Fast 384-Well Thermal Cycling on the Applied Biosystems 7900HT Fast Real-Time PCR System

- **Fast 384-well real-time PCR cycling in <55 minutes**
- **Faster results and higher throughput**
- **Proven performance, precision and sensitivity**

Introduction

The Applied Biosystems 7900HT Fast Real-Time PCR System is the ideal platform for high-throughput gene expression and genotyping analysis. It is also the only platform compatible with the TaqMan® Low Density Array, a powerful and easy-to-use tool for scientists who want to use real-time PCR technology to examine a fixed number of targets/assays per sample. The system provides outstanding flexibility with four interchangeable thermal cycling blocks and enhanced throughput capability with the automation accessory. As an optional upgrade, Enterprise Edition software assists with 21 CFR part 11 compliance, an important factor for highly regulated research environments.

Fast 384-Well Thermal Cycling on the 7900HT System

Until recently, the 7900HT system performed fast thermal cycling only in a 96-well format. Now, laboratories can also perform fast real-time PCR using the 384-well block and obtain the same outstanding performance. Results are available in <55 minutes, accelerating research with only half the time required for standard 384-well thermal cycling runs.

Other requirements for fast 384-well thermal cycling on the 7900HT system include TaqMan® Fast Universal PCR Master Mix and MicroAmp® Optical 384-Well Reaction Plates. Although fast 384-well thermal cycling can be performed on standard 384-well blocks and plates, an upgraded power supply is

Table 1. Performance Comparison

Specifications	96-Well	384-Well
Dynamic range	9 logs of linear dynamic range using the human 18S rRNA TaqMan® Gene Expression Assay	9 logs of linear dynamic range using the human 18S rRNA TaqMan® Gene Expression Assay
Sensitivity	Detection of 10 starting copies of the RNase P gene from human genomic DNA	Detection of 10 starting copies of the RNase P gene from human genomic DNA
Time*	33 minutes (fast cycling) 110 minutes (standard cycling)	52 minutes (fast cycling) 110 minutes (standard cycling)

*Time required for 40 PCR cycles using the TaqMan® RNase P Verification Plate

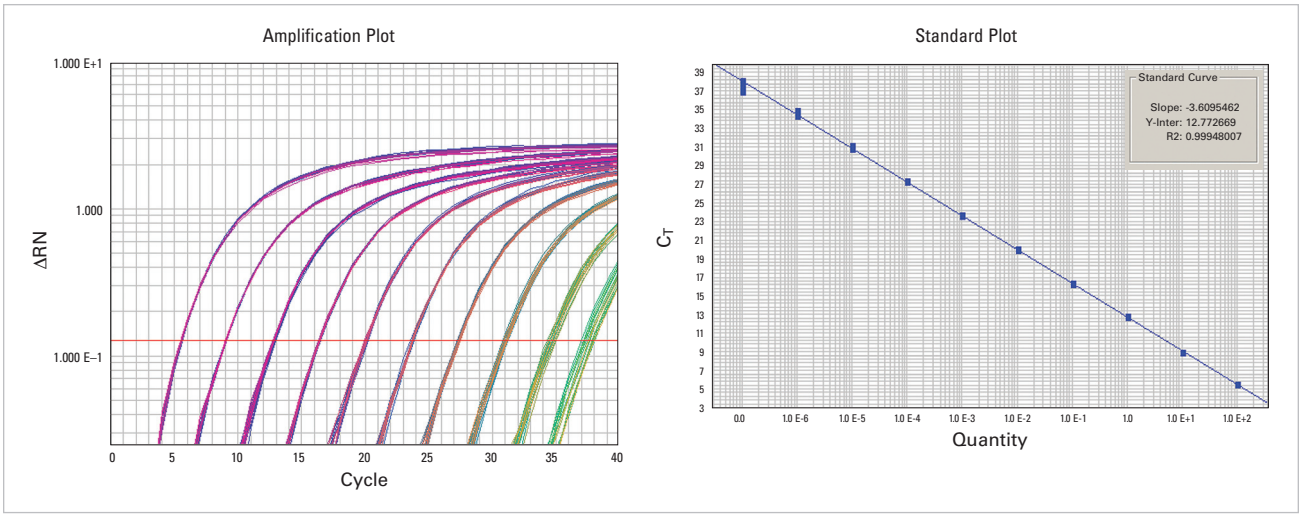

Figure 1. Amplification plot, using the 384-well fast thermal cycling protocol on the 7900HT system. Results illustrate 9 logs of linear dynamic range for 18S rRNA transcript in ten-fold serial dilutions (500 ng-0.5 fg) utilizing TaqMan® Fast Universal Master Mix in 16 replicates.

