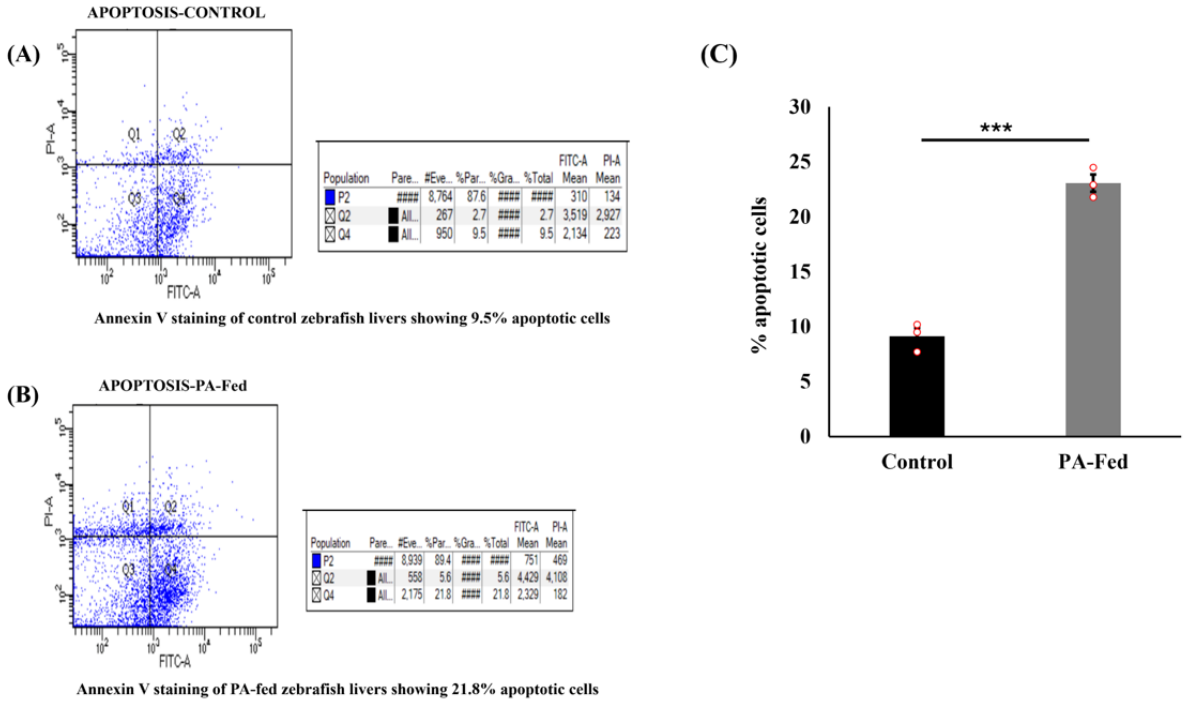
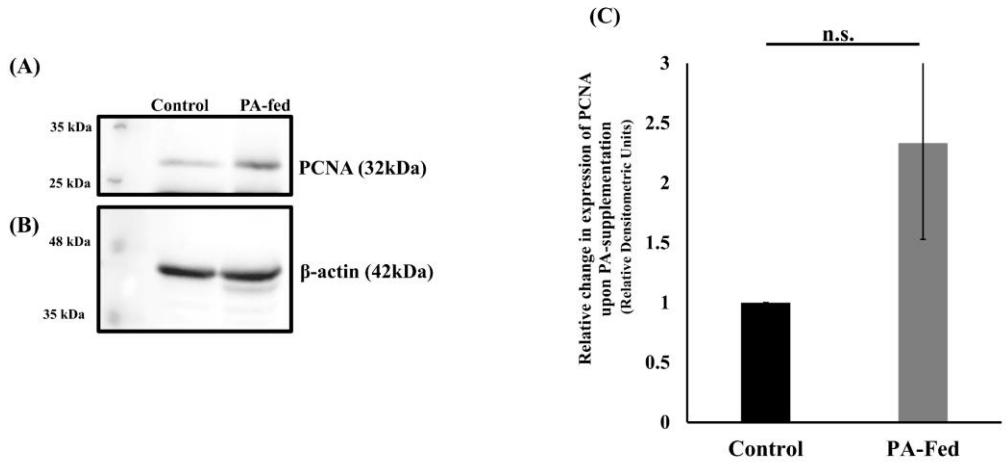
Supplementary Figure 1

