

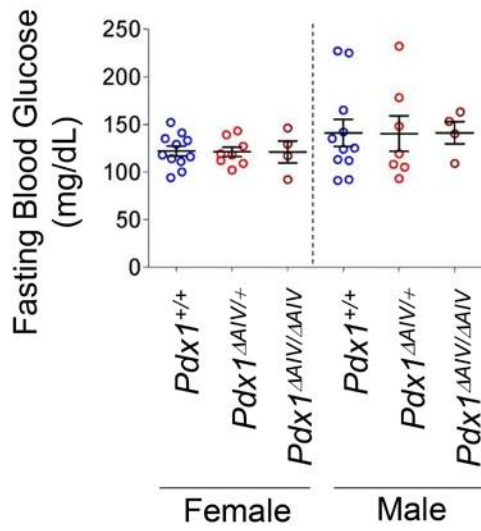
SUPPLEMENTARY DATA

Supplementary Figure 1. Blood glucose homeostasis, Pdx1 levels and Pdx1 target gene expression is unaffected in adult *Pdx1*^{ΔAIV/ΔAIV} mice.

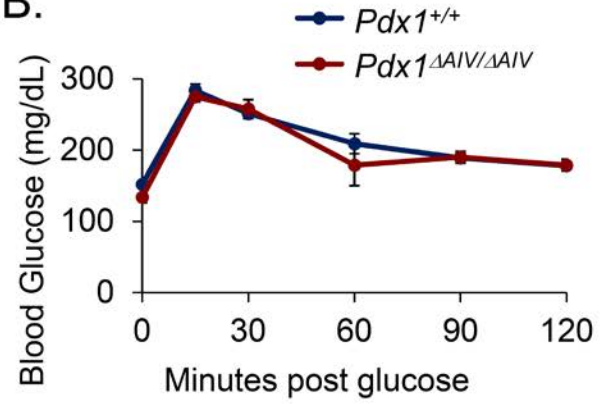
(A) Four month-old *Pdx1*^{ΔAIV/ΔAIV} mice had fasting blood glucose levels and (B) glucose clearance rates that were indistinguishable from *Pdx1*^{+/+} and *Pdx1*^{ΔAIV/+} mice. n = 4-11. (C) Representative images illustrating the similar staining pattern for Pdx1, Nkx6.1, MafA and Glut2 in 5 week-old male *Pdx1*^{+/+} and *Pdx1*^{ΔAIV/ΔAIV} islets. Scale bars: 10μm.

