

**Synonym**

PDCD1,PD1,CD279,SLEB2

**Source**

Biotinylated Mouse PD-1 Protein, His,Avitag(PD1-M82E3) is expressed from human 293 cells (HEK293). It contains AA Leu 25 - Gln 167 (Accession # [Q02242-1](#)).

Predicted N-terminus: Leu 25

**Molecular Characterization**

PD-1(Leu 25 - Gln 167)  
Q02242 -1    Poly-his    Avi

This protein carries a polyhistidine tag at the C-terminus, followed by an Avi tag (Avitag™).

The protein has a calculated MW of 19.7 kDa. The protein migrates as 37-42 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition (SDS-PAGE) due to glycosylation.

**Labeling**

*Biotinylation of this product is performed using Avitag™ technology. Briefly, the single lysine residue in the Avitag is enzymatically labeled with biotin.*

**Protein Ratio**

Passed as determined by the HABA assay / binding ELISA.

**Purity**

&gt;95% as determined by SDS-PAGE.

&gt;95% as determined by SEC-MALS.

**Formulation**

Lyophilized from 0.22 µm filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

**Reconstitution**

Please see Certificate of Analysis for specific instructions.

*For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.*

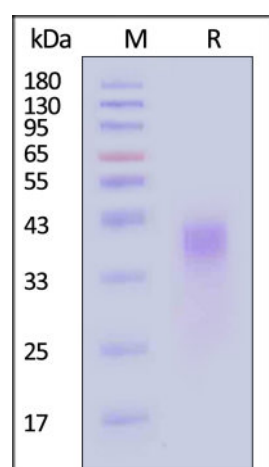
**Storage**

For long term storage, the product should be stored at lyophilized state at -20°C or lower.

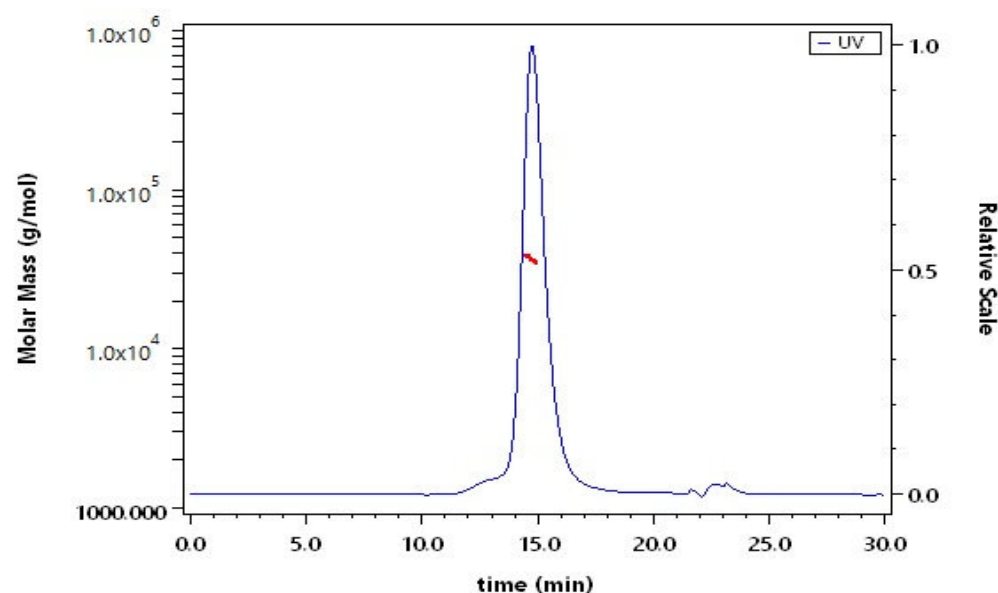
*Please avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

