

## Biotin Human PD-L2 (CD273) Protein (C-Fc-Avi)

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|---------------------------|---------------------------------------------------|
| <b>Catalog Number:</b>    | 813403, 813404                                    |
| <b>Size:</b>              | 25 ug, 100 ug                                     |
| <b>Target Name:</b>       | PDL2, , Butyrophilin B7-DC, CD273, PDCD1 ligand 2 |
| <b>Regulatory Status:</b> | RUO                                               |

### PRODUCT DETAILS

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| <b>Application:</b>           | ELISA, BLI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Format:</b>                | Liquid, Biotinylated                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Expression Host:</b>       | CHO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Species:</b>               | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Sources:</b>               | Recombinant Human PD-L2 (Leu20-Pro219) with C-terminus Fc-Avi-tag is expressed in CHO cell. This protein was site-specifically labeled with Biotin by BirA ligase.                                                                                                                                                                                                                                                                                                                           |
| <b>Accession Number:</b>      | Q9BQ51                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Molecular Weight:</b>      | The protein has a predicted molecular weight of 51.2 kDa. Under DTT-reducing conditions, it migrates at approximately 75 kDa on SDS-PAGE.                                                                                                                                                                                                                                                                                                                                                    |
| <b>Affinity Tag:</b>          | C-Fc-Avi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Purity:</b>                | >95% based on SDS-PAGE under reducing condition                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Formulation:</b>           | 1xPBS buffer, pH7.4, 0.22 µm filtered                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Endotoxin level:</b>       | Not tested                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Protein Concentration:</b> | 25µg size is bottled at 0.2mg/mL concentration. 100 µg size is supplied at a lot-specific concentration.                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Storage and Handling:</b>  | Briefly centrifuge the vial upon receipt. An unopened vial can be stored at 4°C for up to 2 weeks, or at -20°C or below for up to six months. The protein may be further diluted to 0.1 mg/mL using 0.22 µm-filtered PBS buffer (pH 7.4). For long-term storage, the diluted stock solution should be aliquoted and stored at ≤ -70°C to minimize freeze-thaw cycles. If additional dilution is required, carrier proteins such as FBS or BSA should be added to maintain protein stability. |
| <b>Recommended Usage:</b>     | For detection, use a secondary reagent with this product.                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### BACKGROUND INFORMATION

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CD273, also known as programmed death-ligand 2 (PD-L2) or B7-DC, is a transmembrane protein that functions as an immune checkpoint molecule regulating T cell activation and immune responses. CD273 is a member of the B7 family of costimulatory molecules and is primarily expressed on antigen-presenting cells such as dendritic cells, macrophages, and B cells, with expression upregulated during inflammation and immune activation. The protein binds to programmed cell death protein 1 (PD-1) on T cells, delivering inhibitory signals that suppress T cell proliferation, cytokine production, and effector functions. This interaction plays a

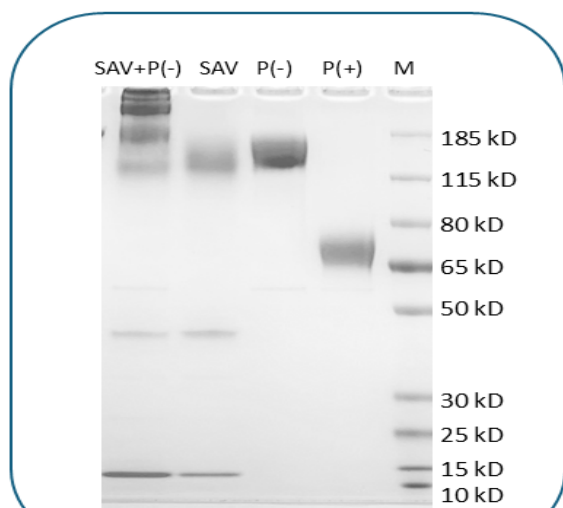
crucial role in maintaining immune homeostasis, preventing autoimmunity, and resolving inflammatory responses. PD-L2 plays a pivotal role in negative regulation of the adaptive immune response, and unlike its related molecule PD-L1 (CD274), CD273 expression is more restricted and primarily induced under specific inflammatory conditions.

Structurally, CD273 is a type I transmembrane glycoprotein of approximately 25-30 kDa belonging to the immunoglobulin superfamily. The extracellular region contains two immunoglobulin-like domains: an N-terminal IgV-like domain that mediates PD-1 binding and a membrane-proximal IgC-like domain that provides structural support. The protein also contains a single transmembrane domain and a short cytoplasmic tail. Structural studies have revealed the features that distinguish PD-L2 from PD-L1 in their interactions with PD-1. The IgV domain of CD273 interacts with PD-1 through a binding interface similar to that of PD-L1, though CD273 binds PD-1 with approximately 2-6 fold higher affinity than PD-L1. This higher binding affinity allows CD273 to effectively engage PD-1 and deliver coinhibitory signals that modulate T cell responses.

The primary ligand for CD273 is PD-1 (CD279), an inhibitory receptor expressed on activated T cells, B cells, and myeloid cells. PD-1 has two naturally occurring ligands: PD-L1 and PD-L2 (CD273), both identified over a decade ago. The CD273-PD-1 interaction delivers negative regulatory signals that attenuate immune responses. Additionally, CD273 has been reported to bind to repulsive guidance molecule b (RGMb), though the functional significance of this interaction remains under investigation. The binding of CD273 to PD-1 results in recruitment of phosphatases that inhibit T cell receptor signaling pathways, reducing T cell activation and promoting immune tolerance.

In disease contexts, CD273 plays a significant role in cancer immune evasion and is associated with patient prognosis. As an immune checkpoint molecule, PD-L2 was reported to be associated with patient outcomes and plays a pivotal role in cancer cell immune escape. Many tumors upregulate CD273 expression to suppress antitumor T cell responses, contributing to immune evasion. Elevated CD273 expression has been observed in various cancers, including Hodgkin lymphoma, mediastinal B cell lymphoma, and certain solid tumors, where it correlates with immune suppression in the tumor microenvironment. Therapeutically, the evolving landscape of PD-L2 is bringing new light to checkpoint immunotherapy. While most immune checkpoint inhibitors have focused on the PD-1/PD-L1 axis, the PD-1/PD-L2 (CD273) pathway is also being investigated as a therapeutic target. Some anti-PD-1 antibodies such as nivolumab and pembrolizumab block both PD-L1 and PD-L2 binding to PD-1, contributing to their therapeutic efficacy. Additionally, CD273 is being explored as a biomarker for predicting response to immunotherapy, and selective CD273-targeting strategies are under development to modulate immune responses in cancer and autoimmune diseases while potentially minimizing toxicity compared to broader PD-1/PD-L1 blockade.

## PRODUCT DATA



Human PD-L2 Protein (C-Fc-Avi) was biotinylated in vitro using BirA ligase. SDS-PAGE analysis under reducing (P+) and non-reducing (P-) conditions shows the protein has a purity greater than 95%. A gel shift assay using co-incubation with streptavidin indicates that the biotinylation efficiency of Human PD-L2 protein exceeds 80%.

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