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In Vivo Star Anti-Human CD32 (FcγRII) Antibody

Catalog Number:	517601, 517602, 517603
Size:	1 mg, 5 mg, 25 mg
Target Name:	CD32, FcγRII, FCRII
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	IV.3-hg1SL
Application:	Direct ELISA, functional assay, Flow Cytometry
Reactivity:	Human
Format:	Liquid
Product Description:	In vivo Grade Recombinant Anti-human CD32 Monoclonal Antibody
Isotype:	Human IgG1 Fc Silent 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

BACKGROUND INFORMATION

CD32, also known as Fc gamma receptor II (FcγRII), is a low- to medium-affinity receptor for the Fc portion of immunoglobulin G (IgG). It plays a central role in regulating immune complex handling, antibody-dependent cellular responses, and modulation of immune activation. CD32 is widely expressed on immune cells such as B cells, monocytes, neutrophils, macrophages, and certain dendritic cell subsets. By binding the Fc region of IgG, CD32 mediates both activating and inhibitory signals depending on its isoform, thereby maintaining a delicate balance between immune activation and tolerance.

Structurally, CD32 belongs to the immunoglobulin superfamily and exists in several isoforms encoded by distinct genes, including CD32A (FcγRIIA), CD32B (FcγRIIB), and CD32C (FcγRIIC). Each isoform features two extracellular immunoglobulin-like domains for IgG binding, a transmembrane segment, and a cytoplasmic tail that determines its signaling properties. CD32A and CD32C contain immunoreceptor tyrosine-based activation motifs (ITAMs), enabling them to trigger pro-inflammatory signaling upon immune complex engagement. In contrast, CD32B carries an immunoreceptor tyrosine-based inhibitory motif (ITIM), which dampens activation signals, particularly in B cells, thereby preventing overactive antibody responses.

The primary ligands of CD32 are the Fc domains of IgG subclasses, most notably IgG1 and IgG3 in humans, which form immune complexes that engage CD32 on effector cells. This interaction regulates processes such as phagocytosis, cytokine production, antibody-dependent cellular cytotoxicity (ADCC), and feedback inhibition of antibody production.

CD32 plays significant roles in disease contexts. Dysregulation of CD32 expression or signaling contributes to autoimmunity, as seen in systemic lupus erythematosus (SLE) and rheumatoid arthritis, where reduced inhibitory CD32B function or excessive activating receptor engagement leads to immune complex-mediated inflammation. Certain viral infections, including HIV, exploit CD32 expression on immune cells to persist or evade immune clearance. In cancer, CD32 affects the efficacy of therapeutic antibodies by influencing immune effector cell activation and ADCC.

Therapeutically, CD32 is targeted to fine-tune immune responses. Enhancing CD32B signaling offers a potential approach to suppress autoimmunity, while blocking inhibitory CD32B can amplify antibody-based cancer therapies. Manipulating CD32's signaling balance holds promise for improving treatment in autoimmune diseases, infectious disorders, and immunotherapy for malignancies, representing a versatile node in immunoregulation and therapeutic development.

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