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Product Information

Anti-IDH1
produced in rabbit, affinity isolated antibody

Catalog Number **SAB4200592**

Product Description

Anti-IDH1 is produced in rabbit using as immunogen a synthetic peptide corresponding to an internal sequence of human IDH1 (GeneID: 3417), conjugated to KLH. The corresponding sequence is highly conserved in mouse (single amino acid substitution) and highly conserved in rat IDH1 (89% sequence identity). The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-IDH1 specifically recognizes human and mouse IDH1. The antibody may be used in several immunochemical techniques including immunoblotting (~45 kDa), immunoprecipitation, immunofluorescence and immunohistochemistry. Detection of IDH1 by immunoblotting is specifically inhibited by the IDH1 immunizing peptide.

Isocitrate dehydrogenase (IDH) is a key metabolic enzyme that catalyzes the oxidative decarboxylation of isocitrate into α-ketoglutarate (αKG) in the cytosol, utilizing either NAD^+ or $NADP^+$ as co-substrates.[1] IDH exists as three isoforms. IDH1 is a cytoplasmic $NADP^+$-dependent enzyme, localized both in the cytoplasm and peroxisomes.[2] IDH2 and IDH3 are both localized in the mitochondria. Although the function and structure of IDH1 have been well characterized, it has only recently been implicated in cancer. IDH1 appears to have a tumor suppressor activity and its inactivation contributes to tumorigenesis partially mediated by induction of the HIF1 pathway. A genome-wide mutation study has shown that IDH1 is mutated in glioblastoma, acute myeloid leukemia (AML) and chondrosarcoma.[3] Mutations in *IDH1* specific to Arg^{132} (R132) impart the enzyme's ability to generate 2-hydroxyglutarate (2HG) instead of αKG.[4] Elevated levels of 2HG are correlated with increased risk of malignant brain tumors, and block cell differentiation by impairing histone demethylation.[5] Several IDH1 mutations have been identified in gliomas, including R132H, R132C, R132S, R132G and R132L, each may result in different tumor type with varied malignant progression.[6]

Reagent

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

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 continuous use, store at 2-8 °C for up to one month. For extended storage, freeze 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 dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1-2 µg/mL is recommended using extracts of mouse brain (S1 fraction).

Immunoprecipitation: a working amount of 10 µg is recommended using lysates of HepG2 cells.

Immunofluorescence: a working concentration of 2-4 µg/mL is recommended using U-87 glioblastoma cells.

Immunohistochemistry: a working concentration of 20 µg/mL is recommended using human kidney sections.

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

References

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4. Dang, L., et al., *Nature*, **462**, 739-744 (2009).
5. Lu, C., et al., *Nature*, **483**, 474-478 (2012).
6. Yan, H., et al., *New Eng. J. Med.*, **360**, 765-773 (2009).

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