

qPCR



qPCR

Step into the future of molecular diagnostics

Innovative qPCR solutions for developers
designing assays

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Putting you in control of assay design


At Thermo Fisher Scientific, we understand that the future of clinical diagnostics is molecular testing. Molecular diagnostics (MDx) tests have become indispensable tools, and the use of molecular-based assays will continue to grow in number and importance for infectious disease, oncology, and other vitally important diagnostic tests.

Assay developers face many complex challenges as molecular testing continues to rapidly evolve. The need for solutions that are flexible and efficient, and that support the delivery of high-quality results, is paramount.

We designed real-time PCR (qPCR) *in vitro* diagnostic (IVD) solutions with you in mind. Our innovative and complete workflow enables you to effectively respond to the assay design challenges you face in developing and commercializing products. Since 2008, we have been supporting your qPCR needs. We now offer the largest qPCR diagnostics portfolio in the industry, including instruments, master mixes and consumables, primers and probes, software solutions, and service and support.

Instruments: Powered by proven technology, the new Applied Biosystems™ QuantStudio™ 7 Pro Dx Real-Time PCR System is an advanced, stand-alone qPCR platform that is versatile, highly expandable, and easy to use for a smart, assay-driven qPCR workflow, from setup to report.

The compact and flexible Applied Biosystems™ QuantStudio™ 5 Dx Real-Time PCR System is designed to streamline workflows and minimize training needs so you can get clinical answers quickly.



All of our high-quality Applied Biosystems™ QuantStudio™ IVD real-time PCR systems offer a small footprint, simple workflow and software, and world-class service and support plans.

Master mixes and consumables: Thermo Fisher Scientific is your trusted partner, from assay development, through validation and testing, to ultimate production. We offer a complete qPCR ecosystem that includes a broad range of custom primers and probes, GPR and GMP Applied Biosystems™ TaqPath™ master mixes, and PCR plastics.

Optimized to work synergistically, our flexible, high-performance solutions enable optimal PCR performance, giving you complete control and accelerating assay development, so you can bring high-quality diagnostic tests to market faster.

TaqPath master mixes are designed to meet the needs of clinical diagnostic testing and are available for qPCR and one-step reverse transcription qPCR (RT-qPCR) in singleplex and multiplex formats.

Each reagent is manufactured in an ISO 13485–registered facility and rigorously tested to help ensure lot-to-lot reproducibility for Cq consistency and wide dynamic range.

Applied Biosystems™ MicroAmp™ PCR plastics are engineered to reduce cross contamination and promote optimal heat transfer. Applied Biosystems™ MicroAmp™ General Purpose Laboratory Equipment (GPLE) reaction plates are ideal for use in diagnostic procedures and certified in an ISO 13485–registered facility to be free of DNA, RNase, and PCR inhibitors.

Discover how we can put you in control of molecular diagnostics.

Primers and probes: Applied Biosystems™ custom primers and probes offer unprecedented assay design flexibility while delivering the quality, performance, and reliability of gold-standard Applied Biosystems™ TaqMan™ chemistry. All primers and probes are manufactured in an ISO 13485–certified facility to provide assay reproducibility and lot-to-lot consistency.

Software solution: Our latest software package, Applied Biosystems™ Diomni™ software, simplifies your molecular diagnostics workflow from setup to result. Diomni software takes advantage of assay definition files (ADFs) to configure and lock in run, analysis, and report settings, which enable automated result interpretation with configurable reporting. The software provides a scalable solution by connecting to multiple instruments and supporting multiple concurrent users with centralized data management. Diomni software is compliance-ready and designed to reduce the risk of manual errors and improve efficiency.

Service and support: We deliver peace of mind with the assurance that our diagnostic solutions are all backed by a proven, global leader in molecular testing; a reliable, single-source supplier with a robust supply chain; and unsurpassed service and support.

For *In Vitro* Diagnostic Use.

Which instrument fits your needs?

