



Recombinant Human Soluble FGFR-3(IIIb)S249C/Fc Chimera

20201215BB



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	SFC-026S
Size:	5 µg
Lot. No.:	According to product label
Country of origin:	Germany

Scientific Background

Gene:	<i>FGFR3</i>
Synonyms:	Fibroblast growth factor receptor 3, Fms-like tyrosine kinase 3, CD331

Fibroblast growth factor receptor 3 (FGFR3) mutation and overexpression are common in bladder cancer. According to the recent molecular classification of MIBC, tumours with FGFR3 mutation and overexpression are associated with urothelial-like or luminal papillary tumour subgroups that are characterised by better survival than other molecular subtypes. An activating point mutation in FGFR3 C746C>G, encoding the FGFR3 S249C oncoprotein, accounts for 48–71% of all FGFR3 mutations in non-invasive urothelial cell carcinoma. S249C affects the linker region between the extracellular immunoglobulin-like domains Ig2 and Ig3, which is important for the binding of FGF ligands. S249C triggers kinase activation through receptor dimerisation as a result of disulphide bond formation in a completely ligand-independent manner. In contrast, a lysine-to-glutamic acid substitution, K650E, in the kinase domain of FGFR3, found in a small number of bladder tumours (~1% of all mutations), exaggerates ligand-dependent kinase activation. Overexpression of wild-type FGFR3 receptor is found in 42% of muscle-invasive tumours. An oncogenic fusion event of FGFR3 with the transforming acidic coiled-coil containing protein 3 (FGFR3–TACC3), leading to constitutive activation of FGFR3, is also found in bladder cancer. FGFR3 is one of four tyrosine kinase receptors for FGFs. In vitro studies have provided evidence that mutational activation of FGFR3 through S249C or K644E can modestly increase cell proliferation and reduce apoptosis, and that various FGFR inhibitors are effective in its functional suppression.

References

1. Mona Foth *et al.*, *J Pathol* (2018), 246: 331–343
2. Darren C *et al.*, *Oncogene* (2007), 26(40): 5889–5899.
3. Xina Xie *et al.*, *Exp. & Therapeutic Med* (2019), 18: 1226–1234, 2019
4. Y. Dodurga *et al.*, *Genetics and Molecular Research* (2011), 10 (1): 86–95
5. Galzie, Z. *et al.* (1997) *Biochem. Cell Biol.* 75:669
6. Burke, D. *et al.* (1998) *Trends Biochem. Sci.* 23:59

Sequence

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ESLGTQQRVVGRAAEVPGPEPGQEQQLVFGSGDAVELSCPPPGGGPMGPTVW
VKDGTGLVPSERVLVGPQRLQVLNASHEDSGAYSCRQRLTQRLVCHFSVRVT
DAPSSGDDDEDGEDEAEDTGVDTGAPYWTRPERMDKLLAVPAANTVRFRCPA
AGNPTPSISWLKNGREFRGEHRIGGIKLRHQQWSLVMSVVPVSDRGNYTCVV
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EYLCRATNFIGVAEKAFWLSVHGPRAAEELVEADEAGSVYAGTRSDKTHTC
PPCPAPPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWY
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PIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWE
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HYTQKSLSLSPGK
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Database References

Protein RefSeq:	NP_001156685.1
Uniprot ID:	P22607-2
mRNA RefSeq:	NM_001163213.1

Product Specifications

Expressed in	Insect cells
Purity	> 95% by SDS-PAGE & Coomassie stain
Buffer	PBS
Stabilizer	None
Formulation	lyophilized
Length (aa):	585
MW:	90-95 kDa (Monomer) in SDS-PAGE
Result by N-terminal sequencing	ESLGT

Stability: Lyophilized samples are stable for greater than six months at –20°C to –70°C. Reconstituted sFGFR-3(IIIb)S249C/Fc should be stored in working aliquots at –20°C.

Reconstitution: The lyophilized sFGFR-3(IIIb)S249C/Fc should be reconstituted in water or PBS to a concentration not lower than 50µg/ml.



AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: Measured by its binding ability to aFGF and FGF2 in a functional ELISA. In addition recombinant human soluble FGFR-3(IIIb)S249C/Fc Chimera also binds to immobilized recombinant human FGF9 and FGF18.



Recombinant Human Soluble FGFR-3(IIIb)S249C/Fc Chimera

Handling/Application

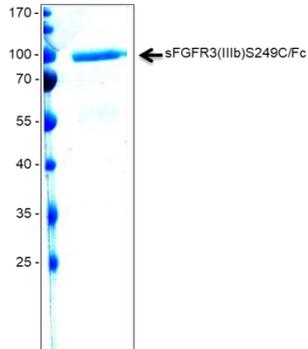


Fig. 1: SDS-PAGE analysis of recombinant human soluble FGFR-3(IIIb)S249C/Fc produced in insect cells. Sample was loaded in 12.5% SDS-polyacrylamide gel under reducing condition and stained with Coomassie blue.

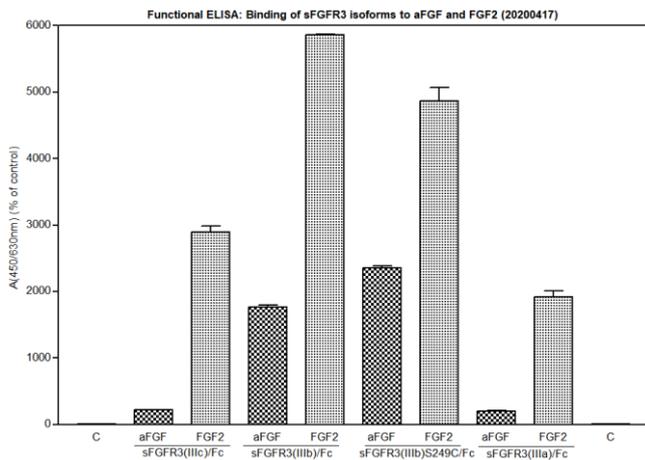


Fig. 2: Functional ELISA: Recombinant human aFGF and FGF2 were coated with 1µg/ml in PBS and recombinant human sFGFR3(IIIc)/Fc, sFGFR3(IIIb)/Fc, sFGFR3(IIIb)S249C/Fc and sFGFR3(IIIa)/Fc were added to the well (1µg/ml). Detection was performed using a mouse anti-human FGFR3 antibody (Santa Cruz #sc-13121) and a conjugated goat anti-mouse polyclonal antibody for detection.