# M-MLV Reverse Transcriptase M2

**Cat.No.: HYA212**

## Product Description

M-MLV Reverse Transcriptase M2 is a reverse transcriptase obtained by mutation screening of the M-MLV gene from Moloney murine leukemia virus and expression in E. coli. The enzyme has RNase H activity removed and has higher temperature tolerance. It is suitable for high-temperature reverse transcription, which is conducive to eliminating the adverse effects of RNA high-level structure and non-specific factors on cDNA synthesis. It has higher stability and reverse transcription synthesis ability.

## Components

1. 200 U/μL M-MLV Reverse Transcriptase M2
2. 5×M-MLV Reverse Transcriptase Buffer (optional)

*5×M-MLV Reverse Transcriptase Buffer does not contain dNTPs. Please add dNTPs when preparing the reaction system.

## Storage

Store at -25°C~ -15°C.

## Unit Definition

1 activity unit (U) is defined as the amount of enzyme required to convert 1 nmol of dTTP into acid-insoluble substances at 37°C for 10 min using Poly (rA)·Oligo (dT) as template/primer.

## Quality Control

1. Purity >98% as determined by SDS-PAGE electrophoresis.
2. Amplification sensitivity, batch-to-batch variation, and stability.
3. Free of exogenous nuclease activity; no contamination by exogenous endonucleases or exonucleases.

## Instructions

1. Refer to the table below to prepare the system

| Components | Volume |
|---|---|
| Template RNA | total RNA ≤ 5 μg；mRNA ≤ 1 μg |
| Oligo(dT)$_{12-18}$ Primer* | 50 pmol |
| *Or* Random Primer * | 50 pmol（20~100 pmol） |
| *Or* Gene specific Primer * | 2 pmol |
| dNTPs（10 mM each） | 1 μL |
| Nuclease-free Water | Up to 10 μL |

*Choose different types of primers according to experimental needs.

2. Heat at 65℃ for 5 min, and quickly cool on ice for 2 min;
3. Add the following components to the above system to a total volume of 20 μL, and mix gently.

| Components | Volume |
|---|---|
| 5×M-MLV Reverse Transcriptase Buffer | 4 uL |
| 200 U/μL M-MLV Reverse Transcriptase M2 | 1 uL |
| 40 U/μL RNase Inhibitor | 1 uL |
| Nuclease-free Water | Up to 20 μL |

4. Perform the reaction under the following conditions.

1) If using Random Primer, incubate at 25℃ for 10 min first; then incubate at 50℃ for 30~60 min;
2) If using Oligo dT or specific primers, incubate at 50℃ for 30~60 min.

5. Inactivate M-MLV Reverse Transcriptase by heating at 95℃ for 5 min and terminate the reaction.
6. The reverse transcription product can be used directly for PCR reaction and fluorescence quantitative PCR reaction, or stored at -20℃ for a long time.

## Technical Description

1. Suitable for reverse transcription temperature optimization in the range of 42℃~55℃.
2. With better stability, it is suitable for high-temperature reverse transcription amplification, which is conducive to effectively passing through the complex structure area of RNA and suitable for one-step multiplex fluorescence quantitative RT-PCR detection.
3. It has good compatibility with various PCR amplification enzymes and is suitable for high-sensitivity RT-PCR reactions.

4. It is suitable for high-sensitivity one-step fluorescence quantitative RT-PCR reactions, effectively improving the detection rate of low-concentration templates.
5. It is suitable for cDNA library construction.
6. 3’ and 5’ RACE.