



LD Biopharma, Inc.  
7384 Trade Street, Suite B  
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Tel: 858-876-8266  
<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human FGFR3 Protein  
**Catalog Number:** hRP-2477  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Human fibroblast growth factor receptor 3 (FGFR3) gene encodes a tyrosine-protein kinase that acts as cell-surface receptor for fibroblast growth factors and plays an essential role in the regulation of cell proliferation, differentiation and apoptosis. It plays an essential role in the regulation of chondrocyte differentiation, proliferation and apoptosis, and is required for normal skeleton development. FGFR3 regulates both osteogenesis and postnatal bone mineralization by osteoblasts. It promotes apoptosis in chondrocytes, but can also promote cancer cell proliferation. It is required for normal development of the inner ear. It phosphorylates PLCG1, CBL and FRS2. Ligand binding leads FGFR3 to the activation of several signaling cascades. Activation of PLCG1 leads to the production of the cellular signaling molecules diacylglycerol and inositol 1,4,5-trisphosphate. Phosphorylation of FRS2 triggers recruitment of GRB2, GAB1, PIK3R1 and SOS1, and mediates activation of RAS, MAPK1/ERK2, MAPK3/ERK1 and the MAP kinase signaling pathway, as well as of the AKT1 signaling pathway. FGFR3 plays a role in the regulation of vitamin D metabolism. Mutations that lead to constitutive kinase activation or impair normal FGFR3 maturation, internalization and degradation lead to aberrant signaling. Over-expressed or constitutively activated FGFR3 promotes activation of PTPN11/SHP2, STAT1, STAT5A and STAT5B. Secreted isoform 3 retains its capacity to bind FGF1 and FGF2 and hence may interfere with FGF signaling. Recent data indicated that anti-FGFR3 auto-antibodies can be detected in many cancer patients.

Full-length extracellular domain of human FGFR3 (23-375aa) gene was constructed with codon optimization gene synthesis and expressed with a human alpha Fetal Protein N-terminal (AFPn) -His-TEV cleavage site Tag (217aa) fusion at its N-terminal in E.coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** FGFR3 (CD333 ; ACH; CEK2; JTK)  
**Accession Number:** NP\_000133  
**Species:** Human



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<b>Size:</b>	25 µg / Vial
<b>Composition:</b>	0.25 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.
<b>Storage:</b>	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 7 days.

## Key References

Xie F, et al. *Kinase Activity of Fibroblast Growth Factor Receptor 3 Regulates Activity of the Papillomavirus E2 Protein*. J. Virol. 91 (20), e01066-17 (2017)

Chen J, et al. *Identification of a novel mutation in the FGFR3 gene in a Chinese family with Hypochondroplasia*. Gene 641, 355-360 (2018)

Breyer J et al. *High CDK2a/p16 and low FGFR3 expression predict progressive potential of stage pT1 urothelial bladder carcinoma*. Clin Genitourin Cancer. Feb 2 pii: s1558-7673 641 (2018)

## Applications

1. May be used for in vitro FGFR3 mediated cell signaling regulation study for various cells by coating this recombinant protein as substrate or use it as soluble factor in cell culture.
2. May be used for mapping protein-protein interaction.
3. May serve as auto-antibodies detection reagent, which will react with sera of some auto-immuno-diseases's or cancer patients.
4. As Immunogen for specific antibody production.

## Quality Control

Purity: > 90% by SDS-PAGE.

## Recombinant Protein Sequence

MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEATYKEVSKMVKDALTAIEKPTGDEQ  
SSGCLENQLPAFLLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT  
SCEAYEEDRETFMKNFIYEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT  
KELRESSGGSHHHHHHGSENLYFQGGEESLGTEQRVVGRAAEVPGPEPGQQEQQLVFGSGDAVEL



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SCPPPGGGPMGPTVWVKDGTGLVPSERVLVGPQRLQVLNASHEDSGAYSCRQRLTQRVLCHEFSV  
RVTDAPSSGDDEDEGEDEAEDTGVDTGAPYWTRPERMDKLLAVPAANTVRFRCPAAGNPTPSIS  
WLKNGREFRGEHRIGGIKLRHQWLSLVMEVVPVSDRGNYTCVVENKFGSIRQTYTLDVLERSPH  
RPILQAGLPANQTAVLGSDVEFHCKVYSDAQPHIQWLKHVEVNGSKVGPDPGTPYVTVLKTAGAN  
TTDKELEVLSLHNVTFEDAGEYTCLAGNSIGFSHSAWLVVLPAAEELVEADEAGSVYAG