

**Table S2. Relevance between the reporter signals by *Shh* enhancers and the visible defect in the *Mfcs4*<sup>-/-</sup> neonates**

	MRCS1	MFCS4	MACS1	Visible defects in <i>Mfcs4</i> <sup>-/-</sup> neonates
Hair bud	+	-	-	-
Whisker	+	-	-	-
Tooth	+	-	-	-
Fungiform papilla	+	-	-	-
Hard palate	+	-	-	Rare cleft palate (5/35)
Soft palate	-	+	-	Hypoplasia
Tympanic tube, recess	-	+	-	-
Epiglottis	-	+	-	Hypoplasia
Arytenoid structure	-	+	+	Hypoplasia
Laryngotracheal tube	-	-	+	-
Lung	-	-	+	-
Stomach	-	-	+/-	-
Mid-hind gut	-	-	+	-
Urogenital tract	-	-	+	-
Basisphenoid bone	/	/	/	Degeneration
Kidney				
Thyroid				
Parathyroid				
Hyoid bone				
Tongue	/	/	/	Deformed
Whole tongue	/	/	/	Deformation
Hyoid bone	/	/	/	Hypoplasia
Thyroid cartilage	/	/	/	Hypoplasia
Cricoid cartilage	/	/	/	-