

Reverse Transcription at its best

Tetro Reverse Transcriptase Tetro cDNA Synthesis Kit



- Produces high-quality cDNA, ideal for real-time PCR
- Unique RT enzyme for ultra-high sensitivity
- Broad dynamic range: 10pg to 2µg of RNA
- High yield of full length cDNA

Reverse transcriptase for long genes and rare transcripts

Bioline's **Tetro Reverse Transcriptase** (Tetro RTase) is a highly stable Moloney Murine Leukemia Virus (MMLV) reverse transcriptase, which exhibits unrivalled stability and affinity for RNA, making Tetro RTase highly sensitive, even when the amount of template is a limiting factor. Tetro RTase therefore provides robust, efficient and sensitive transcription, from as little as 10pg and up to 2ug of RNA (fig. 1).

Some RNA transcripts form stable secondary structures at the commonly used lower temperatures, making them poor templates for RT-PCR, Tetro RTase however is active up to 45°C, making it the ideal choice even for these more challenging transcripts.

Tetro RTase has been validated with total RNA, mRNA and *in vitro* transcribed RNA, giving exceptional performance with gene-specific primers, Oligo (dT) as well as random hexamers. Tetro RTase is also perfect for cDNA library construction and for the production of templates used in RT-PCR analysis.

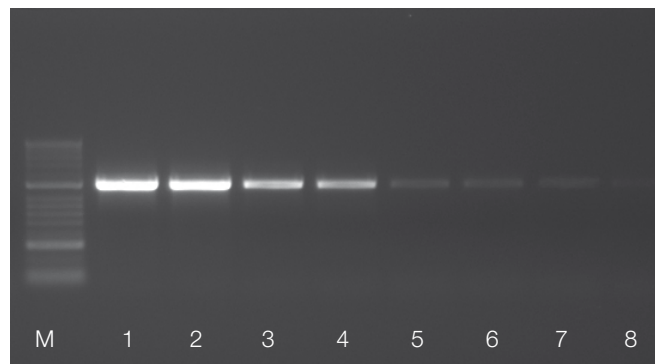


Fig. 1 High sensitivity of Tetro Reverse Transcriptase with mouse total RNA.
A five-fold serial dilution of Total RNA from mouse brain (1µg to 10pg) was reverse transcribed using 50 units of Tetro Reverse Transcriptase, oligo (dT)₁₈ and random hexamers in a 20µl reaction volume. The resultant cDNA was then used as a template in a PCR using primers for amplification of a 1kb fragment from mouse calnexin. PCR was performed using MyTaq HS in a 20µl reaction. Lanes 1-8 correspond to PCR product from the serial dilution above. Hyperladder II (M).



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Tetro Reverse Transcriptase

Tetro cDNA Synthesis Kit



Everything you need to generate high quality cDNA

Bioline's **Tetro cDNA Synthesis Kit** contains all necessary components to generate high quality cDNA from any RNA template over a wide range of total RNA concentrations (10pg-2µg), such that long and low-abundance cDNAs can be detected by amplification after cDNA synthesis. The generated cDNA is suitable for PCR with gene-specific primers or for other downstream applications.

The components of the Tetro cDNA Synthesis Kit have been optimized to work together in a convenient, reliable and cost-effective way. The kit contains Tetro RTase, oligo (dT)₁₈ and random hexamer primers, ultra-pure dNTPs and RiboSafe RNase Inhibitor to reduce template degradation and increase yield of the PCR product.

Wide range of applications

The high quality first-strand cDNA generated makes it perfect for real-time PCR in a two-step real-time PCR reaction (fig. 2) when using fast reaction conditions (fig. 3), as well as qualitative and quantitative analyses of cellular RNAs, characterization of RNA splice variants, cDNA library construction, mRNA 5' end mapping by primer extension, End-labelling of DNA, dideoxynucleotide sequencing and gene cloning.

