Human Noggin / NOG Protein (His Tag)

Catalog Number: 10267-H08H

General Information

Gene Name Synonym:

Noggin; SYM1; SYNS1

Protein Construction:

A DNA sequence encoding the human Noggin precursor (NP_005441.1) (Met 1-Cys 232) was fused with a polyhistidine tag at the C-terminus.

Source: Human

Expression Host: HEK293 Cells

QC Testing

Purity: > 95 % as determined by SDS-PAGE

Bio Activity:

Measured by its ability to inhibit recombinant human BMP4-induced alkaline phosphatase production by MC3T3-E1 cells. The ED_{50}?for this effect is typically 0.05-0.3 μg/mL in the presence of 25 ng/mL of recombinant human BMP4.

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Predicted N terminal: Gln 28

Molecular Mass:

The recombinant human Noggin comprises 216 amino acids after removal of the signal peptide and has a predicted molecular mass of 24.6 kDa. As a result of glycosylation, rhNoggin migrates as an approximately 30 kDa bnd in SDS-PAGE under reducing conditions.

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

Stability & Storage:
Samples are stable for twelve months from date of receipt at -20℃ to -80℃.

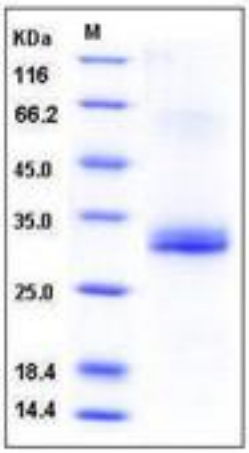
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

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 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.

References