

# RNA-Quant™ cDNA Synthesis Kit

Profile any RNA by real-time qPCR

## An all-in-one cDNA synthesis kit

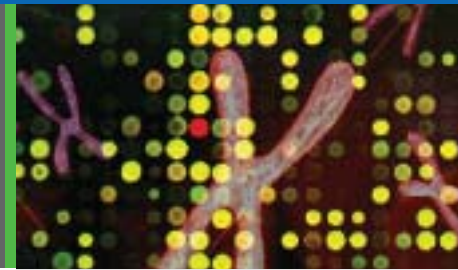
For the last few decades of the 20th century, the underlying dogma of molecular biology has been that the purpose of RNA is to direct the assembly of proteins from amino acids. These are the functions of messenger RNAs (mRNAs). mRNAs code for protein genes, have 5' mG caps and most often have poly-A tails. A few exceptions to this paradigm were known (for example, ribosomal RNA and transfer RNA, which are functional RNA macromolecules that do not code for protein, or viral genomes that exist as or pass through an RNA phase as part of total genome replication). There are now numerous exceptions that include: microRNAs, small nuclear RNAs (snRNAs), small nucleolar RNAs (snoRNAs) and long non-coding RNAs (lncRNAs). The functions of each class of RNA are briefly summarized in the Table below.

## RNA-Quant allows you to profile all RNAs

Type of RNA	Functions
<b>Messenger RNAs (mRNAs)</b>	Code for Proteins
<b>MicroRNAs (miRNAs)</b>	Regulate mRNA translation
<b>Small Nuclear RNAs (snRNAs)</b>	Bridge splicing events during transcription
<b>Small Nucleolar RNAs (snoRNAs)</b>	Guide methylation on target RNAs
<b>Long Non-coding RNAs (lncRNAs)</b>	Bind chromatin for epigenome changes and scaffolds for protein complexes
<b>Ribosomal RNAs (rRNAs)</b>	Structural and catalytic subunits of ribosomes

## Generate comprehensive cDNA coverage

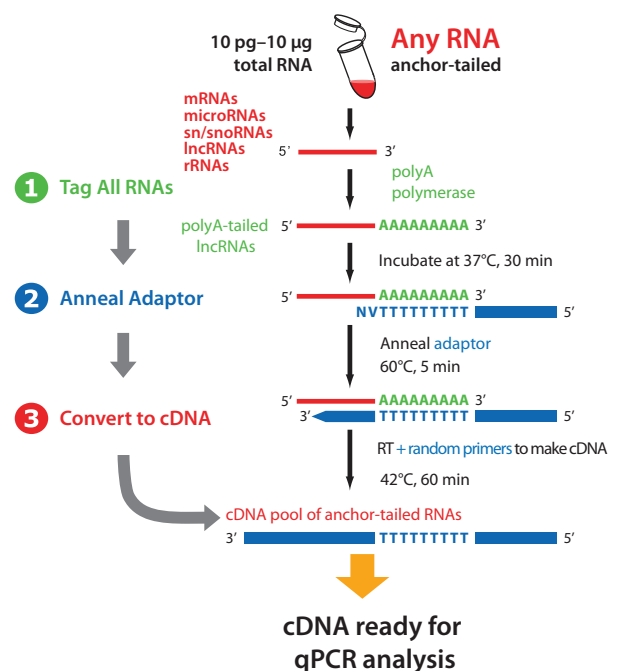
The poly-A tailing and tagging method in the RNA-Quant system generates cDNA that is highly unique and when used with the 3' Universal reverse primer does not produce any signals in minus RT controls and does not detect any residual genomic DNA. There is ZERO background in the minus RT controls and the qPCR assays do not show any amplification signals even with spiked-in genomic DNA. Profile with confidence and only detect your RNAs of interest.



## Highlights

- Tail and tag all RNAs for cDNA synthesis
- Obtain full RNA coverage for any purpose
- Profile any RNA
  - mRNAs
  - microRNAs
  - sn/snoRNAs
  - lncRNAs
  - rRNAs

