

Supplementary material

Protein accession numbers: UapA (CAA50681), UapC (CAA56190), Af UapC (XP_748919.1), Xut1 (XP_715594), *S. pombe* (NP_593513), *U. maydis* (XP_756223), YgfO (NP417358), YicE (NP418111), PbuX (NP390088), PucJ (Q32139), PucK (NP_391124.1), UraA (D90878.1), PyrP (Z99112.2), hSVCT1 (AAF22490), hSVCT2 (ABK34450), *M. musculus* 1 (NP_035527.3), *M. musculus* 2 (NP_061294.2), *M. domestica* 1 (XP_001374069), *M. domestica* 2 (XP_001376442.1), *M. domestica* 3 (XP_001381713.1), *G. gallus* (XP_416178.2), *G. gallus* (XP_417671.2), *X. tropicalis* 1 (ENSXETP00000036732), *X. tropicalis* 2 (ENSXETP00000018416), *X. tropicalis* 3 (ENSXETP00000043654), *D. rerio* (NP_001013353.1), *T. nigroviridis* (GSTENP00016721001), *T. rubripes* (SINFRUP00000151988), *T. rubripes* (SINFRUP00000128512), *S. purpuratus* 1 (XP_786798.2), *S. purpuratus* 2 (XP_783160.2), *T. pseudonana* (gw1.23.17.1), *R. norvegicus* 1 (XP_231601.4), *R. norvegicus* 2 (NP_059012), *A. mellifera* (XP_623912.1), *D. melanogaster* (NP_649994.1), *A. gambiae* (NT_078266.2), *C. elegans* (NP_505613.1), *D. discoideum* (XP_642632.1), *M. mulatta* 1 (XP_001115608.1), *M. mulatta* 2 (XP_001082198.1), *B. taurus* (XP_581784.3), *C. familiaris* (NP_001103427.1), *F. catus* (GENSCAN00000013567), *S. scrofa* (NP_999343.1), *O. s. japonica* (NP_001063058.1), *A. thaliana* (NP_199810.2), *Z. mays* Lpe1 (Q41760).