UltraScript™ Reverse Transcriptase

- Thermostable
- High yield
- Flexible

UltraScript™ Reverse Transcriptase is a robust and thermostable reverse transcriptase engineered to enhance cDNA synthesis speed and yield with accurate transcript representation. The latest developments in reverse transcriptase technology and buffer chemistry allow for efficient and sensitive cDNA synthesis.

Features

- Thermostable reverse transcriptase 45 ˚C to 55 ˚C
- Advanced RNase inhibitor
- High cDNA yields from as little as 4 pg total RNA
- Accurate reverse transcription of GC-rich templates
- Sensitive detection of low copy number transcripts
- Advanced buffer chemistry including Mg and dNTPs

Applications

- Random hexamer, oligo-dT and gene-specific primers
- cDNA synthesis for PCR analysis, cloning, library preparation and Next Generation Sequencing
- Low copy number transcripts
- Viral RNA targets
- miRNA targets
- Efficient synthesis from total RNA or poly(A)+ RNA

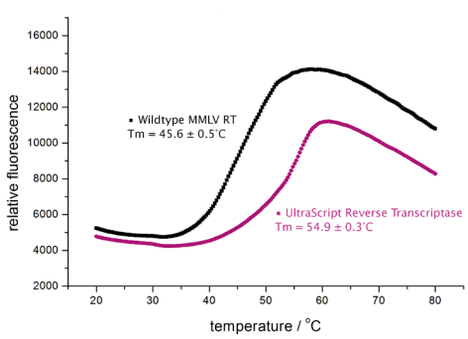

Figure 1. Thermostable enzyme up to 55 ˚C

The thermostability of UltraScript™ Reverse Transcriptase was measured using the Sypro Orange fluorescence assay. The protein is incubated with Sypro Orange dye and the temperature gradually increased. The fluorescence intensity increases as the protein unfolds and the melting point is the temperature where 50% of the protein is unfolded. The DSF curve shows UltraScript™ Reverse Transcriptase (purple) and wildtype MMLV RT (black) at 0.1mg/ml. This experiment shows that UltraScript™ Reverse Transcriptase unfolds at 54.9±0.3 ˚C, which is 9.3 ˚C higher than the wildtype enzyme, indicating it is more thermostable and more likely to remain active during the reaction.

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Thermostable

UltraScript™ Reverse Transcriptase is a thermostable and extremely active modified MMLV reverse transcriptase (RTase). The reaction temperature can be increased up to 55 ˚C providing higher specificity and efficient transcription of GC-rich RNA regions with a high secondary structure. The RTase is blended with an advanced RNase inhibitor preventing degradation of RNA by contaminating RNase. UltraScript™ Reverse Transcriptase is not inhibited by ribosomal and transfer RNAs, making total RNA an ideal substrate.

Flexible

The enzyme is supplied with a 5x buffer containing Mg, dNTPs, stabilizers and enhancers, optimised to generate high yield cDNA from as little as 4 pg RNA. As oligos are not included, UltraScript™ Reverse Transcriptase provides the convenience and flexibility for users to define their own priming strategy depending on the type of analysis needed. UltraScript™ Reverse Transcriptase gives exceptional performance with gene-specific primers, oligo-dT and random hexamers to produce high quality cDNA ideal for a variety of downstream applications.

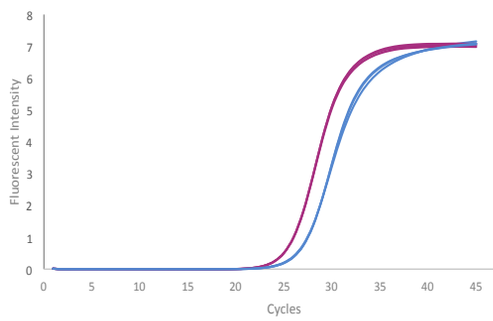

Figure 2. Generation of high cDNA yields

cDNA was created from 100 ng of total RNA from mouse liver using UltraScript™ Reverse Transcriptase (purple) and a competitor mix (blue). 5 µM oligo-$dT_{(18)}$ and 5 µM random hexamers were added as primers. The reaction was incubated for 10 minutes at 42 ˚C. The resulting cDNA was quantified using qPCRBIO SyGreen Mix. PCR Biosystems UltraScript™ Reverse Transcriptase created >10x more cDNA than the competitor in the same amount of time.

Catalogue Number	Product Name	Pack Size	Presentation
PB30.12-01	UltraScript™ Reverse Transcriptase	10,000 units	[2 x 25 µL UltraScript, 200 units/µL] & [1 x 200 µL buffer]
PB30.12-04		40,000 units	[2 x 100 µL UltraScript, 200 units/µL] & [4 x 200 µL buffer]
PB30.11-02	UltraScript™ cDNA Synthesis Kit	25 Reactions	[1 x 25 µL UltraScript] & [1 x 100 µL reaction mix]
PB30.11-10		100 Reactions	[1 x 100 µL UltraScript] & [4 x 100 µL reaction mix]
PB30.15-02	UltraScript™ cDNA Synthesis Kit Separate Oligos	25 Reaction	[1 x 25 µL UltraScript] & [1 x 200 µL buffer] & [1 x 100 µL Anchored Oligo(dT)18] & [1 x 100 µL Random Hexamers]
PB30.15-10		100 Reactions	[1 x 100 µL UltraScript] & [2 x 200 µL buffer] & [1 x 100 µL Anchored Oligo(dT)18] & [1 x 100 µL Random Hexamers]

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