared as describe above (2 mg/mL, 0.5 mL). Biotin azide (20 μ M, 50x stock in DMSO), tris(2-carboxyethyl)phosphine hydrochloride (TCEP) (1 mM, 50x fresh stock in water), tris[(1-benzyl-1*H*-1,2,3-triazol-4-yl)methyl]amine (TBTA) (100 μ M, 16x stock in DMSO:tButanol 1:4), and copper(II) sulfate (1 mM, 50x stock in water) were added to the proteome and left to react for one hour at r.t. Protein was precipitated by adding MeOH (4 vol.), CHCl_3 (1 vol.) and water (3 vol.) to the reaction mixture and the turbid mixture was centrifuged for five minutes at 14'000 x g at 4 °C yielding a protein layer between the aqueous and organic layers. The protein layer was isolated, dried and solubilized in 2% SDS in PBS via sonication. Tube was centrifuged at 4'700 x g for five minutes and soluble fraction was transferred to a new tube. PBS was added to give a final SDS concentration of 0.2%. 70 μ L of streptavidin agarose beads (ProteoChem) were added and the mixture was rotated for four hours at r.t. Beads were washed with 1% SDS in PBS (1x 10 mL), PBS (3x 10 mL), and water (3x 10 mL). Beads were resuspended in 6 M urea in 50 mM NH_4HCO_3 (45 μ L), reduced with 10 mM neutralized TCEP (20x fresh stock in water) for 30 minutes at r.t., and alkylated with 25 mM iodoacetamide (250 mM fresh stock in water) for 30 minutes at r.t. in the dark. Sample was diluted to 2 M urea with 50 mM NH_4HCO_3 , and digested with trypsin (Thermo Scientific, 0.5 μ L of 0.5 μ g/ μ L) in the presence of 1 mM CaCl_2 for 12 hours at 37 °C. Samples were acidified to a final concentration of 5% acetic acid, desalted over a self-packed C18 spin column and dried. Samples were analyzed by LC-MS/MS (see below) and the MS data was processed with MaxQuant (see below).

In situ global proteomics profiling using LC-MS/MS

HeLa Kyoto cells were seeded (100'000 cells/mL) in a 12-well plate and left overnight to attach. The wells were washed one time with PBS and treated with either 100 μ M Bak BH3 or 100 μ M 3 for 24 hours. Cells were washed two times with PBS and lysates were prepared. Samples (15 μ g) were denatured with 6 M urea in 50 mM NH_4HCO_3 , reduced with 10 mM TCEP for 30 minutes and alkylated with 25 mM iodoacetamide for 30 minutes in the dark. Samples were diluted to 2 M urea with 50 mM NH_4HCO_3 , and digested with trypsin (Thermo Scientific, 0.75 μ L of 0.5 μ g/ μ L) in the presence of 1 mM CaCl_2 for 12 hours at 37 °C. Samples were acidified to a final concentration of 5% acetic acid, desalted over a self-packed C18 spin column and dried. Samples were analyzed by LC-MS/MS (see below) and the MS data was processed with MaxQuant (see below).

LC-MS/MS analysis

Peptides were resuspended in water with 0.1% formic acid (FA) and analyzed using Proxeon EASY-nLC 1000 nano-UHPLC coupled to QExactive Plus Quadrupole-Orbitrap mass spectrometer (Thermo Scientific). The chromatography column consisted of a 30 cm long, 75 μ m i.d. microcapillary capped by a 5 μ m tip and packed with ReproSil-Pur 120 C18-AQ 2.4 μ m beads (Dr. Maisch GmbH). LC solvents were 0.1% FA in H_2O (Buffer A) and 0.1% FA in MeCN (Buffer B). Peptides were eluted into the mass spectrometer at a flow rate of 300 nL/min. over a 240 minutes linear gradient (3-35% Buffer B) at 65 °C. Data was acquired in data-dependent mode (top-20, NCE 30, R = 17'500) after full MS scan (R = 70'000, m/z 400-1'300). Dynamic exclusion was set to 10 s, peptide match to prefer and isotope exclusion was enabled.

MaxQuant analysis

The MS data was analyzed with MaxQuant² (V1.5.2.8) and searched against the human proteome (Uniprot) and a common list of contaminants (included in MaxQuant). The first peptide search tolerance was set at 20 ppm, 10 ppm was used for the main peptide search and fragment mass tolerance was set to 0.02 Da. The false discovery rate for peptides, proteins and sites identification was set to 1%. The minimum peptide length was set to six amino acids and peptide re-quantification, label-free quantification (MaxLFQ) and "match between runs" were enabled. The minimal number of peptides per protein was set to two. Methionine oxidation was searched as a variable modification and carbamidomethylation of cysteines was searched as a fixed modification.

Supplemental Figures

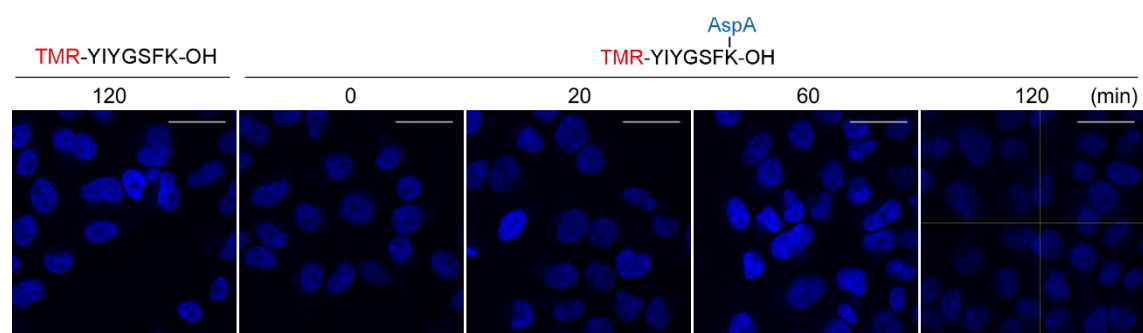


Figure S1: Images with DAPI staining corresponding to TMR images in Figure 2B. White bar indicates 30 μ m.

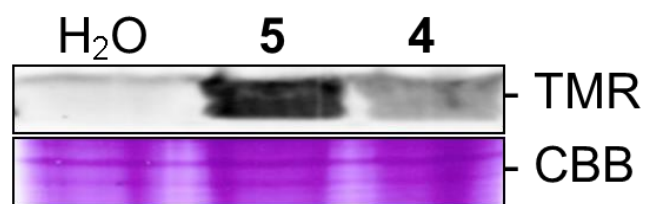


Figure S2: Measurement of cellular uptake of peptides **5** or **4** using the SDS-PAGE-based fluorescence assay. Cells were treated with 1 μ M peptide or H₂O for two hours.

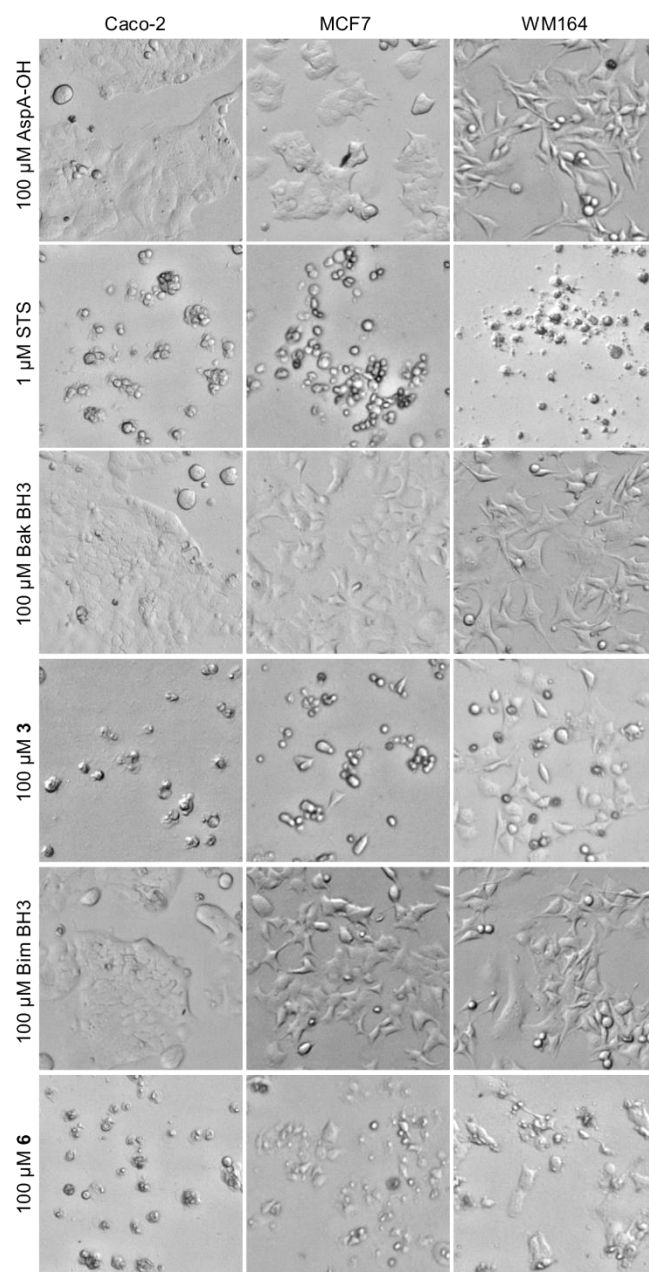


Figure S3: Brightfield images of different cancer cells lines treated with indicated compounds for 36 hours.

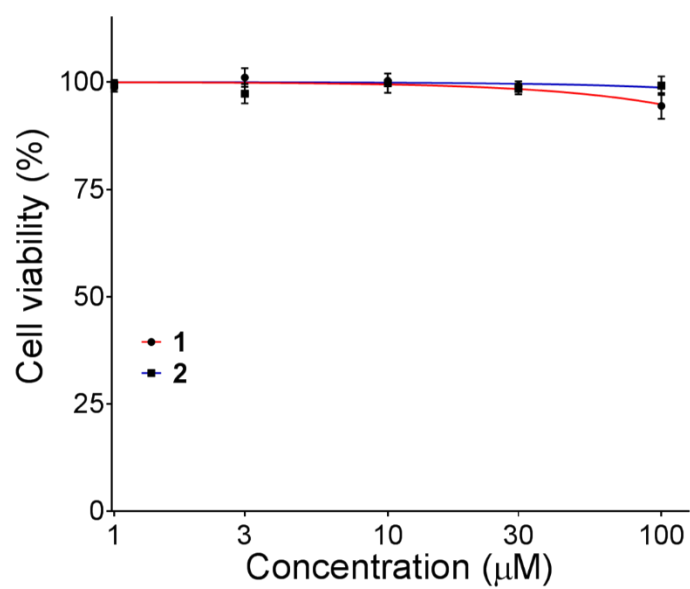


Figure S4: EC₅₀ curves for peptides **1** (AspA-tagged) and **2** (untagged) in HeLa Kyoto cells. Cells were treated for 36 hours (shown are relative values±SD; $n = 3$).

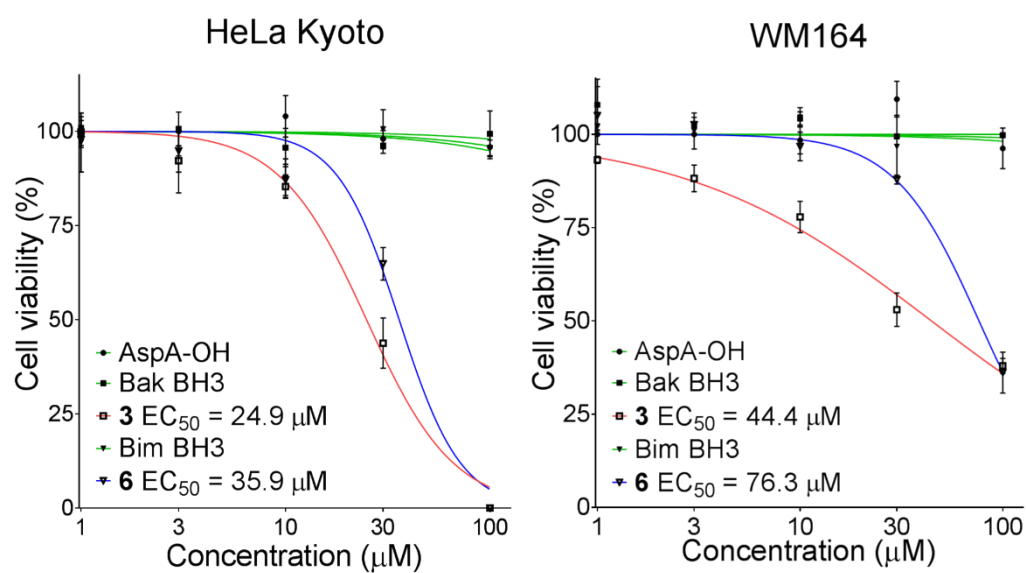


Figure S5: EC_{50} curves for indicated compounds in HeLa Kyoto and WM164 cells. Cells were treated for 36 hours (shown are relative values $\pm$ SD; $n = 3$).

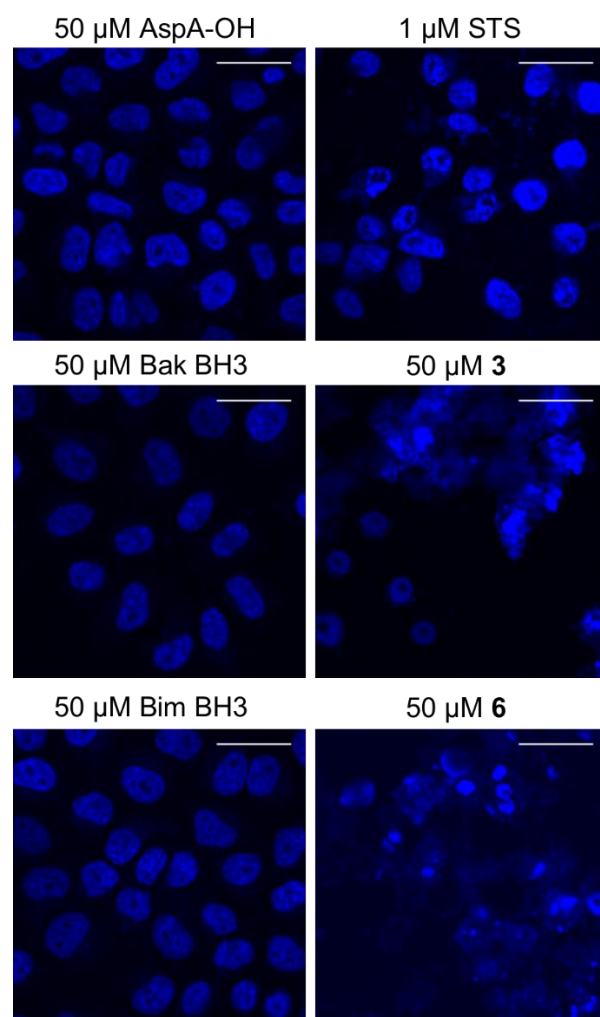


Figure S6: Images with DAPI staining corresponding to annexin V images in Figure 3C. White bar indicates 30 μ m.

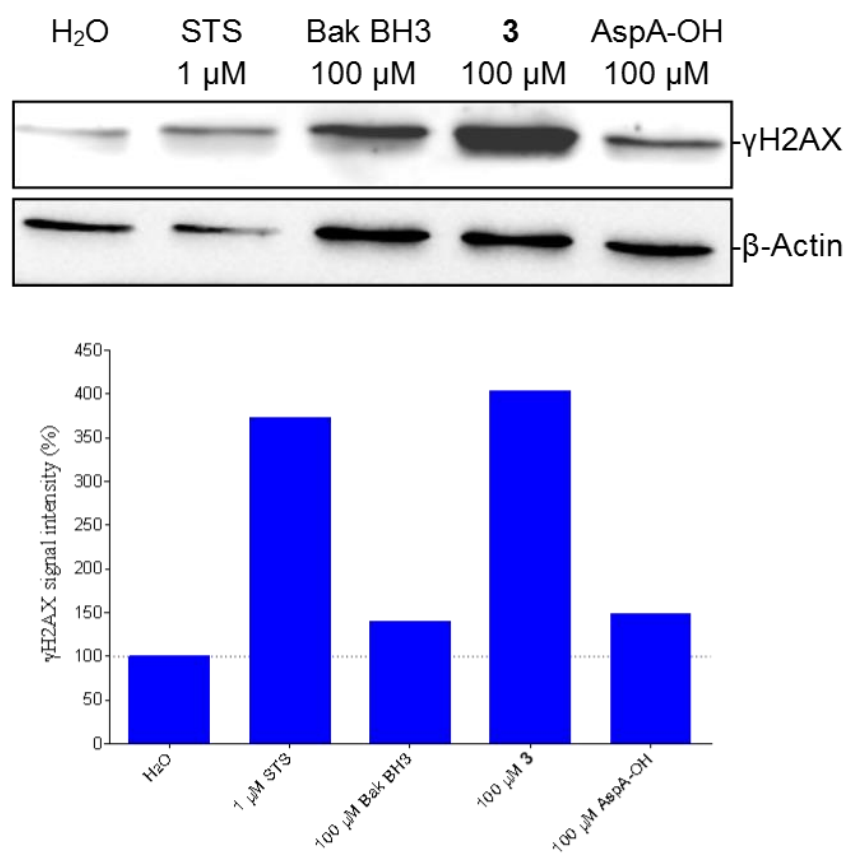


Figure S7: γH2AX and β-Actin western blot of HeLa Kyoto cells treated with indicated compounds. γH2AX blot signals were measured and normalized to β-Actin. γH2AX quantification is shown on bottom.

Upregulated proteins

GO term	Description	P-value	Genes
GO:0034976	response to endoplasmic reticulum stress	1.39E-08	STC2 - stanniocalcin 2 SRPR - signal recognition particle receptor (docking protein) DNAJC3 - dnaj (hsp40) homolog, subfamily c, member 3 HSP90B1 - heat shock protein 90kda beta (grp94), member 1 BAK1 - bcl2-antagonist/killer 1 THBS1 - thrombospondin 1 HSPA5 - heat shock 70kda protein 5 (glucose-regulated protein, 78kda) PDIA4 - protein disulfide isomerase family a, member 4 DERL1 - derlin 1 HYOU1 - hypoxia up-regulated 1 SEC61B - sec61 beta subunit PDIA3 - protein disulfide isomerase family a, member 3
GO:0030968	endoplasmic reticulum unfolded protein response	4.14E-06	STC2 - stanniocalcin 2 SRPR - signal recognition particle receptor (docking protein) DNAJC3 - dnaj (hsp40) homolog, subfamily c, member 3 HSP90B1 - heat shock protein 90kda beta (grp94), member 1 HSPA5 - heat shock 70kda protein 5 (glucose-regulated protein, 78kda) DERL1 - derlin 1 HYOU1 - hypoxia up-regulated 1 SEC61B - sec61 beta subunit
GO:0006950	response to stress	2.15E-05	PON2 - paraoxonase 2 MAP7 - microtubule-associated protein 7 SRPR - signal recognition particle receptor (docking protein) BAK1 - bcl2-antagonist/killer 1 HSP90AB2P - heat shock protein 90kda alpha (cytosolic), class b member 2, pseudogene MANF - mesencephalic astrocyte-derived neurotrophic factor TUBB - tubulin, beta class i PDIA4 - protein disulfide isomerase family a, member 4 SEC61B - sec61 beta subunit SQSTM1 - sequestosome 1 CSK - c-src tyrosine kinase STC2 - stanniocalcin 2 DNAJC3 - dnaj (hsp40) homolog, subfamily c, member 3 HSP90B1 - heat shock protein 90kda beta (grp94), member 1 THBS1 - thrombospondin 1 IMPDH1 - imp (inosine 5'-monophosphate) dehydrogenase 1 HMOX1 - heme oxygenase (decycling) 1 GCLC - glutamate-cysteine ligase, catalytic subunit HSPA5 - heat shock 70kda protein 5 (glucose-regulated protein, 78kda) HYOU1 - hypoxia up-regulated 1 DERL1 - derlin 1 PDIA3 - protein disulfide isomerase family a, member 3
GO:0036498	IRE1-mediated unfolded protein response	2.14E-04	DNAJC3 - dnaj (hsp40) homolog, subfamily c, member 3 SRPR - signal recognition particle receptor (docking protein) HSPA5 - heat shock 70kda protein 5 (glucose-regulated protein, 78kda) HYOU1 - hypoxia up-regulated 1 SEC61B - sec61 beta subunit

Downregulated proteins

GO term	Description	P-value	Genes
GO:0006120	mitochondrial electron transport, NADH to ubiquinone	1.48E-05	NDUFB10 - nadh dehydrogenase (ubiquinone) 1 beta subcomplex, 10, 22kda NDUFB4 - nadh dehydrogenase (ubiquinone) 1 beta subcomplex, 4, 15kda NDUFS6 - nadh dehydrogenase (ubiquinone) fe-s protein 6, 13kda (nadh-coenzyme q reductase) NDUFA4 - nadh dehydrogenase (ubiquinone) 1 alpha subcomplex, 4, 9kda NDUFA2 - nadh dehydrogenase (ubiquinone) 1 alpha subcomplex, 2, 8kda NDUFS1 - nadh dehydrogenase (ubiquinone) fe-s protein 1, 75kda (nadh-coenzyme q reductase)
GO:0022904	respiratory electron transport chain	2.77E-05	NDUFB10 - nadh dehydrogenase (ubiquinone) 1 beta subcomplex, 10, 22kda PMPCB - peptidase (mitochondrial processing) beta NDUFB4 - nadh dehydrogenase (ubiquinone) 1 beta subcomplex, 4, 15kda NDUFS6 - nadh dehydrogenase (ubiquinone) fe-s protein 6, 13kda (nadh-coenzyme q reductase) NDUFA4 - nadh dehydrogenase (ubiquinone) 1 alpha subcomplex, 4, 9kda COX5B - cytochrome c oxidase subunit vb NDUFA2 - nadh dehydrogenase (ubiquinone) 1 alpha subcomplex, 2, 8kda SDHA - succinate dehydrogenase complex, subunit a, flavoprotein (fp) NDUFS1 - nadh dehydrogenase (ubiquinone) fe-s protein 1, 75kda (nadh-coenzyme q reductase)
GO:0022900	electron transport chain	2.77E-05	NDUFB10 - nadh dehydrogenase (ubiquinone) 1 beta subcomplex, 10, 22kda PMPCB - peptidase (mitochondrial processing) beta NDUFB4 - nadh dehydrogenase (ubiquinone) 1 beta subcomplex, 4, 15kda NDUFS6 - nadh dehydrogenase (ubiquinone) fe-s protein 6, 13kda (nadh-coenzyme q reductase) NDUFA4 - nadh dehydrogenase (ubiquinone) 1 alpha subcomplex, 4, 9kda COX5B - cytochrome c oxidase subunit vb NDUFA2 - nadh dehydrogenase (ubiquinone) 1 alpha subcomplex, 2, 8kda SDHA - succinate dehydrogenase complex, subunit a, flavoprotein (fp) NDUFS1 - nadh dehydrogenase (ubiquinone) fe-s protein 1, 75kda (nadh-coenzyme q reductase)

Figure S8: GO terms pathway analysis (GORilla) of upregulated (top) and downregulated (bottom) proteins upon 24 hours treatment of HeLa Kyoto cells with 100 μ M 3 vs untagged Bak BH3 peptide. Selected proteins have more than 50% difference in cellular levels.

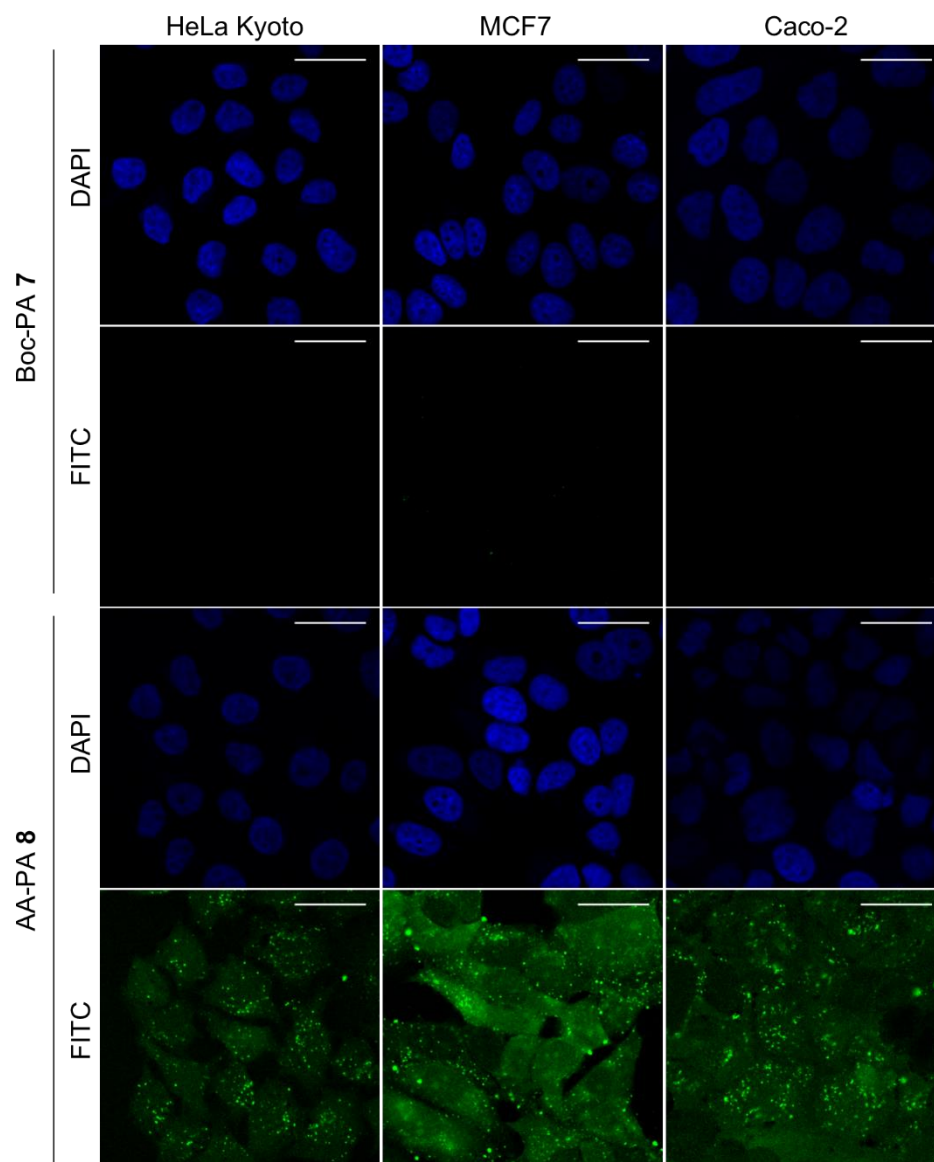


Figure S9: Cellular uptake of Boc-PA 7 (10 μ M) or AA-PA 8 (10 μ M) in HeLa Kyoto, MCF7 and Caco-2 cells. Shown are images of DAPI staining and FITC channel. White bar indicates 30 μ m.

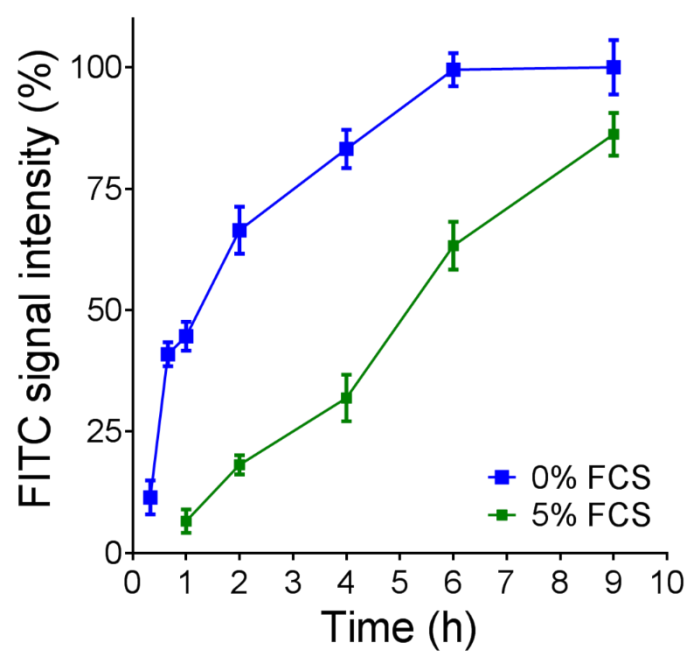


Figure S10: Quantification of AA-PA 8 (10 μ M) uptake in HeLa Kyoto cells over time in the absence or presence of 5% FCS (shown are relative values $\pm$ SEM; $n = 3$).

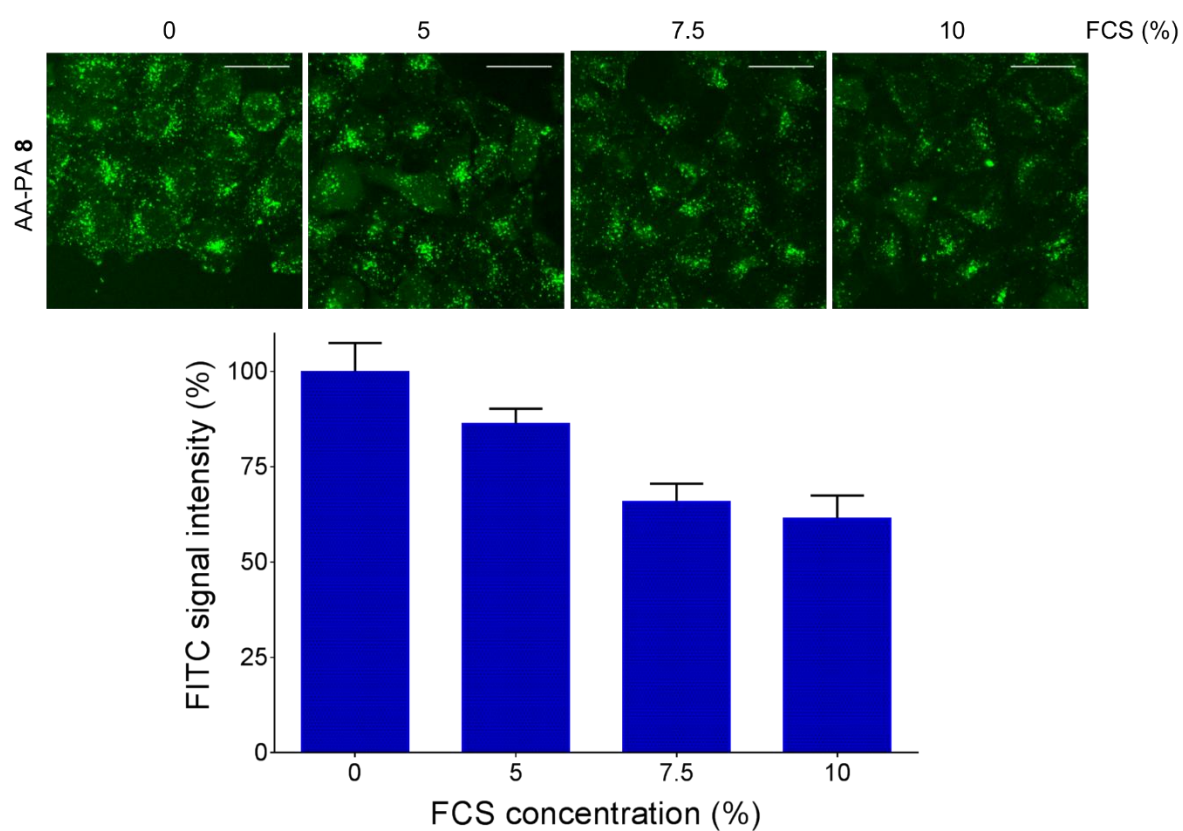


Figure S11: Cellular uptake of AA-PA 8 (10 μ M) in HeLa Kyoto cells after nine hours in the presence of indicated concentrations of FCS. Shown are images of FITC channel (top, white bar indicates 30 μ m) and the corresponding quantification (bottom, shown are relative values $\pm$ SEM; $n = 3$).

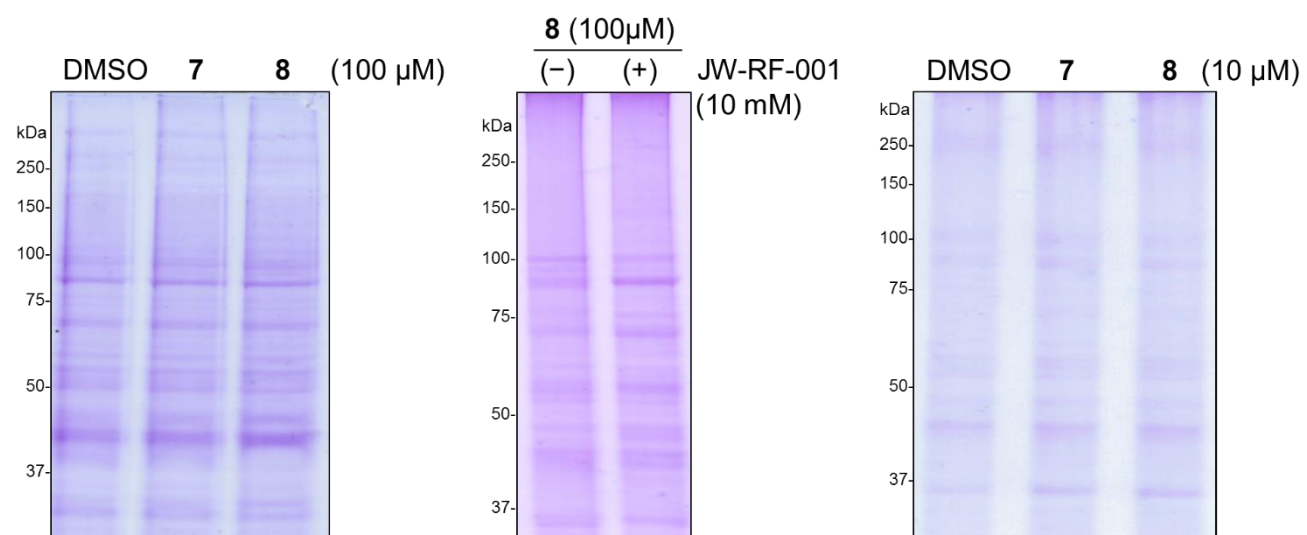


Figure S12: Coomassie stained images corresponding to the gels shown in Figures 4B, 4C and 4D.

