ZytoLight® SPEC MYC/IGH Dual Color Dual Fusion Probe

Previously: ZytoLight SPEC CMYC/IGH Dual Color Dual Fusion Probe

CE IVD

Background

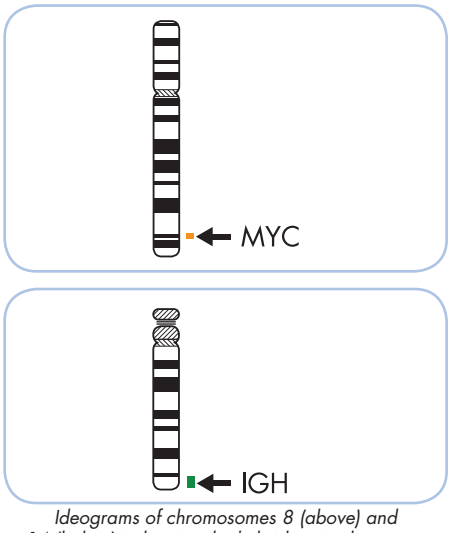
The ZytoLight® SPEC MYC/IGH Dual Color Dual Fusion Probe is designed to detect the translocation t(8;14)(q24;q32) affecting the MYC gene in the chromosomal region 8q24.21 and the IGH locus in 14q32.33. The MYC proto-oncogene (v-myc avian myelocytomatosis viral oncogene homolog, a.k.a. CMYC) encodes a transcription factor essential for cell growth and proliferation and is broadly implicated in tumorigenesis. Translocations involving the MYC gene are considered to be cytogenetic hallmarks for Burkitt Lymphoma (BL) but are also found in other types of lymphomas.

The most frequent translocation involving the MYC gene region t(8;14)(q24.21;q32.3) can be found in approx. 80% of the BL cases and juxtaposes the MYC gene next to the IgH (immunoglobulin heavy chain) locus. Further translocations affecting the MYC gene are t(8;22)(q24.21;q11.2) and t(2;8)(p11.2;q24.21), both of which involve one of the two immunoglobulin light chain loci. All three translocations bring the MYC gene under the control of a regulatory element from one of the immunoglobulin loci resulting in constitutive overexpression of MYC.

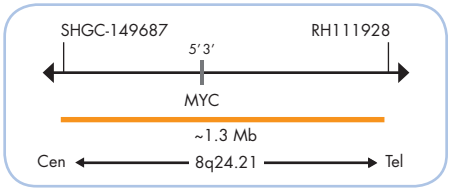
The identification of MYC specific rearrangements is a critical part of the diagnostic work-up and management of patients, identifying those who will benefit from the intensive therapeutic regimens used to treat BL. Fluorescence *in situ* Hybridization (FISH) which allows the correlation with immunochemistry can be critical to patient management and is an approach commonly used.

Probe Description

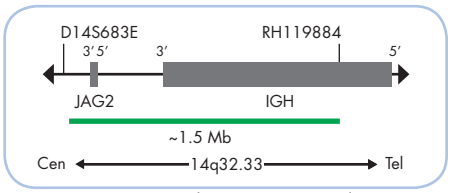
The SPEC MYC/IGH Dual Color Dual Fusion Probe is a mixture of an orange fluorochrome direct labeled MYC probe spanning the known MYC breakpoints, and a green fluorochrome direct labeled IGH probe spanning the known breakpoints of IGH.



Ideograms of chromosomes 8 (above) and 14 (below) indicating the hybridization locations.



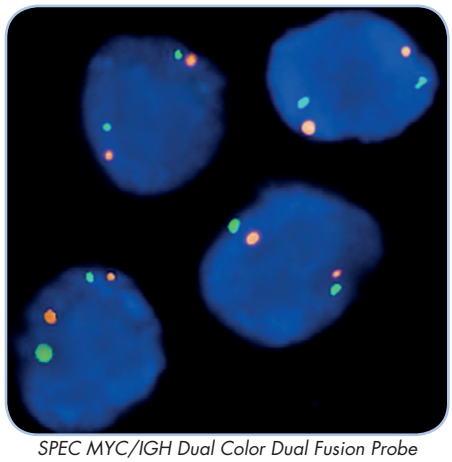
SPEC MYC Probe map (not to scale).



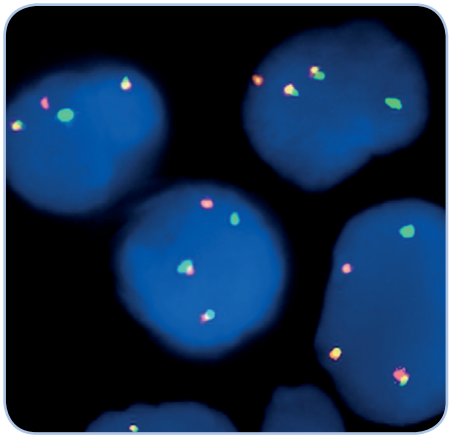
SPEC IGH Probe map (not to scale).

Results

In a normal interphase nucleus, two orange and two green signals are expected. A reciprocal translocation involving two breakpoints splits the two signals and generates a fusion signal on each of the chromosomes involved. The chromosomal regions which are not translocated are indicated by the single orange respectively green signal.



SPEC MYC/IGH Dual Color Dual Fusion Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus.



Burkitt Lymphoma tissue section with t(8;14) as indicated by one separate orange signal, one separate green signal and two orange/green fusion signals indicating the MYC/IGH translocation.

References
May P, et al. (2010) Cancer Genet Cytogenet 198: 71-5.
Perkins A & Friedberg J (2008) Hematology Am Soc Hematol Educ Program 2008: 341-8.
Veronese ML, et al. (1995) Blood 85: 2132-8.

Prod. No.	Product	Label	Tests* (Volume)
Z-2105-50	ZytoLight SPEC MYC/IGH Dual Color Dual Fusion Probe CE IVD	●/●	5 (50 µl)
Z-2105-200	ZytoLight SPEC MYC/IGH Dual Color Dual Fusion Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit CE IVD 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		5
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

FE037-2-16

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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