required. Applied Biosystems 7900HT Fast Real-Time PCR Systems are already equipped with this new power supply. For ABI PRISM® 7900HT Sequence Detection Systems, purchased before October 2004, Applied Biosystems will provide an affordable service upgrade (P/N 4351412 or 4362078) to accommodate fast thermal cycling runs. Note that upgrades and blocks are sold separately.

Proven Performance

The fast 384-well system offers the same high-quality performance you have come to expect from all other block formats and thermal cycling modes on the 7900HT system. Additionally, users will also receive the benefit of a 50% reduction in time-to-results in a 384-well format (Table 1 and Figures 1 and 2).

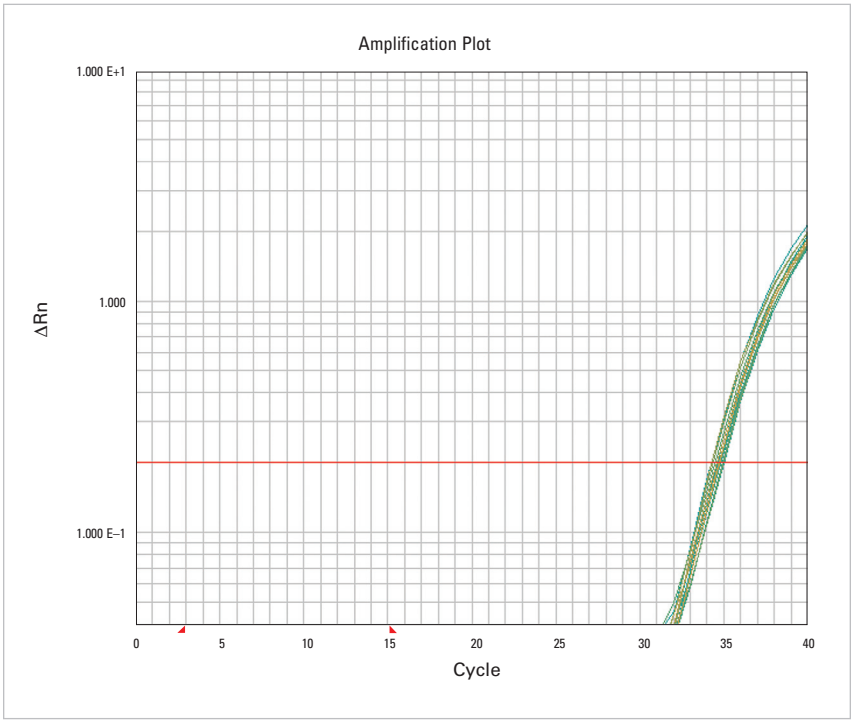

Figure 2. Amplification using human genomic DNA template demonstrating the detection of ten copies of the RNase P gene. Samples were run in 32 replicates using the fluoregenic 5' nuclease TaqMan® assay.

