T4 Polynucleotide Kinase

(T4 bacteriophage of Escherichia coli)

Cat. No.	size
E1261-01	1000 u
E1261-02	5000 u

Polynucleotide kinase, which catalyzes the phosphorylation of 5' hydroxyl termini of double- and single- straned DNA or RNA.

Description:

- Catalyzes the transfer of the γ-phosphate of ATP to a 5'-OH terminus in DNA or RNA.
- Contains 3'-phosphatase activity (1).
- Used for 5'-end labeling of nucleic acids prior to DNA or RNA sequencing (2, 3).
- Phosphorylates synthetic linkers and fragments of DNA or RNA prior to ligation.
- Labels 5'-termini prior to partial restriction enzyme digestion.

Unit Definition:

One unit is defined as the amount of enzyme required to transfer 1 nmol of γ-phosphate from ATP to the 5'-OH termini of salmon sperm DNA fragments in 30 min at 37°C (1).

Storage Buffer:

50 mM Tris-HCl (pH 7.6 at 22°C), 25 mM KCl, 1 mM dithiothreitol, 0.1 µM ATP, 0.1 mM EDTA and 50% (v/v) glycerol.

Storage Conditions:

Store at -20°C.

Assay Conditions:

70 mM Tris-HCl (pH 7.6 at 22°C), 10 mM $MgCl_2$, 5 mM dithiothreitol, 27 nmol of DNA-phosphorus (5'-OH terminated salmon sperm DNA) and 70 nM [α-^{32}P]ATP. Reaction volume is 100 µl.

Quality Control:

All preparations are tested for contaminating endonuclease, exonuclease and nonspecific RNase activities, along with functional testing in end-labeling reactions.

References:

1. *Richardson, C.C. (1971) Progress in Nucleic Acids Research and Molecular Biology 2, 815-828.*
2. *Maxam, A. and Gilbert, W. (1977) Proc. Natl. Acad. Sci. U.S.A. 74, 560-567.*
3. *Donis-Keller, H. (1980) Nucleic Acids Res. 8, 3133-3142.*

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