IBL Data Sheet

Code No. 10391

Anti-Human
IDH1 R132S (SMab-1) Mouse IgG MoAb

Volume : 100 µg

Introduction : Specific mutations in the isocitrate dehydrogenase 1 gene *IDH1* have been found in several brain tumors including astrocytoma, oligodendroglioma and glioblastoma multiforme, with mutations found in nearly all cases of secondary glioblastomas, but rarely in primary high-grade glioblastoma multiforme. Individuals whose tumor had an *IDH1* mutation had longer survival (ref. 1). Another report shows that mutations of *IDH2* and *IDH1* were found in up to 20 % of cytogenetically normal acute myeloid leukemia (AML) (ref. 2). These mutations are known to produce 2-hydroxyglutarate (2HG) from alpha-ketoglutarate, and it is suggested that high 2HG levels may trigger epigenetic changes within the cells and the development of cancer.
The *IDH1* mutations are remarkably specific to a single codon in the conserved and functionally important Arginine 132 residue (R132) in IDH1. This antibody is developed as a monoclonal antibody which can specifically detect R132S mutation of *IDH1* (ref. 3, 4, 5).

Antigen : Synthetic peptide of a part of human IDH1 R132S

Source : Mouse-Mouse hybridoma, ascites

Clone : SMab-1 **Subclass** : IgG_1

Purification : Affinity purified with Protein A

Form : Lyophilized product from 1 % BSA in PBS containing 0.05 % NaN_3

How to use : 1.0 mL deionized water will be added to the product, then its concentration comes to 100 µg/mL

Stability : Lyophilized product, 5 years at 2 - 8 °C
: Solution, 2 years at –20 °C

Application : This antibody can be used for immunohistochemistry with formalin fixed paraffin embedded tissues after microwave treatment (10min, 10mM citrate buffer, pH 6.0). The optimal concentration is 5 µg/mL, however, the concentration should be optimized by each laboratory.
: This antibody can be used for western blotting in concentration of 1 - 5 µg/mL

Specificity : React with human IDH1-R132S.
Not react with human IDH1 wild-type or the other IDH1 mutations.

Reference :

1. Hartmann C, Hentschel B, Wick W, Capper D, Felsberg J, Simon M, Westphal M, Schackert G, Meyermann R, Pietsch T, Reifenberger G, Weller M, Loeffler M, von Deimling A. Patients with IDH1 wild type anaplastic astrocytomas exhibit worse prognosis than IDH1-mutated glioblastomas, and IDH1 mutation status accounts for the unfavorable prognostic effect of higher age: implications for classification of gliomas. Acta Neuropathol. 2010 Dec;120(6):707-18.
2. Ward PS, Patel J, Wise DR, Abdel-Wahab O, Bennett BD, Coller HA, Cross JR, Fantin VR, Hedvat CV, Perl AE, Rabinowitz JD, Carroll M, Su SM, Sharp KA, Levine RL, Thompson CB. The common feature of leukemia-associated IDH1 and IDH2 mutations is a neomorphic enzyme activity converting alpha-ketoglutarate to 2-hydroxyglutarate. Cancer Cell. 2010 Mar 16;17(3):225-34.
3. Kaneko MK, Tian W, Takano S, Suzuki H, Sawa Y, Hozumi Y, Goto K, Yamazaki K, Kitanaka C, Kato Y. Establishment of a novel monoclonal antibody SMab-1 specific for IDH1-R132S mutation. Biochem Biophys Res Commun. 2011 Mar 25;406(4):608-13.
4. Takano S, Tian W, Matsuda M, Yamamoto T, Ishikawa E, Kaneko MK, Yamazaki K, Kato Y, Matsumura A. Detection of IDH1 mutation in human gliomas: comparison of immunohistochemistry and sequencing. Brain Tumor Pathol. 2011 Apr;28(2):115-23.
5. Kato Y, Jin G, Kuan CT, McLendon RE, Yan H, Bigner DD. A monoclonal antibody IMab-1 specifically recognizes IDH1R132H, the most common glioma-derived mutation. Biochem Biophys Res Commun. 2009 Dec 18;390(3):547-51.

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