ZytoMation® MYC Dual Color Break Apart FISH Probe

Intended Purpose

The Zyto*Mation* 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 Zyto*Mation* 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 (see Fig.1).
- 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 (see Fig. 1).
- Hybridisierungsbuffer auf Basis von Formamid

* according to Human Genome Assembly GRCh37/hg19

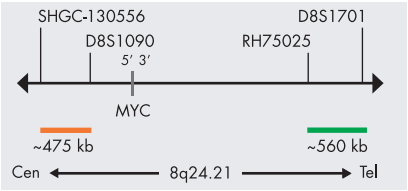
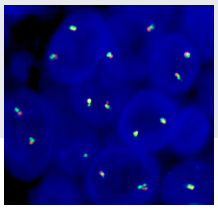


Fig. 1: MYC Probe map (not to scale)

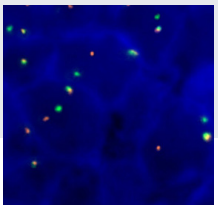
Ideogram of chromosome 8 indicating the hybridization locations

Results

Normal situation: In interphases of normal cells or cells without a translocation involving the MYC gene region, two green/orange fusion signals appear.
Aberrant situation: One MYC 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.



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.

Labels	Chromosome	Reg. Status	Tests	Order No.
●|●	8	CE/IVD	Up to 20 (5.1 ml)	**Z-2312-5.1ML**