



**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

Store at +4C  
#15151

## PD-1 (D3W4U) Rabbit mAb (PE Conjugate)

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

|                               |                         |                                   |                                      |                               |                                |
|-------------------------------|-------------------------|-----------------------------------|--------------------------------------|-------------------------------|--------------------------------|
| <b>Applications:</b><br>FC-FP | <b>Reactivity:</b><br>H | <b>Sensitivity:</b><br>Endogenous | <b>Source/Isotype:</b><br>Rabbit IgG | <b>UniProt ID:</b><br>#Q15116 | <b>Entrez-Gene Id:</b><br>5133 |
|-------------------------------|-------------------------|-----------------------------------|--------------------------------------|-------------------------------|--------------------------------|

### Product Usage Information

#### Application

Flow Cytometry (Fixed/Permeabilized)

#### Dilution

1:50

### Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibodies. Protect from light. Do not freeze.

### Specificity/Sensitivity

PD-1 (D3W4U) Rabbit mAb (PE Conjugate) recognizes endogenous levels of total PD-1 protein. This antibody binds the intracellular domain of human PD-1 protein.

### Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala249 of human PD-1 protein.

### Description

This Cell Signaling Technology antibody is conjugated to phycoerythrin (PE) and tested in-house for direct flow cytometry analysis in human cells. The antibody is expected to exhibit the same species cross-reactivity as the unconjugated PD-1 (D3W4U) Rabbit mAb #15121.

### 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).

### Applications Key

**FC-FP:** Flow Cytometry (Fixed/Permeabilized)

### Cross-Reactivity Key

**H:** Human

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