

## Online Supplementary Data

### Supplementary Figure Legends

**SUPPLEMENTARY FIGURE 1S.** *Rapamycin, the mTORC1 inhibitor, does not attenuate Elov15 induction of Akt2-S<sup>473</sup> or FoxO1-S<sup>256</sup> phosphorylation in HepG2 cells.* HepG2 cells were infected with Ad-Luc or Ad-Elov15 for 48 hours and serum starved overnight as described above. Cells were treated with vehicle (ethanol) or the mTORC1 inhibitor, rapamycin (100 nM) for 30 minutes in the absence of insulin. Proteins were extracted and protein abundance of mTOR, p70S6 kinase, phospho-p70S6 kinase-T<sup>389</sup>, phospho-mTOR-S<sup>2448</sup>, Akt2, phospho-Akt1/2/3-S<sup>473</sup>, FoxO1 and phospho-FoxO1-S<sup>256</sup> was measured and quantified as described in Materials and Methods. Panel A: Representative immunoblots, 3 cell extracts per treatment. Panels B-E: Phosphorylation status of mTOR-S<sup>2448</sup>, p70S6 kinase-T<sup>389</sup>; Akt2-S<sup>473</sup> and FoxO1-S<sup>256</sup>, respectively. Results are representative of 3 separate studies; results are expressed as mean  $\pm$  SD, n=3. \*,  $p \leq 0.05$  versus Ad-Luc; #,  $p \leq 0.05$  versus vehicle

**SUPPLEMENTARY FIGURE 2S:** *PP242, the mTORC1 and mTORC2 inhibitor attenuates Elov15 control of Akt2-S<sup>473</sup> and FoxO1-S<sup>256</sup> phosphorylation in HepG2 cells.* HepG2 cells were infected with Ad-Luc or Ad-Elov15 for 48 hours and serum starved overnight as described above. Cells were treated with vehicle (DMSO) and the mTORC1 and mTORC2 inhibitor, PP242 (500 nM) for 30 minutes in the absence of insulin. Proteins were extracted and the abundance of mTOR, Phospho-mTOR-S<sup>2448</sup>, p70S6 kinase, phospho-p70S6 kinase-T<sup>389</sup>, Akt2,

