**Table 1. Proteomic identification of mouse brain isatin-binding proteins**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| no | Recommended protein name | Uniprot accession number | MW  Da | pI | Number of identified peptides | Coverage % | Mascot score |
| **I. Carbohydrate metabolism and energy generation (n=19)** | | | | | | | |
| 1 | Aconitate hydratase, mitochondrial precursor (EC 4.2.1.3) (Citrate hydro-lyase) (Aconitase) | Q99K10 | 85464.0 | 8.08 | 6 | 11 | 89.15 |
| 2 | Creatine kinase B-type (EC 2.7.3.2) (Creatine kinase, B chain) (B-CK) | Q0447 | 42713.5 | 5.40 | 6 | 18 | 86.47 |
| 3 | Pyruvate dehydrogenase E1 component subunit beta, mitochondrial precursor (EC 1.2.4.1) (PDHE1-B) | Q9D051 | 38937.3 | 6.41 | 4 | 161 | 68.30 |
| 4 | Malate dehydrogenase, mitochondrial precursor (EC 1.1.1.37) | P08249 | 35596.6 | 8.82 | 4 | 16 | 59.74 |
| 5 | Gamma-enolase (EC 4.2.1.11) (Enolase 2) | P17183 | 47165.7 | 4.99 | 4 | 14 | 58.05 |
| 6 | Triosephosphate isomerase (TIM) (EC 5.3.1.1) | P17751 | 26581.6 | 7.09 | 4 | 20 | 54.86 |
| 7 | Creatine kinase, ubiquitous mitochondrial precursor (EC 2.7.3.2) (U-MtCK) (Mia-CK) (Acidic-type mitochondrial creatine kinase) | P30275 | 47004.0 | 8.39 | 4 | 18 | 52.85 |
| 8 | Fumarate hydratase, mitochondrial precursor (EC 4.2.1.2) (Fumarase) (EF-3) | P97807 | 54371.1 | 9.11 | 3 | 10 | 44.68 |
| 9 | Dihydrolipoyl dehydrogenase, mitochondrial precursor (EC 1.8.1.4) (Dihydrolipoamide dehydrogenase) | O08749 | 54212.6 | 7.97 | 3 | 10 | 43.63 |
| 10 | Vacuolar ATP syntase subunit beta, brain isoform (EC 3.6.3.14) | P62814 | 56551.1 | 5.57 | 2 | 6 | 37.31 |
| 11 | Pyruvate dehydrogenase E1 component subunit alfa, somatic form, mitochondrial precursor | P35486 | 43231.9 | 8.49 | 3 | 11 | 34.73 |
| 12 | L-lactate dehydrogenase B chain (EC 1.1.1.27) (LDH-B)(LDH heart subunit) | P16125 | 36441.3 | 5.70 | 3 | 11 | 34.39 |
| 13 | Pyruvate carboxylase, mitochondrial precursor (EC 6.4.1.1) | Q05920 | 129685.3 | 6.25 | 2 | 2 | 31.74 |
| 14 | L-lactate dehydrogenase A chain EC 1.1.1.27) (LDH-A) (LDH muscle subunit) | P62259 | 29174.1 | 4.63 | 3 | 13 | 30.28 |
| 15 | Glyceraldehyde-3-phosphate dehydrogenase (EC 1.2.1.12) | P16858 | 35679.0 | 8.45 | 2 | 8 | 26.18 |
| 16 | 2-oxoglutarate dehydrogenase E1 component, mitochondrial precursor (EC 1.2.4.2) (Alpha-ketoglutarate dehydrogenase) | Q60597 | 116118.3 | 6.52 | 2 | 3 | 24.54 |
| 17 | Alpha-enolase (EC 4.2.1.11) | P17182 | 47009.9 | 6.36 | 2 | 7 | 22.75 |
