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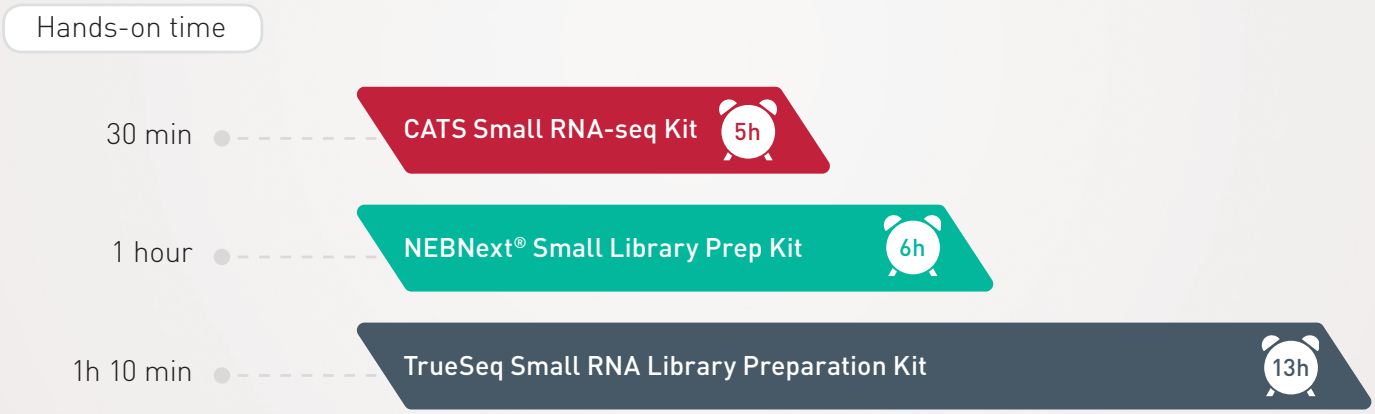
Innovating Epigenetics Solutions

