

# Human Noggin / NOG Protein

Catalog Number: 10267-HCCH



Sino Biological  
Biological Solution Specialist

## General Information

### Gene Name Synonym:

Noggin; SYM1; SYNS1

### Protein Construction:

A DNA sequence encoding the human NOG (NP\_005441.1) (Met1-Cys232) was expressed with five amino acids (DDDDK) at the C-terminus.

**Source:** Human

**Expression Host:** Human Cells

## QC Testing

**Purity:** > 85 % as determined by SDS-PAGE.

### Bio Activity:

Measured by its ability to inhibit BMP4-induced alkaline phosphatase production by MC3T3-E1 cells. The  $ED_{50}$  for this effect is typically 0.18-0.7  $\mu\text{g/mL}$  in the presence of 50  $\text{ng/mL}$  of hBMP4.

### Endotoxin:

< 1.0 EU per  $\mu\text{g}$  protein as determined by the LAL method.

### Stability:

Samples are stable for up to twelve months from date of receipt at  $-70^{\circ}\text{C}$

**Predicted N terminal:** Gln 28

### Molecular Mass:

The recombinant human NOG consists 211 amino acids and predicts a molecular mass of 23.7 kDa.

### Formulation:

Lyophilized from sterile PBS, pH 7.4.

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

## Usage Guide

### Storage:

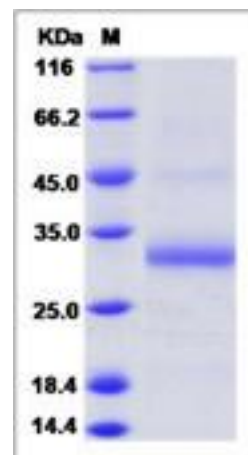
Store it under sterile conditions at  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$  upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

### Reconstitution:

Detailed reconstitution instructions are sent along with the products.

## SDS-PAGE:



## Protein Description

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 type 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, 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.

## References

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