

## iF647 Anti-Human CD22 Antibody

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|---------------------------|------------------------|
| <b>Catalog Number:</b>    | 100603, 100604         |
| <b>Size:</b>              | 25 tests, 100 tests    |
| <b>Target Name:</b>       | CD22, BL-CAM, Siglec-2 |
| <b>Regulatory Status:</b> | RUO                    |

### PRODUCT DETAILS

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| <b>Clone:</b>                 | HIB22                                                                                                                                                                                                                                                                                       |
| <b>Application:</b>           | Flow Cytometry                                                                                                                                                                                                                                                                              |
| <b>Reactivity:</b>            | Human                                                                                                                                                                                                                                                                                       |
| <b>Format:</b>                | iF647                                                                                                                                                                                                                                                                                       |
| <b>Isotype:</b>               | Mouse IgG1                                                                                                                                                                                                                                                                                  |
| <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> | Supplied at a lot-specific concentration.                                                                                                                                                                                                                                                   |
| <b>Storage&amp;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 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. |
| <b>Excitation Laser:</b>      | Red Laser (633 nm)                                                                                                                                                                                                                                                                          |
| <b>Isotype Control:</b>       | 301413                                                                                                                                                                                                                                                                                      |
| <b>RRID:</b>                  | AB_3738578                                                                                                                                                                                                                                                                                  |

### BACKGROUND INFORMATION

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CD22 is a B cell-specific transmembrane glycoprotein that functions as an important regulator of B cell receptor (BCR) signaling and immune tolerance. Also known as Siglec-2, CD22 belongs to the sialic acid-binding immunoglobulin-like lectin (Siglec) family and is expressed almost exclusively on mature B cells, with expression increasing as B cells progress from the naïve to mature stages. Through its inhibitory signaling capacity, CD22 helps fine-tune B cell activation and prevent inappropriate immune responses.

Structurally, CD22 is a type I transmembrane protein with a large extracellular region composed of seven immunoglobulin-like domains. The N-terminal domain mediates binding to sialic acid-containing glycans, which serve as its primary ligands. CD22 preferentially recognizes  $\alpha$ 2,6-linked sialic acids that are commonly present on glycoproteins and glycolipids expressed on B cells themselves (cis interactions) as well as on neighboring cells (trans interactions). The cytoplasmic tail of CD22 contains multiple immunoreceptor tyrosine-based inhibitory motifs (ITIMs), which are essential for its signaling function. Functionally, CD22 acts as a

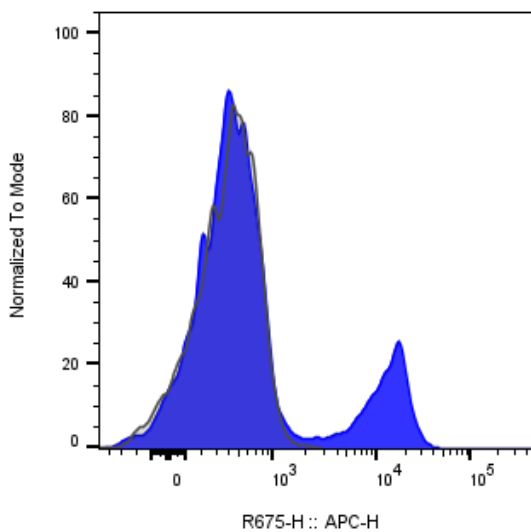
negative regulator of BCR signaling. Upon BCR engagement, CD22 becomes phosphorylated and recruits phosphatases such as SHP-1 to its ITIM motifs. These phosphatases attenuate downstream signaling pathways, thereby raising the threshold for B cell activation. Through this mechanism, CD22 contributes to the maintenance of B cell tolerance and limits excessive antibody production. CD22 also influences B cell survival, migration, and interactions within lymphoid tissues.

Dysregulation of CD22 expression or signaling has been linked to immune-mediated diseases and malignancy. Reduced CD22 function can lead to hyperactive B cells and has been associated with autoimmune diseases such as systemic lupus erythematosus. In contrast, CD22 is frequently overexpressed on B cell malignancies, including B cell acute lymphoblastic leukemia (B-ALL) and certain non-Hodgkin lymphomas, making it an attractive diagnostic and therapeutic target.

CD22 plays a significant role in therapeutics, particularly in the treatment of B cell cancers. Antibody-based therapies targeting CD22 have been developed to selectively eliminate malignant B cells. Notably, antibody-drug conjugates and immunotoxins that bind CD22 deliver cytotoxic agents directly to cancerous B cells, sparing most non-B cell populations. CD22 is also being explored as a target for engineered cell therapies and for strategies aimed at modulating B cell activity in autoimmune disease. Together, these approaches highlight CD22 as a key molecule at the intersection of B cell biology, disease, and targeted therapy.

## PRODUCT DATA

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Human peripheral blood lymphocytes stained either iF647 Anti-Human CD22 clone HIB22 (color-filled histogram) or an isotype control (gray histogram).

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