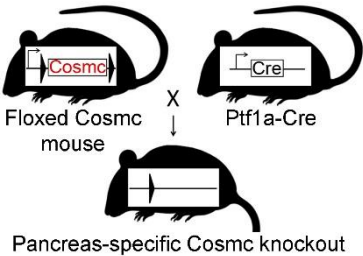
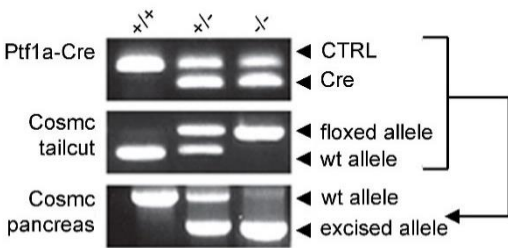


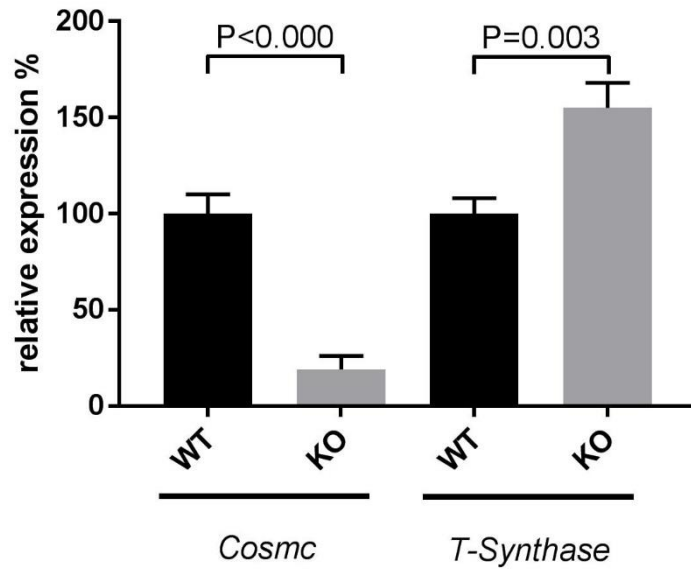
**Supplemental figures and figure legends**



**Supplemental Figure 1.** Scheme of mouse model with conditional *Cosmc* deficiency in the pancreas. Homozygously floxed *Cosmc*<sup>flx/flx</sup> females were interbred with the Cre-deleter mouse strain *Ptf1a*<sup>+/Cre</sup> to generate *Ptf1a*<sup>+/Cre</sup>;*Cosmc*<sup>flx/y</sup> male offspring.

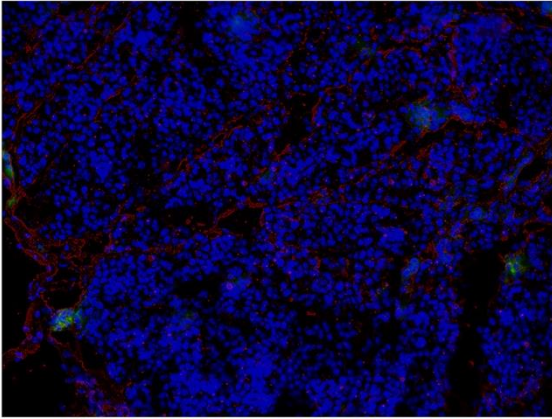


**Supplemental Figure 2.** Representative agarose-gels depicting genotyping strategy for Cre, *Cosmc* and *Cosmc* allele excision in hetero- and homozygous animals.

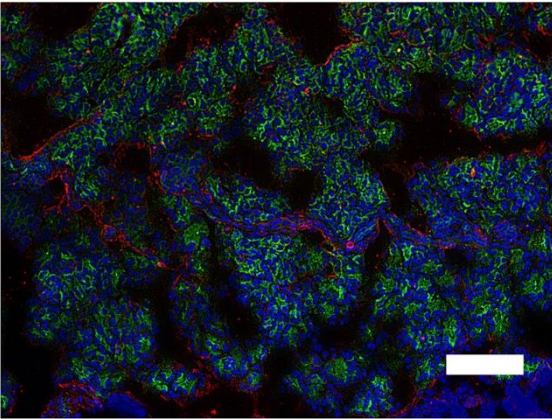


**Supplemental Figure 3.** Expression analyses of *Cosmc* and *T-Synthase* confirmed *Cosmc* deficiency using qRT-PCR. Of note, we found *T-Synthase* overexpressed in *Cosmc* KO pancreatic tissue (n = 4). Unpaired two-tailed Student's t-test was used to test the level of significance.

