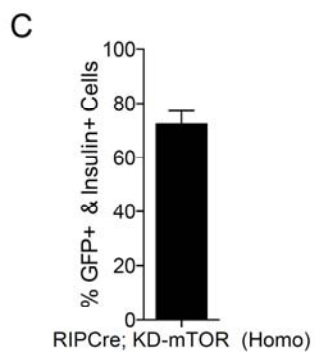
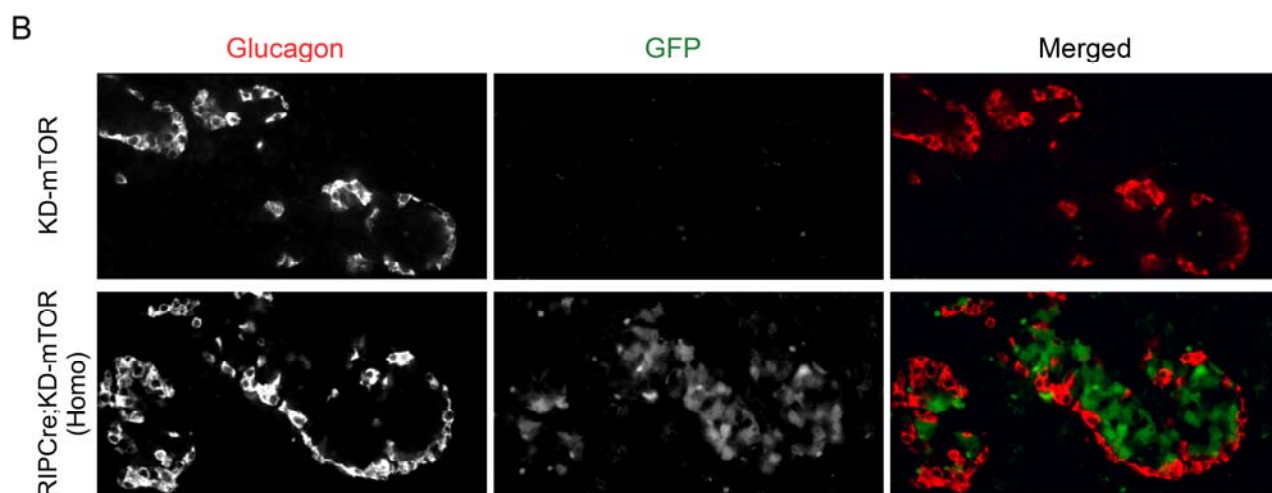
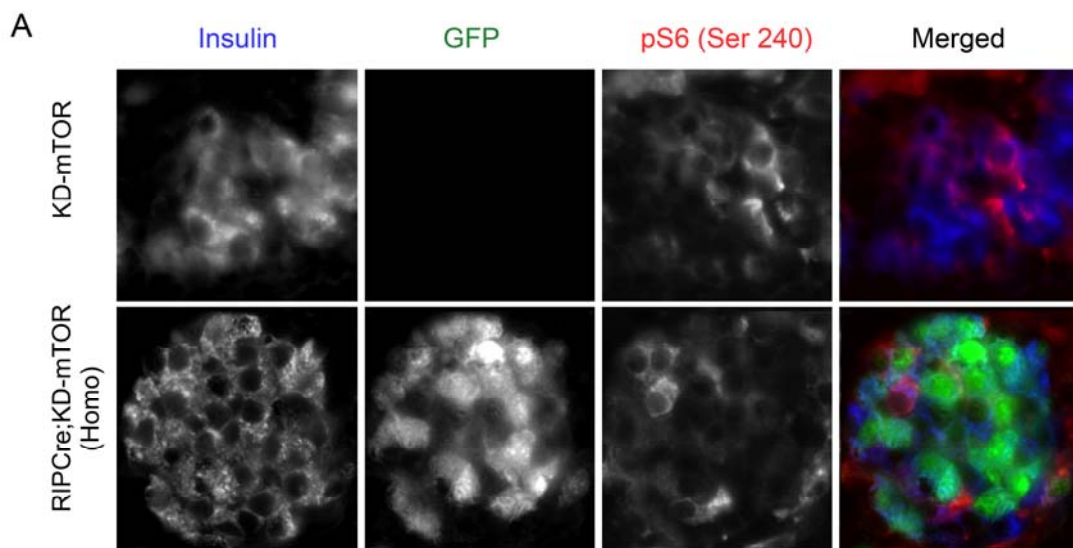


