

## FGFR-3 Protein, Human (His-B2M)

Cat. No.:	HY-P72196
Synonyms:	ACH; CD 333; CD333; CD333 antigen; CEK 2; CEK2; FGFR 3; FGFR-3; FGFR3; FGFR3_HUMAN; Fibroblast growth factor receptor 3 achondroplasia thanatophoric dwarfism; ; Fibroblast growth factor receptor 3; Heparin binding growth factor receptor; HSFGR3EX; Hydroxyaryl protein kinase; JTK 4; JTK4; MFR 3; SAM 3; Tyrosine kinase JTK 4; Tyrosine kinase JTK4; Z FGFR 3
Species:	Human
Source:	E. coli
Accession:	P22607 (R397-T806)
Gene ID:	2261
Molecular Weight:	Approximately 59.4 kDa

### PROPERTIES

AA Sequence	R L R S P P K K G L      G S P T V H K I S R      F P L K R Q V S L E      S N A S M S S N T P L V R I A R L S S G      E G P T L A N V S E      L E L P A D P K W E      L S R A R L T L G K P L G E G C F G Q V      V M A E A I G I D K      D R A A K P V T V A      V K M L K D D A T D K D L S D L V S E M      E M M K M I G K H K      N I I N L L G A C T      Q G G P L Y V L V E Y A A K G N L R E F      L R A R R P P G L D      Y S F D T C K P P E      E Q L T F K D L V S C A Y Q V A R G M E      Y L A S Q K C I H R      D L A A R N V L V T      E D N V M K I A D F G L A R D V H N L D      Y Y K K T T N G R L      P V K W M A P E A L      F D R V Y T H Q S D V W S F G V L L W E      I F T L G G S P Y P      G I P V E E L F K L      L K E G H R M D K P A N C T H D L Y M I      M R E C W H A A P S      Q R P T F K Q L V E      D L D R V L T V T S T D E Y L D L S A P      F E Q Y S P G G Q D      T P S S S S S G D D      S V F A H D L L P P A P P S S G G S R T
Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 µm solution of 10 mM Tris-HCl, 1 mM EDTA, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

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## Background

FGFR-3 protein, a tyrosine-protein kinase, functions as a cell-surface receptor for fibroblast growth factors, playing a vital role in the regulation of cell proliferation, differentiation, and apoptosis. Its significance is particularly notable in the regulation of chondrocyte differentiation, proliferation, and apoptosis, contributing to normal skeleton development. Additionally, FGFR-3 plays a crucial role in both osteogenesis and postnatal bone mineralization by osteoblasts, while also promoting apoptosis in chondrocytes. Beyond its role in normal development, FGFR-3 is involved in inner ear development and has implications in the regulation of vitamin D metabolism. Upon ligand binding, FGFR-3 activates several signaling cascades, including the phosphorylation of PLCG1, CBL, and FRS2. This activation leads to the production of cellular signaling molecules such as diacylglycerol and inositol 1,4,5-trisphosphate. Furthermore, phosphorylation of FRS2 triggers the recruitment of GRB2, GAB1, PIK3R1, and SOS1, mediating the activation of RAS, MAPK1/ERK2, MAPK3/ERK1, the MAP kinase signaling pathway, and the AKT1 signaling pathway. Mutations leading to constitutive kinase activation or impairing normal FGFR3 maturation, internalization, and degradation result in aberrant signaling. Overexpression or constitutive activation of FGFR3 promotes the activation of PTPN11/SHP2, STAT1, STAT5A, and STAT5B. Additionally, the secreted isoform 3 retains its capacity to bind FGF1 and FGF2, potentially interfering with FGF signaling.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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