

**PD-1**  
**Catalog # PVGS1562****Specification**

---

**PD-1 - Product Information**

Primary Accession [Q15116](#)  
**Species**  
Human

**Sequence**  
Leu25-Gln167

**Purity**  
> 95% as analyzed by SDS-PAGE

**Endotoxin Level**  
< 0.2 EU/ µg of protein by gel clotting method

**Biological Activity**  
Immobilized PD-1,His, Human at 2.0 µg/ml can bind PD-L1 Fc Chimera, Human (Cat. No.: Z03371).Immobilized PD-1,His, Human at 0.5 µg/ml can bind Keytruda.

**Expression System**  
HEK 293

Formulation **Lyophilized from a 0.2 µm filtered solution in PBS, 5% trehalose and mannitol.**

**Reconstitution**  
It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in ddH<sub>2</sub>O or PBS up to 100 µg/ml.

**Storage & Stability**  
Upon receiving, this product remains stable for up to 6 months at lower than -70°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. For long term storage it is recommended that a carrier protein (example 0.1% BSA) be added. Avoid repeated freeze-thaw cycles.

**PD-1 - Additional Information**

**Gene ID** 5133

**Other Names**  
Programmed cell death protein 1, Protein PD-1, hPD-1, CD279, PDCD1  
{ECO:0000303|PubMed:7851902, ECO:0000312|HGNC:HGNC:8760}

**Target Background**  
Programmed death (PD-1) is an immunoinhibitory receptor that belongs to the CD28 family and is expressed on T cells, B cells, monocytes, natural killer cells, and many tumor-infiltrating lymphocytes (TILs); PD-1 is a type I membrane protein of 268 amino acids and which structure

includes an extracellular IgV domain followed by a transmembrane region and an intracellular tail. The intracellular tail contains two phosphorylation sites located in an immunoreceptor tyrosine-based inhibitory motif and an immunoreceptor tyrosine-based switch motif, which suggests that PD-1 negatively regulates TCR signals. This is consistent with binding of SHP-1 and SHP-2 phosphatases to the cytoplasmic tail of PD-1 upon ligand binding. It has 2 ligands that have been described PD-L1(B7H1) and PD-L2(B7-DC); PD-1 induction on activated T cells occurs in response to PD-L1 or L2 engagement and limits effector T-cell activity in peripheral organs and tissues during inflammation, thus preventing autoimmunity. Recombinant Human PD-1 produced in HEK293 cells is a polypeptide chain containing 149 amino acids with C-terminal 6×His. A fully biologically active molecule, rhPD-1 has a molecular mass of 30-40 kDa analyzed by reducing SDS-PAGE and is obtained by chromatographic techniques at .

## **PD-1 - Protein Information**

**Name** PDCD1 {ECO:0000303|PubMed:7851902, ECO:0000312|HGNC:HGNC:8760}

### **Function**

Inhibitory receptor on antigen activated T-cells that plays a critical role in induction and maintenance of immune tolerance to self (PubMed:<a href="http://www.uniprot.org/citations/21276005" target="\_blank">21276005</a>, PubMed:<a href="http://www.uniprot.org/citations/37208329" target="\_blank">37208329</a>). Delivers inhibitory signals upon binding to ligands CD274/PDCD1L1 and CD273/PDCD1LG2 (PubMed:<a href="http://www.uniprot.org/citations/21276005" target="\_blank">21276005</a>). Following T-cell receptor (TCR) engagement, PDCD1 associates with CD3- TCR in the immunological synapse and directly inhibits T-cell activation (By similarity). Suppresses T-cell activation through the recruitment of PTPN11/SHP-2: following ligand-binding, PDCD1 is phosphorylated within the ITSM motif, leading to the recruitment of the protein tyrosine phosphatase PTPN11/SHP-2 that mediates dephosphorylation of key TCR proximal signaling molecules, such as ZAP70, PRKCQ/PKCtheta and CD247/CD3zeta (By similarity).

### **Cellular Location**

Cell membrane; Single-pass type I membrane protein

## **PD-1 - Protocols**

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

## **PD-1 - Images**