Supplementary Information

Gene	Forward primer	Reverse primer	
Cdc42	5'-ATGTGAAAGAAAAGTGGGTGCC-3'	5'-GATGCGTTCATAGCAGCACAC-3'	
Ctnnb1	5'-ATGGAGCCGGACAGAAAAGC-3'	5'-CTTGCCACTCAGGGAAGGA-3'	
Ednrb	5'-CCCTAAGGGTCTGCATGCTT-3'	5'-GCCACTTCTCGTCTCTGCTTT-3'	
Ermp1	5'-GGGCTTCACGAGCTACTATGAC-3'	5'-CTGACATGACCCGGAGAACTTC-3'	
Myh10	5'-GCAGAGCTGACATGCTTGAAC-3'	5'-GATGTGTGGTGGCATCTCATG-3'	
Pax9	5'-ACCGCTTCTGCACTCTGATG-3'	5'-GGGCAACACAAATGCCTCAT-3'	
Pbx1	5'-TGCCACAGAATGAAGCCTGC-3'	5'-CTGAGTTGTCTGAACCTGCACC-3'	
Pbx3	5'-CATCGGCGACATCCTCCAC-3'	5'-TGTGAATTCATTACATGCCTGTTCA-3'	
Ptch1	5'-TAGCCCTGTGGTTCTTGTCC-3'	5'-TGTGGTCATCCTGATTGCAT-3'	
Ptpn11	5'-GGTGAATGACTTCTGGCGGC-3'	5'-CTCTCTGTGTTTCCTTGTCCGA-3'	
Rpgrip11	5'-GACAGATCAGCTTCAGACAGTG-3'	5'-GGCAGGGACATAGGAGTCTC-3'	
Rspo2	5'-GGTCTGGAAACCAGAACACGG-3'	5'-GAAGACGCTGTGCTGCTCTTG-3'	
Satb2	5'-CCTCAAAATCACACACCAGCA-3'	5'-GGGACCTTGGTGTTGGAACTA-3'	
Sox11	5'-CAGCGAGAAGATCCCGTTCA-3'	5'-GGGTCCGTCTTGGGCTTTT-3'	
Sp8	5'-TTAAACTTGACTCCGCCGCT-3'	5'-AGCAAAACTAGGCCCGGAAA-3'	
Tgfbr1	5'-GGCCGGGCCACAAACA-3'	5'-CTGAAAAAGGTCCTGTAGTTGGG-3'	
Gapdh	5'-AACTTTGGCATTGTGGAAGG-3'	5'-ACACATTGGGGGGTAGGAACA-3'	

Supplementary Table S1. Primer pairs used in this study.

Supplementary Figure S1. Effect of overexpression of the predicted miRNAs on proliferation of O9-1 cells. (**A**) Cell proliferation assays with O9-1 cells treated with a miRNA mimic for control, *miR-98-3p, miR-101a-3p, miR-101b-3p, miR-141-3p, miR-144-3p, miR-181a-5p, miR-196a-5p, miR-196b-5p, miR-200a-3p,* or *miR-710*. (**B-E**) Quantitative RT-PCR for the indicated genes after treatment of O9-1 cells with control or miR-181a-5p mimic (B), miR-196a-5p mimic (C), miR-196b-5p mimic (D), and miR-710 mimic (E). *p<0.05, **p<0.01, ***p<0.001 versus control (n=6).

Supplementary Figure S2. Effect of inhibition of miR-181a-5p, miR-196a-5p, miR-196b-5p or miR-710 on proliferation of O9-1 cells. (**A**) Cell proliferation assays with O9-1 cells treated with

the control, miR-181a-5p, miR-196a-5p, miR-196b-5p or miR-710 inhibitor. (**B-E**) Quantitative RT-PCR for the indicated genes after treatment of O9-1 cells with control or miR-181a-5p inhibitor (B), miR-196a- inhibitor (C), miR-196b-5p inhibitor (D), or miR-710 inhibitor (E). p<0.05, p<0.01, p<0.01, p<0.01 versus control (n=6).

Supplemental Figure 3. Spatiotemporal expression of *miR-181a-5p*, *miR-196a-5p*, *miR-196b-5p*, and *miR-710* during lip development. (**A**) Relative expression of *miR-181a-5p*, *miR-196a-5p*, and *miR-196b-5p* in the maxillary process (MxP) and nasal process (NP) from E9.5 C57BL/6J mice. (**B**, **C**) Relative expression of *miR-181a-5p*, *miR-196a-5p*, *miR-196b-5p*, and *miR-710* in the MxP (B) and NP (C) from C57BL/6J mice from E9.5 to E12.5. **p*<0.05, ***p*<0.01, ****p*<0.001 versus control (n=6). N.D., not detected.

Supplementary Figure 4. Putative target site for miR-181a-5p in the *Ptch1* and *Tgfbr1* 3' UTR. (**A**, **B**) Bioinformatic analysis of the complementarity of miR-181a-5p seed-sequence to the 3' UTR of *Ptch1* (A) and *Tgfbr1* (B).

Supplementary Figure 5. Putative target site for miR-196a-5p in the *Pbx1*, *Pbx3*, and *Rpgrip11* 3' UTR. (A-C) Bioinformatic analysis of the complementarity of miR-196a-5p seed-sequence to the 3' UTR of *Pbx1* (A), *Pbx3* (B), and *Rpgrip11* (C).

Supplementary Figure 6. Putative target site for miR-196b-5p in the *Ednrb*, *Pbx1*, *Pbx3*, and *Rpgrip1l* 3' UTR. (**A-D**) Bioinformatic analysis of the complementarity of miR-196b-5p seed-sequence to the 3' UTR of *Ednrb* (A), *Pbx1*(B), *Pbx3* (C), and *Rpgrip11* (D).

Supplementary Figure 7. Putative target site for miR-710 in the *Cdc42* and *Rpgrip1l* 3' UTR. (**A**, **B**) Bioinformatic analysis of the complementarity of miR-710 seed-sequence to the 3' UTR of *Cdc42* (A) and *Rpgrip1l* (B).





Supplementary Figure 3

	E9.5 MxP	E9.5 NP		
miR-181a-5p/miR-26a-5	1.97 ± 0.20	1.91 ± 0.24		
miR-196a-5p/miR-26a-5	$6.30 \pm 0.11 (\text{x10}^{-3})$	$8.87 \pm 1.76 (x10^{-3})$		
miR-196b-5p/miR-26a-5	$2.44 \pm 0.52 (x10^{-3})$	$7.96 \pm 1.37 (\text{x10}^{-4})$		
miR-710/miR-26a-5p	N.D.	N.D.		

Α







Supplementary Figure 6



