

Human HLA-DR (MHC Class II) Antibody

FITC

Monoclonal Antibody

Product Information

Product No.: H133

Clone: L243

RRID: AB_2893629

Isotype: Mouse IgG2a

Storage: Sterile 2° to 8°C

Product Description

Specificity:

Clone L243 recognizes a conformational epitope on the human MHC class II molecule HLA-DR α , which depends on the correct folding of the $\alpha\beta$ heterodimer¹. It does not cross-react with HLA-DP or HLA-DQ.

Antigen Distribution:

HLA-DR is expressed on antigen-presenting cells, including macrophages, monocytes, DCs, and B cells, and activated T cells.

Background:

HLA-DR antibody, clone L243, recognizes the major histocompatibility complex (MHC) class II molecule Human Leukocyte Antigen - DR isotype (HLA-DR). MHC class II is constitutively expressed on human professional antigen-presenting cells (APCs), including macrophages/monocytes, dendritic cells (DCs), and B cells, and is induced on T cells upon activation². HLA-DR consists of two transmembrane proteins, a 35 kDa α (heavy) chain and 29 kDa β (light) chain³ encoded by the HLA-DRA and HLA-DRB1, HLA-DRB3, HLA-DRB4, and HLA-DRB5 genes, respectively, located in the HLA complex of chromosome 6. The N-terminal α 1 and β 1 domains form the antigen-binding groove, which binds 13-25 aa peptides derived from exogenous antigens⁴. On APCs, MHC class II plays a critical role in the adaptive immune response by presenting phagocytosed antigens to helper CD4 T cells. The T cell receptor (TCR)/CD3 complex of CD4 T cells interacts with peptide-MHC class II, which induces CD4 T cell activation leading to the coordination and regulation of other effector cells. CD4 molecules also bind to MHC class II, which helps augment TCR signaling⁵. It has also been demonstrated that MHC class II express on activated T cells are capable of antigen presentation⁶ and can transduce signals into T cells, enhancing T cell proliferation and activity⁷. HLA-DR expression is a marker of T cell activation and correlates with disease activity in patients with autoimmune disease⁸ and rapid progression in HIV infection⁹. Specific alleles of HLA-DR are associated with autoimmune diseases, including rheumatoid arthritis¹⁰.

Known Reactivity Species:

Baboon, Chimpanzee, Cynomolgus Monkey, Marmoset, Rhesus Monkey, Squirrel Monkey, Canine, Human

Format:

Fluorescein (FITC)

Immunogen:

Unknown

Formulation

This Fluorescein (FITC) conjugate is formulated in 0.01 M phosphate buffered saline (150 mM NaCl) PBS pH 7.4, 1% BSA and 0.09% sodium azide as a preservative.

Storage and Stability

This purified antibody is stable when stored at 2° to 8°C. **Do not freeze**

Applications

Applications and Recommended Usage (Quality Tested By Leinco):

FC The suggested concentration for this HLA-DR (Clone L243) antibody for staining cells in flow cytometry is $\leq 2.0 \mu\text{g}$ per 106 cells in a volume of 100 μl or 100 μl of whole blood. Titration of the reagent is recommended for optimal performance for each application.

Country of Origin

USA

References

- 1) Moro M, Cecconi V, Martinoli C, et al. (2005) BMC Immunol. 6:24
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- 3) Mitaksov V, (2006) J Biol Chem. 281(15):10618-25
- 4) Wiczorek M, et al. (2017) Front Immunol. 8:292
- 5) Artyomov MN, et al. (2010) Proc Natl Acad Sci USA. 107(39):16916-16921
- 6) Barnaba V, et al. (1994) Eur J Immunol. 24(1):71-5
- 7) Di Rosa F, et al. (1993) Hum Immunol. 38(4):251-60
- 8) Viallard JF, et al. (2001) Clin Exp Immunol. 125(3):485-491
- 9) Langford SE, Ananworanich J, Cooper DA. (2007) AIDS Res Ther. 2007;4:11
- 10) Gough SC, Simmonds MJ. (2007) Curr Genomics. 8(7):453-465