

## FITC Anti-Human CD22 Antibody

<b>Catalog Number:</b>	100607, 100608
<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>	FITC
<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. FITC has an excitation max at 493 nm and an emission max at 525 nm.
<b>Excitation Laser:</b>	Blue Laser (488 nm)
<b>Isotype Control:</b>	301415
<b>RRID:</b>	AB_3738580

### 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

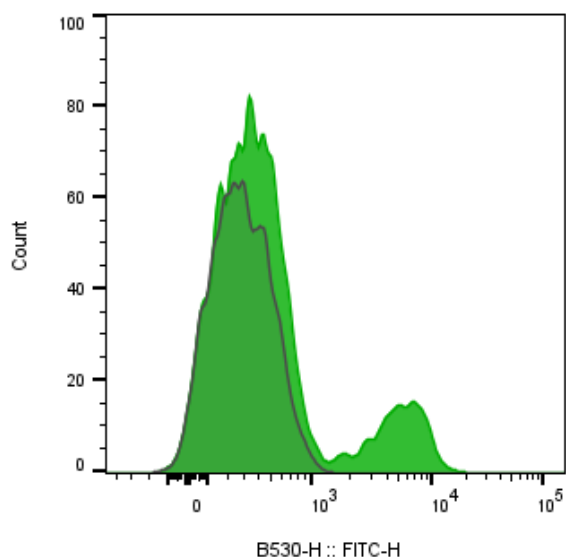
SHP-1 to its ITIM motifs. These phosphatases attenuate downstream signaling pathways, thereby raising the threshold for B cell activation. Through this mechanism, CD22 contributes to the maintenance of B cell tolerance and limits excessive antibody production. CD22 also influences B cell survival, migration, 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 FITC Anti-Human CD22 clone HIB22 (color-filled histogram) or an isotype control (gray histogram).

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