LEGENDS FOR THE SUPPLEMENTARY MATERIAL

Figure S1. A schematic diagram illustrating predicted expression of endogenous Pdx1, Ngn3, MafA, and insulin gene, and the anticipated expression of transgene.

Schematic shows expression pattern based on the published literature of each transcription factors and insulin during the development of pancreas. Furthermore, schematic shows the expression pattern of the transgene under control of endogenous Pdx1 promoter. The schematic is based on the assumption that transgene expression does not inhibit endocrine differentiation or the expression of Pdx1.

Figure S2. Majority of Pdx1$^+$ cells express Myc at E12.5.

Double staining using rabbit anti-Myc and rabbit anti-Pdx1 antibodies. Sections were probed with rabbit anti-Myc antibody, biotinylated anti-rabbit antibody and then streptavidin-conjugated Alexa fluor 488. After the first images of immunofluorescence were taken (**A**), sections were washed in PBS 5 times for 10 minutes each, followed by incubation with rabbit anti-Pdx1 antibody, biotinylated anti-rabbit antibody and streptavidin-conjugated Texas red, and the second images were taken (**B,C**). Arrows indicate occasional Pdx1$^+$Myc$^-$ cells. Myc (green), Pdx1 (red). Bar: 20 μm.

Figure S3. Expression of transgene does not trigger precocious differentiation of pancreatic progenitors into amylase$^+$ acinar cells.

Immunostaining of serial sections from E12.5 control and bigenic pancreas for Pdx1 (green, AB), Amylase (green, CD) and glucagon (red). No amylase$^+$ cells were observed in both bigenic and control embryonic pancreas. Dotted line demarcates pancreatic region. Bar: 20μm.

Figure S4. Expression of transgene *tetO*^{MafA} does not induce apoptosis in Pdx1^{+} cells.

Serial sections of pancreas from each genotype at E12.5 were stained for Pdx1 (green, **CFI**) or proceeded for TUNEL assay with (**ADG**) or without (**BEH**) terminal deoxynucleotidyl transferase (TdT) for control. Bar: 20 μm.

Paraffin embedded sections were deparaffinized followed by antigen retrieval by heating sections for 5 min with 10mM citrate buffer in a microwave oven and 15 min cool down period. After blocking endogenous peroxidase by 3% H_2O_2 methanol for 10 min, sections were permiabilized by 0.1% sodium citrate 0.1% tritonX-100 for 2 min on ice. Subsequently sections were incubated with or without terminal deoxynucleotidyl transferase for TUNEL reaction according to instruction by manufacture (In Site Cell Death Detection Kit, Roche, Mannheim, Germany). Signal conversion was performed by adding antibody conjugated with horseradish peroxidase, followed by DAB substrate.

Figure S5. A schematic diagram of transgene expression based on our results. Since the transgene expression inhibits endocrine differentiation, the schematic shows the overall reduction in the expression of different transcription factors and insulin as observed in this study.

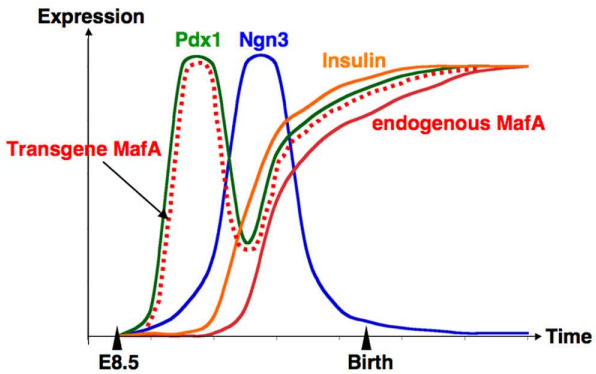

Figure S1. Nishimura et al.

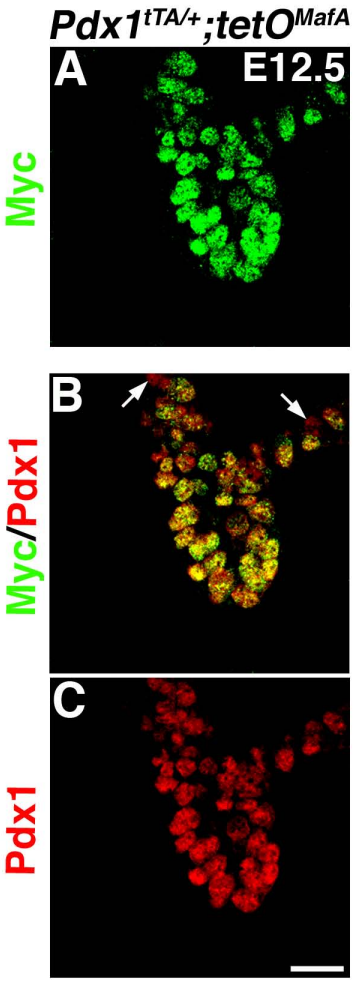

Figure S2. Nishimura et al.