SUPPLEMENTARY DATA

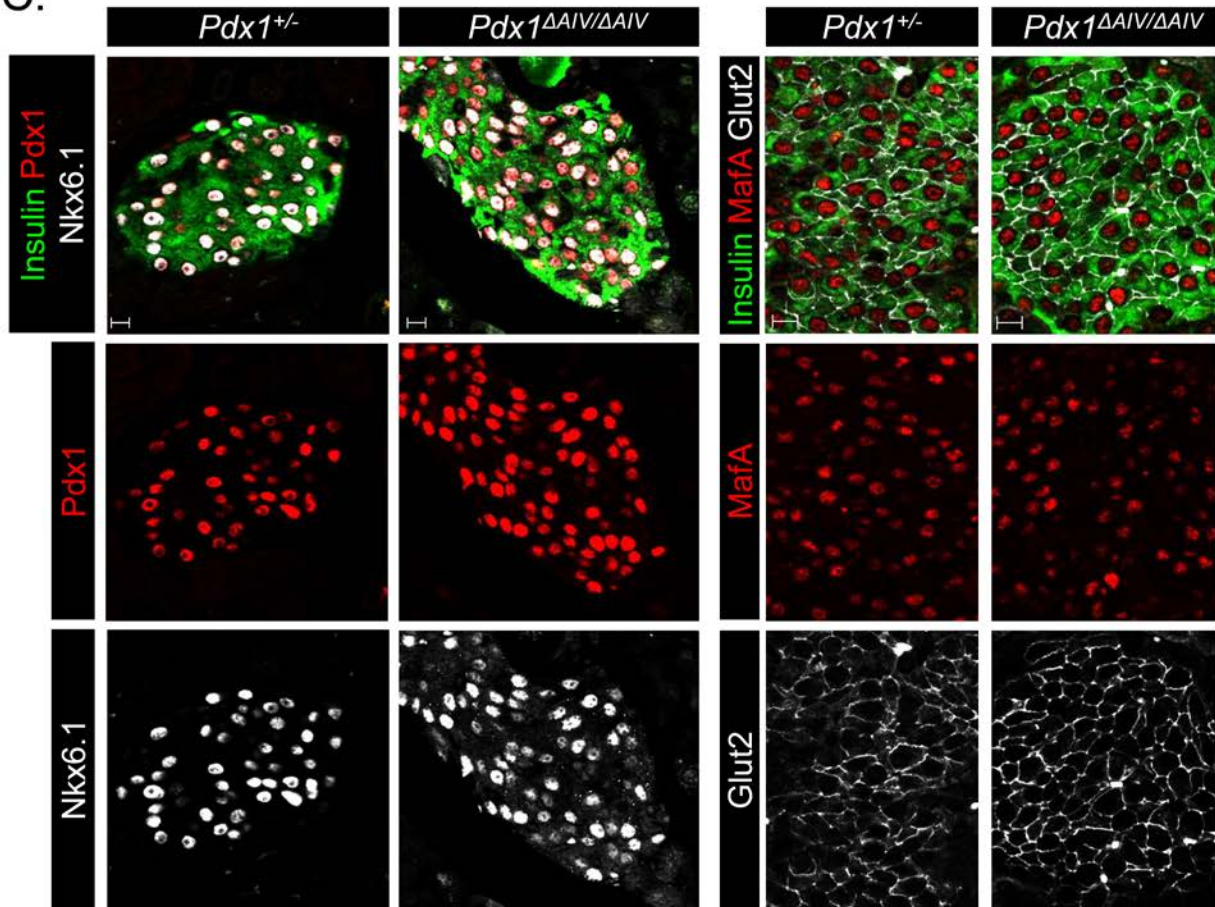
A.



B.



C.