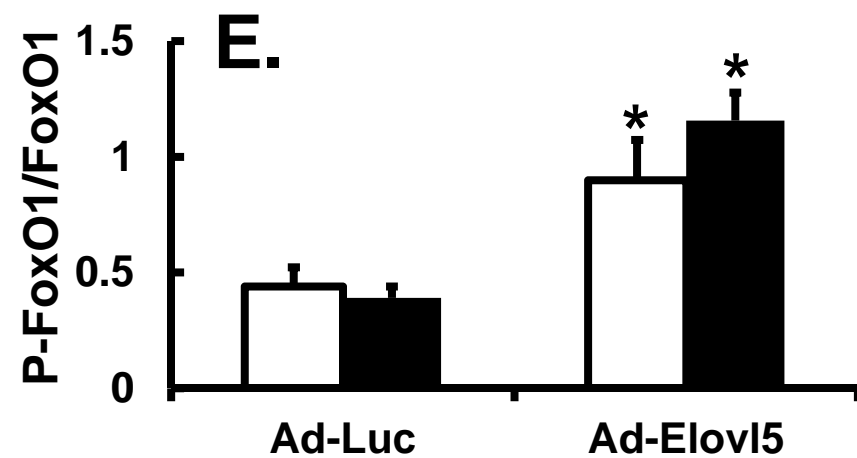
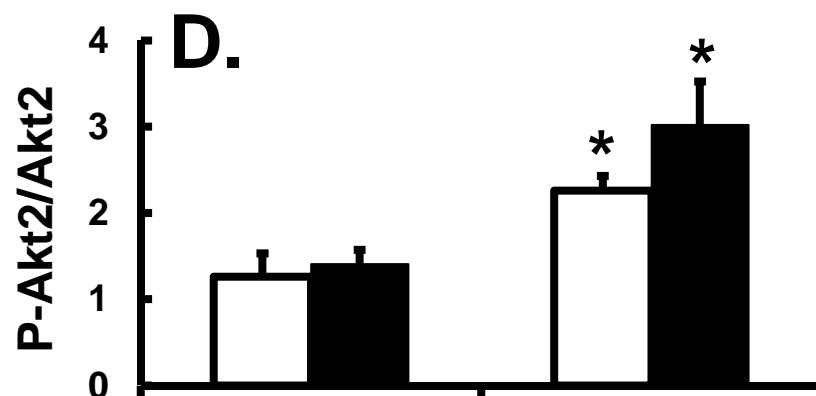
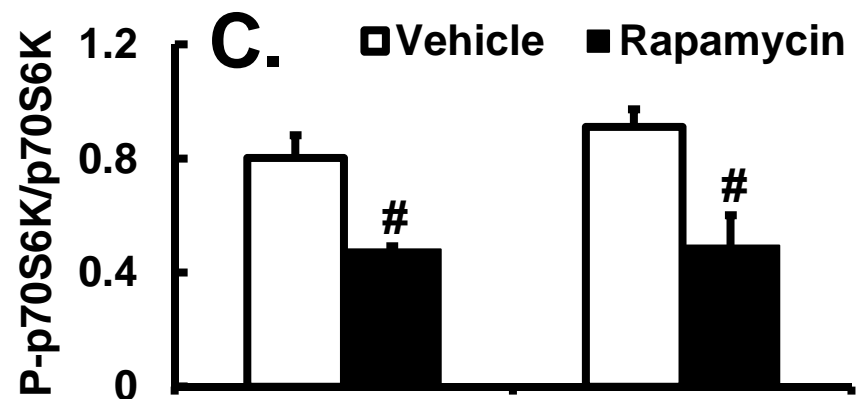
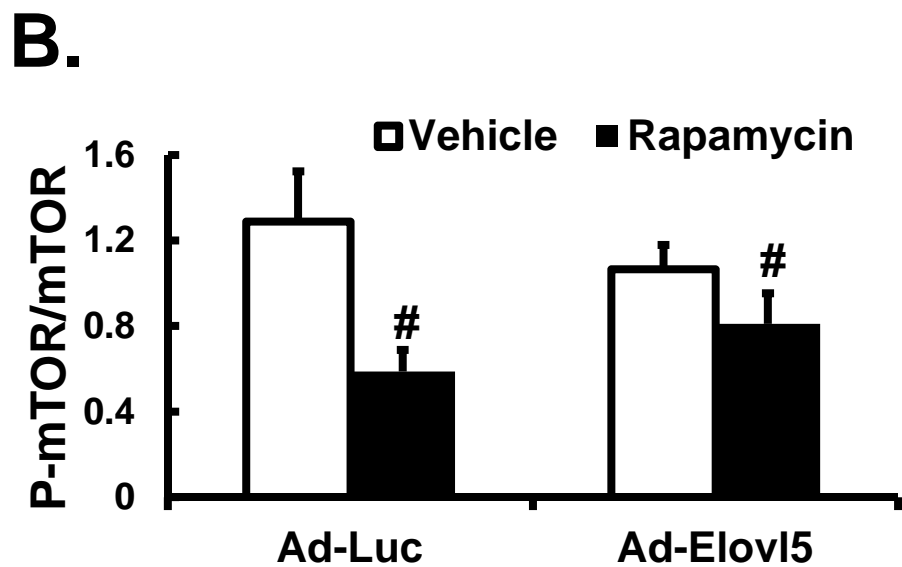
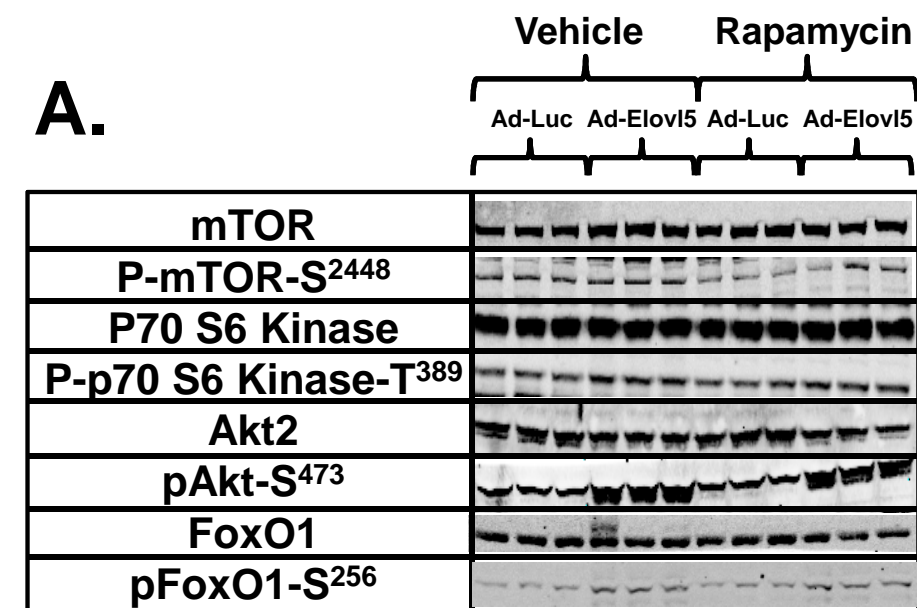
Phospho-Akt1/2/3-S<sup>473</sup>, FoxO1 and Phospho-FoxO1-S<sup>256</sup> was quantified as described in Materials and Methods. Panel A: Representative immunoblots, 3 extracts per treatment. Panels B-E: Phosphorylation status of mTOR at S<sup>2448</sup>, p70 S6 kinase (p70 S6K) at T<sup>389</sup>; Akt2 at S<sup>473</sup>, and FoxO1 at S<sup>256</sup>, respectively. Results are representative of 3 separate studies; results are expressed as mean  $\pm$  SD, n=3. \*,  $p \leq 0.05$  versus Ad-Luc; #,  $p \leq 0.05$  versus Vehicle.

