

## Hideaki Suda

### 1 .Topic in Research Achievements in the Year 2006

Sonic hedgehog (Shh), one of the essential molecules for embryogenesis and organogenesis, is strongly expressed in the enamel knot, which represents the signaling center for odontogenesis due to the presence of essential secretory molecules. Here, we investigated the effects of Shh on ameloblast differentiation using a mouse ameloblast-lineage cell line (ALC). In the presence of Shh, the expression of amelogenin and ameloblastin was up-regulated, and their promoter activities were also elevated. Subcutaneous implantation of Shh-treated ALC into the dorsa of C57/BL6J mouse caused increased expression of amelogenin and ameloblastin. Forced expression of Gli1, a major transcription factor in Shh signaling, up-regulated both amelogenin and ameloblastin, while Gli1-specific RNAi blocked their expression. These results suggest that Shh directly promotes ALC differentiation, and that Gli1 may be responsible for the signal mediation of Shh.

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