abcam

ab309361

Anti-PD-1/CD279 antibody [29F.1A12] - BSA and Azide free

Recombinant

Key facts

Isotype	IgG2a
Host species	Rat
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	29F.1A12
Purification technique	Affinity purification Protein A
Concentration	1.017 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	-

Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	-
Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Mouse
Dilution info	-
Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IHC-Fr

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Target data

See full target information PD-1/CD279

Function

Inhibitory receptor on antigen activated T-cells that plays a critical role in induction and maintenance of immune tolerance to self (PubMed:10485649, PubMed:11209085, PubMed:11698646, PubMed:21300912). Delivers inhibitory signals upon binding to ligands, such as CD274/PDCD1L1 and CD273/PDCD1LG2 (PubMed:11015443, PubMed:11224527, PubMed:18287011, PubMed:18641123, PubMed:22641383). Following T-cell receptor (TCR) engagement, PDCD1 associates with TCR-CD3 in the immunological synapse and directly inhibits T-cell activation (PubMed:22641383). Suppresses T-cell activation through the recruitment of PTPN11/SHP-2: following ligand-binding, PDCD1 is phosphorylated within the ITSM motif, leading to the recruitment of the protein tyrosine phosphatase PTPN11/SHP-2 that mediates dephosphorylation of key TCR proximal signaling molecules, such as ZAP70, PRKCQ/PKCtheta and CD247/CD3zeta (PubMed:11698646, PubMed:22641383). The PDCD1-mediated inhibitory pathway is exploited by tumors to attenuate anti-tumor immunity and facilitate tumor survival (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Notes

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	PD1 also known as Programmed Cell Death Protein 1 or PDCD1 is a transmembrane protein that plays a critical role in regulating immune responses. It has a mass of approximately 55 kDa. PD1 is expressed on the surface of T cells B cells and some myeloid cells. PD1’s expression increases upon activation of these immune cells assisting in maintaining peripheral tolerance. Researchers often use PD1 mouse models and chimeric antibodies to explore the function of PD1 for experimental purposes. Antibodies such as anti-PD1 such as EH12.2H7 help in blocking PD1 interaction to study its role further.
Biological function summary	PD1 serves as an inhibitory receptor acting as a checkpoint in the immune system. It becomes part of an immune-suppressive complex when it binds with its ligands PD-L1 or PD-L2 which are expressed on various cell types including some tumor cells. This interaction suppresses the proliferation of T cells and cytokine production contributing to immune homeostasis. By controlling T cell activity PD1 limits autoimmunity but can also reduce the immune system's capability to attack cancer cells.

Pathways	PD1 functions in the immune checkpoint pathway a critical regulatory circuit in immune regulation. The engagement of PD1 with its ligands initiates a cascade that inhibits the function and proliferation of T cells through downstream SHP-2 phosphatase activity. This pathway frequently involves other regulatory proteins like CTLA-4 and is an important mechanism by which the body modulates immune responses. Related pathways often intersect with those involving T cell receptor signaling and contribute to the overall modulation of immune activity.
Associated diseases and disorders	PD1 has a significant role in cancer and autoimmune disorders. PD1 expression can allow tumors to evade immune surveillance making PD1 a target for cancer therapies such as anti-PD1 antibodies which aim to block PD1 and restore T cell activity. The interaction of PD1 with cancer-related proteins like PD-L1 facilitates tumor immune evasion. In autoimmune disorders PD1's regulation of immune balance can become dysregulated leading to persistent immune activation and tissue damage. Understanding PD1 and its interaction with proteins such as PD-L1 helps in developing therapeutic strategies for both cancer and autoimmune conditions.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

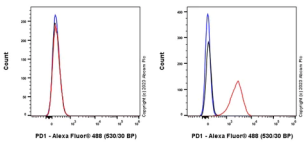
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

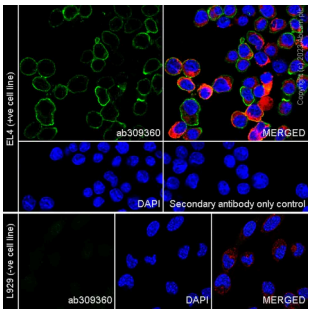
4 product images



Flow Cytometry - Anti-PD-1/CD279 antibody [29F.1A12] - BSA and Azide free (ab309361)

