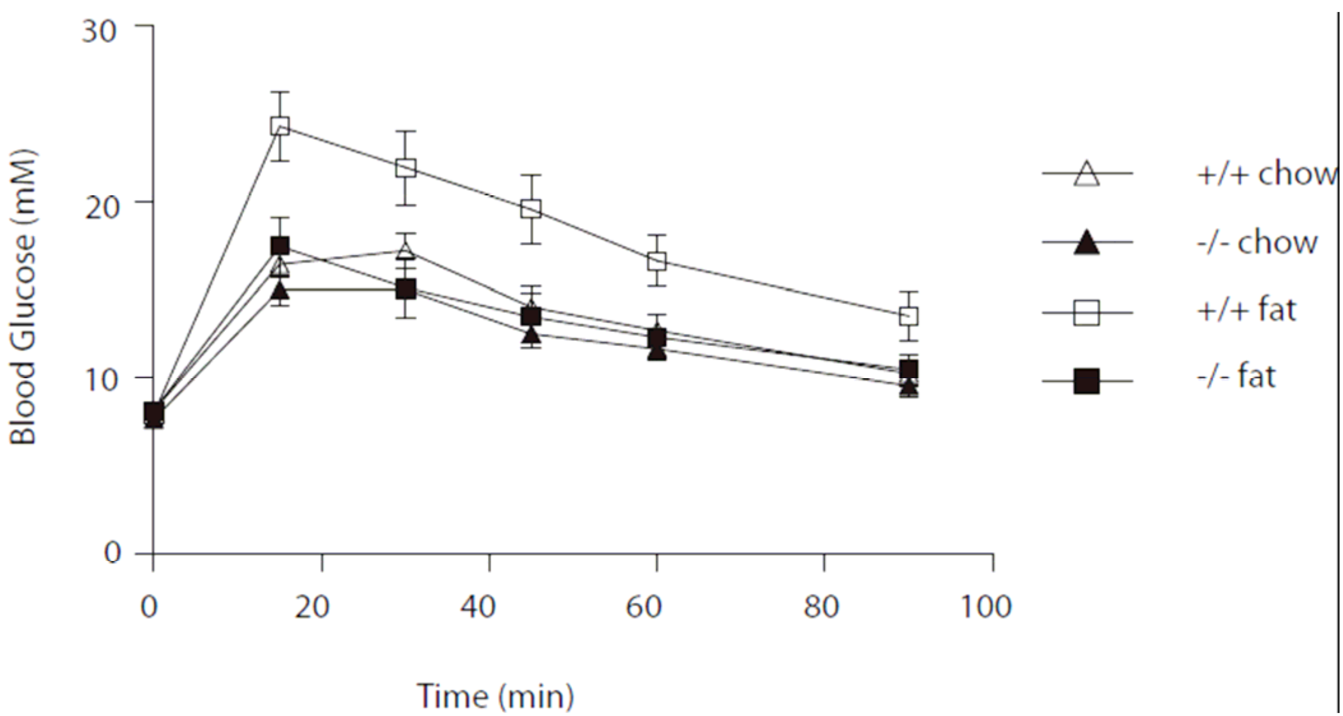
SUPPLEMENTARY DATA

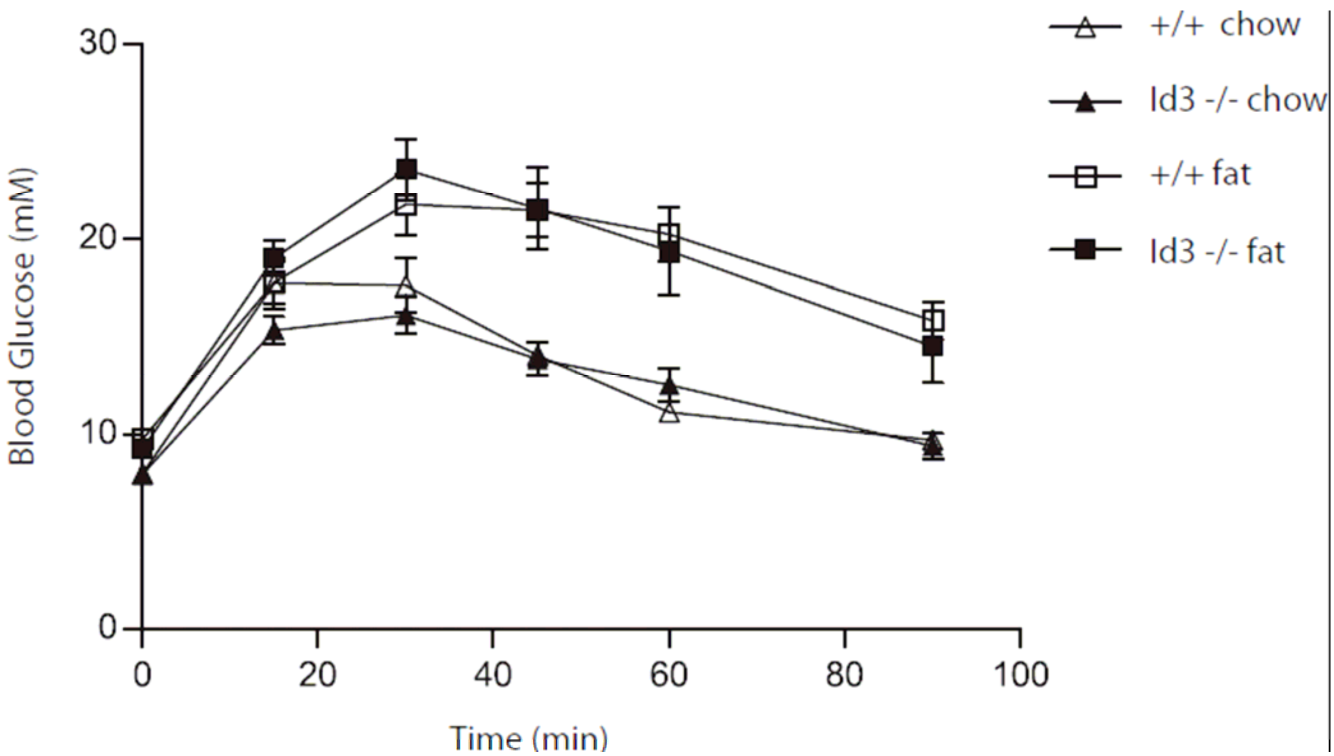
Supplementary Table 1. Sequences of oligonucleotide primers.

Gene	Size (bp)	5' Oligonucleotide	3' Oligonucleotide
Cyclophilin A (Ppia)	151	TGTGCCAGGGTGGTGACTTTAC	TGGGAACCGTTTGTGTTTGG
Id1	210	TTGGTCTGTCGGAGCAAAGC	GCAGGTCCCTGATGTAGTCGATTAC
Insulin	149	TCTTCTACACACCCATGTCCC	GGTGCAGCACTGATCTAC
Glucagon	269	ATGAATGAAGACAAACGCCAC	ACTTCTTCTGGGAAGTCTCGC
Pdx1	172	CGGACATCTCCCCATACG	AAAGGGAGCTGGACGCGG
Beta2 (Neurod1)	276	ACTCCAAGACCCAGAAACTGTC	ACTGGTAGGAGTAGGGATGCAC
Glut2 (Slc2a2)	221	CATTCTTTGGTGGGTGGC	CCTGAGTGTGTTTGGAGCG
Pc (Pcx)	294	GTTCCGTGTCCGAGGTGTAAAG	CGCAGAAGGATGTCCCTGAAAC
Gk (Gck)	154	CATTGAATCAGAGGAGGGCAGC	TAGTGGACTGGGAGCATTTGTGGG
Gpr40 (Ffar1)	223	TATTCCTGGGGTGTGTGTGTGG	CCAAGGGCAGAAAGAAGAGCAG
BiP (Hspa5)	262	AGGACAAGAAGGAGGATGTGGG	ACCGAAGGGTCATTCCAAGTG
Chop (Ddit3)	176	TTCACTACTCTTGACCCTGCGTC	CACTGACCACTCTGTTTCCGTTTC
Ho-1 (Hmox1)	185	CCACACAGCACTATGTAAAGCGTC	GTTCGGGAAGGTAAAAAAAGCC

