

# ZytoDot® 2C SPEC ROS1 Break Apart Probe

## Background

The ZytoDot® 2C SPEC ROS1 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.

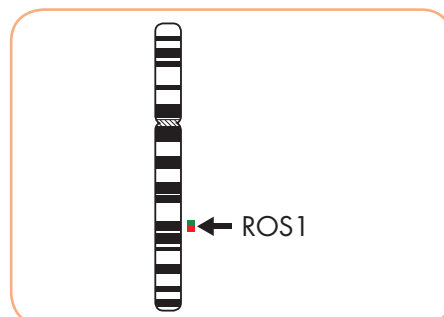
The ROS1 gene is located on 6q22.1 and encodes a receptor tyrosine kinase. Translocations affecting ROS1 have been detected in glioblastoma, cholangiocarcinoma, and non-small cell lung cancer (NSCLC).

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. GOPC has also been found to be fused to ROS1 in NSCLC. GOPC-ROS1 fusions result from interstitial deletion of approx. 240 kb on 6q22.1. 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.

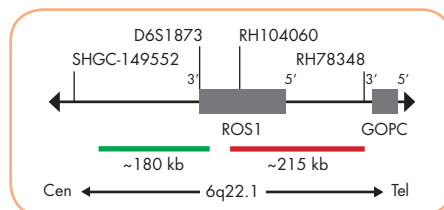
First evidence suggests that administration of ROS1 kinase inhibitors may represent a very effective therapeutic strategy in NSCLC patients harboring activating ROS1 rearrangements. Accordingly, detection of ROS1 rearrangements using Chromogenic *in situ* Hybridization might be a helpful tool for the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

## Probe Description

The ZytoDot® 2C SPEC ROS1 Break Apart Probe is a mixture of a Digoxigenin-labeled and a Dinitrophenyl-labeled probe hybridizing to the 6q22.1 band. The DNP-labeled probe hybridizes distal to the ROS1 gene breakpoint region at 6q22.1, the DIG-labeled probe hybridizes proximal to the ROS1 gene breakpoint region.



Ideogram of chromosome 6 indicating the hybridization locations.



SPEC ROS1 Probe map (not to scale).

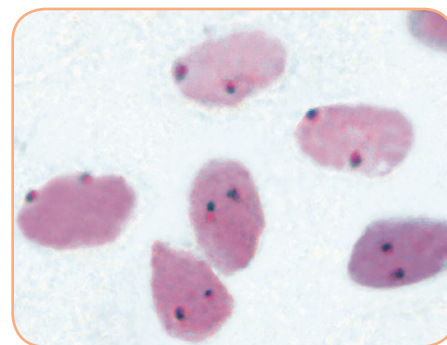
## References

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- Bos M, et al. (2013) Lung Cancer 81: 142-3.
- Rikova K, et al. (2007) Cell 131: 1190-203.
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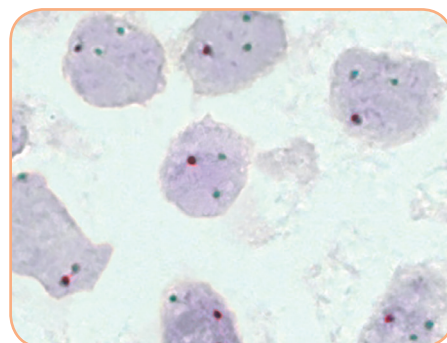
## Results

In an interphase nucleus of a normal cell lacking an aberration involving the 6q22.1 band, using the ZytoDot® 2C CISH Implementation Kit, two red/green fusion signals are expected representing two normal (non-rearranged) 6q22.1 loci. A signal pattern consisting of one red/green fusion signal, one red signal, and a separate green signal indicates one normal 6q22.1 locus and one 6q22.1 locus affected by a translocation.

Isolated green signals are the result of deletions distal to the ROS1 breakpoint region or are due to unbalanced translocations affecting this chromosomal region.



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



Lung cancer tissue section with rearrangement of the ROS1 gene as indicated by isolated green signals.

Prod. No.	Product	Label	Tests* (Volume)
C-3063-100	ZytoDot 2C SPEC ROS1 Break Apart Probe CE IVD	Digoxigenin/DNP	40 (400 µl)
C-3063-400	ZytoDot 2C SPEC ROS1 Break Apart Probe CE IVD	Digoxigenin/DNP	40 (400 µl)
<b>Related Products</b>			
C-3044-10	ZytoDot 2C CISH Implementation Kit CE IVD Incl. Heat Pretreatment Solution EDTA, 150 ml; Pepsin Solution, 1 ml; Wash Buffer SSC, 150 ml; 20x Wash Buffer TBS, 50 ml; Anti-DIG/DNP-Mix, 1 ml; HRP/AP-Polymer-Mix, 1 ml; AP-Red Solution A, 0.1 ml; AP-Red Solution B, 4 ml; HRP-Green Solution A, 0.2 ml; HRP-Green Solution B, 4 ml; Nuclear Blue Solution, 4 ml; Mounting Solution (alcoholic), 1 ml		10
C-3044-40	ZytoDot 2C CISH Implementation Kit CE IVD Incl. Heat Pretreatment Solution EDTA, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 20x Wash Buffer TBS, 2x 50 ml; Anti-DIG/DNP-Mix, 4 ml; HRP/AP-Polymer-Mix, 4 ml; AP-Red Solution A, 0.4 ml; AP-Red Solution B, 15 ml; HRP-Green Solution A, 0.8 ml; HRP-Green Solution B, 15 ml; Nuclear Blue Solution, 20 ml; Mounting Solution (alcoholic), 4 ml		40

\* 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.