

## Supplemental Data Part 4

Histological Assessment of *Fam83h<sup>Tr/Tr</sup>* & *Fam83h<sup>+/+</sup>* Mouse

Mandibular Incisor Cross-Sections at successive 1 mm increments.

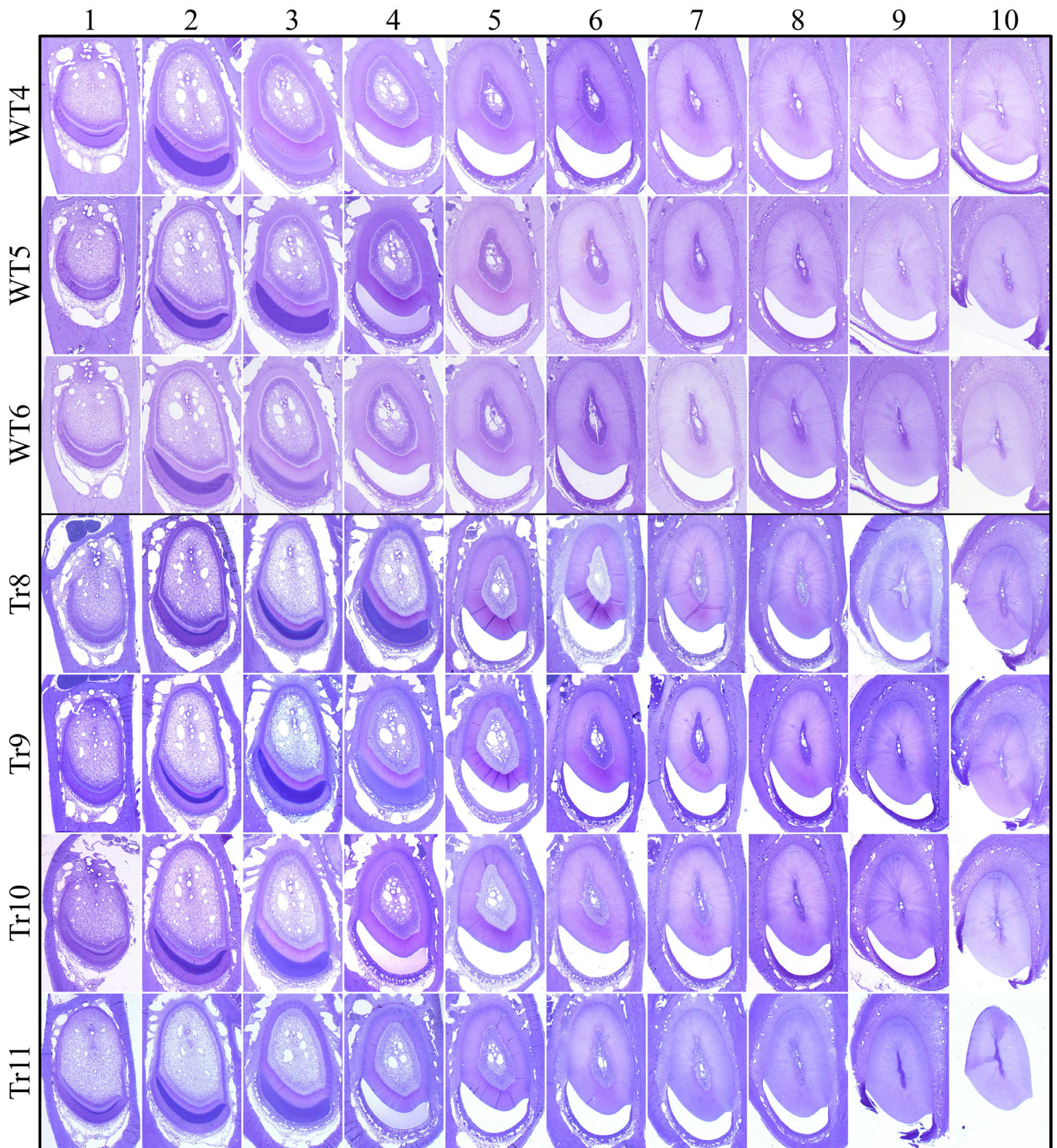
### Part 4a: *Fam83h<sup>Tr/Tr</sup>* and *Fam83h<sup>+/+</sup>* Mandibular Incisor Cross-Sections at 1 mm increments

- Fig. S49.** Histology of *Fam83h<sup>Tr/Tr</sup>* and *Fam83h<sup>+/+</sup>* Mandibular Incisor at 7-weeks (low magnification).
- Fig. S50.** Histology of *Fam83h<sup>+/+</sup>* Mandibular Incisor at 7-weeks (WT4).
- Fig. S51.** Histology of *Fam83h<sup>+/+</sup>* Mandibular Incisor at 7-weeks (WT5).
- Fig. S52.** Histology of *Fam83h<sup>+/+</sup>* Mandibular Incisor at 7-weeks (WT6).
- Fig. S53.** Histology of *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor at 7-weeks (F8).
- Fig. S54.** Histology of *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor at 7-weeks (F9).
- Fig. S55.** Histology of *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor at 7-weeks (F10).
- Fig. S56.** Histology of *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor at 7-weeks (F11).

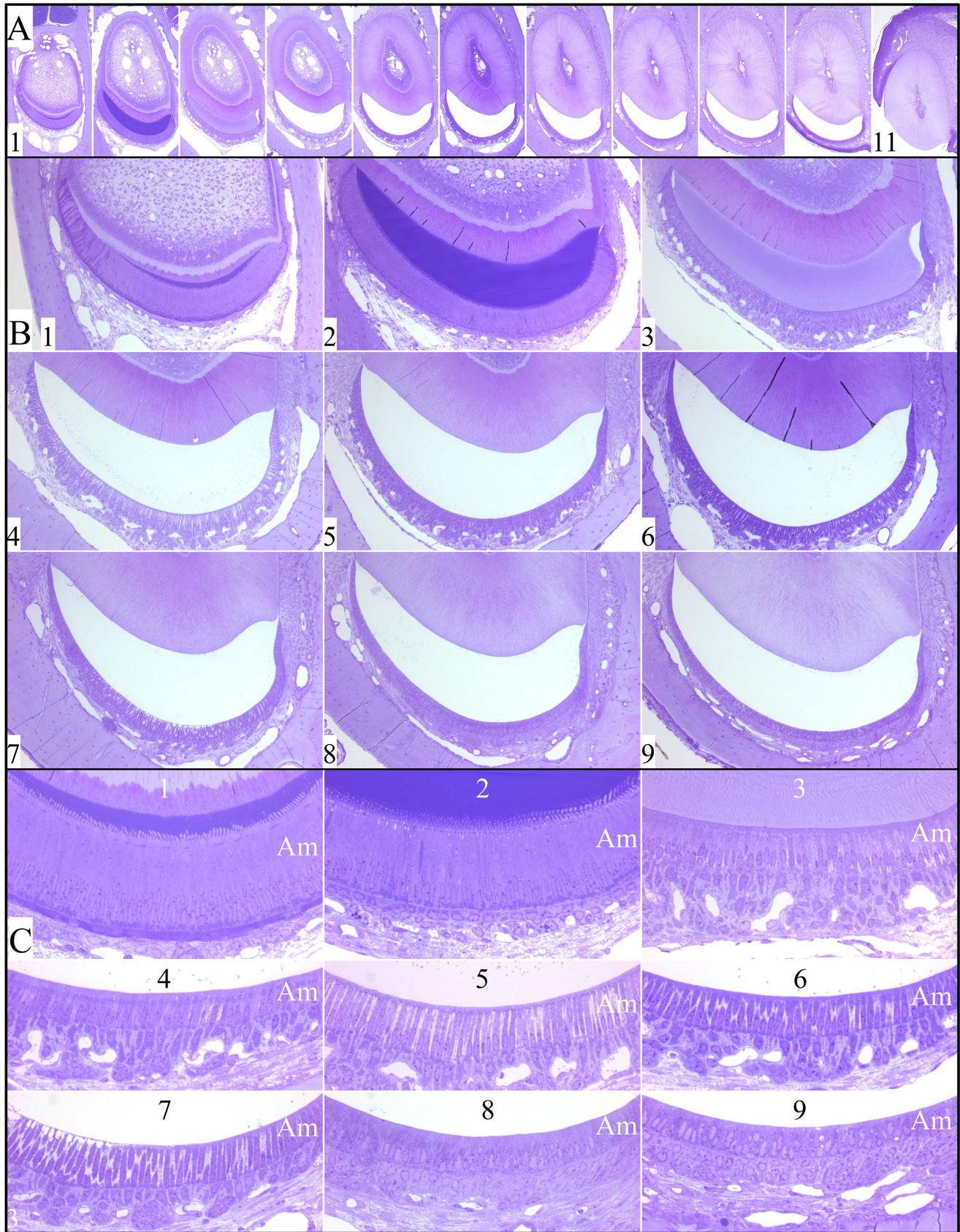
### Part 4b: *Fam83h<sup>Tr/Tr</sup>* and *Fam83h<sup>+/+</sup>* Montages of High Magnification Mandibular Incisor

