

SUPPLEMENTARY MATERIAL

Supplementary Figures S1 to S5

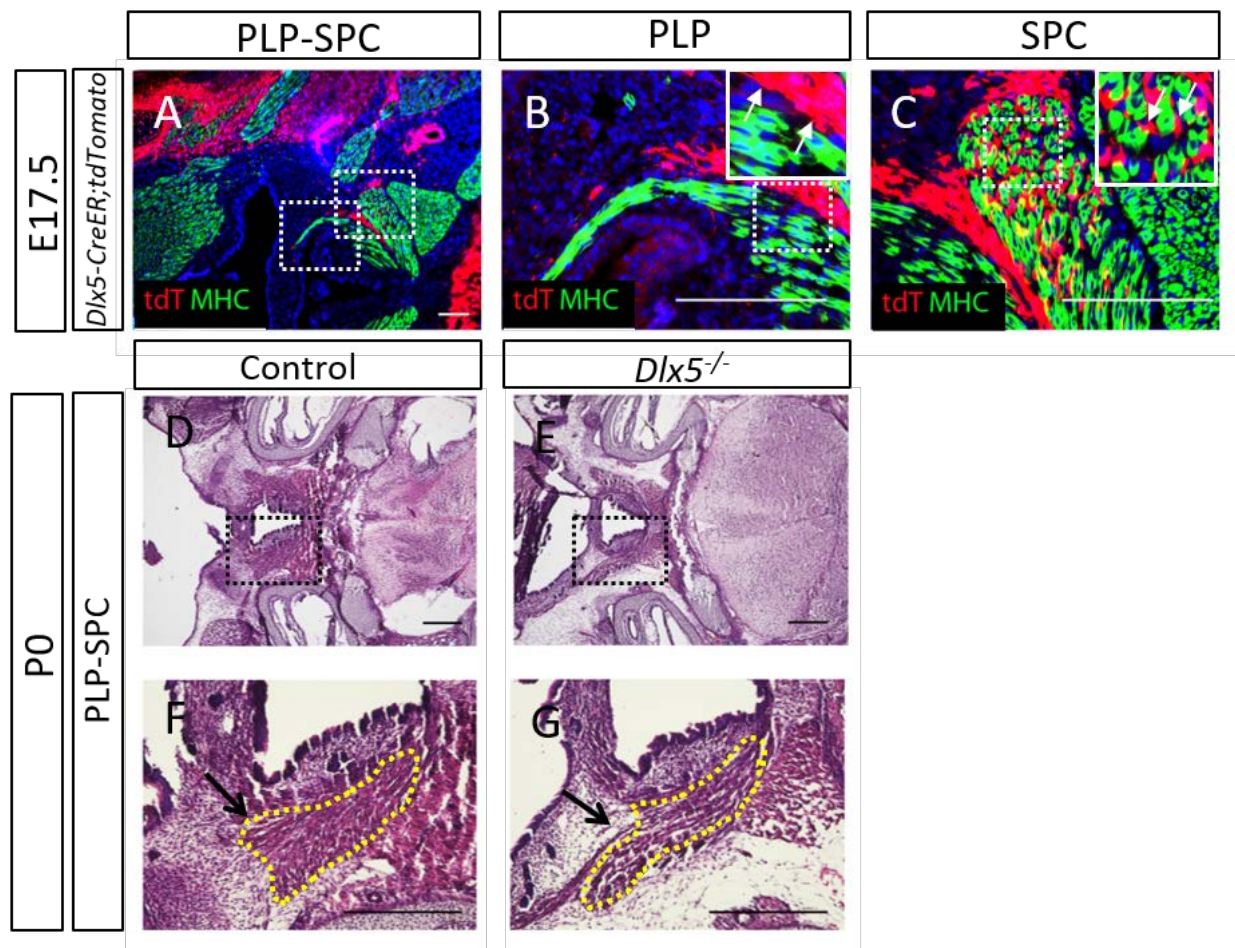


Fig. S1. Loss of *Dlx5* affects the development of the superior pharyngeal constrictor muscle. (A-C) Visualization of tdTomato (tdT, red) and immunostaining of myosin heavy chain (MHC, green) in transverse sections of *Dlx5-CreER;tdTomato* embryos at E17.5. B and C are magnified images from white dotted boxes in A. Inserts in B and C are magnified images from white dotted boxes. White arrows indicate *Dlx5*-positive cells immediately adjacent to myogenic cells. (D-G) Hematoxylin and eosin staining of transverse sections of the soft palate at the level of the SPC in newborn control and *Dlx5*^{-/-} mice. F and G are magnified images from dotted boxes in D and E, respectively. Yellow dotted lines indicate the location of the SPC based on our previous report (Grimaldi et al., 2015). Arrows indicate the area of the SPC in control mice with defects in *Dlx5*^{-/-} mice. PLP, palatopharyngeus; SPC, superior pharyngeal constrictor. n=3. Scale bars: 500 μ m in A-C; 250 μ m in D-G.

