Endonuclease IV (Nfo)

Catalog #	3422	3425
Package Size	1000	5000
Concentration	10 units/µl	

Description

Endonuclease IV (Nfo) from *Escherichia coli* is a 32-kD metalloprotein that aids in the repair of damaged DNA. The enzyme functions both as an apurinic/apyrimidinic nuclease (1) and as a 3'-terminal di-esterase (1-4). Its 3'-terminal di-esterase activity is important in the repair of DNA strand breaks generated by oxidation and ionic radiation (2, 3). In such events, the strand breaks terminate with either a 3' phosphate or a deoxyribose fragment, preventing repair by DNA polymerase I or DNA ligase. Endonuclease IV removes the blocking groups, leaving a free 3'-hydroxyl terminus. This enzyme does not have detectable associated exonuclease or DNA N-glycosylase activity (1).

Applications

- Single cell gel electrophoresis (Comet assay) (5, 6)
- Alkaline elution (7)
- Alkaline unwinding (8)

Protein purity

The physical purity of this enzyme is ≥99% as assessed by SDS-PAGE with Coomassie® blue staining (see figure below).

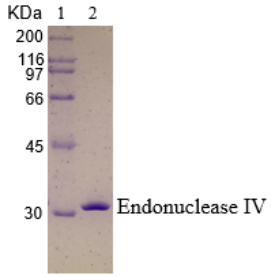

Fig: Lane 1. Protein marker and lane 2. Endonuclease IV.

Product Source

E. coli BL21 (DE3) strain expressing *E. coli* Endonuclease IV gene.

Product Includes

- Endonuclease IV (Nfo)
- 10x Endonuclease IV reaction buffer

1x Endonuclease IV reaction buffer

50 mM Tris-HCl
10 mM $MgCl_2$
1 mM DTT
100 mM KCl
(pH 7.9 @ 25°C)

Storage Buffer

50 mM Tris-HCl, 50 mM KCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, pH 7.5 @ 25ºC

Storage Temperature

-20ºC

Heal inactivation

85°C for 20 min

Unit Definition

One unit is defined as the amount of enzyme required to cleave 1 pmol of a 50-mer oligonucleotide duplex containing a single AP site in a total reaction volume of 10 µl in 1 hour at 37°C.

Quality Control assays

Endonuclease IV is free from detectable contaminating nuclease activities.

References

1. Ljungquist, S. (1977) J. Biol. Chem. 252, 2808.
2. Demple, B. et al., (1986) Proc. Natl. Acad. Sci. USA 83, 7731.
3. Levin, J.D. et al., (1988) J. Biol. Chem. 263, 8066.
4. Levin, J.D. et al., (1991) J. Biol. Chem. 266, 22893.
5. Singh, N. et al. (1961). Experimental Cell Research. 175, 184-191.