



# SensiFAST™ cDNA Synthesis Kit

Exceed the Limit

- **Efficient:** high-target affinity, coupled with a novel TransAmp buffer system for improved yield of full-length cDNA
- **Unbiased:** optimized mix of random hexamers and anchored oligo dT primers for complete 5' to 3' RNA sequence representation
- **Sensitive:** lower Ct values from a broad range of input cDNA concentrations, enabling accurate detection of very low-copy targets
- **Robust:** reliable reverse transcription under challenging conditions, including the use of complex templates and in the presence of inhibitors
- **Fast:** high-yield reverse transcription from a broad range of targets in as little as 5 minutes

To complement the SensiFAST™ Probe and SYBR® qPCR Kits, Bioline has developed the SensiFAST cDNA Synthesis Kit which displays excellent linearity across a wide range of starting materials. This gives the same relative representation in cDNA templates, regardless of gene abundance, making it excellent for use in qPCR studies.

SensiFAST cDNA Synthesis Kit contains a highly-pure reverse transcriptase and optimized TransAmp™ buffer system, which includes a unique blend of random hexamers and anchored oligo(dT) primers to deliver the highest quality qPCR ready cDNA.

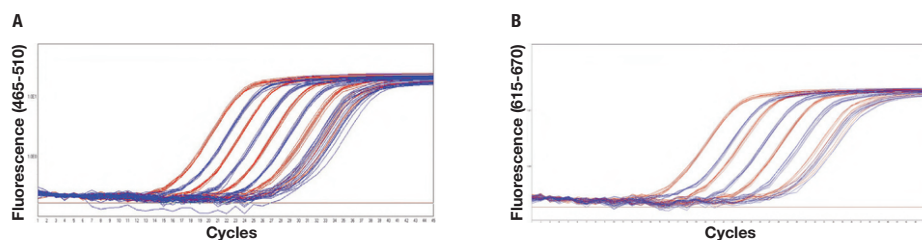
## APPLICATIONS

SensiFAST cDNA synthesis kit is ideal for various qPCR applications including:

- Gene expression analysis
- Tissue biopsy analysis
- miRNA profiling / quantification
- RNA target detection
- Pathogen detection

## HIGH SENSITIVITY

SensiFAST cDNA Synthesis Kit has been developed to provide a rapid and sensitive method for first-strand cDNA synthesis for use in qPCR studies (Fig. 1). SensiFAST cDNA Synthesis Kit is ideal for working with limited sample volumes, such as laser-micro dissected samples and tissue biopsies (down to 1 pg of input RNA), to reverse transcribe precious RNA into stable cDNA ready for accurate real-time quantification.



**Fig. 1 Speed and sensitivity**

SensiFAST cDNA Synthesis Kit, a kit from supplier Q (A) and supplier B (B) were used in first-strand cDNA synthesis reactions of total RNA, following the recommended reaction conditions. A 10-fold serial dilution of the cDNA was then used in qPCR reactions, using SensiFAST SYBR. The results illustrate that SensiFAST cDNA Synthesis Kit (red) is both faster and more sensitive than both supplier Q and supplier B (blue), as judged by the earlier Ct values and improved uniformity between standard curves of decreasing amounts of input RNA.

## REPRODUCIBILITY

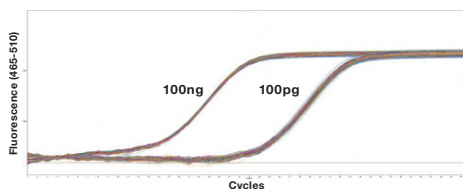
A novel, highly-pure reverse transcriptase and TransAmp buffer system delivers both highly efficient first strand synthesis and higher cDNA yields. This leads to enhanced reproducibility (Fig. 2) and data accuracy. SensiFAST cDNA Synthesis Kit also displays excellent linearity across a wide range of starting material, giving the same relative target representation regardless of input cDNA concentration.

## UNBIASED COVERAGE

To ensure unbiased 3' and 5' coverage and reverse transcription of all regions in RNA transcripts (Fig. 3), the TransAmp Buffer employs a unique blend of random hexamers and anchored oligo dT primers.

