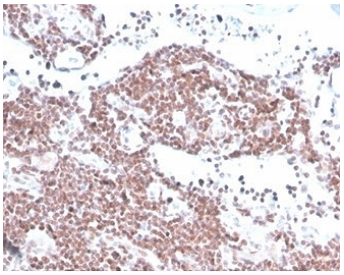
MGMT Antibody MGMT/4791 / MGMT DNA Repair Antibody [clone MGMT/4791] (V4036)

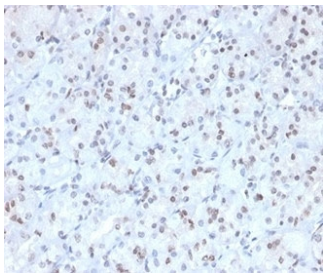
Catalog No.	Formulation	Size
V4036-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V4036-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V4036SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

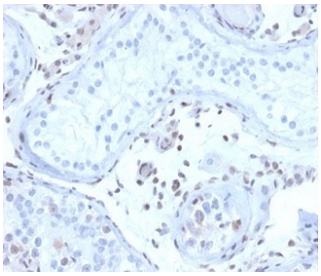
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1
Clone Name	MGMT/4791
Purity	Protein A/G affinity
UniProt	P16455
Localization	Nucleus
Applications	Immunohistochemistry (FFPE): 1-2ug/ml
Limitations	This MGMT Antibody MGMT/4791 / MGMT DNA Repair Antibody is available for research use only.



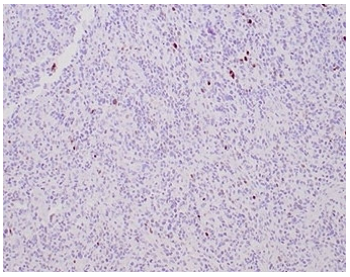
MGMT Antibody MGMT/4791 IHC Staining of Human Lymph Node Tissue. Immunohistochemical analysis of FFPE human lymph node tissue using MGMT DNA Repair Antibody clone MGMT/4791. Prominent brown DAB immunoreactivity is observed in densely populated lymphoid regions, with variable staining intensity across the section. Heat-induced epitope retrieval was performed using pH 9 Tris-EDTA buffer for 20 minutes.



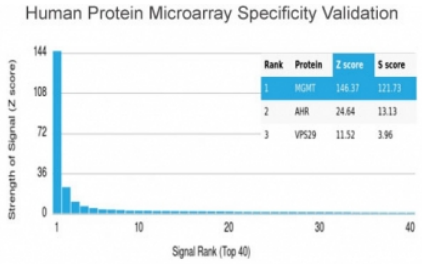
MGMT Antibody MGMT/4791 IHC Staining of Human Stomach Tissue. Immunohistochemical analysis of FFPE human stomach tissue using MGMT DNA Repair Antibody clone MGMT/4791. Scattered brown DAB-positive cells are visible within the gastric tissue, with heterogeneous staining intensity and numerous weakly stained or negative cells. Heat-induced epitope retrieval was performed using pH 9 Tris-EDTA buffer for 20 minutes.



MGMT Antibody MGMT/4791 IHC Staining of Human Testis Tissue. Immunohistochemical analysis of FFPE human testis tissue using MGMT DNA Repair Antibody clone MGMT/4791. Scattered brown DAB nuclear immunoreactivity is observed among cells within and surrounding the seminiferous tubules, with predominantly weak staining across the section. Heat-induced epitope retrieval was performed using pH 9 Tris-EDTA buffer for 20 minutes.



MGMT Antibody MGMT/4791 IHC Staining of Human Glioma Tissue. Immunohistochemical analysis of FFPE human glioma tissue using MGMT DNA Repair Antibody clone MGMT/4791. Sparse brown DAB-positive cells are observed within the tumor tissue, with predominantly weak and heterogeneous immunoreactivity. Heat-induced epitope retrieval was performed using pH 9 Tris-EDTA buffer for 20 minutes.



MGMT Antibody MGMT/4791 HuProt Protein Microarray Specificity Analysis. Analysis of a HuProt microarray containing more than 19,000 full-length human proteins using MGMT DNA Repair Antibody clone MGMT/4791. MGMT produces the highest-ranked binding signal, with substantially lower signals observed for most other proteins on the array. The Z-score reflects signal intensity relative to the array mean, while the S-score measures separation between ranked protein signals. These results support preferential recognition of MGMT under the tested microarray conditions.

Description

MGMT Antibody MGMT/4791 / MGMT DNA Repair Antibody recognizes O6-methylguanine DNA methyltransferase (MGMT), a DNA repair enzyme that protects cells against the mutagenic and cytotoxic effects of alkylating agents. MGMT directly removes alkyl groups from the O6 position of guanine by transferring them to a conserved cysteine residue within its active site. This reaction restores the damaged DNA base without requiring excision or replacement. Because the transfer permanently inactivates the enzyme, each MGMT molecule can repair only one alkylated lesion before undergoing degradation. Cellular resistance to alkylation damage therefore depends partly on the abundance and replenishment of functional MGMT protein.

MGMT has particular importance in glioblastoma and other malignancies treated with alkylating chemotherapy. Temozolomide produces DNA lesions that can trigger mismatch repair-dependent cytotoxicity when O6-methylguanine remains unrepaired. Elevated MGMT expression can counteract this process, allowing tumor cells to survive treatment. Conversely, reduced MGMT activity may increase sensitivity to alkylating agents. These relationships have made MGMT an important subject in studies of chemotherapy resistance, tumor progression, and therapeutic response.

Epigenetic regulation of MGMT is especially relevant in glioma research. Methylation of CpG sites within the MGMT promoter can suppress transcription and reduce protein expression. MGMT promoter methylation is an established

biomarker associated with improved responsiveness to temozolomide in glioblastoma. However, promoter methylation does not always correspond directly to protein abundance because additional transcriptional, post-transcriptional, and cellular factors influence MGMT expression. Intratumoral heterogeneity can further complicate the relationship between methylation status and functional DNA repair capacity.

MGMT is predominantly localized to the nucleus, where it protects genomic DNA from alkylation-induced damage. Its expression varies among normal tissues and tumor types, making protein-level assessment relevant to understanding differences in DNA repair activity. MGMT Antibody MGMT/4791 supports investigations of MGMT distribution in tissue specimens, particularly in studies examining tumor-associated expression patterns and mechanisms of resistance to DNA-damaging therapies.

Application Notes

Optimal dilution of the MGMT Antibody MGMT/4791 / MGMT DNA Repair Antibody should be determined by the researcher.

Immunogen

Purified His-tagged MGMT protein was used as the immunogen for the MGMT antibody.

Storage

Aliquot the MGMT antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

O6-methylguanine DNA methyltransferase antibody, O6-alkylguanine DNA alkyltransferase antibody, methylated-DNA protein-cysteine methyltransferase antibody, AGT antibody, AGAT antibody, DNA repair methyltransferase antibody

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