Applied Biosystems

Introducing a new generation of affordable choices from the leader in *real*-time PCR.



Applied Biosystems
7500 Fast Real-Time PCR System



Applied Biosystems
7500 Real-Time PCR System



Applied Biosystems
7300 Real-Time PCR System

7300/7500

Real-Time PCR Systems



A new generation of real-time PCR, built on a solid reputation for excellence.

Since we pioneered real-time PCR nearly a decade ago, Applied Biosystems has continued to develop the technology to provide more powerful solutions to labs of all sizes. The introduction of the Applied Biosystems 7500 Fast Real-Time PCR System represents the latest innovation in real-time technology—fast thermal cycling in a standard 96-well format. The 7500 Fast system can provide real-time PCR results in about 35 minutes while seamlessly integrating into existing laboratory workflows. Applied Biosystems family of real-time platforms, which includes the Applied Biosystems 7300, 7500, 7500 Fast, and 7900HT Fast Real-Time PCR Systems, provide cutting-edge tools while making real-time PCR more accessible than ever. These systems are easy to use with next generation software that greatly simplifies your entire workflow—and they're flexible, allowing you to run the real-time chemistry of your choice. And, of course, they're both backed by Applied Biosystems unmatched track record of quality and long-term reliability.

Real-time PCR measures PCR amplification as it occurs, cycle-by-cycle, allowing quantitative measurements to be made in the highly reproducible exponential phase of PCR. This enables extremely accurate and precise quantitation over a large dynamic range compared to traditional techniques. In addition, the closed-tube format minimizes the risk of contamination and eliminates all post-PCR processing. You get more precise and more accurate results with minimal hands-on time.

Real affordable.

The Applied Biosystems 7300 Real-Time PCR System



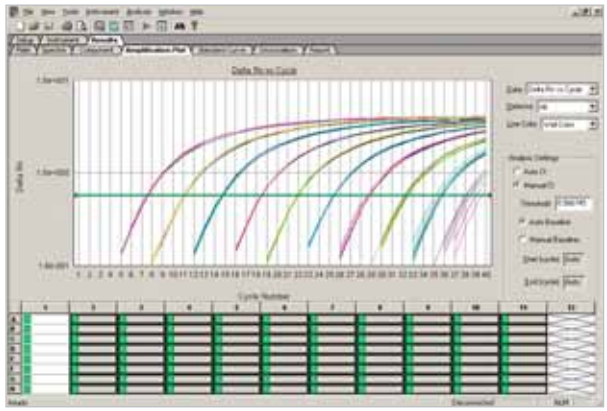
Proven performance and superior data quality—at a price any lab can afford.

Applied Biosystems new 7300 Real-Time PCR System is a full-featured instrument that combines high-end results with exceptional budget sensitivity. The 3rd generation system is accurate, reliable, and easy to use. Advanced multicolor detection capabilities allow you to perform a wide variety of applications—including gene expression analysis, pathogen quantitation, SNP genotyping, and +/– assays that utilize internal positive controls—with the highest confidence in your results.

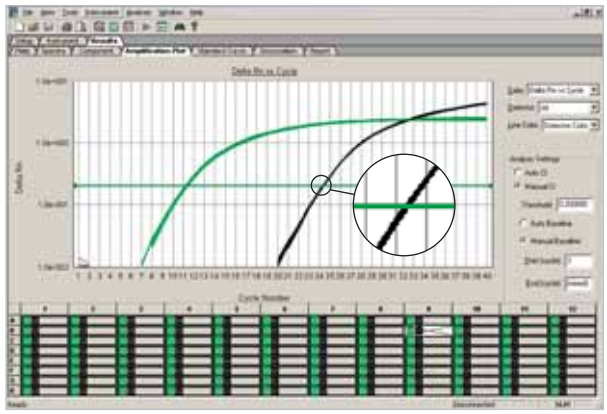
- Precision optics and a charge-coupled device (CCD) camera, plus a sophisticated multi-componenting algorithm, assure superior accuracy, reproducibility, and reliability
- Optimized for use with standard dye sets: FAM™/SYBR® Green I, VIC®/JOE™, TAMRA™, and ROX™
- Latest generation Peltier-based thermal cycling system lets you use both standard 96-well plates and 0.2 mL tubes
- Compact instrument footprint fits in any laboratory

Results you can trust—every time.

