

## Recombinant Mouse Noggin (rm NOG)

**Synonyms:** none

**Introduction:** Noggin belongs to a group of diffusible proteins which bind to ligands of the TGF- $\beta$  family and regulate their activity by inhibiting their access to signaling receptors. The interplay between TGF- $\beta$  ligands and their natural antagonists has major biological significance during development processes, in which cellular response can vary considerably depending upon the local concentration of the signaling molecule. Noggin was originally identified as a BMP-4 antagonist whose action is critical for proper formation of the head and other dorsal structures. Consequently, Noggin has been shown to modulate the activities of other BMPs including BMP-2,-7,-13, and -14. Targeted deletion of Noggin in mice results in prenatal death and recessive phenotype displaying a severely malformed skeletal system. Conversely, transgenic mice over-expressing Noggin in mature osteoblasts display impaired osteoblastic differentiation, reduced bone formation, and severe osteoporosis.

**Description:** Recombinant mouse Noggin 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).

Mouse Noggin is purified by proprietary chromatographic techniques.

**Source:** *Escherichia Coli*.

**Physical Appearance:** Sterile filtered white lyophilized (freeze-dried) powder.

**Formulation:** Lyophilized from a 0.2 $\mu$ m filtered solution in 30% CH<sub>3</sub>CN, 0.1% TFA.  
The sample size of 1 $\mu$ g contains Trehalose 5% (w/vol) for better recovery

**Solubility:** It is recommended to spin down before reconstitution in 10mM acetic acid to a concentration of 0.1-1.0 mg/mL. Further dilutions should be made in appropriate buffered solutions.

**Stability:** Lyophilized rm Noggin although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rm 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.

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**Purity:** Greater than 95.0% as determined by SDS-PAGE.

**Amino Acid Sequence:**

MQHYLHIRPAPSDNLPLVDLIEHPDIFDPKEKDLNETLLRSLLGGHYDPGFMATSPPEDRPGGGGGPAGGAED  
LAELDQLLRQRPSGAMPSEIKGLEFSEGLAQGKKQRLSKLRRKQLQMWLWSQTFPCVLYAWNDLGSRFWPRY  
VKVGSFCFSKRSCSVPEGMVCKPSKSVHLTVLRWRCQRRGQRCGWIPYIPISECKCSC.

**Biological Activity:** Determined by its ability to inhibit 5.0 ng/ml of BMP-4 induced alkaline phosphatase production by ATDC chondrogenic cells the expected ED<sub>50</sub> for this effect is less than 2.0 ng/ml of Noggin.

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<i>small</i>	5 $\mu$ g	Cat.N°	12344230
<i>medium</i>	20 $\mu$ g	Cat.N°	12344234

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