qPCR for who you are

QuantStudio™ real-time PCR and digital PCR systems

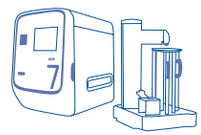
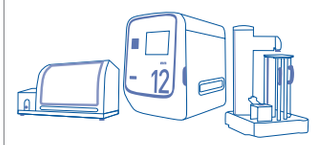
Applied Biosystems®

life technologies™

Every lab is unique. That's why you deserve a PCR platform that perfectly fits your needs. Perhaps you're looking for versatility on a budget, or reliable results from limited samples. Maybe your research requires high throughput for maximum productivity, or absolute answers to take your work to the next level. Whatever you need, there's a QuantStudio™ qPCR system that's just right for your research.

Your research. Your way.

QuantStudio™ real-time PCR and digital PCR systems

	Real-time PCR only		Real-time & digital PCR	Digital PCR only
	 QuantStudio™ 6 Flex	 QuantStudio™ 7 Flex	 QuantStudio™ 12K Flex	 QuantStudio™ 3D
Price	$$	$$$	$$$$	$
Colors	5 colors	6 colors (21 filter combinations)	6 colors (21 filter combinations)	2 colors (endpoint detection)
Chemistry	SYBR®, TaqMan®	SYBR®, TaqMan®	SYBR®, TaqMan®	TaqMan® only
Available blocks	96-well 96-well Fast 384-well	96-well 96-well Fast 384-well TaqMan® Array Card (384-well microfluidic card)	96-well 96-well Fast 384-well TaqMan® Array Card (384-well microfluidic card) OpenArray® (3,072 through-holes)	20,000 partitions/chip
Automation available	No	Yes	Yes	No
Throughput	***	****	*****	*
Block change	Block change from front in less than 1 minute, no tools required			n/a
21 CFR Part 11 enablement	Optional software module available			n/a
Remote monitoring	Available to monitor up to 15 networked instruments simultaneously			n/a
Intuitive touch screen	Yes	Yes	Yes	Yes
Key applications	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics • Digital PCR	• Quantification of molecular standards • Absolute quantification • Pathogen detection • Load determination • Copy number variation • Digital PCR

I need room to grow

Flexibility for today, tomorrow, and beyond.

QuantStudio™ 6 Flex Real-Time PCR System

The QuantStudio™ 6 Flex Real-Time PCR System is ideal for laboratories with multiple applications or end users on a limited budget. With an upgradable path to a QuantStudio™ 7 Flex System to accommodate automation or TaqMan® Array Cards, the QuantStudio™ 6 Flex System is the ideal qPCR platform if your needs change in the future.

Key benefits

Flexibility that minimizes large up-front capital investment

With one instrument, you can interchange between 96-well, 96-well Fast, and 384-well formats.

Skip the learning curve

The intuitive software, easy touch screen setup, and effortless block change are designed to let you get started right away.

Performance you can trust

Detect as small as 1.5-fold changes in singleplex reactions and with 10 logs dynamic range.

Upgrade capabilities when you need it

The QuantStudio™ 6 Flex System can be seamlessly upgraded to a QuantStudio™ 7 Flex by a field service engineer to give you additional automation, throughput, and multiplexing capabilities.

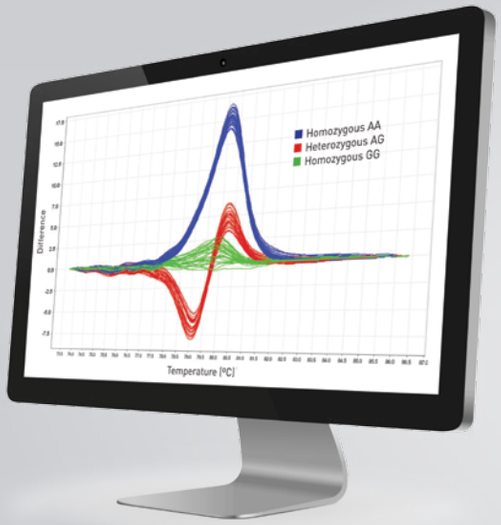
Application spotlight

Identify more new variants quickly and accurately with high resolution melt

High resolution melt (HRM) analysis is based on detecting small differences in PCR melting (dissociation) curves. It is enabled by improved dsDNA-binding dyes used in conjunction with real-time PCR instrumentation that has precise temperature ramp control and advanced data capture capabilities. Achieve high-throughput HRM analysis using the QuantStudio™ 6 Flex System and 384-well block with MeltDoctor™ software, built-in protocols, and calibrations.

