

| Gene names |                    | Protein names  | Largest Cluster Res Best (kcal/mol) | Num in Largest Cluster |
|------------|--------------------|--|-------------------------------------|------------------------|
| 1          | Got2 Got-2         | Aspartate aminotransferase, mitochondrial (mAspAT) (EC 2.6.1.1) (EC 2.6.1.7) (Fatty acid-binding protein) (FABP-1) (Glutamate oxaloacetate transaminase 2) (Kynurenine aminotransferase 4) (Kynurenine aminotransferase IV) (Kynurenine--oxoglutarate transaminase 4) (Kynurenine--oxoglutarate transaminase IV) (Plasma membrane-associated fatty acid-binding protein) (FABPpm) (Transaminase A) | -10.250000                          | 77                     |
| 2          | Sepsecs D5ErtD135e | O-phosphoseryl-tRNA(Sec) selenium transferase (EC 2.9.1.2) (Selenocysteine synthase) (Sec synthase) (Selenocysteinyl-tRNA(Sec) synthase) (Sep-tRNA:Sec-tRNA synthase) (SepSecS) (UGA suppressor tRNA-associated protein)   | -9.160000                           | 47                     |
| 3          | Phykpl Agxt2I2     | 5-phosphohydroxy-L-lysine phospho-lyase (EC 4.2.3.134) (Alanine--glyoxylate aminotransferase 2-like 2)   | -8.400000                           | 42                     |
| 4          | Kyat3 Ccbl2 Kat3   | Kynurenine--oxoglutarate transaminase 3 (EC 2.6.1.7) (Cysteine-S-conjugate beta-lyase 2) (EC 4.4.1.13) (Kynurenine aminotransferase 3) (Kynurenine aminotransferase III) (KATIII) (Kynurenine--glyoxylate transaminase) (EC 2.6.1.63) (Kynurenine--oxoglutarate transaminase III)  | -8.380000                           | 56                     |
| 5          | Etnppl Agxt2I1     | Ethanolamine-phosphate phospho-lyase (EC 4.2.3.2) (Alanine--glyoxylate aminotransferase 2-like 1)  | -8.270000                           | 29                     |
| 6          | Shmt1 Shmt         | Serine hydroxymethyltransferase, cytosolic (SHMT) (EC 2.1.2.1) (Glycine hydroxymethyltransferase) (Serine methylase)   | -7.990000                           | 63                     |
| 7          | Agxt Agxt1         | Serine--pyruvate aminotransferase, mitochondrial (SPT) (EC 2.6.1.51) (Alanine--glyoxylate aminotransferase) (AGT) (EC 2.6.1.44)  | -7.860000                           | 33                     |
| 8          | Accs               | 1-aminocyclopropane-1-carboxylate synthase-like protein 1 (ACC synthase-like protein 1)  | -7.790000                           | 21                     |
| 9          | Aadat Kat2         | Kynurenine/alpha-aminoadipate aminotransferase, mitochondrial (KAT/AadAT) (2-aminoadipate aminotransferase) (2-aminoadipate transaminase) (EC 2.6.1.39) (Alpha-aminoadipate aminotransferase) (AadAT) (Kynurenine aminotransferase II) (Kynurenine--oxoglutarate aminotransferase II) (Kynurenine--oxoglutarate transaminase 2) (EC 2.6.1.7) (Kynurenine--oxoglutarate transaminase II)            | -7.680000                           | 45                     |
| 10         | Cbs                | Cystathionine beta-synthase (EC 4.2.1.22) (Beta-thionase) (Serine sulfhydrase)   | -7.600000                           | 33                     |
| 11         | GadI1              | Acidic amino acid decarboxylase GADL1 (Aspartate 1-decarboxylase) (ADC) (EC 4.1.1.11) (Cysteine sulfinic acid decarboxylase) (CSADC) (EC 4.1.1.29) (Glutamate decarboxylase-like protein 1)  | -7.520000                           | 31                     |
| 12         | Gad2 Gad65         | Glutamate decarboxylase 2 (EC 4.1.1.15) (65 kDa glutamic acid decarboxylase) (GAD-65) (Glutamate decarboxylase 65 kDa isoform)   | -7.470000                           | 23                     |
| 13         | Got1I1             | Putative aspartate aminotransferase, cytoplasmic 2 (EC 2.6.1.1) (Glutamate oxaloacetate transaminase 1-like protein 1) (Transaminase A-like protein 1)   | -7.410000                           | 25                     |
| 14         | Odc1 Odc           | Ornithine decarboxylase (ODC) (EC 4.1.1.17)  | -7.380000                           | 55                     |
| 15         | Scly Scl           | Selenocysteine lyase (mSCL) (EC 4.4.1.16)  | -7.350000                           | 58                     |
| 16         | Accsl Gm1967       | Probable inactive 1-aminocyclopropane-1-carboxylate synthase-like protein 2 (ACC synthase-like protein 2)  | -7.340000                           | 26                     |