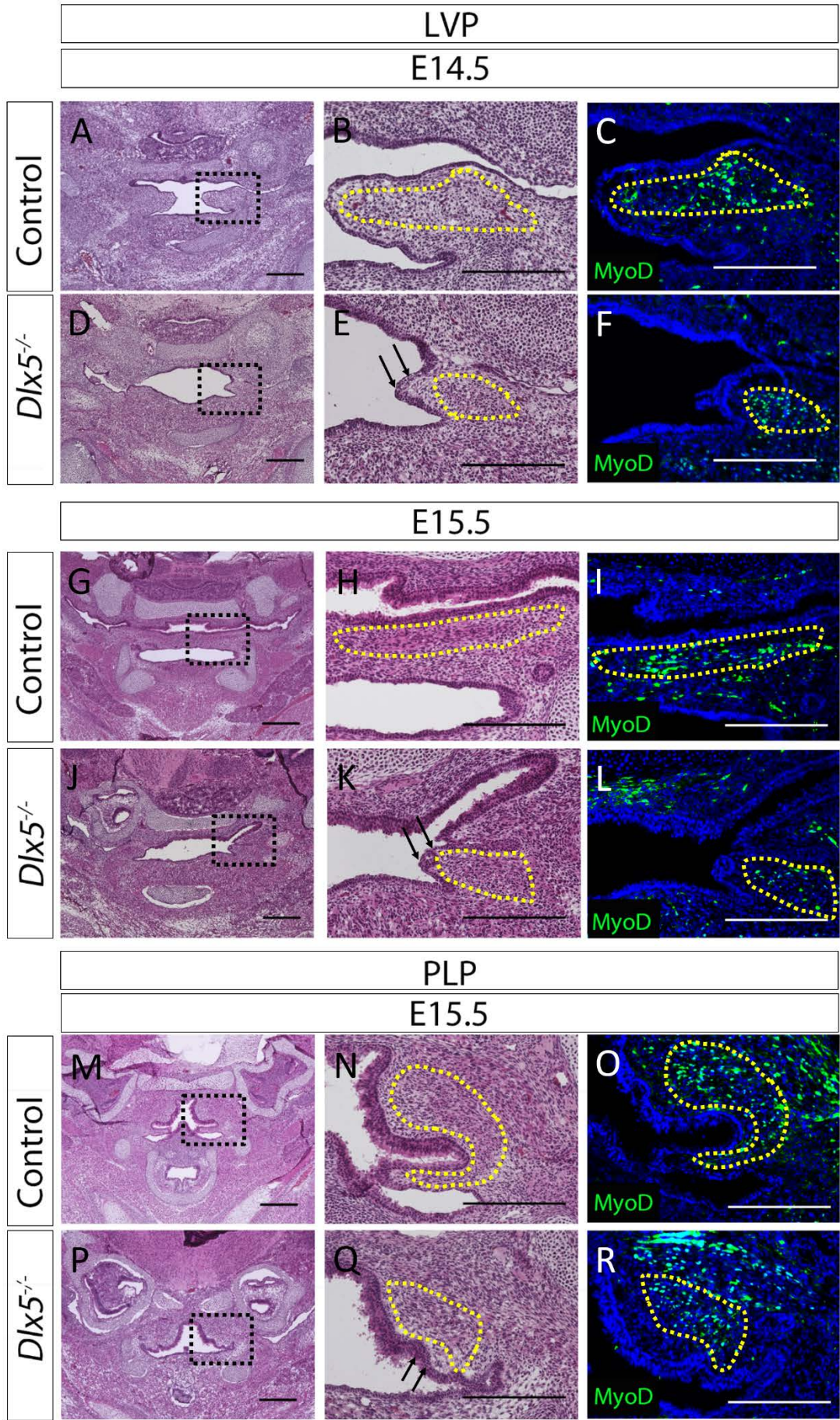


Fig. S2. Loss of *Dlx5* leads to defects of the LVP and PLP. Hematoxylin and eosin staining and immunostaining of myoblast determination protein 1 (MyoD, green) in sections of the soft palate at the level of the LVP at E14.5 (A-F) and E15.5 (G-L), and the PLP at E15.5 (M-R) in control and *Dlx5*^{-/-} embryos. B/C, E/F, H/I, K/L, N/O and Q/R are magnified images from black dotted boxes in A, D, G, J, M and P, respectively. Yellow dotted lines indicate the LVP and PLP based on the area of MyoD-positive cells and our previous report (Grimaldi et al., 2015). Arrows indicate an absence of muscle tissue in *Dlx5*^{-/-} mice. LVP, levator veli palatini; PLP, palatopharyngeus. n=3. Scale bars: 250 μm.

