

Cell-Vive™ GMP Recombinant Human EGF (carrier-free)

Catalog# / Size	585514 / 25 µg 585516 / 100 µg
Other Names	Urogastrone (URG), HOMG4
Description	<p>Epidermal growth factor (EGF) is a small 6 kD polypeptide and has six conserved cysteine residues that form three intramolecular disulfide bonds. Human and mouse EGF share 70% homology in amino acid structure. Human EGF is synthesized as a transmembrane precursor protein (1207 amino acids) which is proteolytically cleaved to generate the 54 amino acid mature EGF. Many different cells including mammary gland cells, macrophages, gut epithelial cells, and cells in the nervous system and the kidney can produce EGF. EGF plays important roles in the regulation of cell survival, proliferation, and differentiation by binding to its receptor EGFR. For example, EGF can stimulate the proliferation of mouse embryonic stem cells or induce the terminal differentiation/growth inhibition of A431 cells. The binding of EGF to EGFR will induce receptor dimerization, which is required for activating the tyrosine kinase in the receptor cytoplasmic domain. In addition, the binding of EGF to its receptor triggers several signal transduction pathways including JAK/STAT, Ras/ERK, and PI3K/AKT pathways. Blocking of the EGF/EGFR pathway can suppress some tumor cell's proliferation. Other members of the EGF family (including transforming growth factor-α (TGF-α), heparin-binding EGF-like growth factor (HB-EGF), amphiregulin (AR), betacellulin (BTC), epiregulin (EPR), and epigen also bind to EGFR.</p>

Quality Statement	<p>BioLegend Cell-Vive™ GMP Recombinant proteins are manufactured and tested in accordance with USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and Ph. Eur. Chapter 5.2.12 in a dedicated GMP facility compliant with ISO 13485:2016. Specifications and processes include:</p> <ul style="list-style-type: none">• Low endotoxin level (≤ 0.1 EU/μg)• Purity ($\geq 95\%$ or higher)• Bioburden testing• Mycoplasma testing• Batch-to-batch consistency• Vendor qualification• Raw material traceability and documentation• Documented procedures and employee training• Equipment maintenance and monitoring records• Lot-specific certificates of analysis• Quality audits per ISO 13485:2016• QA review of released products
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Product Details

Source	Human EGF, 54 amino acids Asn971-Arg1023 with an N-terminal Met (Accession# P01133) was expressed in <i>E. coli</i> .
Molecular Mass	The 54 amino acid recombinant protein has a predicted molecular mass of approximately 6 kD. The DTT-reduced protein migrates at approximately 6 kD and non-reduced protein migrates at approximately 13 kD by SDS-PAGE. The N-terminal amino acid is Methionine.
Purity	$\geq 98\%$, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 μ m filtered protein solution is in PBS
Endotoxin Level	Less than or equal to 0.1 EU per μ g of protein as determined by the LAL method.
Concentration	25 μ g and 100 μ g sizes are bottled at 0.5 mg/mL
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 μ g/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% endotoxin-free BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week or stored at -20°C or colder for up to 3 months. Avoid repeated freeze/thaw cycles.
Activity	Human EGF inhibits the proliferation of human epithelial A431 cells in a dose-dependent manner. The ED ₅₀ for this effect is 0.3 - 2.0 ng/mL. Human EGF induces the proliferation of NIH/3T3 cells in a dose-

dependent manner. The ED₅₀ for this effect is 0.025 – 0.125 ng/mL.

Application [Bioassay](#)

Application Notes BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our [100% satisfaction guarantee](#). If you have any concerns, contact us at tech@biolegend.com.

Application References

(PubMed link indicates BioLegend citation)

1. Henson ES and Gibson SB. 2006. *Cell Signal*. 18:2089.
2. Burgess AW, *et al.* 2003. *Mol. Cell*. 12:541.
3. Imai Y, *et al.* 1982. *Cancer Res*. 42:4394.
4. Barnes DW. 1982. *J. Cell. Biol*. 93:1.
5. Heo JS, *et al.* 2006. *Am. J. Physiol. Cell. Physiol*. 290:C123.

Disclaimer

BioLegend Cell-Vive™ GMP Recombinant proteins are for research use only. Suitable for *ex vivo* cell processing. Not for injection or diagnostic or therapeutic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

Antigen Details

Bioactivity

Human EGF inhibits the proliferation of human epithelial A431 cells in a dose-dependent manner. The ED₅₀ for this effect is 0.3 - 2.0 ng/mL. Human EGF induces the proliferation of NIH/3T3 cells in a dose-dependent manner. The ED₅₀ for this effect is 0.025 – 0.125 ng/mL.

Cell Sources

Mammary gland cells, macrophages, gut epithelial cells, cells in the nervous system, and kidney

Receptors

EGFR

Antigen References

1. Arshad N, *et al.* 2018. *J Biol Chem*. 293:9555. [PubMed](#)
2. Tam A, *et al.* 2019. *Sci Rep*. 9:3353. [PubMed](#)

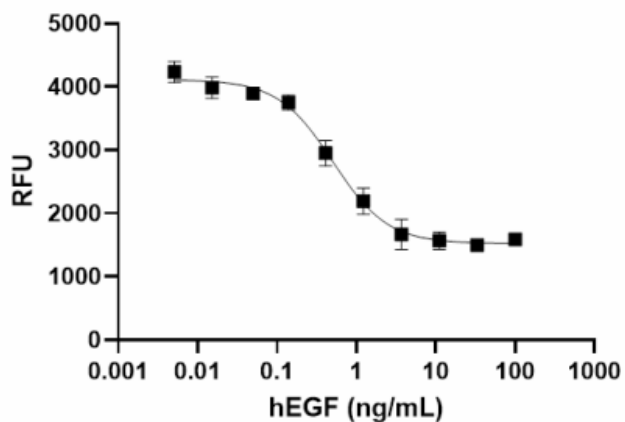
Regulation

EGF is a potent mitogen for many cells in culture, and *in vivo*, it induces the proliferation and differentiation of skin, cornea, lung, and trachea, among other tissues. Processing of pro EGF to mature EGF in different tissues is not equally efficient. The precursor is processed to mature EGF in the submaxillary gland, pancreas, small intestine, and mammary gland. In the submaxillary gland, EGF is fully processed, stored at secretory granules, and secreted in saliva. In kidney, EGF is present in unprocessed or intermediated forms on the cell surface.

Gene ID

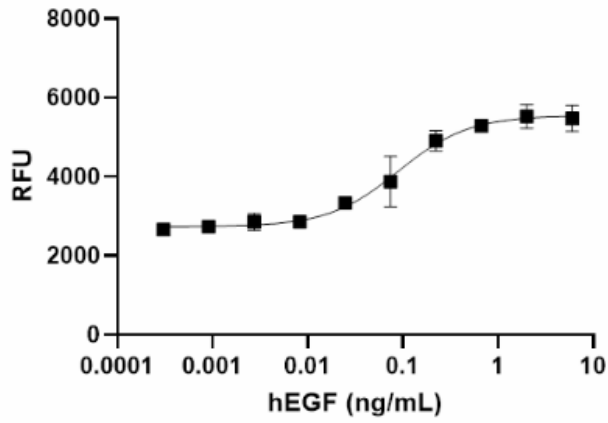
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Product Data



Inhibition of A431 cell proliferation by human EGF.

Human EGF induces the proliferation of NIH/3T3 cells in a dose-dependent manner.



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