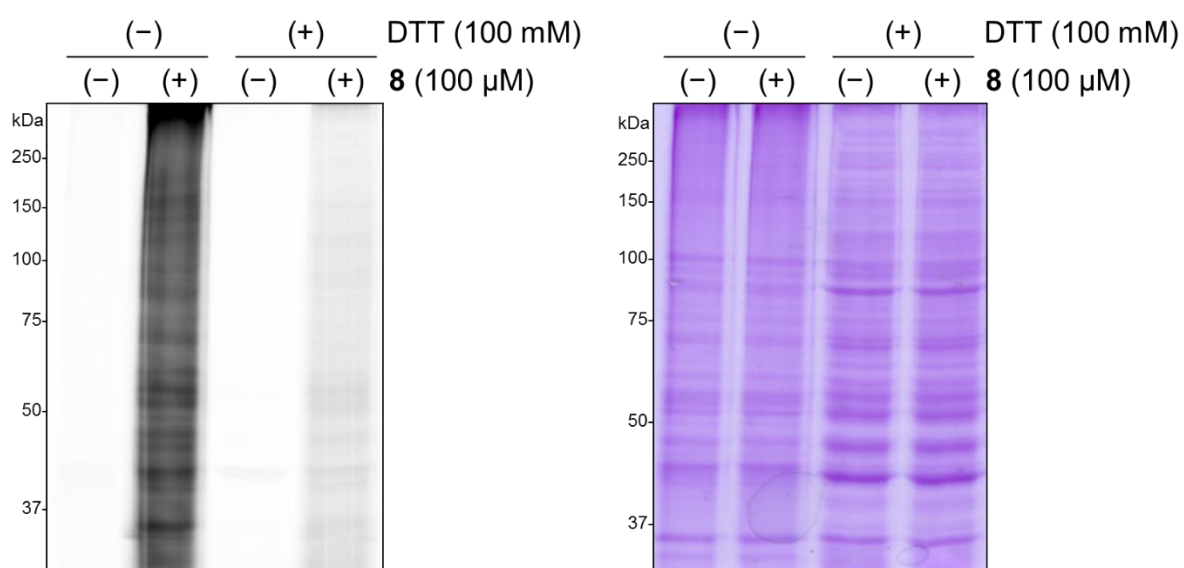


Figure S13: Gel-based profiling of HeLa Kyoto lysates treated with DMSO or AA-PA **8** (100 μM) for 1 hour followed by CuAAC with TMR azide. Samples were treated with nonreducing or reducing (DTT) loading buffer, separated by SDS-PAGE and gel was imaged using a fluorescence scanner (left). Corresponding coomassie stained image is shown on the right side.

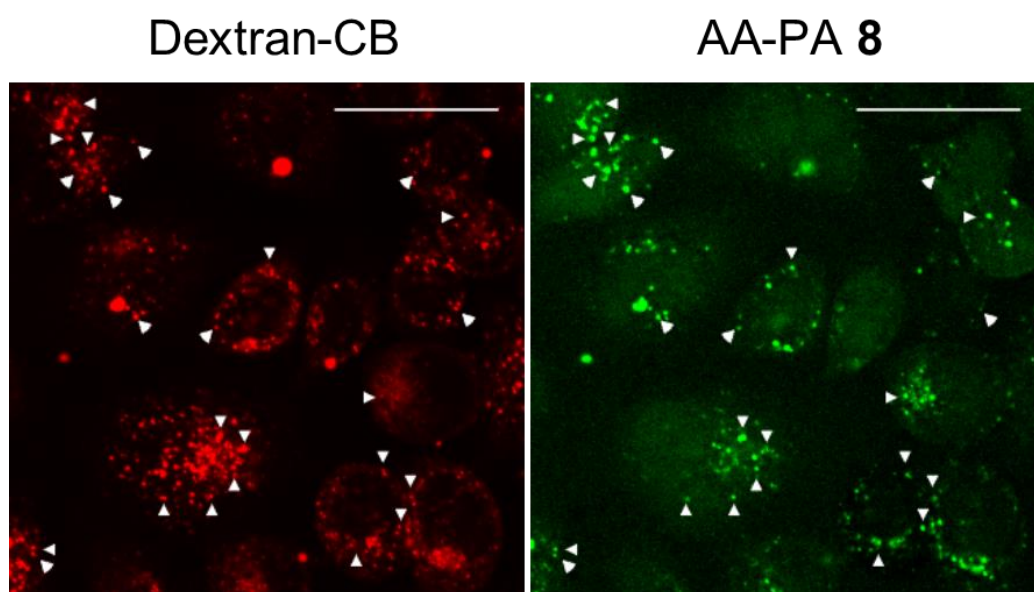


Figure S14: Dextran Cascade Blue (0.5 mg/mL) and AA-PA 8 (10 μ M) uptake in HeLa Kyoto cells. Shown are images of Cascade Blue (CB, red) and FITC channel (green). Arrow heads indicate colocalization. White bar indicates 30 μ m.

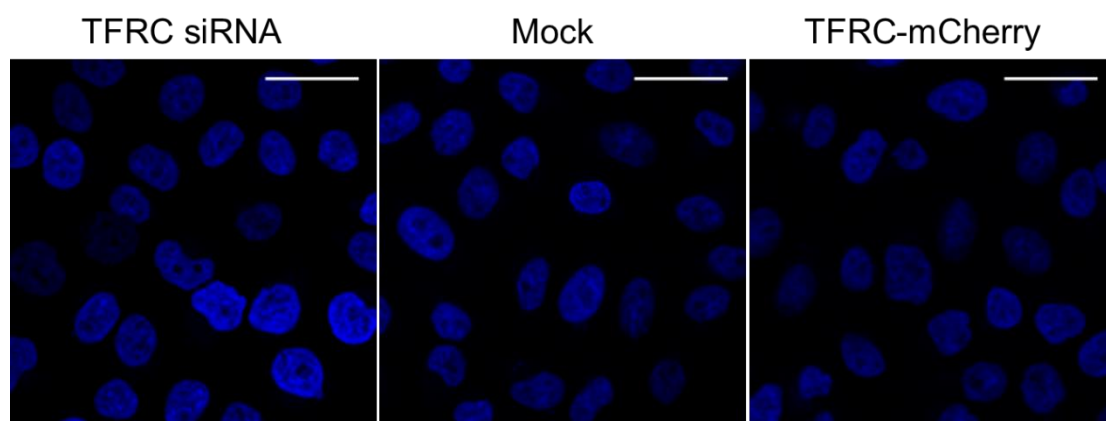


Figure S15: Images with DAPI staining corresponding to FITC and mCherry images in Figure 6A. White bar indicates 30 μm.

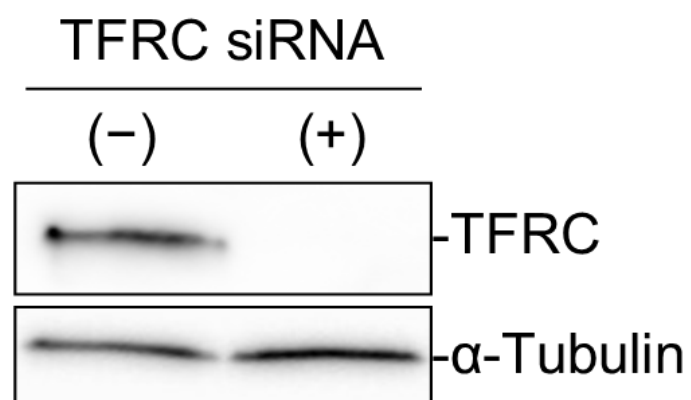


Figure S16: Western blot analysis of TFRC and α -tubulin expression in HeLa Kyoto cells upon treatment with mock or TFRC siRNA.

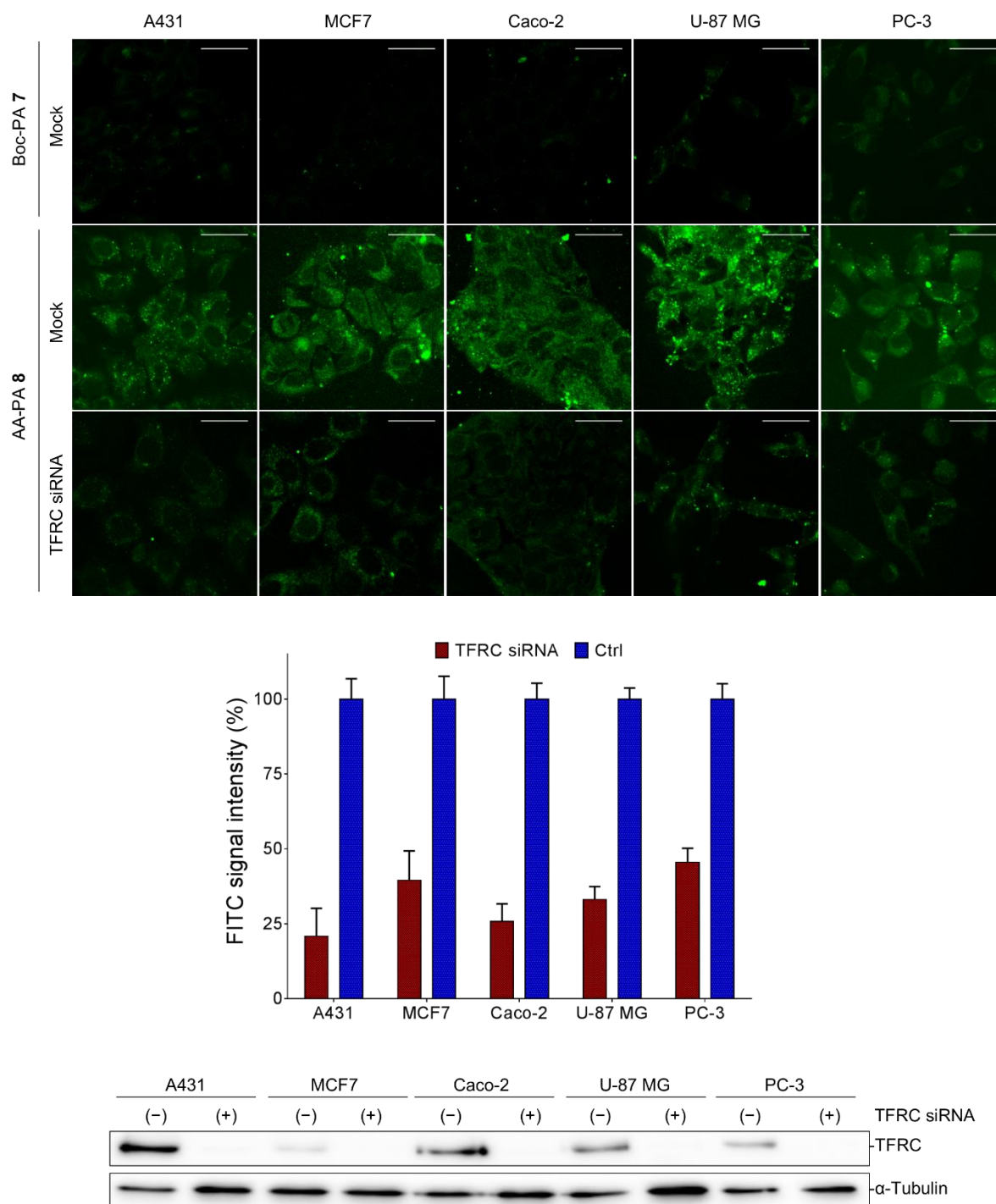


Figure S17: Cellular uptake of Boc-PA 7 (3 μ M) or AA-PA 8 (3 μ M) in indicated cell lines treated with control or TFRC siRNA. Shown are images from the FITC channel (top, white bar indicates 30 μ m), the corresponding quantification of AA-PA 8 uptake (middle, shown are relative values $\pm$ SEM; $n = 3$) and western blot analysis of TFRC and α -tubulin expression after treatment with control or TFRC siRNA (bottom).

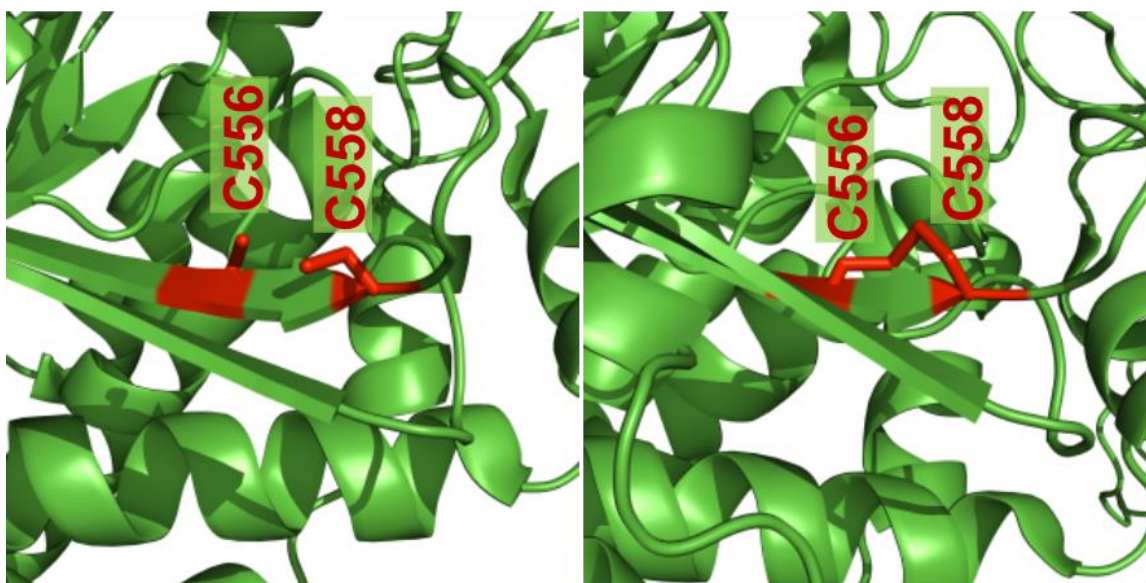


Figure S18: X-ray structures of *H. sapiens* TFRC protein with cysteines 556 and 558 shown in red. On the left structure (PDB: 3KAS) TFRC is a transferrin-free monomer with C556 and C558 present as free thiols. On the right structure (PDB: 3S9N) TFRC is a transferrin bound dimer with C556 and C558 in a disulfide bond.

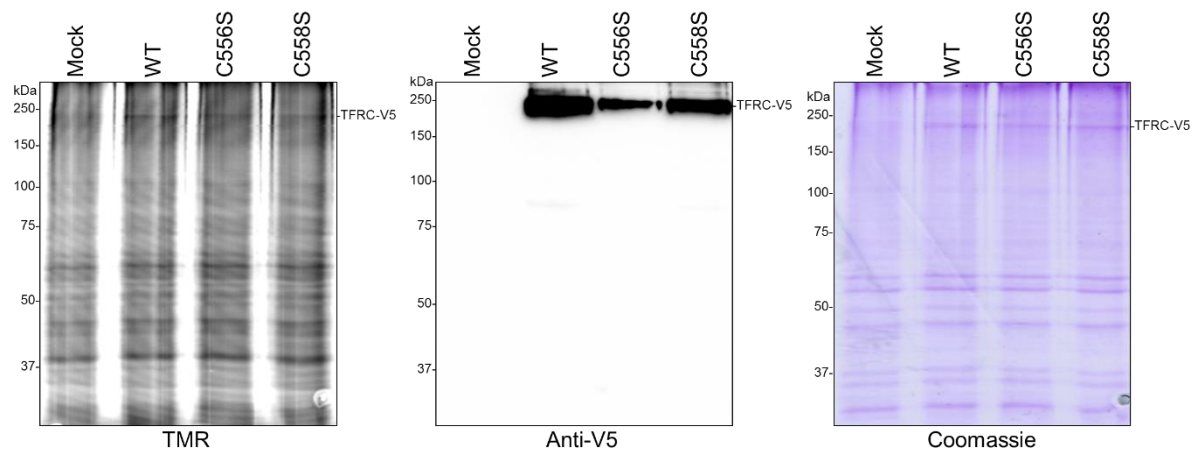


Figure S19: TMR (left), Western blot (middle) and Coomassie (right) images of HeLa Kyoto lysates from mock cells or cells overexpressing TFRC-V5 WT, C556S or C558S. Lysates were labeled with AA-PA **8** (100 μ M), followed by CuAAC with TMR azide or V5 antibody.

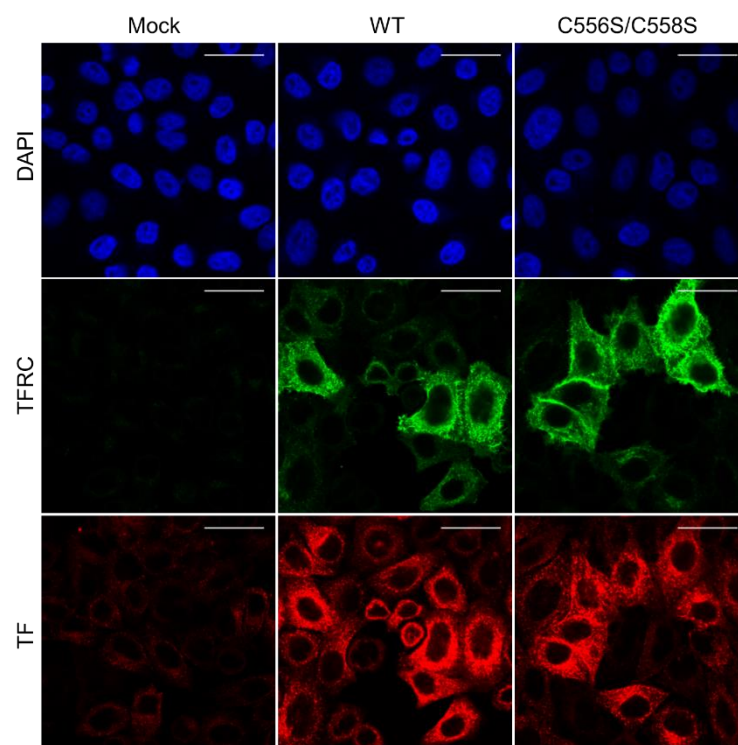


Figure S20: Treatment of HeLa Kyoto cells with 50 µg/mL transferrin-Alexa 555 conjugate (TF) to demonstrate the intact function of the double mutant TFRC. Shown are images of mock cells and cells overexpressing the WT or the double mutant TFRC-V5. DAPI (blue), TFRC (anti-V5 antibody, green) and TF (red) signals are shown. White bar indicates 30 µm.

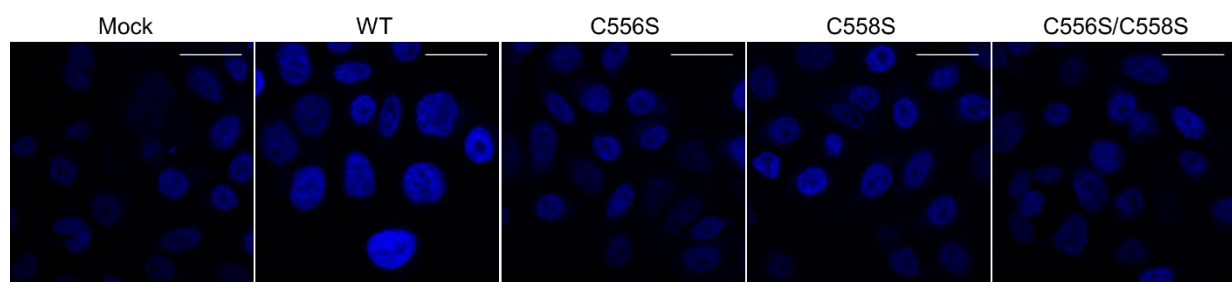


Figure S21: Images with DAPI staining corresponding to FITC and mCherry images in Figure 7B. White bar indicates 30 μm.

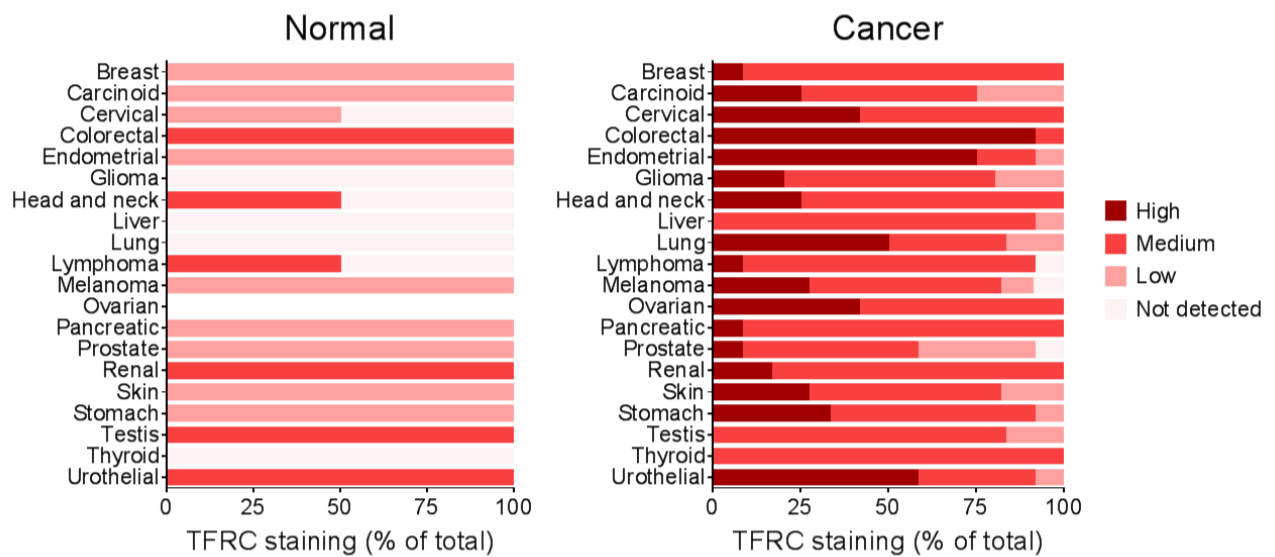


Figure S22: TFRC expression levels in normal and cancer tissues of various origin derived from TFRC antibody immunostaining intensities (these data were obtained from <http://www.proteinatlas.org>).

Supplemental Tables

Table S1: Global proteomics changes upon *in situ* treatment with 100 μ M 3 vs 100 μ M Bak BH3 for 24 hours.

Majority protein IDs	Protein names	Gene names	Log ₂ ratio 3/Bak BH3	SD
O00483	Cytochrome c oxidase subunit NDUF4	NDUF4	-4.55	0.80
Q96DV4	39S ribosomal protein L38, mitochondrial	MRPL38	-3.78	0.44
B4DJ81;P28331	NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial	NDUFS1	-3.64	0.49
O75380;D6RBT3	NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial	NDUFS6	-3.17	0.46
U3KQ85;Q99622;F5GXW5	Protein C10	C12orf57	-2.93	0.24
H7C410;P35052;H7BZL4;H7C024	Glypican-1;Secreted glypican-1	GPC1	-2.69	0.31
P40222	Alpha-taxilin	TXLNA	-2.55	0.53
Q16698;E5RJD2;E5RJG7;E5RFV2	2,4-dienoyl-CoA reductase, mitochondrial	DECR1	-2.32	0.07
E5RHG8;Q15369;R4GMY8	Transcription elongation factor B polypeptide 1	TCEB1	-2.28	0.37
Q8NBU5	ATPase family AAA domain-containing protein 1	ATAD1	-2.25	0.61
E9PQ73;Q8TDW7	Protocadherin Fat 3	FAT3	-2.15	0.10
F2Z2W6;F2Z2Y5;H7BXJ5;P05114	Non-histone chromosomal protein HMG-14	HMGNI	-2.03	0.41
O00592	Podocalyxin	PODXL	-2.01	0.22
A0A087WXW9;P20908	Collagen alpha-1(V) chain	COL5A1	-1.98	0.19
P04264;CON__P04264	Keratin, type II cytoskeletal 1	KRT1	-1.94	0.12
P00167;J3KNC7	Cytochrome b5	CYBSA	-1.86	0.15
P02461	Collagen alpha-1(III) chain	COL3A1	-1.79	0.06
Q6LA86	Elongator complex protein 2	ELP2	-1.72	0.03
C9J5N1;Q9BTE6;K7EQ85	Alanyl-tRNA editing protein Aarsd1	PTGES3L-AARSD1;AARSD1	-1.72	0.48
R4GN05;R4GNE8;Q9UHL4	Dipeptidyl peptidase 2	DPP7	-1.60	0.28
Q9BRK5;H0Y3T6;G3V1E2	45 kDa calcium-binding protein	SDF4	-1.59	0.50
Q7L0Y3;C9JVB6	Mitochondrial ribonuclease P protein 1	TRMT10C	-1.51	0.10
G3V192;P02794;G3VID1;E9PPQ4;E9PRK8;E9PKY7	Ferritin;Ferritin heavy chain;Ferritin heavy chain, N-terminally processed	FTH1	-1.51	0.37
P11717	Cation-independent mannose-6-phosphate receptor	IGF2R	-1.36	0.24
H7C1V0;P07339;H7C469	Cathepsin D;Cathepsin D light chain;Cathepsin D heavy chain	CTSD	-1.31	0.03
Q9NPF4;G3V445	Probable tRNA N6-adenosine threonylcarbamoyltransferase	OSGEP	-1.28	0.47
P55081	Microfibrillar-associated protein 1	MEAP1	-1.26	0.23
J3QLR8;Q9Y3D9	28S ribosomal protein S23, mitochondrial	MRPS23	-1.25	0.09
Q9UH65;E7EMB1	Switch-associated protein 70	SWAP70	-1.23	0.31
D6RD46;Q9UPQ0;E7EPK0;E9PDJ9;H0Y8P3;G5EA03	LIM and calponin homology domains-containing protein 1	LIMCH1	-1.22	0.16
O75439;G3V0E4	Mitochondrial-processing peptidase subunit beta	PMPCB	-1.16	0.34

P57081	tRNA (guanine-N(7)-)-methyltransferase non-catalytic subunit WDR4	WDR4	-1.14	0.17
O43678	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2	NDUFA2	-1.13	0.38
P32004	Neural cell adhesion molecule L1	L1CAM	-1.13	0.21
H0YAK4;E9PCB6;Q9BYT8;H0YAF7	Neurolysin, mitochondrial	NLN	-1.11	0.07
G3V4F2;A0A087X0W7;Q86TX2;A0A087WT95;P49753	Acyl-coenzyme A thioesterase 1;Acyl-coenzyme A thioesterase 2, mitochondrial	ACOT1;ACOT2	-1.10	0.24
Q5TDH0;H0YII4;H0YI90	Protein DDII homolog 2	DDI2	-1.08	0.25
Q14126	Desmoglein-2	DSG2	-1.03	0.20
Q9UBU9;E9PIN3;B4E227	Nuclear RNA export factor 1	NXF1	-1.01	0.27
Q8WTS6;D6RJA0	Histone-lysine N-methyltransferase SETD7	SETD7	-1.01	0.22
Q9Y4W2	Ribosomal biogenesis protein LAS1L	LAS1L	-0.99	0.06
O43396;K7ER96	Thioredoxin-like protein 1	TXNL1	-0.97	0.02
O9S168;F2Z3P9;C9JXQ9	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4	NDUFB4	-0.93	0.17
Q13630;E9PLH9;E9PP14;A0A0J9YX13;E9PKL9	GDP-L-fucose synthase	TSTA3	-0.93	0.29
F2Z328;A6NGJ0;P51808	Dynein light chain Tctex-type 3	DYNLT3	-0.92	0.46
A2A274;Q99798	Aconitate hydratase, mitochondrial	ACO2	-0.91	0.08
Q14247	Src substrate cortactin	CTTN	-0.91	0.05
E9PMS6;A0A0A0MTE2;E9PMT2;F8WD26;J3KP06;Q8WW11;E9PMP7;H0Y424	LIM domain only protein 7	LMO7	-0.91	0.10
P52943;H0YFA4	Cysteine-rich protein 2	CRIP2	-0.90	0.06
Q9BZX2	Uridine-cytidine kinase 2	UCK2	-0.89	0.08
Q5TCU3;Q5TCU8;P07951	Tropomyosin beta chain	TPM2	-0.89	0.02
P63313;CON__P21752	Thymosin beta-10	TMSB10	-0.83	0.39
O60341;R4GMP9	Lysine-specific histone demethylase 1A	KDM1A	-0.83	0.10
P13674	Prolyl 4-hydroxylase subunit alpha-1	P4HA1	-0.82	0.06
P05161;A0A096LNZ9;A0A096LPJ4	Ubiquitin-like protein ISG15	ISG15	-0.81	0.41
O60828;C9JQA1	Polyglutamine-binding protein 1	PQBP1	-0.80	0.04
Q09666	Neuroblast differentiation-associated protein AHNAK	AHNAK	-0.80	0.12
H0YHG0;P82979;F8VZQ9	SAP domain-containing ribonucleoprotein	SARNP	-0.79	0.08
A0A087WZN1;O43837;A0A087X2E5;A0A0D9SG66	Isocitrate dehydrogenase [NAD] subunit beta, mitochondrial	IDH3B	-0.79	0.20
Q14694;H3BQP1	Ubiquitin carboxyl-terminal hydrolase 10	USP10	-0.79	0.41
B8ZZQ6;B8ZZA1;B8ZZW7;H7C2N1;P06454;A0A087WUT1	Prothymosin alpha;Prothymosin alpha, N-terminally processed;Thymosin alpha-1	PTMA	-0.77	0.00
G5E9S8;G3V2E7;F8W6L3;G3V3H3;G3V5R9;E7EVH7;Q07866	Kinesin light chain 1	KLC1	-0.77	0.10
B7Z7F3;Q9H6Z4;K7EIJ4	Ran-binding protein 3	ZNF8;RANBP3	-0.77	0.17
Q5LJA5;Q5LJA9;Q9Y5K5;H0Y6Y4;Q5LJB0;H0Y4E0	Ubiquitin carboxyl-terminal hydrolase isozyme L5	UCHL5	-0.75	0.15
Q96AY3;K7ELI6	Peptidyl-prolyl cis-trans isomerase FKBP10;Peptidyl-prolyl cis-trans isomerase	FKBP10	-0.75	0.24

Q9BV86;S4R338	N-terminal Xaa-Pro-Lys N-methyltransferase 1;N-terminal Xaa-Pro-Lys N-methyltransferase 1, N-terminally processed	NTMT1	-0.74	0.03
P04080	Cystatin-B	CSTB	-0.73	0.07
Q9GZT3;A0A087WUN7;H0YJ40;G3V4X6;G3V2S9;H0YJW7	SRA stem-loop-interacting RNA-binding protein, mitochondrial	SLIRP	-0.73	0.04
A0A087WV66;P46013	Antigen KI-67	MKI67	-0.73	0.20
A0A087WYR3;O43399;A0A087WZ51	Tumor protein D54	TPD52L2	-0.73	0.10
Q96I99;E9PDQ8;H0Y852	Succinyl-CoA ligase [GDP-forming] subunit beta, mitochondrial	SUCLG2	-0.72	0.17
P31040;D6RFM5;A0A087X1I3	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial	SDHA	-0.71	0.06
Q5U5X0	Complex III assembly factor LYRM7	LYRM7	-0.70	0.19
P05556	Integrin beta-1	ITGB1	-0.70	0.11
Q9Y2Q9;E5RFT8;E5RGC7;E5RK86;E5RFH3;H0YAT2;H7CSV3	28S ribosomal protein S28, mitochondrial	MRPS28	-0.70	0.21
Q9BQ69	O-acetyl-ADP-ribose deacetylase MACROD1	MACROD1	-0.69	0.12
A0A0B4J1Y5;P00533;Q504U8;E9PFD7	Epidermal growth factor receptor	EGFR	-0.69	0.02
A0A087WZT3;Q9H3K6	Bola-like protein 2	BOLA2	-0.67	0.14
Q59GN2;P62891	Putative 60S ribosomal protein L39-like 5;60S ribosomal protein L39	RPL39P5;RPL39	-0.66	0.30
H3BPJ9;O96000;H3BV16	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10	NDUFB10	-0.66	0.03
P14923	Junction plakoglobin	JUP	-0.65	0.04
Q96P70	Importin-9	IPO9	-0.65	0.31
P10606	Cytochrome c oxidase subunit 5B, mitochondrial	COX5B	-0.65	0.16
A0A0C4DGZ9;O14773	Tripeptidyl-peptidase 1	TPP1	-0.64	0.29
P82933	28S ribosomal protein S9, mitochondrial	MRPS9	-0.64	0.13
Q9NZI8	Insulin-like growth factor 2 mRNA-binding protein 1	IGF2BP1	-0.63	0.04
P08243;F8WEJ5	Asparagine synthetase [glutamine-hydrolyzing]	ASNS	-0.62	0.18
P11177;C9J634;F8WF02	Pyruvate dehydrogenase E1 component subunit beta, mitochondrial	PDHB	-0.62	0.15
A0A087X2B5;P35613;A0A087WUV8;I3L192;R4GMX5	Basigin	BSG	-0.62	0.20
Q13405;H0YDP7	39S ribosomal protein L49, mitochondrial	MRPL49	-0.62	0.11
A0A087X0R6;Q9UMY4	Sorting nexin-12	SNX12	-0.61	0.03
P53634	Dipeptidyl peptidase 1;Dipeptidyl peptidase 1 exclusion domain chain;Dipeptidyl peptidase 1 heavy chain;Dipeptidyl peptidase 1 light chain	CTSC	-0.61	0.57
Q15056	Eukaryotic translation initiation factor 4H	EIF4H	-0.61	0.22
C9JBI3;P78330	Phosphoserine phosphatase	PSPH	-0.60	0.07
O60547	GDP-mannose 4,6 dehydratase	GMDS	-0.60	0.41
P53597	Succinyl-CoA ligase [ADP/GDP-forming] subunit alpha, mitochondrial	SUCLG1	-0.60	0.06
Q9Y2S6	Translation machinery-associated protein 7	TMA7	-0.59	0.24