| 18 | Fructose-bisphosphate aldolase C (EC 4.1.2.13), brain type aldolase | P05063 | 39263.9 | 6.79 | 2 | 8 | 20.14 |
| 19 | Glycogen phosphorylase, brain form (EC 2.4.1.1) | Q8C194 | 96599.3 | 6.29 | 2 | 3 | 20.12 |
| **II Lipid metabolism (n=0)** | | | | | | | |
| **III Metabolism of nucleotides and amino acids (n=5)** | | | | | | | |
| 1 | Aspartate aminotransferase, mitochondrial precursor (EC 2.6.1.1) (Transaminase A) (Glutamate oxaloacetate transaminase 2) | P05202 | 47411.6 | 9.13 | 5 | 19 | 65.74 |
| 2 | Guanine deaminase (EC 3.5.4.3) | Q9R111 | 73528.7 | 5.91 | 3 | 6 | 34.92 |
| 3 | Pyridoxal kinase (EC 2.7.1.38) | Q8K183 | 35015.4 | 5.88 | 2 | 7 | 32.80 |
| 4 | Ribose-phosphate pyrophosphokinase I (EC 2.7.6.1) | Q9D7G0 | 34717.3 | 6.57 | 2 | 10 | 28.87 |
| 5 | 4-aminobutyrate aminotransferase, mitochondrial precursor (EC 1.15.1.1) | P61922 | 56452.2 | 8.35 | 2 | 5 | 28.02 |
| **IV Formation of the cytoskeleton, exocytosis (n=13)** | | | | | | | |
| 1 | Synaptotagmin-1 | P46096 | 47418.3 | 8.68 | 6 | 19 | 82.7 |
| 2 | Syntaxin-binding protein 1 (Unc-18 homolog) (Unc-18A) (Unc-18-1) | O08599 | 667569.1 | 6.50 | 6 | 15 | 79.91 |
| 3 | AP-2 complex subunit beta-1 | Q9DBG3 | 104583.2 | 5.22 | 5 | 10 | 69.37 |
| 4 | AP-2 complex subunit alpha-1 | P17426 | 107664.7 | 6.63 | 5 | 6 | 68.88 |
| 5 | Actin, cytoplasmic 2(Gamma-actin) | P63260 | 41793.1 | 5.31 | 4 | 19 | 58.07 |
| 6 | Spectrin alpha chain, brain | P16546 | 167554.0 | 5.27 | 3 | 3 | 49.80 |
| 7 | Dynamin-1 (EC 3.6.5.5) | P39053 | 97803.3 | 7.61 | 3 | 4 | 41.88 |
| 8 | Spectrin beta chain, brain 1 | Q62261 | 274224.5 | 5.40 | 3 | 1 | 33.06 |
| 9 | Rab GDP dissociation inhibitor alpha (Rab GDP alpha) | P50396 | 50521.9 | 4.96 | 2 | 8 | 32.38 |
| 10 | Tubulin alpha-2 chain (Alpha-tubulin 2) | P05213 | 50151.9 | 4.94 | 2 | 7 | 26.93 |
| 11 | Clathrin heavy chain | Q68FD5 | 191557.7 | 5.48 | 2 | 2 | 26.66 |
| 12 | AP-2 complex subunit mu-1 | P84091 | 49655.0 | 9.57 | 2 | 8 | 21.89 |
| 13 | Glial fibrillary acidic protein, astrocyte (GFAP) | P03995 | 49908.3 | 5.36 | 2 | 5 | 20.70 |
| **V Regulation of gene expression, cell division and differentiation (n=12)** | | | | | | | |
| 1 | Dihydropyrimidinase-related protein 2 (DRP-2) (ULIP 2 protein) | O08553 | 62277.9 | 5.95 | 11 | 35 | 182.87 |
| 2 | Heterogeneous nuclear ribonucleoprotein A3 | Q8BG05 | 39652.2 | 9.09 | 8 | 22 | 137.85 |
| 3 | Valosin-containing protein (VCP) | Q01853 | 89177.1 | 5.14 | 8 | 16 | 124.17 |
| 4 | Heterogeneous nuclear ribonucleoprotein Q | Q71MK9 | 69633.0 | 8.68 | 6 | 13 | 79.54 |
