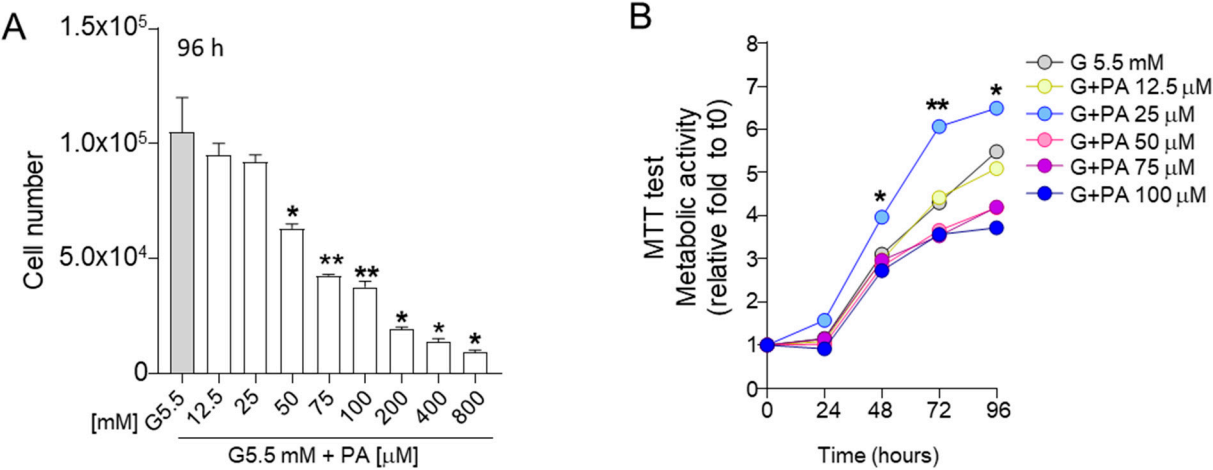
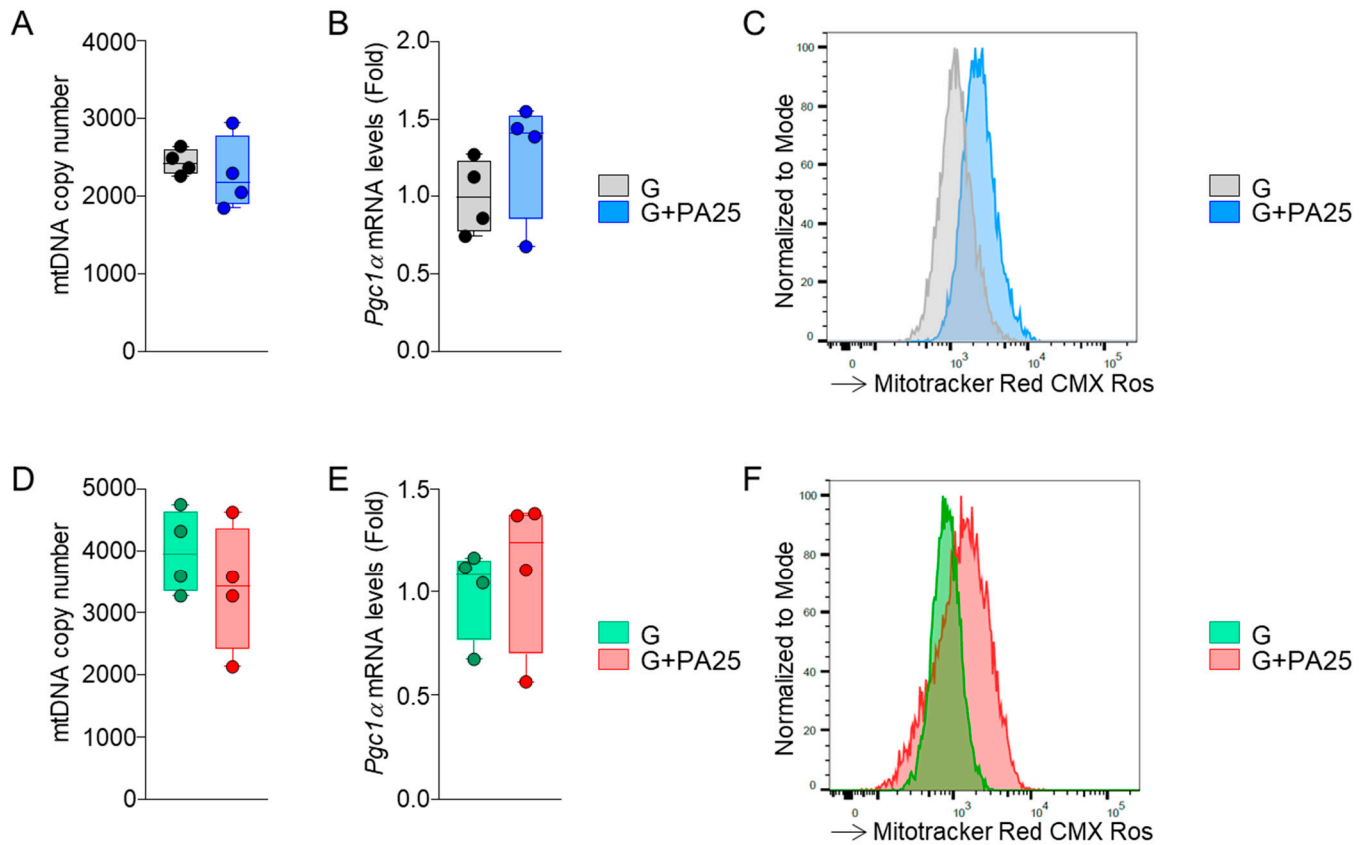


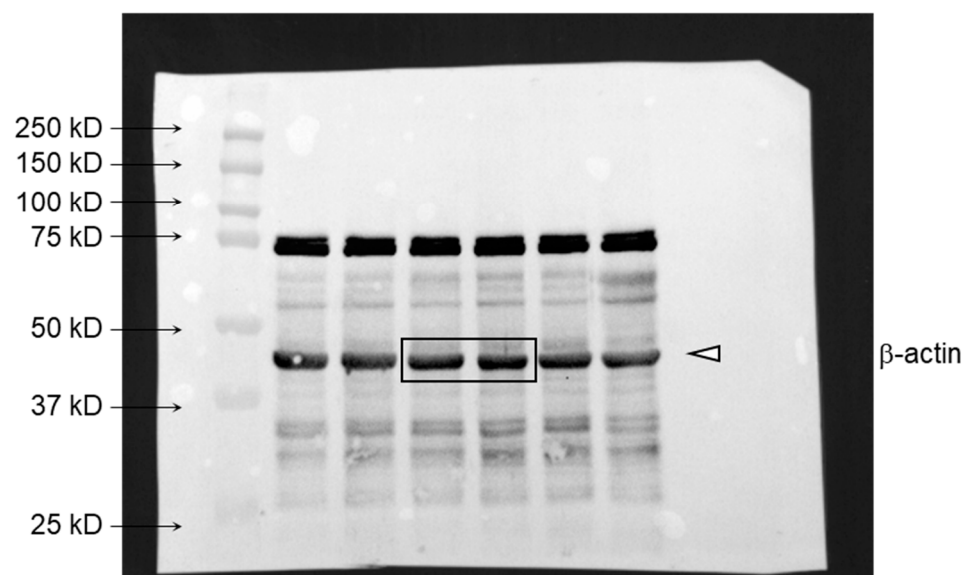
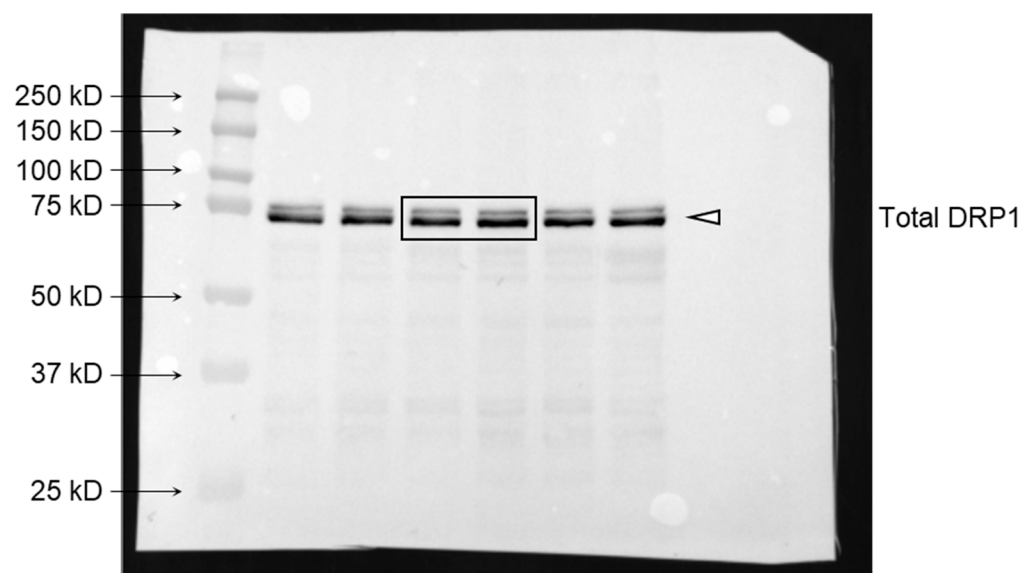
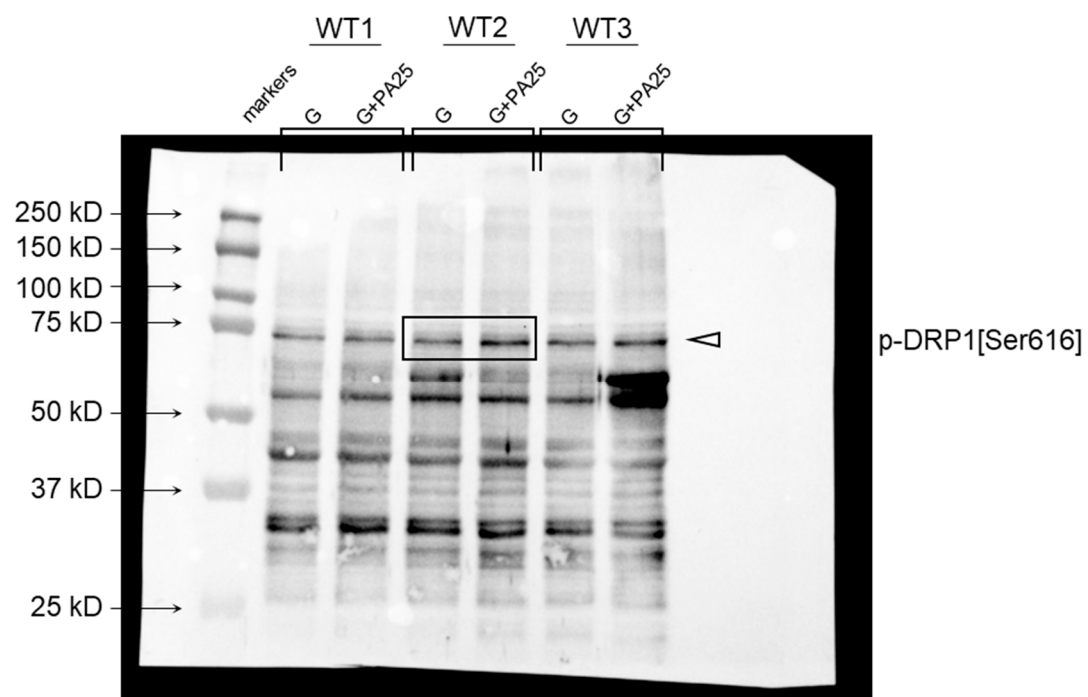
Supplementary Figures and Legends



Supplementary Figure S1. Effect of PA on MC3T3-E1 cell viability and metabolic activity by MTT Test over time. (A) MC3T3-E1 cells were treated for 96 h with Glucose 5.5 mM (G) plus different PA concentrations ranging from 12.5 μ M to 800 μ M. Cell counting is reported ($n = 3$ per group). * $p < 0.05$, ** $p < 0.01$ as compared to G treatment. (B) MTT assay metabolic