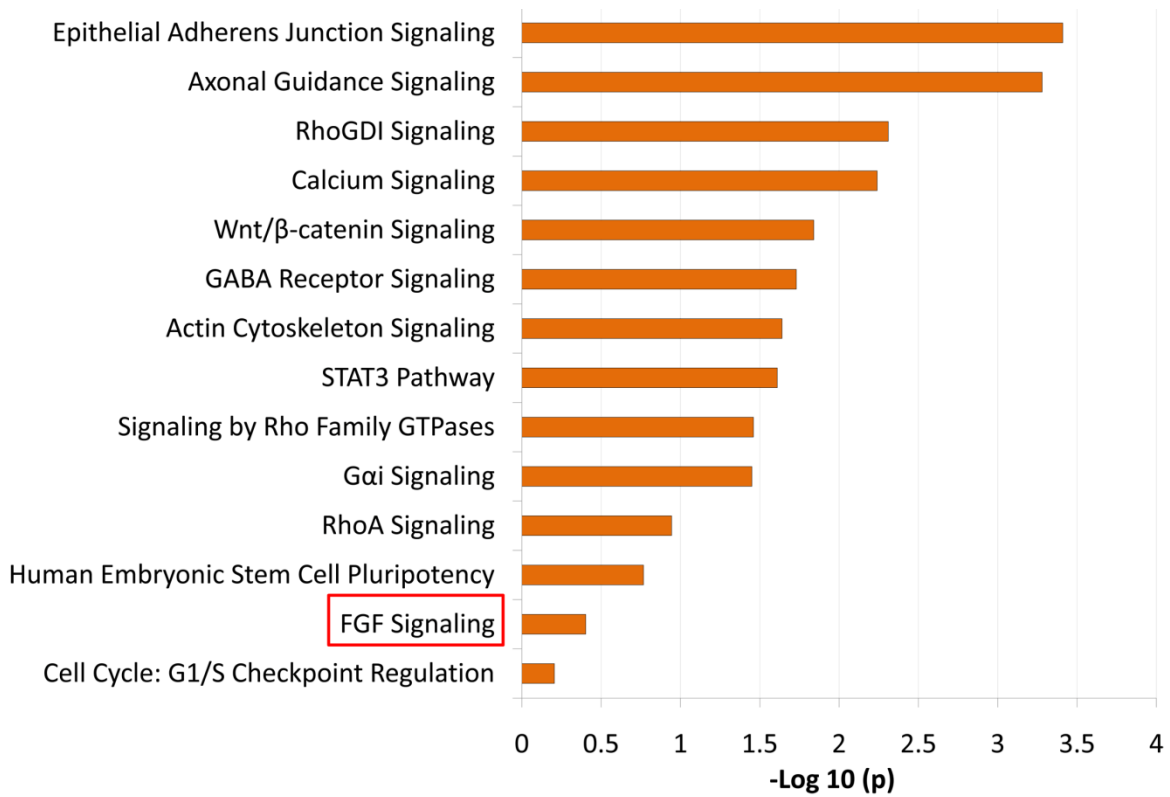


Fig. S3. Differential gene expression profile of soft palates of E14.5 *Dlx5*^{-/-} mice. List of differentially expressed signaling pathways from RNA sequence analysis of the soft palate of E14.5 *Dlx5*^{-/-} and control mice. Three samples per genotype were analyzed. n=3.

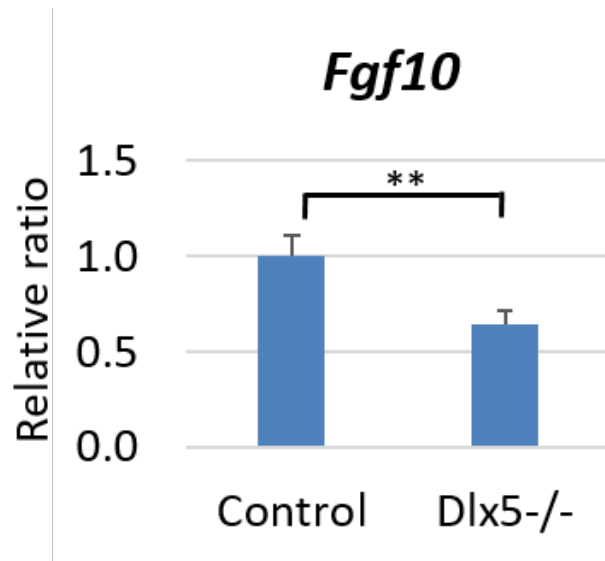


Fig. S4. Loss of Dlx5 leads to decreased gene expression of *Fgf10*. Quantitative RT-PCR analysis of *Fgf10* in