PCR

applied biosystems invitrogen

PCR solutions brochure

Reach any scientific destination with first-class PCR results

ThermoFisher SCIENTIFIC


Elevate your PCR
Together, Applied Biosystems™ and Invitrogen™ PCR products offer a direct route to reliable PCR results. Our comprehensive portfolio of thermal cyclers, PCR plastics, reagents, and service plans can help you consistently arrive at results quicker, with more assurance and less optimization.
At Thermo Fisher Scientific, we are dedicated to innovation, so sit back and relax, knowing we're here to help you get to your final PCR destination.
Learn more at **thermofisher.com/amplifly**

Contents

Which instrument fits your needs?

Our engineers have been designing and manufacturing high-quality thermal cyclers since 1987. In that time, Applied Biosystems™ thermal cyclers have built a reputation for reliability, accuracy, and user-friendly interfaces. Our instruments enable precise, consistent results for every challenge, application, and budget.

	Ultimate flexibility and throughput	Elegantly simple and precise	Proven reliability, precise PCR optimization	Routine PCR, elevated	Routine PCR	Designed for easy robotic integration
	ProFlex PCR System	SimpliAmp Thermal Cycler	Veriti Thermal Cycler*	MiniAmp Plus Thermal Cycler	MiniAmp Thermal Cycler	Automated Thermal Cycler
Max. sample throughput	480,000 reactions	96 reactions	384 reactions	96 reactions	96 reactions	384 reactions
Max. block ramp rate	6.0°C/sec	4.0°C/sec	5.0°C/sec	3.5°C/sec	3.0°C/sec	3.5°C/sec
Block formats (temperature optimization)	• 3 x 32-well, 0.2 mL (2-zone VeriFlex Block) • 96-well, 0.2 mL (6-zone VeriFlex Block) • 2 x 96-well, 0.2 mL • 2 x flat block • 2 x 384-well, 0.02 mL	• 96-well, 0.2 mL (3-zone VeriFlex Block)	• 96-well, 0.2 mL (6-zone VeriFlex Block) • Fast 96-well, 0.1 mL • 384-well, 0.02 mL • 60-well, 0.5 mL	• 96-well, 0.2 mL (3-zone VeriFlex Block)	• 96-well, 0.2 mL	• 96-well, 0.2 mL, compatible with full- or semi-skirted plates • 384-well, 0.02 mL

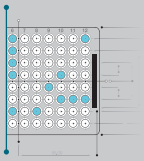
For Research Use Only. Not for use in diagnostic procedures.

* Also available as an FDA Class 1/CE-IVD labeled device.

= cloud-enabled instrument

Don't forget reagents—choose from industry-leading PCR enzymes such as Invitrogen™ SuperScript™ IV reverse transcriptases and Invitrogen™ Platinum™ SuperFi™ II reagents (see pg. 22–25).

Interested in private-label thermal cyclers or PCR plastics? To find out more, go to **thermofisher.com/oem-partner**




AmpliFly

Ultimate flexibility and throughput

ProFlex PCR System

The Applied Biosystems™ ProFlex™ PCR System combines flexible configuration and control features to fit how you work today and tomorrow with the reliability you've come to expect from Applied Biosystems™ products. Interchangeable block formats allow you to maximize your throughput or run independent experiments concurrently.

The ProFlex PCR System is cloud-enabled, giving you the freedom to design and securely upload your methods, monitor runs, and check instrument availability from any mobile device or desktop computer with Connect.

- **Multi-user accessible**—run three experiments at once
- **Flexible block configuration**—accepts five different block formats for optimization and throughput
- **Cloud-enabled**—conveniently access your instrument anytime, anywhere with Connect
- **Fleet control–compatible**—manage multiple instruments, users, and methods with Applied Biosystems™ Thermal Cycler Fleet Control Software

= cloud-enabled instrument

Five interchangeable block options

The ProFlex PCR System has five different blocks that can be changed with the flip of a switch, including a 3 x 32-well block. This allows up to three experiments to be run simultaneously, completely independently of each other.

Dual 96-well and dual 384-well blocks are available for high-throughput needs. A dual flat block is also available to support Applied Biosystems™ OpenArray™ plate technology for genotyping analysis on the Applied Biosystems™ QuantStudio™ 12K Flex Real-Time PCR System as well as our sealed-chip technology on the QuantStudio™ 3D Digital PCR System.

3 x 32-well

96-well

Dual 96-well

Dual 384-well

Dual flat

Find out more at **thermofisher.com/proflex**

Specifications

Block format	3 x 32-well, 0.2 mL, 2-zone VeriFlex Block independent control	96-well, 0.2 mL, 6-zone VeriFlex Block	2 x 96-well, 0.2 mL	2 x flat block for chips and arrays	2 x 384-well, 0.02 mL
Features	Run three experiments at once or at different times	Perform complete optimization work with full 96-well VeriFlex Block	High throughput in 96-well format	High throughput capability: 8 x 3,072 OpenArray Plate* or 24 x 20K Chip**	High throughput in 384-well format
Max. block ramp rate	6.0°C/sec	6.0°C/sec	3.0°C/sec	1.6°C/sec	3.0°C/sec
Max. sample ramp rate	4.4°C/sec	4.4°C/sec	1.6°C/sec	NA	1.6°C/sec
Temperature accuracy	±0.25°C (35–99.9°C)				
Temperature range	0–100.0°C				
Temperature uniformity	<0.5°C (20 sec after reaching 95°C)				
Dimensions (H x W x D)	27.2 x 33.0 x 56.5 cm (10.6 x 13 x 22 in.)				
Weight	18.8 kg (41 lb)		20.4 kg (45 lb)		
PCR volume range	10–80 µL	10–80 µL	10–100 µL	33 nL	5–20 µL
Instrument memory	USB, onboard				
Display interface	8.4 inch color TFT LCD				
Power	100–240 V, 50–60 Hz, max. 950 VA				
VeriFlex Block	2 temperature zones per block (5°C zone-to-zone)	6 temperature zones, 25°C range (5°C zone-to-zone)	NA		
Data connectivity†	Cloud or mobile via Ethernet or Wi-Fi				

* OpenArray Plate is compatible with the QuantStudio 12K Flex Real-Time PCR System.

** 20K Chip is compatible with the QuantStudio 3D Digital PCR System.

† The Instrument Connect app, available at Apple™ and Google™ app stores, can be used to monitor your instrument. Connect can be used to create and share protocols, schedule an instrument, and start and monitor runs remotely.

Ordering information

Product	Complete system Cat. No.	Block only Cat. No.	Instrument + 5-year warranty with Rapid Exchange Cat. No.
ProFlex 96-Well PCR System	4484075	4483637	A27934
ProFlex 3 x 32-Well PCR System	4484073	4483638	A28986
ProFlex 2 x 96-Well PCR System Kit	4484076	4484071	A27937
ProFlex 2 x Flat PCR System	4484078	4484074	A27931
ProFlex 2 x 384-Well PCR System	4484077	4484072	A30229

Recommended plastics

3 x 32-well block	Cat. No.	96-well block	Cat. No.	384-well block	Cat. No.
MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp Reaction Tube with Cap, 0.2 mL	N8010540	MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp 32-Well Clear Adhesive Film	A32812	MicroAmp Clear Adhesive Film	4306311	MicroAmp Clear Adhesive Film	4306311
		MicroAmp 32-Well Clear Adhesive Film	A32812		

Did you know?

The Veriti, ProFlex, SimpliAmp, and MiniAmp Plus Thermal Cyclers feature Applied Biosystems™ VeriFlex™ temperature control technology, which enables more precise and efficient PCR optimization.

Find out more at **thermofisher.com/veriflextechnology**

Elegantly simple and precise

SimpliAmp Thermal Cycler

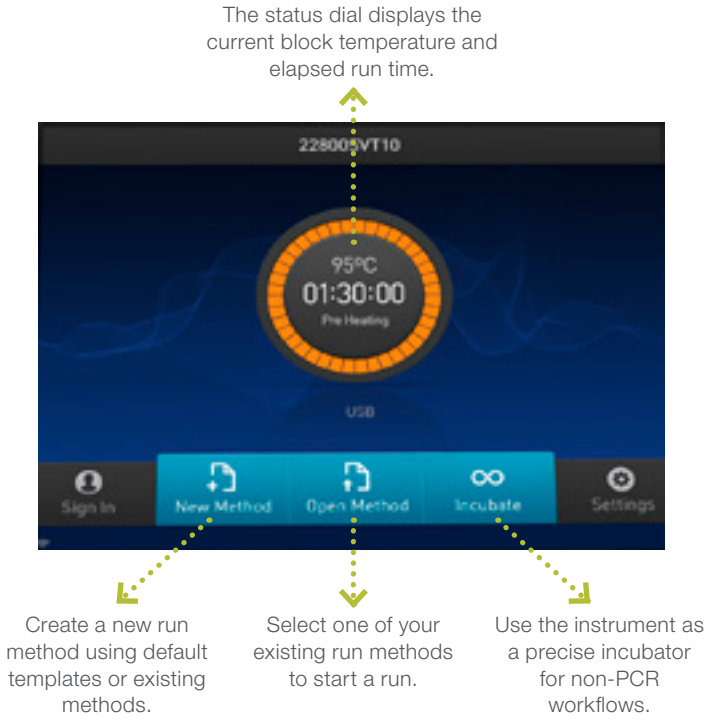
The SimpliAmp Thermal Cycler is an easy-to-use, compact, and accurate thermal cycler designed to fit every lab's essential PCR workflow. Features like a responsive color touchscreen and VeriFlex temperature control technology enable simple, accurate optimization. Plus, the SimpliAmp Thermal Cycler is cloud-enabled, giving you the freedom to design and securely upload your methods, monitor runs, and check instrument availability from any mobile device or desktop computer with Connect.

- **Intuitive interface**—large, easy-to-use color touchscreen for easy programming and quick status checks
- **VeriFlex Blocks**—three independent temperature zones for PCR optimization
- **Cloud-enabled**—conveniently access your instrument anytime, anywhere with Connect
- **Compact design**—helps save bench space
- **Fleet control–compatible**—manage multiple instruments, users, and methods with Thermal Cycler Fleet Control Software

= cloud-enabled instrument

Simple, intuitive user interface

The SimpliAmp Thermal Cycler has an 8 inch color touchscreen, making navigation of the intuitive menu options fast and efficient.



Find out more at **thermofisher.com/simpliamp**

Specifications

Block format	96-well, 0.2 mL, 3-zone VeriFlex Block	
Features	• Enabled to run Fast chemistry • Controllable ramp rate • Program overwrite protection	• Auto restart (after power outages) • Edit program during experiment • One-touch incubation
Max. block ramp rate*	4°C/sec	
Max. sample ramp rate*	3°C/sec	
Temperature accuracy	±0.25°C (35–99.9°C)	
Temperature range	0–100.0°C	
Temperature uniformity	<0.5°C (30 sec after reaching 95°C)	
Temperature calibration	Calibrated to standards traceable to the National Institute of Standards and Technology (NIST)	
Dimensions (H x W x D)	21.0 x 24.0 x 46.0 cm (8.3 x 9.5 x 18.1 in.)	
Weight	8.3 kg (18.3 lb)	
PCR volume range	10–100 µL	
Instrument memory	2,000 MB onboard memory (capacity for >1,000 protocols); USB port for additional external storage	
Display interface	8 inch color TFT LCD	
Power	100–240 V, 50–60 Hz, max. 600 W	
VeriFlex Block	3 temperature zones, 20°C range (10°C zone-to-zone)	
Data connectivity**	Cloud or mobile via Ethernet or Wi-Fi	

* At reaction volume of 1 µL.

** The Instrument Connect app, available at Apple™ and Google™ app stores, can be used to monitor your instrument. Connect can be used to create and share protocols, schedule an instrument, and start and monitor runs remotely.

Ordering information

Product	Cat. No.	Instrument + 5-year warranty with Rapid Exchange Cat. No.
SimpliAmp Thermal Cycler	A24811	A27603
High-Power USB Wi-Fi Module	A26774	NA
Recommended plastics		
96-well block	**Cat. No.**	
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	
MicroAmp Optical 96-Well Reaction Plate	N8010560	
MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	
MicroAmp 32-Well Clear Adhesive Film	A32812	
MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	
MicroAmp Clear Adhesive Film	4306311	

Did you know?

MiniAmp, SimpliAmp, ProFlex, and Veriti Thermal Cyclers have thermal simulation modes that make the transition from other thermal cyclers simple, accurate, and efficient. A library of modes that mimic the ramp rates of other instruments is available on each instrument.

Proven reliability, precise PCR optimization

Veriti Thermal Cycler

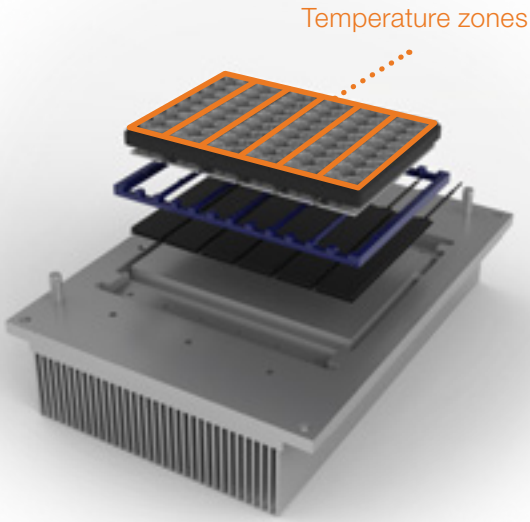
The Veriti Thermal Cycler delivers proven reliability and simple programming. The VeriFlex temperature control technology inside makes it possible to run up to 6 different temperatures in the same protocol step, providing precise control over your PCR optimization.

- **VeriFlex Blocks**—six independent temperature zones for PCR optimization
- **Easy-to-operate interface**—fast protocol setup and convenient protocol transfer with a USB memory stick
- **Fleet control–compatible**—manage multiple instruments, users, and methods with Thermal Cycler Fleet Control Software

Precise control with VeriFlex temperature control technology

VeriFlex Blocks are constructed of segmented metal blocks with separate heating/cooling elements below each, enabling:

- **More precise control over PCR optimization**—each block can be set with up to six specific temperatures
- **Precise incubation**—use the six temperature zones of the VeriFlex Blocks to do enzyme studies, restriction digests, or any other process that requires precise temperature control



Find out more at **thermofisher.com/veriti**

Specifications

	96-well Fast, 0.1 mL, 6-zone VeriFlex Block	96-well, 0.2 mL, 6-zone VeriFlex Block	384-well, 0.02 mL	60-well, 0.5 mL
Block format	0.1 mL alloy	0.2 mL alloy	0.02 mL aluminum	0.5 mL aluminum
Max. block ramp rate	5.0°C/sec	3.9°C/sec	3.7°C/sec	3.3°C/sec
Max. sample ramp rate	4.25°C/sec	3.35°C/sec	3.1°C/sec	2.7°C/sec
Enabled to run Fast chemistry	Yes	Yes	No	No
Temperature accuracy	±0.25°C (35–99.9°C)			
Temperature range	0–100.0°C			
Temperature uniformity	<0.5°C (20 sec after reaching 95°C)			
Dimensions (H x W x D)	24.5 x 23.7 x 48.5 cm (9.6 x 9.3 x 19.1 in.)			
Weight	11.4 kg (25 lb)			
PCR volume range	10–30 µL	10–80 µL	5–20 µL	25–100 µL
Instrument memory	USB and onboard memory; onboard capacity >500 protocols			
Display interface	6.5 inch VGA 32K color with touchscreen			
T_m calculator	Menu-driven through touchscreen			
Power	100–240 V, 50–60 Hz, max. 800 VA			
VeriFlex Block range	25°C (5°C zone-to-zone)	25°C (5°C zone-to-zone)	NA	NA

Ordering information

Product	Cat. No.	Instrument + 5-year warranty with Rapid Exchange Cat. No.
Veriti 96-Well Fast Thermal Cycler	4375305	A27924
Veriti 96-Well Thermal Cycler	4375786	A26659*
Veriti 384-Well Thermal Cycler	4388444	A27927
Veriti 60-Well Thermal Cycler	4384638	A26656**

Recommended plastics

96-well block	Cat. No.	96-well block Fast	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp Optical 96-Well Reaction Plate	N8010560	MicroAmp Fast Optical 96-Well Reaction Plate, 0.1 mL	4346907	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	MicroAmp Fast 8-Tube Strip, 0.1 mL	4358293	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp 32-Well Clear Adhesive Film	A32812				
MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	MicroAmp 8-Cap Strip, clear	N8010535	MicroAmp Clear Adhesive Film	4306311
MicroAmp Clear Adhesive Film	4306311	MicroAmp Clear Adhesive Film	4306311		

* A26567 in Denmark, Switzerland, and UK.

