

PCR

applied biosystems invitrogen



PCR solutions brochure

Fuel your 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/amplify**



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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. We continue to innovate, so our instruments have unique advantages such as Applied Biosystems™ VeriFlex™ temperature control technology and secure remote access. Applied Biosystems thermal cyclers enable precise, consistent results for every challenge, application, and budget.



	Ultimate flexibility and throughput ProFlex PCR System	Ultimate performance VeritiPro Thermal Cycler	Elegantly simple and precise SimpliAmp Thermal Cycler	Routine PCR MiniAmp Thermal Cycler	Designed for easy robotic integration Automated Thermal Cycler
Max. sample throughput	480,000 reactions	96 reactions	96 reactions	96 reactions	384 reactions
Max. block ramp rate	6.0°C/sec	6.0°C/sec	4.0°C/sec	3.0°C/sec	3.5°C/sec
Block formats (temperature optimization)	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 96-well, 0.2 mL (6-zone VeriFlex Block) 	<ul style="list-style-type: none"> • 96-well, 0.2 mL (3-zone VeriFlex Block) 	<ul style="list-style-type: none"> • 96-well, 0.2 mL 	<ul style="list-style-type: none"> • 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.

 = cloud-enabled instrument

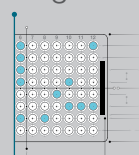
 = automation-ready instrument

Looking for a thermal cycler for *in vitro* diagnostic use? Learn more about the Applied Biosystems™ Veriti™ Dx Thermal Cycler at thermofisher.com/veritidx



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

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





AmpliFly

Invitrogen
by ThermoFisher Scientific

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		3.0°C/sec	1.6°C/sec	3.0°C/sec
Max. sample ramp rate	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 (30 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		10–100 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 Plate 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 Plate 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 ProFlex, VeritiPro, and SimpliAmp Thermal Cyclers feature VeriFlex temperature control technology, which enables more precise and efficient PCR optimization.

Find out more at thermofisher.com/veriflextechnology

Ultimate performance

VeritiPro Thermal Cycler

The Applied Biosystems™ VeritiPro™ Thermal Cycler delivers proven reliability with advanced temperature control technology and connectivity. Take advantage of next-level PCR optimization with the precision offered by VeriFlex temperature control technology. Connect to the cloud-enabled VeritiPro Thermal Cycler remotely. Conveniently design and securely upload your methods, monitor runs, and check instrument availability from any mobile device or desktop computer with Connect.

- **Innovative design**—ramp rate of 6.0°C/sec, quiet fan, and ergonomic soft-close lid
- **VeriFlex Block**—precise control over six independent temperature zones for PCR optimization
- **Fleet control-compatible**—manage multiple instruments, users, and methods with Thermal Cycler Fleet Control Software

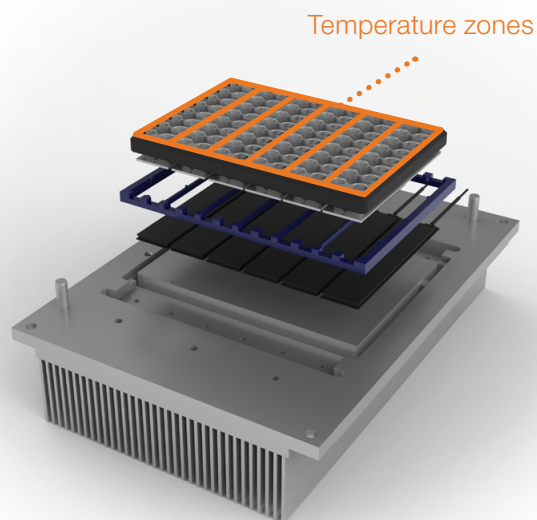


 = cloud-enabled instrument

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 Block to do enzyme studies, restriction digests, or any other process that requires precise temperature control



Find out more at thermofisher.com/veritipro

Specifications

Block format	96-well, 0.2 mL, 6-zone VeriFlex Block
Max. block ramp rate	6.0°C/sec
Max. sample ramp rate	4.4°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)
Dimensions (H x W x D)	21.7 x 24.5 x 46.5 cm (8.5 x 9.6 x 18.3 in.)
Weight	12.0 kg (26.5 lb)
PCR volume range	10–100 µL
Instrument memory	USB port and 16 GB onboard memory; onboard capacity >1,000 protocols
Display interface	8-inch color TFT LCD
Power	100–240 V, 50–60 Hz, max. 700 W
VeriFlex Block range	30°C range across block, 6 temperature zones (up to 10°C zone-to-zone)
Data connectivity*	Cloud or mobile via Ethernet or Wi-Fi

* 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 + 3-year warranty with Rapid Exchange Cat. No.
VeritiPro 96-Well Thermal Cycler	A48141	A48765
Recommended plastics		
96-well block	Cat. No.	
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plate with Barcode	4483354	
MicroAmp Optical 96-Well Reaction Plate	N8010560	
MicroAmp Clear Adhesive Film	4306311	
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	



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 VeritiPro Thermal Cycler.

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.

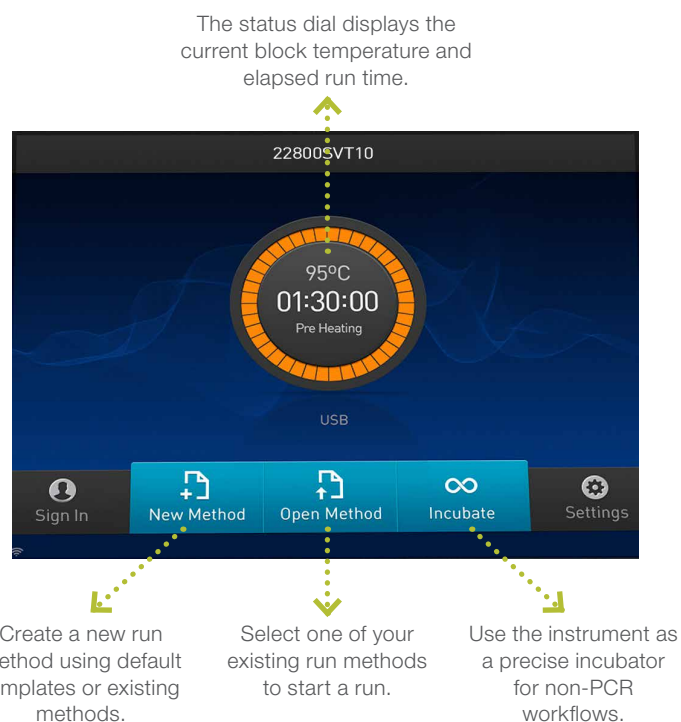
- **Intuitive interface**—large, easy-to-use color touchscreen for easy programming and quick status checks
- **VeriFlex Block**—three independent temperature zones for PCR optimization
- **Cloud-enabled**—conveniently access your instrument anytime, anywhere with Connect
- **Compact design**—helps save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

Simple, intuitive user interface

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



 = cloud-enabled instrument



Find out more at thermofisher.com/simpliamp

Specifications

Block format	96-well, 0.2 mL, 3-zone VeriFlex Block
Features	<ul style="list-style-type: none"> 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 Plate with Barcode	4483354
MicroAmp Optical 96-Well Reaction Plate	N8010560
MicroAmp Clear Adhesive Film	4306311
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



Did you know?

