

ZytoLight® SPEC WWTR1 Dual Color Break Apart Probe



Background

The ZytoLight® SPEC WWTR1 Dual Color Break Apart Probe is designed for the detection of translocations involving the chromosomal region 3q25.1 harboring the WWTR1 (WW domain containing transcription regulator 1, a.k.a. TAZ) gene. Epithelioid vascular tumors encompass a spectrum of diseases that includes epithelioid hemangioma (EH), a benign neoplasm, epithelioid hemangioendothelioma (EHE), a low to intermediate grade malignancy, and epithelioid angiosarcoma (EAS), a high grade malignancy. Although certain morphologic features allow to distinguish EHE from EH and EAS, the diagnosis can be challenging due to considerable morphologic overlap, particularly on small biopsies or when EAS lacks vasoformative properties. Clinical behavior and, consequently, treatment and prognosis vary significantly among vascular tumors. Therefore, it is paramount to effectively distinguish them from each other.

The recurrent translocation t(1;3) (p36.3;q25.1) was identified in approximately 90% of EHE cases, but not in other vascular tumors. t(1;3) results in the WWTR1-CAMTA1 fusion gene which encodes a putative chimeric transcription factor which is under the transcriptional control of the WWTR1 promoter. A recurrent YAP1-TFE3 gene fusion has been identified in WWTR1-CAMTA1 negative EHEs. Thus, FISH analysis for the presence of WWTR1 translocation may serve as a useful molecular tool in the differential diagnosis of challenging cases.

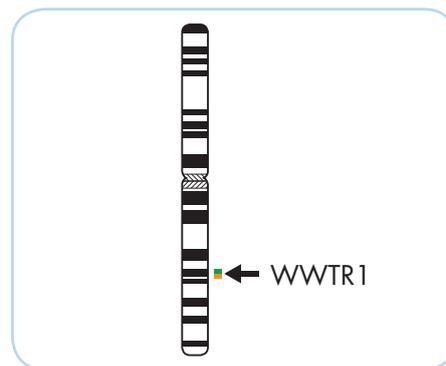
References

- Anderson T, et al. (2015) Am J Surg Pathol 39: 132-9.
- Errani C, et al. (2011) Genes Chromosomes Cancer 50: 644-53.
- Mendlick MR, et al. (2001) Am J Surg Pathol 25: 684-7.
- Puls F, et al. (2015) Virchows Arch 466: 473-8.
- Tanas MR, et al. (2011) Sci Transl Med 3: 98ra82.

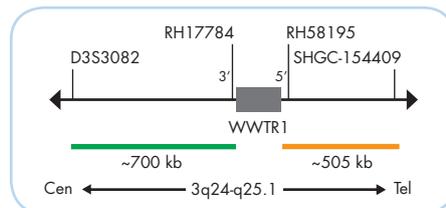
Probe Description

The ZytoLight® SPEC WWTR1 Dual Color Break Apart Probe is composed of:

- ZyGreen (excitation 503 nm/emission 528 nm) labeled polynucleotides (~10 ng/µl), which target sequences mapping in 3q24-q25.1** (chr3:148,533,200-149,234,601) proximal to the WWTR1 breakpoint region.
- ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (~4.5 ng/µl), which target sequences mapping in 3q25** (chr3:149,430,325-149,933,565) distal to the WWTR1 breakpoint region.
- Formamide based hybridization buffer



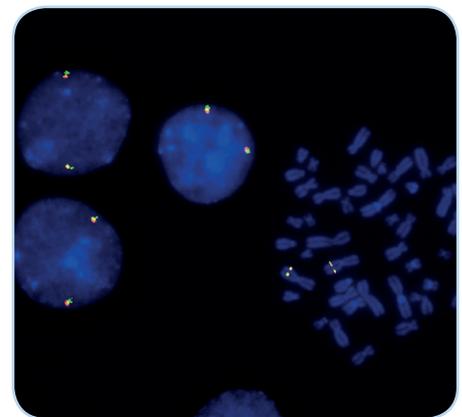
Ideogram of chromosome 3 indicating the hybridization locations.



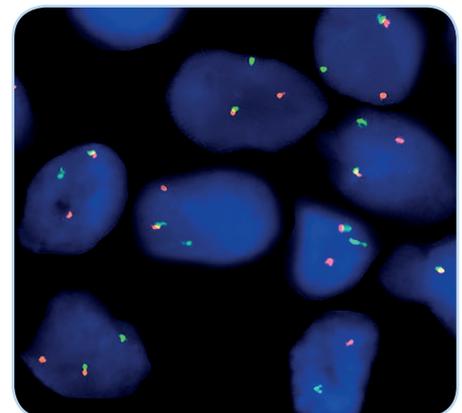
SPEC WWTR1 Probe map (not to scale).

Results

In an interphase nucleus lacking a translocation involving the 3q24-3q25.1 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 3q24-3q25.1 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 3q24-3q25.1 locus and one 3q24-3q25.1 locus affected by a translocation.



SPEC WWTR1 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.



Epithelioid hemangioendothelioma interphase cells showing translocation of the WWTR1 gene as indicated by one non-rearranged orange/green fusion signal, one orange signal and one separate green signal.

Prod. No.	Product	Label	Tests* (Volume)
Z-2212-50	ZytoLight SPEC WWTR1 Dual Color Break Apart Probe CE IVD	●/●	5 (50 µl)
Related Products			
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit CE IVD		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. 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