

# Noggin (S-15): sc-31578

## BACKGROUND

Genetic differentiation of the vertebrate somite necessitates a balance of inductive signals and antagonists. Noggin is a secreted protein that binds and inactivates members of the transforming growth factor- $\beta$  (TGF $\beta$ ) superfamily of signaling proteins, such as bone morphogenetic proteins-2, 4, 7 (BMP2, BMP4, BMP7). Inhibition of BMP signaling by axially secreted Noggin mediates normal vertebrate skeletogenesis and patterning of the neural tube and somite. Spatially, Noggin may effectively antagonize BMP activity by efficiently diffusing through extracellular matrices, thereby creating morphogenic gradients. Mice embryos that are homozygous null for Noggin, a lethal genotype, display stubby, continuous limbs with lack of joints in the paws and an array of other developmental defects.

## REFERENCES

1. Valenzuela, D.M., et al. 1995. Identification of mammalian Noggin and its expression in the adult nervous system. *J. Neurosci.* 15: 6077-6084.
2. Zimmerman, L.B., et al. 1996. The Spemann organizer signal Noggin binds and inactivates bone morphogenetic protein 4. *Cell* 86: 599-606.
3. McMahon, J.A., et al. 1998. Noggin-mediated antagonism of BMP signaling is required for growth and patterning of the neural tube and somite. *Genes Dev.* 12: 1438-1452.
4. Gong, Y., et al. 1999. Heterozygous mutations in the gene encoding Noggin affect human joint morphogenesis. *Nat. Genet.* 21: 302-334.

## CHROMOSOMAL LOCATION

Genetic locus: NOG (human) mapping to 17q22; Nog (mouse) mapping to 11 C.

## SOURCE

Noggin (S-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Noggin of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31578 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## APPLICATIONS

Noggin (S-15) is recommended for detection of Noggin of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

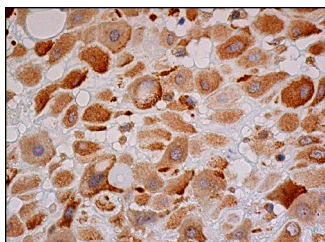
Noggin (S-15) is also recommended for detection of Noggin in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Noggin siRNA (h): sc-42138, Noggin siRNA (m): sc-42139, Noggin shRNA Plasmid (h): sc-42138-SH, Noggin shRNA Plasmid (m): sc-42139-SH, Noggin shRNA (h) Lentiviral Particles: sc-42138-V and Noggin shRNA (m) Lentiviral Particles: sc-42139-V.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



Noggin (S-15): sc-31578. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic staining of decidual cells.

## SELECT PRODUCT CITATIONS

1. Lassová, L., et al. 2009. Thyroid hormone treatment of cultured chondrocytes mimics *in vivo* stimulation of collagen X mRNA by increasing BMP 4 expression. *J. Cell. Physiol.* 219: 595-605.

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Try **Noggin (2C10): sc-293439**, our highly recommended monoclonal alternative to Noggin (S-15).