

**CONTRIBUTION OF CHOLINESTERASE AT VARIOUS STAGES OF  
ODONTOGENESIS OF GUINEA PIG TEETH**

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Recently, cholinesterase (ChE) enzyme has been localized in many non- neuronal tissues despite its well documented classical action is in the neuromuscular junction. However, the precise role of ChE in these non-neuronal tissues is not known yet. Drews (1975) proposed an involvement of this enzyme in morphogenetic functions after having observed the presence of ChE in developing embryonic tissues. A few recent studies have shown a strong coherence between cholinesterase and cell proliferation, induction and differentiation in early development. A regulatory function for ChE has also been postulated in haematopoieses where cell proliferation and differentiation are significant. The association of ChE with proliferative and morphodifferentiating tissues prompted us to postulate an involvement of this protein in tooth morphogenesis where cells are proliferating and differentiating into ameloblasts and odontoblasts from the dental epithelium and undifferentiated ectomesenchymal cells respectively. To test this hypothesis, we examined the ChE activity in frozen sections (20 –30 µm) of continuously erupting guinea pig teeth by means of Karnowsky & Root method. As expected, we detected the ChE activity in the loop region of the growing apical portion of the teeth, where cells are proliferating and differentiating. However, ChE activity was absent in the inner dental epithelium, presecretory and secretory ameloblasts, but reappeared in the cytoplasm of maturation stage ameloblasts. A distinct reaction for ChE was noted also in the outer dental epithelium and outermost cells of the papillary layer of the enamel organ. Our current data report the first evidence for the localization of ChE in a dental epithelium and suggest its possible enrolment in development and function of the cells of the enamel organ of guinea pig teeth.