

## DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b>                                                                                                                                                                               | Rat                                                                                             |
| <b>Specificity</b>                                                                                                                                                                                      | Detects rat ROBO1 in direct ELISAs and Western blots.                                           |
| <b>Source</b>                                                                                                                                                                                           | Polyclonal Goat IgG                                                                             |
| <b>Purification</b>                                                                                                                                                                                     | Antigen Affinity-purified                                                                       |
| <b>Immunogen</b>                                                                                                                                                                                        | Mouse myeloma cell line NS0-derived recombinant rat ROBO1<br>Lys19-Ile560<br>Accession # O55005 |
| <b>Conjugate</b>                                                                                                                                                                                        | Alexa Fluor 647<br>Excitation Wavelength: 650 nm<br>Emission Wavelength: 668 nm                 |
| <b>Formulation</b>                                                                                                                                                                                      | 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.

|                             |                                                                        |
|-----------------------------|------------------------------------------------------------------------|
| <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

Rat ROBO1 (also DUTT1) is a 170-200 kDa member of the four molecule ROBO family of guidance molecules (1-3). The term ROBO derives from round-about, a description of the circuitous pathway axons take in the absence of a functional ROBO gene (3, 4). Rat ROBO1 is a type I transmembrane (TM) glycoprotein that is synthesized as a 1651 amino acid (aa) precursor. It contains an 18 aa signal sequence, an 879 aa extracellular domain (ECD), a 21 aa transmembrane segment, and a 733 aa cytoplasmic region (5, 6). The ECD contains five C2-type Ig-like domains (aa 68-541) and three fibronectin (FN) type III domains (aa 561-864). The cytoplasmic region contains multiple 15-20 aa long CC (conserved cytoplasmic) motifs (C0-C3) (7, 8). Rat ROBO1 is likely to have at least one isoform. Based on the human and mouse gene, rat ROBO1 will utilize an alternate start site, creating an A (long) and B (short) isoform. The difference is the presence of a 32 aa extension at the N-terminus of the mature molecule (occurs in the A form) (9-12). Based on ROBO3 studies, this extension will impact the ability of ROBO1 to bind Slit (10). Rat ROBO1 ECD is 98% and 96% aa identical to the ECD in mouse and human ROBO1, respectively. ROBO1 serves as a repulsing molecule for axons that cross the midline. Initially, ROBO3 allows outgrowing axons to traverse the midline/floorplate. Once crossed, axons express ROBO1 which deflects neurites attempting to recross to the ipsilateral side (13). The chemorepulsant activity of ROBO1 is dependent on ROBO1 binding to SLIT1/2. Inhibition of ROBO1 is likely due to ROBO1-ROBO3 heterophilic binding (10, 13-15).

## PRODUCT SPECIFIC NOTICES

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