Human PD-1 Antibody

Monoclonal Mouse IgG_1 Clone # 1026519

Catalog Number: MAB10866

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human PD-1 in direct ELISAs.
Source	Monoclonal Mouse IgG_1 Clone # 1026519
Purification	Protein A or G purified from cell culture supernatant
Immunogen	Synthetic peptide containing human PD-1
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

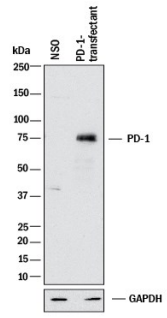
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	2 µg/mL	NS0 mouse myeloma cell line transfected with human PD-1
Flow Cytometry	0.25 µg/10^6 cells	HEK293 Human Cell Line transfected with Human PD-1 and eGFP
CyTOF-ready	Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.	

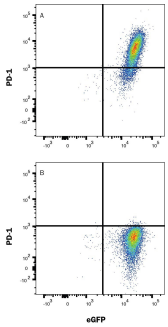
DATA

Western Blot



Detection of Human PD-1 by Western Blot. Western blot shows lysates of NS0 mouse myeloma cell line mock transfected or transfected with human PD-1. PVDF membrane was probed with 2 µg/mL of Mouse Anti-Human PD-1 Monoclonal Antibody (Catalog # MAB10866) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). A specific band was detected for PD-1 at approximately 75 kDa (as indicated). GAPDH (Catalog # 2275-PC-100) is shown as a loading control.This experiment was conducted under reducing conditions and using Western Blot Buffer Group 1.

Flow Cytometry



Detection of PD-1 in HEK293 Human Cell Line transfected with Human PD-1 and eGFP by Flow Cytometry HEK293 human embryonic kidney cell line transfected with either (A) human PD-1 or (B) irrelevant protein, and eGFP, was stained with Mouse anti-human PD-1 monoclonal antibody (Catalog # MAB10866) followed by Allophycocyanin-conjugated anti-Mouse IgG Secondary Antibody (Catalog # F0101B). Quadrant markers were set based on control antibody staining (Catalog # MAB002, data not shown). Staining was performed using our Staining Membrane-Associated Proteins protocol.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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BACKGROUND

Programmed Death-1 receptor (PD-1), also known as CD279, is type I transmembrane protein belonging to the CD28 family of immune regulatory receptors (1). Other members of this family include CD28, CTLA-4, ICOS, and BTLA (2-5). Mature human PD-1 consists of a 148 amino acid (aa) extracellular region (ECD) with one immunoglobulin-like V-type domain, a 24 aa transmembrane domain, and a 95 aa cytoplasmic region. The human PD-1 ECD shares 65% aa sequence identity with the mouse PD-1 ECD. The cytoplasmic tail contains two tyrosine residues that form the immunoreceptor tyrosine-based inhibitory motif (ITIM) and immunoreceptor tyrosine-based switch motif (ITSM) that are important for mediating PD-1 signaling. PD-1 acts as a monomeric receptor and interacts in a 1:1 stoichiometric ratio with its ligands PD-L1 (B7-H1) and PD-L2 (B7-DC) (6, 7). PD-1 is expressed on activated T cells, B cells, monocytes, and dendritic cells while PD-L1 expression is constitutive on the same cells and also on nonhematopoietic cells such as lung endothelial cells and hepatocytes (8, 9). Ligation of PD-L1 with PD-1 induces co-inhibitory signals on T cells promoting their apoptosis, anergy, and functional exhaustion (10). Thus, the PD-1: PD-L1 interaction is a key regulator of the threshold of immune response and peripheral immune tolerance (11). Finally, blockade of the PD-1: PD-L1 interaction by either antibodies or genetic manipulation accelerates tumor eradication and shows potential for improving cancer immunotherapy (12, 13, 14).

References:

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