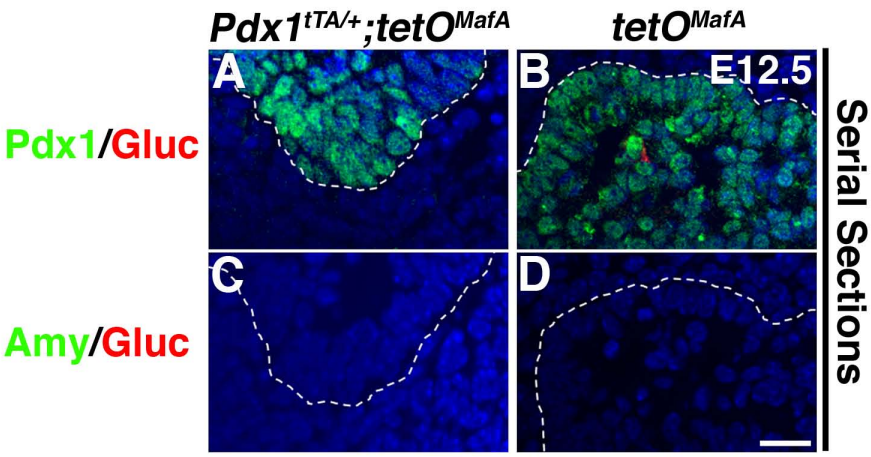

Figure S3. Nishimura et al.

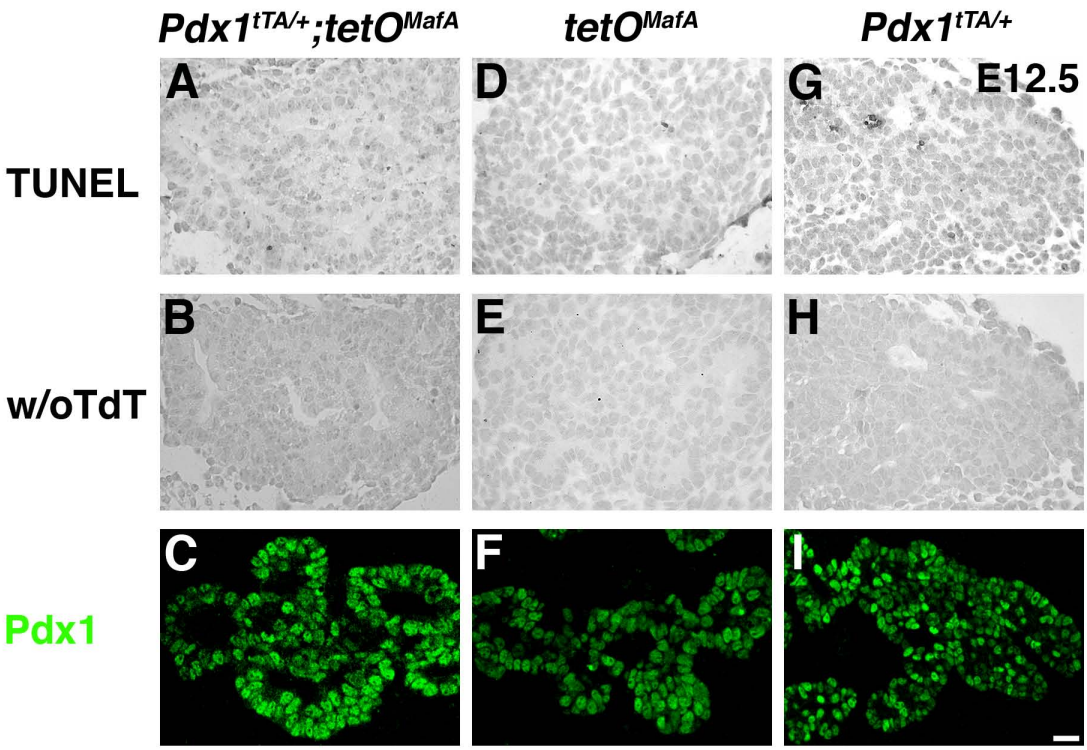

Figure S4. Nishimura et al.

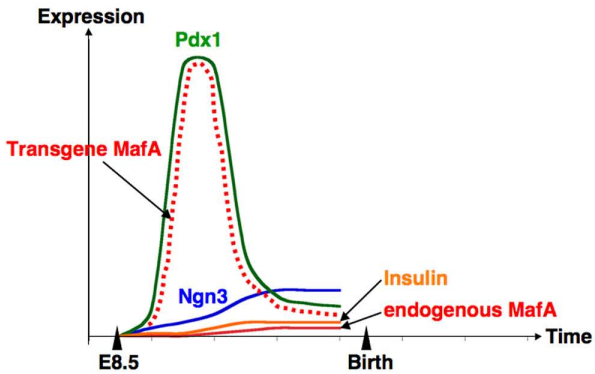

Figure S5. Nishimura et al.