With the Applied Biosystems 7300 system, you no longer need to sacrifice quality for affordability. This economical platform offers both proven reliability and superior data quality—exactly what you would expect from the leader in real-time PCR systems.



Amplification plot shows log of change in normalized reporter fluorescence plotted vs. PCR cycle number. This plot from the 7300 system illustrates 9 logs of linear dynamic range for a TaqMan® assay of plasmid DNA containing the hCCNB1 target sequence in tenfold serial dilutions. (hCCNB1 is human g2/mitotic specific cyclin b1, chromosome 5, 5q12.)



Multiplexed TaqMan® assays on the 7300 system showing amplification of cDNA (96 samples) using probes labeled with VIC® (green) and FAM™ (black) reporters for the 18S and TGF-beta target sequences, respectively.

Real fast and *Real* easy.

The Applied Biosystems 7500 Fast Real-Time PCR System and the Applied Biosystems 7500 Real-Time PCR System





Maximum speed Real-Time PCR in 96-well format.

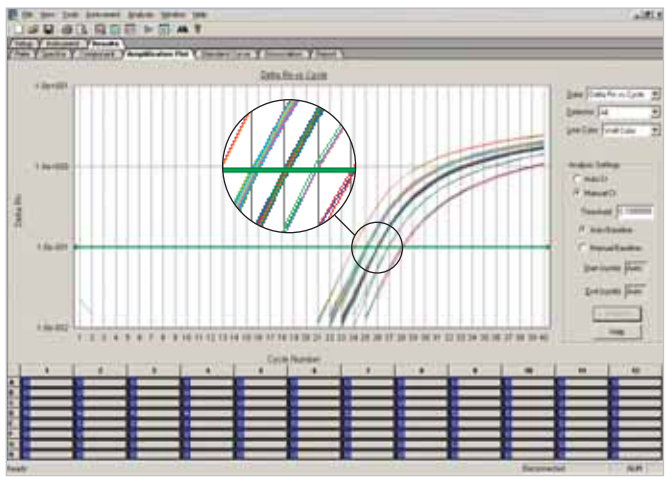
The new Applied Biosystems 7500 Fast Real-Time PCR System takes you to the next level of speed in real time PCR, enabling you to access your results more quickly than ever before. This integrated solution features three new components, a high-speed 96-well format thermal cycling block, TaqMan® Fast Universal PCR Master Mix and Optical 96-Well Fast Thermal Cycling Plates. Quantitative real-time PCR results can be generated in under 40 minutes while the 96-well format allows seamless integration into existing laboratory workflows.

Sophisticated and versatile platforms for users requiring extended capabilities, these third generation instruments feature an innovative optical system that enhances sensitivity and lets you access a broader range of fluorophores.

- The 7500 Fast Real-Time PCR System enables standard 96-well format high speed thermal cycling, significantly reducing your run time for quantitative real-time PCR applications, delivering results in under 40 minutes
- The 7500 Real-Time PCR System is a versatile, leading-edge platform providing enhanced performance capabilities and an upgrade path to high-speed thermal cycling
- Advanced optical configuration supports a broader range of fluorophores- including FAM™/SYBR® Green I, VIC®/JOE,™ NED™/TAMRA™/Cy3,™ ROX™/Texas Red,® and Cy5™ dyes; variable excitation capability allows greater sensitivity for longer wavelength (red) dyes
- Precision optics and charge-coupled device (CCD) camera, plus a sophisticated multi-componenting algorithm enable superior accuracy, reproducibility and reliability with no need for hardware changes to access new dyes
- An optional, service engineer installed upgrade kit is available for the 7500 System to convert it to the 7500 Fast System configuration.

Unmatched performance, results you can depend on.

If you demand more from your real-time PCR instrument, Applied Biosystems 7500 Fast and 7500 systems are your new platforms of choice. It combines advanced features, powerful, and easy-to-use software—as well as a proven reputation for reliability.



