

## Anti-Human CD38 (Daratumumab Biosimilar)

<b>Catalog Number:</b>	501801, 501802, 501803
<b>Size:</b>	1 mg, 5 mg, 20 mg
<b>Regulatory Status:</b>	RUO

### PRODUCT DETAILS

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<b>Clone:</b>	Daratumumab
<b>Application:</b>	Flow cytometry, animal model study
<b>Format:</b>	Liquid
<b>Product Description:</b>	Anti-Human CD38 (Daratumumab Biosimilar)
<b>Isotype:</b>	Human IgG1
<b>Clonality:</b>	Recombinant
<b>Immunogen:</b>	Human CD38
<b>Species specificity:</b>	Human
<b>Purity:</b>	>95% by reducing SDS-PAGE
<b>Grade:</b>	In vivo
<b>Storage Conditions:</b>	4°C
<b>Maximal Shelf Life:</b>	12 months

### BACKGROUND INFORMATION

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Daratumumab is a fully human monoclonal antibody belonging to the immunoglobulin G1 kappa (IgG1 $\kappa$ ) subclass. It was developed using recombinant DNA technology and produced in mammalian expression systems such as Chinese Hamster Ovary (CHO) cells to maintain human-like post-translational modifications including glycosylation and disulfide linkage formation. The molecule has a molecular weight of approximately 148 kilodaltons (kDa) and consists of two identical heavy chains and two identical light chains connected by disulfide bonds, forming the canonical Y-shaped IgG antibody structure. Each heavy chain contains one variable (VH) and three constant (CH1-CH3) domains, while each light chain contains one variable (VL) and one constant (CL) domain.

The antigen-binding sites of Daratumumab are located within the complementarity-determining regions (CDRs) of the VH and VL domains, which confer specificity toward CD38, a transmembrane glycoprotein expressed at varying densities on many cell types. The binding interface between Daratumumab and CD38 is characterized by high-affinity interactions involving hydrogen bonding, hydrophobic forces, and electrostatic complementarity. Structural studies have shown that Daratumumab binds to a conformational epitope on CD38 composed of both protein and carbohydrate residues, highlighting its precise steric complementarity with the target antigen. This interaction enables the antibody to influence CD38's enzymatic and receptor-mediated functions in experimental models, such as those modulating calcium signaling and cellular adhesion.

The Fc (fragment crystallizable) region of Daratumumab, typical of IgG1 molecules, promotes molecular stability and mediates effector interactions by engaging Fc gamma receptors (Fc $\gamma$ R) on immune cells and the complement protein C1q. These

engagements can initiate immune mechanisms such as complement-dependent cytotoxicity (CDC) and antibody-dependent cellular cytotoxicity (ADCC) under laboratory conditions. Additionally, the Fc region interacts with neonatal Fc receptors (FcRn), extending the antibody's circulatory half-life through recycling.

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