**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 LRRK3 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.

**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.

References:

*Using 10 µl probe solution per test. IVD only available in certain countries. All other countries research use only! Please contact your local dealer for more information.*