Q9HA77;A0A087WWV1;H0YFF0	Probable cysteine--tRNA ligase, mitochondrial	CARS2	-0.59	0.26
C9J4M6;C9J2Y9;P30876	DNA-directed RNA polymerase;DNA-directed RNA polymerase II subunit RPB2	POLR2B	-0.59	0.22
P49321;Q5T624;H0YDS9;E9PRH9;H0YF33	Nuclear autoantigenic sperm protein	NASP	-0.58	0.09
P54727;Q5W0S5	UV excision repair protein RAD23 homolog B	RAD23B	-0.58	0.08
E9PHM2;Q15031	Probable leucine--tRNA ligase, mitochondrial	LARS2	-0.58	0.05
A0A087WYT3;Q15185	Prostaglandin E synthase 3	PTGES3	-0.58	0.02
Q13547;Q5TEE2	Histone deacetylase 1	HDAC1	-0.58	0.17
C9J6P4;Q7Z2W4	Zinc finger CCCH-type antiviral protein 1	ZC3HAV1	-0.57	0.07
P62942;Q5W0X3;A0A087WZM5	Peptidyl-prolyl cis-trans isomerase FKBP1A;Peptidyl-prolyl cis-trans isomerase	FKBP1A	-0.57	0.10
Q6PI48	Aspartate--tRNA ligase, mitochondrial	DARS2	-0.57	0.02
H3BPC4;H3BQQ9;B0QYN7;P63279	SUMO-conjugating enzyme UBC9	UBE2I	-0.57	0.51
Q15428;K7EMT0	Splicing factor 3A subunit 2	SF3A2	-0.56	0.81
A0A0U1RRM6;Q8N8S7;A0A075B6E5	Protein enabled homolog	ENAH	-0.56	0.14
P29034;R4GN49;Q5RHS7	Protein S100-A2	S100A2	-0.56	0.22
P49643	DNA primase large subunit	PRIM2	-0.55	0.10
P23919	Thymidylate kinase	DTYMK	-0.55	0.23
Q9NRR4	14 kDa phosphohistidine phosphatase	PHPT1	-0.54	0.26
Q9NZB2	Constitutive coactivator of PPAR-gamma-like protein 1	FAM120A	-0.54	0.04
P52895;B4DK69;S4R3P0;A0A0A0MSD5	Aldo-keto reductase family 1 member C2	AKR1C2	-0.54	0.02
Q8WWY3;E7EVX8	U4/U6 small nuclear ribonucleoprotein Prp31	PRPF31	-0.54	0.34
Q10567;C9J1E7	AP-1 complex subunit beta-1	AP1B1	-0.53	0.64
P43121	Cell surface glycoprotein MUC18	MCAM	-0.53	0.43
P17931;G3V3R6	Galectin-3;Galectin	LGALS3	-0.53	0.05
G3V5T9;P24941;E7ESI2;Q00526	Cyclin-dependent kinase 2;Cyclin-dependent kinase 3	CDK2;CDK3	-0.52	0.23
A0A0A0MSK5;J3KN66;Q5JTV8;H0YD16;H0Y4R4	Torsin-1A-interacting protein 1	TOR1AIP1	-0.52	0.23
P51398;V9GYL9;V9GZ03;V9GYJ9	28S ribosomal protein S29, mitochondrial	DAP3	-0.52	0.25
F8VS81;Q12792	Twinfilin-1	TWF1	-0.52	0.03
P38159;H0Y6E7;H3BT71;H3BUY5	RNA-binding motif protein, X chromosome;RNA-binding motif protein, X chromosome, N-terminally processed	RBMX	-0.51	0.06
Q01085	Nucleolysin TIAR	TIAL1	-0.51	0.27
P45973	Chromobox protein homolog 5	CBX5	-0.51	0.18
P62136	Serine/threonine-protein phosphatase PP1-alpha catalytic subunit	PPP1CA	-0.51	0.01
I3L2B0;K7EIG1;O75153	Clustered mitochondria protein homolog	CLUH	-0.50	0.24
P41227;F8W808;A8MWP7	N-alpha-acetyltransferase 10	NAA10	-0.50	0.14
P62633	Cellular nucleic acid-binding protein	CNBP	-0.50	0.09
Q14432	cGMP-inhibited 3,5-cyclic phosphodiesterase A	PDE3A	-0.49	0.12
O00273;K7ERT1	DNA fragmentation factor subunit alpha	DFFA	-0.49	0.11

K7EK42;Q99426;K7EL99;K7EP07	Tubulin-folding cofactor B	TBCB	-0.49	0.09
Q9Y4W6	AFG3-like protein 2	AFG3L2	-0.49	0.38
Q92878	DNA repair protein RAD50	RAD50	-0.49	0.13
E9PPY3;O43159	Ribosomal RNA-processing protein 8	RRP8	-0.48	0.14
A0A0C4DGG1;Q9UKS6;E9PIY1	Protein kinase C and casein kinase substrate in neurons protein 3	PACSIN3	-0.48	0.21
P55084;B5MD38;F5GZQ3	Trifunctional enzyme subunit beta, mitochondrial;3-ketoacyl-CoA thiolase	HADHB	-0.48	0.27
P62328	Thymosin beta-4;Hematopoietic system regulatory peptide	TMSB4X	-0.47	0.05
O96008;K7EJ57;K7EKG4	Mitochondrial import receptor subunit TOM40 homolog	TOMM40	-0.47	0.10
A0A0A0MRR7;P09234	U1 small nuclear ribonucleoprotein C	SNRPC	-0.47	0.45
Q13151	Heterogeneous nuclear ribonucleoprotein A0	HNRNPA0	-0.47	0.01
P42167;G5E972	Lamina-associated polypeptide 2, isoforms beta/gamma;Thymopoietin;Thymopentin	TMPO	-0.47	0.10
Q9UDT6	CAP-Gly domain-containing linker protein 2	CLIP2	-0.47	0.46
P52948;H7C3P6	Nuclear pore complex protein Nup98-Nup96;Nuclear pore complex protein Nup98;Nuclear pore complex protein Nup96	NUP98	-0.46	0.11
Q8N183;D6RA56	Mimitin, mitochondrial	NDUFAF2	-0.46	0.01
Q9UNX3	60S ribosomal protein L26-like 1	RPL26L1	-0.46	0.01
Q5TD07;P16083;Q5TD05	Ribosyldihyronicotinamide dehydrogenase [quinone]	NQO2	-0.46	0.07
H3BRL3;O14562;H3BUM8	Ubiquitin domain-containing protein UBFD1	UBFD1	-0.46	0.07
Q9Y281	Cofilin-2	CFL2	-0.46	0.18
Q9NZ45	CDGSH iron-sulfur domain-containing protein 1	CISD1	-0.46	0.09
S4R369;Q9BZE1	39S ribosomal protein L37, mitochondrial	MRPL37	-0.45	0.13
Q9UIG0	Tyrosine-protein kinase BAZ1B	BAZ1B	-0.45	0.26
Q92905	COP9 signalosome complex subunit 5	COP55	-0.45	0.06
K7ENK9;K7EKX0;J3QRU4;F8WCA0;L7N2F9;Q15836;P63027	Vesicle-associated membrane protein 3;Vesicle-associated membrane protein 2	VAMP2;VAMP3	-0.45	0.25
O43175;Q5SZU1	D-3-phosphoglycerate dehydrogenase	PHGDH	-0.45	0.09
H7C0T1;H7C2R9;C9JQV0;Q9BRJ6	Uncharacterized protein C7orf50	C7orf50	-0.44	0.01
P62993;J3KT38	Growth factor receptor-bound protein 2	GRB2	-0.44	0.17
Q9YSL4	Mitochondrial import inner membrane translocase subunit Tim13	TIMM13	-0.44	0.10
P05023	Sodium/potassium-transporting ATPase subunit alpha-1	ATP1A1	-0.44	0.04
Q04760	Lactoylglutathione lyase	GLO1	-0.44	0.04
Q5SRQ6;P67870;Q5SRQ3;N0E472;A0A0G2JM12	Casein kinase II subunit beta	CSNK2B;CSNK2B-LY6GSB-1181;CSNK2B-LY6GSB--991	-0.44	0.18
Q96C90	Protein phosphatase 1 regulatory subunit 14B	PPP1R14B	-0.44	0.57
A0A087WUZ3;Q01082	Spectrin beta chain, non-erythrocytic 1	SPTBN1	-0.44	0.06
F5GX77;Q9UI30;F5GYQ2	Multifunctional methyltransferase subunit TRM112-like protein	TRMT112	-0.44	0.14
Q9NW13	RNA-binding protein 28	RBM28	-0.43	0.08

P13073;H3BN72;H3BNV9; H3BPG0;Q86WV2	Cytochrome c oxidase subunit 4 isoform 1, mitochondrial	COX4I1	-0.43	0.00
Q13596;H0YK42	Sorting nexin-1	SNX1	-0.43	0.10
P37837;F2Z393	Transaldolase	TALDO1	-0.43	0.22
P21399	Cytoplasmic aconitate hydratase	ACO1	-0.43	0.01
Q5JVF3	PCI domain-containing protein 2	PCID2	-0.42	0.01
Q92688	Acidic leucine-rich nuclear phosphoprotein 32 family member B	ANP32B	-0.42	0.15
P01891;P10316;A0A140T9 55;A0A140T933;A0A0G2J NY4;A0A140T9I0;A0A140 T9X5;A0A140T913;P01892 ;P16190	HLA class I histocompatibility antigen, A-68 alpha chain;HLA class I histocompatibility antigen, A-69 alpha chain;HLA class I histocompatibility antigen, A-2 alpha chain;HLA class I histocompatibility antigen, A-33 alpha chain	HLA-A	-0.42	0.03
B4DKY1;P49589	Cysteine--tRNA ligase, cytoplasmic	CARS	-0.42	0.12
H3BLZ8;Q92841	Probable ATP-dependent RNA helicase DDX17	DDX17	-0.42	0.15
P51148;K7ERI8;K7ERQ8;F 8VVK3;K7ENY4	Ras-related protein Rab-5C	RAB5C	-0.42	0.02
Q52LJ0	Protein FAM98B	FAM98B	-0.42	0.09
P14927;B7Z2R2	Cytochrome b-c1 complex subunit 7	UQCRB	-0.41	0.29
Q13423;E9PCX7;D6RAI5	NAD(P) transhydrogenase, mitochondrial	NNT	-0.41	0.05
A0A087WZZ5;Q13435;E9P PJ0;H0YCG1;E9PJ04	Splicing factor 3B subunit 2	SF3B2	-0.41	0.10
P0DN79;P35520;H7C2H4	Cystathionine beta-synthase	CBS	-0.40	0.03
Q9Y277;E5RJN6;E5RHZ6; E5RFP6;E5RHE1;E5RK27	Voltage-dependent anion-selective channel protein 3	VDAC3	-0.40	0.19
Q9H3N1	Thioredoxin-related transmembrane protein 1	TMX1	-0.40	0.25
Q9UHV9	Prefoldin subunit 2	PFDN2	-0.39	0.19
Q6IBS0;D6RG15;H0Y858	Twinfilin-2	TWF2	-0.39	0.12
P08670;B0YJC4	Vimentin	VIM	-0.39	0.12
P49736;H0Y8E6	DNA replication licensing factor MCM2	MCM2	-0.39	0.03
Q96GM8	Target of EGR1 protein 1	TOE1	-0.39	0.37
Q86UP2;G3V4Y7	Kinectin	KTN1	-0.39	0.18
Q13263;M0R0K9	Transcription intermediary factor 1-beta	TRIM28	-0.39	0.02
O60664;K7ERZ3;K7EL96	Perilipin-3	PLIN3	-0.39	0.04
F8WAU4;C9IZ01;Q96RP9	Elongation factor G, mitochondrial	GFM1	-0.39	0.08
Q5T5C7;P49591	Serine--tRNA ligase, cytoplasmic	SARS	-0.39	0.14
P0DN76;Q01081	Splicing factor U2AF 35 kDa subunit	U2AF1	-0.38	0.12
Q14566	DNA replication licensing factor MCM6	MCM6	-0.38	0.07
H0YDU8;P53041;A8MU39	Serine/threonine-protein phosphatase;Serine/threonine-protein phosphatase 5	PPP5C	-0.38	0.24
A0A087WVV2;A0A0A0MR V0;Q9P2E9;F8W7S5	Ribosome-binding protein 1	RRBP1	-0.38	0.15
ASYKK6	CCR4-NOT transcription complex subunit 1	CNOT1	-0.38	0.23
P04040	Catalase	CAT	-0.38	0.10
D6RBW1;P06730	Eukaryotic translation initiation factor 4E	EIF4E	-0.38	0.41
O94925	Glutaminase kidney isoform, mitochondrial	GLS	-0.38	0.00
A0A0A0MS41;Q9BWM7;S4 R3N9	Sideroflexin-3	SFXN3	-0.37	0.13
Q13442	28 kDa heat- and acid-stable phosphoprotein	PDAP1	-0.37	0.04
Q9UHD8	Septin-9	SEPT9	-0.37	0.09
P49419;F8VS02;A0A140T9 V3;A0A0J9YWF7	Alpha-aminoadipic semialdehyde dehydrogenase	ALDH7A1	-0.37	0.20

Q00688	Peptidyl-prolyl cis-trans isomerase FKBP3	FKBP3	-0.37	0.09
P35250;H7C5P4;A0A087WVY3	Replication factor C subunit 2	RFC2	-0.37	0.02
F5GYN4;j3KR44;Q96FW1;F5H6Q1;F5GYJ8;F5H3F0	Ubiquitin thioesterase OTUB1	OTUB1	-0.37	0.03
B8ZWD1;A0A0A0MTI5;P07108	Acyl-CoA-binding protein	DBI	-0.37	0.08
Q16555	Dihydropyrimidinase-related protein 2	DPYSL2	-0.37	0.03
P00367	Glutamate dehydrogenase 1, mitochondrial	GLUD1	-0.37	0.07
Q9H4F8	SPARC-related modular calcium-binding protein 1	SMOC1	-0.37	0.09
Q92734;C9JTY3;C9JUE0;C9JJP5;Q05BK6	Protein TFG	TFG	-0.37	0.39
Q9Y5J1	U3 small nucleolar RNA-associated protein 18 homolog	UTP18	-0.37	0.38
Q12931;I3L0K7	Heat shock protein 75 kDa, mitochondrial	TRAP1	-0.37	0.08
Q9H074;D6REB4	Polyadenylate-binding protein-interacting protein 1	PAIP1	-0.37	0.17
P52565;j3KTF8;j3QQX2;j3KRE2;j3KRY1	Rho GDP-dissociation inhibitor 1	ARHGDIA	-0.37	0.14
P38117;M0QY67	Electron transfer flavoprotein subunit beta	ETFB	-0.37	0.01
P30837	Aldehyde dehydrogenase X, mitochondrial	ALDH1B1	-0.37	0.05
Q9NYL9;H0YKU1;H0YNJ8	Tropomodulin-3	TMOD3	-0.37	0.15
P21796;C9JI87	Voltage-dependent anion-selective channel protein 1	VDAC1	-0.36	0.04
D6RC52;D6RCB9;Q9NX24;j3QSY4	H/ACA ribonucleoprotein complex subunit 2	NHP2	-0.36	0.49
O00231	26S proteasome non-ATPase regulatory subunit 11	PSMD11	-0.36	0.02
Q16576;E9PC52;Q5JP01	Histone-binding protein RBBP7	RBBP7	-0.36	0.04
Q14847;C9J9W2	LIM and SH3 domain protein 1	LASP1	-0.36	0.20
Q13868;A3KFL2;A3KFL1;A3KFL5	Exosome complex component RRP4	EXOSC2	-0.36	0.04
A0A096LPI6;A0A096LNH5;H7C2G3;A0A0B4J2H4;H7C1F6;A0A0B4J2D5;P30042;A0A096LNJ1;A0A096LP73;F2Z2Q0;A0A096LP12	ES1 protein homolog, mitochondrial	C21orf33	-0.36	0.04
P06493;A0A024QZP7;A0A087WZZ9;ESRIU6	Cyclin-dependent kinase 1	CDK1;CDC2	-0.36	0.17
P78406;E9PPG9;E9PQ57	mRNA export factor	RAE1	-0.35	0.04
P25685;M0R080	DnaJ homolog subfamily B member 1	DNAJB1	-0.35	0.06
Q16186;A0A087WX59	Proteasomal ubiquitin receptor ADRM1	ADRM1	-0.35	0.20
Q9UBB4	Ataxin-10	ATXN10	-0.35	0.19
P27694	Replication protein A 70 kDa DNA-binding subunit;Replication protein A 70 kDa DNA-binding subunit, N-terminally processed	RPA1	-0.35	0.07
A0A087WUK2;O14979	Heterogeneous nuclear ribonucleoprotein D-like	HNRNPDL	-0.35	0.20
Q86UE4;E5RJU9	Protein LYRIC	MTDH	-0.34	0.11
X6R8S9;Q9GZP4	PITH domain-containing protein 1	PITHD1	-0.34	0.27
P49189	4-trimethylaminobutyraldehyde dehydrogenase	ALDH9A1	-0.34	0.06
Q96DG6	Carboxymethylenebutenolidase homolog	CMBL	-0.34	0.10

P63010;A0A087X2S3;A0A087WU93;A0A087WZQ6	AP-2 complex subunit beta	AP2B1	-0.34	0.06
Q5VTU8;P56381	ATP synthase subunit epsilon-like protein, mitochondrial;ATP synthase subunit epsilon, mitochondrial	ATP5EP2;ATP5E	-0.34	0.13
O43172	U4/U6 small nuclear ribonucleoprotein Prp4	PRPF4	-0.34	0.12
H3BLV9;Q5R363;Q96SB4	SRSF protein kinase 1	SRPK1	-0.34	0.16
P61956	Small ubiquitin-related modifier 2	SUMO2	-0.33	0.13
Q96QK1	Vacuolar protein sorting-associated protein 35	VPS35	-0.33	0.33
P10644;K7EPB2	cAMP-dependent protein kinase type I-alpha regulatory subunit;cAMP-dependent protein kinase type I-alpha regulatory subunit, N-terminally processed	PRKAR1A	-0.33	0.00
A0A0A0MSS8;P42330;S4R3Z2	Aldo-keto reductase family 1 member C3	AKR1C3	-0.33	0.07
P05091	Aldehyde dehydrogenase, mitochondrial	ALDH2	-0.33	0.04
A0A0D9SF63;Q9BZK7;Q9BQ87;O60907	F-box-like/WD repeat-containing protein TBL1XR1;F-box-like/WD repeat-containing protein TBL1Y;F-box-like/WD repeat-containing protein TBL1X	TBL1XR1;TBL1Y;TBL1X	-0.33	0.01
A0A087WVM4;B7ZM99;Q6UB35	Monofunctional C1-tetrahydrofolate synthase, mitochondrial	MTHFD1L	-0.33	0.10
F8W726;Q14157;Q5VU77;Q5VU81;Q5VU80;Q5VU79;Q5VU78	Ubiquitin-associated protein 2-like	UBAP2L	-0.33	0.05
A0A0A0MRF4;P49406;S4R3W9	39S ribosomal protein L19, mitochondrial	MRPL19	-0.33	0.18
P14174	Macrophage migration inhibitory factor	MIF	-0.33	0.08
K7EKE6;P36776;K7EJE8	Lon protease homolog, mitochondrial	LONP1	-0.33	0.02
Q9NRN7	L-aminoadipate-semialdehyde dehydrogenase-phosphopantetheinyl transferase	AASDHPPT	-0.32	0.02
ESRFX4;Q96KB5	Lymphokine-activated killer T-cell-originated protein kinase	PBK	-0.32	0.12
A6NLN1;P26599;A0A0U1RRM4;A0A0D9SF20	Polypyrimidine tract-binding protein 1	PTBP1	-0.32	0.09
P33993	DNA replication licensing factor MCM7	MCM7	-0.32	0.04
P15374;A0A087WTB8;Q5TBK7	Ubiquitin carboxyl-terminal hydrolase isozyme L3	UCHL3	-0.32	0.75
D6RDG3;H0Y9Y1		BTF3	-0.32	0.00
Q6NXS1;P41236;E7EMN6	Protein phosphatase inhibitor 2-like protein 3;Protein phosphatase inhibitor 2	PPP1R2P3;PPP1R2	-0.32	0.18
Q01469;I6L8B7	Fatty acid-binding protein, epidermal	FABP5	-0.32	0.08
P42766;F2Z388	60S ribosomal protein L35	RPL35	-0.32	0.05
Q16527;F8VQR7;F8VW96	Cysteine and glycine-rich protein 2	CSRP2	-0.32	0.16
O60216	Double-strand-break repair protein rad21 homolog	RAD21	-0.32	0.05
Q32P28	Prolyl 3-hydroxylase 1	LEPRE1	-0.32	0.09
P05186	Alkaline phosphatase, tissue-nonspecific isozyme	ALPL	-0.32	0.10
P62273;A0A087WTT6	40S ribosomal protein S29	RPS29	-0.32	0.55
Q5T760;Q05519;B4DWT1	Serine/arginine-rich splicing factor 11	SRSF11	-0.32	0.10
Q9Y2L1;F2Z2C0;G3V1J5	Exosome complex exonuclease RRP44	DIS3	-0.32	0.08
Q9BWJ5	Splicing factor 3B subunit 5	SF3B5	-0.32	0.13

P17858	ATP-dependent 6-phosphofructokinase, liver type	PFKL	-0.32	0.13
Q9BS26	Endoplasmic reticulum resident protein 44	ERP44	-0.32	0.20
Q96I24	Far upstream element-binding protein 3	FUBP3	-0.32	0.01
O75534;E9PLT0	Cold shock domain-containing protein E1	CSDE1	-0.31	0.25
P52888;K7EP46	Thimet oligopeptidase	THOP1	-0.31	0.09
Q16795;F5H0J3	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial	NDUFA9	-0.31	0.00
Q9HAV0	Guanine nucleotide-binding protein subunit beta-4	GNB4	-0.31	0.18
O14828	Secretory carrier-associated membrane protein 3	SCAMP3	-0.31	0.18
Q9NQR4;H7C579	Omega-amidase NIT2	NIT2	-0.31	0.03
B1AHB1;P33992	DNA replication licensing factor MCM5	MCM5	-0.31	0.03
P09622;E9PEX6	Dihydrolipoyl dehydrogenase, mitochondrial	DLD	-0.31	0.18
D6R9P3;D6RD18;D6RBZ0; A0A087WZV1;Q99729	Heterogeneous nuclear ribonucleoprotein A/B	HNRNPAB	-0.31	0.20
C9J6B1;C9JQB3;P11234;F8 WEQ6;C9JPE8;C9JYR1;H7 C3P7;P11233	Ras-related protein Ral-B;Ras-related protein Ral-A	RALB;RALA	-0.31	0.40
Q9UBI6	Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-12	GNG12	-0.31	0.06
P14868	Aspartate--tRNA ligase, cytoplasmic	DARS	-0.30	0.17
P50238;K4DIB9;H3BRQ4	Cysteine-rich protein 1	CRIP1	-0.30	0.07
P61086;D6RDM7	Ubiquitin-conjugating enzyme E2 K	UBE2K	-0.30	0.04
E5RIW3;E5RJD8;O75347;E 5RHG6	Tubulin-specific chaperone A	TBCA	-0.30	0.14
O60568;H7C2V1	Procollagen-lysine,2-oxoglutarate 5-dioxygenase 3	PLOD3	-0.30	0.03
A0A0G2JN22;A0A0G2JPP5 ;Q14160;A0A0G2JMS7	Protein scribble homolog	SCRIB	-0.30	0.26
Q10713	Mitochondrial-processing peptidase subunit alpha	PMPCA	-0.30	0.17
P84090	Enhancer of rudimentary homolog	ERH	-0.29	0.07
O94906	Pre-mRNA-processing factor 6	PRPF6	-0.29	0.01
Q6FI81;H3BV90;H3BT65	Anamorsin	CIAPIN1	-0.29	0.03
Q14008	Cytoskeleton-associated protein 5	CKAP5	-0.29	0.19
A0A0A0MRI2;Q9UNH7	Sorting nexin-6;Sorting nexin-6, N-terminally processed	SNX6	-0.29	0.06
Q9NZL9	Methionine adenosyltransferase 2 subunit beta	MAT2B	-0.29	0.01
O75348	V-type proton ATPase subunit G 1	ATP6V1G1	-0.29	0.03
Q01780	Exosome component 10	EXOSC10	-0.29	0.31
P25205;J3KQ69	DNA replication licensing factor MCM3	MCM3	-0.29	0.00
Q9UNZ2;F2Z2K0	NSFL1 cofactor p47	NSFL1C	-0.29	0.32
P43686	26S protease regulatory subunit 6B	PSMC4	-0.29	0.06
Q5JRI1;O75494	Serine/arginine-rich splicing factor 10	SRSF10	-0.29	0.06
P25398	40S ribosomal protein S12	RPS12	-0.29	0.16
Q9Y3U8;J3QSB5	60S ribosomal protein L36	RPL36	-0.29	0.12
Q12874	Splicing factor 3A subunit 3	SF3A3	-0.29	0.06
P08559	Pyruvate dehydrogenase E1 component subunit alpha, somatic form, mitochondrial	PDHA1	-0.29	0.08
Q9Y2B0;F8VXJ7;F8W031; H0YI18;F8W1K5	Protein canopy homolog 2	CNPY2	-0.28	0.03
Q8WVC2;P63220;Q9BYK1	40S ribosomal protein S21	RPS21	-0.28	0.07

O60264	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 5	SMARCA5	-0.28	0.14
P49207	60S ribosomal protein L34	RPL34	-0.28	0.14
C9JIF9;P13798;H7C393	Acylamino-acid-releasing enzyme	APEH	-0.28	0.15
E9PB61;Q86V81	THO complex subunit 4	ALYREF	-0.28	0.10
Q9H0H5;F8VRD2	Rac GTPase-activating protein 1	RACGAP1	-0.28	0.07
J3QL54;Q9BW27;J3QLD4; J3QLH0;J3KT10;F5H0W7	Nuclear pore complex protein Nup85	NUP85	-0.28	0.02
Q16401	26S proteasome non-ATPase regulatory subunit 5	PSMD5	-0.27	0.04
A6NGP5;Q9H910;H3BU16 ;H3BMV3	Hematological and neurological expressed 1-like protein	HN1L	-0.27	0.01
P17655	Calpain-2 catalytic subunit	CAPN2	-0.27	0.17
Q92922	SWI/SNF complex subunit SMARCC1	SMARCC1	-0.27	0.04
A0A0A0MR02;P45880;Q5J SD2;Q5JSD1	Voltage-dependent anion-selective channel protein 2	VDAC2	-0.27	0.02
Q5T4U5;P11310;B7Z9I1	Medium-chain specific acyl-CoA dehydrogenase, mitochondrial	ACADM	-0.27	0.06
O14949	Cytochrome b-c1 complex subunit 8	UQCRQ	-0.27	0.53
Q9H4A4;A6NKB8;A0A087 WU27	Aminopeptidase B	RNPEP	-0.27	0.11
P10599	Thioredoxin	TXN	-0.27	0.24
A0A024QZX5;A0A087X1N 8;P35237	Serpin B6	SERPINB6	-0.27	0.16
I3L0A0;Q13404;A0A0A0M SL3;G3V2F7	Ubiquitin-conjugating enzyme E2 variant 1	UBE2V1	-0.26	0.12
Q9Y617	Phosphoserine aminotransferase	PSAT1	-0.26	0.05
P43246;V9H019;E9PHA6;A 0A087X078;A0A087X1E7	DNA mismatch repair protein Msh2	MSH2	-0.26	0.03
E7ESL0;A0A0C4DGX2;J3K QY1;Q9NWU5	39S ribosomal protein L22, mitochondrial	MRPL22	-0.26	0.21
P51648;J3QRD1;I3L1M4	Fatty aldehyde dehydrogenase	ALDH3A2	-0.26	0.12
Q96PZ0;E7EUH7	Pseudouridylate synthase 7 homolog	PUS7	-0.26	0.03
B3KYB6;A0A0A0MSW4;P4 8739;B3KYB7	Phosphatidylinositol transfer protein beta isoform	PITPNB	-0.26	0.10
P08621	U1 small nuclear ribonucleoprotein 70 kDa	SNRNP70	-0.26	0.14
Q13085;Q59FY4	Acetyl-CoA carboxylase 1;Biotin carboxylase	ACACA	-0.26	0.12
Q9BQA1;H0Y711	Methylosome protein 50	WDR77	-0.25	0.41
P43487;F6WQW2;C9JXG8; C9JJ34;C9JGV6	Ran-specific GTPase-activating protein	RANBP1	-0.25	0.03
A0A0J9YYL3;A0A0J9YXJ8; A0A0J9YVP6;A0A0J9YXX5; Q9UHX1;A0A0J9YVR6;E9 PQ56;A0A0J9YWM1;H0YE M1	Poly(U)-binding-splicing factor PUF60	PUF60	-0.25	0.02
Q53EL6	Programmed cell death protein 4	PDCD4	-0.25	0.16
Q13243;B4DJK0;B4DUA4	Serine/arginine-rich splicing factor 5	SRSF5	-0.25	0.07
Q96HE7;G3V3E6	ERO1-like protein alpha	ERO1L	-0.25	0.20
H7C2Q8;Q99848	Probable rRNA-processing protein EBP2	EBNA1BP2	-0.25	0.16
P78347	General transcription factor II-I	GTF2I	-0.25	0.13
Q9UQE7	Structural maintenance of chromosomes protein 3	SMC3	-0.25	0.23

P36957	Dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial	DLST	-0.25	0.31
Q16777;Q6FI13;Q99878;Q96KK5;Q9BTM1;P0C0S8;H0YFX9	Histone H2A type 2-C;Histone H2A type 2-A;Histone H2A type 1-J;Histone H2A type 1-H;Histone H2A.J;Histone H2A type 1;Histone H2A	HIST2H2AC;HIST2H2AA3;HIST1H2AJ;HIST1H2AH;H2AFJ;HIST1H2AG	-0.25	0.13
K9J957;P61289;A0A087WTV2;B3KQ2S;K7ESG5;K7ENH2	Proteasome activator complex subunit 3	PSME3	-0.25	0.00
Q9P287	BRCA2 and CDKN1A-interacting protein	BCCIP	-0.25	0.05
P60174;U3KPZ0	Triosephosphate isomerase	TPI1	-0.24	0.13
P16152	Carbonyl reductase [NADPH] 1	CBR1	-0.24	0.01
Q15149	Plectin	PLEC	-0.24	0.01
J3QQ67;Q07020;G3V203;H0YHA7;F8VYV2;A0A075B7A0;F8VUA6	60S ribosomal protein L18	RPL18	-0.24	0.08
P12004	Proliferating cell nuclear antigen	PCNA	-0.24	0.01
Q9P0L0	Vesicle-associated membrane protein-associated protein A	VAPA	-0.24	0.11
A0A087WTP3;Q92945;M0R0I5	Far upstream element-binding protein 2	KHSRP	-0.24	0.18
P08579	U2 small nuclear ribonucleoprotein B	SNRNPB2	-0.24	0.01
Q00765;E2QRG8	Receptor expression-enhancing protein 5	REEP5	-0.24	0.16
E7ETZ4;Q9Y6E2;B5MCE7;Q75MG1;B5MCH7;E9PFD4	Basic leucine zipper and W2 domain-containing protein 2	BZW2	-0.24	0.05
Q5T123;A0A087WV23;Q9H299	SH3 domain-binding glutamic acid-rich-like protein 3	SH3BGRL3	-0.24	0.02
Q9HAV4	Exportin-5	XPO5	-0.24	0.27
P28482	Mitogen-activated protein kinase 1	MAPK1	-0.24	0.28
Q27J81;A0A0A0MQU1	Inverted formin-2	INF2	-0.23	0.28
Q13823	Nucleolar GTP-binding protein 2	GNL2	-0.23	0.58
P62495;B7Z7P8	Eukaryotic peptide chain release factor subunit 1	ETF1	-0.23	0.12
O76031	ATP-dependent Clp protease ATP-binding subunit clpX-like, mitochondrial	CLPX	-0.23	0.19
H7BYN4;Q02241	Kinesin-like protein KIF23	KIF23	-0.23	0.14
Q9UBQ7;U3KQ56	Glyoxylate reductase/hydroxypyruvate reductase	GRHPR	-0.23	0.02
Q9BTT0;E9PPH5;Q5TB19;E9PLC4	Acidic leucine-rich nuclear phosphoprotein 32 family member E	ANP32E	-0.23	0.27
P07737;K7EJ44	Profilin-1	PFN1	-0.23	0.08
O95202	LETM1 and EF-hand domain-containing protein 1, mitochondrial	LETM1	-0.23	0.13
E9PGZ1;E7EX44;C9J813;Q05682	Caldesmon	CALD1	-0.23	0.15
P61978	Heterogeneous nuclear ribonucleoprotein K	HNRNPK	-0.23	0.13
B1ANR0;Q13310;H0YSF5	Polyadenylate-binding protein 4	PABPC4	-0.23	0.09
Q92522	Histone H1x	H1FX	-0.23	0.22
C9J8U2;G5E977;Q6XQN6	Nicotinate phosphoribosyltransferase	NAPRT	-0.23	0.14
P16070;H0YD13;H0Y2P0;H0YDW7;H0YCV9;H0YSE4	CD44 antigen	CD44	-0.23	0.14

