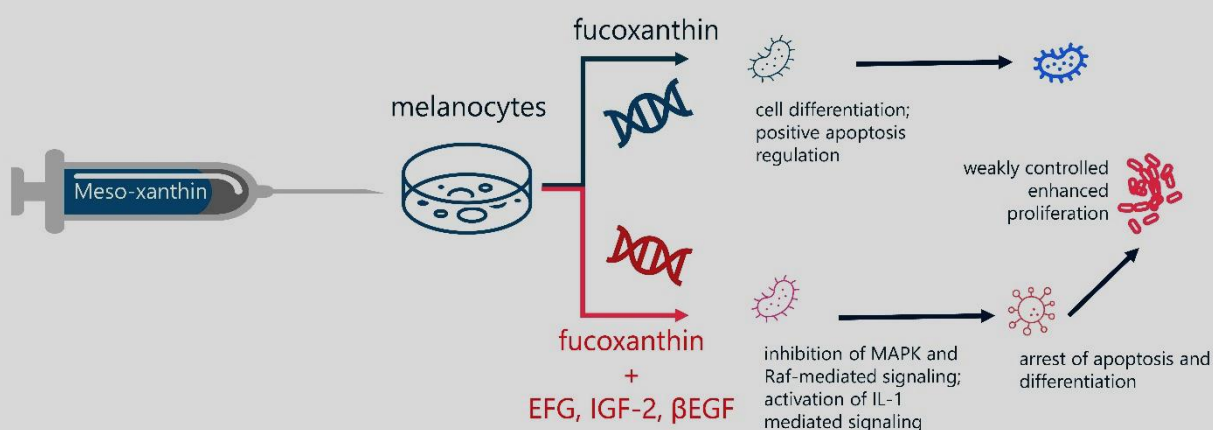


# SUPPLEMENTARY MATERIAL

## SYNERGETIC ACTION OF FUCOXANTHIN AND GROWTH FACTORS



Data are represented as a complete proteome shared between assayed melanocytes cultured in monolayer (M2319) and in spheroids before (Nm01) and after (Am02) exposure to Meso-Xanthin F199™. Data content comprises of assigned genes attribution, proteins characterization according to the obtained proteomic analyzes and table of semi-quantitative distribution of the defined proteins (green color indicates the most abundant; red color indicates the least abundant proteins among analyzed cell cultures; semi-quantitative data are estimated in linear and logarithmic scales). Data availability link (in Mendeley Data Repository): <http://dx.doi.org/10.17632/nmrfymrrn.2>

RELATED TO "MAPK AND NOTCH-MEDIATED EFFECTS OF MESO-XANTHIN F199 COMPOUNDS ON PROLIFERATIVE ACTIVITY AND APOPTOSIS OF HUMAN MELANOCYTES IN THREE-DIMENSIONAL CULTURE".

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**Proteome Difference between 3D melanocytes before (Nm-01) and after (Am-02) exposure to Meso-Xanthin F199**

FOLDS CHANGE, LINEAR scale

| Main Accession | Description                                       | Gene  | Ensembl Gene ID | Chromosome  | GO Accession    | MW [kDa] | NM-01 | AM-02 | p-value  |
|----------------|---|-------|-----------------|-------------|-----------------|----------|-------|-------|----------|
| P31946         | 14-3-3 protein beta/alpha                         | 1433B | ENSG00000166913 | 20          | GO:0006461, GO: | 28.065   | 0.71  | 0.50  | 3.98E-05 |
| P62258         | 14-3-3 protein epsilon                            | 1433E | ENSG00000108953 | 17          | GO:0040011, GO: | 29.155   | 1.03  | 1.14  | 5.67E-04 |
| Q04917         | 14-3-3 protein eta                                | 1433F | ENSG00000128245 | 22          | GO:0009056, GO: | 28.201   | 2.65  | 1.53  | 2.95E-04 |
| P61981         | 14-3-3 protein gamma                              | 1433G | ENSG00000170027 | 7           | GO:0022607, GO: | 28.285   | 1.49  | 1.04  | 2.19E-04 |
| P27348         | 14-3-3 protein theta                              | 1433T | ENSG00000134308 | 2           | GO:0008150, GO: | 27.747   | 1.25  | 0.80  | 3.34E-05 |
| P63104         | 14-3-3 protein zeta/delta                         | 1433Z | ENSG00000164924 | 8           | GO:0022607, GO: | 27.728   | 1.48  | 1.19  | 1.17E-04 |
| P30153         | Serine/threonine-protein phosphatase 2A           | 2AAA  | ENSG00000105568 | 19          | GO:0007010, GO: | 65.267   | 0.92  | 0.70  | 2.36E-04 |
| Q13541         | Eukaryotic translation initiation factor 4E-b     | 4EBP1 | ENSG00000187840 | 8           | GO:0008150, GO: | 12.572   | 2.90  | 3.59  | 2.25E-05 |
| P21589         | 5'-nucleotidase                                   | 5NTD  | ENSG00000135318 | 6           |                 | 63.327   | 2.50  | 4.90  | 2.36E-04 |
| P52209         | 6-phosphogluconate dehydrogenase, decarboxylating | 6PGD  | ENSG00000142657 | 1           |                 | 53.106   | 0.84  | 0.63  | 4.15E-05 |
| P53396         | ATP-citrate synthase                              | ACLY  | ENSG00000131473 | 17          |                 | 120.762  | 0.59  | 0.80  | 9.15E-05 |
| P62736         | Actin, aortic smooth muscle                       | ACTA  | ENSG00000107796 | 10          |                 | 41.982   | 1.84  | 1.92  | 6.04E-05 |
| P60709         | Actin, cytoplasmic 1                              | ACTB  | ENSG00000075624 | 7           | GO:0007010, GO: | 41.710   | 1.13  | 1.09  | 2.18E-04 |
| Q562R1         | Beta-actin-like protein 2                         | ACTBL | ENSG00000169067 | 5           | GO:0008150, GO: | 41.976   | 0.93  | 1.01  | 7.81E-05 |
| P63261         | Actin, cytoplasmic 2                              | ACTG  | ENSG00000184009 | 17          | GO:0007010, GO: | 41.766   | 0.83  | 0.87  | 1.47E-04 |
| P12814         | Alpha-actinin-1                                   | ACTN1 | ENSG00000072110 | 14          |                 | 102.993  | 1.31  | 1.42  | 1.25E-04 |
| O43707         | Alpha-actinin-4                                   | ACTN4 | ENSG00000282844 | CHR_HG26_PA | GO:0007010, GO: | 104.788  | 1.03  | 1.23  | 1.61E-04 |
| P05141         | ADP/ATP translocase 2                             | ADT2  | ENSG00000005022 | X           |                 | 32.831   | 0.31  | 0.76  | 3.27E-03 |
| Q09666         | Neuroblast differentiation-associated protein 1   | AHNK  | ENSG00000124942 | 11          | GO:0008150, GO: | 628.699  | 2.95  | 5.53  | 3.55E-04 |
| P04075         | Fructose-bisphosphate aldolase A                  | ALDOA | ENSG00000149925 | 16          |                 | 39.395   | 0.38  | 0.27  | 1.71E-04 |
| P09972         | Fructose-bisphosphate aldolase C                  | ALDOC | ENSG00000109107 | 17          | GO:0009056, GO: | 39.431   | 0.72  | 0.83  | 5.41E-04 |
| P04083         | Annexin A1  | ANXA1 | ENSG00000135046 | 9           | GO:0016887, GO: | 38.690   | 1.18  | 1.52  | 7.49E-05 |
| P07355         | Annexin A2  | ANXA2 | ENSG00000182718 | 15          |                 | 38.580   | 1.49  | 2.17  | 9.62E-05 |
| P08758         | Annexin A5  | ANXA5 | ENSG00000164111 | 4           | GO:0008150, GO: | 35.914   | 1.00  | 1.13  | 1.14E-03 |
| P08133         | Annexin A6  | ANXA6 | ENSG00000197043 | 5           | GO:0008150, GO: | 75.826   | 1.82  | 1.66  | 4.06E-05 |
| P20073         | Annexin A7  | ANXA7 | ENSG00000138279 | 10          |                 | 52.706   | 3.39  | 1.20  | 3.78E-04 |
| O95782         | AP-2 complex subunit alpha-1                      | AP2A1 | ENSG00000196961 | 19          |                 | 107.478  | 5.14  | 3.59  | 6.05E-04 |
| P27695         | DNA- lyase  | APEX1 | ENSG00000100823 | 14          | GO:0040011, GO: | 35.532   | 0.74  | 0.78  | 6.24E-05 |
| P07741         | Adenine phosphoribosyltransferase                 | APT   | ENSG00000198931 | 16          | GO:0008150, GO: | 19.595   | 2.90  | 1.20  | 1.39E-04 |
| O15143         | Actin-related protein 2/3 complex subunit 1       | ARC1B | ENSG00000130429 | 7           | GO:0008150, GO: | 40.923   | 1.04  | 1.26  | 9.87E-05 |
| P61204         | ADP-ribosylation factor 3                         | ARF3  | ENSG00000134287 | 12          |                 | 20.588   | 0.76  | 0.90  | 1.37E-04 |
| P18085         | ADP-ribosylation factor 4                         | ARF4  | ENSG00000168374 | 3           | GO:0040011, GO: | 20.498   | 1.72  | 2.03  | 2.12E-05 |
| P40616         | ADP-ribosylation factor-like protein 1            | ARL1  | ENSG00000120805 | 12          |                 | 20.404   | 0.39  | 1.20  | 4.06E-05 |
| P61160         | Actin-related protein 2                           | ARP2  | ENSG00000138071 | 2           |                 | 44.732   | 1.74  | 1.02  | 4.67E-05 |
| P61158         | Actin-related protein 3                           | ARP3  | ENSG00000115091 | 2           | GO:0007010, GO: | 47.341   | 1.05  | 1.50  | 2.07E-05 |
| O15144         | Actin-related protein 2/3 complex subunit 2       | ARPC2 | ENSG00000163466 | 2           | GO:0007010, GO: | 34.311   | 4.27  | 1.20  | 1.25E-04 |
| O15145         | Actin-related protein 2/3 complex subunit 3       | ARPC3 | ENSG00000111229 | 12          | GO:0008150, GO: | 20.533   | 2.70  | 1.03  | 1.34E-04 |

