

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

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

### PRODUCT DETAILS

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| <b>Clone:</b>                 | 29F.1A12                                                                                                                                                                                                                                                                                    |
| <b>Application:</b>           | Flow Cytometry, IHC-F                                                                                                                                                                                                                                                                       |
| <b>Reactivity:</b>            | Mouse                                                                                                                                                                                                                                                                                       |
| <b>Format:</b>                | iF647                                                                                                                                                                                                                                                                                       |
| <b>Isotype:</b>               | Rat IgG2a                                                                                                                                                                                                                                                                                   |
| <b>Antibody Type:</b>         | Monoclonal                                                                                                                                                                                                                                                                                  |
| <b>Formulation:</b>           | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA                                                                                                                                                                                                       |
| <b>Protein Concentration:</b> | Supplied at a lot-specific concentration.                                                                                                                                                                                                                                                   |
| <b>Storage&amp;Handling:</b>  | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.                                                                                                                                                        |
| <b>Recommended Usage:</b>     | 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. |
| <b>Excitation Laser:</b>      | Red Laser (633 nm)                                                                                                                                                                                                                                                                          |
| <b>Isotype Controls:</b>      | 303512                                                                                                                                                                                                                                                                                      |
| <b>Antibody Family:</b>       | Mouse Antibodies                                                                                                                                                                                                                                                                            |

### BACKGROUND INFORMATION

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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.

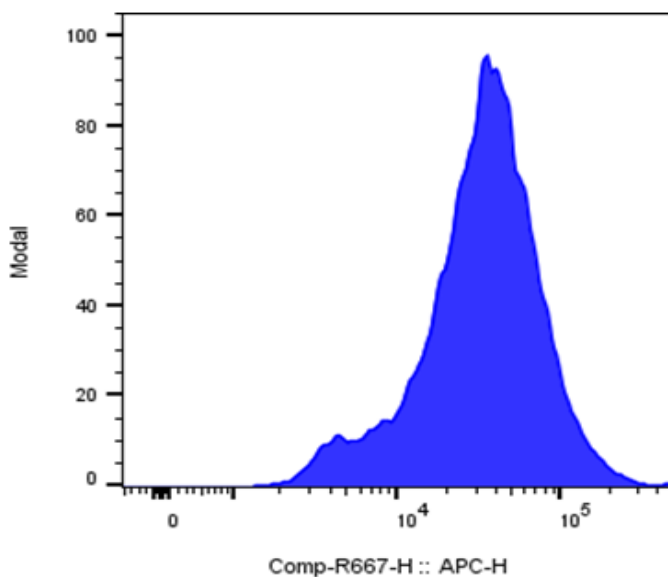
The primary ligands of PD-1 are PD-L1 (CD274) and PD-L2 (CD273), which are expressed on antigen-presenting cells and various non-hematopoietic tissues. Interaction of PD-1 with its ligands suppresses T cell proliferation, cytokine production, and survival, promoting an exhausted T cell phenotype during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

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

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