

#### DESCRIPTION


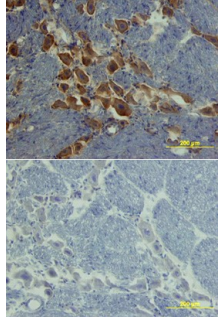
<b>Species Reactivity</b>	Rat
<b>Specificity</b>	Detects rat ROBO1 in direct ELISAs and Western blots.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant rat ROBO1 Lys19-Ile560 Accession # O55005
<b>Formulation</b>	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.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Western Blot</b>	0.1 µg/mL	Recombinant Rat ROBO1 Fc Chimera (Catalog # 1749-RB)
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below

#### DATA

<p><b>Immunohistochemistry</b></p>  <p><b>ROBO1 in Rat Embryo.</b> ROBO1 was detected in immersion fixed frozen sections of rat embryo (neural tube) using 5 µg/mL Goat Anti-Rat ROBO1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1749) overnight at 4 °C. Tissue was stained with the Anti-Goat HRP-DAB Cell &amp; Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). View our protocol for <a href="#">Chromogenic IHC Staining of Frozen Tissue Sections</a>.</p>	<p><b>Immunohistochemistry</b></p>  <p><b>ROBO1 in Rat Brain.</b> ROBO1 was detected in perfusion fixed frozen sections of rat brain using Goat Anti-Rat ROBO1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1749) at 15 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Goat HRP-DAB Cell &amp; Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). Lower panel shows a lack of labeling if primary antibodies are omitted and tissue is stained only with secondary antibody followed by incubation with detection reagents. View our protocol for <a href="#">Chromogenic IHC Staining of Frozen Tissue Sections</a>.</p>
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#### PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.2 mg/mL in sterile PBS.
<b>Shipping</b>	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
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**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).

**References:**

1. Guthrie, S. (2001) *Curr. Biol.* **11**:R300.
2. Guthrie, S. (2004) *Curr. Biol.* **14**:R632.
3. Park, K.W. *et al.* (2003) *Dev. Biol.* **261**:251.
4. Seeger, M. *et al.* (1993) *Neuron* **10**:409.
5. Kidd, T. *et al.* (1998) *Cell* **92**:205.
6. Marillat, V. *et al.* (2002) *J. Comp. Neurol.* **442**:130.
7. Bashaw, G.J. *et al.* (2000) *Cell* **101**:703.
8. Jen, J.C. *et al.* (2004) *Science* **304**:1509.
9. Clark, K. *et al.* (2002) *FEBS Lett.* **523**:12.
10. Camurri, L. *et al.* (2005) *Mol. Cell. Neurosci.* **30**:485.
11. Sundaresan, V. *et al.* (1998) *Mol. Cell. Neurosci.* **11**:29.
12. GenBank Accession # O55005.
13. Sabatier, C. *et al.* (2004) *Cell* **117**:157.
14. Liu, Z. *et al.* (2004) *Mol. Cell. Neurosci.* **26**:232.
15. Brose, K. *et al.* (1999) *Cell* **96**:795.