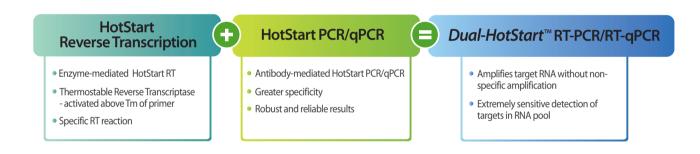




Bioneer's one-step RT-PCR and RT-qPCR reagents detect low copy RNA targets by adopting the patented  $Dual-HotStart^{TM}$  technology that enhances the specificity and sensitivity.



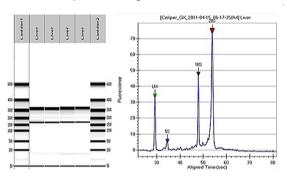
# What is *Dual-HotStart*™ technology?

Dual-HotStart<sup>™</sup> technology is a method to detect RNA target from complex mixture of RNA samples with high sensitivity and specificity. Utilizing Bioneer's patented HotStart method for both reverse transcription and PCR amplification, Dual-HotStart<sup>™</sup> technology-applied products eliminate non-specific cDNA synthesis and non-specific DNA amplification, which enable the most sensitive one-step RT-PCR, multiplex RT-PCR and RT-qPCR assays.



HotStart reverse transcription removes non-specific background cDNA synthesis by eliminating the chance of non-specific primer binding and self-priming of extracted RNA.

 Many RNA fragments in the RNA extraction are known to serve as primers during RT

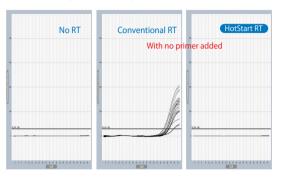


Total RNAs were extracted from tissue sample (Rat liver, 15 mg) using *MaqListo*™ 5M Cell Total RNA Extraction Kit (Bioneer Corp.).

(left) Gel electrophoresis result of extracted RNA

(right) Electropherogram (RQS 9.4) from capillary electrophoresis using LabChip GX (PerkinElmer)

• HotStart RT synthesizes only primer-specific cDNAs without self-primed nonspecific cDNA



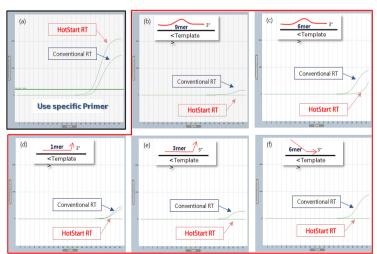
(left) Without reverse transcription reaction, no signal is detected indicating that the RNA sample does not contain genomic DNA.

(middle) Conventional RT always generates non-specific cDNA synthesis caused by RNA self priming without primers.

(right) HotStart RT efficiently blocks non-specific cDNA synthesis by removal of RNA self priming.

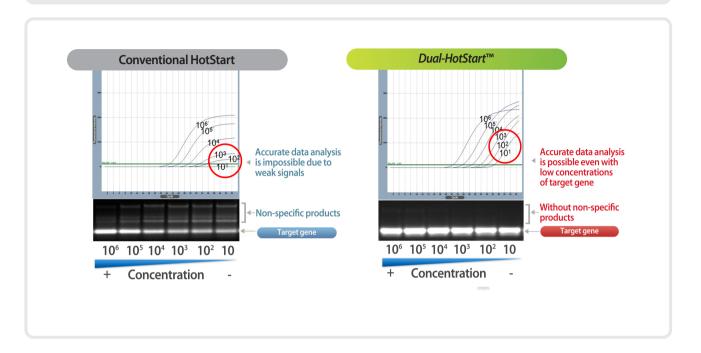
HotStart reverse transcription gives single nucleotide specificity of cDNA synthesis. •••

• Non-specific primer extension occurs during reaction set up. HotStart activates reverse transcriptase at 55°C, after removal of non-specific binding primer



- (a) Perfectly matched oligonucleotide
- (b) 9-base mismatched oligonucleotide
- (c) 6-base mismatched oligonucleotide
- (d) 3'-1-base mismatched oligonucleotide
- (e) 3'-3-base mismatched oligonucleotide
- (f) 5'-6-base mismatched oligonucleotide

