

#### DESCRIPTION

|                           |                                                                                                                                                                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b> | Mouse                                                                                                                                                                                                                                                                       |
| <b>Specificity</b>        | 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, recom                       |
| <b>Source</b>             | Polyclonal Goat IgG                                                                                                                                                                                                                                                         |
| <b>Purification</b>       | Antigen Affinity-purified                                                                                                                                                                                                                                                   |
| <b>Immunogen</b>          | Mouse myeloma cell line NS0-derived recombinant mouse Semaphorin 7A<br>Gln45-Ala646<br>Accession # Q9QUR8                                                                                                                                                                   |
| <b>Conjugate</b>          | Alexa Fluor 488<br>Excitation Wavelength: 488 nm<br>Emission Wavelength: 515-545 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.

**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 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  $\beta 1$  integrins such as  $\alpha 1\beta 1$  (6 - 10). Sema7A signaling through the two receptors may cause opposing effects (8). Sema7A is an immune semaphorin, with expression and activity on CD4<sup>+</sup>CD8<sup>+</sup> 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- $\beta$  and participates in TGF- $\beta$ -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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