

Supplemental Legends

Supplemental Figure S1. HID-AB stained pyloric mucosa of *A4gnt* KO mice. HID-AB staining differentiates sulfomucins (black color) from sialomucins (sky blue color), and sulfomucins production in *A4gnt* KO mice is more prominent compared with that in WT mice. Hyperplasia (at 5 weeks), low-grade dysplasia (at 10 weeks), high-grade dysplasia (at 20 and 30 weeks), and adenocarcinoma (from 40 to 60 weeks) are shown. Pyloric mucosa of WT mice at 60-weeks-old is shown as a control. Bar = 200 μ m. HID-AB staining. wk, weeks.

Supplemental Figure S2. Quantitative RT-PCR assay comparing three sulfotransferase genes (*Chst2*, *Chst4*, and *Chst7*) in WT and *A4gnt* KO mice. RNA samples were extracted from formalin-fixed and paraffin-embedded tissue blocks of glandular stomach, as described previously (Karasawa et al. J Clin Invest 2012; 122:923-34). The assay protocol is described in the text. Assay IDs of TaqMan probes used were: Mm00490018_g1 for *Chst2*, Mm00488783_s1 for *Chst4*, and Mm00491466_m1 for *Chst7*. Fold-expression was calculated by setting the median value of expression in 5-week-old WT mice to 1.0. Data represent the mean \pm SEM (n = 6 for each group). ** $P < 0.01$. wk, weeks.

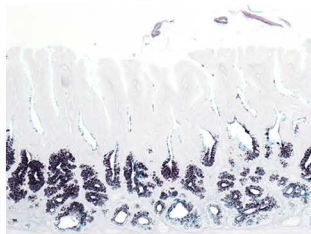
Supplemental Figure S3. Representative histopathology analysis of pyloric mucosa from *A4gnt* KO mice. Hyperplasia (at 5 weeks), low-grade dysplasia (at 10 weeks), high-grade dysplasia (at 20 and 30 weeks), and adenocarcinoma (from 40 to 60 weeks) are shown. Pyloric mucosa of WT mice at 60-weeks-old is shown as a control. Bar = 200 μ m. H&E staining. wk, weeks.

Supplemental Figure S4. AB stained pyloric mucosa of *A4gnt* KO mice and *A4gnt/Chst4* DKO mice of 10-week-old mice. Comparable amounts of sialomucins are detected in both mutant mice. Bar = 200 μ m.

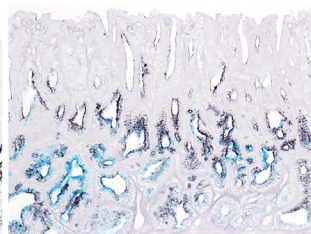
5 wk
(*A4gnt* KO)



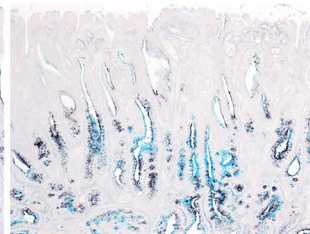
10 wk
(*A4gnt* KO)



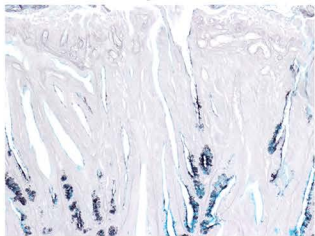
20 wk
(*A4gnt* KO)



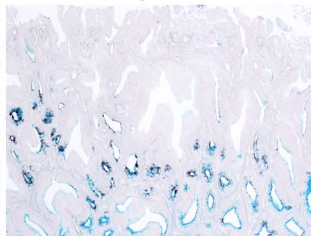
30 wk
(*A4gnt* KO)



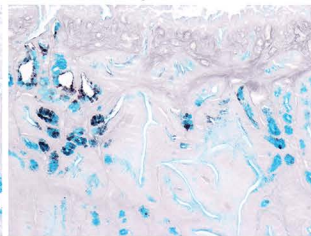
40 wk
(*A4gnt* KO)



50 wk
(*A4gnt* KO)



60 wk
(*A4gnt* KO)

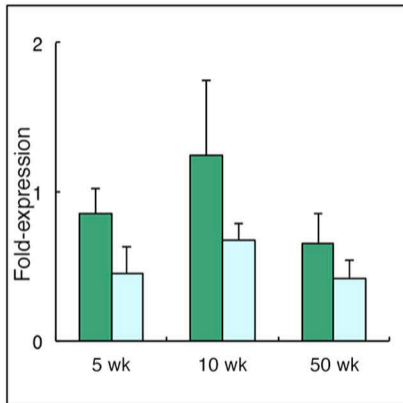


60 wk
(WT)

