

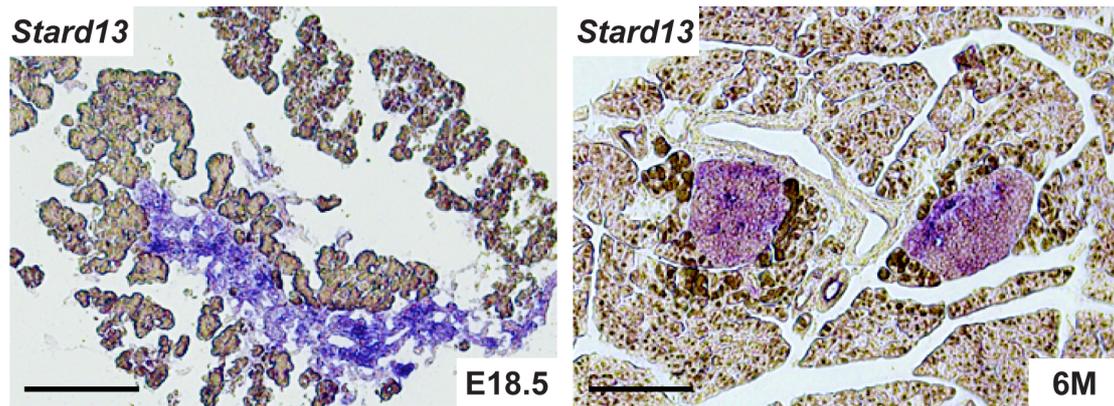
SUPPLEMENTARY MATERIAL

The RhoGAP Stard13 controls insulin secretion through F-actin remodeling

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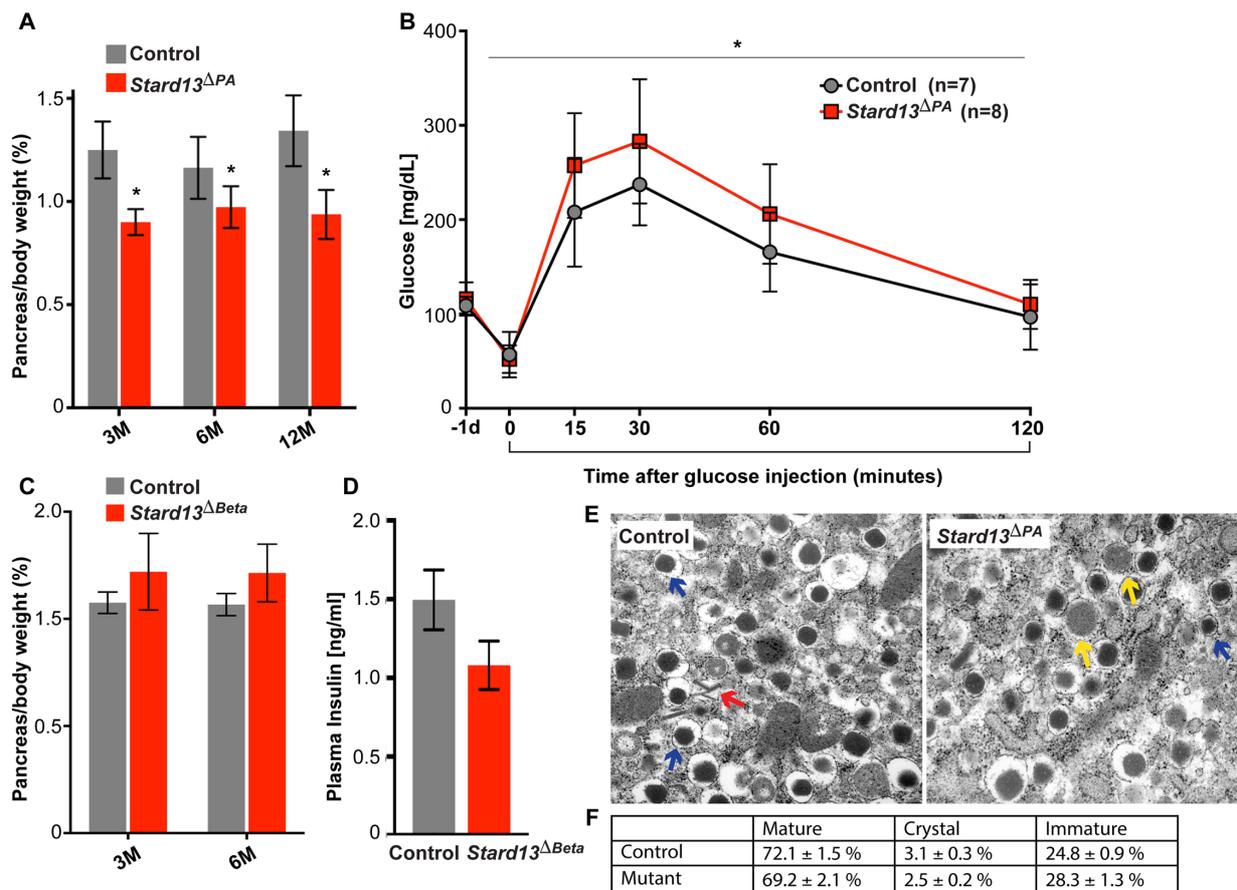
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Supplementary Figure 1. *Stard13* expression in mouse islets. *In situ* hybridization analysis for *Stard13* on cryosections of mouse E18.5 and adult (6 M) pancreatic tissue. *Stard13* transcript accumulates exclusively in the islets after E17.5 in the mouse. Purple color indicates the expression of the digoxigenin-labelled *Stard13 in situ* RNA probe; in brown, the unstained exocrine pancreatic tissue. Bar, 200um.

