

TREVIGEN[®] Product Data

For Research Use Only. Not For Use In Diagnostic Procedures.

E. coli Mismatch Uracil DNA Glycosylase (Mug protein)

Catalog #: 4125-100-EB

Contents: 4125-100-01 Mug protein **Size:** 100 Units
3900-500-06 10X REC™ Buffer 6 100 µl

Description: *E. coli* Mug is an 18 kD constitutively expressed protein. The Mug protein can remove a uracil base from within a U:G mismatches well as act on 3, N⁴-ethenocytosine-G mismatches (eC:G).

Source: Purified from *E. coli* containing a recombinant plasmid encoding the *E. coli* Mug protein.

Unit Definition: One Unit cleaves 1 pmole of a ³²P-labeled oligonucleotide probe containing 3,N⁴-ethenocytosine within an oligonucleotide duplex in one hour at 37°C.

Specificity: *E. coli* Mug catalyzes the excision of the following forms of DNA damage: 3,N⁴ ethenocytosine in double or single stranded oligonucleotides. It also acts to excise Uracil in Uracil-Guanine mismatches only in double stranded oligonucleotides.

Assay Conditions: 1X REC Buffer 6 (20 mM Tris-Cl (pH 8.0), 0.1 mg/ml BSA, 1 mM EDTA, and 1 mM DTT), 1 pmole 3,N⁴-ethenocytosine oligonucleotide (Cat# 3864-100-01) labeled with ³²P, 1 pmole Oligo Complement D (Cat# 3849-100-04), and serial dilutions of enzyme in a reaction volume of 20 µl are incubated for 1 hour at 37°C. For analysis, 10 µl of 3X REC Alkali Loading Buffer (Cat# 4017-500: 300 mM NaOH, 97% formamide, and 0.2% bromophenol blue) are added, the samples are heated to 95°C for 10 min then fast cooled to 4°C, and the cleavage products are resolved by 20% denaturing polyacrylamide gel electrophoresis. The bands are cut out and radioactivity counted to quantify the cleavage products.

Storage Buffer: 25mM HEPES (pH 7.6), 0.5 mM EDTA, 1 mM DTT, 1 mM PMSF and 10% (v/v) glycerol.

Storage Conditions: Store at -20°C in a manual defrost freezer.

References:

1. Lutsenko, E., and A.S. Bhagwat. 1999. "The role of the *Escherichia coli* mug protein in the removal of uracil and 3,N⁴-ethenocytosine from DNA". *J BiolChem* **274**:31034-31038.
2. Saparbaev, M. and J. Laval. 1998. "3,N⁴-ethenocytosine, a highly mutagenic adduct, is a primary substrate for *Escherichia coli* double-stranded uracil-DNA glycosylase and human mismatch-specific thymine-DNA glycosylase. *Proc.Natl. Acad. Sci. USA* **95**:8505-8513.

TREVIGEN[®]

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