Cross-Sections at 1 mm increments

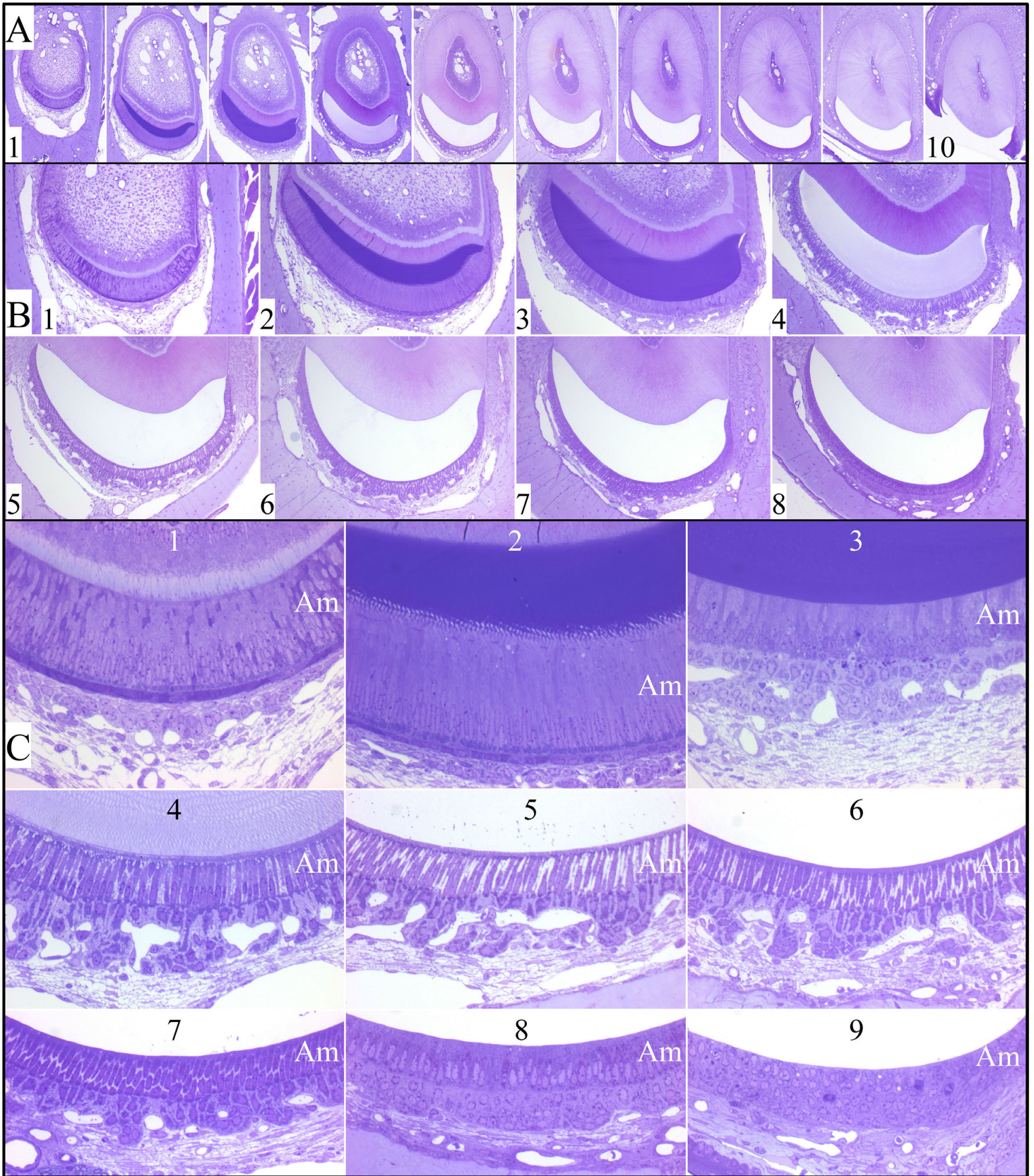
- Fig. S57.** Histology of 7-week *Fam83h<sup>+/+</sup>* Mandibular Incisor Cross Sections (WT4).
- Fig. S58.** Histology of 7-week *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor Cross Sections (F8).
- Fig. S59.** Histology of 7-week *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor Cross Sections (F9).
- Fig. S60.** Histology of 7-week *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor Cross Sections (F10).
- Fig. S61.** Histology of 7-week *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor Cross Sections (F11).