QuantStudio IVD real-time PCR systems



	QuantStudio 7 Pro Dx system	QuantStudio 5 Dx system
Formats	96-well, 0.2 mL 384-well	96-well, 0.2 mL
User-interchangeable blocks	Yes	No
Colors	Up to 6 colors (21 filter combinations)	Up to 6 colors (21 filter combinations)
Touchscreen	21.5 cm	21.5 cm
Applied Biosystems™ VeriFlex™ Blocks temperature control	Yes, 6 zones	Yes, 6 zones
Security, auditing, electronic signature (SAE)	Yes	Yes
Dimensions (H x W x D)	55 x 34 x 53 cm	40 x 27 x 50 cm
Weight	38 kg	26 kg

For *In Vitro* Diagnostic Use.

Security features fit for molecular diagnostics

Each instrument is equipped with a security, audit, and electronic signature (SAE) module to assist in compliance with regulatory requirements that involve a quality management system (QMS), GMPs, cybersecurity, and electronic records and signatures.

- Secure access to instruments and data
- Role-based permissions for different lab personnel

For *In Vitro* Diagnostic Use.

Take command of assay design

QuantStudio 7 Pro Dx Real-Time PCR System (CE-IVD, IVDR)

The QuantStudio 7 Pro Dx Real-Time PCR System is an *In Vitro* Diagnostic Regulation (IVDR)–compliant qPCR platform for the future, combining modern hardware and software in a compact footprint and enabling assay developers in molecular diagnostics to achieve maximum efficiency, smarter productivity, and higher accuracy from their workflow.

Smart instrument, smart features, and smart productivity enabled by connectivity

- **Ready for IVDR**—meets IVDR requirements and technical documentation requirements
- **Results you can trust**—detect differences in target quantity as small as 1.5-fold in singleplex reactions, and obtain 10 orders of magnitude of linear dynamic range
- **Simple, powerful software**—users can set up a run, lay out assays, control the instrument, and analyze plates within a single, easy-to-use touchscreen interface; no computer is needed
- **Proven performance**—over 10 years of clinical real-time PCR instrument manufacturing
- **Efficient**—shorter run times, minimal maintenance, and compatibility with existing plastic consumables
- **Enhanced security**—SAE functionalities that assist with compliance and have the ability to support multiple clients; maintain centralized SAE settings that can be applied to multiple instruments on the same network, allowing better control for your IT department
- **Instrument monitoring**—use a mobile app to check instrument availability and monitor run progress
- **Voice command**—enables selected hands-free operation by voice control (Alexa™ services)
- **Smart help and remote support**—Smart Help enables you to report issues or request instrument services to reduce downtime; remote access to device for troubleshooting

Learn more at thermofisher.com/diomni

For *In Vitro* Diagnostic Use.



Automatable

The application programming interface (API) enables integration with a robotic plate mover, a liquid handler, and a third-party system.

The QuantStudio 7 Pro Dx instrument is a stand-alone system

The graphical user interface (GUI) enables an end-to-end IVD workflow, offering the following features:

- Run setup with predefined assays
- Instrument controls
- Run monitoring
- Post-run data analysis, exporting, and reporting
- Maintenance and support
- SAE features to assist with regulation compliance

The instrument is Internet of Things (IoT)—enabled (Thermo Fisher™ Connect Platform)

- Voice-activated controls
- Smart support
- Remote run monitoring

Routine testing at scale

Diomni software supports the use of multiple instruments and users with centralized data management.

Specifications

QuantStudio 7 Pro Dx system	
Sample capacity	96 wells, 384 wells
Reaction volume	96-well, 0.2 mL block: 10–100 µL; 384-well, 0.2 mL block, 5–20 µL
Excitation source	Bright white LED
Filter or color combinations	6 decoupled filters, CMOS camera
Excitation/detection range	450–680 nm/500–730 nm
Multiplexing	5-plex with 1 passive reference; 6-plex with no passive reference
Maximum block ramp rate	6.5°C/sec
Average sample ramp rate	3.66°C/sec
Temperature uniformity	±0.5°C
Temperature range	4–99.9°C
Heating and cooling method	Peltier
Independent temperature zones	6 VeriFlex Blocks zones (5°C zone-to-zone)
Chemistries	Fast and standard
Run time	<30 min (fast mode)
Compatible dyes	Applied Biosystems™ FAM™, SYBR™ Green, VIC™, ABY™, NED™, TAMRA™, JUN™, ROX™, Mustang Purple™, and Cy5® dyes
SAE features	Included
Automation compatible	Yes
Footprint (H x W x D)	55 x 34 x 53 cm
Weight	38 kg

Features to maintain data quality and integrity



Automated quality control

Run data are systematically analyzed based on predefined settings pertaining to each test, such as validity of internal positive and negative controls. Assessment for failed samples can be configured based on assay characteristics.



