**Background**

The ZytoLight® SPEC MAFB/IGH Dual Color Dual Fusion Probe is designed to detect the translocations affecting the MAFB gene in the chromosomal region 20q12 and the IGH locus in 14q32.3. The translocation t(14;20)(q32.3;q12) is frequently found in multiple myeloma (MM). MM is a low proliferative, malignant post-germinal center tumor of somatically mutated, isotype-switched plasma cells that accumulate in the bone marrow. It is often preceded by a premalignant state known as monoclonal gammopathy of undetermined significance (MGUS). Five recurrent primary translocations involving the immunoglobulin heavy locus (IGH) have been identified in 40% of MGUS and MM tumors. They include t(1;14)(q13.3;q32.3), t(6;14)(p21.1;q32.3), t(4;14)(p16.3;q32.3), t(1;4)(q32;3;q23), and t(14;20)(q32.3;q12), which involve the genes CCND1, CCND3, FGFR3 and NSD2, MAF, and MAFB, respectively. All of these translocations lead to the deregulation and overexpression of the target genes as a consequence of their juxtaposition to regulatory sequences of the IGH locus. The t(14;20) occurs in approximately 1-2% of MM patients and is associated with an adverse prognosis. Thus, currently, detection of t(14;20) by FISH is a reliable prognostic tool and may sustain therapeutic decision making in MM.

**Probe Description**

The SPEC MAFB/IGH Dual Color Dual Fusion Probe is a mixture of an orange fluorochrome direct labeled MAFB probe spanning MAFB and proximal regions known for variable breakpoints, and a green fluorochrome direct labeled IGH probe spanning the known breakpoints of the IGH locus.

**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.

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**References**


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* Using 10 µl probe solution per test.

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**Related Products**

<table>
<thead>
<tr>
<th>Prod. No.</th>
<th>Product</th>
<th>Label</th>
<th>Tests* (Volume)</th>
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<tbody>
<tr>
<td>Z-2271-50</td>
<td>ZytoLight SPEC MAFB/IGH Dual Color Dual Fusion Probe</td>
<td>CE</td>
<td>5 (50 µl)</td>
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**ZytoVision GmbH · Fischkai 1 27572 Bremerhaven · Germany www.zytovision.com**