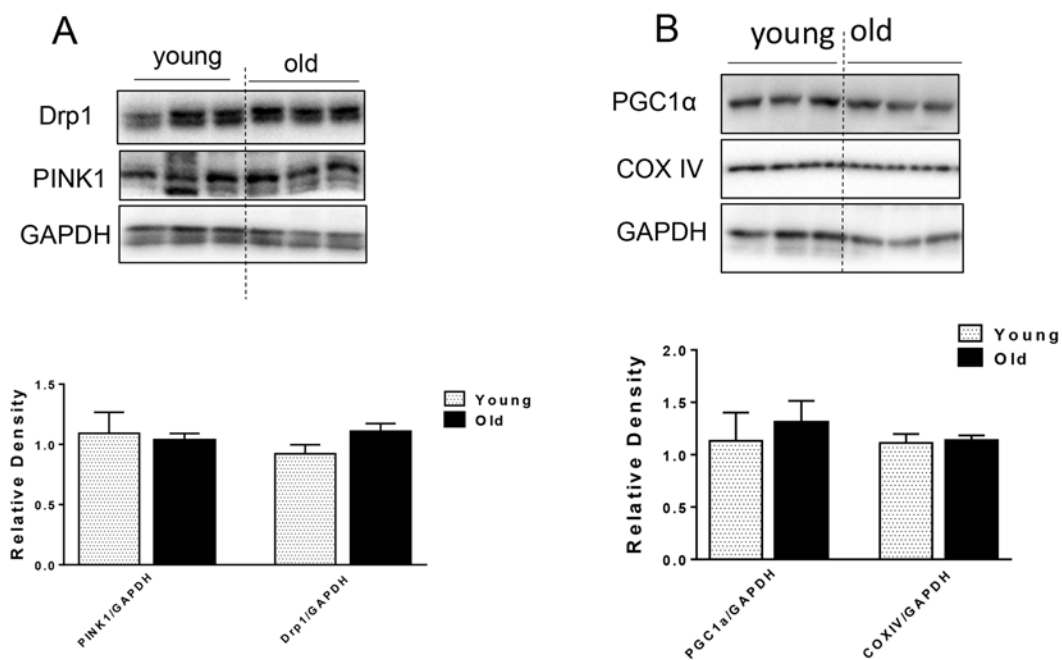
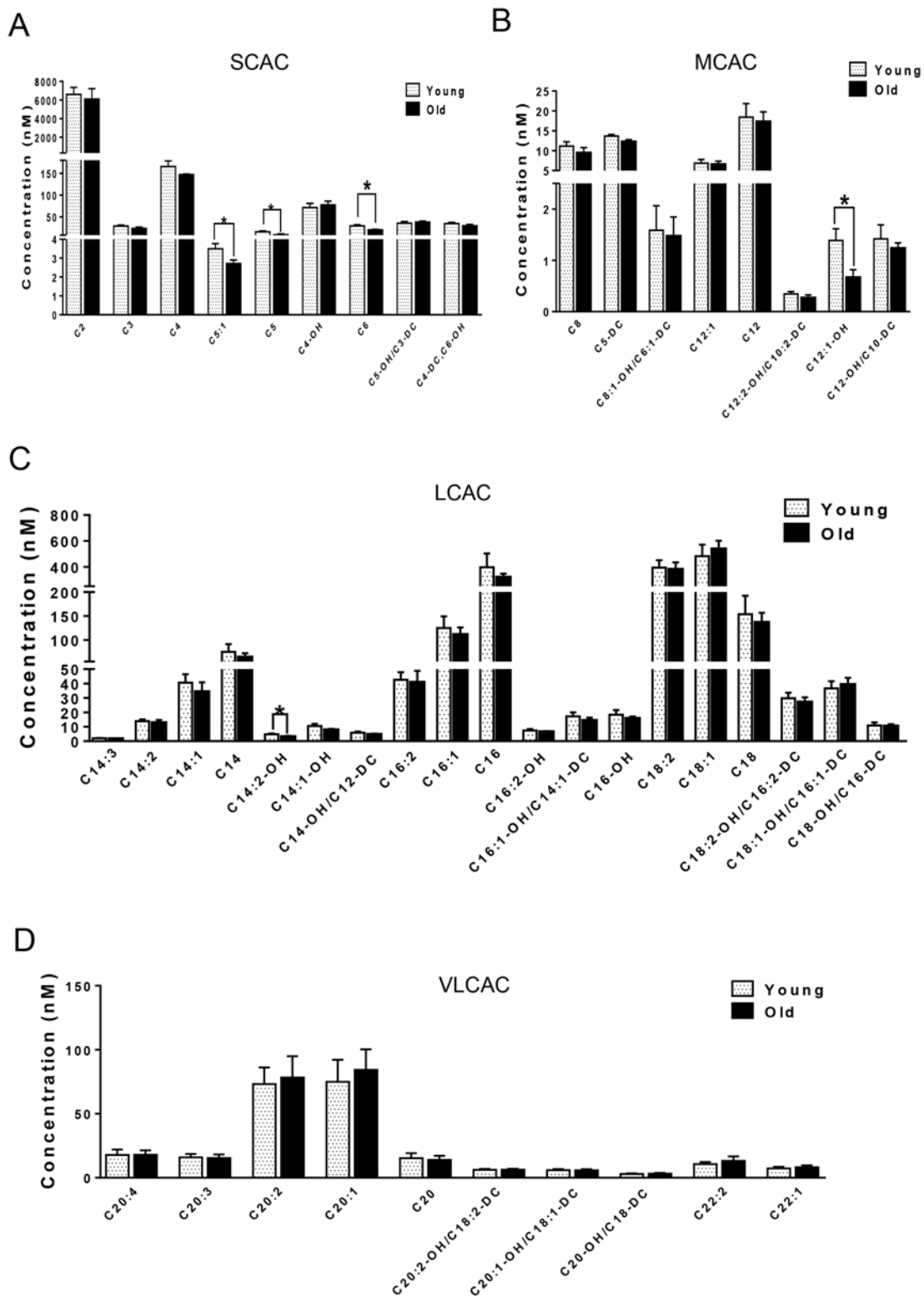


