

# ZytoLight® SPEC YWHAE Dual Color Break Apart Probe

## Background

The ZytoLight® SPEC YWHAE Dual Color Break Apart Probe is designed to detect rearrangements involving the chromosomal region 17p13.3 harboring the YWHAE (tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon a.k.a. 14-3-3 epsilon) gene.

YWHAE encodes a protein of the 14-3-3 family which is involved in regulation of cellular proliferation, metabolism, and differentiation. However, altered expression of 14-3-3 family proteins is associated with development and progression of cancer.

The fusion between YWHAE and one of the FAM22 family members (FAM22A or FAM22B) caused by a t(10;17)(q22;p13) has been identified in the clinically aggressive, high-grade endometrial stromal sarcoma (ESS) as well as in clear cell sarcoma of the kidney (CCSK).

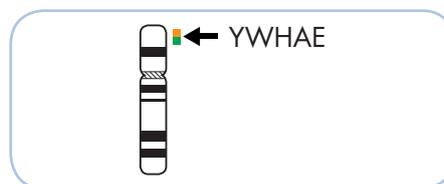
In contrast to the classic low-grade form of ESS harboring JAZF1 gene fusions, YWHAE-FAM22 ESS display high-grade histologic features and an aggressive clinical course. Moreover, due to the lack of estrogen and progesterone receptor expression in YWHAE-FAM22 ESS, the hormonal therapy used to treat low-grade ESS is likely to be ineffective. Consequently, differentiation between YWHAE-FAM22 and JAZF1 ESS by FISH is clinically relevant to support the diagnosis and may aid in therapeutic decision making.

## References

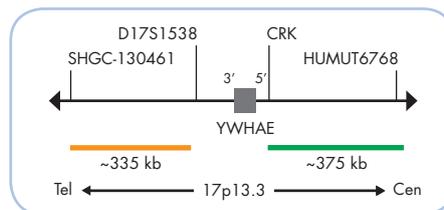
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- Lee CH, et al. (2012) PNAS 109: 929-34.
- O'Meara E, et al. (2012) J Pathol 227: 72-80.
- Stewart JC, et al. (2014) Histopathology 65: 473-82.

## Probe Description

The SPEC YWHAE Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 17p13.3 band. The orange fluorochrome direct labeled probe hybridizes distal to the YWHAE gene breakpoint region at 17p13.3, the green fluorochrome direct labeled probe hybridizes proximal to the YWHAE gene breakpoint region at 17p13.3.



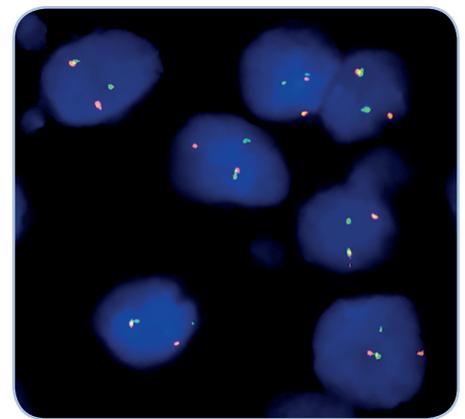
Ideogram of chromosome 17 indicating the hybridization locations.



SPEC YWHAE Probe map (not to scale).

## Results

In an interphase nucleus of a normal cell lacking a translocation involving the 17p13.3 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 17p13.3 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 17p13.3 locus and one 17p13.3 locus affected by a translocation.



Endometrial stromal sarcoma tissue section with translocation affecting the YWHAE gene as indicated by one non-rearranged orange/green fusion signal, one orange, and one separate green signal indicating the translocation.

Prod. No.	Product	Label	Tests* (Volume)
Z-2175-50	ZytoLight SPEC YWHAE Dual Color Break Apart Probe CE IVD	●/●	5 (50 µl)
<b>Related Products</b>			
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, 150 ml; 25x Wash Buffer A, 50 ml; DAPI/DuraTect-Solution, 0.2 ml			

\* 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.