

ZytoLight® SPEC PHF1 Dual Color Break Apart Probe



Background

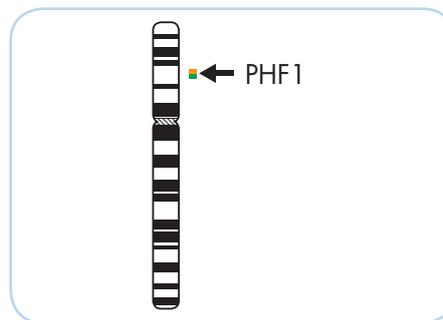
The *ZytoLight*® SPEC PHF1 Dual Color Break Apart Probe is designed for the detection of translocations involving the chromosomal region 6p21.32 harboring the PHF1 (PHD finger protein 1, a.k.a. MTF2L2, PCL1) gene. The PHF1 protein is known to affect processes, such as development and cell proliferation, through modulation of histone H3 methylation. Endometrial stromal tumors (ESTs) are the second most common pure mesenchymal tumors of the uterus. ESTs may pose diagnostic challenges particularly when they exhibit variant histologic appearances, involve extrauterine sites, or present as metastatic disease. Several rearrangements involving the genes JAZF1, PHF1, or YWHAE have been identified in ESTs, detection of which may be helpful in the differential diagnosis of these tumors. PHF1 rearrangements were found to occur in endometrial stromal sarcomas but not in endometrial stromal nodules or undifferentiated endometrial sarcomas. Moreover, recurrent rearrangements of the PHF1 gene have also been detected in up to 85% of ossifying fibromyxoid tumors (OFMTs) including benign and malignant cases. Thus, FISH analysis for the detection of PHF1 translocation may also serve as a diagnostic tool to identify OFMT cases.

References

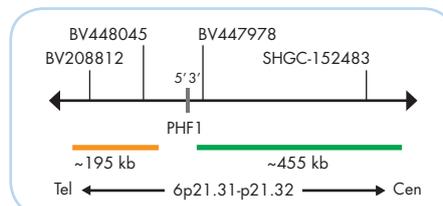
- Antonescu CR, et al. (2014) *Genes Chromosomes Cancer* 53: 183-93.
- D'Angelo E, et al. (2013) *Am J Surg Pathol* 37: 514-21.
- Gebre-Medhin S, et al. (2012) *Am J Pathol* 181: 1069-77.
- Hodge JC, et al. (2016) *J Mol Diagn* 18: 516-26.
- Micci F, et al. (2006) *Cancer Res* 66: 107-12.

Probe Description

The SPEC PHF1 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 6p21.31-p21.32 band. The green fluorochrome direct labeled probe hybridizes in 6p21.31-p21.32 proximal and the orange fluorochrome direct labeled probe hybridizes in 6p21.32 distal to the PHF1 gene.



Ideogram of chromosome 6 indicating the hybridization locations.

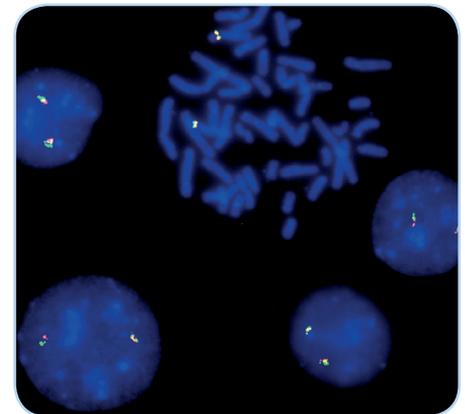


SPEC PHF1 Probe map (not to scale).

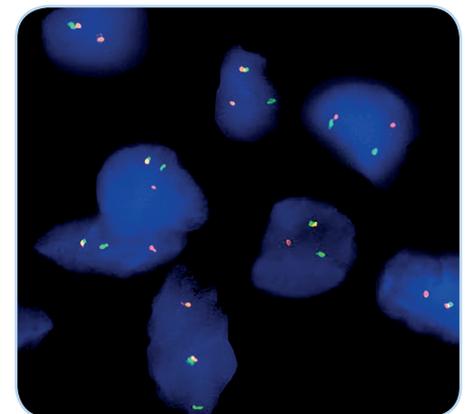
Results

In an interphase nucleus lacking a translocation involving the 6p21.31-p21.32 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 6p21.31-p21.32 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 6p21.31-p21.32 locus and one 6p21.31-p21.32 locus affected by a translocation.

Deletion of 5'-PHF1 sequences is indicated by one or multiple isolated green signals.



SPEC PHF1 Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus and to metaphase chromosomes of a normal cell.



Sarcoma tissue section with translocation of the PHF1 gene as indicated by one non-rearranged orange/green fusion signal, one orange, and one separate green signal.

Prod. No.	Product	Label	Tests* (Volume)
Z-2215-50	ZytoLight SPEC PHF1 Dual Color Break Apart Probe		5 (50 µl)
Related Products			
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit		5
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			

* Using 10 µl probe solution per test. only available in certain countries. All other countries research use only! Please contact your local dealer for more information.