

ZytoLight® SPEC ROS1 Dual Color Break Apart Probe



Background

The ZytoLight® SPEC ROS1 Dual Color Break Apart Probe is designed to detect translocations involving the chromosomal region 6q22.1 harboring the c-ros oncogene 1 (ROS1, a.k.a. MCF3) gene. The ROS1 gene is located on 6q22.1 and encodes a receptor tyrosine kinase of the insulin receptor family. Translocations affecting ROS1 have been detected in glioblastoma, cholangiocarcinoma, and non-small cell lung cancer (NSCLC). In NSCLC several ROS1 translocation partners have been detected all of which result in the fusion of variably truncated forms of e.g. TPM3, SDC4, SLC34A2, CD74, EZR, or LRIG3 to the kinase domain of ROS1. The resulting fusion proteins show transforming activity *in vitro* and *in vivo*.

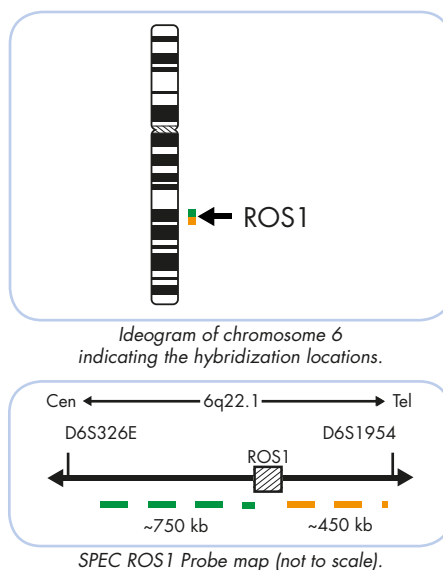
ROS1 rearrangements have been exclusively detected in adenocarcinoma of the lung and are thought to define a molecular subset of NSCLC with distinct clinical characteristics that are similar to those observed in patients with ALK rearranged NSCLC.

First evidence suggests that administration of ROS1 kinase inhibitors may represent a very effective therapeutic strategy in NSCLC patients harboring activating ROS1 rearrangements. Accordingly, detection of ROS1 rearrangements using Fluorescence *in situ* Hybridization might be a helpful tool for the identification of patients likely to respond to ROS1 kinase targeting therapies.

References
Bergthron K, et al. (2012) J Clin Oncol 30: 863-70.
Rikova K, et al. (2007) Cell 131: 1190-203.
Takeuchi K, et al. (2012) Nat Med 18: 378-81.

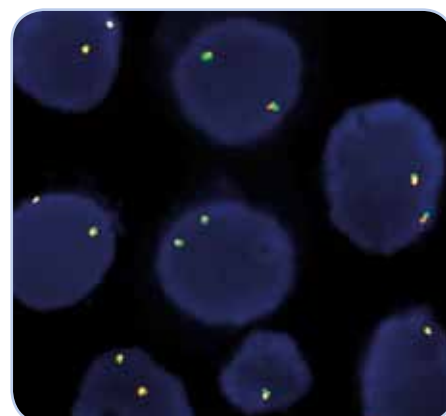
Probe Description

The SPEC ROS1 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 6q22.1 band. The orange fluorochrome direct labeled probe hybridizes distal, the green fluorochrome direct labeled probe hybridizes proximal to the ROS1 break point region at 6q22.1.

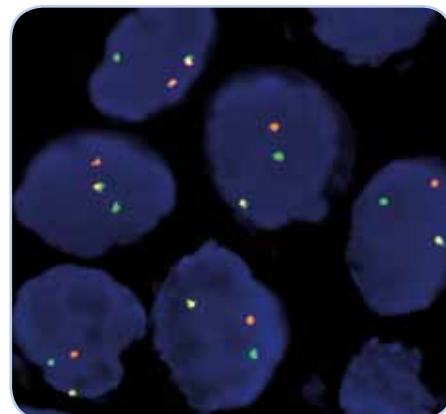


Results

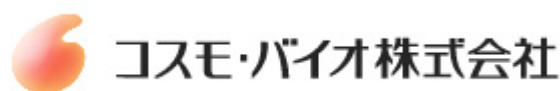
In an interphase nucleus lacking a translocation involving the 6q22.1 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 6q22.1 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 6q22.1 locus and one 6q22.1 locus affected by a translocation.



SPEC ROS1 Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Section of paraffin embedded NSCLC cell line with translocation affecting the 6q22.1 locus harboring ROS1 as indicated by one orange/green fusion signal (non-rearranged), one orange and one separate green signal indicating the translocation.



Prod. No.	Product	Label	Tests* (Volume)
Z-2144-200	ZytoLight SPEC ROS1 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, 500 ml; 25x Wash Buffer A, 100 ml; DAPI Antifade-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.



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ZytoLight® FISH probes are direct labeled using the unique ZytoLight® Direct Label System II providing improved signal intensity. Advanced specificity of the single copy SPEC probes is obtained by the unique ZytoVision® Repeat Subtraction Technique.