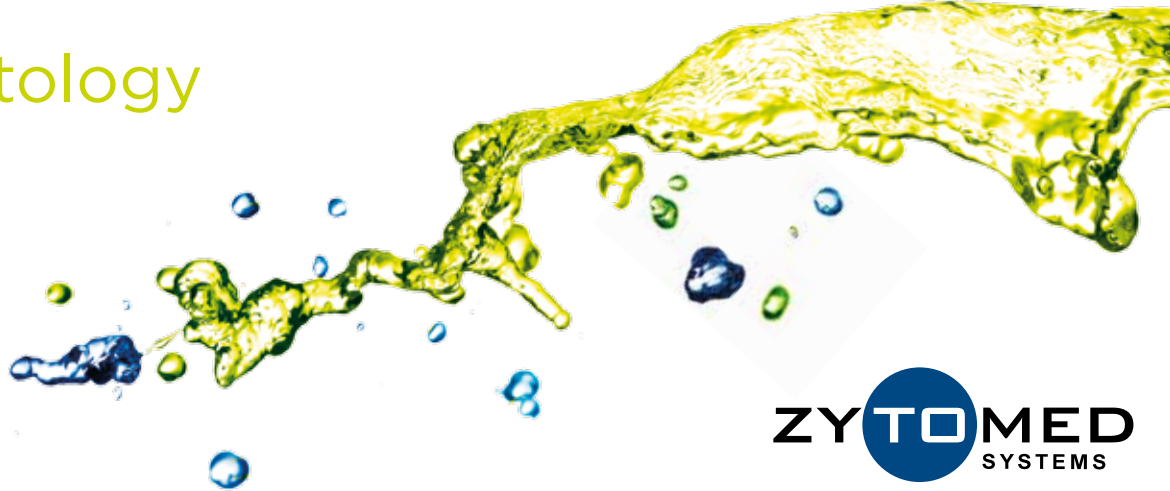


Immunohistology

ROS1

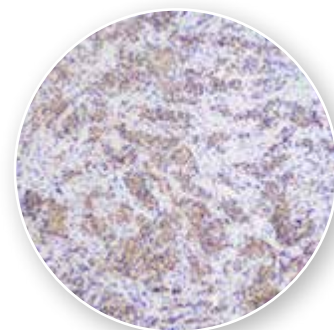
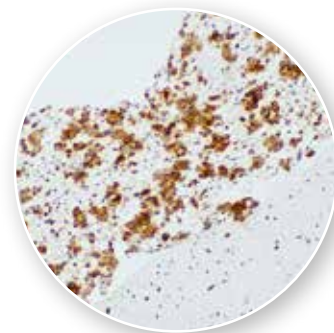


ROS1, clone EPMGHR2

ROS1, a receptor tyrosine kinase (RTK), is a member of the family of insulin receptors with clear sequence homology and structural similarity to the anaplastic lymphoma kinase (ALK). The ROS1 gene is not expressed in most differentiated tissues and therefore the ROS1 protein is not detectable in most cases. Chromosomal rearrangements of the proto-oncogene result in gene fusions and subsequent expression of a chimeric protein with constitutive tyrosine kinase activity. This has been shown to contribute to the development of various tumors, such as non-small cell lung cancer (NSCLC) [1]. The prevalence of ROS1 fusions in NSCLC is approximately 1–2%.

Clinical studies and case reports show that treatment with tyrosine kinase inhibitors such as crizotinib and ceritinib represents an effective therapeutic strategy in patients with activating ROS1 rearrangements [2,3]. Due to the low incidence of ROS1 translocations, immunohistochemical de-

tection of the ROS1 protein is an effective tool to screen patient samples for the presence of activating ROS1 fusions. In any case, verification of the results using FISH or molecular analysis is recommended, especially in cases of weak and/or focal immunohistochemical staining. A number of studies have shown a good correlation between ROS1 FISH and ROS1 IHC with reported sensitivities of 94%–100% and specificities of 76%–100%. [4-6]. The establishment of a ROS1 immunohistochemistry as well as its routine use in diagnostics requires a validated process using appropriate controls [4]. The Cell Control Array ROS1 (IHC) block serves as a positive control for the detection of ROS1 protein in lung and other tissues. It is a homogenous paraffin block including two ROS1 positive cell lines, one ROS1 negative cell line, and one core of heart muscle tissue. The two positive ROS1 cell lines differ in their level of ROS1 expression, showing weak and medium expression, respectively.

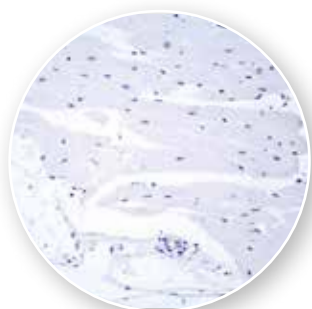


ROS1 (cat.# RBK071-05) on NSCLC with ROS1 translocation

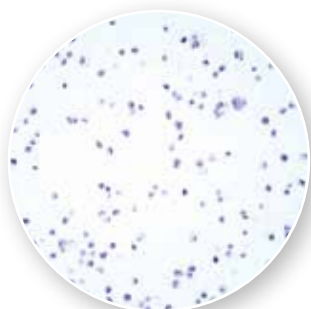
► Product Information

Description	Status	Format	Dilution	Volume	Cat. No.
ROS1 Clone: EPMGHR2 Host: Rabbit Reactivity: Human Pre-treat.: EDTA pH 9.0	RUO	Ready-to-use	-	6 ml	RBG071
		Concentrate	1:100	0.1 ml	RBK071-01
				0.5 ml	RBK071-05

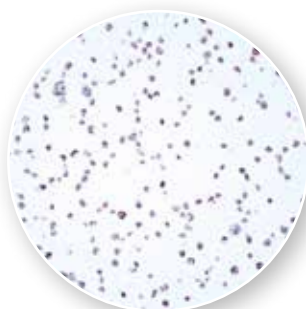
Description	Status	Format	Cat. No.
Cell Control Array ROS1 (IHC) Cell Control Block including cell lines expressing different level of ROS1	RUO	1 Block	MB-CC ROS1



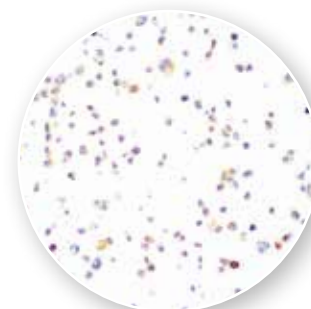
ROS1 (cat.# RBK071-05) on Cell Control Array ROS1 Heart muscle



ROS1 (cat.# RBK071-05) on Cell Control Array ROS1 negative



ROS1 (cat.# RBK071-05) on Cell Control Array ROS1 low expression



ROS1 (cat.# RBK071-05) on Cell Control Array ROS1 medium expression

► Bibliography

- [1] Uguen A, de Brakeleer M. ROS1 fusions in cancer: a review. *Future Oncol* 12:1911-1928, 2016
- [2] Mazières J *et al.* Crizotinib therapy for advanced lung adenocarcinoma and a ROS1 rearrangement: results from the EUROS1 cohort. *J Clin Oncol* 33:992-999, 2015
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- [5] Selinger CI *et al.* Screening for ROS1 gene rearrangements in non-small-cell lung cancers using immunohistochemistry with FISH confirmation is an effective method to identify this rare target. *Histopathology* 70:402-411, 2017
- [6] Luk P *et al.* Biomarkers for ALK and ROS1 in Lung Cancer. *Arch Pathol Lab* 142: 922-928, 2018