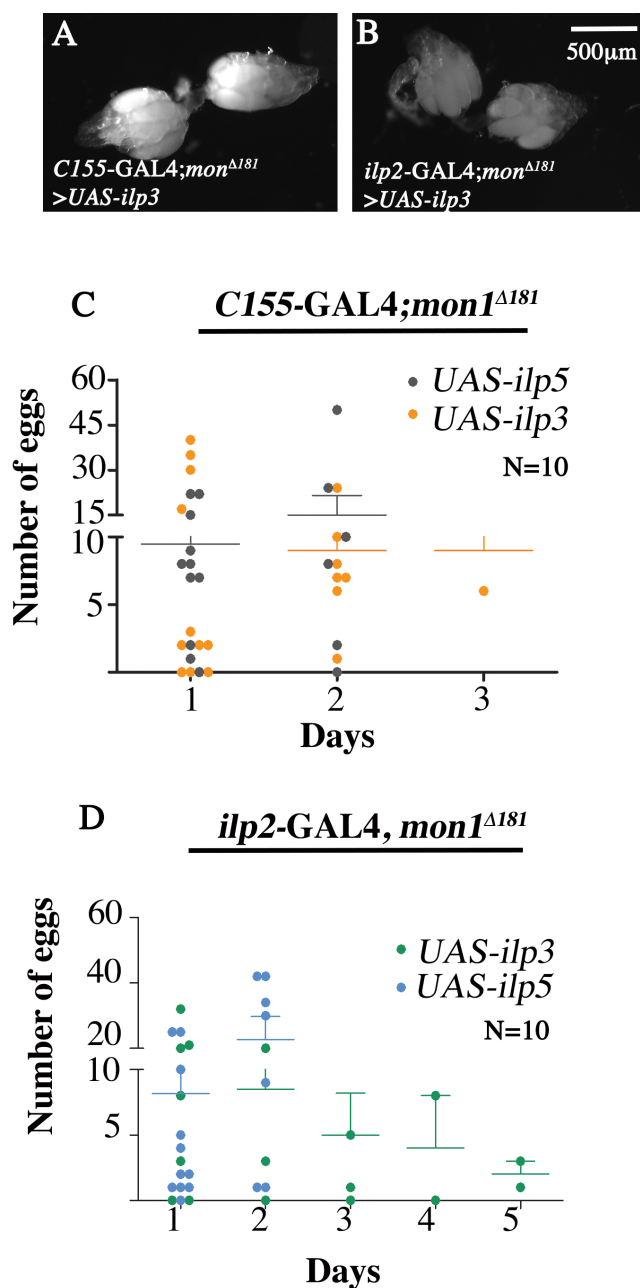


**Figure 01: Knock-down of *mon1* activity in ovary associated tissue does not affect ovary size or egg chamber distribution.**