** A26563 in Denmark, Switzerland, and UK.

Tired of water baths?

Incubate samples at up to six different temperatures simultaneously for enzyme activation studies, restriction digests, or sequencing library preps with the Veriti Thermal Cycler.

Routine PCR, elevated

MiniAmp Thermal Cyclers

Applied Biosystems™ MiniAmp™ and MiniAmp Plus Thermal Cyclers deliver the reliability you've come to expect from Applied Biosystems™ technology for routine PCR at every lab bench.

- **Compact design**—fits in everyone's lab space at just 7.5 in. (19 cm) wide
- **Cloud-enabled**—conveniently access your instrument anytime, anywhere with Connect
- **Fleet control-compatible**—manage multiple instruments, users, and methods with Thermal Cycler Fleet Control Software

The MiniAmp Plus Thermal Cycler features a VeriFlex Block for easy PCR optimizations. If PCR optimization is not part of your routine PCR, the MiniAmp Thermal Cycler has an isothermal block for basic PCR.

= cloud-enabled instruments

Secure remote access with cloud-enabled instruments

The ProFlex, SimpliAmp, and MiniAmp Thermal Cyclers are cloud-enabled instruments, allowing you secure, private access with a Connect account. Anywhere, anytime with any mobile device or desktop computer you can:

- Design and share protocols
- Schedule an instrument
- Start or stop a run
- Check run status

Find out more at **thermofisher.com/miniamp**

Did you know?

Most Applied Biosystems thermal cyclers come with a two-year standard warranty and a starter kit that includes Applied Biosystems PCR plate and tube samples and all the tools you need. Packages that include the instrument, an extended warranty, and consumables are available. Visit the instrument webpage to view packages available.

Specifications

	MiniAmp Plus Thermal Cycler	MiniAmp Thermal Cycler
Block format	96-well, 0.2 mL, 3-zone VeriFlex Block	96-well, 0.2 mL isothermal block
Max. block ramp rate*	3.5°C/sec	3.0°C/sec
Max. sample ramp rate*	2.7°C/sec	2.2°C/sec
Temperature accuracy	±0.25°C (35–99.9°C)	
Temperature range	0–100.0°C	
Temperature uniformity	<0.5°C (30 sec after reaching 95°C)	
Temperature calibration	Calibrated to standards traceable to the National Institute of Standards and Technology	
Dimensions (H x W x D)	20 x 19 x 39 cm (7.9 x 7.5 x 15.4 in.)	
Weight	5.9 kg (13.0 lb)	
PCR volume range	10–100 µL	
Instrument memory	2,000 MB onboard memory (capacity for >1,000 protocols); USB port for additional external storage	
Display interface	5 inch color TFT LCD	
Power	100–240 V, 50–60 Hz, max. 500 W	
VeriFlex Block	3 temperature zones, 20°C range (10°C zone-to-zone)	NA
Data connectivity**	Cloud or mobile via Ethernet or Wi-Fi	

* At reaction volume of 1 µL.

** The Instrument Connect app, available at Apple™ and Google™ app stores, can be used to monitor your instrument. Connect can be used to create and share protocols, schedule an instrument, and start and monitor runs remotely.

Ordering information

Product	Cat. No.	Instrument + 5-year warranty with Rapid Exchange Cat. No.
MiniAmp Plus Thermal Cycler	A37835	A38077
MiniAmp Thermal Cycler	A37834	A38081
High-Power USB Wi-Fi Module	A26774	NA
Recommended plastics		
96-well block	**Cat. No.**	
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	
MicroAmp Optical 96-Well Reaction Plate	N8010560	
MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	
MicroAmp 32-Well Clear Adhesive Film	A32812	
MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	
MicroAmp Clear Adhesive Film	4306311	

Want to learn more about thermal cycler ramp rates and how they are calculated?
Go to **thermofisher.com/ramprate**

Designed for easy robotic integration

Automated Thermal Cycler

The Applied Biosystems™ Automated Thermal Cycler offers the flexibility, reliability, and performance needed in a complete PCR automation system. The small, easy-to-integrate format of the Automated Thermal Cycler enables hands-free PCR results.

- **Flexible modular design and small footprint**—helps save space on deck
- **Automated lid**—easy, hands-free operation with a liquid handler or plate stacker
- **Free desktop software**—for PCR optimization prior to robotic integration
- **Plug-and-play drivers and Standardization in Lab Automation (SiLA) compatibility**—for easy integration on your liquid handler of choice
- **Fleet control–compatible**—manage multiple instruments, users, and methods with Thermal Cycler Fleet Control Software

Designed for any stage of your workflow automation journey

Stand-alone

Optimize assays before robotic integration with our direct software.

Plug-and-play drivers

Ask about available drivers for leading robotic platforms.

SiLA-compatible

Maximum robotic platform integration flexibility with SiLA rapid integration coding.

Find out more at **thermofisher.com/atc**

Specifications

	96-well, 0.2 mL*	384-well, 0.02 mL
PCR volume range	10–100 µL for full-skirted plates; 20–100 µL for semi-skirted plates	5–20 µL for full-skirted plates
Hardware integration features	• Predrilled mounting and/or alignment points at each corner of the chassis • 3-side and top-plate access • Available in 3-connector configurations	
Software features	• Application programming interfaces (APIs) available for integration with robotics systems • SiLA Rapid Integration software–standardized programming access** • Free software available for instrument demonstration and stand-alone operation	
Block module dimensions (H x W x D)	13.3 x 17.9 x 31.7 cm (5.2 x 7.0 x 12.5 in.)	
Control module dimensions (H x W x D)	7.0 x 25.7 x 33.1 cm (2.8 x 10.1 x 13.0 in.)	
Temperature accuracy	±0.25°C (35.0–99.9°C)	
Max. block ramp rate†	3.5°C/sec	2.8°C/sec
Max. sample ramp rate†	1.8°C/sec	1.6°C/sec
Temperature range	4–105°C (no condensation risk with sub-ambient temperatures)	
Temperature uniformity	≤0.50°C (20 sec after reaching 95°C)	
Temperature calibration	Calibrated to standards traceable to the National Institute of Standards and Technology (NIST)	
Service options	• 2-year standard warranty includes Rapid Exchange Service plan • NIST-traceable temperature probe equipment available	
Weight	9.4 kg/20.7 lb total (block module 6.0 kg/13.2 lb, control module 3.4 kg/7.5 lb)	
Power	100–240 V, 50–60 Hz, max. 600 W	
Flexible ramp rates	Program your own ramp rates, or use preprogrammed simulation modes	
Data connectivity	LAN	

* Compatible with full- or semi-skirted plates. ATC semi-skirted adaptor required for use with semi-skirted 96-well plates. ATC ships with the full-skirted adaptor installed, which is required for use with full-skirted 96-well plates.

** sila-standard.org

† At reaction volume of 1 µL.

Ordering information

Product	96-well Cat. No.	384-well Cat. No.	3-year extended warranty* with Rapid Exchange Cat. No.
Automated Thermal Cycler System, laptop, 1 m cable	A31486	A33977	ZGEXSCATC3Y
Automated Thermal Cycler System, laptop, 3 m cable	A31487	A33978	ZGEXSCATC3Y
Automated Thermal Cycler System, laptop, 10 cm cable	A31488	A33979	ZGEXSCATC3Y
Automated Thermal Cycler System, 1 m cable	A31489	A33980	ZGEXSCATC3Y
Automated Thermal Cycler System, 3 m cable	A31490	A33981	ZGEXSCATC3Y
Automated Thermal Cycler System, 10 cm cable	A31491	A33982	ZGEXSCATC3Y
Automated Thermal Cycler Semi-Skirted Adaptor	A33044	NA	NA
Automated Thermal Cycler Full-Skirted Adaptor	A33045	NA	NA

* The Automated Thermal Cycler comes standard with a 27-month warranty.

Recommended plastics

96-well block	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Full-Skirted Plates with Barcode, Clear*	A31728	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483273
MicroAmp EnduraPlate Optical Semi-Skirted Plates with Barcode**	4483356	MicroAmp EnduraPlate Optical 384-Well Multicolor Reaction Plates with Barcode	4483317
MicroAmp Clear Adhesive Film	4306311	MicroAmp Clear Adhesive Film	4306311

* Available in multiple colors.

** Requires semi-skirted plate adaptor (Cat. No. A33044); included with instrument purchase.

The Applied Biosystems™ MicroAmp™ EnduraPlate™ (Cat. No. A31728) was specifically designed for the Automated Thermal Cycler and has three-way barcoding.

Manage multiple users, methods, and instruments with a single intuitive interface

Thermal Cycler Fleet Control Software

Applied Biosystems™ Fleet Control Software is as intuitive and easy to use as our thermal cyclers. With this tool, you'll be able to view and control all Applied Biosystems™ thermal cyclers in your facility.

Secure—Fleet Control Software comes preinstalled on a server that sits securely behind your firewall

Flexible—create custom permissions and rules for users, methods, and instruments

Powerful—quickly view your thermal cycler inventory and availability right from the dashboard

Efficient—track system changes with an audit log, and identify methods or instruments via barcode data entry

Convenient—control your thermal cyclers, reports, methods, and firmware upgrades from your office, another lab computer, or any other networked device

Find out more at **thermofisher.com/fleetcontrol**

Science can't wait on instrument downtime

Thermal cycler service and support

You can't afford downtime in your lab. Built on more than 35 years of service expertise, our superior service solutions for Applied Biosystems™ instruments and applications help keep your lab up and running. More than 1,000 trained professionals make up the industry's largest network, ready to assist you when you need it.

Rapid Exchange Service

The Rapid Exchange Service plan is designed for labs that operate under critical timelines. When you call our Remote Service Center, you will get the assistance you need to resolve many types of technical problems. If the instrument needs service, the service center will coordinate shipment of a factory-certified, refurbished replacement instrument on the same day of the call. All you need to do is repackage the problem instrument and return it to us. Thermo Fisher Scientific pays for shipping.

Rapid Exchange process:

1. Call the Remote Service Center
2. Receive refurbished instrument
3. Ship back the instrument being replaced

AB Repair Center (RC) plan

The AB RC plan is for regulated labs that must maintain asset tagging consistency to comply with regulated protocols. This mail-in option employs factory-trained engineers skilled in maintaining and repairing your instrument. You also receive priority phone support from our experienced staff for technical, software, and hardware inquiries. AB RC plan is ideal for those customers in regulated environments that must maintain asset tag consistency to comply with regulated protocols.

Service	Rapid Exchange	AB RC plan
Repair time	Replacement shipped out in 1 business day	Your instrument repaired and returned in ~3 weeks
Off-site repair service including shipping, parts, and labor	•	•
Priority access to technical support	•	•

Planned maintenance, temperature verification, and loaner instrument service* can be added to any off-site service plans.

* Loaner instruments are not available in all regions. Contact your services and support representative for availability.

Qualification services

Instrument hardware qualifications for thermal cyclers include installation qualification (IQ) and operational qualification (OQ) to document and verify that instruments are installed and operating according to manufacturer's specifications. An IQ/OQ is recommended at installation and when moving the instrument. Our qualification specialists will partner with you to deliver timely, cost-effective, and trusted qualification services that include reliable, audit-style documentation that will help ensure your instruments meet regulatory requirements.

Contact an instrument qualifications specialist at **thermofisher.com/iqoqpq**

Temperature verification services

Multiplex Dynamic Temperature Verification (MDTV) and Multiplex Dynamic Temperature Measurement (MDTM) Services helps ensure your instrument is functioning according to factory specifications, these valuable services are available for all Applied Biosystems thermal cyclers as well as most thermal cyclers from other manufacturers.**

Proper care of your PCR system, including twice-yearly temperature verification, can help:

- Save you from unexpected PCR instrument downtime
- Minimize downstream sequencing costs
- Preserve valuable samples that could be lost due to inaccurate readings

Contact a verification service specialist at **thermofisher.com/mdtv**

Education services

It can be difficult to prepare yourself for what's next while you're focused on the work you have now. Our professional, interactive training courses make it easier. We offer a combination of virtual and in-person classroom instruction, and hands-on learning in your lab to match your schedule, budget, and learning preferences. Whichever course style you choose, you'll learn from one of our 300 highly skilled application scientists who are available to lead sessions online, at your location, or at one of our 12 training centers located worldwide.

Explore courses at **thermofisher.com/educationservices**

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 scientists or access our online product and application support tools.

How to reach us

To find your local support or technical support team, go to **thermofisher.com/contactus**

For product FAQs, protocols, training courses, and webinars, go to **thermofisher.com/technicalresources**

** MDTV service not currently offered on the 60-well Applied Biosystems™ GeneAmp™ PCR System 9700.

Find out more at **thermofisher.com/thermalcyclerservice**

High-performance PCR plastics for optimal PCR results

Engineer Approved MicroAmp PCR plastics

Applied Biosystems™ PCR plastics have been designed and validated to work with our thermal cyclers for more than 25 years. That's why they are Engineer Approved to enable optimal PCR performance.

Applied Biosystems™ MicroAmp™ PCR plastics are:

- Validated on Applied Biosystems thermal cyclers for optimal fit and performance
- Designed for optimal heat transfer with thin-walled polypropylene wells
- Designed to reduce cross-contamination with raised well rims for effective sealing

Applied Biosystems™ MicroAmp™ TriFlex 3 x 32-Well PCR Reaction Plate and adhesive film

- One plate that can be used as separated, individual 32-well plates or as a full 96-well plate
- Easy-to-tear dual side tabs
- Alphanumeric labeling on each plate segment
- Precut Applied Biosystems™ MicroAmp™ 32-Well Clear Adhesive Film

Unique, high-performance features of the Applied Biosystems™ MicroAmp™ EnduraPlate™ plastic consumables

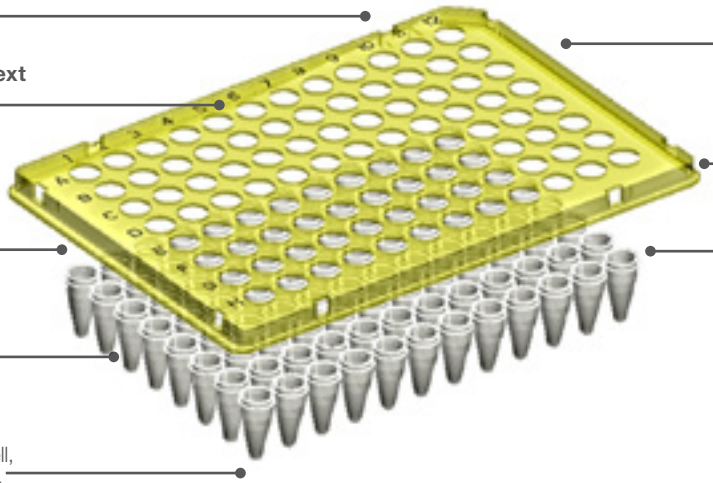
Easy visual organization
5 color choices

Easy-to-read well identification text
Black text for excellent contrast

No warping, even after thermal cycling
Polycarbonate (hard shell) for mechanical stability and flatness

Snug fit to thermal blocks
Thin-wall polypropylene for excellent mechanical fit and heat transfer

Available in common formats
96-well standard, 96-well Fast, 384-well, 5-piece sample packs, 20 & 500 packs



Constructed to ANSI/SBS standard

Certified DNA-, RNase-, and PCR inhibitor–free

Compatible with and optimized for performance on Applied Biosystems instruments

Options for every format and throughput need

Choose from tubes, tube strips, plates, adhesive film, and accessories for any throughput need. MicroAmp EnduraPlate plastics offer a solution for experiments that require special handling, such as automated or high-throughput workflows, and an even greater degree of durability for use with multi-instrument experiments.

MicroAmp 8-tube strip with attached optical flat caps are also available for qPCR.

The Applied Biosystems™ MicroAmp™ 8-Tube Strip with attached optical or domed caps offers a combination of features to help prevent cross-contamination, pipetting errors, and sample identification errors in your PCR and real-time PCR applications.

- Attached caps that open and close independently of each other
- Etched A–H letter labeling for individual tubes and caps
- Dual side tabs for strip labeling
- Graduated 20 µL measuring markers on every tube
- Available exclusively for Applied Biosystems™ thermal cyclers to enable optimal PCR results

Find out more at **thermofisher.com/pcrplastics**

Did you know?