|        |  |       |                 |                |    |                 |         |      |      |          |
|--------|--|-------|-----------------|----------------|----|-----------------|---------|------|------|----------|
| P59998 | Actin-related protein 2/3 complex subunit 4        | ARPC4 | ENSG00000241553 |                | 3  |                 | 19.654  | 0.79 | 0.52 | 5.45E-05 |
| Q12797 | Aspartyl/asparaginyl beta-hydroxylase              | ASPH  | ENSG00000198363 |                | 8  |                 | 85.809  | 0.43 | 1.00 | 0.00E+00 |
| P05023 | Sodium/potassium-transporting ATPase subunit alpha | AT1A1 | ENSG00000163399 |                | 1  |                 | 112.824 | 0.50 | 1.36 | 1.79E-04 |
| P25705 | ATP synthase subunit alpha, mitochondrial          | ATPA  |                 |                |    |                 | 59.714  | 0.54 | 0.34 | 2.08E-04 |
| P06576 | ATP synthase subunit beta, mitochondrial           | ATPB  |                 |                |    | GO:0016887, GO: | 56.525  | 0.64 | 0.54 | 8.93E-05 |
| P51572 | B-cell receptor-associated protein 31              | BAP31 | ENSG00000185825 | X              |    |                 | 27.974  | 0.50 | 0.54 | 1.41E-05 |
| P80723 | Brain acid soluble protein 1                       | BASP1 | ENSG00000176788 |                | 5  |                 | 22.680  | 3.46 | 5.35 | 6.45E-05 |
| P11021 | Endoplasmic reticulum chaperone BiP                | BIP   | ENSG00000044574 |                | 9  | GO:0016887, GO: | 72.288  | 0.99 | 1.95 | 2.22E-04 |
| Q07021 | Complement component 1 Q subcomponent 1            | C1QBP | ENSG00000108561 |                | 17 | GO:0040011, GO: | 31.343  | 0.19 | 0.48 | 1.25E-04 |
| P0DP23 | Calmodulin-1                                       | CALM1 | ENSG00000198668 |                | 14 |                 | 16.827  | 0.95 | 1.50 | 2.71E-05 |
| P27797 | Calreticulin                                       | CALR  | ENSG00000179218 |                | 19 | GO:0007010, GO: | 48.112  | 0.68 | 0.72 | 1.10E-04 |
| O43852 | Calumenin  | CALU  | ENSG00000128595 |                | 7  |                 | 37.084  | 1.32 | 2.25 | 1.57E-04 |
| P27824 | Calnexin   | CALX  | ENSG00000283777 | CHR_HG30_PATCH |    |                 | 67.526  | 0.95 | 1.37 | 5.01E-05 |
| P17655 | Calpain-2 catalytic subunit                        | CAN2  | ENSG00000162909 |                | 1  |                 | 79.945  | 1.34 | 0.94 | 2.06E-04 |
| Q01518 | Adenylyl cyclase-associated protein 1              | CAP1  | ENSG00000131236 |                | 1  | GO:0007010, GO: | 51.869  | 1.26 | 1.45 | 2.39E-04 |
| P40121 | Macrophage-capping protein                         | CAPG  | ENSG00000042493 |                | 2  |                 | 38.474  | 2.32 | 1.79 | 4.35E-05 |
| P47756 | F-actin-capping protein subunit beta               | CAPZB | ENSG00000077549 |                | 1  |                 | 31.331  | 1.26 | 1.09 | 1.88E-04 |
| P07858 | Cathepsin B  | CATB  | ENSG00000164733 |                | 8  | GO:0009056, GO: | 37.797  | 0.96 | 0.57 | 1.49E-05 |
| P07339 | Cathepsin D  | CATD  | ENSG00000117984 |                | 11 | GO:0008150, GO: | 44.524  | 1.03 | 0.82 | 8.15E-05 |
| Q03135 | Caveolin-1   | CAV1  | ENSG00000105974 |                | 7  | GO:0022607, GO: | 20.458  | 5.32 | 6.18 | 1.71E-04 |
| Q6NZI2 | Caveolae-associated protein 1                      | CAVN1 | ENSG00000177469 |                | 17 | GO:0008150, GO: | 43.450  | 1.82 | 3.56 | 3.52E-05 |
| P52907 | F-actin-capping protein subunit alpha-1            | CAZA1 | ENSG00000116489 |                | 1  | GO:0008150, GO: | 32.902  | 1.23 | 0.73 | 3.01E-05 |
| P13987 | CD59 glycoprotein                                  | CD59  | ENSG00000085063 |                | 11 |                 | 14.168  | 2.26 | 2.19 | 5.34E-05 |
| Q16543 | Hsp90 co-chaperone Cdc37                           | CDC37 | ENSG00000105401 |                | 19 | GO:0009056, GO: | 44.440  | 1.62 | 1.28 | 1.71E-04 |
| P60953 | Cell division control protein 42 homolog           | CDC42 | ENSG00000070831 |                | 1  | GO:0007010, GO: | 21.245  | 2.14 | 5.78 | 7.20E-05 |
| P10809 | 60 kDa heat shock protein, mitochondrial           | CH60  | ENSG00000144381 |                | 2  | GO:0008283, GO: | 61.016  | 1.47 | 2.08 | 2.05E-05 |
| O75390 | Citrate synthase, mitochondrial                    | CISY  | ENSG00000062485 |                | 12 | GO:0008150, GO: | 51.680  | 0.57 | 0.14 | 6.85E-05 |
| Q07065 | Cytoskeleton-associated protein 4                  | CKAP4 | ENSG00000136026 |                | 12 | GO:0008150, GO: | 65.983  | 0.95 | 0.66 | 3.26E-04 |
| Q00610 | Clathrin heavy chain 1                             | CLH1  | ENSG00000141367 |                | 17 |                 | 191.493 | 0.98 | 0.99 | 1.64E-04 |
| O00299 | Chloride intracellular channel protein 1           | CLIC1 | ENSG00000226248 | CHR_HSCHR6_I   |    | GO:0008150, GO: | 26.906  | 0.85 | 0.97 | 2.04E-04 |
| Q9Y696 | Chloride intracellular channel protein 4           | CLIC4 | ENSG00000169504 |                | 1  | GO:0007010, GO: | 28.754  | 1.57 | 1.00 | 5.50E-05 |
| Q15417 | Calponin-3   | CNN3  | ENSG00000117519 |                | 1  |                 | 36.391  | 0.50 | 1.00 | 3.26E-04 |
| P08123 | Collagen alpha-2 chain                             | CO1A2 | ENSG00000164692 |                | 7  | GO:0009056, GO: | 129.235 | 3.40 | 1.15 | 2.22E-05 |
| P23528 | Cofilin-1  | COF1  | ENSG00000172757 |                | 11 | GO:0009790, GO: | 18.491  | 1.32 | 1.39 | 6.30E-04 |
| P53621 | Coatamer subunit alpha                             | COPA  | ENSG00000122218 |                | 1  |                 | 138.258 | 0.97 | 3.59 | 1.57E-04 |
| P53618 | Coatamer subunit beta                              | COPB  | ENSG00000129083 |                | 11 | GO:0008150, GO: | 107.074 | 1.13 | 0.40 | 2.13E-05 |
| P35606 | Coatamer subunit beta'                             | COPB2 | ENSG00000184432 |                | 3  |                 | 102.422 | 1.03 | 0.87 | 2.22E-05 |
| P48444 | Coatamer subunit delta                             | COPD  | ENSG00000095139 |                | 11 | GO:0008150, GO: | 57.174  | 1.19 | 1.43 | 3.78E-04 |
| Q9Y678 | Coatamer subunit gamma-1                           | COPG1 | ENSG00000181789 |                | 3  | GO:0008150, GO: | 97.655  | 0.53 | 0.82 | 1.75E-04 |
| Q9ULV4 | Coronin-1C   | COR1C | ENSG00000110880 |                | 12 |                 | 53.215  | 1.81 | 0.75 | 1.71E-04 |
| Q14019 | Coactosin-like protein                             | COTL1 | ENSG00000103187 |                | 16 | GO:0008150, GO: | 15.935  | 0.88 | 0.82 | 2.44E-04 |
| P04632 | Calpain small subunit 1                            | CPNS1 | ENSG00000126247 |                | 19 | GO:0008283, GO: | 28.298  | 1.31 | 1.84 | 2.14E-04 |
| P21291 | Cysteine and glycine-rich protein 1                | CSRP1 | ENSG00000159176 |                | 1  | GO:0008150, GO: | 20.554  | 1.01 | 0.55 | 3.17E-05 |
| Q9UJU6 | Drebrin-like protein                               | DBNL  | ENSG00000136279 |                | 7  |                 | 48.178  | 0.82 | 1.10 | 9.87E-05 |

