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#34052**Human Sonic Hedgehog (Shh)  
Recombinant Protein**

25 µg


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MW (kDa):	UniProt ID:	Entrez-Gene Id:
20.2	#Q15465	6469
<b>Background</b>	Hedgehog proteins (Hh) are secreted signaling proteins that play many roles during animal development. Aberrant Hh signaling activity can be associated with numerous birth defects and uncontrolled Hh pathway activation is linked to the development of several types of cancers (1-2). The three identified vertebrate Hh genes are Sonic ( <i>Shh</i> ), Indian ( <i>Ihh</i> ) and Desert ( <i>Dhh</i> ), all of which have distinct as well as overlapping roles (3-5). Hh proteins are synthesized as 45 kDa precursors that undergo auto-cleavage to generate a 19 kDa amino-terminal peptide (Hh-N) and a carboxy-terminal peptide (Hh-C). The Hh-N becomes covalently attached to a cholesterol molecule at its carboxy terminus and acetylated at its amino terminus. This doubly modified Hh-N peptide is released from cells and responsible for all known Hedgehog signaling activity (6).	
<b>Endotoxin</b>	Endotoxin levels are less than or equal to 1 EU / 1 µg hShh.	
<b>Purity</b>	A greater than or equal to 95% purity was determined by SDS-PAGE.	
<b>Source / Purification</b>	Recombinant human Shh was expressed in <i>E. coli</i> and is supplied in a lyophilized form.	
<b>Bioactivity</b>	The bioactivity of recombinant human Shh was determined in a CCL-226 cell proliferation assay. The ED <sub>50</sub> of each lot is less than or equal to 5 µg/mL.	
<b>Background References</b>	<ol style="list-style-type: none"> <li>1. Ingham, P.W. and McMahon, A.P. (2001) <i>Genes Dev.</i> 15, 3059-3087.</li> <li>2. McMahon, A.P. et al. (2003) <i>Curr. Top Dev. Biol.</i> 53, 1-114.</li> <li>3. Zhang, X.M. et al. (2001) <i>Cell</i> 106, 781-792.</li> <li>4. Adolphe, C. et al. (2004) <i>Development</i> 131, 5009-5019.</li> <li>5. Pathi, S. et al. (2001) <i>Mech. Dev.</i> 106, 107-117.</li> <li>6. Bijlsma, M.F. et al. (2004) <i>Bioessays</i> 26, 387-394.</li> </ol>	

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