

ZytoLight® SPEC CSF1R/D5S23,D5S721 Dual Color Probe



Background

The ZytoLight® SPEC CSF1R/D5S23,D5S721 Dual Color Probe is designed for the detection of 5q deletions. The CSF1R (colony stimulating factor 1 receptor, a.k.a. C-FMS) gene is located in the chromosomal region 5q32. The interstitial deletion of chromosome 5q is a characteristic hallmark of the myelodysplastic syndrome (MDS) with isolated del(5q). The size of the deletion as well as the breakpoints are variable but a commonly deleted region (CDR) has been narrowed to the approximately 1.5 Mb interval at 5q32-q33.1 flanked by the DNA marker D5S413 and the GLRA1 gene. One candidate gene for the development of MDS in patients with 5q- syndrome is RPS14 (ribosomal protein 14), a tumor suppressor gene located in the chromosomal region 5q33.1. Haploinsufficiency (caused by hemizygous deletion) of RPS14 is the probable cause of the erythroid defect that characterizes the 5q- syndrome. Lenalidomide has been reported to overcome the pathogenic effect of 5q deletion in MDS.

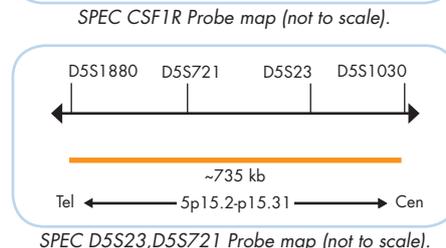
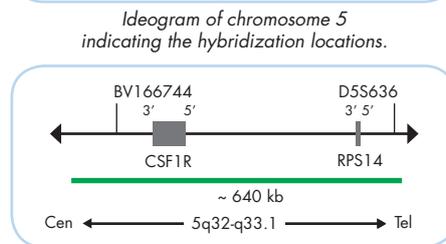
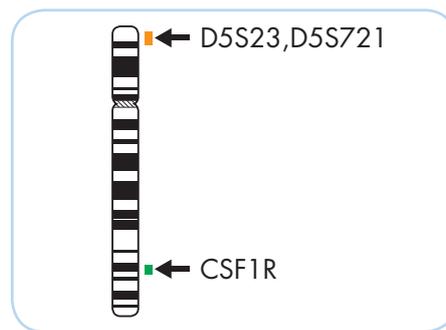
Despite the severe phenotype of the 5q- syndrome, it has a relatively low (10%) transformation risk to acute myeloid leukemia (AML). Therefore, FISH may be a helpful tool for diagnosis and therapy decision.

References
 Boulwood J, et al. (1991) Proc Natl Acad Sci U S A 88: 6176-80.
 Boulwood J, et al. (2010) Blood 116: 5803-11.
 Giagounidis AA, et al. (2004) Clin Cancer Res 12: 5-10.
 Van den Berghe H & Michaux JL (1974) Nature 251: 437-8.
 Swerdlow SH, et al. (ed.) (2008) WHO classification of tumours of haematopoietic and lymphoid tissues.

Probe Description

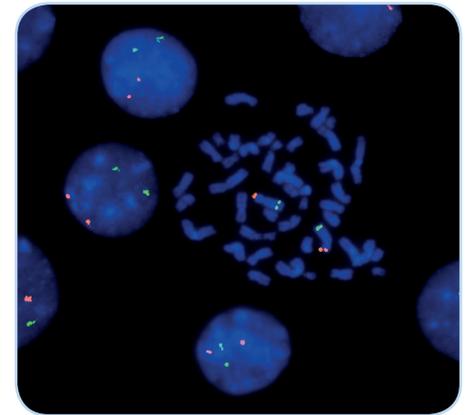
The ZytoLight® SPEC CSF1R/D5S23,D5S721 Dual Color Probe is composed of:

- ZyGreen (excitation 503 nm/emission 528 nm) labeled polynucleotides (~10 ng/µl), which target sequences mapping in 5q32-q33.1** (chr5:149,274,320-149,913,159) harboring the CSF1R gene region.
- ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (~4.5 ng/µl), which target sequences mapping in 5p15.2-p15.31** (chr5:9,233,775-9,967,465) harboring the D5S23,D5S721 locus.
- Formamide based hybridization buffer

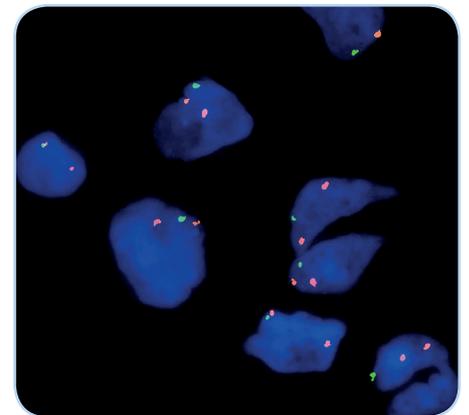


Results

In a normal interphase nucleus, two orange and two green signals are expected. In a cell with deletion of the CSF1R gene locus, one or no copy of the green signal will be observed.



SPEC CSF1R/D5S23,D5S721 Dual Color Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus and to metaphase chromosomes of a normal cell.



Bone marrow biopsy tissue section of an ALL case showing hemizygous deletion of the CSF1R gene as indicated by the loss of one green signal in each nucleus.

Prod. No.	Product	Label	Tests* (Volume)
Z-2268-50	ZytoLight SPEC CSF1R/D5S23,D5S721 Dual Color Probe		5 (50 µl)
Related Products			
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit		20
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			

* 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