Proper plate sealing helps reduce evaporation and well-to-well contamination.

1. Remove the backing of the Applied Biosystems™ adhesive film.

2. Align the adhesive film so as to cover all wells while placing on the plate.

3. Rub the flat edge of the applicator along the long edge (length) of the plate, then along the short edge (width). Finally, rub the applicator between all the wells and around the outside edges of the plate using small back-and-forth motions to form a complete seal.

Which PCR plastic fits your needs?

Find the PCR plastic format with the throughput and features for your application

Use for:	Small-scale experiments with a few samples	Routine experiments	Automation	Laboratory use
	Single tubes, strips, caps, adhesive film, & accessories	MicroAmp optical microplates	MicroAmp EnduraPlate optical microplates	MicroAmp EnduraPlate optical microplates GPLE*
Formats	• Single tubes • Single tubes with caps • 8-strip tubes with caps • 12-strip caps • Adhesive film/plate seal	• 32-well • 48-well Fast • 96-well • 96-well Fast • 384-well	• 96-well • 96-well Fast • 384-well	• 96-well • 96-well Fast • 384-well
DNA-, RNase-, PCR inhibitor–free	Yes	Yes	Yes	Yes
ANSI/SBS standard dimension color	Clear, or mixed packs containing red, orange, blue, green	Clear	Single-color packs (red, blue, green, yellow, or clear) & 5-plate sampler (1 of each color)	Clear
Instrument compatibility	Use our plastics selection tool	Use our plastics selection tool	Use our plastics selection tool	Use our plastics selection tool
Barcode	No	Yes (1 or 2 sides)	Yes (3 sides)	Yes (3 sides)
Multiple applications	No	No	Yes	Yes
Optical compatibility	Yes (applicable for optical version)	Yes	Yes	Yes
Use	Research use only	Research use only	Research use only	For laboratory use**

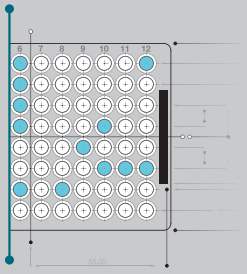
* For laboratory use.

** Lot-based contamination test with Certificate of Analysis.

Did you know?

Need high-quality PCR plastics for non-Applied Biosystems instruments? Visit **thermofisher.com/thermoscientificplastics** for a wide range of Thermo Scientific™ PCR plastics.

Custom and OEM plastics for PCR and qPCR are available. Learn more at **thermofisher.com/oemplastics**



Find the plastics and accessories you need for your instrument quickly

Product	Cat. No.	3 x 32-well	96-well			96-well Fast	384-well		Genetic analyzers	
		ProFlex	ProFlex, SimpliAmp, Veriti, MiniAmp Plus, MiniAmp	2720	9700	Veriti	ProFlex, Veriti	9700	310	3130, 3130xl, 3500, 3500xL, 3730, 3730xl
96-well, 0.2 mL reaction plates										
Optical 96-Well Plate	N8010560, 4316813		•	•	•					•
Optical 96-Well Plate with Barcode	4306737, 4326659		•	•	•					•
96-Well Plate with Barcode & Optical Caps	403012		•	•	•					
Optical 96-Well Plate with Barcode & Optical Adhesive Films	4314320		•	•	•					
EnduraPlate Optical 96-Well Clear Plate with Barcode*	4483354, 4483352		•	•	•					•
TriFlex 3 x 32-Well Reaction Plate	A32810, A32811	•**	•	•	•					
96-well, 0.1 mL reaction plates										
Fast Optical 96-Well Plate, 0.1 mL	4346907					•			•	•
Fast Optical 96-Well Plate with Barcode, 0.1 mL	4346906, 4366932					•			•	•
EnduraPlate Optical 96-Well Fast Clear Plate with Barcode*	4483485, 4483494					•			•	•
384-well reaction plates										
Optical 384-Well Plate	4343370						•	•		•
Optical 384-Well Plate with Barcode	4309849, 4326270, 4343814						•	•		•
EnduraPlate Optical 384-Well Clear Plate with Barcode*	4483285, 4483273						•	•		•
Strip tubes and caps										
Fast 8-Tube Strip, 0.1 mL	4358293					•				
Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588	•	•	•	•					
8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	•	•	•	•					
8-Tube Strip, 0.2 mL*	N8010580	•	•	•	•				•	
Optical 8-Tube Strip, 0.2 mL	4316567	•	•	•	•					
8-Cap Strip*	N8010535, N8011535	•	•	•	•	•				
Optical 8-Cap Strip	4323032	•	•	•	•	•				
12-Cap Strip*	N8010534, N8011534		•	•	•	•				
Single tubes										
Fast Reaction Tube with Cap, 0.1 mL	4358297, 4358293					•				
Reaction Tube with Cap, 0.2 mL*	N8010540, N8010612, N8011540	•	•	•	•					
Reaction Tube without Cap, 0.2 mL*	N8010533, N8011533	•	•	•	•					
Optical Tube without Cap, 0.2 mL	N8010933	•	•	•	•					
Seals and covers										
Clear Adhesive Film	4306311		•		•	•	•	•		
Optical Adhesive Film	4360954, 4311971		•		•	•	•	•		
96-Well Full Plate Cover	N8010550			•	•					
32-Well Clear Adhesive Film	A32812	•**	•	•	•					
Accessories										
Splash-Free 96-Well Base	4312063		•	•	•	•				
96-Well Support Base	4379590		•	•	•	•				•
96-Well Base	N8010531		•	•	•					
96-Well Reaction Tube/Tray/Retainer Set, 0.2 mL	403083, 403086			•	•					

* Multiple colors are available.

** Do not use MicroAmp™ 3 x 32-Well Retainer (Cat. No. 4481669).

Note: Experiments using one or two 8-tube strips with attached caps require blank tube strips to balance lid pressure on the block or the use of the MicroAmp™ 96-Well Tray/Retainer Set (Cat. No. 4381850)—bottom part of tray only. For use with 96-well block of Applied Biosystems™ ProFlex™, SimpliAmp™, and Veriti™ thermal cyclers.

Visit our online plastics selection guide at **thermofisher.com/pcrplasticsselection**

Superior cDNA synthesis for any application

SuperScript IV Reverse Transcriptase

With over 50,000 citations, reviews, and publications, Invitrogen™ SuperScript™ reverse transcriptases are among the most trusted and widely used products for cDNA synthesis. Invitrogen™ SuperScript™ IV Reverse Transcriptase is the latest enzyme in the portfolio, engineered to deliver superior cDNA synthesis performance with even the most challenging RNA samples.

- **Super-efficient**—up to 100x higher cDNA yields than with other reverse transcriptase enzymes
- **Super-sensitive**—transcribes even from degraded or inhibitor-containing RNA, with low input amounts
- **Super-robust**—high thermostability and processivity for superior cDNA synthesis
- **Super-fast**—10 min cDNA synthesis protocol

Find out more at **thermofisher.com/ssiv**

Reverse transcription reagent selection guide

We offer a comprehensive portfolio of enzymes and kits within the SuperScript IV family to suit your research needs. Start with the selection guide below to find the best format for common cDNA synthesis applications.

Would you like to have …	… the ability to optimize reaction components and conditions?	… a complete kit with all cDNA synthesis reaction components?	… ultimate convenience and minimal pipetting steps for RT-PCR?
Product format	**Stand-alone enzyme**	**First-strand cDNA synthesis kit**	**One-Step RT-PCR kit**
Recommended product	SuperScript IV Reverse Transcriptase	SuperScript IV First-Strand Synthesis System	SuperScript IV One-Step RT-PCR System
Applications	RT-PCR, RT-qPCR, sequence detection, gene expression analysis, transcript variant detection, cloning, cDNA library construction, RACE, RNA-Seq	RT-PCR, RT-qPCR, sequence detection, gene expression analysis, transcript variant detection, cloning, cDNA library construction, RACE, RNA-Seq	RT-PCR, sequence detection, cloning, genotyping, high-throughput analysis
Input total RNA	1 pg–5 µg	1 pg–5 µg	0.01 pg–1 µg
Optimal reaction temperature	50–55°C	50–55°C	50–55°C
Reaction time	10 min	10 min	10 min
cDNA synthesis with challenging or degraded RNA	Yes	Yes	Yes

Complete kit with flexible priming options

SuperScript IV First-Strand Synthesis System

The Invitrogen™ SuperScript™ IV First-Strand Synthesis System is optimized for synthesis of first-strand cDNA from purified poly(A)+ or total RNA. The kit contains all components needed for reverse transcription, plus an additional control gene and primers, providing the flexibility to customize the reaction setup to fit the needs of your application.

Find out more at **thermofisher.com/ssiv-firststrand**

Genomic DNA elimination now made easy
Order SuperScript IV First-Strand Synthesis System with ezDNase Enzyme

Enabling faster, more efficient RT-PCR

SuperScript IV One-Step RT-PCR System

Even with challenging RNA samples, you can get more efficient results faster and easier than with any other RT-PCR reagent. The Invitrogen™ SuperScript™ IV One-Step RT-PCR System combines high-processivity SuperScript IV Reverse Transcriptase and high-fidelity Invitrogen™ Platinum™ SuperFi™ DNA Polymerase to provide superior one-step RT-PCR performance.

Find out more at
thermofisher.com/ssiv-onestep

- **Two-phase hot-start activation mechanism**—for high specificity, improved yields, and easy room temperature setup
- **Superior sensitivity and speed**—down to 0.01 pg of RNA, target length up to 13.8 kb, and the fastest one-step RT-PCR protocol
- **Reliable target detection**—even in RNA samples with suboptimal purity
- **Fast and easy gDNA removal**—for superior accuracy and confidence in your results

Doing RT-qPCR?
Invitrogen™ SuperScript™ IV VILO™ Master Mix offers exceptional cDNA synthesis for RT-qPCR applications, while maintaining superior linearity across the broadest range of input RNA. Learn more when you flip the brochure to the real-time PCR side, or visit **thermofisher.com/4vilo**

Ordering information

Product	Quantity	Cat. No.
SuperScript IV Reverse Transcriptase	2,000 units	18090010
	10,000 units	18090050
	4 x 10,000 units	18090200
SuperScript IV First-Strand Synthesis System	50 reactions	18091050
	200 reactions	18091200
SuperScript IV First-Strand System with ezDNase Enzyme	50 reactions	18091150
	200 reactions	18091300
SuperScript IV One-Step RT-PCR System	25 reactions	12594025
	100 reactions	12594100
SuperScript IV One-Step RT-PCR System with ezDNase Enzyme	50 reactions	12595025
	500 reactions	12595100

Which PCR enzyme is right for your application?

A comprehensive portfolio of PCR enzymes and master mixes is available with the high performance and consistency you need. Start with the selection guide below to find the best enzyme for common PCR applications.

Visit our online selection guide at **thermofisher.com/pcrenzymes**

PCR type	High-fidelity PCR	Hot-start PCR	Hot-start PCR	Direct PCR
Do you need …	… accurate DNA sequences?	… cleaner bands or to detect low-abundance targets?	… a chemical hot start?	… direct amplification without genomic DNA purification?
Recommended DNA polymerase	Platinum SuperFi II DNA Polymerase	Platinum II *Taq* Hot-Start DNA Polymerase	AmpliTaq Gold 360 DNA Polymerase	Platinum Direct PCR Universal Master Mix
Applications				
Cloning and subcloning	•			
Site-directed mutagenesis	•			
GC-rich templates	•	•	•	•
Sanger sequencing templates	•	•	•	•
High-throughput PCR	•	•		•
Long PCR (20–40 kb)	•			
Genotyping	•	•	•	•
Amplification of samples with suboptimal purity	•	•		•
Colony PCR	•	•	•	•
Multiplex PCR	•	•	•	•
Fast PCR	•	•		•
Technical specifications				
Fidelity versus *Taq* DNA Polymerase	>300x	1x	1x	1x
Target length	Up to 40 kb*	Up to 5 kb	Up to 5 kb	Up to 8 kb
Hot-start modification	Antibody-mediated	Antibody-mediated	Chemical modification	Antibody-mediated
Speed	15–30 sec/kb	15 sec/kb	1 min/kb	20 sec/kb
Universal primer annealing	Yes	Yes		Yes
Inhibitor tolerance	Yes	Yes		Yes
Blunt or 3′-A end	Blunt	3′-A	3′-A	3′-A
Compatability with TaqMan probes		Yes	Yes	
Formats				
Master mix	Colorless/green**	Colorless/green**	Colorless	Green**
Stand-alone enzyme	Colorless	Colorless/green†	Colorless	

* Depends on complexity of DNA templates; may require additional optimization of reaction conditions and primer design.

** Direct gel loading with green buffer options.

† Green buffer available as separate item for use with stand-alone enzyme.

Did you know?

Assembled PCR reactions with Platinum SuperFi II or Platinum II *Taq* Hot-Start DNA Polymerase are stable for 24 hours at room temperature, enabling high-throughput applications.

Ultimate accuracy and robustness

Platinum SuperFi II DNA Polymerase

Invitrogen™ Platinum™ SuperFi™ II DNA Polymerase is a hot-start, engineered proofreading DNA polymerase for PCR applications requiring the highest sequence accuracy. Its fidelity is >300x that of *Taq* DNA polymerase and its buffer is specially formulated for primer annealing at 60°C.

- **Exceptional fidelity**—>300x more accurate than *Taq* DNA polymerase
- **Simplified workflow**—no need for primer melting temperature (T_m) calculation; enables co-cycling of multiple PCR targets
- **Increased PCR success**—robust amplification of GC-rich targets, DNA of suboptimal purity, and long sequences

- **Platinum hot-start technology**—enables superior specificity, sensitivity, and yields; allows for room temperature reaction setup and benchtop stability

Find out more at **thermofisher.com/platinumsuperfi**

PCR simplified with universal annealing

Platinum II *Taq* Hot-Start DNA Polymerase

Invitrogen™ Platinum™ II *Taq* Hot-Start DNA Polymerase is an enzyme engineered for simplicity, specificity, and speed. Its universal primer annealing feature reduces optimization and allows co-cycling of PCR assays.

- **Universal primer annealing at 60°C**—reduces tedious optimization and enables co-cycling of all assays together
- **Engineered *Taq* DNA polymerase**—allows 4x faster synthesis and successful amplification even in the presence of inhibitors
- **Platinum hot-start technology**—enables superior specificity, sensitivity, and yields; allows for room temperature reaction setup

Find out more at **thermofisher.com/platinumiitaq**

Ordering information

Product	Quantity*	Cat. No.
Platinum SuperFi II DNA Polymerase	100 reactions	12361010
Platinum SuperFi II PCR Master Mix	100 reactions	12368010
Platinum SuperFi II Green PCR Master Mix	100 reactions	12369010
Platinum II *Taq* Hot-Start DNA Polymerase	100 reactions	14966001
Platinum II Hot-Start PCR Master Mix (2X)	50 reactions	14000012
Platinum II Hot-Start Green PCR Master Mix (2X)	50 reactions	14001012

* Additional product sizes available.

Achieve optimal electrophoresis results

Nucleic acid separation and analysis

Pour-your-own electrophoresis reagents

Choosing the right tools for nucleic acid electrophoresis can significantly improve and accelerate results, enabling you to address downstream applications sooner.

DNA stains

Detection of nucleic acid samples in gels can be improved using fluorescent dyes that are safer and/or more sensitive than ethidium bromide. The Invitrogen™ SYBR™ Safe, SYBR™ Green I, and SYBR™ Gold stains provide greater safety and/or sensitivity with lower background fluorescence than the conventional ethidium bromide stain.

Find out more at **thermofisher.com/stains**

UltraPure reagents for electrophoresis

Invitrogen™ UltraPure™ reagents are specifically formulated to meet your nucleic acid analysis and purification needs. UltraPure agarose and reagents are made from highly pure biochemicals for maximum reliability and superior performance.