ProFlex, VeritiPro, SimpliAmp, and MiniAmp 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.


Routine PCR

MiniAmp Thermal Cycler

The Applied Biosystems™ MiniAmp™ Thermal Cycler delivers 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



 = cloud-enabled instrument

Secure remote access with cloud-enabled instruments

The ProFlex, VeritiPro, 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 available packages.

Specifications

	MiniAmp Thermal Cycler	MiniAmp Plus Thermal Cycler
Block format	96-well, 0.2 mL isothermal block	96-well, 0.2 mL, 3-zone VeriFlex Block
Max. block ramp rate*	3.0°C/sec	3.5°C/sec
Max. sample ramp rate*	2.2°C/sec	2.7°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	NA	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.
MiniAmp Thermal Cycler	A37834	A38081
MiniAmp Plus Thermal Cycler	A37835	A38077
High-Power USB Wi-Fi Module	A26774	NA

Recommended plastics	
96-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plate with Barcode	4483354
MicroAmp Optical 96-Well Reaction Plate	N8010560
MicroAmp Clear Adhesive Film	4306311
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



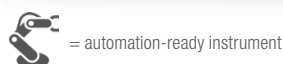
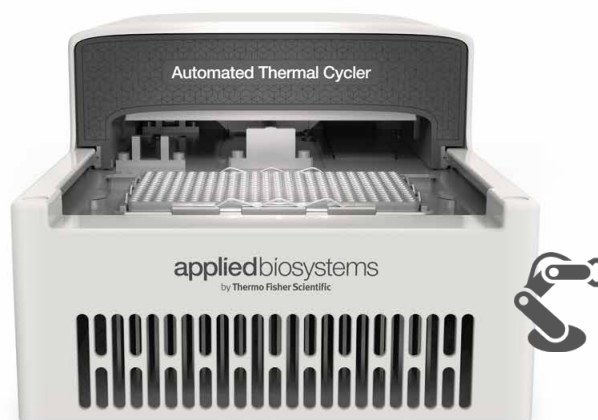
Want to learn more about thermal cycler ramp rates and how they are calculated?
Go to thermofisher.com/ramprate

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

Block format	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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 m 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 m 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 Plate with Barcode, Clear*	A31728	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plate with Barcode	4483273
MicroAmp EnduraPlate Optical Semi-Skirted Plate with Barcode**	4483356	MicroAmp EnduraPlate Optical 384-Well Multicolor Reaction Plate with Barcode	4483317
MicroAmp Clear Adhesive Film	4306311	MicroAmp Clear Adhesive Film	4306311

* Available in multiple colors.

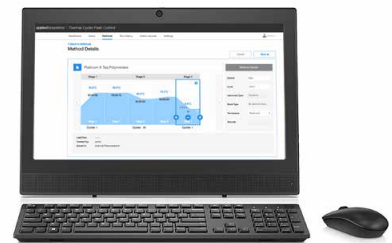
** Requires semi-skirted plate adaptor (Cat. No. A33044); included with instrument purchase.



The Applied Biosystems™ MicroAmp™ EnduraPlate™ (Cat. No. A31728) was specifically designed for the Automated Thermal Cycler and has three-way barcoding. Learn about the amplification uniformity benefits at thermofisher.com/automatedPCRplate

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

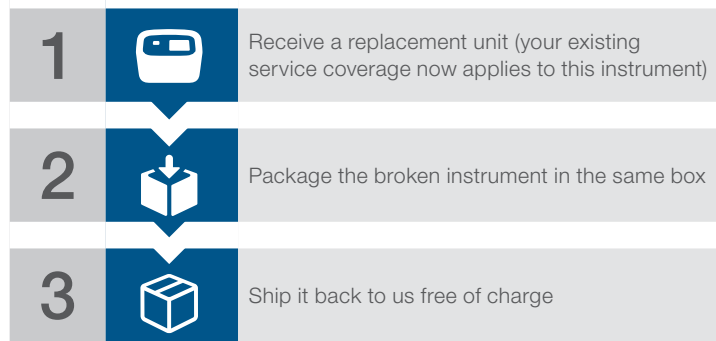
Science can't wait on instrument downtime

Thermal cycler services 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 1,400 trained professionals make up the industry's largest network, ready to assist you when you need it.

Rapid Exchange

When fast turnaround time is critical and asset tag consistency is not required, choose our Rapid Exchange plan. If our Remote Service Center engineers can't repair your instrument through telephone support, we will ship you a factory-certified refurbished replacement instrument within one business day—and it's yours to keep.



AB Repair Center (ABRC) Support Plus

Our AB Repair Center plan is the best choice for customers in regulated environments that must maintain asset tag consistency to comply with regulated protocols and need their instrument returned after repair. With this mail-in

Off-site service plans at a glance

	Rapid Exchange	AB Repair Center (ABRC) Support Plus
Plan designed for	Labs that operate under critical timelines	Regulated labs that must maintain asset tag consistency to comply with regulated protocols
Repair time	Replacement shipped in 1 business day*	Loaner instrument shipped out in 1 business day**
Off-site repair service including shipping, parts, and labor	✓	✓
Telephone and email access to our Remote Service Center	✓	✓

* Subject to regional availability.

** Your instrument repaired and returned in ~3 weeks. Service plan without loaner instrument also available.

option, we provide a loaner instrument for you to use while factory-trained engineers maintain and repair your instrument at our Remote Service Center. All instruments undergo certification performance tests, temperature verification, instrument and optical calibration, ground continuity, and firmware upgrades, when applicable.

Just mail us your instrument and we'll repair and ship it back to you within three weeks. All parts, labor, and shipping charges are included. Planned maintenance, temperature verification, and loaner instrument service* can be added to any off-site service plans.

