

**DESCRIPTION**

<b>Source</b>	Mouse myeloma cell line, NS0-derived		
	Rat Notch-1 Arg20 - Glu488 (Ala208Thr & Asp334Glu) Accession #Q07008.2	IEGRMD	Human IgG <sub>1</sub> (Pro100 - Lys330)
	N-terminus		C-terminus
<b>N-terminal Sequence Analysis</b>	Arg20		
<b>Structure / Form</b>	Disulfide-linked homodimer		
<b>Predicted Molecular Mass</b>	76 kDa (monomer)		

**SPECIFICATIONS**

<b>SDS-PAGE</b>	117 kDa, reducing conditions
<b>Activity</b>	Measured by its binding ability in a functional ELISA. Immobilized rrNotch-1/Fc Chimera can bind rrJagged-1/Fc Chimera with an apparent $K_D < 5$ nM.
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 500 µg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<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>● 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

Rat Notch-1 is a 300 kDa, type I transmembrane glycoprotein involved in a number of early-event developmental processes (1). In both vertebrates and invertebrates, Notch signaling is important for specifying cell fates and for defining boundaries between different cell types. The molecule is synthesized as a 2531 amino acid (aa) precursor that contains an 18 aa signal sequence, a 1705 aa extracellular region, a 23 aa transmembrane (TM) segment and a 785 aa cytoplasmic domain (2). The large Notch-1 extracellular domain has 36 EGF-like repeats followed by three notch/Lin-12 repeats. Of the 36 EGF-like repeats, the 11<sup>th</sup> and 12<sup>th</sup> EGF-like repeats have been shown to be both necessary and sufficient for binding the ligands Delta and Serrate, in *Drosophila* (3). The Notch-1 cytoplasmic domain contains six ankyrin repeats, a glutamine-rich domain and a PEST sequence. The Notch-1 receptor undergoes post-translational proteolytic cleavage by a furin-like enzyme to form a heterodimer of the 1635 aa ligand binding extracellular region and the 877 aa transmembrane protein (4). Upon ligand binding, additional sequential proteolysis by TNF-converting enzyme and the Presenilin-dependent  $\gamma$ -secretase results in the release of the Notch intracellular domain (NICD) which translocates into the nucleus where it functions as a transcription activator to initiate transcription of Notch-responsive genes (5). An alternative Notch signaling pathway that is mediated by the full-length form of Notch that has not been cleaved by the furin-like enzyme has also been reported (6). The rat Notch-1 extracellular domain shows 86% and 97% aa identity to human and mouse Notch-1 extracellular domains respectively. It also exhibits 56% and 50% aa identity with rat Notch-2 and Notch-3 extracellular domains, respectively.

**References:**

1. Weinmaster, G. (2000) *Curr. Opin. Genet. Dev.* **10**:363.
2. Weinmaster, G. *et al.* (1991) *Development* **113**:199.
3. Rebay, I. *et al.* (1991) *Cell* **67**:687.
4. Rogeat, F. *et al.* (1998) *Proc. Natl. Acad. Sci. USA* **95**:8108.
5. Mumm, J.S. and R. Kopan (2000) *Dev. Biol.* **228**:151.
6. Bush, G. *et al.* (2001) *Dev. Biol.* **229**:494.