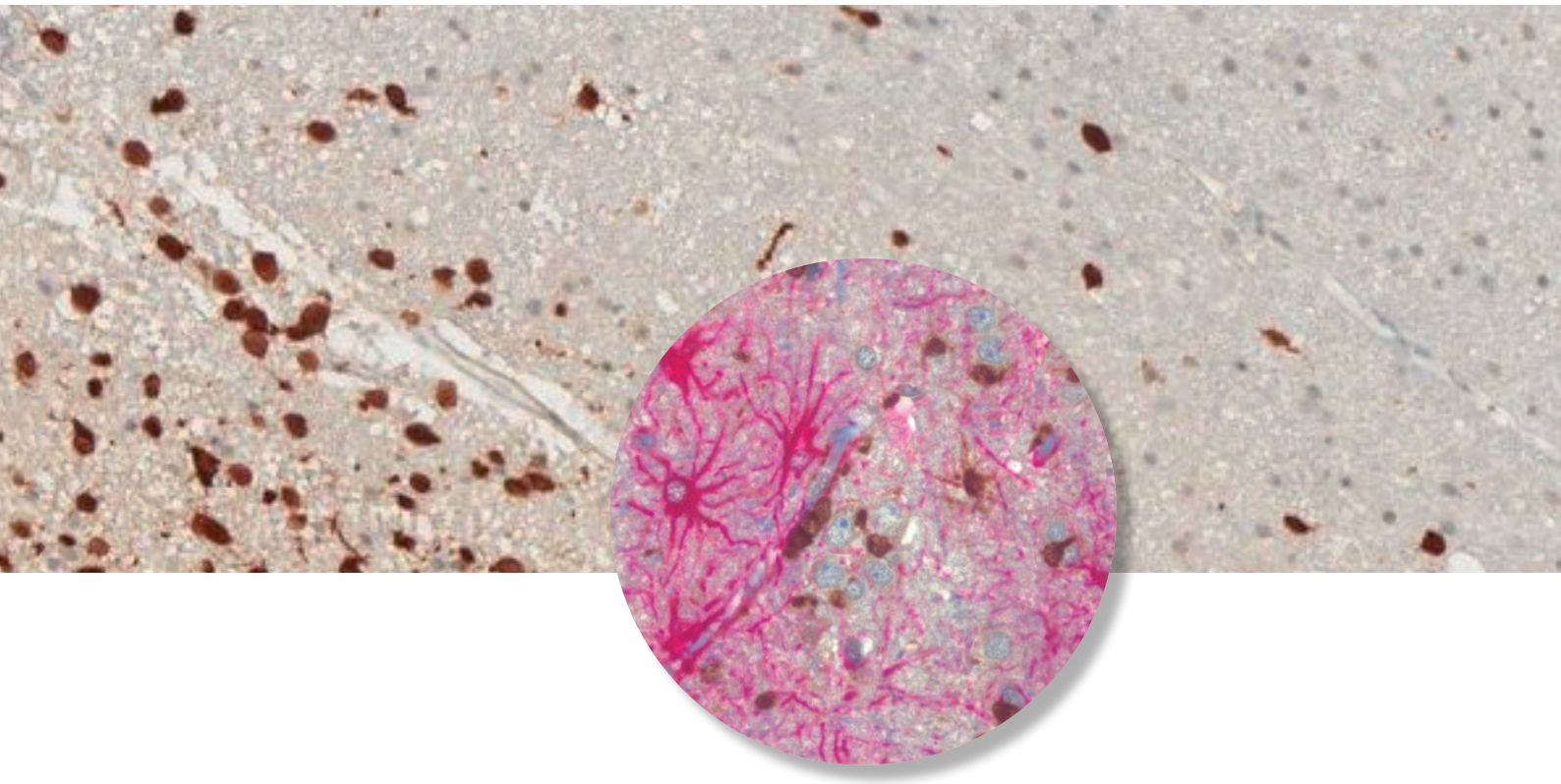
More than 150 Publications

anti IDH1 R132H Antibody

clone H09 is the gold standard for precision diagnosis in brain tumors



Classification of diffuse Gliomas

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Anti-IDH1 R132H

Key Antibody Features

Specificity:

IDHR1 R132H Point Mutation

Host /Isotype:

Mouse / IgG2A

Application:

