**Table 2. Proteomic identification of mouse liver 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=15)** | | | | | | | | | |
| 1 | Pyruvate carboxylase, mitochondrial precursor (EC 6.4.1.1) | Q05920 | 129685.3 | | 6.25 | 11 | | 15 | 162.75 |
| 2 | ATP synthase beta chain, mitochondrial precursor (EC 3.6.3.14) | P56480 | 56300.8 | | 5.19 | 11 | | 36 | 154.99 |
| 3 | Aldehyde dehydrogenase, mitochondrial precursor (EC 1.2.1.3) | P47738 | 56537.8 | | 7.53 | 7 | | 28 | 106.96 |
| 4 | 2-oxoglutarate dehydrogenase E1 component (EC 1.2.4.2) | Q60597 | 116118.3 | | 6.52 | 5 | | 7 | 66.23 |
| 5 | L-lactate dehydrogenase A chain (EC 1.1.1.27) | P06151 | 36367.6 | | 7.77 | 5 | | 23 | 62.88 |
| 6 | ATP-citrate synthase (EC 2.3.3.8) | Q91V92 | 119.728 | | 7.14 | 4 | | 5 | 49.52 |
| 7 | Electron transfer flavoprotein alpha subunit, mitochondrial precursor | Q99LC5 | 35039.6 | | 8.68 | 3 | | 18 | 47.45 |
| 8 | Alcohol dehydrogenase 1 (EC 1.1.1.1) | P00329 | 39640.5 | | 8.43 | 3 | | 6 | 39.55 |
| 9 | Triosephosphate isomerase | P17751 | 26581.6 | | 7.09 | 2 | | 11 | 32.65 |
| 10 | Glycogen phosphorylase, liver form | Q9ET01 | 97300.4 | | 6.65 | 2 | | 4 | 32.23 |
| 11 | 2-oxoisovalerate dehydrogenase alpha subunit (EC 1.2.4.4), mitochondrial precursor | P50136 | 50370.9 | | 8.14 | 2 | | 8 | 29.18 |
| 12 | Glyceraldehyde-3-phosphate dehydrogenase | P16858 | 35679.0 | | 8.45 | 2 | | 11 | 27.71 |
| 13 | L-xylulose reductase | Q91X52 | 25746.0 | | 6.83 | 2 | | 11 | 27.04 |
| 14 | ATP-synthase alpha chain, mitochondrial precursor | Q03265 | 59752.9 | | 9.22 | 2 | | 4 | 26.35 |
| 15 | Lipoamide acyltransferase component of branched-chain alpha keto dehydrogenase complex, mitochondrial precursor | P53395 | 53160.7 | | 8.88 | 2 | | 6 | 25.64 |
| **II Lipid metabolism (n =11)** | | | | | | | | | |
| 1 | Very long chain specific acyl-CoA dehydrogenase, mitochondrial precursor (EC 1.3.99) (VLCAD) | P50544 | 70875.9 | | 8.91 | 7 | | 19 | 142.86 |
| 2 | Liver carboxylesterase 3A precursor (EC 3.1.1.1) | Q63880 | 61510.0 | | 5.89 | 4 | | 15 | 56.45 |
| 3 | Dehydrogenase/reductase SDR family member 4 (EC 1.1.1.184) | Q99LB2 | 27754.2 | | 9.23 | 4 | | 20 | 53.50 |
| 4 | Fatty acid synthase (EC 2.3.1.85) | P19096 | 272429.8 | | 6.13 | 4 | | 5 | 49.52 |
| 5 | Acyl-coenzyme A oxidase 1, peroxisomal (EC 1.3.3.6) | Q9R0H0 | 74634.1 | | 8.74 | 2 | | 4 | 29.59 |
| 6 | 2,4 dienoyl-CoA reductase, mitochondrial precursor (EC | Q9CQ62 | 36214.0 | | 9.10 | 2 | | 10 | 29.16 |
| 7 | Peroxisomal multifunctional enzyme type 2 | P51660 | 79351.0 | | 8.77 | 2 | | 3 | 28.45 |
| 8 | Hydroxymethylglutaryl CoA lyase, mitochondrial precursor (EC 4.1.3.4) | P54869 | 34161.0 | | 8.55 | 2 | | 7 | 28.38 |
| 9 | 3-ketoacyl CoA thiolase B, peroxisomal precursor | Q8VCH0 | 43995.7 | | 8.82 | 2 | | 9 | 27.72 |
