

Explore maximum reverse transcription performance

Maxima Reverse Transcriptases

Thermo Scientific™ Maxima™ and Maxima™ H Minus Reverse Transcriptases were developed through molecular evolution, which has enabled the introduction and selection of multiple favorable mutations in traditional M-MuLV reverse transcriptase to help maximize performance in cDNA synthesis.

- Superior yields of full-length cDNA
- High reaction temperatures for improved transcription
- High transcription efficiency on long RNA templates
- Formats available with integrated gDNA removal step for simplified workflows

Full-length cDNA over a wide temperature range

Maxima enzymes outperform other enzymes over a wide temperature range. Their tolerance of high reaction temperatures allows efficient transcription of RNA regions with extensive secondary structure and helps improve primer specificity, resulting in high yields of full-length DNA (Figure 1).

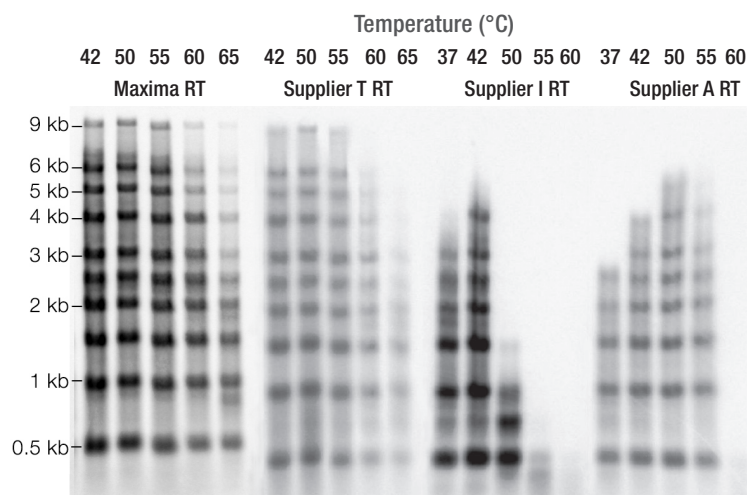


Figure 1. High yields of cDNA over a broad temperature range. cDNA synthesis incorporating a radioactive label, using 1 µg of Invitrogen™ Millennium™ RNA Markers (poly(A)-tailed) with oligo(dT)₁₈ primer, was performed with Maxima H Minus Reverse Transcriptase and reverse transcriptases from other suppliers at different temperatures. Reaction products were resolved on an alkaline agarose gel.

Superior performance in long RT-PCR

Designed with proprietary mutations for enhanced performance, Maxima H Minus Reverse Transcriptase is capable of full-length cDNA synthesis from very long RNA templates (Figure 2).

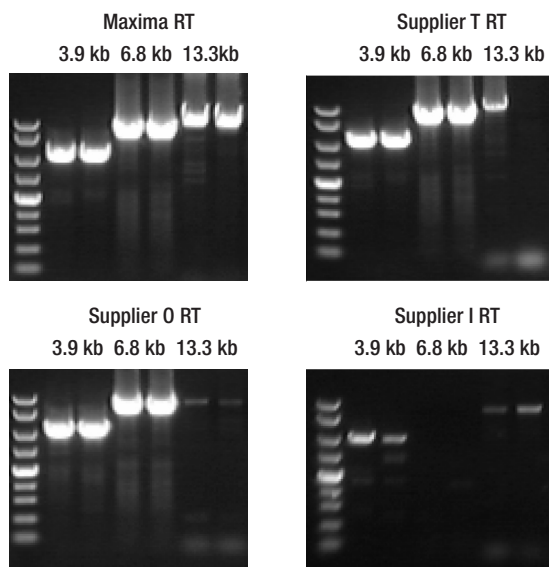


Figure 2. Amplification of long targets in two-step RT-PCR.

Total RNA (1 µg) from mammalian cells was used in duplicate reverse transcription reactions with Maxima H Minus Reverse Transcriptase and reverse transcriptases from other suppliers, according to manufacturers' recommendations. The resulting synthesized cDNA was used as templates for PCR. The products of the two-step RT-PCR were visualized on gels. Only Maxima H Minus Reverse Transcriptase was able to generate very long (13.3 kb) products with high yields.

Ideal for RT-qPCR—sensitive and reproducible quantification

Maxima Reverse Transcriptase is capable of reproducible cDNA synthesis from a wide range of template amounts, making it an ideal choice for RT-qPCR experiments (Figure 3). The premixed solutions of Thermo Scientific™ Maxima™ First Strand cDNA Synthesis Kits further help improve reproducibility and save time during reaction setup.

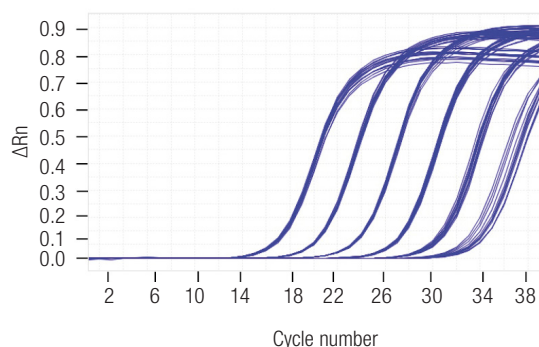


Figure 3. Reproducible cDNA synthesis and low variability (<1% SD/C_v) with a wide range of starting RNA amounts. First-strand cDNA was generated from 100 ng to 1 pg of total RNA from mammalian cells using a Maxima First Strand cDNA Synthesis Kit in 16 replicated reactions. Synthesized cDNA was used as a template in qPCR with Thermo Scientific™ Maxima™ SYBR™ Green/ROX™ qPCR Master Mix.

Ordering information

Product	Size	Cat. No.
Maxima Reverse Transcriptase	2,000 U/10,000 U/ 4 x 10,000 U	EP0741/EP0742/ EP0743
Maxima H Minus Reverse Transcriptase	2,000 U/10,000 U/ 4 x 10,000 U	EP0751/EP0752/ EP0753
Maxima H Minus First Strand cDNA Synthesis Kit	20 rxns/100 rxns	K1651/K1652
Maxima H Minus First Strand cDNA Synthesis Kit, with dsDNase	20 rxns/100 rxns	K1681/K1682
Maxima First Strand cDNA Synthesis Kit for RT-qPCR	50 rxns/200 rxns	K1641/K1642
Maxima First Strand cDNA Synthesis Kit for RT-qPCR, with dsDNase	50 rxns/200 rxns	K1671/K1672
Maxima H Minus Double-Stranded cDNA Synthesis Kit	10 rxns	K2561

Find out more at thermofisher.com/maxima