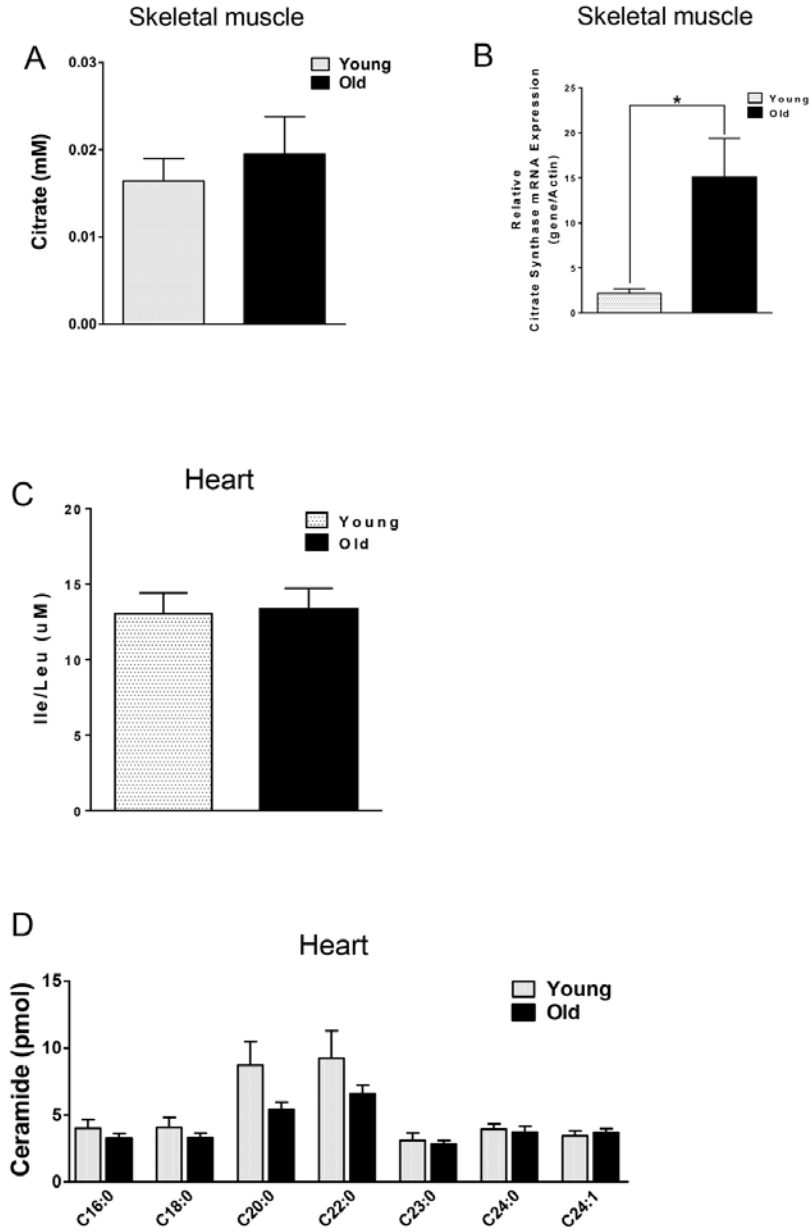
## SUPPLEMENTARY MATERIALS



**Supplementary Figure S1. The protein level of mitochondrial quality control markers in young and old heart. (A)** Immunoblot and densitometric analysis of PINK1 and Drp1. **(B)** Immunoblot and densitometric analysis of PGC1  $\alpha$  and COXIV. Values are means $\pm$ SEM for 6 young and 5 old mice in each group.



**Supplementary Figure S2. Metabolomic analysis of acylcarnitines from skeletal muscle of young and old mice.** (A-D) Metabolomic profiles of SCACs, MCACs, LCACs, VLCACs levels in cardiac muscle from young and old mice. Values are means±SEM for 6 young and 5 old mice in each group. \*P < 0.05.



**Supplementary Figure S3. Differential changes of metabolites in skeletal and cardiac muscle from young and old mice. (A)** Citrate concentration in the young and old heart. **(B)** Increased mRNA expression of citrate synthase (CS) in old skeletal muscle. **(C)** Branched chain amino acid (BCAA) in the young and old heart. **(D)** Ceramide in young and old skeletal heart. Values are means±SEM for 6 young and 5 old mice in each group. \*P < 0.05. \*\*P < 0.01.