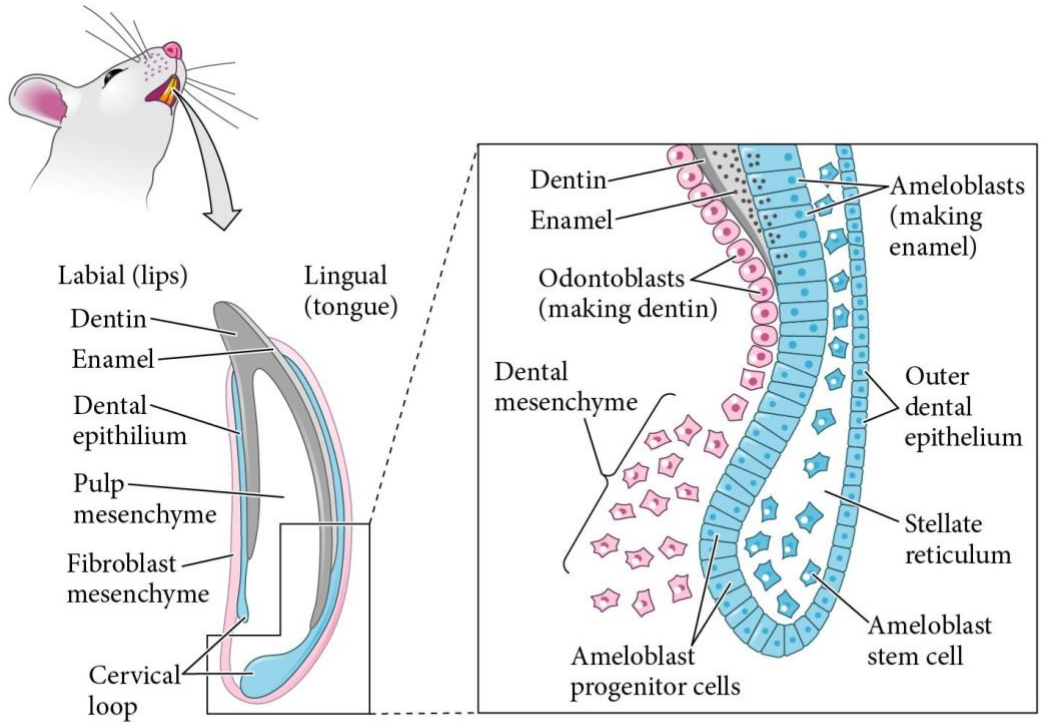
<Further Development 05_05>

Other Stem Cells Supporting Adult Tissue Maintenance and Regeneration

This chapter has focused on several well-defined adult stem cell niches. It is important to understand, however, that many more adult stem cell niches have been discovered and are providing new insights into the molecular regulation of the adult stem cell. Adult stem cells can be found in tissues of teeth, eye, fat, muscle, kidney, liver, and lung. There are interesting instances of some animals having evolutionarily lost a stem cell niche while related animals retained the niche. Rodent incisors, for instance, differ from mammalian incisors, including your own, in that they continue to grow throughout the lifetime of the animal. In the mouse, each incisor has two stem cell niches for creating enamel-secreting cells, one on the “inside,” facing into the mouth (lingual), and one on the “outside,” facing the lips (labial) (Figure 1). Because most other mammals lack these incisor stem cell niches, their teeth do not regenerate. We will describe various other stem cell lineages throughout the rest of the book.



After X.-P. Wang et al. 2007. *PLoS Biol 5*: e159/CC BY 4.0.

Figure 1 The cervical loop of the mouse incisor is a stem cell niche for the enamel-secreting ameloblast cells. These cells migrate from the base of the stellate reticulum into the enamel layer, allowing the teeth to keep growing.