Dual-HotStart™ enables to detect low copy targets from bunch of RNA by removing non-specific cDNA synthesis and amplification. ● ●



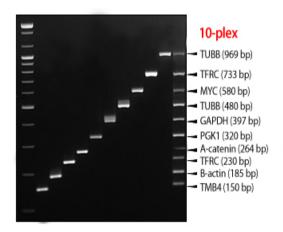
Dual-HotStart™ Multiplex RT-PCR amplifies more than 10 targets in one reaction. • • •

# Conventional HotStart vs Dual-HotStart™ Dual HotStart™ Competitor Competitor Competitor 1 1 2 1 2 1 2 1 2 1 2

For the comparison of amplification quality, 10-plex primers were added into  $\textit{Dual-Hotstart}^{\text{\tiny{TM}}}$  kit and other supplier's RT-PCR kit.

Lane 1: Human total RNA 100 ng Lane 2: Human total RNA 10 ng

# Single and Multiplex RT-PCR



Single RT-PCR and multiplex RT-PCR using *AccuPower*® *Dual-Hotstart*™ Multiplex RT-PCR PreMix.

### **Features and Benefits**

- High Sensitivity: You can get great result with up to 10 copies of the RNA target.
- **High Specificity:** *Dual-HotStart*™ RT-PCR & RT-qPCR method increases specificity, which enable the multiplex RNA amplification without nonspecific amplification.
- Wide Applications: *Dual-HotStart*™ products are utilized in many different applications including conventional RT-PCR and multiplex RT-PCR for NGS sample prep, providing accurate results with complex template RNAs from various samples such as blood, tissue, cell etc.
- Ease-of-use: Just add template RNA, primers & probe and DEPC distilled water in the kit.
- Reproducibility: Produced in large batch under ISO 9001 Quality Assurance System, *AccuPower®* products give you great satisfaction with uniform amplification in every reaction tube.

# **Ordering Information**

Cat. no.	Product Name
K-6710	AccuPower® Dual-HotStart™ RT-PCR PreMix, 20 µl /rxn x 96 rxns
K-6711	AccuPower® Dual-HotStart™ RT-PCR PreMix, 50 µl /rxn x 96 rxns
K-6712	AccuPower® Dual-HotStart™ RT-PCR PreMix, 20 µl /rxn x 480 rxns
K-6713	AccuPower® Dual-HotStart™ RT-PCR PreMix, 50 µl /rxn x 480 rxns
K-6714	AccuPower® Dual-HotStart™ RT-PCR PreMix (with UDG), 20 μl /rxn x 96 rxns
K-6715	AccuPower® Dual-HotStart™ RT-PCR PreMix (with UDG), 50 μl /rxn x 96 rxns
K-6716	AccuPower® Dual-HotStart™ Multiplex RT-PCR PreMix, 20 μl/rxn x 96 rxns
K-6717	AccuPower® Dual-HotStart™ Multiplex RT-PCR PreMix, 50 μl/rxn x 96 rxns
K-6718	AccuPower® Dual-HotStart™ Multiplex RT-PCR PreMix, 20 μl/rxn x 480 rxns
K-6719	AccuPower® Dual-HotStart™ Multiplex RT-PCR PreMix, 50 μl/rxn x 480 rxns
K-6400	AccuPower® GreenStar™RT-qPCR PreMix, 50 μl/rxn x 96 rxns
K-6403	AccuPower® GreenStar™RT-qPCR Master Mix (2X), 2.5 ml, 100 rxns
K-6704	AccuPower® Dual-HotStart™ RT-qPCR PreMix, 50 μl/rxn x 96 rxns
K-6707	AccuPower® Dual-HotStart™ RT-qPCR Master Mix (2X), 2.5 ml, 100 rxns

# **Related Products**

Cat. no.	Product Name
A-2041	AllinOneCycler™Thermal Block
A-2060-1	Exicycler™96, Real-Time Quantitative Thermal Block

# Contact Us

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