

# ZytoMation® MYC Dual Color Break Apart FISH Probe



## Background

The ZytoMation® MYC Dual Color Break Apart FISH Probe is designed to detect translocations involving the chromosomal region 8q24.21 harboring the MYC gene. The MYC proto-oncogene (MYC proto-oncogene, bHLH transcription factor, 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 cytogenetic hallmarks for Burkitt lymphoma but are also found in other types of lymphomas. The most frequent translocation involving the MYC gene region is t(8;14)(q24.21;q32.3) juxtaposing the MYC gene in 8q24.21 next to the IGH (immunoglobulin heavy chain locus) gene in 14q32.33. 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.

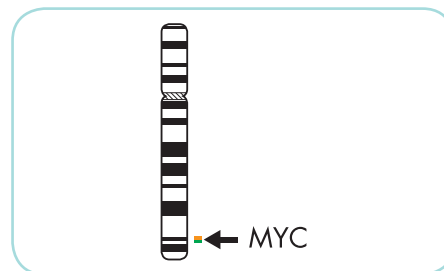
### References

Boerma EG, et al. (2009) *Leukemia* 23: 225-34.  
 Dalla-Favera R, et al. (1982) *Proc Natl Acad Sci U S A* 79: 6497-501.  
 Haralambieva E, et al. (2004) *Genes Chromosomes Cancer* 40: 10-8.  
 Veronese ML, et al. (1995) *Blood* 85: 2132-8.

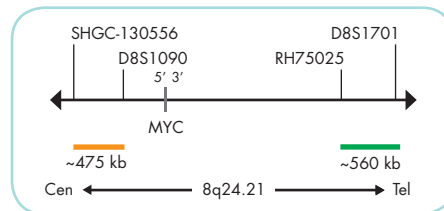
## Probe Description

The ZytoMation® MYC 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 8q24.21\*\* (chr8:130,373,051-130,930,673) distal to the MYC breakpoint region.
- ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (~2.5 ng/μl), which target sequences mapping in 8q24.21\*\* (chr8:127,888,765-128,363,281) proximal to the MYC breakpoint region.
- Formamide based hybridization buffer



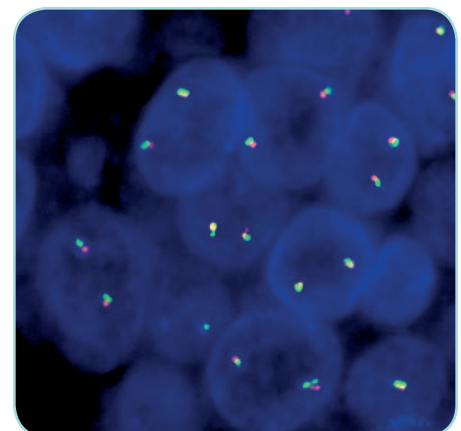
Ideogram of chromosome 8 indicating the hybridization locations.



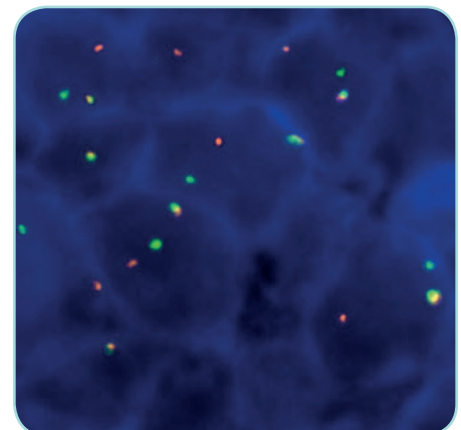
MYC Probe map (not to scale).

## Results

In an interphase nucleus lacking a translocation involving the 8q24.21 band two orange/green fusion signals are expected representing two normal (non-rearranged) 8q24.21 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 8q24.21 locus and one 8q24.21 locus affected by an 8q24.21 translocation.



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



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

Prod. No. Product

Z-2312-5.1ML ZytoMation MYC Dual Color Break Apart FISH Probe CE IVD

Label Tests\* (Volume)

●/● up to 20 (5.1 ml)

\* Using 240 μl probe solution per test. IVD labeled products are only available in certain countries. All other countries research use only! Please contact your local dealer for more information.

\*\*According to Human Genome Assembly GRCh37/hg19