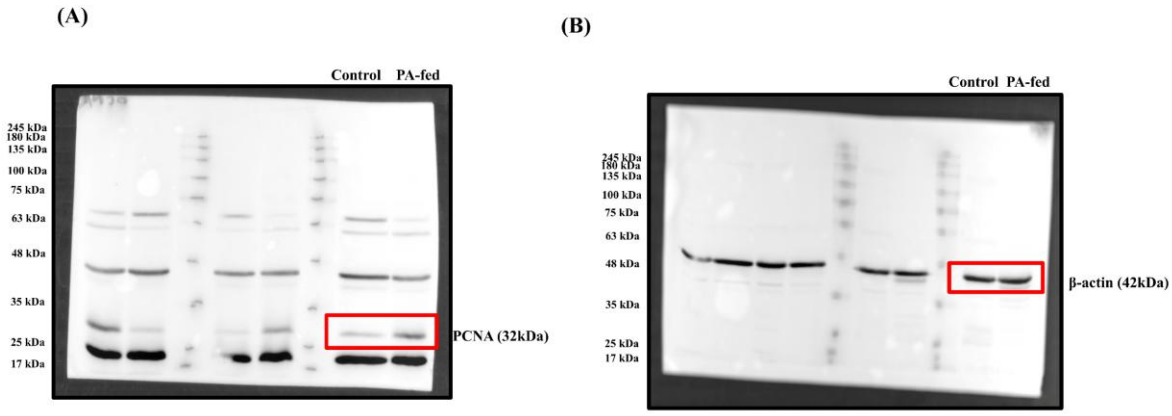


Supplementary Fig. 1 Measurement of cell death in zebrafish liver by Annexin V binding and Propidium Iodide uptake. Representative flow cytometry dot plots of cells isolated from whole zebrafish livers of (A) control and (B) PA-fed group for Annexin V-PI counterstaining (n=3). (C) Flow cytometric analysis of percent apoptotic cells in adult zebrafish liver upon PA-supplementation (n=3) Values are given as mean ± SEM. Student's t test was performed to determine statistical significance. ***$p < 0.001$.