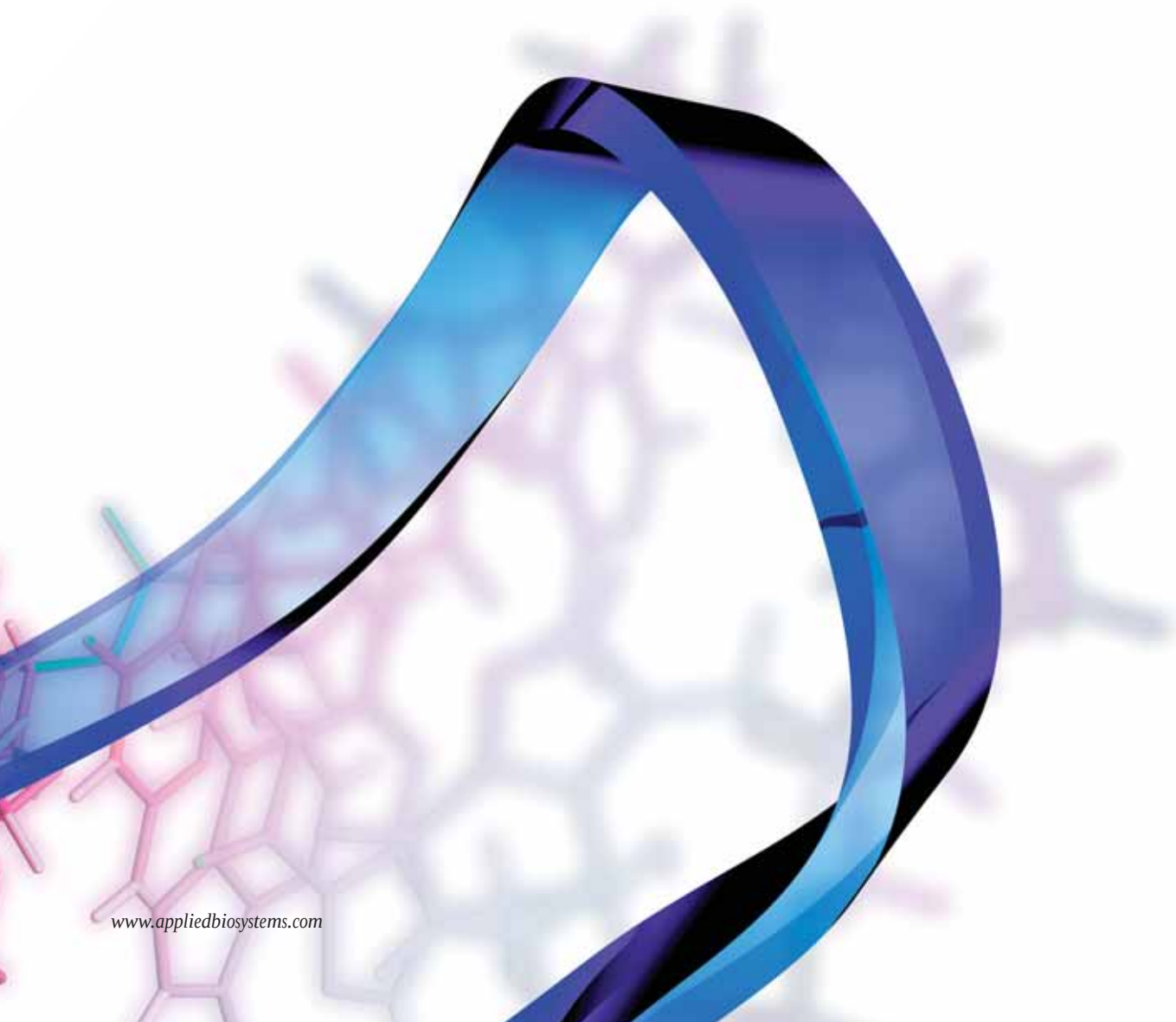
Amplification plot from a 7500 Fast system shows results from a TaqMan® Fast RNase P Instrument Verification Plate. Using this assay, the 7500 Fast platform can distinguish between samples containing 5,000 and 10,000 DNA template copies respectively, with a statistical confidence level of 99.7% and a run time of about 35 minutes.

