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# Anti-Human EGFR (Panitumumab Biosimilar)

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| **Catalog Number:** | 504601, 504602, 504603, 504604, 504605 |
| **Size:** | 1 mg, 5 mg, 20 mg, 5 mg, 20 mg |
| **Regulatory Status:** | RUO |

## PRODUCT DETAILS

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| **Clone:** | Panitumumab |
| **Application:** | Flow cytometry, animal model study |
| **Format:** | Liquid |
| **Product Description:** | Panitumumab Biosimilar, Human EGFR/ErbB-1/HER1 Monoclonal Antibody |
| **Isotype:** | Human IgG2 |
| **Clonality:** | Recombinant |
| **Immunogen:** | Human EGFR / ErbB-1 / HER1 |
| **Species specificity:** | Human |
| **Purity:** | >95% by reducing SDS-PAGE |
| **Grade:** | In vivo |
| **Storage Conditions:** | 4ºC |
| **Maximal Shelf Life:** | 12 months |
| **Synonyms:** | ErbB1, HER1 |

## BACKGROUND INFORMATION

Panitumumab is a fully human monoclonal antibody of the immunoglobulin G2 kappa (IgG2κ) subclass, specifically engineered to bind with high affinity to the epidermal growth factor receptor (EGFR), also known as ErbB1 or HER1. Structurally, Panitumumab is a recombinant glycoprotein with a molecular weight of approximately 147 kilodaltons (kDa). The molecule comprises two identical heavy chains and two identical light chains interconnected by disulfide bonds, forming the typical Y-shaped structure of immunoglobulin molecules. It is expressed in mammalian cell systems, such as Chinese Hamster Ovary (CHO) cells, allowing proper glycosylation, folding, and assembly consistent with native human antibodies.

The variable domains of Panitumumab's heavy (VH) and light (VL) chains, which contain complementarity-determining regions (CDRs), mediate specific recognition of EGFR's extracellular domain III. This region corresponds to the receptor's ligand-binding site for epidermal growth factor (EGF) and transforming growth factor-alpha (TGF-α). By occupying this site, Panitumumab prevents ligand-induced receptor dimerization, autophosphorylation, and subsequent activation of intracellular tyrosine kinase domains. This blockade interferes with downstream signaling cascades such as the RAS-RAF-MEK-ERK and phosphatidylinositol 3-kinase (PI3K)-AKT pathways, which regulate cellular processes including proliferation, differentiation, and survival. In experimental systems, this precise receptor blockade provides a model for studying EGFR-mediated signal regulation and receptor dynamics.

The Fc (fragment crystallizable) domain of Panitumumab, derived from the IgG2 isotype, is characterized by minimal effector

activity compared with IgG1 antibodies. It exhibits limited affinity for Fc gamma receptors (FcγRs) and complement component C1q, thereby reducing antibody-dependent cellular cytotoxicity (ADCC) and complement-dependent cytotoxicity (CDC). However, the Fc region contributes to molecular stability and prolongs half-life through interactions with neonatal Fc receptors (FcRn), enabling antibody recycling. Overall, Panitumumab exemplifies a rationally designed human IgG2 monoclonal antibody that combines high-affinity ligand blockade with structural stability, serving as a precise molecular tool for exploring receptor-mediated signaling and protein–protein interactions.