Supplementary Information

Figure Legends

**Supp. Fig. 1.** Western blot analysis of PGC-1α in passage 1 PGC-1α<sup>+/+</sup> and PGC-1α<sup>-/-</sup> MEFs. Panel shows the whole developed membrane of a representative western blot.

**Supp. Fig. 2.** Western blot analysis of PGC-1α in serially-passed PGC-1α<sup>+/+</sup> MEFs. β-actin was used as a loading control. Panel shows a representative western blot.

**Supp. Fig. 3.** Western blot analysis of AMPK, p-AMPK and MnSOD in serially-passed (p1-3 & p4-6) PGC-1α<sup>+/+</sup> and PGC-1α<sup>-/-</sup> MEFs. The ratio p-AMPK/AMPK represent the mean of individual passages from 3 independent experiments. β-actin was used as a loading control. Data represent the means ± SD. *, p≤0.05; **, p≤0.01; ***, p≤0.005.

**Supp. Fig. 4.** A) Representative immunofluorescence images of PGC-1α<sup>+/+</sup> and PGC-1α<sup>-/-</sup> MEFs showing TP53BP1 and γH2AFX foci (40×). Top panel: Whole image acquired, Bottom panel: zoom-in image. Scale bar, 10 µm.

**Supp. Fig. 5.** Correlative analysis (Pearson correlation) of foci markers showing the correspondence between TP53BP1 and 8-OH-dG (A) and between TP53BP1 and γH2AFX (B) in PGC-1α<sup>+/+</sup> and PGC-1α<sup>-/-</sup> MEFs. P2: Passage 2; P4: Passage 4.

**Supp. Fig. 6.** Western blot analysis of TLS in serially-passed PGC-1α<sup>+/+</sup> and PGC-1α<sup>-/-</sup> MEFs. β-actin was used as a loading control. Panel shows a representative western blot. Data represent the means ± SD. *, p≤0.05; **, p≤0.01; ***, p≤0.005.

**Supp. Fig. 7.** Representative western blots analysis of p53 (total and phosphorylated), p16, p19 and p21 in serially-passaged PGC-1α<sup>+/+</sup> and PGC-1α<sup>-/-</sup> MEFs. β-actin was used as a loading control. Data represent the means ± SD. *, p≤0.05; **, p≤0.01; ***, p≤0.005.