Check your instrument's coverage status at thermofisher.com/manage

Digital service innovations

Our instrument service plans include digital innovations that help keep your instruments and your lab running smoothly. With pioneering on-demand tools and capabilities such as remote support using mobile augmented-reality (AR) technology, instrument-driven support, and on-demand instrument training, we're constantly looking ahead so your lab never falls behind.

Explore our digital service innovations at thermofisher.com/innovations

Temperature verification services

Multiplex dynamic temperature verification (MDTV) and multiplex dynamic temperature measurement (MDTM) services are designed to deliver fast, accurate temperature readings and documentation to assess the accuracy and uniformity of your PCR systems. MDTV is available for Applied Biosystems thermal cyclers; MDTM is available for most thermal cyclers from other manufacturers.**

Watch the "Five reasons to verify your thermal cycler's accuracy" video at thermofisher.com/mdtv

Download a sample of an MDTV report at thermofisher.com/mdtvreport

Education services

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

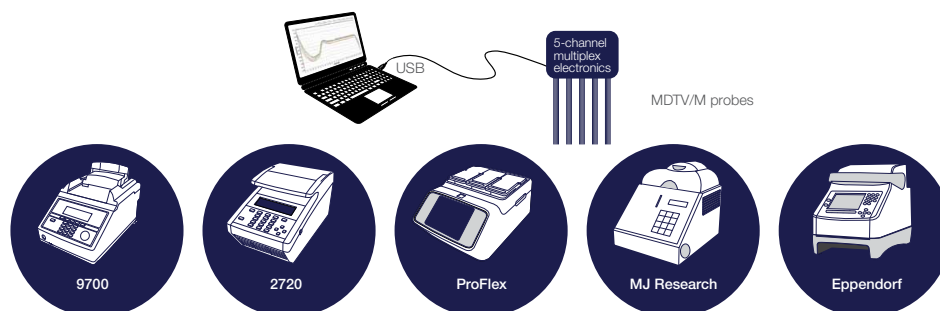
How to reach us

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

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

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



Watch the "Five reasons to verify your thermal cycler's accuracy" video at thermofisher.com/mdtv

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

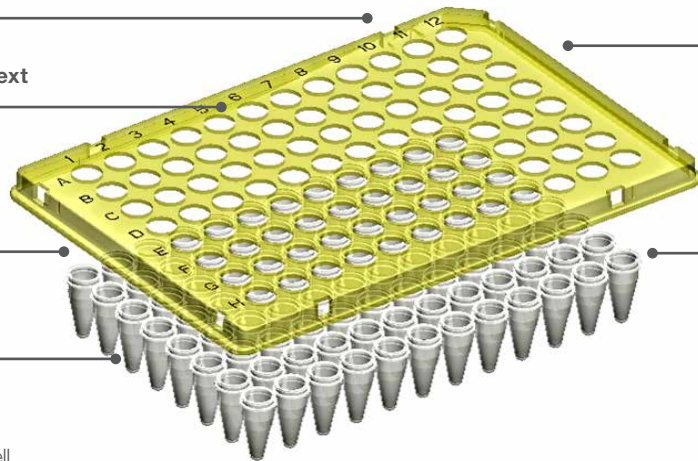
Polycarbonate (hard shell) for mechanical stability and flatness

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 strips 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 μ L 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	<ul style="list-style-type: none"> • Single tubes • Single tubes with caps • 8-strip tubes with caps • 12-strip caps • Adhesive film/plate seal 	<ul style="list-style-type: none"> • 32-well • 48-well Fast • 96-well • 96-well Fast • 384-well 	<ul style="list-style-type: none"> • 96-well • 96-well Fast • 384-well 	<ul style="list-style-type: none"> • 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 available	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.

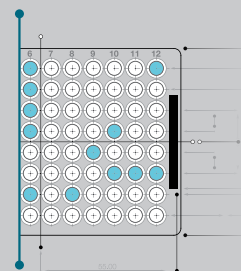
** Lot-based contamination test with Certificate of Analysis.



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



Quickly find the plastics and accessories you need for your instrument

Product	Cat. No.	3 x 32-well	96-well			96-well Fast	384-well		Genetic analyzers		
		ProFlex	ProFlex, SimpliAmp, VeritiPro, 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 Reaction Plate	A36924		•	•	•					•	
EnduraPlate Optical 96-Well Clear Reaction 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 Reaction Plate	A36930					•			•	•	
EnduraPlate Optical 96-Well Fast Clear Reaction 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 Reaction Plate	A36931						•	•		•	
EnduraPlate Optical 384-Well Clear Reaction 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		•		•						

* 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 ProFlex, SimpliAmp, and VeritiPro thermal cyclers.

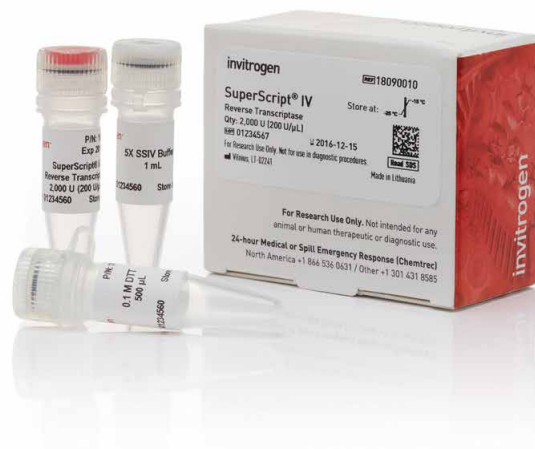
Visit our online plastics selection guide at thermofisher.com/findplastics

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?	... the ability to skip the RNA extraction process and synthesize cDNA directly from mammalian cell lysate?
Product format	Stand-alone enzyme	First-strand cDNA synthesis kit	One-Step RT-PCR kit	Direct RT kit
Recommended product	SuperScript IV Reverse Transcriptase	SuperScript IV First-Strand Synthesis System	SuperScript IV One-Step RT-PCR System	SuperScript IV CellsDirect cDNA Synthesis Kit
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	RT-PCR, RT-qPCR
Input total RNA	1 pg–5 μg	1 pg–5 μg	0.01 pg–1 μg	1–10,000 cells
Optimal reaction temperature	50–55°C	50–55°C	50–55°C	50–55°C
Reaction time	10 min	10 min	10 min	10 min
cDNA synthesis with challenging or degraded RNA	Yes	Yes	Yes	Yes

Order Invitrogen™ oligo(dT) or random primers for cDNA synthesis at thermofisher.com/rtpimers

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

Want to do direct reverse transcription?