Advantages of HRM

- Low reagent and sample consumption
- Fast, simple workflow
- Thermal optimization not required



The QuantStudio™ 6 Flex Real-Time PCR System gives you flexibility at an affordable price.

I need more versatility

Moving from application to application is now easier than ever with additional dyes, formats, and automation potential.

QuantStudio™ 7 Flex Real-Time PCR System

The QuantStudio™ 7 Flex Real-Time PCR System delivers the proven reliability, sensitivity, and accuracy of the ViiA™ 7 System in a new industrial design. The QuantStudio™ 7 Flex System is optimized to enable the broadest range of quantitative PCR applications.

Key benefits

Accomplish more, faster

Run hundreds of real-time PCR reactions effortlessly using TaqMan® Array Microfluidic Cards integrated with the Twister® robot. The QuantStudio™ 7 Flex System can maximize your throughput capabilities for automated environments.

High application versatility

Optimized protocols, reagents, and intuitive software are available for the broadest range of applications, including:

- Gene expression
- Long non-coding RNA analysis
- Pri-miRNA Analysis
- Mutation detection
- High resolution melt
- SNP genotyping
- MicroRNA profiling
- Protein thermal shift

Get results you can trust

Get improved well-to-well and instrument-to-instrument data accuracy with the OptiFlex™ System featuring six decoupled excitation and emission filter channels, with 21 filter combinations for maximum multiplexing and chemistry flexibility.

Application spotlight

Identification of novel pathways contributing to immune response

The TaqMan® Human Immune Array Card is a cost-effective, easy-to-use microfluidic card for quantitative gene expression analysis of targets known to have implications in immune response. The gene targets on the TaqMan® Human Immune Array Card include cytokines, chemokines, growth factors, immune regulators, apoptosis markers, ischemia markers, tissue-specific markers, and others, including classic endogenous markers. The array is cost-effective, convenient, and easy to use without needing expensive robotics. Results are reproducible and consistent across samples, studies, and labs—providing the same data quality from card to card and lot to lot—even with different operators. Hundreds of customizable and predefined TaqMan® Array Microfluidic

Advance your research further with the application versatility of the QuantStudio™ 7 Flex Real-Time PCR System.

I need maximum productivity

Harness the power of high-throughput technology for maximum productivity with minimum effort.

QuantStudio™ 12K Flex System

The QuantStudio™ 12K Flex System accelerates many high-throughput research applications such as:

- Drug discovery
- Pharmaceutical target confirmation
- MicroRNA profiling
- Agriculture molecular testing

Key benefits

Miniaturization at lower cost

OpenArray® technology is a broadly applicable nanoliter fluidics platform for low-volume, solution-phase reactions, and enables lower reagent and assay costs, and rapid parallel processing.

Unparalleled throughput

Produce up to 110,000 data points in an 8-hour day with the OpenArray® block and a single GeneAmp® 9700 thermal cycler. Furthermore, when equipped with the OpenArray® block, Twister® automation robot, and several GeneAmp® 9700 thermal cyclers, you have the capacity to analyze more than 2 million data points per day.

Seamless switch from qPCR to digital PCR

Increase the precision and sensitivity of your experiments when you need it by interchanging real-time PCR and digital PCR applications using QuantStudio™ digital kits and DigitalSuite™ software with OpenArray® blocks.

Increased data integrity and quality control—with results you can trust

The integrated sample tracking and security, auditing, and electronic signature (SAE) module assist you in 21 CFR Part 11 compliance.

Application spotlight

Pharmacogenomics

Pharmacogenomics is the understanding of drug efficacy based on individuals' unique genomic composition. The QuantStudio™ 12K Flex System and OpenArray® technology provide a simple, cost-effective, and fast screening workflow.

1. Load samples onto OpenArray® Plate

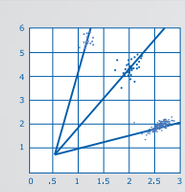
Minimal hands-on time

2. Cycle & image OpenArray® Plates

110,000 data points per 8-hr day

3. Analyze results

Assists with 21 CFR part 11 compliance



With the QuantStudio™ 12K Flex Real-Time PCR System and OpenArray® technology, a single user can generate from 1 to over 12,000 data points in a single run with minimal hands-on time.

I need absolute answers

Take your research to the next level with technology that is as innovative as your research.