|        |  |       |                 |                      |    |                 |         |      |      |          |
|--------|--|-------|-----------------|----------------------|----|-----------------|---------|------|------|----------|
| Q14203 | Dynactin subunit 1   | DCTN1 | ENSG00000204843 |                      | 2  |                 | 141.607 | 0.64 | 0.20 | 8.15E-05 |
| Q92499 | ATP-dependent RNA helicase DDX1                                | DDX1  | ENSG00000079785 |                      | 2  |                 | 82.380  | 5.08 | 0.60 | 1.78E-04 |
| O00571 | ATP-dependent RNA helicase DDX3X                               | DDX3X | ENSG00000215301 | X                    |    |                 | 73.198  | 0.62 | 1.19 | 2.01E-04 |
| P60981 | Destrin  | DEST  | ENSG00000125868 |                      | 20 | GO:0005623, GO: | 18.493  | 1.90 | 2.74 | 1.04E-03 |
| Q08211 | ATP-dependent RNA helicase A                                   | DHX9  | ENSG00000135829 |                      | 1  | GO:0016887, GO: | 140.869 | 1.06 | 0.98 | 4.15E-05 |
| Q8TF09 | Dynein light chain roadblock-type 2                            | DLRB2 | ENSG00000168589 |                      | 16 |                 | 10.848  | 0.73 | 1.79 | 1.62E-03 |
| Q16555 | Dihydropyrimidinase-related protein 2                          | DPYL2 | ENSG00000092964 |                      | 8  |                 | 62.255  | 1.65 | 0.71 | 9.87E-05 |
| Q16643 | Drebrin  | DREB  | ENSG00000113758 |                      | 5  |                 | 71.385  | 3.36 | 2.19 | 2.25E-05 |
| O00148 | ATP-dependent RNA helicase DDX39A                              | DX39A | ENSG00000123136 |                      | 19 |                 | 49.098  | 0.79 | 0.29 | 6.30E-04 |
| Q14204 | Cytoplasmic dynein 1 heavy chain 1                             | DYHC1 | ENSG00000197102 |                      | 14 | GO:0016887, GO: | 532.072 | 2.27 | 2.59 | 8.52E-05 |
| P68104 | Elongation factor 1-alpha 1                                    | EF1A1 | ENSG00000156508 |                      | 6  |                 | 50.109  | 0.96 | 2.16 | 1.25E-04 |
| P24534 | Elongation factor 1-beta                                       | EF1B  | ENSG00000283391 | CHR_HSCHR2_4         |    | GO:0008150, GO: | 24.748  | 0.77 | 1.71 | 5.67E-05 |
| P29692 | Elongation factor 1-delta                                      | EF1D  | ENSG00000273594 | CHR_HSCHR8_3_CTG7    |    |                 | 31.103  | 1.28 | 1.09 | 1.39E-04 |
| P26641 | Elongation factor 1-gamma                                      | EF1G  | ENSG00000254772 |                      | 11 | GO:0008150, GO: | 50.087  | 1.07 | 1.13 | 6.31E-05 |
| P13639 | Elongation factor 2  | EF2   | ENSG00000167658 |                      | 19 | GO:0008283, GO: | 95.277  | 1.16 | 1.31 | 2.07E-05 |
| Q9NZN4 | EH domain-containing protein 2                                 | EHD2  | ENSG00000024422 |                      | 19 | GO:0061024, GO: | 61.123  | 0.68 | 1.44 | 3.11E-05 |
| Q14152 | Eukaryotic translation initiation factor 3 subunit 1           | EIF3A | ENSG00000107581 |                      | 10 |                 | 166.468 | 1.21 | 1.20 | 5.34E-05 |
| P55884 | Eukaryotic translation initiation factor 3 subunit 2           | EIF3B | ENSG00000106263 |                      | 7  |                 | 92.424  | 1.77 | 1.79 | 3.86E-04 |
| P60228 | Eukaryotic translation initiation factor 3 subunit 3           | EIF3E | ENSG00000104408 |                      | 8  | GO:0008150, GO: | 52.187  | 1.76 | 1.52 | 8.47E-04 |
| Q15370 | Elongin-B  | ELOB  | ENSG00000103363 |                      | 16 |                 | 13.125  | 0.50 | 0.55 | 9.38E-05 |
| P50402 | Emerin   | EMD   | ENSG00000102119 | X                    |    | GO:0008283, GO: | 28.976  | 3.39 | 2.39 | 6.93E-05 |
| P06733 | Alpha-enolase  | ENOA  | ENSG00000074800 |                      | 1  | GO:0009056, GO: | 47.139  | 0.73 | 0.90 | 6.24E-05 |
| P14625 | Endoplasmic reticulum chaperone protein 78                     | ENPL  | ENSG00000166598 |                      | 12 | GO:0007010, GO: | 92.411  | 1.01 | 0.83 | 3.78E-04 |
| Q969X5 | Endoplasmic reticulum-Golgi intermediate compartment protein 1 | ERG11 | ENSG00000113719 |                      | 5  |                 | 32.571  | 1.13 | 0.66 | 1.22E-04 |
| P30040 | Endoplasmic reticulum resident protein 29                      | ERP29 | ENSG00000089248 |                      | 12 | GO:0008150, GO: | 28.975  | 0.77 | 0.78 | 4.15E-05 |
| Q01844 | RNA-binding protein EWS  | EWS   | ENSG00000182944 |                      | 22 |                 | 68.436  | 0.97 | 0.60 | 1.71E-04 |
| P49327 | Fatty acid synthase  | FAS   | ENSG00000169710 |                      | 17 | GO:0016746, GO: | 273.254 | 1.39 | 1.49 | 3.81E-05 |
| P02765 | Alpha-2-HS-glycoprotein  | FETUA | ENSG00000145192 |                      | 3  | GO:0008150, GO: | 39.316  | 1.61 | 0.64 | 1.65E-04 |
| Q9Y3D6 | Mitochondrial fission 1 protein                                | FIS1  | ENSG00000214253 |                      | 7  | GO:0006461, GO: | 16.927  | 0.77 | 1.20 | 4.01E-04 |
| Q96AY3 | Peptidyl-prolyl cis-trans isomerase FKBP1                      | FKB10 | ENSG00000141756 |                      | 17 | GO:0008150, GO: | 64.204  | 0.72 | 1.56 | 6.94E-04 |
| P62942 | Peptidyl-prolyl cis-trans isomerase FKBP1                      | FKB1A | ENSG00000088832 |                      | 20 | GO:0006461, GO: | 11.943  | 0.24 | 0.90 | 2.81E-04 |
| P26885 | Peptidyl-prolyl cis-trans isomerase FKBP2                      | FKBP2 | ENSG00000173486 |                      | 11 | GO:0005623, GO: | 15.639  | 1.45 | 1.20 | 9.07E-05 |
| O95302 | Peptidyl-prolyl cis-trans isomerase FKBP9                      | FKBP9 | ENSG00000122642 |                      | 7  |                 | 63.044  | 1.03 | 0.43 | 4.79E-05 |
| P21333 | Filamin-A  | FLNA  | ENSG00000196924 | X                    |    |                 | 280.564 | 1.01 | 1.54 | 4.51E-04 |
| O75369 | Filamin-B  | FLNB  | ENSG00000136068 |                      | 3  |                 | 277.990 | 1.61 | 1.17 | 6.24E-05 |
| Q14315 | Filamin-C  | FLNC  | ENSG00000128591 |                      | 7  |                 | 290.841 | 0.91 | 1.34 | 3.77E-05 |
| Q16658 | Fascin   | FSCN1 | ENSG00000075618 |                      | 7  | GO:0008283, GO: | 54.496  | 1.03 | 0.88 | 1.04E-04 |
| Q13283 | Ras GTPase-activating protein-binding protein 1                | G3BP1 | ENSG00000145907 |                      | 5  | GO:0016887, GO: | 52.132  | 0.92 | 1.00 | 1.71E-04 |
| P04406 | Glyceraldehyde-3-phosphate dehydrogenase A                     | G3P   | ENSG00000111640 |                      | 12 | GO:0007010, GO: | 36.030  | 1.00 | 1.04 | 6.93E-05 |
| P11413 | Glucose-6-phosphate 1-dehydrogenase                            | G6PD  | ENSG00000160211 | X                    |    |                 | 59.219  | 3.39 | 1.37 | 4.73E-04 |
| P06744 | Glucose-6-phosphate isomerase                                  | G6PI  | ENSG00000282019 | CHR_HSCHR19_2_CTG3_1 |    |                 | 63.107  | 0.68 | 0.81 | 4.30E-04 |
| Q14697 | Neutral alpha-glucosidase AB                                   | GANAB | ENSG00000089597 |                      | 11 |                 | 106.807 | 1.33 | 0.86 | 4.79E-05 |
| P41250 | Glycine--tRNA ligase   | GARS  | ENSG00000106105 |                      | 7  | GO:0008150, GO: | 83.113  | 2.18 | 2.63 | 4.79E-05 |
| P62873 | Guanine nucleotide-binding protein G/G13                       | GGB1  | ENSG00000078369 |                      | 1  |                 | 37.353  | 1.30 | 0.80 | 1.10E-04 |

|        |   |       |                 |                         |    |                 |         |      |      |          |
|--------|---|-------|-----------------|-------------------------|----|-----------------|---------|------|------|----------|
| Q9UBI6 | Guanine nucleotide-binding protein G/G/G      | GBG12 | ENSG00000172380 |                         | 1  | GO:0008150, GO: | 8.001   | 1.29 | 2.73 | 2.00E-04 |
| P50395 | Rab GDP dissociation inhibitor beta           | GDIB  | ENSG00000057608 |                         | 10 | GO:0061024, GO: | 50.631  | 1.19 | 1.29 | 4.45E-05 |
| P52565 | Rho GDP-dissociation inhibitor 1              | GDIR1 | ENSG00000141522 |                         | 17 | GO:0008150, GO: | 23.193  | 1.27 | 0.66 | 4.92E-05 |
| P06396 | Gelsolin                                      | GELS  | ENSG00000148180 |                         | 9  |                 | 85.644  | 0.74 | 0.51 | 1.34E-04 |
| Q04446 | 1,4-alpha-glucan-branching enzyme             | GLGB  | ENSG00000114480 |                         | 3  | GO:0008150, GO: | 80.423  | 0.37 | 0.55 | 8.24E-05 |
| P35754 | Glutaredoxin-1                                | GLRX1 | ENSG00000173221 |                         | 5  | GO:0008150, GO: | 11.768  | 0.28 | 0.17 | 6.45E-05 |
| P14314 | Glucosidase 2 subunit beta                    | GLU2B | ENSG00000130175 |                         | 19 |                 | 59.388  | 0.77 | 0.84 | 4.62E-05 |
| P04899 | Guanine nucleotide-binding protein G sub      | GNAI2 | ENSG00000114353 |                         | 3  |                 | 40.425  | 5.32 | 4.78 | 4.79E-05 |
| P38646 | Stress-70 protein, mitochondrial              | GRP75 | ENSG00000113013 |                         | 5  | GO:0008150, GO: | 73.635  | 0.92 | 0.79 | 4.25E-05 |
| P78417 | Glutathione S-transferase omega-1             | GSTO1 | ENSG00000148834 |                         | 10 |                 | 27.548  | 1.25 | 1.20 | 7.49E-05 |
| P09211 | Glutathione S-transferase P                   | GSTP1 | ENSG00000084207 |                         | 11 | GO:0008283, GO: | 23.341  | 0.68 | 0.69 | 6.19E-04 |
| Q8NBJ5 | Procollagen galactosyltransferase 1           | GT251 | ENSG00000130309 |                         | 19 | GO:0005623, GO: | 71.590  | 1.36 | 1.43 | 1.57E-04 |
| P16401 | Histone H1.5                                  | H15   | ENSG00000184357 |                         | 6  | GO:0008150, GO: | 22.566  | 0.85 | 0.68 | 2.72E-04 |
| P04908 | Histone H2A type 1-B/E                        | H2A1B | ENSG00000278463 |                         | 6  |                 | 14.127  | 1.23 | 0.10 | 2.70E-04 |
| O60814 | Histone H2B type 1-K                          | H2B1K | ENSG00000197903 |                         | 6  |                 | 13.882  | 0.79 | 0.73 | 4.67E-05 |
| P68431 | Histone H3.1                                  | H31   | ENSG00000275714 |                         | 6  |                 | 15.394  | 0.17 | 0.21 | 1.13E-04 |
| P62805 | Histone H4                                    | H4    | ENSG00000278637 |                         | 6  | GO:0006461, GO: | 11.360  | 0.98 | 1.18 | 1.02E-03 |
| Q9NRV9 | Heme-binding protein 1                        | HEBP1 | ENSG00000013583 |                         | 12 | GO:0008150, GO: | 21.084  | 0.41 | 0.35 | 2.63E-05 |
| P09429 | High mobility group protein B1                | HMGB1 | ENSG00000189403 |                         | 13 |                 | 24.878  | 1.11 | 0.69 | 1.69E-03 |
| O14979 | Heterogeneous nuclear ribonucleoprotein       | HNRDL | ENSG00000152795 |                         | 4  |                 | 46.409  | 0.78 | 0.58 | 2.87E-05 |
| P31943 | Heterogeneous nuclear ribonucleoprotein       | HNRH1 | ENSG00000169045 |                         | 5  | GO:0008150, GO: | 49.198  | 0.68 | 2.21 | 3.28E-05 |
| P55795 | Heterogeneous nuclear ribonucleoprotein       | HNRH2 | ENSG00000126945 | X                       |    | GO:0008150, GO: | 49.232  | 0.37 | 0.31 | 3.29E-04 |
| P07910 | Heterogeneous nuclear ribonucleoproteins      | HNRPC | ENSG00000092199 |                         | 14 |                 | 33.650  | 0.98 | 0.62 | 8.52E-04 |
| P61978 | Heterogeneous nuclear ribonucleoprotein       | HNRPK | ENSG00000165119 |                         | 9  |                 | 50.944  | 0.64 | 0.41 | 3.15E-04 |
| P14866 | Heterogeneous nuclear ribonucleoprotein       | HNRPL | ENSG00000282947 | CHR_HG26_PA1            |    | GO:0008150, GO: | 64.092  | 0.84 | 0.43 | 4.92E-05 |
| P52272 | Heterogeneous nuclear ribonucleoprotein       | HNRPM | ENSG00000099783 |                         | 19 |                 | 77.464  | 2.62 | 1.45 | 1.45E-04 |
| O60506 | Heterogeneous nuclear ribonucleoprotein       | HNRPQ | ENSG00000135316 |                         | 6  |                 | 69.560  | 1.13 | 0.91 | 7.70E-04 |
| Q00839 | Heterogeneous nuclear ribonucleoprotein       | HNRPU | ENSG00000153187 |                         | 1  |                 | 90.528  | 0.91 | 0.50 | 5.16E-04 |
| P0DMV8 | Heat shock 70 kDa protein 1A                  | HS71A | ENSG00000235941 | CHR_HSCHR6_MHC_APD_CTG1 |    |                 | 70.009  | 0.94 | 0.87 | 4.35E-05 |
| P07900 | Heat shock protein HSP 90-alpha               | HS90A | ENSG00000080824 |                         | 14 |                 | 84.607  | 0.52 | 0.60 | 8.83E-04 |
| P08238 | Heat shock protein HSP 90-beta                | HS90B | ENSG00000096384 |                         | 6  | GO:0009056, GO: | 83.212  | 0.57 | 0.68 | 3.15E-04 |
| P34932 | Heat shock 70 kDa protein 4                   | HSP74 | ENSG00000170606 |                         | 5  | GO:0008150, GO: | 94.271  | 1.25 | 0.90 | 2.68E-05 |
| P11142 | Heat shock cognate 71 kDa protein             | HSP7C | ENSG00000109971 |                         | 11 | GO:0016887, GO: | 70.854  | 0.73 | 0.98 | 3.89E-05 |
| P04792 | Heat shock protein beta-1                     | HSPB1 | ENSG00000106211 |                         | 7  | GO:0009056, GO: | 22.768  | 1.48 | 2.34 | 6.57E-04 |
| P05198 | Eukaryotic translation initiation factor 2 su | IF2A  | ENSG00000134001 |                         | 14 | GO:0008150, GO: | 36.089  | 0.48 | 0.30 | 6.33E-03 |
| P60842 | Eukaryotic initiation factor 4A-I             | IF4A1 | ENSG00000161960 |                         | 17 | GO:0016887, GO: | 46.125  | 0.60 | 0.69 | 3.04E-04 |
| Q04637 | Eukaryotic translation initiation factor 4 ga | IF4G1 | ENSG00000114867 |                         | 3  |                 | 175.382 | 5.20 | 8.31 | 5.64E-07 |
| Q15056 | Eukaryotic translation initiation factor 4H   | IF4H  | ENSG00000106682 |                         | 7  |                 | 27.368  | 1.06 | 1.04 | 2.29E-05 |
| P63241 | Eukaryotic translation initiation factor 5A-1 | IF5A1 | ENSG00000132507 |                         | 17 |                 | 16.821  | 1.02 | 1.57 | 1.33E-04 |
| Q12906 | Interleukin enhancer-binding factor 3         | ILF3  | ENSG00000129351 |                         | 19 |                 | 95.279  | 0.38 | 0.78 | 1.06E-04 |
| Q14974 | Importin subunit beta-1                       | IMB1  | ENSG00000108424 |                         | 17 | GO:0007010, GO: | 97.108  | 1.50 | 1.52 | 0.00E+00 |
| O00410 | Importin-5                                    | IPO5  | ENSG00000065150 |                         | 13 |                 | 123.550 | 1.42 | 0.95 | 2.70E-04 |
| Q15181 | Inorganic pyrophosphatase                     | IPYR  | ENSG00000180817 |                         | 10 | GO:0008150, GO: | 32.639  | 1.76 | 1.25 | 1.10E-04 |
| P46940 | Ras GTPase-activating-like protein IQGA       | IQGA1 | ENSG00000140575 |                         | 15 | GO:0040011, GO: | 189.134 | 2.33 | 2.68 | 3.34E-04 |