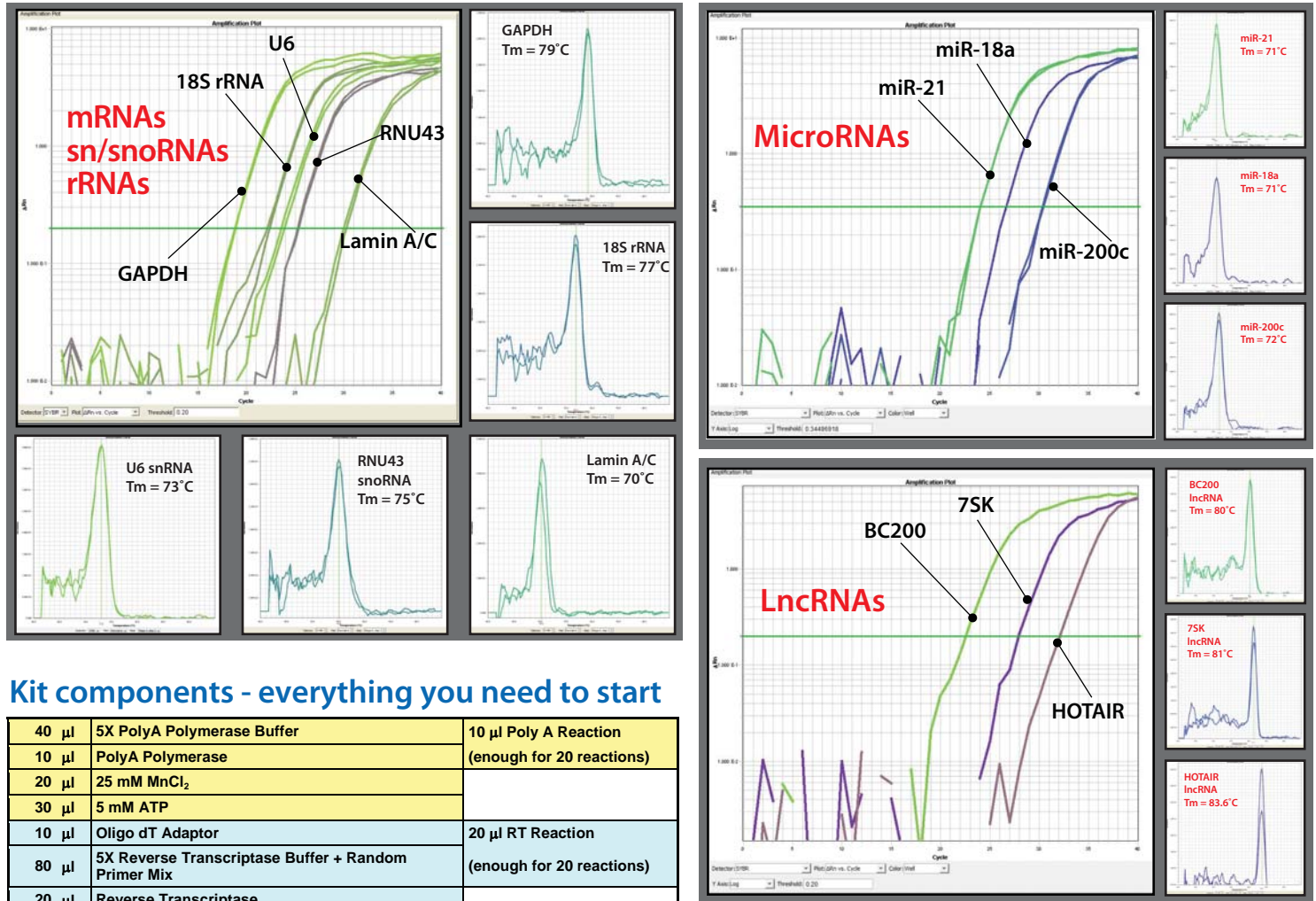
## How the RNA-Quant Kit Works



# RNA-Quant™ cDNA Synthesis Kit

## Efficiently make cDNA to measure any RNA by qPCR

Total RNA was harvested from human HT1080 cells using standard Trizol extraction protocols. The RNA-Quant kit was used to tail and tag all RNAs into quantifiable cDNA for qPCR analysis. Sample amplification plots and specificity tests using dissociation analyses are shown below.



## Kit components - everything you need to start

40 µl	5X PolyA Polymerase Buffer	10 µl Poly A Reaction (enough for 20 reactions)
10 µl	PolyA Polymerase	
20 µl	25 mM MnCl <sub>2</sub>	
30 µl	5 mM ATP	
10 µl	Oligo dT Adaptor	20 µl RT Reaction (enough for 20 reactions)
80 µl	5X Reverse Transcriptase Buffer + Random Primer Mix	
20 µl	Reverse Transcriptase	
30 µl	0.1 M Dithiothreitol (DTT)	
50 µl	dNTP Mix	
1.2 ml	RNase-free Water	Kit comes complete with qPCR assays for: • miR-16 microRNA • Y RNA lncRNA • GAPDH mRNA
600 µl	3' Universal Reverse primer	
50 µl	miR-16 microRNA qPCR assay, 10µM (human and mouse)	
50 µl	Y RNA lncRNA qPCR assay, 10µM (human and mouse)	
50 µl	GAPDH mRNA qPCR assay, 10µM (human and mouse)	

Gain a more comprehensive view into the transcriptome changes in your model system with RNA-Quant.

## We Also Offer Custom Services

System Biosciences offers a wide-range of custom services to support your research, allowing you to spend less time making tools, and more time making discoveries. To learn more, visit our website at [www.systembio.com/service](http://www.systembio.com/service) or call us at 888-266-5066.



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