

**DESCRIPTION**

<b>Source</b>	Mouse myeloma cell line, NS0-derived human PD-1 protein		
	Human PD-1 (Leu25-Gln167) Accession # Q15116	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, biotinylated proteins via amines.		
<b>Predicted Molecular Mass</b>	43 kDa		

**SPECIFICATIONS**

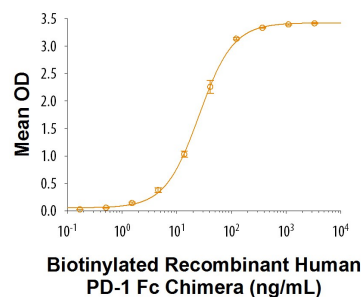
<b>SDS-PAGE</b>	60-70 kDa, reducing conditions
<b>Activity</b>	Measured by its binding ability in a functional ELISA. When Recombinant Human B7-H1/PD-L1 Fc Chimera (Catalog # 156-B7) is immobilized at 0.5 µg/mL (100 µL/well), Biotinylated Recombinant Human PD-1 Fc Chimera (Catalog # BT1086) binds with an ED <sub>50</sub> of 8-48 ng/mL.
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>95%, 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 PBS with Trehalose. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 500 µg/mL in 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>	<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>

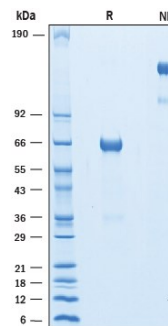
**DATA**

**Binding Activity**



When Recombinant Human B7-H1/PD-L1 Fc Chimera (Catalog # 156-B7) is coated at 0.5 µg/mL, 100 µL/well, Biotinylated Recombinant Human PD-1 Fc Chimera (Catalog # BT1086) binds with an ED<sub>50</sub> of 8-48 ng/mL.

**SDS-PAGE**



2 µg/lane of Recombinant Biotinylated Human PD-1 Fc Chimera was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 60-70 kDa and 120-140 kDa, respectively.

## 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 human PD-1 consists of a 150 amino acid (aa) extracellular region (ECD) with one immunoglobulin-like V-type domain, a 21 aa transmembrane domain, and a 97 aa cytoplasmic region. The human PD-1 ECD shares 65% aa sequence identity with the mouse 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:

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