SMOBIO®
Small Bio, Smart Tool

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Product Information EzRNA™ series

RNA Capping System

RC1000 50 RXN

Vaccinia Capping Enzyme	50 µl
2'-O-Methyltransferase	50 µl
10X Capping Buffer	100 µl
S-adenosylmethionine (SAM) (32 mM)	50 µl
RNase Inhibitor (20 U/µl)	50 µl
GTP (10 mM)	50 µl
Nuclease-Free Water	1 ml

Storage

-20°C for 24 months

Description

The EzRNA™ RNA Capping System is a user-friendly product for post-transcriptional RNA modification. Both Vaccinia Capping Enzyme and 2’-O-Methyltransferase are included in the package, which are able to perform in a single reaction. The Vaccinia Capping Enzyme attach 7-methylguanylate cap (m7Gppp, Cap-0) to the 5' end of RNA to form m7Gppp5'N-RNA (Cap-0 RNA). The 2'-O-methyltransferase utilizes Cap-0 RNA as a substrate, employing S-adenosine methionine (SAM) as a methyl donor to methylate 2' -OH of the first nucleotide at the 5' end of Cap-0 RNA, resulting in the formation of Cap-1 RNA.

Features

- 2’-O-Methyltransferase included for Cap-1 RNA
- High capping efficiency
- High stability
- RNase inhibitor included to enhance the stability of capping reaction.

Application

- Generation of 5’ Cap-0 (m7Gppp) and Cap-1 (m7GpppNm-) RNA by enzymatic reaction
- mRNA synthesis for *in vitro* translation
- Gene expression studies
- mRNA vaccine development and therapeutics

Recommended protocol for preparing Cap-0 and Cap-1 RNA

■ Part 1 Heat-denature the RNA prior to capping reaction

Purified RNA (uncapped)	10 µg
Nuclease-Free Water	to 13 µl
Total volume	13 µl

Subject the sample to heat denaturation at 65°C for 5 minutes, then promptly proceed to incubate it on ice for another 5 minutes.

■ Part 2 Assemble the reaction for preparing cap-1 RNA

Add the following components in the order specified.

Denatured RNA (from part 1)	13 µl
10X Capping Buffer	2 µl
GTP (10 mM)	1 µl
SAM (4 mM, diluted from 32 mM stock)[*1]	1 µl
Vaccinia Capping Enzyme	1 µl
2'-O-Methyltransferase	1 µl
RNase Inhibitor	1 µl
Total volume	20 µl

Incubate at 37℃ for 1 hour [*2,3].

*1Dilute adequate amount of 32 mM stock solution by Nuclease-Free Water prior to the reaction, and keep on ice until use.

*2For RNA less than 200 nt long increase incubation time to 2 hours.

*3If necessary, proceed with RNA purification for subsequent applications.

Other Information

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Caution: Not intended for human or animal diagnostic or therapeutic uses.

Related Products

CK1000	Champion E. coli Transformation Kit
IT1000	EzRNA™ T7 High Yield RNA Synthesis Kit, 50 RXN
IT1100	EzRNA™ T7 High Yield RNA Synthesis Kit (Ψ-UTP), 50 RXN
IT1200	EzRNA™ T7 High Yield RNA Synthesis Kit (me^1Ψ-UTP), 50 RXN
TF1000	SMO-HiFi DNA Polymerase, 100 U
TF3000	G-HiFi DNA Polymerase, 100 U
TP1000	ExcelTaq Taq DNA Polymerase, 500 U × 1
TP1200	ExcelTaq 5X PCR Master Dye Mix, 200 RXN
TP5000	ExcelTaq Hot Start II DNA Polymerase, 500 U
TQ1110	ExcelTaq 2X Q-PCR Master Mix (SYBR, ROX), 200 RXN
TQ2110	ExcelTaq 2X Q-PCR Master Mix (TaqMan, ROX), 200 RXN
DM2100	ExcelBand 100 bp DNA Ladder, 500 µl
NS1000	FluoroVue Nucleic Acid Gel Stain (10,000X), 500 µl

The latest version of the manual can be downloaded from www.smobio.com/shop.

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