

## DESCRIPTION

|                           |                                                                                                                                                                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b> | Human/Mouse                                                                                                                                                                                                                                                                 |
| <b>Specificity</b>        | Detects human and mouse Semaphorin 6B in direct ELISAs and Western blots. In direct ELISAs, approximately 15% cross-reactivity with recombinant human (rh) Semaphorin 6C is observed, 5% cross-reactivity with rhSemaphorin 6D is observed.                                 |
| <b>Source</b>             | Polyclonal Goat IgG                                                                                                                                                                                                                                                         |
| <b>Purification</b>       | Antigen Affinity-purified                                                                                                                                                                                                                                                   |
| <b>Immunogen</b>          | Mouse myeloma cell line NS0-derived recombinant human Semaphorin 6B<br>Leu26-Ser603<br>Accession # Q9H3T3                                                                                                                                                                   |
| <b>Conjugate</b>          | Alexa Fluor 405<br>Excitation Wavelength: 405 nm<br>Emission Wavelength: 421 nm                                                                                                                                                                                             |
| <b>Formulation</b>        | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide<br><br>*Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |

## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

|                             |                                                                        |
|-----------------------------|------------------------------------------------------------------------|
| <b>Western Blot</b>         | Optimal dilution of this antibody should be experimentally determined. |
| <b>Immunohistochemistry</b> | Optimal dilution of this antibody should be experimentally determined. |

## PREPARATION AND STORAGE

|                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Shipping</b>                | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| <b>Stability &amp; Storage</b> | Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied                          |

## BACKGROUND

Semaphorin 6B (Sema6B) is a 120 kDa member of the Semaphorin family of axon guidance molecules (1-4). The four known Class 6 semaphorins are type I transmembrane glycoproteins with Sema domains but without other domains, making them most like Class 1 invertebrate semaphorins in structure (1-4). Amino acid (aa) identity of Class 6 semaphorins is around 40% overall, but 53-64% within the Sema domain. Sema6B is expressed developmentally in subregions of the nervous system and muscle, and at low levels in most adult tissues (3, 4). Human Sema6B cDNA encodes a 25 aa signal sequence, a 579 aa extracellular domain (ECD) including the Sema domain, a 20 aa transmembrane sequence and a 263 aa cytoplasmic portion. A cytoplasmic proline-rich sequence interacts with the SH3 domain of the c-src signaling protein (4). Full-length Sema6B is thought to form disulfide-linked homodimers (4). Alternate exon splicing creates a 492 aa (presumably) secreted form (Sema6B.1), and a 657 aa form with a shortened cytoplasmic tail (Sema6B.2) (3). Human Sema6B ECD shows 94%, 94%, 96% and 89% aa identity with corresponding mouse, rat, bovine and canine sequences, respectively. Crystal structures of semaphorins reveal that the 500 aa Sema domain forms an integrin-like seven-blade  $\beta$ -propeller structure stabilized by 14 conserved cysteine residues (5). Sema6B is highly expressed in some glioblastoma and breast cancer cell lines. All-trans retinoic acid slows cancer cell growth and down-regulates Sema6B expression, probably via dimerization with peroxisome proliferator-activated receptors (PPAR) that have a response element on the Sema6B gene (3, 6, 7). Semaphorins transduce signals through transmembrane plexins, either directly, or by binding associated neuropilin receptors. Plexin-A4 binds Sema6A (high affinity) and 6B (low affinity) and mediates sympathetic ganglion axon-repulsion, independent of neuropilin-1 (8).

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