Active Recombinant Human SHH Protein (Cys24-Gly197, Cys24Ile-Ile), GMP Grade, Animal-Free

Cat. No. SHH-14HG **Lot. No.** (See product label)

SPECIFICATION

Product Overview	GMP recombinant human Sonic Hedgehog/Shh (Cys24-Gly197, Cys24Ile-Ile), with an N-terminal Met was expressed in E. coli, produced using non-animal reagents in an Animal-Free laboratory and manufactured and tested under current Good Manufacturing Practice (GMP) guidelines.
Species	Human
Source	E.coli
ProteinLength	Cys24-Gly197, Cys24Ile-Ile
Description	This gene encodes a protein that is instrumental in patterning the early embryo. It has been implicated as the key inductive signal in patterning of the ventral neural tube, the anterior-posterior limb axis, and the ventral somites. Of three human proteins showing sequence and functional similarity to the sonic hedgehog protein of Drosophila, this protein is the most similar. The protein is made as a precursor that is autocatalytically cleaved; the N-terminal portion is soluble and contains the signalling activity while the C-terminal portion is involved in precursor processing. More importantly, the C-terminal product covalently attaches a cholesterol moiety to the N-terminal product, restricting the N-terminal product to the cell surface and preventing it from freely diffusing throughout the developing embryo. Defects in this protein or in its signalling pathway are a cause of holoprosencephaly (HPE), a disorder in which the developing forebrain fails to correctly separate into right and left hemispheres.

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	HPE is manifested by facial deformities. It is also thought that mutations in this gene or in its signalling pathway may be responsible for VACTERL syndrome, which is characterized by vertebral defects, anal atresia, tracheoesophageal fistula with esophageal atresia, radial and renal dysplasia, cardiac anomalies, and limb abnormalities. Additionally, mutations in a long range enhancer located approximately 1 megabase upstream of this gene disrupt limb patterning and can result in preaxial polydactyly.
Bio-activity	Measured by its ability to induce alkaline phosphatase production by C3H10T1/2 mouse embryonic fibroblast cells. The ED50 for this effect is 0.1-0.4 μg/mL.
Molecular Mass	Predicted Molecular Mass: 20 kDa SDS-PAGE: 22 kDa, reducing conditions
N-terminal Sequence Analysis	Met-Ile-Ile-Gly25-Pro-Gly-Arg-Gly-Phe-Gly
Endotoxin	<0.01 EU/ μg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE with silver staining, under reducing conditions.
Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. A minimum of 12 months when stored at ≤ -20 centigrade as supplied. Refer to lot specific COA for the Use by Date. 1 month, 2 to 8 centigrade under sterile conditions after reconstitution. 3 months, ≤ -20 centigrade under sterile conditions after reconstitution.
Storage Buffer	Lyophilized from a 0.2 μm filtered solution in PBS and NaCl.
Reconstitution	Reconstitute at 100-200 μg/mL in PBS, and allow up to 24 hours at 2 to 8 centigrade for complete reconstitution.

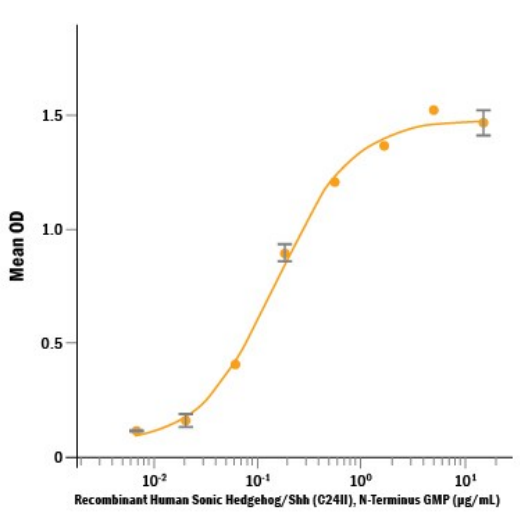
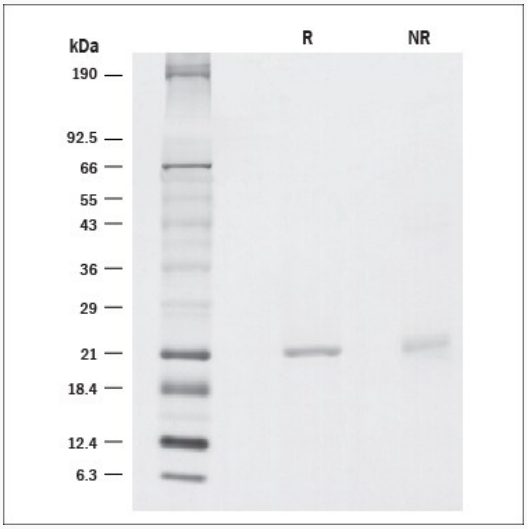
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Shipping	The product is shipped with polar packs.

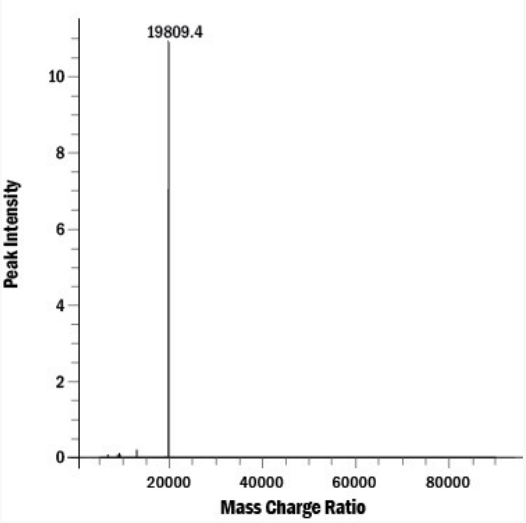
GENE INFORMATION

Gene Name	SHH sonic hedgehog [Homo sapiens]
Official Symbol	SHH
Synonyms	SHH; sonic hedgehog; HLP3, HPE3, sonic hedgehog (Drosophila) homolog , sonic hedgehog homolog (Drosophila); sonic hedgehog protein; HHG1; MCOPCB5; SMMCI; TPT; TPTPS; sonic hedgehog homolog; HLP3; HPE3;
Gene ID	6469
mRNA Refseq	NM_000193
Protein Refseq	NP_000184
MIM	600725
UniProt ID	Q15465

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Bioactivity	
SDS-PAGE	

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Mass Spectrometry	

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