**Table S3.** **Masses and identities of inner mitochondrial membrane proteins and protein complexes from *Bos taurus.***

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| --- | --- | --- | --- | --- |
| Subunit/Complex  ANT1 Dimer | Expected mass (Da) | Measured mass (Da) | Mass difference (Da) | Mass difference (%) |
| ANT1 (+3 Succinilation  reported in mouse – uniprot database) | 33,187 | 33,195±11 | 8 | 0 |
| 2xANT1 | 66,374 | 66,387±13 | 13 | 0 |
| Subunit/Complex  Aconitase | Expected mass | Measured mass | Mass difference (Da) | Mass difference (%) |
| Aconitase | 82,401 | 82,635±9 | 234 | 0.2 |
| Subunit/Complex  Complex III | Expected mass | Measured mass | Mass difference (Da) | Mass difference (%) |
| UQCRC1 | 49,212 |  |  |  |
| UQCRC2 | 46,523 |  |  |  |
| UQCRH | 9,175 |  |  |  |
| UQCRB | 13,345 |  |  |  |
| UQCR10 | 7,326 |  |  |  |
| UQCR11 | 6,520 |  |  |  |
| UQCRQ | 9589 |  |  |  |
| UQCRFS1 | 21,609 |  |  |  |

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| --- | --- | --- | --- | --- |
| UQCRFS1 transit peptide | 7,955 |  |  |  |
| MTCYB | 42,591 |  |  |  |

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| --- | --- | --- | --- | --- |
| CyC1 | 27,987 |  |  |  |
| Complex III (Partial monomer)  CyB CyC UQCRC2 UQCRFS1 UQCRB UQCRQ UQCR10 | 168,970 | 168,580±50 | 390 | 0.23 |
| 2xComplex III (Partial monomer) | 337,940 | 338,615±12 | 675  heme | 0.199 |
| Subunit/Complex  Complex IV | Expected mass (Da) | Measured mass (Da) | Mass difference (Da) | Mass difference (%) |
| Cox1 | 57,032 |  |  |  |
| Cox2 | 26,021 |  |  |  |
| Cox3 | 29,933 |  |  |  |
| Cox4 Isoform 1 | 17,152 |  |  |  |
| Cox5A | 12,433 |  |  |  |
| Cox5B | 10,670 |  |  |  |
| Cox6A1 | 9,538 |  |  |  |
| Cox6B1 | 10,025 |  |  |  |
| Cox6C | 8,478 |  |  |  |
| Cox7A2 | 6,609 |  |  |  |
| Cox7B | 6,357 |  |  |  |
| Cox7C | 5,441 |  |  |  |
| Cox8B | 4,961 |  |  |  |

