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APC/Cyanine7 Anti-Human CD279 (PD1) Antibody

Catalog Number:	101709, 101710
Size:	25 tests, 100 tests
Target Name:	CD279, PD1, PD-1
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	EH12.2H7
Application:	Flow Cytometry
Reactivity:	Human, Chimpanzee, Cynomolgus, Rhesus, Pig-tailed macaque, Marmoset
Format:	APC/Cyanine7
Isotype:	Mouse IgG1
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. APC/Cyanine7 has an excitation max at 650 nm and an emission max at 774 nm.
Excitation Laser:	Red Laser (633 nm)
Isotype Control:	301435
GeneID:	5133
RRID:	AB_3758804

BACKGROUND INFORMATION

CD279, also known as Programmed Cell Death Protein 1 (PD-1), is a crucial immune checkpoint receptor that regulates T cell activation and prevents autoimmunity. This transmembrane protein plays a pivotal role in maintaining immune homeostasis by delivering inhibitory signals that dampen excessive immune responses.

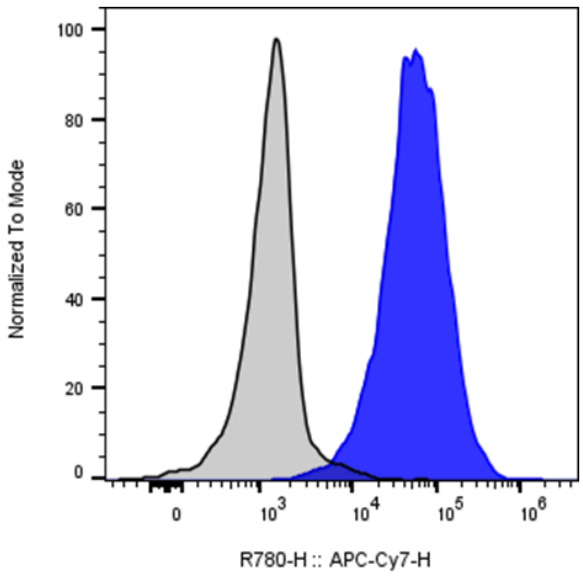
PD-1 is a type I transmembrane glycoprotein belonging to the immunoglobulin superfamily. It contains an extracellular immunoglobulin variable (IgV)-like domain, a transmembrane region, and an intracellular tail with two tyrosine-based signaling motifs: an immunoreceptor tyrosine-based inhibitory motif (ITIM) and an immunoreceptor tyrosine-based switch motif (ITSM). When engaged, these motifs recruit phosphatases that inhibit T-cell receptor signaling, effectively suppressing T-cell activation,

proliferation, and cytokine production.

PD-1 interacts with two primary ligands: PD-L1 (B7-H1/CD274) and PD-L2 (B7-DC/CD273). PD-L1 is widely expressed on various cell types, including tumor cells, antigen-presenting cells, and non-hematopoietic tissues, while PD-L2 expression is more restricted to antigen-presenting cells. These ligand-receptor interactions serve as critical brakes on immune responses. In cancer, tumor cells exploit the PD-1/PD-L1 pathway to evade immune surveillance. By upregulating PD-L1 expression, tumors effectively "turn off" infiltrating T-cells, preventing effective anti-tumor immunity. This mechanism contributes to tumor progression and immune escape across multiple cancer types.

The discovery of PD-1's role in cancer has revolutionized oncology through immune checkpoint inhibitors. Monoclonal antibodies targeting PD-1 (pembrolizumab, nivolumab) or PD-L1 (atezolizumab, durvalumab) block this inhibitory pathway, reinvigorating anti-tumor T-cell responses. These therapies have demonstrated remarkable success in treating melanoma, non-small cell lung cancer, renal cell carcinoma, and numerous other malignancies, fundamentally transforming cancer treatment paradigms and offering durable responses in previously untreatable cancers.

PRODUCT DATA



Anti-human CD3 and Anti-human CD28 stimulated Human peripheral blood lymphocytes were stained with either APC/Cyanine7 Anti-Human CD279 Clone EH12.2H7 (color-filled histogram) or an isotype control (gray histogram).

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