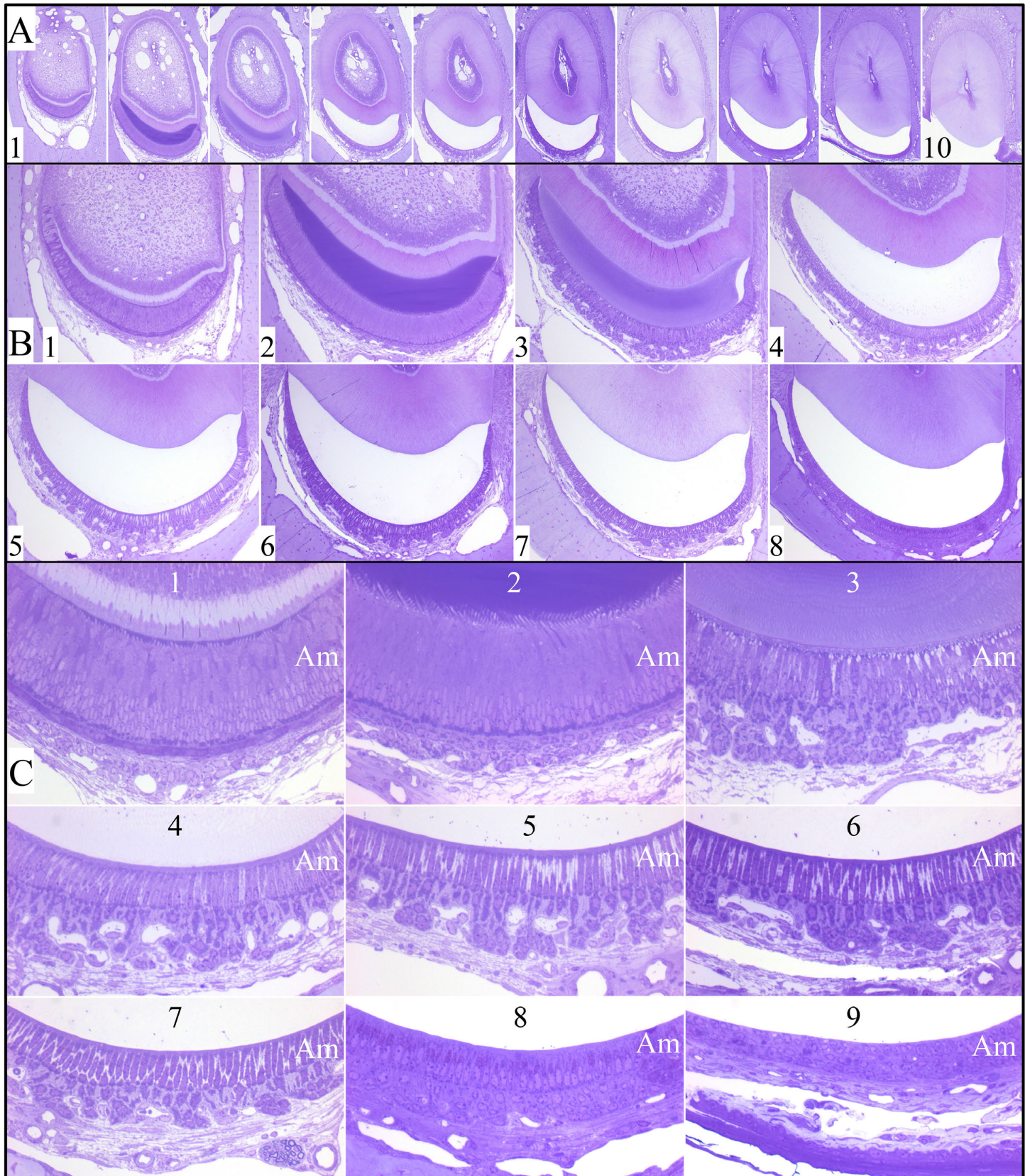
**Fig. S49.** Histology of *Fam83h<sup>Tr/Tr</sup>* and *Fam83h<sup>+/+</sup>* Mandibular Incisor at 7-weeks (low magnification). The numbers (1-10) at the top indicate the cross-section level, which corresponds approximately to the distance (in mm) from the apical loop. The labels on the left indicate that first three rows are incisor sections from three different wild-type (WT) mice. The next four rows are from different *Fam83h<sup>Tr/Tr</sup>* mice. The following seven supplemental figures (S47-S53) show each of these teeth at three levels of magnification.



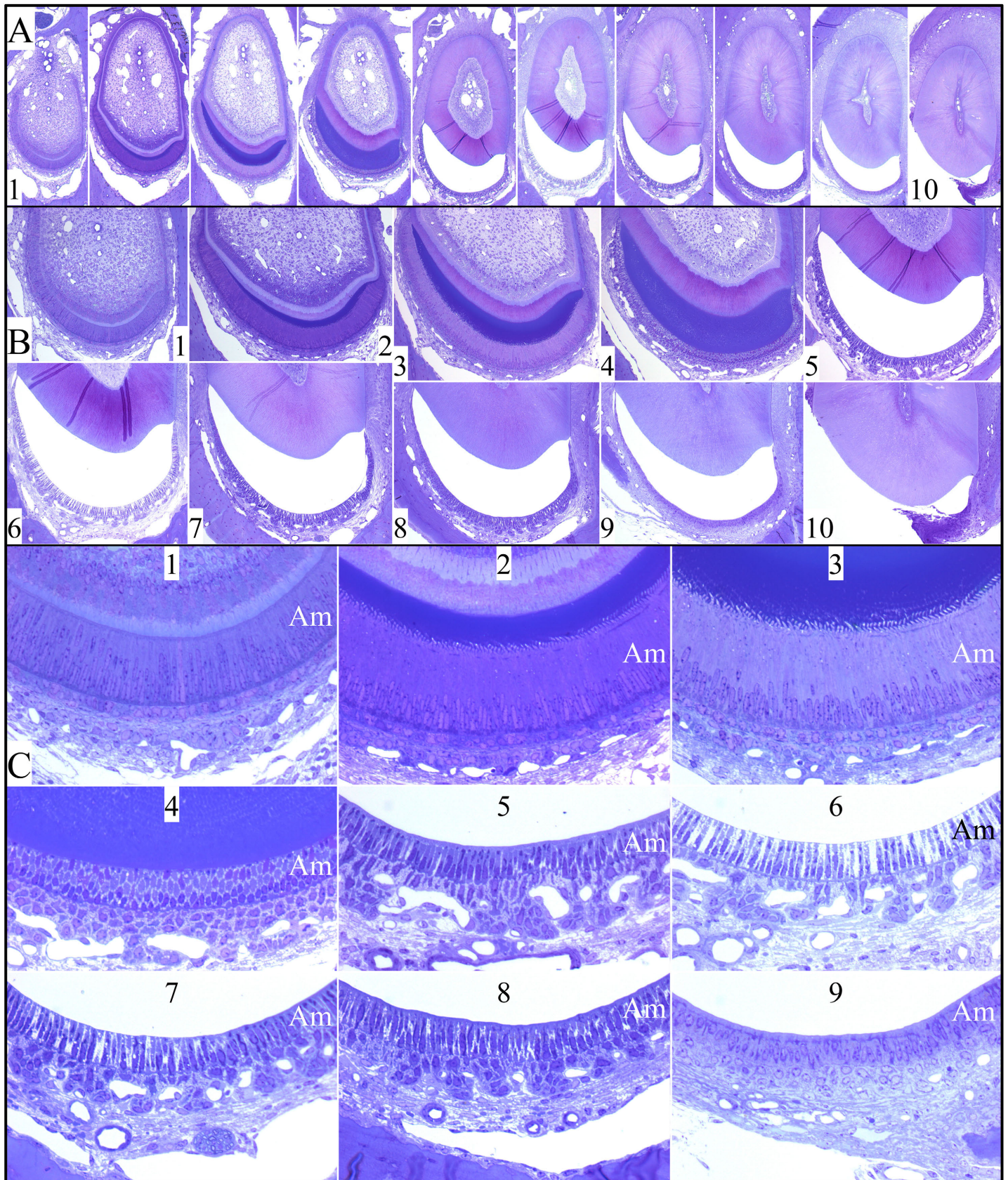
**Fig. S50.** Histology of successive basal to incisal wild-type 7-week incisor cross-sections taken at 1-mm intervals. **A:** Low mag (5x100) cross-sections showing entire incisor. **B:** Mid mag (20x100) cross-sections showing the enamel and ameloblast layers. **C:** High mag (40x160) details of the mid-labial ameloblast layer. Sections 1 show pre-ameloblasts immediately prior to the onset of enamel formation. Sections 2 and 3 show secretory stage amelogenesis. Sections 4 through 8 show maturation stage amelogenesis. Section 9 shows reduced enamel epithelium. **Key:** Am, ameloblast. [WT 4]