QuantStudio™ 3D Digital PCR System

The QuantStudio™ 3D Digital PCR System leverages high-density nanofluidic chip technology for investigations that involve detecting rare events, analyzing small differences between two targets, or counting the exact number of targets in a sample. Due to the higher precision, sensitivity, and absolute nature of digital PCR, it is ideal for the following applications:

- Qualification of molecular standards used in traditional real-time PCR experiments
- Pathogen detection and load determination
- Rare-target detection such as somatic mutation detection in oncology research
- GMO detection and contamination assessment
- Generation of references and standards
- Copy number variation

Key benefits

Simple workflow
A streamlined workflow with minimal sample handling enables turnkey processing. Just load and go.

Affordable
Less than half the price of competing platforms, making new digital PCR technology within reach for most labs.

Absolute quantification
20,000 reaction wells yield data in copies/µL with high precision and sensitivity without the need for a standard curve.

Sealed system
Limit contaminants with a sealed chip and no exposed sample transfer steps.

Run experiments without batching
Each chip can be individually run, not requiring a minimum number of samples per run.

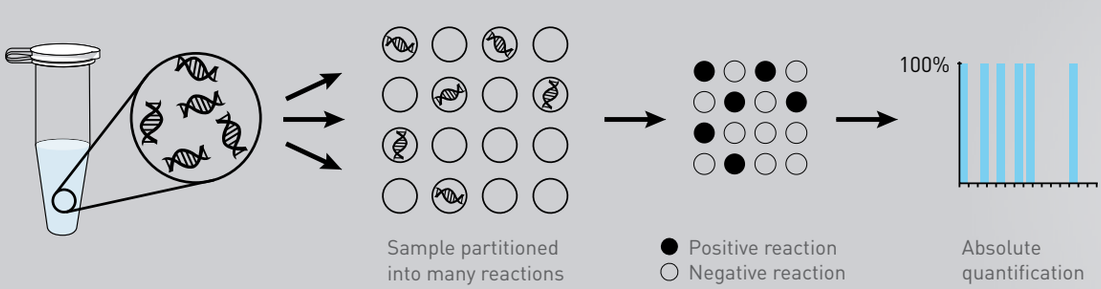
Easily fits in populated spaces
Small footprint (7" x 5" x 9") will fit most benchtops and can be moved when needed.

Compatible
Use your existing TaqMan® Real-Time Assays for a digital result.

Application spotlight

Determining low copy number in equivocal tissue

Many cancers are regulated by mutations in a specific gene or group of genes, or copy number changes. These aberrations can be associated with aggressiveness of the disease or prognosis. Digital PCR provides a fast and easy workflow to precisely identify low copy numbers that have small differences. Compared to immunohistochemistry by fluorescence *in situ* hybridization, digital PCR is less impacted by tissue heterogeneity and provides clearer results.



The QuantStudio™ 3D Digital PCR System enables sensitive and precise absolute target quantification without the use of a reference or standard curve.

Additional real-time PCR solutions

You are a clinical lab

The QuantStudio™ Dx instrument provides your clinical laboratory with performance you can trust, the security you demand, and flexibility you need for your workflow. For more information on the QuantStudio™ Dx Real-Time PCR System, go to

lifetechnologies.com/quantstudiodx

You are new to qPCR

The StepOne™ and StepOnePlus™ Real-Time PCR Systems are remarkably simple, low-priced systems that enable high-quality results and are designed with a user-friendly yet powerful interface for researchers new to real-time PCR. For more information, go to

lifetechnologies.com/steponeplus

You have validated protocols

The 7500 and 7500 Fast Real-Time PCR Systems' proven performance is known across the world for validated research applications in human identification, food testing, and animal health. For more information, go to

lifetechnologies.com/abqpcr

StepOne, StepOnePlus, 7500, and 7500 Fast Systems are for Research Use Only. Not for use in diagnostic procedures.

Analysis software

We offer Applied Biosystems® primary and secondary analysis software for real-time PCR and digital PCR applications.

