

**Mitochondrial Respiration Rate (nmols O<sub>2</sub>/min/mg protein), means ±SEM N≥5**

| [O <sub>2</sub> ] (μM) | Glutamate Malate Malonate (A) | Glutamate Malate Malonate Rotenone (B) | Glutamate Malate Malonate Antimycin A (C) | Succinate (D) | Succinate Rotenone (E) | Succinate Antimycin A (F) | Succinate Rotenone Antimycin A (G) | Glutamate Malate Succinate (H) | Glutamate Malate Succinate Antimycin A (J) | Palmitoyl Carnitine (K) | Palmitoyl Carnitine Rotenone (L) |
|------------------------|-------------------------------|--|---|---------------|------------------------|---------------------------|------------------------------------|--------------------------------|--|-------------------------|----------------------------------|
| 0                      | 0.0±0.0                       | 0.0±0.0                                | 0.0±0.0                                   | 0.0±0.0       | 0.0±0.0                | 0.0±0.0                   | 0.0±0.0                            | 0.0±0.0                        | 0.0±0.0                                    | 0.0±0.0                 | 0.0±0.0                          |
| 0.1                    | 2.5±1.5                       | 1.5±0.1                                | 1.2±0.6                                   | 1.4±0.1       | 1.1±0.5                | 1.1±1.1                   | 0.3±0.2                            | 7.8±2.0                        | 0.1±0.0                                    | 2.6±2.0                 | 1.1±1.0                          |
| 0.2                    | 3.1±1.3                       | 1.5±0.1                                | 1.3±0.6                                   | 2.6±0.3       | 2.1±0.7                | 1.1±1.1                   | 0.3±0.2                            | 11.1±2.3                       | 0.1±0.1                                    | 3.2±2.2                 | 1.2±1.0                          |
| 0.5                    | 4.2±1.1                       | 1.5±0.1                                | 1.4±0.5                                   | 5.6±0.5       | 4.2±1.4                | 1.1±1.0                   | 0.4±0.2                            | 15.3±2.3                       | 0.3±0.1                                    | 4.3±2.1                 | 1.3±0.9                          |
| 1                      | 5.3±1.0                       | 1.5±0.1                                | 1.5±0.5                                   | 9.0±0.7       | 6.4±1.6                | 1.2±1.0                   | 0.6±0.2                            | 17.9±2.2                       | 0.5±0.2                                    | 5.2±1.8                 | 1.5±0.8                          |
| 2                      | 6.2±0.9                       | 1.5±0.1                                | 1.7±0.5                                   | 12.9±0.8      | 9.2±1.4                | 1.2±1.0                   | 0.7±0.3                            | 19.7±2.2                       | 0.8±0.3                                    | 6.3±1.3                 | 1.7±0.7                          |
| 5                      | 7.0±0.9                       | 1.5±0.1                                | 2.1±0.4                                   | 17.5±0.9      | 13.2±1.4               | 1.5±0.9                   | 1.0±0.3                            | 21.0±2.4                       | 1.3±0.3                                    | 7.5±0.7                 | 2.0±0.5                          |
| 10                     | 7.3±1.0                       | 1.5±0.1                                | 2.6±0.3                                   | 19.9±0.8      | 15.6±1.8               | 1.7±0.8                   | 1.3±0.3                            | 21.5±2.5                       | 1.6±0.4                                    | 8.1±0.4                 | 2.3±0.5                          |
| 20                     | 7.5±1.0                       | 1.5±0.1                                | 3.0±0.3                                   | 21.3±0.8      | 17.4±2.3               | 2.1±0.6                   | 1.6±0.4                            | 21.7±2.5                       | 2.0±0.3                                    | 8.5±0.3                 | 2.5±0.5                          |
| 50                     | 7.62±1.0                      | 1.5±0.1                                | 3.5±0.4                                   | 22.3±0.8      | 18.7±2.7               | 2.8±0.3                   | 2.0±0.5                            | 21.9±2.6                       | 2.4±0.3                                    | 8.8±0.2                 | 2.7±0.5                          |
| 100                    | 7.66±1.0                      | 1.5±0.1                                | 3.8±0.4                                   | 22.6±0.8      | 19.2±2.8               | 3.2±0.0                   | 2.2±0.6                            | 21.9±2.6                       | 2.6±0.3                                    | 8.9±0.2                 | 2.8±0.6                          |
| 200                    | 7.68±1.0                      | 1.5±0.1                                | 4.0±0.5                                   | 22.8±0.8      | 19.5±2.9               | 3.6±0.3                   | 2.3±0.6                            | 22.0±2.6                       | 2.7±0.3                                    | 9.0±0.2                 | 2.8±0.6                          |

