



# Reliable answers, significant savings

QuantStudio 5 Real-Time PCR System for  
Human Identification

# Discover the QuantStudio 5 Real-Time PCR System for Human Identification

The modern forensics laboratory is undergoing a technological revolution. This revolution is driving lab instruments to become increasingly efficient, reliable, interactive, future-proof, and economical.

The Applied Biosystems™ QuantStudio™ 5 Real-Time PCR System for Human Identification is designed for both new and experienced users who need an easy-to-use, reliable, and affordable real-time PCR system with proven quality

and outstanding support. Used with our latest advances in quantification chemistry and Applied Biosystems™ HID Real-Time PCR Analysis Software, this system offers a sensitive, robust solution for forensic DNA quantification. It also helps prepare laboratories for future quantification technologies. With maximum dye versatility, this HID solution offers accurate, trusted results in a small benchtop footprint from your trusted partner in innovation.



## The value of DNA quantification:

- Improved amplification efficiency
- Fewer off-scale, overamplified, or underamplified samples
- Normalized profiles result in reliable data interpretation
- Designed to reduce the need for downstream reanalysis, which enables long-term cost savings
- Provides key sample information to enable forensics workflow decisions
- Enables conservation of sample through targeted downstream assay decisions

# Increased sample assessment for optimal downstream results

The quantification step of the casework workflow is the key to determining how a sample will be processed downstream. There are many factors that determine the success of the short tandem repeat (STR) profile. Our advanced quantification kits enable forensics labs to achieve accurate results in less time for even the most challenging casework samples. The Applied Biosystems™ Quantifiler™ HP and Quantifiler™ Trio DNA Quantification Kits are the first kits that enable forensics laboratories to simultaneously obtain a quantitative and qualitative assessment of total human DNA in a single, highly sensitive real-time PCR reaction.

The Quantifiler HP kit guides selection of the optimal STR analysis chemistry (autosomal or miniSTR) and streamlines the workflow while helping to increase downstream analysis success rates.

The Quantifiler Trio kit has all the enhanced capabilities of the Quantifiler HP kit plus the addition of an improved Y target for more sensitive male:female ratio detection, enabling improved results in sexual assault casework.

Both kits provide important sample information for next-generation sequencing (NGS) on the Applied Biosystems™ Precision ID System, enabling optimal processing with STR, SNP, and mtDNA panels.

