

# SEMA4A (V-12): sc-46258

## BACKGROUND

Semaphorins are a family of cell surface and secreted proteins that are conserved from insects to humans. Members of this family of proteins are approximately 750 amino acids in length (including signal sequences) and are defined by a conserved extracellular "semaphorin" domain of approximately 500 amino acids containing 14-16 cysteines, blocks of conserved sequences and no obvious repeats. The transmembrane semaphorins are characterized by an additional 80 amino acid transmembrane domain and an 80-110 amino acid cytoplasmic domain. Secreted and cell-bound semaphorins chemically attract and repel the growth of neural axons, guiding the development of intricate networks of neural tissue. Semaphorin 4A (SEMA4A), also designated semaphorin B, is a type I membrane protein. The SEMA4A gene encoding the protein localizes to chromosome 1q22. SEMA4A provides signals to specify territories inaccessible for growing neurons, inhibiting axonal extension.

## REFERENCES

- Kolodkin, A.L., Matthes, D.J. and Goodman, C.S. 1993. The semaphorin genes encode a family of transmembrane and secreted growth cone guidance molecules. *Cell* 75: 1389-1399.
- Puschel, A.W., Adams, R.H. and Betz, H. 1995. Murine semaphorin D/collapsin is a member of a diverse gene family and creates domains inhibitory for axonal extension. *Neuron* 14: 941-948.
- Dodd, J. and Schuchardt, A. 1995. Axon guidance: a compelling case for repelling growth cones. *Cell* 81: 471-474.
- Matthes, D.J., Sink, H., Kolodkin, A.L. and Goodman, C.S. 1995. Semaphorin II can function as a selective inhibitor of specific synaptic arborizations. *Cell* 81: 631-639.
- Messersmith, E.K., Leonardo, E.D., Shatz, C.J., Tessier-Lavigne, M., Goodman, C.S. and Kolodkin, A.L. 1995. Semaphorin III can function as a selective chemorepellent to pattern sensory projections in the spinal cord. *Neuron* 14: 949-959.
- Wright, D.E., White, F.A., Gerfen, R.W., Silos-Santiago, I. and Snider, W.D. 1995. The guidance molecule semaphorin III is expressed in regions of spinal cord and periphery avoided by growing sensory axons. *J. Comp. Neurol.* 361: 321-333.
- SWISS-PROT/TrEMBL (Q9H3S1). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

## CHROMOSOMAL LOCATION

Genetic locus: SEMA4A (human) mapping to 1q22; Sema4a (mouse) mapping to 3 F1.

## SOURCE

SEMA4A (V-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an extracellular domain of SEMA4A of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-46258 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

SEMA4A (V-12) is recommended for detection of SEMA4A of human and, to a lesser extent, mouse and rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

SEMA4A (V-12) is also recommended for detection of SEMA4A in additional species, including canine.

Suitable for use as control antibody for SEMA4A siRNA (h): sc-44383, SEMA4A siRNA (m): sc-44384, SEMA4A shRNA Plasmid (h): sc-44383-SH, SEMA4A shRNA Plasmid (m): sc-44384-SH, SEMA4A shRNA (h) Lentiviral Particles: sc-44383-V and SEMA4A shRNA (m) Lentiviral Particles: sc-44384-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.

## STORAGE

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

## PROTOCOLS

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