

## Alexa Fluor® 488 anti-human CD279 (PD-1) Antibody

<b>Catalog# / Size</b>	329935 / 25 tests 329936 / 100 tests
<b>Clone</b>	EH12.2H7
<b>Regulatory Status</b>	RUO
<b>Other Names</b>	PD-1
<b>Isotype</b>	Mouse IgG1, κ
<b>Description</b>	Programmed cell death 1 (PD-1), also known as CD279, is a 55 kD member of the immunoglobulin superfamily. CD279 contains the immunoreceptor tyrosine-based inhibitory motif (ITIM) in the cytoplasmic region and plays a key role in peripheral tolerance and autoimmune disease. CD279 is expressed predominantly on activated T cells, B cells, and myeloid cells. PD-L1 (B7-H1) and PD-L2 (B7-DC) are ligands of CD279 (PD-1) and are members of the B7 gene family. Evidence suggests overlapping functions for these two PD-1 ligands and their constitutive expression on some normal tissues and upregulation on activated antigen-presenting cells. Interaction of CD279 ligands results in inhibition of T cell proliferation and cytokine secretion.

### Product Details

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<b>Verified Reactivity</b>	Human
<b>Reported Reactivity</b>	African Green, Baboon, Chimpanzee, Common Marmoset, Cynomolgus, Rhesus, Squirrel Monkey
<b>Antibody Type</b>	Monoclonal
<b>Host Species</b>	Mouse
<b>Formulation</b>	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and BSA (origin USA)
<b>Preparation</b>	The antibody was purified by affinity chromatography and conjugated with Alexa Fluor® 488 under optimal conditions.
<b>Concentration</b>	Lot-specific (to obtain lot-specific concentration, please enter the lot number in our <a href="#">Concentration and Expiration Lookup</a> or <a href="#">Certificate of Analysis</a> online tools.)
<b>Storage &amp; Handling</b>	The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. <b>Do not freeze.</b>
<b>Application</b>	<a href="#">FC - Quality tested</a>
<b>Recommended Usage</b>	Each lot of this antibody is quality control tested by <a href="#">immunofluorescent staining with flow cytometric analysis</a> . For flow cytometric staining, the suggested use of this reagent is 5 µl per million cells in 100 µl staining volume or 5 µl per 100 µl of whole blood.  * Alexa Fluor® 488 has a maximum emission of 519 nm when it is excited at 488 nm.  Alexa Fluor® and Pacific Blue™ are trademarks of Life Technologies Corporation.  <a href="#">View full statement regarding label licenses</a>
<b>Excitation Laser</b>	Blue Laser (488 nm)
<b>Application Notes</b>	Additional reported applications (for the relevant formats) include: blocking of ligand binding <sup>1-3</sup> , immunohistochemical staining of paraformaldehyde fixed frozen sections <sup>13</sup> , and spatial biology (IBEX) <sup>15,16</sup> . The LEAF™ purified antibody (Endotoxin <0.1 EU/µg, Azide-Free, 0.2 µm filtered) is recommended for functional assays (Cat. No. 329911 and 329912). For highly sensitive assays, we recommend Ultra-LEAF™ purified antibody (Cat. No. 329926) with a lower endotoxin limit than standard LEAF™ purified antibodies (Endotoxin <0.01 EU/µg).
<b>Application References</b>	1. Dorfman DM, <i>et al.</i> 2006 <i>Am. J. Surg. Pathol.</i> 30:802. (FA) 2. Radziewicz H, <i>et al.</i> 2007. <i>J. Virol.</i> 81:2545. (FA)
<b>(PubMed link indicates</b>	

- BioLegend citation)**
3. Velu V, *et al.* 2007. *J. Virol.* 81:5819. (FA)
  4. Zahn RC, *et al.* 2008. *J. Virol.* 82:11577. [PubMed](#)
  5. Chang WS, *et al.* 2008. *J. Immunol.* 181:6707. (FC) [PubMed](#)
  6. Nakamoto N, *et al.* 2009. *PLoS Pathog.* 5:e1000313. (FA)
  7. Jones RB, *et al.* 2009. *J. Virol.* 83:8722. (FC) [PubMed](#)
  8. Vojnov L, *et al.* 2010. *J. Virol.* 84:753. (FC) [PubMed](#)
  9. Radziewicz H, *et al.* 2010. *J. Immunol.* 184:2410. (FC) [PubMed](#)
  10. Monteriro P, *et al.* 2011. *J. Immunol.* 186:4618. [PubMed](#)
  11. Conrad J, *et al.* 2011. *J. Immunol.* 186:6871. [PubMed](#)
  12. Salisch NC, *et al.* 2010. *J. Immunol.* 184:476. (Rhesus reactivity)
  13. Li H and Pauza CD. 2015. *Eur. J. Immunol.* 45:298. (IHC)
  14. Peterson VM, *et al.* 2017. *Nat. Biotechnol.* 35:936. (PG)
  15. Radtke AJ, *et al.* 2020. *Proc Natl Acad Sci USA.* 117:33455-33465. (SB) [PubMed](#)
  16. Radtke AJ, *et al.* 2022. *Nat Protoc.* 17:378-401. (SB) [PubMed](#)

