

Anti-hCTLA4-hIgG1NQ

Non-glycosylated monoclonal human IgG1 antibody against human CTLA-4

Catalog # hctla4-mab12

<http://www.invivogen.com/anti-hctla4-higg1nq>

For research use only, not for diagnostic or therapeutic use

Version # 17J26-MM

PRODUCT INFORMATION

Content: 100 µg anti-hCTLA4-hIgG1NQ, purified antibody, provided azide-free and lyophilized

Specificity: Cytotoxic T-lymphocyte-associated protein 4 (CTLA-4)

Clonality: Monoclonal antibody

Isotype: Human IgG1

Source: CHO cells

Formulation: 0.2 µm filtered solution in a sodium phosphate buffer with glycine, saccharose and stabilizing agents.

Purity: Purified by affinity chromatography with protein G

Antibody resuspension

Add 1 ml of sterile water to obtain a concentration of 0.1 mg/ml.

Storage

- Product is shipped at room temperature. Store lyophilized antibody at -20 °C. Lyophilized product is stable for at least 1 year.

- Reconstituted antibody is stable for 1 month when stored at 4°C and for 1 year when aliquoted and stored at -20°C. Avoid repeated freeze-thaw cycles.

Quality control

- Binding of anti-hCTLA4-hIgG1NQ to human CTLA-4 has been tested using flow cytometry.

- The complete sequence of this antibody has been verified.

- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

Anti-hCTLA4-hIgG1NQ features a mutated constant region of the human IgG1 isotype and the variable region of ipilimumab. Ipilimumab is a fully human IgG1 monoclonal antibody that targets CTLA-4 (also known as CD152), a negative regulator of T cell activation. By binding CTLA-4, it inhibits negative signals that physiologically downregulate T cell activation and exerts its therapeutic activity by upregulating the antitumor activity of T lymphocytes^{1,2}. In addition, it induces antibody-dependent cell-mediated cytotoxicity (ADCC) and TNF-α production³. Ipilimumab has been approved by the FDA for the treatment of unresectable or metastatic melanoma. It is undergoing clinical trials for lung cancer⁴.

Anti-hCD20-hIgG1fut contains a N-glycosylation mutation of the constant region of the human IgG1 where potential asparagine (N) glycosylation sites are substituted by glutamine (Q) residues resulting in the production of a non-glycosylated antibody. Glycosylation of an antibody has no effect on antigen binding but is essential for Fc receptor-mediated activity⁵. In non-glycosylated antibodies the effector mechanisms mediated through the Fc receptors types (FcγRI, FcγRII, FcγRIII) and the C1q component of complement are severely compromised or ablated⁶. This antibody has been produced in CHO cells and purified by affinity chromatography with protein G.

1. **Grosso JF. & Jure-Kunkel MN., 2013.** CTLA-4 blockade in tumor models: an overview of preclinical and translational research. *Cancer Immun.* 13:5. 2. **Maio M. et al., 2013.** Update on the role of ipilimumab in melanoma and first data on new combination therapies. *Curr Opin Oncol.* 25:166-72. 3. **Laurent S. et al., 2013.** The engagement of CTLA-4 on primary melanoma cell lines induces antibody-dependent cellular cytotoxicity and TNF-α production. *J Transl Med.* 11:108. 4. **Tomasini P., 2012.** Ipilimumab: its potential in non-small cell lung cancer. *Ther Adv Med Oncol.* 4: 43-50. 5. **Arnold J. et al., 2007.** The impact of glycosylation on the biological function and structure of human immunoglobulins. *Annu Rev Immunol* 25:21-50. 6. **Jefferis R., 2009.** Glycosylation as a strategy to improve antibody-based therapeutics. *Nat Rev Drug Discov.* 8:226-34.

APPLICATIONS

Anti-hCTLA4-hIgG1NQ can be used with Anti-hCTLA4-hIgG1 to study the impact of effector functions.

ANTIBODY ISOTYPE COLLECTION

For your research, InvivoGen provides an anti-hCTLA4 isotype family. This isotype family consists of monoclonal antibodies comprising the variable region of ipilimumab, and the constant region of different human isotypes; IgG1, IgG2, IgG4, and IgA2. The isotypes differ in their functional locations and effector functions, such as complement-dependent cytotoxicity (CDC) and antibody-dependent cell-mediated cytotoxicity (ADCC), as presented in the table below.

Isotype	Description
Human IgG1	Most abundant IgG present in serum High CDC, high ADCC
Human IgG2	Second most common IgG present in serum Low CDC, low ADCC
Human IgG4	Least common IgG present in serum No CDC, low ADCC
Human IgG4 (S228P)	Designed to prevent exchange of IgG4 molecules No CDC, low ADCC
Human IgA2	Major class in secretions, oligomeric forms, highly resistant to enzymatic degradation. No CDC, low ADCC

RELATED PRODUCTS

Product	Catalog Code
Anti-hCTLA4-hIgG1 (Ipilimumab)	hctla4-mab1
Anti-hCTLA4-hIgG1fut (non-fucosylated)	hctla4-mab13
Anti-hCTLA4-hIgG2	hctla4-mab2
Anti-hCTLA4-hIgG4 (S228P)	hctla4-mab14
Anti-hCTLA4-hIgA2	hctla4-mab7

Other antibody isotype families are available, such as Anti-hCD20, Anti-hPD1 and Anti-β-Gal (control).

For more information visit www.invivogen.com/antibody-isotypes.

TECHNICAL SUPPORT

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