

## APC Human CD22 Protein (C-Fc)

<b>Catalog Number:</b>	803703, 803704
<b>Size:</b>	25 ug, 100 ug
<b>Target Name:</b>	CD22, SIGLEC2, BL-CAM
<b>Regulatory Status:</b>	RUO

### PRODUCT DETAILS

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<b>Application:</b>	Flow Cytometry
<b>Format:</b>	Liquid, APC
<b>Expression Host:</b>	CHO
<b>Species:</b>	Human
<b>Sources:</b>	Human CD22 protein (Asp20-Arg687) with C-terminus Fc tag is expressed in CHO cells and conjugated to APC.
<b>Accession Number:</b>	P20273
<b>Molecular Weight:</b>	The protein has a predicted molecular weight of 101 kDa. Under DTT-reducing conditions, it migrates at approximately 130-150 kDa on SDS-PAGE prior to conjugation.
<b>Affinity Tag:</b>	C-Fc
<b>Formulation:</b>	1xPBS buffer, pH7.4, 0.09% NaN <sub>3</sub> with a carrier protein
<b>Endotoxin level:</b>	Not tested
<b>Protein Concentration:</b>	25µg size is bottled at 0.1mg/mL concentration. 100 µg size is bottled at lot specific concentration.
<b>Storage and Handling:</b>	Briefly centrifuge the vial upon receipt. An unopened vial may be stored at 2-8°C for up to six months.

### 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.

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