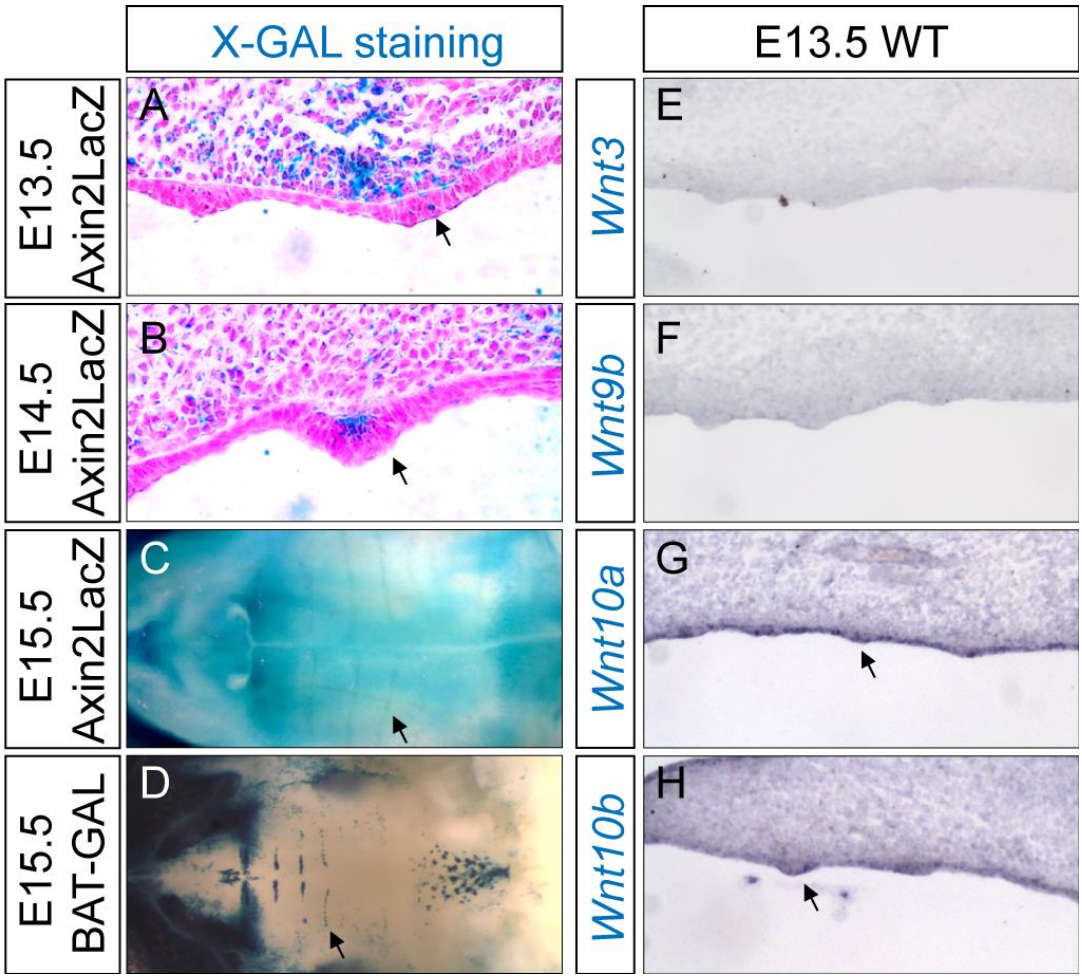
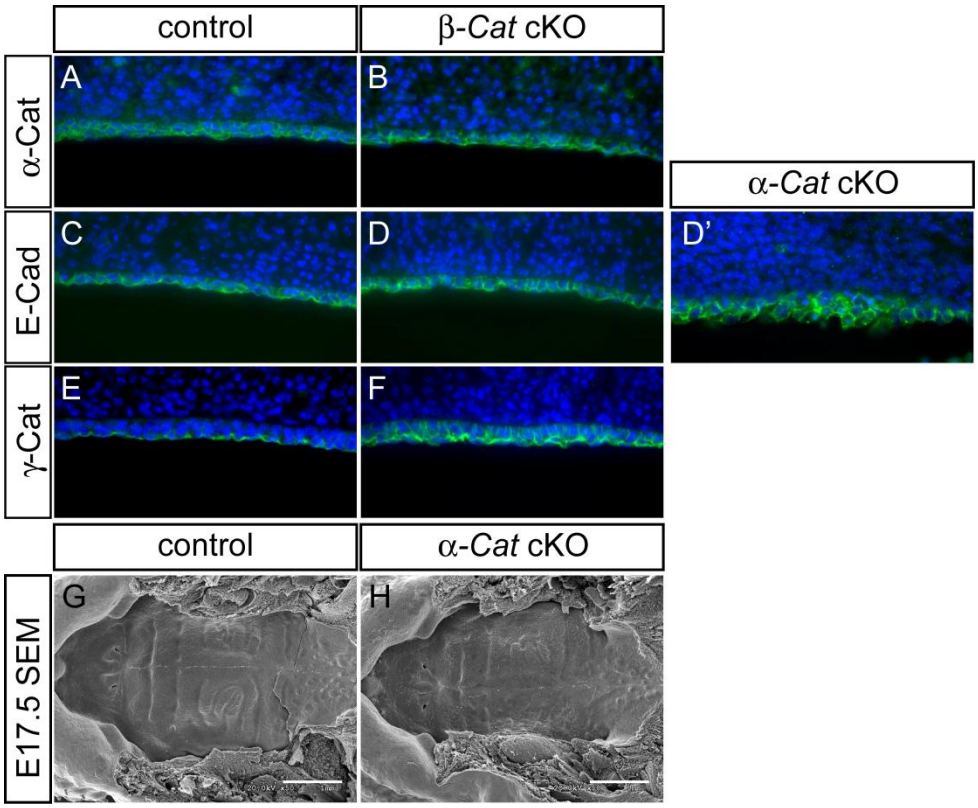
Supplemental Fig. S1



