Rev. 0

ScienCell™ Research Laboratories

TranscriEase T7 RNA Synthesis Kit (TETRS)

Catalog #MB7119-20
or
Catalog #MB7119-50

Product Description

The TranscriEase T7 RNA Synthesis Kit is designed for *in vitro* RNA synthesis from DNA template using T7 RNA Polymerase. Bacteriophage T7 RNA Polymerase is a DNA-dependent RNA polymerase with high specificity for T7 promoter. The kit is intended for general purpose RNA synthesis used in many applications including *in vitro* translation, antisense RNA, RNA probes, and RNA structure and binding studies. T7 RNA Polymerase accepts regular and modified nucleotides for RNA synthesis.

The TranscriEase T7 RNA Synthesis Kit contains reagents for twenty or fifty *in vitro* transcription reactions. The RNA yield per reaction could reach up to 50 µg from 1 µg template DNA. The total RNA yield could vary based on the size of the DNA template with lower masses for smaller templates. A control DNA template encoding for a ~1.6 kb transcript is provided in the kit.

Kit Components

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Cat #	Component	Quantity	Storage
MB7119-20	T7 RNA Polymerase Enzyme Mix	25 µL	-20ºC
	5X T7 Transcription Reaction Buffer	100 µL	-20ºC
	NTP Mix (25 mM ATP, CTP, GTP, UTP)	50 µL	-20ºC
	Nuclease-free Water	1 mL	-20ºC
	Linear DNA Control Template (0.2 mg/mL)	10 µL	-20ºC

Catalog #MB7119-50

Cat #	Component	Quantity	Storage
MB7119-50	T7 RNA Polymerase Enzyme Mix	60 µL	-20ºC
	5X Transcription Reaction Buffer	250 µL	-20ºC
	NTP Mix (25 mM ATP, CTP, GTP, UTP)	110 µL	-20ºC
	Nuclease-free Water	1 mL	-20ºC
	Linear DNA Control Template (0.2 mg/mL)	10 µL	-20ºC

Materials not Provided with the Kit

DNA template: DNA templates must be linear and have the T7 promoter sequence (5′-TAATACGACTCACTATAG-3′) upstream of the target DNA sequence to be transcribed. DNA templates can be linearized plasmids cut with restriction enzyme or purified PCR products.

DNase: Double strand DNase is required to remove the DNA template after RNA synthesis is complete.
RNA purification: If RNA purification is needed after RNA synthesis, use the method of phenol/chloroform and isopropanol or spin columns (we recommend RNA Isolation Kit from ScienCell, Catalog #MB891).

Quality Control
DNase activity was NOT detected by incubating the T7 RNA Polymerase Enzyme Mix with double-stranded DNA at 37 °C for 24 hours.

Product Use
The TranscriEase T7 RNA Synthesis Kit is for research use only. It is not approved for human or animal use, or for application in clinical or *in vitro* diagnostic procedures.

Shipping and Storage
The product is shipped on dry ice. Upon receipt, store at -20°C in a manual defrost freezer. Avoid repeated freeze-and-thaw cycles.

RNA Synthesis Procedure
Prepare the following reaction mixture shown in Table 1. For DNA template, use linearized plasmids or purified PCR fragments containing T7 promoter sequence. Mix the reaction well and incubate for 2 hours at 37°C with the lid of the thermocycler set to 70 °C. Add DNase 1 µL and incubate at 37°C for 15 min to remove template DNA.
Note: Thaw the reagents at room temperature with the exception for NTP mix to be thawed on ice. Set up the reaction at room temperature and add NTP mix from ice. Store RNA products at -80°C.

Table 1.

5X Transcription Reaction Buffer	4 µL
NTP Mix, 25 mM each	2 µL
DNA template	0.5-1µg
T7 RNA Polymerase Enzyme Mix	1 µL
Nuclease-free water	to 20 µL

RNA Product Evaluation
After RNA synthesis reaction is complete, RNA products can be visualized and evaluated on appropriate denaturing agarose or polyacrylamide gel.

For purified RNA, use a Nanodrop spectrophotometer to determine RNA concentrations; it may be necessary to dilute the RNA products prior to measurement. For single-stranded RNA, 1 A260 unit equals to 40 µg/mL RNA.