**SUPPLEMENTARY FIGURE 3S:** *Elovl5 regulates Gsk3 $\beta$ , but not rictor-T<sup>1135</sup>, phosphorylation in HepG2 cells.* HepG2 cells were infected with Ad-Luc or Ad-Elovl5 for 48 hours and serum starved overnight as described above. Cells were treated with vehicle (DMSO) or the mTORC1 and mTORC2 inhibitor, PP242 (500 nM) for 30 minutes in the absence of insulin. Proteins were extracted and the abundance of GSK3 $\beta$ , Phospho-GSK3 $\beta$ -S<sup>9</sup>, Phospho-GSK3 $\beta$ -Y<sup>216</sup>, Rictor and Phospho-Rictor-T<sup>1135</sup> was quantified as described. Panel A: Immunoblots, 3 extracts per treatment. Panels B-D: Phosphorylation status of GSK3 $\beta$  at S<sup>9</sup>, GSK3 $\beta$  at Y<sup>216</sup>; Rictor at T<sup>1135</sup> respectively. Results are representative of 3 separate studies; results are expressed as mean  $\pm$  SD, n=3. \*,  $p \leq 0.05$  versus all other groups.

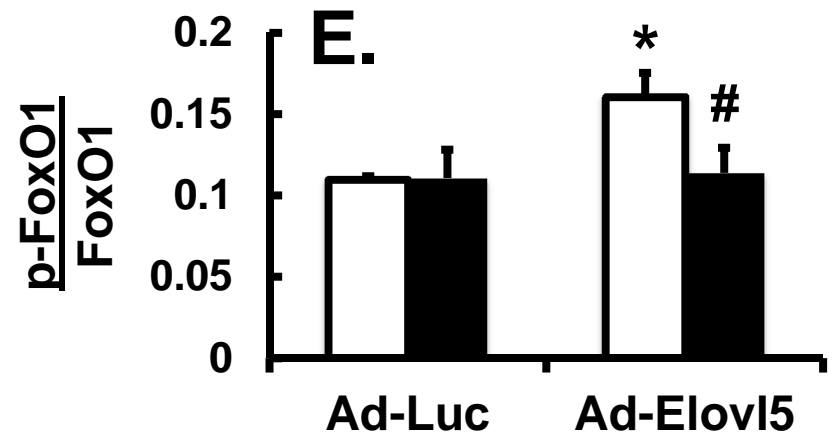
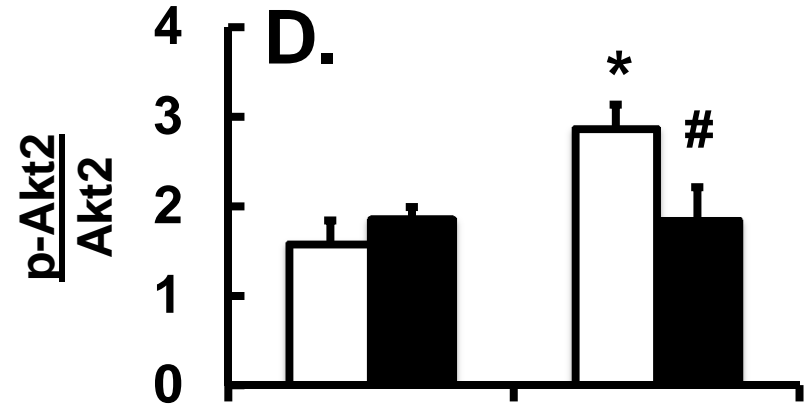
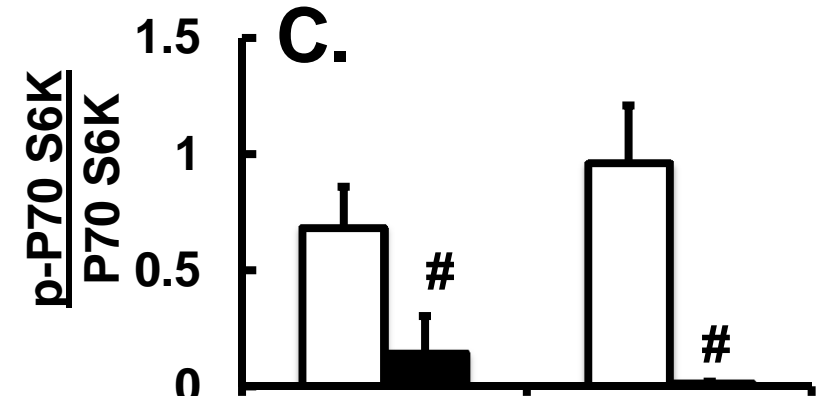
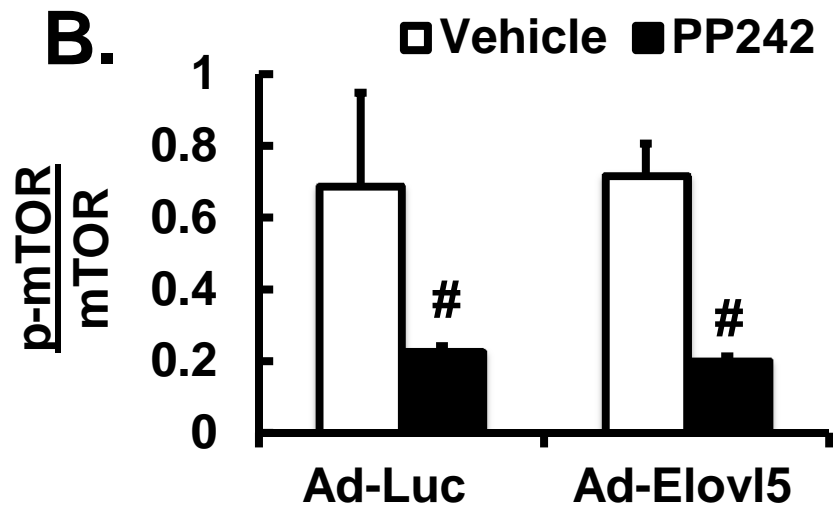
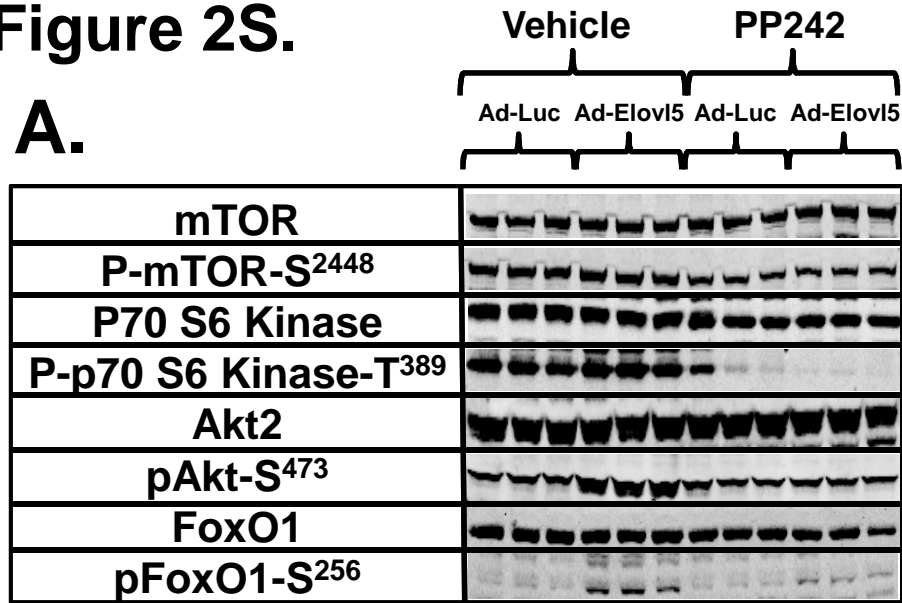
**SUPPLEMENTARY FIGURE 4S:** *Fatty acid composition of cell culture medium and HepG2 cells.* The media used to culture HepG2 cells was DMEM containing glucose (4.5 g/l glucose) [Invitrogen, cat# 11995-065), and fetal bovine serum (10%) and antibiotics (penicillin/streptomycin). While the DMEM medium contains