- Product Citations**
1. Chen FF, *et al.* 2020. *Oncoimmunology.* 9:1831153. [PubMed](#)
  2. Kagoya Y, *et al.* 2018. *Nat Commun.* 9:1915. [PubMed](#)
  3. Huang X, *et al.* 2021. *Nat Nanotechnol.* 16:214. [PubMed](#)
  4. Lin JR *et al.* 2018. *eLife.* 7 pii: e31657. [PubMed](#)
  5. Shin JJ, *et al.* 2022. *J Clin Immunol.* .: [PubMed](#)
  6. Mintz MA, *et al.* 2019. *Immunity.* 51:310. [PubMed](#)
  7. Chen RJ, *et al.* 2022. *iScience.* 25:105595. [PubMed](#)
  8. Natarajan A, *et al.* 2018. *Sci Rep.* 8:633. [PubMed](#)
  9. Wang S, *et al.* 2021. *Oncol Rep.* 1.916666666666667. [PubMed](#)

**RRID** AB\_2563593 (BioLegend Cat. No. 329935)  
AB\_2563594 (BioLegend Cat. No. 329936)

## Antigen Details

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<b>Structure</b>	Immunoglobulin superfamily
<b>Distribution</b>	Transiently expressed on CD4 <sup>-</sup> CD8 <sup>-</sup> thymocytes; upregulated in thymocytes and splenic T and B lymphocytes; expressed on activated myeloid cells
<b>Ligand/Receptor</b>	B7-H1 (also known as PD-L1) and B7-DC (PD-L2)
<b>Cell Type</b>	B cells, Lymphocytes, T cells, Thymocytes, Tregs
<b>Biology Area</b>	Cancer Biomarkers, Immunology, Inhibitory Molecules
<b>Molecular Family</b>	CD Molecules, Immune Checkpoint Receptors
<b>Gene ID</b>	<a href="#">5133</a>

## Related Protocols

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[Cell Surface Flow Cytometry Staining Protocol](#)

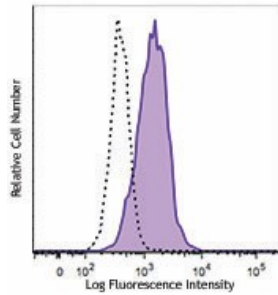
## Other Formats

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Brilliant Violet 421™ anti-human CD279 (PD-1), Purified anti-human CD279 (PD-1), FITC anti-human CD279 (PD-1), PE anti-human CD279 (PD-1), APC anti-human CD279 (PD-1), Alexa Fluor® 647 anti-human CD279 (PD-1), PerCP/Cyanine5.5 anti-human CD279 (PD-1), APC/Cyanine7 anti-human CD279 (PD-1), Pacific Blue™ anti-human CD279 (PD-1), PE/Cyanine7 anti-human CD279 (PD-1), Purified anti-human CD279 (PD-1) (Maxpar® Ready), Brilliant Violet 605™ anti-human CD279 (PD-1), Ultra-LEAF™ Purified anti-human CD279 (PD-1), Brilliant Violet 711™ anti-human CD279 (PD-1), Brilliant Violet 785™ anti-human CD279 (PD-1), Brilliant Violet 510™ anti-human CD279 (PD-1), Biotin anti-human CD279 (PD-1), PE/Dazzle™ 594 anti-human CD279 (PD-1), Alexa Fluor® 488 anti-human CD279 (PD-1), PerCP anti-human CD279 (PD-1), GoInVivo™ Purified anti-human CD279 (PD-1), Brilliant Violet 650™ anti-human CD279 (PD-1), Alexa Fluor® 700 anti-human CD279 (PD-1), APC/Fire™ 750 anti-human CD279 (PD-1), TotalSeq™-A0088 anti-human CD279 (PD-1), TotalSeq™-B0088 anti-human CD279 (PD-1), TotalSeq™-C0088 anti-human CD279 (PD-1), Brilliant Violet 750™ anti-human CD279 (PD-1), TotalSeq™-D0088 anti-human CD279 (PD-1), PE/Fire™ 640 anti-human CD279 (PD-1), PE/Cyanine5 anti-human CD279 (PD-1)

## Product Data

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PHA-stimulated (day 3) human peripheral blood lymphocytes were stained with CD279 (clone EH12.2H7) Alexa Fluor® 488 (filled histogram) or mouse IgG1, κ Alexa Fluor® 488 isotype control (open histogram).

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