www.innocyto.com.cn

InnoCyto Inc.

15375 Barranca Pkwy, Suite I-103
Irvine, CA 92618
Email: info@innocyto.com
Phone: 1-949-418-7543

# iF647 Anti-Human HLA-DR/DP/DQ Antibody

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| **Catalog Number:** | 118903, 118904 |
| **Size:** | 25 tests, 100 tests |
| **Target Name:** | HLA-DR, HLA-DP, and HLA-DQ, MHC class II,  pan HLA-II, pan MHC-II |
| **Regulatory Status:** | RUO |

## PRODUCT DETAILS

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| **Clone:** | IVA12 |
| **Application:** | Flow Cytometry |
| **Reactivity:** | Human |
| **Format:** | iF647 |
| **Isotype:** | Mouse IgG1 |
| **Antibody Type:** | Monoclonal |
| **Formulation:** | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA |
| **Protein Concentration:** | Supplied at a lot-specific concentration. |
| **Storage & Handling:** | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze. |
| **Recommended Usage:** | For flow cytometric staining, it is recommended to use 5 µL of this reagent per 0.5-1.0 million cells in a 100 µL volume. Optimal reagent performance should be determined by titration for each specific application. iF647 has an excitation max at 656 nm and an emission max at 670 nm. |
| **Excitation Laser:** | Red Laser (633 nm) |
| **Isotype Control:** | 301413 |

## BACKGROUND INFORMATION

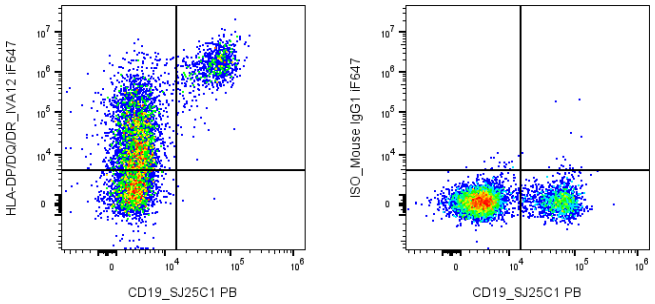
Human HLA-DR, HLA-DP, and HLA-DQ are the three major classical human leukocyte antigen (HLA) class II molecules encoded within the major histocompatibility complex (MHC) on chromosome 6. These cell-surface glycoproteins are primarily expressed on professional antigen-presenting cells, including dendritic cells, macrophages, and B lymphocytes. Their principal function is to present peptides derived from extracellular proteins to CD4+ T helper cells, initiating and regulating adaptive immune responses. This process is essential for host defense against pathogens and for the development of immune memory.

Each HLA class II molecule consists of a polymorphic α (alpha) chain and β (beta) chain that together form a peptide-binding groove capable of accommodating peptides approximately 13–25 amino acids in length. The groove binds peptides generated in endosomal and lysosomal compartments following antigen processing. Peptide loading is facilitated by accessory molecules such as HLA-DM after removal of the invariant chain-derived CLIP peptide. The extensive genetic polymorphism of HLA-DR, HLA-DP, and HLA-DQ enables presentation of a broad repertoire of peptide ligands, including self and foreign antigens.

Specific HLA class II alleles are strongly associated with autoimmune diseases. For example, HLA-DR and HLA-DQ variants contribute to susceptibility to type 1 diabetes, rheumatoid arthritis, celiac disease, multiple sclerosis, and systemic lupus erythematosus. Certain HLA-DP alleles have also been linked to chronic hepatitis B outcomes and other immune-mediated disorders. These molecules are important in transplantation because mismatched HLA alleles increase the risk of graft rejection.

Therapeutically, HLA-DR, HLA-DP, and HLA-DQ are used in tissue matching for organ and stem cell transplantation, disease risk assessment, vaccine development, and immunotherapy. Their ability to present antigenic peptides also makes them attractive targets for antigen-specific tolerance strategies and personalized immunotherapies designed to modulate pathogenic T-cell responses while preserving protective immunity.

## PRODUCT DATA




Human peripheral blood lymphocytes were stained with PB Anti-Human CD19 clone SJ25C1 and i F647 Anti-Human HLA-DR/DP/DQ clone IVA12 (left) or an isotype control (right).

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