

DESCRIPTION

Species Reactivity	Human/Mouse
Specificity	Detects mouse Semaphorin 7A in direct ELISAs and Western blots. In direct ELISAs, 100% cross-reactivity with recombinant human (rh) Semaphorin 7A is observed and no cross-reactivity with rhSemaphorin 3A, 3B, 6D, or recombinant mouse Semapho
Source	Monoclonal Rat IgG _{2B} Clone # 238906
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse Semaphorin 7A Gln45-Ala646 Accession # Q9QUR8
Conjugate	Alexa Fluor 594 Excitation Wavelength: 590 nm Emission Wavelength: 617 nm
Formulation	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide *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.

Western Blot Optimal dilution of this antibody should be experimentally determined.

PREPARATION AND STORAGE

Shipping The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

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 glycosphosphatidylinositol (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 β1 integrins such as α1β1 (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).

PRODUCT SPECIFIC NOTICES

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