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Anti-Human PD1 (Camrelizumab Biosimilar)

Catalog Number:	501201, 501202, 501203
Size:	1 mg, 5 mg, 20 mg
Target Name:	PD1, PD-1, PDCD1, CD279, SLEB2
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	Camrelizumab
Application:	Flow cytometry, animal model study
Reactivity:	Human
Format:	Liquid
Product Description:	Anti-Human PD-1 (Camrelizumab Biosimilar)
Isotype:	Human IgG4
Clonality:	Recombinant
Immunogen:	Human PD1
Species specificity:	Human
Purity:	>95% by reducing SDS-PAGE
Grade:	In vivo
Storage Conditions:	4ºC
Maximal Shelf Life:	12 months
Synonyms:	CD279
RRID:	AB_3739288
Antibody Type:	Recombinant
Reactivity:	Human
GeneID:	5133

BACKGROUND INFORMATION

Camrelizumab is a humanized monoclonal antibody that belongs to the immunoglobulin G4 (IgG4) subclass and is engineered to specifically bind to the programmed death-1 (PD-1) receptor on immune cells. Structurally, it is a full-length antibody composed of two identical heavy chains and two identical light chains, linked by disulfide bonds to form the characteristic Y-shaped structure of immunoglobulins. The molecule has a molecular mass of approximately 146 kilodaltons (kDa) and is produced using mammalian cell expression systems, such as Chinese Hamster Ovary (CHO) cells, to ensure proper glycosylation, folding, and structural stability.

The variable domains of the heavy (VH) and light (VL) chains contain complementarity-determining regions (CDRs) that form the antigen-binding site responsible for recognizing the PD-1 receptor with high affinity and specificity. This interaction is primarily stabilized by hydrogen bonding and hydrophobic contacts between the CDR loops of Camrelizumab and amino acid residues located on the extracellular domain of PD-1. This binding prevents PD-1 from interacting with its natural ligands, PD-L1 and PD-L2, which normally mediate inhibitory immune signaling. By blocking this receptor–ligand pathway, Camrelizumab modulates the signaling cascade that downregulates T-cell activation in immunological model systems.

Camrelizumab's constant region, derived from the IgG4 isotype, confers specific biophysical properties. The IgG4 Fc region has been engineered with a stabilizing S228P substitution to prevent half-antibody formation, enhancing molecular integrity. Compared to IgG1 antibodies, the IgG4 subtype exhibits minimal effector functions such as antibody-dependent cellular cytotoxicity (ADCC) and complement-dependent cytotoxicity (CDC), ensuring that the molecule primarily functions through receptor blockade rather than immune cell recruitment. The Fc domain also interacts with neonatal Fc receptors (FcRn) to extend the half-life of the antibody through recycling processes. Overall, Camrelizumab exemplifies a rationally designed IgG4 monoclonal antibody optimized for structural stability, receptor selectivity, and precise modulation of PD-1–mediated immune pathways.

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