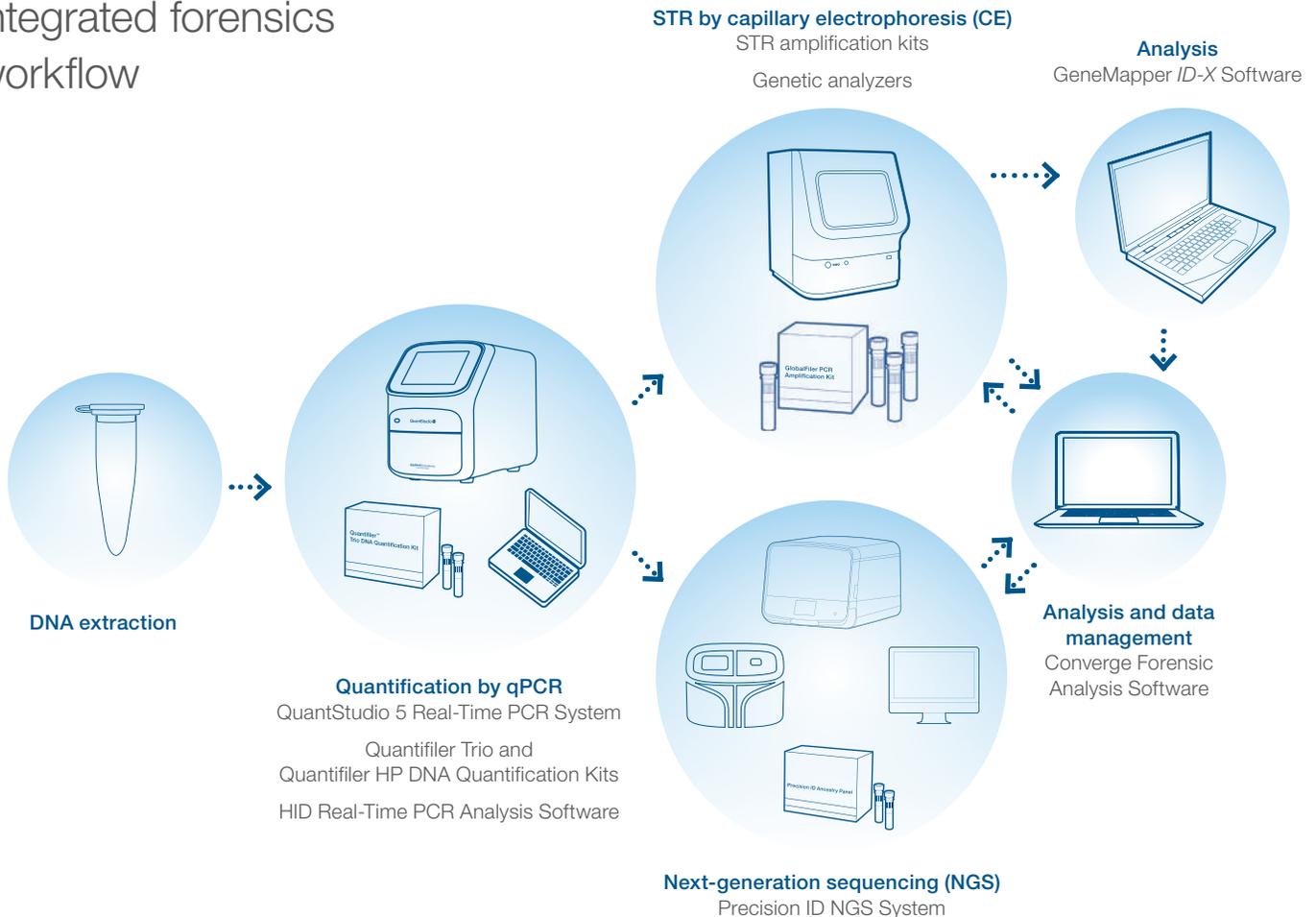
### Decision flow enhancement

The Quantifiler Trio and HP kits, used in conjunction with the QuantStudio 5 system and HID Real-Time PCR Analysis Software, help redefine the casework sample-processing workflow. Quality functionality enables a more comprehensive view of sample quality (both degradation and inhibition), while increased sensitivity and robustness correlate with

more recently released Applied Biosystems™ STR chemistries. This enables you to screen samples and make critical workflow decisions (e.g., autosomal vs. Y-STR for capillary electrophoresis (CE), or CE vs. NGS technology) with greater confidence.

The quantity and quality indicators that these kits incorporate help deliver accurate, sensitive, and specific results that work together with the software to enable informative, integrated workflow decisions.

## Integrated forensics workflow



## **Enhanced data analysis for the QuantStudio 5 system**

We've designed software specifically for the HID application to help forensic scientists take full advantage of the data and capabilities offered by the Quantifiler kits and maximize sample-processing efficiency.

HID Real-Time PCR Analysis Software provides an integrated solution for DNA quantification and introduces the capability to run the Quantifiler kits on the QuantStudio 5 system. The software offers calculation of sample DNA quantity with a virtual standard curve defined by the user. In addition, the software includes quantification and STR setup features, as well as data quality-review functionality, that integrate and streamline quantification and STR analysis steps. By providing predefined templates for Quantifiler and STR kit runs, sample setup time is minimized. Incorporating HID-specific data-quality assessment and STR setup tools into a single software package enables faster and better-informed decisions.

## **Flexible standard curve options**

HID Real-Time PCR Analysis Software enables virtual standard curve functionality to minimize variation. This feature allows the user to define appropriate standard curve values (y-intercept and slope) for all targets applicable to the assay being run. The software allows for an enhanced data analysis pipeline that calculates the sample quantities using the traditional standards on the plate and/or virtual standard curve values (Figure 1).

## **Streamlined HID-specific workflow**

The software provides HID-specific templates preconfigured for the Quantifiler Trio, HP, Duo, and Human DNA quantification kits, for a one-click start option. Customize and set up a run by selecting one of the Quantifiler assay template icons on the home screen (Figure 2). In each template, predefined experimental properties, targets, sample types, and standard concentrations simplify the quantification run setup process. To set up a run, simply enter or import the sample names and well positions of any unknown samples.

The intuitive, easy-to-navigate user interface further streamlines the workflow (Figure 3). The Plate Setup, Run, and Analysis functions are accessed in the Experiment Menu in the left navigation pane. Detailed experimental parameters and results are displayed conveniently on the right pane. For advanced data analysis, there are multiple ways to view and filter data, including plate map and table views, amplification plots, standard curve plots, multicomponent plots, and raw data views that support fast QC, sample data review, and troubleshooting.