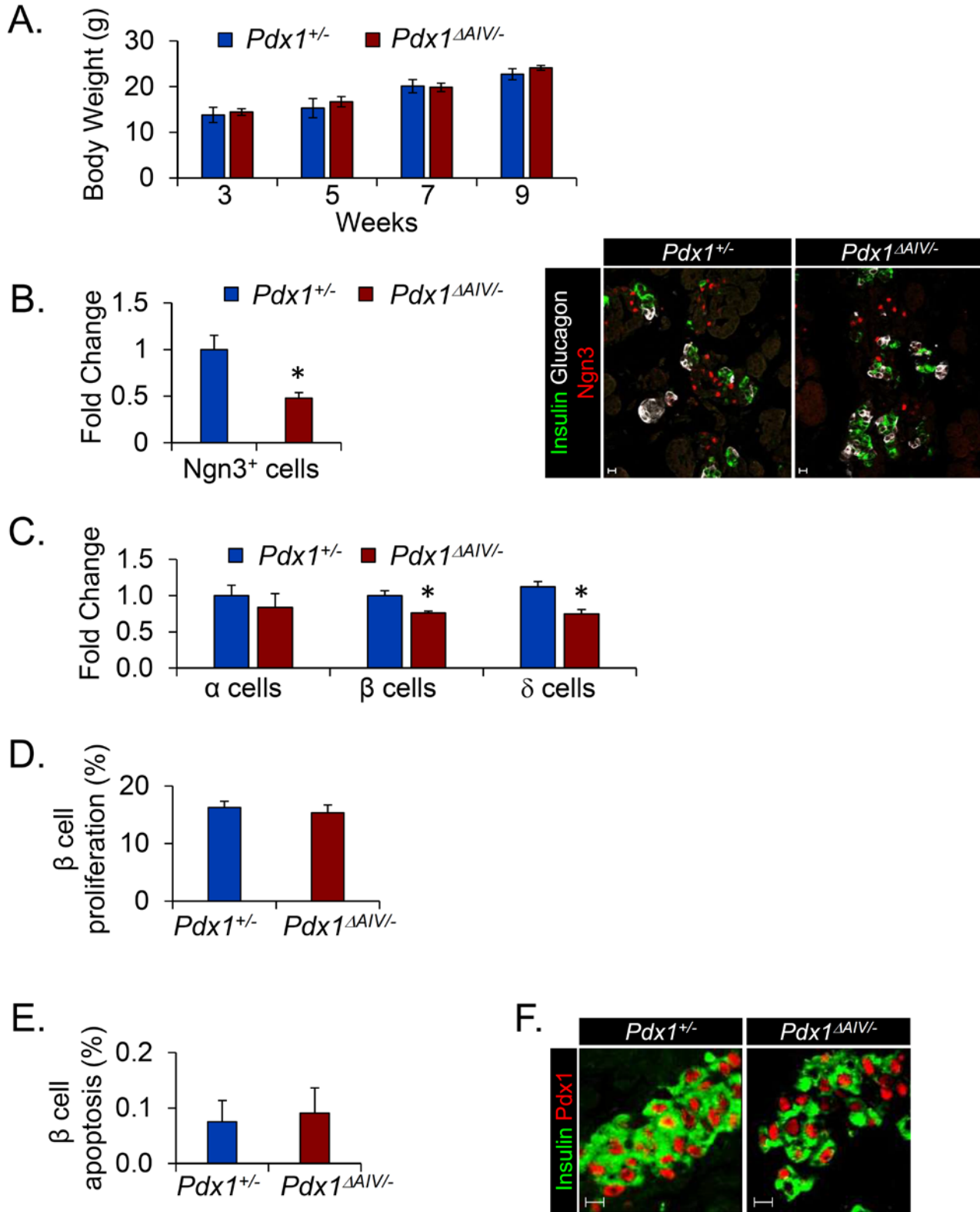


SUPPLEMENTARY DATA

Supplementary Figure 2. *Pdx1*^{ΔAIV/-} mice produce slightly fewer hormone⁺ cells during development.

(A) There was no statistical difference in body weight between 3-9 week-old *Pdx1*^{+/-} and *Pdx1*^{ΔAIV/-} mice. (B) Representative image of Neurogenin 3 (Ngn3), glucagon and insulin staining in E15.5 *Pdx1*^{+/-} and *Pdx1*^{ΔAIV/-} pancreata. Cell counting revealed a roughly 50% reduction in the number of *Pdx1*^{ΔAIV/-} Ngn3⁺ cells. Scale bars: 20μm (C) There was a slight, but significant reduction in the number of E18.5 *Pdx1*^{ΔAIV/-} insulin⁺ (β) and somatostatin⁺ (δ) cells, but not glucagon⁺ (α) cells. (D) *Pdx1*^{ΔAIV/-} Ki67⁺ insulin⁺ cell and (E) apoptosis levels were unchanged at E18.5. n = 3. *, p < 0.05. (F) Representative image of insulin and Pdx1 staining in E18.5 *Pdx1*^{+/-} and *Pdx1*^{ΔAIV/-} pancreata. Scale bars: 10μm.

SUPPLEMENTARY DATA



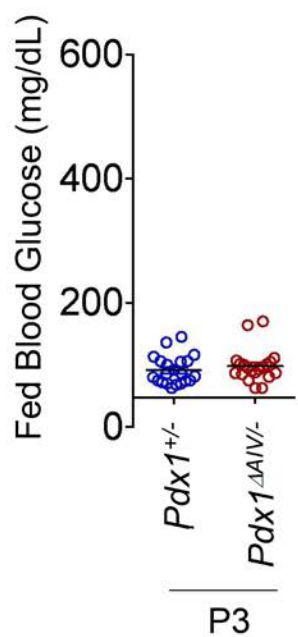
SUPPLEMENTARY DATA

Supplementary Figure 3. Blood glucose levels and β cell marker staining appears unchanged in P3 *Pdx1* ^{Δ AIV/-} pancreata.