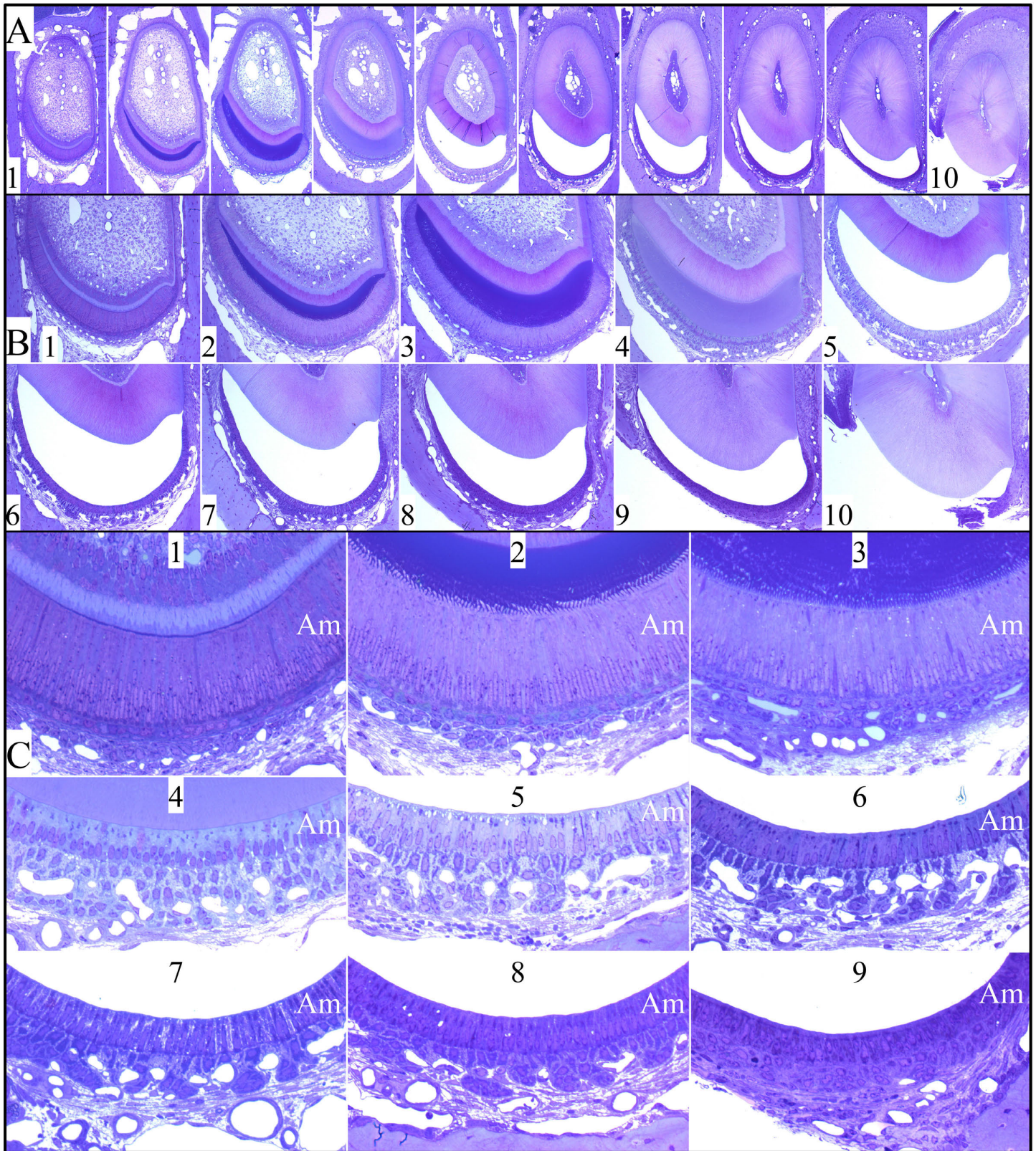
**Fig. S51.** Histology of successive basal to incisal wild-type 7-week incisor cross-sections taken at 1-mm intervals. **A:** Low mag (5x100) cross-sections showing entire incisor. **B:** Mid mag (20x100) cross-sections showing the enamel and ameloblast layers. **C:** High mag (40x160) details of the mid-labial ameloblast layer. Sections 1 show pre-ameloblasts immediately prior to the onset of enamel formation. Sections 2 and 3 show secretory stage amelogenesis. Sections 4 through 8 show maturation stage amelogenesis. Section 9 shows reduced enamel epithelium. **Key:** Am, ameloblast. [WT 5]



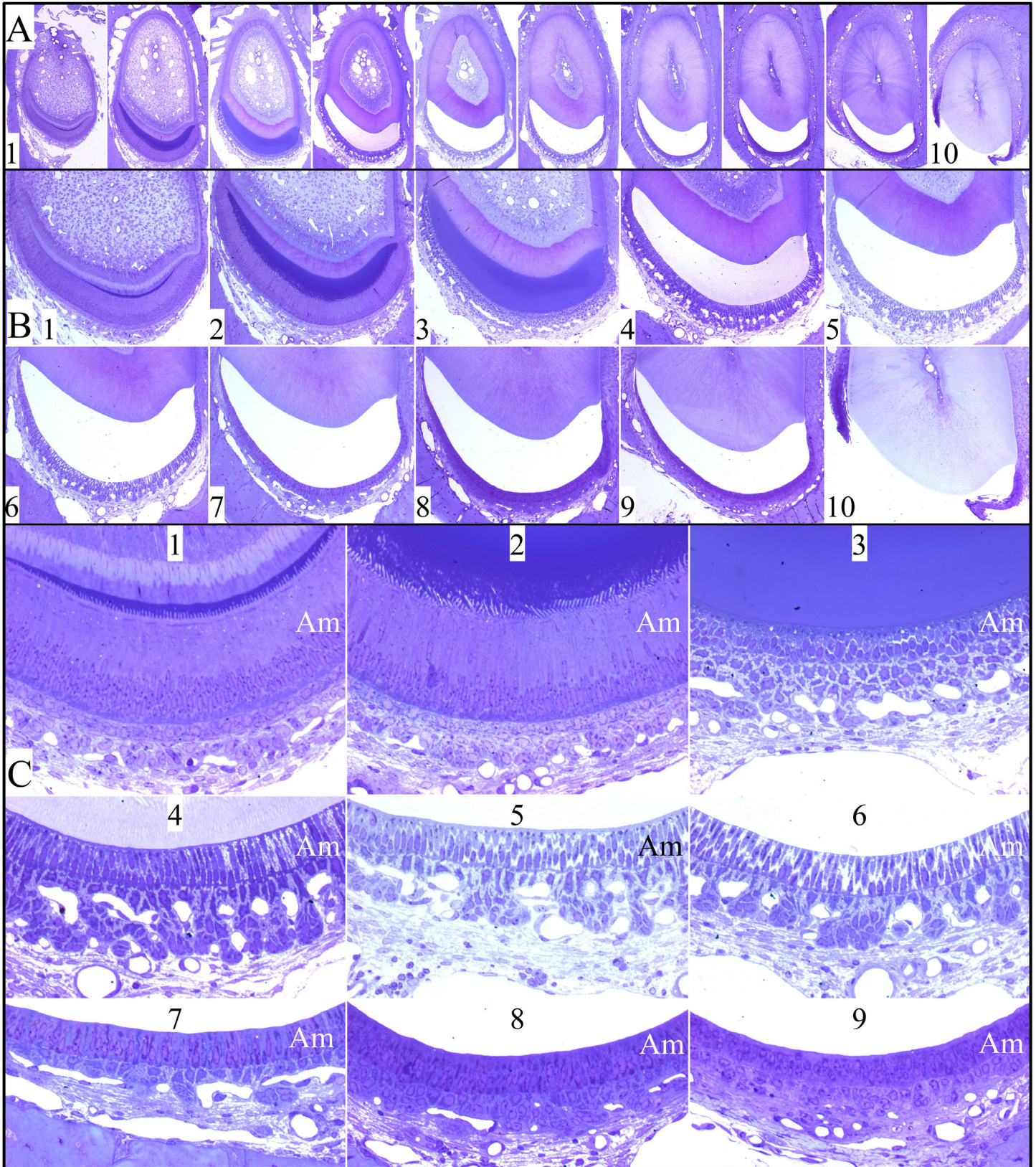
**Fig. S52.** Histology of successive basal to incisal wild-type 7-week incisor cross-sections taken at 1-mm intervals. **A:** Low mag (5x100) cross-sections showing entire incisor. **B:** Mid mag (20x100) cross-sections showing the enamel and ameloblast layers. **C:** High mag (40x160) details of the mid-labial ameloblast layer. Sections 1 show pre-ameloblasts immediately prior to the onset of enamel formation. Sections 2 and 3 show secretory stage amelogenesis. Sections 4 through 8 show maturation stage amelogenesis. Section 9 shows reduced enamel epithelium. **Key:** Am, ameloblast. [WT 6]