used for the detection of filamentous actin (F-actin), Deoxyribonuclease I-Alexa Fluor™ 488 (green) for unpolymerized actin (G-actin) along with E-cadherin (blue) and Hoechst nuclear counterstain (grey). Insets show split channels of boxed area at higher magnification. Bar, 20 um.



Supplementary Figure 3. *Stard13* regulates glucose metabolism

A) Pancreas weight normalized by body weight in control and *Stard13*^{ΔPA} mice at indicated age. M, months. (n = 6-10 per age group, **p < 0.001). **B)** Glucose tolerance test (GTT) was carried out on twelve-month-old male animals that had been fasted overnight, before the day of experimentation (time point -1d on the chart). Animals were injected i.p. with glucose (2g /kg body weight). Glucose levels were measured from blood collected from the tail immediately before the glucose challenge (time point 0) and 15, 30, 60 and 120 minutes after the glucose injection. Data are expressed as means ± s.e.m. ANOVA test, * p < 0.05. **C)** Pancreas weight normalized by body weight in control and *Stard13*^{ΔBeta} mice at six-month age. (n = 5). **D)** Plasma insulin in the random-fed condition is similar between control and *Stard13*^{ΔBeta} mice.

(n = 7). **E)** Representative TEM micrographs of islets from control and *Stard13*^{ΔPA} adult mice. Yellow arrows point to immature vesicles; blue arrows point to vesicles containing mature insulin-dense core granules; red arrows point to vesicles containing insulin crystal structures. Magnification x8900. **F)** The percentage of different vesicle morphologies in control and *Stard13*^{ΔPA} β-cells. Quantification was performed by counting the number of each type of vesicle with respect to the total number of vesicles per field (magnification x8900). In total 50 β-cells were quantified from three different pancreas per genotype. Data are expressed as means ± s.e.m.

Supplementary Table 1. List of Primary Antibodies

Antibody	Raised in	Dilution	Source and catalog number
Deoxyribonuclease I-Alexa Fluor™ 488		1:100	Invitrogen, #D12371
E-cadherin	Rat	1:500	Sigma, #U3254
Glucagon	Rabbit	1:500	Immunostar, #20076
Glut2	Goat	1:200	Santa Cruz, #sc7580
Insulin	Guinea pig	1:250	Invitrogen, #PAI-26938
Phalloidin-Alexa Fluor™ 555		1:200	Invitrogen, #A34055