Find out more at **thermofisher.com/ultrapure**

Ordering information

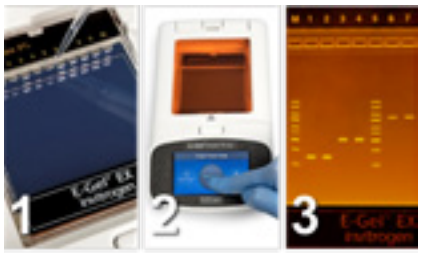
Product	Quantity	Cat. No.
SYBR Safe DNA Gel Stain	400 µL	S33102
SYBR Gold Nucleic Acid Gel Stain	500 µL	S11494
UltraPure Ethidium Bromide, 10 mg/mL	10 mL	15585011
UltraPure Agarose	100 g	16500100
TrackIt 1 Kb Plus DNA Ladder	100 applications	10488085
UltraPure TAE Buffer, 10X	4 L	15558026
UltraPure DNase/RNase-Free Distilled Water	10 x 500 mL	10977023

Simplify nucleic acid electrophoresis

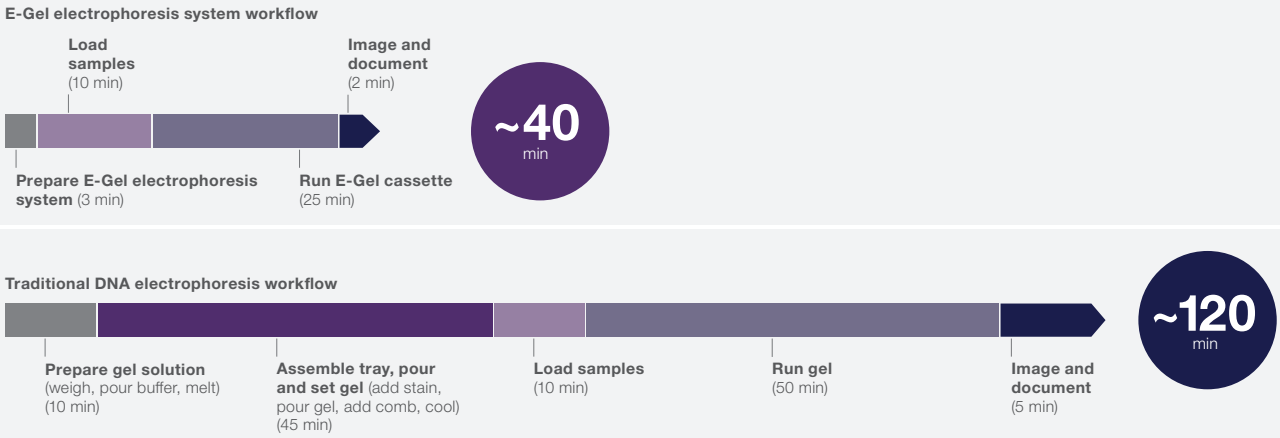
E-Gel precast agarose gels

Using precast agarose gels can simplify the nucleic acid electrophoresis workflow. E-Gel precast gels are self-contained and ready for use, with the agarose and the DNA stain packaged in a disposable cassette. There are no gels to pour, buffers to make, staining or destaining steps to perform, or gel boxes to assemble. Just load your samples and start the run.

- **Ready to use**—precast with agarose and DNA stain packaged inside a disposable cassette
- **Time-saving**—ideal for customers looking to streamline workflows
- **Versatile**—designed for rapid analysis of PCR products, restriction digests, and plasmid preparations
- **Genotyping**—ideal for rapid analysis of PCR products and restriction digests to improve genotyping workflows



Sample analysis in three simple steps—load, run, and analyze.



Approximate time to complete an E-Gel electrophoresis system workflow and a traditional DNA electrophoresis workflow

Ordering information

Product	Quantity	Cat. No.
E-Gel CloneWell II Agarose Gels with SYBR Safe DNA Gel Stain, 0.8%	18 gels	G661818
E-Gel Agarose Gels with SYBR Safe DNA Gel Stain, 2%	18 gels	G521802
E-Gel EX Agarose Gels, 2%	10 gels	G401002
E-Gel 1 Kb Plus DNA Ladder	100 applications	10488090
E-Gel *48* Agarose Gels, 2%	8 gels	G800802
E-Gel *96* Agarose Gels, 2%	8 gels	G700802

Find out more at **thermofisher.com/egel**

Did you know?

E-Gel precast gels are available in a variety of formats for routine and high-throughput applications, with different stains and agarose percentages (0.8%, 1.2%, 2%, and 4%). To find the right gel for your needs, see the selection guide at **thermofisher.com/egelselection**

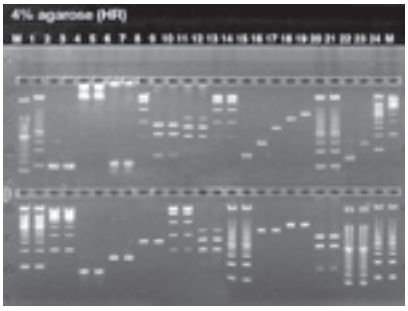
Fully integrated DNA electrophoresis and imaging platform

E-Gel Power Snap Electrophoresis System

The Invitrogen™ E-Gel™ Power Snap Electrophoresis System combines rapid, real-time nucleic acid analysis with high-resolution image capture for superior convenience. The integrated design helps reduce workflow time and accelerate discovery.

Features of the E-Gel Power Snap Electrophoresis System:

- **Faster analysis**—go from sample loading to image capture in as little as 15 minutes
- **Simple operation**—intuitive user interface with large touch screen and integrated operating system
- **Safer workflow**—minimize handling of hazardous chemicals when used with E-Gel™ precast gel cassettes



E-Gel™ Precast Gels
E-Gel precast gels are available in a variety of formats: routine or high-throughput, with SYBR Stain or ethidium bromide, and with agarose percentages suitable for either general purpose or high-resolution separations.

Need high-throughput analysis?
Accelerate high-throughput electrophoresis analysis with Invitrogen™ E-Gel™ *48* and E-Gel™ *96* precast gels run on our expandable Invitrogen™ E-Base™ Electrophoresis System.

Starter Kits
E-Gel™ Power Snap System Starter Kits include all the components you need to start performing nucleic acid separation, analysis, and collection in minutes, not hours.

Specifications

Invitrogen™ E-Gel™ Power Snap Electrophoresis Device	
Dimensions	24 x 13 x 7 cm
Weight	1 kg
Touch-screen LCD display	7.7 x 4.4 cm
LED light	Blue LED; center wavelength: 465 nm; full width, half max.: 20 nm
Viewing surface dimensions	9 x 11 cm
Amber filter dimensions	8.6 x 10.5 cm
LED life	50,000 hours
LED specification	Array of 12 high-power LEDs with emission wavelength at 465 ± 10 nm

Invitrogen™ E-Gel™ Power Snap Camera	
Dimensions	26 x 13 x 15 cm
Weight	1 kg
Touchscreen LCD display	11.5 x 8.6 cm
Camera type	Color, complementary metal-oxide semiconductor (CMOS)
Gel-image resolution	1,600 x 1,944 (3 MP), 8 bits
Dynamic range	68 dB
Image output	TIF (grayscale) and JPG (color) file formats
Lens f-number	2.8
Internal memory	32 GB

E-Gel precast agarose gel compatibility and protocol run time

The E-Gel Power Snap Electrophoresis Device is compatible with the following E-Gel precast agarose gels and contains preloaded default run time protocols.

E-Gel precast agarose gels	Default run time	Maximal run time
E-Gel EX gels (1%, 2%)	10 min	20 min
E-Gel EX gels (4%)	15 min	20 min
E-Gel SYBR Safe gels (1.2%, 2%)	26 min	40 min
E-Gel gels (0.8%, 1.2%, 2%)	26 min	40 min
E-Gel gels (4%)	30 min	40 min
E-Gel double comb gel (0.8%, 2%)	13 min	20 min
E-Gel CloneWell II gel (0.8%)	12 min	40 min
E-Gel SizeSelect II gel (2%)	8 min	20 min
E-Gel NGS gels (0.8%)	26 min	32 min
E-Gel Go! gels (1%, 2%)	15 min	30 min

Ordering information

Product	Cat. No.
E-Gel Power Snap Electrophoresis Device	G8100
E-Gel Power Snap Electrophoresis Camera	G8200
E-Gel Power Snap Electrophoresis System	G8300
E-Gel Power Snap Electrophoresis System Starter Kit, E-Gel EX gels (1%)	G8341ST
E-Gel Power Snap Electrophoresis System Starter Kit, E-Gel EX gels (2%)	G8342ST
E-Gel Power Snap Electrophoresis Device Starter Kit, E-Gel SizeSelect II gels (2%)	G8162ST

To learn more, go to **thermofisher.com/powersnap**

Did you know?

Samples can be run up to twice as fast with E-Gel precast gels compared to conventional handcast gels. E-Gel precast gels are available in a variety of agarose concentrations, well formats, and throughput capacities to suit any application need.

Everything you need for reliable PCR

PCR primers and dNTPs

Primers

We offer high-quality Invitrogen™ Custom DNA Oligos for successful PCR. Our oligos feature over 24 years of customer service and popular primer design tools, as well as an informative, easy-to-use ordering portal to meet your needs.

Invitrogen Custom DNA Oligos offer:

- Purity that you require: desalted, cartridge, HPLC, or PAGE
- Scales that suit your research needs: 25 nmol, 50 nmol, 200 nmol, 1 µmol, and 10 µmol
- Product format you prefer: tube or plate
- Affordable price
- Quick next-day delivery*

Find out more at **thermofisher.com/primers**

Our free Invitrogen™ OligoPerfect™ Primer Designer enables you to:

- **Gain confidence**—Primer3-based design algorithm
- **Speed up**—design primers for PCR or CE, up to 50 genes at the same time
- **Work smarter**—recognizes .txt and .fasta file types
- **Order with ease**—seamlessly integrates with the Invitrogen™ ordering portal
- **Store your data**—ability to save your projects

Try OligoPerfect Primer Designer at **thermofisher.com/oligoperfect-designer**

* Next day delivery available, depending on region and country.

dNTPs

Our dNTPs have been extensively tested and verified for use in a wide variety of molecular biology applications, including highly sensitive techniques such as RT-qPCR and next-generation sequencing.

Learn more at **thermofisher.com/dntp**

Specialty enzymes for molecular diagnostics development and commercial supply

Whether you need flexibility in assay design or custom functional testing, we can help accelerate your nucleic acid–based assay development with our innovative DNA-free and lyo-ready enzymes.

DNA-free PCR enzymes*

We've pioneered the use of single-use systems (SUS) to manufacture DNA-free PCR enzymes. The advantages include:

- Manufactured in a completely closed system using dedicated or single-use equipment
- Verified free of contaminating DNA from host, human operator, and environment
- Produced in a ISO 13485–certified facility for high standards of quality

* Platinum *Taq* DNA Polymerase, DNA-free, is available as a catalog product.

Learn more at **thermofisher.com/dna-free**

Lyo-ready DNA polymerases and reverse transcriptases

From Platinum *Taq* DNA polymerases to SuperScript reverse transcriptases, we offer the largest selection of lyophilization-compatible enzymes, providing:

- Same functional enzyme performance as with conventional format
- Tailor-made solutions for your specific applications, including custom formulation
- Higher confidence in results with low residual DNA contamination (human and bacterial)

Learn more at **thermofisher.com/lyo-ready**

PCR and molecular biology education

Have you ever had questions about PCR but didn't want to ask? Find answers in our online education hub for molecular biology that features free technical content, fun videos, educational webinars, and application notes. Learn PCR, reverse transcription, and more—at your own pace and on your own time—to amplify your research to the next level.

Find out more at **thermofisher.com/molbioschool**

Tips and considerations

Technical videos

Educational webinars

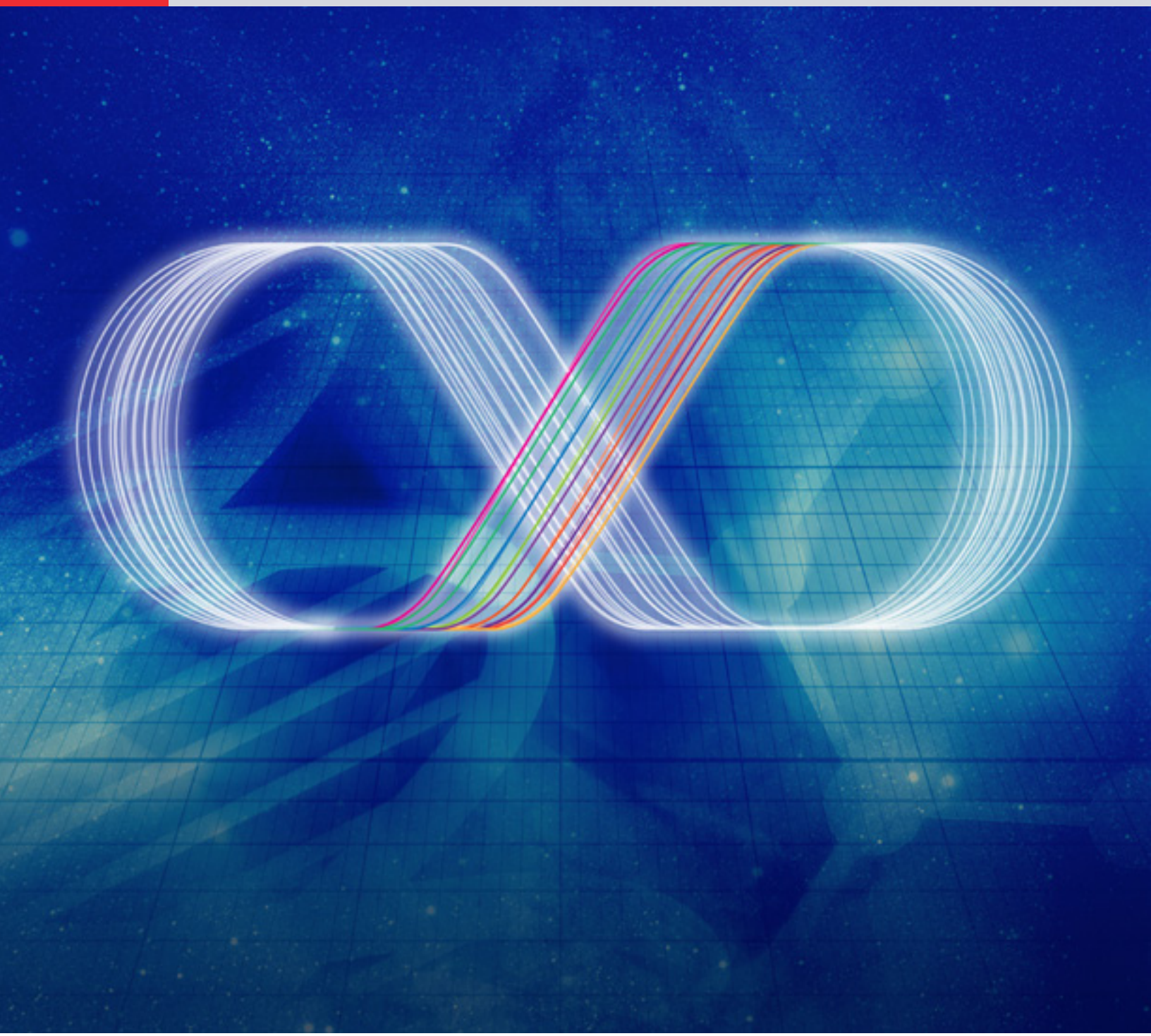
Application notes

Find out more at **thermofisher.com/amplifly**

ThermoFisher SCIENTIFIC

PCR

applied biosystems invitrogen



Real-time PCR solutions brochure

The power of optimized results across diverse applications

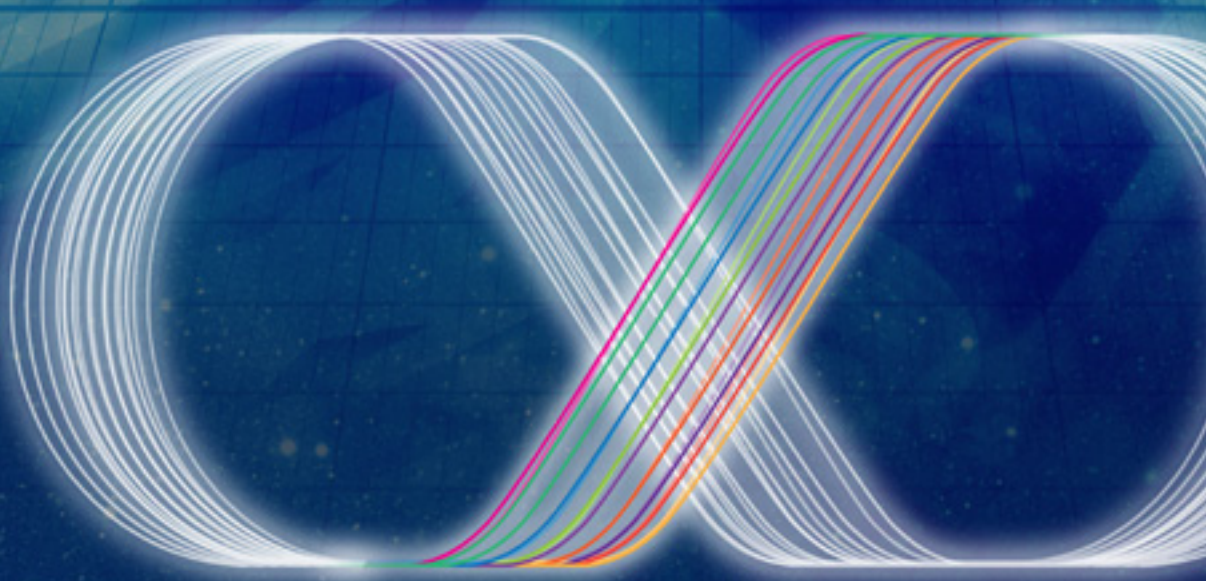
ThermoFisher SCIENTIFIC

Real-time PCR (qPCR)

Every lab is unique. That's why you deserve a real-time PCR platform that fits your needs.

