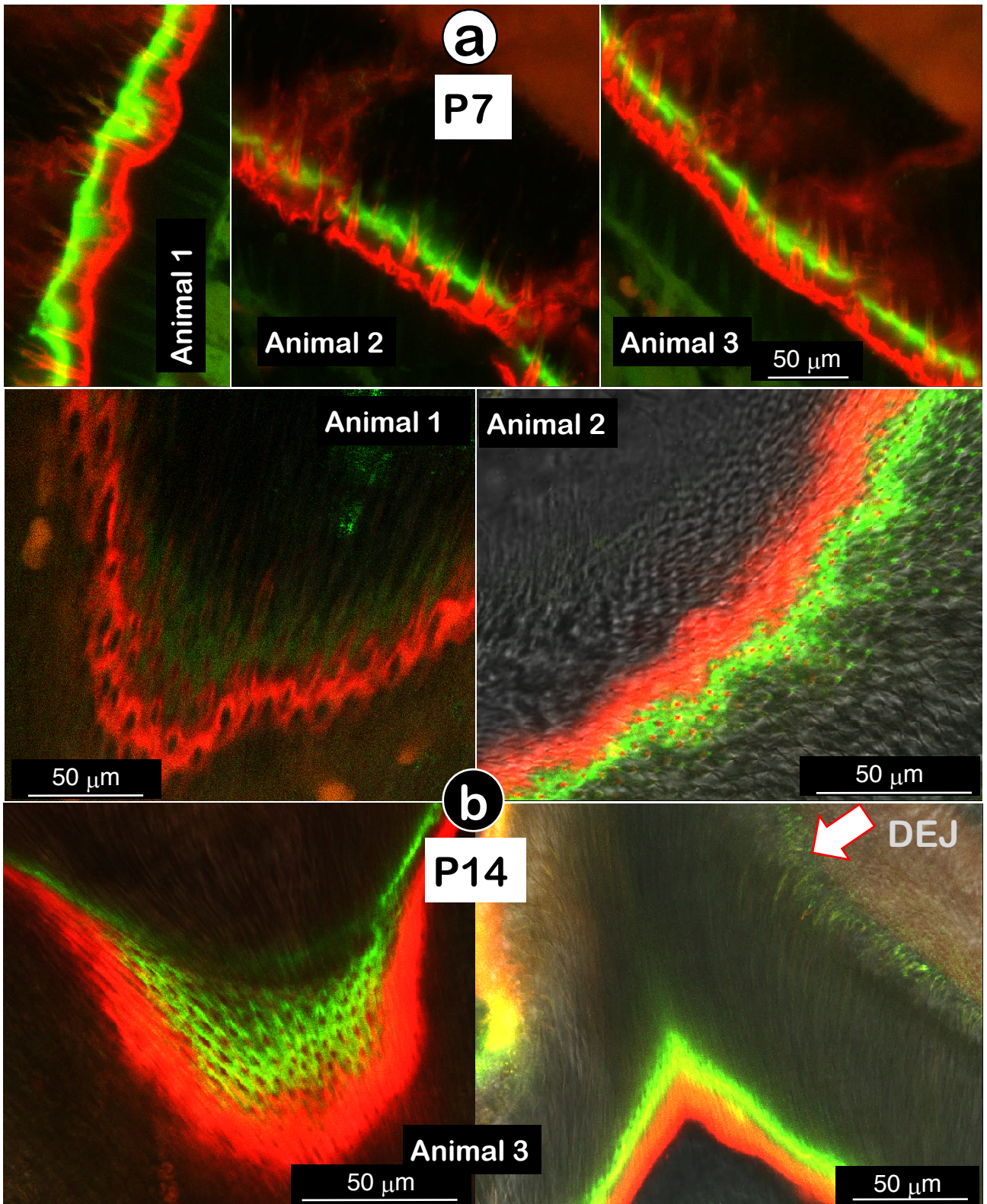
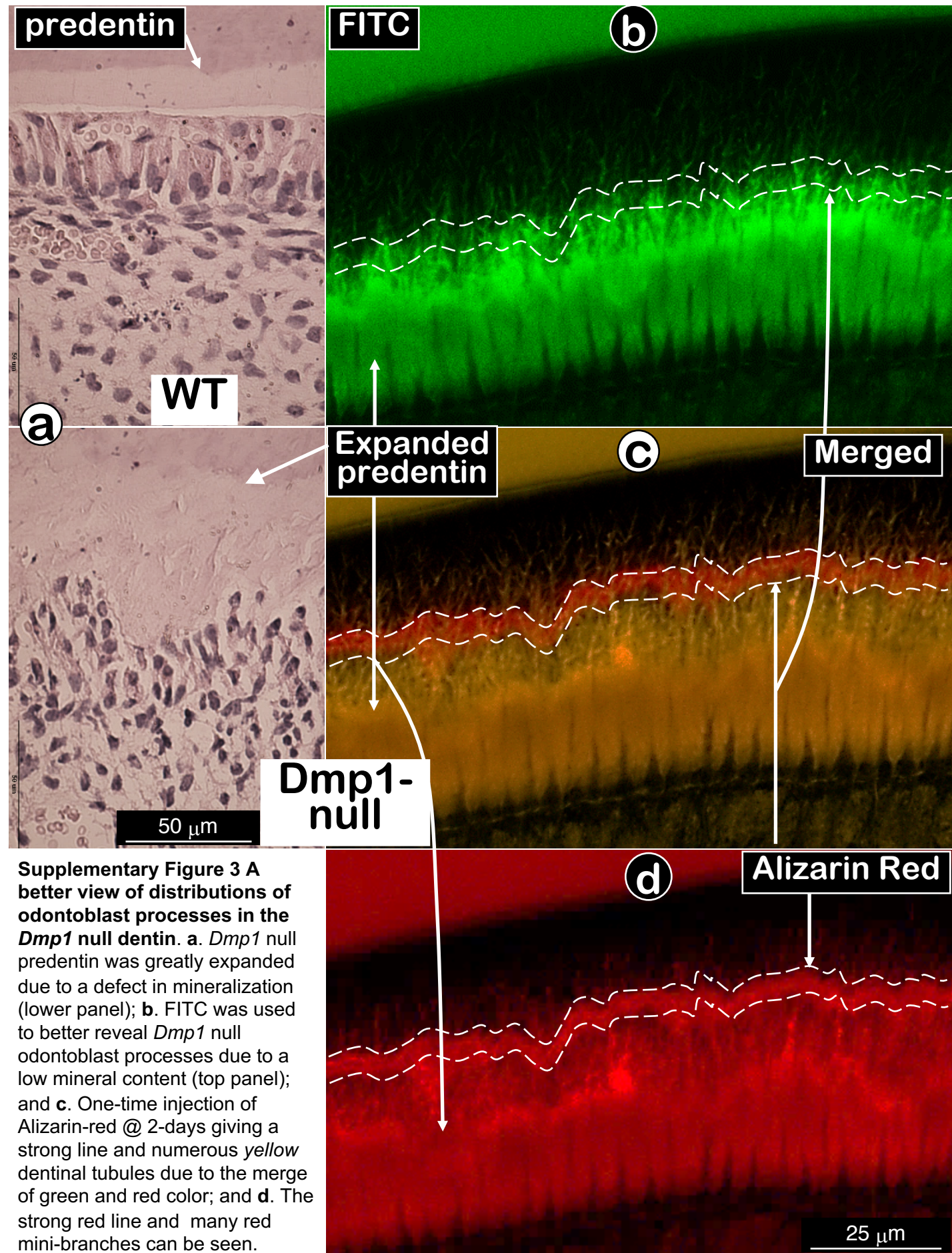


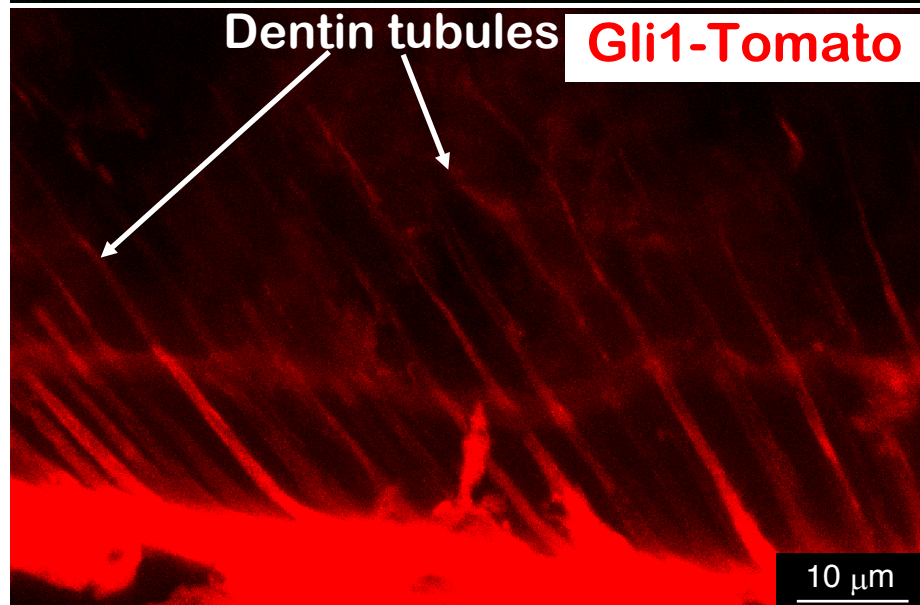
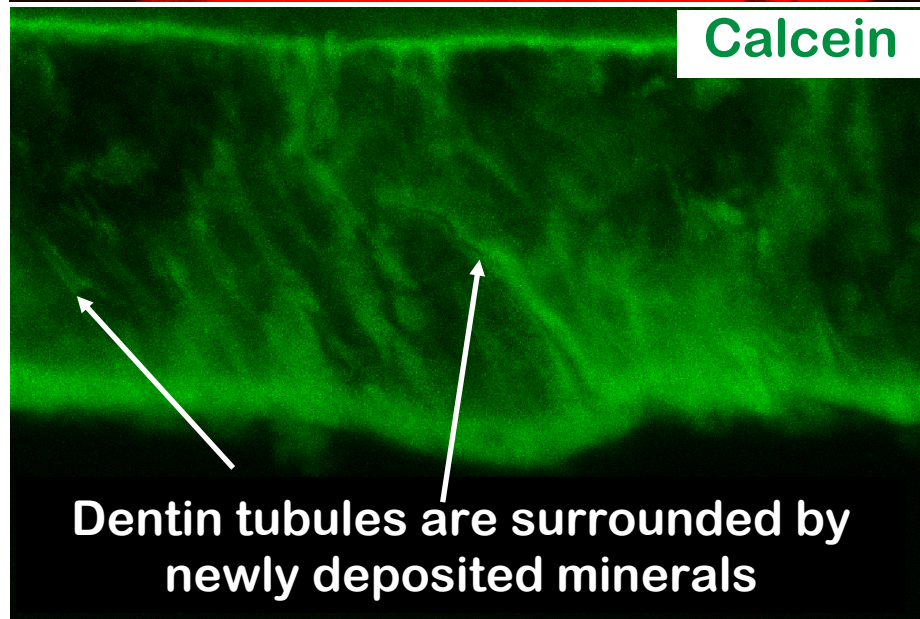
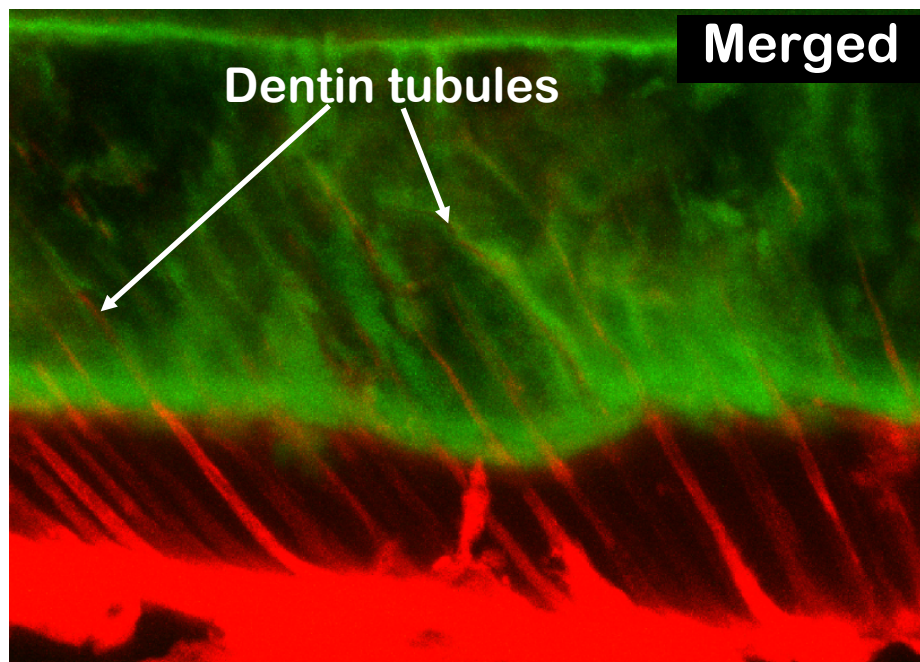
Supplementary Figure 1 A low mineral content is detected in all dentin tubules in the double labeled incisor. a. The green image reflects calcein injected at -7 day; **b.** The image represents the merged calcein/ alizarin-red stain; and **c.** The red image reflect alizarin-red injects at -2 day. The weak yellow signals in all dentin tubules indicate a merge of both colors. The data support a close link between mineralization and odontoblast-processes.