Supplementary Figure 2A

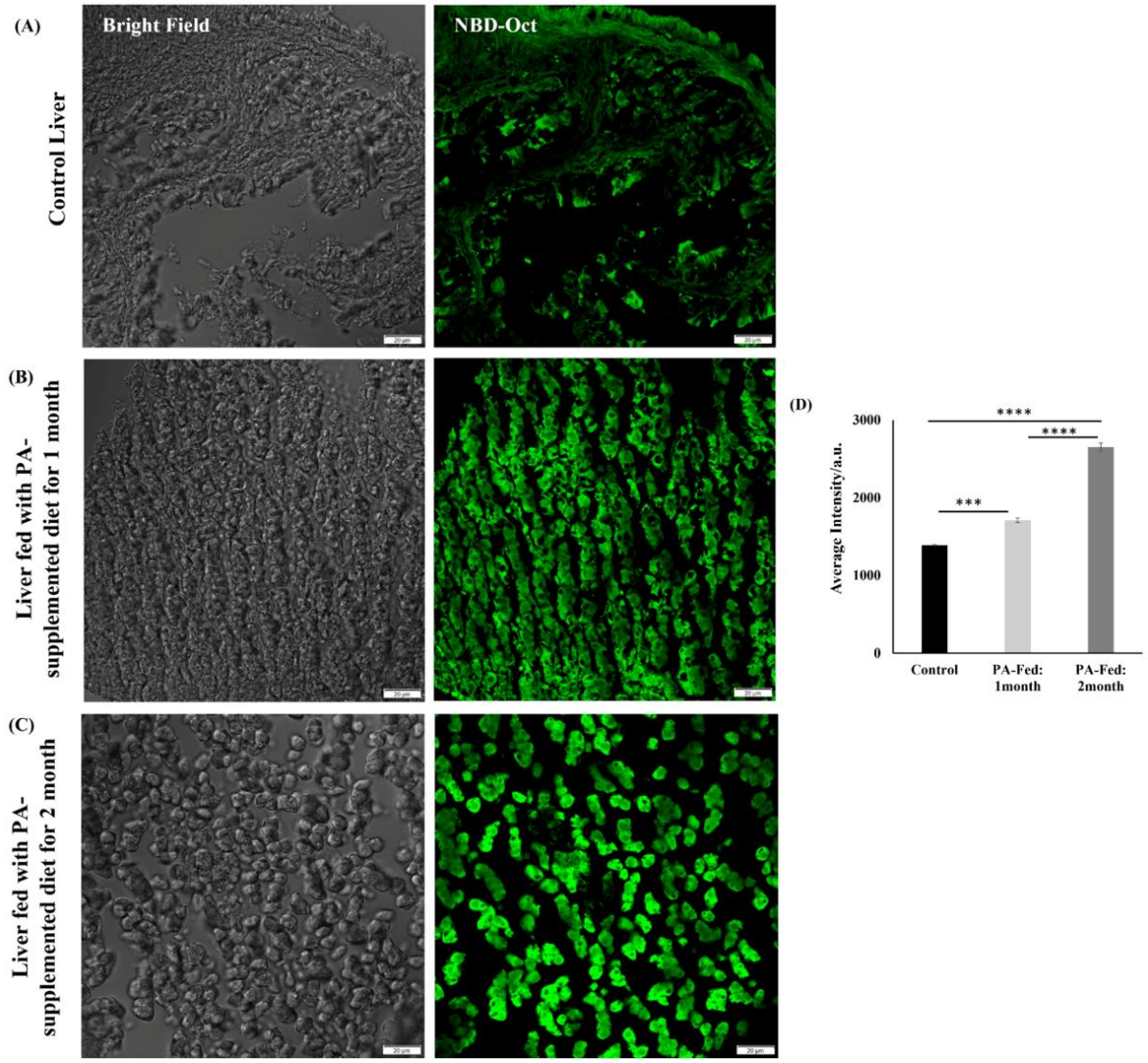


Supplementary Figure 2B



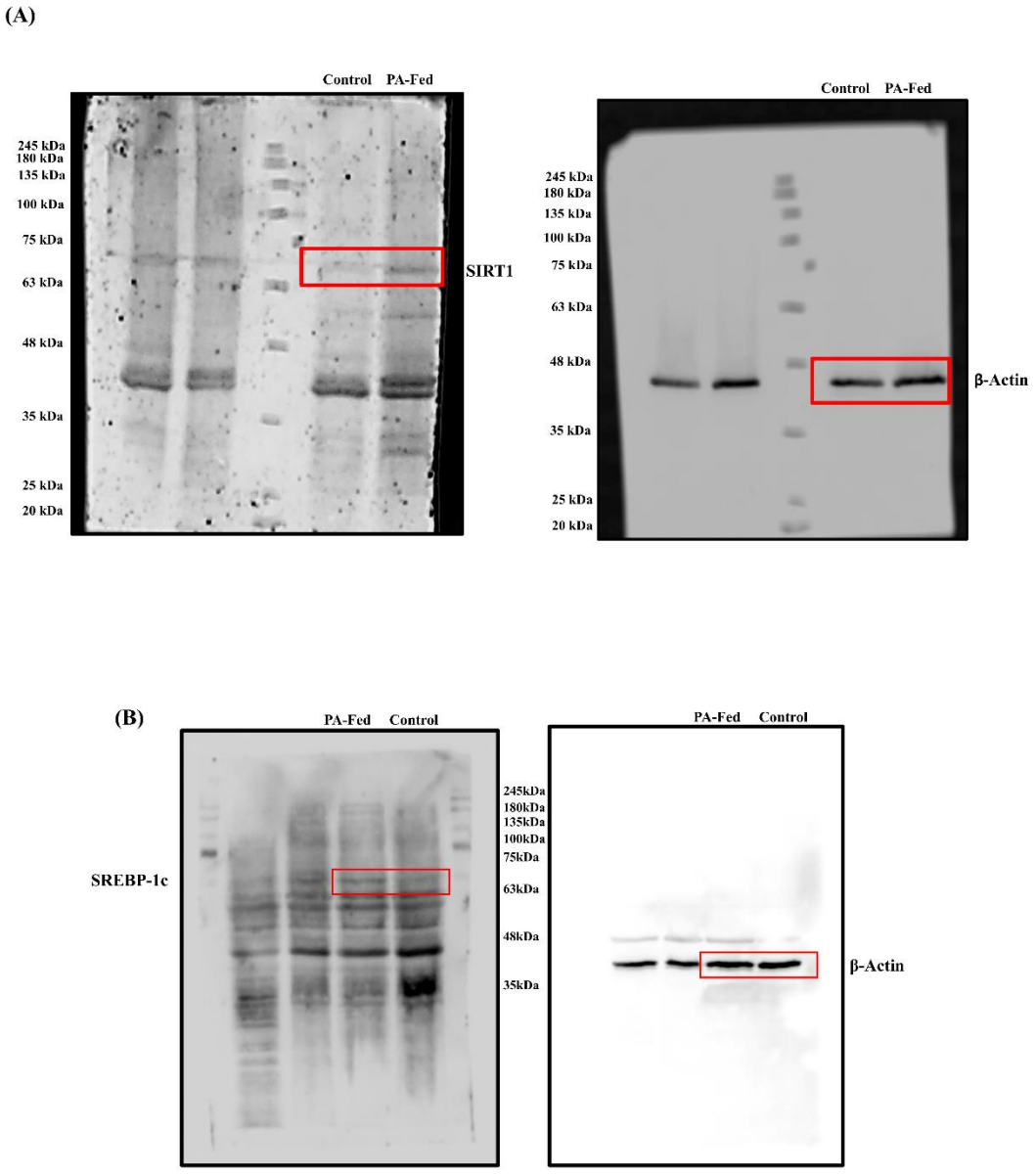
Supplementary Fig. 2A Assessment of cell proliferation upon ingestion of PA-supplemented diet. Western blot analysis for (A) cell proliferation marker PCNA with (B) beta-actin as loading control with liver samples from control and PA-fed groups. (C) The bar graph represents densitometric analysis for relative change in expression of PCNA in control and PA-fed groups ($n = 4$). Values are given as mean ± SEM. Full blots for both PCNA and Beta-actin are provided in **Supplementary figure 2B**.