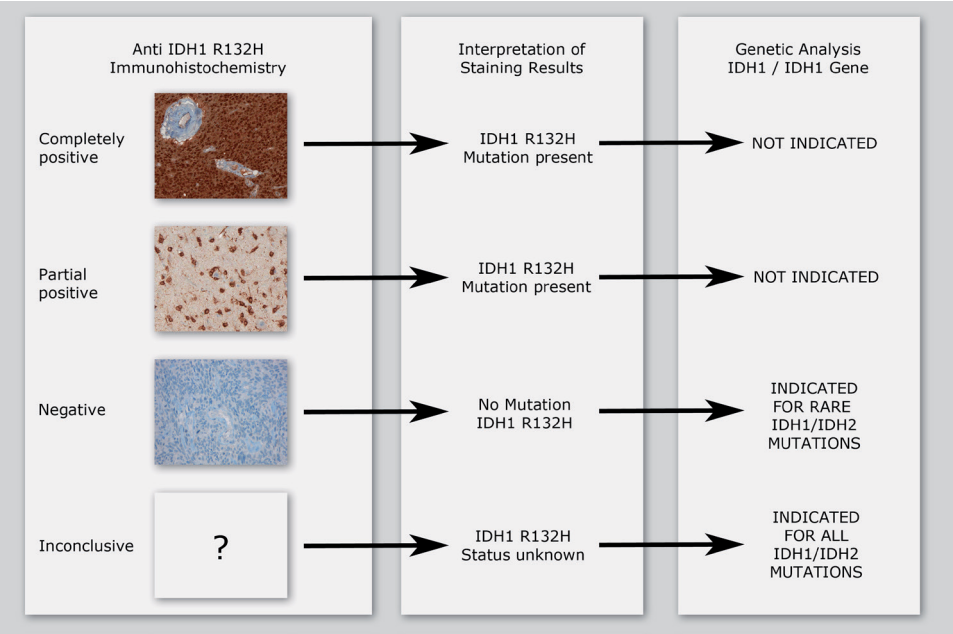
IHC-FFPE, IHC-F, WB

Ordering Information

Ordering # dia-H09 IVD CE	
Quantity	500 µl
Format	unconjugated
Ordering # dia-H09-M IVD CE	
Quantity	100 µl
Format	unconjugated
Ordering # dia-H09-L	
Quantity	8 ml
Format	ready-to-use
Ordering # dia-H09-SB-01	
Quantity	100 µl
Format	Azide/BSA free
Ordering # dia-H09-SB-02	
Quantity	200 µl
Format	Azide/BSA free

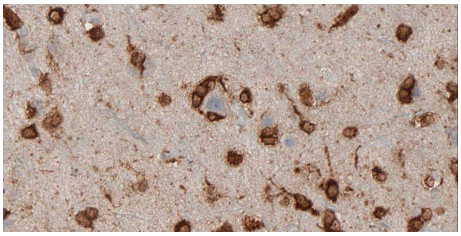
Clinical Relevance of IDH1 R132H Staining for Brain Tumor Diagnosis

Gliomas are by far the most common brain tumors. Two common types of gliomas are astrocytomas and oligodendrogliomas. Isocitrate dehydrogenase 1 (IDH1) R132H mutations occur in approximately 70% of astrocytomas and oligodendroglial tumors.

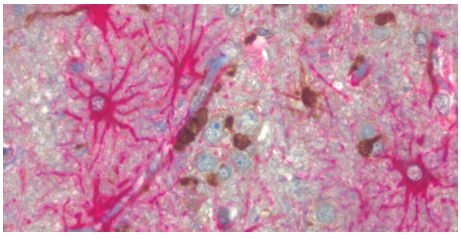


Recommended decision tree for testing of IDH1 mutation in diffuse gliomas (Modified from Preusser et al., Clin Neuropathol. 2011; 30(5):217-30.)

Anti-IDH1 R132H antibody clone H09 aids in the detection of individual cancer cells in the tissue zone surrounding the tumor and in the infiltration zone of diffuse astrocytomas. Moreover, several independent studies have shown that IDH1 R132H mutations in lowgrade and anaplastic gliomas and secondary glioblastomas correlate with favorable patient survival times.



Cortex infiltrated by oligodendroglioma



Double staining of GFP and clone H09

About 95% of all IDH1/2 mutations are in IDH1, and among those over 90% are type R132H. This makes an R132H-specific antibody an excellent screening test. The sensitivity and specificity of the anti-IDH1 R132H antibody clone H09 to detect positive tumor cells have been widely demonstrated in several studies.

The 2016 WHO Classification of CNS Tumours recommends for optimal testing of the IDH1 mutation status in gliomas to first perform immunohistochemical testing with the anti-IDH1 R132H antibody, then to follow up with DNA-sequencing only when the results from immunohistochemistry are negative.

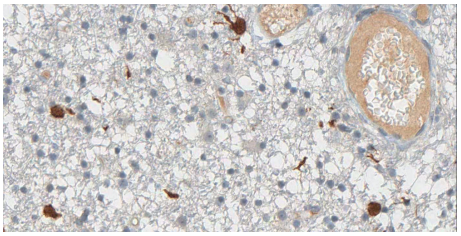
The strong diagnostic and prognostic implications of IDH1 mutations implicate that routine IDH1 R132H immunostaining needs to be considered as an initial screening method in all gliomas, including suboptimal biopsies suspected of harboring glioma cells. Only in case of a negative staining result (low-grade or anaplastic astrocytoma, oligodendroglioma, oligoastrocytoma or a glioblastoma with oligodendroglial component) direct sequencing for less common IDH1 and IDH2 mutations should be performed.

