

Anti-IDH1 R132H / DIA-H09

Mouse monoclonal anti-brain tumor marker (Astrocytoma, Oligodendroglioma), Clone H09

Product Information

Catalog No.:	DIA-H09 (500 µl) DIA-H09-M (100µl)	Reconstitution:	DIA-H09 lyophilizate restore to 500 µl. DIA-H09-M lyophilizate restore to 100 µl. Reconstitute with sterile distilled water by gentle shaking for 10 minutes
Clone:	H09	Presentation:	PBS, 2% BSA, 0.05% NaN ₃ , pH 7.4. Antibody purified from culture sup. by goat anti-mouse affinity chromatography
Isotype:	Mouse IgG2a	Applications:	Immunohistochemistry (standard formalin-fixed paraffin sections) Western blot
Specificity:	Human IDH1 R132H point mutation	Dilutions:	1:20-1:100 Immunohistochemistry (IHC) 1:500 Western Blot (General recommendation, validation of antibody performance/protocol is the responsibility of the end user. Positive/negative controls should be run simultaneously with patient specimen. Interpretation must be made by a qualified pathologist within the context of patient's clinical history/other diagnostic tests.)
Immunogen:	Synthetic peptide, amino acid sequence CKPIIIGHHAYGD	Associated Antibody:	DIA-AX1, anti-ATRX, clone AX1
Physical State:	Lyophilized powder		
Species			
Reactivity:	Human		
Positive Control:	Oligodendroglioma, diffuse astrocytoma		
Negative Control:	Pilocytic astrocytoma, primary glioblastoma (ca. 95% of cases negative)		
Visualization:	Cytoplasmic		

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. The routine practical approach for diagnosing astrocytomas and oligodendrogliomas begins with performing IHC for IDH1 R132H and ATRX expression (Reuss et al., 2015).

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 immuno-histochemical staining using automated platforms. Use the antibody at 1:20-1:100 dilution for 30min at RT.

Technical note

Diffuse astrocytoma WHO grade II may have low protein-expression. At high dilution of the antibody single tumor cells in the infiltration zone may not be stained (recommended dilution 1:20).

Intended use / regulatory status

Europe: For in Vitro Diagnostic Use / All other countries: For Research Use only

Storage and Stability

Store the lyophilized antibody at 2-8°C. For long time storage freeze at -20°C, thus the antibody is stable for at least one year. As reconstituted liquid store at 2-8°C short term (several weeks). For long term storage aliquot and freeze at -20°C or -80°C. Avoid repeated freeze / thaw cycles.

Safety Notes

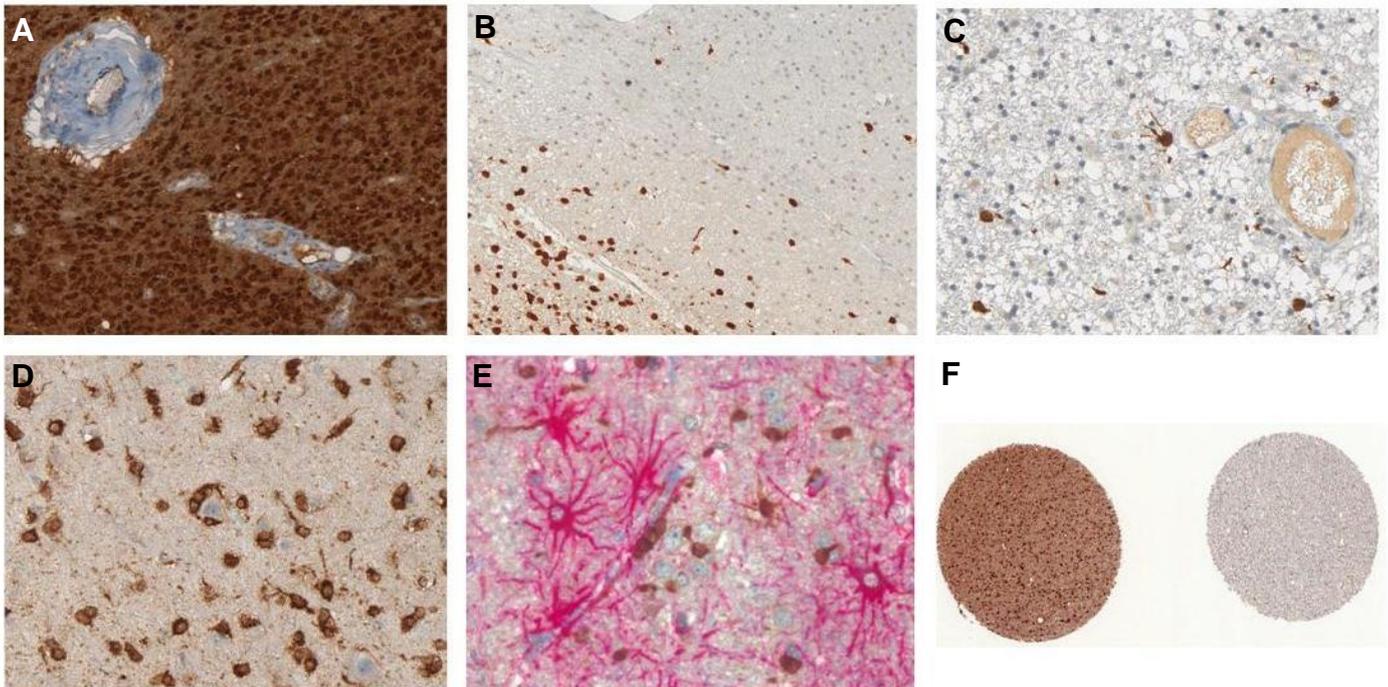
The material contains 0.05% sodium azide as preservative. Although the quantity of azide is very small, appropriate care should be taken when handling this material. Avoid skin and eye contact, inhalation, and ingestion.

Figures

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

- Capper D et al. Monoclonal antibody specific for IDH1 R132H mutation. *Acta Neuropathol.* 118(5): 599-601, 2009
- Capper D et al. Characterization of R132H mutation-specific IDH1 antibody binding in brain tumors. *Brain Pathol.* 20(1): 245-254, 2010
- Preusser M et al. IDH testing in diagnostic neuropathology: review and practical guideline article invited by the Euro-CNS research committee. *Clinical Neuropathology*, 30(5):217-230, 2011
- Van den Bent MJ et al. Interlaboratory comparison of IDH mutation detection. *J Neurooncol* 112:173–178, 2013
- Schumacher T et al. A vaccine targeting mutant IDH1 induces antitumour immunity. *Nature* 512: 324-327, 2014
- Reuss D et al. ATRX and IDH1-R132H immunohistochemistry with subsequent copy number analysis and IDH sequencing as a basis for an "integrated" diagnostic approach for adult astrocytoma, oligodendroglioma and glioblastoma. *Acta Neuropathol.* 129(1):133-146, 2015
- David NL et al. The 2016 World Health Organization Classification of Tumors of the Central Nervous System: a summary. *Acta Neuropathol.* 131:803-820, 2016

Symbols

	Manufacturer		For In vitro Diagnostic Use		Conformity with IVDD 98/79/EC
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