Supplementary Figure 3A

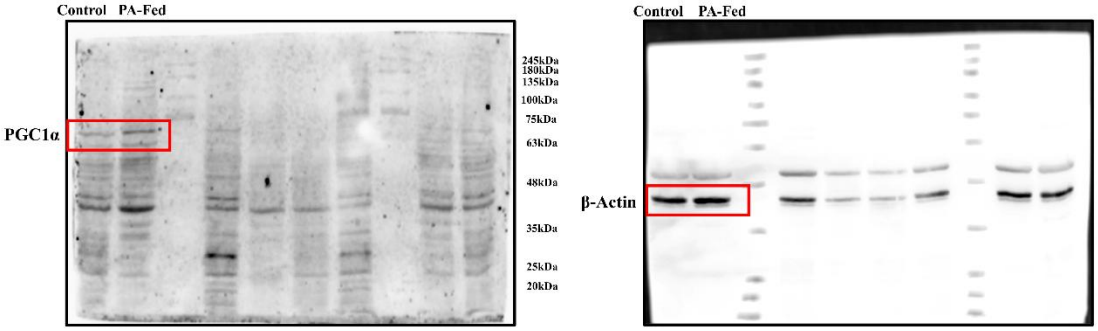


Supplementary Fig. 3A PA-supplemented diet leads to progressive increase in ER lipotoxicity. Fluorescence of NBD-Oct dye increases from (A) control to (B) 1-month PA-fed group and (C) 2-months PA-fed group. Scale Bar: 20µm. (D) Bar graph shows significant increase in fluorescence intensity with continued PA-supplementation as compared to control (*n=4*). Values are represented as mean ± SEM. Student's t test was performed to determine statistical significance. ***$p < 0.001$, ****$p < 0.0001$.