O75475	PC4 and SFRS1-interacting protein	PSIP1	-0.23	0.21
O75369;E7EN95	Filamin-B	FLNB	-0.23	0.01
Q9H0D6	5-3 exoribonuclease 2	XRN2	-0.23	0.35
H3BUQ9;H3BN50;H3BQS0;Q15599	Na(+)/H(+) exchange regulatory cofactor NHE-RF2	SLC9A3R2	-0.23	0.05
E9PKP7;P17480	Nucleolar transcription factor 1	UBTF	-0.22	0.11
P51991	Heterogeneous nuclear ribonucleoprotein A3	HNRNPA3	-0.22	0.02
P63241;I3L397;I3L504;Q61S14	Eukaryotic translation initiation factor 5A-1;Eukaryotic translation initiation factor 5A-1-like	EIF5A;EIF5AL1	-0.22	0.12
P00966	Argininosuccinate synthase	ASS1	-0.22	0.29
P22307;H0YF61	Non-specific lipid-transfer protein	SCP2	-0.22	0.18
P10768;X6RA14;H7BZT7	S-formylglutathione hydrolase	ESD	-0.22	0.35
Q9BRA2;I3L0K2;I3L3M7;I3L2R6	Thioredoxin domain-containing protein 17	TXNDC17	-0.22	0.07
O00154;K7EKP8	Cytosolic acyl coenzyme A thioester hydrolase	ACOT7	-0.22	0.08
Q969X6;H3BSH7;A0A0J9YWK2;A0A0J9YWM9	Cirhin	CIRH1A	-0.22	0.53
O14776;G3V220	Transcription elongation regulator 1	TCERG1	-0.22	0.17
O00170;E9PMH2	AH receptor-interacting protein	AIP	-0.22	0.01
P61106;X6RFL8	Ras-related protein Rab-14	RAB14	-0.22	0.06
Q06203	Amidophosphoribosyltransferase	PPAT	-0.22	0.15
O75607	Nucleoplasmin-3	NPM3	-0.22	0.07
P42166	Lamina-associated polypeptide 2, isoform alpha;Thymopoietin;Thymopentin	TMPO	-0.22	0.03
P54577;A0A0C4DGZ5	Tyrosine--tRNA ligase, cytoplasmic;Tyrosine--tRNA ligase, cytoplasmic, N-terminally processed	YARS	-0.22	0.04
P61088;F8VSD4;F8VV71;Q5JXB2;F8VZ29;F8VQ8	Ubiquitin-conjugating enzyme E2 N;Putative ubiquitin-conjugating enzyme E2 N-like	UBE2N;UBE2NL	-0.21	0.02
Q15717;M0QZR9	ELAV-like protein 1	ELAVL1	-0.21	0.10
E9PQY2;Q9NQP4	Prefoldin subunit 4	PFDN4	-0.21	0.01
O15212;A2AB88	Prefoldin subunit 6	PFDN6	-0.21	0.19
B4DIH5;P61201;H0YKU5	COP9 signalosome complex subunit 2	COPS2	-0.21	0.06
P61964	WD repeat-containing protein 5	WDR5	-0.21	0.24
P24666;F2Z2Q9;G5E9R5	Low molecular weight phosphotyrosine protein phosphatase	ACP1	-0.21	0.03
Q9BX68	Histidine triad nucleotide-binding protein 2, mitochondrial	HINT2	-0.21	0.28
E7EQ69;Q9GZZ1;C9J5D1;A0A087WWJ2	N-alpha-acetyltransferase 50	NAA50	-0.21	0.23
P35659;B4DFG0;D6RDA2	Protein DEK	DEK	-0.21	0.08
Q96IX5	Up-regulated during skeletal muscle growth protein 5	USMG5	-0.21	0.16
A0A0B4J1Z1;C9JAB2;Q16629	Serine/arginine-rich splicing factor 7	SRSF7	-0.21	0.01
F8VVA7;P61923;F8VXB1;F8VUC5;F8W156;F8W651;F8VXR1;F8VYZ4	Coatomer subunit zeta-1	COPZ1	-0.21	0.32
Q14683;G8JLG1	Structural maintenance of chromosomes protein 1A	SMC1A	-0.21	0.10
Q9HB71	Calcyclin-binding protein	CACYBP	-0.21	0.23
O95163;F5H2T0	Elongator complex protein 1	IKBKAP	-0.21	0.02

O43809;H3BND3	Cleavage and polyadenylation specificity factor subunit 5	NUDT21	-0.21	0.05
Q96PK6	RNA-binding protein 14	RBM14	-0.21	0.12
Q9UHD1;E9PHZ2	Cysteine and histidine-rich domain-containing protein 1	CHORDC1	-0.21	0.09
Q13813;A0A0D9SGF6;A0A0D9SF54	Spectrin alpha chain, non-erythrocytic 1	SPTAN1	-0.21	0.01
Q9NSD9	Phenylalanine--tRNA ligase beta subunit	FARSB	-0.20	0.01
O94776	Metastasis-associated protein MTA2	MTA2	-0.20	0.06
P62241;Q5JR95	40S ribosomal protein S8	RPS8	-0.20	0.09
P62244;I3L3P7;I3L246	40S ribosomal protein S15a	RPS15A	-0.20	0.21
A6NDG6	Phosphoglycolate phosphatase	PGP	-0.20	0.20
Q00059;H7BYN3	Transcription factor A, mitochondrial	TFAM	-0.20	0.22
P24752	Acetyl-CoA acetyltransferase, mitochondrial	ACAT1	-0.20	0.04
E9PLK3;P55786	Puromycin-sensitive aminopeptidase	NPEPPS	-0.20	0.11
O75131;A0A087WYQ3	Copine-3	CPNE3	-0.20	0.18
Q15029	116 kDa U5 small nuclear ribonucleoprotein component	EFTUD2	-0.20	0.03
V9GYP5;A0A087WWQ2;Q92979;A0A087WVM7	Ribosomal RNA small subunit methyltransferase NEP1	EMG1	-0.20	0.13
P26196	Probable ATP-dependent RNA helicase DDX6	DDX6	-0.20	0.08
B1AHD1;P55769	NHP2-like protein 1;NHP2-like protein 1, N-terminally processed	NHP2L1	-0.20	0.18
P09661;H0YMA0;H0YKK0	U2 small nuclear ribonucleoprotein A	SNRPA1	-0.20	0.53
O15144	Actin-related protein 2/3 complex subunit 2	ARPC2	-0.20	0.16
Q13162;H7C3T4	Peroxiredoxin-4	PRDX4	-0.20	0.12
Q8WU90	Zinc finger CCCH domain-containing protein 15	ZC3H15	-0.19	0.05
A0A0C4DGB5;E7ES10;E9PCH5;B7Z574;P20810;E7EY3;E9PDE4;H0Y7F0;H0Y9H6;E7EQ12;F8W7E0;E7EQ A0	Calpastatin	CAST	-0.19	0.25
Q9YSP6	Mannose-1-phosphate guanylttransferase beta	GMPPB	-0.19	0.20
O14745;J3QRP6	Na(+)/H(+) exchange regulatory cofactor NHE-RF1	SLC9A3R1	-0.19	0.04
Q8NCW5;Q5T3I4;Q5T3I3	NAD(P)H-hydrate epimerase	APOA1BP	-0.19	0.12
P09972	Fructose-bisphosphate aldolase C	ALDOC	-0.19	0.04
P49458;E9PE20	Signal recognition particle 9 kDa protein	SRP9	-0.19	0.19
P48960	CD97 antigen;CD97 antigen subunit alpha;CD97 antigen subunit beta	CD97	-0.19	0.13
B5MDF5;J3KQE5;P62826;F5H018;B4DV51	GTP-binding nuclear protein Ran	RAN	-0.19	0.09
Q3ZCQ8;M0R0C3;M0R2F8	Mitochondrial import inner membrane translocase subunit TIM50	TIMM50	-0.19	0.30
E5RHW4;O94905	Erlin-2	ERLIN2	-0.19	0.19
H0YEL5;C9JQD4;O43447	Peptidyl-prolyl cis-trans isomerase;Peptidyl-prolyl cis-trans isomerase H	PPIH	-0.19	0.07
A0A0C4DG89;Q7L014	Probable ATP-dependent RNA helicase DDX46	DDX46	-0.19	0.01
O00567	Nucleolar protein S6	NOPS6	-0.19	0.02
B4DLN1;P52815	39S ribosomal protein L12, mitochondrial	MRPL12	-0.19	0.14
P47897;B4DDN1	Glutamine--tRNA ligase	QARS	-0.19	0.05

P34896	Serine hydroxymethyltransferase, cytosolic	SHMT1	-0.19	0.24
P02545	Prelamin-A/C;Lamin-A/C	LMNA	-0.19	0.17
P39687;H0YN26	Acidic leucine-rich nuclear phosphoprotein 32 family member A	ANP32A	-0.19	0.01
Q13561;H0YI98;F8W1I6;F8VW18	Dynactin subunit 2	DCTN2	-0.19	0.10
Q9H307	Pinin	PNN	-0.18	0.14
P50213;H0YL72;H0YMU3	Isocitrate dehydrogenase [NAD] subunit alpha, mitochondrial	IDH3A	-0.18	0.06
J3QT28;O43684;J3QSX4	Mitotic checkpoint protein BUB3	BUB3	-0.18	0.05
E9PNW4;E9PRI7;P13987;H0YET2	CD59 glycoprotein	CD59	-0.18	0.44
Q9NR12	PDZ and LIM domain protein 7	PDLIM7	-0.18	0.15
P61081;M0QX69	NEDD8-conjugating enzyme Ubc12	UBE2M	-0.18	0.16
Q9Y310	tRNA-splicing ligase RtcB homolog	RTCB	-0.18	0.25
P28074	Proteasome subunit beta type-5	PSMB5	-0.18	0.14
O15371	Eukaryotic translation initiation factor 3 subunit D	EIF3D	-0.18	0.11
Q15393	Splicing factor 3B subunit 3	SF3B3	-0.18	0.08
Q9H9J2	39S ribosomal protein L44, mitochondrial	MRPL44	-0.18	0.16
J9JID7;Q03252	Lamin-B2	LMNB2	-0.18	0.30
K7EQ55;K7EK33;Q96EP5;K7EQ02	DAZ-associated protein 1	DAZAP1	-0.18	0.02
H0Y8R1;F5H5I6;H0YAK1;Q12849	G-rich sequence factor 1	GRSF1	-0.17	0.03
Q8TC12;G3V2G6	Retinol dehydrogenase 11	RDH11	-0.17	0.21
Q8WW12	PEST proteolytic signal-containing nuclear protein	PCNP	-0.17	0.03
Q8WUM0	Nuclear pore complex protein Nup133	NUP133	-0.17	0.14
P09874	Poly [ADP-ribose] polymerase 1	PARP1	-0.17	0.04
Q06830;A0A0A0MSI0	Peroxiredoxin-1	PRDX1	-0.17	0.06
Q15008	26S proteasome non-ATPase regulatory subunit 6	PSMD6	-0.17	0.00
P02751;H0Y7Z1	Fibronectin;Anastellin;Ugl-Y1;Ugl-Y2;Ugl-Y3	FN1	-0.17	0.20
Q8NFH3	Nucleoporin Nup43	NUP43	-0.17	0.03
Q9HAV7	GrpE protein homolog 1, mitochondrial	GRPEL1	-0.17	0.09
P50552	Vasodilator-stimulated phosphoprotein	VASP	-0.17	0.05
P35268;K7ELC4;K7EMH1;K7ERI7;K7EP65;K7EKS7	60S ribosomal protein L22	RPL22	-0.17	0.28
Q9BQ52;G5E9D5;E7ES68	Zinc phosphodiesterase ELAC protein 2	ELAC2	-0.17	0.16
Q8NBX0	Saccharopine dehydrogenase-like oxidoreductase	SCCPDH	-0.17	0.47
Q8WVY7	Ubiquitin-like domain-containing CTD phosphatase 1	UBLCP1	-0.17	0.25
E5RFP0;Q8WVJ2	NudC domain-containing protein 2	NUDCD2	-0.17	0.05
E9PEB5;Q96AE4	Far upstream element-binding protein 1	FUBP1	-0.17	0.14
P11766;H0YAG8	Alcohol dehydrogenase class-3	ADH5	-0.17	0.16
Q13363;E7ESU7;D6RAX2;E7EPF8;E9PGB1;H0Y8W7	C-terminal-binding protein 1	CTBP1	-0.17	0.05
P00387;B1AHF3	NADH-cytochrome b5 reductase 3;NADH-cytochrome b5 reductase 3 membrane-bound form;NADH-cytochrome b5 reductase 3 soluble form	CYB5R3	-0.17	0.15

A0A087WTT1;P11940;E7EQV3;E7ERJ7;H0YAR2;Q9H361	Polyadenylate-binding protein 1;Polyadenylate-binding protein 3	PABPC1;PABPC3	-0.17	0.03
Q16543;K7EQA9;K7EKQ2	Hsp90 co-chaperone Cdc37;Hsp90 co-chaperone Cdc37, N-terminally processed	CDC37	-0.16	0.10
Q9H845	Acyl-CoA dehydrogenase family member 9, mitochondrial	ACAD9	-0.16	0.17
P11388	DNA topoisomerase 2-alpha	TOP2A	-0.16	0.03
P49411	Elongation factor Tu, mitochondrial	TUFM	-0.16	0.04
O76003	Glutaredoxin-3	GLRX3	-0.16	0.03
Q5QPL9;Q9UKM9;Q5QPM0;Q5QPM1	RNA-binding protein Raly	RALY	-0.16	0.12
Q96CX2	BTB/POZ domain-containing protein KCTD12	KCTD12	-0.16	0.15
J3KTL2;Q07955;J3KSR8	Serine/arginine-rich splicing factor 1	SRSF1	-0.16	0.07
Q9P2R7;Q5T9Q5;A0A0U1RQF8	Succinyl-CoA ligase [ADP-forming] subunit beta, mitochondrial	SUCLA2	-0.16	0.05
P62314;J3QLI9	Small nuclear ribonucleoprotein Sm D1	SNRPD1	-0.16	0.25
O60869	Endothelial differentiation-related factor 1	EDF1	-0.16	0.17
E5RIZ4;Q9P015;E5RHF4	39S ribosomal protein L15, mitochondrial	MRPL15	-0.16	0.34
P12270	Nucleoprotein TPR	TPR	-0.16	0.05
Q5VWC4;P55036;A6PVX3	26S proteasome non-ATPase regulatory subunit 4	PSMD4	-0.16	0.25
Q15233;H7C367;C9JYS8	Non-POU domain-containing octamer-binding protein	NONO	-0.16	0.01
Q8WXF1	Paraspeckle component 1	PSPC1	-0.16	0.10
O9S347	Structural maintenance of chromosomes protein 2	SMC2	-0.16	0.11
F8W7U8;P49959;F5GXT0	Double-strand break repair protein MRE11A	MRE11A	-0.16	0.00
P48507	Glutamate--cysteine ligase regulatory subunit	GCLM	-0.16	0.18
Q96KR1	Zinc finger RNA-binding protein	ZFR	-0.16	0.07
Q02750	Dual specificity mitogen-activated protein kinase kinase 1	MAP2K1	-0.16	0.12
Q10471	Polypeptide N-acetylgalactosaminyltransferase 2;Polypeptide N-acetylgalactosaminyltransferase 2 soluble form	GALNT2	-0.15	0.14
Q5URX0;P07686;H0YA83	Beta-hexosaminidase subunit beta;Beta-hexosaminidase subunit beta chain B;Beta-hexosaminidase subunit beta chain A	HEXB	-0.15	0.16
Q9NSE4	Isoleucine--tRNA ligase, mitochondrial	IARS2	-0.15	0.07
P22234;E9PBS1;D6RF62	Multifunctional protein ADE2;Phosphoribosylaminoimidazole-succinocarboxamide synthase;Phosphoribosylaminoimidazole carboxylase	PAICS	-0.15	0.16
O60306	Intron-binding protein aquarius	AQR	-0.15	0.13
Q01650	Large neutral amino acids transporter small subunit 1	SLC7A5	-0.15	0.03
P49756	RNA-binding protein 25	RBM25	-0.15	0.02
P62263;H0YB22;E5RH77	40S ribosomal protein S14	RPS14	-0.15	0.11
Q15654;H7BZE2	Thyroid receptor-interacting protein 6	TRIP6	-0.15	0.04
O15042;E7ET15	U2 snRNP-associated SURP motif-containing protein	U2SURP	-0.15	0.27

J3KTL8;A6NHR9	Structural maintenance of chromosomes flexible hinge domain-containing protein 1	SMCHD1	-0.15	0.12
P17612	cAMP-dependent protein kinase catalytic subunit alpha	PRKACA	-0.15	0.24
Q9Y490	Talin-1	TLN1	-0.15	0.02
J3QR09;J3KTE4;P84098	Ribosomal protein L19;60S ribosomal protein L19	RPL19	-0.15	0.09
O75436;S4R3Q6	Vacuolar protein sorting-associated protein 26A	VPS26A	-0.15	0.26
O14818;H0Y586	Proteasome subunit alpha type-7	PSMA7	-0.15	0.01
Q8WUM4	Programmed cell death 6-interacting protein	PDCD6IP	-0.15	0.02
P49773;D6REP8;D6RE99;D6RD60	Histidine triad nucleotide-binding protein 1	HINT1	-0.14	0.01
A0A087WUT6;O60841	Eukaryotic translation initiation factor 5B	EIF5B	-0.14	0.03
P21333;Q5HY54	Filamin-A	FLNA	-0.14	0.03
C9J712;P35080;C9JQ45	Profilin-2;Profilin	PFN2	-0.14	0.18
A0A087WXX8;A0A087WWT1;P21912	Succinate dehydrogenase [ubiquinone] iron-sulfur subunit, mitochondrial	SDHB	-0.14	0.02
P78527	DNA-dependent protein kinase catalytic subunit	PRKDC	-0.14	0.01
J3QRG6;P42771;K7ES20;K7ENC6;P42772	Cyclin-dependent kinase inhibitor 2A, isoforms 1/2/3;Cyclin-dependent kinase 4 inhibitor B	CDKN2A;CDKN2B	-0.14	0.23
P62805	Histone H4	HIST1H4A	-0.14	0.06
P30086	Phosphatidylethanolamine-binding protein 1;Hippocampal cholinergic neurostimulating peptide	PEBP1	-0.14	0.00
P21291;E9PS42;E9PND2;E9PP21	Cysteine and glycine-rich protein 1	CSRP1	-0.14	0.16
K7EN45;Q13526;K7EMU7	Peptidyl-prolyl cis-trans isomerase NIMA-interacting 1	PIN1	-0.14	0.17
P21964;E7EMS6;F8WBW9;E7EUU8	Catechol O-methyltransferase	COMT	-0.14	0.00
A0A075B7D9;Q92804	TATA-binding protein-associated factor 2N	TAF15	-0.14	0.24
G3VSZ7;P60900;G3V29S;G3V3I1	Proteasome subunit alpha type;Proteasome subunit alpha type-6	PSMA6	-0.14	0.04
P14735	Insulin-degrading enzyme	IDE	-0.14	0.06
O14737;K7EQA1	Programmed cell death protein 5	PDCD5	-0.14	0.13
P09960	Leukotriene A-4 hydrolase	LTA4H	-0.14	0.16
E9PGT6;Q99627;H7C3S9	COP9 signalosome complex subunit 8	COPS8	-0.14	0.04
Q15942;H0Y2Y8	Zyxin	ZYX	-0.14	0.01
F1T0I1;J3KNL6;O15027	Protein transport protein Sec16A	SEC16A	-0.13	0.08
P22087;M0R299;M0QXL5;M0R2Q4;M0R0P1;M0R2U2;M0R1H0;M0R2B0	rRNA 2-O-methyltransferase fibrillarin	FBL	-0.13	0.05
Q9BTV4	Transmembrane protein 43	TMEM43	-0.13	0.33
H3BPH4;H3BV55;O15305;H3BR08;H3BM92;H3BV34;H3BT06;H3BNY9;H3BRM0	Phosphomannomutase;Phosphomannomutase 2	PMM2	-0.13	0.08
P22626;A0A087WUI2	Heterogeneous nuclear ribonucleoproteins A2/B1	HNRNPA2B1	-0.13	0.06
P60866;E5RIP1;E5RJX2;G3XAN0	40S ribosomal protein S20	RPS20	-0.13	0.04

P14324;A0A087WVN4;A0A087X1D8;A0A087X090	Farnesyl pyrophosphate synthase	FDPS	-0.13	0.03
P23526	Adenosylhomocysteinase	AHCY	-0.13	0.27
Q8N1B9;C9J6X0;A0A087WXC5;E7ESZ7;O95299	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial	NDUFA10	-0.13	0.34
P62851	40S ribosomal protein S25	RPS25	-0.13	0.01
O75822;H0YGJ7;H0YLP3	Eukaryotic translation initiation factor 3 subunit J	EIF3J	-0.13	0.22
Q6PKG0;A0A0B4J210;E5RH50	La-related protein 1	LARP1	-0.13	0.13
E9PLL6;P46776;E9PJD9	60S ribosomal protein L27a	RPL27A	-0.13	0.03
Q9UQ35	Serine/arginine repetitive matrix protein 2	SRRM2	-0.13	0.07
P15121;E9PCX2	Aldose reductase	AKR1B1	-0.13	0.11
P24539;Q5QNZ2	ATP synthase F(0) complex subunit B1, mitochondrial	ATP5F1	-0.13	0.06
P42126;H3BS70;Q96DC0	Enoyl-CoA delta isomerase 1, mitochondrial	ECI1;DCI	-0.13	0.04
P62269	40S ribosomal protein S18	RPS18	-0.12	0.17
P05141	ADP/ATP translocase 2;ADP/ATP translocase 2, N-terminally processed	SLC25A5	-0.12	0.06
Q96BN8	Ubiquitin thioesterase otulin	OTULIN	-0.12	0.11
Q9Y6C9;E9PIE4	Mitochondrial carrier homolog 2	MTCH2	-0.12	0.13
Q13011;M0R248	Delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase, mitochondrial	ECH1	-0.12	0.07
O75367;B4DJC3	Core histone macro-H2A.1;Histone H2A	H2AFY	-0.12	0.05
P18754;C9JW69;C9JRH2;C9JMJ4;C9J3R0;C9JQZ4	Regulator of chromosome condensation	RCC1	-0.12	0.04
Q16643;D6R9W4	Drebrin	DBN1	-0.12	0.12
Q8IWA0	WD repeat-containing protein 75	WDR75	-0.12	0.06
P55060	Exportin-2	CSE1L	-0.12	0.05
P50402;Q5HY57	Emerin	EMD	-0.12	0.00
Q32MZ4	Leucine-rich repeat flightless-interacting protein 1	LRRFIP1	-0.12	0.17
H7BZW6;X6RAL5;O00422	Histone deacetylase complex subunit SAP18	SAP18	-0.12	0.36
O43707;F5GXS2	Alpha-actinin-4	ACTN4	-0.12	0.09
Q9BRP8	Partner of Y14 and mago	WIBG	-0.12	0.02
P23396;E9PL09;E9PPU1;F2Z2S8;H0YCY7;H0YEU2	40S ribosomal protein S3	RPS3	-0.12	0.05
A0A087WYS1;E7EUC7;Q16851;C9JWG0;C9JVG3;C9JQU9;C9JNZ1	UTP--glucose-1-phosphate uridylyltransferase	UGP2	-0.12	0.02
Q12904	Aminoacyl tRNA synthase complex-interacting multifunctional protein 1;Endothelial monocyte-activating polypeptide 2	AIMP1	-0.12	0.08
Q96AG4	Leucine-rich repeat-containing protein 59	LRRC59	-0.12	0.02
E7EX17;P23588;F8VP89;F8VX11	Eukaryotic translation initiation factor 4B	EIF4B	-0.12	0.08
P39748;I3L3E9	Flap endonuclease 1	FEN1	-0.12	0.07
H0YNW5;P33316;A0A0C4DGL3;H0YKC5;H0YMP1	Deoxyuridine 5-triphosphate nucleotidohydrolase, mitochondrial	DUT	-0.11	0.06
Q14232;F5H0D0	Translation initiation factor eIF-2B subunit alpha	EIF2B1	-0.11	0.29
Q15459	Splicing factor 3A subunit 1	SF3A1	-0.11	0.15
I3L0N3;P46459	Vesicle-fusing ATPase	NSF	-0.11	0.26

Q9Y570	Protein phosphatase methylesterase 1	PPME1	-0.11	0.11
QST9B7;P00568;H0Y4J6	Adenylate kinase isoenzyme 1	AK1	-0.11	0.07
P25705;K7EK77	ATP synthase subunit alpha, mitochondrial	ATPSA1	-0.11	0.02
Q9UBT2;K7EPL2	SUMO-activating enzyme subunit 2	UBA2	-0.11	0.41
Q9Y266	Nuclear migration protein nudC	NUDC	-0.11	0.11
Q13907;C9JKM8	Isopentenyl-diphosphate Delta-isomerase 1	IDI1	-0.11	0.05
P61353;K7ELC7	60S ribosomal protein L27	RPL27	-0.11	0.07
A0A0G2JQM1;A0A0G2JS8 2;O94973;O9S782	AP-2 complex subunit alpha-2;AP-2 complex subunit alpha-1	AP2A2;AP2A1	-0.11	0.29
Q9BWF3;E9PB51	RNA-binding protein 4	RBM4	-0.11	0.07
P50502;A0A087X1H6;H7C 3I1;Q3KNR6;Q8IZP2;Q8N F14;F6VDH7	Hsc70-interacting protein;Putative protein FAM10A4;Putative protein FAM10A5	ST13;ST13P4;ST1 3P5	-0.11	0.08
P09497	Clathrin light chain B	CLTB	-0.11	0.12
P07814;V9GYZ6	Bifunctional glutamate/proline--tRNA ligase;Glutamate-- tRNA ligase;Proline--tRNA ligase	EPRS	-0.11	0.07
P49915	GMP synthase [glutamine-hydrolyzing]	GMPS	-0.11	0.19
A0A087WW66;Q99460	26S proteasome non-ATPase regulatory subunit 1	PSMD1	-0.11	0.11
E5RJT0;A0A087WZK9;B3K S98;O15372;E5RGU4	Eukaryotic translation initiation factor 3 subunit H	EIF3H;EIF3S3	-0.11	0.14
Q08945	FACT complex subunit SSRP1	SSRP1	-0.11	0.03
C9IY40;Q5T653	39S ribosomal protein L2, mitochondrial	MRPL2	-0.11	0.40
Q8WWM7;H3BUF6	Ataxin-2-like protein	ATXN2L	-0.11	0.21
P54886	Delta-1-pyrroline-5-carboxylate synthase;Glutamate 5- kinase;Gamma-glutamyl phosphate reductase	ALDH18A1	-0.11	0.01
P14550	Alcohol dehydrogenase [NADP(+)]	AKR1A1	-0.11	0.04
Q9Y3C6	Peptidyl-prolyl cis-trans isomerase-like 1	PPIL1	-0.11	0.28
O75223;M0QZK8;B8ZZK2	Gamma-glutamylcyclotransferase	GGCT	-0.11	0.41
Q13185;S4R2Y4	Chromobox protein homolog 3	CBX3	-0.11	0.14
Q08J23	tRNA (cytosine(34)-C(5))-methyltransferase	NSUN2	-0.10	0.10
P78417;Q5TA02;Q5TA01	Glutathione S-transferase omega-1	GSTO1	-0.10	0.06
B7Z6D5;Q96GQ7	Probable ATP-dependent RNA helicase DDX27	DDX27	-0.10	0.04
F8WCF6;P59998;F8WDD7 ;H7C0A3;A0A0A6YYG9	Actin-related protein 2/3 complex subunit 4	ARPC4- TTLL3;ARPC4	-0.10	0.09
P61158;B4DXW1	Actin-related protein 3	ACTR3	-0.10	0.07
O75083;D6RD66	WD repeat-containing protein 1	WDR1	-0.10	0.10
A0A0C4DFR6;P55735;A8 MXL6	Protein SEC13 homolog	SEC13	-0.10	0.08
P10620;F5H7F6;F5H6X2	Microsomal glutathione S-transferase 1	MGST1	-0.10	0.36
Q86X55;K7EQA8;K7EK20; K7EPK1	Histone-arginine methyltransferase CARM1	CARM1	-0.10	0.21
E7EM64;Q7L5N1	COP9 signalosome complex subunit 6	COPS6	-0.10	0.04
K7EM73;K7EIV0;A0A075B 7C0;K7ELJ7;A0A0C4DGQ 5;P04632;U3KQE2	Calpain small subunit 1	CAPNS1	-0.10	0.38
G5EA30;Q92879;F5H4Y5; E9PQK4;E9PSH0;F5H0D8; E9PKU1	CUGBP Elav-like family member 1	CELF1	-0.10	0.11
P15954;D6R9Z7	Cytochrome c oxidase subunit 7C, mitochondrial	COX7C	-0.10	0.06

Q12788;J3KNP2	Transducin beta-like protein 3	TBL3	-0.10	0.08
J3KN16;Q5VYK3;R4GMY1	Proteasome-associated protein ECM29 homolog	KIAA0368;ECM29	-0.10	0.47
E9PKG1;H7C2I1;Q99873; A0A087X1W2;E9PQ98;E9P IX6;H0YDE4;E9PNR9	Protein arginine N-methyltransferase 1	PRMT1	-0.10	0.15
P60981;F6RFD5	Destrin	DSTN	-0.10	0.05
P55263	Adenosine kinase	ADK	-0.10	0.05
Q9BVC6	Transmembrane protein 109	TMEM109	-0.10	0.18
O00303	Eukaryotic translation initiation factor 3 subunit F	EIF3F	-0.10	0.21
Q8NBY1;B4E0Y9;Q9P289	Serine/threonine-protein kinase MST4	RBM4B;MST4	-0.10	0.08
Q16658	Fascin	FSCN1	-0.10	0.03
Q99536	Synaptic vesicle membrane protein VAT-1 homolog	VAT1	-0.10	0.08
Q96TA1	Niban-like protein 1	FAM129B	-0.10	0.05
Q9UMX0	Ubiquilin-1	UBQLN1	-0.09	0.03
O76094;R4GNC1	Signal recognition particle subunit SRP72	SRP72	-0.09	0.07
P62995;H7BXF3;H7C2L4	Transformer-2 protein homolog beta	TRA2B	-0.09	0.03
Q09028;H0YF10;H0YCT5; H0YDK2	Histone-binding protein RBBP4	RBBP4	-0.09	0.07
G8JLB6;P31943;E9PCY7;D 6RBM0;H0YB39;ESRGV0; D6RIU0	Heterogeneous nuclear ribonucleoprotein H;Heterogeneous nuclear ribonucleoprotein H, N- terminally processed	HNRNPH1	-0.09	0.02
E9PN17;O75964	ATP synthase subunit g, mitochondrial	ATP5L	-0.09	0.14
F8WJN3;Q16630	Cleavage and polyadenylation specificity factor subunit 6	CPSF6	-0.09	0.06
C9JXB8;C9JNW5;P83731	60S ribosomal protein L24	RPL24	-0.09	0.22
P98179	Putative RNA-binding protein 3	RBM3	-0.09	0.18
B1AJY7;O75832;B1AJY5	26S proteasome non-ATPase regulatory subunit 10	PSMD10	-0.09	0.17
E9PD53;Q9NTJ3	Structural maintenance of chromosomes protein;Structural maintenance of chromosomes protein 4	SMC4	-0.09	0.03
Q8WVM8;H0YJY1	Sec1 family domain-containing protein 1	SCFD1	-0.09	0.32
P09429;Q5T7C4	High mobility group protein B1	HMGB1	-0.09	0.10
P52209	6-phosphogluconate dehydrogenase, decarboxylating	PGD	-0.09	0.06
O95747;C9JIG9	Serine/threonine-protein kinase OSR1	OXSR1	-0.09	0.01
Q86VP6;A0A0C4DGH5	Cullin-associated NEDD8-dissociated protein 1	CAND1	-0.09	0.05
Q9Y2W1	Thyroid hormone receptor-associated protein 3	THRAP3	-0.09	0.05
Q14914;F2Z3J9	Prostaglandin reductase 1	PTGR1	-0.09	0.10
I3L1P8;Q02978	Mitochondrial 2-oxoglutarate/malate carrier protein	SLC25A11	-0.09	0.30
E9PB90;P52789	Hexokinase-2	HK2	-0.09	0.30
F5GZS6;J3KPF3;P08195	4F2 cell-surface antigen heavy chain	SLC3A2	-0.09	0.12
Q32Q12;J3KPD9;P22392;E 7ERL0	Nucleoside diphosphate kinase;Nucleoside diphosphate kinase B	NME1- NME2;NME2;NM E1	-0.09	0.03
P62277;J3KMX5	40S ribosomal protein S13	RPS13	-0.08	0.16
P56537	Eukaryotic translation initiation factor 6	EIF6	-0.08	0.21
P11413;E7EUI8;E9PD92;E 7EM57	Glucose-6-phosphate 1-dehydrogenase	G6PD	-0.08	0.00