Real intuitive.

The Applied Biosystems 7300 and 7500 Real-Time PCR Systems also set a new standard for simplicity and usability. Both systems feature intuitive software that helps every user—even beginners—get expert results, quickly, and easily.

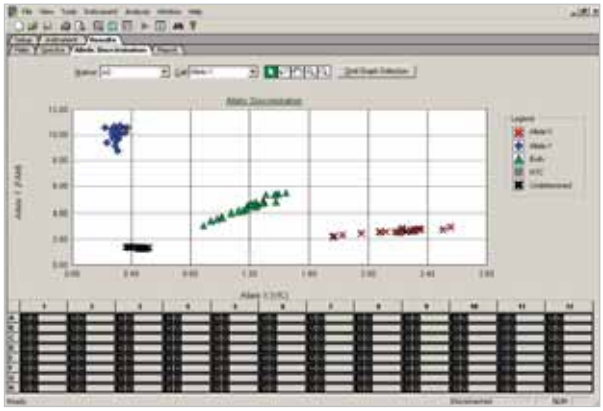
For example, plate set-up wizards guide you through all aspects of experimental set-up for even complicated multiplex assays, including the use of multiple standard curves on a single plate. The real-time monitoring feature allows you to watch PCR amplification as it happens. Data analysis is simplified with built-in tools such as auto-baseline, auto-threshold, and SNP auto-calling. The RQ (Relative Quantitation) Study feature, (optional for the 7300 system) allows you to simultaneously analyze up to ten 96-well plates worth of gene expression data. Furthermore, advanced data viewing features allow you to visualize, report, and understand your datasets.

- Absolute Quantitation allows quantification of nucleic acid targets, including simultaneous analysis of multiple standard curves on the same plate
- RQ Study gene expression analysis software, with powerful data-viewing capabilities, for simultaneous analysis of up to ten 96-well plates
- Automated SNP genotype calling capability with intuitive graphical output and quality-value assignment
- Simple dissociation-curve data collection and viewing
- Real-time monitoring of amplification growth curves
- Auto-baseline and auto-threshold for simplified data analysis
- Tool tips for easy identification of sample wells when viewing amplification curve plots



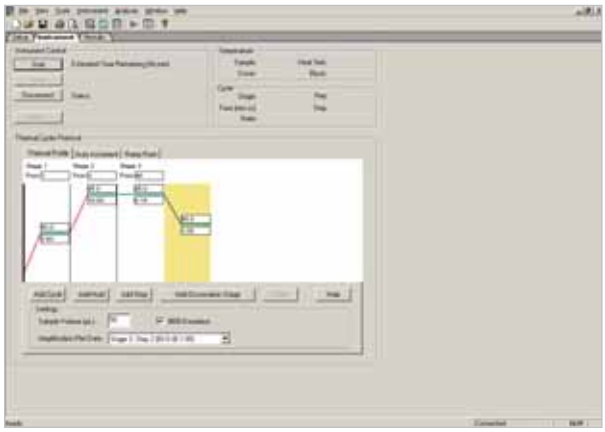


Powerful new software speeds up and greatly simplifies experimental set-up, data viewing, and analysis—even for non-experts.

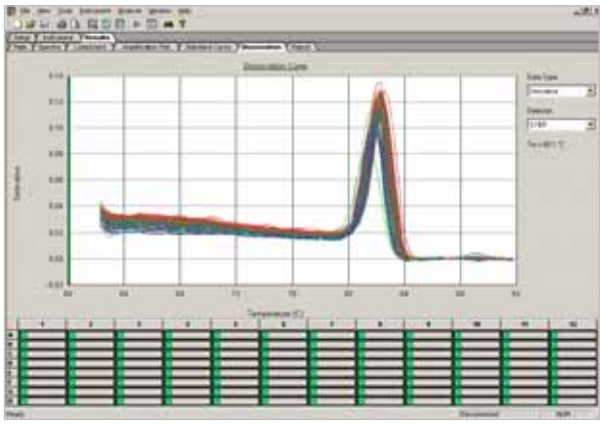


A SNP auto-caller automatically determines genotypes, and generates an intuitive graphic representation of results in a cluster plot report that helps you view data across populations or samples.