Software and description	QuantStudio™ 6 Flex	QuantStudio™ 7 Flex	QuantStudio™ 12K Flex	QuantStudio™ 3D
QuantStudio™ 6/7 Software	•	•		
QuantStudio™ 12K Flex Software			•	
Sample Tracker Software facilitates tracking from 96-well to 384-well plates for mapping onto the OpenArray® plate			•	
HRM Software module for 96-well and 384-well blocks	•	•	•	
21 CFR Part 11 Software module assists with security, auditing, and e-signature records	•	•	•	
ExpressionSuite™ Software for enhanced gene expression analysis	•	•	•	
Genotyper™ Software for SNP genotyping data analysis	•	•	•	
DigitalSuite™ Software to switch from real-time to digital PCR data analysis			•	
QuantStudio™ 3D AnalysisSuite™ Software for data QC and multi-chip analysis				•
Protein Thermal Shift™ (PTS) Software	•	•	•	

Real-time PCR application areas

Real-time PCR is used for sensitive, specific detection and quantification of nucleic acid targets. We have developed powerful assay design algorithms, optimized master mixes, intuitive data analysis software, and flexible instrumentation to help harness the power of qPCR across a rich and diverse set of applications. Discover solutions for your qPCR-based research.

Infectious disease research
See our growing catalog of sensitive, specific real-time PCR probe and primer sets for human viruses and other infectious disease research.

Food pathogen detection
Detect multiple bacteria in the same run, including *Salmonella*, *Campylobacter*, *E. coli* O157:H7, and *Listeria monocytogenes*.

Waterborne pathogen detection
Detect and monitor waterborne pathogens in recreational and drinking water supplies.

Pharmaceutical analytics
Detect mycoplasmas, viruses, and residual host cell contamination for pharmaceutical, cosmetics, and personal care product manufacturing.

Plant sciences and agricultural biotechnology
Instruments, reagents, and kits designed for plant researchers that will lead the way to remarkable agricultural discoveries—everything from improved crops that feed more people to sustainable biofuels.

Stem cell research
Solutions for analyzing stem cells, determining stemness, and studying gene regulation and translation in stem cells.

Pharmacogenomics
Predesigned TaqMan® Assays for more than 175 ADME and CYP targets, including >95% of ADME core markers and a warfarin metabolism panel.

Oncology and genetic disease research
Robust, reliable detection and quantitation of markers quantation of markers for cancer and genetic diseases.

TaqMan® chemistry and SYBR® Green chemistry for real-time PCR

Life Technologies offers two types of chemistries to detect PCR products using real-time PCR instruments:

- TaqMan® Assay chemistry (also known as fluorogenic 5' nuclease chemistry)
- SYBR® Green I dye chemistry

	TaqMan® Assay—based detection	SYBR® Green—based detection
Chemistry overview	Uses a fluorogenic probe to enable detection of a specific PCR product as it accumulates during PCR cycles	Uses SYBR® Green I, or similar dye that binds to double-stranded DNA to detect PCR product as it accumulates during PCR

	TaqMan® Assay reagents	SYBR® Green reagents
Specificity	High	Low
Sensitivity—low copy number	High	Variable*
Reproducibility	High	Variable*
Multiplexing	Yes	No
Predesigned assays	Yes	No
Custom assays	Yes	No
User design and optimization	No	Yes
Cost	High	Low*
Gene expression quantitation	High	Low
DNA quantitation	Yes	Yes (pathogen detection)
ChIP	Yes	Yes
SNP genotyping	Yes	No
MicroRNA	Yes	No
Copy number	Yes	No
Somatic mutation detection	Yes	No
Pathway analysis	Yes	No
Digital PCR	Yes	No

*Depends on template quality, and primer design and optimization

Ordering information

QuantStudio™ 6 Flex configurations	Cat. No.
QuantStudio™ 6 Flex 96-well instrument, laptop configuration	4485689
QuantStudio™ 6 Flex 96-well Fast instrument, laptop configuration	4485699
QuantStudio™ 6 Flex 384-well instrument, laptop configuration	4485691
QuantStudio™ 6 Flex 96-well instrument, desktop configuration	4485692
QuantStudio™ 6 Flex 96-well Fast instrument, desktop configuration	4485697
QuantStudio™ 6 Flex 384-well instrument, desktop configuration	4485694
QuantStudio™ 6/7 Flex 96-well block upgrade kit	4453543
QuantStudio™ 6/7 Flex 96-well Fast block upgrade kit	4453544
QuantStudio™ 6/7 Flex 384-well block upgrade kit	4453545

