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Anti-human EGFR Monoclonal Antibody

Catalog No.: YR0375

Basic Information

Molecular Weight
150kDa

Endotoxin
<1EU/mg (<0.001EU/μg)Determined by LAL gel clotting assay

Sterility
0.2 μm filtration

Aggregation
<5% Determined by SECP

Purity
>95% Determined by SDS-PAGE

Reported Applications

ELISA,neutralization,functional assays such as bioanalytical P K and ADA assays,and those assays for studying biological pathways

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Background

Zalutumumab Biosimilar uses the same protein sequences as the therapeutic antibody zalutumumab. Zalutumumab is a high affinity, completely human IgG1 monoclonal antibody directed towards the epidermal growth factor receptor (EGFR, also known as ErbB1/HER1). Zalutumumab is derived from transgenic mice immunized with A431-derived EGFR. Zalutumumab has undergone pre-clinical and Phase I and II studies and is also in Phases I and II for SCCHN front-line with chemo-radiation and SCCHN with radiation. EGFR is a 170 kDa transmembrane glycoprotein composed of a single polypeptide chain. It belongs to the ErbB receptor family, also known as the EGF receptor family. The binding of EGF at the cell surface induces the dimerization of EGFR, which results in the activation of EGFR tyrosine kinase activity and receptor trans-autophosphorylation. Sites of tyrosine autophosphorylation in the activated EGFR interact with downstream signaling proteins to form large signaling complexes. The receptor-signaling protein complexes then initiate the activation of various signaling pathways, and eventually stimulate cell proliferation and survival. Zalutumumab acts via two distinct mechanisms. First, as an inverse agonist, it specifically binds to the EGFr domain III on the cell surface and competitively inhibits the ligand binding of EGF and TGF-a to EGFR. It then blocks receptor activation by restricting the molecule's conformational flexibility: In the inactive conformation, the intracellular tyrosine kinase domains of EGFR molecules are spatially separated to an extent that prevents receptor dimerization and phosphorylation. The EGFR cascade cannot be started. This mechanism was found to be effective in established xenograft models at doses giving full receptor occupancy. Second, in contrast to panitumumab, which is an IgG2 antibody, Zalutumumab has been shown to arrest tumor growth and induce tumour regression in animal disease models even at very low, subsaturation antibody concentration. This antitumor effect is mediated by antibody-dependent cellular cytotoxicity (ADCC): The fragment antigen binding (Fab) region of the antibody binds to the antigen on EGFR-expressing tumor cells. Through an immunological response, the body's NK lymphocytes recognize and bind to the Fc portion on the antibody through an Fc receptor, CD16. The NK cell is then activated through cross-linking of Fc receptors which sends a signal to induce apoptosis. A recent study showed that this mechanism of action might be important in preventing tumour outgrowth or metastasis in vivo, even in cancers insensitive to EGFR signaling inhibition.

Immunogen Information

Clone
Zalutumumab Biosimilar

Isotype
Human IgG1 kappa

Immunogen
Human EGFR

RecommendedIsotype Control(s)
In Vivo Grade Recombinant Human IgG1 Kappa Isotype Control Antibody

Recommended Dilution Buffer
1×PBS pH 7.4

Product Information

Production
Purified from cell culture supernatant in an animal-free facility

Purification
Protein A/G

Storage
Store at 2 - 8℃. 2 - 8°C for up to 4 weeks and -80°C for long term storage (Avoid repeated freezing and thawing)