## **Validation solutions**

Short on time? Our HID Professional Services (HPS) team is ready to help your laboratory implement the QuantStudio 5 system, Quantifiler kit of your choice, and HID real-time Software into your forensics workflow. With over 300 projects completed around the world, you can trust our HPS team to help accelerate your implementation of new workflows. Our global group of forensic scientists has many decades of combined industry experience to help drive the optimization of your workflow and minimize the impact to your lab's daily operations. We help you save valuable resources, so you can focus on productivity.

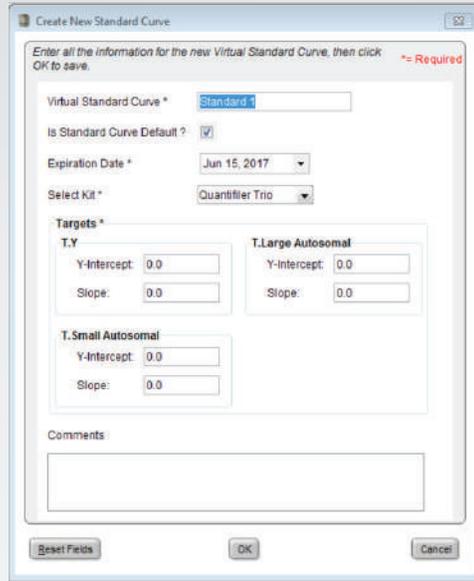


Figure 1. Enhanced data analysis using virtual standard curve functionality.

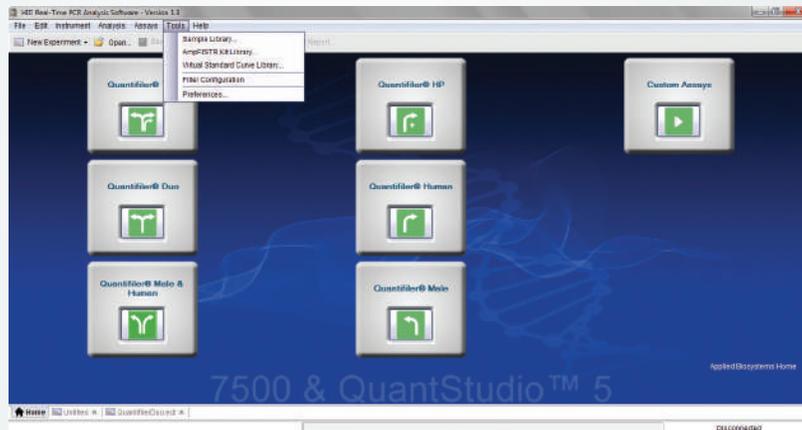


Figure 2. The home screen provides direct access to HID-specific templates for all Quantifiler DNA Quantification Kits.

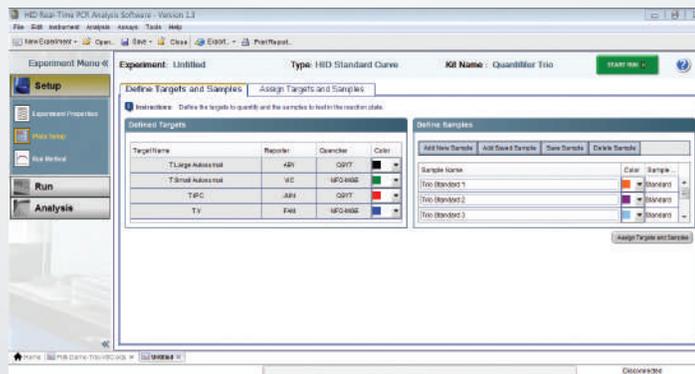


Figure 3. The easy-to-navigate user interface streamlines the workflow with easy access to Setup, Run, and Analysis menus in the left navigation pane.



