

# EnzScript™ (M-MLV Reverse Transcriptase RNase H-)

## HIGH THERMOSTABILITY

EnzScript™ (M-MLV Reverse Transcriptase RNase H-) is optimized for a wide range of reaction temperatures, from 37°C to 55°C, to accommodate GC-rich and challenging RNA templates with significant secondary structure elements.

## ENGINEERED TO PERFORM

EnzScript™ outperforms wild-type M-MLV RT by generating high yields of more full-length cDNAs. Performance enhancements are enabled by point mutations which eliminate detectable RNase H activity.

## SENSITIVITY

EnzScript™ can achieve picogram level sensitivity in end point RT-PCR, while supporting a wide detection range (down to 50 molecules).

## QUALITY

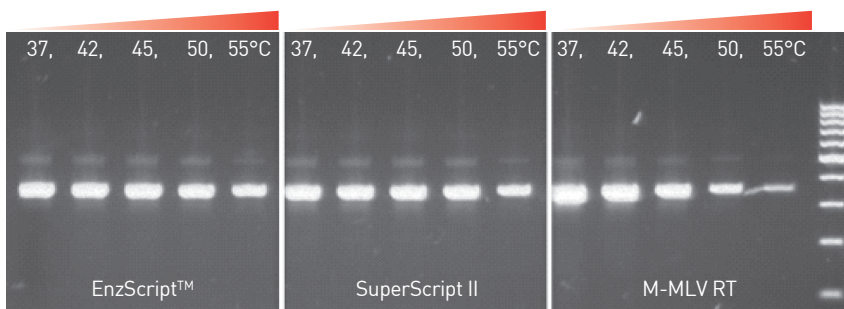
EnzScript™ is manufactured in Enzymatics' world-class production facility, under an ISO 13485:2003 system. Our proprietary production process ensures that the user receives products of exceptional purity with lot-to-lot consistency.

## Robust Reverse Transcriptase

Enzymatics' EnzScript™ was developed to answer the need for robust, specific first-strand cDNA production from a variety of RNA templates to drive PCR and sequencing applications in laboratories where throughput, consistency, and cost per sample are major drivers of success. EnzScript™ M-MLV Reverse Transcriptase, RNase H minus (-) (P7600) offers enhanced thermostability over M-MLV RTs enabling successful DNA synthesis from a wide range of RNA templates. The enzyme has no detectable RNase H activity allowing for the production of more full-length cDNAs.

## Increased Thermostability

EnzScript™ generates high cDNA yields over a wide range of temperatures allowing for flexibility in reaction set up for specific RNA transcripts.

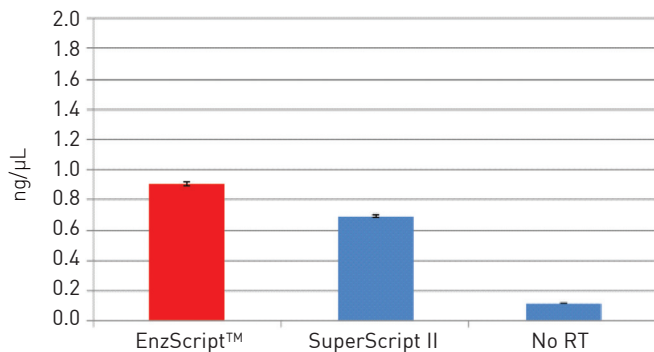


**Figure 1.** RT-PCR using various RTs (EnzScript™, SuperScript® II, or ENZ M-MuLV RT) over a range of reaction temperatures from 37°C up to 55°C. First-strand reactions were set up at the indicated temperatures with total human RNA (100 ng). ENZ Phoenix Hot Start Taq (P7590L) was then used to amplify a 350 bp target (POLR2A). PCR products shown were visualized on 2% agarose gel.

