SUPPLEMENT DATA

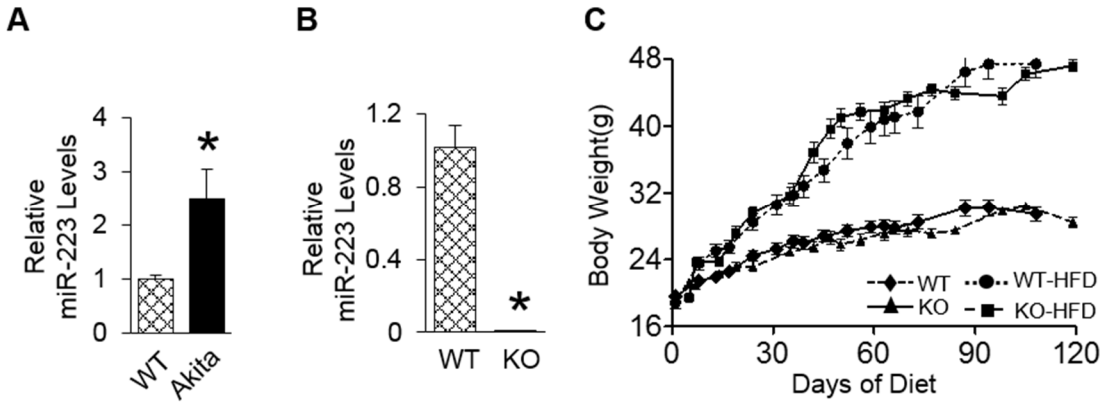

Figure S1. *A*: Expression of miR-223 was increased in islets of 12 wk. old Akita mice. *B*: MiR-223 was depleted in islets of KO mouse model measured by qPCR. *C*: Body weight measurement of KO mice showed no differences compared to WT controls under either CD or HFD condition. Data are shown as Mean ± SEM (error bar).*, $p < 0.05$ *vs*. controls by *t*-test.