# Technical specifications

QuantStudio 5 instrument	
Sample capacity (wells)	96
Reaction volume	10–100 µL, in 96-well 0.2 mL block
Footprint, weight	27 x 50 x 40 cm (W x D x H), 25.7 kg (56.5 lb)
Excitation source	Complementary metal-oxide semiconductor (CMOS) camera with bright white LED
Optical detection	96-well: 6 decoupled filters
Excitation/detection range	96-well: 450–680 nm/500–730 nm
Multiplexing	96-well: up to 6 targets
2D barcode reading	Optional
Heating/cooling method	Peltier
Temperature zone function	96-well: 6 Applied Biosystems™ VeriFlex™ zones
Maximum block ramp rate	6.5°C/sec
Average sample ramp rate	3.66°C/sec
Temperature uniformity	0.4°C
Temperature accuracy	0.25°C
Run time	~70 min for Quantifiler Trio and HP kits ~100 min for Quantifiler Duo and Human kits
Dye compatibility (name)	FAM™/SYBR™ Green, VIC™/JOE™/HEX™/TET™, ABY™*/NED™/TAMRA™/Cy®3, JUN™*, ROX™/Texas Red™, Mustang Purple™, Cy®5/LIZ™, Cy®5.5
Chemistry capabilities	**Fast/standard
Sensitivity (no. of copies)	1 copy
Sensitivity (resolution)	Detect differences as small as 1.5-fold in target quantities in a singleplex reaction

\* The instrument is factory calibrated with FAM, SYBR Green I, VIC, NED, ABY (Cat. No. 4461591), JUN, Mustang Purple, TAMRA, Cy5, and ROX dyes. In order to run Quantifiler Trio or HP kits, HID ABY (Cat. No. 4461591), and HID JUN (Cat. No. 4461593) dyes will be delivered with each instrument and will require calibration upon installation.

\*\* Not validated for human identification.

Please consult your Quantification User Guide for assay-specific parameters.

# Get a premium instrument at an affordable price

Innovation doesn't have to come at a premium price. Get the state-of-the-art Applied Biosystems™ functionality and industrial design that you've come to know, with the advanced QuantStudio 5 system for human identification and one of our economical service plan options.



## **HID orientation**

The QuantStudio 5 system includes an instrument orientation to get you up and running quickly in your lab. The orientation covers basic qPCR familiarization and instrument installation. QuantStudio 5 system owners receive personalized training on qPCR applications and HID Real-Time PCR Analysis Software.



## **Comprehensive instrument warranty**

Our factory-trained and certified field service engineers (FSEs) and Global Repair Center engineers are focused on delivering the highest-quality workmanship. During the warranty period, all qualifying repairs, including engineer time and travel or shipping to the Global Repair Center, are covered.



## **Flexible service plans**

Choose from a variety of service options that balance your budget, productivity, uptime, and regulatory requirements. Plans start with the most basic repair models and scale to premium offerings including advanced support and compliance services. On-site service plans are optimal for labs that have time-sensitive work and need to get their instrument back online quickly. These plans include guaranteed response times in most regions, scheduled planned maintenance, and automatic software updates.



## **Training courses**

Our application and instrument training programs are led by forensic scientists who aim to enhance your workday through experimental design best practices, workflow training, and instrument troubleshooting. Hands-on classes are available at our Thermo Fisher Scientific training centers or in your lab.



## **Technical support**

If you have questions about product selection or use, assay or experimental design, data analysis, or troubleshooting, contact our team of technical support forensic scientists or access our online product and application support tools.



## **Financing options**

If you're looking for accelerated return on investment, technology protection, or cash flow management, our innovative financing options can help meet your company's budgetary needs and bottom-line goals. Contact your sales representative for more details.

# Service plans at a glance

Service plan:	OQPQ + PM	AB Maintenance Plus	AB Assurance	AB Complete
		<b>On-site service plans</b>		
On-site response time		Target 2 business days <sup>†</sup>	Guaranteed 2 business days <sup>†</sup>	Guaranteed next business day <sup>†</sup>
Scheduled on-site planned maintenance (PM)	✓	✓	✓	✓
Remote diagnostics		✓	✓	✓
Parts, labor, and travel for repair		10% discount optional add-on in selected regions	✓	✓
Computer repair and replacement			✓	✓
Priority access to Tech Support Mon–Fri, 8 a.m.–5 p.m. local time				✓
Priority access to remote service engineer			✓	✓
Requalification post-PM and critical repairs (when applicable)	✓			✓
Field application scientist consultation				✓

† Response times vary by region.







**Ordering information**

Product	Quantity	Cat. No.
QuantStudio 5 Real-Time PCR System for Human Identification	1 system, includes laptop	A34321
	1 system, includes desktop	A34322
Quantifiler Trio DNA Quantification Kit	400 reactions	4482910
Quantifiler HP DNA Quantification Kit	400 reactions	4482911
HID Real-Time PCR Analysis Software	Single-user license	A31150
	5-user license	A31152
	Upgrade—single-user license	A31153
	Upgrade—5-user license	A31154

Find out more at [thermofisher.com/quant](https://thermofisher.com/quant)