9051 Mira Mesa Blvd, #910094
San Diego, CA 92191
Tel: 760-390-3989

Noggin Human

Noggin Human Recombinant
GRF0276

Product Overview

Name	Noggin Human
Description	
Noggin Human Recombinant	
Accession (Primary)	Q13253
Synonyms	
SYM1, SYNS1, NOG.	
Introduction	
The secreted polypeptide noggin, encoded by the NOG gene, binds and inactivates members of the transforming growth factor-beta (TGF-beta) superfamily signaling proteins, such as bone morphogenetic protein-4 (BMP4). By diffusing through extracellular matrices more efficiently than members of the TGF-beta superfamily, noggin may have a principal role in creating morphogenic gradients. Noggin appears to have pleiotropic effect, both early in development as well as in later stages. It was originally isolated from Xenopus based on its ability to restore normal dorsal-ventral body axis in embryos that had been artificially ventralized by UV treatment. The results of the mouse knockout of noggin suggest that it is involved in numerous developmental processes, such as neural tube fusion and joint formation. Recently, several dominant human NOG mutations in unrelated families with proximal symphalangism (SYM1) and multiple synostoses syndrome (SYNS1) were identified; both SYM1 and SYNS1 have multiple joint fusion as their principal feature, and map to the same region (17q22) as NOG. All NOG mutations altered evolutionarily conserved amino acid residues. The amino acid sequence of human noggin is highly homologous to that of Xenopus, rat and mouse.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
Lyophilized from a 0.2 μm filtered solution in 30% CH3CN, 0.1% TFA.	
Stability	
Lyophilized Noggin although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution Noggin should be stored at 4°C between 2-7 days and for future use below -18°C. For long term	

storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity

Greater than 95.0% as determined by SDS-PAGE.

Amino acid sequence

MQHYLHIRPAPSDNLPLVDLIEHPDPIFDPKEKDLNETLLRSLLGGHYDPGFMATSPP
EDRPGGGGGAAGGAEDLAELDQLLRQRPSGAMPSEIKGLEFSEGLAQGKKQRLSKKLR
RKLQMWLWSQTFCPVLYAWNDLGSRFWPRYVKVGSCFSKRSCSVPEGMVCKPSKSVHL
TVLRWRCQRRGGQRCGWIPIQYPIISECKCSC.

Biological Activity

The ED 50 was determined by its ability to inhibit 5.0ng/ml of BMP-4 induced alkaline phosphatase production by murine ATDC-5 cells. The expected ED 50 for this effect is < 3ng/ml of Noggin, corresponding to a Specific Activity of 3.3x10 5 units/mg.

Solubility

It is recommended to be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in 10mM HCl to a concentration of 0.1-1.0 mg/ml. Further dilutions should be made in appropriate buffered solutions.

Background

Recombinant Human Noggin Growth Beta Factor: A Potent Inhibitor of Bone Morphogenetic Protein Signaling. Abstract: Recombinant human Noggin Growth Beta Factor (Noggin) is a highly conserved protein that acts as a potent antagonist of the Bone Morphogenetic Protein (BMP) signaling pathway. Noggin plays a critical role in embryonic development, tissue homeostasis, and disease processes. This research paper provides a comprehensive analysis of the molecular characteristics, signaling mechanisms, and diverse physiological functions of recombinant human Noggin. Additionally, it explores the therapeutic implications of Noggin in various disorders. Synonyms such as SYM1, SYNS1, and NOG associated with Noggin are discussed throughout the paper to highlight their relevance in scientific literature. Introduction: Recombinant human Noggin Growth Beta Factor (Noggin) is a protein with multifaceted roles in development, tissue homeostasis, and disease. This section introduces Noggin and its synonyms, including SYM1, SYNS1, and NOG, emphasizing their significance and relevance in scientific research. Molecular Characteristics of Noggin : This section explores the molecular characteristics of Noggin, including its primary amino acid sequence, protein structure, and post-translational modifications. The interactions of Noggin with BMPs and other regulatory molecules are also discussed, highlighting the importance of these interactions in modulating BMP signaling. Inhibition of BMP Signaling by Noggin: Noggin acts as a potent inhibitor of BMP signaling by binding to BMP ligands and preventing their interaction with BMP receptors. This section delves into the mechanisms through which Noggin interferes with BMP signaling, including competition for receptor binding and sequestration of BMPs in extracellular spaces. The implications of Noggin-mediated inhibition of BMP signaling in development and tissue homeostasis are also discussed. Physiological Functions of Noggin: Noggin plays critical roles in various physiological processes, including embryonic development, neurogenesis, skeletal development, and joint formation. This section provides an in-depth analysis of Noggin's contributions to these processes, highlighting its role in maintaining proper tissue

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patterning, cell fate determination, and morphogenesis. Therapeutic Implications of Noggin: The unique inhibitory properties of Noggin make it an attractive therapeutic candidate for various disorders. This section discusses the potential applications of Noggin in bone and joint diseases, neurological disorders, and cancer. Additionally, it explores the challenges and future prospects of utilizing Noggin as a therapeutic agent. Clinical Studies and Translational Research: This section reviews clinical studies and translational research involving Noggin, emphasizing its potential in regenerative medicine and tissue engineering. It highlights ongoing efforts to develop Noggin-based therapeutics and discusses the promising results observed in preclinical and clinical studies.

Precautions

Noggin Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (Q13253)

Background

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