

cartilages in *Wnt1Cre;Pkd1* mice. (A) Real-time quantitative PCR analysis of *Mmp13*, *Vegfa* and *Runx2* in control and *Wnt1Cre;Pkd1* groups without expansion and with expansion at day 3 ( $*p<0.05$  and  $**p<0.001$ ). Immunohistochemical staining of Mmp13 (B-E) and cleaved collagen type II (F-I) of frontal sections of nasal cartilages of control (B, C, F and G) and *Wnt1Cre;Pkd1* (D, E, H and I) animals without expansion (B, D, F and H) and with expansion at day 3 (C, E, G and I). Scale bar (B): 100 $\mu$ m.

Figure 9. Increased chondrocyte apoptosis in nasal cartilage in *Wnt1Cre;Pkd1* mice. TUNEL staining of the nasal cartilages in control (A and B) and *Wnt1Cre;Pkd1* (C and D) animals without expansion (A and C) and with expansion at day 3 (B and D). (E) Comparative analysis of TUNEL-positive cells in control and *Wnt1Cre;Pkd1* groups without expansion and with expansion at day 3 ( $*p<0.05$ ). (C) TUNEL-positive cells (green) are located in the peripheral regions of nasal cartilage. (D) TUNEL-positive cells are scattered in nasal cartilage. Scale bar (A): 100 $\mu$ m.

**Supplement figure 1.** Suture widths and thicknesses of control, *Wnt1Cre;Pkd1*, *OsxCre;Pkd1* and *OsxCre;Pkd1flox/+* mice using fluorescence labeling. (A) Comparative analysis of suture width in control, *Wnt1Cre;Pkd1*, *OsxCre;Pkd1* and *OsxCre;Pkd1flox/+* mice. (B) Comparative analysis of suture thickness in control, *Wnt1Cre;Pkd1*, *OsxCre;Pkd1* and *OsxCre;Pkd1flox/+* mice ( $*p<0.001$ ).

**Supplement figure 2.**  $\beta$ -galactosidase staining of midpalatal suture of *Wnt1Cre;Rosa26R* and *OsxCre;Rosa26R* mice. (A) *OsxCre* recombinase is expressed by periosteal cells, osteocytes and some chondrocytes. (B) *Wnt1Cre* recombinase was expressed by multiple cell lineages except epithelial cells. Scale bar (A): 100 $\mu$ m.

Supplement figure 3. Change of suture widths in response to midpalatal suture expansion in control and *Wnt1Cre;Pkd1* mice. Comparative analysis of suture width in control and *Wnt1Cre;Pkd1* mice without expansion and with expansion at days 1, 3, 7 and 14 ( $*p<0.001$ ).

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