



Quality in Control

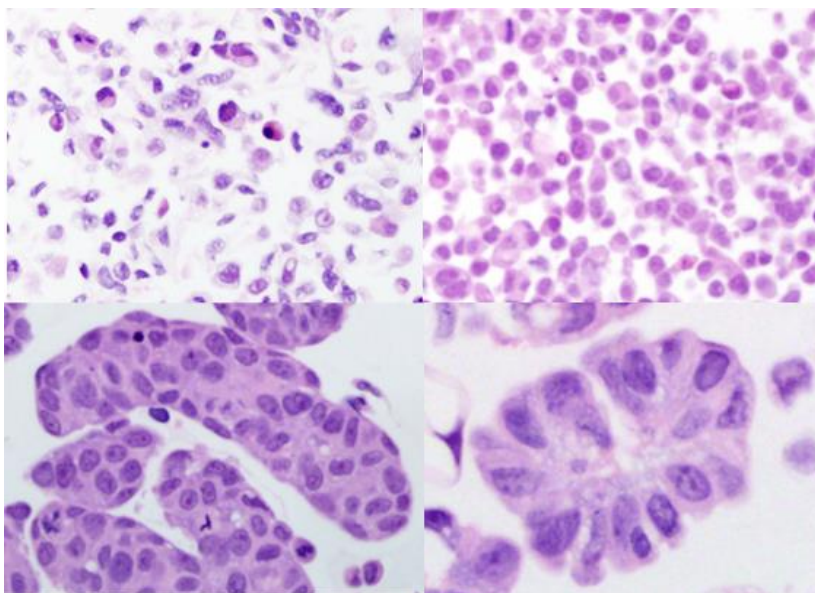
# ROS1 Analyte Control

Product Codes: HCL022, HCL023 and HCL024

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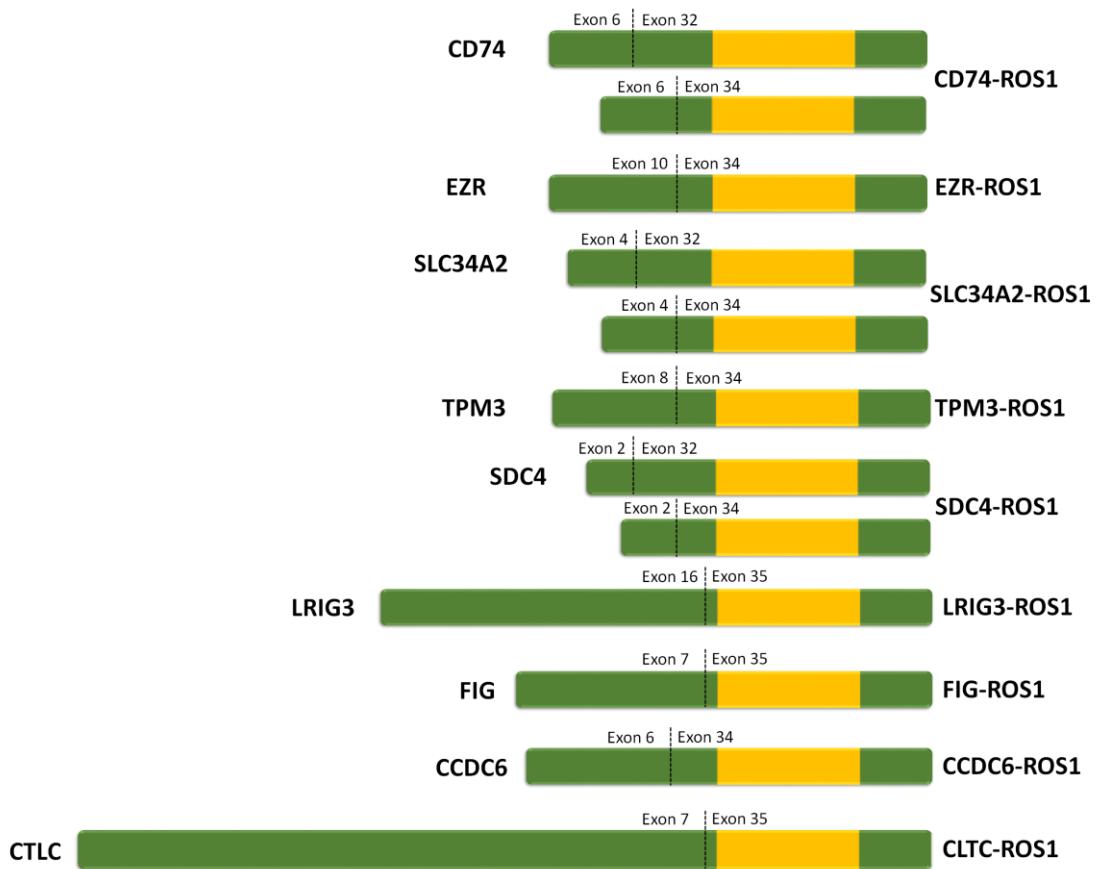
HistoCyte Laboratories Ltd is based in the heart of the Newcastle University campus and was started in 2014 by scientists with a combined experience of over 30 years in the development of reagents for immunohistochemistry and in-situ hybridization. Collaborating with pathologists locally and globally, HistoCyte Laboratories Ltd is developing a range of cost-effective products designed to help scientists maintain and develop the quality of assays within their laboratory.



