Sigma-Aldrich®
Lab & Production Materials

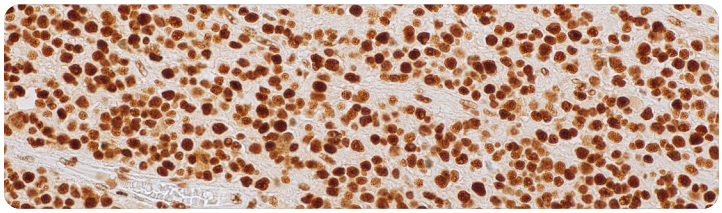
MilliporeSigma

## Cell Marque™ Tissue Diagnostics

# Neuropathology

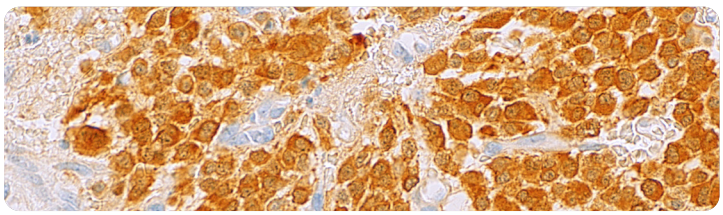
**Above:**
H3 K27M (RM192)

**View more at:**
cellmarque.com/specialties



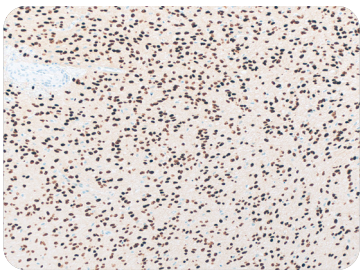
### ATRX (polyclonal)

Diffuse gliomas are classified based on histological and molecular features to achieve an integrated diagnosis. Molecular diagnostic markers include IDH mutation, 1p/19q co-deletion, and TP53 mutation. ATRX is a chromatin remodeling protein and its mutation status may be used as a molecular diagnostic marker within the diffuse glioma classification algorithm. Anti-ATRX is used to identify mutant ATRX by a loss of ATRX expression in neoplastic cells when compared with internal positive controls (endothelial cells, glia, and neurons). Grade II/III astrocytoma classification includes IDH mutant, ATRX mutant, and 1p/19q retention, while grade II/III oligodendroglioma includes IDH mutant, ATRX wildtype, and 1p/19q co-deletion; p53 expression may also serve as an aid in diagnosis. ATRX mutation is frequently, but not always, mutually exclusive with 1p/19q co-deletion.



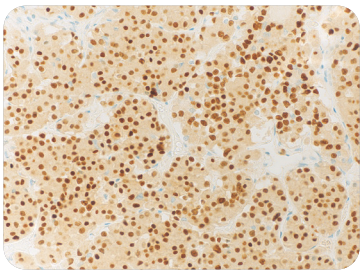
### IDH1 R132H (MRQ-67)

Isocitrate dehydrogenase 1 (IDH1) functions as an enzyme in the Krebs (citric acid) cycle and is biologically active in the cytoplasmic and peroxisomal compartments under normal conditions. The occurrence of heterozygous missense mutations at an arginine residue at codon 132 (R132) within the coding region for the substrate binding site of IDH1 has been described to promote oncogenesis in several malignancies.1 Of the identified mutant variants, a histidine substitution (R132H) is one of the more frequently observed point mutations in certain tumor groups of gliomas.2 Mutations involving IDH1 have been implicated as early events during gliomagenesis and IDH1 mutation status was incorporated into the 2016 WHO Classification of Tumors of the Central Nervous System as a new parameter for sub-classifying diffuse astrocytic and oligodendroglioma tumors.3,4 Immunohistochemical identification of IDH1 R132H immunoreactivity can be used as a tool in screening tumors that may be harboring this mutation, such as low grade diffuse and anaplastic astrocytomas, oligodendrogliomas, and secondary glioblastomas.



