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### 1. Description

**Products** Mouse Noggin, research grade.  
Recombinant mouse noggin.

Content in µg	Order no.
5	130-103-457
20	130-103-458
100	130-103-459

**Biological activity** The ED<sub>50</sub> is ≤2 ng/mL corresponding to an activity of ≥5×10<sup>5</sup> U/mg.  
**Note:** The ED<sub>50</sub> is determined by the ability to inhibit BMP-4 induced alkaline phosphatase production by ATDC5 chondrogenic cells.

**Primary structure** Two identical non-glycosylated disulfide-linked polypeptide chains including N-terminal methionine (206 amino acid residues each).

**Molecular mass** 46.4 kDa (dimer).

**Source** Produced in *E. coli*.

**Product format** Lyophilized from a filtered (0.2 µm) buffer solution.

**Stabilizer** None.

**Purity** >95% as determined by SDS-PAGE analysis.

**Endotoxin level** Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.

**Storage** Lyophilized Mouse Noggin, research grade should be stored at -20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at -20 °C or below. Avoid repeated freeze-thaw cycles.

**Reconstitution** It is recommended to reconstitute lyophilized Mouse Noggin, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 50 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.

### 1.1 Background information

Noggin is a disulfide-linked homodimer that acts by binding members of the TGF-β family, and consequently blocks their ability to signal through their receptors. Noggin plays a crucial role in regulating developmental processes by inhibiting the signaling pathway of bone morphogenetic protein 4 (BMP-4), as well as other BMPs. During embryogenesis Noggin is produced by the dorsal mesoderm and is important for the correct bone morphology and neural tissue formation. Mutations in the Noggin-coding gene (NOG) are associated with several bone diseases. The sequence of Noggin protein shows high homology across several species.

### 1.2 Applications

Mouse Noggin can be used for a variety of applications, including:

- ES/ iPS differentiation into neural stem cells and retinal cells.
- Differentiation of endodermal progenitors.
- Induction of adipogenic differentiation of MSCs.
- Induction of cardiomyocyte differentiation of mouse ES cells.

Optimal concentration for a specific application should be determined by a dose-response experiment.

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