

ZytoLight® SPEC PDGFRA/FIP1L1 TriCheck™ Probe



Background

The ZytoLight® SPEC PDGFRA/FIP1L1 TriCheck™ Probe is designed to detect rearrangements involving the chromosomal region 4q12 harboring the PDGFRA gene. The PDGFRA (platelet-derived growth factor receptor alpha) gene encodes a transmembrane glycoprotein that belongs to the type III receptor tyrosine kinase family and has a key role in a variety of cellular processes. PDGFRA gene rearrangements are rarely genetic events detected in myeloid and lymphoid neoplasms. These rearrangements most frequently occur in chronic eosinophilic leukemia (CEL), but can be also detected in acute myeloid leukemia (AML), and T-lymphoblastic leukemia/lymphoma (T-ALL). The most common gene fusion partner for PDGFRA is the FIP1-like 1 (FIP1L1) gene caused by an 800 kb interstitial deletion on chromosome 4q12. The result of this deletion is the loss of the CHIC2 gene and the fusion of the 5' end of the FIP1L1 gene with the 3' end of the PDGFRA gene.

Although FIP1L1 is the most common fusion partner of PDGFRA, five other partner genes have been identified, including BCR, ETV6, KIF5B, STRN, and CDK5RAP2.

Identification of patients harboring a PDGFRA rearrangement is important as these patients respond very well to a targeted therapy with imatinib.

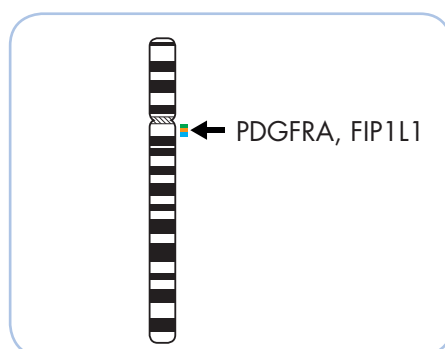
In CEL patients harboring a PDGFRA-FIP1L1 fusion a good response to other tyrosine kinase inhibitors like dasatinib, nilotinib, sorafenib, and midostaurin could be demonstrated. Hence, detection of PDGFRA rearrangements by Fluorescence *in situ* Hybridization (FISH) may be of diagnostic and predictive relevance.

References

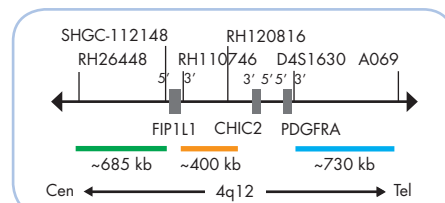
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Probe Description

The SPEC PDGFRA/FIP1L1 TriCheck™ Probe is a mixture of three direct labeled probes hybridizing to the 4q12 band. The green fluorochrome direct labeled probe hybridizes proximal to the FIP1L1 gene, the orange fluorochrome direct labeled probe hybridizes distal to the FIP1L1 gene and proximal to the PDGFRA gene, and the blue fluorochrome direct labeled probe hybridizes distal to the PDGFRA gene.



Ideogram of chromosome 4 indicating the hybridization locations.



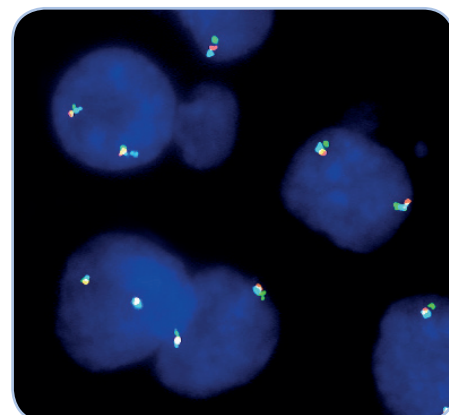
SPEC PDGFRA/FIP1L1 Probe map (not to scale).

Results

In an interphase nucleus lacking a deletion or translocation involving the 4q12 band, two tricolor orange/green/blue fusion signals are expected representing two normal 4q12 loci.

A PDGFRA-FIP1L1 fusion resulting from an interstitial DNA deletion is indicated by the loss of the orange signal leading to a separate green signal co-localizing with a blue signal.

A PDGFRA translocation without involvement of FIP1L1 is indicated by one orange/green fusion signal and one separate blue signal.



SPEC PDGFRA/FIP1L1 TriCheck™ Probe hybridized to normal interphase cells as indicated by two tricolor orange/green/blue fusion signals per nucleus.

Prod. No.	Product	Label	Tests* (Volume)
Z-2209-50	ZytoLight SPEC PDGFRA/FIP1L1 TriCheck Probe CE IVD	●/●/●	5 (50 µl)
Related Products			
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit CE IVD		5
Incl. Heat Pretreatment Solution Citric, 150 ml; Pepsin Solution, 1 ml; Wash Buffer SSC, 150 ml; 25x Wash Buffer A, 50 ml; DAPI/DuraTest-Solution, 0.2 ml			

* 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.