



ROS1 encodes a receptor tyrosine kinase (RTK) highly expressed in the kidneys, cerebellum, peripheral neural tissue, stomach, small intestine, and colon.¹ The function of wild-type ROS1 is still somewhat mysterious; a ROS1 ligand has yet to be identified, and mice with homologous ROS1 loss don't appear to be greatly affected by the deletion.¹ However, ROS1 fusions have demonstrated oncogenic potential in several human malignancies, including colorectal, gastric and ovarian cancers, glioblastoma and cholangiocarcinoma.¹ These fusions produce chimeric proteins with constitutively activated ROS1 signaling.¹ Although the exact mechanism of this activation isn't yet clear, the PI3K/AKT, MAPK/ERK and JAK/STAT3 pathways are known to be involved.¹

The most well documented ROS1 studies are those on non-small cell lung cancer (NSCLC). ROS1 is found rearranged in about 1-2% of NSCLC.² Although rare, ROS1-rearranged NSCLC has distinct features that have helped to genetically and clinically characterize the disease. For example, ROS1 translocations only occur in the absence of other common oncogenes; EGFR, KRAS, and ALK aberrations are, for the most part, only present in non-ROS1 tumors.² ROS1-positive NSCLC also has gender, age and lifestyle correlations – patients with the rearrangement are usually female, younger, and never-smokers.^{3,4}

Interested in conducting your own ROS1 research? Empire Genomics offers fluorescent in situ hybridization (FISH) probes for detecting ROS1 copy number variations, translocations, and fusions. Our probes are used by researchers and clinicians around the world to conduct cytogenetic cancer analyses. Each probe comes in a set of 20 and normally ships within 7-10 business days.

GENES	LOCATION / STS	DYE COLOR	SKU
ROS1 Break Apart	6q22.1		ROS1BA-EXT-20-GROR
ROS1 Fusion	custom		Contact Us

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 2. Bergethon KS, et al. (2012). Jour clin onc 30.8: 863.
 3. Davies KD, et al. (2013). Clin cancer research 19.15: 4040-4045.
 4. Mazières J, et al. (2015) Jour clin onc 33.9: 992-999.