www.innocyto.com

InnoCyto Inc.

15375 Barranca Pkwy, Suite I-103
Irvine, CA 92618
Email: info@innocyto.com
Phone: 1-949-418-7543

# iF647 Anti-mouse CD279 (PD-1) Antibody

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|---|---|
| **Catalog Number:** | 205005, 205006 |
| **Size:** | 25 tests, 100 tests |
| **Target Name:** | CD279, Programmed Death-1, PD 1, PDCD1, PD-1 |
| **Regulatory Status:** | RUO |

## PRODUCT DETAILS

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|---|---|
| **Clone:** | 29F.1A12 |
| **Application:** | Flow Cytometry, IHC-F |
| **Reactivity:** | Mouse |
| **Format:** | iF647 |
| **Isotype:** | Rat IgG2a |
| **Antibody Type:** | Monoclonal |
| **Formulation:** | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA |
| **Protein Concentration:** | Supplied at a lot-specific concentration. |
| **Storage&Handling:** | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze. |
| **Recommended Usage:** | For flow cytometric staining, it is recommended to use 5 uL of this reagent per 0.5-1.0 million cells in a 100 µL volume. Optimal reagent performance should be determined by titration for each specific application. iF647 has an excitation max at 656 nm and an emission max at 670 nm. |
| **Excitation Laser:** | Red Laser (633 nm) |
| **Isotype Controls:** | 303512 |
| **Antibody Family:** | Mouse Antibodies |

## BACKGROUND INFORMATION

Mouse CD279, more commonly known as programmed cell death protein 1 (PD-1), is an inhibitory immune checkpoint receptor expressed primarily on activated T cells, as well as B cells and some myeloid populations. It plays a critical role in maintaining peripheral tolerance and preventing excessive immune activation by downregulating T cell responses during chronic antigen exposure, such as infection or inflammation. PD-1 is rapidly induced following T cell receptor engagement and acts as a key regulator of immune homeostasis.

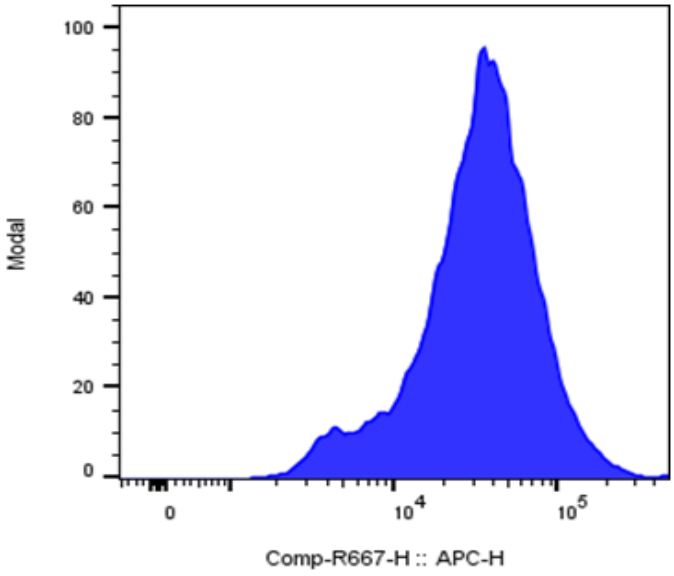
Structurally, PD-1 is a type I transmembrane protein belonging to the immunoglobulin superfamily. It contains a single extracellular IgV-like domain responsible for ligand binding, a transmembrane region, and a cytoplasmic tail with immunoreceptor tyrosine-based inhibitory (ITIM) and switch (ITSM) motifs. Upon ligand engagement, these motifs recruit phosphatases such as SHP-2, which attenuate proximal T cell receptor signaling pathways.

The primary ligands of PD-1 are PD-L1 (CD274) and PD-L2 (CD273), which are expressed on antigen-presenting cells and various non-hematopoietic tissues. Interaction of PD-1 with its ligands suppresses T cell proliferation, cytokine production, and survival, promoting an exhausted T cell phenotype during chronic immune stimulation.

PD-1 signaling is implicated in chronic infections, cancer, and autoimmune diseases. In tumors, PD-1-mediated inhibition allows cancer cells to evade immune surveillance by suppressing anti-tumor T cell activity.

Therapeutically, blockade of the PD-1/PD-L1 axis using monoclonal antibodies has revolutionized cancer immunotherapy by restoring T cell function. Conversely, enhancing PD-1 signaling may be beneficial in treating autoimmune diseases and preventing transplant rejection, making it a versatile target in immune modulation.

## PRODUCT DATA




Con A-stimulated mouse splenocytes were stained with iF647 anti-Mouse CD279 (PD-1) clone 29F.1A12 (color-filled histogram).