ZytoLight® SPEC TP53/17q22 Dual Color Probe

CE IVD

Background

The ZytoLight® SPEC TP53/17q22 Dual Color Probe is designed for the detection of TP53 deletions as well as for the determination of copy number changes of the chromosomal region 17q22, harboring the MPO (myeloperoxidase) gene. TP53 loss in combination with signal gain of the 17q22 chromosomal region serve as a marker for the detection of isochromosomes often found in hematologic malignancies as well as in neuroblastoma.

The TP53 gene (tumor protein 53, a.k.a. p53, BCC7, LFS1, TRP53) is located in the chromosomal region 17p13.1 and encodes a 53 kDa transcription factor. TP53 gene deletions have been detected in patients with chronic lymphocytic leukemia (CLL), multiple myeloma (MM), and acute myeloid leukemia (AML). In CLL patients, allelic loss of the short arm of chromosome 17 is associated with treatment failure with alkylating agents and short survival times.

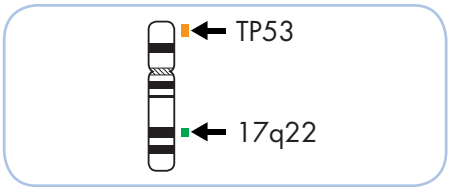
Isochromosome 17q is a frequent cytogenetic abnormality seen in hematologic malignancies including blast phase of chronic myelogenous leukemia (CML), AML, Hodgkin and non-Hodgkin lymphomas. In neuroblastoma, gain of the 17q21-qter is associated with stronger tumor progression.

Thus, the combined detection of both targets by Fluorescence *in situ* Hybridization allows for a sensitive determination of isochromosomes and may be a helpful tool for diagnosis and selecting treatment.

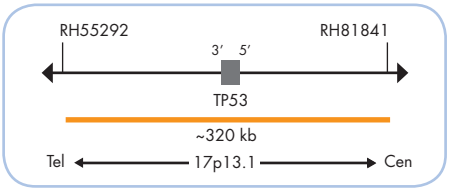
References
Becher R, et al. (1990) Blood 8: 1679-83.
Bown N, et al. (1999) N Engl J Med 340: 1954-61.
Fioretos T, et al. (1999) Blood 94: 225-32.
Pettitt AR, et al. (2001) Blood 98: 814-22.
Ripollés L, et al. (2006) Cancer Genet Cytogenet 171: 57-64.
Shanafelt TD, et al. (2006) Ann Intern Med 145: 435-47.

Probe Description

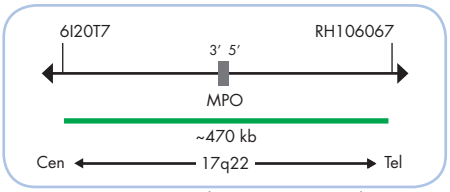
The SPEC TP53/17q22 Dual Color Probe is a mixture of an orange fluorochrome direct labeled SPEC TP53 probe hybridizing to the TP53 gene in the chromosomal region 17p13.1 and a green fluorochrome direct labeled SPEC 17q22 probe specific for the chromosomal region 17q22 harboring the MPO gene.



Ideogram of chromosome 17 indicating the hybridization locations.



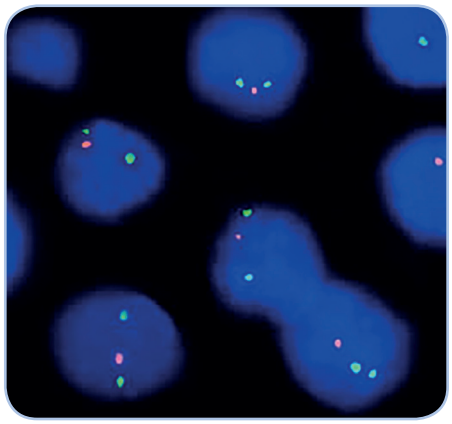
SPEC TP53 Probe map (not to scale).



SPEC 17q22 Probe map (not to scale).

Results

In a normal interphase nucleus, two orange and two green signals are expected. In a cell with deletion of the TP53 gene locus, one orange signal and two green signals can be detected. A gain of 17q involving the 17q22 region will result in three or more green signals and two orange signals. Isochromosome 17q is indicated by three green signals and one orange signal.



SPEC TP53/17q22 Dual Color Probe hybridized to bone marrow tissue section with deletion of the TP53 gene as indicated by one orange signal and two green signals in each nucleus.

Prod. No.	Product	Label	Tests* (Volume)
Z-2198-200	ZytoLight SPEC TP53/17q22 Dual Color 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
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit CE IVD Incl. Cytology Pepsin Solution, 4 ml; 20x Wash Buffer TBS, 50 ml; 10x MgCl2, 50 ml; 10x PBS, 50 ml; Cytology Stringency Wash Buffer SSC, 500 ml; Cytology Wash Buffer SSC, 500 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.*

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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