

# Role of Bone Morphogenetic Protein 4 in Tooth Development and Regeneration

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## Abstract

Tooth development is regulated by the sequential and reciprocal interactions between dental epithelial and dental mesenchymal tissues. Several embryonic developmental signalings are used repetitively at different, advanced stages of tooth synthesis. Thus, in order to investigate the potential of tooth regeneration, the knowledge of underlying mechanism is indeed necessitated. Bone morphogenetic protein 4 (*Bmp4*) was expressed in various stages during tooth development in several investigated species. In this article, the roles of *Bmp4* were discussed in different aspects regarding to the initiation molecule, the morphogen during tooth developmental stages, and the possible function in odontoblastic, and ameloblastic differentiation. The potential utilization of *Bmp4* in tooth regeneration study was also discussed.

**Key words:** Bone morphogenetic protein 4; Tooth development; Tooth regeneration

Received Date: Jan 31, 2014, Accepted Date: Apr 24, 2014