Human PD-1 Antibody

Monoclonal Mouse IgG Clone # 1109446
Catalog Number: MAB11741

DESCRIPTION

Species Reactivity	Human
Specificity	Detects a synthetic peptide specific for human PD-1 around amino acid 40 in Direct ELISA.
Source	Monoclonal Mouse IgG Clone # 1109446
Purification	Protein A or G purified from cell culture supernatant
Immunogen	Synthetic Peptide Accession # Q15116
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose.

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	Human tonsil
Multiplex Immunofluorescence	20 µg/mL	Immersion fixed paraffin-embedded sections of human tonsil
Immunohistochemistry	3-25 µg/mL	Immersion fixed paraffin-embedded sections of human tonsil and lymph node

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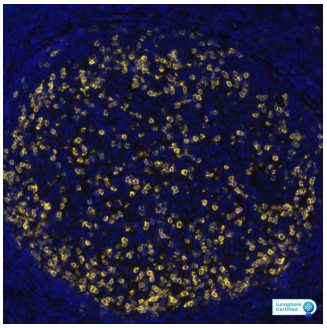
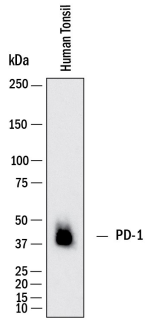
DATA

Multiplex Immunofluorescence



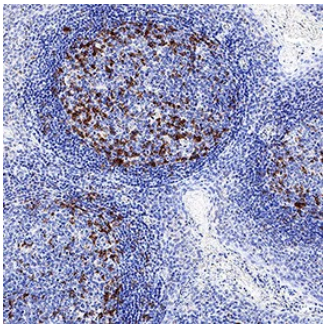
Detection of PD-1 in Human Tonsil via seqIF™ staining on COMET™ PD-1 was detected in immersion fixed paraffin-embedded sections of Human tonsil using Mouse Anti-Human PD-1, Monoclonal Antibody (Catalog #MAB11741) at 20ug/mL at 37 ° Celsius for 8 minutes. Before incubation with the primary antibody, tissue underwent an all-in-one dewaxing and antigen retrieval preprocessing using PreTreatment Module (PT Module) and Dewax and HIER Buffer H (pH 9; Epredia Catalog # TA-999-DHBH). Tissue was stained using the Alexa Fluor™ 647 Goat anti-Mouse IgG Secondary Antibody at 1:200 at 37 ° Celsius for 2 minutes. (Yellow; Lunaphore Catalog # DR647MS) and counterstained with DAPI (blue; Lunaphore Catalog # DR100). Specific staining was localized to the membrane. Protocol available in COMET™ Panel Builder.

Western Blot



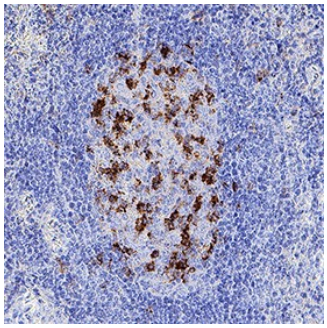
Detection of Human PD-1 by Western Blot. Western Blot shows lysates of human tonsil. PVDF membrane was probed with 2 µg/ml of Mouse Anti-Human PD-1 Monoclonal Antibody (Catalog # MAB11741) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). A specific band was detected for PD-1 at approximately 40 kDa (as indicated). This experiment was conducted under reducing conditions and using Western Blot Buffer Group 1.

Immunohistochemistry



Detection of PD-1 in Human Tonsil. PD-1 was detected in immersion fixed paraffin-embedded sections of human tonsil using Mouse Anti-Human PD-1 Monoclonal Antibody (Catalog # MAB11741) at 5 µg/ml for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC001) or the HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF007). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using VisUCyte Antigen Retrieval Reagent-Basic (Catalog # VCTS021). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to the membrane. View our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

Immunohistochemistry



Detection of PD-1 in Human Lymph Node. PD-1 was detected in immersion fixed paraffin-embedded sections of human lymph node using Mouse Anti-Human PD-1 Monoclonal Antibody (Catalog # MAB11741) at 5 µg/ml for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC001) or the HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF007). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using VisUCyte Antigen Retrieval Reagent-Basic (Catalog # VCTS021). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to the membrane. View our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

PREPARATION AND STORAGE

Reconstitution	Reconstitute lyophilized material at 0.2 mg/ml in sterile PBS. For liquid material, refer to CoA for concentration.
Shipping	Lyophilized product is shipped at ambient temperature. Liquid small pack size (-SP) is shipped with polar packs. Upon receipt, store immediately at the temperature recommended below.
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:

1. Ishida, Y. *et al.* (1992) EMBO J. **11**:3887.
2. Sharpe, A.H. and G. J. Freeman (2002) Nat. Rev. Immunol. **2**:116.
3. Coyle, A. and J. Gutierrez-Ramos (2001) Nat. Immunol. **2**:203.
4. Nishimura, H. and T. Honjo (2001) Trends Immunol. **22**:265.
5. Watanabe, N *et al.* (2003) Nat. Immunol. **4**:670.
6. Zhang, X. *et al.* (2004) Immunity **20**:337.
7. Lázár-Molnár, E. *et al.* (2008) Proc. Natl. Acad. Sci. USA **105**:10483.
8. Nishimura, H *et al.* (1996) Int. Immunol. **8**:773.
9. Keir, M.E. *et al.* (2008) Annu. Rev. Immunol. **26**:677.
10. Butte, M.J. *et al.* (2007) Immunity **27**:111.
11. Okazaki, T. *et al.* (2013) Nat. Immunol. **14**:1212.
12. Iwai, Y. *et al.* (2002) Proc. Natl. Acad. Sci. USA **99**: 12293.
13. Nogrady, B. (2014) Nature **513**:S10.
14. Swaika, A. *et al.* (2015) Mol. Immunol. **67**:4.

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