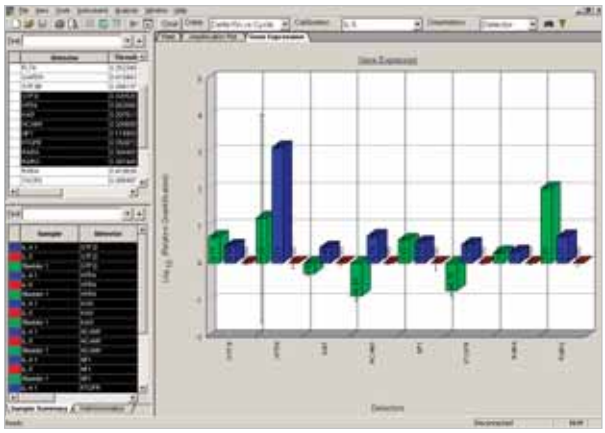
Results are from Human CYP2C19*2 TaqMan® SNP genotyping assay (using the 7300 system).



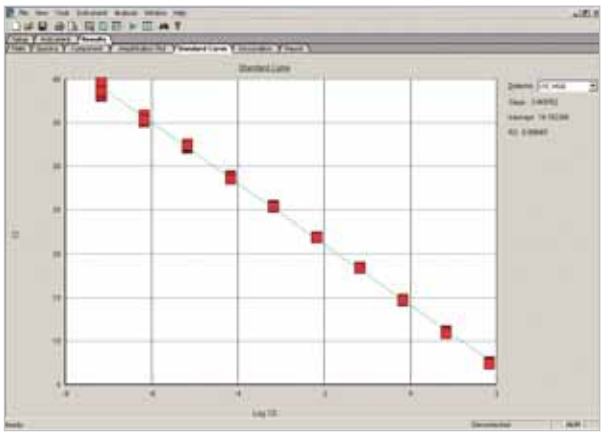
Simple tab-driven formats allow you to move through experimental set-up with ease. The Instrument tab allows adjustment of thermal protocols including one-click addition of dissociation stages, easy editing of times, temperatures, and data collection steps.



Dissociation curve view using SYBR® Green I Dye assay chemistry.



Relative Quantitation (RQ) Study gene expression analysis software with powerful data viewing capabilities allows simultaneous analysis of up to ten 96-well plates of data.



Standard curve values showing C_T values plotted vs. log of initial copy number. Amplification plot from the 7300 system illustrates 9 logs of linear dynamic range for a TaqMan® assay of plasmid DNA containing the hCCNB1 target sequence in tenfold serial dilutions. (hCCNB1 is human g2/mitotic specific cyclin b1, chromosome 5, 5q12.)

Real versatile.

The Applied Biosystems 7300 and 7500 Real-Time PCR Systems provide flexible dye detection. They are optimized for TaqMan® probe-based and SYBR® Green I Dye assay chemistries; however, both instruments also provide the features and capabilities to accommodate a wide range of other real-time chemistries.

TaqMan® probe-based assay chemistry provides outstanding specificity and sensitivity, and the ability to multiplex reactions for real-time quantitation and single nucleotide polymorphism (SNP) genotyping assays. The SYBR® Green I Dye assay chemistry, while not as specific, provides an economical alternative for target identification (screening assays), or when only a small number of reactions are required for a given assay.

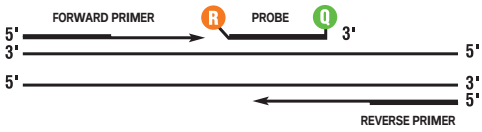
Simplified assay development—or no assay development at all!

Both TaqMan® probe-based and SYBR® Green I Dye assay chemistries are supported by a comprehensive range of reagents and proven protocols that allow you to rapidly develop robust assays and eliminate assay optimization. But if you really want to save time, you can move your research ahead even faster with Applied Biosystems TaqMan® Genomic Assays.

