

**DESCRIPTION**

**Source** Mouse myeloma cell line, NS0-derived  
Arg103-Gly308, with an N-terminal 6-His tag  
Accession # Q80WE6

**N-terminal Sequence Analysis** His

**Predicted Molecular Mass** 24 kDa

**SPECIFICATIONS**

**SDS-PAGE** 33-43 kDa, reducing conditions

**Activity** Measured by its binding ability in a functional ELISA.  
When Recombinant Rat 4-1BB/TNFRSF9 Fc Chimera (Catalog # 7968-4B) is Immobilized at 100 ng/mL (100 µL/well), the concentration of Recombinant Rat 4-1BB Ligand/TNFSF9 that produces 50% optimal binding response is approximately 1-6 ng/mL.

Measured by its ability to co-stimulate IL-2 secretion by mouse T cells in the presence of anti-CD3.  
The ED<sub>50</sub> for this effect is 5-30 ng/mL

**Endotoxin Level** <0.10 EU per 1 µg of the protein by the LAL method.

**Purity** >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**Formulation** Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

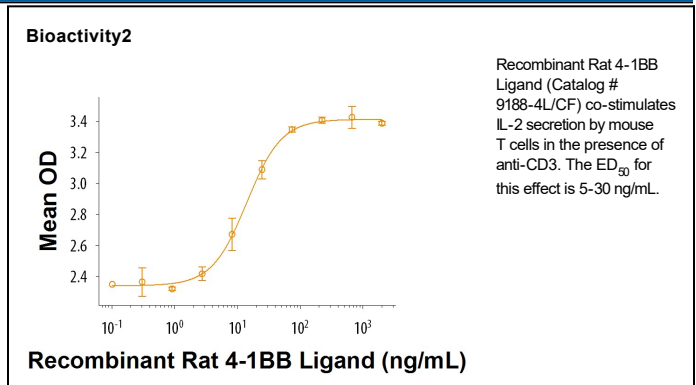
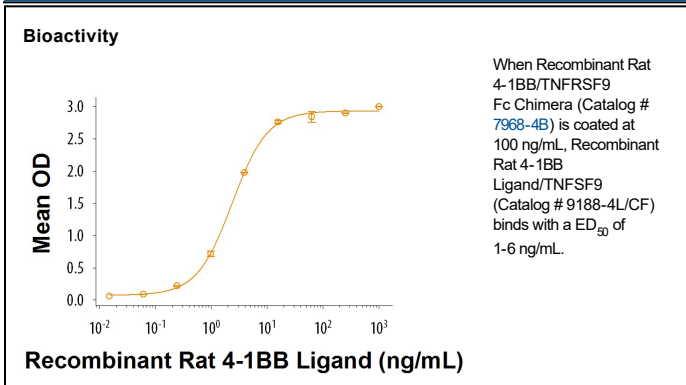
**Reconstitution** Reconstitute at 250 µg/mL in PBS.

**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**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.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

**DATA**



**BACKGROUND**

4-1BB Ligand (4-1BBL), also known as CD137L, is a type II transmembrane protein that belongs to the TNF superfamily of molecules and plays an important role in immune response activation (1). The approximately 50 kDa rat 4-1BB Ligand consists of an 82 aa cytoplasmic domain, a 21 aa transmembrane segment, and a 206 aa extracellular domain (ECD) (2). Within the ECD, rat 4-1BB Ligand shares 34% and 86% aa sequence identity with human and mouse 4-1BB Ligand, respectively. 4-1BB Ligand is expressed by activated B cells, monocytes, macrophages, dendritic cells (DC), T cells, lymphoma and multiple myeloma cells, hematopoietic stem cells, early myeloid progenitors, neurons, and astrocytes (3-9). A 26 kDa soluble form of 4-1BB Ligand can be released from the surface of activated cells and retains bioactivity (10). 4-1BB Ligand binds to 4-1BB/TNFRSF9/CD137 on activated CD4<sup>+</sup> and CD8<sup>+</sup> T cells, thymocytes, and NK cells as well as on monocytes, neutrophils, DC, and eosinophils. In response to 4-1BB Ligand binding, 4-1BB transduces a co-stimulatory signal that promotes the proliferation, activation, and survival of CD4<sup>+</sup> and CD8<sup>+</sup> T cells (4, 11, 12). T cell co-stimulation through CD28 is important for the initial T cell expansion, while 4-1BB acts later in the response (12, 13). 4-1BB Ligand function supports the survival and responsiveness of memory T cells during viral infection (13-15). Reverse signaling through 4-1BB Ligand on monocytes induces the production of inflammatory cytokines (5). On macrophages, 4-1BB Ligand associates in cis with TLR4 and enhances inflammatory cytokine production in response to TLR4 ligation (6). Its expression on early myeloid progenitor cells limits the development of dendritic cells, monocytes, and B cells (9).

**References:**

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