

Store at  
-20C  
#66969**IDH1 (RcMab-1) Rat mAb**

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IHC-P	H Mk	Endogenous	46	Rat IgG2a	#O75874	3417

**Product Usage Information****Application**

Western Blotting  
Immunohistochemistry (Paraffin)

**Dilution**

1:1000  
1:50 - 1:200

**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**

IDH1 (RcMab-1) Rat mAb recognizes endogenous levels of total IDH1 protein. This antibody also detects IDH1 when mutated at Arg132 (9).

**Source / Purification**

Monoclonal antibody is produced by immunizing animals with recombinant protein corresponding to human IDH1 protein (9,10).

**Background**

IDH1 is one of three isocitrate dehydrogenases that catalyze the oxidative decarboxylation of isocitrate to  $\alpha$ -ketoglutarate ( $\alpha$ -KG). These enzymes exist in two distinct subclasses that utilize either NAD or NADP<sup>+</sup> respectively, as an electron acceptor (1). IDH1 is the NADP<sup>+</sup>-dependent isocitrate dehydrogenase found in the cytoplasm and peroxisomes. IDH2 and 3 are mitochondrial enzymes that also function in the Krebs cycle. IDH1 is inactivated by phosphorylation at Ser113 and contains a clasp-like domain wherein both polypeptide chains in the dimer interlock (2,3). IDH1 is expressed in a wide range of species and also in organisms that lack a complete citric acid cycle. Mutations in IDH1 have been reported in glioblastoma (4), acute myeloid leukemia (5,6), and other malignancies (7). IDH1 appears to function as a tumor suppressor that, when mutationally inactivated, contributes to tumorigenesis in part through induction of the HIF-1 pathway (8).

**Background References**

1. Ramachandran, N. and Colman, R.F. (1980) *J Biol Chem* 255, 8859-64.
2. Bennett, P.M. and Holms, W.H. (1975) *J Gen Microbiol* 87, 37-51.
3. Hurley, J.H. et al. (1990) *Science* 249, 1012-6.
4. Bleeker, F.E. et al. (2009) *Hum Mutat* 30, 7-11.
5. Abbas, S. et al. (2010) *Blood* 116, 2122-6.
6. Paschka, P. et al. (2010) *J Clin Oncol* 28, 3636-43.
7. Watanabe, T. et al. (2009) *Am J Pathol* 174, 1149-53.
8. Zhao, S. et al. (2009) *Science* 324, 261-5.
9. Kaneko, M.K. et al. (2013) *Monoclon Antib Immunodiagn Immunother* 32, 224-8.
10. Kato, Y. (2015) *Brain Tumor Pathol* 32, 3-11.

**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 **IHC-P:** Immunohistochemistry (Paraffin)

**Cross-Reactivity Key**

**H:** Human **Mk:** Monkey

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