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Product Information

Anti-Epidermal Growth Factor Receptor/ErbB1
produced in goat, affinity isolated antibody

Catalog Number **E1157**

Product Description

Anti-Epidermal Growth Factor Receptor/ErbB1 is produced in goat using as immunogen purified, NSO-derived, recombinant human epidermal growth factor receptor (EGF R), extracellular domain (Gene ID: 1956). EGF R specific IgG was purified by human EGF R affinity chromatography.

Anti-Epidermal Growth Factor Receptor/ErbB1 recognizes human EGF receptor (EGF R). The antibody may be used for the identification of EGF R in various immunochemical techniques including ELISA capture, immunoblotting, immunoprecipitation, and flow cytometry.

The epidermal growth factor (EGF) family of receptor tyrosine kinases consists of four receptors, EGFR (ErbB1), ErbB2 (neu), ErbB3, and ErbB4. Members of the EGF R family contain 3 domains: an extracellular domain that is involved in ligand binding and receptor dimerization, single transmembrane domain, and cytoplasmic domain. EGF exerts its actions by binding to the EGF receptor, a 170 kDa protein.

EGF R, also known as ErbB1, is a type transmembrane glycoprotein receptor tyrosine kinase. Upon binding of one of the EGF family ligands, EGF R can form homodimers as well as heterodimers with ErbB2, ErbB3, or ErbB4. EGF R regulates cell proliferation, differentiation, motility, and apoptosis in a wide variety of cell types.

Activation of EGF receptor results in initiation of diverse cellular pathways. In response to toxic environmental stimuli, or to EGF binding to the receptor, the EGFR forms homo- or heterodimers with other family members.[1] Each dimeric receptor complex initiates a distinct signaling pathway by recruiting different Src homology 2 (SH2) containing effector proteins.

Dimerization results in auto-phosphorylation on various residues within the cytoplasmic domain, as well as phosphorylation of intracellular substrates, initiating a downstream cascade of events. The activated EGF receptor dimer forms a complex with the adaptor protein Grb that is coupled to the guanine nucleotide releasing factor, SOS. The Grb-SOS complex can either bind directly to phosphotyrosine sites or indirectly through Shc. These protein interactions bring SOS in close proximity to Ras, allowing for Ras activation. This subsequently activates the Erk and JNK signaling pathways that in turn activate transcription factors, such as c-fos, AP-1, and ELK-1 resulting in increased gene expression and cell proliferation.[2-4]

Reagent

Supplied lyophilized from a 0.2 μm filtered solution in phosphate buffered saline with 5% trehalose.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Reconstitute with 0.2 μm filtered or sterile PBS. If 1 mL of PBS is used, the antibody concentration will be 0.1 mg/mL.

Storage/Stability

Store lyophilized product at –20 °C or below. Lyophilized samples are stable for twelve months from date of receipt when stored at –20 °C or below.

Upon reconstitution, the antibody can be stored at 2-8 °C for up to one month without detectable loss of activity. For extended storage, upon reconstitiution, the solution should be frozen at –20 °C or below in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

ELISA capture: This antibody can be used as a capture antibody in a human EGF R sandwich immunoassay in combination with a biotinylated human EGF R detection antibody and recombinant human EGF R as the standard. The suggested coating concentration range is 0.2-0.8 µg/mL and should be titrated to determine the optimal concentration. In this format, approximately 3% cross-reactivity with recombinant mouse EGF R is observed, and less than 0.1% cross-reactivity with recombinant human ErbB2 and recombinant human ErbB3 is observed.

Immunoblotting: a working concentration of 1-2 µg/mL is recommended to detect human EGF R. The detection limit for rhEGF R is ~5 ng/lane under non-reducing and reducing conditions. To blot A431 cell extracts, 1 x 10^6 cells are recommended.

Immunoprecipitation: This antibody can be used at 1 µg/mL to precipitate a polypeptide of 160 kDa from A431 cell extracts.

Flow cytometry: This antibody was tested in flow cytometry using A431 cells. Dilute the antibody to 25 µg/mL and add 10 µL of the diluted solution to 1-2.5 x 10^5 cells in a total reaction volume not exceeding 200 µL. The binding of unlabeled antibodies may be visualized by adding a secondary developing reagent such as anti-goat IgG conjugated to a fluorochrome.

Note: In order to obtain the best results in various assays, it is recommended that each individual user determine their working dilution by titration.

References

1. Wells, A., EGF receptor. *Int. J. Biochem. Cell Biol.*, **31**, 637-643 (1999).
2. Quan, X., et al., N terminus of Sos 1 Ras exchange factor: critical roles for the Dbl and plecstrin homology domains. *Mol. Cell Biol.*, **18**, 771-778 (1998).
3. Lanzetti, L., et al., The Eps8 protein coordinates EGF receptor signaling through Rac and trafficking through Rab5**.** *Nature*, **408**, 374-377 (2000).
4. Poppleton, H.M., et al., Modulation of the protein tyrosine kinase activity and autophosphorylation of the epidermal growth factor receptor by its juxtamembrane region. *Arch. Biochem. Biophys.*, **363**, 227-236 (1999).

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