| 10 | Liver carboxylesterase 1 precursor (EC 3.1.1.1) | Q8VCC2 | 62680.2 | | 5.64 | 2 | | 7 | 27.31 |
| 11 | Carboxylesterase 3 precursor (EC 3.1.1.1) | Q8VCT4 | 61788.1 | | 6.17 | 2 | | 8 | 26.32 |
| **III Metabolism of nucleotides and amino acids (n=16)** | | | | | | | | | |
| 1 | Carbamoyl-phosphate synthase [ammonia], mitochondrial precursor (EC 6.3.4.16) | Q8C196 | 164618.9 | | 6.49 | 28 | | 26 | 404.48 |
| 2 | 10-formyltetrahydrofolate dehydrogenase (EC 1.5.1.6) | Q8R0Y6 | 98709.7 | | 5.63 | 9 | | 16 | 135.31 |
| 3 | Glutaryl-CoA dehydrogenase, mitochondrial precursor (EC 1.3.99.7) | Q60759 | 48647.1 | | 8.82 | 7 | | 30 | 109.85 |
| 4 | S-adenosylmethionine synthetase isoform type I | Q91X83 | 43508.9 | | 5.52 | 7 | | 29 | 95.07 |
| 5 | 3-hydroxyanthranilate 3,4-dioxygenase (EC 1.13.11.6) | Q78JT3 | 32804.5 | | 6.10 | 5 | | 25 | 88.78 |
| 6 | S-adenosylhomocysteine hydrolase (EC 3.3.1.1) | P50247 | 47557.3 | | 6.08 | 7 | | 21 | 86.75 |
| 7 | Glycine N-methyltransferase (EC 2.1.1.20) | Q9QXF8 | 32544.2 | | 7.20 | 5 | | 22 | 78.85 |
| 8 | Arginase-1 (EC 3.5.3.1) | Q61176 | 34808.0 | | 6.51 | 2 | | 10 | 70.58 |
| 9 | Glutamate dehydrogenase 1, mitochondrial precursor (EC 1.4.1.3) | P26443 | 61337.1 | | 8.05 | 5 | | 13 | 69.40 |
| 10 | Betaine-homocysteine S-methyltransferase (EC 2.1.1.5) | O35490 | 45020.8 | | 8.01 | 4 | | 19 | 58.19 |
| 11 | Formimidoyltransferase-cyclodeaminase | Q91XD4 | 58938.9 | | 5.79 | 3 | | 10 | 46.66 |
| 12 | Uricase | P25688 | 34908.2 | | 8.50 | 3 | | 14 | 35.12 |
| 13 | Sarcosine dehydrogenase, mitochondrial precursor | Q99LB7 | 101682.8 | | 6.28 | 2 | | 3 | 27.96 |
| 14 | homogentisate 1,2-dioxygenase | O09173 | 49990.2 | | 6.85 | 2 | | 6 | 22.68 |
| 15 | Aspartate aminotransferase, mitochondrial precursor (EC 2.6.1.1) | P05202 | 47411.6 | | 9.13 | 2 | | 8 | 22.15 |
| 16 | Choline dehydrogenase, mitochondrial precursor | Q8BJ64 | 66414.9 | | 8.78 | 2 | | 3 | 20.74 |
| **IV Formation of the cytoskeleton, exocytosis (n= 5)** | | | | | | | | | |
| 1 | Gamma-actin | Q61852 | 41793.1 | | 5.31 | 3 | | 9 | 39.52 |
| 2 | Vitronectin precursor | P29788 | 54849.3 | | 5.67 | 2 | | 6 | 30.07 |
| 3 | Carbonic anhydrase 3 (EC 4.2.1.1) | P16015 | 29235.2 | | 6.97 | 2 | | 14 | 29.45 |
| 4 | Sec 14-like protein 2 | Q99J08 | 46300.6 | | 6.68 | 2 | | 9 | 23.89 |
| 5 | Radixin | P26043 | 68601.2 | | 5.85 | 2 | | 4 | 23.83 |
| **V Regulation of gene expression, cell division and differentiation (n=21)** | | | | | | | | | |
| 1 | Heterogeneous nuclear ribonucleoprotein A2/B1 (hnRNP A2 / hnRNP B1) | O88569 | 35993.1 | 8.67 | | | 10 | 29 | 141.49 |
| 2 | Heterogeneous nuclear ribonucleoprotein A3 | Q8BG05 | 39652.2 | 9.09 | | 8 | | 24 | 125.30 |
| 3 | 40S ribosomal protein S7 | P62082 | 22127.0 | 10.09 | | 7 | | 30 | 102.84 |
