PRODUCT INFORMATION

EGFR Extracellular Domain (human, recombinant)

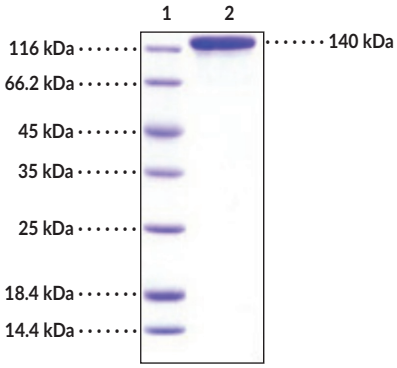
Item No. 32026

Overview and Properties

Synonyms:	Epidermal Growth Factor Receptor, ErbB-1, HER1
Source:	Active recombinant C-terminal human IgG1 Fc-tagged EGFR expressed in HEK293 cells
Amino Acids:	25-645
Molecular Weight:	95 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥97% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	< 1.0 EU/µg, determined by the LAL endotoxin assay
Bioactivity:	See figures for details

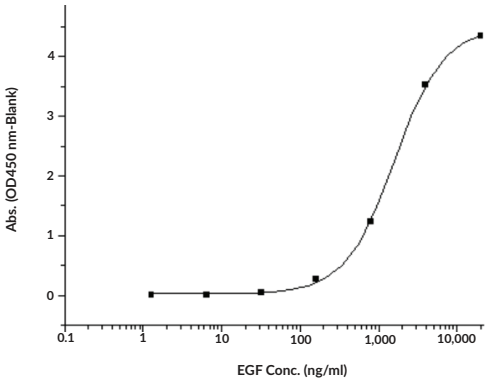
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: EGFR Extracellular Domain

SDS-PAGE Analysis of EGFR Extracellular Domain. This protein has a calculated molecular weight of 95 kDa. It has an apparent molecular weight of approximately 130 to 140 kDa in SDS-PAGE under reducing conditions due to glycosylation.



EGFR Extracellular Domain activity in ELISA. EGFR Extracellular Domain activity is measured by its binding ability in a functional ELISA. Immobilized recombinant human EGF at 10 µg/ml (100 µl/well) can bind human EGFR with a linear range of 0.64-400 ng/ml.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

PRODUCT INFORMATION

Description

Epidermal growth factor receptor (EGFR), also known as HER1 and ERBB1, is a cell surface receptor and member of the EGF family of receptor tyrosine kinases with roles in cell proliferation, differentiation, and survival.[1,2] It is a 170 kDa transmembrane receptor composed of an intracellular tyrosine kinase domain, a transmembrane lipophilic segment, and an extracellular domain that is expressed in epithelial, mesenchymal, and neuronal tissues.[1-3] Under unstimulated conditions, EGFR is an auto-inhibited monomer in the plasma membrane.[1] Upon canonical ligand binding, EGFR undergoes homodimerization or heterodimerization with HER2, HER3, or HER4, which induces a conformational change in the cytoplasmic domain that facilitates autophosphorylation and intracellular signaling. EGFR inhibits autophagy under nutrient-rich growth conditions and, conversely, induces autophagy under serum-starved conditions by interacting with the autophagy inhibitor Rubicon to induce its dissociation from Beclin-1. Overexpression of EGFR is found in multiple solid tumors, including renal, breast, ovarian, and head and neck cancer, as well as non-small cell lung cancer (NSCLC).[2] $EGFR^{L858R}$ is associated with increased susceptibility to tyrosine kinase inhibition and cell death, while $EGFR^{T790M}$ is associated with kinase inhibitor resistance in NSCLC.[4] Inhibition of EGFR reduces angiotensin II-induced cardiac hypertrophy in mice.[5] Cayman's EGFR Extracellular Domain (human, recombinant) protein can be used for ELISA. This protein is a disulfide-linked homodimer. The reduced monomer, comprised of the EGFR extracellular domain (amino acids 25-645) fused to human IgG1 Fc at its C-terminus, consists of 860 amino acids and has a calculated molecular weight of 95 kDa, and a predicted N-terminus of Leu25 after signal peptide cleavage. As a result of glycosylation, the monomer migrates at approximately 130 to 140 kDa by SDS-PAGE under reducing conditions.

References

1. Sigismund, S., Avanzato, D., and Lanzetti, L. Emerging functions of the EGFR in cancer. *Mol. Oncol.* **12(1)**, 3-20 (2018).
2. Herbst, R.S. Review of epidermal growth factor receptor biology. *Int. J. Radiat. Oncol. Biol. Phys.* **59(2 Suppl)**, 21-26 (2004).
3. Yano, S., Kondo, K., Yamaguchi, M., *et al.* Distribution and function of EGFR in human tissue and the effect of EGFR tyrosine kinase inhibition. *Anticancer Res.* **23(5A)**, 3639-3650 (2003).
4. Jia, Y., Yun, C.H., Park, E., *et al.* Overcoming EGFR(T790M) and EGFR(C797S) resistance with mutant-selective allosteric inhibitors. *Nature* **534(7605)**, 129-132 (2016).
5. Peng, K., Tian, X., Qian, Y., *et al.* Novel EGFR inhibitors attenuate cardiac hypertrophy induced by angiotensin II. *J. Cell. Mol. Med.* **20(3)**, 482-494 (2016).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM