Recombinant Mouse PD-1

Catalog Number: 9047-PD

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived mouse PD-1 protein Leu25 - Gln167, with a C-terminal 6-His tag Accession # Q02242
N-terminal Sequence Analysis	Leu25
Predicted Molecular Mass	17 kDa

SPECIFICATIONS

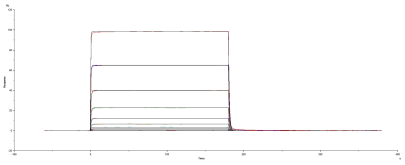
SDS-PAGE	36 - 46 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Mouse PD-1 is immobilized at 2 µg/mL (100 µL/well), the concentration of Recombinant Mouse B7-H1/PD-L1 Fc Chimera (Catalog # 1019-B7) that produces 50% of the optimal binding response is approximately 0.75-3.75 µg/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. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 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

Surface Plasmon Resonance (SPR)



Binding of Mouse PD-1 to PD-L1/B7-H1 by surface plasmon resonance (SPR). Recombinant Mouse PD-L1/B7-H1 Fc protein (Catalog # 1019-B7) was immobilized on a Biacore Sensor Chip CM5, and binding to Recombinant Mouse PD-1 His protein (Catalog # 9047-PD) was measured at a concentration range between 1.53 nM and 1.56 uM. The double-referenced sensorgram was fit to a 1:1 binding model to determine the binding kinetics and affinity, with an affinity constant of KD=0.539 uM.

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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). Ligation 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 (12-14).

References:

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