UltraScript 2.0
Reverse Transcriptase

- Highly thermostable
- Superior yields
- Versatile

UltraScript 2.0 Reverse Transcriptase is a robust and highly thermostable modified MMLV reverse transcriptase engineered for superior cDNA synthesis speed, yield and representation from a wide range of RNA sample types, including GC-rich and low abundance templates.

Features

- Highly thermostable reverse transcriptase 55˚C to 65˚C and above
- Advanced RNase inhibitor
- High cDNA yields from as little as 20pg total RNA
- Accurate reverse transcription of GC-rich and highly structured transcripts
- Sensitive detection of low copy number transcripts
- Reduced RNase H activity
- Advanced buffer chemistry including Mg and dNTPs
- Available as a stand-alone enzyme with buffer, a cDNA synthesis kit with premixed oligos optimised for qPCR analysis, and a cDNA synthesis kit with separate oligos

Applications

- cDNA synthesis for qPCR and PCR analysis, cloning, cDNA library preparation and Next Generation Sequencing
- Viral RNA targets
- miRNA targets
- Efficient synthesis from total RNA or poly(A)+ RNA

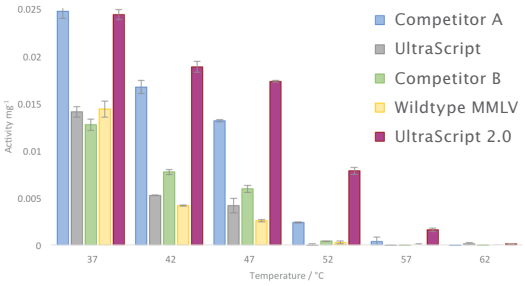

Figure 1.

UltraScript 2.0 Reverse Transcriptase maintains higher specific activity at elevated temperatures when compared to competing products and our original UltraScript Reverse Transcriptase. Specific activity is measured at the given incubation temperatures using an RT-qPCR assay.

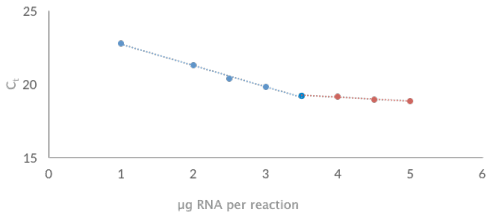

Figure 2.

Mouse liver total RNA was reverse transcribed using UltraScript 2.0 Reverse Transcriptase, followed by amplification of G-Act cDNA with qPCRBIO SyGreen Mix. UltraScript 2.0 Reverse Transcriptase can transcribe up to 3.5µg of RNA while retaining a linear response.

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Enhanced thermostability

The enhanced thermostability of UltraScript 2.0 Reverse Transcriptase (RTase) allows reaction temperatures of over 55˚C to be used, giving improved specificity, higher cDNA yields, and more full length cDNA product. UltraScript 2.0 RTase is capable of efficient reverse transcription of the most challenging templates, including GC-rich and highly structured transcripts.

Broad dynamic range

UltraScript 2.0 RTase is designed for sensitive and efficient cDNA synthesis from a broad range of RNA concentrations. UltraScript 2.0 kits can be used with 20pg to 3.5µg total RNA or oligo(dT) purified mRNA. The RTase is blended with an advanced RNase inhibitor preventing degradation of RNA by contaminating RNase.

Highly versatile

UltraScript 2.0 RTase is available in three convenient formats, each with dNTPs, $MgCl_2$, and RNase inhibitor included. Our stand-alone enzyme with 5x buffer gives users the flexibility to define their own priming strategy and offers exceptional performance with gene-specific primers, oligo(dT) and random hexamers.

For RT-qPCR applications, the 2-tube UltraScript 2.0 cDNA Synthesis Kit contains all the components required for fast, reliable and unbiased cDNA synthesis, including an optimised blend of anchored oligo(dT) and random hexamers. UltraScript 2.0 cDNA Synthesis Kit Separate Oligos provides anchored oligo(dT) and random hexamers in separate tubes, for user optimisation depending on the type of analysis needed.

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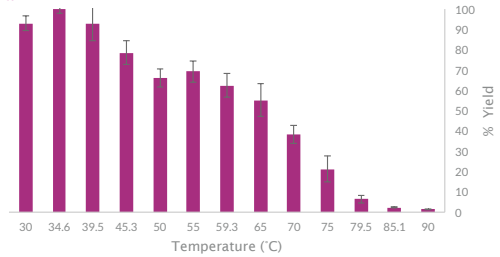
a



b

Temperature (˚C)	ΔCt	Standard Deviation	
90	6.26	±	0.10
85	5.43	±	0.10
80	3.97	±	0.44
75	2.24	±	0.44
70	1.38	±	0.17
65	0.86	±	0.22
59	0.68	±	0.14
55	0.53	±	0.11
50	0.60	±	0.10
45	0.35	±	0.11
40	0.11	±	0.13
35	0.00	±	0.03
30	0.10	±	0.06

Figure 3.

Mouse liver total RNA was reverse transcribed using UltraScript 2.0 Reverse Transcriptase, followed by amplification of G-Act cDNA using qPCRBIO SyGreen Mix. Up to 65˚C, UltraScript 2.0 Reverse Transcriptase shows little change in yield with ΔC_t values within ± 1 C_t range (3b), and remains partially active up to 90˚C (3a and 3b).

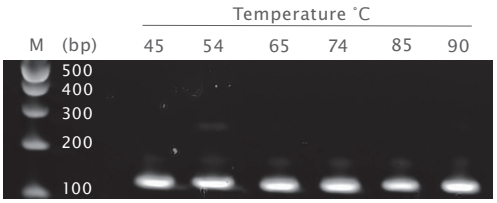


Figure 4.

UltraScript 2.0 Reverse Transcriptase gives similar amounts of product across a wide range of temperatures in endpoint RT-PCR. Mouse reference RNA was reverse transcribed using UltraScript 2.0 Reverse Transcriptase. G-Act cDNA was amplified using qPCRBIO SyGreen Mix and visualised on EtBr 1% agarose gel.

Cat. no.	Product name	Pack size	Presentation
17-702	UltraScript 2.0 cDNA Synthesis Kit	25 reactions	[1 x 25µl UltraScript 2.0] & [1 x 100µl reaction mix]
17-702B		100 reactions	[1 x 100µl UltraScript 2.0] & [4 x 100µl reaction mix]
17-703	UltraScript 2.0 cDNA Synthesis Kit Separate Oligos	25 reactions	[1 x 25µl UltraScript 2.0] & [1 x 200µl buffer] & [1 x 100µl Anchored Oligo$(dT)_{18}$] & [1 x 100µl Random Hexamers]
17-703B		100 reactions	[1 x 100µl UltraScript 2.0] & [2 x 200µl buffer] & [1 x 100µl Anchored Oligo$(dT)_{18}$] & [1 x 100µl Random Hexamers]
17-704	UltraScript 2.0 Reverse Transcriptase	10,000 units	[2 x 25µl UltraScript 2.0, 200 u/µl] & [1 x 200µl buffer]
17-704B		40,000 units	[2 x 100µl UltraScript 2.0, 200 u/µl] & [4 x 200µl buffer]

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