ZytoLight® SPEC MALT1 Dual Color Break Apart Probe

CE IVD

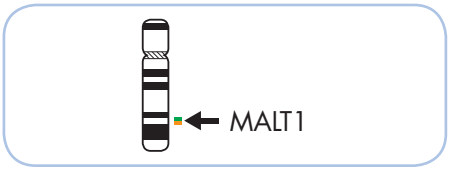
Background

The ZytoLight® SPEC MALT1 Dual Color Break Apart Probe is designed to detect translocations involving the chromosomal region 18q21.32 harboring the MALT1 gene. The MALT1 (mucosa associated lymphoid tissue lymphoma translocation gene 1, a.k.a. MLT) gene encodes a human paracaspase and is often rearranged in MALT lymphomas accounting for 5-10% of all B-cell non-Hodgkin lymphomas (NHL). The most common translocations affecting the MALT1 gene are t(11;18)(q22.2;q21.3) and t(14;18)(q32.3;q21.3) occurring in 50% and 15-20% of MALT lymphomas, respectively. These translocations lead to the expression of BIRC3-MALT1 (a.k.a. API2-MALT1) and IGH-MALT1 fusion proteins, resulting in constitutive activation of the NF-κB signaling pathway which controls the expression of numerous anti-apoptotic and proliferation-promoting genes.
The translocation t(11;18)(q22.2;q21.3) is mainly found in pulmonary and gastric lymphomas, whereas t(14;18)(q32.3;q21.3) occurs more frequently in non-gastrointestinal MALT lymphomas, e.g., of the skin and salivary glands.
The presence of a t(11;18)(q22.2;q21.3) correlates with unresponsiveness to eradication of *Helicobacter pylori* in gastric MALT lymphomas. Hence, detection of MALT1 translocations by Fluorescence *in situ* Hybridization (FISH) may be a supportive tool to identify patients eligible for anti *H. pylori* therapy.

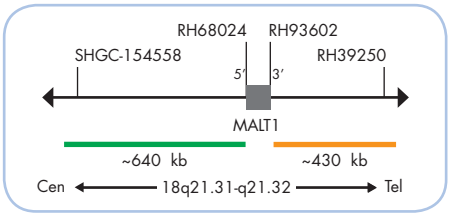
References
Afonina IS, et al. (2015) FEBS J 282: 3286-97.
Beans M, et al. (2014) PloS One 9: e103774.
Dierlamm J, et al. (1999) Blood 93: 3601-9.
Levine EG, et al. (1989) Blood 74: 1796-800.
Lucas PC, et al. (2001) J Biol Chem 276: 19012-9.
Martinelli G, et al. (2005) J Clin Oncol 23: 1979-83.
Pereira MI & Medeiros JA (2014) World J Gastroenterol 20: 684-98.
Troppan K, et al. (2015) Gastroenterol Res Pract 2015: 102656.

Probe Description

The SPEC MALT1 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 18q21.31-q21.32 band. The green fluorochrome direct labeled probe hybridizes proximal to the MALT1 gene at 18q21.31-q21.32, and the orange fluorochrome direct labeled probe hybridizes distal to the MALT1 gene region at 18q21.32.



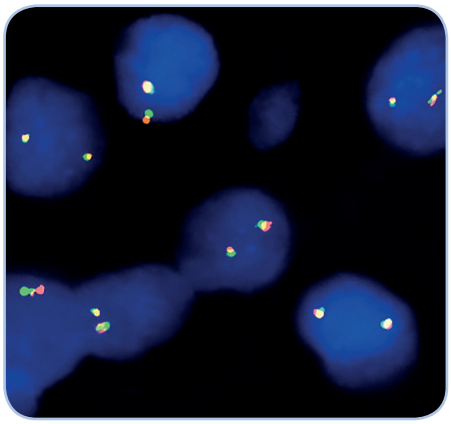
Ideogram of chromosome 18 indicating the hybridization locations.



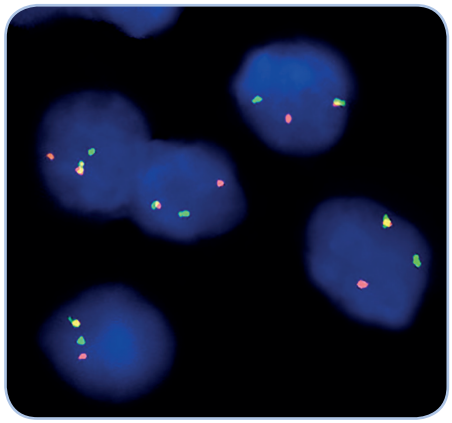
SPEC MALT1 Probe map (not to scale).

Results

In an interphase nucleus lacking a translocation involving the 18q21.31-q21.32 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 18q21.31-q21.32 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 18q21.31-q21.32 locus and one 18q21.31-q21.32 locus affected by a translocation.



SPEC MALT1 Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Lymphoma tissue section with translocation of the MALT1 gene as indicated by one non-rearranged orange/green fusion signal, one orange signal, and one separate green signal indicating the translocation.

Prod. No.	Product	Label	Tests* (Volume)
Z-2196-200	ZytoLight SPEC MALT1 Dual Color Break Apart Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraTect-Solution, 0.8 ml		20

** Using 10 µl probe solution per test. CE IVD only available in certain countries. All other countries research use only! Please contact your local dealer for more information.*

FE097-1-16

ZytoLight® FISH probes are direct labeled using the unique ZytoLight® *Direct Label System II* providing improved signal intensity. Advanced specificity of the single copy SPEC probes is obtained by the unique ZytoVision® *Repeat Subtraction Technique.*

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