Reagent tracking

The system stores and archives information about reagents used with each test, including lot number and expiration date, with each run. Archived files can be retrieved when required to track samples that were tested with a given set of reagents.



Sample tracking

The system tracks sample name and type; captures critical sample data, with parameters customizable to fit the laboratory's needs; and enables laboratories to more easily track samples associated with a particular plate, a set of reagents, a run date and time, and data files.



E-signature and data approval

SAE software records test events, dates, user names, and user roles and activity performed, for documentation and archiving purposes.



Test results

Report records details for documentation, archiving, and review-at-a-glance needs, including experiment name, barcode, file name, time stamps (creation, run start, run finish, duration, and modifications), instrument name, serial number, experiment type, results summary, plate layout image, standard curves, results table, and QC summary.



Cybersecurity

The system has passed penetration testing that fulfills FDA cybersecurity guidance.

For *In Vitro* Diagnostic Use.

Streamline assay design with Diomni software

Diomni software makes assay design on QuantStudio instruments more efficient, from development and verification to validation and launch.

Single encapsulation for assay workflow into one setup file:

- **Define the assay-specific run protocol, QC parameters, analysis settings, and result interpretation in one place**—start in development phase, iteratively adjust for verification and validation, and submit your validation evidence with your assay submission.
- **Choose the workspace designed specifically for your assay stage**—each assay has a development status that can be used as your assay moves through the development process by choosing the RUO/IUO/IVD workspace that corresponds to each stage. Functionalities in each workspace are optimized to support the matching objectives.
 - **RUO workspace**—support iterative changes to the assay definition during the assay development phase; routine RUO tests
 - **IUO workspace**—support verification and validation runs for product development
 - **IVD workspace**—support routine testing for IVD tests
- **Expand test menu with speed**—new tests (ADFs) may be added to the system without requiring software upgrade

Assay-driven runs:

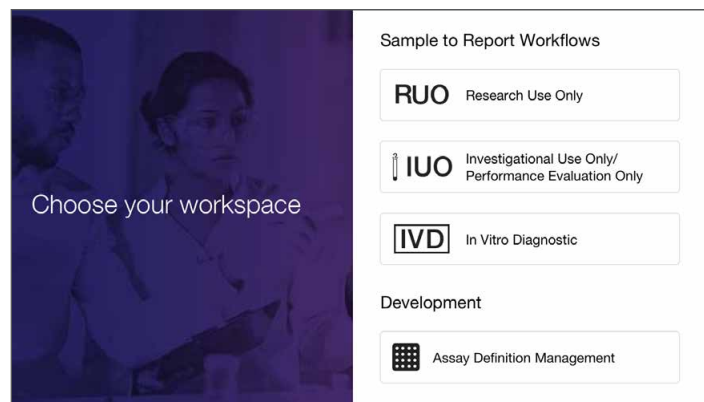
- Use of predefined protocols to reduce time and error in run setup
- Result interpretation according to your ADF and automated QC saves time and effort for data review
- Problematic data callout and QC tools make data review quicker and easier

Easily integrated into development workflows:

- **Self-certify assays**—ADFs can be published in Diomni software to lock down parameters and prevent user error when ready for clinical trials and after regulatory approval
- **Customized data input and output**—make data transfer between LIS simple and flexible
- **Configurable reporting**—tailor the PDF report to your needs
- **IT friendly**—the client server deployment model will enable your lab to maintain the software with ease and manage your lab in a secured, centralized location

Specifications:

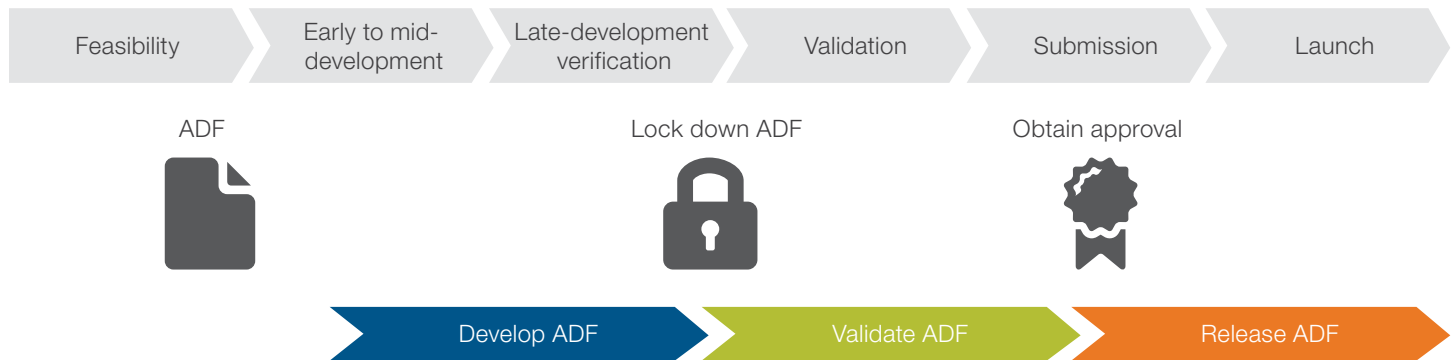
- Microsoft™ Windows™ 10 operating system
- Supported browsers: Google™ Chrome™, Microsoft™ Edge™, Apple™ Safari™ (OS X), and Mozilla™ Firefox™
- Requires minimal computer memory and storage
- Client server
- SAE Administrator Console Dx v1.2
- Instrument compatibility: QuantStudio 7 Pro Dx, QuantStudio 5 Dx, QuantStudio 7 Pro, and QuantStudio 5 Real-Time PCR Systems



Learn more at thermofisher.com/diomni

For *In Vitro* Diagnostic Use.

ADF supports assay development



Choose your workspace



* Investigational use only. Performance evaluation is only available upon request.

For *In Vitro* Diagnostic Use.

An easy-to-use, reliable, IVD qPCR system to put you in control

QuantStudio 5 Dx Real-Time PCR System (CE-IVD, IVDR)

Designed to simplify workflows and minimize training needs, the QuantStudio 5 Dx Real-Time PCR System can help you get to your clinical answers quickly by fitting seamlessly into your established workflow. This compact, flexible system provides confidence in performance and supports both development and IVD modes.



An instrument with premium performance at an affordable price

- **Ready for IVDR**—updated to meet IVDR requirements and technical documentation requirements
- **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
- **Simple, powerful software**—allows users to set up a run, lay out assays, control the instrument, and conduct plate analysis within a single, easy-to-use software interface
- **Proven performance**—more than 25 years of real-time PCR instrument manufacturing and more than 10 years of clinical instrument manufacturing
- **Designed with the clinic in mind**—an interactive diagnostic instrument, with short run-times and minimal maintenance, that uses existing plastic consumables
- **Security**—SAE functionalities and the ability to support multiple clients, plus centralized SAE settings that can be applied to multiple instruments on the same network, allowing better control for your IT department
- **Peace of mind**—the IVD test menu allows only authorized tests to be run through IVD mode, helping to reduce the risk of unauthorized use and accidental or intentional misuse
- **Flexibility you need**—diagnose or develop, the choice is yours with software options that guide you through every step of test development* and IVD modes
- **Maximize benchtop space**—a compact instrument footprint and a plate loading drawer at the front
- **Superior support**—services and support are available globally by highly skilled, customer-focused staff
- **QuantStudio system performance**—the reliability, sensitivity, and accuracy you expect, coupled with an intuitive and simple-to-use interface that allows users of any experience level to easily operate the system

* Test development mode is for Research Use Only.

Learn more at thermofisher.com/quantstudio5dx

For *In Vitro* Diagnostic Use.