Diagnostic Applications

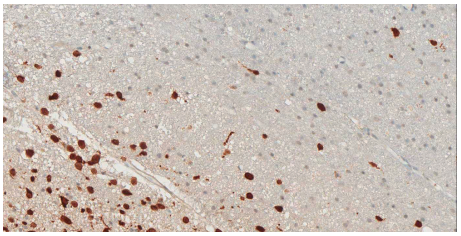
IDH1 R132H immunohistochemistry has changed routine diagnostic neuropathology, because it allows narrowing down the possible diagnosis to the group of diffusely infiltrating gliomas of WHO Grades II and III and secondary glioblastoma and to a certain extent to primary glioblastoma. The determination of the IDH1 mutation status strongly supports the differential diagnosis between an anaplastic glioma and a glioblastoma. Furthermore, the detection of even single IDH1 R132H-positive cells clearly supports the diagnosis of a diffusely infiltrating glioma. Again, IDH1 R132H immunohistochemistry allows a clear and safe distinction between low-grade glioma and reactive gliosis. Moreover, the 2016 CNS WHO classification strongly recommends IDH1 R132H-IHC.

Prognostic Implications

The presence of IDH mutations in diffuse gliomas has been shown to be associated with favorable patient survival time in several studies. This effect seems to be independent from other strong prognostic factors and correlated with 1p/19q deletion and MGMT promoter methylation. In studies pooling low-grade astrocytomas and oligodendrogliomas the IDH mutation status was prognostic for overall and progression free survival. In primary glioblastoma IDH1 mutational status has been reported to be the only factor that showed significant association with patient survival times. The consistent finding of a more favorable outcome of diffuse glioma patients with IDH mutations implies that IDH testing might be useful for prognostic considerations in the clinical setting.



Identification of single tumor cells



Infiltrating glioma cells

Main Advantages IDH1 R132H IHC vs. PCR

Faster turnaround time

Lower cost

Single positive cell detection, missed by even the most sensitive PCR tests

Antibody References

With more than 150 publications, dianova's clone H09 is the benchmark for classification of diffuse Gliomas. Vsit our website to find additional information and a link to a list of references on CiteAb:

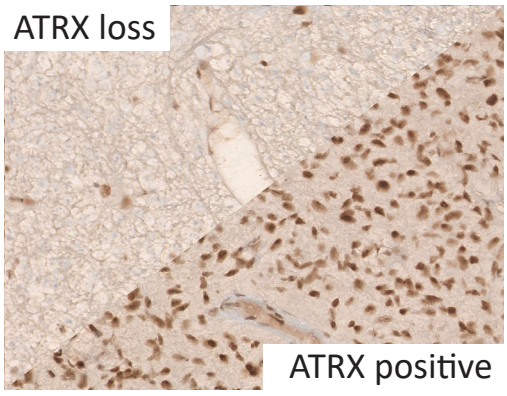
www.dianova.com/IDH1R132H/

Why should I use anti-IDH1 R132H and ATRX IHC before molecular testing?

Characteristics of the 3 most important molecular groups of adult glioma

Biomarker	Diffuse glioma with IDH mutation & 1p/19q-deletion (oligodendroglioma)	Diffuse glioma with IDH mutation	Diffuse glioma without IDH mutation
IDH1/2	mutated	mutated	wildtype
1p/19q	co-deleted	intact	intact
ATRX	nuclear expression	loss of nuclear expression	nuclear expression
hTERT-Promotor mutations	common	rare	common
Typical histological findings and prognosis			
Histology	oligodendroglial	astrocytic	astrocytic
WHO grading	II or III	II or III (rare IV)	IV (rare II or III)
Median Survival	>15 years	8-12 years	<2-3 years

The routine practical approach for diagnosing astrocytomas and oligodendrogliomas begins with performing IHC for ATRX and IDH1 R132H expression. Stepwise analysis of molecular parameters with initial IHC for ATRX and IDH1 R132H followed by 1p/19q analysis and then by IDH sequencing significantly reduces the number of molecular tests required for unequivocal diagnosis (Reuss et al., 2015).



ATRX

ATRX mutations in gliomas result in the loss of nuclear ATRX expression, which can be diagnosed by IHC. Loss of ATRX expression is close to being mutually exclusive to 1p/19q co-deletion.

Ordering # dia-AX1	IVD CE
Quantity	500 µl
Format	unconjugated

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