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Human Recombinant Noggin (E. coli-expressed), ACF

Noggin, animal component-free

Catalog #100-1731	100 µg
Catalog #100-1732	2 x 500 µg

Product Description

Noggin binds to and antagonizes bone morphogenetic protein (BMP) ligands of the transforming growth factor beta (TGF-β) family. Noggin supports maintenance of undifferentiated human embryonic stem cells in vitro, and can be used to prevent spontaneous differentiation in the short term (Chaturvedi et al.). Noggin is essential for development of structures derived from ectoderm embryonic somite, skeletal patterning, and neurogenesis in vivo. It also influences chondrogenesis, osteogenesis, and joint formation (Krause et al.), and promotes dopaminergic differentiation of embryonic stem cells and subsequent survival of dopamine neurons (Chiba et al.).

Product Information

Alternative Names:	NOG, SYM1, SYNS1
Accession Number:	Q13253
Amino Acid Sequence:	MQHYLHIRPA PSDNLPLVDL IEHPDPIFDP KEKDLNETLL RSLLGGHYDP GFMATSPPED RPGGGGGAAG GAEDLAELDQ LLRQRPSGAM PSEIKGLEFS EGLAQGKKQR LSKKLRRKLQ MWLWSQTFCP VLYAWNDLGS RFWPRYVKVG SCFSKRSCSV PEGMVCKPSK SVHLTVLRWR CQRRGGQRCG WIPIQYPIIS ECKCSC
Predicted Molecular Mass:	23 kDa (monomer), 46 kDa (dimer)
Species:	Human
Product Formulation:	Lyophilized from acetonitrile, trifluoroacetic acid.
Source:	E. coli
Purity:	≥ 98%

Specifications

Activity:	The specific activity is approximately 1 × 10^4 units/mg (EC50 ~ 70.1 ng/mL), as determined by the BMP-2 responsive firefly luciferase reporter assay in HEK293T cells.
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.1 EU/µg protein.

Preparation and Storage

Stability and Storage: Store at -20 to -80°C. Stable as supplied for 12 months from date of receipt.

Preparation: Centrifuge vial before opening. Reconstitute the product in 10 mM hydrochloric acid to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.
After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data

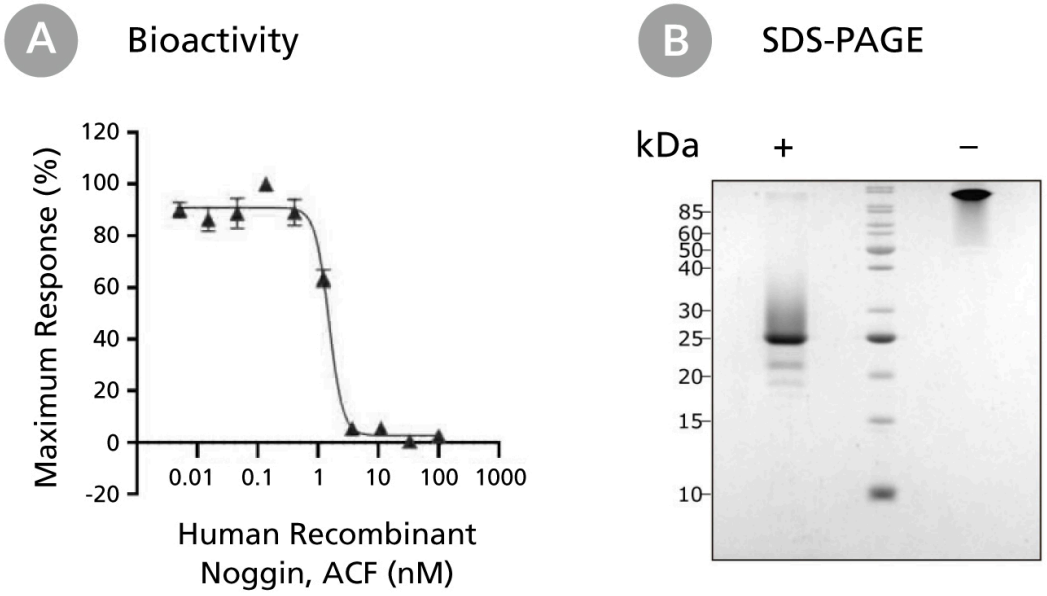

Figure 1. Biological Activity and Molecular Mass of Human Recombinant Noggin (E. coli-expressed), ACF

(A) The biological activity of Human Recombinant Noggin (E. coli-expressed), ACF was tested by its ability to inhibit BMP-2 activity in HEK293T cells. Inhibition of BMP-2 was measured using a firefly luciferase reporter assay. Cells were treated with a serial dilution of Noggin and standard concentration of BMP-2 for 6 hours. The EC50 is defined as the effective concentration of the growth factor at which inhibition of BMP-2 activity is at 50% of maximum. The EC50 in the above example is 1.5 nM (70.1 ng/mL). (B) 7 µg of Human Recombinant Noggin (E. coli-expressed), ACF was resolved with SDS-PAGE under reducing (+) conditions and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant Noggin has a predicted molecular mass of 23 kDa in reducing conditions.

Related Products

For a complete list of cytokines or peptide pools, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Chaturvedi G et al. (2009) Noggin maintains pluripotency of human embryonic stem cells grown on Matrigel. Cell Prolif 42(4): 425–33.

Chiba S et al. (2008) Noggin enhances dopamine neuron production from human embryonic stem cells and improves behavioral outcome after transplantation into Parkinsonian rats. Stem Cells 26(11): 2810–20.

Krause C et al. (2011) Noggin. Int J Biochem Cell Biol 43(4): 478–81.