Revision 5

Store at -20C

#3287

# ROS1 (D4D6®) Rabbit mAb

Cell Signaling TECHNOLOGY®

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

| Applications: | Reactivity: | Sensitivity: | MW (kDa): | Source/Isotype: | UniProt ID: | Entrez-Gene Id: |
|---|---|---|---|---|---|---|
| W, W-S, IP, IHC-P, IF-IC, FC-FP | H | Endogenous | 258, 110, 50-80 | Rabbit IgG | #P08922 | 6098 |

## Product Usage Information

| Application | Dilution |
|---|---|
| Western Blotting | 1:1000 |
| Simple Western™ | 1:10 - 1:50 |
| Immunoprecipitation | 1:50 |
| Immunohistochemistry (Paraffin) | 1:125 - 1:500 |
| Immunofluorescence (Immunocytochemistry) | 1:200 - 1:800 |
| Flow Cytometry (Fixed/Permeabilized) | 1:200 - 1:800 |

## Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

## Specificity/Sensitivity

ROS1 (D4D6®) Rabbit mAb recognizes endogenous levels of total ROS1 protein. This antibody does not cross-react with other related proteins when analyzed by western blot. Please note that staining may be observed in ROS1 rearranged lung carcinomas, macrophages/giant cells, reactive type II pneumocyte hyperplasia, and the epithelium in areas of bronchiolar metaplasia. Staining of unknown specificity has been observed in cholangiocarcinoma, hepatocellular carcinoma, and kidney tissues.

## Source / Purification

Monoclonal antibody is produced by immunizing animals with a protein corresponding to residues in the carboxy terminal domain of the human ROS1 protein.

## Background

ROS1, an orphan receptor tyrosine kinase of the insulin receptor family, was initially identified as a homolog of v-ros from the UR2 sarcoma virus (1). ROS1 consists of a large extracellular domain that is composed of six fibronectin repeats, a transmembrane domain, and a C-terminal kinase domain. Being an orphan receptor, the functions of ROS1 are not well known, though it has been shown to play an important role in differentiation of epididymal epithelium (2). The first oncogenic fusion of ROS1, FIG-ROS1, was initially identified by research studies in glioblastoma (3), and subsequent studies have found this fusion in cholangiocarcinoma (4), ovarian cancer (5), and non-small cell lung cancer (NSCLC) (6). Investigators have found additional oncogenic ROS1 fusion proteins in NSCLC (at a frequency of ~1.6%), where the ROS1 kinase domain is fused to the amino-terminal region of several different proteins, including CD74 and SLC34A2 (6-8). ROS1 fusion proteins activate the SHP-2 phosphatase, PI3K/Akt/mTOR, Erk, and Stat3 pathways (3,4,9). There are two autophosphorylation sites (Tyr2274, Tyr2334) downstream of the kinase domain of ROS1, either of which may serve as biomarkers of ROS1 kinase activity, including that of ROS1 fusion proteins (10).

## Background References

1. Matsushime, H. et al. (1986) *Mol Cell Biol* 6, 3000-4.
2. Yeung, C.H. et al. (1999) *Biol Reprod* 61, 1062-9.
3. Charest, A. et al. (2003) *Genes Chromosomes Cancer* 37, 58-71.
4. Gu, T.L. et al. (2011) *PLoS One* 6, e15640.
5. Birch, A.H. et al. (2011) *PLoS One* 6, e28250.
6. Rimkunas, V.M. et al. (2012) *Clin Cancer Res* 18, 4449-57.
7. Rikova, K. et al. (2007) *Cell* 131, 1190-203.
8. Stumpfova, M. and Jänne, P.A. (2012) *Clin Cancer Res* 18, 4222-4.
9. Jun, H.J. et al. (2012) *Cancer Res* 72, 3764-74.
10. Zou, H.Y. et al. (2015) *Proc Natl Acad Sci U S A* 112, 3493-8.

## Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

## Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

## Applications Key

**W:** Western Blotting **W-S:** Simple Western™ **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin) **IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

## Cross-Reactivity Key

**H:** Human

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## Limited Uses