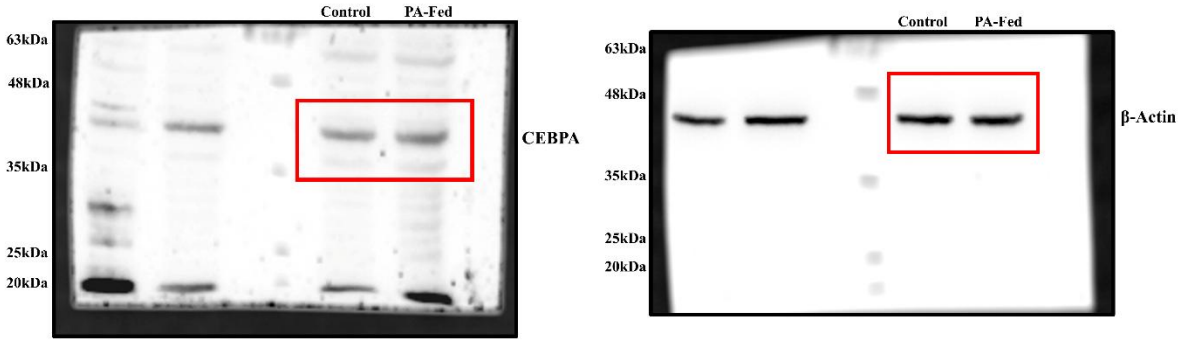
Supplementary Figure 3B



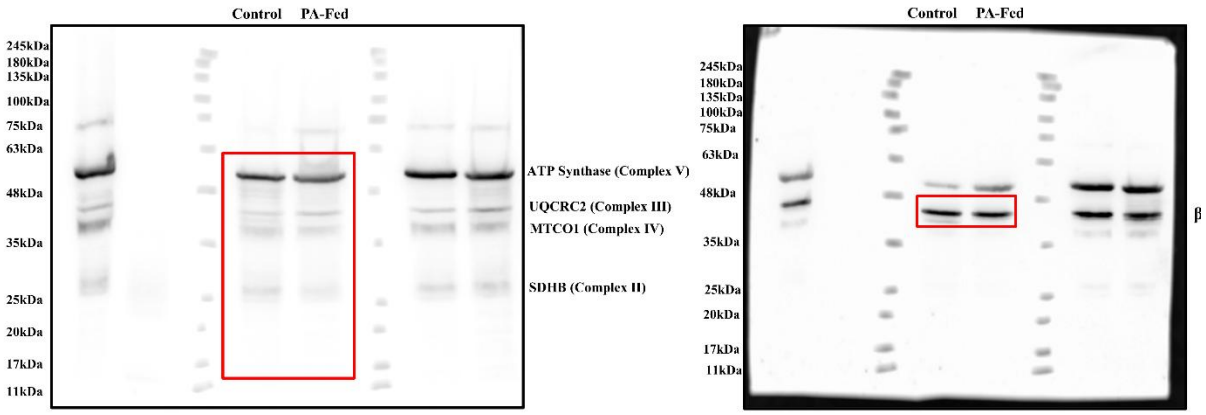
(C)


Control PA-Fed
PGC1α
245kDa
180kDa
135kDa
100kDa
75kDa
63kDa
48kDa
35kDa
25kDa
20kDa
Control PA-Fed
β-Actin

(D)