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| --- | --- | --- | --- | --- |
| Heme a | 853 |  |  |  |
| Heme a3 | 859 |  |  |  |
| Cardiolipin (CDL)\* | 1448 |  |  |  |
| Phosphatydilethanolamine (PE)\* | 760 |  |  |  |
| Complex IV monomer | 208,299 | 208,191±55 | 108 | 0.04 |
| Subunit/Complex  Complex V | Expected mass (Da) | Measured mass (Da) | Mass difference (Da) | Mass difference (%) |
| α\*\* | 55,263 | 55,271±0.5 | 8 | 0.0144 |
| β\*\* | 51,563 | 51,754±0.5 | 191 | 0.3 |
| γ\*\* | 30,256 | 30,143±4 | 113 | 0.3 |
| δ\*\* | 15,065 | 15,064±2 | 1 | 0.066 |
| ε\*\* | 5,793 | 5,652±1 | 141 | 2.4 |
| a\*\* | 24,788 | 24,813±4 | 25 | 0.1 |
| b\*\* | 24,669 | 24,691±1 | 22 | 0.089 |
| c\*\* | 7,608 | 7,650±1 | 42 | 0.55 |
| d\*\* | 18,692 | 18,602±3 | 90 | 0.48 |
| e\*\* | 8,321 | 8190±2 | 131 | 1.5 |
| f\*\* | 10,297 | 10,206±2 | 91 | 0.8 |
| g\*\* | 11,417 | 11,326±2 | 91 | 0.7 |
| A6L\*\* | 7,973 | 7,963±1 | 10 | 0.1 |
| F6\*\* | 8,958 | 8,957±2 | 1 | 0.01 |
| 6.8PL\*\* | 6,834 | 6,834±1 | 0 | 0 |
| DAPIT\*\* | 6,453 | 6,303±1 | 150 | 2.32 |
| OSCP\*\* | 20,930 | 20,929±4 | 1 | 0.004 |
| Holocomplex (8 c, 3 α, 3 β, 1copy of all the rest) | 581,948 | 581,046±62 | 902 | 0.15 |
| Subunit/Complex  Complex I | Expected mass (Da) | Measured mass (Da) | Mass difference (Da) | Mass difference (%) |
| NDUFS7 | 20,077 |  |  |  |
| NDUFS8 | 20,195 |  |  |  |
| NDUFV2 | 23,814 |  |  |  |
| NDUFS3 | 26,413 | 26,612 |  |  |
| NDUFS2 | 49,146 |  |  |  |
| NDUFV1 | 48,499 |  |  |  |
| NDUFS1 | 76,960 |  |  |  |
| NU1M | 35,670 |  |  |  |
| NU2M | 39,254 |  |  |  |
| NU3M | 13,054 |  |  |  |
| NU4M | 52,099 |  |  |  |
| NU4LM | 10,797 |  |  |  |
| NU5M | 68,286 |  |  |  |
| NU6M | 19,078 |  |  |  |
| NDUFS6 | 10,535 |  |  |  |
| NDUFA12 | 17,090 |  |  |  |
| NDUFS4 | 15,337 |  |  |  |
| NDUFA9 | 39,115 |  |  |  |
| NDUFAB1 | 10,109 |  |  |  |
| NDUFA2 | 10,948 |  |  |  |
| NDUFA1 | 8,105 |  |  |  |
| NDUFB3 | 11,009 |  |  |  |
| NDUFA5 | 13,184 |  |  |  |
| NDUFA6 | 14,922 |  |  |  |
| NDUFA11 | 14,626 |  |  |  |
| NDUFB11 | 2,325 |  |  |  |
| NDUFS5 | 12,536 |  |  |  |
| NDUFB4 | 15,053 |  |  |  |
| NDUFA13 | 16,542 |  |  |  |
| NDUFB7 | 16,266 |  |  |  |
| NDUFA8 | 19,959 |  |  |  |
| NDUFB9 | 21,657 |  |  |  |
| NDUFB10 | 20,956 |  |  |  |
| NDUFB8 | 2,537 |  |  |  |
| NDUFC2 | 14,096 |  |  |  |
| NDUFB2 | 8,493 |  |  |  |
| NDUFA7 | 12,545 |  |  |  |
| NDUFA8 | 9,217 |  |  |  |
| NDUFA4 | 9,324 |  |  |  |
| NDUFB5 | 16,726 |  |  |  |
| NDUFB1 | 6,966 |  |  |  |
| NDUFC1 | 5,828 |  |  |  |
| NDUFA10 | 36,692 |  |  |  |
| NDUFA4L2 | 9,984 |  |  |  |
| NDUFV3 | 8,437 |  |  |  |
| BDUFB6 | 15,392 |  |  |  |
| Complex I ΔNDUFV1 ΔNDUFS1 ΔNDUFA6 (42/45 subunit, each present in one copy) | 809,202 | 809,101±57 | 101 | 0.012 |
| Complex I ΔNDUFV1 ΔNDUFS1 ΔNDUFA6 ΔNDUFS3 (41/45 subunits) | 782,789 | 782478±27 | 311 | 0.039 |

\*Lipid identities from (*42*).

\*\*Subunit masses measured by a monolithic column construct.

\*\*\*Measurement from native MS.