

## **Hedgehog Signaling in Mammalian Development**

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The mammalian Hedgehog family is comprised of three members; Sonic (*Shh*), Indian (*Ihh*) and Desert (*Dhh*). Each of these regulates distinct signaling processes that are essential for normal development of the mammalian body plan. In addition, *Shh* and *Ihh* share redundant activities in the patterning of several regions of the early somite-stage embryo. Several lines of evidence demonstrate a close linkage between Hedgehog signaling activity and a number of cancers notably basal cell carcinoma of the skin and medulloblastoma in the brain.

*Shh* is expressed in the midline mesoderm of the notochord and head process that underlies the ventral neural tube. *Shh* signaling is essential for the induction of ventral cell identities in the developing neural tube, and for the regulation of normal facial development. In the human population, the loss of this activity is associated with the development of holoprosencephaly. I will discuss the current understanding of the Hedgehog pathway and some new data that addresses Hedgehog action in the CNS supporting a possible role for a new factor in holoprosencephaly.

For a recent review see Ingham and McMahon (2001) *G & D* 15, 3059-3087.