AccuPower® RocketScript™ RT PreMix

[Cat. No.] Please refer to the **Ordering Information**

Introduction

AccuPower® RocketScript™ RT PreMix can effectively synthesize cDNA with complex secondary RNA structures by using *RocketScript*™ Reverse Transcriptase developed by BIONEER. *RocketScript*™ Reverse Transcriptase originated and engineered from *M-MLV* reverse transcriptase can provide increased thermal stability resulting in effective full length first strand cDNA synthesis. It can be used at various temperatures (42-70°C) allowing increased specificity, higher yields of cDNA, and more full-length product than other reverse transcriptase. This product contains vacuum-dried components essential for cDNA synthesis including *RocketScript*™ Reverse Transcriptase, reaction buffer, DTT, dNTPs, and RNase inhibitor. It simplifies preparation of reverse transcription reaction mixture by adding template RNA and primers without any extra process.

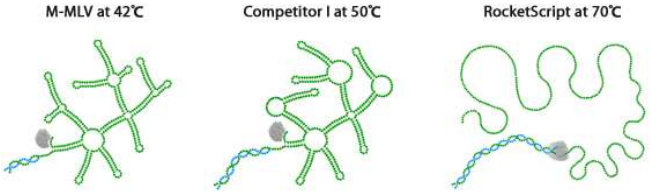


Figure 1. Schematic diagram of 5' UTR of a gene, with complex secondary structure, at three different temperatures.
R*ocketScript*™ Reverse Transcriptase is fully active at 70°C, so it can synthesize complete gene sequences that *M-MLV* and other reverse transcriptase can not synthesize.

Applications

- First-strand synthesis of cDNA from RNA molecules (RT)
- Random priming reaction
- cDNA library construction
- Probe labeling
- mRNA 5'–end mapping by primer extension analysis
- PCR
- Real-time PCR

Features & Benefits

- Thermostable activity: *RocketScript*™ Reverse Transcriptase has excellent thermal resistance even at 70°C, so it is suitable for cDNA synthesis of secondary RNA structures. The cDNA synthesis temperatures can be set at various temperatures (42-70°C) according to user's experimental conditions, allowing effective cDNA synthesis.
- Stability: Included stabilizer and RNase inhibitor provides high resistance to degradation.
- Reproducibility: Mass production under ISO 9001 quality system allows minimized deviation between lots and reproducible results in replicated tests performed under same conditions and variation.
- Ease-of-use: Reactants are individually packaged in each of the PCR tubes, it allows any user simply perform cDNA synthesis by adding template RNA and primers.

Composition

Composition	Concentration
RocketScript™ Reverse Transcriptase	200 U
5X Reaction buffer	1X
DTT	0.25 mM
dNTPs (dATP, dCTP, dGTP, dTTP)	Each 250 μM
RNase inhibitor	1 U

Specifications

RocketScript™ Reverse Transcriptase	
DNase activity	No
RNase activity	No
Fragment size	Up to 10 kb

Storage

Store at -20°C. If stored in the recommended temperature, this product will be stable until the expiration date printed out on the label.

Online Resources

Korean **English**

Visit our **product page** for additional information and protocols

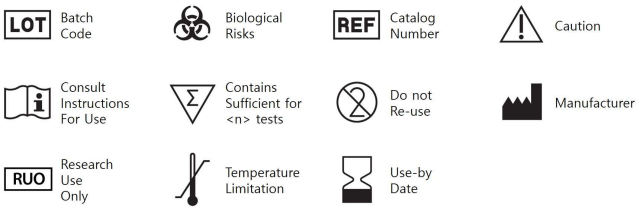
Ordering Information

Description			Cat. No.
0.2 ml thin-wall 8-tube strips with attached cap	96 tubes	20 μl/rxn	K-2101
		50 μl/rxn	K-2103
	480 tubes	20 μl/rxn	K-2102
		50 μl/rxn	K-2104

Notice

BIONEER corporation reserves the right to make corrections, modifications, improvements and other changes to its products, services, specifications or product descriptions at any time without notice.

Explanation of Symbols



Experimental Procedures

1 Preparation of reaction mixture

1. Add template RNA, primers and nuclease-free water into *AccuPower® RocketScript™* RT PreMix tubes to make a total volume of 20 µl or 50 µl. Do not include the dried pellet.

- Amount of template RNA and primers

Components		20 µl reaction	50 µl reaction
Template RNA	Total RNA	0.01-5 µg	0.01-5 µg
	Poly(A) RNA	0.01-5 µg	0.01-5 µg
Primers	Oligo dT	100 pmol	100 pmol
	Random primer	100 pmol	100 pmol
	Gene specific primer	10-50 pmol	10-50 pmol

2. Dissolve the vacuum-dried pellet by vortexing or pipetting, and briefly spin down.

2 cDNA synthesis

3. Perform the reaction under the following conditions.

3-1. Example 1

Step	Temperature				Time
	dN_6	dN_{12}	dT_{20}	Gene specific	
Primer annealing	15°C	30°C	37°C	Tm of primers	10 min
cDNA synthesis			42°C		30 min
Heat inactivation			95°C		5 min

3-2. Example 2

Step	Temperature	Time
cDNA synthesis	42-70°C	1 hr
Heat inactivation	95°C	5 min

* **Note:** For difficult or high GC-content templates, perform cDNA synthesis at 55°C.

4. After the reaction, maintain the reaction mixture at 4°C. The samples can be stored at -20°C until use.

Option

- If PCR is needed, transfer 2-5 µl of reaction mixture (synthesized cDNA) into *AccuPower®* PCR PreMix tubes (Cat. No. K-2012, not provided), and perform the reaction under the following conditions.

Step	Temperature	Time	Cycles
Pre-denaturation	95°C	5 min	1 cycle
Denaturation	95°C	20 sec	
Annealing	45-65°C	20 sec	25-35 cycles
Extension	72°C	0.5-1 min/kb	
Final extension	72°C	3-5 min	1 cycle

* **Note:** For maximum yield and specificity, temperatures and cycling times should be optimized for each new template DNA or primers.