

Product Information

HumanKine™ Noggin, human recombinant, expressed in HEK 293 cells

Catalog Number **H6416**

Storage Temperature -20°C

Product Description

HumanKine™ Noggin is expressed in human 293 cells using a scaleable suspension cell culture system. The protein is a highly stable, authentically glycosylated, disulfide linked 65 kDa homodimer. Production in human 293 cells offers authentic glycosylation. Glycosylation contributes to stability in cell growth media and other applications.

Noggin is required for cartilage morphogenesis and joint formation. It is also an inhibitor of bone morphogenic proteins (BMPs) signaling, which is necessary for the growth and patterning of neural tube and somite. Studies indicate Noggin may play a critical role in the formation of gradients of BMP activity. Noggin is produced in the mesoderm in developing embryos and has been shown to have a high affinity to BMP binding protein. When Noggin binds to BMPs, inhibition occurs, preventing BMPs from interacting with receptors on the cell surface.^{1,2} Studies indicate Noggin plays a critical role in the formation of gradients of BMP activity. Knockout mice lacking expression of Noggin die at birth from multiple defects including bony fusion of the appendicular skeleton.³

Noggin has a high binding affinity to heparin and heparan sulfate proteoglycans at the cell surface. Heparan sulfate-bound Noggin remains active and capable of binding BMP4 at the plasma membrane. Noggin can also be competitively displaced by heparin when bound to cells that express heparan sulfate proteoglycan.²

This product is lyophilized from a PBS solution.

ED₅₀: ≤ 200 ng/mL

The specific activity was determined by the dose dependent inhibition of rhBMP4 induced alkaline phosphate production by ATDC5 cells.

Purity: $\geq 95\%$ (SDS-PAGE)

Endotoxin level: ≤ 1 EU/ μg

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Briefly centrifuge the vial before opening. It is recommended to reconstitute the protein in sterile PBS containing 0.1% endotoxin-free recombinant human serum albumin.

Storage/Stability

Store the product at -20°C . The lyophilized product remains active for one year at -20°C .

Upon reconstitution, the cytokine can be stored at $2-8^{\circ}\text{C}$ for short term only, or at -20°C to -80°C in aliquots for long term. Avoid repeated freeze-thaw cycles.

References

1. Brunet, L.J., et al., Noggin, Cartilage Morphogenesis, and Joint formation in the Mammalian Skeleton. *Science*, **280**, 1455-1457 (1998).
2. Paine-Saunders, et al., Heparan Sulfate Proteoglycans Retain Noggin at the Cell Surface. *J. Biol. Chem.*, Nov. 12 (e-pub) (2001).
3. Minina, E., et al., BMP and Ihh/PTHrP signaling interact to coordinate chondrocyte proliferation and differentiation. *Development*, **128**, 4523-4534 (2001).

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