Invitrogen™ SuperScript™ IV CellsDirect™ cDNA Synthesis Kit allows you to synthesize cDNA directly from mammalian cells without the need for RNA extraction. Learn more when you flip the brochure to the real-time PCR side, or visit thermofisher.com/cellsdirect

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

DNA polymerases for PCR

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 enzyme best suited for your 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 <i>Taq</i> 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-range PCR (20–40 kb)	•			
Genotyping	•	•	•	•
Amplification of samples with suboptimal purity	•	•		•
Colony PCR	•	•	•	•
Multiplex PCR	•	•	•	•
Fast PCR	•	•		•
Technical specifications				
Fidelity compared to <i>Taq</i> 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
Compatibility 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 with automation or long waits between runs.

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 a universal annealing temperature of 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

Enhanced PCR specificity and yield with fast cycling

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 simplifies optimization and allows co-cycling of different PCR assays.

- **Universal primer annealing at 60°C**—reduces tedious optimization steps and enables co-cycling of different PCR assays

- **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 and benchtop stability

Find out more at thermofisher.com/platinumiiitaq

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 <i>Taq</i> 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.

Nucleic acid separation and analysis

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.

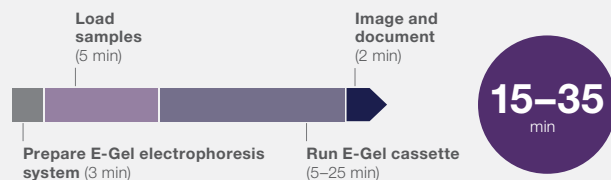
- **Ready to use**—precast with agarose and DNA stain packaged inside a disposable cassette
- **Time-saving**—ideal for customers looking to streamline workflows

- **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

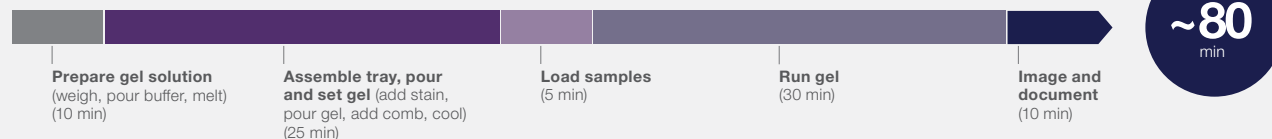


Sample analysis in three simple steps—load, run, and analyze.

E-Gel electrophoresis system workflow



Traditional DNA electrophoresis workflow



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

Ordering information

Product	Quantity	Cat. No.
E-Gel Agarose Gels with SYBR Safe DNA Gel Stain, 1%	10 gels	A42100
E-Gel Agarose Gels with SYBR Safe DNA Gel Stain, 2%	10 gels	A42135
E-Gel EX Agarose Gels, 2%	10 gels	G401002
E-Gel 1 Kb Plus DNA Ladder	100 applications	10488090
E-Gel 48 Agarose Gels with SYBR Safe DNA Gel Stain, 2%	8 gels	G820802
E-Gel 96 Agarose Gels with SYBR Safe DNA Gel Stain, 2%	8 gels	G720802
E-Gel CloneWell II Agarose Gels with SYBR Safe DNA Gel Stain, 0.8%	10 gels	G661818

Find out more at thermofisher.com/egcl



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/egclselection

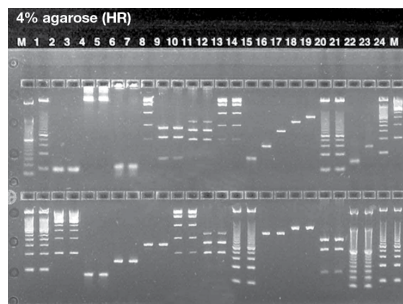
Fully integrated DNA electrophoresis and imaging platform

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: from low to high throughput, with SYBR Safe stain, 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 Agarose Gels with SYBR Safe DNA Gel Stain 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%, 4%)	26 min	40 min
E-Gel EX double comb gels (1%, 2%)	5–10 min	20 min
E-Gel double comb gels with SYBR Safe stain (1%, 2%)	13 min	20 min
E-Gel CloneWell II gels (0.8%)	12 min	40 min
E-Gel SizeSelect II gels (2%)	8–20 min	20 min
E-Gel NGS gels (0.8%)	26 min	32 min
E-Gel Go! gels (1%, 2%)	15 min	30 min

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

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](https://www.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.

Pour your own agarose gels

Stains and reagents for electrophoresis

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 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
UltraPure Ethidium Bromide, 10 mg/mL	10 mL	15585011

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 an 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:

- The same functional enzyme performance as with the 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



Mobile app: PCR Quest lab game

Test your PCR knowledge with our lab game, PCR Quest, where you travel from lab to lab crushing the world's toughest diseases. Download the game at thermofisher.com/pcrquest

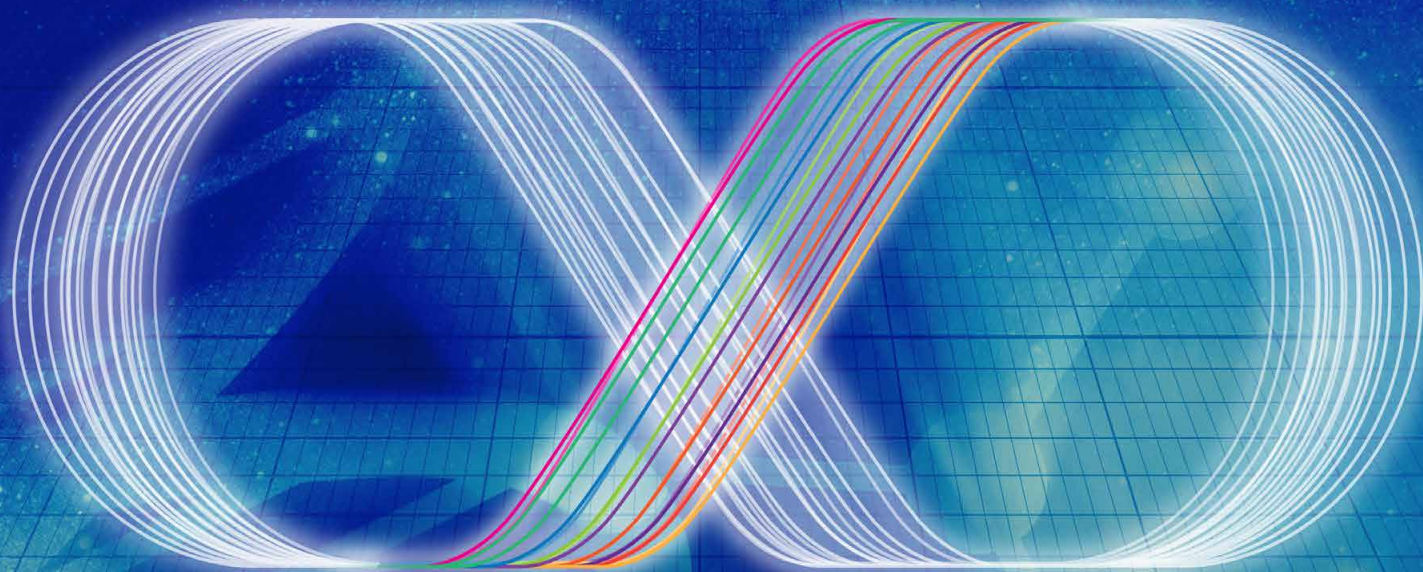


Turn the brochure over to learn about
our real-time PCR solutions.