|        |   |       |                 |   |    |                 |         |      |      |          |
|--------|---|-------|-----------------|---|----|-----------------|---------|------|------|----------|
| P05556 | Integrin beta-1                                     | ITB1  | ENSG00000150093 |   | 10 | GO:0009790, GO: | 88.357  | 1.93 | 1.79 | 5.52E-04 |
| P00568 | Adenylate kinase isoenzyme 1                        | KAD1  | ENSG00000106992 |   | 9  | GO:0008150, GO: | 21.621  | 2.26 | 1.33 | 1.78E-04 |
| P54819 | Adenylate kinase 2, mitochondrial                   | KAD2  | ENSG00000004455 |   | 1  |                 | 26.461  | 0.74 | 1.08 | 2.14E-05 |
| P30085 | UMP-CMP kinase                                      | KCY   | ENSG00000162368 |   | 1  |                 | 22.208  | 0.85 | 0.97 | 1.71E-04 |
| Q07866 | Kinesin light chain 1                               | KLC1  | ENSG00000126214 |   | 14 |                 | 65.269  | 1.16 | 2.69 | 3.17E-05 |
| P14618 | Pyruvate kinase PKM                                 | KPYM  | ENSG00000067225 |   | 15 |                 | 57.900  | 0.83 | 0.42 | 9.51E-06 |
| P11279 | Lysosome-associated membrane glycoprotein 1         | LAMP1 | ENSG00000185896 |   | 13 |                 | 44.854  | 1.98 | 0.98 | 1.19E-04 |
| P13473 | Lysosome-associated membrane glycoprotein 2         | LAMP2 | ENSG00000005893 | X |    |                 | 44.932  | 1.29 | 0.89 | 4.30E-05 |
| P00338 | L-lactate dehydrogenase A chain                     | LDHA  | ENSG00000134333 |   | 11 |                 | 36.665  | 0.88 | 0.41 | 1.21E-04 |
| P07195 | L-lactate dehydrogenase B chain                     | LDHB  | ENSG00000111716 |   | 12 | GO:0008150, GO: | 36.615  | 0.85 | 0.40 | 8.15E-05 |
| P09382 | Galectin-1  | LEG1  | ENSG00000100097 |   | 22 | GO:0006464, GO: | 14.706  | 1.53 | 1.10 | 6.63E-04 |
| Q04760 | Lactoylglutathione lyase                            | LGUL  | ENSG00000124767 |   | 6  |                 | 20.764  | 1.42 | 0.28 | 2.81E-04 |
| P02545 | Prelamin-A/C  | LMNA  | ENSG00000160789 |   | 1  |                 | 74.095  | 1.75 | 0.92 | 2.16E-04 |
| Q96AG4 | Leucine-rich repeat-containing protein 59           | LRC59 | ENSG00000108829 |   | 17 | GO:0005635, GO: | 34.909  | 1.07 | 1.70 | 2.97E-05 |
| O43504 | Ragulator complex protein LAMTOR5                   | LTOR5 | ENSG00000134248 |   | 1  | GO:0008150, GO: | 9.608   | 0.64 | 1.59 | 9.54E-05 |
| P46821 | Microtubule-associated protein 1B                   | MAP1B | ENSG00000131711 |   | 5  | GO:0008150, GO: | 270.468 | 5.63 | 4.32 | 8.93E-05 |
| P27816 | Microtubule-associated protein 4                    | MAP4  | ENSG00000047849 |   | 3  |                 | 120.930 | 1.20 | 0.65 | 6.01E-04 |
| P29966 | Myristoylated alanine-rich C-kinase substrate       | MARCS | ENSG00000277443 |   | 6  | GO:0008150, GO: | 31.536  | 0.79 | 0.54 | 1.19E-05 |
| P43243 | Matrin-3  | MATR3 | ENSG00000015479 |   | 5  | GO:0005635, GO: | 94.565  | 0.53 | 0.33 | 4.15E-05 |
| P40925 | Malate dehydrogenase, cytoplasmic                   | MDHC  | ENSG00000014641 |   | 2  |                 | 36.403  | 0.88 | 0.69 | 1.04E-04 |
| P40926 | Malate dehydrogenase, mitochondrial                 | MDHM  | ENSG00000146701 |   | 7  | GO:0008150, GO: | 35.481  | 0.58 | 0.58 | 3.81E-05 |
| P14174 | Macrophage migration inhibitory factor              | MIF   | ENSG00000240972 |   | 22 | GO:0008283, GO: | 12.468  | 0.54 | 0.22 | 5.87E-04 |
| P19105 | Myosin regulatory light chain 12A                   | ML12A | ENSG00000101608 |   | 18 | GO:0008150, GO: | 19.781  | 1.53 | 1.57 | 5.30E-04 |
| O14950 | Myosin regulatory light chain 12B                   | ML12B | ENSG00000118680 |   | 18 | GO:0008150, GO: | 19.767  | 1.32 | 1.37 | 1.34E-04 |
| P26038 | Moesin  | MOES  | ENSG00000147065 | X |    | GO:0008283, GO: | 67.778  | 0.74 | 0.90 | 1.50E-04 |
| Q00325 | Phosphate carrier protein, mitochondrial            | MPCP  | ENSG00000075415 |   | 12 |                 | 40.069  | 0.79 | 0.30 | 8.93E-05 |
| Q14764 | Major vault protein                                 | MVP   | ENSG00000013364 |   | 16 | GO:0008150, GO: | 99.266  | 0.72 | 0.56 | 1.39E-04 |
| Q969H8 | Myeloid-derived growth factor                       | MYDGF | ENSG00000074842 |   | 19 | GO:0008283, GO: | 18.783  | 0.69 | 1.71 | 9.93E-04 |
| P35580 | Myosin-10   | MYH10 | ENSG00000133026 |   | 17 |                 | 228.858 | 1.76 | 0.93 | 2.83E-05 |
| Q7Z406 | Myosin-14   | MYH14 | ENSG00000105357 |   | 19 |                 | 227.732 | 1.51 | 0.92 | 2.05E-04 |
| P35579 | Myosin-9  | MYH9  | ENSG00000100345 |   | 22 | GO:0016887, GO: | 226.392 | 1.29 | 0.92 | 1.28E-04 |
| P60660 | Myosin light polypeptide 6                          | MYL6  | ENSG00000092841 |   | 12 |                 | 16.919  | 1.49 | 1.29 | 2.17E-04 |
| O00159 | Unconventional myosin-Ic                            | MYO1C | ENSG00000197879 |   | 17 |                 | 121.606 | 2.18 | 1.49 | 5.67E-04 |
| E9PAV3 | Nascent polypeptide-associated complex              | NACAM | ENSG00000196531 |   | 12 |                 | 205.295 | 1.93 | 1.79 | 2.60E-04 |
| P43490 | Nicotinamide phosphoribosyltransferase              | NAMPT | ENSG00000105835 |   | 7  | GO:0008283, GO: | 55.487  | 0.62 | 0.11 | 1.57E-04 |
| P00387 | NADH-cytochrome b5 reductase 3                      | NB5R3 | ENSG00000100243 |   | 22 |                 | 34.213  | 3.25 | 3.92 | 9.38E-05 |
| P15531 | Nucleoside diphosphate kinase A                     | NDKA  | ENSG00000239672 |   | 17 |                 | 17.138  | 3.08 | 1.32 | 1.66E-04 |
| P22392 | Nucleoside diphosphate kinase B                     | NDKB  | ENSG00000243678 |   | 17 |                 | 17.287  | 2.76 | 2.40 | 4.06E-04 |
| Q92597 | Protein NDRG1                                       | NDRG1 | ENSG00000104419 |   | 8  | GO:0008283, GO: | 42.808  | 3.87 | 3.59 | 1.62E-03 |
| P40261 | Nicotinamide N-methyltransferase                    | NNMT  | ENSG00000166741 |   | 11 | GO:0008150, GO: | 29.555  | 0.55 | 0.64 | 1.49E-04 |
| Q15233 | Non-POU domain-containing octamer-binding protein 1 | NONO  | ENSG00000147140 | X |    | GO:0008150, GO: | 54.197  | 0.54 | 0.56 | 2.70E-04 |
| P55209 | Nucleosome assembly protein 1-like 1                | NP1L1 | ENSG00000187109 |   | 12 |                 | 45.346  | 1.81 | 1.83 | 1.77E-04 |
| P06748 | Nucleophosmin                                       | NPM   | ENSG00000181163 |   | 5  |                 | 32.555  | 1.50 | 1.69 | 2.98E-04 |
| P61970 | Nuclear transport factor 2                          | NTF2  | ENSG00000102898 |   | 16 | GO:0008150, GO: | 14.469  | 0.31 | 0.33 | 5.42E-05 |

