

SEMA3D (K-15): sc-67943

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. Secreted and cell-bound semaphorins chemically attract and repel the growth of neural axons, guiding the development of intricate networks of neural tissue. SEMA3D (semaphorin 3D), also known as coll-2 or Sema-Z2, is a 777 amino acid secreted protein that belongs to the semaphorin family and participates in axon-axon interactions and neural crest activity. SEMA3D binds neuropilin and is able to induce the collapse and paralysis of neuronal growth cones, as well as act to repel specific neuronal populations. SEMA3D contains one immunoglobulin-like (Ig-like) domain, one PSI domain and one semaphorin domain.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609907. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
2. Liu, Y., Berndt, J., Su, F., Tawarayama, H., Shoji, W., Kuwada, J.Y. and Halloran, M.C. 2004. Semaphorin 3D guides retinal axons along the dorso-ventral axis of the tectum. *J. Neurosci.* 24: 310-318.
3. Wolman, M.A., Liu, Y., Tawarayama, H., Shoji, W. and Halloran, M.C. 2004. Repulsion and attraction of axons by Semaphorin 3D are mediated by different neuropilins *in vivo*. *J. Neurosci.* 24: 8428-8435.
4. Jin, Z., Chau, M.D. and Bao, Z.Z. 2006. Sema 3D, Sema 3F, and Sema 5A are expressed in overlapping and distinct patterns in chick embryonic heart. *Dev. Dyn.* 235: 163-169.
5. Bao, Z.Z. and Jin, Z. 2006. Sema 3D and Sema 7A have distinct expression patterns in chick embryonic development. *Dev. Dyn.* 235: 2282-2289.
6. Sakai, J.A. and Halloran, M.C. 2006. Semaphorin 3D guides laterality of retinal ganglion cell projections in zebrafish. *Development* 133: 1035-1044.

CHROMOSOMAL LOCATION

Genetic locus: SEMA3D (human) mapping to 7q21.11; Sema3d (mouse) mapping to 5 A1.

SOURCE

SEMA3D (K-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of SEMA3D of human origin.

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-67943 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SEMA3D (K-15) is recommended for detection of SEMA3D precursor 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

SEMA3D (K-15) is also recommended for detection of SEMA3D precursor in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for SEMA3D siRNA (h): sc-62992, SEMA3D shRNA Plasmid (h): sc-62992-SH and SEMA3D shRNA (h) Lentiviral Particles: sc-62992-V.

Molecular Weight of SEMA3D: 90 kDa.

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.

SELECT PRODUCT CITATIONS

1. Takahashi, K., Ishida, M. and Takahashi, H. 2009. Expression of SEMA3D in subsets of neurons in the developing dorsal root ganglia of the rat. *Neurosci. Lett.* 455: 17-21.
2. Takahashi, K., Tomizawa, K., Ishida, M., Hirokawa, K. and Takahashi, H. 2009. Identification and tissue-specific expression of a novel isoform of Semaphorin 3D. *Biochim. Biophys. Acta* 1790: 395-400.

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 or our catalog for detailed protocols and support products.


 MONOS
Satisfaction
Guaranteed

Try **SEMA (A-12): sc-74554**, our highly recommended monoclonal alternative to SEMA3D (K-15). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **SEMA (A-12): sc-74554**.