

Epidermal Growth Factor Receptor human

Product Number **E2645, E3641**

Synonym: EGFR

Product Description

These products are mature glycosylated receptor molecule with a molecular weight of ~170 kDa. The amino acid sequence has been published.¹ The protein is a single chain polypeptide having a molecular weight of ~131.6 kDa based on the amino acid sequence. The remainder of the weight is due to glycosylation of the protein.² The receptor isolation procedure, structure, functions and regulation, cellular physiology, and receptor related molecules have been published.²

The EGF receptor is a large, membrane-bound glycoprotein that has an extracellular domain that exhibits tyrosine kinase activity. Overexpression of the receptor can produce a neoplastic phenotype in cells and has been associated with poor prognosis or short survival time in patients with a number of types of cancer.

EGFR protein tyrosine kinase is activated when the extracellular binding domain is bound by EGF. The first detectable response is the autophosphorylation of the C-terminal tyrosines followed by phosphorylation of exogenous substrates. The phosphorylated sequences of EGFR and other receptor tyrosine kinases have a high affinity for SH2 domain containing proteins. These proteins are phosphorylated and activated by the receptor tyrosine kinases.³ Activation of EGFR can be achieved in the absence of EGF by receptor dimerization with antibody⁴ or by 10 mM Mn²⁺.

Affinity purified from human carcinoma A431 cells. It is purified in the absence of EGF and EGF is not used to elute the material from the purification column. Nevertheless, this product is activated during purification. Therefore, there is only 10-20% activation of the tyrosine kinase activity when EGF is added to this preparation.

Unit Definition: One unit will catalyze the incorporation of 1 pmole of phosphate from γ -³²P-ATP into poly (Glu, Tyr), 4:1 at 30 °C per minute.

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.

Catalog Number E2645

Reagent

Supplied as a lyophilized powder.

Preparation Instructions

Soluble in 10% glycerol (50 mg/ml).

Reconstitution with 0.1 ml of 10% glycerol yields a solution in 50 mM HEPES, pH 7.6, 150 mM NaCl, 0.05% Triton[®] X-100, 1 mM DTT, and 10% trehalose (cryoprotectant). This solution, prepared immediately upon initial thawing, can be divided into small aliquots and is stable for at least 1 year when stored at -70 °C.

Storage/Stability

The product ships on dry ice and storage at -20 °C is recommended. The product, as supplied, is stable for 5 years when stored properly. The activity decreases with more than one freeze/thaw cycle.

Catalog E3641

Reagent

Supplied as a solution in 50 mM HEPES, pH 7.6, 150 mM NaCl, 0.1% Triton[®] X-100, and 1mM DTT.

Storage/Stability

The product ships on dry ice and storage at -70 °C is recommended. The product, as supplied, is stable for 2 years when stored properly. This product is stable for at least one year. The activity decreases with more than one freeze/thaw cycle. The product should be kept on ice when in use.

References

1. Ullrich, A., et al., Human Epidermal Growth Factor Receptor cDNA Sequence and Aberrant Expression of the Amplified Gene in A431 Epidermoid Carcinoma Cells. *Nature*, **309(5967)**, 418-425 (1984).
2. Carpenter, G., Receptors for Epidermal Growth Factor and Other Polypeptide Mitogens. *Ann. Rev. Biochem.*, **56**, 881-914 (1987).
3. Margolis, B., et al., The Tyrosine Phosphorylated Carboxyterminus of the EGF Receptor is a Binding Site for GAP and PLC-gamma. *EMBO J.*, **9(13)**, 4375-4380 (1990).
4. Yarden, Y., and Schlessinger, J., Epidermal Growth Factor Induces Rapid, Reversible Aggregation of the Purified Epidermal Growth Factor Receptor. *Biochemistry*, **26(5)**, 1443-1451 (1987).

TRITON is a trademark of Union Carbide Corporation.

NDH/CMH/RXR/MAM 10/08

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.