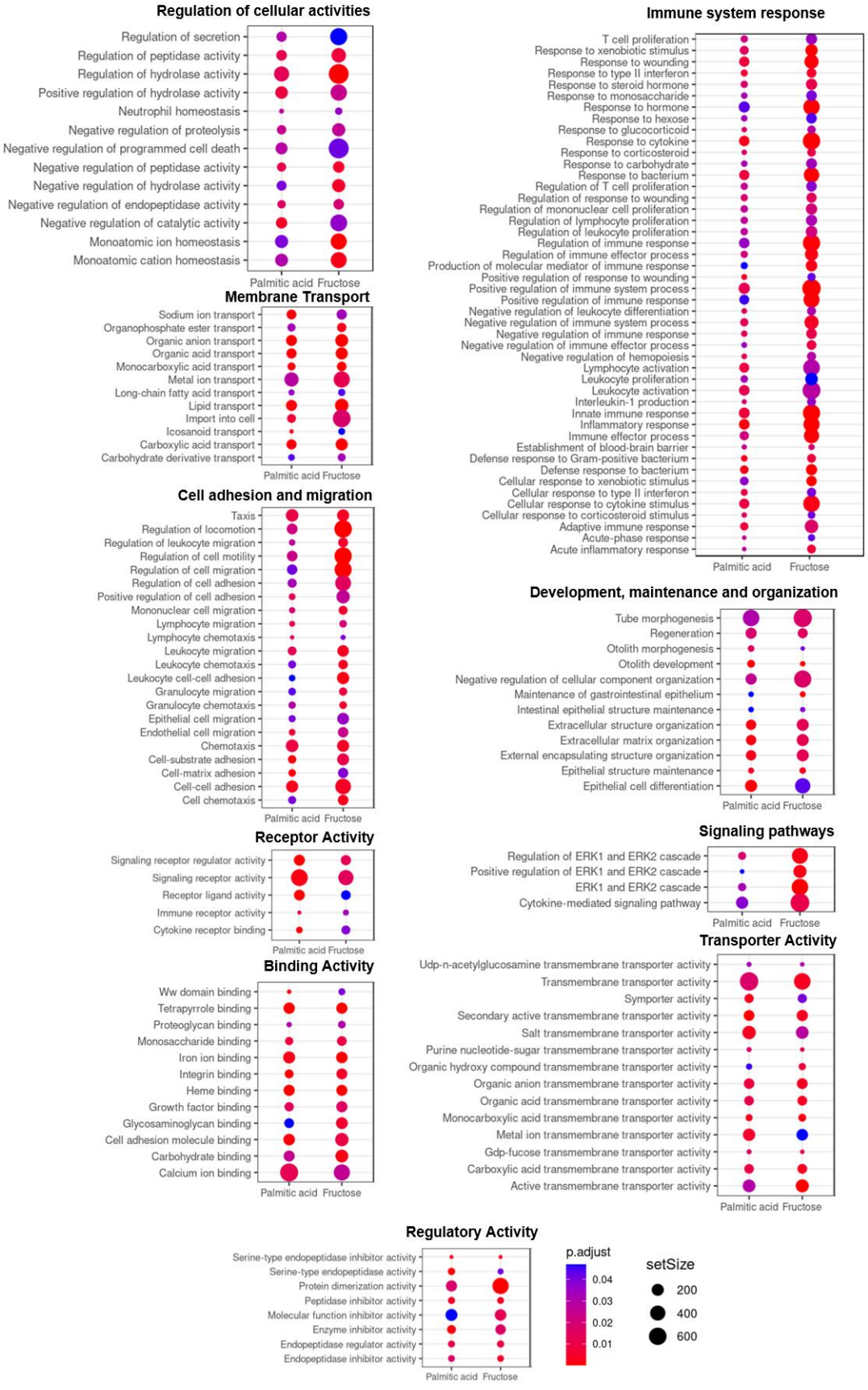

Control PA-Fed
63kDa
48kDa
35kDa
25kDa
20kDa
CEBPA
Control PA-Fed
63kDa
48kDa
35kDa
25kDa
20kDa
β-Actin

(E)



Supplementary Fig 3B: PA-supplementation leads to alterations in expression of proteins involved in regulating hepatic lipid and glucose metabolism and mitochondrial oxidative phosphorylation. PA-supplementation leads to significant increase in expression of (A)SIRT1, (B)SREBP-1c, (C)PGC1α, (D)CEBPA and (E)mitochondrial OXPHOS complex protein levels as seen by immunoblotting(*n=3*). β-actin and HSC 70 used as loading controls. Uncropped blots are presented here.

Supplementary Figure 4



Supplementary Fig. 4 Comparison between palmitic acid- and fructose-based MAFLD model: The dot plots depict the overlap between the categories regulation of cellular activities, membrane transport, cell adhesion and migration, receptor activity, binding activity, immune system response, development, maintenance, and organization, signaling pathways, transporter activity and regulatory activity in palmitic acid- and fructose-based MAFLD model. The vertical items are the names of GO terms, and the length of horizontal graph represents the gene ratio. The depth of the colour represents the adjusted p-value. The area of circle in the graph means gene counts. Constructed with ggplot2 in R package tidyverse (https://www.tidyverse.org/).