

c-Ros oncogene 1 (Ros1) Fluorescence In Situ Hybridization

Clinician

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Test Description

The c-ros oncogene 1 (*ROS1*) is an oncogene that encodes a transmembrane receptor tyrosine kinase from the insulin receptor subfamily and shares 49% amino acid sequence homology with *ALK* in the kinase domain. The *ROS1* fusion gene has been demonstrated to transform NIH3T3 fibroblasts in vitro and induce tumorigenesis in lung alveolar epithelial cells in vivo. Recently, *ROS1* fusions have been discovered in several other tumors, including cholangiocarcinoma, non-small-cell lung cancer (NSCLC), ovarian cancer, gastric carcinoma, and colorectal cancer suggesting that *ROS1* is likely to be an effective molecular target in these patients.

Specimen

Sample Type: FFPE block S-2055-20 A
Site: Lung (Left)
Pathology ID: MOLQ/FISH-11022020
Disease: Non Small Cell Carcinoma

Interpretation (FISH Marker)

Probe: ROS1 3'= Orange;
 ROS1 5'= Green.
 If positive cells are < 15% the sample is considered as negative.
 If positive cells is ≥ 15% the sample is considered as positive.

Methodology

Fluorescence In Situ Hybridization (FISH)

Note

1. Normal hybridization pattern (absence of gene rearrangements involving the ROS1 gene) < 15% of the tumor cells scored show gene rearrangement involving the ROS1 gene, as evidenced by the break-apart signal.
2. ROS1 gene found on chromosome 6, codes for Receptor Tyrosine Kinase gene. ROS1 gene rearrangement are seen in 2 % to 4% of non small cell lung carcinoma (NSCLC).
3. ROS1 gene rearrangement positive tumors show good response to Crizotinib therapy.

References

1. Rosai and Ackerman's Surgical Pathology.
2. Testing for *ROS1* in non-small cell lung cancer: a review with recommendations Lukas Bubendorf et al. Virchows Arch. 2016; 469(5): 489–503.
3. Evaluation of a Dual ALK/ROS1 Fluorescent In Situ Hybridization Test in Non-Small-cell Lung Cancer Ginestet F et al. Clin Lung Cancer. 2018 Sep;19(5):e647-e653
4. Biomarkers for ALK and ROS1 in Lung Cancer Peter P. Luk et al. Arch Pathol Lab Med—Vol 142, August 2018

c-Ros oncogene 1 (Ros1): Negative

Total number of cells scored	100
Percentage of tumor cells with ROS1 rearrangements	08
Percentage of tumor cells with no ROS1 rearrangements	92

Ros 1 FISH- Tumor Cells

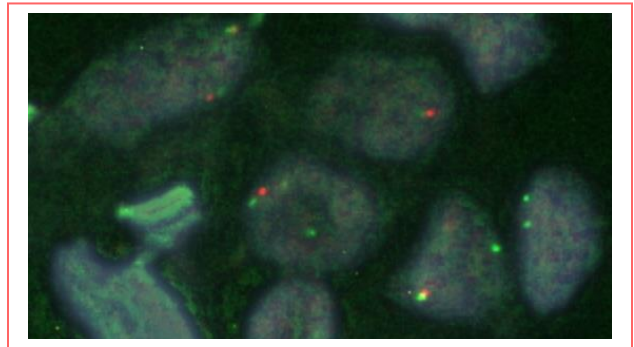


Figure 1

Reviewed By



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