Anti-Human CD4 (Ibalizumab)

IVMB0500

Product Information

Product SKU:	IVMB0500	**Clone**:	TNX-355	**Target**:	CD4
Size:	500 µg			**Isotype**:	Human IgG4κ

Additional Information

Reactivity:	Human	**Host Species**:	Human
Antibody Type:	Biosimilar Recombinant Human Monoclonal Antibody	**Expression Host**:	HEK-293 Cells

Immunogen Information

Background:

CD4 is a cell surface glycoprotein essential for both T cell activation and human immunodeficiency virus type-1 (HIV-1) infection [1,2]. CD4 consists of an extracellular segment composed of four tandem immunoglobulin-like domains (D1 to D4), a single transmembrane span, and a short C-terminal cytoplasmic tail [1]. HIV-1 entry into host CD4 cells is a complex process that occurs through the interaction of HIV-1 glycoprotein 120 (gp120) with extracellular CD4 D1 [3,4]. When gp120 binds to CD4, a conformational shift occurs that allows co-receptors to bind to the gp120/receptor complex, leading to viral fusion and entry. Ibalizumab is the first CD4-directed post-attachment HIV-1 entry inhibitor and prevents entry of a broad spectrum of HIV-1 isolates [1,5,6,7,8].

Ibalizumab selectively binds to an epitope on CD4 D2 (residues 121-124 and 127-134 [9] and especially L96, P121, P122, and Q163 [1,7]) as well as residues E77 and S79 on D1 at the interface between D1 and D2 4,7. Ibalizumab primarily contacts the BC-loop in D2 at the D1-D2 junction on the opposite side to the gp120 and major histocompatibility complex II (MHC-II) binding sites [2]. Ibalizumab does not inhibit HIV-1 gp120 binding to D1, but instead induces conformational changes that via steric hindrance block gp120 and HIV co-receptors from interacting, thereby preventing viral fusion and entry [3,4,7,10,11]. Additionally, because the cellular epitope is distant from the D1 MHC-II binding site [4], MHC-II mediated immunosuppression is prevented [3]. Furthermore, as a humanized IgG4 antibody, ibalizumab

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displays low affinity for C1q and FcγRI receptors of natural killer cells and consequently has low cellular cytotoxic dependent activity and no Fc-mediated CD4+ T cell depletion [3].

Ibalizumab was derived from mu5A8 by grafting the mouse complementary-determining region onto a human IgG4 construct [1,3,12]. The chemical name is immunoglobulin G4, anti-(human CD4 (antigen)) (human-mouse monoclonal 5A8 γ4-chain), disulphide with human-mouse monoclonal 5A8 κ-chain, dimer [5].

Endotoxin Level: < 1.0 EU/mg as determined by the LAL method

Applications: ELISA

Synonyms: CD4, CD4mut, CD4 molecule, OKT4D, IMD79

Antigen Distribution: CD4 is primarily found on T lymphocytes.

Immunogen: Recombinant Human CD4

Formulation: This biosimilar antibody is aseptically packaged and formulated in 0.01 M phosphate buffered saline (150 mM NaCl) PBS pH 7.2 - 7.4 with no carrier protein, potassium, calcium or preservatives added. Due to inherent biochemical properties of antibodies, certain products may be prone to precipitation over time. Precipitation may be removed by aseptic centrifugation and/or filtration.

Specificity: Ibalizumab binds to domain 2 of CD4 T cell receptors, on the protein surface opposite where the major histocompatibility complex-class II and HIV-1 gp120 binding sites are located. Ibalizumab binds to both human and monkey CD4.

Recommended Isotype Controls: Human IgG4

Storage & Handling: Functional grade biosimilar antibodies may be stored sterile as received at 2-8°C for up to one month. For longer term storage, aseptically aliquot in working volumes without diluting and store at -80°C. Avoid Repeated Freeze Thaw Cycles.