# What is ROS1

ROS1 was first identified in glioblastoma and cholangiocarcinoma<sup>1,2</sup>. ROS1 is a receptor tyrosine kinase (RTK) encoded by the ROS1 gene. Genetic rearrangements can occur with many different partner genes. The commonly reported partners are CD74, SLC34A2, FIG1, LRIG3, SDC4, SLCA2, TMP and EZR.

## ROS1 Fusions Associated with Lung Adenocarcinoma



Schematic representation of the ROS1 fusions. The tyrosine kinase domain of ROS1 is depicted in yellow.

# The Role of ROS1 in Cancer

While ROS1 gene rearrangements were first identified in glioblastoma and cholangiocarcinoma<sup>1,2</sup>, rearrangements have also recently been discovered in lung cancer<sup>3</sup>, gastric cancer<sup>4</sup>, colorectal cancer<sup>5</sup>, ovarian cancer<sup>6</sup> and angiosarcoma<sup>7</sup>.

Treatment of patients with non-small cell lung cancer (NSCLC) with Crizotinib has been found to be highly effective<sup>8</sup>. However, ROS1 rearrangements are reported to only be present in 1-2% of NSCLC cases.

## ROS1 Assessment

Typically ROS1 translocations or fusions are assessed by Fluorescence in situ hybridisation (FISH). These are available from a variety of vendors including:

- Abbott Molecular Inc
- Kreatech – Leica Biosystems
- Agilent Technologies

Recently, monoclonal antibodies for immunohistochemistry (IHC) that are effective in formalin-fixed, paraffin-embedded specimens, have entered the market. These include:

- Clone D4D6 from Cell Signalling Technology Inc.
- Clone EP282 from Cell Marque (Sigma Aldrich)

1. Proc Nat Acad Sci USA 1987 84 p9270-4  
2. PLoS One 2011 6:e 15640  
3. Cell 2007 131 p1190-203  
4. Cancer 2013 119 p1627-35

5. Mol Cancer Res 2014 12 111-8  
6. PLoS One 2011 6:e 28250  
7. PLoS Genetics 2013 9:e 1003464  
8. Oncologist 2012 17 1351-75

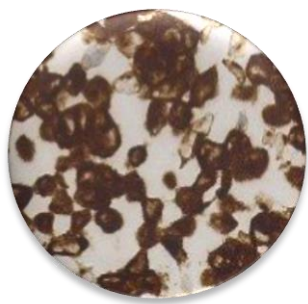
# ROS1 Analyte Control Product Details

The product consists of two cell lines: one with a SLC34A2-ROS1 translocation and resulting fusion protein. The second has no translocation and therefore no ROS1 protein expressed.

