

**PD-1 (Intracellular Domain) (D4W2J) XP[®]
Rabbit mAb****Orders:** 877-616-CELL (2355)
orders@cellsignal.com**Support:** 877-678-TECH (8324)**Web:** info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications: W, IP, IHC-Bond, IHC-P, IF-IC, FC-FP	Reactivity: H	Sensitivity: Endogenous	MW (kDa): 52-65	Source/Isotype: Rabbit IgG	UniProt ID: #Q15116	Entrez-Gene Id: 5133
---	-------------------------	-----------------------------------	---------------------------	--------------------------------------	-------------------------------	--------------------------------

**Product Usage
Information****Application**

Western Blotting
Immunoprecipitation
IHC Leica Bond
Immunohistochemistry (Paraffin)
Immunofluorescence (Immunocytochemistry)
Flow Cytometry (Fixed/Permeabilized)

Dilution

1:1000
1:200
1:100 - 1:400
1:100 - 1:400
1:200 - 1:400
1:100 - 1:200

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

For a carrier free (BSA and azide free) version of this product see product #63815.

Specificity/Sensitivity

PD-1 (Intracellular Domain) (D4W2J) XP[®] Rabbit mAb recognizes endogenous levels of total PD-1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala274 of human PD-1 protein.

Background

The programmed cell death 1 protein (PD-1, PDCD1, CD279) is a member of the CD28 family of immunoreceptors that regulate T cell activation and immune responses (1-3). The PD-1 protein contains an extracellular Ig V domain, a transmembrane domain, and a cytoplasmic tail that includes an immunoreceptor tyrosine-based inhibitory motif (ITIM) and an immunoreceptor tyrosine-based switch motif (ITSM). PD-1 is activated by the cell surface ligands PD-L1 and PD-L2 (4). Upon activation, PD-1 ITIM and ITSM phosphorylation leads to the recruitment of the protein tyrosine phosphatases SHP-1 and SHP-2, which suppress TCR signaling (5-7). In addition to activated T cells, PD-1 is expressed in activated B cells and monocytes, although its function in these cell types has not been fully characterized (8). The PD-1 pathway plays an important role in immune tolerance (3); however, research studies show that cancer cells often adopt this pathway to escape immune surveillance (9). Consequently, blockade of PD-1 and its ligands is proving to be a sound strategy for neoplastic intervention (10).

Background References

- Ishida, Y. et al. (1992) *EMBO J* 11, 3887-95.
- Shinohara, T. et al. (1994) *Genomics* 23, 704-6.
- Nishimura, H. et al. (1999) *Immunity* 11, 141-51.
- Freeman, G.J. et al. (2000) *J Exp Med* 192, 1027-34.
- Yokosuka, T. et al. (2012) *J Exp Med* 209, 1201-17.
- Sheppard, K.A. et al. (2004) *FEBS Lett* 574, 37-41.
- Chemnitz, J.M. et al. (2004) *J Immunol* 173, 945-54.
- Thibault, M.L. et al. (2013) *Int Immunol* 25, 129-37.
- Dong, H. et al. (2002) *Nat Med* 8, 793-800.
- Topalian, S.L. et al. (2012) *Curr Opin Immunol* 24, 207-12.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation **IHC-Bond:** IHC Leica Bond **IHC-P:** Immunohistochemistry (Paraffin) **IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human

Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

Alexa Fluor is a registered trademark of Life Technologies Corporation.

All other trademarks are the property of their respective owners. Visit cellsignal.com/trademarks for more information.

Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.