QuantStudio™ 7 Flex configurations	Cat. No.
QuantStudio™ 7 Flex 96-well instrument, laptop configuration	4485688
QuantStudio™ 7 Flex 96-well Fast instrument, laptop configuration	4485698
QuantStudio™ 7 Flex 384-well instrument, laptop configuration	4485695
QuantStudio™ 7 Flex TAC instrument, laptop configuration	4485700
QuantStudio™ 7 Flex 96-well instrument, desktop configuration	4485690
QuantStudio™ 7 Flex 96-well Fast instrument, desktop configuration	4485693
QuantStudio™ 7 Flex 384-well instrument, desktop configuration	4485701
QuantStudio™ 7 Flex TAC instrument, desktop configuration	4485696
QuantStudio™ 6/7 Flex 96-well block upgrade kit	4453543
QuantStudio™ 6/7 Flex 96-well Fast block upgrade kit	4453544
QuantStudio™ 6/7 Flex 384-well block upgrade kit	4453545
QuantStudio™ 7 Flex TAC block upgrade kit	4453546
QuantStudio™ 12K Flex automation robot	4471066

QuantStudio™ 12K Flex configurations	Cat. No.
QuantStudio™ 12K Flex OpenArray® block includes AccuFill™ System, laptop configuration	4471086
QuantStudio™ 12K Flex OpenArray® block without AccuFill™ System, laptop configuration	4472379
QuantStudio™ 12K Flex 96-well instrument, laptop configuration	4471050
QuantStudio™ 12K Flex 96-well Fast instrument, laptop configuration	4471080
QuantStudio™ 12K Flex 384-well instrument, laptop configuration	4471081
QuantStudio™ 12K Flex, TAC instrument, laptop configuration	4471085
QuantStudio™ 12K Flex OpenArray® block includes AccuFill™ System, desktop configuration	4471090
QuantStudio™ 12K Flex OpenArray® block without AccuFill™ System, desktop configuration	4472380
QuantStudio™ 12K Flex 96-well instrument, desktop configuration	4471087
QuantStudio™ 12K Flex 96-well Fast instrument, desktop configuration	4471088
QuantStudio™ 12K Flex 384-well instrument, desktop configuration	4471134
QuantStudio™ 12K Flex TAC instrument, desktop configuration	4471089
QuantStudio™ 12K Flex 96-Well Block Upgrade Kit	4453543
QuantStudio™ 12K Flex 96-Well Fast Block Upgrade Kit	4453544
QuantStudio™ 12K Flex 384-Well Block Upgrade Kit	4453545
QuantStudio™ 12K Flex TAC Block Upgrade Kit	4453546
OpenArray® Block Upgrade Kit with AccuFill™ System	4471067
QuantStudio™ AccuFill™ System	4471021
QuantStudio™ 12K Flex AccuFill™ Upgrade Kit (for existing AccuFill™ System users)	4471022
Dual Flat Block GeneAmp® PCR System 9700	4428234
Dual Flat Block GeneAmp® PCR System 9700, sample module only	4425757
QuantStudio™ 12K Flex automation robot	4471066

QuantStudio™ 3D Digital PCR System	Cat. No.
QuantStudio™ 3D Digital PCR System Package—includes:	4482593
QuantStudio™ 3D Digital PCR instrument	4481097
QuantStudio™ 3D Digital PCR Chip Loader	4482592
QuantStudio™ 3D Digital PCR Chip Adapter Kit for GeneAmp® PCR System 9700	4485513
QuantStudio™ 3D Digital PCR 20K Chip Pack (includes consumables)	4485507
GeneAmp® PCR System 9700, Dual Flat Block	4428234
QuantStudio™ 3D Digital PCR Master Mix (1.5 mL)	4482710
Value QuantStudio™ 3D Digital PCR System Package—includes all items above except QuantStudio™ 3D Digital PCR Chip Loader	4486653
Additional items:	
QuantStudio™ 3D Digital PCR Master Mix (5 mL)	4485718

Support at every step

Instruments and Services Portal
Award-winning,* free online tool that enables faster response to requests for service or service quotes, plus instant sharing of key instrument and service information with your colleagues.

Comprehensive worldwide support
Whether you need help with a current order, placing a new order, or finding more information about product availability, please contact your local customer support team.

Technical support and training
If you have questions about product selection or use, assay or experiment design, data analysis, or troubleshooting, contact our team of technical support scientists or utilize our comprehensive portfolio of online product and application support tools.

Compliance and validation services
A broad range of audit-quality services are available, including installation qualification (IQ), operation qualification/instrument performance verification (OQ/IPV), pure dye calibration, on-site temperature verification, computer system validation, and risk assessment.