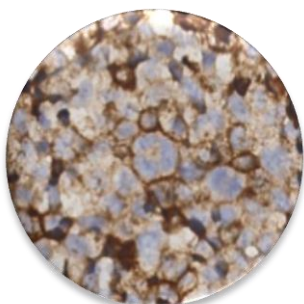
During development the product was assessed using the D4D6 monoclonal antibody from Cell Signalling Technology Inc. Additionally, the cells were assessed with both Kreatech and Agilent Technologies SureFISH probes.

As part of the validation process, the product was assessed by a number of independent clinical laboratories. In all instances the cells performed as expected, with strong positive IHC signals in the positive cells and absence of signals in the negative. Likewise, the FISH clearly demonstrated break-apart signals in the positive cell line and overlapping non-split signals in the negative cell line. All HistoCyte products are designed to be suitable for IHC and FISH testing with standard protocols employed on formalin-fixed, paraffin-embedded tissue.

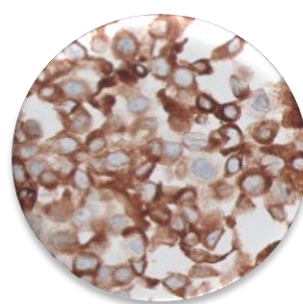
Along with our ALK-Lung (EML4-ALK) and PD-L1 Analyte Control<sup>DR</sup>, the **ROS1 Analyte Control** is a significant addition to the non-small cell lung carcinoma range of biomarker controls.



ALK



PD-L1



ROS1

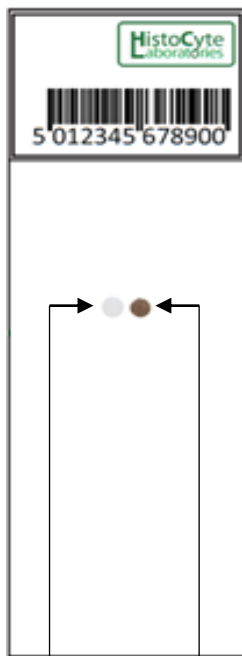
# ROS1 Analyte Control

ROS1 Analyte Control is available as pre-cut slides (2 or 5 slide options) and cell microarray blocks.