| 4 | staphylococcal nuclease domain-containing protein 1 | Q78PY7 | 102088.7 | 7.08 | | 5 | | 8 | 70.17 |
| 5 | APOBEC 1 complementation factor | Q5YD48 | 65725.3 | 8.81 | | 5 | | 11 | 59.42 |
| 6 | Heterogeneous nuclear ribonucleoprotein Q | Q7TMK9 | 69633.0 | 8.68 | | 4 | | 11 | 58.92 |
| 7 | 40S ribosomal protein S15a | P62245 | 14708.4 | 10.14 | | 4 | | 31 | 51.09 |
| 8 | 60S ribosomal protein L22 | P67984 | 14627.8 | 9.22 | | 3 | | 40 | 51.03 |
| 9 | Elongation factor 1-alpha 1 (EF-1-alpha-1) | P10126 | 50114.1 | 9.10 | | 4 | | 14 | 47.89 |
| 10 | 60S ribosomal protein L10a | P53026 | 24785.4 | 9.98 | | 3 | | 15 | 44.43 |
| 11 | Phenylalanyl tRNA synthetase beta chain | Q9WUA2 | 65670.6 | 6.69 | | 4 | | 6 | 41.83 |
| 12 | 60S ribosomal protein L12 | P359709 | 17804.7 | 9.48 | | 3 | | 27 | 40.00 |
| 13 | 60S ribosomal protein L23a | P62751 | 17695.1 | 10.44 | | 3 | | 23 | 36.50 |
| 14 | 40S ribosomal protein S8 | P62242 | 24074.1 | 10.32 | | 2 | | 13 | 35.12 |
| 15 | 40S ribosomal protein S4, X isoform | P62702 | 29466.7 | 10.16 | | 2 | | 11 | 32.05 |
| 16 | 60S ribosomal protein L7a | P12970 | 29845.5 | 10.56 | | 2 | | 13 | 30.74 |
| 17 | 60S ribosomal protein L9 | P51410P | 21881.5 | 9.96 | | 2 | | 15 | 30.65 |
| 18 | Heterogeneous nuclear ribonucleoprotein K | P61979 | 50976.5 | 5.39 | | 2 | | 6 | 30.27 |
| 19 | 60S ribosomal protein L13a | P19253 | 23333.1 | 11.02 | | 2 | | 11 | 24.77 |
| 20 | Probable ATP-dependent RNA helicase DDX5 | Q61656 | 69320.6 | 9.06 | | 2 | | 4 | 22.52 |
| 21 | Protein NDRG2 | Q9QYG0 | 40789.4 | 5.23 | | 2 | | 7 | 21.82 |
| **VI Antioxidant and protective proteins (n=11)** | | | | | | | | | |
| 1 | Heat shock cognate 71 kDa protein | P63017 | 72422.4 | | 5.07 | 9 | | 16 | 195.39 |
| 2 | Stress-70 protein, mitochondrial precursor | P38647 | 73528.7 | | 5.91 | 7 | | 15 | 104.85 |
| 3 | Selenium-binding protein 2 | Q3UWX5 | 52628.3 | | 5.78 | 6 | | 19 | 90.65 |
| 4 | Phosphotriesterase related protein | Q60866 | 39218.4 | | 6.18 | 6 | | 28 | 84.09 |
| 5 | Glutathione S-transferase P 1 (EC 2.5.1.18) | P19157 | 23478.1 | | 8.13 | 4 | | 30 | 61.23 |
| 6 | Peroxiredoxin-6 (EC 1.11.1.15) | O08709 | 24739.6 | | 5.72 | 3 | | 22 | 48.80 |
| 7 | Catalase (EC 1.11.1.6) | P24270 | 59634.4 | | 7.72 | 4 | | 10 | 47.07 |
| 8 | Peroxiredoxin-1 (EC 1.11.1.15) | P35700 | 22176.6 | | 8.26 | 3 | | 14 | 32.46 |
| 9 | Proteasome activator complex subunit 1 | P97371 | 28673.1 | | 5.73 | 2 | | 14 | 32.28 |
| 10 | Thioredoxin (ALT-derived factor) | Q99MD6 | 11544.3 | | 4.80 | 2 | | 23 | 26.96 |
| 11 | Superoxide dismutase Mn, mitochondrial precursor (EC 1.15.1.1) | P09671 | 24603.1 | | 8.80 | 2 | | 12 | 26.02 |
| **VII Signal transmission and regulation of enzyme activity (n = 1)** | | | | | | | | | |
| 1 | 14-3-3- protein zeta/delta | P63101 | 27771.3 | | 4.73 | 2 | | 10 | 22.56 |