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Anti-Human CTLA-4 (Ipilimumab Biosimilar)

Catalog Number:	503401, 503402, 503403
Size:	1 mg, 5 mg, 20 mg
Target Name:	CTLA-4, CTLA4, Cytotoxic T-Lymphocyte Antigen 4
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	Ipilimumab
Application:	Flow cytometry, animal model study
Reactivity:	Human
Format:	Liquid
Product Description:	Anti-Human CTLA-4 (Ipilimumab Biosimilar)
Isotype:	Human IgG1
Clonality:	Recombinant
Immunogen:	Human CTLA-4
Species specificity:	Human
Purity:	>95% by reducing SDS-PAGE
Grade:	In vivo
Storage Conditions:	4ºC
Maximal Shelf Life:	12 months
Synonyms:	CD152
RRID:	AB_3739310
Antibody Type:	Recombinant
Reactivity:	Human

BACKGROUND INFORMATION

Ipilimumab is a fully human monoclonal antibody that belongs to the immunoglobulin G1 kappa (IgG1κ) subclass and is designed to target cytotoxic T-lymphocyte–associated protein 4 (CTLA-4, also known as CD152). Structurally, Ipilimumab is a recombinant glycoprotein with an approximate molecular weight of 148 kilodaltons (kDa). The molecule consists of two identical heavy chains and two identical light chains linked through disulfide bonds, forming the classical Y-shaped structure characteristic of IgG antibodies. Each heavy chain contains one variable (VH) and three constant (CH1-CH3) domains, while each light chain includes one variable (VL) and one constant (CL) domain. The molecule is expressed in mammalian systems, typically Chinese Hamster Ovary (CHO) cells, allowing proper glycosylation and folding necessary for stability and bioactivity.

The antigen-binding regions of Ipilimumab are defined by complementarity-determining regions (CDRs) within the variable domains of the heavy and light chains. These CDRs form the paratope that recognizes and binds with high affinity to an extracellular epitope on CTLA-4, an immune checkpoint receptor expressed on activated T cells. CTLA-4 normally interacts with the costimulatory ligands CD80 (B7-1) and CD86 (B7-2) present on antigen-presenting cells, transmitting an inhibitory signal that limits T-cell activation. By binding to CTLA-4, Ipilimumab sterically blocks its interaction with these ligands, thereby maintaining the availability of CD80/CD86 for engagement with CD28, the activating receptor on T cells. This molecular blockade results in the enhancement and prolongation of T-cell activation in in vitro immunological models.

The Fc (fragment crystallizable) region of Ipilimumab, derived from the human IgG1 isotype, contributes to molecular stability and extended serum persistence through interactions with the neonatal Fc receptor (FcRn). It also retains potential for limited effector functions, such as antibody-dependent cellular cytotoxicity (ADCC) and complement activation, in certain experimental contexts.

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