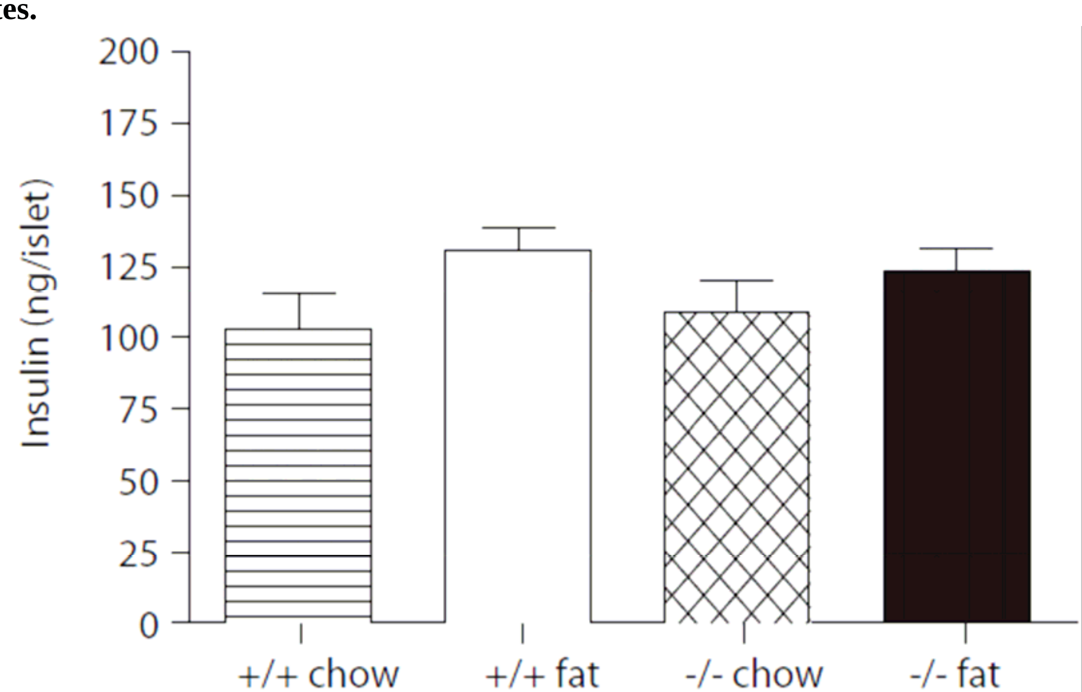
Supplementary Figure 1. Effect of Id1 deletion on glucose tolerance in mice fed a standard chow or a high-fat diet for 18 weeks. Blood glucose levels during an intraperitoneal glucose tolerance test (i.p. GTT) of wild-type (white triangles, n=6) and Id1-/- (black triangles, n=10) mice fed a chow diet and wild-type (white squares, n=7) and Id1-/- (black squares, n=6) mice fed a high-fat diet for 18 weeks. ANOVA: $p<0.05$ for effect of diet in wild-type mice, $p<0.05$ for effect of Id1 deletion in chow-fed mice, $p<0.05$ for effect of Id1 deletion in fatfed mice.



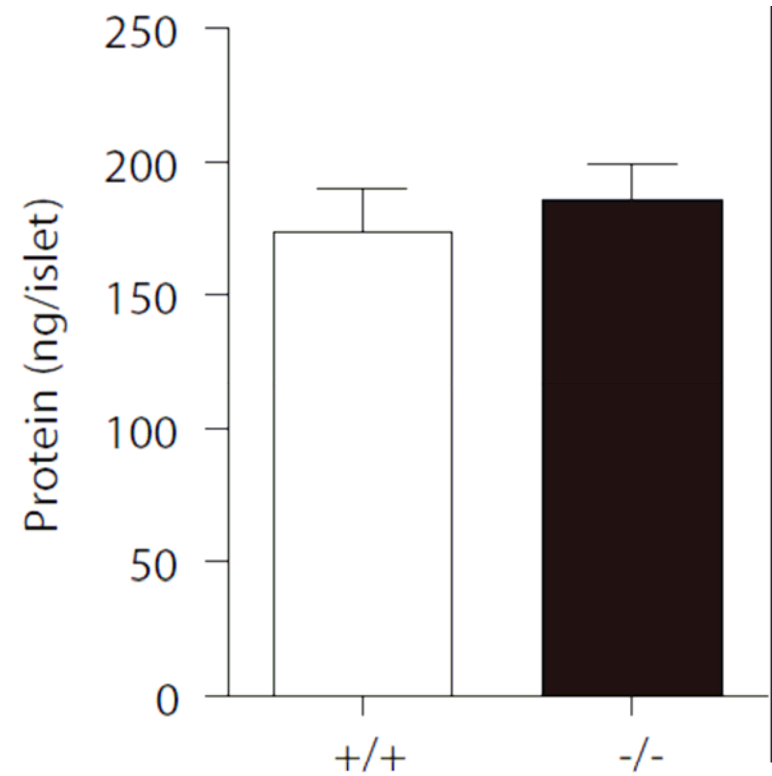
Supplementary Figure 2. Effect of Id3 deletion on glucose tolerance in mice fed a standard chow or a high-fat diet for 6 weeks. Blood glucose levels during an intraperitoneal glucose tolerance test (i.p. GTT) of wild-type (white triangles, n=6) and Id3-/- (black triangles, n=7) mice fed a chow diet and wild-type (white squares, n=11) and Id3-/- (black squares, n=10) mice fed a high-fat diet for 6 weeks. ANOVA: p<0.01 for effect of diet in wild-type and Id3-/- mice.