Q8N163;H0YB24	Cell cycle and apoptosis regulator protein 2	CCAR2	-0.08	0.02
P62249;M0R210;M0R3H0; A0A087WZ27;M0R1M5	40S ribosomal protein S16	RPS16	-0.08	0.00
O60506;B7Z645	Heterogeneous nuclear ribonucleoprotein Q	SYNCRIP	-0.08	0.01
P06737;E9PK47	Glycogen phosphorylase, liver form;Phosphorylase	PYGL	-0.08	0.05
P49792;O14715	E3 SUMO-protein ligase RanBP2;RANBP2-like and GRIP domain-containing protein 8	RANBP2;RGPDP8	-0.08	0.19
Q1S691	Microtubule-associated protein RP/EB family member 1	MAPRE1	-0.08	0.07
P05026;V9GYR2	Sodium/potassium-transporting ATPase subunit beta-1	ATP1B1	-0.08	0.08
O43390;B4DT28	Heterogeneous nuclear ribonucleoprotein R	HNRNPR	-0.08	0.14
Q8N1F7;H3BVG0	Nuclear pore complex protein Nup93	NUP93	-0.08	0.07
P63244;J3KPE3;D6RAC2; H0Y8W2;H0YAF8;D6RHH 4;D6REE5;D6R9Z1;H0YA M7;D6R9L0;D6RFX4	Guanine nucleotide-binding protein subunit beta-2-like 1;Guanine nucleotide-binding protein subunit beta-2-like 1, N-terminally processed	GNB2L1	-0.08	0.04
P04075;J3KPS3;H3BQN4; H3BPS8;H3BUH7	Fructose-bisphosphate aldolase A	ALDOA	-0.08	0.00
P28288	ATP-binding cassette sub-family D member 3	ABCD3	-0.08	0.11
P62195;J3QSA9;J3QQM1;J 3KRP2;J3QLH6	26S protease regulatory subunit 8	PSMC5	-0.08	0.13
P21266;A0A0A0MTN3	Glutathione S-transferase Mu 3	GSTM3	-0.08	0.04
P06733	Alpha-enolase	ENO1	-0.08	0.07
A0A0G2JN29;A0A087X117 ;Q1S155;A0A0G2JP90;A0A 087WW46	Nodal modulator 1	NOMO1	-0.08	0.13
Q7RTV0	PHD finger-like domain-containing protein 5A	PHF5A	-0.08	0.04
P38919	Eukaryotic initiation factor 4A-III;Eukaryotic initiation factor 4A-III, N-terminally processed	EIF4A3	-0.08	0.12
Q9NX58	Cell growth-regulating nucleolar protein	LYAR	-0.08	0.02
Q9Y3B4	Splicing factor 3B subunit 6	SF3B6	-0.08	0.11
F8VY04;F8W1A4;P54819;F 8VZG5	Adenylate kinase 2, mitochondrial;Adenylate kinase 2, mitochondrial;Adenylate kinase 2, mitochondrial, N-terminally processed	AK2	-0.08	0.28
F5H669;Q8N684;J3QT54;F 5H6M0;F5H047	Cleavage and polyadenylation specificity factor subunit 7	CPSF7	-0.07	0.00
P39019;A0A075B6E2	40S ribosomal protein S19	RPS19	-0.07	0.09
P22695;H3BRG4;H3BSJ9	Cytochrome b-c1 complex subunit 2, mitochondrial	UQCRC2	-0.07	0.02
Q14697;F5H6X6	Neutral alpha-glucosidase AB	GANAB	-0.07	0.08
P11142;E9PKE3;E9PNE6;A 8K7Q2;E9PN89	Heat shock cognate 71 kDa protein	HSPA8	-0.07	0.01
P61006	Ras-related protein Rab-8A	RAB8A	-0.07	0.08
Q92900	Regulator of nonsense transcripts 1	UPF1	-0.07	0.01
P42285	Superkiller viralicidic activity 2-like 2	SKIV2L2	-0.07	0.07
B8ZZA8;B8ZZC5		GLS	-0.07	0.03
P63167;F8VXL2;F8VRV5	Dynein light chain 1, cytoplasmic	DYNLL1	-0.07	0.02

P61247;D6RG13;D6RAT0; D6RB09;E9PFI5;H0Y9Y4;D 6R9B6;H0Y8L7;D6RAS7	40S ribosomal protein S3a	RPS3A	-0.07	0.01
A0A0R4J2E8;A8MXP9;P43 243;D6REM6;D6R991	Matrin-3	MATR3	-0.07	0.24
P08237	ATP-dependent 6-phosphofructokinase, muscle type	PFKM	-0.07	0.07
B4DGU4;P35222	Catenin beta-1	CTNNB1	-0.07	0.39
Q14103;H0Y8G5;H0YA96; D6RAF8;D6RF44;D6RBQ9	Heterogeneous nuclear ribonucleoprotein D0	HNRNPD	-0.07	0.07
Q12797	Aspartyl/asparaginyl beta-hydroxylase	ASPH	-0.07	0.04
B4DEM9;Q9Y2S7	Polymerase delta-interacting protein 2	POLDIP2	-0.07	0.23
Q9UGI8	Testin	TES	-0.07	0.12
Q8N1G4	Leucine-rich repeat-containing protein 47	LRRC47	-0.07	0.05
Q9Y2Z0	Suppressor of G2 allele of SKP1 homolog	SUGT1	-0.07	0.43
P80723	Brain acid soluble protein 1	BASP1	-0.07	0.07
F6WIT2;A6PVN5;Q15257; A6PVN9;B7ZBQ0;Q68CR8 ;A6PVN8;C9IZ76;A6PVN6; Q5T949;Q5T948	Serine/threonine-protein phosphatase 2A activator	PPP2R4;DKFZp78 1M17165	-0.07	0.18
H3BMH2;H3BSC1;P62491; Q15907	Ras-related protein Rab-11A;Ras-related protein Rab- 11B	RAB11A;RAB11B	-0.07	0.07
P23193;E5RIS7	Transcription elongation factor A protein 1	TCEA1	-0.07	0.06
H3BPF6;Q99471	Prefoldin subunit 5	PFDN5	-0.07	0.15
P31947	14-3-3 protein sigma	SFN	-0.07	0.27
O14980	Exportin-1	XPO1	-0.06	0.05
Q15126	Phosphomevalonate kinase	PMVK	-0.06	0.33
C9J470;E9PHA2;Q15003;C 9JZP1	Condensin complex subunit 2	NCAPH	-0.06	0.05
Q16778;P33778;P23527;P0 6899;Q8N257	Histone H2B type 2-E;Histone H2B type 1-B;Histone H2B type 1-O;Histone H2B type 1-J;Histone H2B type 3-B	HIST2H2BE;HIST 1H2BB;HIST1H2 BO;HIST1H2BJ;H IST3H2BB	-0.06	0.06
J3KMX1;Q99567	Nuclear pore complex protein Nup88	NUP88	-0.06	0.01
B5MCF9;O00541;B3KXD6	Pescadillo homolog	PES1	-0.06	0.08
H7BZP2;Q9H2J4	Phosducin-like protein 3	PDCL3	-0.06	0.47
Q9UMS4;F5GY56	Pre-mRNA-processing factor 19	PRPF19	-0.06	0.01
P30048	Thioredoxin-dependent peroxide reductase, mitochondrial	PRDX3	-0.06	0.15
Q9UBE0;M0QZS6;B3KNJ4	SUMO-activating enzyme subunit 1;SUMO-activating enzyme subunit 1, N-terminally processed	SAE1	-0.06	0.07
Q9Y265;E7ETR0	RuvB-like 1	RUVBL1	-0.06	0.10
A0A087WYK8;B1AKJ5;O43 847;F5H7V1;G3V1R5	Nardilysin	NRD1	-0.06	0.32
Q9UJU6;H0Y5J4;B4DDD6	Drebrin-like protein	DBNL	-0.06	0.00
O00264	Membrane-associated progesterone receptor component 1	PGRMC1	-0.06	0.11
Q02790	Peptidyl-prolyl cis-trans isomerase FKBP4;Peptidyl- prolyl cis-trans isomerase FKBP4, N-terminally processed	FKBP4	-0.06	0.09
J3QKT4;P32322;J3KQ22;E 2QRB3;J3QL24	Pyrroline-5-carboxylate reductase;Pyrroline-5- carboxylate reductase 1, mitochondrial	PYCR1	-0.06	0.13
H3BLU7;O43488	Aflatoxin B1 aldehyde reductase member 2	AKR7A2	-0.06	0.21

C9JLU1;P52434	DNA-directed RNA polymerases I, II, and III subunit RPABC3	POLR2H	-0.06	0.10
P27105	Erythrocyte band 7 integral membrane protein	STOM	-0.06	0.37
P18124;A8MUD9	60S ribosomal protein L7	RPL7	-0.06	0.15
Q9BPX3	Condensin complex subunit 3	NCAPG	-0.06	0.22
P80297;P02795;P13640;CO N__P67983;Q8N339;P047 32	Metallothionein-1X;Metallothionein-2;Metallothionein-1G;Metallothionein-1M;Metallothionein-1E	MT1X;MT2A;MT1G;MT1M;MT1E	-0.06	0.20
P26358	DNA (cytosine-5)-methyltransferase 1	DNMT1	-0.06	0.23
P00390	Glutathione reductase, mitochondrial	GSR	-0.06	0.02
O00299	Chloride intracellular channel protein 1	CLIC1	-0.06	0.00
Q13283	Ras GTPase-activating protein-binding protein 1	G3BP1	-0.06	0.08
Q9H0A0;A0A087WV29	N-acetyltransferase 10	NAT10	-0.06	0.16
P29401;A0A0B4J1R6	Transketolase	TKT	-0.06	0.04
E7END7;P62820	Ras-related protein Rab-1A	RAB1A	-0.06	0.15
Q9BVI4;F5H303	Nucleolar complex protein 4 homolog	NOC4L	-0.06	0.01
Q8NCA5;E9PH82	Protein FAM98A	FAM98A	-0.05	0.07
P30044	Peroxisome oxidoreductase, mitochondrial	PRDX5	-0.05	0.03
Q12906	Interleukin enhancer-binding factor 3	ILF3	-0.05	0.07
Q969H8;M0QXF7;M0QYN 0	UPF0556 protein C19orf10	C19orf10	-0.05	0.02
P50991	T-complex protein 1 subunit delta	CCT4	-0.05	0.13
A0A0C4DGGZ0;P24928;A0A 087WWE2	DNA-directed RNA polymerase II subunit RPB1	POLR2A	-0.05	0.20
P54709;C9JXZ1;C9JA36	Sodium/potassium-transporting ATPase subunit beta-3	ATP1B3	-0.05	0.14
H0YC42;P55327;E5RFR7; H0YC44	Tumor protein D52	TPD52	-0.05	0.01
O00743	Serine/threonine-protein phosphatase 6 catalytic subunit;Serine/threonine-protein phosphatase 6 catalytic subunit, N-terminally processed	PPP6C	-0.05	0.46
Q9H9B4;D6RFI0	Sideroflexin-1	SFXN1	-0.05	0.10
P35637;H3BPE7	RNA-binding protein FUS	FUS	-0.05	0.27
P63000;P60763	Ras-related C3 botulinum toxin substrate 1;Ras-related C3 botulinum toxin substrate 3	RAC1;RAC3	-0.05	0.11
O95831;E9PMA0	Apoptosis-inducing factor 1, mitochondrial	AIFM1	-0.05	0.08
Q9BVP2	Guanine nucleotide-binding protein-like 3	GNL3	-0.05	0.09
P05387	60S acidic ribosomal protein P2	RPLP2	-0.05	0.05
H3BN98			-0.05	0.04
P20042	Eukaryotic translation initiation factor 2 subunit 2	EIF2S2	-0.05	0.13
Q9BY32	Inosine triphosphate pyrophosphatase	ITPA	-0.05	0.08
Q99613;B5ME19	Eukaryotic translation initiation factor 3 subunit C;Eukaryotic translation initiation factor 3 subunit C-like protein	EIF3C;EIF3CL	-0.05	0.06
Q15019;B5MCX3;C9J2Q4	Septin-2	SEPT2	-0.05	0.06
A0A024R4M0;P46781;B5M CT8;C9JM19	40S ribosomal protein S9	RPS9	-0.05	0.10
P62879;C9JIS1;C9JXAS;E7 EP32;C9JZN1	Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-2	GNB2	-0.05	0.34
P20700;E9PBF6;A0A0D9SF E5	Lamin-B1	LMNB1	-0.05	0.02

G3V4W0;B4DY08;B2R5W2; ;G3V4C1;G3V2Q1;P07910; G3V576;G3V555;G3V575; G3V5X6;G3V3K6;G3V2S1; B4DSU6	Heterogeneous nuclear ribonucleoproteins C1/C2	HNRNPC	-0.05	0.19
P61160;F5H6T1	Actin-related protein 2	ACTR2	-0.05	0.25
Q15424	Scaffold attachment factor B1	SAFB	-0.05	0.22
Q7Z6Z7	E3 ubiquitin-protein ligase HUWE1	HUWE1	-0.05	0.07
P30084	Enoyl-CoA hydratase, mitochondrial	ECHS1	-0.05	0.27
P29144;Q5VZU9	Tripeptidyl-peptidase 2	TPP2	-0.05	0.15
Q15785	Mitochondrial import receptor subunit TOM34	TOMM34	-0.05	0.07
P37802;X6RJP6	Transgelin-2	TAGLN2	-0.05	0.06
A0A0A0MSN7;O60678	Protein arginine N-methyltransferase 3	PRMT3	-0.05	0.50
C9J0K6;P30626	Sorcin	SRI	-0.05	0.05
P56385	ATP synthase subunit e, mitochondrial	ATP5I	-0.05	0.05
P23921;E9PL69	Ribonucleoside-diphosphate reductase large subunit	RRM1	-0.05	0.12
P84103;A0A087X2D0	Serine/arginine-rich splicing factor 3	SRSF3	-0.05	0.05
O43765;K7EMD6	Small glutamine-rich tetratricopeptide repeat-containing protein alpha	SGTA	-0.05	0.10
Q13155;A8MU58;F8W9S0	Aminoacyl tRNA synthase complex-interacting multifunctional protein 2	AIMP2	-0.05	0.08
G5EA31;P53992	Protein transport protein Sec24C	SEC24C	-0.05	0.18
A0A087WUB9;Q8WYA6	Beta-catenin-like protein 1	CTNBNB1	-0.05	0.06
Q9UL25	Ras-related protein Rab-21	RAB21	-0.04	0.38
Q8NBJ5	Procollagen galactosyltransferase 1	COLGALT1	-0.04	0.09
E7EU96;Q5U5J2;P68400;Q8NEV1	Casein kinase II subunit alpha;Casein kinase II subunit alpha 3	CSNK2A1;CSNK2A3	-0.04	0.02
Q13838;Q5STU3;A0A0G2J JZ9;A0A140T9X3;F6WLT2 ;F6S4E6;A0A0A0MT12;F6 TRAS	Spliceosome RNA helicase DDX39B	DDX39B	-0.04	0.19
D3YTB1;F8W727;P62910	60S ribosomal protein L32	RPL32	-0.04	0.14
P15559;B4DLR8;H3BNV2; H3BRK3	NAD(P)H dehydrogenase [quinone] 1	NQO1	-0.04	0.01
P08238	Heat shock protein HSP 90-beta	HSP90AB1	-0.04	0.04
Q7L1Q6;C9IZ80	Basic leucine zipper and W2 domain-containing protein 1	BZW1	-0.04	0.18
D6RAX7;Q9BT78;D6RFN0 ;D6RD63	COP9 signalosome complex subunit 4	COPS4	-0.04	0.08
O95336;M0R261;M0R1L2	6-phosphogluconolactonase	PGLS	-0.04	0.02
Q15758;M0QXM4	Neutral amino acid transporter B(0)	SLC1A5	-0.04	0.23
P30050	60S ribosomal protein L12	RPL12	-0.04	0.18
A0A0A0MRA5;B7Z4B8;Q9 BUJ2;M0R3F1;M0QYZ0	Heterogeneous nuclear ribonucleoprotein U-like protein 1	HNRNPUL1	-0.04	0.14
O43252	Bifunctional 3-phosphoadenosine 5-phosphosulfate synthase 1;Sulfate adenylyltransferase;Adenylyl-sulfate kinase	PAPSS1	-0.04	0.07
P47712	Cytosolic phospholipase A2;Phospholipase A2;Lysophospholipase	PLA2G4A	-0.04	0.05
Q02809	Procollagen-lysine,2-oxoglutarate 5-dioxygenase 1	PLOD1	-0.04	0.09
P42704	Leucine-rich PPR motif-containing protein, mitochondrial	LRPPRC	-0.04	0.22
Q13247	Serine/arginine-rich splicing factor 6	SRSF6	-0.04	0.19

P16403	Histone H1.2	HIST1H1C	-0.04	0.01
Q2TAY7	WD40 repeat-containing protein SMU1;WD40 repeat-containing protein SMU1, N-terminally processed	SMU1	-0.04	0.11
B1AK87;B1AK88;P47756;B1AK85	F-actin-capping protein subunit beta	CAPZB	-0.04	0.10
P35606	Coatamer subunit beta	COPB2	-0.04	0.08
P51858	Hepatoma-derived growth factor	HDGF	-0.04	0.05
O43592	Exportin-T	XPOT	-0.04	0.00
S4R3H4;E7EQT4;Q9UKV3;G3V3B0	Apoptotic chromatin condensation inducer in the nucleus	ACIN1	-0.04	0.10
A6NFX8;Q9UKK9	ADP-sugar pyrophosphatase	NUDT5	-0.04	0.01
Q01105;A0A0C4DFV9;A0A087X027;P0DME0	Protein SET;Protein SETSIP	SET;SETSIP	-0.04	0.09
P20073	Annexin A7	ANXA7	-0.04	0.12
B0QZ18;Q99829;F2Z2V0;A6PVH9;E7ENH5	Copine-1	CPNE1	-0.03	0.00
P00492	Hypoxanthine-guanine phosphoribosyltransferase	HPRT1	-0.03	0.11
P26232	Catenin alpha-2	CTNNA2	-0.03	0.03
P50454;E9PR70;E9PPV6;E9PKH2;E9PK86;E9PMI5	Serpin H1	SERPINH1	-0.03	0.17
Q15181;Q5SQT6	Inorganic pyrophosphatase	PPA1	-0.03	0.03
A0A087X271;B4DDF4;B4DUT8;Q99439;K7ES69;H3BVI6;A0A087X1X5	Calponin-2	CNN2	-0.03	0.16
F8VZJ2;H0YHX9;Q13765;E9PAV3;F8W0W4;F8W1N5;F8VNW4	Nascent polypeptide-associated complex subunit alpha;Nascent polypeptide-associated complex subunit alpha, muscle-specific form	NACA	-0.03	0.15
P58546	Myotrophin	MTPN	-0.03	0.05
Q92621	Nuclear pore complex protein Nup205	NUP205	-0.03	0.03
Q9Y5J7;G3V2F3;G3V502	Mitochondrial import inner membrane translocase subunit Tim9	TIMM9	-0.03	0.33
P18077;C9K025;F8WBSS;F8WB72	60S ribosomal protein L35a	RPL35A	-0.03	0.08
C9JFE4;Q13098;A0A096LP07;A0A096LPJ3;A8K070	COP9 signalosome complex subunit 1	GPS1	-0.03	0.01
P07355;H0YN42;H0YMD0;H0YMU9;A6NMY6;H0YMS0;H0YKS4;H0YNP5	Annexin A2;Annexin;Putative annexin A2-like protein	ANXA2;ANXA2P2	-0.03	0.10
P61764;A0A0D9SEP9;A0A0D9SG72;A0A0D9SFQ7;A0A0D9SFW6	Syntaxin-binding protein 1	STXBP1	-0.03	0.07
H0YN81;Q9GZS3;H0YMF9;H3BQA8;H0YL19	WD repeat-containing protein 61;WD repeat-containing protein 61, N-terminally processed	WDR61	-0.03	0.00
Q9C005	Protein dpy-30 homolog	DPY30	-0.03	0.19
Q9P2J5	Leucine--tRNA ligase, cytoplasmic	LARS	-0.03	0.10
O15145;F8VR50;C9JZD1	Actin-related protein 2/3 complex subunit 3	ARPC3	-0.03	0.14
Q8NAV1	Pre-mRNA-splicing factor 38A	PRPF38A	-0.03	0.01
P0DMV9;P0DMV8;A0A0G2JIW1;V9GZ37		HSPA1A	-0.03	0.02
P48449;C9J315	Lanosterol synthase	LSS	-0.02	0.24
P26639	Threonine--tRNA ligase, cytoplasmic	TARS	-0.02	0.05

O95433;G3V438	Activator of 90 kDa heat shock protein ATPase homolog 1	AHSA1	-0.02	0.13
P16401	Histone H1.5	HIST1H1B	-0.02	0.20
O00116	Alkylldihydroxyacetonephosphate synthase, peroxisomal	AGPS	-0.02	0.05
P40925;B9A041;B8ZZ51;C9JF79	Malate dehydrogenase, cytoplasmic;Malate dehydrogenase	MDH1	-0.02	0.08
E7EX73;E9PGM1;E7EUU4;Q04637;A0A0A0MR52	Eukaryotic translation initiation factor 4 gamma 1	EIF4G1	-0.02	0.04
P35658;A0A0A0MSW3	Nuclear pore complex protein Nup214	NUP214	-0.02	0.06
P53396	ATP-citrate synthase	ACLY	-0.02	0.04
P41091;Q2VIR3;F8W810	Eukaryotic translation initiation factor 2 subunit 3;Putative eukaryotic translation initiation factor 2 subunit 3-like protein	EIF2S3;EIF2S3L	-0.02	0.02
Q14643	Inositol 1,4,5-trisphosphate receptor type 1	ITPR1	-0.02	0.06
P49748	Very long-chain specific acyl-CoA dehydrogenase, mitochondrial	ACADVL	-0.02	0.14
Q9UKY7	Protein CDV3 homolog	CDV3	-0.02	0.00
Q9BPX5	Actin-related protein 2/3 complex subunit 5-like protein	ARPCSL	-0.02	0.02
Q16531;F5GY55	DNA damage-binding protein 1	DDB1	-0.02	0.00
P34897;H0YIZ0	Serine hydroxymethyltransferase, mitochondrial;Serine hydroxymethyltransferase	SHMT2	-0.02	0.02
Q9BXJ9;A0A0B4J1W3	N-alpha-acetyltransferase 15, NatA auxiliary subunit	NAA15	-0.02	0.11
Q99832	T-complex protein 1 subunit eta	CCT7	-0.02	0.04
Q9Y230;M0R0Y3	RuvB-like 2	RUVBL2	-0.02	0.06
P53999	Activated RNA polymerase II transcriptional coactivator p15	SUB1	-0.02	0.03
P00558	Phosphoglycerate kinase 1	PGK1	-0.02	0.08
O75643	U5 small nuclear ribonucleoprotein 200 kDa helicase	SNRNP200	-0.02	0.09
A0A0U1RRM1;Q8WXI9;A0A0U1RR30	Transcriptional repressor p66-beta	GATAD2B	-0.02	0.11
P41252;A0A0A0MSX9;J3KR24	Isoleucine--tRNA ligase, cytoplasmic	IARS	-0.02	0.02
P25789;H0YN18;H0YMZ1;H0YL69;H0YMA1;H0YKT8;H0YLC2;H0YMI6	Proteasome subunit alpha type-4;Proteasome subunit alpha type;Proteasome subunit beta type	PSMA4	-0.02	0.01
Q96AT9;C9J6A7;C9J9T0;C9IZU8	Ribulose-phosphate 3-epimerase	RPE	-0.02	0.09
J3KNW4;A0A0A0MSG2;Q14192	Four and a half LIM domains protein 2	FHL2	-0.02	0.17
E9PFN5;Q9Y2Q3	Glutathione S-transferase kappa 1	GSTK1	-0.01	0.06
P11387	DNA topoisomerase 1	TOP1	-0.01	0.00
O75821;K7ER90;K7EL20;K7ENA8	Eukaryotic translation initiation factor 3 subunit G	EIF3G	-0.01	0.04
Q9YSB9	FACT complex subunit SPT16	SUPT16H	-0.01	0.02
Q49AN9;F5H013;P62308;A8MWD9	Small nuclear ribonucleoprotein G;Putative small nuclear ribonucleoprotein G-like protein 15	SNRPG;SNRPGP15	-0.01	0.18
P32119;A6NIW5	Peroxisiredoxin-2	PRDX2	-0.01	0.23
J3KPP4;O95232;D6RDI2	Luc7-like protein 3	LUC7L3	-0.01	0.03
P62191	26S protease regulatory subunit 4	PSMC1	-0.01	0.05
P78346;Q5VU10;Q5VU11	Ribonuclease P protein subunit p30	RPP30	-0.01	0.01
A0A087WXZ3;Q9Y5A9	YTH domain-containing family protein 2	YTHDF2	-0.01	0.41

Q9NY12	H/ACA ribonucleoprotein complex subunit 1	GAR1	-0.01	0.07
Q99575;E5RK39	Ribonucleases P/MRP protein subunit POP1	POP1	-0.01	0.52
Q9HB07;F8VR84;F8VQQ3	UPF0160 protein MYG1, mitochondrial	C12orf10	-0.01	0.35
A0A0A0MTS2;P06744;K7E Q48;A0A0J9YXP8;A0A0J9Y YH3;A0A0J9YX90	Glucose-6-phosphate isomerase	GPI	-0.01	0.02
Q1KMD3;H3BQZ7	Heterogeneous nuclear ribonucleoprotein U-like protein 2	HNRNPUL2;HNR NPUL2-BSCL2	-0.01	0.01
Q9UQ80;F8VR77	Proliferation-associated protein 2G4	PA2G4	-0.01	0.08
P62861;E9PR30	40S ribosomal protein S30	FAU	-0.01	0.04
F6TLX2;I3L3Q4;Q9HC38	Glyoxalase domain-containing protein 4	GLOD4	-0.01	0.23
E9PGT1;Q15631;H7C1D4	Translin	TSN	-0.01	0.17
P52907	F-actin-capping protein subunit alpha-1	CAPZA1	-0.01	0.05
P61326;Q9A672;F5H6P7	Protein mago nashi homolog;Protein mago nashi homolog 2	MAGOH;MAGO HB	-0.01	0.02
Q99497;K7ELW0;K7EN27	Protein DJ-1	PARK7	-0.01	0.02
P26447	Protein S100-A4	S100A4	-0.01	0.17
O15355	Protein phosphatase 1G	PPM1G	-0.01	0.08
P16615;H7CSW9	Sarcoplasmic/endoplasmic reticulum calcium ATPase 2	ATP2A2	-0.01	0.01
P12956;B1AHC9	X-ray repair cross-complementing protein 6	XRCC6	0.00	0.00
B4DEH8;G3V4T2;Q86U42 ;H0YJH9	Polyadenylate-binding protein 2	PABPN1	0.00	0.05
Q9GZL7	Ribosome biogenesis protein WDR12	WDR12	0.00	0.07
Q08257;C9JH92;A6NP24	Quinone oxidoreductase	CRYZ	0.00	0.26
P31939	Bifunctional purine biosynthesis protein PURH;Phosphoribosylaminoimidazolecarboxamide formyltransferase;IMP cyclohydrolase	ATIC	0.00	0.04
P48163	NADP-dependent malic enzyme	ME1	0.00	0.11
P33991	DNA replication licensing factor MCM4	MCM4	0.00	0.03
A0A0C4DGB1;Q9UNQ2;D 6RCL3	Probable dimethyladenosine transferase	DIMT1	0.00	0.07
P61019;E9PKL7;Q5HYI5; Q8WUD1	Ras-related protein Rab-2A;Ras-related protein Rab-2B	RAB2A;DKFZp31 3C1541;RAB2B	0.00	0.13
Q07666	KH domain-containing, RNA-binding, signal transduction-associated protein 1	KHDRBS1	0.00	0.11
Q9Y295	Developmentally-regulated GTP-binding protein 1	DRG1	0.00	0.34
Q15046	Lysine-tRNA ligase	KARS	0.00	0.00
P67936;K7ENT6	Tropomyosin alpha-4 chain	TPM4	0.00	0.05
P28072;A0A087X2I4;I3L3X 7	Proteasome subunit beta type-6	PSMB6	0.00	0.12
C9JRZ6;Q9NX63;F8WAR4	MICOS complex subunit MIC19	CHCHD3	0.00	0.17
P61254;J3QRI7;J3QQQ9;J3 QQV1;E5RIT6;J3QRC4;J3 KTJ8	60S ribosomal protein L26	RPL26;KRBA2;RP L26L1	0.00	0.02
P43897;C9JT21	Elongation factor Ts, mitochondrial;Elongation factor Ts	TSFM	0.00	0.41
Q9UJS0	Calcium-binding mitochondrial carrier protein Aralar2	SLC25A13	0.00	0.17

P13489	Ribonuclease inhibitor	RNH1	0.00	0.03
O94826	Mitochondrial import receptor subunit TOM70	TOMM70A	0.00	0.14
H0Y9G6;E7ETU7;P09001; D6RBQ5;D6RC14;E9PF06	39S ribosomal protein L3, mitochondrial	MRPL3	0.00	0.04
Q96CS3	FAS-associated factor 2	FAF2	0.00	0.01
B8ZZ77;H7BZ14;Q9H2H8	Peptidyl-prolyl cis-trans isomerase;Peptidyl-prolyl cis-trans isomerase-like 3	PPIL3	0.00	0.10
P54578;A6NJA2	Ubiquitin carboxyl-terminal hydrolase 14;Ubiquitin carboxyl-terminal hydrolase	USP14	0.00	0.15
P40227	T-complex protein 1 subunit zeta	CCT6A	0.00	0.03
P10809	60 kDa heat shock protein, mitochondrial	HSPD1	0.00	0.04
Q99459	Cell division cycle 5-like protein	CDC5L	0.00	0.11
P52272;A0A087X0X3;M0R019	Heterogeneous nuclear ribonucleoprotein M	HNRNPM	0.01	0.11
Q9UHB9	Signal recognition particle subunit SRP68	SRP68	0.01	0.21
Q96CT7	Coiled-coil domain-containing protein 124	CCDC124	0.01	0.04
P62316;K7ERG4	Small nuclear ribonucleoprotein Sm D2	SNRPD2	0.01	0.10
P04083;Q5T3N1	Annexin A1;Annexin	ANXA1	0.01	0.09
O15294	UDP-N-acetylglucosamine--peptide N-acetylglucosaminyltransferase 110 kDa subunit	OGT	0.01	0.19
O95816	BAG family molecular chaperone regulator 2	BAG2	0.01	0.05
P31930	Cytochrome b-c1 complex subunit 1, mitochondrial	UQCRC1	0.01	0.01
Q8TDN6	Ribosome biogenesis protein BRX1 homolog	BRX1	0.01	0.00
Q13619;A0A0A0MR50	Cullin-4A	CUL4A	0.01	0.25
O95573	Long-chain-fatty-acid--CoA ligase 3	ACSL3	0.01	0.06
Q14204	Cytoplasmic dynein 1 heavy chain 1	DYNC1H1	0.01	0.04
Q9Y3F4	Serine-threonine kinase receptor-associated protein	STRAP	0.01	0.17
O43776	Asparagine--tRNA ligase, cytoplasmic	NARS	0.01	0.05
A0A087WTX2;Q92504	Zinc transporter SLC39A7	SLC39A7	0.01	0.36
O75683	Surfeit locus protein 6	SURF6	0.01	0.05
P13861	cAMP-dependent protein kinase type II-alpha regulatory subunit	PRKAR2A	0.01	0.19
P10155	60 kDa SS-A/Ro ribonucleoprotein	TROVE2	0.01	0.10
A0A087X2I1;P62333	26S protease regulatory subunit 10B	PSMC6	0.01	0.14
P33176	Kinesin-1 heavy chain	KIF5B	0.01	0.06
Q02543;M0R3D6;M0R1A7; M0R117;M0R0P7	60S ribosomal protein L18a	RPL18A	0.01	0.01
P09211;A8MX94	Glutathione S-transferase P	GSTP1	0.01	0.17
J3KPX7;Q99623;F5GY37;F5GWA7	Prohibitin-2	PHB2	0.01	0.13
P22314	Ubiquitin-like modifier-activating enzyme 1	UBA1	0.02	0.05
J3KTA4;P17844	Probable ATP-dependent RNA helicase DDX5	DDX5	0.02	0.00
O14929	Histone acetyltransferase type B catalytic subunit	HAT1	0.02	0.11
Q96KP4;J3QKT2;J3QRA8	Cytosolic non-specific dipeptidase	CNDP2	0.02	0.11
Q14444;G3V153;A0A087X082;E9PLA9	Caprin-1	CAPRIN1	0.02	0.07
Q01813	ATP-dependent 6-phosphofructokinase, platelet type	PFKP	0.02	0.17

O43865;H0Y8B3;Q96HN2	Putative adenosylhomocysteinase 2;Adenosylhomocysteinase;Putative adenosylhomocysteinase 3	AHCYL1;AHCYL2	0.02	0.16
Q8NE71;H0YGW7	ATP-binding cassette sub-family F member 1	ABCF1	0.02	0.11
Q8TDD1	ATP-dependent RNA helicase DDX54	DDX54	0.02	0.04
P00491;G3V5M2	Purine nucleoside phosphorylase	PNP	0.02	0.14
Q13045	Protein flightless-1 homolog	FLII	0.02	0.29
K7ELL7;P14314	Glucosidase 2 subunit beta	PRKCSH	0.02	0.01
P30153;B3KQV6;C9J9C1	Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform	PPP2R1A	0.02	0.18
B7ZAR1;E9PCA1;P48643;E7ENZ3	T-complex protein 1 subunit epsilon	CCT5	0.02	0.03
A0A0D9SFB3;A0A0D9SG12;A0A0D9SF53;O00571;O15523	ATP-dependent RNA helicase DDX3X;ATP-dependent RNA helicase DDX3Y	DDX3X;DDX3Y	0.02	0.03
P37108;H0YLA2	Signal recognition particle 14 kDa protein	SRP14	0.02	0.05
P04406;E7EUT5	Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	0.02	0.07
P54920;M0R0Y2;M0R2M1	Alpha-soluble NSF attachment protein	NAPA	0.02	0.17
P12814;H9KV75	Alpha-actinin-1	ACTN1	0.02	0.07
Q5SWC8;X6RGJ2;Q5SSJ5;B0QZK4	Heterochromatin protein 1-binding protein 3	HP1BP3	0.02	0.15
H3BST5;I3L2C6;Q8IXI1;H3BMP9;H3BVI5;H3BUX4	Mitochondrial Rho GTPase 2	RHOT2	0.02	0.36
Q7L576;A0A0G2JR96;A0A0G2JQT1;E7EVJ5;Q96F07	Cytoplasmic FMR1-interacting protein 1;Cytoplasmic FMR1-interacting protein 2	CYFIP1;CYFIP2	0.02	0.28
P63208;E5RJR5	S-phase kinase-associated protein 1	SKP1	0.02	0.07
P31327	Carbamoyl-phosphate synthase [ammonia], mitochondrial	CPS1	0.03	0.03
P18206;Q5JQ13	Vinculin	VCL	0.03	0.00
H7BXY3;Q7L2E3	Putative ATP-dependent RNA helicase DHX30	DHX30	0.03	0.11
Q96HS1	Serine/threonine-protein phosphatase PGAM5, mitochondrial	PGAM5	0.03	0.13
P15880;E9PQD7;H0YEN5;E9PMM9	40S ribosomal protein S2	RPS2	0.03	0.04
J3KT51;Q9UK76;J3KSH8	Hematological and neurological expressed 1 protein;Hematological and neurological expressed 1 protein, N-terminally processed	HN1	0.03	0.10
J3QTA2;Q99933	BAG family molecular chaperone regulator 1	BAG1	0.03	0.06
H7BYY1;F5H7S3;H0YK48;B7Z596		TPM1	0.03	0.07
P18669	Phosphoglycerate mutase 1	PGAM1	0.03	0.07
P05388;F8VWS0;F8VU65;F8VW21;F8VPE8;G3V210;F8VZS0;F8VQY6;F8VRK7;Q8NHW5	60S acidic ribosomal protein P0;60S acidic ribosomal protein P0-like	RPLP0;RPLP0P6	0.03	0.02
O00487	26S proteasome non-ATPase regulatory subunit 14	PSMD14	0.03	0.06
P17987;E7EQR6;E7ERF2;F5H282	T-complex protein 1 subunit alpha	TCP1	0.03	0.06

