ZytoLight® SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe

CE IVD

Background

The ZytoLight® SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe is designed for the detection of the specific translocations involving the chromosomal region 17q21.33 harboring the COL1A1 (a.k.a. OI4) gene, and the chromosomal region 22q13.1, harboring the PDGFB (a.k.a PDGF2, SIS) gene.

The reciprocal translocations involving t(17;22)(q21.3;q13.1) are characteristic for dermatofibrosarcoma protuberans (DFSP) patients. DFSP is a highly recurrent, infiltrative skin tumor of intermediate malignancy.

The rearrangements are cytogenetically characterized by the presence of supernumerary ring chromosomes containing low-level amplified sequences from chromosomes 17q21-qter and 22q10-q13.1, or unbalanced derivatives of the t(17;22)(q21.3;q13.1) translocation.

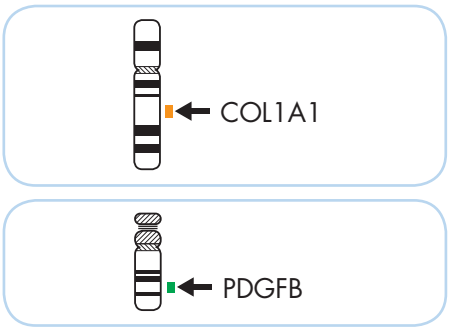
The rearrangement results in a COL1A1-PDGFB fusion protein which is post-transcriptionally processed to a functional platelet-derived growth factor beta chain (PDGFB) protein, and results in PDFGB-mediated autocrine and/or paracrine activation of the plateled-derived growth factor receptor-β (PDGFRB).

The accurate diagnosis of DFSP is important because of the intermediate malignant nature of the DFSP and can be facilitated by Fluorescence *in situ* Hybridization (FISH) analyses.

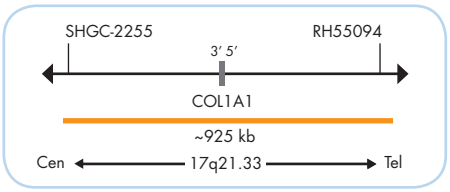
References
Labropoulos SV & Razis ED (2007) Biologics 4: 347-53.
Patel KU, et al. (2008) Human Pathol 39: 184-93.
Shimizu A, et al. (1999) Cancer Res 59: 3719-23.
Simon MP, et al. (1997) Nat Genet 15: 95-8.
Walluks K, et al. (2013) Pathol Res Pract 209: 30-5.

Probe Description

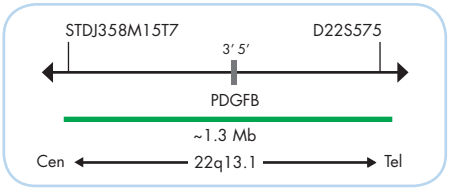
The SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe is a mixture of an orange fluorochrome direct labeled COL1A1 probe covering the breakpoint region of the COL1A1 gene and a green fluorochrome direct labeled PDGFB probe covering the breakpoint region of the PDGFB gene.



Ideograms of chromosomes 17 (above) and 22 (below) indicating the hybridization locations.



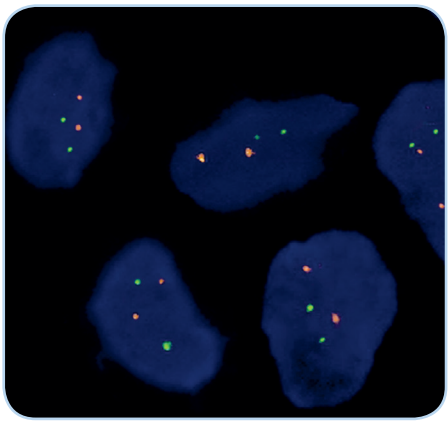
SPEC COL1A1 Probe map (not to scale).



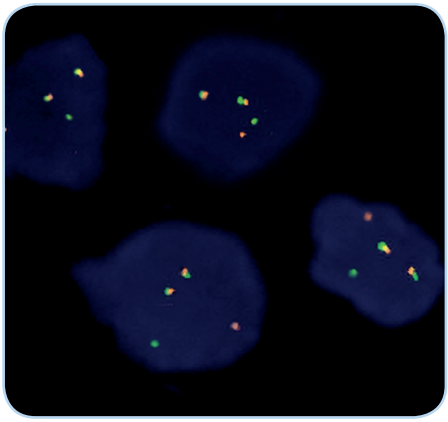
SPEC PDGFB Probe map (not to scale).

Results

In a normal interphase nucleus, two orange and two green signals are expected. A reciprocal translocation involving two breakpoints splits the two signals and generates a fusion signal on each of the chromosomes involved. The chromosomal regions which are not translocated are indicated by the single orange and green signal, respectively.



SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus.



DFSP tissue section with translocation affecting the COL1A1/PDGFB 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-2116-50	ZytoLight SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe CE IVD	●/●	5 (50 µl)
Z-2116-200	ZytoLight SPEC COL1A1/PDGFB Dual Color Dual Fusion 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

** 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.*