

T7 RNA Polymerase

(Molecular Biology Grade)

Ordering info

TBZ0216, T7 RNA Polymerase 50 U/ μ L, 5000 U

Description

T7 RNA polymerase is a highly specific and efficient enzyme derived from bacteriophage T7 produced in *Escherichia coli*. T7 RNA polymerase is responsible for synthesizing RNA from DNA templates that contain a T7 promoter sequence. Its remarkable specificity for this promoter ensures that only the desired target sequence is transcribed, minimizing off-target effects. Unlike many host RNA polymerases, T7 RNA polymerase operates independently of cellular machinery, making it an ideal tool for controlled transcription in a laboratory setting.

Features

- Recombinant enzyme.
- Monomer, 99 kDa.
- Requires Mg^{2+} as cofactor.
- Low error rate.

Applications

- In vitro transcription from T7 promoter.
- Synthesis of single strand RNA.
- RNA Labeling.
- Studies of RNA secondary structure and RNA-protein interactions, RNA splicing.

Kit Components

Components	TBZ0216
T7 RNA Polymerase 50U/ μ L	100 μ L
T7 Transcription Buffer (10x)	1 mL

Order Info Kit Components: T7 RNA Polymerase (TBZ0216-1) | Transcription Buffer 10x (TBZ0216-2).

Storage

Store at -20°C .

Unit Definition

One unit will catalyze the incorporation of 1 nmol of NTP into acid-precipitable material in 60 min at 37°C

Quality Control

Purity by SDS-polyacrylamide electrophoresis: $\geq 95\%$.

DNase, RNase free.

Material required (not included)

- Water, DEPC treated (TBB0306).
- NTP Mix
- RNase Inhibitor (TBZ0320).

PROTOCOL

Transcription reaction should be prepared excluding contamination with RNases.

1. Thaw on ice the components and spin briefly the content.
2. Prepare, at room temperature, a mix of the following components,

Reaction Components	Volume	Final Concentration
T7 Transcription Buffer 10x	10 μ L	1x
NTP Mix (10 mM _{TOTAL})	10 μ L	10 mM _{TOTAL}
Linearized Template DNA	x μ L	0.5 - 1 μ g
Ribonuclease Inhibitor (40 U/ μ L)	1.25 μ L	1 U/ μ L
T7 RNA Polymerase (50 U/ μ L)	2 μ L	2 U/ μ L
Water, nuclease free	up 50 μ L	
Total Volume	50 μL	

3. Incubate at 37°C for 1-2 hours.
4. To stop the reaction, add 2 μ L EDTA 0.5M, pH 8.