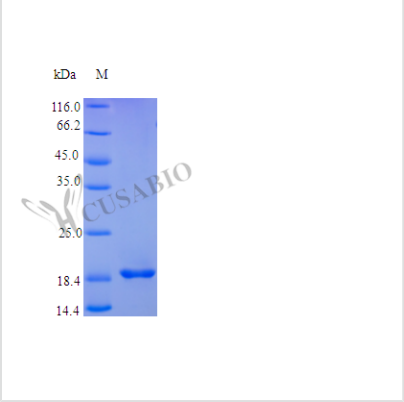
Recombinant Human Fibroblast growth factor 4 protein (FGF4), partial (Active)

Product Code	CSB-AP002411HU
Abbreviation	Recombinant Human FGF4 protein, partial (Active)
Uniprot No.	P08620
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, pH 7.4, 300 mM NaCl
Product Type	Growth Factor
Immunogen Species	Homo sapiens (Human)
Biological Activity	Fully biologically active when compared to standard. The ED50 as determined by thymidine uptake assay using FGF?receptors transfected BaF3 cells is less than 0.5 ng/ml, corresponding to a specific activity of >2.0x10^6 IU/mg.
Purity	>96% as determined by SDSPAGE.
Sequence	GRGGAAAPTA PNGTLEAELE RRWESLVALS LARLPVAAQP KEAAVQSGAG DYLLGIKRLR RLYCNVGIGF HLQALPDGRI GGAHADTRDS LLELSPVERG VVSIFGVASR FFVAMSSKGK LYGSPFFTDE CTFKEILLPN NYNAYESYKY PGMFIALSKN GKTKKGNRVS PTMKVTHFLP RL
Research Area	Cancer
Source	E.coli
Target Names	FGF4
Expression Region	25-206aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	Tag-Free
Mol. Weight	19.8 kDa
Protein Length	Partial
PubMed ID	18192227; 2959959; 2953031; 2957062; 8663044; 20094046; 11486033
Image	



Description

Recombinant Human Fibroblast Growth Factor 4 (FGF4) is expressed in E. coli and covers amino acids 25-206, maintaining a high purity level of over 96% as confirmed by SDS-PAGE analysis. This tag-free protein demonstrates full biological activity, with an ED50 of less than 0.5 ng/ml as measured by thymidine uptake assay in FGF-receptors transfected BaF3 cells, translating to a specific activity exceeding 2.0 × 10^6 IU/mg. The endotoxin level is maintained below 1.0 EU/μg according to the LAL method.

Fibroblast Growth Factor 4 (FGF4) appears to be one of the more critical proteins when it comes to cell proliferation, differentiation, and development. As part of the fibroblast growth factor family, it likely plays vital roles in embryonic development and tissue repair processes. FGF4 is known to activate several signaling pathways that seem essential in various biological processes. This makes it a significant focus of study in developmental biology and regenerative medicine research, though our understanding of its complete mechanisms continues to evolve.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Cell Proliferation and Growth Factor Signaling Studies

This recombinant FGF4 protein offers researchers a way to investigate fibroblast growth factor signaling pathways across various cell culture systems. Given its demonstrated biological activity (ED50 < 0.5 ng/ml) in thymidine uptake assays, scientists can examine dose-response relationships for cell proliferation in different cell types. The high purity (>96%) and low endotoxin levels make it well-suited for controlled in vitro experiments examining FGF receptor activation and downstream signaling cascades. Such experiments may reveal new insights into growth factor-mediated cellular responses, though results can vary depending on the specific cell system being studied.

2. FGF Receptor Binding and Interaction Studies

Researchers can employ this biologically active FGF4 protein as a ligand in receptor binding assays to characterize FGF receptor interactions and binding kinetics. The protein works well in competition binding studies, surface plasmon resonance experiments, or other biophysical assays aimed at determining binding affinities and specificities. Since it's tag-free, there's no potential interference from fusion tags during binding studies—a common problem that can skew results. These experiments might help uncover previously unknown aspects of FGF4-receptor interactions at the molecular level, though interpretation can be complex given the multiple receptor subtypes involved.

3. Antibody Development and Validation

This high-purity recombinant FGF4 protein serves as an effective antigen for developing and characterizing anti-FGF4 antibodies. Scientists often use it as a positive control in immunoassays such as ELISA, Western blotting, or immunoprecipitation experiments during antibody validation phases. Its biological activity suggests proper protein folding, which appears important for generating antibodies that recognize native FGF4 conformations. The low endotoxin content helps ensure reliable results in antibody screening and characterization assays, though cross-reactivity with other FGF family members remains a consideration.

4. Biochemical and Structural Analysis

Scientists can apply this recombinant FGF4 protein in biochemical assays designed to study protein stability, folding, and structure-function relationships. Common approaches include thermal stability assays, circular dichroism spectroscopy, or other biophysical characterization methods aimed at understanding the protein's fundamental properties. The high purity and biological activity indicate proper folding, making it suitable for comparative studies with mutant variants or other FGF family members. Such analyses may provide new insights into the molecular basis of FGF4 function, though the complexity of growth factor biology means that in vitro findings don't always translate directly to physiological conditions.

5. Cell Culture Supplementation for Research Applications

Given its demonstrated biological activity in promoting cell proliferation, this FGF4 protein can function as a defined supplement in specialized cell culture media for research purposes. It seems particularly useful for maintaining or expanding cell lines that require FGF signaling for optimal growth or differentiation. The low endotoxin levels and high purity make it appropriate for sensitive cell culture applications where contamination must be minimized. This application supports various research studies requiring controlled FGF4 stimulation in cell culture systems, though optimal concentrations may need adjustment based on specific cell types and experimental goals.

Endotoxin	Less than 1.0 EU/μg as determined by LAL method.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a

	concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.