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Anti-Human LAG-3 (Relatlimab Biosimilar)

Catalog Number:	505201, 505202, 505203
Size:	1 mg, 5 mg, 20 mg
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	Relatlimab
Application:	Flow cytometry, animal model study
Format:	Liquid
Product Description:	Anti-Human LAG-3 (Relatlimab Biosimilar)
Isotype:	Human IgG4
Clonality:	Recombinant
Immunogen:	Human LAG-3
Species specificity:	Human
Purity:	>95% by reducing SDS-PAGE
Grade:	In vivo
Storage Conditions:	4ºC
Maximal Shelf Life:	12 months
Synonyms:	CD223

BACKGROUND INFORMATION

Relatlimab is a fully human monoclonal antibody belonging to the immunoglobulin G4 (IgG4) subclass, engineered to specifically target lymphocyte activation gene-3 (LAG-3, also known as CD223), a surface receptor involved in the regulation of T-cell activity. Structurally, Relatlimab is composed of two identical heavy chains and two identical light chains connected by interchain disulfide bonds, forming the canonical Y-shaped configuration typical of IgG molecules. The antibody has an approximate molecular weight of 146 kilodaltons (kDa) and is produced in mammalian expression systems, such as Chinese Hamster Ovary (CHO) cells, ensuring correct folding, assembly, and human-like glycosylation.

The antigen-binding regions of Relatlimab are formed by the complementarity-determining regions (CDRs) within the variable (VH and VL) domains of each chain. These CDR loops mediate high-affinity, selective recognition of an epitope on the extracellular immunoglobulin-like domains of LAG-3. The interaction is stabilized through hydrogen bonding, electrostatic complementarity, and hydrophobic contacts, yielding sub-nanomolar binding affinities. LAG-3 functions as an inhibitory immune checkpoint receptor that modulates T-cell proliferation and activation by binding to its natural ligand, major histocompatibility complex class II (MHC-II), and additional ligands such as fibrinogen-like protein 1 (FGL1). By engaging the receptor’s extracellular domain, Relatlimab sterically blocks the LAG-3–ligand interaction. This disruption prevents transmission of inhibitory signals that downregulate T-cell receptor (TCR) signaling pathways, restoring or prolonging T-cell effector activity in immune-regulation model systems.

The Fc (fragment crystallizable) portion of Relatlimab contains an IgG4 backbone with a stabilizing serine-to-proline mutation (S228P) in the hinge region to prevent half-antibody formation. The IgG4 isotype minimizes effector functions such as complement-dependent cytotoxicity (CDC) and antibody-dependent cellular cytotoxicity (ADCC) while preserving structural stability and extended half-life through neonatal Fc receptor (FcRn) recycling.