

## Biotin Anti-Human CD20 Antibody

|                           |                     |
|---------------------------|---------------------|
| <b>Catalog Number:</b>    | 105611, 105612      |
| <b>Size:</b>              | 25 ug, 100 ug       |
| <b>Target Name:</b>       | CD20, MS4A-1, MS4A1 |
| <b>Regulatory Status:</b> | RUO                 |

### PRODUCT DETAILS

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| <b>Clone:</b>                 | 2H7                                                                                                                                                                                                                                                                                          |
| <b>Application:</b>           | Flow Cytometry                                                                                                                                                                                                                                                                               |
| <b>Reactivity:</b>            | Human                                                                                                                                                                                                                                                                                        |
| <b>Format:</b>                | Biotin                                                                                                                                                                                                                                                                                       |
| <b>Isotype:</b>               | Mouse IgG2b                                                                                                                                                                                                                                                                                  |
| <b>Antibody Type:</b>         | Monoclonal                                                                                                                                                                                                                                                                                   |
| <b>Formulation:</b>           | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA                                                                                                                                                                                                        |
| <b>Protein Concentration:</b> | 0.2 mg/mL                                                                                                                                                                                                                                                                                    |
| <b>Storage and Handling:</b>  | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.                                                                                                                                                         |
| <b>Recommended Usage:</b>     | For flow cytometric staining, it is recommended to use less than 0.1 µg 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. For detection, use a secondary reagent with this product. |
| <b>Isotype Control:</b>       | 301619                                                                                                                                                                                                                                                                                       |
| <b>RRID:</b>                  | AB_3738687                                                                                                                                                                                                                                                                                   |

### BACKGROUND INFORMATION

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CD20 is a B cell-specific surface molecule that plays a key role in B cell activation and regulation and is best known as one of the most successful therapeutic targets in immunology and oncology. It is expressed on B cells from the late pre-B cell stage through mature and memory B cells but is absent on early pro-B cells and terminally differentiated plasma cells. This expression pattern makes CD20 an ideal marker for identifying and targeting the majority of circulating and tissue-resident B cells.

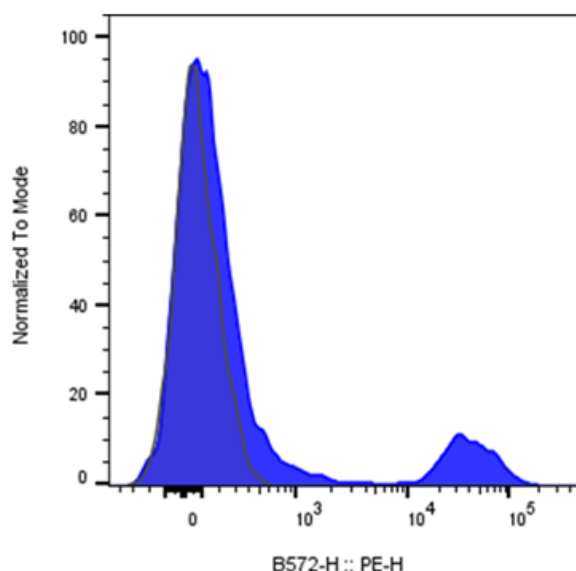
Structurally, CD20 is a small, non-glycosylated integral membrane protein with four transmembrane helices, two extracellular loops, and intracellular N- and C-terminal domains. Unlike many CD molecules, CD20 does not belong to the immunoglobulin superfamily and lacks a long cytoplasmic signaling motif. Instead, CD20 is thought to function as part of a membrane complex involved in ion transport, particularly calcium flux, which is critical for B cell activation and proliferation. Functionally, CD20 contributes to the regulation of B cell receptor (BCR) signaling by influencing calcium entry following antigen engagement. Through modulation of intracellular calcium levels, CD20 affects B cell activation, cell cycle progression, and differentiation. While CD20 is not essential for B cell development, it plays an important role in optimizing B cell responses during immune activation. A notable feature of CD20 is

that it does not have a clearly defined natural ligand. Its activity appears to be mediated through homotypic interactions, association with other membrane proteins, and organization within lipid rafts rather than classical ligand-receptor binding. This lack of ligand has not limited its therapeutic utility, as CD20 is stably expressed and poorly internalized, properties that are advantageous for antibody-based targeting.

CD20 is implicated in a range of diseases characterized by pathological B cell activity. It is highly expressed on most B cell non-Hodgkin lymphomas and chronic lymphocytic leukemia, making it a valuable diagnostic marker. In autoimmune diseases such as rheumatoid arthritis, multiple sclerosis, and systemic lupus erythematosus, autoreactive CD20<sup>+</sup> B cells contribute to disease progression through autoantibody production and antigen presentation.

Therapeutically, CD20 has revolutionized the treatment of B cell-mediated diseases. Monoclonal antibodies targeting CD20 deplete B cells through mechanisms including antibody-dependent cellular cytotoxicity, complement-dependent cytotoxicity, and induction of apoptosis. CD20-targeted therapies are widely used in hematologic malignancies and autoimmune disorders and have established B cell depletion as a powerful and durable therapeutic strategy.

## PRODUCT DATA



Human peripheral blood lymphocytes stained with Biotin anti-human CD20 clone 2H7 (blue histogram) or an isotype control (gray histogram), followed by SA-PE.

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