

## DESCRIPTION

<b>Source</b>	Mouse myeloma cell line, NS0-derived mouse PD-1 protein		
	Mouse PD-1 (Leu25-Gln167) Accession # Q02242	IEGRMD	Human IgG <sub>1</sub> (Pro100-Lys330)
	N-terminus		C-terminus
<b>N-terminal Sequence Analysis</b>	Leu25		
<b>Structure / Form</b>	Disulfide-linked homodimer		
<b>Predicted Molecular Mass</b>	43 kDa (monomer)		

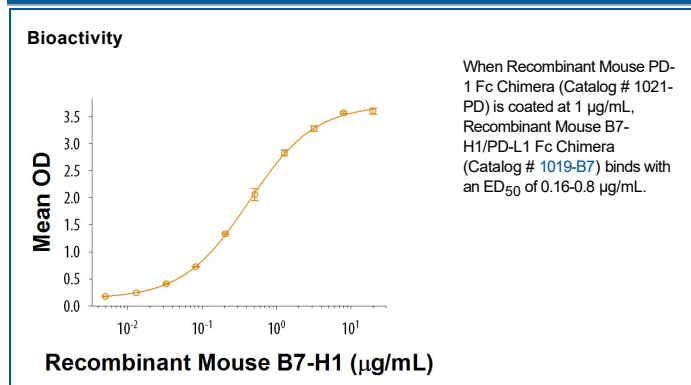
## SPECIFICATIONS

<b>SDS-PAGE</b>	66 kDa, reducing conditions
<b>Activity</b>	Measured by its binding ability in a functional ELISA. Immobilized Recombinant Mouse PD-1 Fc Chimera at 1 µg/mL (100 µL/well) can bind Recombinant Mouse B7-H1/PD-L1 Fc Chimera (Catalog # 1019-B7) with an ED <sub>50</sub> of 0.16-0.8 µg/mL.
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in Tris-HCL, NaCl and EDTA with Trehalose. See Certificate of Analysis for details.

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile water.
<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>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <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>

## DATA



**BACKGROUND**

Programmed Death-1 receptor (PD-1), also known as CD279, is type I transmembrane protein belonging to the CD28 family of immune regulatory receptors (1). Other members of this family include CD28, CTLA-4, ICOS, and BTLA (2-5). Mature mouse PD-1 consists of a 149 amino acid (aa) extracellular region (ECD) with one immunoglobulin-like V-type domain, a 21 aa transmembrane domain, and a 98 aa cytoplasmic region. The mouse PD-1 ECD shares 65% aa sequence identity with the human PD-1 ECD. The cytoplasmic tail contains two tyrosine residues that form the immunoreceptor tyrosine-based inhibitory motif (ITIM) and immunoreceptor tyrosine-based switch motif (ITSM) that are important for mediating PD-1 signaling. PD-1 acts as a monomeric receptor and interacts in a 1:1 stoichiometric ratio with its ligands PD-L1 (B7-H1) and PD-L2 (B7-DC) (6, 7). PD-1 is expressed on activated T cells, B cells, monocytes, and dendritic cells while PD-L1 expression is constitutive on the same cells and also on nonhematopoietic cells such as lung endothelial cells and hepatocytes (8, 9). Ligand of PD-L1 with PD-1 induces co-inhibitory signals on T cells promoting their apoptosis, anergy, and functional exhaustion (10). Thus, the PD-1:PD-L1 interaction is a key regulator of the threshold of immune response and peripheral immune tolerance (11). Finally, blockade of the PD-1: PD-L1 interaction by either antibodies or genetic manipulation accelerates tumor eradication and shows potential for improving cancer immunotherapy (12, 13).

**References:**

1. Ishida, Y. *et al.* (1992) *EMBO J.* **11**:3887.
2. Sharpe, A.H. and G. J. Freeman (2002) *Nat. Rev. Immunol.* **2**:116.
3. Coyle, A. and J. Gutierrez-Ramos (2001) *Nat. Immunol.* **2**:203.
4. Nishimura, H. and T. Honjo (2001) *Trends Immunol.* **22**:265.
5. Watanabe, N *et al.* (2003) *Nat. Immunol.* **4**:670.
6. Zhang, X. *et al.* (2004) *Immunity* **20**:337.
7. Lázár-Molnár, E. *et al.* (2008) *Proc. Natl. Acad. Sci. USA* **105**:10483.
8. Nishimura, H *et al.* (1996) *Int. Immunol.* **8**:773.
9. Keir, M.E. *et al.* (2008) *Annu. Rev. Immunol.* **26**:677.
10. Butte, M.J. *et al.* (2007) *Immunity* **27**:111.
11. Okazaki, T. *et al.* (2013) *Nat. Immunol.* **14**:1212.
12. Iwai, Y. *et al.* (2002) *Proc. Natl. Acad. Sci. USA* **99**: 12293.
13. Nogrady, B. (2014) *Nature* **513**:S10.