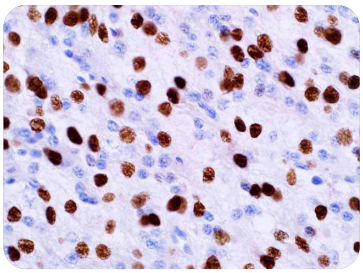
## H3 K27M (RM192)

Detection of the H3 K27M protein by immunohistochemistry with H3 K27M (RM192) Rabbit Monoclonal Antibody may be used to aid in the diagnosis of diffuse midline gliomas. Histone proteins provide structural support for chromosomal DNA and regulate the accessibility of genes for transcription. H3 K27M is a mutant histone protein that is produced by a point mutation (K27M) in either the H3.3 or the H3.1 histone genes.1 Diffuse midline gliomas harbor H3 K27M alterations and show expression of the H3 K27M protein, which is not expressed in normal tissues. Immunohistochemistry for H3 K27M shows a nuclear pattern of staining.



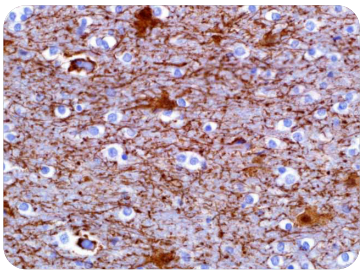
## Pit-1 (ZM385)

Detection of Pit-1 by immunohistochemistry with Pit-1 (ZM385) Mouse Monoclonal Antibody may be used to aid in the diagnosis of pituitary neuroendocrine tumors (pituitary adenomas). Pituitary-specific transcription factor 1 (Pit-1) is a transcription factor that drives the production of prolactin, growth hormone (GH), and thyroid stimulating hormone (TSH) in the anterior pituitary gland.1 Pit-1 is expressed normally in the lactotroph, somatotroph, and thyrotroph cells of anterior pituitary gland, which produce these three pituitary hormones (prolactin, GH, and TSH). Immunohistochemistry for Pit-1 is positive in most lactotroph, somatotroph, and thyrotroph pituitary neuroendocrine tumors (pituitary adenomas). Immunohistochemistry for Pit-1 shows a nuclear pattern of staining.



## Olig2 (EP112)

Olig2, a basic helix–loop–helix transcription factor, is involved in oligodendroglial specification. Olig2 expression has been reported in most glial tumors, such as oligodendrogliomas and astrocytomas. Although more than half of glioblastomas are positive for Olig2, expression is very weak in terms of both percentage of labeled cells and intensity. No Olig2 expression has been found in the non-glial tumors including neuroepithelial tumors, ependymomas, subependymomas, medulloblastomas, and nonneuroepithelial tumors, such as CNS lymphomas, meningiomas, schwannomas, atypical teratoid/rhabdoid tumor, and haemangioblastomas. Compared to the strong staining seen in glioma samples, a weak expression is observed in non-tumoral brain tissue (gliosis).



## Glial Fibrillary Acidic Protein (GFAP) (SP78)

Anti-GFAP antibody detects astrocytes, Schwann cells, satellite cells, enteric glial cells, and some groups of ependymal cells. This marker is mainly used to distinguish neoplasms of astrocytic origin from other neoplasms in the central nervous system.

CELL MARQUE
RabMAb®
Technology from Abcam

**Intended Use:** Each antibody is intended for laboratory use in the detection of the target protein in formalin-fixed, paraffin-embedded human tissue stained in qualitative immunohistochemistry (IHC) testing. The results using this product should be interpreted by a qualified pathologist in conjunction with the patient's relevant clinical history, other diagnostic tests proper controls.

The products featured are *in vitro* diagnostic (IVD) medical devices. The products featured are not available in all countries. Please contact your local sales representative or distributor for details.

Scan for references

**USA**
**Toll Free: 800.665.7284**
**Phone: 916.746.8900**
**Fax: 916.746.8989**
**Email: service@cellmarque.com**
**www.cellmarque.com**

**CANADA**
**Direct: +1 916-746-8900**
**Fax: +1 916-746-8989**
**Email: international@milliporesigma.com**
**www.cellmarque.com**

MilliporeSigma
400 Summit Drive
Burlington, MA 01803
**SigmaAldrich.com**



Ver. 3.1 68708 03/2026