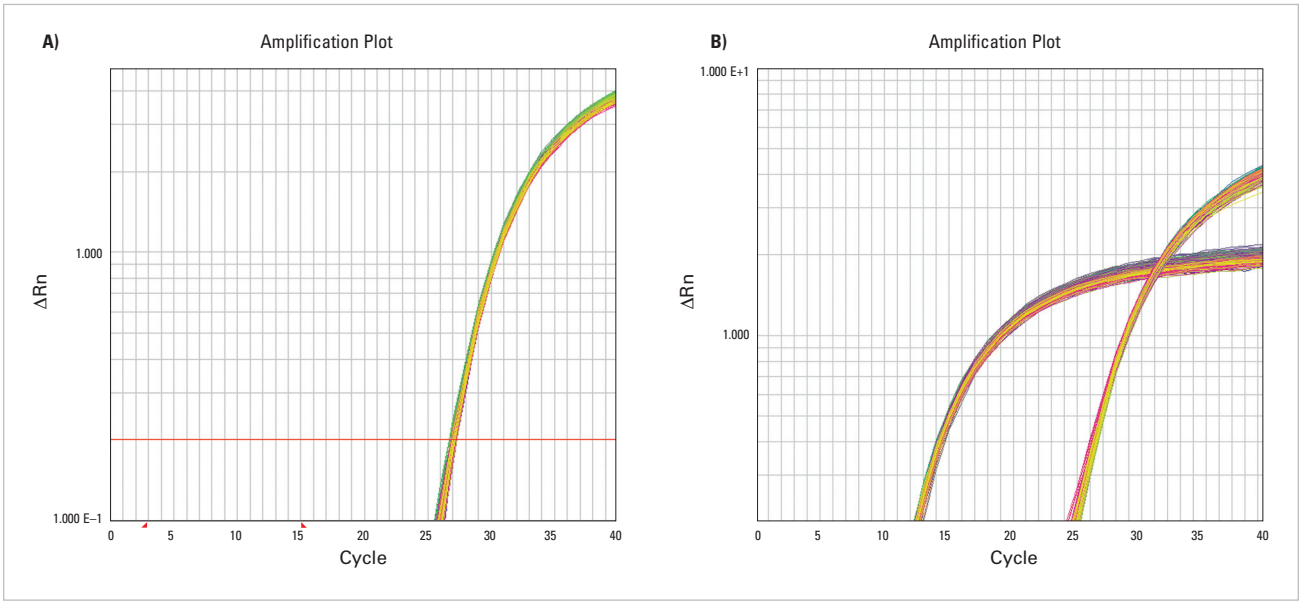

Figure 3. PCR amplification plate demonstrating uniform results across the entire 384-well plate, running on fast thermal cycling conditions. A) Singleplex reaction of the human RNase P gene with FAM™ dye-labeled TaqMan® assay. B) Multiplex TaqMan® assays of the TGFbeta (VIC® dye-labeled) and 18S rRNA (FAM dye-labeled) human transcripts.

Precision

Precise and accurate data is an essential component for success in real-time PCR. Applied Biosystems 7900HT Fast Real-Time PCR System users, performing fast 384-well runs, will be able to obtain impressively uniform results across the entire plate, for both singleplex or multiplex quantitative assays (Figure 3).

Conclusion

The new fast 384-well capability expands the flexibility of the Applied Biosystems 7900HT Fast Real-Time PCR System, further enabling the instrument to meet the changing requirements of the scientific community.

The Gold Standard in Real-Time PCR

The 7900HT system combined with TaqMan® Genomic Assays, acknowledged as the gold standard in real-time PCR, enables you to achieve unprecedented throughput and flexibility, allowing you to pursue projects beyond the scope of previous real-time instruments. Researcher-friendly software, together with the entire suite of convenient, off-the-shelf or custom gene expression and SNP genotyping assays, makes it easy for labs of all sizes to realize the full potential of this powerful research tool.

For more information visit **www.7900HT.com**.

Product Literature

For more information about fast 384-well thermal cycling, the following User Bulletin can be downloaded from the Applied Biosystems Web site: *Performing Fast Gene Quantitation with 384-Well Plates (P/N 4369584).*

Ordering Information

Instrument Systems	P/N
Applied Biosystems 7900HT Fast Real-Time PCR System with 384-Well Block Module and Automation Accessory (200-240V)	4329002
Applied Biosystems 7900HT Fast Real-Time PCR System with 384-Well Block Module (200-240V)	4329001
Applied Biosystems 7900HT Fast Real-Time PCR System with 96-Well Block Module and Automation Accessory (200-240V)	4329004
Applied Biosystems 7900HT Fast Real-Time PCR System with 96-Well Block Module (200-240V)	4329003
Applied Biosystems 7900HT Fast Real-Time PCR System with Fast 96-Well Block Module (200-240V)	4351405

Accessories	
7900HT System Fast Service Upgrade	4351412
7900HT System Fast Service Upgrade with Computer	4362078
TaqMan® Low Density Array Upgrade Kit	4329012
Fast 96-Well Block Upgrade Kit	4351402
384-Well Block Upgrade Kit	4331406
96-Well Block Upgrade Kit	4331405
Enterprise Edition Sequence Detection Software	4350490
Automation Accessory Upgrade (100-240V)	4329007

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