

## Product Information

**Anti-IDH1 (R132H) antibody, Mouse monoclonal**  
clone HMAb-1, purified from hybridoma cell culture

Product Number **SAB4200548**

### Product Description

Anti-IDH1 (R132H) antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the hybridoma HMAb1 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a peptide corresponding to mutation R132H of human IDH1 (GeneID: 3417).<sup>1</sup> The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2. The antibody is purified from culture supernatant of hybridoma cells grown in a bioreactor.

Monoclonal Anti-IDH1 (R132H) recognizes only the R132H mutation of human IDH1 (R132H) and does not cross react with other mutations.<sup>1</sup> The product may be used in several immunochemical techniques including immunoblotting (~ 43 kDa) and immunohistochemistry.<sup>1</sup>

Eukaryotic cells express three forms of isocitrate dehydrogenase (IDH). These enzymes catalyze the oxidative decarboxylation of isocitrate into  $\alpha$ -keto-glutarate ( $\alpha$ KG) utilizing either NAD or NADP as co-substrates.<sup>2</sup> A member of this family, IDH1, is the human cytoplasmic NADP-specific enzyme. Its subcellular localization was shown to be in both peroxisomes and the cytoplasm.<sup>3</sup> Although the function and structure of the protein has been well characterized, mutations in the gene have only recently been implicated in cancer after a genome-wide mutation study of glioblastomas, acute myeloid leukemias (AML) and chondrosarcomas.<sup>4</sup> Mutations in *IDH1* are specific to Arg<sup>132</sup> (R132) and endow them with the function of generating 2-hydroxyglutarate (2HG) instead of  $\alpha$ KG. This product alters gene transcription through effects on DNA and histone methylation.<sup>5</sup> Several IDH1 mutations exist, including R132H, R132C, R132S, R132G and R132L. Each may result in different tumor type with varied malignant progression. The most frequent known mutation (>90%) is the alteration of arginine to histidine (R132H).<sup>6</sup> Hence, antibodies that recognize the IDH1<sup>R132H</sup> mutation can be useful for the diagnosis of mutation-bearing tumors like gliomas.<sup>1,6</sup>

### Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~ 1.0 mg/mL

### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

### Storage/Stability

For extended storage, freeze at  $-20^{\circ}\text{C}$  in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

### Product Profile

**Immunoblotting:** a working concentration of 4-8  $\mu\text{g/mL}$  is recommended using extract of HEK-293T cells overexpressing IDH1(R132H).

*Note:* In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

### References

1. Takano, S., et al., *J. Neurooncol.*, **108**, 361-373 (2012).
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3. Geisbrecht, B.V., and Gould, S.J., *J. Biol. Chem.*, **274**, 30527-30533 (1999).
4. Borodovsky, A., et al., *Curr. Opin. Oncol.*, **24**, 83-89 (2012).
5. Lu, C., et al., *Nature*, **483**, 474-478 (2012).
6. Kato, Y., et al., *Biochem. Biophys. Res. Comm.*, **390**, 547-551 (2009).

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