PD-1/CD279 Flow Cytometry staining using rat Anti-PD-1/CD279 antibody

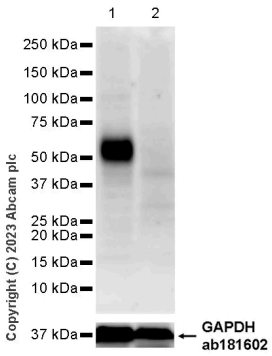
This data was developed using ab309360 the same antibody clone in a different buffer formulation. Flow cytometric analysis of L-929 (mouse connective tissue fibroblast, Left) / EL4 (mouse lymphoma T lymphocyte, Right) cells labelling PD1 with ab309360 at 1/1000 dilution (0.1 ug)/Right compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). Goat F(ab)2 Anti-Rat IgG Fc (Alexa Fluor® 488, ab150161) at 1/5000 dilution was used as the secondary antibody. Negative control: L-929 (PMID: 1396582). Gated on viable cells.



Immunocytochemistry/ Immunofluorescence - Anti-PD-1/CD279 antibody [29F.1A12] - BSA and Azide free (ab309361)

PD-1/CD279 Immunocytochemistry/ Immunofluorescence staining of EL4 (mouse lymphoma T lymphocyte cell) using rat Anti-PD-1/CD279 antibody

This data was developed using ab309360 the same antibody clone in a different buffer formulation. Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% Tween-20 permeabilized EL4 (mouse lymphoma T lymphocyte cell) cells labelling PD1 with ab309360 at 1/100 (9.8 ug/ml) dilution, followed by ab150157 Goat Anti-Rat IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing membranous staining in EL4 cell line.Negative control: L-929 (mouse connective tissue fibroblast cell)Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8). ab206369 Anti-beta Tubulin rabbit monoclonal antibody (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue). antibody only control: Secondary antibody is ab150157 Goat Anti-Rat IgG H&L (Alexa Fluor® 488) at 1/1000 dilution.



Western blot - Anti-PD-1/CD279 antibody [29F.1A12] - BSA and Azide free (ab309361)

PD-1/CD279 Western blot staining using rat Anti-PD-1/CD279 antibody

This data was developed using ab309360, the same antibody clone in a different buffer formulation.
Blocking and diluting buffer and concentration: 5% NFDM/TBST.

Negative control: L-929 (PMID: 1396582)

The molecular weight observed is consistent with what has been described in the literature (PMID:34635486).

In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution.

This blot was developed using a high sensitivity ECL substrate. The high-sensitivity ECL substrate used allows for the detection of proteins in the mid-femtogram range.

All lanes:
Western blot - Anti-PD-1/CD279 antibody [29F.1A12] (ab309360) at 1/1000 dilution

Lane 1:
EL4 (mouse lymphoma T lymphocyte) whole cell lysate at 20 µg

Lane 2:
L-929 (mouse connective tissue fibroblast) whole cell lysate at 40 µg

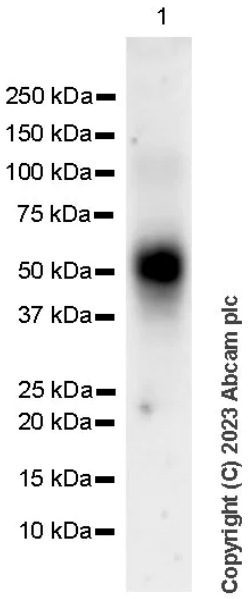
Secondary

All lanes:
Western blot - Goat Anti-Rat IgG H&L (HRP) (ab205720) at 1/100000 dilution

Developed using the ECL technique.

Observed band size: 50-55 kDa

Exposure time: 37s



Western blot - Anti-PD-1/CD279 antibody [29F.1A12] - BSA and Azide free (ab309361)

PD-1/CD279 Western blot staining of EL4.IL-2 (mouse lymphoma T lymphocyte) whole cell lysate using rat Anti-PD-1/CD279 antibody

This data was developed using ab309360, the same antibody clone in a different buffer formulation.
Blocking and diluting buffer and concentration: 5% NFDM/TBST

The molecular weight observed is consistent with what has been described in the literature (PMID:34635486).

This blot was developed using a high sensitivity ECL substrate.

All lanes:
Western blot - Anti-PD-1/CD279 antibody [29F.1A12] (ab309360) at 1/1000 dilution

All lanes:
EL4.IL-2 (mouse lymphoma T lymphocyte) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rat IgG H&L (HRP) (ab205720) at 1/100000 dilution

Observed band size: 50-55 kDa

Exposure time: 59s

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.