Perhaps you're looking for simplicity 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 an Applied Biosystems™ QuantStudio™ real-time PCR system that's just right for your research. We also have Applied Biosystems™ assays and master mixes that support a variety of applications to fit your needs.

There are Applied Biosystems™ PCR plastics that are just right for your QuantStudio real-time system, too. Our instruments and plastics are Engineer Approved: built and validated to enable optimal PCR performance.



Contents

Which instrument fits your needs?

QuantStudio real-time PCR and digital PCR systems

For when you need:	Simple accessibility	Ultimate simplicity	Total control	Room to grow	
	QuantStudio 1 system	QuantStudio 3 system	QuantStudio 5 system	QuantStudio 6 Flex system	
	Real-time PCR				
					
Colors	3 colors	4 colors	5 or 6 colors (21 filter combinations)	5 colors	
Available formats*	96-well (0.2 mL block)	96-well (0.1 mL block) 96-well (0.2 mL block)	96-well (0.1 mL block) 96-well (0.2 mL block) 384-well	96-well (0.1 mL block) 96-well (0.2 mL block) 384-well	
Dimensions (H x W x D)	40 x 27 x 50 cm	40 x 27 x 50 cm	40 x 27 x 50 cm	73.8 x 50.1 x 66.1 cm	
Block change	Fixed	Fixed	Fixed	Interchangeable; no tools required	
VeriFlex temperature control	No, isothermal block	Yes, 3 zones	Yes, 6 zones (96-well blocks only)	NA	
Throughput	Medium	Medium	Medium	High	
21 CFR Part 11–enabled	No	Security	Security, auditing, e-signature package	Optional security, auditing, e-signature package	
Touchscreen	Yes, interactive	Yes, interactive	Yes, interactive	Yes	
Cloud-enabled	Yes	Yes	Yes	No	
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	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection	
Availability	Not in US and Canada	All regions	All regions	All regions	

* Some blocks may not be available.

Some instruments are also available in a diagnostic format. Learn more at thermofisher.com/qsdx

= cloud-enabled instrument

	Smart and connected	More versatility	Smarter productivity	Maximum productivity	Absolute answers
	QuantStudio 6 Pro system*	QuantStudio 7 Flex system	QuantStudio 7 Pro system*	QuantStudio 12K Flex system	QuantStudio 3D system
	Real-time PCR				Digital PCR
					
	5 colors	6 colors (21 filter combinations)	6 colors (21 filter combinations)	6 colors (21 filter combinations)	2 colors (endpoint detection)
	96-well (0.1 mL block) 96-well (0.2 mL block) 384-well	96-well (0.1 mL block) 96-well (0.2 mL block) 384-well TaqMan Array Card (384-well microfluidic card)	96-well (0.1 mL block) 96-well (0.2 mL block) 384-well TaqMan Array Card (384-well microfluidic card)	96-well (0.1 mL block) 96-well (0.2 mL block) 384-well TaqMan Array Card (384-well microfluidic card) OpenArray plates (3,072 through-holes)	20,000 partitions/chip
	54.7 x 33.8 x 52.5 cm	73.8 x 50.1 x 66.1 cm	54.7 x 33.8 x 52.5 cm	73.8 x 50.1 x 66.1 cm	13.5 x 23.3x 21 cm
	Interchangeable; no tools required	Interchangeable; no tools required	Interchangeable; no tools required	Interchangeable; no tools required	NA
	Yes, 3 zones	NA	Yes, 6 zones	NA	NA
	High	High	High	Very high	Low
	Upgradable	Optional security, auditing, e-signature package	Security, auditing, e-signature package	Optional security, auditing, e-signature package	No
	Yes, interactive	Yes	Yes, interactive	Yes	Yes
	Yes	No	Yes	No	Yes
	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics • Growing menu of qualified solutions	• Quantification of molecular standards • Absolute quantification • Pathogen detection • Load determination • Copy number variation • Digital PCR
	All regions	All regions	All regions	All regions	All regions

Real-time PCR applications

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 areas of infectious disease research.

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

Waterborne pathogen detection
Designed to detect and monitor waterborne pathogens in recreational and drinking water supplies.

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

Qualified solutions
A growing menu of new and valuable content for you to use on your high-throughput real-time PCR systems, including pharmacogenomics, vaginal microbiota, and *CFTR* mutation analysis.

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

Pharmacogenomics research
Predesigned Applied Biosystems™ 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
Enabling robust, reliable detection and quantitation of markers for cancer and genetic diseases.

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

Other key applications include gene expression, genotyping, and sequencing.

Real-time PCR software

A suite of analysis modules for the QuantStudio instrument family is available on Connect, enabling users to access and analyze their data anytime and anywhere. Just create and sign in to your account to use Connect for secure, cloud-based data storage, scientific analysis apps, and peer collaboration tools. Use the asset management apps and web tools to schedule time on your lab's instruments via your mobile device.

thermofisher.com/connect

Applied Biosystems qPCR analysis modules are a set of modules that provide an online toolkit for the analysis of qPCR data. The software takes advantage of Connect to provide highly versatile analysis tools that are flexible, fast, and easy to use and facilitate functional understanding of qPCR and related data. These modules allow users to combine over 100 genotyping, expression, or qPCR experiments into a project and analyze the data within minutes. Featured modules include:

- Design and Analysis
- High Resolution Melt (HRM) Analysis
- Presence/Absence Analysis
- Standard Curve
- Genotyping
- hPSC Scorecard Analysis
- Relative Quantification

Design and Analysis

The Design and Analysis app offers the ability to create, edit, and analyze qPCR instrument files.

High Resolution Melt (HRM) Analysis

This High Resolution Melt Analysis (HRM) app is designed for post-PCR analysis to identify variation in nucleic acid sequences. The method is based on detecting small differences in PCR melting (dissociation) curves. It is enabled by high-brightness, dsDNA-binding dyes used in conjunction with real-time PCR instrumentation that has precise temperature ramp control, advanced data capture capabilities, and access to software designed specifically for HRM analysis.

Presence/Absence Analysis

The Presence/Absence Analysis app analyzes and interprets real-time PCR data or post-read data to determine if a specific target sequence is present in a sample or not. It provides an easy-to-view presence/absence result in a plate grid view.

Standard Curve

The Standard Curve app offers reliable quantification of unknown quantities of genes and enables importing of standard curves from other experiments, providing analysis flexibility.

Genotyping

The Genotyping app includes improved visuals and integrated traces of allelic discrimination plots to allow thorough QC of SNP assays to accurately reflect the true signals versus background noise.

hPSC Scorecard Analysis

The hPSC Scorecard Analysis app scores gene expression profiles generated using the TaqMan hPSC Scorecard Panel compared to a reference set of well-characterized pluripotent stem cell lines. It provides raw data as well as box plots, heat maps, and correlation plots for export.

Relative Quantification

The Relative Quantification app allows fast and powerful gene expression analysis with enhanced visual capabilities for relative quantification, including integrated correlation and volcano and cluster analysis with the ability to drill down to amplification plots.

Learn more at **thermofisher.com/qpcranalysisapps**

Intuitive and easy to use for all levels of experience

QuantStudio 1, 3, and 5 Real-Time PCR Systems

The Applied Biosystems™ QuantStudio™ 1, QuantStudio™ 3, and QuantStudio™ 5 Real-Time PCR Systems provide advancements in touchscreen usability, allowing you to stay connected to your data easily. They're designed for both new and experienced users who need simple and affordable instruments without compromising performance or quality.

Get a premium instrument at an affordable price

Access, analyze, and share data anytime, anywhere with Connect—cloud-enabled services that support remote monitoring of your runs in real time, analyze sophisticated datasets in minutes, securely store data, and share results online with colleagues across institutions and around the world

Obtain results you can trust—detect differences in target quantity as small as 1.5-fold in singleplex reactions, and obtain 10 logarithmic units of linear dynamic range

Multiplex with ease—up to six excitation and six emission filters offer 21 different color combinations, allowing a broad range of detection chemistries and maximum multiplexing

Helps save valuable time—QuantStudio 3 and 5 systems offer 3 or 6 independent temperature zones for flexibility to run multiple experiments simultaneously. Fast thermal cycling enables results in less than 30 minutes

Get up and running quickly—instrument is factory-calibrated for accuracy, quick installation, and immediate use. Preoptimized protocol templates help minimize training for new users, and the included SmartStart™ orientation provides basic qPCR training and setup for both the Connect and the Instrument Management tool

Maximize benchtop space—compact instrument can be configured as a stand-alone or with a computer

Note: QuantStudio 1 system is not available in the United States and Canada.

= cloud-enabled instrument

Find out more at **thermofisher.com/quantstudio3-5** and **thermofisher.com/quantstudio1**

Specifications

	QuantStudio 1 system	QuantStudio 3 system	QuantStudio 5 system
Sample capacity (wells)	96	96	96 or 384
Reaction volume	0.2 mL block: 10–100 µL	0.1 mL block: 10–30 µL 0.2 mL block: 10–100 µL	96-well, 0.1 mL block: 10–30 µL 96-well, 0.2 mL block: 10–100 µL 384-well: 5–20 µL
Footprint (H x W x D)	40 x 27 x 50 cm	40 x 27 x 50 cm	40 x 27 x 50 cm
Excitation source	Bright white LED	Bright white LED	Bright white LED
Optical detection	3 coupled filters	4 coupled filters	96-well: 6 decoupled filters 384-well: 5 coupled filters
Excitation/detection range	450–600 nm/500–640 nm	450–600 nm/500–640 nm	96-well: 450–680 nm/500–730 nm 384-well: 450–650 nm/500–700 nm
Multiplexing	Up to 3 targets	Up to 4 targets	96-well: up to 6 targets 384-well: up to 5 targets
2D barcode reading	Optional	Optional	Optional
Heating/cooling method	Peltier	Peltier	Peltier
Temperature zone function	Single isothermal block	3 VeriFlex zones	96-well: 6 VeriFlex zones 384-well: NA
Max. block ramp rate	0.2 mL block: 3.5°C/sec	0.2 mL block: 6.5°C/sec 0.1 mL block: 9.0°C/sec	0.2 mL block: 6.5°C/sec 0.1 mL block: 9.0°C/sec 384-well block: 6.0°C/sec
Average sample ramp rate	1.8°C/sec	3.66°C/sec	3.66°C/sec
Temperature uniformity	0.4°C	0.4°C	0.4°C
Temperature accuracy	0.25°C	0.25°C	0.25°C
Run time	~40 min runs	<30 min runs	96-well block: <30 min runs 384-well block: <35 min runs
Dye compatibility (name)	FAM/SYBR Green, VIC/JOE/HEX/TET, JUN, ROX/Texas Red, SYTO 9	FAM/SYBR Green, VIC/JOE/HEX/TET, ABY/NED/TAMRA/Cy®3, JUN, ROX/Texas Red	FAM/SYBR Green, VIC/JOE/HEX/TET, ABY/NED/TAMRA/Cy3, JUN, ROX/Texas Red, Mustang Purple, Cy®5/LIZ, Cy®5.5
Chemistry capabilities	Standard	Fast/standard	Fast/standard
Features to assist with 21 CFR Part 11 compliance	No	No	Yes, with no additional fees
Detection sensitivity	1 copy	1 copy	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions	Detect differences as small as 1.5-fold in target quantities in singleplex reactions	Detect differences as small as 1.5-fold in target quantities in singleplex reactions

Ordering information

Product	Cat. No.	Instrument + 1-year extended warranty with AB Assurance Cat. No.*
QuantStudio 1 Real-Time PCR System (96-well, 0.2 mL block)**	A40426	A42870
QuantStudio 3 Real-Time PCR System (96-well, 0.1 mL block)**	A28136	A33777
QuantStudio 3 Real-Time PCR System (96-well, 0.2 mL block)**	A28137	A33779
QuantStudio 5 Real-Time PCR System (96-well, 0.1 mL block)**	A28138	A33619
QuantStudio 5 Real-Time PCR System (96-well, 0.2 mL block)**	A28139	A33624
QuantStudio 5 Real-Time PCR System (384-well block)**	A28140	A33628

* Includes SmartStart orientation.

** Does not include computer. Additional Cat. Nos. are available that include laptop or desktop computer.

Recommended plastics

96-well block	Cat. No.	96-well block Fast	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp Optical 96-Well Reaction Plate with Barcode	4306737	MicroAmp Fast Optical 96-Well Reaction Plate with Barcode, 0.1 mL	4346906	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588	MicroAmp Fast 8-Tube Strip	4358293	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp Optical Adhesive Film	4360954	MicroAmp Optical 8-Cap Strips	4323032	MicroAmp Optical Adhesive Film	4360954
		MicroAmp Optical Adhesive Film	4360954		

Flexibility when you need it

QuantStudio 6 Flex and QuantStudio 7 Flex Real-Time PCR Systems

The Applied Biosystems™ QuantStudio™ 6 Flex Real-Time PCR System is ideal for laboratories with multiple applications or end users on a limited budget. Easily interchangeable thermal cycling block formats let you select the format that best suits your project without having to move attached peripherals or computers. Choose from standard or 96-well Fast and 384-well formats.

With an upgrade path to the Applied Biosystems™ QuantStudio™ 7 Flex Real-Time System, the QuantStudio 6 Flex system is a great choice if you anticipate your needs will change in the future. The QuantStudio 7 Flex system allows you to run hundreds of real-time PCR reactions using Applied Biosystems™ TaqMan® Array Microfluidic Cards for maximum throughput in an automated environment.

- **Flexibility that minimizes large upfront capital investment**—interchange between 96-well, 96-well Fast, or 384-well formats
- **Skip the learning curve**—the intuitive software, easy touchscreen setup, and easy block change help you get started right away
- **Performance you can trust**—detect as small as 1.5-fold changes in singleplex reactions and 10x dynamic range
- **Upgrade capabilities when you need them**—easily upgrade to a QuantStudio 7 Flex system for additional automation, throughput, and multiplexing capabilities

Find out more at **thermofisher.com/quantstudio6-7flex**

Specifications

	QuantStudio 6 Flex system	QuantStudio 7 Flex system
Block configuration	96-well, 96-well Fast, 384-well	96-well, 96-well Fast, 384-well, TaqMan Array Card
Dimensions (H x W x D)	73.8 x 50.1 x 66.1 cm	73.8 x 50.1 x 66.1 cm
Block change design	Block change from front in less than 1 min; no tools required	Block change from front in less than 1 min; no tools required
Run time	30 min (96-well Fast) 35 min (384-well)	30 min (96-well Fast) 35 min (384-well)
Ramp-up rates	3.9°C/sec (96-well) 6.5°C/sec (96-well Fast) 3.5°C/sec (384-well)	3.9°C/sec (96-well) 6.5°C/sec (96-well Fast) 3.5°C/sec (384-well) 4.3°C/sec (TaqMan Array Card)
Ramp-down rates	3.6°C/sec (96-well) 6.0°C/sec (96-well Fast) 3.0°C/sec (384-well)	3.6°C/sec (96-well) 6.0°C/sec (96-well Fast) 3.0°C/sec (384-well) 3.7°C/sec (TaqMan Array Card)
Well-to-well variability	±0.25°C	±0.25°C
Excitation source	OptiFlex System lamp	OptiFlex System lamp
Detection channels	Excitation 455–672 nm Emission 505–723 nm	Excitation 455–672 nm Emission 505–723 nm

Ordering information

Product	Cat. No.	Instrument + 1-year extended warranty with AB Assurance Cat. No.*
QuantStudio 6 Flex 96-Well Real-Time PCR System, laptop configuration	4485689	A27163
QuantStudio 6 Flex 96-Well Fast Real-Time PCR System, laptop configuration	4485699	A27161
QuantStudio 6 Flex 384-Well Real-Time PCR System, laptop configuration	4485691	A27960
QuantStudio 6 Flex 96-Well Real-Time PCR System, desktop configuration	4485692	A27146
QuantStudio 6 Flex 96-Well Fast Real-Time PCR System, desktop configuration	4485697	A27162
QuantStudio 6 Flex 384-Well Real-Time PCR System, desktop configuration	4485694	A27958
QuantStudio 7 Flex 96-Well Real-Time PCR System, laptop configuration	4485688	A27154
QuantStudio 7 Flex 96-Well Fast Real-Time PCR System, laptop configuration	4485698	A27155
QuantStudio 7 Flex 384-Well Real-Time PCR System, laptop configuration	4485695	A27152
QuantStudio 7 Flex TaqMan Array Card Real-Time PCR System, laptop configuration	4485700	A27150
QuantStudio 7 Flex 96-Well Real-Time PCR System, desktop configuration	4485690	A27157
QuantStudio 7 Flex 96-Well Fast Real-Time PCR System, desktop configuration	4485693	A27156
QuantStudio 7 Flex 384-Well Real-Time PCR System, desktop configuration	4485701	A27153
QuantStudio 7 Flex TaqMan Array Card Real-Time PCR System, desktop configuration	4485696	A27151
QuantStudio 6/7 Flex 96-Well Block Upgrade Kit	4453543	NA
QuantStudio 6/7 Flex 96-Well Fast Block Upgrade Kit	4453544	NA
QuantStudio 6/7 Flex 384-Well Block Upgrade Kit	4453545	NA
QuantStudio 7 Flex TaqMan Array Card Block Upgrade Kit	4453546	NA

* Includes SmartStart orientation.

