

ZytoLight® SPEC RB1/13q34 Dual Color Probe



Background

The ZytoLight® SPEC RB1/13q34 Dual Color Probe is designed for the detection of deletions affecting the RB1 gene. The RB1 (RB transcriptional corepressor 1, a.k.a. pRb) gene is located on 13q14.2 and encodes a protein which acts as a tumor suppressor playing a crucial role in cell cycle regulation and genome stability. Deletions of RB1 are frequently found in retinoblastoma. However, either monoallelic or biallelic deletions of RB1 are also common in a wide variety of solid tumors and hematologic malignancies such as multiple myeloma (MM) and chronic lymphocytic leukemia (CLL).

While 13q14 deletions exclusive of RB1 confer a more favorable prognosis in CLL patients, 13q14 deletions that encompass the RB1 locus (present in approx. 20% of all CLL cases) are associated with shortened survival.

Hence, FISH is a valuable tool for the detection of RB1 gene deletions and can be used in combination with further biological markers, morphology and clinical information for the prediction of disease progression and overall survival.

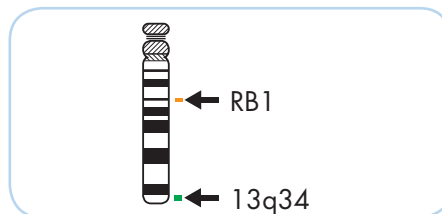
References

- Dal Bo M, et al. (2011) Genes Chromosomes Cancer 50: 633-43.
- Dao DD, et al. (1994) Leukemia 8: 1280-4.
- Di Fiore R, et al. (2013) J Cell Physiol 228: 1676-87.
- Juge-Morineau N, et al. (1997) Leuk Lymphoma 24: 229-37.
- Orlandi EM, et al. (2013) Hematol Oncol 31: 136-42.
- Ouillette P, et al. (2011) Clin Cancer Res 17: 6778-90.

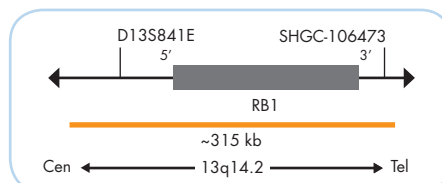
Probe Description

The ZytoLight® SPEC RB1/13q34 Dual Color Probe is composed of:

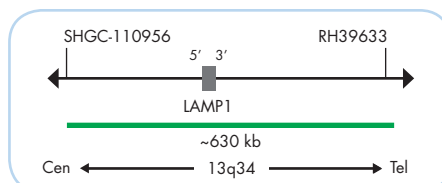
- ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (~4.5 ng/µl), which target sequences mapping in 13q14.2** (chr13:48,776,918-49,092,570) harboring the RB1 gene region.
- ZyGreen (excitation 503 nm/emission 528 nm) labeled polynucleotides (~10.0 ng/µl), which target sequences mapping in 13q34** (chr13:113,691,216-114,323,467).
- Formamide based hybridization buffer



Ideogram of chromosome 13 indicating the hybridization locations.



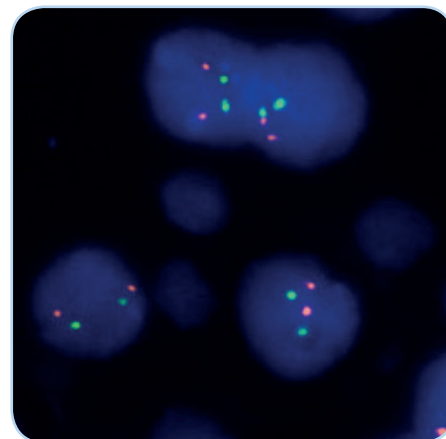
SPEC RB1 Probe map (not to scale).



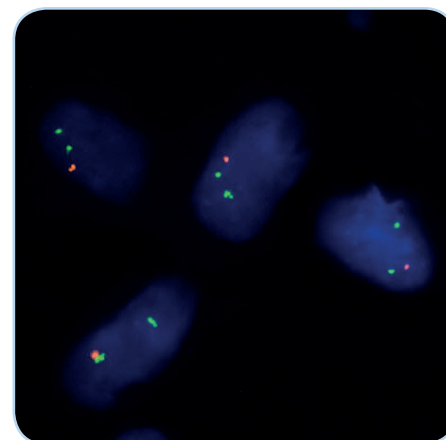
SPEC 13q34 Probe map (not to scale).

Results

In a normal interphase nucleus, two orange and two green signals are expected. In a cell with deletions affecting the RB1 gene locus, one or no copy of the orange signal will be observed.



SPEC RB1/13q34 Dual Color Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus.



SPEC RB1/13q34 Dual Color Probe hybridized to lipoma tissue section with deletion of the RB1 gene as indicated by one orange signal and two green signals in each nucleus.

Prod. No.	Product	Label	Tests* (Volume)
Z-2324-50	ZytoLight SPEC RB1/13q34 Dual Color Probe CE IVD	●/●	5 (50 µl)
Z-2324-200	ZytoLight SPEC RB1/13q34 Dual Color 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
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit CE IVD Incl. Cytology Pepsin Solution, 4 ml; 20x Wash Buffer TBS, 50 ml; 10x MgCl ₂ , 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. 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