

## Anti-Human EGFR (Nimotuzumab Biosimilar)

<b>Catalog Number:</b>	504101, 504102, 504103
<b>Size:</b>	1 mg, 5 mg, 20 mg
<b>Target Name:</b>	EGFR, Proto-oncogene c-ErbB-1, Receptor tyrosine-protein kinase erbB-1, HER1
<b>Regulatory Status:</b>	RUO

### PRODUCT DETAILS

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<b>Clone:</b>	Nimotuzumab
<b>Application:</b>	Flow cytometry, animal model study
<b>Reactivity:</b>	Human
<b>Format:</b>	Liquid
<b>Product Description:</b>	Anti-Human EGFR (Nimotuzumab Biosimilar)
<b>Isotype:</b>	Human IgG4
<b>Clonality:</b>	Recombinant
<b>Immunogen:</b>	Human EGFR / ErbB-1
<b>Species specificity:</b>	Human
<b>Purity:</b>	>95% by reducing SDS-PAGE
<b>Grade:</b>	In vivo
<b>Storage Conditions:</b>	4°C
<b>Maximal Shelf Life:</b>	12 months
<b>Synonyms:</b>	ErbB1, HER1
<b>RRID:</b>	AB_3739317
<b>Antibody Type:</b>	Recombinant
<b>Reactivity:</b>	Human

### BACKGROUND INFORMATION

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Nimotuzumab is a humanized monoclonal antibody of the immunoglobulin G1 (IgG1) subclass, engineered to selectively target the extracellular domain of the epidermal growth factor receptor (EGFR), also known as ErbB1 or HER1. Structurally, Nimotuzumab is composed of two identical heavy chains and two identical light chains interconnected by disulfide bonds, forming the characteristic Y-shaped quaternary structure of immunoglobulins. The molecule has an approximate molecular weight of 150 kilodaltons (kDa) and a glycoprotein composition typical of monoclonal antibodies expressed in mammalian systems, such as Chinese Hamster Ovary (CHO) cells, which ensure accurate folding and N-linked glycosylation.

The variable domains of the heavy (VH) and light (VL) chains contain complementarity-determining regions (CDRs) responsible for

antigen recognition. Derived from murine antibody sequences and grafted onto human immunoglobulin frameworks, these CDRs define Nimotuzumab's high-affinity, selective binding to subdomain III of the EGFR's extracellular region. This domain is essential for the receptor's interaction with natural ligands, such as epidermal growth factor (EGF) and transforming growth factor-alpha (TGF- $\alpha$ ). By binding to this epitope, Nimotuzumab competitively inhibits ligand-induced receptor dimerization and autophosphorylation, thereby blocking downstream activation of EGFR-dependent intracellular signaling cascades, including the RAS-RAF-MEK-ERK and PI3K-AKT-mTOR pathways that regulate cell survival, proliferation, and differentiation.

The Fc (fragment crystallizable) region of Nimotuzumab, typical of the IgG1 isotype, provides structural stability and prolongs serum half-life through interaction with the neonatal Fc receptor (FcRn). It also allows for secondary effector functions such as antibody-dependent cellular cytotoxicity (ADCC) and complement fixation under experimental conditions. Overall, Nimotuzumab exemplifies rational antibody engineering - integrating the ligand-blocking capabilities of an EGFR antagonist with the pharmacokinetic and effector properties of a stable IgG1 framework.

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