Specifications

QuantStudio 5 Dx system	
Sample capacity	96 wells
Reaction volume	96-well, 0.2 mL block: 10–100 µL
Excitation source	Bright white LED
Filter or color combinations	6 decoupled filters, CMOS camera
Excitation/detection range	450–680 nm/500–730 nm
Multiplexing	5-plex with 1 passive reference; 6-plex with no passive reference
Maximum block 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
Heating and cooling method	Peltier
Independent temperature zones	6 VeriFlex Blocks zones (5°C zone-to-zone)
Chemistries	Fast and standard
Run time	<30 min
Compatible dyes	FAM, SYBR Green, VIC, ABY, NED, TAMRA, JUN, ROX, Mustang Purple, and Cy5 dyes
SAE features	Included
Automation compatible	No
Footprint (H x W x D)	40 x 27 x 50 cm
Weight	26 kg

Features to help maintain quality and security



Maintenance and calibration reports

Records are updated automatically with maintenance and calibration events and can be printed on demand, documenting that the system has been maintained and calibrated to vendor specifications.



E-signature history

SAE software records test events, dates, user names, and user roles and activity performed, for documentation and archiving purposes.



Reagent tracking

The system stores and archives information about reagents used with each test, including lot number and expiration date, with each run. Archived files can be retrieved when required to track samples that were tested with a given set of reagents.



Experimental results

Report output records details for documentation, archiving, and review-at-a-glance needs, including experiment name, barcode, file name, time stamps (creation, run start, run finish, duration, and modifications), instrument name, serial number, experiment type, results summary, plate layout image, standard curves, results table, QC summary plate, set of reagents, run date and time, and data files.



Sample tracking

The system tracks sample name and type; captures critical sample data, with parameters customizable to fit the laboratory's needs; and enables laboratories to more easily track samples associated with a particular plate, a set of reagents, a run date and time, and data files.

For *In Vitro* Diagnostic Use.

Keep advancing with new technology. We've got your back.

Get superior service and support to maximize your investment



A standard of support that's a cut above

Thermo Fisher Scientific offers a comprehensive range of services and support to keep your QuantStudio real-time PCR IVD systems performing at peak level. Your instrument purchase comes with a standard 1-year factory warranty, customer concierge services, SmartStart Orientation, and an advanced digital service ecosystem built right into the instrument. Extended warranty coverage is also available at the time of purchase for total peace of mind.

Get started with our global customer concierge services*

Count on our dedicated customer concierge services for an exceptional and seamless experience implementing your QuantStudio real-time PCR IVD systems. From order placement through installation and training, our team is here to streamline and simplify the process by:

- Preparing your laboratory space for a successful installation providing critical documentation and checklists
- Connecting your IT department with our IT specialists to help ensure an easy and secure network connection, so you can take advantage of cutting-edge features and advanced digital support
- Coordinating instrument installation with a highly skilled field service engineer (FSE)
- Scheduling interactive SmartStart Orientation training with an experienced field application scientist (FAS)

* Concierge services are available in certain geographies.

SmartStart Orientation enables your success

Both QuantStudio 5 Dx and QuantStudio 7 Pro Dx Real-Time PCR Systems come with SmartStart Orientation to help your team quickly become proficient using the new software features and instrumentation. Led by an experienced FAS, this interactive course is a 1-day instrument- and software-based training that covers the principles of quantitative real-time PCR and how to use the QuantStudio 7 Pro Dx instrument, Diomni software, and SAE features. The course will cover the following topics:

- Proper experimental technique
- Basic workflow
- Software features and data analysis features
- Discussion of instrument maintenance
- Certificate of Training Completion for up to three users

For *In Vitro* Diagnostic Use.

Comprehensive warranty and service plans to protect your investment

Choose from a range of extended-coverage service plans to meet your budget and needs. In addition to the standard 1-year warranty, these plans offer:

- Preventive maintenance
- Access to advanced troubleshooting features, including Smart Help and Remote Support
- Prioritized response time

To build your personalized service quote, go to [thermofisher.com/serviceselector](https://www.thermofisher.com/serviceselector)

Enjoy premium coverage with our premier service plan: AB Platinum

The AB Platinum plan is our top-tier total solution designed not only to optimize instrument performance and uptime, but also to provide a seamless experience and prompt resolutions.

