

ZytoLight® SPEC FGFR3 Dual Color Break Apart Probe

Background

The ZytoLight® SPEC FGFR3 Dual Color Break Apart Probe is designed to detect rearrangements involving the chromosomal region 4p16.3 harboring the FGFR3 (fibroblast growth factor receptor 3, a.k.a. JTK4) gene.

Rearrangements affecting the FGFR3 gene are frequently found in carcinomas of various types including multiple myeloma (MM), bladder cancer, glioblastoma, peripheral T-cell lymphoma, and lung squamous cell carcinoma.

FGFR3 encodes for a transmembrane receptor tyrosine kinase which dimerizes after ligand binding leading to activation of downstream signaling cascades. This gene develops characteristic oncogenic activities after fusion to several gene partners which often leads to ligand-independent activation of the tyrosine kinase of the FGFR3 fusion protein.

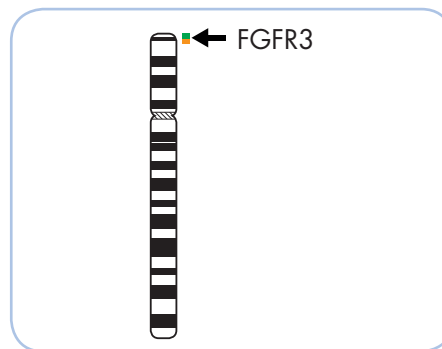
Several *in vivo* and *in vitro* studies have demonstrated the therapeutic potential of FGFR inhibitors in cell lines and animal models harboring FGFR3 fusion genes. Hence, the detection of FGFR3 translocations by Fluorescence *in situ* Hybridization may be a useful predictive biomarker in the selection of patients for FGFR-targeted therapy.

References

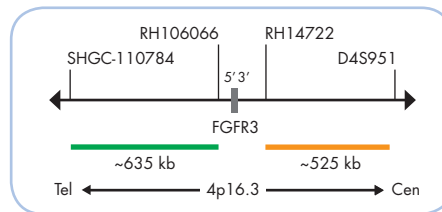
- Cheng T, et al. (2013) PLoS One 8: e57284.
 Fonseca R, et al. (2009) Leukemia 23: 2210-21.
 Kang S, et al. (2009) Mol Cell Biol 29: 2105-17.
 Knowles MA (2007) World J Urol 25: 581-93.
 Parker BC, et al. (2014) J Pathol 232: 4-15.
 Williams SV, et al. (2012) Hum Mol Genet 22: 795-803.

Probe Description

The SPEC FGFR3 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 4p16.3 band. The orange fluorochrome direct labeled probe hybridizes proximal, the green fluorochrome direct labeled probe hybridizes distal to the FGFR3 gene at 4p16.3.



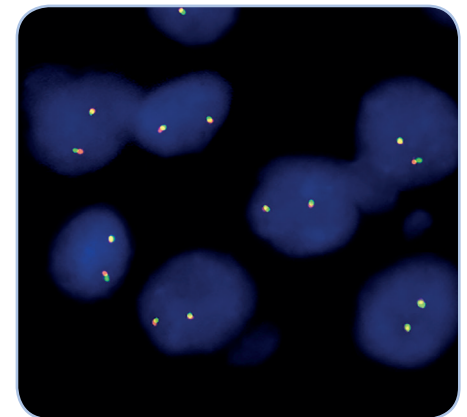
Ideogram of chromosome 4 indicating the hybridization locations.



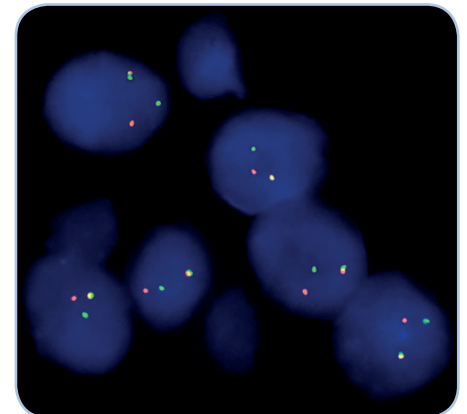
SPEC FGFR3 Probe map (not to scale).

Results

In an interphase nucleus of a normal cell lacking a translocation involving the 4p16.3 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 4p16.3 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 4p16.3 locus and one 4p16.3 locus affected by a translocation.



SPEC FGFR3 Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Breast cancer tissue section with translocation affecting the FGFR3 gene as indicated by one non-rearranged orange/green fusion signal, one orange, and one separate green signal indicating the translocation.

Prod. No.	Product	Label	Tests* (Volume)
Z-2170-200	ZytoLight SPEC FGFR3 Dual Color Break Apart Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraTect-Solution, 0.8 ml		20
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit CE IVD Incl. Cytology Pepsin Solution, 4 ml; 20x Wash Buffer TBS, 50 ml; 10x MgCl2, 50 ml; 10x PBS, 50 ml; Cytology Stringency Wash Buffer SSC, 500 ml; Cytology Wash Buffer SSC, 500 ml; DAPI/DuraTect-Solution, 0.8 ml		20

* Using 10 µl probe solution per test. CE IVD only available in certain countries. All other countries research use only! Please contact your local dealer for more information.