

Recombinant Mouse Noggin/NOG Protein

Catalog No.: RP01308

Sequence Information

Species Gene ID

Mouse 18121

Swiss Prot Tags

P97466 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 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.

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.

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.

Shipping

Lyophilized proteins are shipped at ambient temperature. Liquid proteins are shipped at frozen temperature with dry ice. Upon receipt, store it immediately at the temperature recommended below.

Storage

Store at –20°C

Operational Notes

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

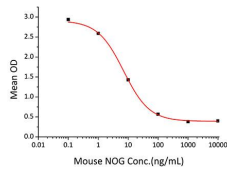
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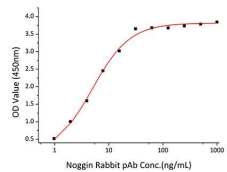
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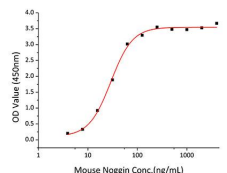
Validation Data



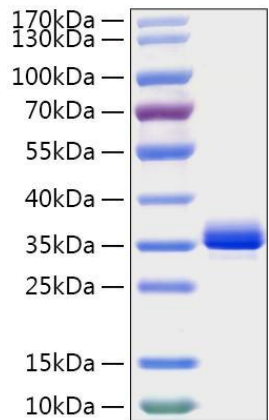
Recombinant human NOG inhibits BMP-4-induced alkaline phosphatase production by ATDC5 mouse chondrogenic cells. The ED₅₀ for this effect is 3.5-14 ng/mL in the presence of 50 ng/mL of Recombinant Human BMP-4.



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.



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



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