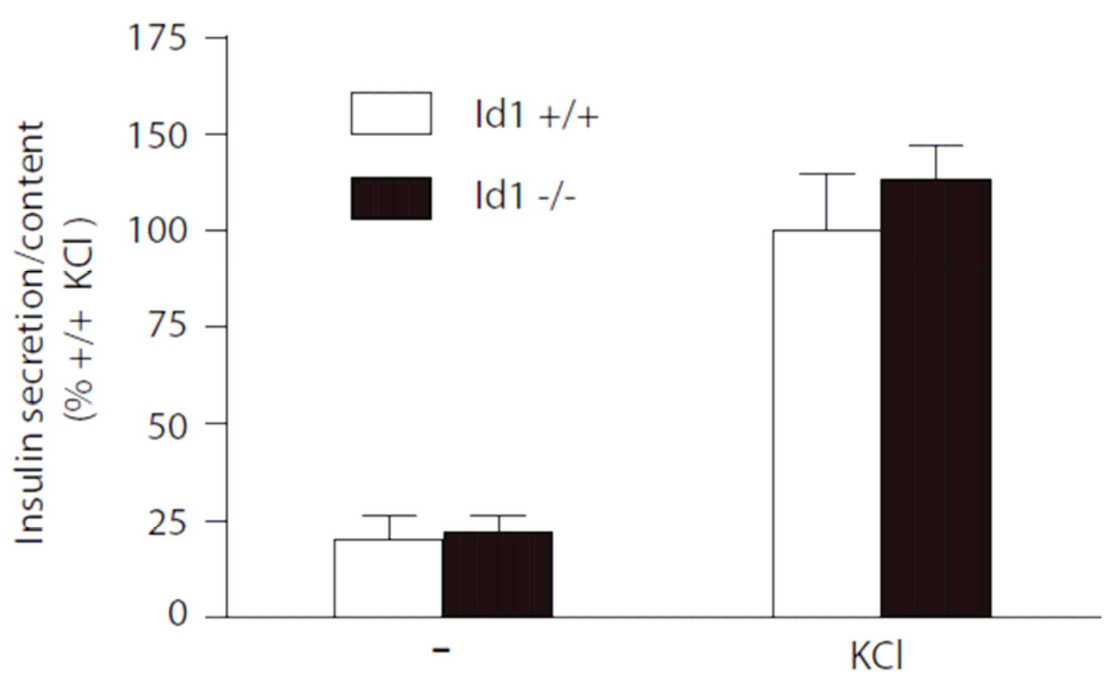
Supplementary Figure 3. Id1 deletion does not affect islet insulin content. Islets were isolated from wild-type and Id1-/- mice fed a chow or a high-fat diet. Total insulin content was determined in islet lysates.



Supplementary Figure 4. Id1 deletion does not affect islet protein content. Islets were isolated from wild-type and Id1-/- mice. Total protein content was determined in islet lysates.



Supplementary Figure 5. Effects of Id1 deletion on KCl-stimulated insulin secretion *ex vivo* in isolated islets. Batches of islets isolated from wild-type (white bars, n=8) and Id1-/- (black bars, n=5) mice were incubated at low (2.8 mM) glucose in the absence or presence of KCl (25 mM) for 1 h. Insulin was measured in an aliquot of the media by radioimmunoassay.



Supplementary Figure 6. Id1 deletion in islets increases insulin secretion after chronic palmitate exposure. Islets isolated from wild-type and Id1-/- mice were pretreated with either 0.92% BSA alone or 0.92% BSA coupled to 0.4 mM palmitate for 48 h. After pre-treatment, batches of islets were incubated in medium containing 2.8 or 16.7 mM glucose for 1 h. Insulin was measured in an aliquot of the media by radioimmunoassay. *p<0.05 for effect of chronic palmitate treatment in Id1-/- mouse islets at low glucose, †p<0.05 for effect of genotype in chronically palmitate-treated mouse islets at low and high glucose.