ZytoLight® SPEC FGFR2 Dual Color Break Apart Probe

CE IVD

Background

The ZytoLight® SPEC FGFR2 Dual Color Break Apart Probe is designed to detect rearrangements involving the chromosomal region 10q26.13 harboring the FGFR2 (fibroblast growth factor receptor 2, a.k.a. BEK) gene.

Translocations and inversions affecting FGFR2 have been detected in several solid tumors, including e.g. breast cancer, lung cancer, and the intrahepatic subtype of cholangiocarcinoma.

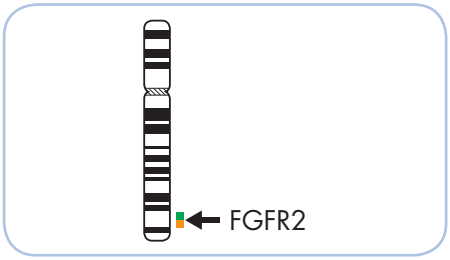
Several partner genes have been described to be fused to FGFR2 after rearrangement. The resulting fusion genes are predicted to encode chimeric proteins carrying the kinase domain of FGFR2. Most of the currently known FGFR2 fusion products are likely to exhibit oligomerization capability resulting in kinase activation.

In prostate cancer FGFR2 was found to be fused to the promoter region of SLC45A3 predicted to result in signal activation by overexpression of the FGFR2 protein. Recent studies indicate the involvement of FGFR2 fusion proteins in tumorigenesis. Moreover, *in vitro* studies suggest that certain FGFR tyrosine kinase inhibitors may provide a new therapeutic option for patients showing FGFR2 rearrangement. Hence, detection of FGFR2 rearrangements using FISH may help to identify patients which might respond to FGFR2 kinase targeting therapies.

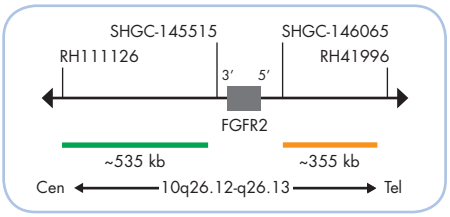
References
Arai Y, et al. (2014) Hepatology 59: 1427-34.
Seo JS, et al. (2012) Genome Res 22: 2109-19.
Wu YM, et al. (2013) Cancer Discov 3: 636-47.

Probe Description

The SPEC FGFR2 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 10q26.12-q26.13 band. The orange fluorochrome direct labeled probe hybridizes distal to the FGFR2 gene at 10q26.13, the green fluorochrome direct labeled probe hybridizes proximal to the FGFR2 gene at 10q26.12-q26.13.



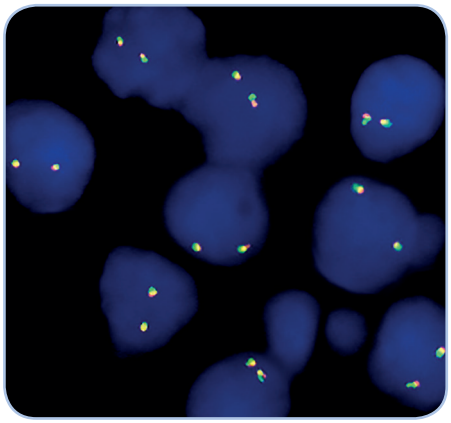
Ideogram of chromosome 10 indicating the hybridization locations.



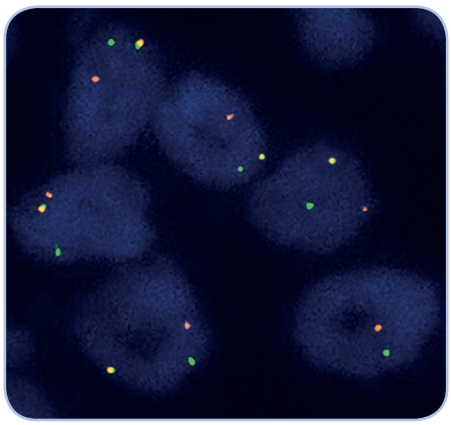
SPEC FGFR2 Probe map (not to scale).

Results

In an interphase nucleus of a normal cell lacking a translocation involving the 10q26.13 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 10q26.13 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 10q26.13 locus and one 10q26.13 locus affected by a translocation.



SPEC FGFR2 Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Cholangiocellular adenocarcinoma tissue section with translocation of the FGFR2 gene as indicated by one non-rearranged orange/green fusion signal, one orange, and one separate green signal indicating the translocation.

Kindly provided by Prof. Dr. Büttner, Cologne, Germany.

Prod. No.	Product	Label	Tests* (Volume)
Z-2169-200	ZytoLight SPEC FGFR2 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

** 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.*

ZytoLight® FISH probes are direct labeled using the unique ZytoLight® *Direct Label System II* providing improved signal intensity. Advanced specificity of the single copy SPEC probes is obtained by the unique ZytoVision® *Repeat Subtraction Technique.*

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