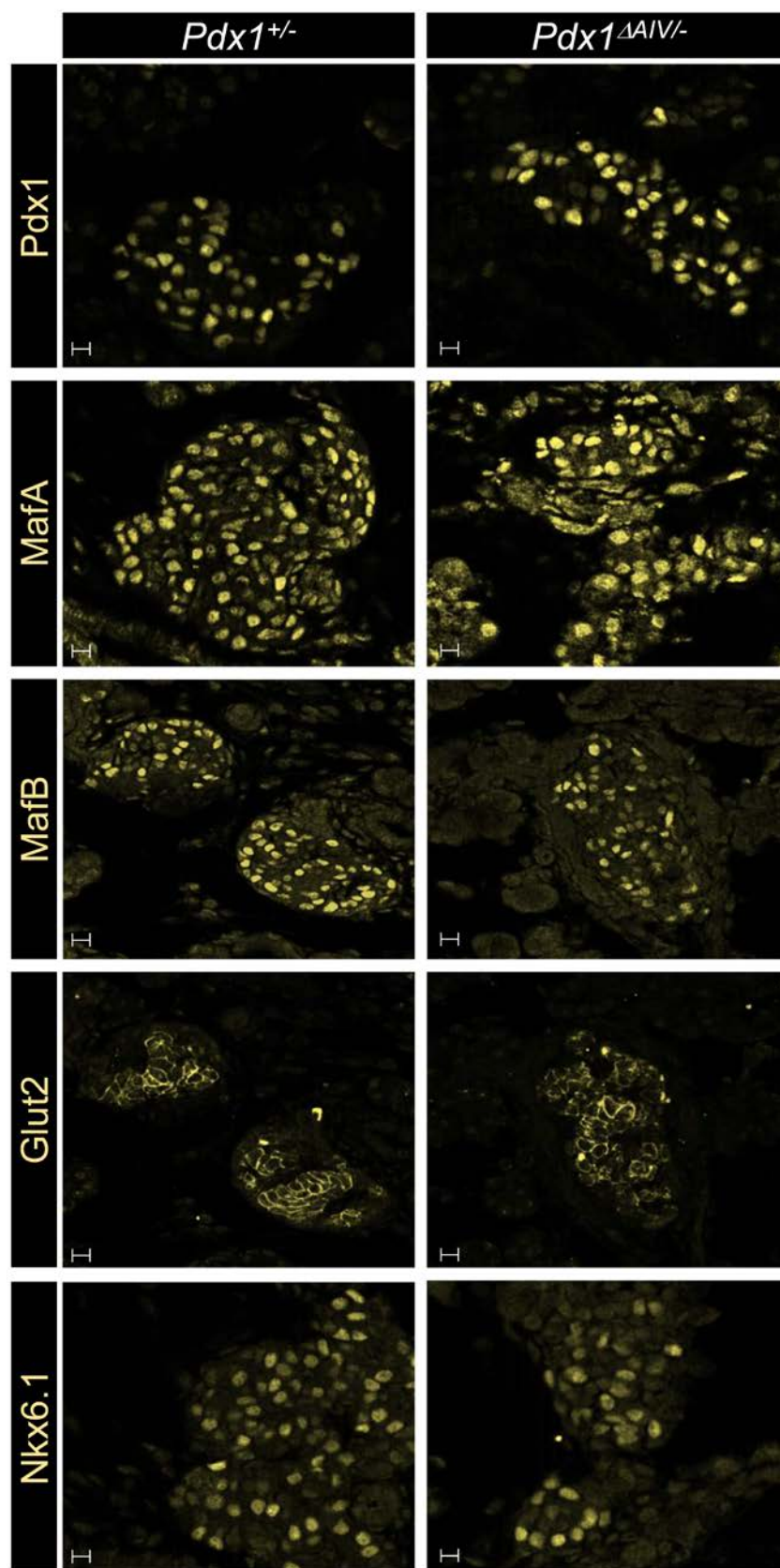
(A) *Pdx1* ^{Δ AIV/-} and *Pdx1*^{+/-} fed blood glucose levels and (B) β cell marker staining at P3. Scale

SUPPLEMENTARY DATA

A



B.