## SUPPLEMENTARY DATA

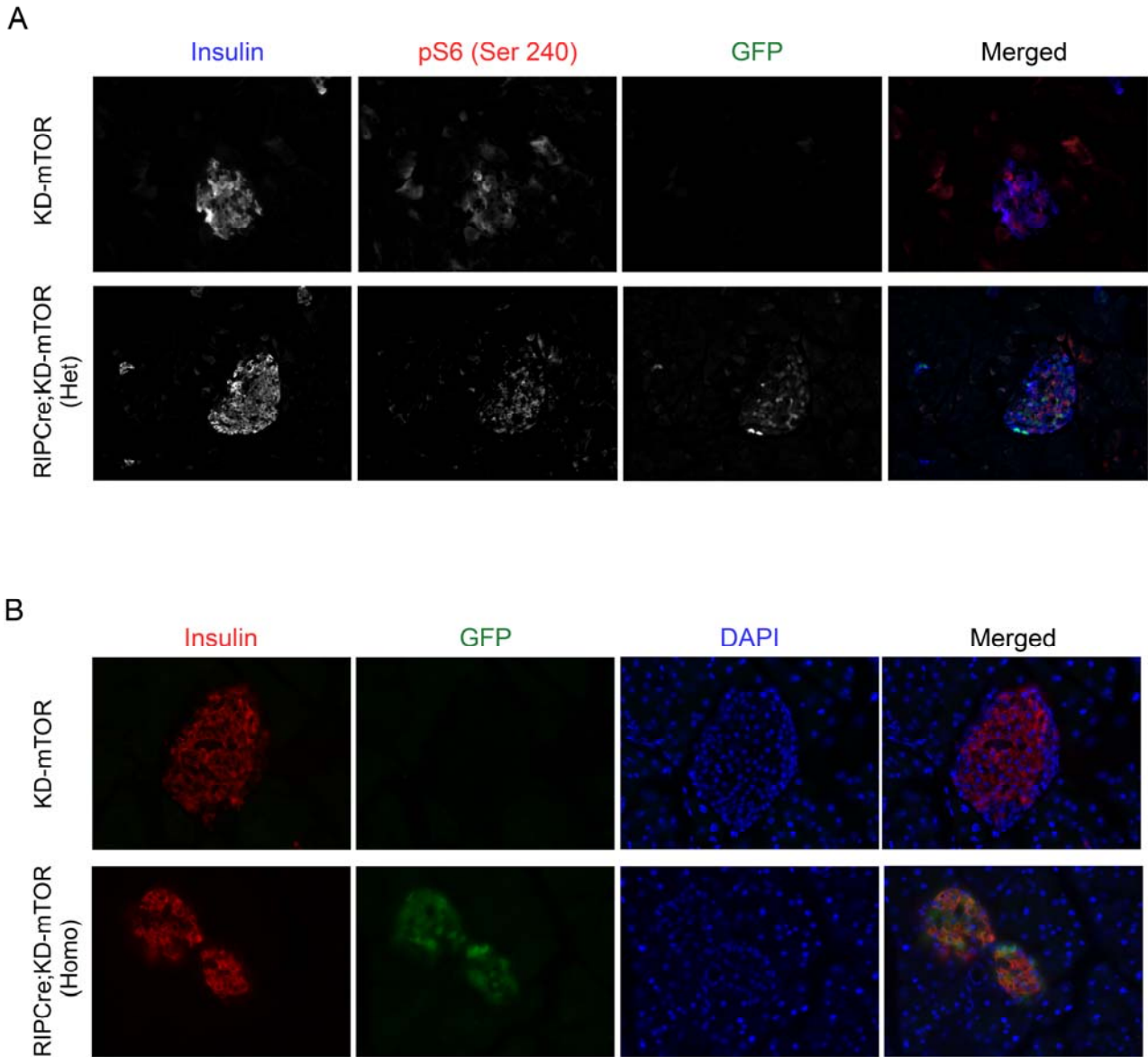
**Supplementary Figure.1. *KD-mTOR* transgene is specifically express in  $\beta$ -cell but not in glucagon-positive cells.** (A) Immunofluorescence staining of insulin (blue), EGFP (green) and phosphorylated S6 (Ser 240, red) in RIPCre;KD-mTOR (Homo) mice and control neonates (postnatal day 1). (B) Immunofluorescence staining of glucagon (red), EGFP (green) in RIPCre;KD-mTOR (Homo) mice and control neonates. (C) Approximately 80% of insulin-positive cells express EGFP in RIPCre;KD-mTOR (Homo) mice. Image magnification in A is 40X and B is 20X.

