

Anti-hEGFR-hIgG1NQ

Non-glycosylated monoclonal human IgG1 antibody against human EGFR

Catalog # hegfr-mab12

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

For research use only, not for diagnostic or therapeutic use

Version # 17J16-MM

PRODUCT INFORMATION

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

Specificity: Epidermal growth factor receptor (EGFR)

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

Quality control

- Binding to human EGFR 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-hEGFR-hIgG1NQ features a mutated constant region of the human IgG1 isotype and the variable region of cetuximab. Cetuximab is a chimeric human/mouse IgG1 monoclonal antibody that targets EGFR, a cell surface receptor overexpressed in many types of cancer. EGFR is activated by binding specific ligands, including epidermal growth factor and transforming growth factor- α . Activation of EGFR promotes cell proliferation and survival, as well as angiogenesis, leading to tumor growth and metastasis. Binding of cetuximab to EGFR blocks ligand-receptor binding and induces receptor internalization and subsequent degradation. Consequently, it blocks downstream pathways which regulate cell growth and angiogenesis. In addition, it induces cell death through antibody-dependent cell-mediated cytotoxicity (ADCC)^{1,2}. Cetuximab has been approved by the FDA for the treatment of metastatic colorectal cancer and metastatic squamous cell carcinoma of the head and neck³.

Anti-hEGFR-hIgG1 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 activity⁴. In non-glycosylated antibodies the effector mechanisms mediated through the Fc receptors types (Fc γ RI, Fc γ RII, Fc γ RIII) and the C1q component of complement are severely compromised or ablated⁵. This antibody has been produced in CHO cells and purified by affinity chromatography with protein G.

1. Kurai J. *et al.*, 2007. Antibody-dependent cellular cytotoxicity mediated by cetuximab against lung cancer cell lines. *Clin Cancer Res.* 3(5):1552-61. 2. Kimura H. *et al.*, 2007. Antibody-dependent cellular cytotoxicity of cetuximab against tumor cells with wild-type or mutant epidermal growth factor receptor. *Cancer Sci.* 98(8):1275-80. 3. Vincenzi B. *et al.*, 2010. Cetuximab: from bench to bedside. *Curr Cancer Drug Targets.* 10(1):80-95. 4. Arnold J. *et al.*, 2007. The impact of glycosylation on the biological function and structure of human immunoglobulins. *Annu Rev Immunol* 25:21-50. 5. Jefferis R., 2009. Glycosylation as a strategy to improve antibody-based therapeutics. *Nat Rev Drug Discov.* 8:226-34.

APPLICATIONS

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

ANTIBODY ISOTYPE FAMILY

For your research, InvivoGen provides an anti-hEGFR isotype family. This family consists of monoclonal antibodies comprising the variable region of cetuximab, 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-hEGFR-hIgG1 (Cetuximab)	hegfr-mab1
Anti-hEGFR-hIgG1 fut (non-fucosylated)	hegfr-mab13
Anti-hEGFR-hIgG2	hegfr-mab2
Anti-hEGFR-hIgG4 (S228P)	hegfr-mab14
Anti-hEGFR-hIgA2	hegfr-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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