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InnoCyto Inc.

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

iF647 Anti-Human CD22 Antibody

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

PRODUCT DETAILS

Clone:	HIB22
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
RRID:	AB_3738578

BACKGROUND INFORMATION

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.

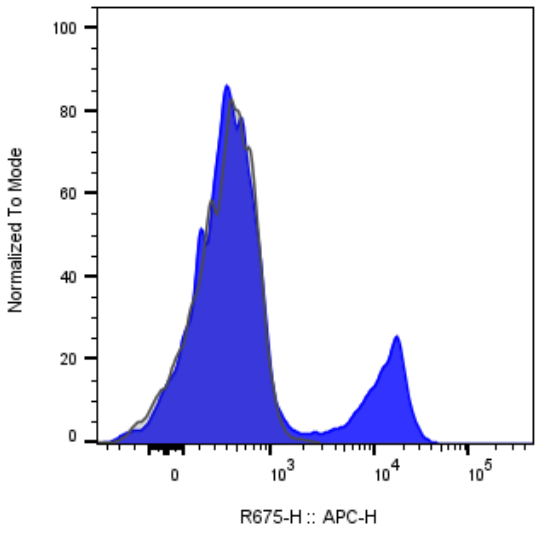
Structurally, CD22 is a type I transmembrane protein with a large extracellular region composed of seven immunoglobulin-like domains. The N-terminal domain mediates binding to sialic acid–containing glycans, which serve as its primary ligands. CD22 preferentially recognizes α2,6-linked sialic acids that 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



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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