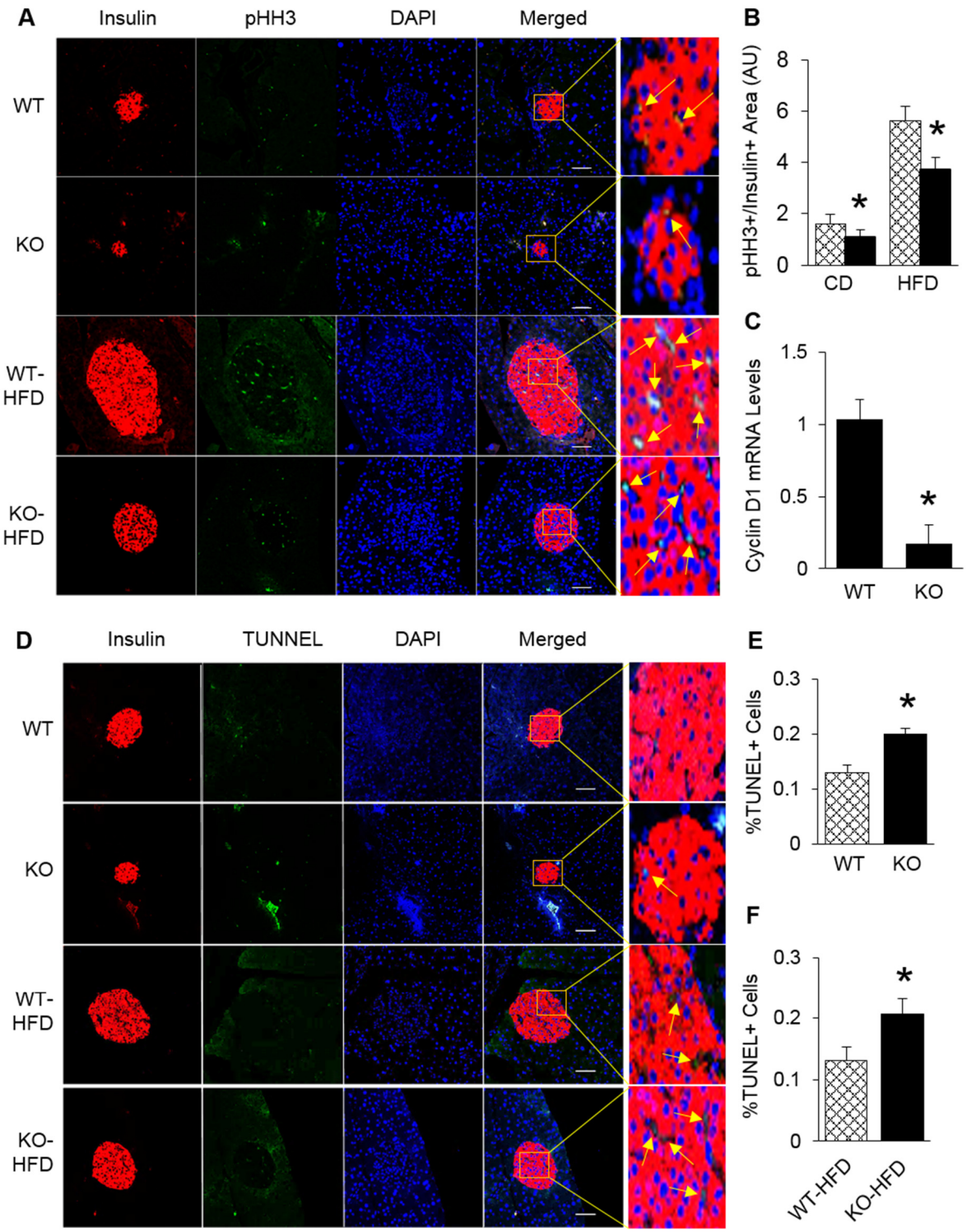

Figure S2. *A-B*: Representative images (A) of immunofluorecent staining of pancreatic tissue with insulin and pHH3 antibodies and quantification (B). *C*: qPCR results showed decreased levels of Cyclin D1 in islets of miR-223 KO mice; *D*: Representative images of pancreatic tissue stained with insulin and TUNEL. *E-F*: quantification of TUNEL positive cells within islets from CD-fed mice (E) and HFD-fed mice (F). Scale bar, 100μm; Data are shown as Mean ± SEM (error bar).*, $p < 0.05$ *vs*. controls by *t*-test.

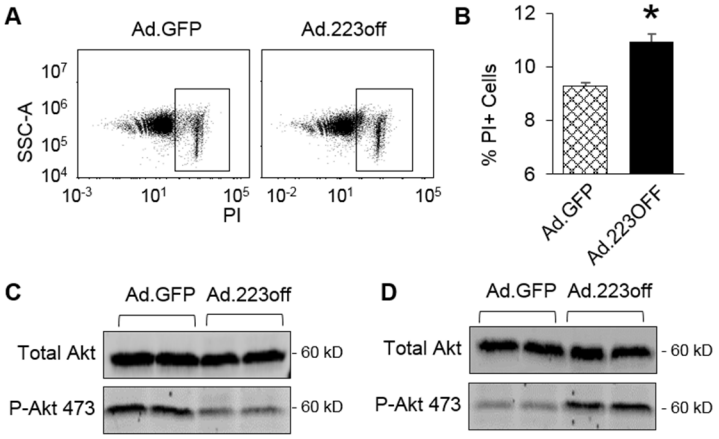

Figure S3. Min6 β-cells were infected with adenovirus encoding Ad.223off to knockdown miR-223. *A-B*: Representative figures of FACS analysis of Min6 β-cells stained with PI, as indicator of cell death. *C-D*: protein levels of phosphorylated Akt at Ser(p)473 sites were measured. Data are shown as Mean ± SEM (error bar).*, $p < 0.05$ *vs*. controls by *t*-test.