activity relative fold to t0, over time ($n = 6$ per group). * $p < 0.05$, ** $p < 0.01$ as compared to G treatment at indicated time points. See Supplementary Table S2 for detailed analysis.



Supplementary Figure S2. Effect of G+PA25 on mitochondrial mass and membrane potential in osteogenic-induced cells. (A) mtDNA copy number evaluation ($n = 4$ per group), (B) *Pgc1 α* mRNA levels (Fold) ($n = 4$ per group) and (C) representative histograms relative to Mitotracker RED CMXRos fluorescence intensity reported in Figure 2I, in MC3T3-E1 cell line. (D) mtDNA copy number evaluation ($n = 4$ per group), (E) *Pgc1 α* mRNA levels (Fold) ($n = 4$ per group) and (F) representative histograms relative to Mitotracker RED CMXRos fluorescence intensity reported in Figure 5I, in primary OBs.



Supplementary Figure S3. Representative Western Blot original uncut image (relative to Figure 5L). Representative nitrocellulose membrane image for p-DRP1[Ser616], total DRP1 and β -actin determination in osteogenic-induced pOBs, derived from $n = 3$ animal samples (Wild type, WT C57Bl/6 mice) undergoing G and G+PA25 treatments in culture. The black rectangles identify the cut image reported in the main text in Figure 5L.