Key features of the AB Platinum plan include:

- 98% uptime guarantee*
- Comprehensive repair coverage
- Rapid-response on-site support**
- Priority Technical Support†
- Qualification services
- Digital remote support
- Additional FAS training (2-hour virtual consultation)

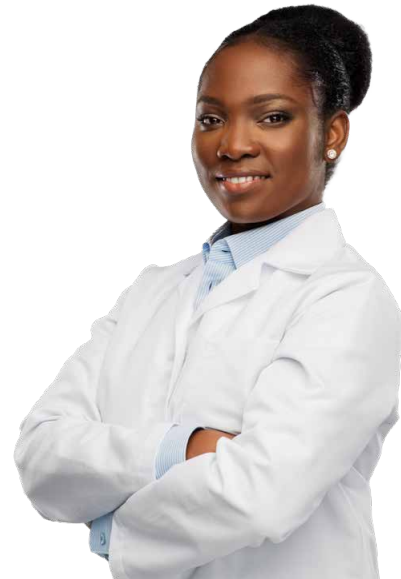
Find out more about the AB Platinum service plan at [thermofisher.com/abplatinum](https://www.thermofisher.com/abplatinum)

Digital services and support ecosystem and on-demand support at your fingertips

Your new QuantStudio 7 Pro Dx Real-Time PCR System is equipped with a state-of-the-art ecosystem of digital services and support so you can access our network of over 2,000 trained professionals at the touch of a button. With **Smart Help** you can easily share log and run files to speed up service troubleshooting and, if needed, request a service visit. **Remote Support** features enable our technical team to see your instrument in real time and interact with you on the instrument screen to resolve issues virtually.

Find out how our digital support helps resolve up to 70% of cases in minutes, not days, enabling you to focus on your next scientific breakthrough.

[thermofisher.com/digitalserviceecosystem](https://www.thermofisher.com/digitalserviceecosystem)



98% uptime guarantee
with the AB Platinum service plan*



70% remote resolution
using Smart Help and Remote Support features

* Terms and conditions apply. For complete details, go to [AB platinum terms and conditions](#).

** Rapid-response on-site support within the next business day is subject to regional availability.

† Priority Technical Support is available in the English language only.

Learn more at [thermofisher.com/instrumentservices](https://www.thermofisher.com/instrumentservices)

For *In Vitro* Diagnostic Use.

High-performance PCR plastics for optimal qPCR results

MicroAmp qPCR plastics

Applied Biosystems™ PCR plastics have been designed and tested to work with our instruments and enable optimal performance.

MicroAmp qPCR plastics are:

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



Which qPCR plastic is right for you?

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

Applied Biosystems™ MicroAmp™ EnduraPlate™ optical microplates, GPL E	
Formats	96-well 96-well Fast 384-well
DNA-, RNase-, and PCR inhibitor-free	Yes
ANSI/SBS standard dimension color	Clear
Instrument compatibility	Use our plastics selection tool
Barcode	Yes (3 sides)
Multiple applications	Yes
Optical compatibility	Yes

For *In Vitro* Diagnostic Use.

Find the plastics and accessories you need for your instrument quickly

Product	QuantStudio 7 Pro Dx system	QuantStudio 5 Dx system	Cat. No.
96-well, 0.2 mL reaction plates			
MicroAmp Optical 96-Well GPLE Reaction Plate (10 plates)	•	•	4481191
MicroAmp Optical 96-Well GPLE Reaction Plate with Barcode (10 plates)	•	•	4481192
MicroAmp EnduraPlate Optical 96-Well GPLE Clear Reaction Plates with Barcode (20 plates)	•	•	4483348
MicroAmp EnduraPlate Optical 96-Well GPLE Clear Reaction Plates with Barcode (500 plates)	•	•	4483351
384-well, 0.2 mL reaction plates			
MicroAmp Optical 384-Well GPLE Reaction Plate with Barcode (50 plates)	•		4481195
MicroAmp EnduraPlate Optical 384-Well GPLE Clear Reaction Plates with Barcode (20 plates)	•		4483319
Seals and covers			
MicroAmp Optical Adhesive Covers GPLE (25 films)	•	•	A49767
Accessories			
Splash-Free 96-Well Base	•	•	4312063
96-Well Support Base	•	•	4379590

For *In Vitro* Diagnostic Use.

TaqPath master mixes for real-time PCR

Delivering confidence and performance

With superior quality and excellent performance, TaqPath master mixes are designed to deliver confidence and performance for even your most demanding applications. With over 10 years of leadership in clinical real-time PCR, we are committed to providing trusted, versatile, and innovative tools.

