
Anti-Human IDH1 R132H Astrocytoma and Oligodendroglioma Tumor Cell Marker Mouse Monoclonal Antibody

Product Information

Catalog-No.:	DIA H09 (100µg) DIA H09 M (20µg sample)	Species Reactivity	Human
Concentration:	0,2mg/ml	Applications	Dilution
Clone:	H09	Immunohistochemistry (Standard formalin-fixed paraffin)	1:20
Isotype:	Mouse IgG2a	Western Blot	1:500
Immunogen:	Synthetic peptide, amino acid sequence CKPIIIGHHAYGD	Others not tested	
Physical State:	Lyophilized powder	Control antibody	DIA W09 rat anti-hu IDH1wt monoclonal antibody
Reconstitution:	After opening, restore to 500µl (sample 100µl) with sterile distilled water by gentle shaking for 10 minutes		
Presentation:	in PBS with 2% BSA, 0,05% NaN ₃ , pH 7,4. Antibody purified from culture supernatant by GAM (goat anti-mouse) chromatography		

The indicated dilutions are general recommendations. As protocols may vary, optimal working dilutions should be determined by the end user.

Reactivity

Antibody clone H09 reacts specifically with the isocitrate dehydrogenase 1 (IDH1) R132H point mutation in tissue sections from formalin-fixed brain tumor specimens. Heterozygous point mutations of IDH1 codon 132 are frequent in World Health Organization (WHO) grade II and III gliomas. IDH1 R132H mutations occur in approximately 70% of astrocytomas and oligodendroglial tumors.

The high frequency and distribution of the IDH1 R132H mutation among specific brain tumor entities allow the highly sensitive and specific discrimination of various tumors by immunohistochemistry, such as anaplastic astrocytoma from primary glioblastoma or diffuse astrocytoma WHO grade II from pilocytic astrocytoma or ependymoma. Noteworthy is the discrimination of the infiltrating edge of tumors with IDH1 mutation from reactive gliosis.

This antibody is highly useful for tumor classification and in detecting single infiltrating tumor cells.

Instructions for Use

Immunohistochemical staining of standard formalin-fixed paraffin sections

Deparaffinize and rehydrate according to standard procedures. Heat induced epitope retrieval (HIER) is required.

For immunohistochemical detection different techniques can be used: Indirect immunoenzyme labeling with a secondary antibody conjugate, biotin/(strept)avidin-based detection, soluble enzyme immune complex or polymer-based detection. To detect antibody, follow the instructions provided with the particular visualization system. The antibody is suited for immunohistochemical staining using automated platforms.

Use the antibody at 1:20 dilution for 30min at RT.

Storage and Stability

The antibody is stable for 1 year when stored as reconstituted liquid at 2-8°C.

Notes on Safety

The material contains 0,05% sodium azide as a preservative. Although the quantity of azide is very small, appropriate care should be taken when handling this material. Avoid skin and eye contact, inhalation, and ingestion.

For research use only. Not for diagnostic or therapeutic use.

