ZytoLight® SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe

CE IVD

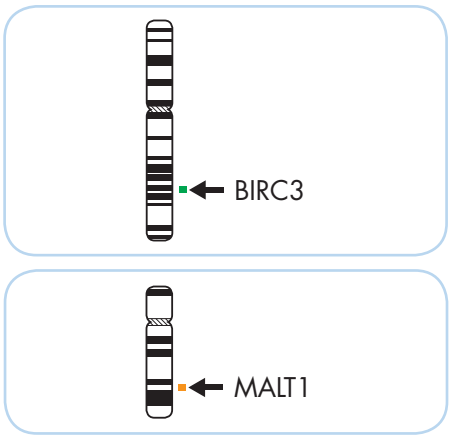
Background

The ZytoLight® SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe is designed to detect translocations involving the chromosomal region 11q22.2 harboring the BIRC3 (baculoviral IAP repeat containing 3, a.k.a. API2) gene and the chromosomal region 18q21.32 harboring the MALT1 (MALT1 paracaspase, a.k.a. MLT) gene.
The recurrent translocation t(11;18)(q22.2;q21.3) is frequently found in mucosa-associated lymphoid tissue (MALT) lymphoma which represents the most common extranodal B-cell tumor and accounts for 5-10% of all non-Hodgkin lymphoma. The translocation results in the expression of chimeric fusion transcripts comprising the N-terminal end of the apoptosis inhibitor BIRC3 which is highly expressed in adult lymphoid tissue and C-terminal parts of the MALT1 protease.
The BIRC3/MALT1 fusion protein was shown to induce proteolytic cleavage of NF-kappa-B-inducing kinase (NIK) ultimately resulting in constitutive non-canonical NF-kappa-B signaling, enhanced B-cell adhesion, and apoptosis resistance. It is assumed that disruption of the BIRC3-NIK interaction and/or blocking of MALT1 protease or NIK kinase activity could represent new treatment approaches for refractory t(11;18)-positive MALT lymphoma.

Probe Description

The ZytoLight® SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe is composed of:

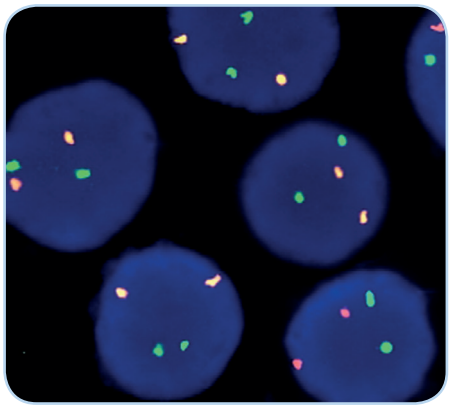
- ZyGreen (excitation 503 nm/emission 528 nm) labeled polynucleotides (12 ng/µl), which target sequences mapping in 11q22.1-q22.2** (chr11:101,756,072-102,581,817) harboring the BIRC3 gene region.
- ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (6 ng/µl), which target sequences mapping in 18q21.31-q21.32** (chr18:56,021,766-56,724,408) harboring the MALT1 gene region.
- Formamide based hybridization buffer



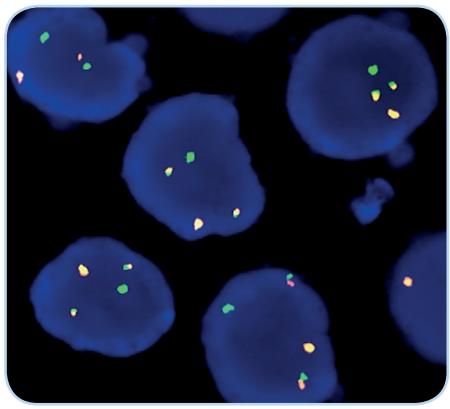
Ideograms of chromosomes 11 (above) and 18 (below) indicating the hybridization locations.

Results

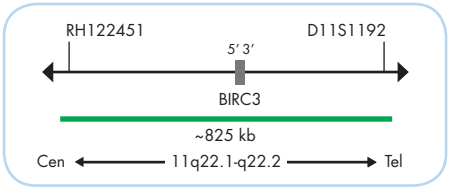
In a normal interphase nucleus, two orange and two green signals are expected. A reciprocal translocation involving two breakpoints splits the two signals and generates a fusion signal on each of the chromosomes involved. The chromosomal regions which are not translocated are indicated by the single orange and green signal, respectively.



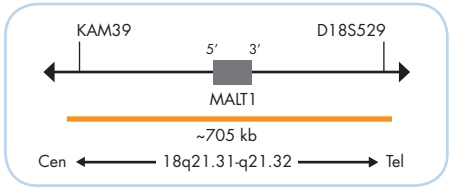
SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus.



MALT lymphoma tissue section with translocation affecting the BIRC3/MALT1 loci as indicated by one separate orange signal, one separate green signal, and two orange/green fusion signals.



SPEC BIRC3 Probe map (not to scale).



SPEC MALT1 Probe map (not to scale).

References
Dierlamm J, et al. (1999) Blood 93: 3601-9.
Dierlamm J, et al. (2000) Blood 96: 2215-8.
Morgan JA, et al. (1999) Cancer Res 59: 6205-13.
Rosebeck S, et al. (2011) Science 331: 468-72.

Prod. No.	Product	Label	Tests* (Volume)
Z-2146-50	ZytoLight SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe CE IVD	●/●	5 (50 µl)
Z-2146-200	ZytoLight SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit CE IVD 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 CE IVD 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

** Using 10 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*