

## In Vivo Star Anti-Human CD20 Antibody

<b>Catalog Number:</b>	518101, 518102, 518103
<b>Size:</b>	1 mg, 5 mg, 25 mg
<b>Target Name:</b>	Human CD20
<b>Regulatory Status:</b>	RUO

### PRODUCT DETAILS

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<b>Clone:</b>	B9E9
<b>Application:</b>	Direct ELISA, functional assay, Flow Cytometry
<b>Reactivity:</b>	Human
<b>Format:</b>	Liquid
<b>Product Description:</b>	In vivo Grade Recombinant Anti-Human CD20 Monoclonal Antibody
<b>Isotype:</b>	Mouse IgG2a Kappa
<b>Antibody Type:</b>	Recombinant
<b>Purity:</b>	>95% by reducing SDS-PAGE
<b>Endotoxin:</b>	< 1 EU per 1 mg of the protein by the LAL method.
<b>Storage Conditions:</b>	4°C
<b>Grade:</b>	In vivo
<b>Recommended Usage:</b>	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.
<b>Hidden Synonyms:</b>	InVivoMab, InVivoPlus, GoInVivo, In Vivo Gold

### BACKGROUND INFORMATION

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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<sup>+</sup> 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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