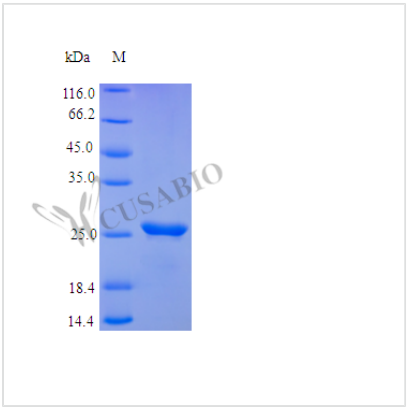
Recombinant Human Fibroblast growth factor 23 protein (FGF23) (Active)

Product Code	CSB-AP002481HU
Abbreviation	Recombinant Human FGF23 protein (Active)
Uniprot No.	Q9GZV9
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, pH 7.4
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 μg/ml, corresponding to a specific activity of >2.0x10^3 IU/mg in the presence of 0.3 ug/ml of rMuKlotho and 10 μg/ml of heparin.
Purity	>95% as determined by SDS-PAGE.
Sequence	YPNASPLLGS SWGGLIHLYT ATARNSYHLQ IHKNGHVDGA PHQTIYSALM IRSEDAGFVV ITGVMSRRYL CMDFRGNIFG SHYFDPENCR FQHQTLENGY DVYHSPQYHF LVSLGRAKRA FLPGMNPPPY SQFLSRRNEI PLIHFNTPIP RRHTRSAEDD SERDPLNVLK PRARMTPAPA SCSQELPSAE DNSPMASDPL GVVRGGRVNT HAGGTGPEGC RPFAKFI
Research Area	Cancer
Source	E.coli
Target Names	FGF23
Expression Region	25-251aa
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	25.3 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	11032749; 11062477; 11344269; 12975309; 15489334; 15340161; 11409890; 11157998; 12130585; 12952917; 15268897; 15040831; 16597617; 16638743; 18282132; 20094046; 17339340; 16151858; 15590700; 16030159; 24680727
Image	



Description

Recombinant Human Fibroblast Growth Factor 23 (FGF23) protein is expressed in E. coli, covering the full mature protein length from amino acids 25 to 251. This product is tag-free, which appears to help maintain the native structure. Purity exceeds 95% as confirmed by SDS-PAGE, and endotoxin levels remain below 1.0 EU/μg as determined by the LAL method. The protein shows full biological activity, with an ED50 of less than 0.5 μg/ml in thymidine uptake assays, suggesting a specific activity of more than 2.0 × 10^3 IU/mg.

Fibroblast Growth Factor 23 (FGF23) serves as a critical regulator of phosphate and vitamin D metabolism. It plays what seems to be an essential role in maintaining phosphate homeostasis and is involved in regulating bone mineralization. FGF23 is mainly produced by osteocytes and osteoblasts. When its regulation goes awry, this can lead to disorders in mineral metabolism. This protein has become of significant interest in research focusing on metabolic bone diseases and related pathways.

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. FGF Receptor Binding and Signaling Studies

This recombinant FGF23 protein can be used to investigate the binding kinetics and signaling pathways of FGF receptors in vitro. The demonstrated biological activity through thymidine uptake assays in FGF-receptor transfected BaF3 cells confirms its functional interaction with FGF receptors. Researchers can use this protein to study dose-response relationships, receptor specificity, and downstream signaling cascades in various cell culture systems. The high purity and defined specific activity make it suitable for quantitative receptor-ligand interaction studies.

2. Klotho Co-factor Dependency Research

The activity testing method indicates that this FGF23 protein requires Klotho as

a co-factor for optimal biological activity, making it valuable for studying FGF23-Klotho interactions. Researchers can use this protein to investigate the molecular mechanisms of how Klotho enhances FGF23 signaling and to determine optimal co-factor ratios for maximal activity. This application may be particularly relevant for understanding the biochemical requirements of FGF23 function and for developing in vitro assays that accurately recapitulate physiological conditions.

3. Cell Proliferation and Metabolic Assays

Given the established thymidine uptake activity in BaF3 cells, this FGF23 protein can serve as a positive control or test reagent in cell proliferation assays. The defined ED50 value provides a reference point for designing dose-response experiments in various cell lines expressing FGF receptors. Researchers can use this protein to study cellular metabolic responses, growth factor signaling pathways, and to validate new assay systems for FGF23 biological activity measurement.

4. Heparin-Dependent Signaling Mechanism Studies

The requirement for heparin in the activity testing protocol suggests this FGF23 protein can be used to investigate heparin-dependent signaling mechanisms. Researchers can study how different concentrations and types of heparin or heparan sulfate affect FGF23 biological activity and receptor binding. This application enables investigation of the role of glycosaminoglycans in FGF23 function. It may also help elucidate the molecular basis of FGF23 signaling complex formation.

5. Antibody Development and Validation

The high purity and biological activity of this recombinant FGF23 protein make it suitable for generating and validating antibodies against human FGF23. Researchers can use this protein as an immunogen for antibody production or as a standard for testing antibody specificity and binding affinity. The low endotoxin level appears to ensure minimal interference in immunological assays, while the confirmed biological activity allows for functional validation of neutralizing antibodies through the established thymidine uptake assay system.

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.