P11586;F5H2F4	C-1-tetrahydrofolate synthase, cytoplasmic;Methylenetetrahydrofolate dehydrogenase;Methenyltetrahydrofolate cyclohydrolase;Formyltetrahydrofolate synthetase;C-1-tetrahydrofolate synthase, cytoplasmic, N-terminally processed	MTHFD1	0.03	0.03
P46821	Microtubule-associated protein 1B;MAP1B heavy chain;MAP1 light chain LC1	MAP1B	0.03	0.06
P09382	Galectin-1	LGALS1	0.03	0.00
P50990;H7C4C8	T-complex protein 1 subunit theta	CCT8	0.03	0.01
Q5VW32;F5GXQ0;Q5VW33	BRO1 domain-containing protein BROX	BROX	0.03	0.22
X6R700;Q9Y3Y2;A0A087X1B7	Chromatin target of PRMT1 protein	CHTOP	0.03	0.31
P26583;D6R9A6	High mobility group protein B2	HMGB2	0.03	0.09
P22102	Trifunctional purine biosynthetic protein adenosine-3;Phosphoribosylamine-glycine ligase;Phosphoribosylformylglycinamide cyclo-ligase;Phosphoribosylglycinamide formyltransferase	GART	0.03	0.04
Q9UBP6	tRNA (guanine-N(7)-)-methyltransferase	METTL1	0.03	0.14
Q16719	Kynureninase	KYNU	0.03	0.01
G5E9Q7;E7EQB8;P51553;H7C1W2;E9PF84;H0Y5Q7	Isocitrate dehydrogenase [NAD] subunit gamma, mitochondrial	IDH3G	0.03	0.25
P62937;F8WE65;C9J5S7	Peptidyl-prolyl cis-trans isomerase A;Peptidyl-prolyl cis-trans isomerase A, N-terminally processed;Peptidyl-prolyl cis-trans isomerase	PPIA	0.03	0.00
Q09161	Nuclear cap-binding protein subunit 1	NCBP1	0.03	0.13
P47813;X6RAC9;O14602	Eukaryotic translation initiation factor 1A, X-chromosomal;Eukaryotic translation initiation factor 1A, Y-chromosomal	EIF1AX;EIF1AY	0.03	0.13
F5GWX5;A0A0C4DGG9;Q14839;Q8TDI0;K7EMY3;Q12873	Chromodomain-helicase-DNA-binding protein 4;Chromodomain-helicase-DNA-binding protein 5;Chromodomain-helicase-DNA-binding protein 3	CHD4;CHD5;CHD3	0.03	0.00
A0A0A0MTB8;Q8NI36	WD repeat-containing protein 36	WDR36	0.03	0.17
K7EM18;P41567	Eukaryotic translation initiation factor 1	EIF1	0.04	0.13
P04181	Ornithine aminotransferase, mitochondrial;Ornithine aminotransferase, hepatic form;Ornithine aminotransferase, renal form	OAT	0.04	0.15
E7EQR4;P15311	Ezrin	EZR	0.04	0.10
P40121;H7C0X8;E7ENU9	Macrophage-capping protein	CAPG	0.04	0.03
P05455	Lupus La protein	SSB	0.04	0.05
B4DZG7;F8VYN9;P40616	ADP-ribosylation factor-like protein 1	ARL1	0.04	0.09
P49368;B4DUR8	T-complex protein 1 subunit gamma	CCT3	0.04	0.02
P67809;A0A087X1S2;H0Y449	Nuclease-sensitive element-binding protein 1	YBX1	0.04	0.16
A0A0J9YWW6;H7C1U8;Q9BUR5;A0A0J9YXS4	Apolipoprotein O	APOO	0.04	0.16
P04899	Guanine nucleotide-binding protein G(i) subunit alpha-2	GNAI2	0.04	0.10
Q9H7E9	UPF0488 protein C8orf33	C8orf33	0.04	0.20
A0A087WY55;Q9NP79;Q5TGM0	Vacuolar protein sorting-associated protein VTA1 homolog	VTA1	0.04	0.17
P06703;R4GN98	Protein S100-A6;Protein S100	S100A6	0.04	0.22

P35579	Myosin-9	MYH9	0.04	0.01
Q9Y3T9	Nucleolar complex protein 2 homolog	NOC2L	0.04	0.05
E7ES33;E7EPK1;Q16181;G3V1Q4	Septin-7	SEPT7	0.04	0.04
Q9BY44;F8WAE5	Eukaryotic translation initiation factor 2A;Eukaryotic translation initiation factor 2A, N-terminally processed	EIF2A	0.04	0.04
P60228;E5RGA2	Eukaryotic translation initiation factor 3 subunit E	EIF3E	0.04	0.10
P19367	Hexokinase-1	HK1	0.04	0.17
P62258	14-3-3 protein epsilon	YWHAE	0.04	0.37
P08574	Cytochrome c1, heme protein, mitochondrial	CYC1	0.04	0.22
P19623	Spermidine synthase	SRM	0.04	0.01
Q13242;H0YIB4;S4R3G0	Serine/arginine-rich splicing factor 9	SRSF9	0.04	0.04
P40939	Trifunctional enzyme subunit alpha, mitochondrial;Long-chain enoyl-CoA hydratase;Long chain 3-hydroxyacyl-CoA dehydrogenase	HADHA	0.04	0.04
O95292;E5RK64	Vesicle-associated membrane protein-associated protein B/C	VAPB	0.04	0.09
P84077;P61204;F5H423;F5H0C7	ADP-ribosylation factor 1;ADP-ribosylation factor 3	ARF1;ARF3	0.05	0.03
Q9Y2X3	Nucleolar protein 58	NOP58	0.05	0.01
P51659;E7EWE5;E7ER27;G5E9S2;E7ET17	Peroxisomal multifunctional enzyme type 2;(3R)-hydroxyacyl-CoA dehydrogenase;Enoyl-CoA hydratase 2	HSD17B4	0.05	0.04
Q13148;A0A087WX29;B1AKP7;G3V162;A0A087X260;A0A087WYY0;K7EJMS;K7EN94;A0A087WXQ5;A0A087WV68	TAR DNA-binding protein 43	TARDBP	0.05	0.10
O00505	Importin subunit alpha-4	KPNA3	0.05	0.23
B0QY89;Q9Y262;B0QY90	Eukaryotic translation initiation factor 3 subunit L	EIF3L	0.05	0.03
Q93009;H3BND8	Ubiquitin carboxyl-terminal hydrolase 7;Ubiquitin carboxyl-terminal hydrolase	USP7	0.05	0.03
P23381	Tryptophan--tRNA ligase, cytoplasmic;T1-TrpRS;T2-TrpRS	WARS	0.05	0.07
P12277;H0YJG0	Creatine kinase B-type	CKB	0.05	0.19
P38606	V-type proton ATPase catalytic subunit A	ATP6V1A	0.05	0.02
P62888;E5RI99	60S ribosomal protein L30	RPL30	0.05	0.05
O00499	Myc box-dependent-interacting protein 1	BIN1	0.05	0.23
A0A0C4DGS5;Q08379	Golgin subfamily A member 2	GOLGA2	0.05	0.10
Q9ULV4;B4E3S0	Coronin-1C;Coronin	CORO1C	0.05	0.03
P28070	Proteasome subunit beta type-4	PSMB4	0.05	0.17
Q00839	Heterogeneous nuclear ribonucleoprotein U	HNRNPU	0.05	0.10
O76021;J3QSV6;I3L3U9;I3L3C4	Ribosomal L1 domain-containing protein 1	RSL1D1	0.05	0.10
O96019	Actin-like protein 6A	ACTL6A	0.05	0.18
P30046;B5MC82;A6NHG4;J3KQ18	D-dopachrome decarboxylase;D-dopachrome decarboxylase-like protein	DDT;DDTL	0.05	0.03
Q99733;A8MXH2;C9J6D1;C9JZI7;E9PNW0;E9PJJ2;E9PS34;E9PNJ7;E9PKT8	Nucleosome assembly protein 1-like 4	NAP1L4	0.05	0.08
G8JLD5;O00429	Dynamin-1-like protein	DNM1L	0.05	0.08

J3QRS9;X6R4W8;O43670	BUB3-interacting and GLEBS motif-containing protein ZNF207	ZNF207	0.05	0.30
F8W1R7;J3KND3;G8JLA2;G3V1V0;B7Z6Z4;P60660;F8VPF3;G3V1Y7;F8VZU9;F8W180	Myosin light polypeptide 6	PDE6H;MYL6	0.05	0.05
C9JFR7;P99999	Cytochrome c	CYCS	0.05	0.01
Q9UNE7;H3BTA3	E3 ubiquitin-protein ligase CHIP	STUB1	0.06	0.19
B4DJV2;O75390;A0A0C4DGI3;H0YH82;F8VPF9;F8VPA1;F8W1S4	Citrate synthase;Citrate synthase, mitochondrial	CS	0.06	0.01
P56192	Methionine--tRNA ligase, cytoplasmic	MARS	0.06	0.04
P35998	26S protease regulatory subunit 7	PSMC2	0.06	0.05
P62306	Small nuclear ribonucleoprotein F	SNRPF	0.06	0.05
Q15843;F8VSA6;E9PS38;S4R3E9;E9PL57	NEDD8	NEDD8;NEDD8-MDP1	0.06	0.09
P15927;Q5TEJ0;Q5TEJ7	Replication protein A 32 kDa subunit	RPA2	0.06	0.15
Q9BYD6;H0Y8N7	39S ribosomal protein L1, mitochondrial	MRPL1	0.06	0.11
A0A140T8Z0;A0A0G2JH68;O60610;H9KV28	Protein diaphanous homolog 1	DIAPH1	0.06	0.05
Q9P258	Protein RCC2	RCC2	0.06	0.04
Q9UBM7;H0YE57	7-dehydrocholesterol reductase	DHCR7	0.06	0.48
P13797;A0A0A0MSQ0	Plastin-3	PLS3	0.06	0.04
A0A087WSZ7;Q08499;D6RHE0	cAMP-specific 3,5-cyclic phosphodiesterase 4D	PDE4D;DPYSL3	0.06	0.37
F8VXU5;Q9UBQ0	Vacuolar protein sorting-associated protein 29	VPS29	0.06	0.12
P30419	Glycylpeptide N-tetradecanoyltransferase 1	NMT1	0.06	0.02
P49327;A0A0U1RQF0	Fatty acid synthase;[Acyl-carrier-protein] S-acetyltransferase;[Acyl-carrier-protein] S-malonyltransferase;3-oxoacyl-[acyl-carrier-protein] synthase;3-oxoacyl-[acyl-carrier-protein] reductase;3-hydroxyacyl-[acyl-carrier-protein] dehydratase;Enoyl-[acyl-carrier-protein] reductase;Oleoyl-[acyl-carrier-protein] hydrolase	FASN	0.06	0.01
P36578;H3BM89	60S ribosomal protein L4	RPL4	0.06	0.05
P07900	Heat shock protein HSP 90-alpha	HSP90AA1	0.06	0.07
P07384	Calpain-1 catalytic subunit	CAPN1	0.06	0.08
P53985;Q5T8R3;Q5T8R5	Monocarboxylate transporter 1	SLC16A1	0.06	0.48
P05783;F8VZY9	Keratin, type I cytoskeletal 18	KRT18	0.06	0.08
P31942	Heterogeneous nuclear ribonucleoprotein H3	HNRNPH3	0.06	0.07
Q9NTZ6	RNA-binding protein 12	RBM12	0.07	0.03
O60493	Sorting nexin-3	SNX3	0.07	0.02
P07919	Cytochrome b-c1 complex subunit 6, mitochondrial	UQCRH	0.07	0.20
E7EVA0;P27816	Microtubule-associated protein;Microtubule-associated protein 4	MAP4	0.07	0.09
Q96G03;E7ENQ8	Phosphoglucosyltransferase-2	PGM2	0.07	0.05
Q6PD62	RNA polymerase-associated protein CTR9 homolog	CTR9	0.07	0.49
E9PDF6;O43795	Unconventional myosin-Ib	MYO1B	0.07	0.04
P36952	Serpin B5	SERPINB5	0.07	0.12
P49721;A0A087WVV1	Proteasome subunit beta type-2	PSMB2	0.07	0.05

Q9NVX2;K7ERN7;A0A0A0MRH0	Notchless protein homolog 1	NLE1	0.07	0.47
O00425	Insulin-like growth factor 2 mRNA-binding protein 3	IGF2BP3	0.07	0.15
Q9HDC9;H0Y512	Adipocyte plasma membrane-associated protein	APMAP	0.07	0.10
P26640;A0A140T936	Valine--tRNA ligase	VAR5	0.07	0.00
Q2NL82	Pre-rRNA-processing protein TSR1 homolog	TSR1	0.07	0.25
Q5BKZ1	DBIRD complex subunit ZNF326	ZNF326	0.07	0.13
Q15637	Splicing factor 1	SF1	0.07	0.38
P50995	Annexin A11	ANXA11	0.07	0.04
P78371;F5GWF6;F8VQ14	T-complex protein 1 subunit beta	CCT2	0.07	0.03
Q14692	Ribosome biogenesis protein BMS1 homolog	BMS1	0.07	0.05
O75844	CAAX prenyl protease 1 homolog	ZMPSTE24	0.07	0.14
P46778;G3V1B3;M0R181	60S ribosomal protein L21	RPL21	0.07	0.07
Q5T4S7;A0A0A0MSW0	E3 ubiquitin-protein ligase UBR4	UBR4	0.07	0.02
Q9Y5M8;H7C4H2	Signal recognition particle receptor subunit beta	SRPRB	0.07	0.07
K7EK07;P84243	Histone H3;Histone H3.3	H3F3B;H3F3A	0.07	0.48
Q15020;F8VV04	Squamous cell carcinoma antigen recognized by T-cells 3	SART3	0.07	0.06
Q9P2X0	Dolichol-phosphate mannosyltransferase subunit 3	DPM3	0.07	0.05
P35221;G3XAM7	Catenin alpha-1	CTNNA1	0.07	0.07
Q14258	E3 ubiquitin/ISG15 ligase TRIM25	TRIM25	0.07	0.55
A0A0C4DGV5;O95218	Zinc finger Ran-binding domain-containing protein 2	ZRANB2	0.07	0.30
H0YJ34;Q96AC1;A0A0U1R RM8	Fermitin family homolog 2	FERMT2	0.07	0.11
E9PF10;O75694	Nuclear pore complex protein Nup155	NUP155	0.08	0.15
P63151	Serine/threonine-protein phosphatase 2A 55 kDa regulatory subunit B alpha isoform	PPP2R2A	0.08	0.31
O75396	Vesicle-trafficking protein SEC22b	SEC22B	0.08	0.20
A0A087X1Z3;Q9UL46;H0Y M70	Proteasome activator complex subunit 2	PSME2	0.08	0.04
Q14152	Eukaryotic translation initiation factor 3 subunit A	EIF3A	0.08	0.10
A0A0A0MRJ6;H7BY58;P22 061;F6S8N6	Protein-L-isoaspartate O-methyltransferase;Protein-L-isoaspartate(D-aspartate) O-methyltransferase	PCMT1	0.08	0.10
P62913;Q5VVC8;Q5VVC9	60S ribosomal protein L11	RPL11	0.08	0.00
Q8WX93	Palladin	PALLD	0.08	0.11
P53621	Coatomer subunit alpha;Xenin;Proxenin	COPA	0.08	0.07
P30041	Peroxiredoxin-6	PRDX6	0.08	0.07
Q13057	Bifunctional coenzyme A synthase;Phosphopantetheine adenylyltransferase;Dephospho-CoA kinase	COASY	0.08	0.04
Q5H909;Q9UNF1;Q5H907	Melanoma-associated antigen D2	MAGED2	0.08	0.09
O14744;G3V580;H0YJX6; G3V5L5;G3V2X6	Protein arginine N-methyltransferase 5;Protein arginine N-methyltransferase 5, N-terminally processed	PRMT5	0.08	0.14

Q08209;E7ETC2;E9PPC8; E9PK68;Q5F2F8;P16298	Serine/threonine-protein phosphatase 2B catalytic subunit alpha isoform;Serine/threonine-protein phosphatase;Serine/threonine-protein phosphatase 2B catalytic subunit beta isoform	PPP3CA;PPP3CB	0.08	0.29
Q9H7Z7;X6RJ95	Prostaglandin E synthase 2;Prostaglandin E synthase 2 truncated form	PTGES2	0.08	0.59
A0A087WTA5;E7ERK9;Q9 UII0	Translation initiation factor eIF-2B subunit delta	EIF2B4	0.08	0.03
G3V198;Q12769;E9PR16	Nuclear pore complex protein Nup160	NUP160	0.08	0.33
P62280;M0QZC5	40S ribosomal protein S11	RPS11	0.08	0.12
O75937	DnaJ homolog subfamily C member 8	DNAJC8	0.08	0.03
P62857	40S ribosomal protein S28	RPS28	0.08	0.20
P20618	Proteasome subunit beta type-1	PSMB1	0.08	0.03
Q15293	Reticulocalbin-1	RCN1	0.08	0.17
Q5QJE6;J3KP30	Deoxynucleotidyltransferase terminal-interacting protein 2	DNTTIP2	0.09	0.05
Q15366	Poly(rC)-binding protein 2	PCBP2	0.09	0.00
O15143	Actin-related protein 2/3 complex subunit 1B	ARPC1B	0.09	0.12
H3BNX8;P20674	Cytochrome c oxidase subunit 5A, mitochondrial	COX5A	0.09	0.40
Q96RS6	NudC domain-containing protein 1	NUDCD1	0.09	0.08
P31949	Protein S100-A11;Protein S100-A11, N-terminally processed	S100A11	0.09	0.24
P49257	Protein ERGIC-53	LMAN1	0.09	0.10
A0A087X0K1;Q9Y376	Calcium-binding protein 39	CAB39	0.09	0.07
P11498	Pyruvate carboxylase, mitochondrial	PC	0.09	0.00
F6VRR5;Q9BY77	Polymerase delta-interacting protein 3	POLDIP3	0.09	0.16
P43034;I3L3N5	Platelet-activating factor acetylhydrolase 1B subunit alpha	PAFAH1B1	0.09	0.12
P14866;M0QXS5	Heterogeneous nuclear ribonucleoprotein L	HNRNPL	0.09	0.13
P41250	Glycine--tRNA ligase	GARS	0.09	0.00
Q5JTH9	RRP12-like protein	RRP12	0.09	0.07
O75340;A0A024QZ42	Programmed cell death protein 6	PDCD6;hCG_198 5580	0.09	0.02
P45974	Ubiquitin carboxyl-terminal hydrolase 5	USP5	0.09	0.26
Q9Y678	Coatomer subunit gamma-1	COPG1	0.09	0.17
B9A067;Q16891;C9J406;H 7C463	MICOS complex subunit MIC60	IMMT	0.09	0.35
Q9NZM1;H0YD14	Myoferlin	MYOF	0.09	0.27
O75531	Barrier-to-autointegration factor;Barrier-to-autointegration factor, N-terminally processed	BANF1	0.09	0.33
P35241	Radixin	RDX	0.09	0.20
P15531	Nucleoside diphosphate kinase A	NME1	0.09	0.18
P13010	X-ray repair cross-complementing protein 5	XRCC5	0.09	0.02
PS4136	Arginine--tRNA ligase, cytoplasmic	RARS	0.09	0.02
P62140;E7ETD8	Serine/threonine-protein phosphatase PP1-beta catalytic subunit;Serine/threonine-protein phosphatase	PPP1CB	0.09	0.03
A0A087WXS7;O43681;K7E RW9	ATPase ASNA1	ASNA1	0.09	0.01
P60891;B1ALA9;B7ZB02	Ribose-phosphate pyrophosphokinase 1	PRPS1	0.09	0.09

B0QYK0;Q01844;A0A0D9S FL3;C9JGE3;H7BY36	RNA-binding protein EWS	EWSR1	0.10	0.00
Q9Y3A5;A0A087X020	Ribosome maturation protein SBDS	SBDS	0.10	0.04
A0A087WVQ6;Q00610	Clathrin heavy chain 1	CLTC	0.10	0.00
Q9H2U2;D6R967;H0Y9D8	Inorganic pyrophosphatase 2, mitochondrial	PPA2	0.10	0.15
Q6NZI2	Polymerase I and transcript release factor	PTRF	0.10	0.04
Q9UKD2	mRNA turnover protein 4 homolog	MRT04	0.10	0.07
O9S7S7;E9PDE8;D6RJ96	Heat shock 70 kDa protein 4L	HSPA4L	0.10	0.04
P12268;H0Y4R1;E7ETK5	Inosine-5-monophosphate dehydrogenase 2	IMPDH2	0.10	0.18
P40937;E9PEP3;F5H5S0	Replication factor C subunit 5	RFC5	0.10	0.16
P39023;G5E9G0;H7C422;B SMCW2;H7C3M2	60S ribosomal protein L3	RPL3	0.10	0.06
P05198;G3V4T5;H0YJS4	Eukaryotic translation initiation factor 2 subunit 1	EIF2S1	0.10	0.05
P50395	Rab GDP dissociation inhibitor beta	GDI2	0.10	0.06
P61026	Ras-related protein Rab-10	RAB10	0.10	0.10
P61163;R4GMT0	Alpha-centractin	ACTR1A	0.10	0.11
P40926;G3XAL0	Malate dehydrogenase, mitochondrial;Malate dehydrogenase	MDH2	0.10	0.10
P30085;Q5T0D2	UMP-CMP kinase	CMPK1	0.10	0.04
P62906	60S ribosomal protein L10a	RPL10A	0.10	0.07
P09132;A0A087WWU9;A0 A087WYR0	Signal recognition particle 19 kDa protein	SRP19	0.10	0.42
P28838	Cytosol aminopeptidase	LAP3	0.11	0.04
P27348;E9PG15	14-3-3 protein theta	YWHAQ	0.11	0.21
P12081;B3KWE1;B4DDD8; B4E1C5;E7ETE2	Histidine--tRNA ligase, cytoplasmic	HARS	0.11	0.02
Q9YSS9	RNA-binding protein 8A	RBM8A	0.11	0.06
J3KQ32;Q9NTK5	Obg-like ATPase 1	OLA1	0.11	0.08
F5H4R6;H0YIV4;P55209;F 8VY35;F8VVS9;F8W0J6;F8 W118;F8W543;B7Z9C2;H0 YH88;H0YHC3;F8W020;F 8VUX1;F8VRJ2;F8VXI6;F8 VVB5	Nucleosome assembly protein 1-like 1	NAP1L1	0.11	0.05
Q12905;B4DY09	Interleukin enhancer-binding factor 2	ILF2	0.11	0.01
P36871	Phosphoglucomutase-1	PGM1	0.11	0.14
B4DKA4;Q9H9T3	Elongator complex protein 3	ELP3	0.11	0.04
P47914	60S ribosomal protein L29	RPL29	0.11	0.34
G3V4P8;P60983	Glia maturation factor beta	GMFB	0.11	0.06
P27144;D3DQ64	Adenylate kinase 4, mitochondrial	AK4	0.11	0.12
P31946	14-3-3 protein beta/alpha;14-3-3 protein beta/alpha, N- terminally processed	YWHAB	0.11	0.35
P62424;Q5T8U2	60S ribosomal protein L7a	RPL7A	0.11	0.00
Q96DI7	U5 small nuclear ribonucleoprotein 40 kDa protein	SNRNP40	0.11	0.14
E9PK25;P23528;G3V1A4;E 9PP50;E9PQB7;E9PLJ3;E9 PS23	Cofilin-1	CFL1	0.11	0.21
P11172;E9PFD2	Uridine 5-monophosphate synthase;Orotate phosphoribosyltransferase;Orotidine 5-phosphate decarboxylase	UMPS	0.11	0.54

E7ETZ0;H0Y7A7;E7EMB3; P62158;F8WBR5;M0QZ52; G3V479	Calmodulin	CALM1;CALM2; CALM3	0.11	0.07
P08754	Guanine nucleotide-binding protein G(k) subunit alpha	GNAI3	0.11	0.19
P17812	CTP synthase 1	CTPS1	0.11	0.12
P38646	Stress-70 protein, mitochondrial	HSPA9	0.12	0.04
Q08211	ATP-dependent RNA helicase A	DHX9	0.12	0.05
Q9Y263;E5RIM3	Phospholipase A-2-activating protein	PLAA	0.12	0.20
Q9NR30	Nucleolar RNA helicase 2	DDX21	0.12	0.04
P04792	Heat shock protein beta-1	HSPB1	0.12	0.00
A0A0C4DGS1;P39656	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 48 kDa subunit	DDOST	0.12	0.01
O43290	U4/U6.U5 tri-snRNP-associated protein 1	SART1	0.12	0.02
C9J4Z3;P61513;M0R0A1;Q 6P4E4;E9PEL3;M0R2L6;G 5E9R3	60S ribosomal protein L37a	RPL37A	0.12	0.16
Q9NVP1	ATP-dependent RNA helicase DDX18	DDX18	0.12	0.26
A0A0B4J2A4;P42765;K7E ME0	3-ketoacyl-CoA thiolase, mitochondrial	ACAA2	0.12	0.11
P46063	ATP-dependent DNA helicase Q1	RECQL	0.12	0.05
A0A087WV73;P46087	Probable 28S rRNA (cytosine(4447)-C(5))- methyltransferase	NOP2	0.12	0.11
P62829;C9JD32;J3KT29;B9 ZVP7	60S ribosomal protein L23	RPL23	0.12	0.32
P63173;J3KT73;J3QL01	60S ribosomal protein L38	RPL38	0.12	0.05
P60953;Q5JYX0	Cell division control protein 42 homolog	CDC42	0.12	0.25
Q8NBS9	Thioredoxin domain-containing protein 5	TXNDC5	0.13	0.29
P25786;F5GX11;B4DEV8	Proteasome subunit alpha type-1;Proteasome subunit alpha type	PSMA1	0.13	0.16
Q9Y383;A0A0A6YYC3;A0A 0A6YYJ8	Putative RNA-binding protein Luc7-like 2	LUC7L2	0.13	0.18
Q16270	Insulin-like growth factor-binding protein 7	IGFBP7	0.13	0.16
Q9BZE4	Nucleolar GTP-binding protein 1	GTPBP4	0.13	0.37
P31948	Stress-induced-phosphoprotein 1	STIP1	0.13	0.15
A0A087X1K9;E5RGR0;O75 608	Acyl-protein thioesterase 1	LYPLA1	0.13	0.06
P62753;A2A3R5	40S ribosomal protein S6	RPS6	0.13	0.12
P14618;B4DNK4	Pyruvate kinase PKM;Pyruvate kinase	PKM	0.13	0.02
J3QLE5;A8MT02;P63162;P 14678;J3KRY3;S4R3P3	Small nuclear ribonucleoprotein-associated protein N;Small nuclear ribonucleoprotein-associated proteins B and B	SNRPN;SNRPB	0.13	0.10
E9PFR3;Q14738;H0Y8C4; H7C5Q9;Q96B13	Serine/threonine-protein phosphatase 2A 56 kDa regulatory subunit delta isoform	PPP2R5D;PPP2R5 C	0.13	0.31
F5H365;Q15436	Protein transport protein Sec23A	SEC23A	0.13	0.03
O60884	DnaJ homolog subfamily A member 2	DNAJA2	0.13	0.10
Q96ER9;C9JSW8	Coiled-coil domain-containing protein 51	CCDC51	0.13	0.62
P46940;A0A0J9YXZ5;H0YL E8	Ras GTPase-activating-like protein IQGAP1	IQGAP1	0.13	0.06
Q9Y696	Chloride intracellular channel protein 4	CLIC4	0.13	0.11
K7ER00;Q9Y285;K7EPH2	Phenylalanine--tRNA ligase alpha subunit	FARSA	0.13	0.05
Q9H0U4;E9PLD0	Ras-related protein Rab-1B	RAB1B	0.13	0.19
Q02878	60S ribosomal protein L6	RPL6	0.13	0.28
P30520	Adenylosuccinate synthetase isozyme 2	ADSS	0.13	0.15
Q00325	Phosphate carrier protein, mitochondrial	SLC25A3	0.13	0.25
Q9Y305;H7C5Q2;C9J7L8	Acyl-coenzyme A thioesterase 9, mitochondrial	ACOT9	0.13	0.19

Q99714;Q5H928	3-hydroxyacyl-CoA dehydrogenase type-2	HSD17B10	0.13	0.27
P16949;A2A2D0	Stathmin	STMN1	0.13	0.15
Q9BSJ8	Extended synaptotagmin-1	ESYT1	0.13	0.08
P23368	NAD-dependent malic enzyme, mitochondrial	ME2	0.13	0.11
C9J7E5;Q9YSL0;E9PFH4	Transportin-3	TNPO3	0.13	0.07
P35244;B5MC59	Replication protein A 14 kDa subunit	RPA3	0.13	0.27
O15067	Phosphoribosylformylglycinamide synthase	PFAS	0.14	0.01
P53618;E9PP73	Coatomer subunit beta	COPB1	0.14	0.05
P40429;M0QYS1;Q8J015	60S ribosomal protein L13a	RPL13A;RPL13a	0.14	0.13
Q92616	Translational activator GCN1	GCN1L1	0.14	0.00
Q99436	Proteasome subunit beta type-7	PSMB7	0.14	0.10
Q3ZCM7;A0A075B736;Q5SQY0;A6NNZ2	Tubulin beta-8 chain;Tubulin beta-8 chain-like protein LOC260334	TUBB8	0.14	0.30
Q9UBQ5;K7EQM4;A0A087WVB9;B4DQ48;K7EKS3;K7ERF1	Eukaryotic translation initiation factor 3 subunit K	EIF3K	0.14	0.12
P62318;H3BT13	Small nuclear ribonucleoprotein Sm D3	SNRPD3	0.14	0.09
P62854;Q5JNZ5	40S ribosomal protein S26;Putative 40S ribosomal protein S26-like 1	RPS26;RPS26P11	0.14	0.03
P35232;C9JW96;C9JZ20;E7ESE2;E9PCW0	Prohibitin	PHB	0.14	0.03
G3V1C3;Q9BZZ5;H0YER7	Apoptosis inhibitor 5	API5	0.14	0.00
Q9UGP8	Translocation protein SEC63 homolog	SEC63	0.15	0.01
P61221;D6R9I9	ATP-binding cassette sub-family E member 1	ABCE1	0.15	0.08
Q9UG63	ATP-binding cassette sub-family F member 2	ABCF2	0.15	0.03
P61313;E7EQV9;E7ENU7	60S ribosomal protein L15;Ribosomal protein L15	RPL15	0.15	0.12
Q92973	Transportin-1	TNPO1	0.15	0.09
Q96EY1	DnaJ homolog subfamily A member 3, mitochondrial	DNAJA3	0.15	0.22
P13929;E5RGZ4	Beta-enolase;Enolase	ENO3	0.15	0.12
P07099	Epoxide hydrolase 1	EPHX1	0.15	0.08
P30533	Alpha-2-macroglobulin receptor-associated protein	LRPAP1	0.15	0.19
P34932;A0A087WYC1;A0A087WTS8	Heat shock 70 kDa protein 4	HSPA4	0.15	0.06
Q13409;E7EQL5	Cytoplasmic dynein 1 intermediate chain 2	DYNC1I2	0.15	0.07
Q92598;A0A0A0MSM0	Heat shock protein 105 kDa	HSPH1	0.15	0.02
Q14739;C9JXK0	Lamin-B receptor	LBR	0.15	0.15
M0QYE0;M0R0I3;Q99961;M0R2K6;Q99962	Endophilin-A2;Endophilin-A1	SH3GL1;SH3GL2	0.15	0.13
Q9NXH9;K7EQQ8	tRNA (guanine(26)-N(2))-dimethyltransferase	TRMT1;SEMA4B	0.15	0.05
P10515;H0YDD4;E9PEJ4	Dihydrolipoylysine-residue acetyltransferase component of pyruvate dehydrogenase complex, mitochondrial;Acetyltransferase component of pyruvate dehydrogenase complex	DLAT	0.15	0.22

