Recombinant Human Insulin-like growth factor II protein (IGF2)

Product Code	CSB-AP002551HU
Abbreviation	Recombinant Human IGF2 protein (Active)
Uniprot No.	P01344
Storage Buffer	0.2 µm filtered 20 mM Tris-HCl, pH 8.0, 150 mM NaCl, with 0.02 % Tween-20 ,lyophilized
Product Type	Growth Factors
Immunogen Species	Homo sapiens (Human)
Biological Activity	Fully biologically active when compared to standard. The ED50 as determined by a cell proliferation assay using serum free human MCF-7 cells is less than 2 ng/ml, corresponding to a specific activity of >5.0x10^5 IU/mg.
Purity	>98% as determined by SDS-PAGE.
Sequence	AYRPSETLCG GELVDTLQFV CGDRGFYFSR PASRVSRRSR GIVEECCFRS CDLALLETYC ATPAKSE
Research Area	Cancer
Source	E.Coli
Target Names	IGF2
Expression Region	25-91aa
Tag Info	Tag-Free
Mol. Weight	7.5 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	6382022; 6382021; 2450353; 3002851; 3476948; 3683205; 3881277; 7730145; 16531418; 20842449; 15498874; 14702039; 16554811; 15489334; 3167054; 3653397; 3652904; 658418; 2722836; 7633596; 11448941; 12586351; 15359740; 1569071; 16912056; 19066168; 19838169; 2
Image	
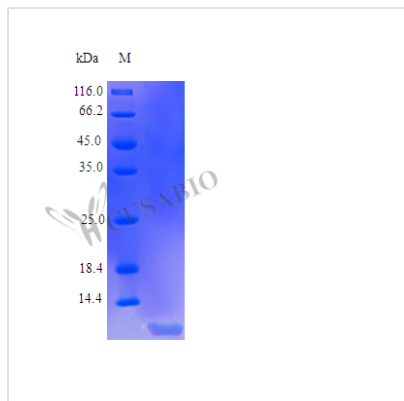
Description

Recombinant Human Insulin-like Growth Factor II (IGF2) is expressed in E. coli and spans the full length of the mature protein, from amino acids 25 to 91, presented tag-free. The product achieves a purity level exceeding 98% as determined by SDS-PAGE. It appears to be fully biologically active, with an ED50 of less than 2 ng/ml in a cell proliferation assay using serum-free human MCF-7 cells, corresponding to a specific activity greater than 5.0×10^5 IU/mg. The endotoxin level remains below 1.0 EU/µg, as assessed by the LAL method.

IGF2 serves as a critical growth factor in human development and cell proliferation. The protein plays a key role in regulating cellular growth, differentiation, and survival. As an important component of the insulin-like growth factor signaling pathways, IGF2 is essential in various physiological processes and may have significant implications in research related to growth disorders and metabolic regulation.

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 Assays

This recombinant IGF2 protein works well as a positive control or test reagent in cell proliferation studies, particularly with cancer cell lines that express IGF receptors. The demonstrated biological activity with an ED50 of less than 2 ng/ml in MCF-7 cells provides a validated baseline for dose-response experiments. Researchers can explore IGF2-mediated growth signaling pathways and compare proliferative responses across different cell types. High purity (>98%) and low endotoxin levels make it suitable for sensitive cell culture applications.

2. IGF Receptor Binding and Signaling Studies

The biologically active IGF2 protein can be applied to study IGF1R and IGF2R receptor binding kinetics and downstream signaling cascades in vitro. Researchers might perform receptor binding competition assays, examine phosphorylation of key signaling intermediates like AKT and ERK, and investigate receptor internalization dynamics. The tag-free nature of this protein suggests that binding studies reflect physiologically relevant interactions without potential interference from fusion tags.

3. Antibody Development and Validation

This high-purity recombinant IGF2 works as an immunogen for generating research antibodies or as a standard for validating existing IGF2 antibodies. The protein can be applied in ELISA development, Western blot validation, and immunoprecipitation experiments to confirm antibody specificity and sensitivity.

The full-length mature protein sequence (amino acids 25-91) represents the naturally occurring form, making it an appropriate antigen for producing antibodies that recognize endogenous IGF2.

4. Protein-Protein Interaction Studies

Researchers can apply this recombinant IGF2 to investigate its interactions with binding proteins, particularly IGF-binding proteins (IGFBPs) that modulate IGF2 bioavailability and activity. The protein works in pull-down assays, surface plasmon resonance experiments, or co-immunoprecipitation studies to characterize binding affinities and kinetics. Such studies may provide insights into the molecular mechanisms governing IGF2 function and regulation in various biological contexts.

5. Biochemical Characterization and Structural Studies

The high-purity, tag-free IGF2 protein appears suitable for detailed biochemical analysis including mass spectrometry, circular dichroism spectroscopy, and potentially crystallization studies. Researchers can investigate protein stability under various conditions, examine post-translational modifications, and analyze structural features that contribute to its biological activity. The E. coli expression system likely results in the absence of mammalian-specific modifications, which makes it useful for studying the core protein structure and function.

Endotoxin	Less than 1.0 EU/μg as determined by LAL method.
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.