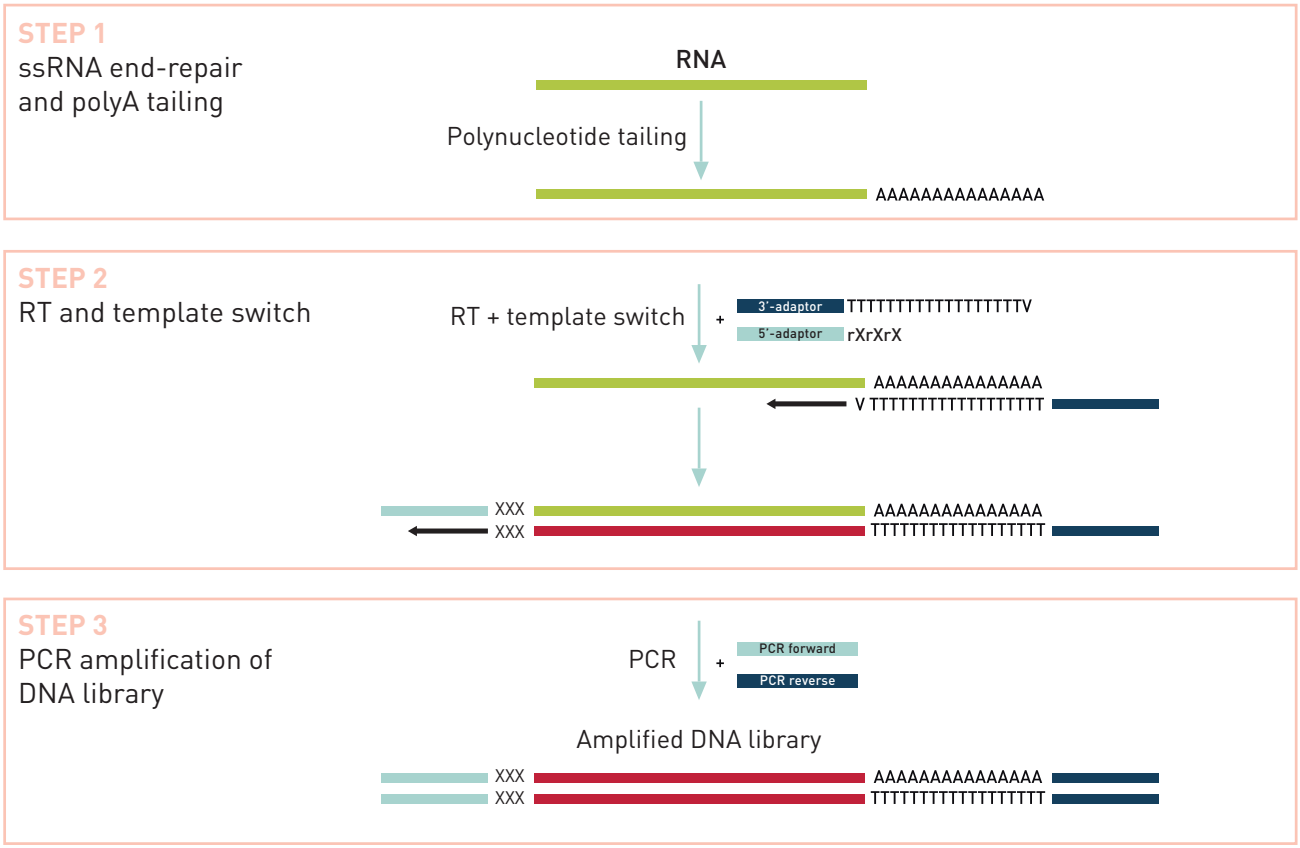
CATS RNA-SEQ LIBRARY PREPARATION



CATS BENEFITS

- Ligation-free assay - **increased efficiency and minimum bias**
- **Diverse transcript detection**
- **Perfect for challenging samples** and low inputs down to 10 picograms
- Short and easy **one-tube protocol** in as little as 30 minutes hands-on time
- Optimal for **miRNA** and **sncRNA** discovery from serum and plasma

CATS RNA library prep



JUST 30 MINUTES HANDS-ON TIME!

Step 1 ssRNA end-repair and polyA tailing

Single stranded RNAs are end-repaired and polyadenylated.

Step 2 Reverse transcription and template switch

The cDNA strand is synthesized with anchored poly(dT) with terminal P7 Illumina adapter. When the reverse transcriptase reaches the 5' end of the RNA, reverse transcriptase adds a few additional nucleotides to the 3'end of the new cDNA strand. The bases allow for a template-switching oligo (TSO) with terminal ribonucleotides (rX) carrying partial P5 Illumina adapter sequence to anchor. DNA synthesis continues to the 3' end of cDNA.

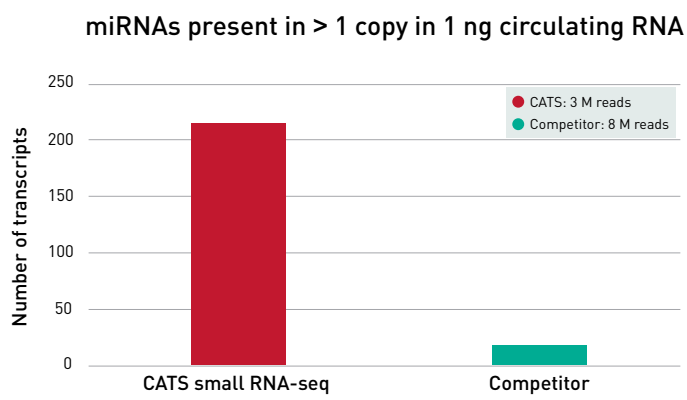
Step 3 PCR amplification

During PCR amplification of the first cDNA strand, Illumina P5 and P7 adapters as well as index sequences are incorporated into the library.

Perfect CATS small RNA-seq from serum and plasma

	CATS small RNA-seq Kit	NEBNext® Small RNA Library Prep Set for Illumina®	SMARTer® smRNA-seq Kit for Illumina® (Takara)	Illumina® TruSeq Small RNA Library Prep Kit
Ligation-free	✓		✓	
Highest transcript detection	✓			Data not available
Suitable for challenging samples	✓	No information	No information	✓
Suitable for low inputs down to 10 pg on small RNA	✓			
As low as 8x PCR cycles (fewer bias)	✓			
Controlled polyA tailing	✓	Not applicable		Not applicable
No adaptor-dimers	✓		✓	
Preserves strand specificity (input: small or total RNA)	✓		✓	No information
Positive control miRNA included in kit	✓		✓	
Optimized for long or short fragment size selection either with AMPure XP or gel excision	✓			
Multiplexing capability	24	12	12	48
Indexing primers included	✓		✓	✓
Single tube protocol	✓		✓	
Protocol time until sequencing	5h	> 6 - 22h (depending on an incubation times)	5-7h	1 day

More miRNA transcripts detected from challenging samples



Transcripts detected in miRNA samples of **CATS small RNA-seq Kit** vs Competitor Kit.

Input: **1 ng circulating small RNA** in plasma samples.

PCR cycles: CATS 14x vs Competitor 21x. **Final library yield: CATS 27 ng** vs Competitor 1.2 ng.

A closer look at CATS RNA-seq applications

Perfect for

- Serum or plasma-derived RNA
- Cell free RNA (cfRNA)
- Exosomal RNA
- RNA-derived FFPE samples

How to choose your CATS RNA-seq Library Preparation Kit

Small RNAs	Total RNA	mRNA
(small ncRNA)	(Whole transcriptome)	(Transcriptome)
Input 10 pg-10 ng	Input 100 pg-10 ng	Input 100 pg-10 ng
CATS Small RNA-seq Kit C05010040	**CATS Total RNA-seq Kit v2** (with rRNA depletion module) C05010042	**CATS mRNA-seq Kit v2** (with polyA selection) C05010043
	CATS RNA-seq Kit v2 (no polyA selection, no rRNA depletion module) C05010041	**CATS RNA-seq Kit v2** (no polyA selection, no rRNA depletion module) C05010041

Note: Input refers to isolated small RNA, rRNA depleted or poly(A) selected RNA

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www.diagenode.com/cats

info@diagenode.com