|        |  |       |                 |                  |    |                 |         |      |      |          |
|--------|--|-------|-----------------|------------------|----|-----------------|---------|------|------|----------|
| P19338 | Nucleolin                                  | NUCL  | ENSG00000115053 |                  | 2  | GO:0008150, GO: | 76.568  | 0.51 | 0.55 | 6.86E-04 |
| P04181 | Ornithine aminotransferase, mitochondrial  | OAT   | ENSG00000065154 |                  | 10 | GO:0008150, GO: | 48.504  | 0.52 | 0.59 | 2.03E-05 |
| P39656 | Dolichyl-diphosphooligosaccharide--protein | OST48 | ENSG00000244038 |                  | 1  |                 | 50.769  | 1.38 | 0.51 | 3.46E-05 |
| Q32P28 | Prolyl 3-hydroxylase 1                     | P3H1  | ENSG00000117385 |                  | 1  |                 | 83.341  | 0.40 | 0.90 | 6.69E-05 |
| P13674 | Prolyl 4-hydroxylase subunit alpha-1       | P4HA1 | ENSG00000122884 |                  | 10 |                 | 61.011  | 0.61 | 0.29 | 1.17E-04 |
| Q9UQ80 | Proliferation-associated protein 2G4       | PA2G4 | ENSG00000170515 |                  | 12 |                 | 43.759  | 0.97 | 1.49 | 1.04E-04 |
| P05120 | Plasminogen activator inhibitor 2          | PAI2  | ENSG00000197632 |                  | 18 | GO:0008150, GO: | 46.566  | 0.71 | 0.94 | 2.36E-04 |
| Q99497 | Protein/nucleic acid deglycase DJ-1        | PARK7 | ENSG00000116288 |                  | 1  | GO:0006461, GO: | 19.878  | 0.64 | 0.95 | 2.60E-04 |
| P49023 | Paxillin                                   | PAXI  | ENSG00000089159 |                  | 12 |                 | 64.464  | 2.26 | 0.80 | 4.25E-05 |
| Q15365 | Poly-binding protein 1                     | PCBP1 | ENSG00000169564 |                  | 2  |                 | 37.474  | 5.37 | 0.80 | 7.42E-05 |
| P07237 | Protein disulfide-isomerase                | PDIA1 | ENSG00000185624 |                  | 17 | GO:0022607, GO: | 57.081  | 1.87 | 1.88 | 9.38E-05 |
| P30101 | Protein disulfide-isomerase A3             | PDIA3 | ENSG00000167004 |                  | 15 | GO:0005576, GO: | 56.747  | 0.60 | 0.70 | 1.88E-04 |
| P13667 | Protein disulfide-isomerase A4             | PDIA4 | ENSG00000155660 |                  | 7  | GO:0008150, GO: | 72.887  | 0.29 | 0.44 | 3.66E-05 |
| Q15084 | Protein disulfide-isomerase A6             | PDIA6 | ENSG00000143870 |                  | 2  |                 | 48.091  | 0.88 | 1.05 | 2.33E-05 |
| Q15121 | Astrocytic phosphoprotein PEA-15           | PEA15 | ENSG00000162734 |                  | 1  |                 | 15.031  | 0.29 | 0.32 | 1.14E-04 |
| P30086 | Phosphatidylethanolamine-binding protein   | PEBP1 | ENSG00000089220 |                  | 12 | GO:0008150, GO: | 21.044  | 0.74 | 0.54 | 1.50E-05 |
| Q01813 | ATP-dependent 6-phosphofructokinase, p     | PFKAP | ENSG00000067057 |                  | 10 |                 | 85.542  | 1.13 | 0.60 | 4.40E-05 |
| P18669 | Phosphoglycerate mutase 1                  | PGAM1 | ENSG00000171314 |                  | 10 | GO:0019748, GO: | 28.786  | 1.61 | 1.74 | 2.80E-04 |
| P00558 | Phosphoglycerate kinase 1                  | PGK1  | ENSG00000102144 | X                |    |                 | 44.586  | 0.87 | 0.90 | 1.57E-04 |
| P36871 | Phosphoglucomutase-1                       | PGM1  | ENSG00000079739 |                  | 1  | GO:0008150, GO: | 61.411  | 1.59 | 0.81 | 7.81E-05 |
| O00264 | Membrane-associated progesterone recep     | PGRC1 | ENSG00000101856 | X                |    | GO:0008150, GO: | 21.658  | 0.83 | 1.10 | 2.48E-04 |
| P35232 | Prohibitin                                 | PHB   | ENSG00000167085 |                  | 17 |                 | 29.786  | 0.60 | 0.30 | 3.17E-05 |
| Q99623 | Prohibitin-2                               | PHB2  | ENSG00000215021 |                  | 12 |                 | 33.276  | 0.42 | 0.63 | 7.20E-05 |
| Q9NRX4 | 14 kDa phosphohistidine phosphatase        | PHP14 | ENSG00000054148 |                  | 9  |                 | 13.824  | 0.97 | 0.45 | 1.25E-04 |
| Q15149 | Plectin                                    | PLEC  | ENSG00000178209 |                  | 8  |                 | 531.466 | 0.20 | 0.40 | 2.05E-04 |
| O60664 | Perilipin-3                                | PLIN3 | ENSG00000105355 |                  | 19 |                 | 47.046  | 0.68 | 0.46 | 2.70E-04 |
| O00469 | Procollagen-lysine,2-oxoglutarate 5-dioxyg | PLOD2 | ENSG00000152952 |                  | 3  | GO:0008150, GO: | 84.632  | 0.60 | 0.33 | 1.57E-04 |
| P13797 | Plastin-3                                  | PLST  | ENSG00000102024 | X                |    |                 | 70.766  | 0.94 | 1.18 | 6.69E-05 |
| P62937 | Peptidyl-prolyl cis-trans isomerase A      | PPIA  | ENSG00000196262 |                  | 7  | GO:0040011, GO: | 18.001  | 0.62 | 0.61 | 2.36E-04 |
| P23284 | Peptidyl-prolyl cis-trans isomerase B      | PPIB  | ENSG00000166794 |                  | 15 | GO:0008150, GO: | 23.728  | 0.55 | 0.54 | 3.15E-04 |
| O75915 | PRA1 family protein 3                      | PRAF3 | ENSG00000144746 |                  | 3  | GO:0008150, GO: | 21.600  | 1.45 | 1.20 | 1.21E-04 |
| Q06830 | Peroxiredoxin-1                            | PRDX1 | ENSG00000117450 |                  | 1  | GO:0008283, GO: | 22.096  | 1.17 | 0.71 | 1.50E-04 |
| P32119 | Peroxiredoxin-2                            | PRDX2 | ENSG00000167815 |                  | 19 | GO:0008150, GO: | 21.878  | 0.89 | 0.53 | 2.52E-04 |
| P30041 | Peroxiredoxin-6                            | PRDX6 | ENSG00000117592 |                  | 1  | GO:0008150, GO: | 25.019  | 0.80 | 0.82 | 2.09E-04 |
| P78527 | DNA-dependent protein kinase catalytic su  | PRKDC | ENSG00000253729 |                  | 8  |                 | 468.788 | 2.67 | 1.06 | 7.53E-04 |
| P07737 | Profilin-1                                 | PROF1 | ENSG00000108518 |                  | 17 | GO:0009790, GO: | 15.045  | 0.62 | 0.95 | 5.19E-05 |
| P17980 | 26S proteasome regulatory subunit 6A       | PRS6A | ENSG00000165916 |                  | 11 | GO:0016887, GO: | 49.172  | 0.48 | 2.39 | 1.38E-04 |
| P43686 | 26S proteasome regulatory subunit 6B       | PRS6B | ENSG00000281221 | CHR_HG2021_PATCH |    |                 | 47.337  | 1.45 | 2.99 | 5.50E-05 |
| P35998 | 26S proteasome regulatory subunit 7        | PRS7  | ENSG00000161057 |                  | 7  |                 | 48.603  | 1.17 | 1.54 | 3.22E-05 |
| P62195 | 26S proteasome regulatory subunit 8        | PRS8  | ENSG00000087191 |                  | 17 |                 | 45.597  | 0.48 | 0.30 | 2.12E-05 |
| P55786 | Puromycin-sensitive aminopeptidase         | PSA   | ENSG00000141279 |                  | 17 |                 | 103.211 | 1.07 | 0.80 | 0.00E+00 |
| O14818 | Proteasome subunit alpha type-7            | PSA7  | ENSG00000101182 |                  | 20 |                 | 27.870  | 0.35 | 0.21 | 3.74E-05 |
| P20618 | Proteasome subunit beta type-1             | PSB1  | ENSG00000281184 | CHR_HSCHR6_      |    | GO:0009056, GO: | 26.472  | 0.57 | 0.42 | 3.28E-05 |
| Q9UNM6 | 26S proteasome non-ATPase regulatory s     | PSD13 | ENSG00000185627 |                  | 11 |                 | 42.918  | 2.13 | 1.91 | 1.57E-05 |