| 17         | Sgpl1 Spl          | Sphingosine-1-phosphate lyase 1 (S1PL) (SP-lyase 1) (SPL 1) (mSPL) (EC 4.1.2.27) (Sphingosine-1-phosphate aldolase)  | -7.310000                           | 48                     |
| 18         | Gpt2 Aat2          | Alanine aminotransferase 2 (ALT2) (EC 2.6.1.2) (Glutamate pyruvate transaminase 2) (GPT 2) (Glutamic--alanine transaminase 2) (Glutamic--pyruvic transaminase 2)   | -7.270000                           | 58                     |
| 19         | Abat Gabat         | 4-aminobutyrate aminotransferase, mitochondrial (EC 2.6.1.19) ((S)-3-amino-2-methylpropionate transaminase) (EC 2.6.1.22) (GABA aminotransferase) (GABA-AT) (Gamma-amino-N-butyrate transaminase) (GABA transaminase) (GABA-T) (L-AIBAT)   | -7.240000                           | 59                     |
| 20         | Kyat1 Ccbl1 Kat    | Kynurenine--oxoglutarate transaminase 1 (EC 2.6.1.7) (Cysteine-S-conjugate beta-lyase) (EC 4.4.1.13) (Glutamine transaminase K) (GTK) (Glutamine--phenylpyruvate transaminase) (EC 2.6.1.64) (Kynurenine aminotransferase 1) (Kynurenine aminotransferase I) (KATI) (Kynurenine--oxoglutarate transaminase I)  | -7.210000                           | 75                     |
| 21         | Psat1 Psa Psat     | Phosphoserine aminotransferase (PSAT) (EC 2.6.1.52) (Endometrial progesterone-induced protein) (EPIP) (Phosphohydroxythreonine aminotransferase)   | -6.990000                           | 20                     |
| 22         | Thnsl1             | Threonine synthase-like 1 (TSH1)   | -6.970000                           | 30                     |
| 23         | Tat                | Tyrosine aminotransferase (TAT) (EC 2.6.1.5) (L-tyrosine:2-oxoglutarate aminotransferase)  | -6.940000                           | 54                     |
| 24         | Alas1              | 5-aminolevulinate synthase, nonspecific, mitochondrial (ALAS-H) (EC 2.3.1.37) (5-aminolevulinic acid synthase 1) (Delta-ALA synthase 1) (Delta-aminolevulinate synthase 1)   | -6.920000                           | 99                     |
| 25         | Got1               | Aspartate aminotransferase, cytoplasmic (cAspAT) (EC 2.6.1.1) (EC 2.6.1.3) (Cysteine aminotransferase, cytoplasmic) (Cysteine transaminase, cytoplasmic) (cCAT) (Glutamate oxaloacetate transaminase 1) (Transaminase A)   | -6.850000                           | 40                     |
| 26         | Pygl               | Glycogen phosphorylase, liver form (EC 2.4.1.1)  | -6.830000                           | 78                     |
| 27         | Mocos              | Molybdenum cofactor sulfurase (MCS) (MOS) (MoCo sulfurase) (EC 2.8.1.9) (Molybdenum cofactor sulfurtransferase)  | -6.780000                           | 41                     |
| 28         | Cth                | Cystathionine gamma-lyase (EC 4.4.1.1) (Cysteine-protein sulfhydrase) (Gamma-cystathionase)  | -6.710000                           | 27                     |
| 29         | Sds                | L-serine dehydratase/L-threonine deaminase (SDH) (EC 4.3.1.17) (L-serine deaminase) (L-threonine dehydratase) (TDH) (EC 4.3.1.19)  | -6.710000                           | 69                     |
| 30         | Gcat Kbl           | 2-amino-3-ketobutyrate coenzyme A ligase, mitochondrial (AKB ligase) (EC 2.3.1.29) (Aminoacetone synthase) (Glycine acetyltransferase)   | -6.690000                           | 84                     |
| 31         | Pygm               | Glycogen phosphorylase, muscle form (EC 2.4.1.1) (Myophosphorylase)  | -6.630000                           | 40                     |
| 32         | Alas2              | 5-aminolevulinate synthase, erythroid-specific, mitochondrial (ALAS-E) (EC 2.3.1.37) (5-aminolevulinic acid synthase 2) (Delta-ALA synthase 2) (Delta-aminolevulinate synthase 2)  | -6.480000                           | 97                     |
| 33         | Bcat2 Bcatm Eca40  | Branched-chain-amino-acid aminotransferase, mitochondrial (BCAT(m)) (EC 2.6.1.42)  | -6.410000                           | 36                     |
| 34         | Nfs1 Nifs          | Cysteine desulfurase, mitochondrial (m-Nfs1) (EC 2.8.1.7)  | -6.380000                           | 26                     |
| 35         | Hdc                | Histidine decarboxylase (HDC) (EC 4.1.1.22)  | -6.360000                           | 96                     |
