

DNA Polymerase I

(*Escherichia coli*)

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DNA Polymerase I is a mesophilic, DNA-dependent DNA polymerase with inherent 3' → 5' and 5' → 3' exonuclease activity.

| Cat. No. | Size |
|----------|-------------|
| E1080-01 | 500 units |
| E1080-02 | 2 500 units |

Unit Definition: One unit is defined as the amount of enzyme required to incorporate 10 nmoles of total deoxyribonucleotide into acid-insoluble material in 30 min at 37°C with DNase I-activated DNA as the template primer.

Storage Conditions:
Store at -20°C

Description:

- Exhibits the 5' → 3' polymerase activity.
- Exhibits the 5' → 3' exonuclease activity, active only on duplex DNA.
- Contains the 3' → 5' exonuclease activity, primarily active on single-stranded DNA (1).
- Ultrapure recombinant enzyme.
- Used to prepare radioactive probes by nick translation (2) and random priming (3).
- Useful for end-labeling of DNA molecules with 3 and 5 protruding tails or blunt-ended.

Storage Buffer:

50 mM potassium phosphate (pH 7.0), 0.25 mM dithiothreitol and 50% (v/v) glycerol.

Assay Conditions:

67 mM potassium phosphate (pH 7.4), 6.7 mM MgCl₂, 1 mM dithiothreitol, 0.033 mM each dCTP, dGTP, dTTP and [α -³²P]dATP, 4.5 µg activated DNA. Incubation is at 37°C for 30 min in a reaction volume of 100 µl.

Quality Control:

All preparations are assayed for contaminating endonuclease activity. Typical preparations are greater than 95% pure, as judged by SDS polyacrylamide gel electrophoresis.

References:

1. Lehman, I.R. (1981) *Enzymes* 14, 15-37.
2. Rigby, P.W.J., Diekmann, M., Rhodes, C. and Berg, P. (1977) *J. Mol. Biol.* 113, 237-251.
3. Hartman, C.P. and Robussay, D. (1981) *Gene Amplification and Analysis* (Chirikjian, J.G. and Papas, T.S., eds.) 2, 17-39, Elsevier/North Holland, New York.