

In Vivo Star Anti-Mouse CD20 Antibody

Catalog Number:	515401, 515402, 515403
Size:	1 mg, 5 mg, 25 mg
Target Name:	CD20, MS4A-1, MS4A1
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	18B12
Application:	ELISA, WB, Flow cytometry, IHC, ICC, animal model study
Reactivity:	Mouse
Format:	Liquid
Product Description:	In Vivo Grade Recombinant Anti-mouse CD20 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:	4°C
Grade:	In vivo
Recommended Usage:	This product is suitable for in vivo animal use. Optimal amounts need to be determined empirically for each experiment.
Hidden Synonyms:	InVivoMab, InVivoPlus, GoInVivo, In Vivo Gold
RRID:	AB_3739430

BACKGROUND INFORMATION

CD20 is a B cell-specific surface molecule that plays a key role in B cell activation and regulation and is best known as one of the most successful therapeutic targets in immunology and oncology. It is expressed on B cells from the late pre-B cell stage through mature and memory B cells but is absent on early pro-B cells and terminally differentiated plasma cells. This expression pattern makes CD20 an ideal marker for identifying and targeting the majority of circulating and tissue-resident B cells.

Structurally, CD20 is a small, non-glycosylated integral membrane protein with four transmembrane helices, two extracellular loops, and intracellular N- and C-terminal domains. Unlike many CD molecules, CD20 does not belong to the immunoglobulin superfamily and lacks a long cytoplasmic signaling motif. Instead, CD20 is thought to function as part of a membrane complex involved in ion transport, particularly calcium flux, which is critical for B cell activation and proliferation. Functionally, CD20 contributes to the regulation of B cell receptor (BCR) signaling by influencing calcium entry following antigen engagement. Through modulation of intracellular calcium levels, CD20 affects B cell activation, cell cycle progression, and differentiation. While CD20 is not essential for

B cell development, it plays an important role in optimizing B cell responses during immune activation. A notable feature of CD20 is that it does not have a clearly defined natural ligand. Its activity appears to be mediated through homotypic interactions, association with other membrane proteins, and organization within lipid rafts rather than classical ligand-receptor binding. This lack of ligand has not limited its therapeutic utility, as CD20 is stably expressed and poorly internalized, properties that are advantageous for antibody-based targeting.

CD20 is implicated in a range of diseases characterized by pathological B cell activity. It is highly expressed on most B cell non-Hodgkin lymphomas and chronic lymphocytic leukemia, making it a valuable diagnostic marker. In autoimmune diseases such as rheumatoid arthritis, multiple sclerosis, and systemic lupus erythematosus, autoreactive CD20⁺ B cells contribute to disease progression through autoantibody production and antigen presentation.

Therapeutically, CD20 has revolutionized the treatment of B cell-mediated diseases. Monoclonal antibodies targeting CD20 deplete B cells through mechanisms including antibody-dependent cellular cytotoxicity, complement-dependent cytotoxicity, and induction of apoptosis. CD20-targeted therapies are widely used in hematologic malignancies and autoimmune disorders and have established B cell depletion as a powerful and durable therapeutic strategy.

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