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Biotin Human CD22 Protein (C-His-Avi)

Catalog Number:	803403, 803404
Size:	25 ug, 100 ug
Target Name:	CD22, SIGLEC2, BL-CAM
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	ELISA, BLI
Format:	Liquid, Biotinylated
Expression Host:	CHO
Species:	Human
Sources:	Human CD22 protein (Asp20-Arg687) with C-terminus His-Avi tag is expressed in CHO cells. This protein was site-specifically labeled with Biotin by BirA ligase.
Accession Number:	P20273
Molecular Weight:	The protein has a predicted molecular weight of 78.6 kDa. Under DTT-reducing conditions, it migrates at approximately 100 kDa on SDS-PAGE.
Affinity Tag:	C-His-Avi
Purity:	>95% based on SDS-PAGE under reducing condition
Formulation:	1xPBS buffer, pH7.4, 0.22 μm filtered
Endotoxin level:	Not tested
Protein Concentration:	25μg size is bottled at 0.2mg/mL concentration. 100 μg size is supplied at a lot-specific concentration.
Storage and Handling:	Briefly centrifuge the vial upon receipt. An unopened vial can be stored at 4°C for up to 2 weeks, or at -20°C or below for up to six months. The protein may be further diluted to 0.1 mg/mL using 0.22 μm-filtered PBS buffer (pH 7.4). For long-term storage, the diluted stock solution should be aliquoted and stored at ≤ –70°C to minimize freeze-thaw cycles. If additional dilution is required, carrier proteins such as FBS or BSA should be added to maintain protein stability.
Recommended Usage:	For detection, use a secondary reagent with this product.

BACKGROUND INFORMATION

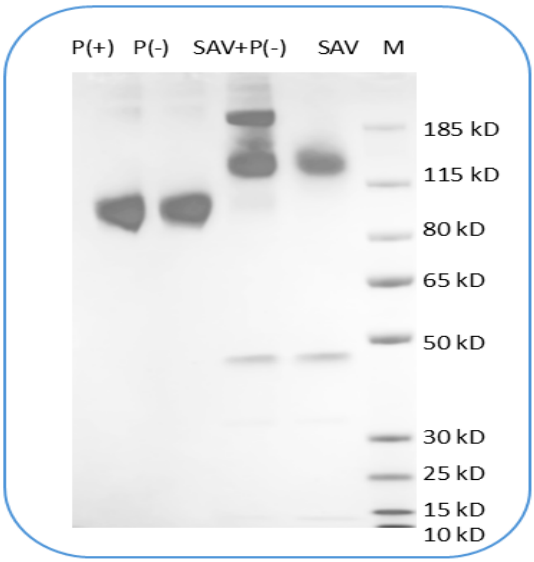
CD22 is a B cell–specific transmembrane glycoprotein that functions as an important regulator of B cell receptor (BCR) signaling and immune tolerance. Also known as Siglec-2, CD22 belongs to the sialic acid–binding immunoglobulin-like lectin (Siglec) family and is expressed almost exclusively on mature 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 CD22 protein (C-His-Avi) was biotinylated in vitro using BirA ligase. SDS-PAGE analysis under reducing (P+) and non-reducing (P−) conditions shows the protein has a purity greater than 95%. A gel shift assay using co-incubation with streptavidin indicates that the biotinylation efficiency of the CD22 protein exceeds 95%.

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