**Fig. S53.** Histology of successive basal to incisal *Fam83h<sup>Tr/Tr</sup>* 7-week incisor cross-sections taken at 1-mm intervals. **A:** Low mag (5x100) cross-sections showing entire incisor. **B:** Mid mag (20x100) cross-sections showing the enamel and ameloblast layers. **C:** High mag (40x160) details of the mid-labial ameloblast layer. Sections 1 show pre-ameloblasts immediately prior to the onset of enamel formation. Sections 2 and 3 show secretory stage amelogenesis. Sections 4 through 8 show maturation stage amelogenesis. Section 9 shows reduced enamel epithelium. [Fang 8 *Fam83h<sup>Tr/Tr</sup>*]

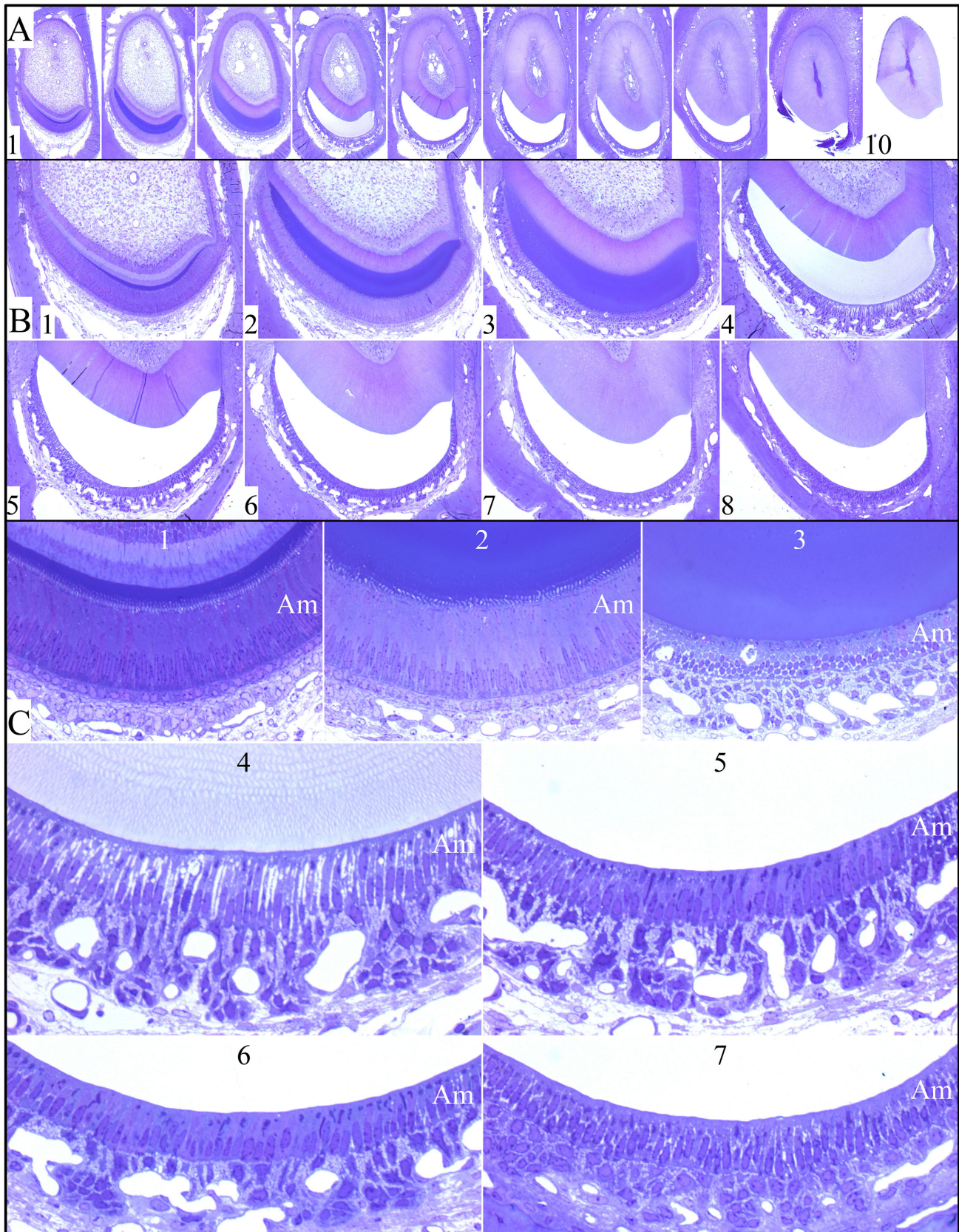


**Fig. S54.** Histology of successive basal to incisal *Fam83h<sup>Tr/Tr</sup>* 7-week incisor cross-sections taken at 1-mm intervals. **A:** Low mag (5x100) cross-sections showing entire incisor. **B:** Mid mag (20x100) cross-sections showing the enamel and ameloblast layers. **C:** High mag (40x160) details of the mid-labial ameloblast layer. Sections 1 show pre-ameloblasts immediately prior to the onset of enamel formation. Sections 2 and 3 show secretory stage amelogenesis. Sections 4 through 8 show maturation stage amelogenesis. Section 9 shows reduced enamel epithelium. [Fang 9 *Fam83h<sup>Tr/Tr</sup>*]