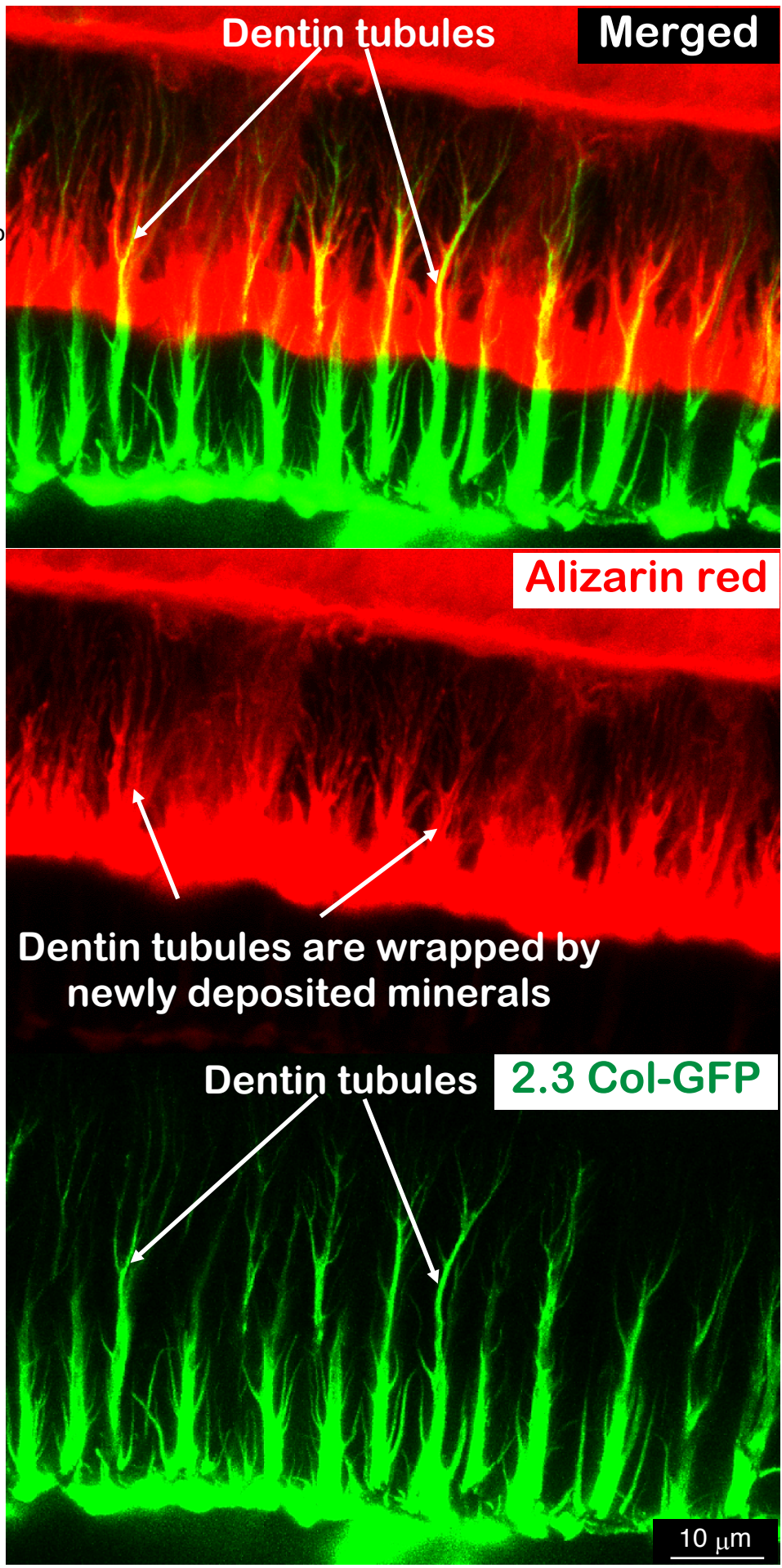
Supplementary Figure 2 A weak mineral label is detected in all dentin tubules in the double labeled molars (calcein injected at -20 hours and alizarin red at -4 hours). **a.** Three P7 1st molars were cryosectioned using stick transparent film; and **b.** Three P14 1st molars were MMA treated and cut followed sand polishing. The weak green signals surrounding small dentin tubular branches were detected at the dentin-enamel junction (DEJ). The data confirmed a close link between mineralization and odontoblast-processes.

