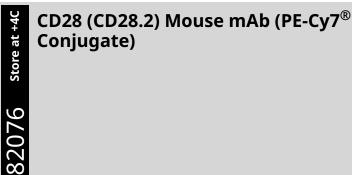
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| Applications:<br>FC-L  | Reactivity:<br>H | <b>Sensitivity:</b><br>Endogenous   | <b>Source/Isotype:</b><br>Mouse IgG1 kappa   | <b>UniProt ID:</b><br>#P10747 | Entrez-Gene Id:<br>940 |  |  |
|--|------------------|---|--|-------------------------------|------------------------|--|--|
| Product Usage<br>Information   |                  | <b>Application</b><br>Flow Cytometry (Live)   |  |                               | Dilution<br>1:20       |  |  |
| Storage  |                  | Supplied in 10 mM NaH <sub>2</sub> PO <sub>4</sub> , 150 mM NaCl, 0.09% NaN <sub>3</sub> , 0.1% gelatin, pH7.2. This product is stable for 6 months when stored at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.   |  |                               |                        |  |  |
| Specificity/Sensit   | tivity           | CD28 (CD28.2) Mouse mAb (PE-Cy7 <sup>®</sup> Conjugate) recognizes endogenous levels of total CD28 protein.<br>This antibody detects an epitope within the extracellular domain.  |  |                               |                        |  |  |
| Source / Purifica  | tion             | This monoclonal antibody was purified from tissue culture supernatant via affinity chromatography.<br>The purified antibody was conjugated under optimal conditions, with unreacted dye removed from the<br>preparation.  |  |                               |                        |  |  |
| Description  |                  | This Cell Signaling Technology antibody is conjugated to PE-Cy7 <sup>®</sup> and tested in-house for direct flow cytometric analysis in human cells.  |  |                               |                        |  |  |
| Background   |                  | CD28 is a transmembrane glycoprotein expressed by T cells as well as some other hematopoietic cells (1, 2). T cell activation requires T cell receptor (TCR) recognition of antigen presented in the context of MHC molecules. CD28 acts as a T cell costimulatory receptor, and interaction of CD28 with its ligands CD80 or CD86 provides the second signal required for naïve T cell activation (3-5). Activation of naïve T cells in the absence of CD28 stimulation can result in a state of T cell anergy, or unresponsiveness (3). CD28 signals through cytoplasmic phospho-tyrosine motifs that bind several SH2 or SH3 domain-containing proteins involved in T cell activation (2). Recently, CD28 was demonstrated to be a preferred target of PD-1-mediated dephosphorylation. Consistently, CD28 expression was required for T cell proliferation following PD-1 blockade and CD28 stimulation was required for effective anti-PD-1 cancer immunotherapy in mice (6, 7). Several CD28 isoforms are produced by alternative splicing (8). |  |                               |                        |  |  |
| Background References 1. Aruffo, A. and Seed, B. (1987) Proc Natl Acad Sci U S A   2. Esensten, J.H. et al. (2016) Immunity 44, 973-88.   3. Harding, F.A. et al. (1992) Nature 356, 607-9.   4. Azuma, M. et al. (1993) Nature 366, 76-9.   5. Linsley, P.S. et al. (1990) Proc Natl Acad Sci U S A 87, 5   6. Hui, E. et al. (2017) Science 355, 1428-1433.   7. Kamphorst, A.O. et al. (2017) Science 355, 1423-1427.   8. Magistrelli, G. et al. (1999) Biochem Biophys Res Common |                  |   |  | 87, 5031-5.                   |                        |  |  |
| Species Reactivit  | y                | Species reactivity is determined by testing in at least one approved application (e.g., western blot).  |  |                               |                        |  |  |
| Applications Key   |                  | FC-L: Flow Cytometry (Live)   |  |                               |                        |  |  |
| Cross-Reactivity   | Key              | H: Human  |  |                               |                        |  |  |
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