

Anti-EGFR [Matuzumab] Bulk Size Ab00534-2.0-BT

This chimeric mouse antibody was made using the variable domain sequences of the original Human IgG1 format, for improved compatibility with existing reagents, assays and techniques.

Isotype and Format: Mouse IgG2a, Kappa

Clone Number: Matuzumab

Alternative Name(s) of Target: ErbB-1; ERBB1; HER1; EGF; Epidermal growth factor receptor; Proto-oncogene c-ErbB-1; Receptor tyrosine-protein kinase erbB-1; EMD72000; mAb425; 425; mAb 425

UniProt Accession Number of Target Protein: P00533

Published Application(s): antagonist, WB, Block, ELISA, FC, IF

Published Species Reactivity: Human

Immunogen: The parental mouse antibody was generated by immunizing BALB/c mice intraperitoneally with A431 cells in phosphate buffered saline (PBS). Later on the humanized version of the antibody was created by grafting CDRs of the murine antibody onto human constant regions.

Specificity: This antibody binds the extracellular domain III of the human EGFR and does not cross react with murine EGFR. It was also reported that residues S460/G461 in EGFR domain III are essential components of the epitope. This antibody binds at a site distinct from the EGF binding site, preventing conformational re-arrangement required for dimerization, a process essential for high-affinity ligand binding (Schmiedel, 2008). This antibody can only recognize the active form of EGFR. The antibody binds to both glyco- and aglyco receptor forms. EGFR is a transmembrane mitogenic glycoprotein with a cytoplasmically facing tyrosine kinase site which is activated by binding of the epidermal growth factor in the external domain. It also binds transforming growth factor alpha (TGF α). EGFR a member of the epidermal growth factor family and is closely related to receptor tyrosine kinases. This receptor tyrosine kinase binds ligands of the EGF family and activates signalling cascades to convert extracellular cues into appropriate cellular responses. Mutations that lead to EGFR overexpression (known as upregulation) or overactivity have been associated with a number of cancers, including lung cancer, anal cancers and glioblastoma multiforme as well as inflammatory diseases.

Application Notes: This antibody is derived from a mouse parental clone mAb 425 which has demonstrated anti-tumor activity against solid tumors in phase I clinical trials. The binding characterization of this antibody to human EGFR was done using ELISA. This antibody was also found to bind human EGFR with a similar avidity as the parental mouse antibody 425 (PMID: 1798701). The parental mouse antibody 425 in combination with C225 (Cetuximab) reduced growth and survival of EGFR overexpressing MDA-MB-

468 breast cancer cells more effectively than either antibody alone. The combination was also reported to effectively inhibited AKT and MAPK phosphorylation in MDA-MB-468 cell (PMID: 18424917). This antibody was used in a phase 1 study to investigate the safety and tolerability and to explore the pharmacokinetic and pharmacodynamic profile in patients with solid tumors that express EGFR (PMID: 14701780). This antibody has been used in various phase I studies alone or in combination with other therapeutic agents to treat patients with various type of cancers (PMID: 16533873; 16622465; 19238629). A study reported that the antitumor effects of matuzumab and cetuximab depend on inhibition of EGFR downstream signaling mediated by Akt or Erk rather than on inhibition of EGFR itself (PMID: 18033688).

Antibody First Published in: Kettleborough et al. Humanization of a mouse monoclonal antibody by CDR-grafting: the importance of framework residues on loop conformation. Protein Eng. 1991 Oct;4(7):773-83. [PMID:1798701](#)

Note on publication: Describes the generation of the humanized version of murine anti-EGFR antibody mAb425.

Product Form

Size: 1 mg Purified antibody in bulk size.

Purification: Protein A affinity purified

Supplied In: PBS only.

Storage Recommendation: Store at 4°C for up to 3 months. Note, this antibody is provided without added preservatives, it is therefore recommended this antibody be handled under sterile conditions. For longer storage, aliquot and store at -20°C.

Concentration: 1 mg/ml.

Important note – This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals.