

ZytoLight® SPEC BCL2/IGH Dual Color Dual Fusion Probe



Background

The ZytoLight® SPEC BCL2/IGH Dual Color Dual Fusion Probe is designed to detect the translocation t(14;18)(q32.3;q21.3) affecting the BCL2 gene in the chromosomal region 18q21.33 and the IGH locus in 14q32.33.

Translocations involving the BCL2 (B-cell lymphoma 2) gene and the IGH (immunoglobulin heavy locus, a.k.a. IGH@) gene are considered to be cytogenetic hallmarks for follicular lymphoma (FL). FL represents one of the most common non-Hodgkin lymphoma (NHL).

About 75% of breakpoints on chromosome 18 are clustered in the major breakpoint region (MBR) and the minor cluster region (mcr), whereas the remaining breakpoints are scattered between these clusters, or at the 5' side (variant cluster region or vcr) of the BCL2 gene.

The translocation t(14;18)(q32.3;q21.3) has been identified in about 80% of FLs but is also observed in 20% to 30% of patients with diffuse large B-cell lymphoma (DLBCL). The rearrangement results in juxtaposition of the BCL2 gene at 18q21.33 next to the IgH (immunoglobulin heavy chain) locus at 14q32.33 and leads to overexpression of the anti-apoptotic protein BCL2. This represents most likely the initial step of malignant transformation, leading to suppression of apoptosis and progression to lymphoma.

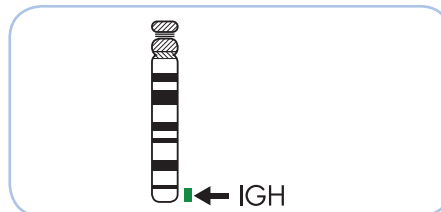
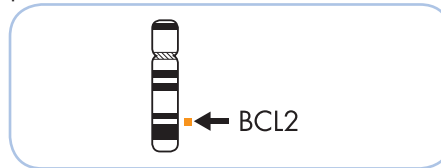
Detection of t(14;18) by Fluorescence *in situ* Hybridization (FISH) can be used to confirm the diagnosis of FL if histology is inconclusive. Additionally, this method can be used to monitor the response to therapy and detect recurrent disease.

References

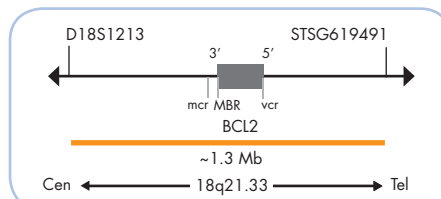
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- Da Cunha Santos G, et al. (2011) Cancer Cytopathol 119: 254-62.
- Einerson RR, et al. (2005) Am J Clin Pathol 124: 421-9.
- Gu K, et al. (2008) Arch Pathol Lab Med 132: 1355-61.
- Nguyen-Khac F, et al. (2011) Am J Blood Res 1: 13-21.
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Probe Description

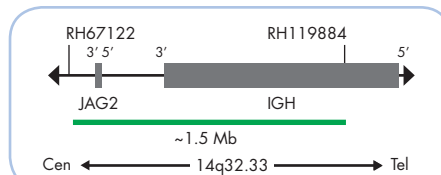
The SPEC BCL2/IGH Dual Color Dual Fusion Probe is a mixture of an orange fluorochrome direct labeled BCL2 probe spanning the known BCL2 breakpoints, and a green fluorochrome direct labeled IGH probe spanning the known breakpoints of IGH.



Ideograms of chromosomes 18 (above) and 14 (below) indicating the hybridization locations.



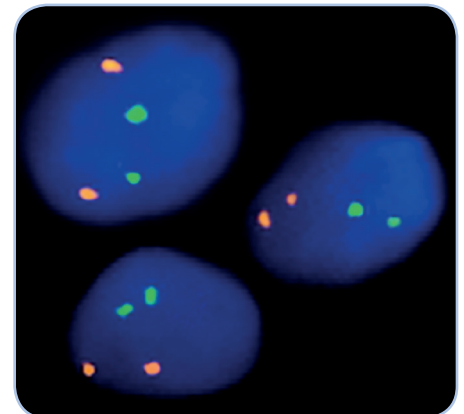
SPEC BCL2 Probe map (not to scale).



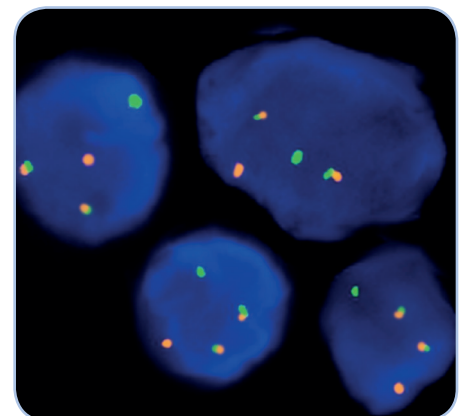
SPEC IGH Probe map (not to scale).

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 and green signal, respectively.



SPEC BCL2/IGH Dual Color Dual Fusion Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus.



Bone marrow biopsy section with translocation affecting the BCL2/IGH loci as indicated by one separate orange signal, one separate green signal, and two orange/green fusion signals.

Prod. No.	Product	Label	Tests* (Volume)
Z-2114-200	ZytoLight SPEC BCL2/IGH Dual Color Dual Fusion 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.