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| **Table S1. Platelet Mitochondria Biomarkers** | **Cox Vmax (SD)** | **CS Vmax (SD)** | **n** |
| ***APOE ε4/ε4*** | 2.57 (1.4) | 168.2 (63.2) | 9 |
| ***APOE ε3/ε4*** | 2.81 (1.2) | 161 (75.4) | 22 |
| ***APOE ε3/ε3*** | 4.05 (2.0) | 200.3 (118.8) | 19 |
| ***APOE ε2/ε3*** | 2.32 (1.0) | 172 (101.7) | 3 |
| ***APOE ε2/ε4*** | 4.00 | 164 | 1 |
| **Mean (standard deviation)** | | | |

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| **Table S2. Fresh Lymphocyte Biomarkers** | **Annexin V %** | **JC1 (Red/Green Ratio)** | **MitoSox %** | **MitoTracker (AFU)** | **n** |
| ***APOE ε4/ε4*** | 33.4 (5.6) | 3.5 (1) | 46.1 (31.8) | 668.4 (628) | 6 |
| ***APOE ε3/ε4*** | 34.3 (9.6) | 3.45 (1) | 35.7 (29.6) | 1333 (1111) | 15 |
| ***APOE ε3/ε3*** | 27.2 (8.3) | 3.45 (0.89) | 32.5 (25.9) | 1397 (1051) | 15 |
| ***APOE ε2/ε3*** | 40.3 (25.9) | 3.11 (0.21) | 28.6 (7.8) | 1508 (934) | 2 |
| **Mean (standard deviation)** | | | | | |

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| **Table S3. Biomarkers Vs Sex** | | | | |
| **Biomarker** | **Male** | **Female** | **p Value** | **n (M/F)** |
| **COX Vmax** | 3.29 (1.9) | 3.09 (1.2) | 0.662 | 29/25 |
| **CS Vmax** | 193.3 (109.3) | 157.4 (61.5) | 0.137 | 29/25 |
| **Annexin V %** | 32.1 (10.5) | 31.5 (9.4) | 0.848 | 24/22 |
| **JC1 (Red/Green)** | 3.14 (0.82) | 3.74 (1.0) | 0.031 | 24/22 |
| **MitoSox %** | 29.6 (26.1) | 34.4 (29.6) | 0.558 | 24/22 |
| **MitoTracker (AFU)** | 88983 (61461.7) | 93354 (69447) | 0.822 | 24/22 |
| **Mean (Standard Deviation)** | | | | |

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| **Table S4. Protein Expression Data** | | |
| **Protein Target** | **Fold Change *APOE ε4* Carrier VS Non-Carrier** | **p Value** |
| **ACC** | **2.24** | **0.005** |
| **AceCSI** | **1.93** | **0.023** |
| ACSL1 | 1.05 | 0.822 |
| **ATPCL** | **1.59** | **0.013** |
| BNIP3L | 1.05 | 0.881 |
| Cleaved Caspase 3 | 0.94 | 0.798 |
| COX4I1 | 1.32 | 0.079 |
| CS | 1.38 | 0.259 |
| Fatty Acid Synthase | 1.27 | 0.268 |
| JNK | 1.34 | 0.08 |
| Lipin | 0.87 | 0.498 |
| mtCO2 | 1.02 | 0.912 |
| mTOR | 1.25 | 0.305 |
| ND1 | 1.06 | 0.781 |
| NfKB | 0.91 | 0.71 |
| **pACC/ACC** | **1.69** | **0.032** |
| PARKIN | 1.41 | 0.21 |
| pATPCL/ATPCL | 0.929 | 0.768 |
| pHSP27 | 0.92 | 0.713 |
| **PINK1** | **1.76** | **0.034** |
| pJNK/JNK | 0.75 | 0.168 |
| **pmTOR/mTOR** | **0.78** | **0.047** |
| **pSIRT1** | **2.12** | **0.042** |
| SOD2 | 1.39 | 0.09 |
| TFAM | 0.96 | 0.919 |