thermo scientific

PRODUCT INFORMATION

Endonuclease IV, *E.coli* (Endo IV)

Pub. No. MAN0012008
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Lot: _ **Expiry Date: _**

Store at -20 °C

Components	#EN0591
Endonuclease IV, E.coli *(Endo IV)*	2 U/µL 100 U
10X Reaction Buffer	1 mL

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For Research Use Only. Not for use in diagnostic procedures.

Description

Endonuclease IV (Endo IV) recognizes apurinic/apyrimidinic (AP) sites of dsDNA and cleaves the phosphodiester bond 5' to the lesion generating a hydroxyl group at the 3'-terminus.

The enzyme can also act as a 3'-diesterase that is able to release 3'-phosphoglycolate or 3'-phosphate from damaged ends of dsDNA (1).

Endo IV possesses also a 3'→5' exonuclease activity. Its progression on substrates is sensitive to ionic strength, metal ions, EDTA, and reducing conditions. Substrates with 3'-recessed ends are preferred substrates for 3'→5' exonuclease activity (2).

The enzyme has no requirement for Mg^{2+} but is more active in the presence of Mg^{2+}.

Applications

- Studies of DNA damage and repair (3, 4, 5).
- Single cell electrophoresis (comet assay) (6).
- Antitumor drug research (4).
- DNA structure research (5, 7).
- SNP analysis (8).

Source

E.coli cells with a cloned *nfo* gene.

Definition of Activity Unit

One unit of the enzyme relaxes 1 µg of partially depurinated, supercoiled plasmid DNA in 30 min at 37 °C. Enzyme activity is assayed in the following mixture: 50 mM Tris-acetate (pH 7.5), 50 mM KCl, 1 mM EDTA, 0.05% (v/v) Triton X-100 and 2 µg of partially depurinated pUC19 DNA.

Storage Buffer

Enzyme is supplied in: 50 mM Tris-HCl (pH 7.5), 100 mM NaCl, 1 mM DTT, 0.1% (v/v) Triton X-100 and 50% (v/v) glycerol.

10X Reaction Buffer

500 mM Tris-acetate (pH 7.5), 500 mM KCl, 10 mM EDTA, 0.5% (v/v) Triton X-100.

Inhibition and Inactivation

- Inhibitors: the enzyme is fairly resistant to EDTA during the reaction, but becomes sensitive to even submillimolar quantities of chelators when no DNA substrate is present.
- Inactivated by heating at 80 °C for 15 min.

CERTIFICATE OF ANALYSIS

Endodeoxyribonuclease Assay

No detectable degradation was observed after incubation of supercoiled plasmid DNA with Endonuclease IV.

Ribonuclease Assay

No detectable degradation was observed after incubation of [3H]-RNA with Endonuclease IV.

Quality authorized by:  Jurgita Zilinskiene

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References

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