SUPPLEMENTARY DATA



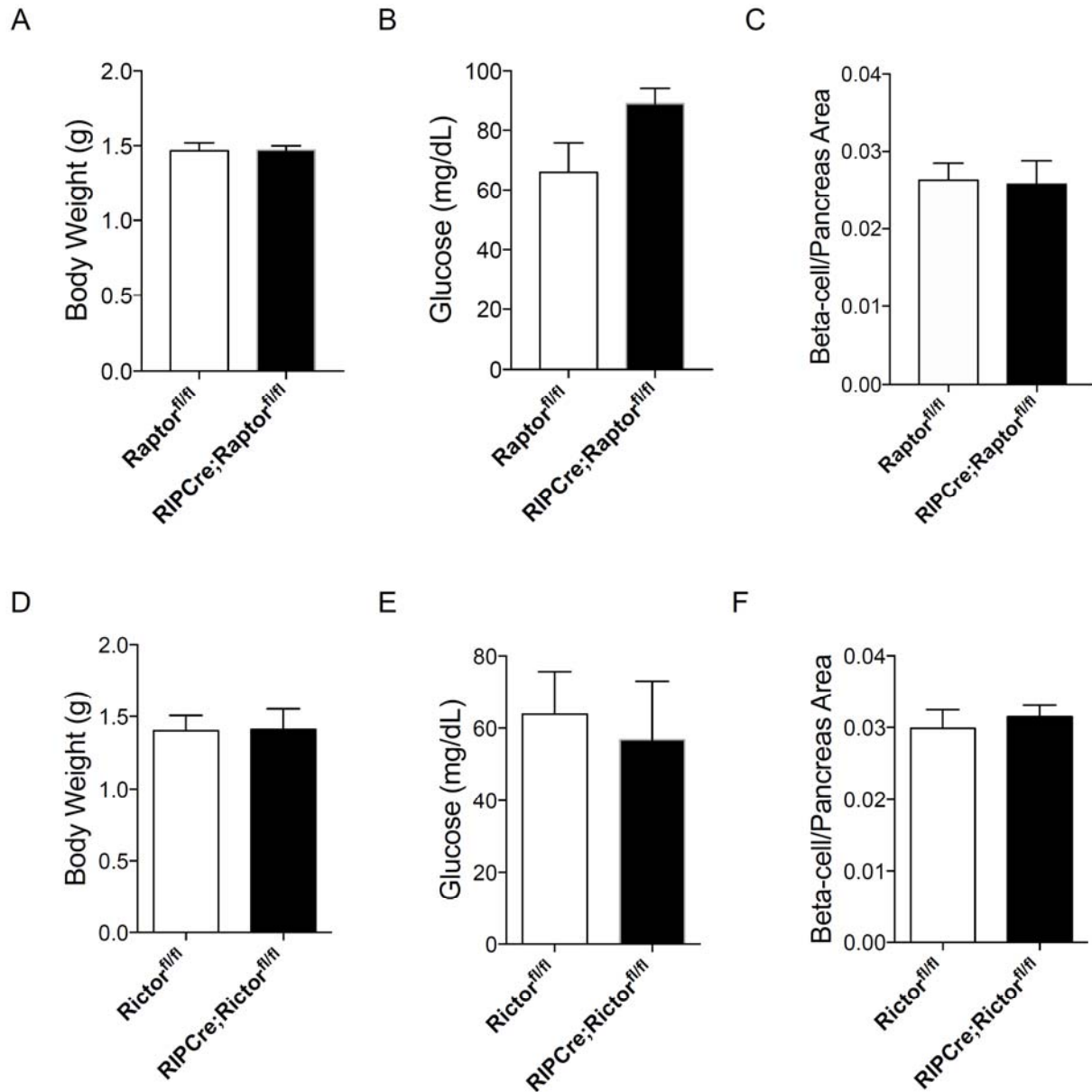
SUPPLEMENTARY DATA

**Supplementary Figure.2. *KD-mTOR* transgene islet morphology in *RIPCre;KD-mTOR* mice.** (A) Immunofluorescence staining of insulin (blue), phosphorylated S6 (red), and GFP (green) in adult male *RIPCre;KD-mTOR* mice (Het). (B) Immunofluorescence staining of GFP (green), insulin (blue) and phosphorylated S6 (red) in male *RIPCre;KD-mTOR* (Homo) mice and control. Image magnification is 20X.



SUPPLEMENTARY DATA

**Supplementary Figure.3. Normal  $\beta$ -cell mass in *RIPCre;Raptor<sup>fl/fl</sup>* and *RIPCre;Rictor<sup>fl/fl</sup>* neonates.** (A-F) Body weight, glucose level and in newborn  $\beta$ -cell area in *RIPCre;Raptor<sup>fl/fl</sup>* neonates (A-C) or *RIPCre;Rictor<sup>fl/fl</sup>* (D-F) neonates compare to controls, n=4-12. Statistical analyses were conducted using unpaired, non-parametric Mann-Whitney test (*u* test).



SUPPLEMENTARY DATA

**Supplementary Figure 4. Fasting insulin and proliferation rate in RIPCre;KD-mTOR mice in high-fat diet.** (A) Fasting insulin levels 6 weeks after high-fat diet among genotypes, n=10-12. No significant changes in proliferation rate (measured by Ki67 in insulin-positive cells) and ~50 islets per animal for Ki67 analysis, n=4=6. Statistical analyses were conducted using unpaired, non-parametric Mann-Whitney test (*u*-test).

