

Human HLA-DR (MHC Class II) Antibody

Purified *in vivo* GOLD™ Functional Grade

Monoclonal Antibody

Product Information

Product No.: H261
Clone: L243
RRID: AB_2737519
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:

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Immunogen:

Unknown

Formulation

This monoclonal antibody is aseptically packaged and formulated in 0.01 M phosphate buffered saline (150 mM NaCl) PBS pH 7.2 - 7.4 with no carrier protein, potassium, calcium or preservatives added. Due to inherent biochemical properties of antibodies, certain products may be prone to precipitation over time. Precipitation may be removed by aseptic centrifugation and/or filtration.

Purity

≥95% monomer by analytical SEC, >95% by SDS Page

Endotoxin

< 1.0 EU/mg as determined by the LAL method

Storage and Stability

Functional grade preclinical antibodies may be stored sterile as received at 2° to 8°C for up to one month. For longer term storage, aseptically aliquot in working volumes without diluting and store at ≤ -70°C.

Avoid Repeated Freeze Thaw Cycles

Product Preparation

Functional grade preclinical antibodies are manufactured in an animal free facility using in vitro cell culture techniques and are purified by a multi-step process including the use of protein A or G to assure extremely low levels of endotoxins, leachable protein A or aggregates.

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 ≤ 0.5 µg per 106 cells in a volume of 100 µl or 100µl of whole blood. Titration of the reagent is recommended for optimal performance for each application.

WB The suggested concentration for this HLA-DR (Clone L243) antibody for use in western blotting is 1-10 µg/ml.

Other Applications Reported in Literature:

IHC FF

CyTOF®

B

Depletion

IP

Country of Origin

USA

References

- 1) Moro M, Cecconi V, Martinoli C, et al. (2005) BMC Immunol. 6:24
- 2) Holling TM, et al. (2004) Hum Immunol. 65(4):282-90
- 3) Mitaksov V, (2006) J Biol Chem. 281(15):10618-25
- 4) Wieczorek 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
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- 10) Gough SC, Simmonds MJ. (2007) Curr Genomics. 8(7):453-465