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Sonic Hedgehog, human recombinant (rHuSHH)

Catalog No: 97290
Lot No: XXXXX
Source: *E. coli*
Synonyms: SHH, HHG-1, HHG1, Sonic Hedgehog protein, TPT, HLP3, HPE3, SMMCI, TTPS, MCOPCB5

Background

Recombinant Human Sonic Hedgehog is part of a small group of secreted proteins that are vital for development in both vertebrates and invertebrates. 3 mammalian Hedgehog genes (sonic, desert, Indian) share about 60% homology. The Human Sonic Hedgehog is 99% homologous to the mouse gene. Sonic Hedgehog is a protein that is vital in guiding the early embryo. It has been associated as the major inductive signal in patterning of the ventral neural tube, the anterior-posterior limb axis, and the ventral somites. Sonic Hedgehog binds to the patched receptor, which functions in association with smoothened, to activate the transcription of target genes. In the absence of sonic Hedgehog, patched receptor represses the constitutive signaling activity of smoothened. Sonic Hedgehog also regulates another factor, the gli oncogene. Sonic Hedgehog intercellular signal is essential for a various patterning events during development: signal produced by the notochord that induces ventral cell fate in the neural tube and somites, and the polarizing signal for patterning of the anterior-posterior axis of the developing limb bud. Sonic Hedgehog exhibits both floor plate- and motor neuron-inducing activity. Mutations in a long-range Sonic Hedgehog enhancer located in an intron of the limb region 1 gene result in preaxial polydactyly.

Description

Sonic Hedgehog human recombinant produced in *E. coli* is a single, non-glycosylated polypeptide chain containing 179 amino acids and having a molecular mass of 20.1 kDa.

Physical Appearance

Sterile filtered white lyophilized (freeze-dried) powder.

Formulation

SHH is lyophilized from 10 mM Na₃PO₄, pH 7.5.

Solubility

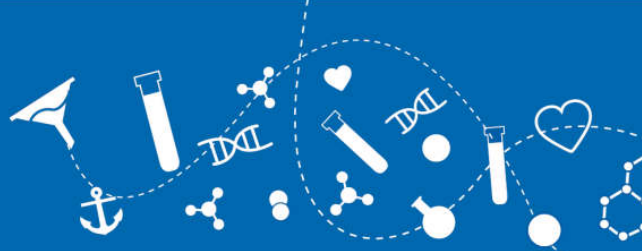
It is recommended to reconstitute the lyophilized SHH in sterile 10 mM Na₃PO₄ pH 7.5 not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability

Lyophilized Sonic Hedgehog, although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution Sonic Hedgehog should be stored at 4°C between 2-7 days and for future use below -18°C. Please prevent freeze-thaw cycles.

Purity

Greater than 97.0% as determined by SDS-PAGE.



Amino Acid Sequence

MIIGPGRGFG KRRHPKCLTP LAYKQFIPNV AEKTLGASGR YEGKITRNSE RFKELTPNYN PDIIFKDEEN TGADRLMTQR
CKDKLNALAI SVMNQWPGVK LRVTEGWDED GHHSEESLHY EGRALDITTS DRDRSKYGML ARLAVEAGFD WVYYESKAHI
HCSVKAENSV AAKSGGCFP

Activity

The activity is measured by the dose-dependent induction of alkaline phosphatase production by C3H/10T1/2 (CCL-226) fibroblasts and is 1.2-1.8 µg/ml corresponding to a specific activity of 800 U/mg.

Usage

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