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# Shh

Catalog # PVGS1239

## Product Information

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| **Primary Accession** | Q62226 |
| **Species** | Mouse |
| **Sequence** | Cys25-Gly198 |
| **Purity** | > 95% as analyzed by SDS-PAGE<br>> 95% as analyzed by HPLC |
| **Endotoxin Level** | |
| **Expression System** | CHO |
| **Formulation** | Lyophilized after extensive dialysis against PBS. |
| **Reconstitution** | It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in $ddH_2O$ up to 100 □g/ml. |
| **Storage & Stability** | Upon receiving, this product remains stable for up to 6 months at lower than -70°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. For long term storage it is recommended that a carrier protein (example 0.1% BSA) be added. Avoid repeated freeze-thaw cycles. |

## Additional Information

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| **Gene ID** | 20423 |
| **Other Names** | Sonic hedgehog protein, SHH, 3.1.-.-, HHG-1, Shh unprocessed N-terminal signaling and C-terminal autoprocessing domains, ShhNC, Sonic hedgehog protein N-product, ShhN, Shh N-terminal processed signaling domains, ShhNp, Sonic hedgehog protein 19 kDa product, Shh {ECO:0000312\|MGI:MGI:98297}, Hhg1 |
| **Target Background** | Members of the Hedgehog (Hh) family are highly conserved proteins which are widely represented throughout the animal kingdom. The three known mammalian Hh proteins, Sonic (Shh), Desert (Dhh) and Indian (Ihh) are structurally related and share a high degree of amino-acid sequence identity (e.g., Shh and Ihh are 93% identical). The biologically active form of Hh molecules is obtained by autocatalytic cleavage of their precursor proteins and corresponds to approximately the N-terminal one half of the precursor molecule. Although Hh proteins have unique expression patterns and distinct biological roles within their respective regions of secretion, they use the same signaling pathway and can substitute for each other in experimental systems. |

## Protein Information

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| **Name** | Shh {ECO:0000303\|PubMed:7916661, ECO:0000312\|MGI:MGI:98297} |
| **Function** | [Sonic hedgehog protein]: Precursor of sonic hedgehog, a morphogen that activates the smoothened signaling pathway, and which is essential for a variety of patterning events during development (PubMed:11389830, PubMed:31657721, PubMed:7736596, PubMed:7891723, PubMed:8824192). The C-terminal part of the precursor displays an autoproteolysis and a cholesterol transferase activity, resulting (1) in the cleavage of the full-length protein into two parts, Sonic hedgehog protein N-product and C-product (ShhN and ShhC, respectively) and (2) covalent attachment of a cholesterol moiety to the C-terminus of the newly generated ShhN (PubMed:7736596, PubMed:7891723, PubMed:8824192). Both autoproteolysis and a cholesterol transferase activities occur in the endoplasmic reticulum (PubMed:21357747). Following additional lipidation, ShhN acts as a morphogen, while ShhC is degraded in the endoplasmic reticulum (PubMed:21357747). |
| **Cellular Location** | [Sonic hedgehog protein]: Endoplasmic reticulum membrane {ECO:0000250\|UniProtKB:Q15465}. Golgi apparatus membrane {ECO:0000250\|UniProtKB:Q15465}. Note=Co-localizes with HHAT in the ER and Golgi membrane. {ECO:0000250\|UniProtKB:Q15465} |
| **Tissue Location** | Expressed in a number of embryonic tissues including the notochord, ventral neural tube, floor plate, lung bud, zone of polarizing activity and posterior distal mesenchyme of limbs (PubMed:7916661). In the adult, expressed in lung and neural retina (PubMed:7916661). |

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