

DESCRIPTION

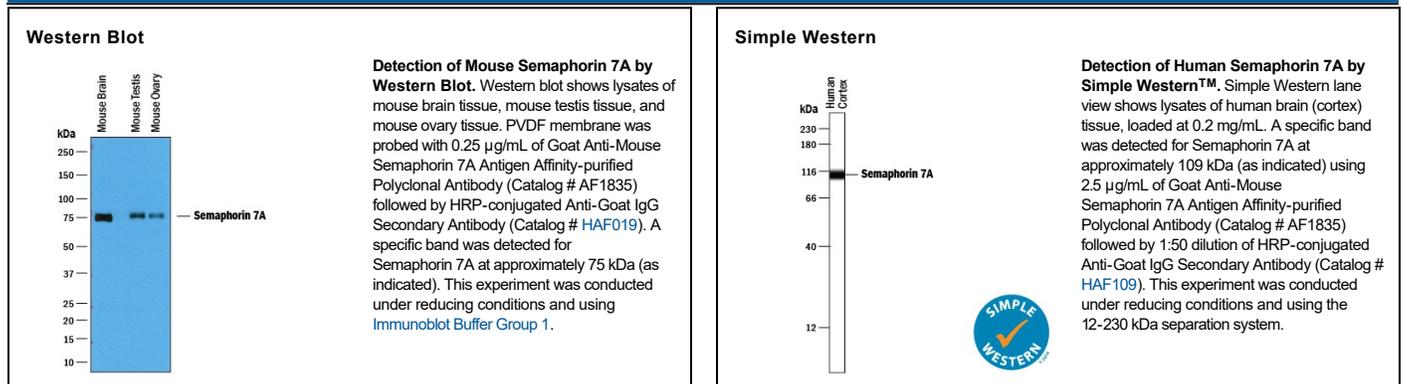
Species Reactivity	Mouse
Specificity	Detects mouse Semaphorin 7A in direct ELISAs and Western blots. In these formats, less than 1% cross-reactivity with recombinant mouse (rm) Semaphorin 3C, rmSemaphorin 3E, rmSemaphorin 3F, rmSemaphorin 6A, rmSemaphorin 6B, rmSemaphorin 6C, recombinant human (rh) Semaphorin 3A, rhSemaphorin 3B, and rhSemaphorin 6D is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse Semaphorin 7A Gln45-Ala646 Accession # Q9QUR8
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

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.

	Recommended Concentration	Sample
Western Blot	0.25 µg/mL	See Below
Simple Western	2.5 µg/mL	See Below

DATA



PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Semaphorin 7A (Sema7A, designated CD108, previously Sema K1 or Sema L), is an ~80 kDa membrane-anchored glycoprotein that is a member of the Semaphorin family of axon guidance molecules (1 - 4). On human erythrocytes, it is the John Milton Hagen (JMH) blood group antigen (4). Sema7A is the only known Class 7 or glycosylphosphatidylinositol (GPI)-linked semaphorin; its expression is concentrated in the brain, spleen and thymus (1 - 5). Mouse Sema7A cDNA encodes a 44 amino acid (aa) signal sequence, a 602 aa extracellular domain (ECD) including Sema and C2-type Ig-like domains, and an 18 aa propeptide/GPI membrane anchor signal sequence. Mature mouse Sema7A shares 89%, 98%, 85%, 86% and 89% aa identity with corresponding human, rat, bovine, canine and equine Sema7A, respectively. The Sema7A sema domain contains an RGD integrin interaction motif (4). Although it binds plexin-C1 in vitro and may be coexpressed with it, many of its activities depend on interaction with β 1 integrins such as α 1 β 1 (6 - 10). Sema7A signaling through the two receptors may cause opposing effects (8). Sema7A is an immune semaphorin, with expression and activity on CD4⁺CD8⁺ thymocytes, activated T cells, macrophages and microglia (2, 9 - 12). T cell Sema7A interacts with monocytic cells, stimulating their chemotaxis, production of pro-inflammatory cytokines, and dendritic differentiation (5, 6). However, on the T cells themselves, Sema7A downregulates TCR signaling by promoting TCR internalization, modulating T cell responses (9). In lung macrophages, Sema7A is induced by TGF- β and participates in TGF- β -induced lung fibrosis (12). Sema7A is also expressed on pre-osteoblasts and osteoclasts, where it promotes migration and fusion, respectively; on keratinocytes, where it promotes melanocyte spreading and dendricity; and on some neurons, for example, promoting axon outgrowth in the developing olfactory tract (8, 10, 13).

References:

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