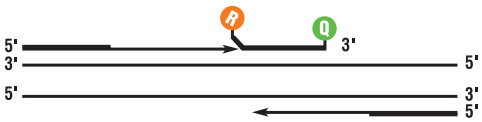
Either way, universal thermal cycling conditions allow you to combine multiple assays in a single real-time run for unmatched flexibility.

TaqMan® Probe-Based Assay Chemistry

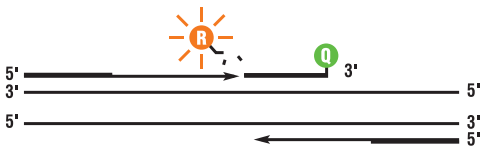
1. Polymerization: A fluorescent reporter (R) dye and a quencher (Q) are attached to the 5' and 3' ends of a TaqMan® probe, respectively.



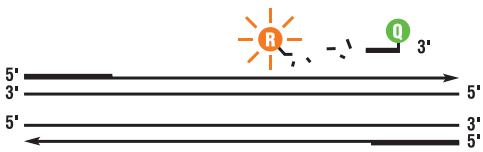
2. Strand displacement: When the probe is intact, the reporter dye emission is quenched.



3. Cleavage: During each extension cycle, the DNA polymerase cleaves the reporter dye from the probe.



4. Polymerization completed: Once separated from the quencher, the reporter dye emits its characteristic fluorescence.

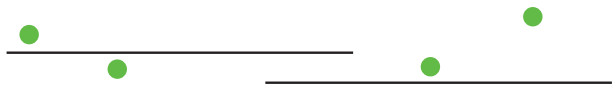


SYBR® Green I Dye Assay Chemistry

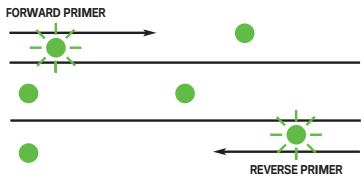
1. Reaction setup: The SYBR® Green I dye fluoresces when bound to double-stranded DNA.



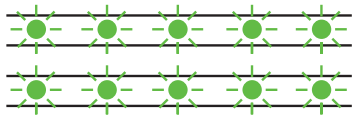
2. Denaturation: When the DNA is denatured, the SYBR® Green I Dye is released and the fluorescence is drastically reduced.



3. Polymerization: During extension, primers anneal and PCR product is generated.



4. Polymerization completed: When polymerization is complete, SYBR® Green I Dye binds to the double-stranded product, resulting in a net increase in fluorescence detected by the 7300 and 7500 systems.



Real convenient.

The whole genome. At your service and ready to use.

Applied Biosystems biologically informative TaqMan® Genomic Assays are moving genetic discovery to the next level. These high-quality assays use both public and Celera genomic information to design primer and probe sets based on our 5' nuclease chemistry, ideal for both quantitative gene expression and SNP genotyping applications.

Our current offering of more than 480,000 TaqMan® Gene Expression Assays is a comprehensive collection of pre-designed primer and probe sets that enable researchers to quickly and easily perform quantitative gene expression studies on human, mouse, or rat genes. Additionally, our selection of over 1 million TaqMan® SNP Genotyping Assays comprise the world's largest collection of biologically informative, validated, pre-designed assays available anywhere.

To compliment our offering of off-the-shelf products, our custom TaqMan® Assays are the best solution for customer-specific gene expression or genotyping assays. Simply submit your sequence and we will deliver a single tube format of either your gene expression or genotyping assay.



TaqMan® Genomic Assays

You can search for TaqMan® Genomic Assays by gene symbol, public accession numbers, molecular function, or biological process at **myscience.appliedbiosystems.com.** You'll also find useful data and valuable links to relevant references.

Now you can take your real-time PCR as far as you need to go.

To learn more about the new Applied Biosystems 7300 or 7500 Real-Time PCR Systems, call 1.650.638.5800, or visit us on the Web at www.appliedbiosystems.com



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Applera is committed to providing the world's leading technology and information for life scientists. Applera Corporation consists of the Applied Biosystems and Celera Genomics businesses.

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Printed in the USA, 12/04, P+s,
Publication 117BR05-04

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