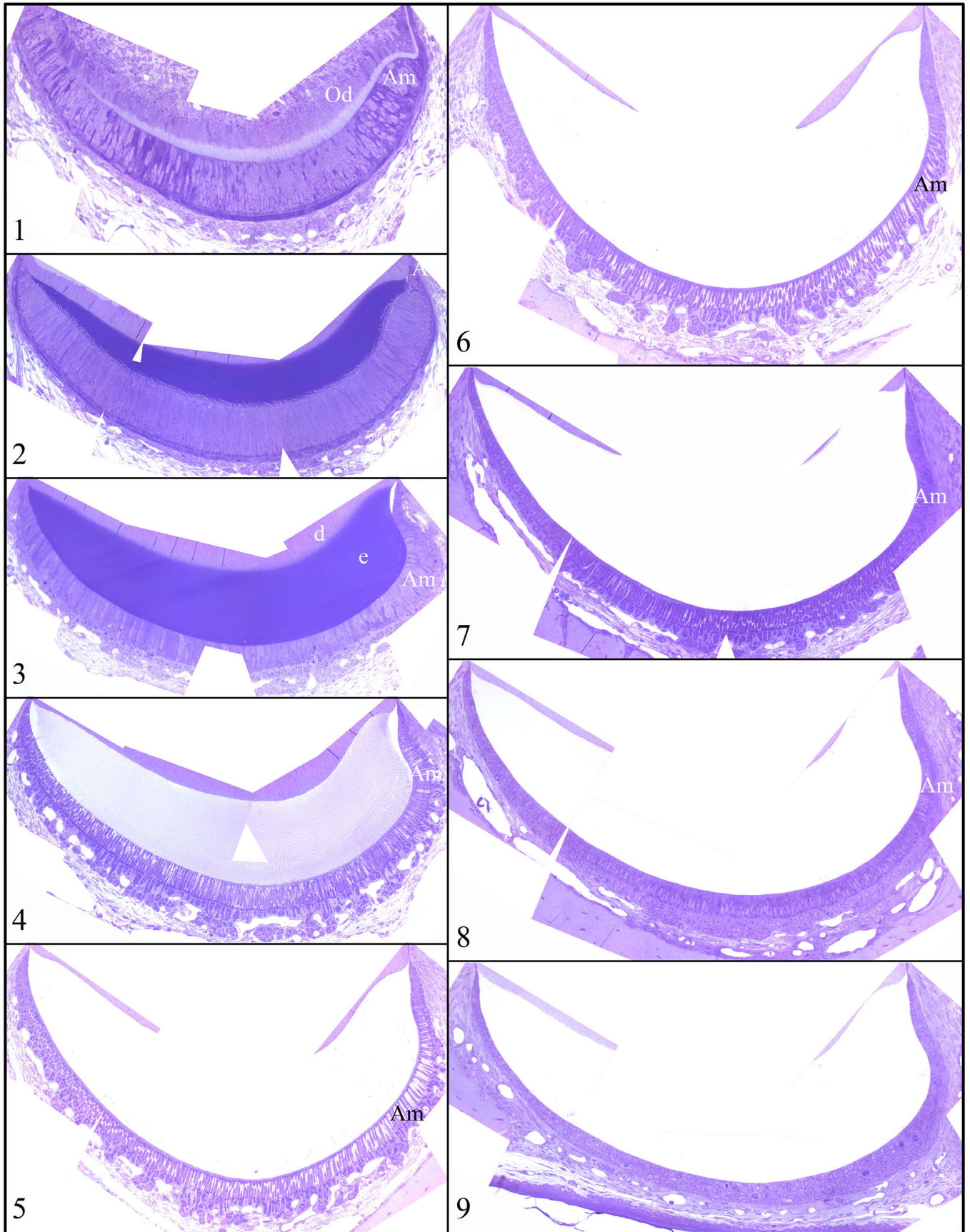


**Fig. S55.** Histology of successive basal to incisal *Fam83h<sup>Tr/Tr</sup>* 7-week incisor cross-sections taken at 1-mm intervals. **A:** Low mag (5x100) cross-sections showing entire incisor. **B:** Mid mag (20x100) cross-sections showing the enamel and ameloblast layers. **C:** High mag (40x160) details of the mid-labial ameloblast layer. Sections 1 show pre-ameloblasts immediately prior to the onset of enamel formation. Sections 2 and 3 show secretory stage amelogenesis. Sections 4 through 8 show maturation stage amelogenesis. Section 9 shows reduced enamel epithelium. **Key:** Am, ameloblast. [Fang 10 *Fam83h<sup>Tr/Tr</sup>*]