TaqPath products feature fluorogenic 5' nuclease chemistry. TaqPath reagents are General Purpose Reagents and are labeled For Laboratory Use. Thermo Fisher Scientific is an ISO-certified facility.

TaqPath qPCR Master Mix, CG, for DNA detection

Applied Biosystems™ TaqPath™ qPCR Master Mix, CG is a 2X formulation designed for gene expression and miRNA analysis, containing a thermostable fast DNA polymerase and dNTPs in an optimized buffer solution for maximum robustness and reproducibility.

TaqPath 1-Step RT-qPCR master mixes

Applied Biosystems™ TaqPath™ 1-Step RT-qPCR master mixes are 4X formulations designed for one-step processing of RNA and DNA targets. Versions with ROX passive reference dye, and versions designed specifically for multiplexing and formulated with either Mustang Purple passive reference dye or without ROX dye, are available.

For more information on TaqPath qPCR master mixes, go to the [TaqPath qPCR master mix marketing page](#).

TaqPath 1-Step Multiplex Master Mix

Applied Biosystems™ TaqPath™ 1-Step Multiplex Master Mix is compatible with multiplexing reactions, allowing additional exogenous or endogenous controls or targets to be run simultaneously for quality control or increased efficiency. Both the Mustang Purple passive reference dye-containing mix and the “no ROX” mix can be used in conjunction with Applied Biosystems™ TaqMan™ probes with FAM, VIC, ABY, and JUN dyes and Applied Biosystems™ QSY™ quenchers to provide detection of four targets in a single reaction.

TaqPath BactoPure Microbial Detection Master Mix

Applied Biosystems™ TaqPath™ BactoPure™ Microbial Detection Master Mix is for clinical customers who need a rapid method for low-level DNA pathogen detection on a variety of targets using complex samples. We offer the BactoPure master mix which—unlike competitors' mixes—offers the lowest limit of detection across common microbial targets of interest (e.g. bacteria, as demonstrated by a 16S rRNA assay).

To order a sample of one of our TaqPath qPCR master mixes, go to the [TaqPath qPCR master mix sample request page](#).

TaqPath general purpose reagent	Application	Passive reference dye
TaqPath BactoPure Microbial Detection Master Mix	Microbial detection and quantitation	ROX
TaqPath BactoPure Microbial Detection Master Mix, No ROX	Microbial detection and quantitation	None
TaqPath ProAmp Master Mix	Genotyping and copy number variation (CNV)	ROX
TaqPath ProAmp Multiplexing Master Mix	Genotyping and CNV	Mustang Purple
TaqPath qPCR Master Mix, CG	Two-step gene expression	ROX
TaqPath 1-Step qRT-PCR Master Mix	One-step pathogen detection and gene expression	ROX
TaqPath 1-Step Multiplex Master Mix	One-step pathogen detection and gene expression	Mustang Purple
TaqPath 1-Step Multiplex Master Mix (No ROX)	One-step pathogen detection and gene expression	None

Learn more at thermofisher.com/qpcrmm

For *In Vitro* Diagnostic Use.

TaqMan probes

The gold standard for qPCR applications

The Thermo Fisher Scientific portfolio of custom fluorophores and quenchers offers unprecedented flexibility during assay development, while delivering the quality, performance, and reliability of gold-standard TaqMan chemistry. Our probes deliver outstanding signal-to-noise ratio and reproducibility, and are synthesized using the same raw materials and manufacturing know-how as our pre-designed Applied Biosystems™ TaqMan™ Assays featured in over 300 patents and more than 40,000 publications. Additionally, our GMP oligos service provides the traceability you need to meet all your regulatory requirements. Leverage the expertise and flexibility of TaqMan probes when designing your next laboratory-developed test (LDT) or analyte-specific reagent (ASR).

TaqMan MGB Probes

Applied Biosystems™ TaqMan™ MGB Probes are dual-labeled probes with a 5' reporter and a 3' nonfluorescent quencher (NFQ). What sets TaqMan MGB probes apart from other probe-based chemistries is the inclusion of a minor groove binder (hence the name "MGB") moiety at the 3' end that increases the melting temperature (T_m) of the probe and stabilizes probe-target hybrids. This means that TaqMan MGB Probes can be significantly shorter than traditional probes, providing better sequence discrimination and flexibility to accommodate more targets.