|        |  |       |                 |             |    |                 |         |      |      |          |
|--------|--|-------|-----------------|-------------|----|-----------------|---------|------|------|----------|
| Q13200 | 26S proteasome non-ATPase regulatory s   | PSMD2 | ENSG00000175166 |             | 3  | GO:0009056, GO: | 100.136 | 2.19 | 1.37 | 2.46E-04 |
| Q06323 | Proteasome activator complex subunit 1   | PSME1 | ENSG00000092010 |             | 14 |                 | 28.705  | 0.38 | 0.12 | 9.38E-05 |
| Q9UL46 | Proteasome activator complex subunit 2   | PSME2 | ENSG00000100911 |             | 14 | GO:0009056, GO: | 27.384  | 0.74 | 0.83 | 2.70E-04 |
| P26599 | Polypyrimidine tract-binding protein 1   | PTBP1 | ENSG00000011304 |             | 19 |                 | 57.186  | 0.64 | 0.70 | 2.63E-05 |
| Q16647 | Prostacyclin synthase                    | PTGIS | ENSG00000124212 |             | 20 | GO:0048856, GO: | 57.068  | 0.66 | 0.36 | 2.36E-04 |
| P06454 | Prothymosin alpha                        | PTMA  | ENSG00000187514 |             | 2  |                 | 12.196  | 1.00 | 0.74 | 9.38E-05 |
| P20962 | Parathymosin                             | PTMS  | ENSG00000159335 |             | 12 | GO:0005634, GO: | 11.523  | 0.55 | 0.34 | 1.14E-04 |
| P61026 | Ras-related protein Rab-10               | RAB10 | ENSG00000084733 |             | 2  | GO:0008283, GO: | 22.527  | 1.01 | 2.30 | 5.97E-03 |
| P62820 | Ras-related protein Rab-1A               | RAB1A | ENSG00000138069 |             | 2  |                 | 22.663  | 0.60 | 0.44 | 1.75E-03 |
| P61019 | Ras-related protein Rab-2A               | RAB2A | ENSG00000104388 |             | 8  |                 | 23.531  | 1.19 | 1.88 | 9.87E-05 |
| P51148 | Ras-related protein Rab-5C               | RAB5C | ENSG00000108774 |             | 17 |                 | 23.468  | 1.34 | 0.41 | 6.30E-06 |
| P51149 | Ras-related protein Rab-7a               | RAB7A | ENSG00000075785 |             | 3  | GO:0009056, GO: | 23.475  | 0.85 | 0.90 | 6.17E-05 |
| P63244 | Receptor of activated protein C kinase 1 | RACK1 | ENSG00000204628 |             | 5  | GO:0009790, GO: | 35.055  | 2.66 | 1.44 | 1.10E-04 |
| P62826 | GTP-binding nuclear protein Ran          | RAN   | ENSG00000132341 |             | 12 | GO:0007010, GO: | 24.408  | 1.57 | 2.24 | 5.67E-04 |
| P61224 | Ras-related protein Rap-1b               | RAP1B | ENSG00000127314 |             | 12 |                 | 20.812  | 7.98 | 1.20 | 2.36E-04 |
| P62491 | Ras-related protein Rab-11A              | RB11A | ENSG00000103769 |             | 15 | GO:0007010, GO: | 24.378  | 0.73 | 0.90 | 3.78E-04 |
| Q15293 | Reticulocalbin-1                         | RCN1  | ENSG00000049449 |             | 11 | GO:0009790, GO: | 38.866  | 0.42 | 0.64 | 5.50E-05 |
| P54727 | UV excision repair protein RAD23 homolog | RD23B | ENSG00000119318 |             | 9  |                 | 43.145  | 0.73 | 0.90 | 1.01E-03 |
| Q07960 | Rho GTPase-activating protein 1          | RHG01 | ENSG00000175220 |             | 11 | GO:0008150, GO: | 50.404  | 1.13 | 3.39 | 0.00E+00 |
| P13489 | Ribonuclease inhibitor                   | RINI  | ENSG00000276230 | CHR_HSCHR11 |    | GO:0008150, GO: | 49.941  | 0.67 | 0.55 | 2.79E-05 |
| P27635 | 60S ribosomal protein L10                | RL10  | ENSG00000147403 | X           |    | GO:0009056, GO: | 24.588  | 3.91 | 3.54 | 6.24E-05 |
| P62906 | 60S ribosomal protein L10a               | RL10A | ENSG00000198755 |             | 6  | GO:0008150, GO: | 24.816  | 1.22 | 2.45 | 4.06E-05 |
| P62913 | 60S ribosomal protein L11                | RL11  | ENSG00000142676 |             | 1  | GO:0009056, GO: | 20.240  | 0.52 | 1.16 | 2.22E-04 |
| P30050 | 60S ribosomal protein L12                | RL12  | ENSG00000197958 |             | 9  | GO:0009056, GO: | 17.808  | 0.71 | 1.75 | 1.71E-04 |
| P26373 | 60S ribosomal protein L13                | RL13  | ENSG00000167526 |             | 16 | GO:0008150, GO: | 24.247  | 1.16 | 1.00 | 1.98E-04 |
| P50914 | 60S ribosomal protein L14                | RL14  | ENSG00000188846 |             | 3  | GO:0008150, GO: | 23.417  | 1.45 | 0.30 | 3.69E-04 |
| P61313 | 60S ribosomal protein L15                | RL15  | ENSG00000174748 |             | 3  | GO:0008150, GO: | 24.131  | 1.97 | 1.75 | 5.85E-05 |
| P18621 | 60S ribosomal protein L17                | RL17  | ENSG00000265681 |             | 18 |                 | 21.383  | 0.64 | 0.80 | 1.71E-04 |
| Q07020 | 60S ribosomal protein L18                | RL18  | ENSG00000063177 |             | 19 |                 | 21.621  | 2.20 | 1.48 | 1.45E-04 |
| Q02543 | 60S ribosomal protein L18a               | RL18A | ENSG00000105640 |             | 19 | GO:0008150, GO: | 20.749  | 1.06 | 0.48 | 1.45E-04 |
| P84098 | 60S ribosomal protein L19                | RL19  | ENSG00000108298 |             | 17 | GO:0008150, GO: | 23.451  | 0.32 | 0.95 | 1.94E-05 |
| P46778 | 60S ribosomal protein L21                | RL21  | ENSG00000122026 |             | 13 | GO:0008150, GO: | 18.553  | 1.13 | 3.06 | 6.86E-04 |
| P35268 | 60S ribosomal protein L22                | RL22  | ENSG00000116251 |             | 1  | GO:0009056, GO: | 14.778  | 0.36 | 1.20 | 6.74E-04 |
| P62829 | 60S ribosomal protein L23                | RL23  | ENSG00000125691 |             | 17 | GO:0008283, GO: | 14.856  | 1.11 | 2.73 | 3.02E-04 |
| P62750 | 60S ribosomal protein L23a               | RL23A | ENSG00000198242 |             | 17 | GO:0008283, GO: | 17.684  | 1.02 | 0.88 | 1.78E-04 |
| P83731 | 60S ribosomal protein L24                | RL24  | ENSG00000114391 |             | 3  | GO:0009056, GO: | 17.768  | 1.00 | 1.22 | 5.97E-04 |
| P61254 | 60S ribosomal protein L26                | RL26  | ENSG00000161970 |             | 17 |                 | 17.248  | 0.44 | 0.14 | 1.67E-04 |
| P46776 | 60S ribosomal protein L27a               | RL27A | ENSG00000166441 |             | 11 | GO:0008150, GO: | 16.551  | 1.08 | 1.66 | 0.00E+00 |
| P46779 | 60S ribosomal protein L28                | RL28  | ENSG00000108107 |             | 19 |                 | 15.738  | 0.26 | 0.22 | 2.46E-04 |
| P39023 | 60S ribosomal protein L3                 | RL3   | ENSG00000100316 |             | 22 | GO:0009056, GO: | 46.080  | 0.78 | 0.52 | 3.22E-05 |
| P62899 | 60S ribosomal protein L31                | RL31  | ENSG00000071082 |             | 2  |                 | 14.454  | 0.12 | 0.46 | 3.90E-04 |
| P62910 | 60S ribosomal protein L32                | RL32  | ENSG00000144713 |             | 3  | GO:0008150, GO: | 15.850  | 0.69 | 1.02 | 1.00E-04 |
| Q9Y3U8 | 60S ribosomal protein L36                | RL36  | ENSG00000130255 |             | 19 | GO:0008150, GO: | 12.246  | 0.79 | 0.41 | 1.08E-03 |
| P36578 | 60S ribosomal protein L4                 | RL4   | ENSG00000174444 |             | 15 | GO:0008150, GO: | 47.667  | 1.55 | 1.75 | 2.26E-04 |



