

# Cytokines

## Human Recombinant Noggin



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Catalog # 78060.1  
78060

Noggin  
10 µg  
50 µg

## Product Description

Noggin binds to and antagonizes bone morphogenic protein (BMP) ligands of the transforming growth factor - beta (TGF-β) family. Noggin supports maintenance of undifferentiated human embryonic stem cells in vitro, and can be used to prevent spontaneous differentiation in the short-term (Chaturvedi et al.). Noggin is essential for development of structures derived from ectoderm embryonic somite, skeletal patterning, and neurogenesis in vivo. It also influences chondrogenesis, osteogenesis and joint formation (Krause et al.), and promotes dopaminergic differentiation of embryonic stem cells and subsequent survival of dopamine neurons (Chiba et al.).

## Product Information

**Alternative Names:** NOG, SYM1, SYNS1, Symphalangism 1 (proximal), Synostoses (multiple) syndrome  
**Accession Number:** Q13253  
**Amino Acid Sequence:** QHYLHIRPAP SDNLPLVDLI EHPDPIFDPK EKDLNETLLR SLLGGHYDPG FMATSPPEDR PGGGGGAAGG AEDLAELDQL LRQRPSGAMP SEIKGLEFSE GLAQGKKQRL SKKLRRKLQM WLWSQTFPCPV LYAWNDLGSR FWPRYVKVGS CFSKRSCSVP EGMVCKPSKS VHLLTVLRWRC QRRGGQRCGW IPIQYPIISE CKCSC  
**Predicted Molecular Mass:** 30 kDa  
**Species:** Human  
**Cross Reactivity:** Mouse  
**Formulation:** Lyophilized after dialysis against phosphate-buffered saline.  
**Source:** CHO

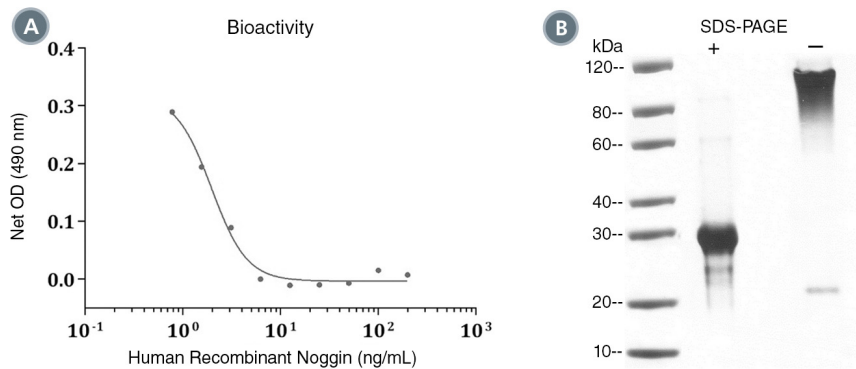
## Specifications

**Activity:** The specific activity is  $> 4 \times 10^5$  units/mg ( $EC_{50} < 2.5$  ng/mL) as determined by a bioassay using ATDC5 cells in the presence of 10 ng/mL of human BMP-4.  
**Purity:**  $> 95\%$   
**Endotoxin Level:** Measured by kinetic limulus amebocyte lysate (LAL) analysis and is  $< 0.2$  EU/µg protein.

## Preparation and Storage

**Storage:** Store at  $-80^{\circ}\text{C}$ .  
**Stability:** Stable as supplied for 12 months from date of receipt.  
**Reconstitution:** Centrifuge vial before opening. Resuspend the product in sterile water or phosphate-buffered saline to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at  $2 - 8^{\circ}\text{C}$  for up to 1 week or at  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$  for up to 2 months. Avoid repeated freeze-thaw cycles.

## Data



(A) The biological activity of Human Recombinant Noggin was tested by its ability to inhibit BMP-4 induced alkaline phosphatase production of ATDC-5 cells. Inhibition of BMP-4 induced alkaline phosphatase production was measured using a fluorometric assay method. The EC<sub>50</sub> is defined as the effective concentration of the growth factor at which inhibition of alkaline phosphatase production is at 50% of maximum. The EC<sub>50</sub> in the above example is 1.9 ng/mL.

(B) 2 µg of Human Recombinant Noggin was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant Noggin has a predicted molecular mass of 30 kDa.

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## References

- Chaturvedi G et al. (2009) Noggin maintains pluripotency of human embryonic stem cells grown on Matrigel. *Cell Prolif* 42(4): 425–33.
- Chiba S et al. (2008) Noggin enhances dopamine neuron production from human embryonic stem cells and improves behavioral outcome after transplantation into Parkinsonian rats. *Stem Cells* 26(11): 2810–20.
- Krause C et al. (2011) Noggin. *Int J Biochem Cell Biol* 43(4): 478–81.

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