| 5 | Heterogeneous nuclear ribonucleoprotein K | P61979 | 50976.5 | 5.39 | 5 | 19 | 75.62 |
| 6 | Heterogeneous nuclear ribonucleoprotein A1 | P49312 | 34065.2 | 9.27 | 5 | 13 | 70.70 |
| 7 | Transcriptional activator protein Pur-alpha (Purine-rich single-stranded DNA-binding protein alpha) | P42669 | 34883.9 | 6.07 | 3 | 24 | 55.93 |
| 8 | Heterogeneous nuclear ribonucleoprotein L | Q8R081 | 60123.6 | 6.65 | 3 | 7 | 49.06 |
| 9 | RNA-binding protein FUS (Pigpen protein) | P56959 | 52673.4 | 9.40 | 2 | 6 | 32.73 |
| 10 | Cullin-associated NEDD8-dissociated protein 1 | G6ZQ38 | 136332.4 | 5.52 | 2 | 2 | 25.45 |
| 11 | Interleukin enhancer-binding factor 2 | Q9CXY6 | 43062.4 | 5.19 | 2 | 9 | 24.29 |
| 12 | Polyadenilate-binding protein 1 | P29341 | 70643.2 | 9.48 | 2 | 4 | 22.89 |
| **VI Antioxidant and protective proteins (n=6)** | | | | | | | |
| 1 | Heat shock cognate 71 kDa protein (Heat shock 70 kDa protein 8) Heat shock-related 70 kDa protein 2 | P63017 | 70871.4 | 5.38 | 12 | 27 | 193.09 |
| 2 | Stress-70 protein, mitochondrial precursor | P38647 | 73528.7 | 5.91 | 3 | 6 | 34.92 |
| 3 | Peroxiredoxin-5, mitochondrial precursor (EC 1.11.1.15) (Prx-V) (Peroxisomal antioxidant enzyme) (Thioredoxin reductase) | P99029 | 21897.6 | 9.09 | 3 | 24 | 34.26 |
| 4 | Superoxide dismutase [Mn],mitochondrial precursor (EC 1.15.1.1) | P09671 | 24603.1 | 8.80 | 2 | 12 | 28.74 |
| 5 | Peroxiredoxin-2 (EC 1.11.1.15) (Thioredoxin peroxidase 1) (Thioredoxin-dependent peroxide reductase 1) | Q61171 | 21647.6 | 5.20 | 2 | 9 | 28.49 |
| 6 | Glutathione S-transferase P1 (EC 2.5.1.18) | P19157 | 23478.1 | 8.13 | 2 | 12 | 28.34 |
| **VII Signal transmission and regulation of enzyme activity (n=8)** | | | | | | | |
| 1 | 14-3-3 protein zeta/delta (Protein kinase C inhibitor protein 1) (KCIP-1) (SEZ-2) | P63101 | 27771.3 | 4.73 | 10 | 38 | 152.28 |
| 2 | 14-3-3 protein gamma | P61982 | 28171.5 | 4.80 | 4 | 20 | 55.73 |
| 3 | 14-3-3 protein eta | P68510 | 28080.7 | 4.81 | 3 | 15 | 43.37 |
| 4 | 14-3-3 protein theta | P68254 | 27778.4 | 4.69 | 3 | 20 | 39.23 |
| 5 | Guanine nucleotide-binding-protein beta subunit 2-like 1 | P68040 | 34945.7 | 7.57 | 2 | 11 | 25.77 |
| 6 | 2’,3’-cyclic-nucleotide 3’-phosphodiesterase (EC 3.1.4.37) | P16330 | 47123.6 | 9.08 | 2 | 5 | 23.92 |
| 7 | Serine/threonine-protein phosphatase 2A65 kDa regulatory subunit A, alpha isoform | Q76MZ3 | 65191.8 | 5.00 | 2 | 5 | 23.48 |
| 8 | 14-3-3 protein beta/alpha | Q9CQV8 | 27955.4 | 4.77 | 2 | 16 | 23.27 |