

Chlorella Virus Pyrimidine Dimer Glycosylase (cv-PDG)

Catalog #: 4065-100-EB

Contents: cv-PDG
10X REC™ Buffer 11

Size: 1000 units
1 mL

Description: cv-PDG is a 16 kDa DNA glycosylase with an associated AP lyase activity that is equally specific for the *cis-syn* and *trans-syn* isomers of cyclobutane pyrimidine dimers induced by UV irradiation. The enzyme acts through formation of a protein-DNA imino intermediate. The associated AP lyase activity occurs by a β -elimination reaction, resulting in cleavage of the phosphodiester bond 3' to the AP site and formation of a 3' unsaturated aldehyde and 5' phosphate. This site is then incised on the 5' side by an AP endonuclease, generating an appropriate substrate for resynthesis and DNA repair.

Source: Purified from *E. coli* containing a recombinant plasmid harboring the *Paramecium bursaria* Chlorella virus PDG gene.

Unit Definition: One unit is the amount of enzyme required to completely relax 250 ng of a UV-irradiated supercoiled plasmid in 30 minutes at 37° C.

Substrate Specificity: cv-PDG recognizes *cis-syn* and *trans-syn* cyclobutane pyrimidine dimers and AP sites with equal efficiency. The enzyme cleaves AP sites on both double and single stranded DNA.

Assay Conditions & Analysis: 1X REC Buffer 11 (25 mM sodium phosphate (pH 6.8), 1 mM EDTA, 100 mM NaCl, 1 mM DTT, 0.1 mg/mL BSA), supercoiled plasmid (250 ng) irradiated with 100 J/m² UV light, and serial dilutions of enzyme in a 20 μ L reaction volume are incubated for 30 minutes at 37° C. For analysis, 5 μ L of 5X Loading buffer (20 mM EDTA, 20% Ficoll, and 0.2% bromophenol blue) are added and the supercoiled, linear, and open circle forms of the plasmid are resolved by 1% agarose gel electrophoresis. Bands are visualized by ethidium bromide staining.

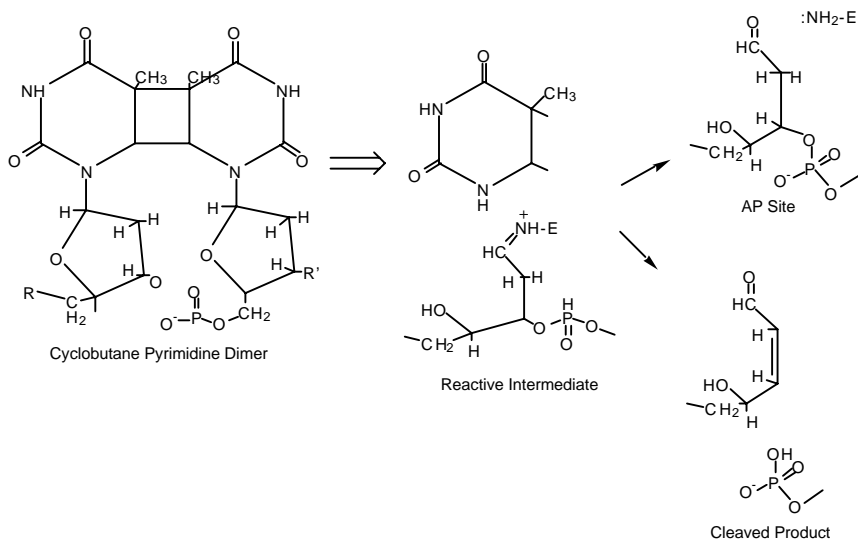
Storage Buffer: 25 mM sodium phosphate (pH 6.8), 100 mM NaCl, 1 mM EDTA, 1 mM DTT, 0.1 mg/mL BSA.

Storage Conditions: Store at 2 - 8° C. Do not freeze enzyme. Enzyme may be diluted in 1X REC Buffer 11 and used immediately. To preclude loss of activity due to adsorption to plastic or glass surfaces, include 0.1 mg/mL BSA in all buffers and assays.

References: see reverse.

References:

1. Garvish, J.F. and R.S. Lloyd (1999) *The catalytic mechanism of a pyrimidine dimer-specific glycosylase (pdg)/abasic lyase, chlorella virus-pdg*. J. Biol. Chem. **274**(14):9786.
2. Lloyd, R.S. (1999) *The initiation of DNA base excision repair of dipyrimidine photoproducts*. Progress in Nuc. Acid Res. and Mol. Biol. **62**:155.
3. Garvish, J.F. and R.S. Lloyd (1999) *Active-site determination of a pyrimidine dimer glycosylase*. J. Mol. Biol. **295**(3):479.



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**R&D Systems
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