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Anti-Human CD32 (FcγRII) Antibody

Catalog Number:	109801, 109802
Size:	100 ug, 500 ug
Target Name:	CD32, FcγRII, FCRII
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	IV.3
Application:	Flow Cytometry
Reactivity:	Human
Format:	Purified
Isotype:	Mouse IgG2b
Antibody Type:	Monoclonal
Formulation:	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide
Protein Concentration:	0.5 mg/mL
Storage&Handling:	The antibody solution should be stored between 2°C and 8°C
Recommended Usage:	For flow cytometric staining, it is recommended to use less than 0.25 µg 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
Isotype Control:	301601

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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