

DESCRIPTION

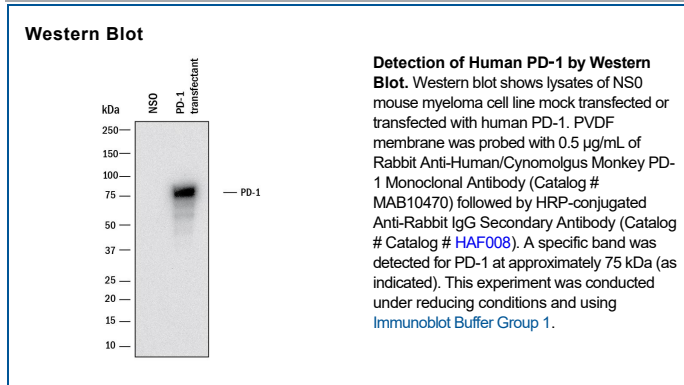
Species Reactivity	Human/Cynomolgus Monkey
Specificity	Detects human and cynomolgus monkey PD-1 in direct ELISAs.
Source	Recombinant Monoclonal Rabbit IgG Clone # 2515B
Purification	Protein A or G purified from cell culture supernatant
Immunogen	Human embryonic kidney cell HEK293-derived cynomolgus monkey PD-1 Leu25-Gln167 Accession # NP_001271065.1
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	0.5 µg/mL	See Below

DATA



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. <ul style="list-style-type: none"> • 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.

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 Cynomolgus monkey 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 Cynomolgus monkey PD-1 ECD shares 95% aa sequence identity with the human 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 and PD-L2 (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).

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.