ZytoMation® BCL6 Dual Color Break Apart FISH Probe

Intended Purpose

The Zyto*Mation* BCL6 Dual Color Break Apart FISH Probe is designed for the detection of translocations involving the chromosomal region 3q27.3 harboring the BCL6 (BCL6 transcription repressor, a.k.a. ZNF51, LAZ3) gene. The BCL6 protein acts as a transcriptional repressor that is involved in the regulation of lymphoid development and function.

Chromosomal rearrangements of the BCL6 gene region were found to occur in different types of non-Hodgkin lymphoma (NHL), including diffuse large B-cell lymphoma (DLBCL) and follicular lymphoma (FL). The most common BCL6 translocation t(3;14)(q27;q32.3) results in the IGH-BCL6 gene fusion. In addition, more than 20 partner loci have been identified including immunoglobulin (Ig) genes but also a number of non-Ig genes. As a result of these translocations, the rearranged BCL6 gene comes under the control of the promoter of the partner gene leading to deregulated expression of BCL6.

In DLBCL, the most common histologic subtype of NHL, BCL6 translocations represent one of the most frequent cytogenetic abnormality, occurring in 20% to 40% of the cases. Several studies reported a correlation of BCL6 translocation with an inferior overall survival. Moreover, DLBCL, which are positive for both BCL6 and MYC rearrangements, have been shown to have an extremely poor prognosis.

Hence, the detection of BCL6 rearrangements by FISH may help in predicting the clinical outcome in patients with NHL.

References

Akyurek N, *et al.* (2012) Cancer 118: 4173-83.
Cady FM, *et al.* (2008) J Clin Oncol 26: 4814-9.
Ohno H (2004) Histol Histopathol 19: 637-50.
Ohno H (2006) J Clin Exp Hematop 46: 43-53.

Probe Description

The Zyto*Mation* BCL6 Dual Color Break Apart FISH Probe is composed of:

- ZyGreen (excitation 503 nm/emission 528 nm) labeled polynucleotides (~6.0 ng/µl), which target sequences mapping in 3q27.3* (chr3:186,737,897-187,403,834) proximal to the BCL6 breakpoint region (see Fig. 1).
- ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (~2,5 ng/µl), which target sequences mapping in 3q27.3-q28*(chr3:187,744,962-188,097,195) distal to the BCL6 breakpoint region (see Fig. 1).
- Formamide based hybridization buffer

* according to Human Genome Assembly GRCh37/hg19

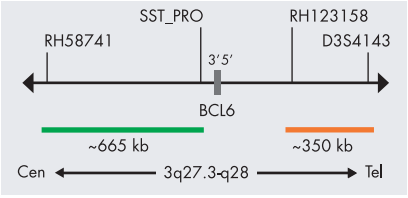
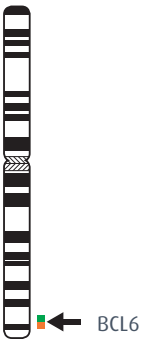


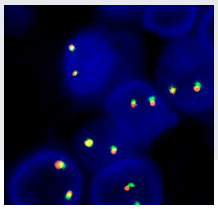
Fig. 1: BCL6 Probe map (not to scale)



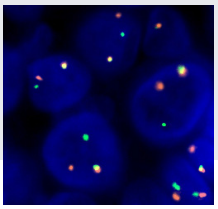
Ideogram of chromosome 3 indicating the hybridization locations

Results

Normal situation: In interphases of normal cells or cells without a translocation involving the BCL6 gene region, two green/orange fusion signals appear.
Aberrant situation: One BCL6 gene region affected by a translocation is indicated by one separate green signal and one separate orange signal.



Hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Lymphoma tissue section with translocation of the BCL6 gene as indicated by one non-rearranged orange/green fusion signal, one orange and one separate green signal.

Labels	Chromosome	Reg. Status	Tests	Order No.
●|●	3	CE/IVD	Up to 20 (5.1 ml)	**Z-2313-5.1ML**