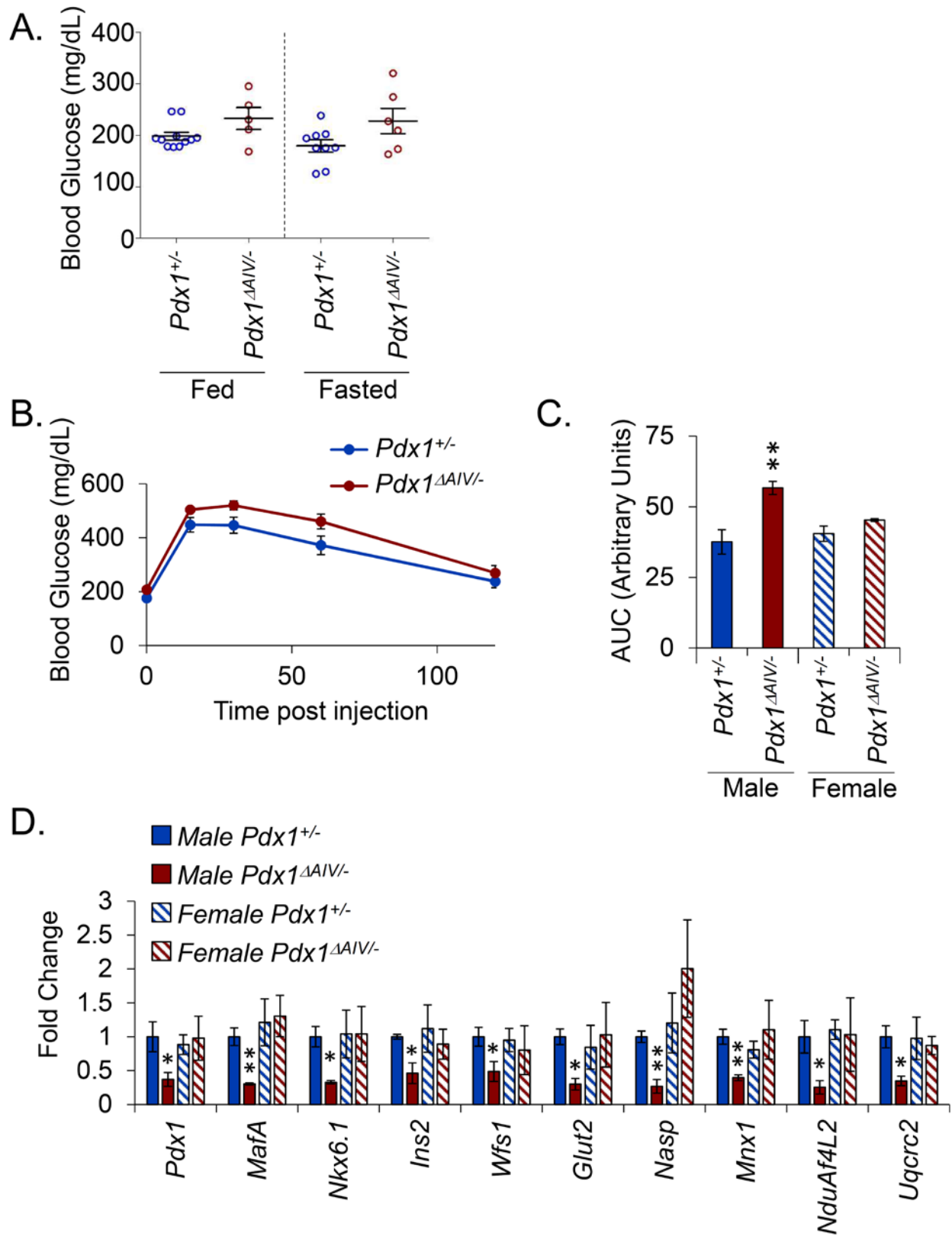


SUPPLEMENTARY DATA

Supplementary Figure 4. Five week-old female *Pdx1*^{ΔAIV/-} mice are normoglycemic and have *Pdx1* control-like mRNA levels.