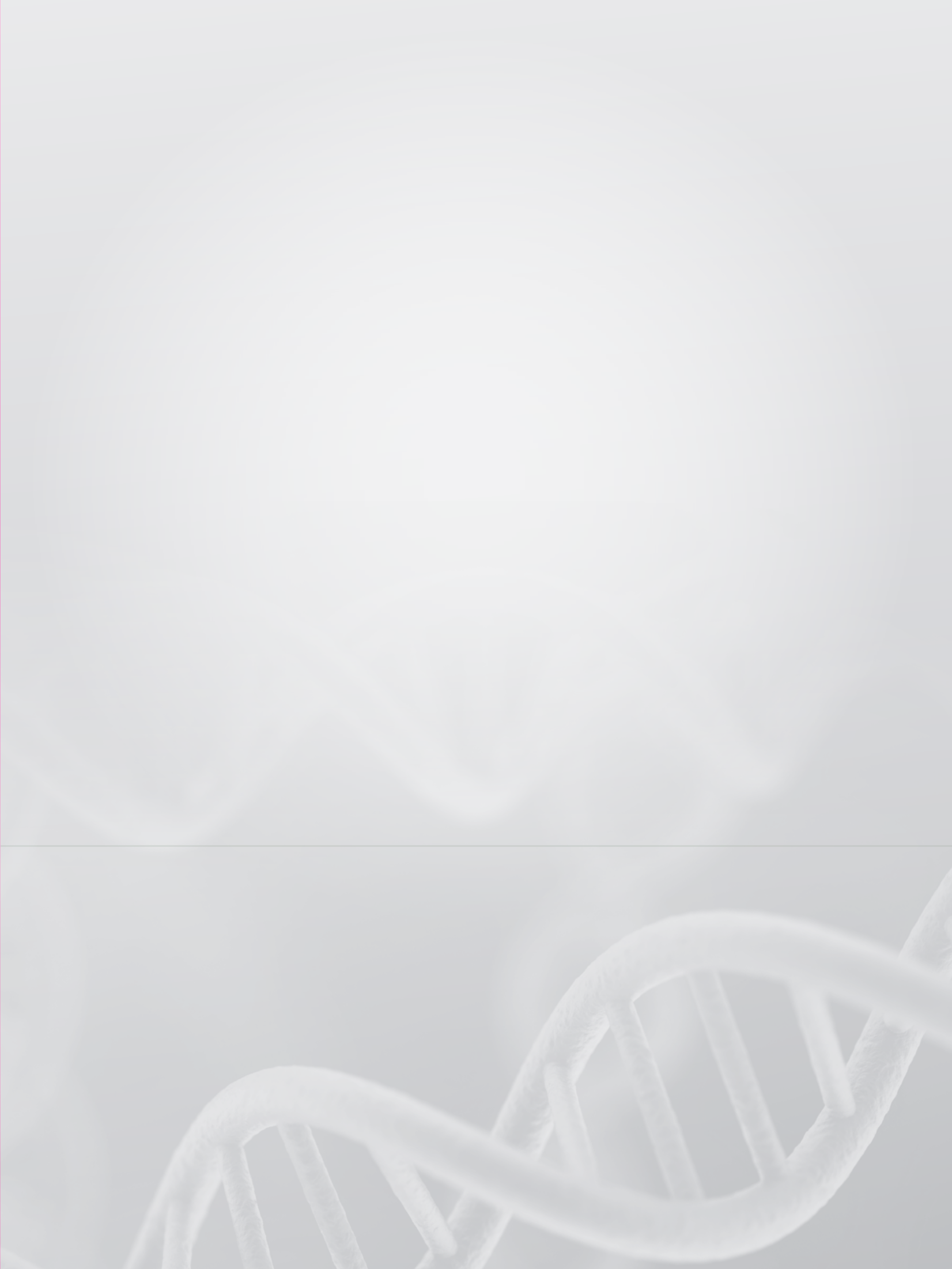
How to reach us
To find your local support or technical support team, go to lifetechnologies.com/contactus.
For product FAQs, protocols, training courses, and webinars, go to lifetechnologies.com/technicalresources.

*2012 Oracle® fusion Middleware Innovation Award. Instruments and Services Portal not available in all regions

Service for real-time PCR systems

Applied Biosystems® service plans

	AB® Complete	AB® Assurance	AB® Maintenance
Repair response time (business days)	Guaranteed next-day: on-site repairs	Guaranteed 2-day: on-site repairs	Target 2-day: remedial repairs
Remote instrument monitoring and diagnostics	•	•	
Priority phone and email access to instrument support	•	•	
Priority phone and email access to application technical support	•	•	•



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