**Human EGFR ECD (Extracellular Domain), Recombinant**

**Background:**
EGFR is a member of the epidermal growth factor receptor (EGFR) family of receptor tyrosine kinases (RTK). Four members of the EGFR family have been identified: EGFR (ERBB1, HER1), HER2 (ERBB2), HER3 (ERBB3) and HER4 (ERBB4). They typically contain an extracellular ligand binding domain (ECD), a transmembrane domain (TM), and an intracellular kinase domain that can interact with a multitude of signaling molecules and exhibit both ligand-dependent and ligand-independent activity. The human EGFR has 1210 amino acid (aa), including a 24 aa signal peptide, a 621 aa ECD, and a 23 aa TM segment. It shares 88% aa sequence identity with murine EGFR and 43-44% identity with the ECD of other 3 human EGFR members. EGFR binds to a subset of the EGF family ligands, including EGF, amphiregulin, TGFα, β-cellulin, epiregulin, HB-EGF, and epigen. EGFR signaling is initiated by ligand binding, leading to EGFR receptor homo-/hetero-dimerization and autophosphorylation by the intracellular kinase domain and receptor activation. Subsequently, phosphorylation of cytoplasmic substrates occurs and a signaling cascade is initiated that drives many cellular responses, including changes in gene expression, cytoskeletal rearrangement, anti-apoptosis and increased cell proliferation. EGFR is known to form heterodimers with the ligand-activated HER3 or HER4. EGFR is overexpressed in a variety of tumors. Mutations in EGFR gene are associated with lung cancer. EGFR is the target of several anti-cancer therapeutics.

**References:**

**Construct Detail:** The recombinant human EGFR extracellular or ecto-domain (ECD) is expressed as a 625 amino acid protein consisting of Leu25-Thr638 region of EGFR and a C-terminal His-tag, which exists as a monomer under reducing and non-reducing conditions.

**Source:** Human cells stably expressing EGFR ECD and growing in chemical-defined media with no animal components or antibiotics.

**M.W.:** Calculated molecular mass (kDa): 69.2; Estimated by SDS-PAGE under reducing condition (kDa): ~80; Calculated extinction coefficients (M-1 cm-1, at 280nm): 59965.

**Purity:** >95% judged by SDS-PAGE under reducing condition (see the gel image inserted).

**Formulation:** Supplied at 0.5 mg/ml in sterile PBS pH7.4 (concentration determined by Protein Bradford assay and verified by SDS-PAGE and Coomassie blue staining).

**Endotoxin:** <0.1 EU per 1 µg of purified recombinant protein determined by the LAL method.

**Bioactivity:** The purified recombinant protein binds anti-EGFR mAbs (SKU#MAB0118, #MAB0520) and therapeutic mAb such as Erbitux, Vectibix with high affinity (estimated K<sub>d</sub> < 20 nM by ELISA with 20 ng of this protein as ligand coated on the plate).

**Storage:** The product is shipped at 4°C. Upon receipt, centrifuge the product briefly before opening the vial. It is recommended to store small aliquots at the temperature below ~20°C for long-term storage and the product is stable for 3 months. The undiluted protein can be stored at 4°C for no more than 2 weeks. Avoid repeated freeze-thaw cycles.

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