

# PRODUCT INFORMATION

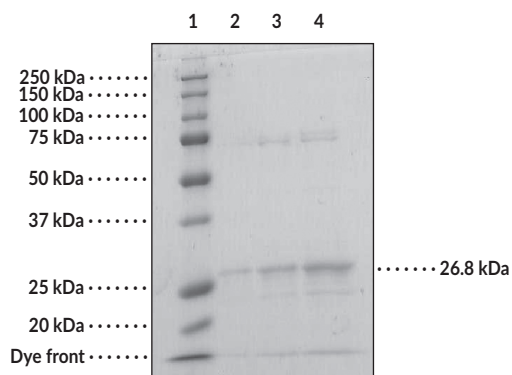


## O<sup>6</sup>-methylguanine-DNA Methyltransferase (human, recombinant) Item No. 11176

### 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:** ≥1 year  
**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<sup>6</sup>-methylguanine-DNA Methyltransferase.

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

WARNING  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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## Description

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O<sup>6</sup>-methylguanine-DNA Methyltransferase (MGMT) is a DNA repair enzyme responsible for demethylating O<sup>6</sup>-methylguanine (O<sup>6</sup>-mG).<sup>1</sup> The methylation of guanine at O<sup>6</sup> to form O<sup>6</sup>-mG allows base-pairing to thymine rather than cytosine during DNA replication. MGMT prevents mutations by transferring the methyl group from O<sup>6</sup>-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.<sup>2</sup> Demethylation removes an O<sup>6</sup>-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

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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 O<sup>6</sup>-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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