Poly(A) Polymerase User Manual

Poly(A) Polymerase

Cat. No: PC051 (100U) , PC052 (500U)

User Manual

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Poly(A) Polymerase

I. Description

Poly(A) Polymerase (PAP) catalyzes the incorporation of adenine residues into the 3'-termini of various kinds of polyribonucleotides. PAP can utilize various kinds of single-stranded RNAs as substrates but not DNA. Double-stranded RNA and excessively short oligonucleotides are not recommended as substrates. ADP and dATP cannot be used as substrates. The incorporation of CTP and UTP is less than 5% of that of ATP, and the enzyme cannot incorporate GTP into the 3'-termini of polyribonucleotides.

■ Source

Recombinant *E. coli* strain expressing the endogenous poly(A) polymerase gene.

■ Unit Definition

One unit is the amount of the enzyme that incorporates 1 nmol of AMP into RNA in 10 minutes at 37℃ and pH 8.0.

■ Applications

✧ For 3'-termini labeling of RNA;
✧ Poly(A) tailing of RNA for cloning or affinity purification;
✧ Enhances translation efficiency of RNA transfected into eukaryotic cells.

■ Feature

The versatile regulatory capacity in RNA metabolism ensures precise gene expression by stabilizing mRNA, modulating translation, and dynamically responding to environmental changes.

■ Storage Buffer

20mM Tris-HCl (pH7.5, 25℃), 200mM NaCl, 1mM DTT, 0.1mM EDTA, 50% Glycerol, 0.1% Triton X-100.

II. Contents and Storage

Cat. No.	Contents	Part No.	Quantity
PC051	Poly(A) Polymerase (5 U/μl)	PC051-01	20 μl
	10× Poly(A) Polymerase Buffer	PC051-02	100 μl
PC052	Poly(A) Polymerase (5 U/μl)	PC051-01	20 μl×5
	10× Poly(A) Polymerase Buffer	PC051-02	100 μl×5

Store all components at -20℃ (stable for at least 12 months). Avoid repeated freezing/ thawing.

III. Procedures

1. Gently invert the tubes to thaw the reagents. Spin down briefly and keep on ice.
2. Pre-heat the PCR instrument.
3. Prepare the reaction solution according to the table below on ice.

Reagent	Volume
Poly(A) Polymerase (5 U/μL)	1 μl
10× Poly(A) Polymerase Buffer	2 μl
10mM ATP	2 μl
RNase Inhibitor(40 U/μL)*1	0.5 μl(Optional)
RNA*2	0.5~10 μg
DEPC H_2O	To 20 μl

Note: *1. Addition of RNase Inhibitor (PC005) to the reaction system can effectively inhibit RNase activity and enhance RNA stability in solution.

*2. RNA intended for polyadenylation reactions should be appropriately purified prior to use.

4. Gently mix the reaction buffer. Collect all liquid to the bottom of the tube by a quick spin if necessary.
5. Incubate at 37℃ for 30 to 60 minutes.
6. Add EDTA to a final concentration of 10 mM, or heat at 65℃ for 20 minutes.

Note:

1. To prevent RNase contamination, treat all solutions, reagents, utensils, pipette tips, centrifuge tubes, and other equipment involved in the experimental workflow with DEPC-treated water, and use them only after autoclaving.
2. The length of the RNA poly(A) tail is dependent on enzyme quantity and reaction duration. To generate longer-tailed products, appropriately increase the enzyme amount or extend the reaction time.
3. Prior to enzyme usage, briefly centrifuge the solution to ensure the liquid settles at the bottom of the tube.
4. For personal safety and health protection, always wear a lab coat and disposable gloves during experimental procedures.

IV. Limited Use License and Warranty

Limited Use License

The following terms and conditions apply to the use of Poly(A) Polymerase (the Product). If the terms and conditions are not acceptable, the Product in its entirety must be returned to GeneCopoeia within 5 calendar days. A limited End-User license is granted to the purchaser of the Product. The Product shall be used by the purchaser for internal research purposes only. The Product is expressly not designed, intended, or warranted for use in humans or for therapeutic or diagnostic use. The Product must not be resold, repackaged, or modified for resale, or used to manufacture commercial products without prior written consent from GeneCopoeia. This Product should be used in accordance with the NIH guidelines developed for recombinant DNA and genetic research. Use of any part of the Product constitutes acceptance of the above terms.

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GeneCopoeia warrants that the Product meets the specifications described in the accompanying Product Datasheet. If it is proven to the satisfaction of GeneCopoeia that the Product fails to meet these specifications, GeneCopoeia will replace the Product. In the event a replacement cannot be provided, GeneCopoeia will provide the purchaser with a refund. This limited warranty shall not extend to anyone other than the original purchaser of the Product. Notice of nonconforming products must be made to GeneCopoeia within 30 days of receipt of the Product. GeneCopoeia's liability is expressly limited to replacement of Product, or a refund limited to the actual purchase price. GeneCopoeia's liability does not extend to any damages arising from use or improper use of the Product, or losses associated with the use of additional materials or reagents. This limited warranty is the sole and exclusive warranty. GeneCopoeia does not provide any other warranties of any kind, expressed or implied, including the merchantability or fitness of the Product for a particular purpose.

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