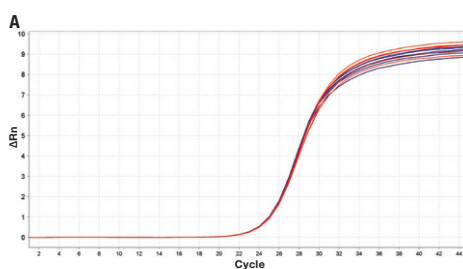
## SPEED

SensiFAST cDNA Synthesis Kit can be used with SensiFAST Probe and SensiFAST SYBR® qPCR Kits for fast real-time RT-qPCR without compromising on quality (Fig. 4), giving real-time results in less than an hour.



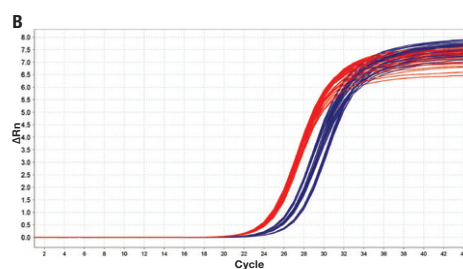
**Fig. 2 High reproducibility**

SensiFAST cDNA Synthesis Kit was used in 48 replicate first-strand cDNA synthesis reactions containing 100 ng or 100 pg of mouse brain total RNA. The cDNA from each reaction was used in individual qPCR reactions using SensiFAST SYBR and GAPDH primers. The results illustrate the excellent reverse transcription and reproducibility of SensiFAST cDNA Synthesis Kit, both with high and low levels of input target total RNA.



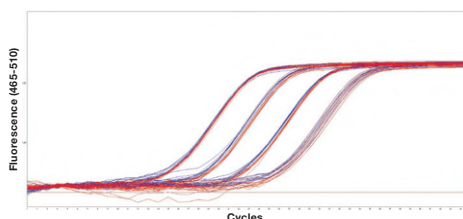
**Fig. 3a Unbiased representation of 5' and 3' regions of target genes**

SensiFAST cDNA Synthesis Kit was used in first-strand cDNA synthesis reactions containing total RNA. Primer pairs were designed at the 5' (red) and the 3' (blue) ends of the Canx gene, 5 kb apart and used in qPCR reactions with SensiFAST SYBR. The results illustrate that there were no significant Ct differences between the two primer pairs; this demonstrates unbiased representation of both 5' and 3' regions.



**Fig. 3b Unbiased representation across target genes**

SensiFAST cDNA Synthesis Kit and a kit from supplier B were used in first-strand reactions containing total RNA. Primer pairs were designed at 1 kb intervals across the same transcript and used in qPCR reactions with SensiFAST SYBR. The results illustrate that, unlike the results from supplier B (blue), the SensiFAST cDNA Synthesis Kit (red) did not show any bias (differences in Ct value) across the entire transcript.



**Fig. 4 Results in less than an hour**

SensiFAST cDNA Synthesis Kit was used in first-strand cDNA synthesis reactions containing a 10-fold dilution of mouse brain total RNA, under reaction times of 5 min at 42 °C (blue) or 60 min at 42 °C (red). Following the cDNA synthesis reactions, a 5-fold serial dilution of each cDNA was amplified using SensiFAST SYBR and GAPDH primers. The results illustrate a comparable efficiency of reverse transcription following either 5 min or 60 min incubation. SensiFAST cDNA Synthesis Kit is therefore capable of fast reaction times without compromising on quality.

*“Reproducibility, sensitivity and cost-effectiveness, combined with a convenient two reagent system continues to make the SensiFAST cDNA Synthesis Kit stand out from its competitors and our preference for almost two years!”*

Martin Sadowski, Queensland University of Technology, Brisbane, AU

## Ordering Information

SensiFAST™ cDNA Synthesis Kit	Size	Cat. #
SensiFAST cDNA Synthesis Kit	50 Reactions	BIO-65053
	250 Reactions	BIO-65054

Please contact us for institutional pricing, special price quotations and availability of bulk pack sizes.

**For related products such as RNA isolation kits, qPCR kits and the Mic Personal qPCR Cycler visit [www.bioline.com](http://www.bioline.com)**

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