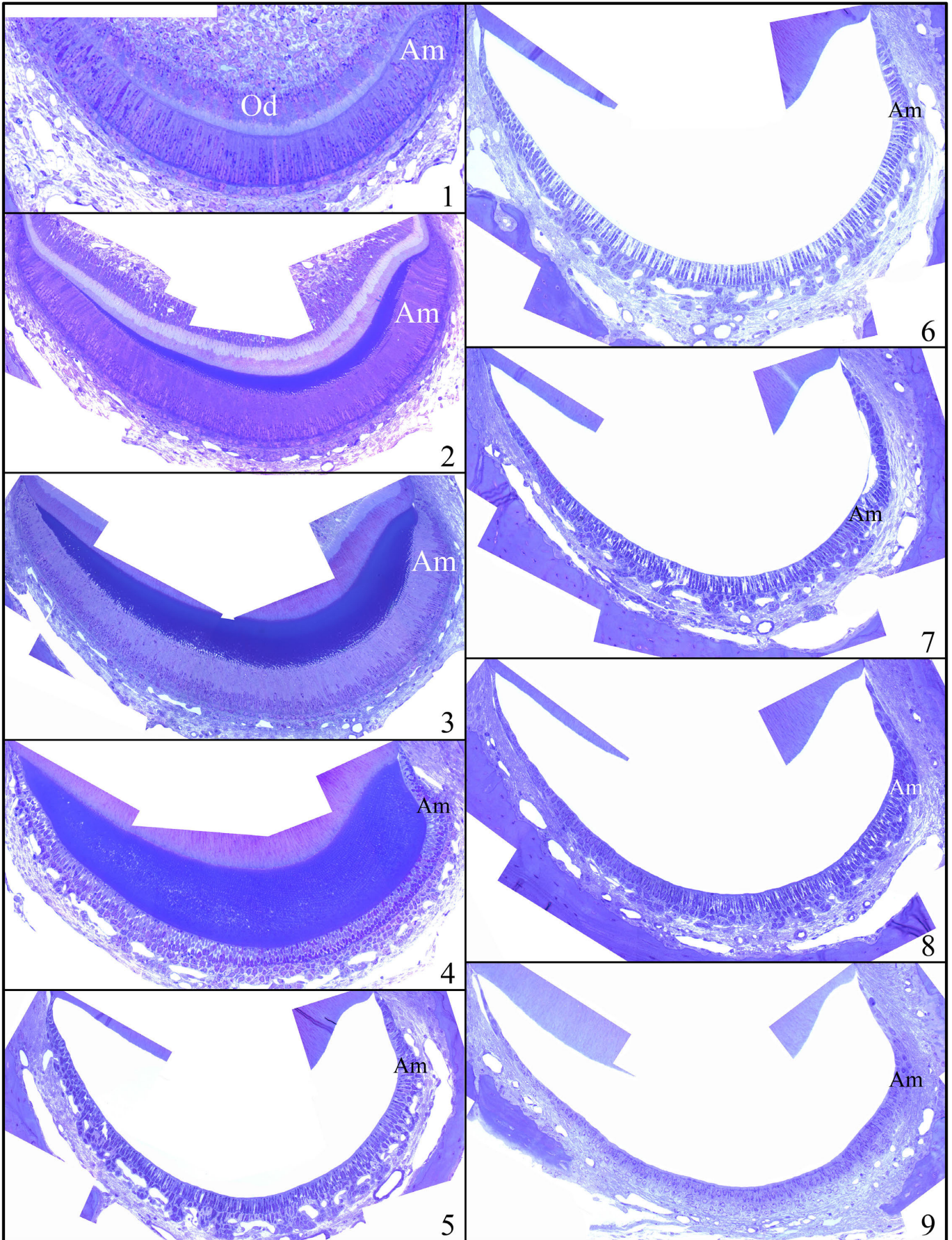




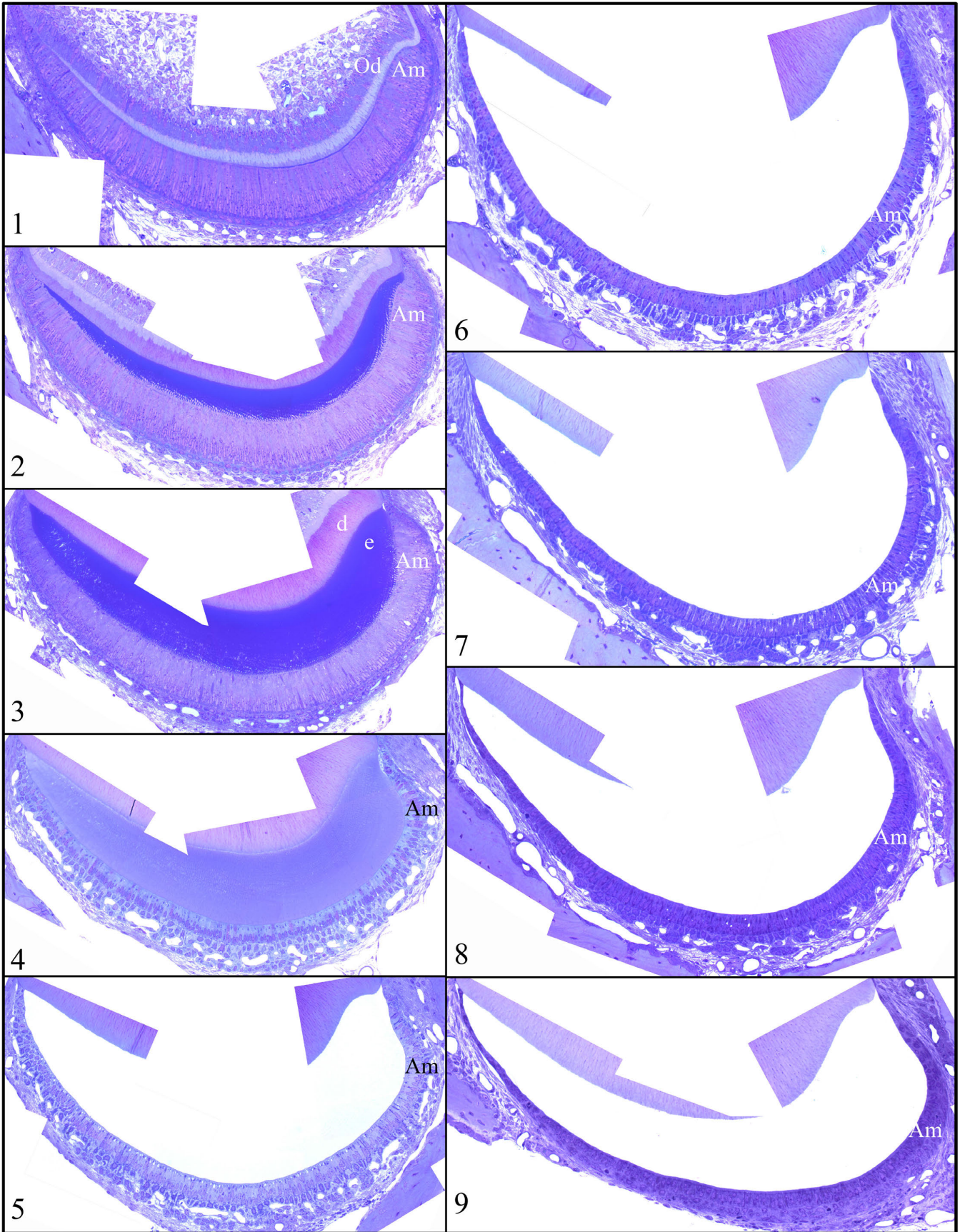
**Fig. S56.** Histology of successive basal to incisal *Fam83h<sup>Tr/Tr</sup>* 7-week incisor cross-sections taken at 1-mm intervals. **A:** Low mag (5x100) cross-sections showing entire incisor. **B:** Mid mag (20x100) cross-sections showing the enamel and ameloblast layers. **C:** High mag (40x160) details of the mid-labial ameloblast layer. Sections 1 show pre-ameloblasts immediately prior to the onset of enamel formation. Sections 2 and 3 show secretory stage amelogenesis. Sections 4 through 8 show maturation stage amelogenesis. Section 9 shows reduced enamel epithelium. **Key:** Am, ameloblast. [Fang 11 *Fam83h<sup>Tr/Tr</sup>*]



