# **Recombinant Mouse Noggin/NOG Protein**

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Catalog No.: RP01308 Recombinant

# **Sequence Information**

**Species Gene ID Swiss Prot**Mouse 18121 P97466

Tags

C-His

**Synonyms** noggin;NOG

# **Product Information**

**Source** Purification HEK293 cells ≥ 95 % as

determined by SDS-PAGE.

Calculated MW Observed MW

24.75 kDa 36 kDa

#### **Endotoxin**

< 1 EU/µg of the protein by LAL method.

## **Formulation**

Lyophilized from a  $0.22 \mu m$  filtered solution of PBS, pH 7.4.

## Reconstitution

Centrifuge the vial before opening. Reconstitute to a concentration of 0.1-0.5 mg/mL in sterile distilled water. Avoid vortex or vigorously pipetting the protein. For long term storage, it is recommended to add a carrier protein or stablizer (e.g. 0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose), and aliquot the reconstituted protein solution to minimize free-thaw cycles.

## **Contact**

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# **Background**

Noggin is a secreted protein involved at multiple stages of vertebrate embryonic development including neural induction and is known to exert its effects by inhibiting the bone morphogenetic protein (BMP)-signaling pathway. It binds several BMPs with very high (picomolar) affinities, with a marked preference for BMP2 and BMP4 over BMP7. By binding tightly to BMPs, Noggin prevents BMPs from binding their receptors. Noggin binds the bone morphogenetic proteins (BMP) such as BMP-4 and BMP-7 and inhibits BMP signaling by blocking the molecular interfaces of the binding epitopes for both types I and type II receptors. Interaction of BMP and its antagonist Noggin governs various developmental and cellular processes, including embryonic dorsal-ventral axis, induction of neural tissue, the formation of joints in the skeletal system, and neurogenesis in the adult brain. Noggin plays a key role in neural induction by inhibiting BMP4, along with other TGF- $\beta$  signaling inhibitors such as chordin and follistatin. Mouse knockout experiments have demonstrated that noggin also plays a crucial role in bone development, joint formation, and neural tube fusion.

## **Basic Information**

#### Description

Recombinant Mouse Noggin/NOG Protein is produced by HEK293 cells expression system. The target protein is expressed with sequence (Gln28-Cys232) of mouse Noggin (Accession #NP\_032737.1) fused with an 6×His tag at the C-terminus.

### **Bio-Activity**

1.Measured by its binding ability in a functional ELISA.Immobilized Human BMP4 at 0.5  $\mu$ g/mL (100  $\mu$ L/well) can bind Noggin with a linear range of 4-29 ng/mL.|2.Measured by its binding ability in a functional ELISA.Immobilized Human Noggin at 1  $\mu$ g/mL (100  $\mu$ L/well) can bind Noggin Rabbit pAb with a linear range of 1-4.95 ng/mL.|3.Measured by its ability to inhibit BMP-4-induced alkaline phosphatase production by ATDC5 mouse chondrogenic cells. The ED<sub>50</sub> for this effect is 3.5-14 ng/mL in the presence of 50 ng/mL of Recombinant Human BMP-4.

#### Shipping

The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

## Storage

Store at -20°C. Store the lyophilized protein at -20°C to -80 °C up to 1 year from the date of receipt.

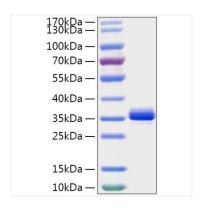
After reconstitution, the protein solution is stable at -20  $^{\circ}$ C for 3 months, at 2-8  $^{\circ}$ C for up to 1 week.

Avoid repeated freeze/thaw cycles.

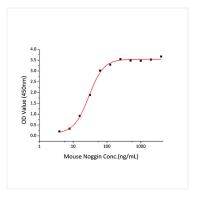
## **Operational Notes**

For your safety and health, please wear a lab coat and disposable gloves for handling.

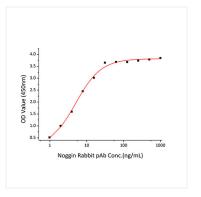
# **Validation Data**



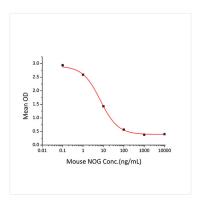
Recombinant Mouse Noggin/NOG Protein was determined by SDS-PAGE under reducing conditions with Coomassie Blue.



Immobilized recombinant Human BMP4 at 0.5  $\mu$ g/mL (100  $\mu$ L/well) can bind Noggin with a linear range of 4-29 ng/mL.



Immobilized recombinant Human Noggin at 1  $\mu$ g/mL (100  $\mu$ L/well) can bind Noggin Rabbit pAb with a linear range of 1-4.95 ng/mL.



Recombinant human NOG inhibits BMP-4-induced alkaline phosphatase production by ATDC5 mouse chondrogenic cells. The ED $_{50}$  for this effect is 3.5-14 ng/mL in the presence of 50 ng/mL of Recombinant Human BMP-4.