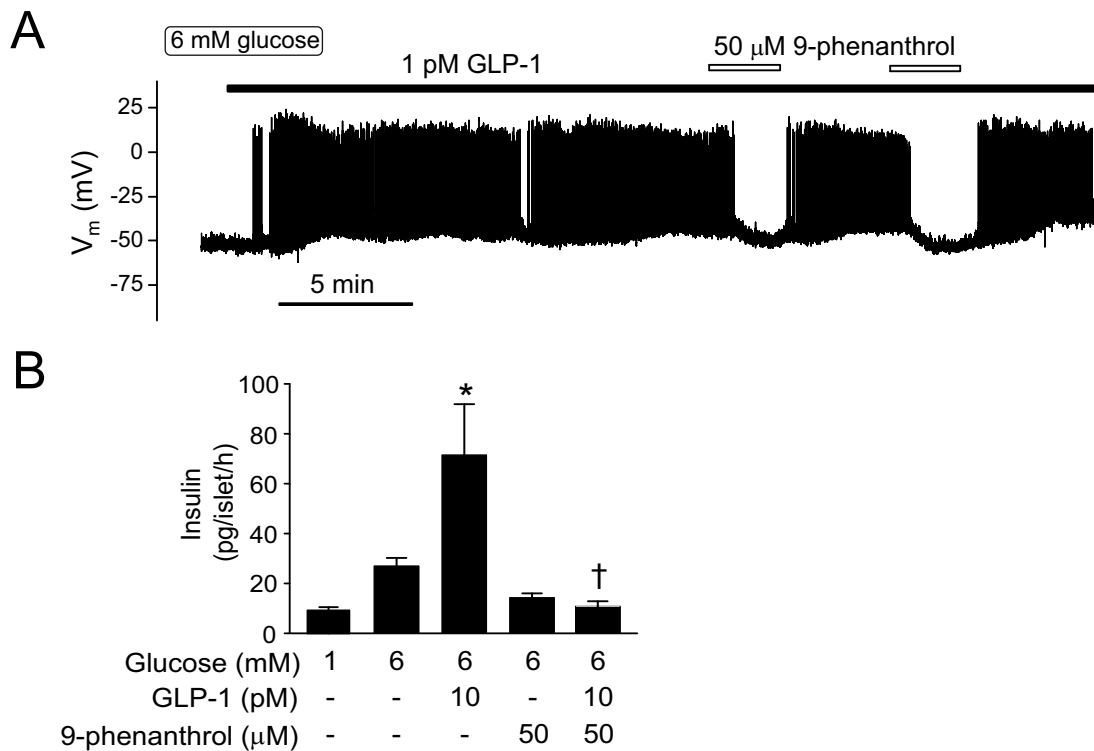
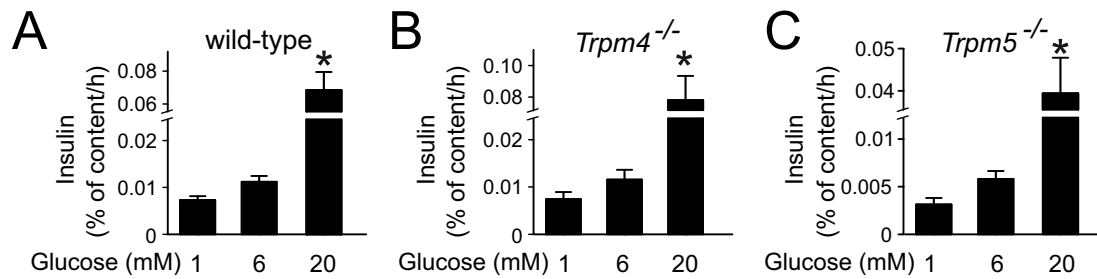


Supplemental Figure 1



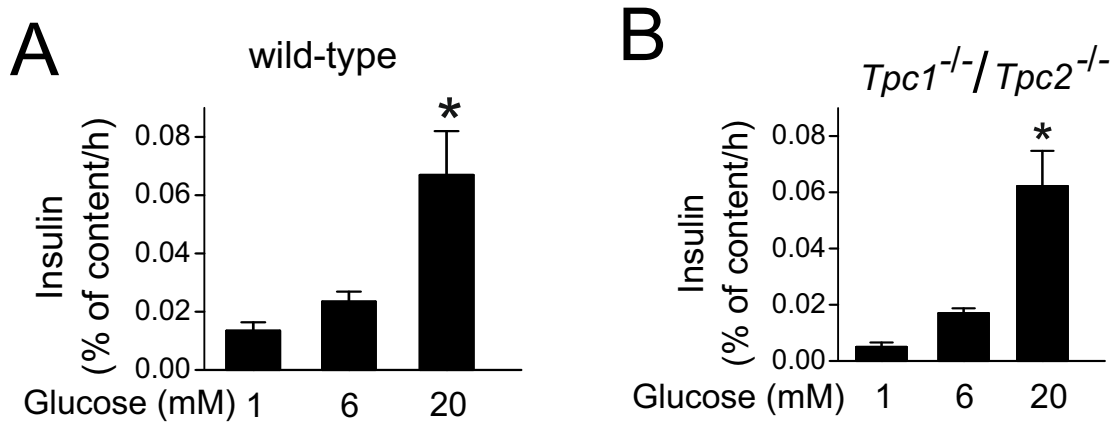
Supplementary Figure 1. Effects of 9-phenanthrol on insulin secretion in mouse islets (A) Depolarizing effect of GLP-1 on electrical activity prevented by the TRPM4 blocker 9-phenanthrol. GLP-1 and the blocker were applied as indicated (n=8 cells from 7 mice). (B) Effects of 10 pM GLP-1 on glucose-induced insulin secretion in mouse islets at 6 mM glucose in the absence and presence of GLP-1 and 9-phenanthrol as indicated. 9-phenanthrol was included already during the 30 min preincubation period. Mean values \pm S.E.M. of 6-8 experiments. * P <0.05 vs 6 mM glucose; † P <0.01 vs 6 mM glucose and GLP-1 (one-way Anova followed by Dunnett's post-hoc test).

Supplemental Figure 2



Supplementary Figure 2. Glucose-induced insulin secretion in *Trpm4* and *Trpm5*-deficient islets. (A-C) Effects of glucose (1, 6 and 20 mM) on insulin secretion in islets from wild type (A), *Trpm4*^{-/-} (B) and *Trpm5*^{-/-} (C) mice. Mean values \pm S.E.M. of 6 experiments. * $P < 0.01$ vs 1 mM glucose (one-way Anova followed by Dunnett's post-hoc test).

Supplemental Figure 3



Supplementary Figure 3. Glucose-induced insulin secretion in *Trpm4* and *Trpm5*-deficient islets. (A-B) Effects of glucose (1, 6 and 20 mM) on insulin secretion in islets from wild type (A) and *Tpc1/Tpc2* DKO mice. Mean values \pm S.E.M. of 7-8 experiments. * $P < 0.01$ vs 1 mM glucose (one-way Anova followed by Dunnett's post-hoc test).