Recommended plastics

96-well block	Cat. No.	96-well block Fast	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp Optical 96-Well Reaction Plate with Barcode	4306737	MicroAmp Fast Optical 96-Well Reaction Plate with Barcode, 0.1 mL	4346906	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588	MicroAmp Fast 8-Tube Strip	4358293	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp Optical Adhesive Film	4360954	MicroAmp Optical 8-Cap Strips	4323032	MicroAmp Optical Adhesive Film	4360954
		MicroAmp Optical Adhesive Film	4360954		

Smarter productivity and improved workflow

QuantStudio 6 Pro and 7 Pro Real-Time PCR Systems

The Applied Biosystems™ QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems are designed with features to deliver a smart workflow experience.

= cloud-enabled instrument

Personalized

- Automatically load your settings and plate setup
- Simply login with facial authentication, no passwords required
- SmartStart™ Orientation, which includes one day of on-site training that covers basic instrument operation and maintenance, and a choice of hands-on application training (including reagents) on either absolute quantification, gene expression, or genotyping

Efficient

- Minimize hands-on time with voice commands facilitating hands-free operations
- Eliminate manual steps to obtain plate layout, protocol, and assay information on the instrument when using TaqMan Array Plates with RFID
- Maximize uptime with push-button Smart Help feature to access technical support scientists for faster, more efficient troubleshooting and resolution
- Reduce downtime using Smart Remote Support collaboration tool with real-time video/audio and desktop support to guide you through repairs remotely

Simple

- Streamlined workflow directly from touchscreen
- Simple, tool-free block changes

Productive

- Access data anytime and anywhere with cloud-enabled services from Connect
- Built-in help videos for commonly used activities
- Increased ergonomics due to larger touchscreen, improved screen angle, and optional Bluetooth keyboard

The QuantStudio 7 Pro system also features an automation compatibility and security, auditing, and e-signature (SAE) package.

Find out more at **thermofisher.com/quantstudiopro**

Specifications

	QuantStudio 6 Pro system	QuantStudio 7 Pro system
Sample capacity (wells)	96, 384	96, 384, TaqMan Array Card
Reaction volume	0.1 mL block: 10–30 µL 0.2 mL block: 10–100 µL 384-well: 5–20 µL	0.1 mL block: 10–30 µL 0.2 mL block: 10–100 µL 384-well: 5–20 µL TaqMan Array Card: ~1 µL
Footprint (H x W x D)	54.7 x 33.8 x 52.5 cm	54.7 x 33.8 x 52.5 cm
Excitation source	Bright white LED	Bright white LED
Filter or color combinations	5	21
Multiplexing	5 targets	6 targets
Excitation/emission range	450–680 nm/500–730 nm	450–680 nm/500–730 nm
2D barcode reading	Via USB connection	Via USB connection
Heating/cooling method	Peltier	Peltier
Temperature zone function	3 independent temperature zones	6 independent temperature zones
Maximum ramp rate	6.5°C/sec	6.5°C/sec
Average sample ramp rate	3.66°C/sec	3.66°C/sec
Temperature uniformity	0.4°C	0.4°C
Temperature range	4–99.9°C	4–99.9°C
Temperature accuracy	0.25°C	0.25°C
Run time	Less than 30 min	Less than 30 min
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	
Features to assist with 21 CFR Part 11 compliance	Upgradable	Yes
Detection sensitivity	1 copy	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions	

Ordering information

Product	Cat. No.	Instrument + service Cat. No.*
QuantStudio 6 Pro Real-Time PCR System, 96-well, 0.2 mL block	A43159	A44288
QuantStudio 6 Pro Real-Time PCR System, 96-well, 0.2 mL block, laptop	A43166	A44290
QuantStudio 6 Pro Real-Time PCR System, 96-well, 0.2 mL block, desktop	A43180	A44292
QuantStudio 6 Pro Real-Time PCR System, 384-well	A43161	A45582
QuantStudio 6 Pro Real-Time PCR System, 384-well, laptop	A43168	A45584
QuantStudio 6 Pro Real-Time PCR System, 384-well, desktop	A43182	A45586
QuantStudio 7 Pro Real-Time PCR System, 96-well, 0.2 mL block	A43162	A44289
QuantStudio 7 Pro Real-Time PCR System, 96-well, 0.2 mL block, laptop	A43169	A44291
QuantStudio 7 Pro Real-Time PCR System, 96-well, 0.2 mL block, desktop	A43183	A44293
QuantStudio 7 Pro Real-Time PCR System, 384-well	A43164	A45583
QuantStudio 7 Pro Real-Time PCR System, 384-well, laptop	A43171	A45585
QuantStudio 7 Pro Real-Time PCR System, 384-well, desktop	A43185	A45587
Recommended consumables**		
TaqMan Array Plates with RFID	**No. of samples**	**Cat. No.**
Custom TaqMan RFID Tag	NA	A43823
TaqMan Array, Standard, 96-well plate; Format 8	12	4413266
TaqMan Array, Standard, 96-well plate; Format 16/16 Plus	6	4413264/4413265
TaqMan Array, Standard, 96-well plate; Format 32/32 Plus	3	4391528/4391529
TaqMan Array, Standard, 96-well plate; Format 48/48 Plus	2	4391526/4391527
TaqMan Array, Standard, 96-well plate; Format 96/96 Plus	1	4391524/4391525

* Includes SmartStart Orientation and 1-year AB Assurance extended warranty with 1 planned maintenance visit.

** Recommended plastics list can be found on page 11.

Find out more at **thermofisher.com/taqman-rfid**

Maximum productivity with minimum effort

QuantStudio 12K Flex Real-Time PCR System

This one instrument enables multiple users to conduct a wide range of experiments, from low- to high-throughput sample processing and virtually any PCR application, such as:

- Drug discovery
- Pharmacogenomics research
- MicroRNA profiling
- Agriculture molecular testing
- *CFTR* mutation analysis
- Vaginal microbiota research

Miniaturization at a lower cost

Applied Biosystems™ 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.

Superior throughput

The Applied Biosystems™ QuantStudio™ 12K Flex Real-Time PCR System can simultaneously run up to four 3,072-reaction Applied Biosystems™ OpenArray™ plates in about 4 hours. You can produce up to 110,000 data points in an 8-hour day with the addition of a single Applied Biosystems™ ProFlex™ PCR System.

Outstanding flexibility

Easily switch between five available thermal cycling blocks: OpenArray plate, TaqMan Array Card, 384-well, and standard or Fast 96-well blocks. Load the thermal cycling block in less than 1 minute—no tools required.

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

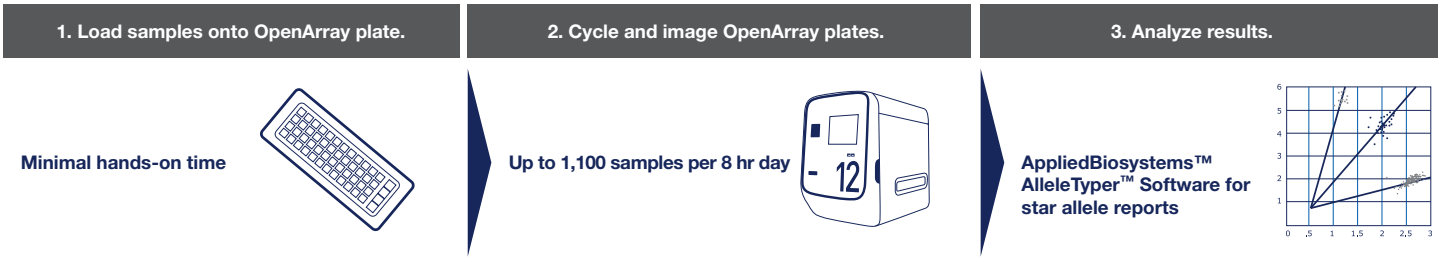
The integrated sample tracking and security, auditing, and electronic signature (SAE) module assist you in supporting 21 CFR Part 11 compliance.

Application spotlight

Pharmacogenomics research

Pharmacogenomics is the study of drug efficacy based on a subject's unique genomic composition. The QuantStudio 12K Flex system and OpenArray technology provide a simple, cost-effective, and fast workflow for the analysis of mutations and copy number variants associated with drug metabolism enzyme (DME) genes.

OpenArray workflow



Find out more at **thermofisher.com/quantstudio12k**

Specifications

	QuantStudio 12K Flex system	
Block change design	• 96-well (10–100 µL reactions) • Fast 96-well (15–30 µL reactions) • 384-well (5–20 µL reactions) • TaqMan Array Card (~1 µL reactions) • OpenArray Plate (33 nL reactions)	
Block change design	Block change from front in less than 1 min; no tools or service call required	
Excitation source	Enhanced OptiFlex system, white LED	
Instrument control	Instrument touchscreen, networked computer, or attached computer	
Detection channels	• Decoupled: 6 emission, 6 excitation (96-well/Fast, 384-well, TaqMan blocks) • Coupled: 4 emission, 4 excitation (OpenArray blocks)	
21 CFR Part 11 enablement	Optional software module	
Dimensions (H x W x D)	73.8 x 50.1 x 66.1 cm	
Weight	70 kg	
Remote monitoring	Available to monitor up to 15 networked instruments simultaneously	
	96-well, 96-well Fast, 384-well, TaqMan Array Card blocks	**OpenArray block**
Detection channels	Decoupled: 6 emission, 6 excitation	Coupled: 4 emission, 4 excitation
Well-to-well variability	±0.25°C	±0.75°C
Max. block ramp rate	3.0°C/sec (384-well)	3.0°C/sec
Run time	• 30 min expected (Fast 96-well block) • 35 min (384-well block, using Fast master mix)	• 2 hr (gene expression) • 4 hr (genotyping)
Demonstrated sensitivity	To 1 copy	To 1 copy
Dynamic range	To 9 logarithmic units	To 7 logarithmic units
Resolution	As low as 1.5-fold change for singleplex reaction	As low as 2-fold change for singleplex reaction

Ordering information

Product	Cat. No.	Instrument + 1-year extended warranty with AB Complete Cat. No.*
QuantStudio 12K Flex Real-Time PCR System, OpenArray block with AccuFill System, desktop configuration	4471090	4480621
QuantStudio 12K Flex Real-Time PCR System with OpenArray Block without AccuFill system, desktop configuration	4472380	NA
QuantStudio 12K Flex Real-Time PCR System with TaqMan Array Card instrument, desktop configuration	4471089	4480622
QuantStudio 12K Flex Real-Time PCR System 384-well instrument, desktop configuration	4471134	4480623
QuantStudio 12K Flex Real-Time PCR System 96-well Fast, desktop configuration	4471088	4480625
QuantStudio 12K Flex Real-Time PCR System 96-Well, desktop configuration	4471087	4480631
96-Well Block Upgrade Kit	4453543	NA
96-Well Fast Block Upgrade Kit	4453544	NA
384-Well Block Upgrade Kit	4453545	NA
TaqMan Array Card Block Upgrade Kit	4453546	NA
OpenArray Block with AccuFill System	4471067	NA
QuantStudio 12K Flex AccuFill Upgrade Kit (For existing AccuFill system users)	4471022	NA

* Includes SmartStart orientation.

Recommended plastics

96-well block	Cat. No.	96-well block Fast	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp Optical 96-Well Reaction Plate with Barcode	4306737	MicroAmp Fast Optical 96-Well Reaction Plate with Barcode, 0.1 mL	4346906	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588	MicroAmp Fast 8-Tube Strip	4358293	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp Optical Adhesive Film	4360954	MicroAmp Optical 8-Cap Strips	4323032	MicroAmp Optical Adhesive Film	4360954
		MicroAmp Optical Adhesive Film	4360954		

Multiple colors are available for most Cat. Nos.

Absolutely attainable chip-based digital PCR

QuantStudio 3D Digital PCR System

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

- 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

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 digital PCR technology within reach for most labs.

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

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

Easily fits in populated spaces
Small footprint (17.8 x 12.7 x 22.9 cm, 7 x 5 x 9 in.) will fit most benchtops and can be moved when needed.

Compatible
Use your existing Applied Biosystems™ TaqMan® Real-Time PCR Assays for a digital result.

= cloud-enabled instrument

Application spotlight

Determining low copy number in equivocal tissue

Many cancers are regulated by mutations in a specific gene or group of genes, or by copy number changes. These aberrations may be associated with aggressiveness of the disease or prognosis. Research using 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 research results.

Find out more at **thermofisher.com/quantstudio3d**

Specifications

QuantStudio 3D Digital PCR Instrument	
Time to read 1 sample	~30 sec
PCR detection method	Endpoint
Sample illumination	LED
Sample detection	CMOS
Detection channels	FAM/SYBR Green, VIC, ROX
Reader size (H x W x D)	21 x 13.5 x 23.3 cm
Weight	2.4 kg
QuantStudio 3D Digital PCR 20K Chip	
Partitions	Chip reaction wells
Samples per chip	1
Targets per chip	2
Chip capacity in thermal cycler	24
Reaction wells per sample	20,000
Loading volume	14.5 µL
Sealed workflow	Yes
Performance	
Dynamic range	5 logarithmic units
Precision at 95% confidence interval	±10%
Compatible chemistries	TaqMan and SYBR Green chemistries

Ordering information

Product	Cat. No.
QuantStudio 3D Digital PCR System Package with Master Mix, Chip Kit v2, and customer site training with 1-year extended warranty	A27545
QuantStudio 3D Digital PCR System Package with Master Mix, Chip Kit v2, and customer site training	A29154
QuantStudio 3D Digital PCR Instrument	4481097
QuantStudio 3D Digital PCR Chip Loader	4482592
QuantStudio 3D Digital PCR Chip Adapter Kit for Flat Block Thermal Cycler	4485513
QuantStudio 3D Digital PCR 20K Chip Pack (includes consumables)	4485507
ProFlex Dual Flat PCR System	4484078
QuantStudio 3D Digital PCR Master Mix (1.5 mL)	4482710

Real-time PCR service and support

Because science can't wait

Keep your QuantStudio Real-Time PCR Systems up and running with superior services and support

Smart Remote Support maximizes uptime

Smart Remote Support leverages augmented reality (AR) technology to include a real-time video/audio collaboration tool and an advanced remote desktop support tool. The tool enables more robust remote support, which can increase instrument uptime by eliminating the need for an on-site service visit or increasing the chances of a first-time fix.

Comprehensive instrument warranty

Our factory-trained and certified field service engineers (FSEs) are focused on delivering the highest-quality workmanship. During the warranty period, all qualifying repairs, as well as engineer time and travel, are covered.

Flexible service plans help reduce downtime

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. The AB Repair Center plan is the cost-effective choice for customers who can allow their instrument to be sent away for repair—this plan provides a loaner instrument so that customers can maintain productivity while their instrument is being repaired.