Find out more at thermofisher.com/amplify

ThermoFisher
S C I E N T I F I C

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Real-time PCR solutions brochure

The power of optimized results
across diverse applications

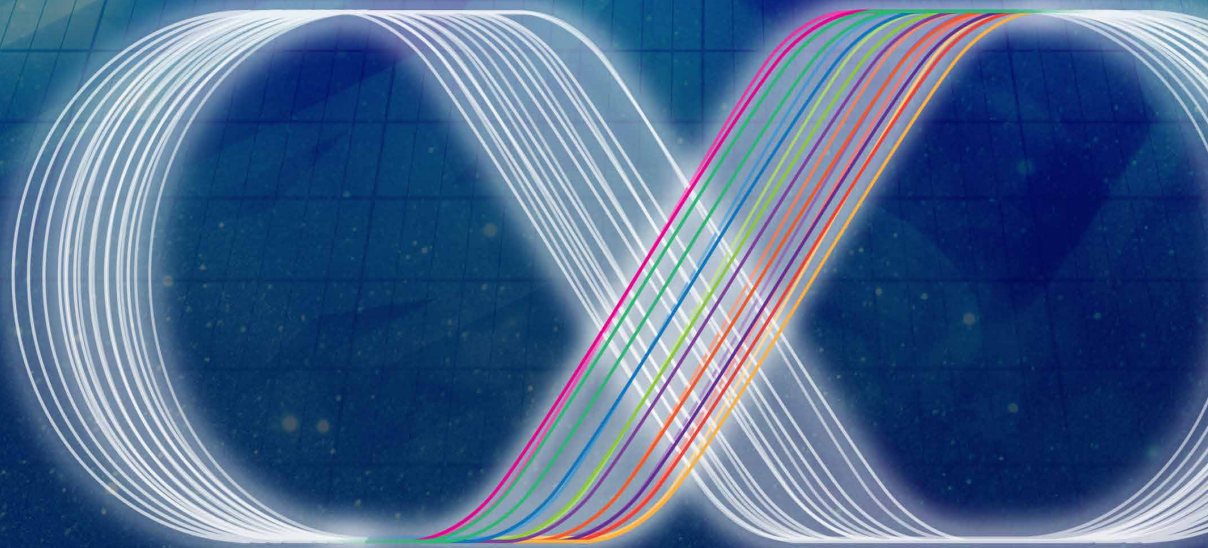
ThermoFisher
SCIENTIFIC

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.






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Which instrument fits your needs?





QuantStudio real-time PCR and digital PCR systems

For when you need:	Simple accessibility	Ultimate simplicity	Total control	
	QuantStudio 1 system	QuantStudio 3 system	QuantStudio 5 system	
	Real-time PCR			
				
Colors	3 colors	4 colors	5 or 6 colors (21 filter combinations)	
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	
Dimensions (H x W x D)	40 x 27 x 50 cm	40 x 27 x 50 cm	40 x 27 x 50 cm	
Block change	Fixed	Fixed	Fixed	
VeriFlex temperature control	No, isothermal block	Yes, 3 zones	Yes, 6 zones (96-well blocks only)	
Throughput	Medium	Medium	Medium	
21 CFR Part 11-enabled	No	Security	Security, auditing, e-signature package	
Touchscreen	Yes, interactive	Yes, interactive	Yes, interactive	
Cloud-enabled	Yes	Yes	Yes	
Automation compatible	NA	NA	NA	
Key applications	<ul style="list-style-type: none"> • Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection 	<ul style="list-style-type: none"> • Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection 	<ul style="list-style-type: none"> • Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection 	

* Some blocks may not be available.

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

For information on other Applied Biosystems™ PCR instruments, please visit thermofisher.com/qpcrinstruments

Smart and connected	Smarter productivity	Maximum productivity	Absolute answers
QuantStudio 6 Pro 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)	2 colors (endpoint detection)
96-well (0.1 mL block)	96-well (0.1 mL block)	96-well (0.1 mL block)	20,000 partitions/chip
96-well (0.2 mL block)	96-well (0.2 mL block)	96-well (0.2 mL block)	
384-well	384-well TaqMan Array Card (384-well microfluidic card)	384-well TaqMan Array Card (384-well microfluidic card) OpenArray plates (3,072 through-holes)	
54.7 x 33.8 x 52.5 cm	54.7 x 33.8 x 52.5 cm	73.8 x 50.1 x 66.1 cm	13.5 x 23.3 x 21 cm
Interchangeable; no tools required	Interchangeable; no tools required	Interchangeable; no tools required	NA
Yes, 3 zones (96-well blocks only)	Yes, 6 zones (96-well blocks only)	NA	NA
High	High	Very high	Low
Upgradable	Security, auditing, e-signature package	Optional security, auditing, e-signature package	No
Yes, interactive	Yes, interactive	Yes	Yes
Yes	Yes	No	Yes
Upgradeable	Yes	Yes	NA
<ul style="list-style-type: none"> • Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics 	<ul style="list-style-type: none"> • Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics 	<ul style="list-style-type: none"> • Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics • Growing menu of qualified solutions 	<ul style="list-style-type: none"> • Quantification of molecular standards • Absolute quantification • Pathogen detection • Viral load determination • Copy number variation • Digital PCR

 = cloud-enabled instrument

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

 = 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 Plate with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plate with Barcode	4483485	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plate 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 Strip	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 to save space on the lab bench, increase format flexibility, and support quick and simple block changes. These systems also deliver a smart workflow experience with advanced features that are designed for efficiency and productivity.

Personalized

- Automatically load your settings and plate setup
- Simply log in 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 (see page 14 for more information)
- 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



* Automation is available for the QuantStudio 7 Pro system and is available for the QuantStudio 6 Pro system after upgrade.

