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Recombinant human Shh protein (Qk055)

Type: Stem cells

Available for purchase: Unit Size (µg): 25, 50, 100, 500, 1000

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Product Information

Sonic hedgehog protein (Shh) is a member of the Hedgehog family with an essential role in embryonic development, tissue regeneration, and tumorigenesis. Shh induces the cell fate and patterning of neural progenitors in ventral domains at various levels in the forebrain, midbrain, hindbrain, and spinal cord. It has many applications in the neural stem cell field where it plays a significant role in differentiating human-induced pluripotent stem cells (iPSC) towards motor neurons and interneurons. Also, it induces the patterning of organoids and embryos in culture.

Recombinant Shh protein has a molecular weight of 19.8 kDa. This protein is animal origin-free (AOF), carrier protein-free, and tag-free to ensure its purity with exceptional lot-to-lot consistency. Sonic hedgehog protein is suitable for the culture of reproducible and high-quality neurons and organoids.

This protein is also available as GMP compliant Cell Therapy Grade, to enquire email ryan.weber@matriqx.com.

Alternative protein names

Hhg-1, SHH, HHG1, HLP3, HPE3, MCOPCB5, SMMCI, TPT, TPTPS, sonic hedgehog, Sonic hedgehog, ShhNC, sonic hedgehog signaling molecule, Qk55

Molecular weight

19.8 kDa (monomer)

Protein Uniprot number

High purity sonic hedgehog protein (Uniprot: Q15465)

Species reactivity

- human
- species similarity:
- mouse - 99%
- rat - 97%
- bovine - 99%
- porcine - 98%

Product Information

- >98%, by SDS-PAGE quantitative densitometry
- Expressed in *E. coli*
- Animal origin-free (AOF) and carrier protein-free
- Manufactured in our Cambridge, UK laboratories
- Lyophilized from PBS, 5% Sucrose

Reconstitution instructions

- Resuspend in sterile-filtered water at >50 µg/ml

Featured applications

- Neural stem cell proliferation and neuronal differentiation
- Differentiation of midbrain dopaminergic neurons
- Midbrain differentiation
- Corpus organoid generation
- Cholinergic-like neurons (ChLNs) differentiation

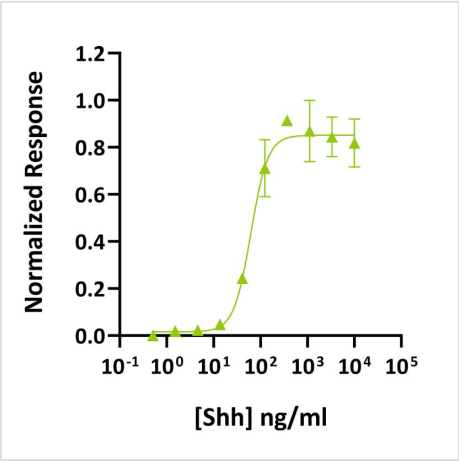
Further quality assays

- Mass spectrometry: single species with expected mass
- Recovery from stock vial: >95%
- Endotoxin: <0.05 EU/µg protein

Scientific Information

Bioactivity

Recombinant Shh activity was determined using a Shh-responsive firefly luciferase reporter assay. GLI-NIH3T3 cells were treated in triplicate with a serial dilution of Shh for 24 hours. Data from Qk055 lot #104391. EC50 = 62.16 ng/ml.



Purity

Human Shh (Qk055) migrates as a major band at 19.8 kDa in non-reducing (NR) conditions. We load 3 ug of protein to ensure good visibility of protein in the gel. This allows you to see the faint Shh dimer band at 40 kDa in the non-reduced sample. Shh spontaneously forms non-covalent dimers, this is thought to increase its potency (10). Upon reduction (R), only the 19.8 kDa band is visible. No contaminating protein bands are visible. Purified recombinant protein (3 µg) was resolved using 15% w/v SDS-PAGE in reduced (+β-mercaptoethanol, R) and non-reduced (-β-mercaptoethanol, NR) conditions and stained with Coomassie Brilliant Blue R-250. Data from Qk055 batch #104391.

Original product page: https://ryan.calliope-alpha.ts.net/product/recombinant-human-shh-protein-qk055/

PDF generated: 12 May 2026