



# Recombinant Protein Technical Manual

## Recombinant Human Noggin/NOG Protein (aa 1-232, Fc Tag)(Active)

RPES4959

### Product Data:

**Product SKU:** RPES4959

**Size:** 50µg

**Species:** Human

**Expression host:** HEK293 Cells

**Uniprot:** NP\_005441.1

### Protein Information:

**Molecular Mass:** 49.8 kDa

**AP Molecular Mass:** 58-62 kDa

**Tag:** C-Fc

**Bio-activity:** 1. Measured by its ability to inhibit BMP2-induced alkaline phosphatase production by MC3T3-E1 cells. The ED50 for this effect is typically 1.5-2.0 µg /mL in the presence of 0.25-0.5 µg/mL of BMP-2.2. Measured by its ability to inhibit BMP4-induced alkaline phosphatase production by MC3T3-E1 cells. The ED50 for this effect is typically 0.1-0.6 µg/mL in the presence of 50 ng/mL of hBMP4.

**Purity:** > 95 % as determined by reducing SDS-PAGE.

**Endotoxin:** < 1.0 EU per µg as determined by the LAL method.

**Storage:** Lyophilized proteins are stable for up to 12 months when stored at -20 to -80°C. Reconstituted protein solution can be stored at 4-8°C for 2-7 days. Aliquots of reconstituted samples are stable at < -20°C for 3 months.

**Shipping:** This product is provided as lyophilized powder which is shipped with ice packs.

**Formulation:** Lyophilized from sterile 100mM Glycine, 10mM NaCl, 50mM Tris, pH 7.5

**Reconstitution:** Please refer to the printed manual for detailed information.

**Application:**

**Synonyms:** Noggin;SYM1;SYNS1

## Immunogen Information:

**Sequence:** Met 1-Cys 232

## Background:

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- $\beta$  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.