

ZytoLight® SPEC MYB Dual Color Break Apart Probe

Background

The ZytoLight® SPEC MYB Dual Color Break Apart Probe is designed to detect translocations involving the chromosomal region 6q23.3 harboring the MYB (*v-myb avian myeloblastosis viral oncogene homolog*, a.k.a. *c-Myb*) gene.

The MYB gene is expressed predominantly in immature progenitor cells of all hematopoietic lineages and is highly expressed in most leukemias and in some solid tumors. Translocations affecting MYB have been detected in T-cell acute lymphoblastic leukemia (T-ALL) and adenoid cystic carcinoma (ACC).

Recent studies have identified a subgroup of T-ALL with reciprocal translocation t(6;7)(q23.3;q34) that juxtaposes MYB and TCRB (T-cell receptor beta) leading to the activation of MYB expression. Since the translocation breakpoints in 6q23 map to two clusters located 5 kb and more than 50 kb telomeric of MYB, no true MYB fusion gene is generated. It is assumed that the abnormal MYB expression could confer oncogenic properties and that MYB might represent a potential target for therapeutic intervention in T-ALL.

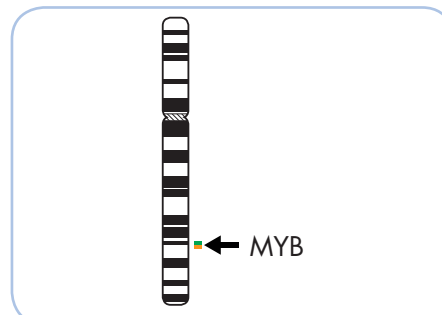
In ACC a recurrent translocation t(6;9)(q22-23;p23-24) is found in about one third of karyotypically abnormal cases. The translocation results in the fusion of the two transcription factor genes MYB and NFIB (nuclear factor I/B) which leads to enhanced expression of the MYB-NFIB fusion protein. The detection of MYB rearrangements using FISH might represent a powerful adjunctive diagnostic tool useful in the differential diagnosis of ACC.

References

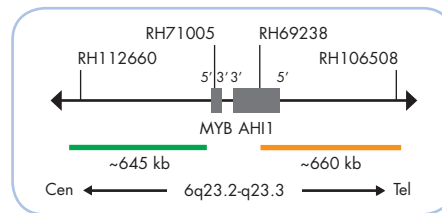
Clappier E, et al. (2007) *Blood* 110: 1251-61.
Persson M, et al. (2009) *Proc Natl Acad Sci USA* 106: 18740-4.
Stenman G, et al. (2010) *Cell Cycle* 9: 2986-95.

Probe Description

The SPEC MYB Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 6q23.2-q23.3 band. The orange fluorochrome direct labeled probe hybridizes distal and the green fluorochrome direct labeled probe hybridizes proximal to the MYB breakpoint cluster region.



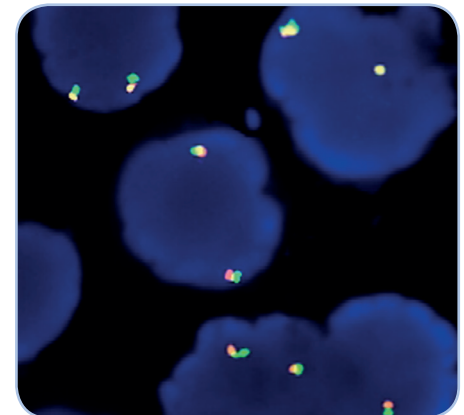
Ideogram of chromosome 6 indicating the hybridization locations.



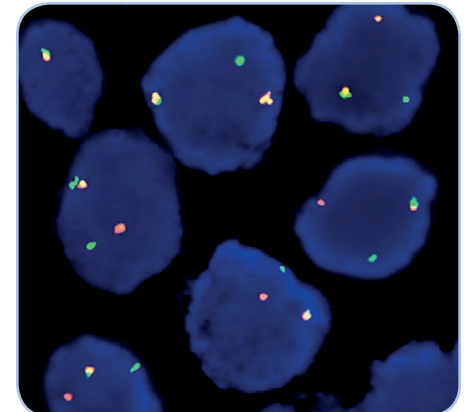
SPEC MYB Probe map (not to scale).

Results

In an interphase nucleus lacking a translocation involving the 6q23.2-q23.3 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 6q23.2-q23.3 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 6q23.2-q23.3 locus and one 6q23.2-q23.3 locus affected by a translocation.



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



Adenoid cystic carcinoma tissue section with translocation affecting the 6q23.3 locus as indicated by one orange/green fusion (non-rearranged) signal, one orange signal, and one separate green signal indicating the translocation.

Prod. No.	Product	Label	Tests* (Volume)
Z-2143-200	ZytoLight SPEC MYB Dual Color Break Apart Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD		20
Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraText-Solution, 0.8 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.