

mRNex® T7 RNA Polymerase (low dsRNA, 250 U/μL)

Cat. no. LD203009

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Product Information

Product	mRNex® T7 RNA Polymerase (low dsRNA, 250 U/μL)
Catalog No.	LD203009
Storage conditions	Stored at -25~ -15°C, valid for 1 year.
Size	10 KU/100 KU/250 KU

2. Product Description

This product is a recombinant T7 RNA polymerase derived from Escherichia coli expression, which has been modified and optimized from the wild-type T7 to generate a mutant version that significantly reduces the dsRNA content. Using double-stranded DNA containing the T7 promoter sequence as a template and NTPs as substrates, it synthesizes RNA complementary to the downstream antisense single-stranded DNA of the promoter. Both double-stranded linear blunt-end or 5' overhang-end DNA can serve as substrate templates for the T7 RNA polymerase. Therefore, linear plasmids and PCR products can both be used as templates for in vitro RNA synthesis

3. Product Component

Cat NO.	Component	Size		
		10 KU	100 KU	250 KU
LD203009-A	T7 RNA Polymerase (250 U/μL)	40μL	400μL	1mL
LD203009-B	10×Transcription Buffer	500μL	1mL×5	10mL

4. Instructions for Use

4.1. Take the experimental materials from -20°C, place them on ice to thaw, mix thoroughly, briefly centrifuge to collect the liquid at the bottom of the tube, and keep on ice for later use.

4.2. Prepare the reaction system:

4.2.1. Standard transcription system.

Component	Volume (μL)	Final concentration
10×Transcription Buffer	2	1×
CTP/GTP/ATP/UTP (100 mM each)	2 each	10 mM each
T7 RNA Polymerase (250 U/μL)	1-1.6	-
Murine RNase inhibitor (40 U/μL)	0.5	-

Pyrophosphatase, Inorganic (0.1 U/μL)	0.4	
Template DNA	X (1μg)	
RNase free H ₂ O	Up to 20	

4.2.2. Co-transcriptional capping system

If you choose the co-transcriptional capping method, prepare the co-transcriptional capping system according to the table below:

Component	Volume(μL)	Final concentration
10×Transcription Buffer	2	1×
CTP/GTP/ATP/UTP(100 mM each)	2 each	10 mM each
Cap1Cap (100 mM)	2	10 mM
T7 RNA Polymerase (250 U/μL)	1-1.6	-
Murine RNase inhibitor (40 U/μL)	0.5	-
Pyrophosphatase, Inorganic (0.1U/μL)	0.4	
Template DNA	X (1μg)	-
RNase free H ₂ O	Up to 20	

Note:

- If the transcription length is <100 nt, the template amount can be increased to 2 μg, and the transcription time can be extended to 4-8 hours.
- To improve RNA quality, it is recommended to use a plasmid-linearized template for transcription.
- The above reaction system is a recommended setup; the amounts of NTPs, cap addition, T7 RNA polymerase, etc., can be adjusted as needed based on actual conditions.
- For a 20 μL transcription system, the recommended setup can yield 180-240 μg of RNA. To obtain more RNA, the reaction system can be scaled up proportionally without affecting the reaction.
- Use RNase-free reagents, containers, and other materials.

4.3. React at 37°C for 2-3 hours.

4.4. After the reaction, add 1 μL of DNase I (LD204001) and incubate at 37°C for 15-30 minutes to remove the DNA template.

4.5. The synthesized RNA needs to be purified and quality controlled. The samples that pass quality control can be used for subsequent experiments.

5. Notes

5.1. For your safety and health, please wear a lab coat and disposable gloves during operation.

5.2. This product is for research use only!