**Mitochondrial ROS generation (pmols H<sub>2</sub>O<sub>2</sub>/min/mg protein), means ±SEM N≥5**

| [O <sub>2</sub> ] (μM) | Glutamate Malate Malonate (A) | Glutamate Malate Malonate Rotenone (B) | Glutamate Malate Malonate Antimycin A (C) | Succinate (D) | Succinate Rotenone (E) | Succinate Antimycin A (F) | Succinate Rotenone Antimycin A (G) | Glutamate Malate Succinate (H) | Glutamate Malate Succinate Antimycin A (J) | Palmitoyl Carnitine (K) | Palmitoyl Carnitine Rotenone (L) |
|------------------------|-------------------------------|--|---|---------------|------------------------|---------------------------|------------------------------------|--------------------------------|--|-------------------------|----------------------------------|
| 0                      | 0.0±0.0                       | 0.0±0.0                                | 0.0±0.0                                   | 0.0±0.0       | 0.0±0.0                | 0.0±0.0                   | 0.0±0.0                            | 0.0±0.0                        | 0.0±0.0                                    | 0.0±0.0                 | 0.0±0.0                          |
| 0.1                    | 78.0±22.4                     | 14.7±3.7                               | 17.0±6.2                                  | 38.0±25.1     | 16.7±5.6               | 3.2±0.5                   | 19.2±9.4                           | 78.8±24.9                      | 16.7±12.2                                  | 28.7±8.8                | 7.2±2.3                          |
| 0.2                    | 112.4±27.8                    | 27.9±6.8                               | 31.8±11.3                                 | 61.1±35.4     | 27.5±7.7               | 6.4±1.0                   | 35.2±16.6                          | 112.2±30.4                     | 30.5±21.8                                  | 51.1±14.8               | 13.8±4.3                         |
| 0.5                    | 159.1±31.5                    | 59.9±6.8                               | 66.8±22.4                                 | 99.9±45.1     | 46.4±8.5               | 15.8±2.4                  | 70.8±30.4                          | 160.2±37.4                     | 61.0±41.1                                  | 97.0±23.8               | 31.1±8.9                         |
| 1                      | 189.8±30.0                    | 97.83±20.3                             | 106.7±33.2                                | 135.3±47.0    | 62.1±6.7               | 30.5±4.7                  | 108.9±41.3                         | 194.7±38.5                     | 93.8±57.6                                  | 140.3±27.0              | 53.7±13.4                        |
| 2                      | 214.2±26                      | 144.1±26.1                             | 155.7±42.5                                | 155.7±42.5    | 76.4±3.6               | 57.1±8.5                  | 153.1±47.9                         | 226.6±34.9                     | 134.2±70.6                                 | 184.0±23.3              | 85.2±16.8                        |
| 5                      | 235.9±21.2                    | 204.6±29.7                             | 227.1±46.5                                | 226.2±33.2    | 90.2±3.9               | 119.8±17.0                | 215.7±44.6                         | 264.4±31.8                     | 201.1±76.5                                 | 232.2±10.1              | 135.5±14.3                       |
| 10                     | 245.4±19.6                    | 240.5±29.4                             | 282.6±41.1                                | 261.2±19.8    | 96.5±6.3               | 189.2±25.2                | 262.7±33.3                         | 287.3±37.8                     | 263.3±72.2                                 | 257.6±3.8               | 173.2±6.2                        |
| 20                     | 250.8±19.2                    | 265.1±28.5                             | 337.1±30.5                                | 289.6±8.0     | 100.2±7.9              | 266.6±33.3                | 305.4±18.5                         | 303.4±46.1                     | 330.9±62.4                                 | 273.7±10.6              | 204.6±7.5                        |
| 50                     | 254.3±19.2                    | 283.4±27.6                             | 400.0±22.9                                | 314.9±15.4    | 102.5±9.0              | 353.5±41.3                | 348.5±14.4                         | 315.6±53.8                     | 412.3±48.3                                 | 285.0±16.7              | 232.4±20.5                       |
| 100                    | 255.6±19.2                    | 290.3±27.3                             | 435.0±29.7                                | 325.8±22.5    | 103.4±9.4              | 396.8±45                  | 369.2±23.6                         | 320.2±57.0                     | 457.8±43.3                                 | 289.1±19.1              | 244.2±27.0                       |
| 200                    | 256.2±19.3                    | 293.9±27.2                             | 457.9±37.8                                | 331.9±26.7    | 103.8±9.6              | 422.7±47.2                | 381.5±30.6                         | 322.6±58.8                     | 487.4±43.1                                 | 291.2±20.3              | 250.9±30.9                       |

**Derived Rates of ROS generation (pmols H<sub>2</sub>O<sub>2</sub>/min/mg protein)**

| [O <sub>2</sub> ] (μM) | Complex I<br>FMN | Complex I<br>Backflow | Complex III<br>Q <sub>o</sub> | β-oxidation<br>ETF:QOR |
|------------------------|------------------|-----------------------|-------------------------------|------------------------|
| 0                      | 0.0              | 0.0                   | 0.0                           | 0.0                    |
| 0.1                    | 66.7             | 21.9                  | 16.9                          | 1.44                   |
| 0.2                    | 94.5             | 35.5                  | 26.6                          | 4.77                   |
| 0.5                    | 130.0            | 59.7                  | 43.3                          | 16.37                  |
| 1                      | 150.4            | 79.9                  | 58.8                          | 33.68                  |
| 2                      | 163.0            | 98.4                  | 76.2                          | 59.27                  |
| 5                      | 168.7            | 116.3                 | 100.0                         | 101.53                 |
| 10                     | 167.1            | 124.5                 | 116.6                         | 133.54                 |
| 20                     | 163.3            | 129.3                 | 130.2                         | 160.28                 |
| 50                     | 158.6            | 132.5                 | 142.5                         | 183.94                 |
| 100                    | 156.3            | 133.6                 | 147.8                         | 194.01                 |
| 200                    | 154.9            | 134.2                 | 150.7                         | 199.61                 |