

# SEMA6B (H-71): sc-292852

## BACKGROUND

Semaphorins are a family of cell surface and secreted proteins involved in neural development that are conserved from insects to humans. Members of this family 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. SEMA6B, also known as SEMA Z, is a single pass type-I transmembrane protein highly expressed in adult brain and heart. It contains a proline-rich cytoplasmic domain with SH3 domain binding sites. SEMA6B functions as a repellent for sympathetic ganglion axons and suppresses neurite outgrowth. This activity is propagated through its receptor, plexin-A4. In addition, SEMA6B may play a role in tumor progression.

## REFERENCES

1. Kikuchi, K., Ishida, H. and Kimura, T. 1998. Molecular cloning of a novel member of semaphorin family genes, semaphorin Z. *Brain Res. Mol. Brain Res.* 51: 229-237.
2. Eckhardt, F., Behar, O., Calautti, E., Yonezawa, K., Nishimoto, I. and Fishman, M.C. 1998. A novel transmembrane semaphorin can bind c-src. *Mol. Cell. Neurosci.* 9: 409-419.
3. Correa, R. G., Sasahara, R. M., Bengtson, M. H., Katayama, M. L., Salim, A. C., Brentani, M. M., Sogayar, M. C., de Souza, S. J. and Simpson, A. J. 2001. Human semaphorin 6B [(HSA)SEMA6B], a novel human class 6 semaphorin gene: alternative splicing and all-*trans*-retinoic acid-dependent downregulation in glioblastoma cell lines. *Genomics* 73: 343-348.
4. Qu, X., Wei, H., Zhai, Y., Que, H., Chen, Q., Tang, F., Wu, Y., Xing, G., Zhu, Y., Liu, S., Fan, M. and He, F. 2002. Identification, characterization, and functional study of the two novel human members of the semaphorin gene family. *J. Biol. Chem.* 277: 35574-35585.
5. Collet, P., Domenjoud, L., Devignes, M. D., Murad, H., Schohn, H. and Dauca, M. 2004. The human semaphorin 6B gene is down regulated by PPARs. *Genomics* 83: 1141-1150.
6. Chedotal, A., Kerjan, G. and Moreau-Fauvarque, C. 2005. The brain within the tumor: new roles for axon guidance molecules in cancers. *Cell Death Differ.* 12: 1044-1056.
7. Murad, H., Collet, P., Huin-Schohn, C., Al-Makdissy, N., Kerjan, G., Chedotal, A., Donner, M., Devignes, M. D., Becuwe, P., Schohn, H., Domenjoud, L. and Dauca, M. 2006. Effects of PPAR and RXR ligands in semaphorin 6B gene expression of human MCF-7 breast cancer cells. *Int. J. Oncol.* 28: 977-984.
8. Yoshida, Y., Han, B., Mendelsohn, M. and Jessell, T.M. 2006. PlexinA1 signaling directs the segregation of proprioceptive sensory axons in the developing spinal cord. *Neuron* 52: 775-788.

## RESEARCH USE

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

## CHROMOSOMAL LOCATION

Genetic locus: SEMA6B (human) mapping to 19p13.3; Sema6b (mouse) mapping to 17 D.

## SOURCE

SEMA6B (H-71) is a rabbit polyclonal antibody raised against amino acids 48-118 mapping near the N-terminus of SEMA6B of human origin.

## APPLICATIONS

SEMA6B (H-71) is recommended for detection of SEMA6B of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

SEMA6B (H-71) is also recommended for detection of SEMA6B in additional species, including bovine.

Suitable for use as control antibody for SEMA6B siRNA (h): sc-63006, SEMA6B siRNA (m): sc-63007, SEMA6B shRNA Plasmid (h): sc-63006-SH, SEMA6B shRNA Plasmid (m): sc-63007-SH, SEMA6B shRNA (h) Lentiviral Particles: sc-63006-V and SEMA6B shRNA (m) Lentiviral Particles: sc-63007-V.

Molecular Weight of SEMA6B: 110 kDa.

Molecular Weight of SEMA6Ba isoform: 73 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## PRODUCT

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

## 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.