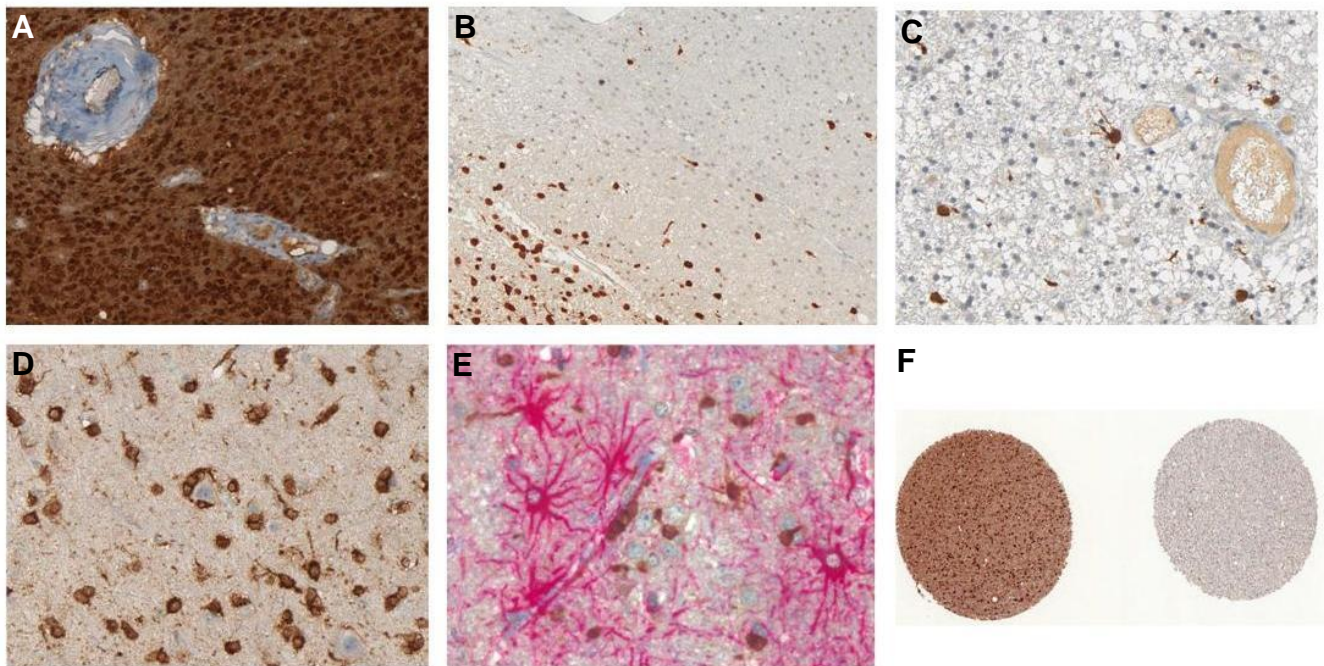
dianova GmbH

Warburgstr. 45 | 20354 Hamburg, Germany

www.dianova.de | info@dianova.de | Phone + 49 40 - 45067 0 | Fax: +49 40 - 45067 490

Immunohistochemistry of human IDH1 R132H in formalin-fixed paraffin-embedded brain tissue sections

(pictures courtesy of Prof. Dr. med. Andreas von Deimling, Department of Neuropathology, University Heidelberg / Clinical Cooperation Unit Neuropathology, German Cancer Research Center (DKFZ), Heidelberg, Germany)



- (A)
Strong reaction of IDH1 mutation specific antibody clone H09 in tumor center of anaplastic oligoastrocytoma.
- (B)
Infiltration zone of anaplastic astrocytoma with specific labelling of infiltrating glioma cells by antibody clone H09.
- (C)
Identification of single tumor cells in white matter distant from tumor center with IDH1 mutation specific antibody clone H09.
- (D)
Cortex infiltrated by oligodendroglioma with specific labelling of tumor cells by antibody clone H09.
- (E)
Double staining of GFAP (glial fibrillary acidic protein, red) and clone H09 (brown) of oligodendroglioma infiltration zone demonstrating specific labelling of tumor cells but not of GFAP positive reactive astrocytes.
- (F)
Strong reaction of IDH1 mutation specific antibody clone H09 with IDH1 R132H mutated diffuse astrocytoma (left) but not with wild type tumor (right).

References for clone H09

1. Capper D, Zentgraf H, Balss J, Hartmann C, von Deimling A. Monoclonal antibody specific for IDH1 H132R mutation. *Acta Neuropathol.* 118(5): 599-601, 2009
2. Capper D, Weissert S, Balss J, Habel A, Meyer J, Jäger D, Ackermann U, Tessmer C, Korshunov A, Zentgraf H, Hartmann C, von Deimling A. Characterization of R132H mutation-specific IDH1 antibody binding in brain tumors. *Brain Pathol.* 20(1): 245-254, 2010
3. Andrulis M, Capper D, Luft, T, Hartmann C, Zentgraf H, von Deimling A. Detection of isocitrate dehydrogenase 1 mutation R132H in myelodysplastic syndrome by mutation-specific antibody and direct sequencing. *Leuk Res.* 34(8):1091-1093, 2010
4. Andrulis M, Capper D, Meyer J, Penzel R, Hartmann C, Zentgraf H, von Deimling, A. IDH1 R132H mutation is a rare event in MPN as determined by a mutation specific antibody. *Haematologica* 2010 June 9 (Epub ahead of print)

For research use only. Not for diagnostic or therapeutic use.

dianova GmbH

Warburgstr. 45 | 20354 Hamburg, Germany

www.dianova.de | info@dianova.de | Phone + 49 40 - 45067 0 | Fax: +49 40 - 45067 490

- Sellner L, Capper D, Meyer J, Langhans CD, Hartog CM, Pfeifer H, Serve H, Ho AD, Okun JG, Krämer A, von Deimling A. Increased levels of 2-hydroxyglutarate in AML patients with IDH1-R132H and IDH2-R140Q mutations. *Eur J Haematol*. 2010 Jul 26 (Epub ahead of print)
- Capper D, Sahm F, Hartmann C, Meyermann R, von Deimling A, Schittenhelm J. Application of mutant IDH1 antibody to differentiate diffuse glioma from nonneoplastic central nervous system lesions and therapy-induced changes. *Am J Surg Pathol*. 34(8):1199-1204, 2010

