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In Vivo Star Anti-Mouse CD279 (PD1) Antibody

Catalog Number:	507601, 507602, 507603
Size:	1 mg, 5 mg, 25 mg
Target Name:	PD1, PD-1, PDCD1, CD279, SLEB2
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	29F.1A12
Application:	ELISA, WB, Flow cytometry, IHC, ICC, animal model study
Reactivity:	Mouse
Format:	Liquid
Product Description:	In Vivo Grade Recombinant Anti-mouse PD-1 Monoclonal Antibody
Isotype:	Rat IgG2a Kappa
Antibody Type:	Recombinant
Purity:	>95% by reducing SDS-PAGE
Endotoxin:	< 1 EU per 1 mg of the protein by the LAL method.
Storage Conditions:	4ºC
Grade:	In vivo
Recommended Usage:	This product is suitable for in vivo animal use. Optimal amounts need to be determined empirically for each experiment.
Hidden Synonyms:	InVivoMab, InVivoPlus, GoInVivo, In Vivo Gold

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.

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