**ZytoLight® SPEC MALT1 Dual Color Break Apart Probe**

**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) (q21;q21) and t(14;18)(q32;q21) 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)(q21;q21) is mainly found in pulmonary and gastric lymphomas, whereas t(14;18)(q32;q21) occurs more frequently in non-gastrointestinal MALT lymphomas, e.g., of the skin and salivary glands.

The presence of a t(11;18)(q21;q21) 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.

**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.

**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.

**References**

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