For more information on the SensiFAST real-time PCR kits, please visit www.bioline.com/sensifast

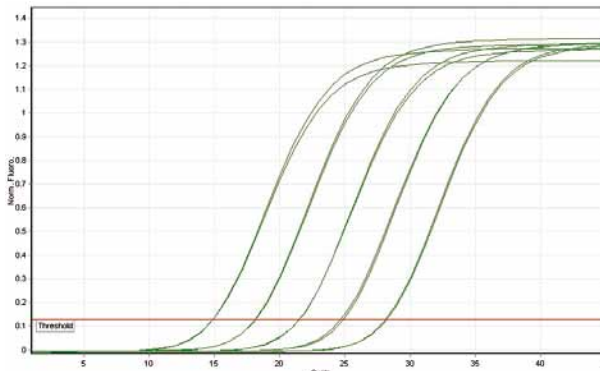


Fig. 2 Two-Step Real-Time PCR using the Tetro cDNA Synthesis Kit

RNA was extracted from mouse kidney tissue samples and cDNA generated using the Tetro cDNA Synthesis Kit (a 3:1 ratio of random hexamers to oligo dT). Mouse PGK gene was then amplified from a 10-fold dilutions series of the cDNA over 5 orders of magnitude using the SensiMix™ SYBR Kit (QT605), to give an r^2 value of 0.999 and a reaction efficiency of 1. The results illustrate that Tetro cDNA Synthesis Kit enables reliable quantification of RNAs even from low amounts of starting material.

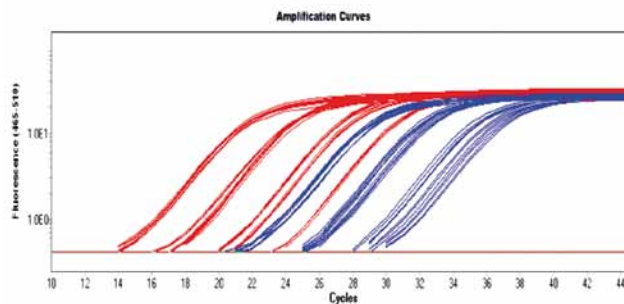


Fig. 3 Comparison of Tetro Reverse Transcriptase (red) and Supplier B (blue) in a two-step reaction using SensiFAST™ SYBR, under fast cycling conditions

Total RNA was isolated from mouse NIH3T3 cells and cDNA generated with either Tetro Reverse Transcriptase or Supplier B, using 1µg RNA and a mixture of oligo (dT)₁₈ and random hexamers, incubated at 42°C for 60 min. B2MG gene was amplified in triplicate using a 10-fold dilutions series of this cDNA over 4 orders of magnitude using the SensiFAST SYBR Kit (BIO-98002), with fast cycling conditions (95°C 2min and 45 cycles 95°C 10s, 60°C 25s). The results illustrate that Tetro Reverse Transcriptase (red) is over ten fold more sensitive than Supplier B (blue) under these conditions.

Product Citations:

1. Morrow, C. A., *et al. Acta Cryst* **66(9)**, 1104-1107 (2010).
2. Comerford, I., *et al. Blood* **116(20)**, 4130-4140 (2010).
3. Paliege, A., *et al. Kidney Int.* **77**, 312-318 (2010).
4. Harwich, M. D., *et al. BMC Genomics* **11**, 375 (2010).
5. Giordani, L., *et al. J. Leukocyte Biol.* **86**, 261-271 (2009).
6. Passante, E., *et al. Immunol. Res.* **58(9)**, 611-618 (2009).

Note: SensiFAST and SensiMix are trademarks of Bioline Reagents Ltd.

Ordering Information

PRODUCT	PACK SIZE	CAT NO.
Tetro Reverse Transcriptase	10,000u	BIO-65050
Tetro Reverse Transcriptase	4 x 10,000u	BIO-65051
Tetro cDNA Synthesis Kit	30 reactions	BIO-65042
Tetro cDNA Synthesis Kit	100 reactions	BIO-65043

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