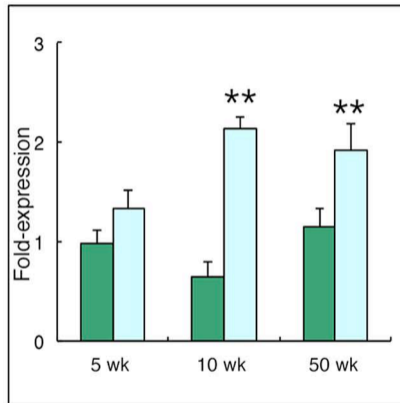


Supplemental Figure S1

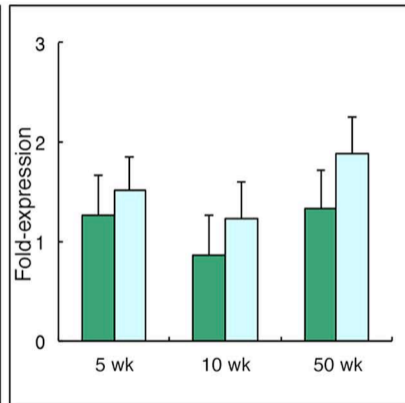
WT
A4gnt KO



Chst2



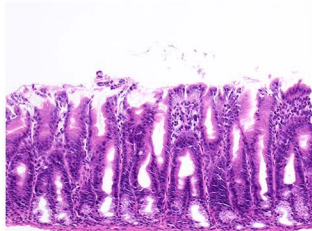
Chst4



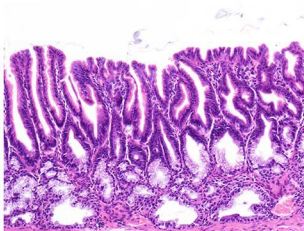
Chst7

Supplemental Figure S2

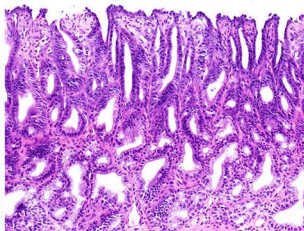
5 wk
(*A4gnt* KO)



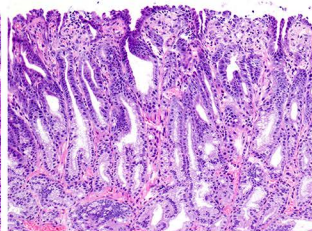
10 wk
(*A4gnt* KO)



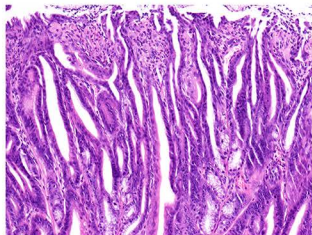
20 wk
(*A4gnt* KO)



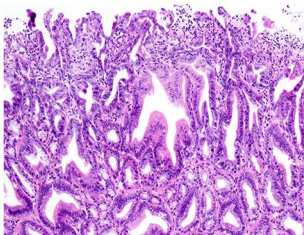
30 wk
(*A4gnt* KO)



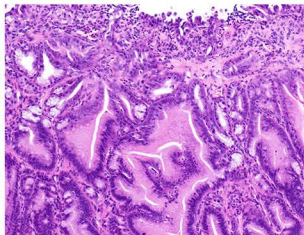
40 wk
(*A4gnt* KO)



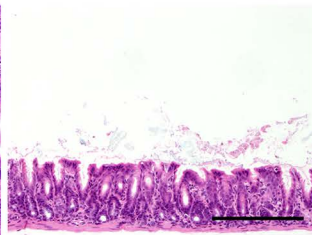
50 wk
(*A4gnt* KO)



60 wk
(*A4gnt* KO)

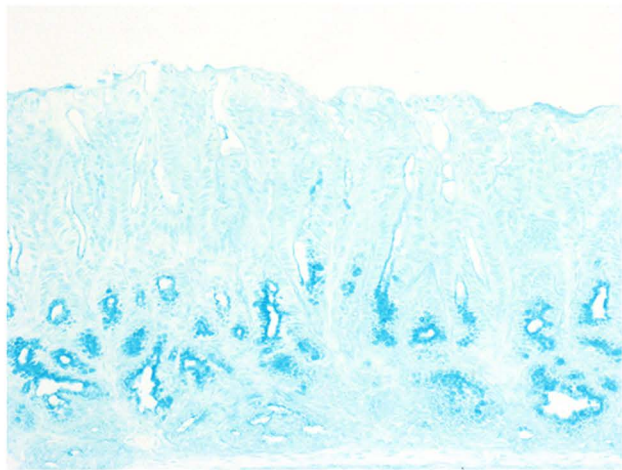


60 wk
(WT)

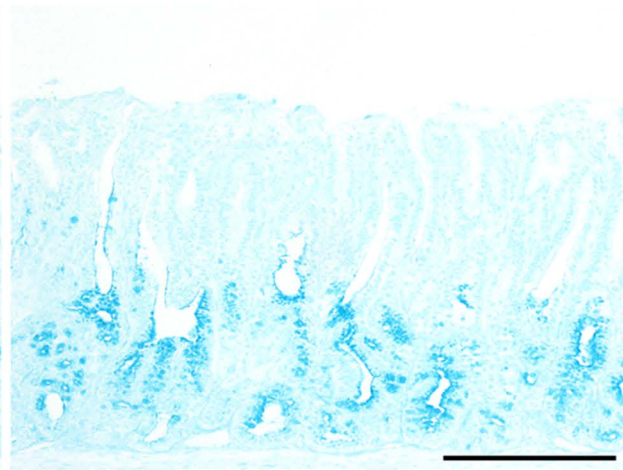


Supplemental Figure S3

A4gnt KO



A4gnt/Chst4 DKO



Supplemental Figure S4