LAMDA BIOTECH

PRODUCT INFORMATION

Catalog No.: G236

Product Name: **EasyScript Plus™ cDNA Synthesis Kit**

Size: **100 Reactions**

Description: **EasyScript Plus™ cDNA Synthesis Kit** is a complete system for efficient synthesis of first strand cDNA from RNA templates with secondary structure and high GC contents. The kit utilizes a special Reverse Transcriptase, the EasyScript Plus™, which is based on the Moloney-Murine Leukemia Virus Reverse Transcriptase with genetic modifications to abolish RNase H activity to achieve thermal stability. The EasyScript Plus™ Reverse Transcriptase is engineered to work under high temperatures (50°C-55°C), which can further facilitate to resolve the secondary structures and high GC problems of RNA. Due to this feature, full-length cDNA can be synthesized from RNA templates that are up to 12 kb. RNaseOFF Ribonuclease Inhibitor is used in fabricating the kit, offering further improvement for the overall performance of cDNA synthesis for various RNA samples.

Application:
-cDNA synthesis for PCR
-Construction of cDNA libraries
-Generation of probes for hybridization

Kit Contents:

Product Component	Quantity
EasyScript® Plus RTase	100 rxn (100 µl)
Oligo(dT) (10 µM)	100 µl
Random Primers (10 µM)	100 µl
dNTP (10 mM)	100 µl
5X RT Buffer	400 µl
Nuclease-Free H2O	2 x 1.0 ml

Enzyme Storage Buffer : 50mM Tris-HCl (pH 8.3), 100 mM NaCl, 0.1 mM EDTA, 5 mM DTT, 0.1% (v/v) Triton X-100, and 50% (v/v) glycerol.

5x RT Reaction Buffer: 250mM Tris HCl (pH 8.3), 375mM KCl, 15mM MgCl2, and trace amount of cDNA synthesis enhancer .

Storage Conditions: Store all components at -20°C.

Related Products	Catalog No.
• 2X qPCR Universal Green MasterMix	qMX-Green
• 2X qPCR Universal TaqProbe MasterMix	qMX-TaqM
• 100bp DNA Ladder	M107
• 1Kb DNA Ladder II	M108
• DNA SafeStain	C138
• Standard-Agarose	A113

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General Protocol

RT-PCR reactions should be assembled in a RNA-free environment. The use of clean pipettes designated for PCR and aerosol resistant barrier tips are recommended.

1. Thaw template RNA and all reagents on ice. Mix each solution by vortexing, and centrifuge briefly to collect residual liquid from the sides of the tubes.

2. Prepare the following reaction mixture in a tube on ice:

Product Component	Quantity
5X RT Buffer	4.0 µl
dNTP (10 mM)	1.0 µl
Primers (10 µM)	1.0 µl
Total RNA or poly(A)$^+$ mRNA	Variable (1.0 ng -2.0 µg/rxn)
EasyScript® Plus RTase	1.0 µl
Nuclease-Free H2O	Up to 20 µl

3. Mix thoroughly and carefully by vortexing for 3 -5 seconds. Centrifuge briefly to collect the contents of the tube, and incubate at 25°C for 5 minutes if random primer is used. Omit this step if Oligo(dT) primer or sequence-specific primer are used.

4. Incubate at 50°C-55°C for 20 minutes.

5. Stop the reaction by heating at 85°C for 5 minutes. Chill on ice. The synthesized first-strand cDNA can be used directly for downstream applications or store at 20^{o}C for future use.

Notes:

1. Isolation of poly(A)$^+$RNA from total RNA is not mandatory. However, doing so may improve the yield and purity of the final product.

2. In most cases, cDNA synthesized with this enzyme can be directly used as a template for most polymerase chain reactions (PCR), without further purification. Generally, dilute the final reaction mix for 10 times with water. Use 1 – 2 µl of the diluted reaction mix for each PCR reaction.

3. RNA sample must be free of contaminating genomic DNA.

4. Unlike the oligo(dT) priming, which usually requires no optimization, the ratio of a random primer to RNA is critical in terms of the average length of cDNA synthesized in the reaction. Increasing the ratio of random primer/RNA will result in higher yield of shorter (~500bp) cDNA, whereas decreasing this ratio will produce longer products.

5. For longer transcripts >9 kb, yields can be increased by incubating at 50-55°C up to 60 minutes.

Note: This Product Is For Research Use Only.

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