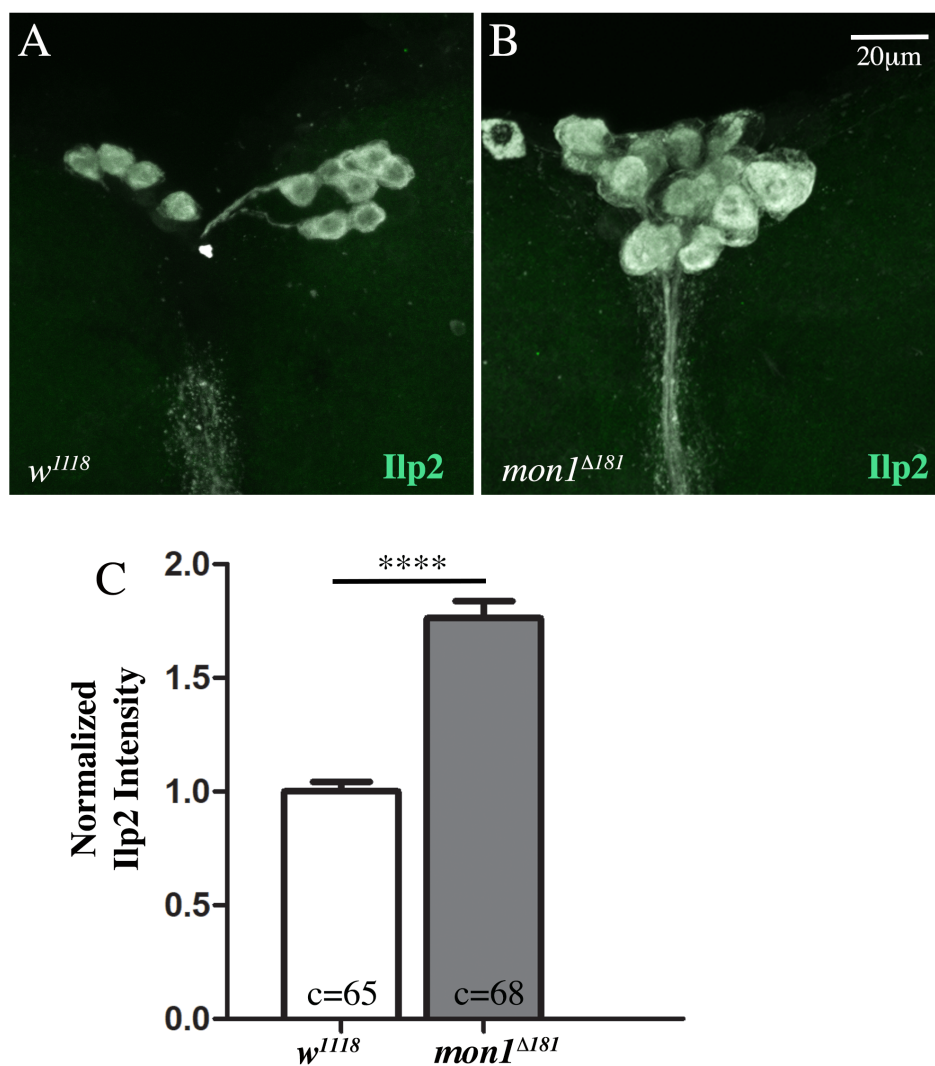
(A-B) The distribution of egg chambers upon knock-down of *mon1* using *e22C-GAL4* (A) and *mat-GAL4* (B) is similar to their respective controls. (C-D) Knock-down of *mon1* using *nanos-GAL4* (C) or *htl<sup>GMR93H07</sup>-GAL4* (D) does not change the aspect ratio of the ovaries compared to their respective controls. (*nanos-GAL4/+*:  $1.52 \pm 0.04$  (n=12 ovaries) and *nanos-GAL4>UAS-mon1RNAi*:  $1.52 \pm 0.05$  (n=11 ovaries); *htl<sup>GMR93H07</sup>-GAL4/+*:  $1.31 \pm 0.03$  (n=10 ovaries) and *htl<sup>GMR93H07</sup>-GAL4>UAS-mon1RNAi*:  $1.41 \pm 0.05$  (n=10 ovaries)). (E-F) Compared to their respective controls, downregulation of *mon1* using either *C155-GAL4* (E) or *tdc2-GAL4* (F) leads to decrease in ovary size evident from the increase in aspect ratio in these animals. (*C155-GAL4/+*:  $1.75 \pm 0.03$  (n=18) ovaries and *C155-GAL4>UAS-mon1RNAi*:  $2.09 \pm 0.08$  (n=18 ovaries)); (*tdc2-GAL4/+*:  $1.66 \pm 0.04$  (n=18 ovaries) and *tdc2-GAL4>UAS-mon1RNAi*:  $2.15 \pm 0.08$  (n=20 ovaries)). \*\*\*\* indicates  $p < 0.0001$ , \*\*\* indicates  $p < 0.001$ , Students t-test.



**Figure Q2: Pan-neuronal and IPC specific expression of *UAS-ilp5* and *UAS-ilp3* rescues fecundity in *mon1<sup>Δ181</sup>* mutants.**