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	
Excitation source	Bright white LED	
Filter or color combinations	5	21
Multiplexing	5 targets	6 targets
Excitation/emission range	450–680 nm/500–730 nm	
2D barcode reading	Via USB connection	
Heating/cooling method	Peltier	
Temperature zone function	3 independent temperature zones	6 independent temperature zones
Maximum ramp rate	6.5°C/sec	
Average sample ramp rate	3.66°C/sec	
Temperature uniformity	0.4°C	
Temperature range	4–99.9°C	
Temperature accuracy	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, 0.1 mL block	A43160	A47200
QuantStudio 6 Pro Real-Time PCR System, 96-well, 0.1 mL block, laptop	A43167	A47202
QuantStudio 6 Pro Real-Time PCR System, 96-well, 0.1 mL block, desktop	A43181	A47204
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, 0.1 mL block	A43163	A47201
QuantStudio 7 Pro Real-Time PCR System, 96-well, 0.1 mL block, laptop	A43170	A47203
QuantStudio 7 Pro Real-Time PCR System, 96-well, 0.1 mL block, desktop	A43184	A47205
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
QuantStudio 7 Pro Real-Time PCR System, TaqMan Array Card block	A43165**	A47651
QuantStudio 7 Pro Real-Time PCR System, TaqMan Array Card block, laptop	A43172**	A47653
QuantStudio 7 Pro Real-Time PCR System, TaqMan Array Card block, desktop	A43186**	A47655

* Extended warranty packages include the instrument, SmartStart Orientation, and a 1-year AB Assurance Plan with 1 planned maintenance (PM) visit. Packages are not available in all countries. Contact your local sales representative for more information.

** Some block configurations may not yet be available. Go to thermofisher.com/quantstudiopro for a complete list and availability.

Recommended consumables can be found on page 14 (RFID-tagged plates), page 20 (plastics), page 24 (assays and master mixes), and page 28 (reverse transcriptases).

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.

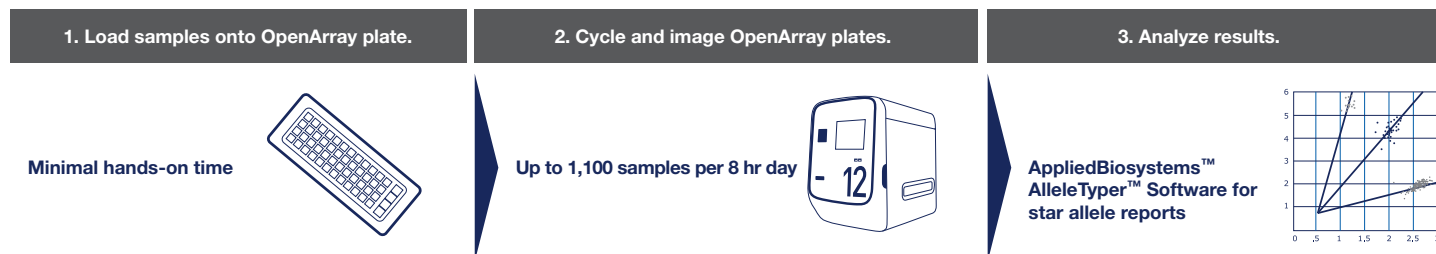
Application spotlight

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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 30 min expected (Fast 96-well block) 35 min (384-well block, using Fast master mix) 	<ul style="list-style-type: none"> 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 Plate with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plate with Barcode	4483485	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plate 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 Strip	4323032	MicroAmp Optical Adhesive Film	4360954
		MicroAmp Optical Adhesive Film	4360954		

Multiple colors are available for most Cat. Nos.

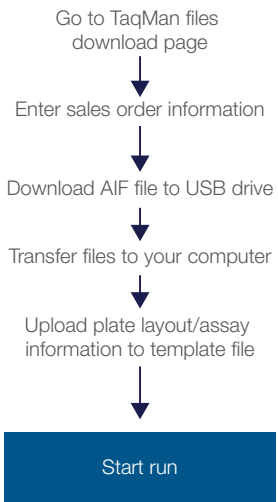
One simple step gets you to your data faster

TaqMan Array Plates with RFID

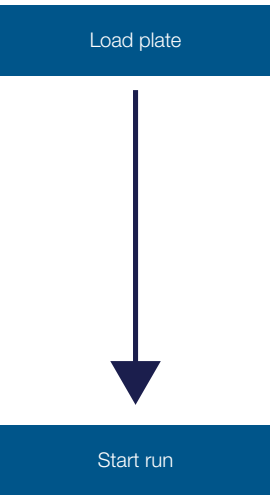
TaqMan Array Plates with RFID and QuantStudio 6 and 7 Pro systems create an improved user experience with smart features that eliminate manual steps currently necessary to upload plate layout and assay information into your experiment file. Just insert the plate, and the QuantStudio Pro system captures the plate layout.



Conventional workflow



Smart qPCR workflow



- RFID tag contains:
- Plate layout—assay IDs in each well
 - Plate type
 - Expiration date
 - Cat. No.
 - Lot. No.
 - Reaction volume per well
 - Passive reference dye
 - Thermal protocol

Ultimate traceability, quality, and ease of use

Description	No. of assays	No. of samples	Cat. No. (96-well 0.1 mL)	Cat. No. (96-well 0.2 mL)
TaqMan Array Plates with RFID	NA	NA	A43823	
TaqMan Array, Standard, 96-well plate; Format 8	8	12	4413263	4413266
TaqMan Array, Standard, 96-well plate; Format 16/16 Plus	16	6	4413261/4413262	4413264/4413265
TaqMan Array, Standard, 96-well plate; Format 32/32 Plus	32	3	4413259/4413260	4391528/4391529
TaqMan Array, Standard, 96-well plate; Format 48/48 Plus	48	2	4413257/4413258	4391526/4391527
TaqMan Array, Standard, 96-well plate; Format 96/96 Plus	96	1	4413255/4413256	4391524/4391525

Find out more at thermofisher.com/taqman-rfid

The perfect solution to automate a variety of workflows

Orbitor RS2 Microplate Mover

The easy-to-use, flexible, and reliable Thermo Scientific™ Orbitor™ RS2 Microplate Mover is a collaborative benchtop mover that provides superior reliability and improved process efficiency. Its innovative bidirectional telescoping arm, coupled with its expansive 360° workspace, provides exceptional reach and precision, making the Orbitor RS2 Microplate Mover your trusted laboratory productivity partner.

