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Products	Human Noggin, research grade. Recombinant human noggin.										
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5	130-103-454										
20	130-103-455										
100	130-103-456										
2x500	130-108-982										
Biological activity	The ED ₅₀ is ≤3 ng/mL corresponding to an activity of ≥3.3×10 ⁵ U/mg. Note: The ED ₅₀ is determined by the ability to inhibit BMP-4 induced alkaline phosphatase production by ATDC chondrogenic cells.										
Primary structure	Two identical glycosylated disulfide-linked polypeptide chains without N-terminal methionine (205 amino acid residues each).										
Molecular mass	46.1 kDa (dimer).										
Source	Produced in HEK293 cells.										
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 Human 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 Human 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

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

- ES/ iPS differentiation into neural stem cells and retinal cells.
- Differentiation of human ES and iPS cell-derived endodermal lineages.
- Induction of adipogenic differentiation of MSCs.

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

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