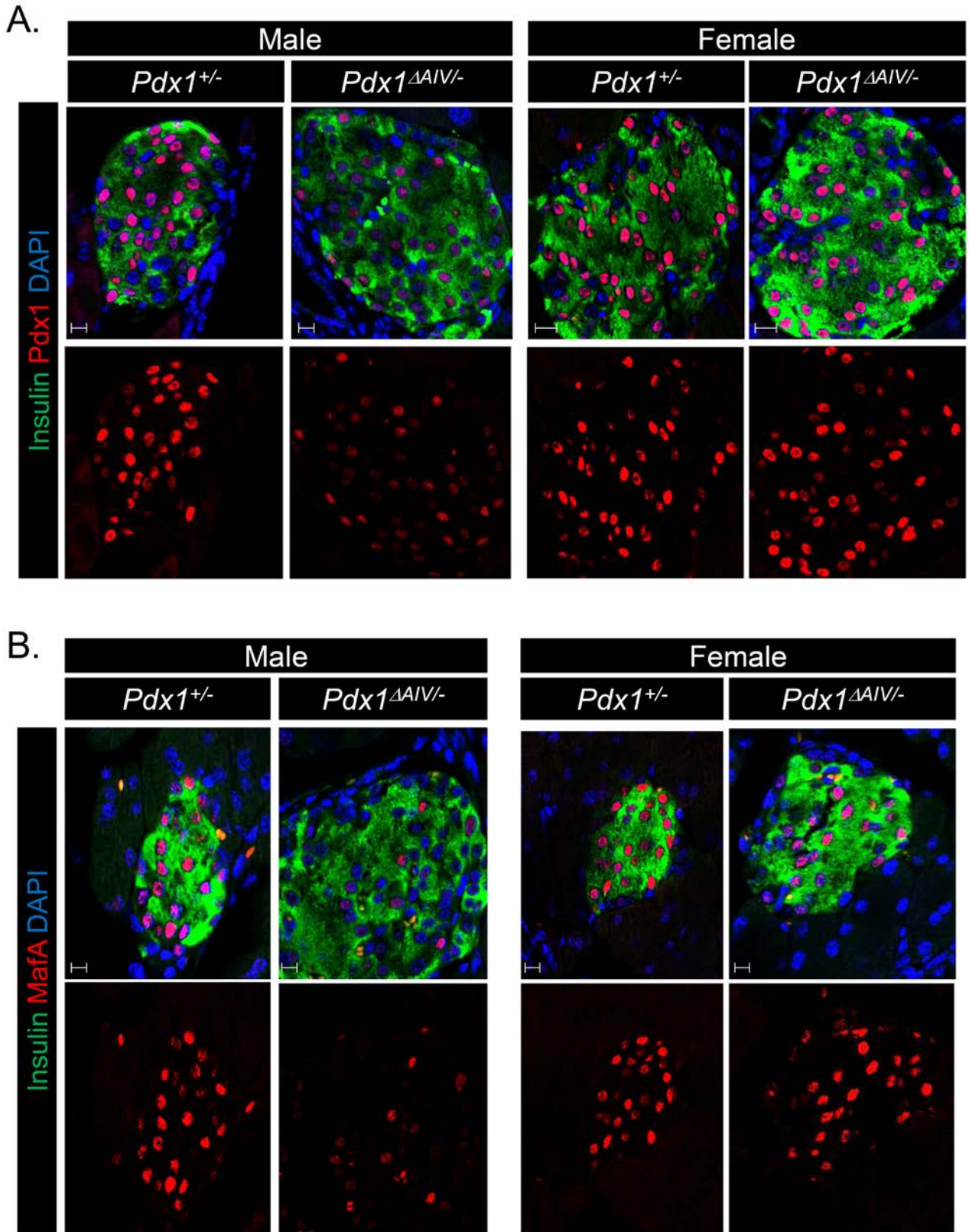
(A) *Ad lib* fed and fasting blood glucose levels in 5 week-old female *Pdx1*^{+/-} and *Pdx1*^{ΔAIV/-} mice. n = 4-10. (B) The ability to reduce blood glucose levels was indistinguishable between 5 week-old female *Pdx1*^{ΔAIV/-} and *Pdx1*^{+/-} mice. n = 5-9. (C) Comparison of the Area Under Curve (AUC) in the glucose tolerance tests performed on the 5 week-old females from (B) and males of Figure 2B. Only male *Pdx1*^{ΔAIV/-} mice were glucose intolerant. (D) Levels of *Pdx1* and *Pdx1* bound targets gene expression in 5 week-old male and female *Pdx1*^{ΔAIV/-} and *Pdx1*^{+/-} islets. The male animals represent a different cohort than described in Figures 3 and 4. Only the male *Pdx1*^{ΔAIV/-} animals have deficits. n = 3. *, p < 0.05; **, p < 0.01.