Format	Product Code
2 Slide	HCL022
5 Slide	HCL023
Block	HCL024

HCL022  
HCL023



A: Negative Cell Core

B: Positive Cell Core

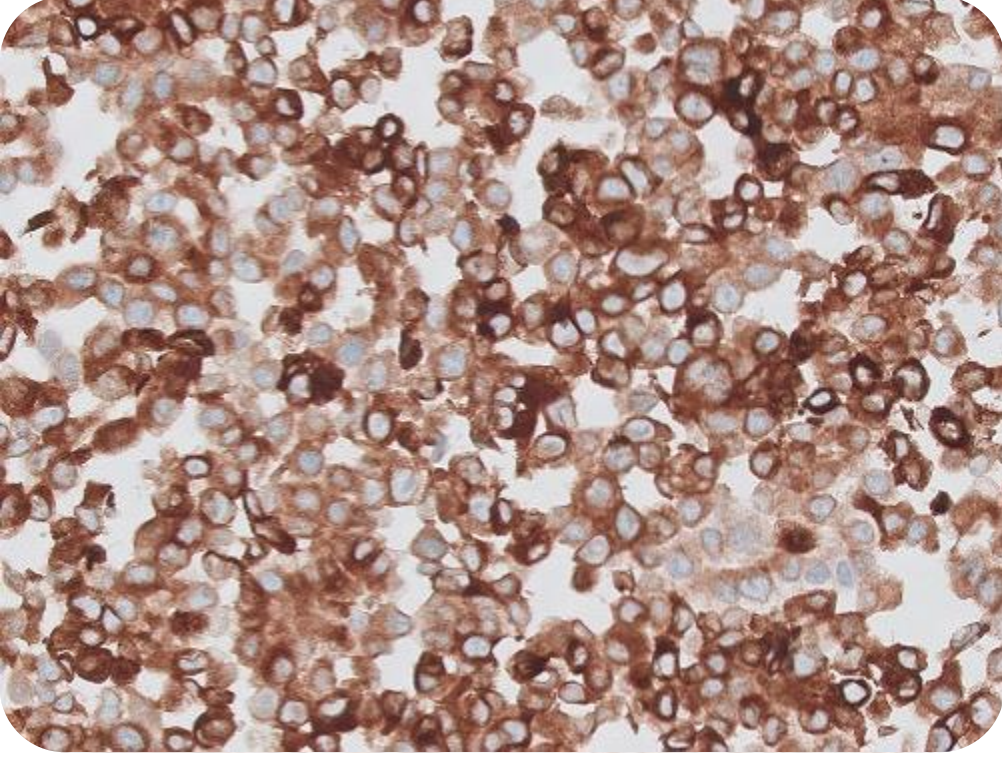


HCL024

# ROS1 Analyte Control staining: IHC

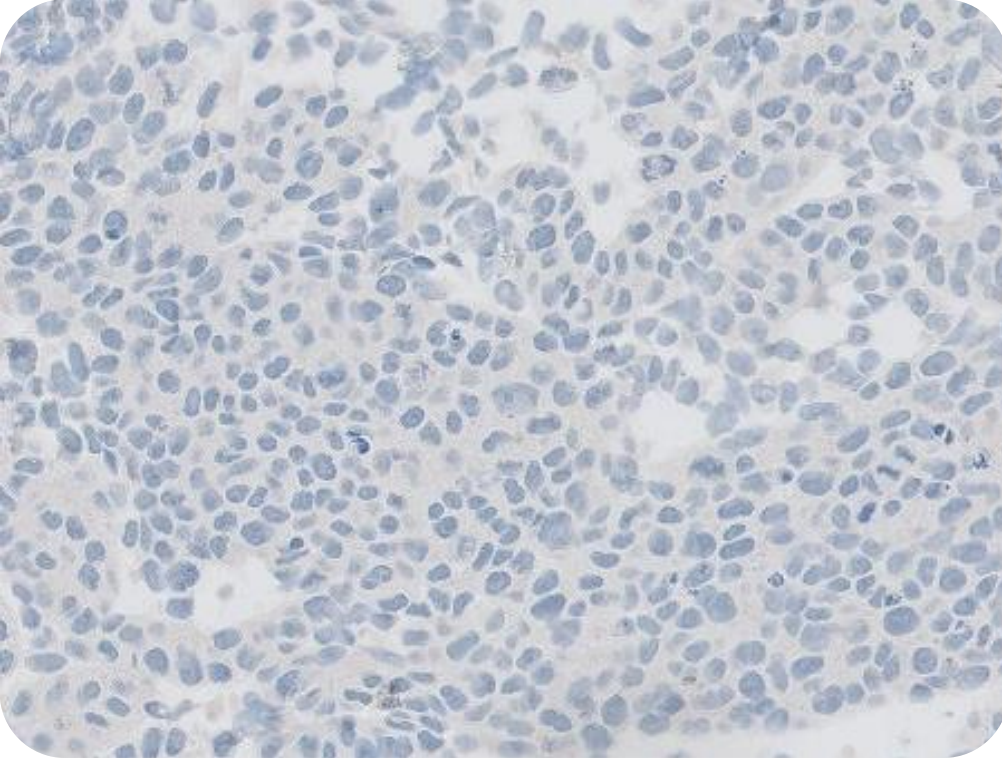
Cell Signalling Technologies Clone: D4D6<sup>®</sup>

