

ZytoLight® SPEC KIF5B Dual Color Break Apart Probe



Background

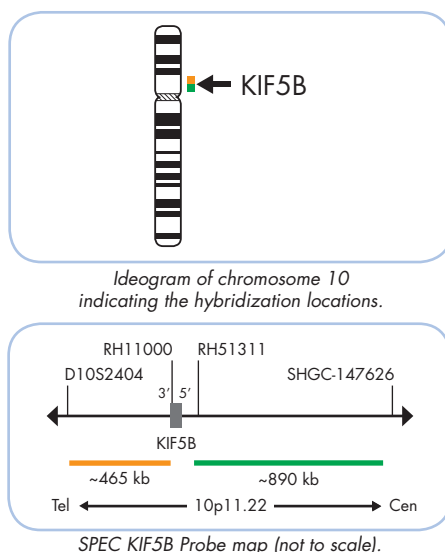
The ZytoLight® SPEC KIF5B Dual Color Break Apart Probe is designed to detect translocations involving the chromosomal region 10p11.22 harboring the KIF5B (kinesin family member 5B) gene. About 5% of all non-small cell lung cancer cases are positive for the ALK-EML4 fusion as a result of an inversion in chromosome 2. However, not in all cases showing an aberration of the ALK gene the EML4-ALK fusion transcript could be detected. KIF5B was identified as a novel fusion partner for ALK in ALK-positive lung cancer. KIF5B is a ubiquitously expressed microtubule-based motor protein involved in organelle transport. The translocation t(2;10)(p23;p11.2) results in the fusion of the first domains of KIF5B including the motor domain and the coiled-coil domain with the tyrosine kinase domain of ALK. Overexpression of the aberrant KIF5B/ALK fusion transcript can lead to enhanced cell proliferation, migration, and invasion. A further aberration affecting the KIF5B gene is inv(10)(p11.2q11.2). This inversion was detected in adenocarcinomas of the lung and results in the fusion of KIF5B with the ret proto-oncogene (RET). The fusion transcript again comprises the coiled-coil domain of KIF5B and the tyrosine kinase domain of RET. In accordance with the EML4-ALK fusion the development of specific agents targeting KIF5B-RET might provide a new therapeutic strategy for lung adenocarcinomas.

References

- Gautschi O, et al. (2013) J Thorac Oncol 8: e43-4.
Ju YS, et al. (2012) Genome Res 22: 436-45.
Kohno T, et al. (2012) Nat Med 18: 375-7.
Takeuchi K, et al. (2009) Clin Cancer Res 15: 3143-9.
Takeuchi K, et al. (2012) Nat Med 18: 378-81.
Wong DW, et al. (2011) Cancer 117: 2709-18.

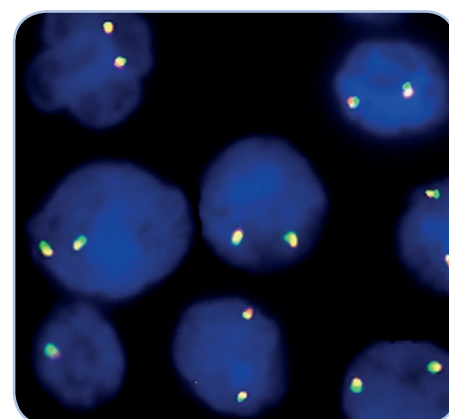
Probe Description

The SPEC KIF5B Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 10p11.22 band. The orange fluorochrome direct labeled probe hybridizes distal, the green fluorochrome direct labeled probe hybridizes proximal to the KIF5B gene.

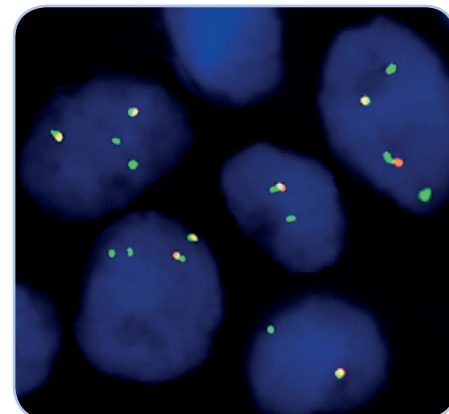


Results

In an interphase nucleus lacking a translocation involving the 10p11.22 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 10p11.22 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 10p11.22 locus and one 10p11.22 locus affected by a translocation.



SPEC KIF5B Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



NSCLC tissue section with tetrasomy of chromosome 10 in some cells and an unbalanced translocation affecting KIF5B as indicated by one or two extra green signals.

Prod. No.	Product	Label	Tests* (Volume)
Z-2131-50	ZytoLight SPEC KIF5B Dual Color Break Apart Probe	●/●	5 (50 µl)
Related Products			
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit		5
Incl. Heat Pretreatment Solution Citric, 150 ml; Pepsin Solution, 1 ml; Wash Buffer SSC, 150 ml; 25x Wash Buffer A, 50 ml; DAPI/DuraTect-Solution, 0.2 ml			

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