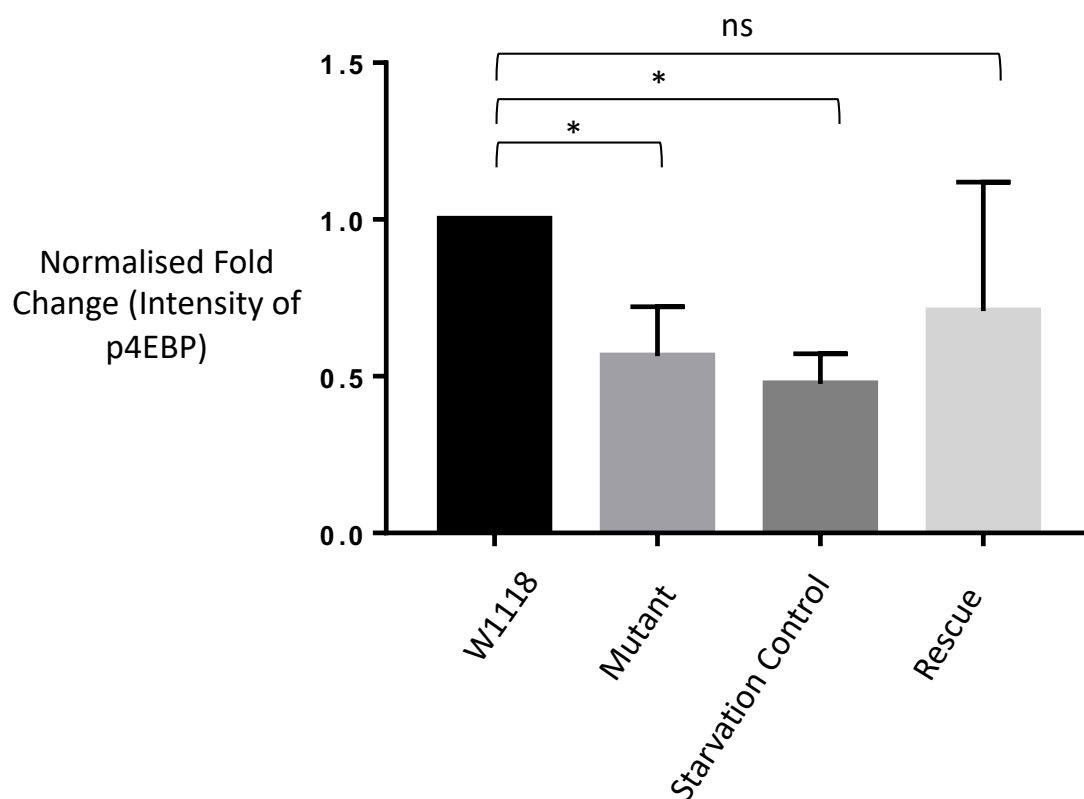
**(A-B)** Ovary from *C155-GAL4; mon1<sup>Δ181</sup>>UAS-ilp3* (A) and *ilp2-GAL4; mon1<sup>Δ181</sup>>UAS-ilp3* (B). Note presence of eggs when *ilp3* is expressed in neurons.

**(C-D)** Comparison of the eggs laid by *C155-GAL4; mon1<sup>Δ181</sup>>UAS-ilp5* and *C155-GAL4; mon1<sup>Δ181</sup>> UAS-ilp3* (C) shows no significant difference in the fecundity of these animals. Both genotypes appear to be equivalent in their ability to lay eggs. A similar ‘rescue’ of fecundity was observed upon expression of *ilp5* and *ilp3* in IPCs (D). The ability to lay eggs is significantly better than that of *mon1<sup>Δ181</sup>* homozygous females, which do not lay eggs but below (1/5<sup>th</sup>) the ability of wild type animals that lay approximately 60-80 eggs per day.



**Figure S3: IPCs show increase in Ilp2 levels in *mon1<sup>Δ181</sup>* mutants.**

(A-B) Adult brains of wildtype (*w<sup>1118</sup>*) and *mon1<sup>Δ181</sup>* mutants stained with anti-Ilp2. Mutants show a significant increase in Ilp2 staining. (C) Quantification of the intensity in IPC cell bodies shows ~ 70% increase in Ilp2 levels in *mon1<sup>Δ181</sup>* ( $1.0 \pm 0.042$  (wildtype, n= 65 cells) versus  $1.76 \pm 0.07$  (*mon1<sup>Δ181</sup>*, n=68)). \*\*\*\* indicates  $p < 0.0001$ , Students t-test. c=number of cell bodies counted for image analysis.



**Figure S4: Measurement of phosphorylated-4EBP1 levels in whole animal extracts.**

Normalized fold intensity for phospho-4EBP1 (Cell Signaling, Thr(37/46), 236B4, Rb mAb #2855) intensity on Western blots indicating reduction of 45% in whole animal extracts. N=3, n (number of flies)=4. 1 way ANOVA. Error bars represent standard error. \*, p<0.05.

Two day old adults were homogenized in 1X RIPA buffer (150 mM NaCl, 0.1% NP40, 0.5% DOC, 25 mM Tris pH 7.4) with phosphatase inhibitors, the protein concentration measured (see below) and equal concentrations of protein loaded for *w<sup>1118</sup>*, *mon1* mutant, *Starved-w<sup>1118</sup>* and animals 'rescued' by expression Mon1 in OPN neurons (*tdc2-GAL4>UAS-mon1:HA*).

Total protein concentration was measured using a detergent compatible BCA protein assay kit (Pierce, #23225). Average protein concentration estimated per animal was 2.03 mg for *w<sup>1118</sup>* (fed), 1.80 for *w<sup>1118</sup>* (starved) and 1.89 for *mon1* mutant.