

ZytoLight® SPEC ERG Dual Color Break Apart Probe



Background

The ZytoLight® SPEC ERG Dual Color Break Apart Probe is designed to detect aberrations involving the ERG gene at 21q22.2 frequently detected in prostate cancers.

ERG (ETS transcription factor ERG) rearrangements have been observed in 40-60% of prostate cancers identified via prostate-specific antigen (PSA) screening. The most common aberration affecting ERG is the interstitial deletion of about 3 Mb at the chromosomal region 21q22 found in 90% of the cases. This deletion leads to the fusion of the hormonally regulated promoter of the TMPRSS2 (transmembrane serine protease 2) gene to the coding region of ERG, resulting in overexpression of the ERG transcription factor. However, about 10% of the ERG rearranged prostate cancer cases show alternative fusions, as e.g. SLC45A3-ERG or NDRG1-ERG.

Several studies detected associations of ERG rearrangements with histomorphologic features as well as characteristic chromosomal copy number changes and gene expression signatures, defining a distinct sub-class of prostate cancers with unfavorable prognosis. Hence, the evaluation of the ERG rearrangement status in tissue or urine samples by FISH might be of diagnostic and prognostic relevance.

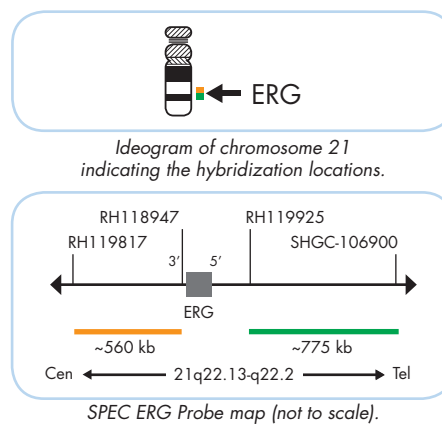
EWSR1-ERG gene fusions present in about 10% of patients with Ewing sarcoma may result from complex genomic rearrangements and may therefore not be detected by FISH analysis or may result in a non-classical translocation signal pattern.

References

- Esgueva R, et al. (2010) Mod Pathol 23: 539-46.
- Maire G, et al. (2008) Cancer Genet Cytogenet 181: 81-92.
- Nam RK, et al. (2007) Br J Cancer 97: 1690-5.
- Perner S, et al. (2006) Cancer Res 66: 8337-41.
- Pfueger D, et al. (2009) Neoplasia 11: 804-11.
- Tomlins SA, et al. (2005) Science 310: 644-8.

Probe Description

The SPEC ERG Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the long arm of chromosome 21. The orange fluorochrome direct labeled probe hybridizes at 21q22.13-q22.2 proximal to the ERG gene breakpoint region, the green direct labeled probe hybridizes at 21q22.2 distal to the ERG gene breakpoint region.

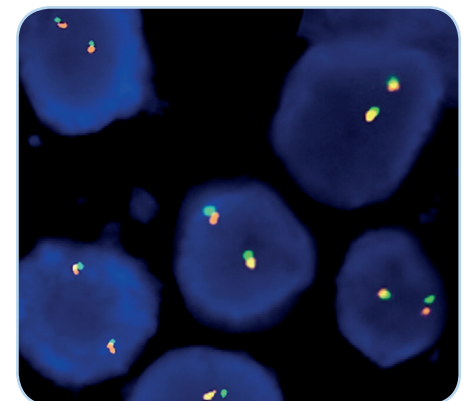


Results

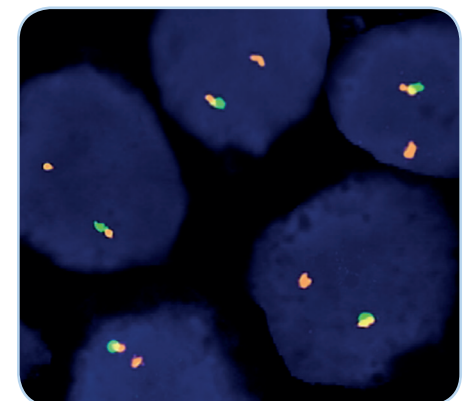
In an interphase nucleus of a normal cell lacking an aberration involving the 21q22.13-q22.2 band, two orange/green fusion signals are expected representing the two normal (non-rearranged) 21q22.13-q22.2 loci.

One 21q22.13-q22.2 locus affected by a 21q22.2 deletion resulting in the TMPRSS2-ERG fusion is indicated by the loss of one green signal.

A signal pattern consisting of one orange/green fusion signal, a separate green, and a separate orange signal indicates an ERG translocation without involvement of TMPRSS2 (e.g. SLC45A3-ERG).



SPEC ERG Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Prostate cancer tissue section with interstitial deletion of the chromosomal region 21q22.2 resulting in the TMPRSS2-ERG fusion as indicated by the loss of one green signal.

Prod. No.	Product	Label	Tests* (Volume)
Z-2138-200	ZytoLight SPEC ERG Dual Color Break Apart Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD		20
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			

* 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.