Epoto Biotech

南京艾璞拓生物科技有限公司

# Recombinant Human Noggin, Tag Free

Catalog Number: HF-2019

## General Information

| | |
|---|---|
| Synonyms | NOG; Noggin; SYM1; symphalangism 1 (proximal); synostoses (multiple) syndrome 1; SYNS1; SYNS1A |
| Accession # | Q13253 |
| Source | Human embryonic kidney cell, HEK293-derived human Noggin protein |
| | Gln28-Cys232 |
| Predicted Moleucular weight | 23.1 kDa (Monomer) |
| Form/Structure | Disulfide-linked homodimer |

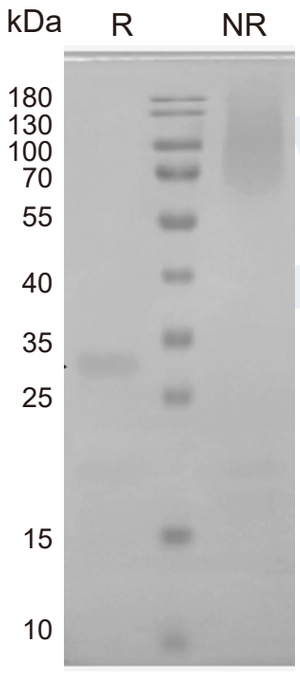
## Components and Storage

| | |
|---|---|
| Formulation | Solution protein. |
| | Dissolved in sterile PBS buffer to a concentration of 0.2 mg/mL. |
| | This solution can be diluted into other aqueous buffers. Centrifuge the vial prior to opening. |
| Storage and Stability | Avoid repeated freeze-thaw cycles. |
| | It is recommended that the protein be aliquoted for optimal storage. |
| | 12 months from date of receipt, -20 to -70 °C as supplied. |
| Shipping | Shipping with dry ice |

## Quality

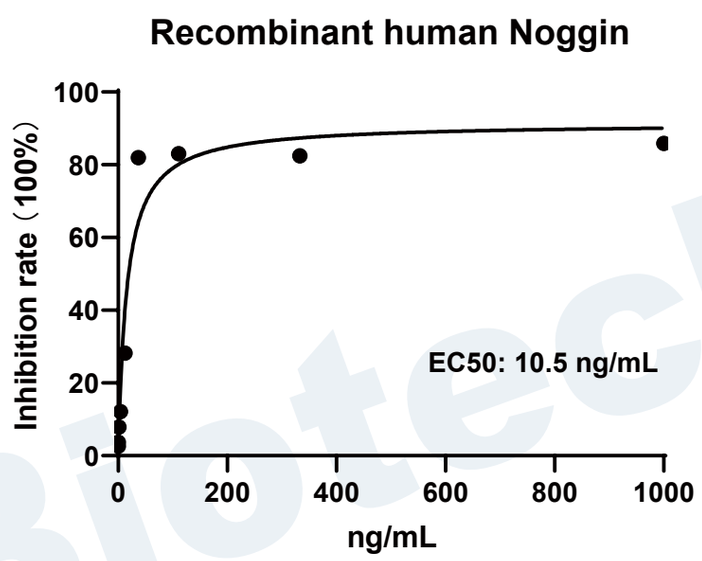
| | |
|---|---|
| Purity | > 95%, determined by SDS-PAGE. |
| Endotoxin Level | <0.010 EU per 1 ug of the protein by the LAL method. |
| Activity | Measured by its ability to inhibit BMP4-induced alkaline phosphatase production by MC3T3E1 mouse preosteoblast cells. |
| | The EC50 for this effect is 5-40 ng/mL. |

## SDS-PAGE




2 ug/lane protein was resolved with SDS-PAGE under non-reducing (NR) and reducing (R) conditions and visualized by Coomassie Blue staining.

## Bioactivity




Recombinant human Noggin (Catalog # HF-2019) inhibits BMP-4 induced alkaline phosphatase production in the MC3T3E1mouse preosteoblast cells.

## Background

Noggin is a secreted homodimeric glycoprotein that is an antagonist of bone morphogenetic proteins (BMPs) (1, 2). Human Noggin cDNA encodes a 232 amino acid (aa) precursor protein; cleavage of a 19 aa signal peptide generates the 213 aa mature protein which contains an N-terminal acidic region, a central basic heparin-binding segment and a C-terminal cysteine-knot structure (2). Secreted Noggin probably remains close to the cell surface due to its binding of heparin-containing proteoglycans (3). Noggin is very highly conserved among vertebrates, such that mature human Noggin shares 99%, 99%, 98%, 97% and 89% aa sequence identity with mouse, rat, bovine, equine and chicken Noggin, respectively. Noggin binds some BMPs such as BMP -4 with high affinity and others such as BMP-7 with lower affinity. It antagonizes BMP bioactivities by blocking epitopes on BMPs that are needed for binding to both type I and type II receptors (2, 4). During embryogenesis, Noggin antagonizes specific BMPs at defined times, for example, during neural tube, somite and cardiomyocyte growth and patterning (5-7). During skeletal development, Noggin prevents chondrocyte hyperplasia, thus allowing proper formation of joints (4). Mutations within the cysteine-knot region of human Noggin are linked to multiple types of skeletal dysplasias that result in apical joint fusions (8). Noggin is expressed in defined areas of the adult central nervous system and peripheral tissues such as lung, skeletal muscle and skin (1).

## Reference


1. Valenzuela, D.M. et al. (1995) J. Neurosci. 15:6077.
2. Groppe, J. et al. (2002) Nature 420:636.
3. Paine-Saunders, S et al. (2002) J. Biol. Chem. 277:2089.
4. Brunet, L. J. et al. (1998) Science 280:1455.
5. McMahon, J. A. et al. (1998) Genes Dev. 12:1438.
6. Itsykson, P. et al. (2005) Mol. Cell. Neurosci. 30:24.
7. Yuasa, S. et al. (2005) Nat. Biotechnol. 23:607.
8. Gong, Y. et al. (1999) Nat. Genet. 21:302.


## Contact us


艾璞拓生物 EPOTO BIOTECH

Global www.epotobiotech.com service@epotobiotech.com

China No.10 Xinghuo Road, Pukou District, Nanjing China TEL:+86 18652072210