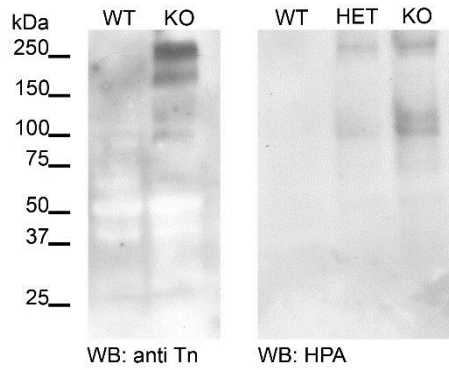
WT



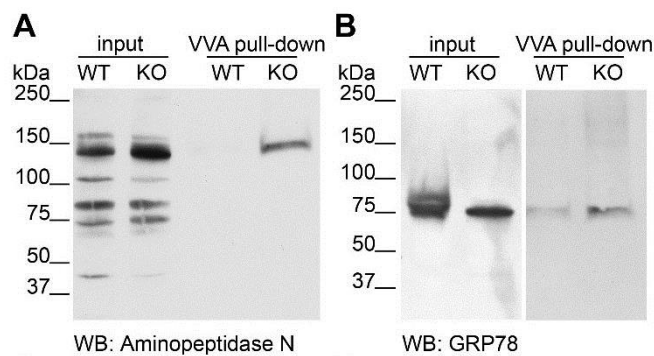
Cosmc KO



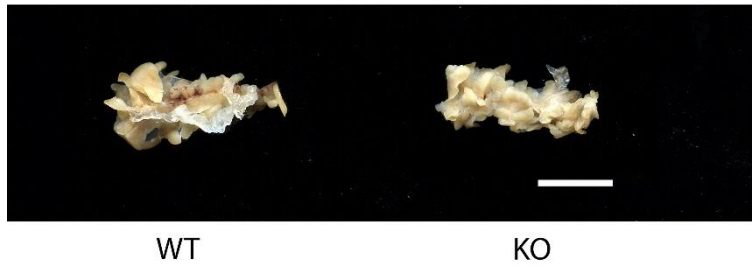
**Supplemental Figure 4.** Immunofluorescence using fluorescein-conjugated VVA was used to visualize Tn expression in *Cosmc* KO tissue (green). Endothelial cells were stained red using biotinylated *Sambucus nigra* lectin (SNA, EBL) complexed with NeutrAvidin 594. DAPI was used to counterstain nuclei. The scale bar equals 50  $\mu$ m.



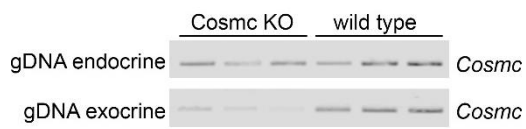
**Supplemental Figure 5.** Western and Far-Western blots of WT and KO pancreas lysates using an anti-Tn antigen antibody and the snail lectin *Helix pomatia agglutinin* (HPA) for specific detection of O-GalNAc modified proteins. Reduced levels of Tn proteins are detectable in tissue derived from heterozygous *Cosmc* KO (HET).



**Supplemental Figure 6.** WB of VVA pull-downs from WT and *Cosmc* KO pancreatic lysates using specific antibodies directed against (A) aminopeptidase N and (B) GRP78 for detection. Target proteins were specifically detected in pull-downs from *Cosmc* KO pancreatic tissue corresponding to molecular weight in input.



**Supplemental Figure 7.** Representative images of pancreata derived from aged mice. Scale bar equals 1 cm.



**Supplemental Figure 8.** Analytical agarose gels of RT-PCRs depicting status of genomic *Cosmc* in gDNA derived from exocrine and endocrine KO and WT (n=3) pancreata. *Cosmc* is specifically excised in exocrine KO tissue (no or faint band).