Designed with you in mind

- Integrated barcode reader enables sample tracking, barcode transmission, and inventory management
- Plate detection in the gripper helps to eliminate labware handling errors and reduces the risk of lost samples
- Variable force settings make it compatible with many plate types for a variety of applications



Specifications

General specifications		Axis/joint specifications			
Power requirements	110–230 V, automatic switching	Axis	Range	Velocity	Acceleration
Operating environment	4–40°C, noncondensing	Z (height)	575 mm	750 mm/sec	2,250 mm/sec ²
Safety compliances	CE, CSA	Radius (reach)	±406 mm	200 mm/sec	3,600 mm/sec ²
Weight	25 kg	Theta (rotation)	Infinite	225 deg/sec	675 deg/sec ²
Motion control	Closed-loop servo, brushless AC motor	Gripper stroke	51 mm		
Control	Directly from PC, requires Windows 7 or 10 operating system				
Storage options					
Random access hotel	8 plates per hotel, maximum capacity of 24 plates, best for 384-well				
Sequential access stack	40 plates per stack, maximum capacity of 80 plates, best for 384-well and 96-well (0.2 mL and 0.1 mL) plates				

Ordering information

Product	Cat. No
Orbitor RS2 Microplate Mover Bundle	A43780
Orbitor RS2 Microplate Storage, Sequential Access Stacks (3-pack)	A43781
Orbitor RS2 Microplate Storage, Random Access Hotels (3-pack)	A43782
Dual QuantStudio–Orbitor RS2 Integration Kit	A43779

Find out more at thermofisher.com/orbitorrs2

Absolutely attainable chip-based digital PCR

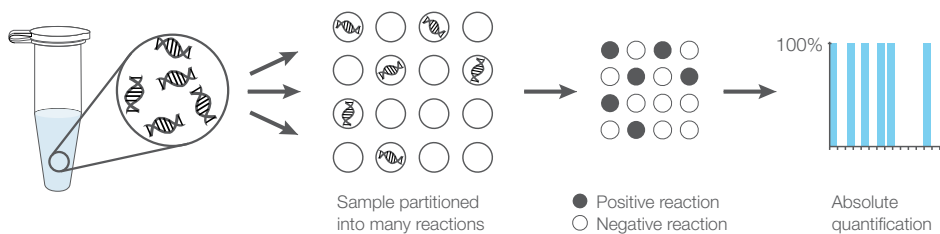
QuantStudio 3D Digital PCR System

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/ μ L, 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.



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
QuantStudio 3D Digital PCR Master Mix (1.5 mL)	4482710



Accelerate scientific advancement with a direct line to superior services and support

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

Service plans help protect your investment

All new instruments are protected by a standard factory warranty. This warranty covers all costs for travel, labor, and parts for repairs. Extended coverage service plans are also available at the time of instrument purchase. Services at additional charge include:

- Service plans with guaranteed response times*
- Priority technical support—priority phone access to our trained and certified technical and instrument support specialists
- 24-hour response time—expedited access to remote service engineers within 24 hours

Check your instrument's coverage status at
thermofisher.com/manage

Digital service innovations

Our instrument service plans include digital innovations that help keep your instruments and your lab running smoothly. With pioneering on-demand tools and capabilities such as remote support using mobile augmented-reality (AR) technology, instrument-driven support, and on-demand instrument training, we're constantly looking ahead so your lab never falls behind.

Explore our digital service innovations
at thermofisher.com/innovations

Instrument hardware qualification (IQ/OQ/PQ)

Our manufacturer-trained and certified field service engineers will conduct and document comprehensive tests, including software and hardware compatibility matrixing, component verification, and site requirements, to verify performance and provide reliable, audit-style documentation to meet your regulatory requirements. Installation qualification (IQ), operational qualification (OQ), and performance qualification (PQ) or instrument performance verification (IPV) services are recommended at installation, after moving the instrument, after software or hardware upgrades, and after planned maintenance or critical repairs.

Contact an instrument qualifications specialist at
thermofisher.com/iqoqpq

Analytical validation consulting services

Why handle your analytical validation (AV) in-house, when using our AV consulting services can speed up the launch process by up to 75% and cut costs by up to half? We'll consult with you to develop and optimize your validation workflow, while providing data analysis support and template documentation to fully maximize your instrument and reagent investment.

Get a complete list of assays and panels we support,
or contact an AV consulting services specialist at
thermofisher.com/av

* Guaranteed response times are dependent on type of service plan and geographic region.

Service plans at a glance

	On-site service plans			Repair Center service plan*
	AB Complete	AB Assurance	AB Maintenance Plus	AB Repair Center Support Plus
Response time	Next business day**	2 business days**	3 business days†	
Planned maintenance	•	•	•	
Access to technical support (Mon–Fri, standard business hours)	•	•	•	•
Parts, labor, and travel	•	•	10% discount	•
Digital remote support	•	•	•	•
Computer repair and replacement included	•	•		•
Requalification post-PM and critical repairs	•	Available as add-on	Available as add-on	
Field application scientist (FAS) consultation	•	Available as add-on	Available as add-on	
Loaner instrument issued during repair (Repair Center plan only)				•

* Repair Center service plan available for QuantStudio 3D Digital PCR System and QuantStudio 1, 3, and 5 Real-Time Systems only.

** Availability limited in some geographic areas.

† After receipt of purchase order.

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](https://www.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](https://www.thermofisher.com/contactus)

For product FAQs, protocols, training courses, and webinars, go to [thermofisher.com/technicalresources](https://www.thermofisher.com/technicalresources)

Explore our services and support solutions at [thermofisher.com/instrumentservices](https://www.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



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

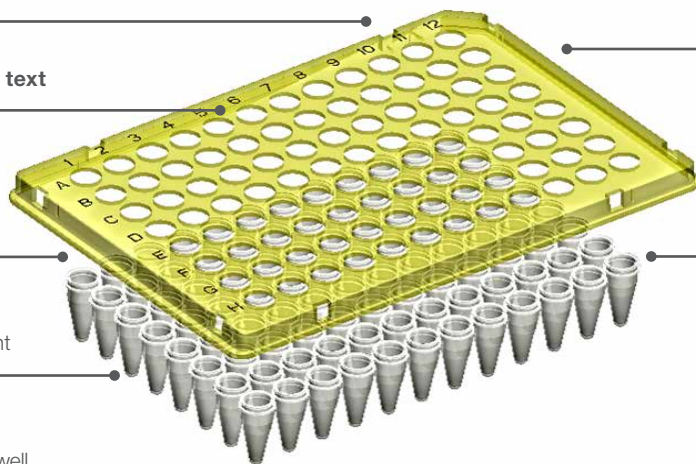
Polycarbonate (hard shell) for mechanical stability and flatness

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 throughput need

Choose from tubes, tube strips, plates, adhesive film, 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.