SUPPLEMENTARY DATA



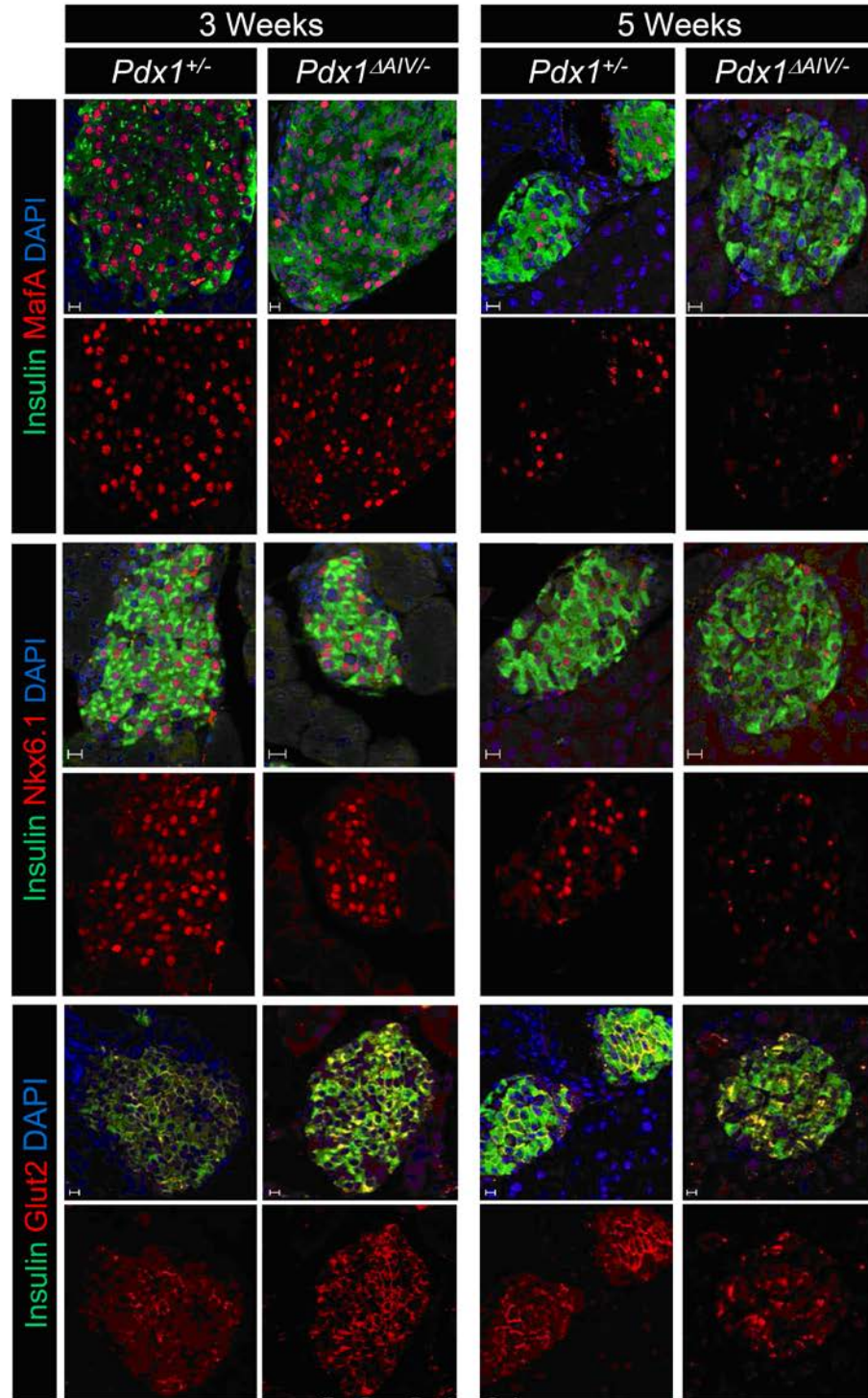
SUPPLEMENTARY DATA

Supplementary Figure 5. Five week-old female *Pdx1*^{ΔAIV/-} mice have normal *Pdx1* and *MafA* levels. Representative images illustrating the difference in *Pdx1* (A) and *MafA* (B) staining intensity within the β cells of 5 week-old male and female *Pdx1*^{ΔAIV/-} islets. Scale bars: 10μm.



SUPPLEMENTARY DATA

Supplementary Figure 6. Islet insulin, MafA, Nkx6.1 and Glut2 staining levels are negatively impacted at weaning in male *Pdx1^{ΔAIV/-}* mice. A characteristic image of β cell insulin, MafA, Nkx6.1 and Glut2 levels within 3 and 5 week-old *Pdx1^{ΔAIV/-}*, *Pdx1^{+/-}*, *Pdx1^{ΔAIV/-}*, and *Pdx1^{+/-}* islets. Scale bars: 10 μ m.