Pulmonary Adenocarcinoma



**Positive expression:** Strong staining in majority of cells.

Breast Ductal Carcinoma

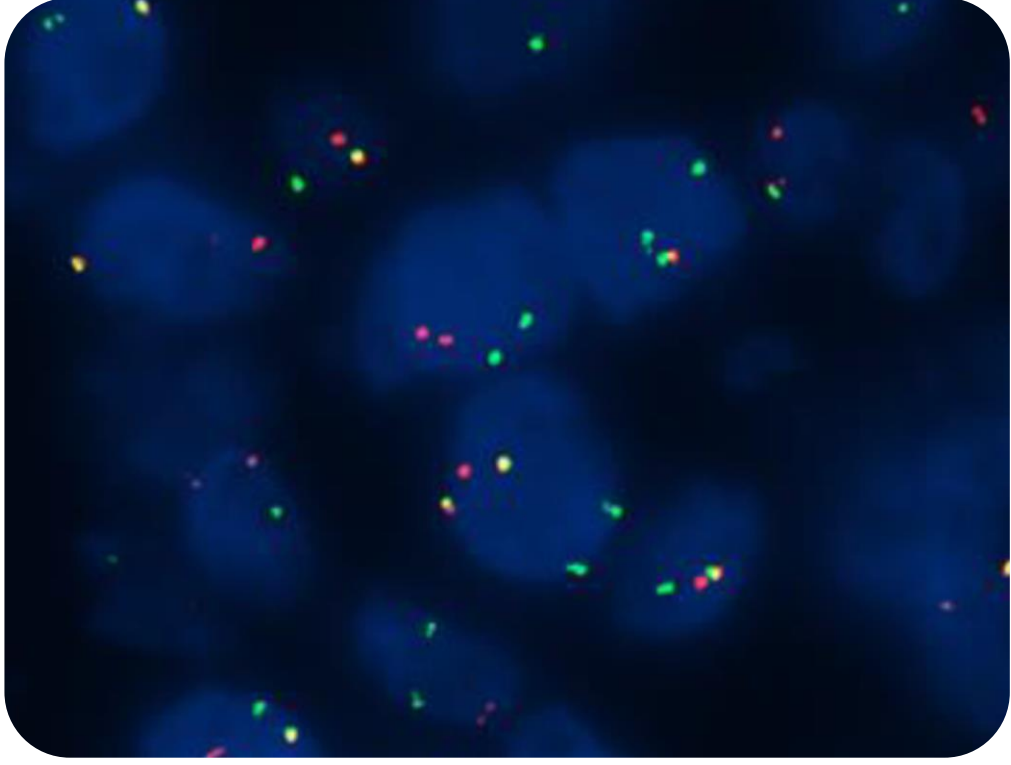


**Negative expression:** Absence of any genuine staining.

# ROS1 Analyte Control staining: FISH

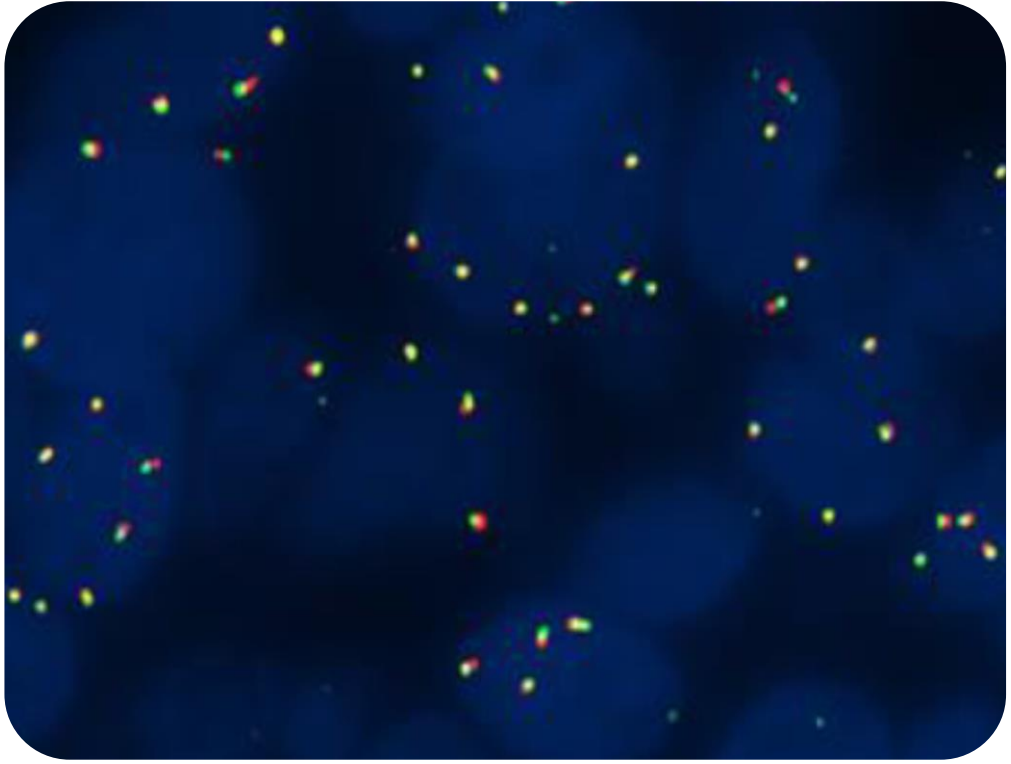
Agilent Technologies: ROS1 SureFISH

Pulmonary Adenocarcinoma



Split signals in cells. Positive for ROS1 translocation

Breast Ductal Carcinoma



Non-split signals in cells. Negative for ROS1 translocation



# Also Available from HistoCyte Laboratories Ltd

Product Name	Format	Code
<b>HPV/p16 Analyte Control<sup>DR</sup></b> (Four core with dynamic range of HPV gene copies)	Slide(2)	HCL001
	Slide(5)	HCL002
	Block	HCL003
<b>HPV/p16 Analyte Control</b> (Three core with standard range of HPV gene copies)	Slide(2)	HCL004
	Slide(5)	HCL005
	Block	HCL006
<b>ALK-Lung Analyte Control</b> (Two core positive and negative for the EML4-ALK translocation)	Slide(2)	HCL007
	Slide(5)	HCL008
	Block	HCL009
<b>ALK-Lymphoma Analyte Control</b> (Two core positive and negative for the NPM-ALK translocation)	Slide(2)	HCL010
	Slide(5)	HCL011
	Block	HCL012
<b>Breast Analyte Control</b> (Two cores, one positive for Her2, ER and PR. The other negative)	Slide(2)	HCL013
	Slide(5)	HCL014
	Block	HCL015
<b>Breast Analyte Control<sup>DR</sup></b> (Five cores with a dynamic range of expression of Her2, ER and PR. Including negative control)	Slide(2)	HCL016
	Slide(5)	HCL017
	Block	HCL018
<b>PD-L1 Analyte Control<sup>DR</sup></b> (4 core with a dynamic range of expression of PD-L1)	Slide(2)	HCL019
	Slide(5)	HCL020
	Block	HCL021
<b>ROS1 Analyte Control</b> (Two cores positive and negative for ROS1 translocation)	Slide(2)	HCL022
	Slide(5)	HCL023
	Block	HCL024
<b>Sienna Cancer Diagnostics hTERT assay.</b> 1ml of anti-hTERT mouse mAb. <i>(Available UK &amp; Ireland Only)</i>	1ml	HCL025

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For your local distributor please visit [www.histocyte.com](http://www.histocyte.com)



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