C9K0U8;A0A0G2JLD8;E7EUY5;Q04837	Single-stranded DNA-binding protein, mitochondrial	SSBP1	0.15	0.36
Q9H7B2;Q5VXN0	Ribosome production factor 2 homolog	RPF2	0.15	0.29
Q9BXP5;H7C3A1	Serrate RNA effector molecule homolog	SRRT	0.15	0.25
O00232	26S proteasome non-ATPase regulatory subunit 12	PSMD12	0.15	0.05
Q04917;A2IDB2	14-3-3 protein eta	YWHAH	0.15	0.12
Q96FQ6	Protein S100-A16	S100A16	0.15	0.08
A0A0A0MRI0;Q8N726	Cyclin-dependent kinase inhibitor 2A, isoform 4	CDKN2A	0.16	0.28
P60842;J3KT12;J3QS69;J3KTBS;J3QL43;J3KSZ0	Eukaryotic initiation factor 4A-I	EIF4A1	0.16	0.02
Q96TC7;H0YNE5;H0YLG5;H0YMB1	Regulator of microtubule dynamics protein 3	RMDN3	0.16	0.05
Q15404	Ras suppressor protein 1	RSU1	0.16	0.29
A0A0C4DFU2;P04179;A0A0C4DFU1;F5H3C5;A0A0C4DG56;F5H4R2;F5GYZ5;G8JLJ2	Superoxide dismutase [Mn], mitochondrial	SOD2	0.16	0.06
Q92769	Histone deacetylase 2	HDAC2	0.16	0.02
A0A087WUL9;Q9UNM6;E9PL38;J3KNQ3;H0YD73	26S proteasome non-ATPase regulatory subunit 13	PSMD13	0.16	0.22
K7EN60;Q9BQ61;K7ELS0;K7ERU7	Uncharacterized protein C19orf43	C19orf43	0.16	0.21
C9J9K3;A0A0C4DG17;P08865;F8WD59	40S ribosomal protein SA	RPSA	0.16	0.06
B4DUC8;Q13126;J3QSB7	S-methyl-5-thioadenosine phosphorylase;Purine nucleoside phosphorylase	MTAP	0.16	0.19
Q9NR45	Sialic acid synthase	NANS	0.16	0.08
P61604;B8ZZL8;S4R3N1	10 kDa heat shock protein, mitochondrial	HSPE1;HSPE1-MOB4	0.16	0.19
P31689	DnaJ homolog subfamily A member 1	DNAJA1	0.16	0.22
Q9UKN8	General transcription factor 3C polypeptide 4	GTF3C4	0.16	0.17
Q6P2Q9	Pre-mRNA-processing-splicing factor 8	PRPF8	0.16	0.07
Q14166	Tubulin--tyrosine ligase-like protein 12	TTL12	0.16	0.40
O75947	ATP synthase subunit d, mitochondrial	ATP5H	0.16	0.10
P02786;G3V0E5	Transferrin receptor protein 1;Transferrin receptor protein 1, serum form	TFRC	0.16	0.09
P23246	Splicing factor, proline- and glutamine-rich	SFPQ	0.16	0.04
Q9Y6G9;E9PHI6	Cytoplasmic dynein 1 light intermediate chain 1	DYNC1LI1	0.16	0.23
O43242	26S proteasome non-ATPase regulatory subunit 3	PSMD3	0.17	0.01
P48047;H7C0C1	ATP synthase subunit O, mitochondrial	ATP5O	0.17	0.07
Q96HC4;H0Y8Y3;A0A0A0MSP3	PDZ and LIM domain protein 5	PDLIM5	0.17	0.09
P61586;C9JNR4;C9JX21	Transforming protein RhoA	RHOA	0.17	0.02
P52701;A0A087WWJ1	DNA mismatch repair protein Msh6	MSH6	0.17	0.14
Q9BQG0;I3L1L3	Myb-binding protein 1A	MYBBP1A	0.17	0.05
F8W6I7;P09651;F8VZ49;Q32P51;F8VTQ5	Heterogeneous nuclear ribonucleoprotein A1;Heterogeneous nuclear ribonucleoprotein A1, N-terminally processed;Heterogeneous nuclear ribonucleoprotein A1-like 2	HNRNPA1;HNRNPA1L2	0.17	0.03
Q00796;H0YLA4	Sorbitol dehydrogenase	SORD	0.17	0.13

P27695;G3V3M6;G3V5Q1; G3V3C7;A0A0C4DGK8	DNA-(apurinic or apyrimidinic site) lyase;DNA- (apurinic or apyrimidinic site) lyase, mitochondrial	APEX1	0.17	0.29
P19525	Interferon-induced, double-stranded RNA-activated protein kinase	EIF2AK2	0.17	0.18
E7EPB3;P50914	60S ribosomal protein L14	RPL14	0.17	0.11
P46777	60S ribosomal protein L5	RPL5	0.17	0.09
P31153	S-adenosylmethionine synthase isoform type-2	MAT2A	0.17	0.21
Q9NYF8;E9PK91;E9PK09; E9PQN2;E9PKI6	Bcl-2-associated transcription factor 1	BCLAF1	0.17	0.01
P51665;H3BNT7;H3BTM8	26S proteasome non-ATPase regulatory subunit 7	PSMD7	0.17	0.03
Q92499;F1T0B3;A0A087X2 G1	ATP-dependent RNA helicase DDX1	DDX1	0.17	0.12
P19338;H7BY16	Nucleolin	NCL	0.17	0.08
A0A0J9YXC7;P48059	LIM and senescent cell antigen-like-containing domain protein 1	LIMS1	0.17	0.07
E9PCR7;Q02218;E9PDF2; E9PFG7;A0A0D9SFS3	2-oxoglutarate dehydrogenase, mitochondrial	OGDH	0.17	0.20
K7EJR3;R4GMR5;P48556; K7EJC1	26S proteasome non-ATPase regulatory subunit 8	PSMD8	0.18	0.02
P68036	Ubiquitin-conjugating enzyme E2 L3	UBE2L3	0.18	0.13
Q99614;H0YB37	Tetratricopeptide repeat protein 1	TTC1	0.18	0.10
P55957	BH3-interacting domain death agonist;BH3-interacting domain death agonist p15;BH3-interacting domain death agonist p13;BH3-interacting domain death agonist p11	BID	0.18	0.11
P62917;E9PKZ0;G3V1A1;E 9PKU4	60S ribosomal protein L8	RPL8	0.18	0.28
O75533	Splicing factor 3B subunit 1	SF3B1	0.18	0.02
Q71DI3	Histone H3.2	HIST2H3A	0.18	0.02
Q15645	Pachytene checkpoint protein 2 homolog	TRIP13	0.18	0.02
F8W914;Q9NQC3;H7C106	Reticulon;Reticulon-4	RTN4	0.18	0.04
Q8WTT2	Nucleolar complex protein 3 homolog	NOC3L	0.18	0.05
P43490;A0A0C4DFS8	Nicotinamide phosphoribosyltransferase	NAMPT	0.18	0.19
P49755;G3V2K7	Transmembrane emp24 domain-containing protein 10	TMED10	0.18	0.11
Q96A33	Coiled-coil domain-containing protein 47	CCDC47	0.18	0.15
M0R0F0;P46782;M0R0R2; M0QZN2	40S ribosomal protein S5;40S ribosomal protein S5, N- terminally processed	RP55	0.18	0.00
Q9H444	Charged multivesicular body protein 4b	CHMP4B	0.18	0.10
P49588	Alanine--tRNA ligase, cytoplasmic	AARS	0.18	0.05
P12429;D6RA82	Annexin A3;Annexin	ANXA3	0.18	0.16
Q71UI9;P0C0S5;C9J0D1;C 9J386	Histone H2A.V;Histone H2A.Z;Histone H2A	H2AFV;H2AFZ	0.18	0.15
J3QRS3;P19105;O14950	Myosin regulatory light chain 12A;Myosin regulatory light chain 12B	MYL12A;MYL12B	0.18	0.07
O43852;H0Y875	Calumenin	CALU	0.19	0.05
O43143	Putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX15	DHX15	0.19	0.08
P35270	Sepiapterin reductase	SPR	0.19	0.30
Q9H1E3	Nuclear ubiquitous casein and cyclin-dependent kinase substrate 1	NUCKS1	0.19	0.08
P26368;K7ENG2	Splicing factor U2AF 65 kDa subunit	U2AF2	0.19	0.16
Q99584	Protein S100-A13	S100A13	0.19	0.04

Q14696	LDLR chaperone MESD	MESDC2	0.19	0.01
H0YCK3;P55265	Double-stranded RNA-specific adenosine deaminase	ADAR	0.19	0.32
Q06323;H0YLU2	Proteasome activator complex subunit 1	PSME1	0.19	0.19
P09543	2,3-cyclic-nucleotide 3-phosphodiesterase	CNP	0.19	0.28
A0A024RA52;P25787	Proteasome subunit alpha type;Proteasome subunit alpha type-2	PSMA2	0.19	0.37
Q08752	Peptidyl-prolyl cis-trans isomerase D	PPID	0.19	0.32
D6RGI3;D6RERS;Q9NVA2 ;D6RDU5;D6RDP1;D6R9Y 6;H0Y961	Septin-11	SEPT11	0.19	0.20
P30405	Peptidyl-prolyl cis-trans isomerase F, mitochondrial	PPIF	0.19	0.01
O60888;C9IZG4	Protein CutA	CUTA	0.19	0.46
V9GYM8;Q92974	Rho guanine nucleotide exchange factor 2	ARHGEF2	0.19	0.07
Q9BUQ8	Probable ATP-dependent RNA helicase DDX23	DDX23	0.19	0.18
P23258;Q9NRH3	Tubulin gamma-1 chain;Tubulin gamma-2 chain	TUBG1;TUBG2	0.19	0.08
O00764;F2Z2Y4	Pyridoxal kinase	PDXK	0.19	0.06
O00629	Importin subunit alpha-3	KPNA4	0.20	0.15
J3KQN4;H0Y5B4;H7BZ11; P83881;H7BY91;H0Y3V9	60S ribosomal protein L36a	RPL36A;RPL36A- HNRNPH2	0.20	0.21
A0A0A0MRM9;Q14978	Nucleolar and coiled-body phosphoprotein 1	NOLC1	0.20	0.08
P58107	Epiplakin	EPPK1	0.20	0.18
J3KP15;Q01130;J3QL05	Serine/arginine-rich splicing factor 2	SRSF2	0.20	0.13
Q15365	Poly(rC)-binding protein 1	PCBP1	0.20	0.03
A0A087WXM6;J3QQT2;J3 KRX5;A0A0A6YYL6;P1862 1;J3QLC8;A0A0A0MRF8;J 3KRB3;A0A087WWH0;J3Q S96	60S ribosomal protein L17	RPL17	0.20	0.09
B4DXZ6;P51114;E7EU85;E 9PFF5	Fragile X mental retardation syndrome-related protein 1	FXR1	0.20	0.08
B2R4S9;U3KQK0;Q99880; Q99879;Q99877;Q93079;Q 5QNW6;P62807;P58876;O 60814;P57053;Q96A08	Histone H2B;Histone H2B type 1-L;Histone H2B type 1-M;Histone H2B type 1-N;Histone H2B type 1-H;Histone H2B type 2-F;Histone H2B type 1-C/E/F/G/I;Histone H2B type 1-D;Histone H2B type 1-K;Histone H2B type F-S;Histone H2B type 1-A	HIST1H2BC;HIS T1H2BN;HIST1H 2BL;HIST1H2BM; HIST1H2BH;HIS T2H2BF;HIST1H 2BD;HIST1H2BK; H2BFS;HIST1H2 BA	0.20	0.21
O00148;K7EQN7	ATP-dependent RNA helicase DDX39A	DDX39A	0.20	0.03
P26373;J3QSB4	60S ribosomal protein L13	RPL13	0.20	0.01
F8VPD4;P27708	CAD protein;Glutamine-dependent carbamoyl-phosphate synthase;Aspartate carbamoyltransferase;Dihydroorotase	CAD	0.20	0.06
O75874	Isocitrate dehydrogenase [NADP] cytoplasmic	IDH1	0.20	0.30
Q9Y2T3;Q5SZC6	Guanine deaminase	GDA	0.20	0.11
P52292	Importin subunit alpha-1	KPNA2	0.20	0.04

P62979;J3QS39;J3QTR3;F5H6Q2;F5GYU3;F5H2Z3;F5H26S;B4DV12;F5H388;F5H747;F5GXXK7;J3QKN0;Q5PY61;Q96C32;P0CG47;P0CG48	Ubiquitin-40S ribosomal protein S27a;Ubiquitin;40S ribosomal protein S27a;Polyubiquitin-B;Ubiquitin;Polyubiquitin-C;Ubiquitin	RPS27A;UBB;UBC	0.20	0.09
Q7KZF4	Staphylococcal nuclease domain-containing protein 1	SND1	0.20	0.10
P32969;H0Y9V9;D6RAN4;E7ESE0	60S ribosomal protein L9	RPL9	0.20	0.11
Q9Y3C1;D6RIC3;A0A0C4DGU5;A0A087X1T1;A0A087X2G6	Nucleolar protein 16	NOP16	0.21	0.08
P30043;M0QZL1;M0R192	Flavin reductase (NADPH)	BLVRB	0.21	0.27
Q06210	Glutamine-fructose-6-phosphate aminotransferase [isomerizing] 1	GFPT1	0.21	0.03
Q5RKV6	Exosome complex component MTR3	EXOSC6	0.21	0.00
P62899;H7C2W9;C9JU56;B7Z4E3;B7Z4C8;B8ZZK4	60S ribosomal protein L31	RPL31	0.21	0.35
P30566;A0A0A6YY92;A0A096LNY6;A0A096LNY5	Adenylosuccinate lyase	ADSL	0.21	0.27
Q14165;F5H1S8;H0YG07	Malectin	MLEC	0.21	0.01
Q5SY16	Polynucleotide 5-hydroxyl-kinase NOL9	NOL9	0.21	0.09
P43304	Glycerol-3-phosphate dehydrogenase, mitochondrial	GPD2	0.21	0.10
Q14498;H0Y4X3;G3XAC6;A0A0U1RQH7;Q5QP23	RNA-binding protein 39	RBM39	0.21	0.00
O00410;H0Y8C6	Importin-5	IPO5	0.21	0.09
Q9H0S4	Probable ATP-dependent RNA helicase DDX47	DDX47	0.21	0.02
Q07065	Cytoskeleton-associated protein 4	CKAP4	0.21	0.01
P00505	Aspartate aminotransferase, mitochondrial	GOT2	0.22	0.13
O60832;H7C0M1;C9IYT0	H/ACA ribonucleoprotein complex subunit 4	DKC1	0.22	0.15
Q15582;H0Y9D7;H0Y8L3	Transforming growth factor-beta-induced protein ig-h3	TGFBI	0.22	0.10
P25788	Proteasome subunit alpha type-3	PSMA3	0.22	0.02
E9PF19;Q9Y4P3;Q96E41	Transducin beta-like protein 2	TBL2	0.22	0.15
Q14019;H3BT58	Coactosin-like protein	COTL1	0.22	0.44
Q8IY81	pre-rRNA processing protein FTSJ3	FTSJ3	0.22	0.02
Q9Y221;J3QRD6;J3QRR4;J3QLW7	60S ribosome subunit biogenesis protein NIP7 homolog	NIP7	0.22	0.60
Q15397	Pumilio domain-containing protein KIAA0020	KIAA0020	0.22	0.26
E9PNC7;E9PQX9;C9JCC6;Q14919	Dr1-associated corepressor	DRAP1	0.22	0.06
C9JFV4;Q8IZL8;I3L445;I3L1P4;I3L4M7;E7EV54	Proline-, glutamic acid- and leucine-rich protein 1	PELP1	0.22	0.31
P48444;B0YIW6	Coatomer subunit delta	ARCN1	0.22	0.12
A0A024R7W5;A0A087X0Q1;A0A087WY31;Q7Z739;Q9BYJ9	YTH domain-containing family protein 3;YTH domain-containing family protein 1	YTHDF3;YTHDF1	0.22	0.08
Q0ZGT2;H7BXY5	Nexilin	NEXN	0.23	0.10
P08133;E5RK69;E7EMC6	Annexin A6;Annexin	ANXA6	0.23	0.04

P67775;P62714;E5SRHC1	Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform;Serine/threonine-protein phosphatase 2A catalytic subunit beta isoform;Serine/threonine-protein phosphatase	PPP2CA;PPP2CB	0.23	0.04
P55884	Eukaryotic translation initiation factor 3 subunit B	EIF3B	0.23	0.10
Q9UPY5	Cystine/glutamate transporter	SLC7A11	0.23	0.22
P63261;P60709;I3L3I0;I3L1U9;I3L4N8	Actin, cytoplasmic 2;Actin, cytoplasmic 2, N-terminally processed;Actin, cytoplasmic 1;Actin, cytoplasmic 1, N-terminally processed	ACTG1;ACTB	0.23	0.02
P27824	Calnexin	CANX	0.23	0.04
Q14684	Ribosomal RNA processing protein 1 homolog B	RRP1B	0.23	0.10
P06748	Nucleophosmin	NPM1	0.23	0.15
Q6DKI1;R4GMU7	60S ribosomal protein L7-like 1	RPL7L1	0.23	0.02
Q14137	Ribosome biogenesis protein BOP1	BOP1	0.23	0.21
P55072	Transitional endoplasmic reticulum ATPase	VCP	0.23	0.01
Q9UJZ1;A0A087WYB4	Stomatin-like protein 2, mitochondrial	STOML2	0.24	0.08
P15170;H3BR35	Eukaryotic peptide chain release factor GTP-binding subunit ERF3A	GSPT1	0.24	0.06
Q12907;D6RBV2;D6RIU4	Vesicular integral-membrane protein VIP36	LMAN2	0.24	0.09
P49770;H0YJJ8;G3VSE5	Translation initiation factor eIF-2B subunit beta	EIF2B2	0.24	0.22
Q8TCS8	Polyribonucleotide nucleotidyltransferase 1, mitochondrial	PNPT1	0.24	0.10
P19387;H3BRR2	DNA-directed RNA polymerase II subunit RPB3	POLR2C	0.24	0.14
Q05639	Elongation factor 1-alpha 2	EEF1A2	0.24	0.09
Q9H3U1	Protein unc-45 homolog A	UNC45A	0.24	0.05
R4GNH3;P17980;E9PM69;E9PKD5;E9PMD8;E9PN50	26S protease regulatory subunit 6A	PSMC3	0.25	0.06
P62266;D6RD47	40S ribosomal protein S23	RPS23	0.25	0.14
P62081;B5MCP9	40S ribosomal protein S7	RPS7	0.25	0.22
Q9Y224;G3V4C6;H0YJB9	UPF0568 protein C14orf166	C14orf166	0.25	0.34
P68371	Tubulin beta-4B chain	TUBB4B	0.25	0.02
Q9BQ67	Glutamate-rich WD repeat-containing protein 1	GRWD1	0.25	0.17
O95486	Protein transport protein Sec24A	SEC24A	0.25	0.09
E7ETY2		TCOF1	0.25	0.10
P46060	Ran GTPase-activating protein 1	RANGAP1	0.25	0.01
Q16222	UDP-N-acetylhexosamine pyrophosphorylase;UDP-N-acetylgalactosamine pyrophosphorylase;UDP-N-acetylglucosamine pyrophosphorylase	UAP1	0.25	0.02
P13804;H0YLU7;H0YK49;H0YL12;H0YNX6;H0YKF0	Electron transfer flavoprotein subunit alpha, mitochondrial	ETFA	0.25	0.34
A0A0A0MRW6;Q9H6R4	Nucleolar protein 6	NOL6	0.25	0.07
P10909;H0YC35;H0YAS8	Clusterin;Clusterin beta chain;Clusterin alpha chain;Clusterin	CLU	0.25	0.22
P42677;Q5T4L4	40S ribosomal protein S27	RPS27	0.25	0.32
Q96C19	EF-hand domain-containing protein D2	EFHD2	0.25	0.44

O43813;E9PHS0	LanC-like protein 1	LANCL1	0.25	0.05
P68431;Q1669S;K7EMV3; B4DEB1;K7ES00;Q6NXT2	Histone H3.1;Histone H3.1t;Histone H3;Histone H3.3C	HIST1H3A;HIST3 H3;H3F3B;H3F3A ;H3F3C	0.25	0.47
P55809;E9PDW2	Succinyl-CoA:3-ketoacid coenzyme A transferase 1, mitochondrial	OXCT1	0.25	0.00
D6REX3;O94979;D6RHZ5; H7BXG7	Protein transport protein Sec31A	SEC31A	0.25	0.14
Q29RF7	Sister chromatid cohesion protein PDS5 homolog A	PDSSA	0.26	0.18
P68104;Q5VTE0;A0A087W V01	Elongation factor 1-alpha 1;Putative elongation factor 1- alpha-like 3	EEF1A1;EEF1A1P 5	0.26	0.10
F8W809;A0A087WSW9;A0 A087WSY9;Q16881;E2QR B9;E9PIR7	Thioredoxin reductase 1, cytoplasmic	TXNRD1;GML	0.26	0.08
P20340;F5H3K7;Q9NRW1	Ras-related protein Rab-6A;Ras-related protein Rab-6B	RAB6A;RAB6B	0.26	0.20
P12236;P12235	ADP/ATP translocase 3;ADP/ATP translocase 3, N- terminally processed;ADP/ATP translocase 1	SLC25A6;SLC25A 4	0.26	0.16
C9JNU6;C9JAW5;Q9Y241	HIG1 domain family member 1A, mitochondrial	HIGD1A	0.26	0.18
P30040;F8VY02	Endoplasmic reticulum resident protein 29	ERP29	0.26	0.25
P27635;X1W128;F8W7C6; A0A087WV22	60S ribosomal protein L10	RPL10	0.26	0.20
P23284	Peptidyl-prolyl cis-trans isomerase B	PPIB	0.26	0.15
Q15021;E7EN77	Condensin complex subunit 1	NCAPD2	0.27	0.01
Q6DD88;F5H6I7	Atlastin-3	ATL3	0.27	0.02
A0A087WUL2;P49720;A0A 087WXQ8;A0A087WY10	Proteasome subunit beta type-3	PSMB3	0.27	0.07
Q15427	Splicing factor 3B subunit 4	SF3B4	0.27	0.09
Q8NC51	Plasminogen activator inhibitor 1 RNA-binding protein	SERBP1	0.27	0.14
Q9UII2	ATPase inhibitor, mitochondrial	ATPIF1	0.27	0.08
Q13200	26S proteasome non-ATPase regulatory subunit 2	PSMD2	0.27	0.07
Q99598;C4P0D6;C4P0D8; C4P0D4;Q5VVQ1	Translin-associated protein X	TSNAX;DISC1	0.27	0.15
E9PRY8;E9PK01;A0A087X 1X7;P29692;E9PPR1;E9PL 12;E9PQ49;E9PI39;H0YCK 7;E9PQZ1;E9PMW7;E9PIZ 1	Elongation factor 1-delta	EEF1D	0.27	0.16
Q8TEQ6	Gem-associated protein 5	GEMIN5	0.27	0.04
P62701	40S ribosomal protein S4, X isoform	RPS4X	0.27	0.22
Q9UHI6	Probable ATP-dependent RNA helicase DDX20	DDX20	0.27	0.02
P06576;H0YH81;F8W079	ATP synthase subunit beta, mitochondrial;ATP synthase subunit beta	ATP5B	0.27	0.00
P55010;H0YLZ1;H0YN40	Eukaryotic translation initiation factor 5	EIF5	0.28	0.25
Q13347	Eukaryotic translation initiation factor 3 subunit I	EIF3I	0.28	0.23
P36542	ATP synthase subunit gamma, mitochondrial	ATP5C1	0.28	0.08
A0A0U1RR22;Q9UNF0	Protein kinase C and casein kinase substrate in neurons protein 2	PACSIN2	0.28	0.23

Q02818;H7BZI1;C9JKZ2	Nucleobindin-1	NUCB1	0.28	0.31
A6NFS1;O9S861;F8W1J0;F8VW8;F8VZG4	3(2),5-bisphosphate nucleotidase 1	BPNT1	0.28	0.46
P57088;D6RAA6	Transmembrane protein 33	TMEM33	0.28	0.04
A0A087WZH7;P29966	Myristoylated alanine-rich C-kinase substrate	MARCKS	0.29	0.10
Q9UNS2;H7C3P9	COP9 signalosome complex subunit 3	COPS3	0.29	0.17
H0Y626;O9S361;B3KP96;K7EL43	Tripartite motif-containing protein 16	TRIM16	0.29	0.47
A0A087WYN9;Q7Z478	ATP-dependent RNA helicase DHX29	DHX29	0.29	0.15
P63104;E7EX29;B0AZS6;B7Z2E6;H0YB80;E7ESK7	14-3-3 protein zeta/delta	YWHAZ	0.29	0.22
P26038	Moesin	MSN	0.29	0.05
Q96J85;Q71RC2;X6RLN4	La-related protein 4	LARP4	0.29	0.29
O9S817;C9JFK9	BAG family molecular chaperone regulator 3	BAG3	0.30	0.16
P51149;C9J592;C9J8S3;C9I ZZ0;C9J4V0	Ras-related protein Rab-7a	RAB7A	0.30	0.07
I3L0H8;Q9NUU7;H3BTB3;I3L352	ATP-dependent RNA helicase DDX19A	DDX19A	0.30	0.52
O00625	Pirin	PIR	0.30	0.12
Q9NZ01;M0R3C3	Very-long-chain enoyl-CoA reductase	TECR	0.30	0.04
P09496;F8WF69;C9J8P9	Clathrin light chain A	CLTA	0.30	0.01
H0Y5R6;P06132	Uroporphyrinogen decarboxylase	UROD	0.30	0.13
J3KNQ4;Q9NVD7;E9PS97	Alpha-parvin	PARVA	0.31	0.29
Q9UIJ7	GTP:AMP phosphotransferase AK3, mitochondrial	AK3	0.31	0.03
P26885;F5H0N4	Peptidyl-prolyl cis-trans isomerase FKBP2;Peptidyl-prolyl cis-trans isomerase	FKBP2	0.31	0.02
A0A087X2D8;O60271	C-Jun-amino-terminal kinase-interacting protein 4	SPAG9	0.31	0.11
P13639	Elongation factor 2	EEF2	0.31	0.02
Q9NPD3;E9PI41	Exosome complex component RRP41	EXOSC4	0.31	0.09
Q7L2H7;J3KNJ2;H0YCC8	Eukaryotic translation initiation factor 3 subunit M	EIF3M	0.31	0.15
P07195;A8MW50;C9J7H8	L-lactate dehydrogenase B chain;L-lactate dehydrogenase	LDHB	0.31	0.30
P07741;H3BQB1;H3BQF1;H3BQZ9	Adenine phosphoribosyltransferase	APRT	0.31	0.13
Q07021;I3L3Q7;I3L3B0	Complement component 1 Q subcomponent-binding protein, mitochondrial	C1QBP	0.32	0.07
A0A087WUF6;P09038	Fibroblast growth factor 2	FGF2	0.32	0.26
A0A087X0I4;O14579;M0QXB4	Coatomer subunit epsilon	COPE	0.32	0.25
P47985;P0C7P4	Cytochrome b-c1 complex subunit Rieske, mitochondrial;Cytochrome b-c1 complex subunit 11;Putative cytochrome b-c1 complex subunit Rieske-like protein 1	UQCRCF1;UQCRFS1P1	0.32	0.07
C9JG97;C9JEH3;Q13685;C9JTS3	Angio-associated migratory cell protein	AAMP	0.32	0.06
P00338	L-lactate dehydrogenase A chain	LDHA	0.32	0.22
O43818	U3 small nucleolar RNA-interacting protein 2	RRP9	0.32	0.31
Q15050	Ribosome biogenesis regulatory protein homolog	RRS1	0.32	0.21

Q14C86;F8W9S7;B0QZ65; B4DGD8;C9IZ08 Q01518	GTPase-activating protein and VPS9 domain-containing protein 1 Adenylyl cyclase-associated protein 1	GAPVD1 CAP1	0.33 0.33	0.02 0.10
P21281;H0YC04	V-type proton ATPase subunit B, brain isoform	ATP6V1B2	0.33	0.21
E7EX90;Q14203;Q6AWB1	Dynactin subunit 1	DCTN1;DKFZp68 6E07S2	0.33	0.42
P46977	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3A	STT3A	0.34	0.00
Q07960;H0YE29	Rho GTPase-activating protein 1	ARHGAP1	0.34	0.02
Q04446;E9PGM4	1,4-alpha-glucan-branching enzyme	GBE1	0.34	0.14
P68032;P68133;P63267;P6 2736;A6NL76;C9JFL5;F6U VQ4;F6QUT6	Actin, alpha cardiac muscle 1;Actin, alpha skeletal muscle;Actin, gamma-enteric smooth muscle;Actin, aortic smooth muscle	ACTC1;ACTA1;A CTG2;ACTA2	0.34	0.20
O95373	Importin-7	IPO7	0.34	0.10
Q14974;J3KTM9	Importin subunit beta-1	KPNB1	0.34	0.08
D3DQV9;P78344;H0Y3P2	Eukaryotic translation initiation factor 4 gamma 2	EIF4G2	0.34	0.06
P07237;H7BZ94;H0Y3Z3	Protein disulfide-isomerase	P4HB	0.34	0.13
P18085;C9JPM4;C9JAK5	ADP-ribosylation factor 4	ARF4	0.34	0.03
P20962	Parathymosin	PTMS	0.34	0.39
P07954	Fumarate hydratase, mitochondrial	FH	0.34	0.19
Q969X5	Endoplasmic reticulum-Golgi intermediate compartment protein 1	ERGIC1	0.35	0.03
P17096	High mobility group protein HMG-I/HMG-Y	HMGA1	0.35	0.07
P11216	Glycogen phosphorylase, brain form	PYGB	0.35	0.02
P46926;D6RAY7;D6R9P4; D6RFF8;D6RB13	Glucosamine-6-phosphate isomerase 1	GNPDA1	0.35	0.02
O60684;Q5TFJ7	Importin subunit alpha-7	KPNA6	0.35	0.18
Q9BYG3;C9J6C5	MKI67 FHA domain-interacting nucleolar phosphoprotein	NIFK	0.35	0.49
Q9UBS4	DnaJ homolog subfamily B member 11	DNAJB11	0.36	0.02
J9JIE6;Q9UM00;J3QQY2;J 3KS45;J3KTQ7	Transmembrane and coiled-coil domain-containing protein 1	TMCO1	0.36	0.01
P52597	Heterogeneous nuclear ribonucleoprotein F;Heterogeneous nuclear ribonucleoprotein F, N-terminally processed	HNRNPF	0.36	0.10
P04843;B7Z4L4	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1	RPN1	0.36	0.01
Q8TEX9;H0YN14	Importin-4	IPO4	0.36	0.20
Q9NZL4;K7EN20	Hsp70-binding protein 1	HSPBP1	0.36	0.13
A0A024R4E5;Q00341;H0Y 394	Vigilin	HDLBP	0.36	0.02
P24534	Elongation factor 1-beta	EEF1B2	0.37	0.16
Q71U36;Q13748;Q6PEY2	Tubulin alpha-1A chain;Tubulin alpha-3C/D chain;Tubulin alpha-3E chain	TUBA1A;TUBA3 C;TUBA3E	0.37	0.04
P61981	14-3-3 protein gamma;14-3-3 protein gamma, N-terminally processed	YWHAG	0.37	0.38
P28066	Proteasome subunit alpha type-5	PSMA5	0.37	0.12
D6RDK6;D6RBN5;Q9NX4 0;D6RI08;D6RDK1;D6RIV 2;D6R9T5;D6RG39;D6RIT 9	OCIA domain-containing protein 1	OCIAD1	0.37	0.07
M0R221;M0R2B8;M0QZG 7;P09012;M0R0G9;M0QX K2	U1 small nuclear ribonucleoprotein A	SNRPA	0.37	0.16

P08758;D6RBE9;D6RBL5	Annexin A5;Annexin	ANXA5	0.37	0.07
P08708;H0YN88;A0A075B716	40S ribosomal protein S17	RPS17	0.38	0.02
P26641	Elongation factor 1-gamma	EEF1G	0.38	0.08
Q14558;B4DP31	Phosphoribosyl pyrophosphate synthase-associated protein 1	PRPSAP1	0.38	0.03
P68366	Tubulin alpha-4A chain	TUBA4A	0.38	0.17
P17174	Aspartate aminotransferase, cytoplasmic	GOT1	0.38	0.06
P05204	Non-histone chromosomal protein HMG-17	HMGN2	0.38	0.24
H0YKD8;P46779;H0YLP6;H0YMF4	60S ribosomal protein L28	RPL28	0.38	0.02
Q9BWD1	Acetyl-CoA acetyltransferase, cytosolic	ACAT2	0.38	0.10
P48651;J3KNR6	Phosphatidylserine synthase 1	PTDSS1	0.39	0.32
Q13601;A0A087WZC7	KRR1 small subunit processome component homolog	KRR1	0.39	0.25
F5H6E2;O00159	Unconventional myosin-Ic	MYO1C	0.39	0.21
P52788;H7C2R7	Spermine synthase	SMS	0.40	0.05
Q53GQ0	Estradiol 17-beta-dehydrogenase 12	HSD17B12	0.40	0.19
P35573	Glycogen debranching enzyme;4-alpha-glucanotransferase;Amylo-alpha-1,6-glucosidase	AGL	0.41	0.08
Q5W0H4;A0A0B4J2C3;P13693;J3KPG2;E9PJF7	Translationally-controlled tumor protein	TPT1	0.41	0.17
O60763	General vesicular transport factor p115	USO1	0.42	0.02
A0A0G2JQ62;Q8NF37;A0A0G2JRI7	Lysophosphatidylcholine acyltransferase 1	LPCAT1	0.42	0.07
Q5T3Q7;Q9H583	HEAT repeat-containing protein 1;HEAT repeat-containing protein 1, N-terminally processed	HEATR1	0.42	0.25
P05386	60S acidic ribosomal protein P1	RPLP1	0.42	0.46
P51572;C9JSP1;C9JQ75;C9J0M4	B-cell receptor-associated protein 31	BCAP31	0.43	0.32
O60701	UDP-glucose 6-dehydrogenase	UGDH	0.43	0.01
P16435;H0Y4R2;E7EMD0	NADPH--cytochrome P450 reductase	POR	0.43	0.09
P10412;P16402	Histone H1.4;Histone H1.3	HIST1H1E;HIST1H1D	0.44	0.13
A0A0B4J2E5;Q15269	Periodic tryptophan protein 2 homolog	PWP2	0.44	0.35
P46783;F6U211;S4R435	40S ribosomal protein S10	RPS10;RPS10-NUDT3	0.44	0.18
P11279	Lysosome-associated membrane glycoprotein 1	LAMP1	0.44	0.13
Q9HD45;Q5TB53	Transmembrane 9 superfamily member 3	TM9SF3	0.45	0.08
A0A087WU53;Q9H0U3	Magnesium transporter protein 1	MAGT1	0.45	0.33
Q15437	Protein transport protein Sec23B	SEC23B	0.45	0.05
A0A0A6YYA0;Q9Y3B3	Transmembrane emp24 domain-containing protein 7	TMED7	0.45	0.23
P62750;H7BY10;K7EJV9;K7ERT8;A8MUS3;K7EMA7	60S ribosomal protein L23a	RPL23A	0.45	0.09
Q969Z0;H7C4R5	Protein TBRG4	TBRG4	0.45	0.24
C9JJT5;C9JU26;G3V32S;P56134	ATP synthase subunit f, mitochondrial	ATP5J2-PTCD1;ATP5J2	0.45	0.19
Q9H4A6	Golgi phosphoprotein 3	GOLPH3	0.46	0.27
Q01658	Protein Dr1	DR1	0.46	0.07
P62304;A6NHK2	Small nuclear ribonucleoprotein E	SNRPE	0.46	0.36
Q9NX55;J3QT56	Huntingtin-interacting protein K	HYPK	0.46	0.20
Q9BUF5;K7ESM5	Tubulin beta-6 chain	TUBB6	0.47	0.14