Qualification services

Instrument hardware qualifications for the QuantStudio Real-Time PCR Systems include installation qualification (IQ) and operational qualification (OQ) to document and verify that instruments are installed and operating according to manufacturer's specifications. An IQ/OQ is recommended at installation and when moving the instrument. Our qualification specialists will partner with you to deliver timely, cost-effective, and trusted qualification services that include reliable, audit-style documentation that will help ensure your instruments meet regulatory requirements.

Contact an instrument qualifications specialist at **thermofisher.com/iqoqpq**

Computer system validation services

Laboratories operating under GAMP5, 21 CFR Part 11, and Annex 11 security auditing and e-signature compliance require validation of instrument computer systems to help ensure accurate, reliable, and consistent records. To help reduce compliance risk, our computer system validation (CSV) consulting services provide flexible and comprehensive, audit-style documentation packages that help customers to comply with regulations and standards. The services are managed and delivered by an experienced compliance specialist and help ensure that electronic records are generated, maintained, and archived in an accurate, reliable, and secure manner.

Contact a CSV specialist at **thermofisher.com/csv**

Service plans at a glance

	On-site service plans			Repair Center service plans*	
	AB Complete	AB Assurance	AB Maintenance Plus	AB Repair Center Support Plus Care	AB Repair Center Support Plus
On-site response time	Guaranteed next business day**	Guaranteed 2 business days**	Target 2 business days**		
Scheduled on-site planned maintenance (PM)	•	•	•	•	
Remote diagnostics	•	•	•	•	•
Parts, labor, and travel for repair included	•	•	10% discount optional add-on in selected regions	•	•
Computer repair and replacement included	•	•		•	•
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	•				
Field Application Scientist consultation	•				
Loaner instrument issued during repair (Repair Center plans only)				•	•

* Repair Center service plans available for QuantStudio 3 and 5 Real-Time PCR Systems only.

** Response times vary by region.

Education services

It can be difficult to prepare yourself for what's next while you're focused on the work you have now. Our professional, interactive training courses make it easier.

We offer a combination of virtual and in-person classroom instruction, and hands-on learning in your lab to match your schedule, budget, and learning preferences. Whichever course style you choose, you'll learn from one of our 300 highly skilled application scientists who are available to lead sessions online, at your location, or at one of our 12 training centers located worldwide.

Explore courses at **thermofisher.com/educationservices**

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 scientists or access our online product and application support tools.

How to reach us

To find your local support or technical support team, go to **thermofisher.com/contactus**

For product FAQs, protocols, training courses, and webinars, go to **thermofisher.com/technicalresources**

Explore our services and support solutions at **thermofisher.com/instrumentservices**

High-performance real-time PCR plastics for optimal qPCR results

Engineer Approved MicroAmp qPCR plastics

Applied Biosystems™ PCR plastics have been designed and validated to work with our thermal cyclers for more than 25 years. That's why they are Engineer Approved to enable optimal PCR performance.

Applied Biosystems MicroAmp qPCR plastics are:

- Validated on Applied Biosystems thermal cyclers for optimal fit and performance
- Designed to perform on all Applied Biosystems qPCR instruments
- Designed for optimal heat transfer with thin-walled polypropylene wells
- Designed to reduce cross-contamination with raised well rims for effective sealing

applied biosystems
by Thermo Fisher Scientific

Engineer **Approved**

Unique, high-performance features of MicroAmp EnduraPlate plastic consumables

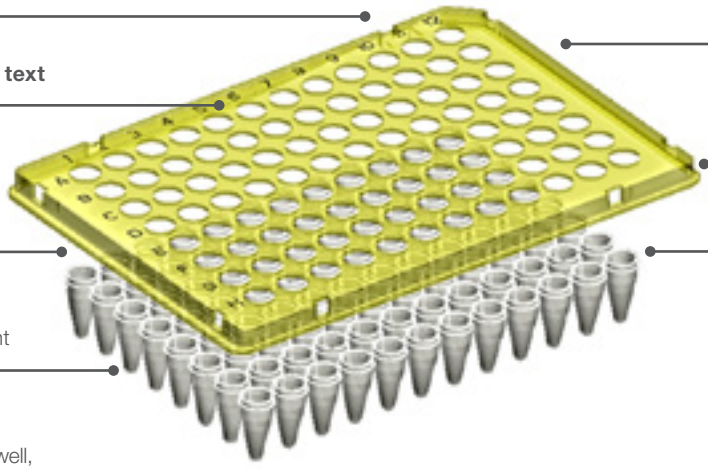
Easy visual organization
5 color choices

Easy-to-read well identification text
Black text for excellent contrast

Non warping, even after thermal cycling
Polycarbonate (hard shell) for mechanical stability and flatness

Snug fit to thermal blocks
Thin-wall polypropylene for excellent mechanical fit and heat transfer

Available in common formats
96-well standard, 96-well Fast, 384-well, 5-piece sample packs, 20 & 500 packs



Constructed to ANSI/SBS standard
Well suited for SBS standard robotic handling

Certified DNA-, RNase-, and PCR inhibitor–free

Compatible with and optimized for performance on Applied Biosystems instruments

Options for every format and all of your throughput needs

Choose from tubes, tube strips, plates, sealing, and accessories for any throughput need. Applied Biosystems™ MicroAmp™ EnduraPlate plastics offer a solution for experiments that require special handling, such as automated or high-throughput workflows, and an even greater degree of durability for use with multi-instrument experiments.

Our Applied Biosystems™ MicroAmp™ 8-Tube Strips with Attached Optical Caps* are optimally designed for precise real-time PCR with lid and tube labeling, dual end tabs, and 20 µL graduation marks on each tube to prevent pipetting errors. The 8-tube strips fit in all 0.2 mL Applied Biosystems real-time PCR instruments.

* MicroAmp 8-Tube Strips with Attached Domed Caps are also available for PCR.

Find out more at **thermofisher.com/pcrplastics**

Did you know?

Proper plate sealing helps reduce evaporation and well-to-well contamination.

1. Remove the backing of the Applied Biosystems adhesive film.

2. Align the adhesive film so as to cover all wells while placing on the plate.

3. Rub the flat edge of the applicator along the long edge (length) of the plate, then along the short edge (width). Finally, rub the applicator between all the wells and around the outside edges of the plate using small back-and-forth motions to form a complete seal.

Which qPCR plastic fits your needs?

Find the plastic format with the throughput and features for your application

Use for:	Small-scale experiments with a few samples	Routine experiments	Automation	Laboratory use
	Single tubes, strips, caps, adhesive film & accessories	MicroAmp optical microplates	MicroAmp EnduraPlate optical microplates	MicroAmp EnduraPlate optical microplates GPLE*
Formats	• Single tubes • Single tubes with caps • 8-strip tubes with caps	• 48-well Fast • 96-well • 96-well Fast • 384-well	• 96-well • 96-well Fast • 384-well	• 96-well • 96-well Fast • 384-well
DNA-, RNase-, and PCR inhibitor–free	Yes	Yes	Yes	Yes
ANSI/SBS standard dimension color	Clear	Clear	Single-color packs (red, blue, green, yellow, or clear) and 5-plate sampler (1 of each color)	Clear
Instrument compatibility	Use our plastics selection tool	Use our plastics selection tool	Use our plastics selection tool	Use our plastics selection tool
Barcode	No	Yes (1 or 2 sides)	Yes (3 sides)	Yes (3 sides)
Multiple application	No	No	Yes	Yes
Optical compatibility	Yes (applicable for optical version)	Yes	Yes	Yes
Use	Research use only	Research use only	Research use only	For laboratory use**

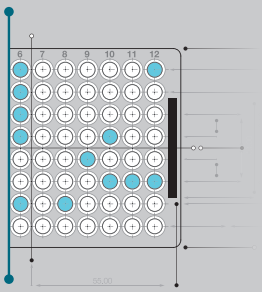
* For laboratory use.

** Lot-based contamination test with Certificate of Analysis.

Did you know?

Need high-quality PCR plastics for non–Applied Biosystems instruments, or need a white plate for your qPCR application? Visit **thermofisher.com/thermoscientificplastics** for a wide range of Thermo Scientific™ PCR plastics.

Custom and OEM plastics for PCR and qPCR are available. Learn more at **thermofisher.com/oemplastics**



Find the plastics and accessories you need for your instrument quickly

Product	Cat. No.	48-well	96-well 0.2 mL			96-well 0.1 mL			384-well
		StepOne	7000	7300, 7500	QuantStudio 1, 3, 5, 6 Flex, 7 Flex, 12K Flex, 6 Pro, 7 Pro; ViiA 7; 7900HT	StepOnePlus	7500	QuantStudio 3, 5, 6 Flex, 7 Flex, 12K Flex, 6 Pro, 7 Pro; ViiA 7; 7900HT	QuantStudio 5, 6 Flex, 7 Flex, 12K Flex, 6 Pro, 7 Pro; ViiA 7; 7900HT
96-well, 0.2 mL reaction plates									
Optical 96-Well Plate	N8010560, 4316813		•	•	•				
Optical 96-Well Plate with Barcode	4306737, 4326659		•	•	•				
Optical 96-Well Plate with Barcode & Optical Caps	403012		•	•	•				
Optical 96-Well Plate with Barcode & Optical Adhesive Films	4314320		•	•	•				
EnduraPlate Optical 96-Well Clear Plate with Barcode*	4483354, 4483352			•**	•				
96-well, 0.1 mL reaction plates									
Fast Optical 96-Well Plate, 0.1 mL	4346907					•	•	•	
Fast Optical 96-Well Plate with Barcode, 0.1 mL	4346906, 4366932					•	•	•	
EnduraPlate Optical 96-Well Fast Clear Plate with Barcode*	4483485, 4483494					•	•	•	
384-well reaction plates									
Optical 384-Well Plate	4343370								•
Optical 384-Well Plate with Barcode	4309849, 4326270, 4343814								•
EnduraPlate Optical 384-Well Clear Plate with Barcode*	4483285, 4483273								•
48-well reaction plates									
Fast Optical 48-Well Plate	4375816	•							
Strip tubes and caps									
Fast 8-Tube Strip, 0.1 mL	4358293	•				•	•	•	
Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588		•	•	•				
Optical 8-Tube Strip, 0.2 mL	4316567		•	•	•				
Optical 8-Cap Strip	4323032	•	•	•	•	•	•	•	
Single tubes and caps									
Fast Reaction Tube with Cap, 0.1 mL	4358297	•				•		•	
Optical Tube without Cap, 0.2 mL	N8010933		•	•					
Seals and covers									
Optical Adhesive Film	4360954, 4311971		•	•	•	•	•	•	•
48-Well Optical Adhesive Film	4375323	•							
Reaction trays									
96-Well Tray/Retainer Set	403081		•						
Fast 48-Well Tray	4375282	•							
96-Well Tray for VeriFlex Blocks	4379983					•			
Accessories									
Splash-Free 96-Well Base	4312063		•	•	•	•	•	•	
96-Well Support Base	4379590		•	•	•	•	•	•	

* Multiple colors are available.

** Requires use of proper adapter, Cat. No. A24820.

Note: Experiments using one or two 8-tube strips with attached caps require blank tube strips to balance lid pressure on the block or the use of the MicroAmp™ 96-Well Tray/Retainer Set (Cat. No. 4381850)—bottom part of tray *only*. For use with 96-well block of Applied Biosystems™ 7000, 7300, 7500, and ViiA 7 systems, and QuantStudio 3/5/6/7/12K instruments.

Visit our online plastics selection guide at **thermofisher.com/pcrplasticsselection**

TaqMan and SYBR Green chemistries for real-time PCR

We offer two types of chemistries to detect PCR products using real-time PCR instruments:

- Applied Biosystems™ TaqMan® chemistry (also known as fluorogenic 5′ nuclease chemistry)
- Applied Biosystems™ SYBR™ Green I dye chemistry

With over 20 million assays, including gene expression assays for more than 30 species, 5 assay formats, and >40,000 publications, Applied Biosystems™ TaqMan® Assays represent the most trusted and comprehensive collection of qPCR assays available.

Find master mixes, reagents, and kits to power your applications.

	TaqMan chemistry—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 assays and 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.

Chemistry	Application	Starting material	Recommended master mix
5′ nuclease (TaqMan Assays)	Gene expression, DNA quantification	cDNA, gDNA	TaqMan Fast Advanced Master Mix
	Gene expression, RNA virus quantification	RNA	TaqMan Fast Virus 1-Step Master Mix
	Genotyping	gDNA	TaqPath ProAmp Master Mix
SYBR Green dye	Gene expression	cDNA	PowerUp SYBR Green Master Mix

Find your assay or master mix at **thermofisher.com/taqman** or **thermofisher.com/qpcrmastermixes**

TaqMan Assays for every kind of research

Comprehensive, high-quality solutions for genetic analysis

Applied Biosystems™ TaqMan® Assays are the industry-leading choice for 5′ nuclease real-time PCR (qPCR) assays. They are cited in more publications than any other qPCR assay product and are considered the gold standard for quantitative genomic analysis. Backed by a performance guarantee,* TaqMan Assays are consistently chosen as a proven solution to reliably provide fast and accurate results.

- **Specificity**—advanced primer/probe sequence selection criteria plus minor groove binder (MGB) probe enhancement deliver the specificity and reproducibility you need for confidence that your results are generated from amplification of the intended target and not from nonspecific dye binding or amplification of closely related genes or pseudogenes
- **Sensitivity**—the nonfluorescent quencher (NFQ) on Applied Biosystems™ TaqMan® probes minimizes background, and intelligent PCR primer and probe design maximizes amplification efficiency; get better sensitivity and accuracy to reliably detect targets present at 10 or fewer copies
- **Reproducibility**—accurately reproduce results from well to well, day to day, and lab to lab, even across manufacturing lots
- **Proven technology**—backed by over 40,000 publications to date

Guaranteed to perform for all of your research needs*

TaqMan Assays cover a broad range of research for a wide variety of applications:

Expression	Genetic variation
Gene expression	Single-nucleotide polymorphism (SNP) genotyping
MicroRNA (miRNA) expression	Drug metabolism enzyme genotyping
Long noncoding RNA (lncRNA) expression	Copy number variation (CNV)
Fusion transcript detection	Rare somatic mutation detection
Protein expression	

Applied Biosystems™ TaqMan® Gene Expression Assays

- Designed to detect virtually any gene product, with more than 2 million predesigned assays; we offer custom-designed assay tools to detect any gene product not covered by our predesigned assays
- Best-coverage assays available to detect the highest number of transcript variants possible
- Available for 29 species and some microbial pathogens
- Flexible formats—single tubes, 96-well plates, 384-well plates, microfluidic cards, and OpenArray plates

Applied Biosystems™ TaqMan® Advanced miRNA Assays

- One universal reverse transcription (RT) step for all TaqMan Advanced miRNA Assays
- Detect targets with as few as 60 copies of input microRNA (miRNA) in the cDNA synthesis reaction
- Detect only mature miRNA and distinguish related highly homologous miRNAs with gold-standard TaqMan probe specificity
- Detect and quantify mature miRNA from as little as 1 pg of total RNA or 2 µL of purified plasma or serum
- Compatible with tissue and biofluids including serum and plasma

Applied Biosystems™ TaqMan® Noncoding RNA Assays

- For reliable detection and quantitation of noncoding transcripts longer than 200 nucleotides
- Designed to only detect noncoding transcript targets

Applied Biosystems™ TaqMan® Fusion Assays

- Quantify expression level of gene fusions using qPCR
- Orthogonal validation method for confirming next-generation sequencing (NGS) results

* Terms and conditions apply. See full details of the guarantee at **thermofisher.com/taqmanguarantee**.

Applied Biosystems™ TaqMan® SNP Genotyping Assays

- Comprise the world's largest predesigned collection, with over 17 million assays
- Rigorous design pipeline with >90 parameters for optimal primer–probe combinations
- Functional quality testing on at least 20 gDNA samples for each assay
- Flexible formats to accommodate any number of targets and samples

Applied Biosystems™ TaqMan® Drug Metabolism Genotyping Assays

- Detect polymorphisms in high-value drug metabolism enzyme (DME) pharmacogenetics markers
- Cover specific SNP alleles, multi-nucleotide polymorphisms (MNPs), and insertions and deletions (indels)
- Targets derived from public databases, consortia, and published articles

Applied Biosystems™ TaqMan® Copy Number Assays

- Evaluate copy number of genomic DNA targets
- Easy to interpret—Applied Biosystems™ CopyCaller™ Software provides the calculated copy number and predicted copy number, along with confidence value and z-score quality metrics
- Fast and simple—setup to primary analysis in 3–4 hours

Custom TaqMan probes

Design your own TaqMan primers and probes with the option of choosing from dual-labeled Applied Biosystems™ TaqMan® MGB, TAMRA™, or QSY™ custom probes. TaqMan MGB probes include an MGB moiety at the 3′ end that increases the melting temperature (T_m) of the probe and stabilizes probe–target hybrids. TaqMan MGB probes can be significantly shorter than traditional probes, providing better sequence discrimination and flexibility to accommodate more targets. TaqMan QSY probes are available for multiplexing three or more targets and are available with dyes optimized to work with Applied Biosystems™ QuantStudio™ qPCR systems.