the soft palate of E13.5 control and *Dlx5*^{-/-} mice. Three samples per genotype were analyzed. **, $P < 0.01$. n=3.

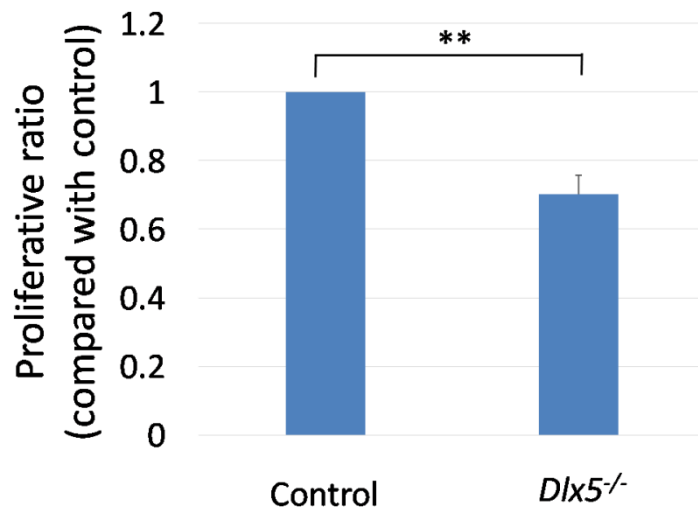


Fig. S5. Loss of *Dlx5* leads to decreased proliferation in cells from soft palate muscles.

Quantification of proliferation in cells from the soft palate of E13.5 control and *Dlx5*^{-/-} embryos cultured with 2% horse serum for one week. Three samples per genotype were analyzed. **, $P < 0.01$. n=3.