## PRODUCT NOTE

### Ready for RNA-Seq Workflows

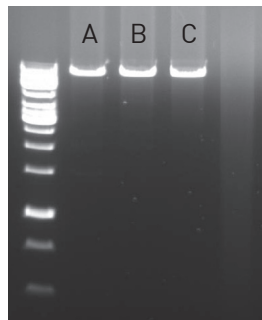
EnzScript™ produces cDNA yields better than, or equivalent to, leading competitor enzymes commonly used for RNA-Seq applications.



**Figure 2.** First strand yield following reaction clean-up with QIAquick PCR spin columns (Qiagen). First-strand reactions were set up with fragmented yeast RNA primed with ran- dom hexamers.

### For Full Length Transcripts

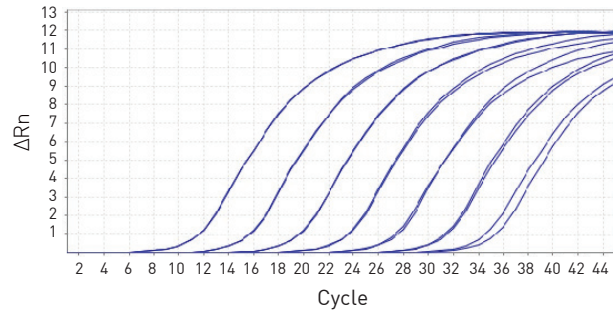
EnzScript™ generates high yields of full-length cDNAs (up to 12 kb).



**Figure 3.** First-strand cDNA synthesis reactions (1 μg total human RNA primed with oligo dT) using EnzScript™ (A and B) reveal high lot-to-lot consistency and comparable yield to Superscript® II (C), Lane D is no RT control. High fidelity polymerase was used to amplify 9.4 kb target (Fibrillin 1). PCR products visualized on 1% agarose gel.

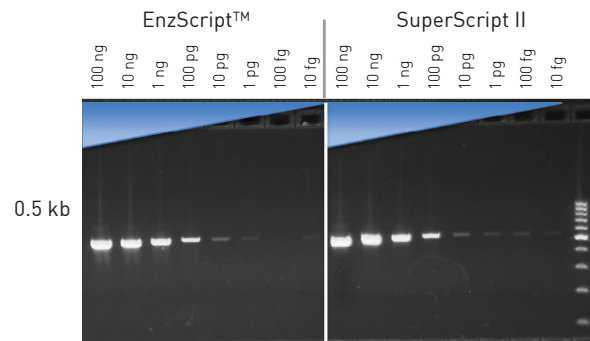
### RT-qPCR Performance

EnzScript™ displays a wide detection range for RT-qPCR ranging from  $5 \times 10^8$  down to  $50 \times 10$  copies.



**Figure 4.** First-strand cDNA synthesis reaction set up with total human RNA (1 ng), decreasing copies of Kan mRNA ( $5 \times 10^8$  to  $5 \times 10$  copies) primed with dT20 oligo, and run at 42°C. cDNA product was added as template to qPCR using Fast SYBR® Green Master Mix (Applied Biosystems) and Kan mRNA specific primers.

### Picogram Level Sensitivity in End-Point RT-PCR



**Figure 5.** First-strand reactions were set up with decreasing amounts of human total RNA (100 ng – 10 fg) primed with dT20 oligo. cDNA added as template to PCR with ENZ Phoenix Hot Start Taq to amplify 0.5 kb human target (GAPDH). PCR products visualized on 2% agarose gel. EnzScript™ has sensitivity (down to 100 pg) comparable to Superscript® II.

## CONTACT US:

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### ORDER DETAILS

Product Description	Part Number
EnzScript™ (M-MLV Reverse Transcriptase RNase H-)	P7600L

### RELATED PRODUCTS

Product Description	Part Number
RNAse H	Y9220L
RNAse Inhibitor	Y9240L
Phoenix Hot Start Taq DNA Polymerase	P7590L
VeraSeq™ 2.0 High-Fidelity DNA Polymerase	P7511L
VeraSeq™ Ultra DNA Polymerase	P7520L

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