

Linking suckling biomechanics to the development of the palate

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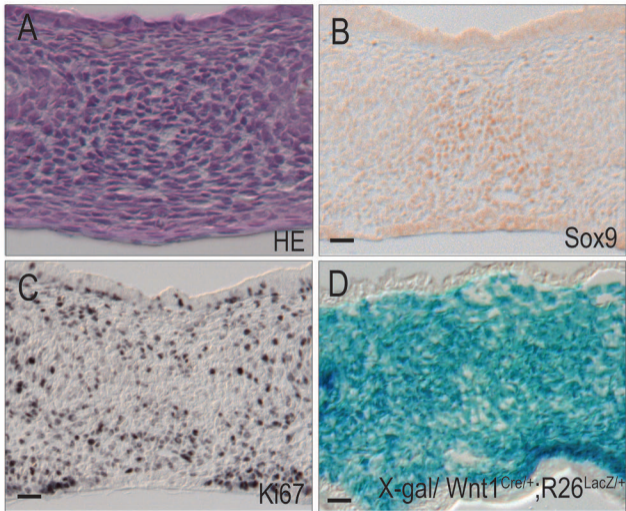
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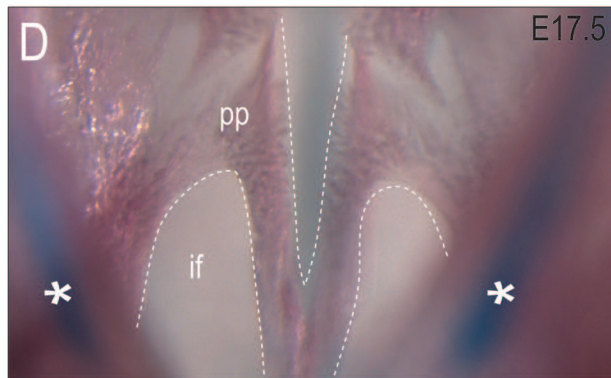
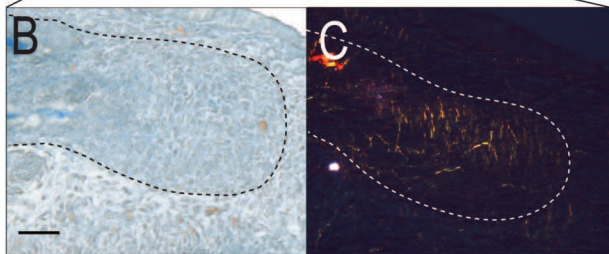
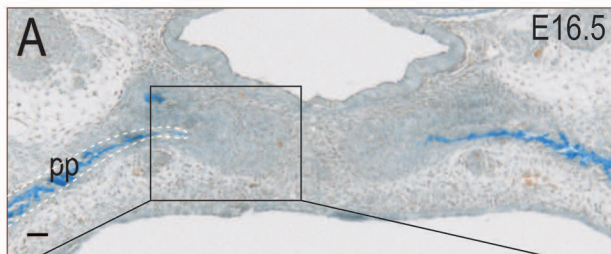
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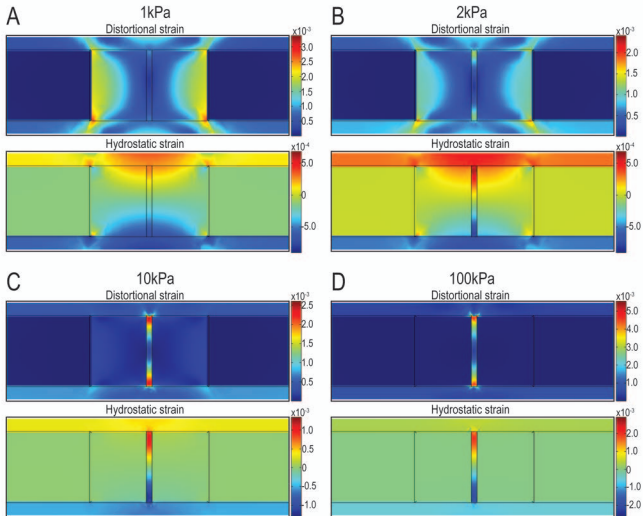
E16.5



Supplementary figure 1



Supplementary figure 2



Supplementary figure 3

Figure Legends

Supplementary Figure 1. The homogenous tissue arrangement of the palate during early embryogenesis.

(A) HE staining, and (B) Sox9, and (C) Ki67 immunostaining on representative tissue sections of the E16.5 palate. (D) X-gal staining of a representative tissue section from a E16.5 *Wnt1^{Cre/+};R26^{LacZ/+}* embryo. Scale bar=50µm.

Supplementary Figure 2. Palatal bone forms through intramembranous osteogenesis.

(A) Aniline blue staining highlights the emerging palatal process of the maxillary bone (ppm) at E16.5 (outlined in white). (B) Higher magnification allows better visualization of the mesenchymal condensation that is forming around the leading edge of each ppm with Picrosirius red staining to the right (C) showing its composition being that of a fine collagenous extracellular matrix. (D) Alizarin red/Alcian blue staining of the mouse palate at E17.5. Abbreviation: pp=palatal process; if=incisive foremen. Asterisk indicates Meckel's cartilage. Scale bars=50 µm.

Supplementary Figure 3. Modeling the ossification of cartilage caps in the midpalatal suture.

The distortional and hydrostatic strains were mapped as the cartilage was assigned progressively larger elastic moduli, from (A) 1kPa, (B) 2kPa, (C)10kPa, to (D) 100kPa, to simulate the gradual ossification of the cartilage cap.