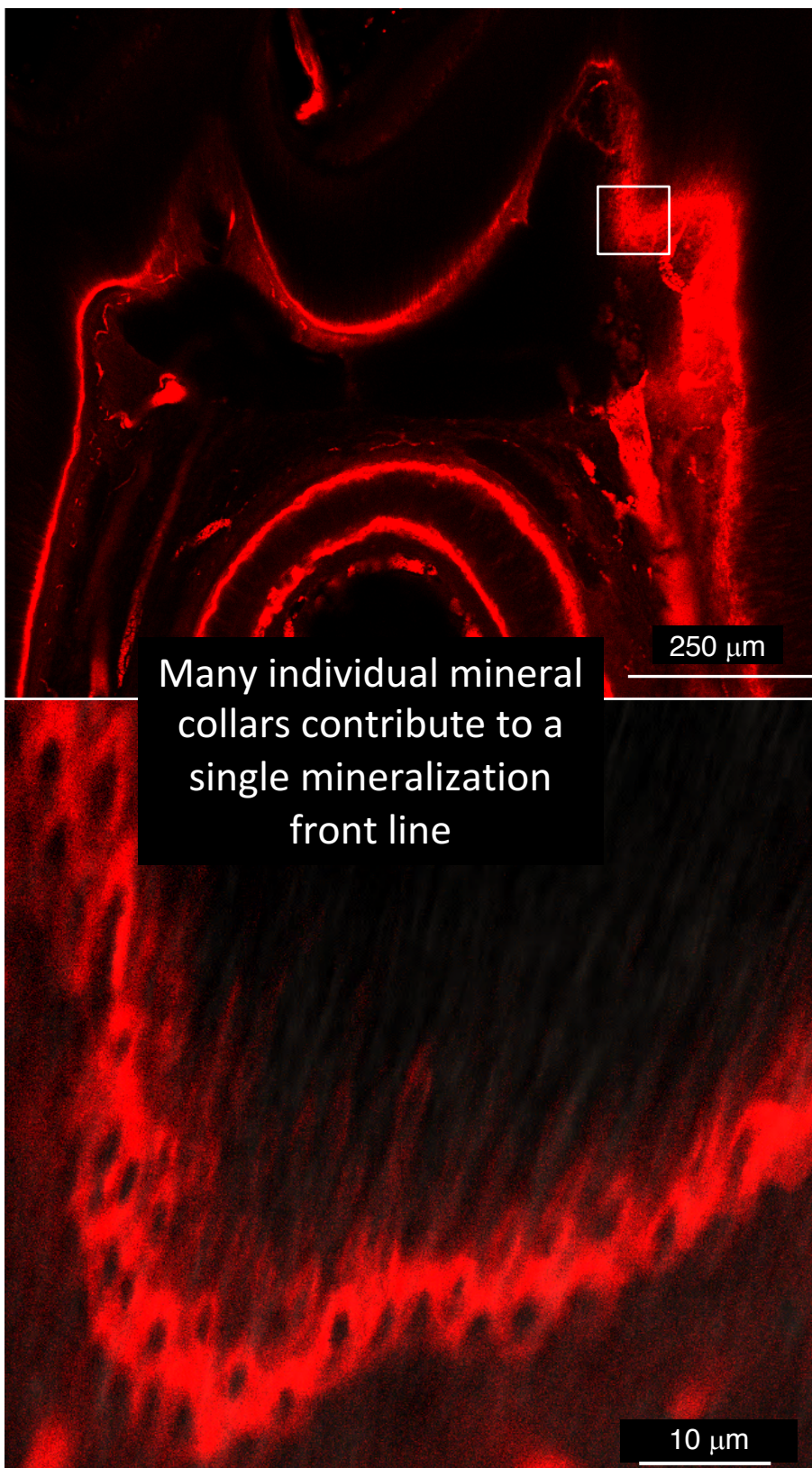


Supplementary Figure 4 The Gli 1+ Td tomato-odontoblast processes are surrounded by newly deposited minerals. The red dentin tubules reflect the color of the Gli1-Cre activated tomato expression in odontoblast processes. The 4 hour-calcein labeled mineral matrix distributes to throughout dentin areas with a close link to all odontoblast-processes.



Supplementary Figure 5 The 2.3 Col 1-GFP labeled odontoblast-processes are surrounded by newly deposited minerals. The distribution pattern of green dentin tubules (lower panel) is identical to that in the Alizarin-red stained dentin matrix.





Supplementary Figure 6 The mineralization front line is composed of many individual collars labeled Alizarin red. The postnatal day 13 pup was i.p. injected with alizarin red and sacrificed 4 hours later for cryo-sectioning. The confocal images of a low magnification (upper pane; stacked) and a high resolution (lower panel; single) revealed that the so called mineralization line is essentially formed by many individual collars.