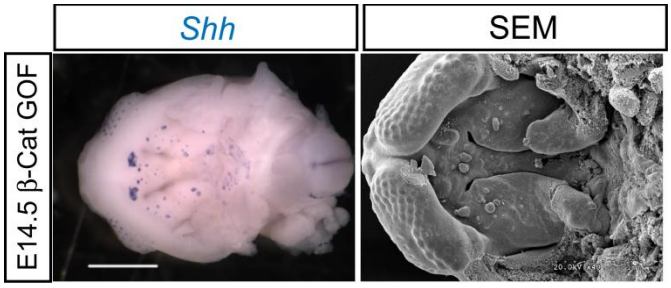
Supplemental Fig. S1 Expressiono f Wnt family genes in the palatal rugae. (A-C) X-Gal stained Axin2-LacZ mouse palate at different stages showing rugae epithelial (arrows) expression. (D) X-Gal stained e15.5 BATGAL mouse palate showing rugae expression (arrow). (E-H) In situ hybridyzation analysis using probes indicated on E14.5 mouse palatal sections. Note the expression of Wnt10a and Wnt10b in the rugae epithelium (Arrows in G and H)

Supplemental Fig. S2



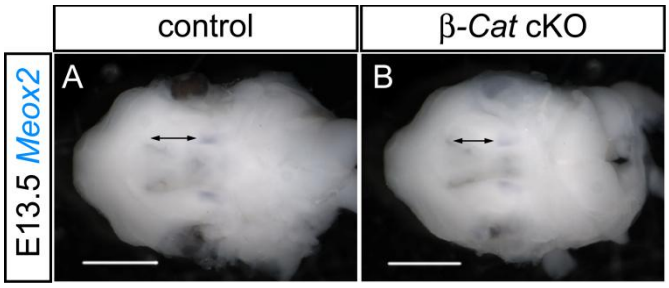
Supplemental Fig. S2 (A-F) Immunostaining of junctional proteins in β-Catenin-cKO and α-Catenin-cKO palatal epithelium showing unchanged expression of α-Catenin (A, B) and E-Cadherin (C, D), as well as upregulated expression of Plakoglobin in β-Catenin-cKO. (D')α-Catenin-cKO palatal epithelium showed disorganized E-Cadherin expression (Compare D' to C and D) (G, H)SEM analysis on control and α-Catenin-cKO palate showing rugae formation in the α-Catenin-cKO palate.

Supplemental Fig. S3



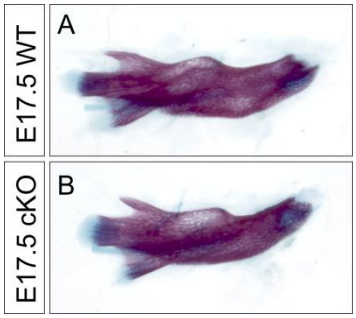
Supplemental Fig. S3 E14.5 Shh in situ and SEM analysis of Shh^{cregfp};β-Catenin^{ex3} GOF palates showing ectopic Shh-expressing growth and a lack of patterned rugae formation on the palate.

