

**Recombinant Murine NOGGIN  
(rmNOGGIN)  
Catalog Number: 128-09**

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| <b>Description</b>         | Noggin belongs to a group of diffusible proteins which bind to ligands of the TGF- $\beta$ family and regulate their activity by inhibiting their access to signaling receptors. The interplay between TGF- $\beta$ ligands and their natural antagonists has major biological significance during development processes, in which cellular response can vary considerably depending upon the local concentration of the signaling molecule. Noggin was originally identified as a BMP-4 antagonist whose action is critical for proper formation of the head and other dorsal structures. Consequently, Noggin has been shown to modulate the activities of other BMPs including BMP-2,-7,-13, and -14. Targeted deletion of Noggin in mice results in prenatal death and recessive phenotype displaying a severely malformed skeletal system. Conversely, transgenic mice over-expressing Noggin in mature osteoblasts display impaired osteoblastic differentiation, reduced bone formation, and severe osteoporosis. The amino acid sequence of human noggin is highly homologous to that of <i>Xenopus</i> , rat and mouse. |
| <b>Synonyms</b>            | RP23-205A9.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>AA Sequence</b>         | MQHYLHIRPA PSDNLPLVDL IEHPDPIFDP KEKDLNETLL RSLLGGHYDP<br>GFMATSPPED RPPGGGGPAG GAEDLAELDQ LLRQRPSGAM PSEIKGLEFS<br>EGLAQGKKQR LSKKLRRKLQ MWLWSQTFCP VLYAWNDLGS RFWPRYVKVG<br>SCFSKRSCSV PEGMVCKPSK SVHLTVLRWR CQRRGGQRCG WIPIQYPIIS ECKCSC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Source</b>              | <i>Escherichia coli</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Molecular Weight</b>    | Approximately 46.4 kDa disulfide-linked homodimer consisting of two 206 amino acid polypeptide chains.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Purity</b>              | >95% by SDS-PAGE and HPLC analyses.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Biological Activity</b> | Fully biologically active. The ED <sub>50</sub> is 1-2ng/ml, as determined by its ability to inhibit 5ng/ml of BMP4-induced alkaline phosphatase production in ATDC-5 chondrogenic cells.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Physical Appearance</b> | White lyophilized powder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Formulation</b>         | Lyophilized from a 0.2 $\mu$ m filtered concentrated solution in 30% acetonitrile, 0.1% TFA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Endotoxin</b>           | < 1EU/ $\mu$ g of growth factor as determined by LAL method.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Reconstitution</b>      | Reconstitute in 10mM HAc to a concentration of 0.1-1.0 mg/mL.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Storage</b>             | Store at -20°C after receiving. Upon reconstitution, store at 2-8°C for up to one week. For maximal stability, aliquot and store at -20°C. Avoid repeated freeze/ thaw cycles.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Usage</b>               | This product is for research use only. It is not approved for use in humans, animals, or <i>in vitro</i> diagnostic procedures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |