

Figure S1. Impairment of mitochondrial biogenesis and the ubiquitin-proteasome system in rat L6 myocytes by LPS and TNF- $\alpha$ . (A and B) Relative mRNA expression levels of (A) *Ppargc1a* and *Tfam*, and (B) *Atrogin-1* and *MuRF-1* in LPS-stimulated rat L6 myocytes. (C and D) Relative mRNA expression levels of (C) *Ppargc1a* and *Tfam*, and (D) *Atrogin-1* and *MuRF-1* in the TNF- $\alpha$ -stimulated rat L6 myocytes. The mRNA expression levels were measured using reverse transcription-quantitative PCR, and *Gapdh* was used as an internal control. Quantitative values are indicated as fold changes to the values of the non-treated groups (A-D). Data are the mean  $\pm$  SD (n=8). <sup>a</sup>P<0.05 and <sup>aa</sup>P<0.01 vs. LPS (0  $\mu$ g/ml), <sup>b</sup>P<0.05 and <sup>bb</sup>P<0.01 vs. TNF- $\alpha$  (0 ng/ml). LPS, lipopolysaccharide; Ppargc1a, peroxisome proliferator-activated receptor  $\gamma$  coactivator-1 $\alpha$ ; Tfam, mitochondrial transcription factor A; MuRF-1, muscle RING-finger protein-1.

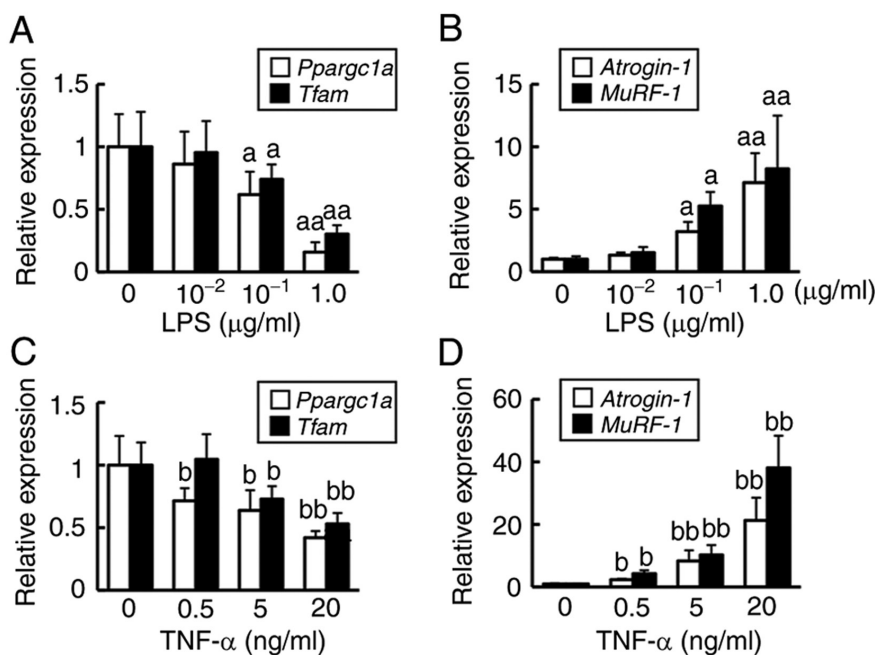


Figure S2. Cellular mitochondrial biogenesis in TNF- $\alpha$ -stimulated rat L6 myocytes. (A) *In vitro* experimental protocol. (B and C) Effects of L-carnitine (L-CAR) and/or rifaximin (RFX) on the mRNA expressions of *Atrogin-1* and *MuRF-1* (A), and *Ppargc1a* and *Tfam* (B) in the TNF- $\alpha$ -stimulated rat L6 myocytes. The mRNA expression levels were measured by qRT-PCR, and *Gapdh* was used as internal control. (D) Representative images of TMRM live stains corresponding to mitochondrial membrane potential. Scale bar, 20  $\mu$ m. (E) Quantification of TMRM intensity per cell; data are shown as the mean  $\pm$  SD for 100 cells per condition in three representative experiments. (F) Measurements of OCR using the seahorse extracellular flux analyzer. (G) Calculations of the basal and maximal respiration rates. Cells were treated with TNF- $\alpha$  (20 ng/ml) and L-carnitine (5 mM) and/or RFX (10  $\mu$ M) for 48 h. Quantitative values are indicated as fold changes to the values of non-treated (NT) groups (B, C and D). Data are the mean  $\pm$  SD; (B and C) n=8 (E) n=3; or the mean  $\pm$  SEM (F and G) n=5). <sup>aa</sup>P<0.01 vs. TNF- $\alpha$  (-)/L-CAR (-)/RFX (-), <sup>b</sup>P<0.05 and <sup>bb</sup>P<0.01 vs. TNF- $\alpha$  (+)/L-CAR (-)/RFX (-). TMRM, tetramethylrhodamine methyl ester; OCR, oxygen consumption rate; CSAA, choline-sufficient amino acid-defined diet; RFX, rifaximin; L-CAR, L-carnitine; Ppargc1a, peroxisome proliferator-activated receptor  $\gamma$  coactivator-1 $\alpha$ ; Tfam, mitochondrial transcription factor A; MuRF-1, muscle RING-finger protein-1.