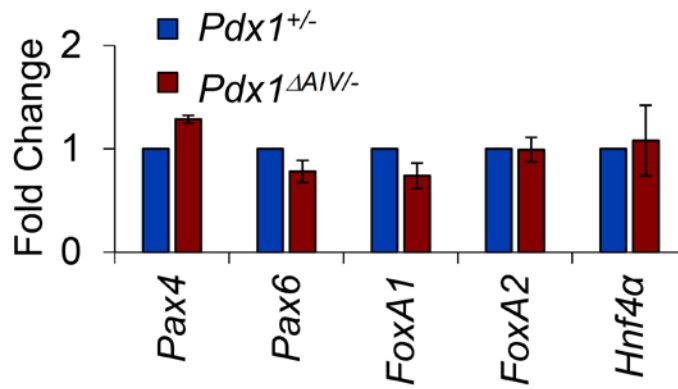


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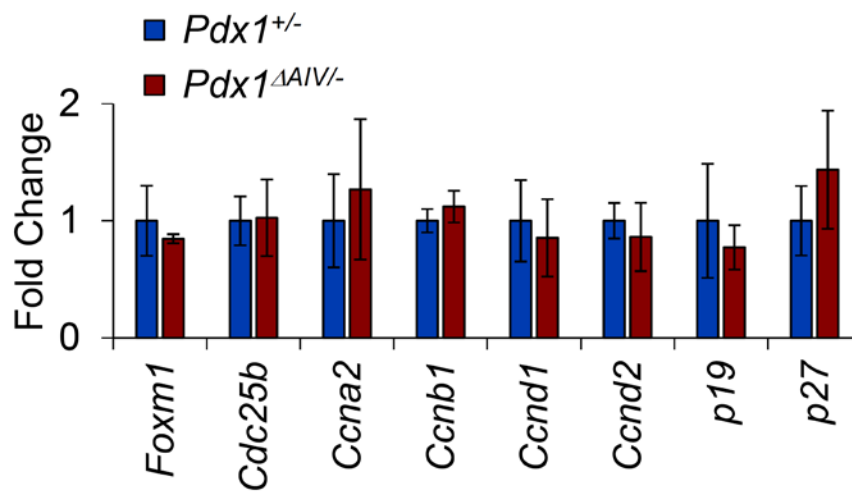
SUPPLEMENTARY DATA

Supplementary Figure 7. Analysis of islet enriched transcription factor and cell cycle associated gene expression in male *Pdx1*^{ΔAIV/-} islets. (A) Expression of various islet-enriched transcription factors and (B) cell cycle regulators in 3 and 5 week-old male *Pdx1*^{ΔAIV/-} islets. Only the changes in *CyclinB1* (*Ccnb1*) and the Cdk inhibitor, *p19*, were significant. n = 3, *, *p* < 0.05.

A. 5 Weeks



B. 3 Weeks



5 Weeks

