

Recombinant Mouse Noggin/NOG Protein

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% by SDS-PAGE.

Calculated MW	Observed MW
24.75 kDa	36 kDa

Endotoxin

□1EU/μg

Formulation


Lyophilized from a 0.22 μm 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 stabilizer (e.g. 0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose), and aliquot the reconstituted protein solution to minimize free-thaw cycles.

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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-β 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 μg/mL (100 μL/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 μg/mL (100 μL/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 ED₅₀ for this effect is 3.5-14 ng/mL in the presence of 50 ng/mL of Recombinant Human BMP-4.

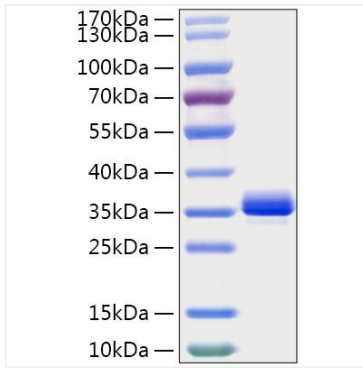
Storage

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

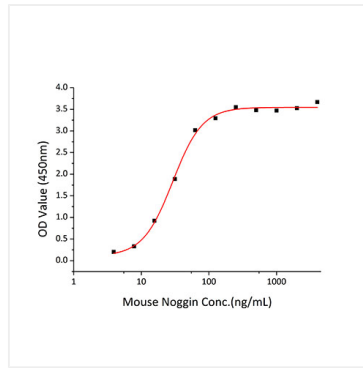
After reconstitution, the protein solution is stable at -20°C for 3 months, at 2-8°C for up to 1 week.

Avoid repeated freeze/thaw cycles.

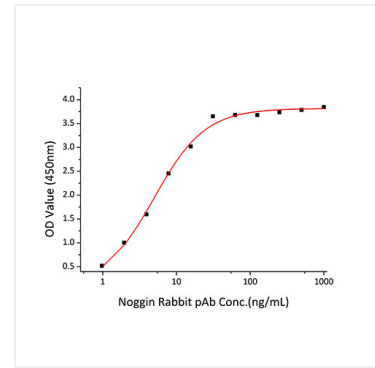
Validation Data



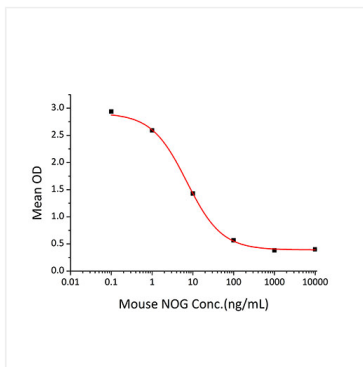
Recombinant Mouse Noggin/NOG Protein was determined by SDS-PAGE with Coomassie Blue, showing a band at 36 kDa.



Immobilized recombinant Human BMP4 at 0.5 µg/mL (100 µL/well) can bind Noggin with a linear range of 4-29 ng/mL.



Immobilized recombinant Human Noggin at 1 µg/mL (100 µL/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.