

## Supplementary Information

### Figure Legends

**Supp. Fig. 1.-** Western blot analysis of PGC-1 $\alpha$  in passage 1 PGC-1 $\alpha^{+/+}$  and PGC-1 $\alpha^{-/-}$  MEFs. Panel shows the whole developed membrane of a representative western blot.

**Supp. Fig. 2.-** Western blot analysis of PGC-1 $\alpha$  in serially-passed PGC-1 $\alpha^{+/+}$  MEFs.  $\beta$ -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-1 $\alpha^{+/+}$  and PGC-1 $\alpha^{-/-}$  MEFs. The ratio p-AMPK/AMPK represent the mean of individual passages from 3 independent experiments.  $\beta$ -actin was used as a loading control. Data represent the means  $\pm$  SD. \*,  $p \leq 0.05$ ; \*\*,  $p \leq 0.01$ ; \*\*\*,  $p \leq 0.005$ .

**Comentado [KM1]:** is this correct. Stat section says  $<0.05$

**Supp. Fig. 4.- A)** Representative immunofluorescence images of PGC-1 $\alpha^{+/+}$  and PGC-1 $\alpha^{-/-}$  MEFs showing TP53BP1 and  $\gamma$ H2AFX foci (40 $\times$ ). Top panel: Whole image acquired, Bottom panel: zoom-in image. Scale bar, 10  $\mu$ m.

**Supp. Fig. 5.-** Correlative analysis (Pearson correlation) of foci markers showing the correspondence between TP53BP1 and 8-OH-dG (A) and between TP53BP1 and  $\gamma$ H2AFX (B) in PGC-1 $\alpha^{+/+}$  and PGC-1 $\alpha^{-/-}$  MEFs. P2: Passage 2; P4: Passage 4.

**Supp. Fig. 6.-** Western blot analysis of TLS in serially-passed PGC-1 $\alpha^{+/+}$  and PGC-1 $\alpha^{-/-}$  MEFs.  $\beta$ -actin was used as a loading control. Panel shows a representative western blot. Data represent the means  $\pm$  SD. \*,  $p \leq 0.05$ ; \*\*,  $p \leq 0.01$ ; \*\*\*,  $p \leq 0.005$ .

**Comentado [KM2]:** is this correct. Stat section says  $<0.05$

**Supp. Fig. 7.-** Representative western blots analysis of p53 (total and phosphorylated), p16, p19 and p21 in serially-passaged PGC-1 $\alpha^{+/+}$  and PGC-1 $\alpha^{-/-}$  MEFs.  $\beta$ -actin was used as a loading control. Data represent the means  $\pm$  SD. \*,  $p \leq 0.05$ ; \*\*,  $p \leq 0.01$ ; \*\*\*,  $p \leq 0.005$ .

**Comentado [KM3]:** is this correct. Stat section says  $<0.05$

