
Product Data Sheet

Product Name: Noggin Human
Cat. No.: GP20784
Batch No.: 1

Product Data

Purity >98% Source
Physical Appearance solid Shipping Condition

Synonyms SYM1; SYNS1; NOG.

Amino Acid Sequence MQHYLHIRPAPSDNLPLVDLIEHPDPIFDPKEDLNELLRSLLGGHYDPGFMATSPPEDRPGGGGGAAGGAEDLAELDQLLRQPSGAMPSEIKGLEFS

Solubility It is recommended to be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in 10mM HAc to a concentration of 100µg/ml. Lyophilized from a 0.2µm filtered solution in 30% CH3CN, 0.1% TFA.

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.

Biological Activity

The ED50 was determined by its ability to inhibit 5.0 ng/ml of BMP-4 induced alkaline phosphatase production by ATDC-5 chondrogenic cells. The expected ED50 for this effect is 0.05-0.08 µg/ml of Noggin, corresponding to a Specific Activity of 12,500-20,000units/mg

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.

Background

Noggin Human Recombinant produced in *E. coli* is a non-glycosylated, non-disulfide-linked homodimer consisting of two 206 amino acid polypeptide chains, having a total molecular mass of approximately 46.2 kDa (each chain 23.1 kDa). Noggin is purified by proprietary chromatographic techniques.

Caution: Product has not been fully validated for medical applications. For research use only.

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