


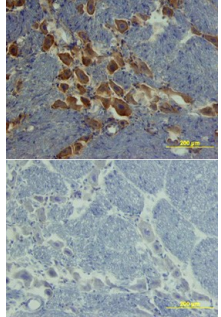
DESCRIPTION	
Species Reactivity	Rat
Specificity	Detects rat ROBO1 in direct ELISAs and Western blots.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant rat ROBO1 Lys19-Ile560 Accession # O55005
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied 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	0.1 µg/mL	Recombinant Rat ROBO1 Fc Chimera (Catalog # 1749-RB)
Immunohistochemistry	5-15 µg/mL	See Below

DATA

<p>Immunohistochemistry</p>  <p>ROBO1 in Rat Embryo. 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 & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). View our protocol for Chromogenic IHC Staining of Frozen Tissue Sections.</p>	<p>Immunohistochemistry</p>  <p>ROBO1 in Rat Brain. 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 & 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 Chromogenic IHC Staining of Frozen Tissue Sections.</p>
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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	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <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

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:

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