Rat Jagged 1 Antibody

Monoclonal Mouse IgG_1 Clone # 72017

Catalog Number: MAB599

DESCRIPTION

Species Reactivity	Rat
Specificity	Detects rat Jagged 1 in direct ELISAs and Western blots. In direct ELISAs, no cross-reactivity with recombinant human Jagged 1 is observed.
Source	Monoclonal Mouse IgG_1 Clone # 72017
Purification	Protein A or G purified from ascites
Immunogen	Mouse myeloma cell line NS0-derived recombinant rat Jagged 1 Met1-Asp1067 (Gly56Ala, Gly57-Arg59 del, Asn60Glu, Asp63Thr, Arg64Leu, Val65-Arg66-Pro67-Tyr68) Accession # Q63722
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
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	1 µg/mL	Recombinant Rat Jagged 1 Fc Chimera (Catalog # 599-JG) under non-reducing conditions only

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 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	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 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 Jagged 1 was the first ligand for Notch identified in mammals. Since both the ligands and receptors are transmembrane proteins, direct cell-cell interactions are thought to be required for activating Notch signaling. Jagged 1 is synthesized as a precursor protein that contains a 21 aa signal sequence, a 1048 aa extracellular region, a 25 aa transmembrane (TM) segment and a short, 226 aa cytoplasmic domain. The large extracellular region has a DSL (Delta, Serrate, Lag-2 consensus sequence) domain followed by 16 EGF-like repeats, and a cysteine-rich (CR) region (1). The extracellular region of rJagged 1 binds to multiple Notch receptors on the cell surface as well as in solid phase binding studies. The DSL motif is necessary for binding to Notch receptors and the EGF repeats modulate the affinity of the interaction with Notch receptors (2). Notch signaling is implicated in many developmental processes in a variety of cell types. Jagged-Notch signaling specifies cell fate, regulates pattern formation, defines boundaries between different cell types, and modulates cell proliferation and differentiation. Some specific areas where Jagged is involved include hematopoiesis, myogenesis, neurogenesis and development of the vasculature (3). For instance soluble, non-transmembrane forms of Jagged 1 influence behavior in fibroblast cells leading to characteristics exhibited by endothelial cells during angiogenesis (4). Soluble Jagged 1 is also capable of maintaining the survival and enhancing the expansion of human stem cells that are capable of reconstituting hematopoietic lineages *in vivo* (5). Furthermore, Jagged 1 is implicated in human disease: Alagille syndrome, an autosomal dominant disorder characterized by defects in liver, heart, eye, skeletal, craniofacial tissues, and kidney, is caused by mutations in Jagged 1 (6). Depending on cell types and how soluble forms of the ligand are presented, ligand binding can result in activation or inhibition of Notch signaling (7). Rat Jagged 1 shows 98% and 99% aa identity to human and mouse Jagged 1 extracellular domains respectively. Relative to the extracellular region of rat Jagged 2, the aa identity is 58%.

References:

1. Lindsell, C.E. *et al.* (1995) Cell **80**:909.
2. Shimizu, K. *et al.* (1999) J. Biol. Chem. **274**:32961.
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4. Small, D. *et al.* (2001) J. Biol. Chem. **276**:32022.
5. Karanu, F. *et al.* (2000) J. Exp. Med. **192**:1365.
6. Joutel, A. and E. Tounier-Lasserve (1998) Stem Cell & Dev. Biol. **9**:619.
7. Hicks, C. *et al.* (2002) J Neurosci. Res. **68**:655.