

ZytoLight® SPEC BCL2 Dual Color Break Apart Probe



Background

The *ZytoLight*® SPEC BCL2 Dual Color Break Apart Probe is designed to detect translocations involving the chromosomal region 18q21.33 harboring the BCL2 gene. The BCL2 (BCL2 apoptosis regulator, a.k.a. PPP1R50) gene encodes a mitochondrial membrane protein that regulates apoptosis and is expressed in B-cells.

Translocations involving the BCL2 gene are commonly identified in B-cell lymphomas. In particular, the translocation t(14;18)(q32.3;q21.3) has been identified in about 80% of follicular lymphoma (FL), in 20% to 30% of diffuse large B-cell lymphoma (DLBCL), and rarely in B-cell chronic lymphocytic leukemia (B-CLL).

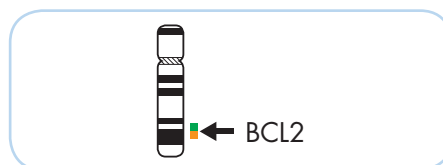
In FL this translocation is considered to be a cytogenetic hallmark. As a result of this rearrangement, the BCL2 gene is juxtaposed to IGH (Immunoglobulin heavy locus) at 14q32.33 which leads to overexpression of the anti-apoptotic protein BCL2, and finally to progression to lymphoma.

Alternative BCL2 translocations to immunoglobulin light chain genes as well as non-IG translocation events have been reported. In DLBCL, BCL2 gene overexpression has been implicated in conferring resistance to chemotherapy and has been associated with poor prognosis.

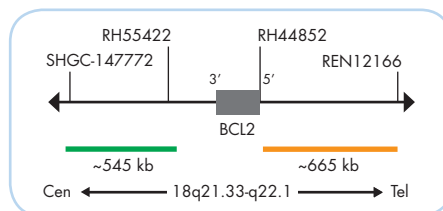
Hence, detection of BCL2 translocations by Fluorescence *in situ* Hybridization (FISH) may be of diagnostic and prognostic relevance.

Probe Description

The SPEC BCL2 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 18q21.33-q22.1 band. The green fluorochrome direct labeled probe hybridizes proximal to the BCL2 gene, and the orange fluorochrome direct labeled probe hybridizes distal to the BCL2 locus.



Ideogram of chromosome 18 indicating the hybridization locations.



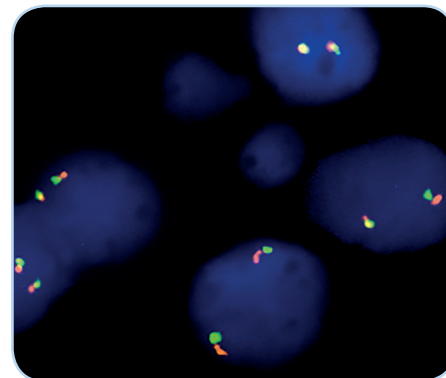
SPEC BCL2 Probe map (not to scale).

References

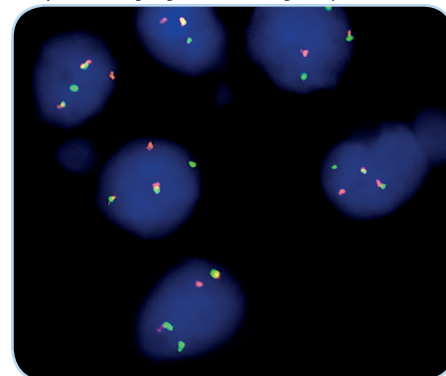
Da Cunha Santos G, et al. (2011) *Cancer Cytopathol* 119: 254-62.
 Dyer MJ, et al. (1994) *Blood* 83: 3682-8.
 Gu K, et al. (2008) *Arch Pathol Lab Med* 132: 1355-61.
 Hockenbery D, et al. (1990) *Nature* 348: 334-6.
 Impera L, et al. (2008) *Oncogene* 27: 6187-90.
 López-Guillermo A, et al. (1999) *Blood* 93: 3081-7.
 Nelson BP, et al. (2007) *Am J Clin Pathol* 128: 323-32.
 Tibiletti MG, et al. (2009) *Hum Pathol* 40: 645-52.
 Tomita N, et al. (2009) *Haematologica* 94: 935-43.
 Weinberg OK, et al. (2007) *J Mol Diagn* 9: 530-7.

Results

In an interphase nucleus lacking a translocation involving the 18q21.33-q22.1 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 18q21.33-q22.1 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 18q21.33-q22.1 locus and one 18q21.33-q22.1 locus affected by a translocation.



SPEC BCL2 Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Neck lymph node tissue section with translocation of the BCL2 gene as indicated by two non-rearranged orange/green fusion signals, one orange and one separate green signal.

Prod. No.	Product	Label	Tests* (Volume)
Z-2192-50	ZytoLight SPEC BCL2 Dual Color Break Apart Probe		5 (50 µl)
Z-2192-200	ZytoLight SPEC BCL2 Dual Color Break Apart Probe		20 (200 µl)
Related Products			
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit Incl. Heat Pretreatment Solution Citric, 150 ml; Pepsin Solution, 1 ml; Wash Buffer SSC, 210 ml; 25x Wash Buffer A, 50 ml; DAPI/DuraTect-Solution, 0.2 ml		5
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 560 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraTect-Solution, 0.8 ml		20
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit Incl. Cytology Pepsin Solution, 4 ml; 20x Wash Buffer TBS, 50 ml; 10x MgCl ₂ , 50 ml; 10x PBS, 50 ml; Cytology Stringency Wash Buffer SSC, 500 ml; Cytology Wash Buffer SSC, 500 ml; DAPI/DuraTect-Solution, 0.8 ml		20

* 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.