no fatty acids, fetal bovine serum does. Fetal bovine serum and HepG2 cells (grown to confluence) were saponified, extracted with hexane. The fatty acids were methylated and assayed by gas chromatography as described (29). Results are expressed as Fatty Acid Mol %; these results are representative of 3 different analyses.

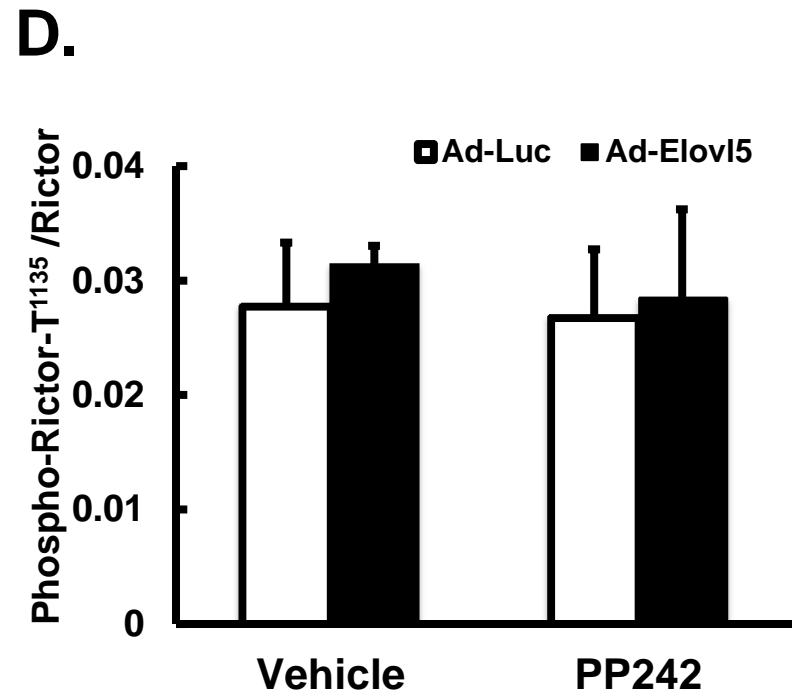
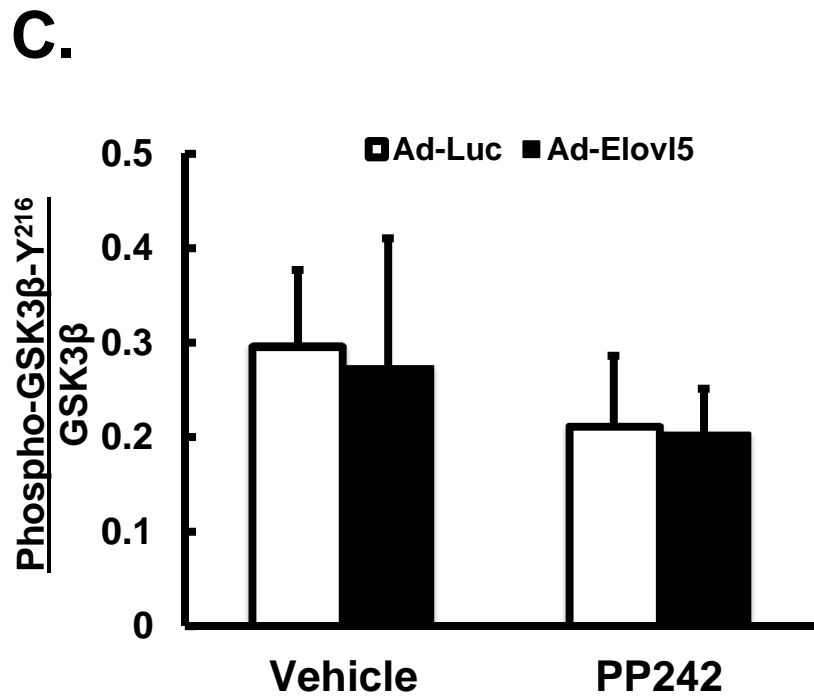
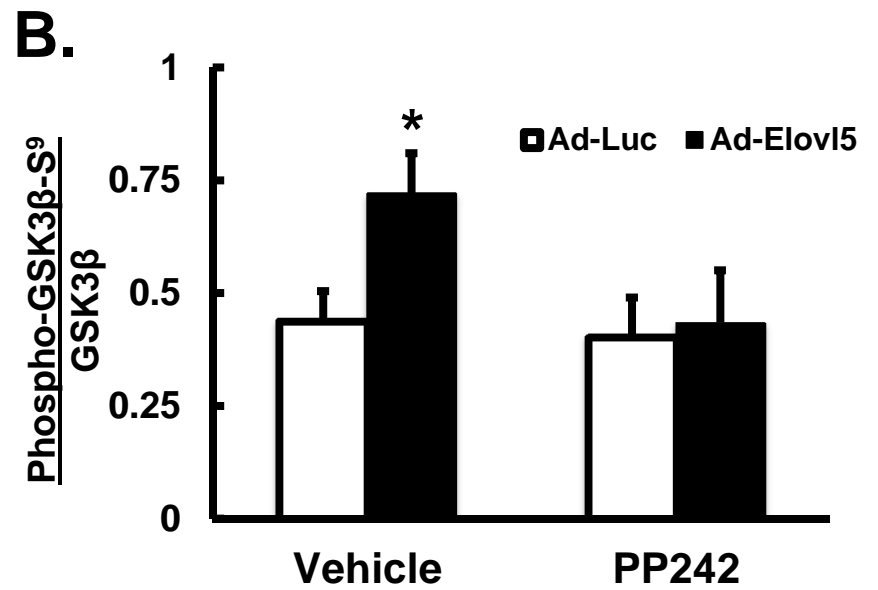
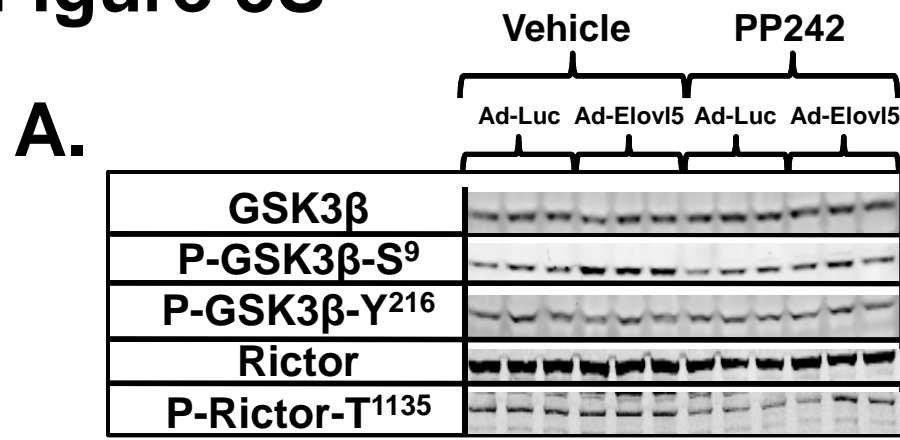
**Figure 1S.**



**Figure 2S.**



# Figure 3S



# Figure 4S

