

## Applied Biosystems 7500 Real-Time PCR System



### What is the Applied Biosystems 7500 Real-Time PCR System?

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The 7500 System is a thermal cycler that performs real-time PCR analysis. It is validated for use with the Quantifiler™ Human DNA and Quantifiler Y Human Male DNA quantitation kits to determine the amount of human and/or male DNA that is contained within a forensic and database sample.

### What is Real-Time PCR?

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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, enabling extremely accurate and precise quantitation of DNA over a large dynamic range. Real-time PCR provides the highest sensitivity and widest dynamic range of all available nucleic acid detection systems. Real-time PCR using TaqMan® technology is widely regarded as the gold-standard for DNA & RNA quantitation due to its reliability and the increased specificity obtained through using primers and a probe.

Laboratories use the Applied Biosystems 7500 Real-Time PCR System in conjunction with the Quantifiler Human DNA and Quantifiler Y Human Male DNA quantitation kits to determine the amount of amplifiable total male and total human DNA in a sample to estimate the relative amounts of male and female DNA in sexual assault forensic samples. Results obtained from the 7500 system using the Quantifiler kits also provide an indicator of the potential presence of PCR inhibitors and/or confirm the presence or absence of DNA in a sample. In addition, the Quantifiler kits determine the optimal amount of DNA that should be used in downstream STR amplification reactions to achieve a complete, balanced STR profile.

### Why should I choose the Applied Biosystems 7500 Real-Time PCR System?

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- Real-time quantification results achieved in under two hours, with approximately 30 minutes of hands-on time
- Instrumentation, software, and chemistry validated together to ensure reliable, robust results
- The 7500 Real-Time PCR System is a versatile, leading-edge platform providing enhanced performance capabilities, including advanced optical configurations and variable excitation capacity
- Applied Biosystems is the market leader in real-time PCR quantification technology world-wide

## Frequently Asked Questions

### Q What is the difference between an ABI PRISM® 7000 Sequence Detection System and the Applied Biosystems 7500 Real-Time PCR System?

A The difference is that the Data Collection Software for the 7500 instrument (version 1.2.3) performs more functions than the Data Collection Software for the 7000 system. Version 1.2.3 has been validated for the 7500 system. Validation of DC Software v1.2.3 for the 7000 instrument is ongoing. DC v1.2.3 incorporates:

- Improved usability features
  - Plate Set-Up Wizard
  - Mouse Over Tools for Amp Plots for well ID
  - Improved graphics support for data viewing
  - View amp curves in real time
- Diagnostics
  - Lamp Life Monitoring
  - USB, CCD, Filter Wheel, Shutter, Thermal Cycler
- Demonstrations and Tutorials
- Online help
- Auto baselining feature

In addition, the 7000 system allows for the detection of 4-colors, while the 7500 system detects 5-colors.

### Q Is the 7500 system validated for forensic applications?

A Yes. Applied Biosystems conducted experiments using the Quantifiler Human DNA and Quantifiler Y Human Male DNA quantitation kits in accordance with the guidance provided by DAB/SWGDAM. A review of the data has determined that the 7500 system provides results that are robust, reliable, reproducible, and accurate when used in conjunction with Quantifiler Human and Y kits for the quantification of genomic DNA samples. The Applied Biosystems 7500 Real-Time PCR System has undergone a verification process defined by Applied Biosystems.

However, human identification laboratories analyzing forensic, paternity, databasing, and single-source samples that choose to use the Applied Biosystems 7500 Real-Time PCR System for data analysis should perform their own appropriate validation studies.

Features	Benefits
Wide dynamic range detection	<ul style="list-style-type: none"><li>• More precise results with minimal hands-on time</li><li>• Minimizes repeat analysis</li></ul>
Minimized contamination	<ul style="list-style-type: none"><li>• Closed tube format minimizes the risk of contamination and eliminates all post-PCR processing</li></ul>
Proven performance	<ul style="list-style-type: none"><li>• Utilizes trusted and validated PCR technology</li></ul>
Validated for use with Quantifiler™ kits	<ul style="list-style-type: none"><li>• Validation supports use of 7500 system for human identification applications</li></ul>
Additional data analysis features	<ul style="list-style-type: none"><li>• Auto-baseline feature simplifies data analysis</li><li>• Tool tips for easy identification of sample wells when viewing amplification plots</li></ul>
Intuitive software	<ul style="list-style-type: none"><li>• Plate wizards guide user through all aspects of experimental set-up</li></ul>

## Kit and Instrument Part Numbers

Item	Part Number
Applied Biosystems 7500 Real-Time PCR System (Laptop)	4366605
Applied Biosystems 7500 Real-Time PCR System (Tower)	4366604
Quantifiler™ Human DNA Quantification Kit	4343895
Quantifiler™ Y Human Male DNA Quantification Kit	4343906
Quantifiler™ Human DNA Kits User's Manual	4344790

## What information is available on the Applied Biosystems 7500 Real-Time PCR System?

- Specification Sheet: Stock Number 117SP05-04
- Quantifiler™ Product Bulletin: Stock Number 112PB12-01
- Application Note — Integrated Use of the Quantifiler™ Y Human Male DNA Quantification Kit and the AmpF1STR® Yfiler™ PCR Amplification Kit in Sexual Assault Cases: – Stock Number 112AP03-01

For Research, Forensics or Paternity Use Only. Not for use in diagnostic procedures.

The PCR process and 5' nuclease process are covered by patents owned by Roche, and by patents owned by or licensed to Applied Biosystems.

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