The Applied Biosystems™ MicroAmp™ 8-Tube Strip with attached optical caps* is optimally designed for precise real-time PCR with lid and tube labeling, dual end tabs, and 20 μ L 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 Strip with attached domed caps is 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	<ul style="list-style-type: none"> Single tubes Single tubes with caps 8-strip tubes with caps 	<ul style="list-style-type: none"> 48-well Fast 96-well 96-well Fast 384-well 	<ul style="list-style-type: none"> 96-well 96-well Fast 384-well 	<ul style="list-style-type: none"> 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 available	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.

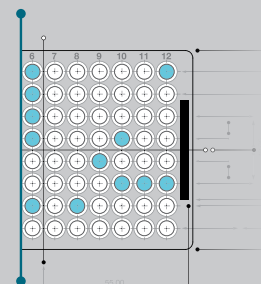


Did you know?

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



Quickly find the plastics and accessories you need for your instrument

		48-well	96-well 0.2 mL			96-well 0.1 mL			384-well
			7000	7300, 7500	QuantStudio 1, 3, 5, 6 Flex, 7 Flex, 12K Flex, 6 Pro, 7 Pro; ViiA 7; 7900HT		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
Product	Cat. No.	StepOne				StepOnePlus			
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 Reaction Plate	A36924			•**	•				
EnduraPlate Optical 96-Well Clear Reaction 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 Reaction Plate	A36930					•	•	•	
EnduraPlate Optical 96-Well Fast Clear Reaction 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 Reaction Plate	A36931								•
EnduraPlate Optical 384-Well Clear Reaction 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 Block	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/findplastics

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	PowerTrack 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

- Detect targets with as few as 60 copies of input microRNA (miRNA) in the cDNA synthesis reaction
- One universal reverse transcription (RT) step for all miRNA assays
- cDNA can be archived for future miRNA studies
- Identify 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

Applied Biosystems™ TaqMan® Noncoding RNA Assays

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



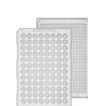
Single tubes

- 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 Pro, 7 Flex, and 12K Flex systems, as well as ViiA 7 and 7900HT systems



96- or 384-well plates

- Optimal for small to medium projects
- Balance flexibility with streamlined reaction setup
- Run on 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™ PowerTrack™ SYBR™ Green Master Mix

SYBR Green dye-based gene expression quantification with unrivaled specificity

- Helps reduce pipetting errors with a two-color tracking dye system
- Formulated for superior specificity and tight reproducibility of C_t values over a broad dynamic range
- Broad primer T_m and primer concentration compatibility allows flexibility in qPCR reaction setup with minimal optimization
- Compatible with SuperScript IV VILO Master Mix for fast, reproducible reverse transcription results

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
PowerTrack SYBR Green Master Mix	1 mL	A46012
	5 mL	A46109
	50 mL	A46113
	2 x 5 mL	A46110
	5 x 5 mL	A46111
	10 x 5 mL	A46112

** 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.

Why isolate RNA when you don't have to?

SuperScript IV CellsDirect cDNA Synthesis Kit

The Invitrogen™ SuperScript™ IV CellsDirect™ cDNA Synthesis Kit is designed to synthesize first-strand cDNA directly from mammalian cell lysates without first isolating the RNA. With lysis and reverse transcription (RT) performed in the same tube, the resulting first-strand cDNA is ready to use in many downstream applications such as PCR and qPCR.

Key benefits of this easy-to-use format

- **Time-saving**—save up to 2 hours in overall workflow time
- **Superior sensitivity**—easy detection of low-abundance targets
- **Direct convenience**—no need to isolate RNA
- **qPCR compatibility**—superior performance with PowerTrack SYBR Green Master Mix



Ordering information

Product	Cat. No.
SuperScript IV CellsDirect cDNA Synthesis Kit	
50 reactions	11750150
500 reactions	11750350
SuperScript IV CellsDirect Lysis Reagents	
500 reactions	11750550

Find out more at thermofisher.com/cellsdirect

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

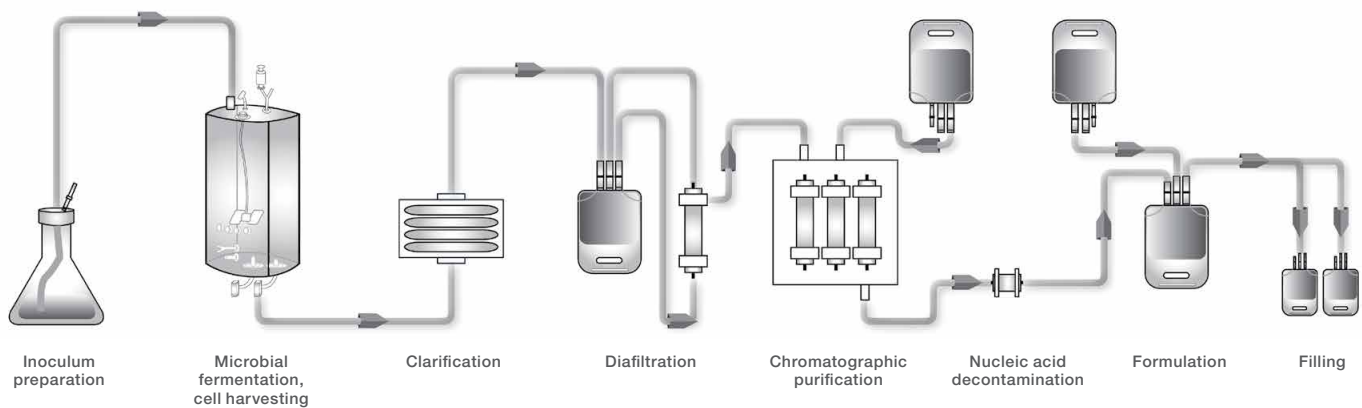
DNA-free enzymes*

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/qpcr/education
qPCR promotions	thermofisher.com/qpcr/promotions
Webinars	thermofisher.com/ga/webinars
Ask TaqMan videos	thermofisher.com/ask
qPCR handbook	thermofisher.com/qpcr/handbook
Behind the Bench blog	thermofisher.com/blog/behindthebench
Assay search	thermofisher.com/taqman
Master mix sample request	thermofisher.com/mm/sample
General qPCR support	thermofisher.com/qpcr/support
Training offered	thermofisher.com/events
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