

## Product Specification Sheet

### NOGGIN Antibodies

Cat. # NOGN11-P	Human/Mouse Noggin Control Peptide	<b>SIZE:</b> 100 ug
Cat. # NOGN11-A	Rabbit Anti-Human/Mouse Noggin IgG (aff pure)	<b>SIZE:</b> 100 ug
<b>Cat. NOGN11-C</b>	<b>Human Recombinant Noggin purified protein WB +ve control</b>	<b>SIZE:</b> 100 ul

Cell-cell communication is mediated by secreted proteins such as Notch, Hedgehog, Wingless, Fibroblast Growth Factor (FGF), Epidermal Growth Factor (EGF) and Transforming Growth Factor-beta (TGF-beta) and their respective cell surface receptors. The TGF-beta superfamily includes TGF-beta, Activin, Nodal, Mullerian inhibiting substance (MIS), growth and differentiation factor (GDF) and bone morphogenetic proteins (BMPs). BMPs have been implicated in limb growth and patterning. The joints are formed after initial cartilage condensation followed by cell death and cavitation. The BMPs function by binding to a receptor complex that is found on all normal cells and is composed of type-I and -II receptors. BMP activities are modulated through gene expression, protein processing and by interaction with antagonists. The interplay between BMPs and their antagonists governs developmental and cellular processes as diverse as establishment of the embryonic dorsal-ventral axis, induction of neuronal tissue, formation of joints in the skeletal system and the neurogenesis in the adult brain. The BMP antagonists include the Differential screening-selected gene Aberrant in Neuroblastoma (DAN) family members (DAN, Cerberus, Gremlin), Chordin, Noggin and SOG. Noggin inhibits BMP signaling by blocking the molecular interfaces of the binding epitopes for both type-I and -II receptors.

Noggin is a homodimer (~32kDa) of two monomeric units linked together by a disulfide bond. The monomeric precursor (232aa, human and mouse) is encoded by NOG gene, mapped at human chromosome 17. The mature protein (28-232aa) is secreted as a glycosylated dimer which binds to BMPs including BMP-2, -4 and -7. The structure of Noggin is very similar to BMP-7. Mutation in Noggin gene leads to skeletal dysplasias characterized by joint fusions.

#### Source of Antigen and Antibodies

<b>Antigen</b>	15aa peptide of <b>Human/Mouse Noggin (1); Designated (NOGN11-P or control peptide)</b> . epitope location ~ N-terminus
<b>Ab Host/type</b>	Rabbit, polyclonal Aff pure IgG ( <b>cat # NOGN11-A</b> ) purified over antigen-agarose column
<b>2-ab</b>	<b>Goat Anti-rabbit IgG-HRP</b> cat # 20320 (AP, biotin, FITC conjugates also available)
<b>-ve control IgG</b>	<b># 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control</b>

Human recombinant noggin protein was expressed in *E.coli* and purified to >98% by SDS-PAGE. The purified protein is of ~23.1 kDa non-disulphide-linked homodimer consisting of 206 amino acid residues. Purified **recombinant noggin protein for Western blot +ve control (#NOGN11-C)** is supplied in SDS-PAGE sample buffer. Load 10 ul/lane of #NOGN11-C (human noggin) for good visibility with antibody Cat # NOGN11-A. Store at -20oC in suitable size aliquots. SDS may crystallize in cold conditions. It should redissolve by warming before taking it from the stock. It should be heated once prior to loading on gels.

#### Form & Storage of Antibodies/Peptide Control

##### Affinity pure IgG

100 ug/100ul solution lyophilized powder  
Supplied in **Buffer:** PBS+0.1% BSA

**Reconstitute powder** in PBS at 1mg/ml

##### Control/blocking peptide

100 ug/100 ul solution lyophilized powder  
Supplied in **Buffer:** PBS pH 7.5,

**Reconstitute powder** in PBS at 1 mg/ml.

##### Storage

**Short-term:** unopened, undiluted liquid vials at -20oC and powder at 4oC or -20oC..

**Long-term:** at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -20oC or below.

**Shipping:** 4oC for solutions and room temp for powder.

#### Recommended Usage

**Western Blotting** (1-10 ug/ml for affinity pure antibody using ECL technique). The antibody (**cat # NOGN11-A**) will recognize ~32 kDa Noggin (human and mouse) under non-reducing conditions.

**ELISA:** Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.5-1 ug/ml for affinity pure).

**Histochemistry & Immunofluorescence:** Not tested.

#### Specificity & Cross-reactivity

Mouse **NOGN11-P** control peptide is 100% conserved in human and Mouse Noggin proteins. Antibody (**cat # NOGN11-A**) cross-reactivity in various species is not known. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at the web site).

**General References:** (1) Groppe J et al (2002) Nature 420, 636; Wrana J (2002) Nature 420, 613; Zimmerman LB et al (1996) Cell 86, 599; Smith WC et al (1993) Nature 361, 547; Bachiller, D et al (2000) Nature 403, 658; Valenzuela, DM (1995) J Neurosci 15, 6077.

*\*This product is for In vitro research use only.*

NOGN11-A-P

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