

**General Information**

Synonyms	DHH; desert hedgehog protein; Desert Hedgehog; DHH; HHG-3MGC35145
Accession #	O43323
Source	Human embryonic kidney cell, HEK293-derived human Desert Hedgehog/Dhh protein
	Cys23-Gly198 (Cys23Ile-Ile), with and without an N-terminal Met
Predicted Molecular weight	19.8 kDa
Form/Structure	Dimer in solution

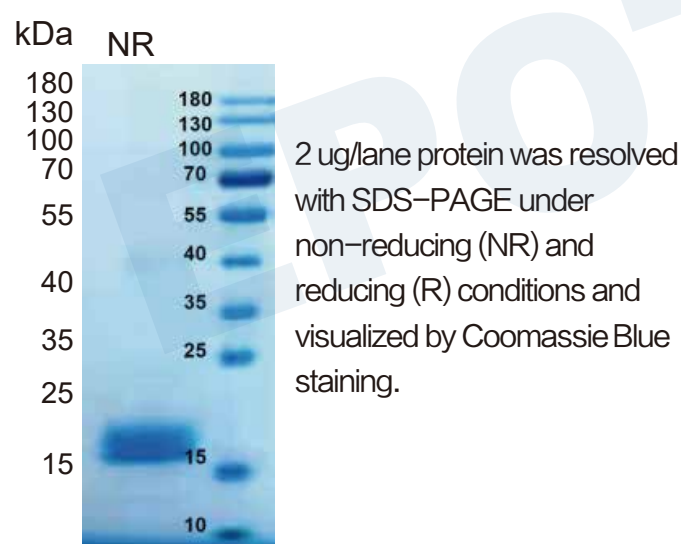
**Components and Storage**

Formulation	Solution protein. Dissolved in sterile PBS buffer. This solution can be diluted into other aqueous buffers. Centrifuge the vial prior to opening.
Storage and Stability	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 12 months from date of receipt, -20 to -70 °C as supplied.
Shipping	Shipping with dry ice

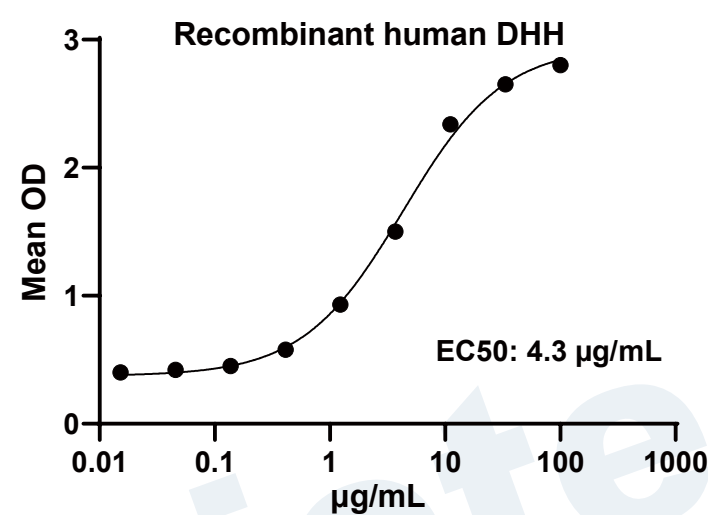
**Quality**

Purity	> 95%, determined by SDS-PAGE.
Endotoxin Level	<0.010 EU per 1 ug of the protein by the LAL method.
Activity	Measured by its ability to induce alkaline phosphatase production by C3H10T1/2 mouse embryonic fibroblast cells. The EC50 for this effect is 1-15 ug/mL.

**SDS-PAGE**



**Bioactivity**



Recombinant human Desert Hedgehog(Catalog # HF-2038) stimulates cell proliferation of the C3H10T1/2 mouse embryonic fibroblast cells.

**Background**

**Desert Hedgehog (Dhh)** belongs to the highly conserved Hedgehog family of proteins which are involved in multiple developmental processes. Desert Hedgehog is a secreted, 45 kDa, 373 amino acid (aa) protein that undergoes autocatalytic cleavage between Gly198 and Cys199 catalyzed by the C-terminal domain, which releases the N-terminal domain with a concomitant attachment of cholesterol at its new C-terminus. In addition to the C-terminally attached cholesterol, a fatty acid acyl chain is esterified to the N-terminal cysteine (aa 23) via an amide linkage. The 19 kDa N-terminal signaling domain is membrane associated due to its double lipid modifications. Its binding to Patched receptors results in the loss of Patched repression of Smoothed signaling (1 - 4). Dhh binds both Patched and Patched 2 as well as Hedgehog interacting protein (Hip) (5). Within the N-terminal domain human Dhh shares 97% aa sequence identity with mouse and rat Dhh. It shares approximately 75% aa sequence identity with human Indian (Ihh) and Sonic Hedgehog (Shh) (5). Dhh is produced by Sertoli cells and is required for testis development and spermatogenesis (6, 7). It induces steroidogenic factor 1, which is instrumental in promoting Leydig cell differentiation (8, 9). It also promotes the deposition of basal lamina surrounding seminiferous tubules (6). Mutations of Dhh are linked to complete pure gonadal dysgenesis (10). Dhh is expressed in the female by ovarian granulosa cells and the corpus luteum (11). Its upregulation in ovarian cancer correlates positively with proliferative index, and negatively with prognosis (12).

**Reference**

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6. Pierucci-Alves, F. et al. (2001) <i>Biol. Reprod.</i> 65:1392.	12. Chen, X. et al. (2007) <i>Cancer Sci.</i> 98:68.

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