

Table S1: SUI01 protocol

| Step | Compound                             | Concentration                  | Coupling control state | ET-pathway state | Function                                 |
|------|--------------------------------------|--------------------------------|------------------------|------------------|--|
| 1    | Tissue homogenate (2 mL)             | 1 mg wet mass·mL <sup>-1</sup> |                        | ROX              |  |
| 2    | ADP·Mg <sup>2+</sup> (Merck, 117105) | 5 mM                           |                        | ROX              | Substrate of ATP synthase                |
| 3    | Malate (Sigma, M1000)                | 0.1 mM                         |                        |                  | NADH-linked substrate                    |
| 4    | Octanoylcarnitine (APEX-BIO, B6371)  | 0.5 mM                         | OXPHOS (P)             | FAO              | Substrate for fatty acid oxidation (FAO) |
| 5    | Cytochrome c (Sigma, C7752)          | 10 µM                          | OXPHOS (Pc)            | FAO              | Evaluate outer mt-membrane integrity     |
| 6    | Pyruvate (Sigma, P2256)              | 5 mM                           | OXPHOS (Pc)            | FAO+NADH         | Feeds TCA (via Acetyl-CoA)               |
| 7    | Malate (Sigma, M1000)                | 2 mM                           | OXPHOS (Pc)            | FAO+NADH         | NADH-linked substrate                    |
| 8    | Glutamate (Sigma, G1626)             | 10 mM                          | OXPHOS (Pc)            | FAO+NADH         | NADH-linked substrate                    |
| 9    | Succinate (Sigma, S2378)             | 10 mM                          | OXPHOS (Pc)            | FAO+NADH+S       | Substrate of Complex II                  |
| 10   | Rotenone (Sigma, R8875)              | 0.5 µM                         | OXPHOS (Pc)            | S                | Inhibition of Complex I                  |
| 11   | Antimycin A (Sigma, A8674)           | 2.5 µM                         |                        | ROX              | Inhibition of Complex III                |

ADP, adenosine diphosphate; ATP, adenosine triphosphate; ROX, residual oxygen consumption; FAO, fatty acid oxidation; NADH, nicotinamide adenine dinucleotide; S, succinate; TCA, tricarboxylic acid cycle

Table S2: SUI02 protocol

| Step | Chemical                             | Concentration                  | Coupling control state | Function                                |
|------|--------------------------------------|--------------------------------|------------------------|---|
| 1    | Tissue homogenate (2 mL)             | 1 mg wet mass·mL <sup>-1</sup> |                        |   |
| 2    | Rotenone (Sigma, R8875)              | 0.5 µM                         |                        | Inhibition of Complex I                 |
| 3    | Succinate (Sigma, S2378)             | 10 mM                          | LEAK (L)               | Substrate of Complex II                 |
| 4    | ADP Mg <sup>2+</sup> (Merck, 117105) | 5 mM                           | OXPHOS (P)             | Substrate of ATP synthase               |
| 5    | Cytochrome c (Sigma, C7752)          | 10 µM                          | OXPHOS (Pc)            | Evaluate outer mt-membrane integrity    |
| 6    | CCCP (Sigma, C2759)                  | 0.5 µM per step                | ET (E)                 | Uncoupling of mitochondrial respiration |
| 7    | Antimycin A (Sigma, A8674)           | 2.5 µM                         |                        | Inhibition of Complex III               |

ADP, adenosine diphosphate; ATP, adenosine triphosphate; CCCP, carbonyl cyanide m-chlorophenyl