

**DESCRIPTION**

<b>Species Reactivity</b>	Mouse
<b>Specificity</b>	Detects mouse PD-1 in direct ELISAs. In direct ELISAs, no cross-reactivity with recombinant human PD-1 is observed.
<b>Source</b>	Monoclonal Rat IgG <sub>2A</sub> Clone # 766104
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant mouse PD-1 Leu25-Gln167 Accession # Q02242
<b>Conjugate</b>	Phycoerythrin Excitation Wavelength: 488 nm Emission Wavelength: 565-605 nm
<b>Formulation</b>	Supplied in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details.  *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

**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.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Flow Cytometry</b>	10 µL/10 <sup>6</sup> cells	See Below

**DATA**

<p><b>Flow Cytometry</b></p> <p><b>Detection of PD-1 in Mouse Splenocytes by Flow Cytometry.</b> Mouse splenocytes treated with 5 µg/mL PHA for 72 hours were stained with Rat Anti-Mouse PD-1 PE-conjugated Monoclonal Antibody (Catalog # FAB7738P, filled histogram) or isotype control antibody (Catalog # IC006P, open histogram). View our protocol for <a href="#">Staining Membrane-associated Proteins</a>.</p>	<p><b>Flow Cytometry</b></p> <p><b>Detection of PD-1 in Mouse Thymocytes by Flow Cytometry.</b> Mouse thymocytes gated on CD3<sup>+</sup> CD8<sup>+</sup> cells were stained with Rat Anti-Mouse CD4 Alexa Fluor® 405-conjugated Monoclonal Antibody (Catalog # FAB554V) and either (A) Rat Anti-Mouse PD-1 PE-conjugated Monoclonal Antibody (Catalog # FAB7738P) or (B) Rat IgG<sub>2A</sub> Phycoerythrin Isotype Control (Catalog # IC006P). View our protocol for <a href="#">Staining Membrane-associated Proteins</a>.</p>
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**PREPARATION AND STORAGE**

<b>Shipping</b>	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Protect from light. Do not freeze.</b> ● 12 months from date of receipt, 2 to 8 °C as supplied.

**BACKGROUND**

Programmed Death-1 (PD-1) is a type I transmembrane protein belonging to the CD28/CTLA-4 family of immunoreceptors that mediate signals for regulating immune responses (1). Other members of this family include CD28, CTLA-4, and ICOS (2-4). PD-1 is most closely related to CTLA-4 and shares approximately 24% amino acid (aa) sequence identity. The mouse PD-1 gene encodes a 288 aa protein with a putative 20 aa signal peptide, a 149 aa extracellular region with one immunoglobulin-like V-type domain, a 21 aa transmembrane domain, and a 98 aa cytoplasmic region. 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 in mediating PD-1 signaling. Mouse and human PD-1 share approximately 69% aa sequence identity. Two B7 family proteins, PD-L1 (also called B7-H1) and PD-L2, have been identified as PD-1 ligands (5, 6). PD-1 is expressed on activated T cells, B cells, myeloid cells, and on a subset of thymocytes. PD-1 deficient mice have a defect in peripheral tolerance and spontaneously develop autoimmune diseases. Binding of PD-1 to PD-L1 or PD-L2 results in the inhibition of TCR-mediated proliferation and cytokine production as well as BCR-mediated signaling. PD-1 likely has an inhibitory role in regulating immune responses (1-4).

**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. Latchman Y. *et al.* (2001) Nat. Immun. **2**:261.
6. Tamura, H. *et al.* (2001) Blood **97**:1809.