|        |  |       |                 |              |    |                 |         |      |      |          |
|--------|--|-------|-----------------|--------------|----|-----------------|---------|------|------|----------|
| P46777 | 60S ribosomal protein L5                   | RL5   | ENSG00000122406 |              | 1  | GO:0009056, GO: | 34.341  | 1.38 | 0.95 | 1.17E-04 |
| Q02878 | 60S ribosomal protein L6                   | RL6   | ENSG00000089009 |              | 12 | GO:0009056, GO: | 32.708  | 0.95 | 1.45 | 7.34E-05 |
| P18124 | 60S ribosomal protein L7                   | RL7   | ENSG00000147604 |              | 8  | GO:0009056, GO: | 29.207  | 3.17 | 8.66 | 2.33E-05 |
| P62424 | 60S ribosomal protein L7a                  | RL7A  | ENSG00000280858 | CHR_HG2030_F |    | GO:0008150, GO: | 29.977  | 0.94 | 1.15 | 4.15E-05 |
| P62917 | 60S ribosomal protein L8                   | RL8   | ENSG00000161016 |              | 8  | GO:0008150, GO: | 28.007  | 0.46 | 0.61 | 3.48E-04 |
| P05388 | 60S acidic ribosomal protein P0            | RLA0  | ENSG00000089157 |              | 12 |                 | 34.252  | 0.24 | 0.39 | 1.45E-04 |
| P05386 | 60S acidic ribosomal protein P1            | RLA1  | ENSG00000137818 |              | 15 | GO:0008150, GO: | 11.507  | 0.86 | 1.52 | 6.79E-03 |
| P05387 | 60S acidic ribosomal protein P2            | RLA2  | ENSG00000177600 |              | 11 | GO:0008150, GO: | 11.658  | 1.73 | 1.55 | 1.57E-04 |
| Q13151 | Heterogeneous nuclear ribonucleoprotein    | ROA0  | ENSG00000177733 |              | 5  | GO:0008150, GO: | 30.822  | 3.87 | 0.90 | 1.21E-04 |
| P09651 | Heterogeneous nuclear ribonucleoprotein    | ROA1  | ENSG00000135486 |              | 12 |                 | 38.723  | 0.65 | 0.76 | 0.00E+00 |
| P22626 | Heterogeneous nuclear ribonucleoproteins   | ROA2  | ENSG00000122566 |              | 7  |                 | 37.407  | 0.73 | 0.56 | 1.50E-04 |
| P51991 | Heterogeneous nuclear ribonucleoprotein    | ROA3  | ENSG00000170144 |              | 2  |                 | 39.571  | 1.06 | 0.72 | 7.34E-05 |
| P04843 | Dolichyl-diphosphooligosaccharide--protein | RPN1  | ENSG00000163902 |              | 3  | GO:0008150, GO: | 68.527  | 1.10 | 0.87 | 9.87E-05 |
| Q9P2E9 | Ribosome-binding protein 1                 | RRBP1 | ENSG00000125844 |              | 20 | GO:0008150, GO: | 152.365 | 1.07 | 0.96 | 8.39E-05 |
| P46783 | 40S ribosomal protein S10                  | RS10  | ENSG00000124614 |              | 6  | GO:0009056, GO: | 18.886  | 1.21 | 1.77 | 8.96E-04 |
| P62280 | 40S ribosomal protein S11                  | RS11  | ENSG00000142534 |              | 19 | GO:0009056, GO: | 18.419  | 1.06 | 0.65 | 9.38E-05 |
| P25398 | 40S ribosomal protein S12                  | RS12  | ENSG00000112306 |              | 6  | GO:0008150, GO: | 14.505  | 0.82 | 0.68 | 4.06E-05 |
| P62277 | 40S ribosomal protein S13                  | RS13  | ENSG00000110700 |              | 11 | GO:0009056, GO: | 17.212  | 1.62 | 1.96 | 1.53E-04 |
| P62263 | 40S ribosomal protein S14                  | RS14  | ENSG00000164587 |              | 5  | GO:0009056, GO: | 16.263  | 1.42 | 1.20 | 2.70E-04 |
| P62841 | 40S ribosomal protein S15                  | RS15  | ENSG00000115268 |              | 19 | GO:0009056, GO: | 17.029  | 1.28 | 1.79 | 3.87E-04 |
| P62249 | 40S ribosomal protein S16                  | RS16  | ENSG00000105193 |              | 19 | GO:0008150, GO: | 16.435  | 2.12 | 3.74 | 4.92E-05 |
| P62269 | 40S ribosomal protein S18                  | RS18  | ENSG00000226225 | CHR_HSCHR6_I |    | GO:0009056, GO: | 17.708  | 0.79 | 2.35 | 1.92E-03 |
| P39019 | 40S ribosomal protein S19                  | RS19  | ENSG00000105372 |              | 19 | GO:0040011, GO: | 16.051  | 0.69 | 1.14 | 7.80E-06 |
| P15880 | 40S ribosomal protein S2                   | RS2   | ENSG00000140988 |              | 16 | GO:0009056, GO: | 31.305  | 1.02 | 1.00 | 1.92E-05 |
| P63220 | 40S ribosomal protein S21                  | RS21  | ENSG00000171858 |              | 20 | GO:0008150, GO: | 9.106   | 1.29 | 0.76 | 3.06E-05 |
| P62266 | 40S ribosomal protein S23                  | RS23  | ENSG00000186468 |              | 5  | GO:0008150, GO: | 15.798  | 1.21 | 0.30 | 1.91E-03 |
| P62847 | 40S ribosomal protein S24                  | RS24  | ENSG00000138326 |              | 10 |                 | 15.413  | 2.73 | 5.33 | 8.15E-05 |
| P62851 | 40S ribosomal protein S25                  | RS25  | ENSG00000280831 | CHR_HG2217_F |    | GO:0008150, GO: | 13.734  | 1.59 | 0.75 | 1.25E-04 |
| P42677 | 40S ribosomal protein S27                  | RS27  | ENSG00000177954 |              | 1  |                 | 9.455   | 2.93 | 2.58 | 1.15E-05 |
| P62857 | 40S ribosomal protein S28                  | RS28  | ENSG00000233927 |              | 19 | GO:0009056, GO: | 7.836   | 0.94 | 1.43 | 1.17E-04 |
| P23396 | 40S ribosomal protein S3                   | RS3   | ENSG00000149273 |              | 11 |                 | 26.671  | 1.34 | 0.88 | 4.21E-04 |
| P61247 | 40S ribosomal protein S3a                  | RS3A  | ENSG00000145425 |              | 4  | GO:0009056, GO: | 29.926  | 0.87 | 1.46 | 2.06E-04 |
| P62701 | 40S ribosomal protein S4, X isoform        | RS4X  | ENSG00000198034 | X            |    | GO:0008283, GO: | 29.579  | 0.40 | 1.49 | 1.21E-04 |
| P46782 | 40S ribosomal protein S5                   | RS5   | ENSG00000083845 |              | 19 | GO:0009056, GO: | 22.862  | 2.28 | 2.36 | 4.96E-04 |
| P62753 | 40S ribosomal protein S6                   | RS6   | ENSG00000137154 |              | 9  | GO:0009056, GO: | 28.663  | 0.52 | 0.93 | 3.59E-05 |
| P62081 | 40S ribosomal protein S7                   | RS7   | ENSG00000171863 |              | 2  | GO:0009790, GO: | 22.113  | 0.39 | 0.91 | 4.67E-05 |
| P62241 | 40S ribosomal protein S8                   | RS8   | ENSG00000142937 |              | 1  | GO:0009056, GO: | 24.190  | 0.44 | 0.54 | 7.07E-04 |
| P46781 | 40S ribosomal protein S9                   | RS9   | ENSG00000278081 | CHR_HSCHR19I |    | GO:0008283, GO: | 22.578  | 2.93 | 3.45 | 3.26E-04 |
| P08865 | 40S ribosomal protein SA                   | RSSA  | ENSG00000168028 |              | 3  | GO:0009056, GO: | 32.833  | 1.10 | 1.21 | 8.52E-05 |
| Q9Y310 | tRNA-splicing ligase RtcB homolog          | RTCB  | ENSG00000100220 |              | 22 | GO:0009790, GO: | 55.175  | 1.50 | 1.59 | 6.30E-04 |
| P06703 | Protein S100-A6                            | S10A6 | ENSG00000197956 |              | 1  | GO:0008283, GO: | 10.173  | 0.55 | 1.20 | 1.14E-04 |
| P60903 | Protein S100-A10                           | S10AA | ENSG00000197747 |              | 1  | GO:0008150, GO: | 11.196  | 1.06 | 1.13 | 5.34E-05 |
| P31949 | Protein S100-A11                           | S10AB | ENSG00000163191 |              | 1  | GO:0008283, GO: | 11.733  | 1.15 | 0.66 | 2.22E-04 |
| Q99584 | Protein S100-A13                           | S10AD | ENSG00000189171 |              | 1  | GO:0008283, GO: | 11.464  | 2.90 | 1.20 | 5.30E-04 |

|        |   |       |                 |              |    |                 |         |      |      |          |
|--------|---|-------|-----------------|--------------|----|-----------------|---------|------|------|----------|
| Q96FQ6 | Protein S100-A16                                    | S10AG | ENSG00000188643 |              | 1  | GO:0008150, GO: | 11.794  | 3.34 | 4.75 | 2.26E-04 |
| P23526 | Adenosylhomocysteinase                              | SAHH  | ENSG00000101444 |              | 20 | GO:0008150, GO: | 47.685  | 0.63 | 0.72 | 3.29E-04 |
| O75396 | Vesicle-trafficking protein SEC22b                  | SC22B | ENSG00000265808 |              | 1  | GO:0008150, GO: | 24.578  | 1.26 | 0.91 | 1.04E-04 |
| Q15436 | Protein transport protein Sec23A                    | SC23A | ENSG00000100934 |              | 14 |                 | 86.105  | 0.30 | 0.22 | 1.75E-03 |
| O94979 | Protein transport protein Sec31A                    | SC31A | ENSG00000138674 |              | 4  |                 | 132.931 | 1.10 | 2.74 | 2.02E-04 |
| Q12765 | Secernin-1  | SCRN1 | ENSG00000136193 |              | 7  |                 | 46.353  | 1.16 | 0.96 | 8.52E-05 |
| P55735 | Protein SEC13 homolog                               | SEC13 | ENSG00000157020 |              | 3  |                 | 35.518  | 0.69 | 0.34 | 1.71E-04 |
| Q12884 | Prolyl endopeptidase FAP                            | SEPR  | ENSG00000078098 |              | 2  | GO:0008283, GO: | 87.657  | 0.39 | 0.96 | 8.93E-05 |
| Q15019 | Septin-2  | SEPT2 |                 |              |    |                 | 41.461  | 1.05 | 2.15 | 9.07E-05 |
| Q16181 | Septin-7  | SEPT7 |                 |              |    |                 | 50.648  | 0.75 | 0.29 | 1.34E-04 |
| O43175 | D-3-phosphoglycerate dehydrogenase                  | SERA  | ENSG00000092621 |              | 1  | GO:0009790, GO: | 56.614  | 2.84 | 0.85 | 5.34E-05 |
| P50454 | Serpin H1   | SERPH | ENSG00000149257 |              | 11 | GO:0008150, GO: | 46.411  | 0.92 | 1.33 | 2.43E-04 |
| P0DME0 | Protein SETSIP                                      | SETLP | ENSG00000230667 |              | 1  |                 | 34.861  | 0.48 | 0.40 | 3.70E-05 |
| P23246 | Splicing factor, proline- and glutamine-rich        | SFPQ  | ENSG00000116560 |              | 1  | GO:0006464, GO: | 76.102  | 0.77 | 0.85 | 4.73E-04 |
| O75368 | SH3 domain-binding glutamic acid-rich-like          | SH3L1 | ENSG00000131171 | X            |    | GO:0005634, GO: | 12.766  | 0.52 | 0.43 | 2.60E-04 |
| Q9H299 | SH3 domain-binding glutamic acid-rich-like          | SH3L3 | ENSG00000142669 |              | 1  | GO:0008150, GO: | 10.431  | 3.79 | 3.04 | 1.43E-04 |
| P63208 | S-phase kinase-associated protein 1                 | SKP1  | ENSG00000113558 |              | 5  | GO:0006461, GO: | 18.646  | 0.40 | 0.40 | 2.70E-04 |
| Q7KZF4 | Staphylococcal nuclease domain-containing           | SND1  | ENSG00000197157 |              | 7  | GO:0008150, GO: | 101.934 | 1.80 | 1.01 | 1.88E-04 |
| P04179 | Superoxide dismutase [Mn], mitochondrial            | SODM  | ENSG00000112096 |              | 6  |                 | 24.735  | 1.09 | 1.31 | 3.18E-05 |
| Q01082 | Spectrin beta chain, non-erythrocytic 1             | SPTB2 | ENSG00000115306 |              | 2  | GO:0007010, GO: | 274.439 | 1.92 | 0.67 | 2.13E-04 |
| Q13813 | Spectrin alpha chain, non-erythrocytic 1            | SPTN1 | ENSG00000197694 |              | 9  |                 | 284.364 | 1.50 | 0.71 | 1.28E-05 |
| Q14247 | Src substrate cortactin                             | SRC8  | ENSG00000085733 |              | 11 |                 | 61.549  | 1.62 | 0.33 | 2.60E-04 |
| Q01130 | Serine/arginine-rich splicing factor 2              | SRSF2 | ENSG00000161547 |              | 17 |                 | 25.461  | 0.82 | 0.84 | 2.14E-05 |
| P84103 | Serine/arginine-rich splicing factor 3              | SRSF3 | ENSG00000112081 |              | 6  |                 | 19.318  | 0.41 | 0.71 | 3.46E-05 |
| Q04837 | Single-stranded DNA-binding protein, mitochondrial  | SSBP  | ENSG00000262771 | CHR_HSCHR7_1 |    | GO:0008150, GO: | 17.249  | 0.68 | 1.14 | 1.38E-04 |
| P43307 | Translocon-associated protein subunit alpha         | SSRA  | ENSG00000124783 |              | 6  | GO:0008283, GO: | 32.215  | 2.81 | 3.24 | 1.57E-04 |
| P42224 | Signal transducer and activator of transcription 1  | STAT1 | ENSG00000115415 |              | 2  | GO:0008283, GO: | 87.280  | 1.32 | 1.84 | 4.11E-04 |
| P31948 | Stress-induced-phosphoprotein 1                     | STIP1 | ENSG00000168439 |              | 11 |                 | 62.599  | 0.36 | 0.76 | 9.38E-05 |
| P16949 | Stathmin  | STMN1 | ENSG00000117632 |              | 1  |                 | 17.292  | 1.10 | 1.06 | 1.03E-03 |
| Q86Y82 | Syntaxin-12   | STX12 | ENSG00000117758 |              | 1  | GO:0061024, GO: | 31.622  | 0.36 | 0.30 | 1.10E-04 |
| O15400 | Syntaxin-7  | STX7  | ENSG00000079950 |              | 6  |                 | 29.797  | 0.97 | 0.80 | 2.19E-04 |
| O43776 | Asparagine--tRNA ligase, cytoplasmic                | SYNC  | ENSG00000134440 |              | 18 | GO:0008150, GO: | 62.903  | 1.45 | 1.32 | 7.49E-05 |
| P26639 | Threonine--tRNA ligase, cytoplasmic                 | SYTC  | ENSG00000113407 |              | 5  |                 | 83.382  | 1.44 | 2.71 | 1.78E-05 |
| P23381 | Tryptophan--tRNA ligase, cytoplasmic                | SYWC  | ENSG00000140105 |              | 14 | GO:0008283, GO: | 53.132  | 1.01 | 0.66 | 3.44E-04 |
| Q01995 | Transgelin  | TAGL  | ENSG00000149591 |              | 11 | GO:0008150, GO: | 22.596  | 3.02 | 3.85 | 4.92E-05 |
| P37802 | Transgelin-2  | TAGL2 | ENSG00000158710 |              | 1  |                 | 22.377  | 2.44 | 1.23 | 3.59E-05 |
| P37837 | Transaldolase                                       | TALDO | ENSG00000177156 |              | 11 | GO:0008150, GO: | 37.516  | 0.81 | 1.08 | 1.39E-04 |
| P0DPH7 | Tubulin alpha-3C chain                              | TBA3C | ENSG00000198033 |              | 13 |                 | 49.928  | 1.37 | 0.56 | 1.10E-04 |
| Q13885 | Tubulin beta-2A chain                               | TBB2A | ENSG00000137267 |              | 6  |                 | 49.875  | 0.99 | 0.83 | 9.87E-05 |
| P68371 | Tubulin beta-4B chain                               | TBB4B | ENSG00000188229 |              | 9  | GO:0007010, GO: | 49.799  | 0.84 | 0.74 | 1.79E-04 |
| P07437 | Tubulin beta chain                                  | TBB5  | ENSG00000232575 | CHR_HSCHR6_1 |    | GO:0007010, GO: | 49.639  | 1.21 | 1.25 | 1.25E-04 |
| Q9BUF5 | Tubulin beta-6 chain                                | TBB6  | ENSG00000176014 |              | 18 | GO:0008150, GO: | 49.825  | 0.72 | 0.89 | 2.20E-04 |
| P53999 | Activated RNA polymerase II transcription factor II | TCP4  | ENSG00000113387 |              | 5  | GO:0008150, GO: | 14.386  | 1.14 | 0.43 | 1.61E-04 |
| P17987 | T-complex protein 1 subunit alpha                   | TCPA  | ENSG00000120438 |              | 6  | GO:0006461, GO: | 60.306  | 1.93 | 5.72 | 2.83E-04 |

