

## Active Recombinant Human NOG protein

Cat. No. NOG-204H    Lot. No. (See product label)

### SPECIFICATION

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Overview     | Recombinant Human NOG protein (Met1-Cys232) was expressed in HEK293 cells.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Species              | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Source               | HEK293                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| ProteinLength        | 205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Description          | <p>Noggin is a secreted protein involved at multiple stages of vertebrate embryonic development including neural induction and is known to exert its effects by inhibiting the bone morphogenetic protein (BMP)-signaling pathway. It binds several BMPs with very high (picomolar) affinities, with a marked preference for BMP2 and BMP4 over BMP7. By binding tightly to BMPs, Noggin prevents BMPs from binding their receptors. Noggin binds the bone morphogenetic proteins (BMP) such as BMP-4 and BMP-7, and inhibits BMP signaling by blocking the molecular interfaces of the binding epitopes for both type I and type II receptors. Interaction of BMP and its antagonist Noggin governs various developmental and cellular processes, including embryonic dorsal-ventral axis, induction of neural tissue, formation of joints in the skeletal system and neurogenesis in the adult brain. Noggin plays a key role in neural induction by inhibiting BMP4, along with other TGF-<math>\beta</math> signaling inhibitors such as chordin and follistatin. Mouse knockout experiments have demonstrated that noggin also plays a crucial role in bone development, joint formation, and neural tube fusion.</p> |
| Predicted N Terminal | Gln 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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|                       |                                                                                                                                                                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Form</b>           | Lyophilized from sterile PBS, pH 7.4.                                                                                                                                                                                                                        |
| <b>Bio-activity</b>   | Measured by its ability to inhibit BMP4-induced alkaline phosphatase production by MC3T3E1 mouse preosteoblast cells. The ED50 for this effect is 10-80 ng/mL.                                                                                               |
| <b>Molecular Mass</b> | The recombinant human NOG consists of 205 amino acids and predicts a molecular mass of 23.1 kDa.                                                                                                                                                             |
| <b>Endotoxin</b>      | <1.0 EU per µg protein as determined by the LAL method.                                                                                                                                                                                                      |
| <b>Purity</b>         | >95% as determined by SDS-PAGE.                                                                                                                                                                                                                              |
| <b>Stability</b>      | Samples are stable for up to twelve months from date of receipt at -20 to -80 centigrade.                                                                                                                                                                    |
| <b>Storage</b>        | Store it under sterile conditions at -20 to -80 centigrade. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.                                                                                          |
| <b>Shipping</b>       | In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature.<br>Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise. |

## GENE INFORMATION

|                        |                             |
|------------------------|-----------------------------|
| <b>Gene Name</b>       | NOG                         |
| <b>Official Symbol</b> | NOG                         |
| <b>Synonyms</b>        | SYM1; SYNS1; SYNS1A; Noggin |

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**Gene ID** 9241

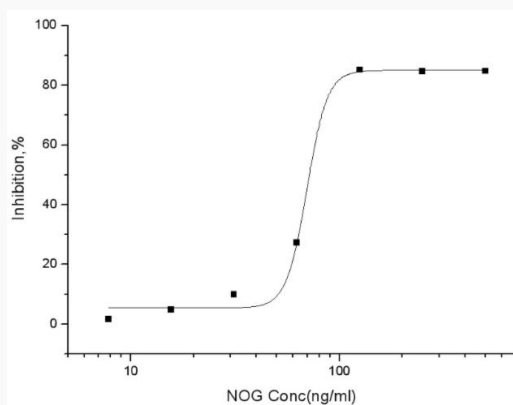
**mRNA Refseq** NM\_005450.6

**Protein Refseq** NP\_005441.1

**MIM** 602991

**UniProt ID** Q13253

#### Activity of NOG-204H



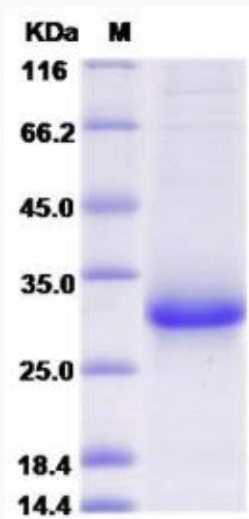
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SDS-PAGE of NOG-  
204H



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