Revision 5

#5413 Store at +4C

MHC Class II (I-A/I-E) (M5/114.15.2) Rat mAb (APC-Cy7® Conjugate)

Cell Signaling TECHNOLOGY®

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

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Applications:	Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
FC-L	M	Endogenous	Rat IgG2b kappa	#P18468, #P06342, #Q3U060, #P14435	14969, 14961, 381091, 14960

Product Usage Information

For optimal flow cytometry results, we recommend 0.5 µg of antibody per test. A slight precipitate may be present, but will not interfere with antibody performance. If precipitates are present, centrifuge the tube at 6,000xg for 10-30 sec. Draw off the supernatant and place into a light protective vial.

Application	Dilution
Flow Cytometry (Live)	1:40

Storage

Supplied in 10 mM NaH_2PO_4, 150 mM NaCl, 0.09% NaN_3, 0.1% gelatin, pH 7.2. This product is stable for 6 months when stored at 4ºC. Do not aliquot the antibody. Protect from light. Do not freeze.

Specificity/Sensitivity

MHC Class II (I-A/I-E) (M5/114.15.2) Rat mAb (APC-Cy7® Conjugate) recognizes endogenous levels of total MHC class II (I-A/I-E) proteins. This antibody detects epitopes within the extracellular domain of MHC class II (I-A/I-E).

Source / Purification

This monoclonal antibody was purified from tissue culture supernatant via affinity chromatography. The purified antibody was conjugated under optimal conditions, with unreacted dye removed from the preparation.

Description

This Cell Signaling Technology antibody is conjugated to APC-Cy7® and tested in-house for direct flow cytometry analysis in mouse cells.

Background

Major histocompatibility complex class II (MHC class II) molecules are heterodimeric, transmembrane glycoproteins expressed on the surface of antigen-presenting cells, such as macrophages, dendritic cells, and B cells. Expression can also be induced on other cell types through interferon-γ signaling (1). Prior to being displayed on the cell membrane, MHC class II molecules are loaded with exogenous peptide antigens approximately 15-24 amino acids in length that were derived from endocytosed extracellular proteins digested in the lysosome (2). Antigen-presentation through MHC class II is required for T cell activation during the immune response to extracellular pathogens (2). In humans, the MHC class II protein complex is encoded by the human leukocyte antigen gene complex (HLA). HLAs corresponding to MHC class II are HLA-DP, HLA-DM, HLA-DOA, HLA-DOB, HLA-DQ, and HLA-DR (3).

The M5/114.15.2 antibody reacts with mouse MHC class II, both I-A and I-E subregion-encoded glycoproteins (I-Ab, I-Ad, I-Aq, I-Ed, I-Ek, not I-Af, I-Ak, or I-As). It detects a polymorphic determinant present on B cells, monocytes, macrophages, dendritic cells, and activated T lymphocytes from mice carrying the H-2b, H-2d, H-2q, H-2p, H-2r and H-2u haplotypes, but not from mice carrying the H-2s or H-2f haplotypes (4-7). The M5/114 mAb is reported to inhibit I-A-restricted T cell responses of the H-2b, H-2d, H-2q, H-2u but not H-2f, H-2k, or H-2s haplotypes (8,9).

Background References

1. Ting, J.P. and Trowsdale, J. (2002) *Cell* 109 Suppl, S21-33.
2. Cresswell, P. (1994) *Annu Rev Immunol* 12, 259-93.
3. Karp, D.R. et al. (1990) *J Exp Med* 171, 615-28.
4. Staehli, F. et al. (2012) *J Immunol* 188, 3820-8.
5. Scarlett, U.K. et al. (2012) *J Exp Med* 209, 495-506.
6. Anderson, M.S. and Miller, J. (1992) *Proc Natl Acad Sci U S A* 89, 2282-6.
7. Miyazaki, T. et al. (1996) *Cell* 84, 531-41.
8. Parra, D. et al. (2012) *J Leukoc Biol* 91, 525-36.
9. Chen, M. et al. (2011) *J Immunol* 187, 5684-92.

Species Reactivity

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

M: Mouse

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