

# ZytoLight® SPEC PML/RARA Dual Color Dual Fusion Probe



## Background

The ZytoLight® SPEC PML/RARA Dual Color Dual Fusion Probe is designed to detect the translocation t(15;17)(q24;q21.2) affecting the PML gene in the chromosomal region 15q24.1 and the RARA locus in 17q21.2.

Translocations involving the PML (promyelocytic leukemia, a.k.a. MYL) gene and the RARA (retinoic acid receptor alpha, a.k.a. RARα) gene are considered to be characteristic for acute promyelocytic leukemia (APL), a subtype of acute myeloid leukemia.

Various fusion partners of RARA have been identified, however, in 95% of all APL cases, rearrangements involving the PML gene are detectable. This translocation t(15;17)(q24;q21) leads to a gene fusion of the PML and the RARA gene. The fusion is supposed to play a fundamental role in induction, development, and progression of APL.

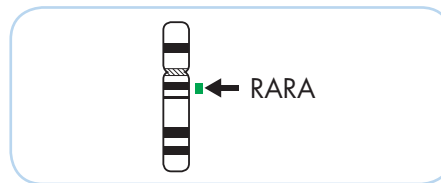
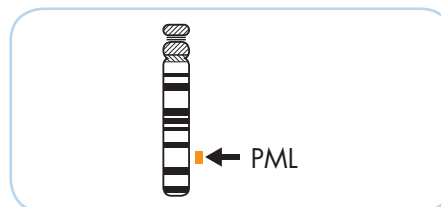
Since the PML/RARA fusion accounts for the response of these neoplasms to all-trans retinoic acid (ATRA) therapy and other conventional chemotherapy it is important to accurately distinguish between t(15;17) translocations and translocations involving other partners of RARA.

### References

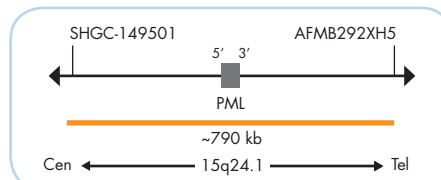
Abe S, et al. (2008) Cancer Genet and Cytogenet 184: 44-7.  
 Brockmann SR, et al. (2003) Cancer Genet and Cytogenet 145: 144-51.  
 Reiter A, et al. (2004) Acta Hematol 112: 55-67.  
 Sanz MA, et al. (2009) Blood 113: 1875-91.

## Probe Description

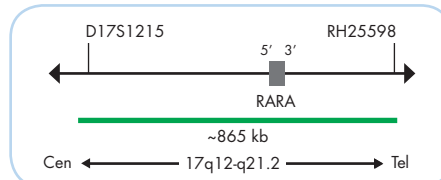
- The ZytoLight® SPEC PML/RARA Dual Color Dual Fusion Probe is composed of:
- ZyGreen (excitation 503 nm/emission 528 nm) labeled polynucleotides (~12 ng/μl), which target sequences mapping in 17q12-q21.2\*\* (chr17:37,953,503-38,818,030).
  - ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (~6 ng/μl), which target sequences mapping in 15q24.1\*\* (chr15:73,910,690-74,699,298).
  - Formamid based hybridization buffer



Ideograms of chromosomes 15 (above) and 17 (below) indicating the hybridization locations.



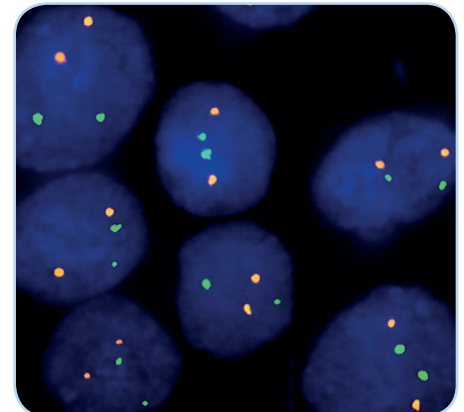
SPEC PML Probe map (not to scale).



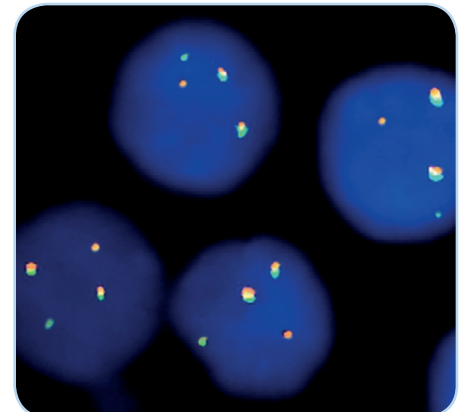
SPEC RARA Probe map (not to scale).

## Results

In a normal interphase nucleus, two orange and two green signals are expected. A reciprocal PML/RARA translocation leads to two orange/green fusion signals indicating both rearranged chromosomes. Additionally, the non-rearranged chromosomes are indicated by one orange signal and a separate green signal, respectively.



SPEC PML/RARA Dual Color Dual Fusion Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus.



Bone marrow biopsy section with translocation affecting the PML/RARA loci as indicated by one separate orange signal, one separate green signal, and two orange/green fusion signals.

Prod. No.	Product	Label	Tests* (Volume)
Z-2113-50	ZytoLight SPEC PML/RARA Dual Color Dual Fusion Probe	●/●	5 (50 μl)
Z-2113-200	ZytoLight SPEC PML/RARA Dual Color Dual Fusion Probe	●/●	20 (200 μl)
<b>Related Products</b>			
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit Incl. Cytology Pepsin Solution, 4 ml; 20x Wash Buffer TBS, 50 ml; 10x MgCl <sub>2</sub> , 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. 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