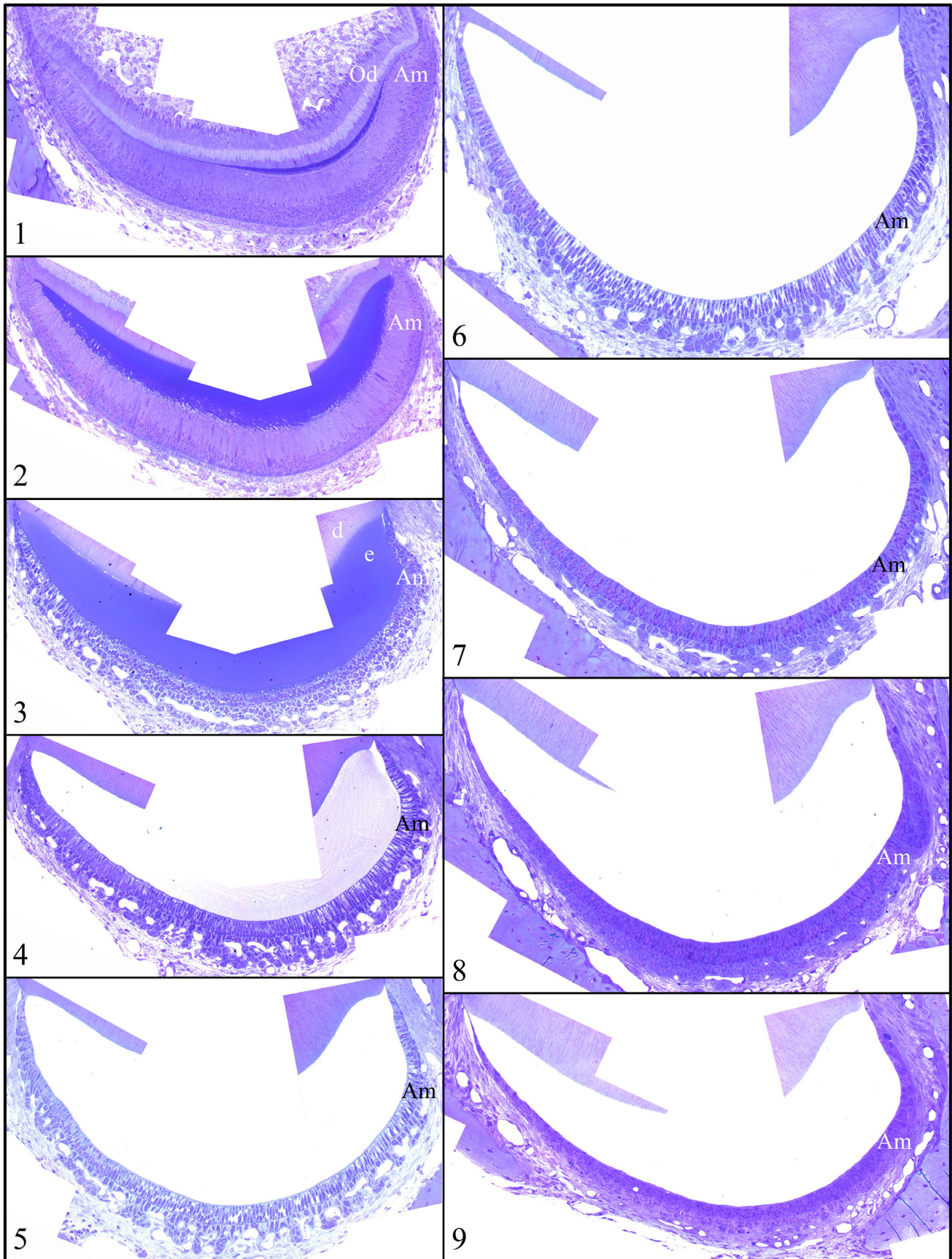
**Fig. S57.** Histology of 7-week *Fam83h<sup>+/+</sup>* Mandibular Incisor Cross Sections (WT4). These are high magnification (40x160) montages of incisor cross sections from levels 1 through 9. [WT5] **Key:** Am, ameloblast; d, dentin; e, enamel; Od, odontoblast.



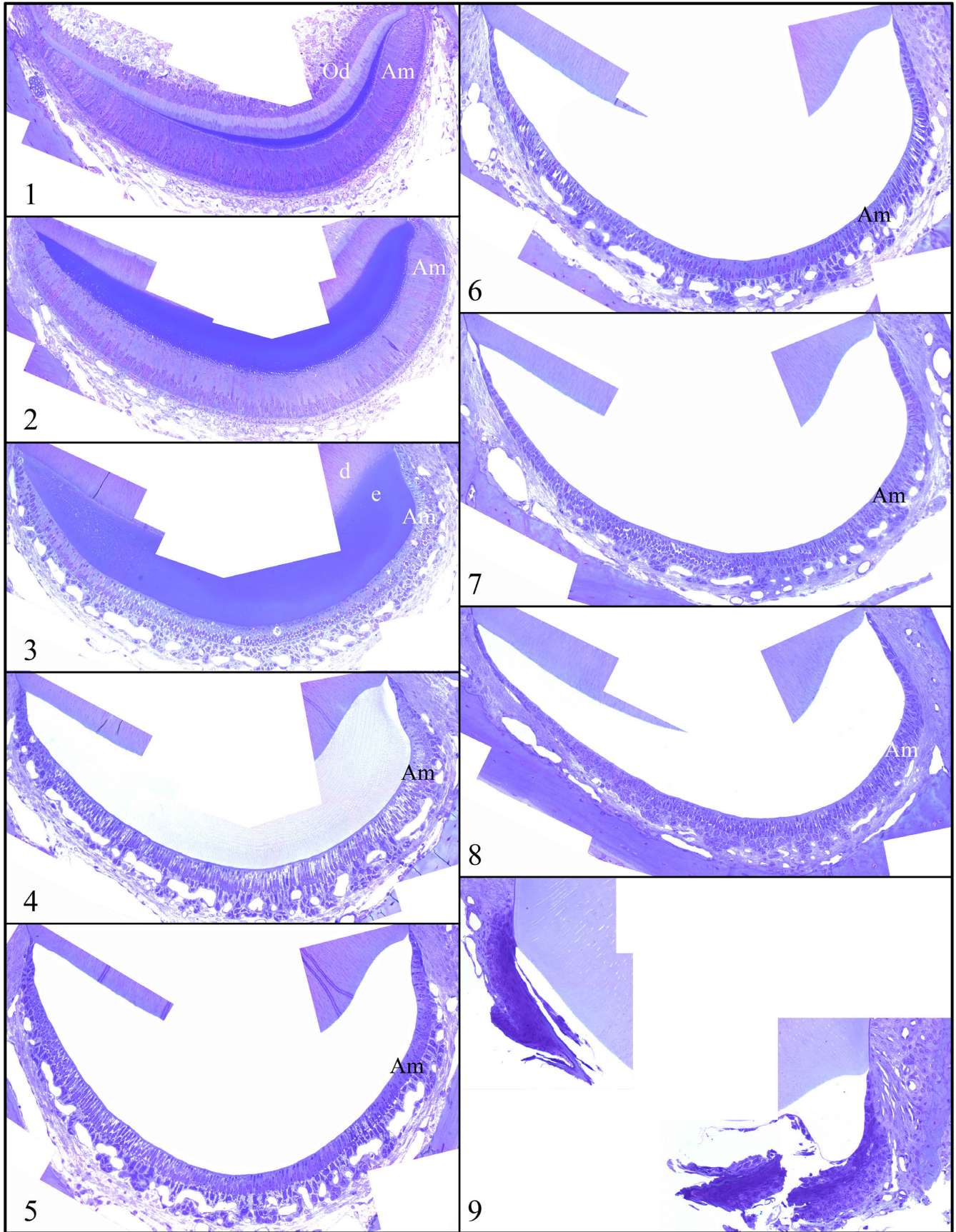
**Fig. S58.** Histology of 7-week *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor Cross Sections (F8). These are high magnification (40x160) montages of the incisor cross sections from levels 1 through 9. [Fang 8] **Key:** Am, ameloblast; d, dentin; e, enamel; Od, odontoblast.



**Fig. S59.** Histology of 7-week *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor Cross Sections (F9). These are high magnification (40x160) montages of the incisor cross sections from levels 1 through 9. [Fang 9] **Key:** Am, ameloblast; d, dentin; e, enamel; Od, odontoblast.



**Fig. S60.** Histology of 7-week *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor Cross Sections (F10). These are high magnification (40x160) montages of the incisor cross sections from levels 1 through 9. [Fang 10] **Key:** Am, ameloblast; d, dentin; e, enamel; Od, odontoblast.



**Fig. S61.** Histology of 7-week *Fam83h<sup>Tr/Tr</sup>* Mandibular Incisor Cross Sections (F11). These are high magnification (40x160) collages of the incisor cross sections from levels 1 through 9. [Fang 11]  
**Key:** Am, ameloblast; d, dentin; e, enamel; Od, odontoblast.