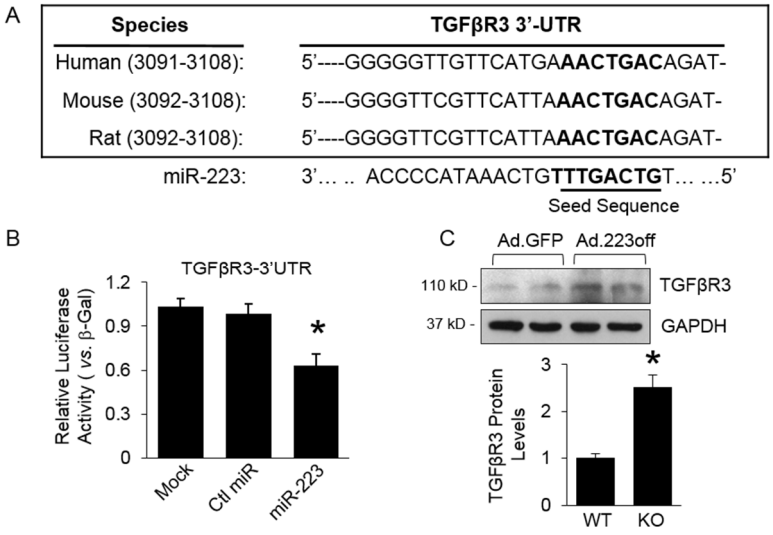

Figure S4. MiR-223 directly targets TGFβR3. *A*: The putative miR-223 binding sites in the 3'-UTR regions of TGFβR3 is conserved among mammalian species (human, mouse and rat). *B*: Luciferase reporter assays showed that TGFβR3 was authentic target of miR-223 in HEK293 cells. *C*: Protein levels of TGFβR3 were significantly increased in Min6 β-cells after knocking down miR-223. Data are shown as Mean ± SEM (error bar).*, $p < 0.05$ *vs*. controls by *t*-test.

Supplemental Table 1. Primer sequences for PCR (5' to 3')

Gene	Forward Primer	Reverse Primer
miR-223	GCAGAGTGTCAGTTTGTCAAAT	GTGCAGGGTCCGAGGT
Nkx6.1	TCAGTCAAGGTCTGGTTCC	CGATTTGTGCTTTTTCAGCA
NeuroD1	GACCCAGAAACTGTCTAAAATAGAGACA	AAGGAGACCAGATCA GGGCTTT
Ucn3	GCTGTGCCCCTCGACCT	TGGGCATCAGCATCGCT
Ngn3	CTAAGAGCGAGTTGGCACTGA	GAGGTTGTGCATTCGATTGCG
Cyclin D1	AGTGCGTGCAGAAGGAGATT	CACAACTTCTCGGCAGTCAA
Cyclin E1	CCTCCAAAGTTGCACCAGTT	GGACGCACAGGTCTACAAGC
Mafa	AGCGGCACATTCTGGAGAG	TTGTACAGGTCCCGCTCCTT

Supplemental Table 2. Antibodies for western blot assay used in the experiments

Name	Source	Manufacturer	Dilution
Anti-foxo1	rabbit	#2880, Cell Signaling Technology	1:1000
Anti-p-foxo1	rabbit	#9461, Cell Signaling Technology	1:1000
Anti-Sox6	mouse	sc-393314, Santa Cruz Biotechnology	1:1000
Anti-Pdx1	rabbit	07-696, Millipore	1:1000
Anti-Glut2	rabbit	ab95256, Abcam	1:1000
Anti-p27	rabbit	ab32034, Abcam	1:1000
Anti-GAPDH	rabbit	#2118S, Cell Signaling Technology	1:1000
Anti-Akt	rabbit	#9272, Cell Signaling Technology	1:1000
Anti-p-Akt(S473)	rabbit	#9271, Cell Signaling Technology	1:1000
Anti-p-Akt(T308)	rabbit	#9275, Cell Signaling Technology	1:1000
Anti-insulin	mouse	sc-8033, Santa Cruz Biotechnology	1:100
Anti-insulin	rabbit	sc-9168, Santa Cruz Biotechnology	1:100
Anti-Ki67	mouse	#9449, Cell Signaling Technology	1:100
Anti-pHH3	rabbit	#3377T, Cell Signaling Technology	1:100