

# ZytoLight® SPEC COL1A1 Dual Color Break Apart Probe



## Background

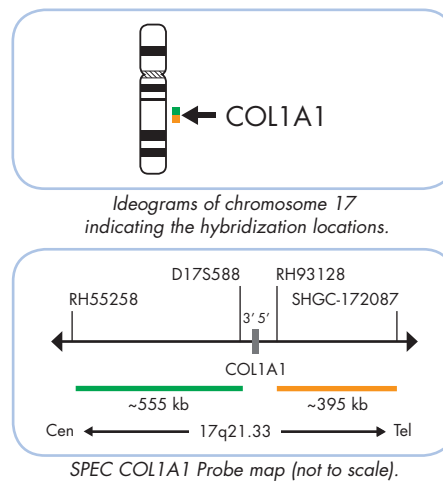
The *ZytoLight*® SPEC COL1A1 Dual Color Break Apart Probe is designed for the detection of the specific translocations involving the chromosomal region 17q21.33 harboring the COL1A1 (a.k.a. O14) gene. Reciprocal translocations involving t(17;22)(q21.3;q13.1) are characteristic for dermatofibrosarcoma protuberans (DFSP). 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 frequently results in formation of a COL1A1-PDGFB fusion protein which is post-transcriptionally processed to a functional platelet-derived growth factor beta chain (PDGFB) protein, and results in PDGFB-mediated autocrine and/or paracrine activation of the platelet-derived growth factor receptor-β (PDGFRβ). 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.

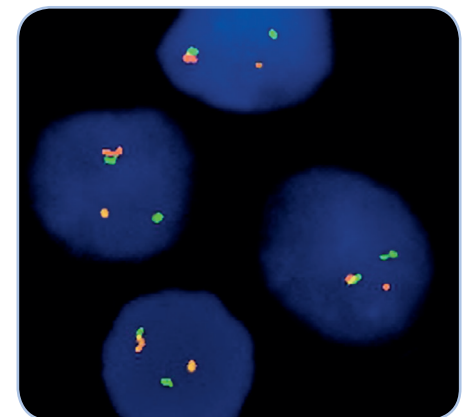
## Probe Description

The SPEC COL1A1 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 17q21.33 band. The orange fluorochrome direct labeled probe hybridizes distal, and the green fluorochrome direct labeled probe hybridizes proximal to the COL1A1 gene.

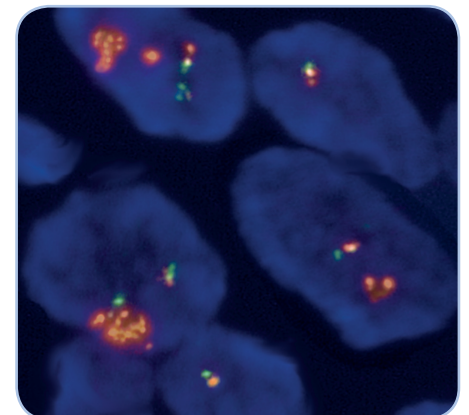


## Results

In a normal interphase nucleus lacking a translocation involving the 17q21.33 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 17q21.33 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 17q21.33 locus and one 17q21.33 locus affected by a 17q21.33 translocation.



DFSP tissue section with translocation affecting the 17q21.33 locus as indicated by one non-rearranged orange/green fusion signal, one orange signal, and one separate green signal indicating the translocation.



DFSP tissue section with amplification of the 17q21-qter and 22q10-q13.1 sequences probably due to a COL1A1-PDGFB fusion product on the ring chromosome.

Image kindly provided by Dr. Schildhaus, Cologne, Germany.

| Prod. No.  | Product  | Label | Tests* (Volume) |
|--|--|-------|-----------------|
| Z-2121-200   | ZytoLight SPEC COL1A1 Dual Color Break Apart Probe | ●/●   | 20 (200 µl)     |
| <b>Related Products</b>  |  |       |                 |
| Z-2028-20  | ZytoLight FISH-Tissue Implementation Kit           |       | 20              |
| Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraText-Solution, 0.8 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.