|        |   |       |                 |   |    |                 |         |      |      |          |
|--------|---|-------|-----------------|---|----|-----------------|---------|------|------|----------|
| P78371 | T-complex protein 1 subunit beta                | TCPB  | ENSG00000166226 |   | 12 |                 | 57.452  | 0.76 | 1.17 | 1.37E-04 |
| P50991 | T-complex protein 1 subunit delta               | TCPD  | ENSG00000115484 |   | 2  |                 | 57.888  | 2.31 | 3.33 | 3.11E-05 |
| P48643 | T-complex protein 1 subunit epsilon             | TCPE  | ENSG00000150753 |   | 5  | GO:0043167, GO: | 59.633  | 1.80 | 3.59 | 7.81E-05 |
| P49368 | T-complex protein 1 subunit gamma               | TCPG  | ENSG00000163468 |   | 1  | GO:0006461, GO: | 60.495  | 1.30 | 1.01 | 6.01E-04 |
| Q99832 | T-complex protein 1 subunit eta                 | TCPH  | ENSG00000135624 |   | 2  | GO:0008150, GO: | 59.329  | 1.13 | 1.13 | 1.16E-05 |
| P50990 | T-complex protein 1 subunit theta               | TCPQ  | ENSG00000156261 |   | 21 | GO:0016887, GO: | 59.583  | 0.73 | 0.99 | 4.15E-05 |
| P40227 | T-complex protein 1 subunit zeta                | TCPZ  | ENSG00000146731 |   | 7  |                 | 57.988  | 0.90 | 1.83 | 4.45E-05 |
| P13693 | Translationally-controlled tumor protein        | TCTP  | ENSG00000133112 |   | 13 | GO:0043167, GO: | 19.583  | 0.75 | 1.17 | 1.07E-04 |
| Q15185 | Prostaglandin E synthase 3                      | TEBP  | ENSG00000110958 |   | 12 |                 | 18.685  | 0.35 | 0.87 | 1.50E-04 |
| P55072 | Transitional endoplasmic reticulum ATPase       | TERA  | ENSG00000165280 |   | 9  | GO:0016887, GO: | 89.266  | 1.16 | 1.22 | 1.62E-05 |
| P10599 | Thioredoxin                                     | THIO  | ENSG00000136810 |   | 9  |                 | 11.730  | 0.54 | 0.81 | 8.15E-05 |
| Q13263 | Transcription intermediary factor 1-beta        | TIF1B | ENSG00000130726 |   | 19 |                 | 88.493  | 2.90 | 2.39 | 2.87E-05 |
| P29401 | Transketolase                                   | TKT   | ENSG00000163931 |   | 3  |                 | 67.835  | 0.63 | 0.34 | 1.19E-05 |
| Q9Y490 | Talin-1   | TLN1  | ENSG00000137076 |   | 9  | GO:0007010, GO: | 269.599 | 0.84 | 0.85 | 1.64E-04 |
| P49755 | Transmembrane emp24 domain-containing protein 1 | TMEDA | ENSG00000170348 |   | 14 | GO:0008150, GO: | 24.960  | 2.00 | 0.75 | 1.71E-04 |
| O60784 | Target of Myb protein 1                         | TOM1  | ENSG00000100284 |   | 22 |                 | 53.785  | 1.27 | 0.22 | 2.55E-04 |
| P60174 | Triosephosphate isomerase                       | TPIS  | ENSG00000111669 |   | 12 |                 | 30.772  | 0.61 | 0.56 | 6.93E-05 |
| P07951 | Tropomyosin beta chain                          | TPM2  | ENSG00000198467 |   | 9  |                 | 32.831  | 1.89 | 1.31 | 8.71E-04 |
| P06753 | Tropomyosin alpha-3 chain                       | TPM3  | ENSG00000143549 |   | 1  |                 | 32.930  | 2.16 | 1.28 | 6.30E-04 |
| P67936 | Tropomyosin alpha-4 chain                       | TPM4  | ENSG00000167460 |   | 19 | GO:0008150, GO: | 28.504  | 1.33 | 0.51 | 1.58E-05 |
| Q16881 | Thioredoxin reductase 1, cytoplasmic            | TRXR1 | ENSG00000198431 |   | 12 | GO:0008150, GO: | 70.862  | 2.76 | 3.86 | 4.96E-05 |
| P07996 | Thrombospondin-1                                | TSP1  | ENSG00000137801 |   | 15 | GO:0008283, GO: | 129.300 | 3.95 | 6.58 | 3.40E-05 |
| Q8NBS9 | Thioredoxin domain-containing protein 5         | TXND5 | ENSG00000239264 |   | 6  |                 | 47.599  | 0.88 | 1.74 | 1.95E-03 |
| P63313 | Thymosin beta-10                                | TYB10 | ENSG00000034510 |   | 2  | GO:0005623, GO: | 5.023   | 0.82 | 0.46 | 5.01E-04 |
| P62328 | Thymosin beta-4                                 | TYB4  | ENSG00000205542 | X |    | GO:0007010, GO: | 5.050   | 0.63 | 0.38 | 1.50E-04 |
| P22314 | Ubiquitin-like modifier-activating enzyme 1     | UBA1  | ENSG00000130985 | X |    |                 | 117.774 | 0.97 | 1.13 | 1.85E-04 |
| P0CG47 | Polyubiquitin-B                                 | UBB   | ENSG00000170315 |   | 17 |                 | 25.746  | 1.02 | 0.73 | 4.79E-05 |
| P61088 | Ubiquitin-conjugating enzyme E2 N               | UBE2N | ENSG00000177889 |   | 12 | GO:0043167, GO: | 17.127  | 1.83 | 1.59 | 4.56E-05 |
| P09936 | Ubiquitin carboxyl-terminal hydrolase isoform 1 | UCHL1 | ENSG00000154277 |   | 4  | GO:0008283, GO: | 24.808  | 1.50 | 1.11 | 1.54E-03 |
| O60701 | UDP-glucose 6-dehydrogenase                     | UGDH  | ENSG00000109814 |   | 4  |                 | 54.989  | 0.40 | 5.54 | 5.10E-04 |
| Q9NYU2 | UDP-glucose:glycoprotein glucosyltransferase 1  | UGGG1 | ENSG00000136731 |   | 2  |                 | 177.078 | 1.00 | 0.34 | 7.18E-04 |
| Q16851 | UTP--glucose-1-phosphate uridylyltransferase    | UGPA  | ENSG00000169764 |   | 2  |                 | 56.905  | 0.68 | 0.75 | 2.78E-05 |
| Q15836 | Vesicle-associated membrane protein 3           | VAMP3 | ENSG00000049245 |   | 1  | GO:0006461, GO: | 11.302  | 1.11 | 1.02 | 1.64E-05 |
| Q99536 | Synaptic vesicle membrane protein VAT-1         | VAT1  | ENSG00000108828 |   | 17 | GO:0008150, GO: | 41.893  | 1.40 | 1.15 | 9.87E-05 |
| Q00341 | Vigilin   | VIGLN | ENSG00000115677 |   | 2  |                 | 141.368 | 0.87 | 0.64 | 1.50E-05 |
| P08670 | Vimentin  | VIME  | ENSG00000026025 |   | 10 | GO:0008150, GO: | 53.619  | 0.98 | 2.61 | 2.75E-05 |
| P18206 | Vinculin  | VINC  | ENSG00000035403 |   | 10 |                 | 123.722 | 1.18 | 1.09 | 1.88E-05 |
| O75436 | Vacuolar protein sorting-associated protein 2   | VP26A | ENSG00000122958 |   | 10 | GO:0008150, GO: | 38.146  | 1.29 | 0.80 | 6.24E-05 |
| O75083 | WD repeat-containing protein 1                  | WDR1  | ENSG00000071127 |   | 4  | GO:0007010, GO: | 66.152  | 1.59 | 1.44 | 5.50E-05 |
| P13010 | X-ray repair cross-complementing protein 5      | XRCC5 | ENSG00000079246 |   | 2  | GO:0016887, GO: | 82.652  | 1.13 | 1.01 | 2.28E-05 |
| P12956 | X-ray repair cross-complementing protein 6      | XRCC6 | ENSG00000196419 |   | 22 |                 | 69.799  | 0.88 | 1.07 | 1.06E-04 |
| P67809 | Nuclease-sensitive element-binding protein 1    | YBOX1 | ENSG00000065978 |   | 1  | GO:0009790, GO: | 35.903  | 1.82 | 0.86 | 1.71E-04 |
| Q15942 | Zyxin   | ZYX   | ENSG00000159840 |   | 7  | GO:0008150, GO: | 61.238  | 1.17 | 0.97 | 1.10E-04 |