P50416	Carnitine O-palmitoyltransferase 1, liver isoform	CPT1A	0.47	0.02
C9J3L8;C9J5W0;E9PAL7;C9IZQ1;P43307	Translocon-associated protein subunit alpha	SSR1	0.47	0.22
Q15382;C9J931	GTP-binding protein Rheb	RHEB	0.47	0.53
K7ELC2;P62841;K7EMS6;A0A0B4J2B4;S4R417;K7EQJ5;K7EJ78;S4R456	40S ribosomal protein S15	RPS15	0.47	0.40
E7EWR4;P33240;E9PID8;Q9H0L4	Cleavage stimulation factor subunit 2;Cleavage stimulation factor subunit 2 tau variant	CSTF2;CSTF2T	0.48	0.14
Q15084	Protein disulfide-isomerase A6	PDIA6	0.49	0.06
P61009	Signal peptidase complex subunit 3	SPCS3	0.49	0.06
P04844;Q5JYR7	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 2	RPN2	0.50	0.08
P00441;H7BYH4	Superoxide dismutase [Cu-Zn]	SOD1	0.51	0.24
H3BPZ1;H3BS72;Q9P035	Very-long-chain (3R)-3-hydroxyacyl-CoA dehydratase 3	PTPLAD1	0.51	0.61
A0A0A0MSE2;Q16836;E9PF18	Hydroxyacyl-coenzyme A dehydrogenase, mitochondrial	HADH	0.52	0.05
A0A087X1G1;H7BYD0;Q16718;F8WAS3;A0A087WXR5;C9IZN5	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5	NDUFAS5	0.52	0.14
Q13867;K7ESE8;K7ES02;J3KSD8	Bleomycin hydrolase	BLMH	0.53	0.28
P27797;K7EJB9	Calreticulin	CALR	0.53	0.04
Q86U38	Nucleolar protein 9	NOP9	0.54	0.10
Q9NS69	Mitochondrial import receptor subunit TOM22 homolog	TOMM22	0.54	0.33
Q9NR31;Q5SQT8	GTP-binding protein SAR1a	SAR1A	0.55	0.04
Q99615	DnaJ homolog subfamily C member 7	DNAJC7	0.55	0.07
Q9UN86;D6RAC7;D6RB17	Ras GTPase-activating protein-binding protein 2	G3BP2	0.55	0.12
Q9H6F5	Coiled-coil domain-containing protein 86	CCDC86	0.56	0.10
Q5TEC6	Histone H3	HIST2H3PS2	0.57	0.08
A9Z1X7;Q8IYB3;E9PCT1	Serine/arginine repetitive matrix protein 1	SRRM1	0.57	0.25
O43583;F8VVL1	Density-regulated protein	DENR	0.57	0.01
E7ETK0;A0A087WUS0;P62847	40S ribosomal protein S24	RPS24	0.58	0.21
P61224;P62834;E7ESV4;A0A0J9YXB3;F5H7Y6;A6NIZ1;F5GX62;F5H4H0;F5GYH7;F5H077;F5GWU8;F5H491;F5H0B7;F5H500;F5H823;B7ZB78;F5GZG1;F5H6R7;F5H004;A0A075B6Q0;F5GYB5	Ras-related protein Rap-1b;Ras-related protein Rap-1A;Ras-related protein Rap-1b-like protein	RAP1B;RAP1A	0.59	0.08
Q8NFH4	Nucleoporin Nup37	NUP37	0.59	0.25
Q9BQE3;F5H5D3	Tubulin alpha-1C chain	TUBA1C	0.59	0.29
C9J381;P20839;C9K0R9	Inosine-5-monophosphate dehydrogenase;Inosine-5-monophosphate dehydrogenase 1	IMPDH1	0.60	0.17
C9JNK6;C9JAZ1;O75431	Metaxin-2	MTX2	0.61	0.12
Q5JP53;P07437;Q5ST81	Tubulin beta chain	TUBB	0.62	0.10
P60903	Protein S100-A10	S100A10	0.63	0.15
P30101	Protein disulfide-isomerase A3	PDIA3	0.64	0.09
Q13895;F8WBL2	Bystin	BYSL	0.65	0.09

P61758;B4DWR3	Prefoldin subunit 3	VBP1	0.65	0.21
B9A018;Q53GS9;A0A087X1B2	U4/U6.U5 tri-snRNP-associated protein 2	USP39	0.66	0.00
Q58FF8	Putative heat shock protein HSP 90-beta 2	HSP90AB2P	0.66	0.17
A0A0A0MRG8;Q16611	Bcl-2 homologous antagonist/killer	BAK1	0.66	0.10
F6QDS0;H3BQK0;Q9UMR2;H3BMQ5;H3BNS9	ATP-dependent RNA helicase DDX19B	DDX19B	0.70	0.16
Q8TBC4;F8WF86;F8W8D4	NEDD8-activating enzyme E1 catalytic subunit	UBA3	0.75	0.12
Q5VV89;O14880;Q5VV87	Microsomal glutathione S-transferase 3	MGST3	0.77	0.06
E9PDR5;E7EPI0;Q9P2D0;D6R9F4	Inhibitor of Bruton tyrosine kinase	IBTK	0.77	0.20
A0A0J9YYG4;A0A0J9YXF2;Q15165;A0A0J9YYF0;A0A0J9YYF3;A0A0J9YXU7;G3XAK4;J3QT77	Serum paraoxonase/arylesterase 2	PON2	0.82	0.48
Q13501;E7EMC7;E3W990P14625	Sequestosome-1	SQSTM1	0.83	0.11
	Endoplasmic reticulum chaperone	HSP90B1	0.84	0.01
P25325;B1AH49	3-mercaptopyruvate sulfurtransferase;Sulfurtransferase	MPST	0.84	0.25
A0A087WZ40;Q14244	Enscosin	MAP7	0.86	0.21
A8K878;P55145	Mesencephalic astrocyte-derived neurotrophic factor	MANF	0.91	0.27
O15173	Membrane-associated progesterone receptor component 2	PGRMC2	0.91	0.18
Q5T8U5;O15260	Surfeit locus protein 4	SURF4	0.95	0.24
P08240	Signal recognition particle receptor subunit alpha	SRPR	0.97	0.00
B4DR61;P61619;F8W776;Q8TC24;Q9H9S3	Protein transport protein Sec61 subunit alpha isoform 1;Protein transport protein Sec61 subunit alpha isoform 2	SEC61A1;SEC61A2	0.99	0.25
P41240;H3BUM9	Tyrosine-protein kinase CSK	CSK	1.06	0.34
P51571;A6NLM8	Translocon-associated protein subunit delta	SSR4	1.09	0.17
O94855;E9PC44;E9PDM8	Protein transport protein Sec24D	SEC24D	1.16	0.20
Q9HAK2;B7Z934	Transcription factor COE2	EBF2	1.22	0.15
P48506;D6R959;A0A0C4DGB2;E1CEI4	Glutamate--cysteine ligase catalytic subunit	GCLC	1.26	0.15
A1L0T0;E9PJS0;M0R026	Acetolactate synthase-like protein	ILVBL	1.28	0.30
P13667	Protein disulfide-isomerase A4	PDIA4	1.31	0.05
P60468	Protein transport protein Sec61 subunit beta	SEC61B	1.37	0.14
P07996	Thrombospondin-1	THBS1	1.43	0.05
F2Z2Y6;O95777;C9JIZ0;C9JNV3	U6 snRNA-associated Sm-like protein LSm8	LSM8	1.44	0.18
A0A087X054;Q9Y4L1;E9PJ21;A0A087WWI4;K7EQK2	Hypoxia up-regulated protein 1	HYOU1	1.45	0.16
Q13217;X6R9L0	DnaJ homolog subfamily C member 3	DNAJC3	1.45	0.12
ESRGY0;B4E1G1;Q9BUN8	Derlin-1	DERL1	1.46	0.29
H7C4G6;A0A0A0MT83;P26440;H0YN10;A0A087WVD3;H0YLC3	Isovaleryl-CoA dehydrogenase, mitochondrial	IVD	1.65	0.50
Q9H8Y8	Golgi reassembly-stacking protein 2	GORASP2	1.89	0.19
P98082;D6RFF7	Disabled homolog 2	DAB2	2.02	0.58

P11021	78 kDa glucose-regulated protein	HSPA5	2.03	0.03
P09601;B1AHA8	Heme oxygenase 1	HMOX1	2.22	0.03
A0A087WTM7;P04114	Apolipoprotein B-100;Apolipoprotein B-48	APOB	2.78	0.42
A0A087WVM3;O00622	Protein CYR61	CYR61	inf	0.00
O76061	Stanniocalcin-2	STC2	inf	0.00

Table S2: List of plasma membrane proteins enriched by AA-PA 8 in three different cell lines.

Majority protein IDs	Protein name	Gene name	HeLa Kyoto		MCF7		Caco-2	
			<u>Average</u> <u>LFQ</u> <u>intensity</u>	<u>SD</u>	<u>Average</u> <u>LFQ</u> <u>intensity</u>	<u>SD</u>	<u>Average</u> <u>LFQ</u> <u>intensity</u>	<u>SD</u>
P02786;G3V0E5	Transferrin receptor protein 1	TFRC	5.86E+07	8.39E+05	5.90E+06	1.12E+06	5.67E+06	9.42E+05
Q07065	Cytoskeleton-associated protein 4	CKAP4	3.20E+07	1.36E+06	3.50E+06	3.17E+05	1.10E+07	7.91E+06
B7ZKQ9;Q8WTV0-4;Q8WTV0-2;F5H4X0;Q8WTV0-5;Q8WTV0;Q8WTV0-3	Scavenger receptor class B member 1	SCARB1	1.99E+07	1.90E+06	3.11E+06	3.06E+05	1.50E+06	1.29E+05
O00299	Chloride intracellular channel protein 1	CLIC1	1.56E+07	2.11E+05	1.54E+07	1.95E+06	2.30E+07	1.76E+06
Q9P0L0;Q9P0L0-2	Vesicle-associated membrane protein-associated protein A	VAPA	5.80E+06	2.26E+06	4.96E+06	1.35E+06	3.12E+06	1.98E+05

NMR Spectra

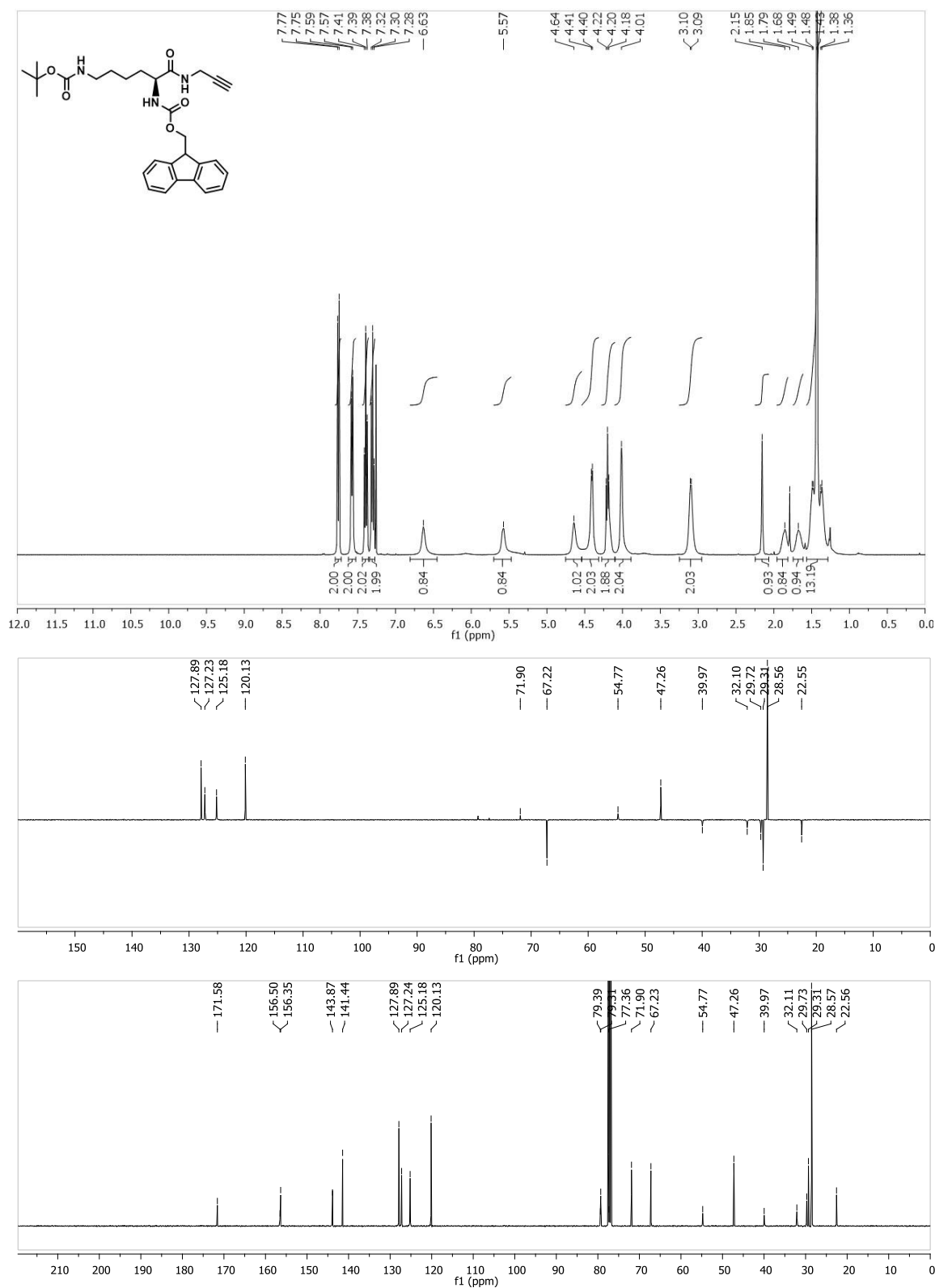


Figure S23: ¹H NMR, ¹³C NMR and DEPT spectra of S1 in CDCl₃.

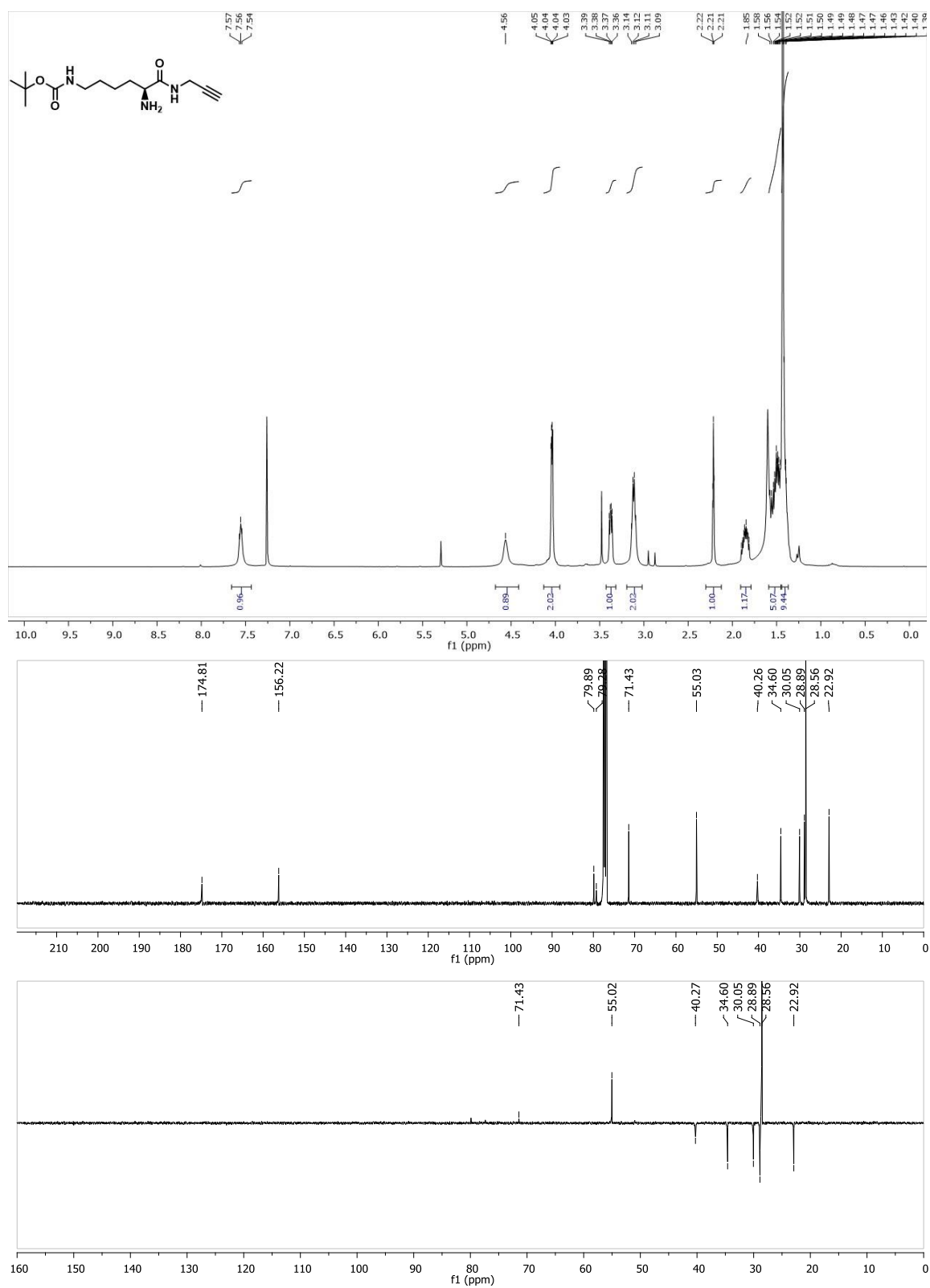


Figure S24: ¹H NMR, ¹³C NMR and DEPT spectra of S2 in CDCl₃.

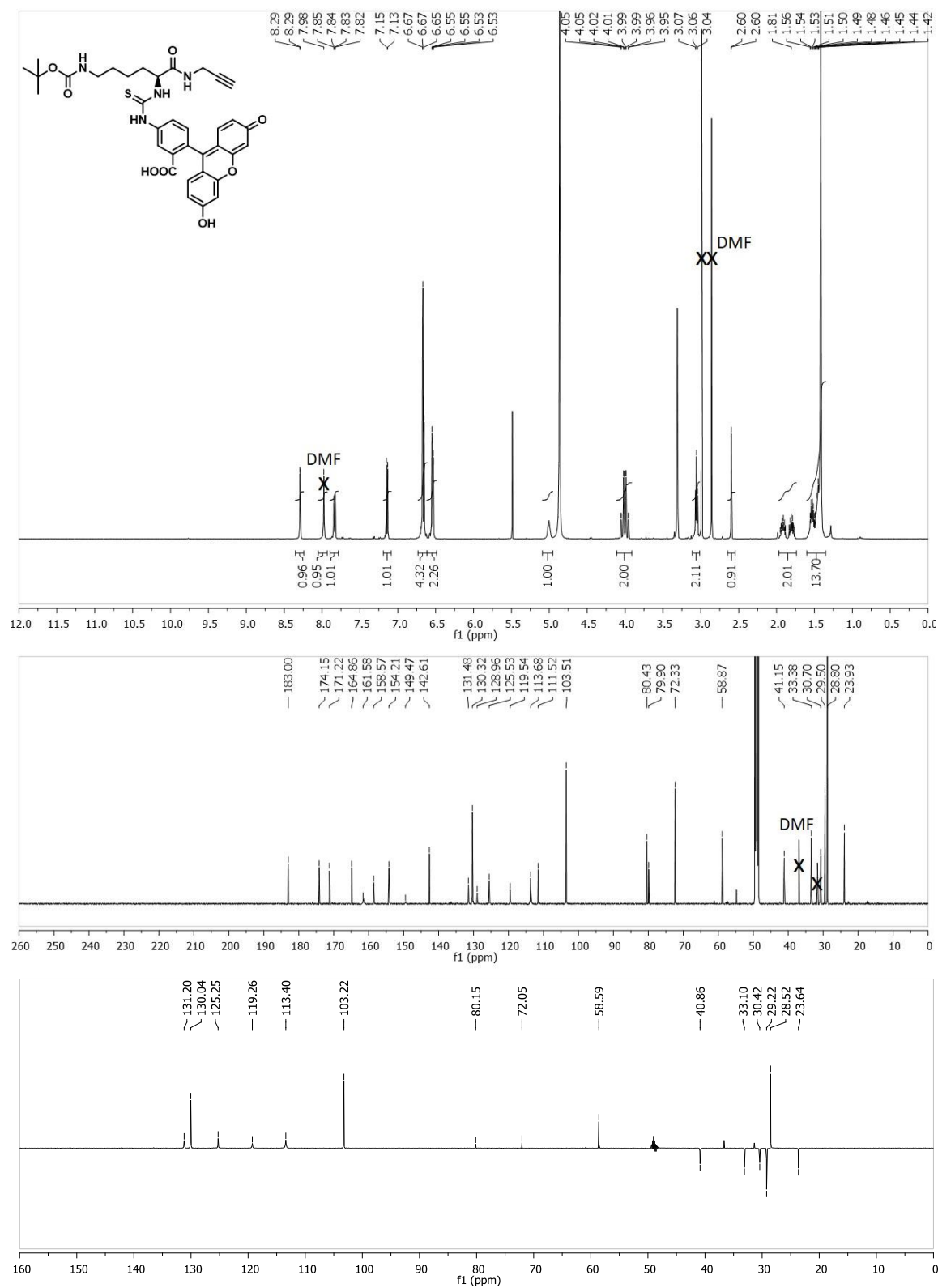


Figure S25: ¹H NMR, ¹³C NMR and DEPT spectra of Boc-PA 7 in CD₃OD

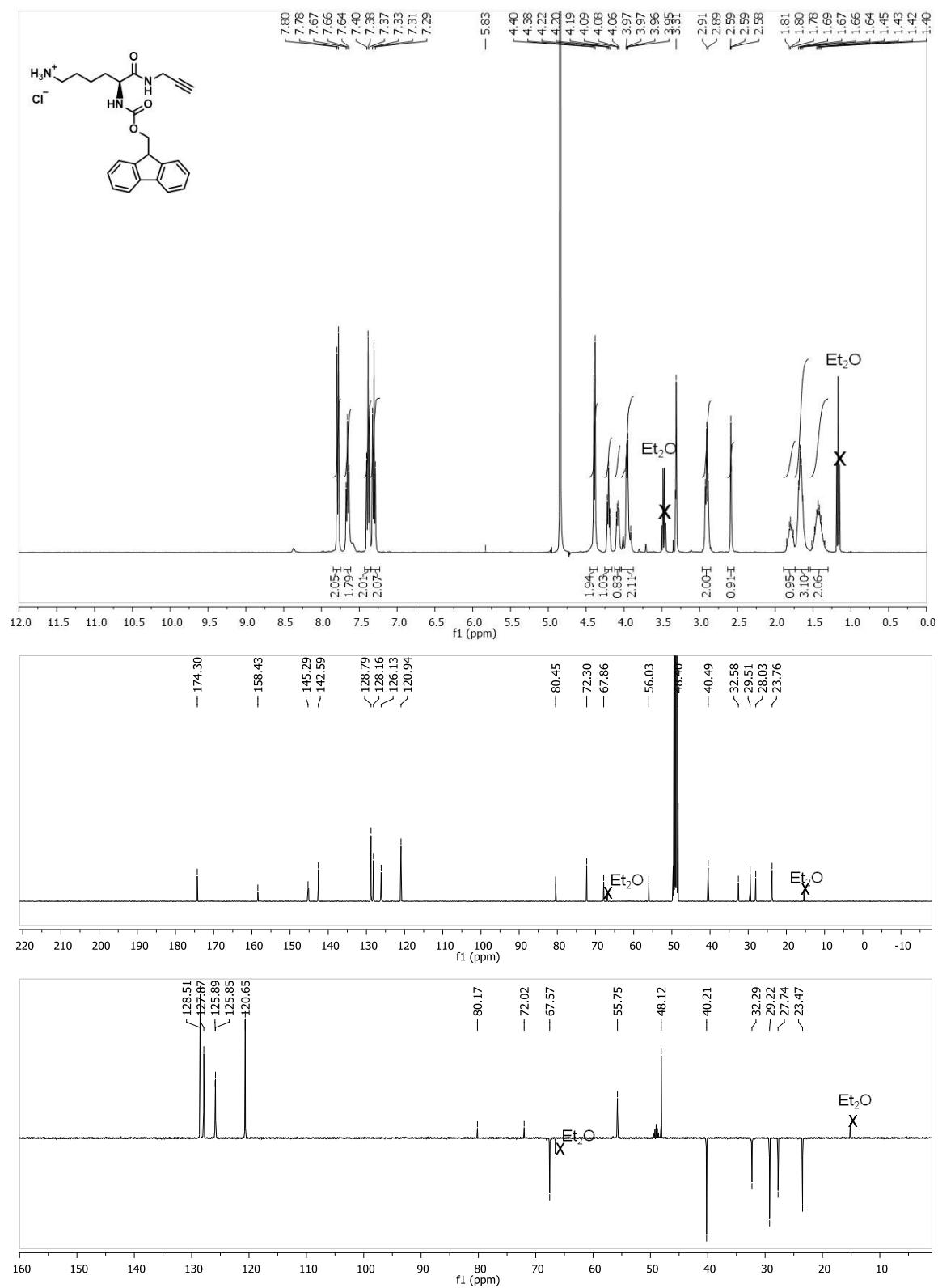


Figure S26: ¹H NMR, ¹³C NMR and DEPT spectra of S3 in CD₃OD.

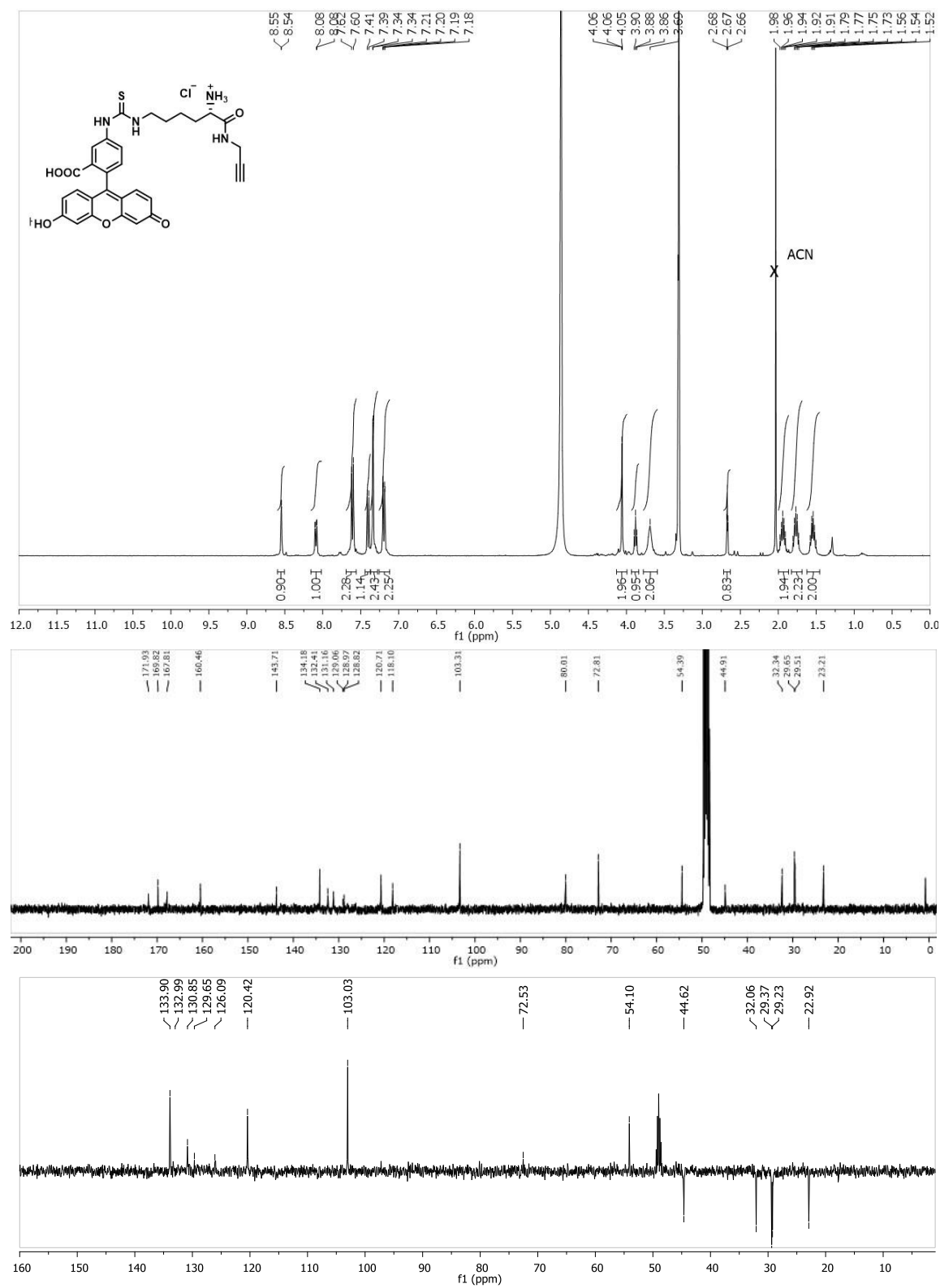


Figure S27: ¹H NMR, ¹³C NMR and DEPT spectra of **S4** in CD₃OD.

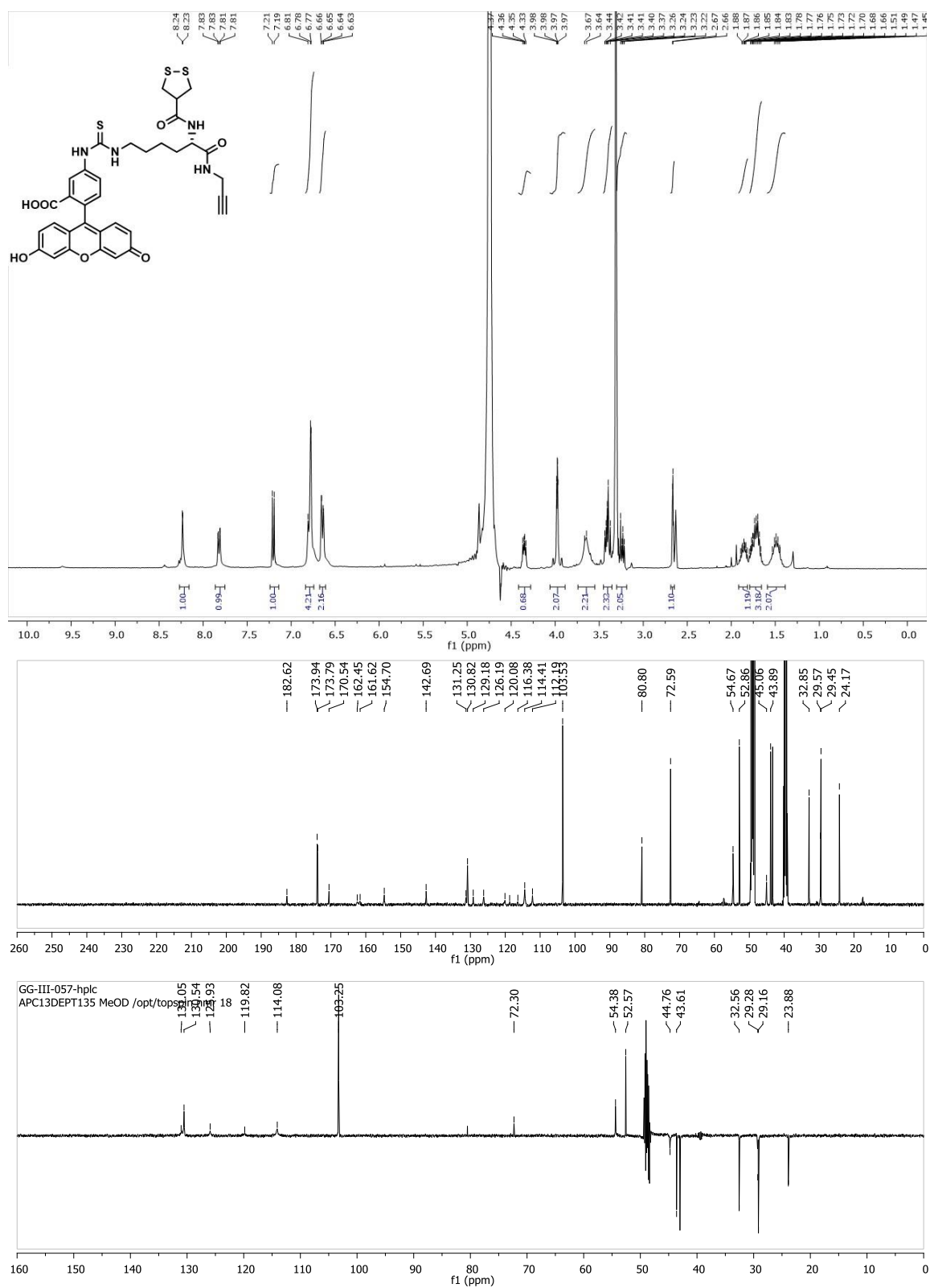


Figure S28: ¹H NMR, ¹³C NMR and DEPT spectra of AA-PA **8** in CD₃OD/DMSO-*d*₆.

References

- (1) Gasparini, G.; Sargsyan, G.; Bang, E. K.; Sakai, N.; Matile, S. *Angew. Chem. Int. Ed.*, **2015**, *54*, 7328.
- (2) Cox, J.; Mann, M. *Nat Biotechnol*, **2008**, *26*, 1367.