Applied Biosystems™ TaqMan® Mutation Detection Assays

- Powered by competitive allele-specific Applied Biosystems™ TaqMan® PCR (castPCR™) technology
- Detect and measure somatic mutations in genes associated with cancer research
- Detect rare amounts of mutated DNA in a sample that contains large amounts of normal, wild-type DNA
- Compatible with different sample types, such as cell lines; formalin-fixed, paraffin-embedded (FFPE) tissue; and fresh-frozen tissue samples

Flexible formats

A variety of formats for different research needs

Configurations to fit your research goals

Are you analyzing hundreds (or thousands) of samples, and expression from a handful of genes? Or does your research involve a few samples that need to be analyzed for a long list of mRNA targets? No matter what experiment you're performing, there's a TaqMan Gene Expression Assay format and real-time PCR instrument for your research needs.

TaqMan Gene Expression Assay formats

Single tubes
- Low entry price
- Flexible
- Run on any real-time PCR instrument

384-well microfluidic cards
- Low cost per reaction
- Optimal for medium to large projects
- Run on QuantStudio 7 & 12K Flex, ViiA 7, and 7900HT Real-Time PCR Systems

96- or 384-well plates
- Optimal for small to medium projects
- Balance flexibility with streamlined reaction setup
- Run on any 96- or 384-well real-time PCR instrument

OpenArray plates
- Lowest cost for large projects
- Ultimate throughput
- Run on QuantStudio 12K Flex Real-Time PCR System

TaqMan and SYBR Green master mixes

Applied Biosystems TaqMan and SYBR Green master mixes have been designed to give you the reliable results you need in run times as short as 40 minutes. Master mixes are optimized for specific applications, and the range of sizes available supports users from the occasional to those running qPCR on a daily basis.

Applied Biosystems™ TaqMan® Fast Advanced Master Mix

Accurate, dependable gene expression quantification in less time

- Wide linear dynamic range even on fast cycling instruments (<40 min run time)
- 72-hour pre-PCR benchtop stability enables flexibility in automated workflows
- Compatible with single- and multiplex assays
- Seamlessly transitions into your experiments

Applied Biosystems™ TaqMan® Fast Virus 1-Step Master Mix

Sensitive 1-step quantification of RNA viruses and transcripts, even with challenging samples

- Designed for reliable, high-sensitivity 1-step RT-qPCR to enhance virus and transcript quantification
- Formulated to handle common RT-PCR inhibitors found in blood, stool, and other difficult samples
- Single-tube 4X master mix format enables use of more sample for enhanced sensitivity
- Works in singleplex and multiplex, and with exogenous or endogenous internal controls

Applied Biosystems™ TaqPath™ ProAmp™ Master Mix

Accurate SNP and CNV genotyping calls in both purified and crude samples

- Reproducible genotyping results even in the presence of inhibitors
- Compatible with buccal swab and blood crude lysates prepared with the Applied Biosystems™ Extract All Reagents Kit
- 72-hour pre-PCR benchtop stability enables flexibility in automated workflows
- Tight lot-to-lot consistency

Applied Biosystems™ PowerUp™ SYBR™ Green Master Mix

SYBR Green dye–based gene expression quantification with unrivaled specificity

- Exceptional specificity and reproducibility over a broad dynamic range
- Dual-Lock technology minimizes primer and cycling optimization without compromising sensitivity
- Compatible with fast cycling for results in <50 minutes and compatible with most instruments
- Formulated with UNG/dUTP to prevent contamination of carryover PCR products

Ordering information

Product	Quantity	Cat. No.
TaqMan Fast Advanced Master Mix	1 x 1 mL	4444556
	1 x 5 mL	4444557
	2 x 5 mL	4444963
	5 x 5 mL	4444964
	10 x 5 mL	4444965
	1 x 50 mL	4444558
TaqMan Fast Virus 1-Step Master Mix	1 x 1 mL	4444432
	5 x 1 mL	4444434
	1 x 10 mL	4444436
TaqPath ProAmp Master Mix	1 x 1 mL	A30865
	1 x 10 mL	A30866
	2 x 10 mL	A30871
	1 x 50 mL	A30867
	2 x 50 mL	A30872
PowerUp SYBR Green Master Mix	1 mL	A25741
	5 mL	A25742
	50 mL	A25743
	2 x 5 mL	A25776
	5 x 5 mL	A25777
	10 x 5 mL	A25778
	2 x 1 mL	A25779
	5 x 1 mL	A25780
	10 x 1 mL	A25918

** Dynamic range is a property of both the assay and template concentration in the sample, as well as the formulation of the master mix; thus, individual results may vary.

Learn more about master mixes and how to use our selection tool at **thermofisher.com/qpcrmastermixes**

Superior cDNA synthesis performance in RT-qPCR applications

SuperScript IV VILO Master Mix

Invitrogen™ SuperScript™ IV VILO™ Master Mix is a first-strand cDNA synthesis reaction mix for two-step RT-qPCR. The master mix format elevates the trusted VILO technology (Variable Input, Linear Output) to the next level by combining further optimized buffer conditions with the highly processive and thermostable Invitrogen™ SuperScript™ IV Reverse Transcriptase. The master mix offers exceptional performance features while maintaining superior linearity across the broadest range of input RNA.

- **Super-efficient**—C_t values earlier by an average of 2 cycles compared to other reverse transcription reagents, in a 10 min reaction
- **Super-strong**—reliable results even with degraded or inhibitor-containing RNA samples
- **Super-reliable**—improved RT-qPCR data reproducibility due to single-tube master mix format
- **Super-safe**—integrated, easy, and RNA-friendly genomic DNA removal

Find out more at **thermofisher.com/4vilo**

Doing other cDNA synthesis applications?
The SuperScript IV Reverse Transcriptase portfolio of products is engineered to offer superior cDNA synthesis performance with even the most challenging RNA samples. The portfolio includes a stand-alone enzyme, first-strand cDNA synthesis kit, and one-step RT-PCR kit. Learn more when you flip the brochure to the PCR side.

thermofisher.com/ssiv

Ordering information

Product	Quantity	Cat. No.
SuperScript IV VILO Master Mix	50 reactions	11756050
	500 reactions	11756500
SuperScript IV VILO Master Mix with ezDNase Enzyme	50 reactions	11766050
	500 reactions	11766500

Did you know?

SuperScript IV VILO Master Mix is available in a format with the novel dsDNA-specific Invitrogen™ ezDNase™ enzyme, which offers convenient and fast genomic DNA removal from RNA samples to help ensure high confidence in RT-qPCR results.

Connect with your instrument and achieve lab/life balance

Instrument Connect app

Thermo Fisher Scientific has pioneered a way to connect you to your instruments, giving you real-time updates on your run and access to data as they come up. We connect you to your cloud-enabled instruments and benchtop devices anytime, anywhere using the Instrument Connect mobile app.

The Instrument Connect remote monitoring app allows you to stay connected to any of our cloud-enabled instruments, including the QuantStudio 1, 3, and 5 real-time PCR instruments, as well as endpoint PCR devices including Applied Biosystems™ ProFlex™, SimpliAmp™, and MiniAmp™ thermal cyclers.

With the Instrument Connect app, you can:

- Check the availability of your cloud- and network-connected device
- Monitor run progress
- View amplification plots in real time (available for QuantStudio 1, 3, and 5 instruments)
- View plots and filter by sample or target in real time
- Schedule an instrument

It's easy to get started. Just download the Instrument Connect app from the Apple™ App Store and log in to your Connect account. You can view your connected QuantStudio 1, 3, and 5 instruments, monitor remaining time in your run, and view your amplification plots in real time.

Learn more about the Instrument Connect app at **thermofisher.com/qpcrconnect**

Specialty enzymes for molecular diagnostics development and commercial supply

We offer innovative enzymes, dNTPs, and buffers for your molecular assay development. Our products are manufactured in-house, conform to internationally acceptable standards of quality, and provide you with 24/7 access to our dedicated OEM support team to meet your unique applications.

For more information about our enzymes for commercial supply, go to **thermofisher.com/oemenzymes**

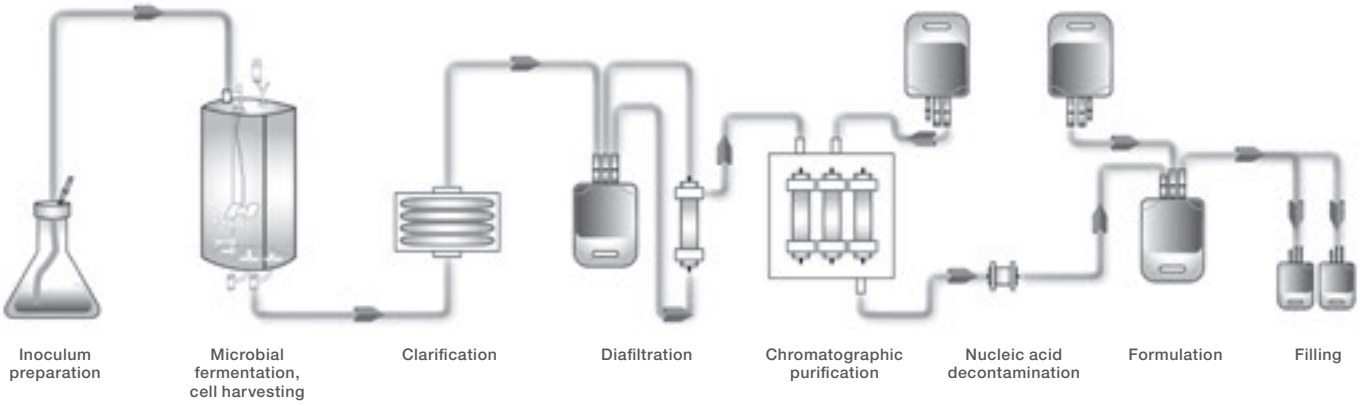
DNA-free enzymes*

DNA-free PCR enzymes are manufactured using our single-use system (SUS). These enzymes are:

- Manufactured in a completely closed system using dedicated or single-use equipment
- Verified free of contaminating DNA from host, human operator, and environment

Learn more at **thermofisher.com/dna-free**

* Platinum *Taq* DNA Polymerase, DNA-free, is available as a catalog product.



Closed, SUS-based manufacturing process for recombinant enzymes. A completely closed system using disposable single-use bags, tubes, and connectors reduces the potential DNA contamination from the environment, human operator, and cross-contamination to a negligible level.

Lyo-ready enzymes

From Platinum *Taq* DNA polymerases to SuperScript reverse transcriptases, we offer the largest selection of lyophilization-compatible enzymes, providing:

- Flexible assay designs while retaining the same functional enzyme performance as with conventional formats
- Tailor-made solutions for your specific applications, including custom packaging
- Higher confidence in results with low residual DNA contamination (human and bacterial) of enzymes

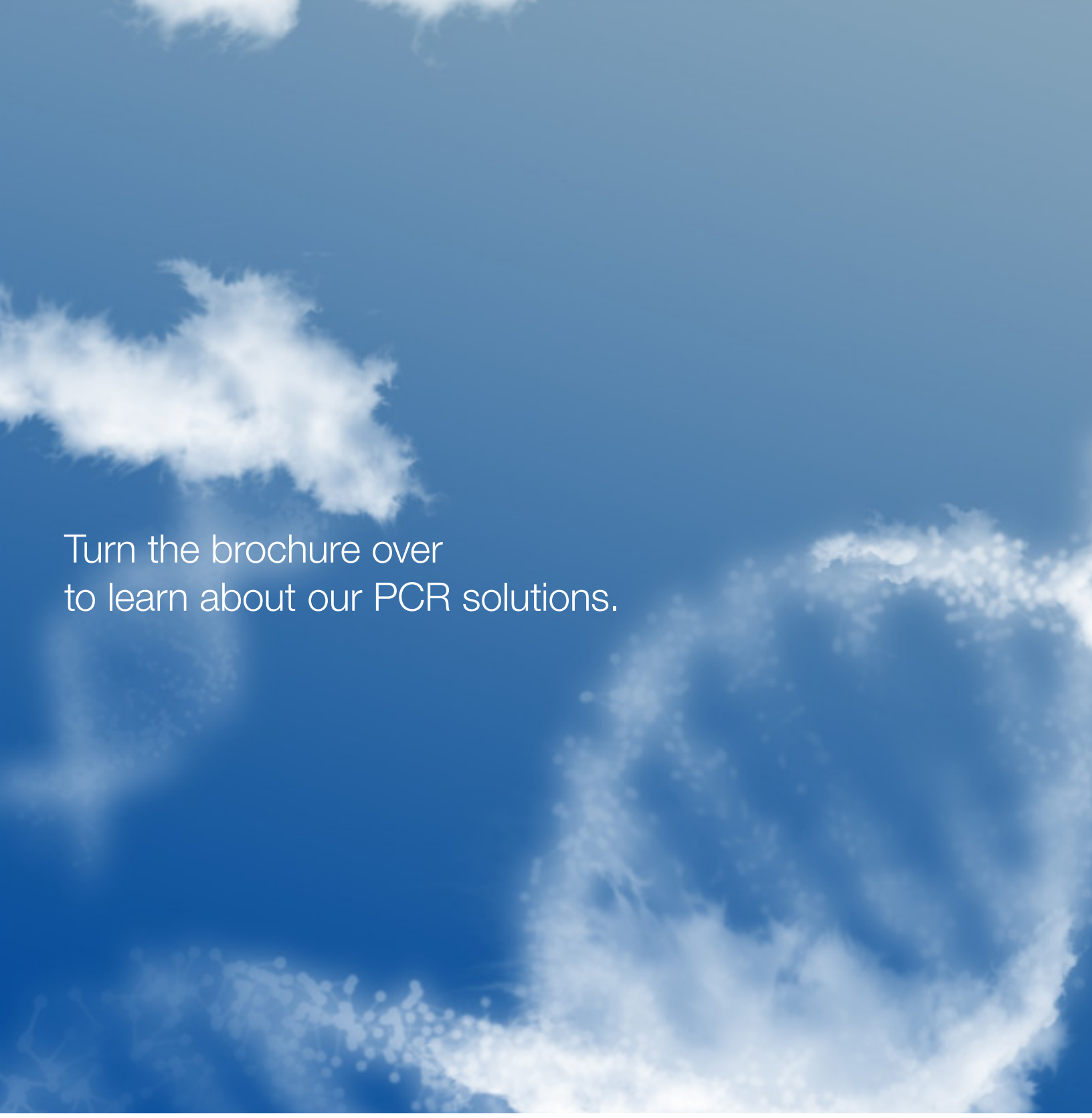
Learn more at **thermofisher.com/lyo-ready**

Real-time PCR educational resources

Do you want to learn more about real-time PCR? Find answers to common questions and learn the basics in our online education hub. Make your results “ever better” by improving your knowledge at your own pace. You can learn about:

- The difference between absolute and relative quantification
- Benefits of fast real-time PCR
- Multiplexing
- And so much more

Real-time PCR and digital PCR	Key online resources
Real-time PCR Learning Center, which includes articles, videos, and webinars	thermofisher.com/qpcreducation
qPCR promotions	thermofisher.com/qpcrpromotions
Webinars	thermofisher.com/gawebinars
Ask TaqMan videos	thermofisher.com/ask
qPCR handbook	thermofisher.com/qpcrhandbook
Behind the Bench blog	thermofisher.com/blog/behindthebench
Assay search	thermofisher.com/taqman
Master mix sample request	thermofisher.com/mmsample
General qPCR support	thermofisher.com/qpcrsupport
Training offered	thermofisher.com/events
Instrument Management tool	thermofisher.com/easiertomanage
Real-time PCR data analysis	thermofisher.com/qpcrdata
qPCR troubleshooting tool	thermofisher.com/qpcrtroubleshooting
Real-time PCR Support Center	thermofisher.com/qpcrsupport



Find out more at **thermofisher.com/qpcr**

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