| 36         | Csad               | Cysteine sulfinic acid decarboxylase (EC 4.1.1.29) (Aspartate 1-decarboxylase) (EC 4.1.1.11) (Cysteine-sulfinate decarboxylase) (Sulfinioalanine decarboxylase)  | -6.300000                           | 49                     |
| 37         | Gad1 Gad67         | Glutamate decarboxylase 1 (EC 4.1.1.15) (67 kDa glutamic acid decarboxylase) (GAD-67) (Glutamate decarboxylase 67 kDa isoform)   | -6.300000                           | 79                     |
| 38         | Srr                | Serine racemase (EC 5.1.1.18) (D-serine ammonia-lyase) (D-serine dehydratase) (EC 4.3.1.18) (L-serine ammonia-lyase) (L-serine dehydratase) (EC 4.3.1.17)  | -6.250000                           | 16                     |
| 39         | Pygb               | Glycogen phosphorylase, brain form (EC 2.4.1.1)  | -6.210000                           | 38                     |
| 40         | Agxt2              | Alanine--glyoxylate aminotransferase 2, mitochondrial (AGT 2) (EC 2.6.1.44) ((R)-3-amino-2-methylpropionate--pyruvate transaminase) (EC 2.6.1.40) (Beta-ALAAT II) (Beta-alanine-pyruvate aminotransferase) (D-AIBAT)   | -6.160000                           | 53                     |
| 41         | Ddc                | Aromatic-L-amino-acid decarboxylase (AADC) (EC 4.1.1.28) (DOPA decarboxylase) (DDC)  | -6.070000                           | 39                     |
| 42         | Sdsl Sds           | Serine dehydratase-like (EC 4.3.1.17) (L-serine deaminase) (L-serine dehydratase/L-threonine deaminase) (L-threonine dehydratase) (TDH) (EC 4.3.1.19) (SDH)  | -5.980000                           | 23                     |
| 43         | Bcat1 Eca39        | Branched-chain-amino-acid aminotransferase, cytosolic (BCAT(c)) (EC 2.6.1.42) (Protein ECA39)  | -5.760000                           | 30                     |
| 44         | Tha1 Gly1          | L-threonine aldolase (Threonine aldolase 1)  | -5.760000                           | 32                     |
| 45         | Plpbp Prosc        | Pyridoxal phosphate homeostasis protein (PLP homeostasis protein) (Proline synthase co-transcribed bacterial homolog protein) (Pyridoxal phosphate-binding protein)  | -5.740000                           | 24                     |
| 46         | Shmt2              | Serine hydroxymethyltransferase, mitochondrial (SHMT) (EC 2.1.2.1) (Glycine hydroxymethyltransferase) (Serine methylase)   | -5.620000                           | 13                     |
| 47         | Oat                | Ornithine aminotransferase, mitochondrial (EC 2.6.1.13) (Ornithine--oxo-acid aminotransferase)   | -5.480000                           | 62                     |
| 48         | Sptlc3 Sptlc2l     | Serine palmitoyltransferase 3 (EC 2.3.1.50) (Long chain base biosynthesis protein 2b) (LCB2b) (Long chain base biosynthesis protein 3) (LCB 3) (Serine-palmityl-CoA transferase 3) (SPT 3)   | -5.290000                           | 76                     |
| 49         | Gldc               | Glycine dehydrogenase (decarboxylating), mitochondrial (EC 1.4.4.2) (Glycine cleavage system P protein) (Glycine decarboxylase) (Glycine dehydrogenase (aminomethyl-transferring))   | -5.260000                           | 39                     |
| 50         | Thnsl2             | Threonine synthase-like 2 (TSH2) (mTSH2) (EC 4.2.3.-)  | -5.040000                           | 18                     |
| 51         | Azin1 Oazi Oazin   | Antizyme inhibitor 1 (AZI) (Ornithine decarboxylase antizyme inhibitor)  | -4.890000                           | 38                     |
| 52         | Ldc1 Gm853         | Gene model 853, (NCBI) (Leucine decarboxylase 1)   | -4.630000                           | 39                     |
| 53         | Sptlc2 Lcb2        | Serine palmitoyltransferase 2 (EC 2.3.1.50) (Long chain base biosynthesis protein 2) (LCB 2) (Long chain base biosynthesis protein 2a) (LCB2a) (Serine-palmitoyl-CoA transferase 2) (SPT 2)  | -4.160000                           | 44                     |
| 54         | Gpt Gpt1           | Alanine aminotransferase 1 (ALT1) (EC 2.6.1.2) (Glutamate pyruvate transaminase 1) (GPT 1) (Glutamic--alanine transaminase 1) (Glutamic--pyruvic transaminase 1)   | -2.890000                           | 62                     |
| 55         | Kynu               | Kynureninase (EC 3.7.1.3) (L-kynurenine hydrolase)   | -1.160000                           | 24                     |