



## FIREScript RT cDNA Synthesis MIX

Cat. No.	20 µl Reactions
06-16-00020	20 rxn SAMPLE

For *in vitro* use only.

### Description:

**FIREScript Reverse Transcriptase (RT)** is a genetically engineered MMLV (*Moloney Murine Leukemia Virus*) based Reverse Transcriptase. This is an RNA-directed DNA polymerase that can synthesize a complementary DNA strand from ssRNA or ssDNA and is active over a broad range of reaction temperatures from 37°C-50°C. FIREScript RT is a robust enzyme for RNA detection and has enhanced stability at room temperature with no activity loss for up to 1 month. This RT contains a functional RNase H domain which can increase the sensitivity of RT-qPCR (quantitative reverse transcription PCR).

### Source:

Purified from an *E.coli* strain that carries an overproducing plasmid containing a *FIREScript Reverse Transcriptase* gene.

### Applications:

- First strand cDNA synthesis
- RT-PCR
- RT-qPCR

### Reagents Provided:

- **FIREScript Reverse Transcriptase** (200 U/µl)
- **10x RT Reaction Premix without primers**  
RT reaction buffer with DTT and dNTPs
- **10x RT Reaction Premix with oligo (dT) primer**  
RT reaction buffer with DTT, dNTPs and oligo (dT) primer
- **10x RT Reaction Premix with random primers**  
RT reaction buffer with DTT, dNTPs and random primers
- **10x RT Reaction Premix with oligo (dT) and random primers**  
RT reaction buffer with DTT, dNTPs, oligo (dT) primer and random primers
- **Water, nuclease free**

### Unit definition:

One unit is defined as the amount of enzyme that will incorporate 1 nmol of dTTP into acid-precipitable material in 10 minutes at 37°C using poly(rA)•oligo(dT) as template in a total reaction volume of 50 µl.

### FIREScript Storage and Dilution buffer:

50% glycerol (v/v), 20 mM Tris-HCl pH 7.5 at 25°C, 100 mM KCl, 0.1 mM EDTA and stabilizers.

### Quality control:

Free of endo- and exodeoxyribonucleases, phosphatases and ribonucleases. Activity and stability tested in first strand cDNA synthesis.

### Shipping and Storage conditions:

Routine storage: -20°C

Shipping and temporary storage for up to 1 month at room temperature has no detrimental effects on the quality of the reagents.

### Recommended protocol:

Thaw and mix the following reaction components in a nuclease-free microcentrifuge tube.

Component	Volume	Final conc.
Template RNA	0,1 ng - 1 µg	variable
10x RT Reaction Premix <i>according to primer choice</i>	2 µl	1x
Gene specific primer*	variable	0,1-1 µM
FIREScript RT	1 µl	10 U/µl
RiboGrip RNase Inhibitor (40 U/µl)	0,5 µl	1 U/µl
Nuclease-free H <sub>2</sub> O	Up to 20 µl	
<b>Total</b>	<b>20 µl</b>	

\*Add gene specific primer ONLY if using 10x RT Reaction Premix without primers.

Use the following programme for cDNA synthesis:

Step	Temperature	Time
Primer annealing ( <i>ONLY if using random primers</i> )	25°C	5-10 min
Reverse transcription	50°C*	15-30 min
Enzyme inactivation	85°C	5 min

\*Reverse transcription can be performed at 37°C-50°C.

### Safety warnings and precautions:

This product and its components should be handled only by persons trained in laboratory techniques. It is advisable to wear suitable protective clothing, such as laboratory overalls, gloves and safety glasses. Care should be taken to avoid contact with skin or eyes. In case of contact with skin or eyes, wash immediately with water.

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