

# ZytoLight® SPEC ZNF384 Dual Color Break Apart Probe



## Background

The ZytoLight® SPEC ZNF384 Dual Color Break Apart Probe is designed to detect translocations involving the chromosomal region 12p13.31 harboring the ZNF384 gene.

The ZNF384 (zinc-finger protein 384, a.k.a. ClZ) gene encodes a transcription factor involved in the regulation of matrix metalloproteinases.

Rearrangements of the ZNF384 gene are recurrent in acute leukemia and are most frequently found in precursor B-cell acute lymphoblastic leukemia (BCP-ALL) in children and young adults with an incidence of about 3-4%. ZNF384-related fusion genes with multiple fusion partners have been found to define a distinct subgroup of pediatric BCP-ALL with a characteristic immunophenotype. Known translocation partners are TCF3 (19p13.3), EWSR1 (22q12.2), TAF15 (17q12), EP300 (22q13.2), ARID1B (6q25.3), CREBBP (16p13.3), and BMP2K (4q21.21) with TCF3 being the most prevalent. The breakpoints are located within the ZNF384 gene. However, the balanced translocations are resulting in fusion genes including the complete protein coding information.

Since ZNF384-related fusion genes are difficult to detect by common G-banding, investigation by FISH may be of diagnostic and prognostic relevance.

### References

- Hirobayashi S, et al. (2017) Haematologica 102: 118-29.
- Krance RA, et al. (1992) Leukemia 6: 251-5.
- La Starza R, et al. (2005) Leukemia 19: 1696-9.
- Shago M, et al. (2016) Pediatr Blood Cancer 63: 1915-21.

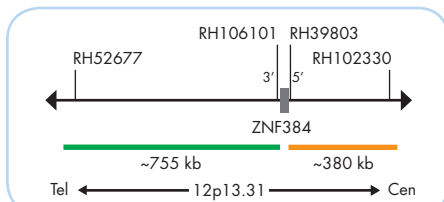
## Probe Description

The ZytoLight® SPEC ZNF384 Dual Color Break Apart Probe is composed of:

- ZyGreen (excitation 503 nm/emission 528 nm) labeled polynucleotides (~10.0 ng/µl), which target sequences mapping in 12p13.31\*\* (chr12:6,016,809-6,771,300) distal to the ZNF384 breakpoint region.
- ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (~4.5 ng/µl), which target sequences mapping in 12p13.31\*\* (chr12:6,799,546-7,175,222) proximal to the ZNF384 breakpoint region.
- Formamide based hybridization buffer



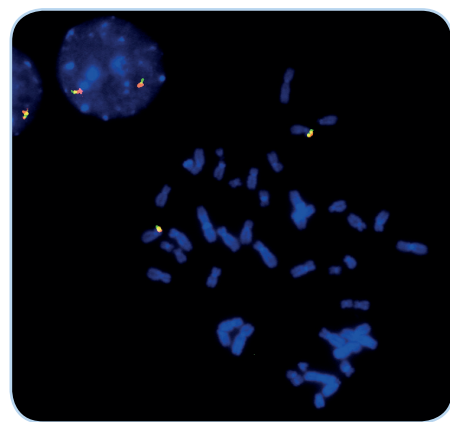
Ideogram of chromosome 12 indicating the hybridization locations.



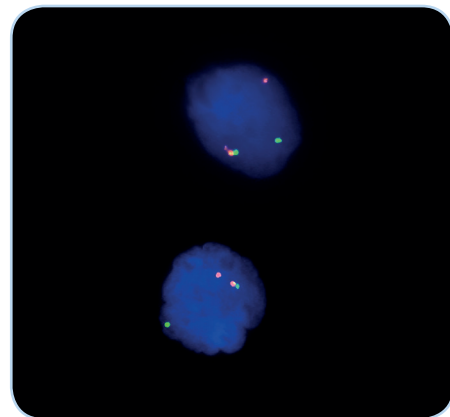
SPEC ZNF384 Probe map (not to scale).

## Results

In an interphase nucleus lacking a translocation involving the 12p13.31 band, two orange/green fusion signals are expected, representing two normal (non-rearranged) 12p13.31 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 12p13.31 locus and one 12p13.31 locus affected by a ZNF384 translocation.



SPEC ZNF384 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.



Bone marrow smear of an ALL case with translocation of the ZNF384 gene as indicated by one orange/green fusion signal, one separate green, and one separate orange signal.

Prod. No.	Product	Label	Tests* (Volume)
Z-2275-50	ZytoLight SPEC ZNF384 Dual Color Break Apart Probe CE IVD	●/●	5 (50 µl)
<b>Related Products</b>			
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit CE IVD		20
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			

\* Using 10 µl probe solution per test. IVD 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