PRODUCT INFORMATION

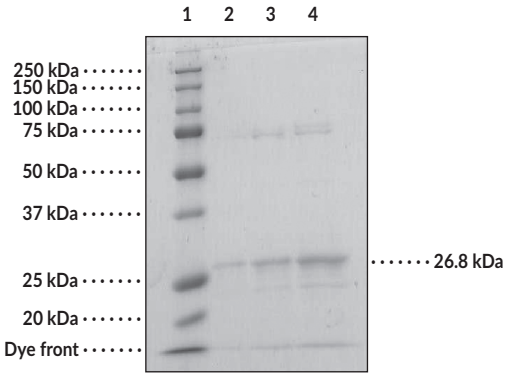
O^6-methylguanine-DNA Methyltransferase (human, recombinant)

Item No. 11176

Overview and Properties

Synonym:	MGMT
Source:	Recombinant N-terminal His-tagged protein expressed in *E. coli*
Uniprot No.:	B4DEE8
Amino Acids:	2-238 (full length)
Molecular Weight:	26.8 kDa
Storage:	-80°C (as supplied)
Stability:	≥6 months
Purity:	***batch specific*** (≥50% estimated by SDS-PAGE)
Supplied in:	***batch specific***
Protein Concentration:	***batch specific*** mg/ml

Image



Lane 1: MW Markers
Lane 2: MGMT (1 µg)
Lane 3: MGMT (2 µg)
Lane 4: MGMT (4 µg)

SDS-PAGE Analysis of O^6-methylguanine-DNA Methyltransferase.

Representative gel image shown; actual purity may vary between each batch.

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Description

O^6-methylguanine-DNA Methyltransferase (MGMT) is a DNA repair enzyme responsible for demethylating O^6-methylguanine (O^6-mG).[1] The methylation of guanine at O^6 to form O^6-mG allows base-pairing to thymine rather than cytosine during DNA replication. MGMT prevents mutations by transferring the methyl group from O^6-mG to MGMT cysteine 145, restoring guanine. This transfer results in a covalent bond between MGMT cysteine 145 and the methyl group, and so MGMT is a single-turnover, "suicide" enzyme. The assay used to test MGMT is the demethylation of a synthesized, double-stranded, DNA oligonucleotide.[2] Demethylation removes an O^6-methyl group to expose a restriction site for the restriction endonuclease PvuII. Lanes A-E show 200 ng of methylated dsDNA treated with increasing amounts of MGMT prior to PvuII digestion.

References

1. Mitra, S. MGMT: A personal perspective. *DNA Repair (Amst)* **6(8)**, 1064-1070 (2007).
2. Watts, G.S., Pieper, R.O., Costello, J.F., *et al.* Methylation of discrete regions of the O6-methylguanine DNA methyltransferase (MGMT) CpG island is associated with heterochromatinization of the MGMT transcription start site and silencing of the gene. *Mol. Cell. Biol.* **17(9)**, 5612-5619 (1997).

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