Related articles

- Dang L, White DW, Gross S, Bennett BD, Bittinger MA, Driggers EM, Fantin VR, Jang HG, Jin S, Keenan MC, Marks KM, Prins RM, Ward PS, Yen KE, Liao LM, Rabinowitz JD, Cantley LC, Thompson CB, Vander Heiden MG, Su SM. Cancer-associated IDH1 mutations produce 2-hydroxyglutarate. *Nature* 462: 739-744, 2009, Addendum *Nature* 465:966, 2010
- Paschka P, Schlenk RF, Gaidzik VI, Haddank M, Krönke J, Bullinger L, Späth D, Kayser S, Zucknick M, Götze K, Horst HA, Germing U, Döhner H, Döhner K. IDH1 and IDH2 Mutations Are Frequent Genetic Alterations in Acute Myeloid Leukemia and Confer Adverse Prognosis in Cytogenetically Normal Acute Myeloid Leukemia With NPM1 Mutation Without FLT3 Internal Tandem Duplication. *J Clin Oncol* 2010 Jun 21 (Epub ahead of print)
- Abbas S, Lugthart S, Kavelaars FG, Schelen A, Koenders J, Zeilemaker A, van Putten WJ, Rijneveld A, Löwenberg B, Valk PJ. Acquired mutations in the genes encoding IDH1 and IDH2 both are recurrent aberrations in acute myeloid leukemia (AML): prevalence and prognostic value. *Blood* 2010 Jun 10 (Epub ahead of print)
- Tefferi A, Lasho TL, Abdel-Wahab O, Guglielmelli P, Patel J, Caramazza D, Pieri L, Finke CM, Kilpivaara O, Wadleigh M, Mai M, McClure RF, Gilliland DG, Levine RL, Pardanani A, Vannucchi AM. IDH1 and IDH2 mutation studies in 1473 patients with chronic-, fibrotic- or blast-phase essential thrombocythemia, polycythemia vera or myelofibrosis. *Leukemia* 2010 May 27 (Epub ahead of print)
- Thol F, Weissinger EM, Krauter J, Wagner K, Damm F, Wichmann M, Goehring G, Schumann C, Bug G, Ottmann O, Hofmann WK, Schlegelberger B, Ganser A, Heuser M. IDH1 mutations in patients with myelodysplastic syndromes are associated with an unfavorable prognosis. *Haematologica* 2010 May 21 (Epub ahead of print)
- Toedt G, Barbus S, Wolter M, Felsberg J, Tews B, Blond F, Sabel MC, Hofmann S, Becker N, Hartmann C, Ohgaki H, von Deimling A, Wiestler OD, Hahn M, Lichter P, Reifenberger G, Radlwimmer B. Molecular signatures classify astrocytic gliomas by IDH1 mutation status. *Int J Cancer* 2010 May 12 (Epub ahead of print)
- Noushmehr H, Weisenberger DJ, Diefes K, Phillips HS, Pujara K, Berman BP, Pan F, Pelloski CE, Sulman EP, Bhat KP, Verhaak RG, Hoadley KA, Hayes DN, Perou CM, Schmidt HK, Ding L, Wilson RK, Van Den Berg D, Shen H, Bengtsson H, Neuvial P, Cope LM, Buckley J, Herman JG, Baylin SB, Laird PW, Aldape K; Cancer Genome Atlas Research Network. Identification of a CpG island methylator phenotype that defines a distinct subgroup of glioma. *Cancer Cell* 17(5):510-522, 2010
- Marcucci G, Maharry K, Wu YZ, Radmacher MD, Mrózek K, Margeson D, Holland KB, Whitman SP, Becker H, Schwind S, Metzeler KH, Powell BL, Carter TH, Kolitz JE, Wetzler M, Carroll AJ, Baer MR, Caligiuri MA, Larson RA, Bloomfield CD. IDH1 and IDH2 gene mutations identify novel molecular subsets within de novo cytogenetically normal acute myeloid leukemia: a Cancer and Leukemia Group B study. *J Clin Oncol* 28(14):2348-2355, 2010
- Ward PS, Patel J, Wise DR, Abdel-Wahab O, Bennett BD, Collier 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* 17(3):225-234, 2010
- Van den Bent MJ, Dubbink HJ, Marie Y, Brandes AA, Taphoorn MJ, Wesseling P, Frenay M, Tijssen CC, Lacombe D, Idhah A, van Marion R, Kros JM, Dinjens WN, Gorlia T, Sanson M. IDH1 and IDH2 mutations are prognostic but not predictive for outcome in anaplastic oligodendroglial tumors: a report of the European Organization for Research and Treatment of Cancer Brain Tumor Group. *Clin Cancer Res* 16(5):1597-1604, 2010
- Gross S, Cairns RA, Minden MD, Driggers EM, Bittinger MA, Jang HG, Sasaki M, Jin S, Schenkein DP, Su SM, Dang L, Fantin VR, Mak TW. Cancer-associated metabolite 2-hydroxyglutarate accumulates in acute myelogenous leukemia with isocitrate dehydrogenase 1 and 2 mutations. *J Exp Med* 207(2):339-344, 2010

For research use only. Not for diagnostic or therapeutic use.

dianova GmbH

Warburgstr. 45 | 20354 Hamburg, Germany

www.dianova.de | info@dianova.de | Phone + 49 40 - 45067 0 | Fax: +49 40 - 45067 490