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InnoCyto Inc.

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In Vivo Star Anti-Human CD22 (Siglec-2) Antibody

Catalog Number:	516801, 516802, 516803
Size:	1 mg, 5 mg, 25 mg
Target Name:	CD22, BL-CAM, Siglec-2
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	NCI m971
Application:	Direct ELISA, functional assay, Flow Cytometry
Reactivity:	Human
Format:	Liquid
Product Description:	In vivo Grade Recombinant Anti-human Siglec-2/CD22 Monoclonal Antibody
Isotype:	Mouse IgG2a Kappa
Antibody Type:	Recombinant
Purity:	>95% by reducing SDS-PAGE
Endotoxin:	< 1 EU per 1 mg of the protein by the LAL method.
Storage Conditions:	4ºC
Grade:	In vivo
Recommended Usage:	This product is suitable in in vitro functional assays or in vivo on human cells used in animal models. Optimal amounts need to be determined empirically for each experiment.
Hidden Synonyms:	InVivoMab, InVivoPlus, GoInVivo, In Vivo Gold
RRID:	AB_3739444

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.

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