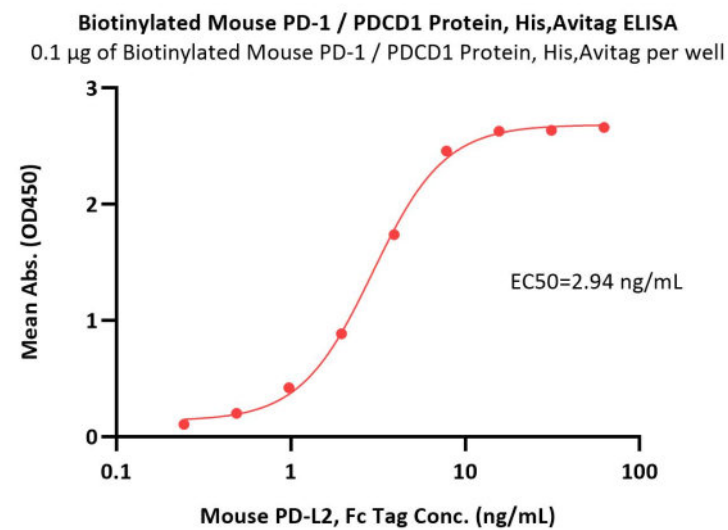
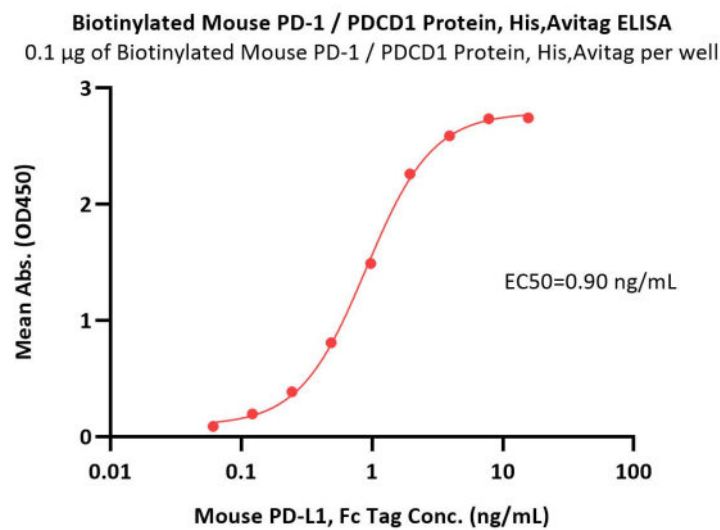
**SDS-PAGE**

Biotinylated Mouse PD-1 Protein, His,Avitag on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With [Star Ribbon Pre-stained Protein Marker](#)).

**Bioactivity-ELISA****SEC-MALS**

The purity of Biotinylated Mouse PD-1 Protein, His,Avitag (Cat. No. PD1-M82E3) is more than 95% and the molecular weight of this protein is around 30-40 kDa verified by SEC-MALS.

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Immobilized Biotinylated Mouse PD-1 / PDCD1 Protein, His,Avitag (Cat. No. PD1-M82E3) at 1 µg/mL (100 µL/well) on streptavidin precoated (STN-N5116) can bind Mouse PD-L1, Fc Tag (Cat. No. PD1-M5251) with a linear range of 0.1-2 ng/mL (QC tested).

Immobilized Biotinylated Mouse PD-1 / PDCD1 Protein, His,Avitag (Cat. No. PD1-M82E3) at 1 µg/mL (100 µL/well) on streptavidin precoated (STN-N5116) can bind Mouse PD-L2, Fc Tag (Cat. No. PD2-M5254) with a linear range of 0.1-4 ng/mL (Routinely tested).

### Background

Programmed cell death protein 1 (PD-1) is also known as CD279 and PDCD1, is a type I membrane protein and is a member of the extended CD28/CTLA-4 family of T cell regulators. PDCD1 is expressed on the surface of activated T cells, B cells, macrophages, myeloid cells and a subset of thymocytes. PD-1 has two ligands, PD-L1 and PD-L2, which are members of the B7 family. PD-L1 is expressed on almost all murine tumor cell lines, including PA1 myeloma, P815 mastocytoma, and B16 melanoma upon treatment with IFN-γ. PD-L2 expression is more restricted and is expressed mainly by DCs and a few tumor lines. PD1 inhibits the T-cell proliferation and production of related cytokines including IL-1, IL-4, IL-10 and IFN-γ by suppressing the activation and transduction of PI3K/AKT pathway. In addition, coligation of PD1 inhibits BCR-mediated signal by dephosphorylating key signal transducer. In vitro, treatment of anti-CD3 stimulated T cells with PD-L1-Ig results in reduced T cell proliferation and IFN-γ secretion. Monoclonal antibodies targeting PD-1 that boost the immune system are being developed for the treatment of cancer.

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