Supplemental Fig. S4



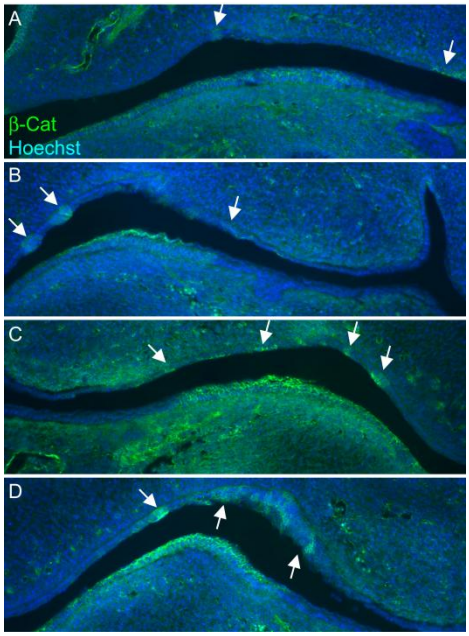
Supplemental Fig. S4 *Meox2* expression in E13.5 control and β-Catenin cKO palates showing similar posterior expression. Double headed arrows indicate the A-P expansion of non-*Meox2* expressing anterior palate.

Supplemental Fig. S5



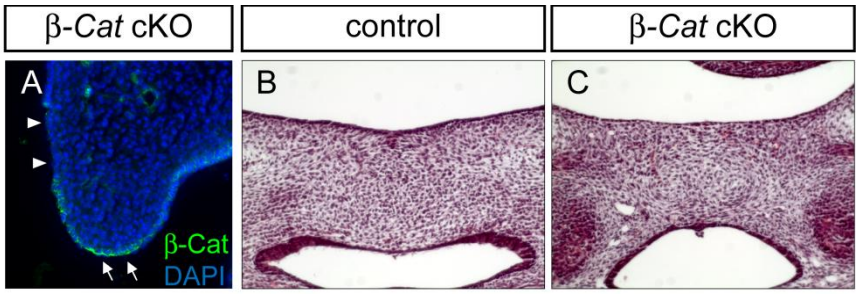
Supplemental Fig. S5 (A-B) Skeleton staining of E17.5 of control and β-Catenin-cKO embryos showing normal jaw development.

Supplemental Fig. S6



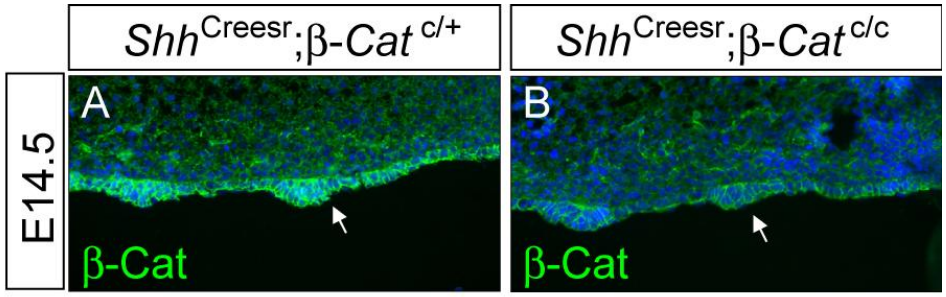
Supplemental Fig. S6 (A-D) β-Catenin immunostaining on four different e13.5 β-Cat cKO PSs showing random pattern of remaining β-Catenin expression (arrows).

Supplemental Fig. S7



Supplemental Fig. S7 Palatal fusion in β-Catenin cKO palates. (A) β-Catenin Immunostaining showing residue expression (arrows) in MEE of E14.5 β-Catenin cKO palate. Note the deletion at the ventral palatal epithelium (arrowheads). (B, C) H&E staining of E15.5 posterior coronal palatal sections showing complete fusion of the secondary palates in both control and cKO.

Supplemental Fig. S8



Supplemental Fig. S8 The expression of β-Catenin in Tamoxifen inducible Shh^{Creesr};β-Catenin cKOs. (A) β-Catenin staining in control palate showing elevated β-Catenin expression in the rugae (arrow) (B) β-Catenin expression was reduced but remained throughout palatal epithelium including the rugae (arrow) of the Shh^{Creesr};β-Catenin cKOs after three consecutive Tamoxifen treatment at e11.5, e12.5 and e13.5.