TaqMan QSY Probes

Applied Biosystems™ TaqMan™ QSY Probes provide the perfect complement to TaqMan MGB Probes for multiplexing several targets within a single reaction. Multiplexing enables cost savings and preservation of limited samples, while yielding comparable results between reactions performed in individual tubes and in 4-plex reactions (see Figure 2).

TaqMan QSY Probes are also ideal for direct conversion of BHQ™ Probe designs and can be ordered with FAM, VIC, and our proprietary ABY and JUN dyes, allowing amplification of up to 4 targets in a single reaction. All 4 dyes are optimized for the filter sets on the QuantStudio Dx systems and work together with minimal spectral overlap for optimal performance.

Learn more at thermofisher.com/customprobes

For *In Vitro* Diagnostic Use.

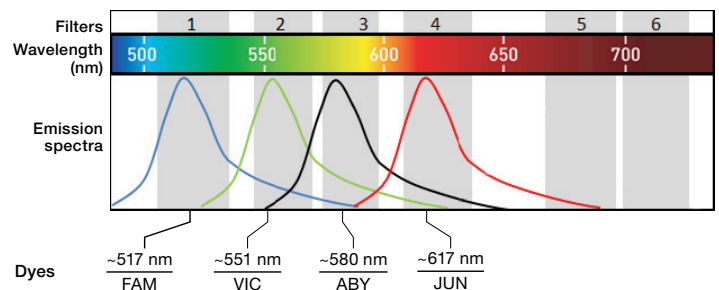
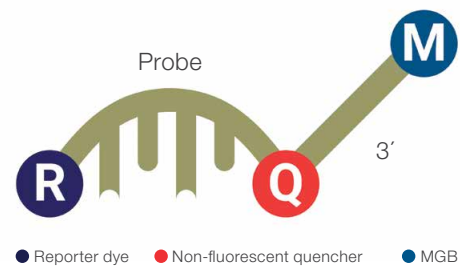


Figure 1. Fluorescence emission spectra of FAM, VIC, ABY, and JUN dyes used for multiplex real-time PCR. Gray zones represent the filters available on Applied Biosystems real-time PCR systems: 1 through 6 for the QuantStudio Dx instruments.

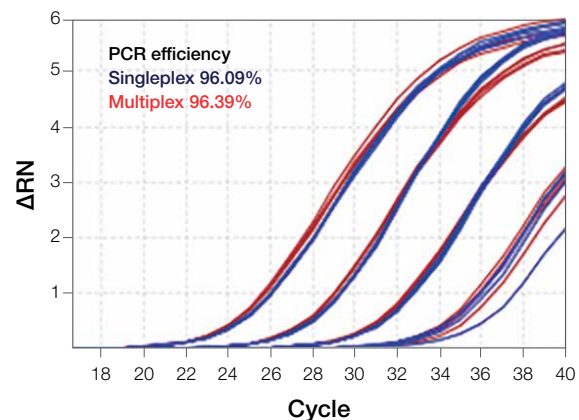


Figure 2. Comparable results for singleplex and multiplex assays. The amplification plot shows linear portions of the curves for 4 EGFR assays amplified in singleplex (blue) and 4-plex (red) reactions in a dilution series from 20,000 pg to 2 pg of reference colon cDNA per 10 µL reaction. PCR efficiencies are 96.09% for EGFR singleplex and 96.39% for EGFR 4-plex reactions.

TaqMan TAMRA Probes

Applied Biosystems™ TaqMan™ TAMRA Probes feature a 5' fluorescent reporter dye (FAM, VIC, or TET dye) and 3' fluorescent quencher (TAMRA dye). TaqMan TAMRA Probes, which were some of the first TaqMan probes to be developed, continue to be offered in support of legacy products and protocols featuring this quencher.

Probe specifications	MGB	QSY	TAMRA
5' reporter dye options	FAM, VIC, TET, NED dyes	FAM, VIC, ABY, JUN dyes	FAM, VIC, TET dyes
Form	Liquid		
Includes	Probe set		
Purification	HPLC		
Shelf life	12 months from manufacturing date		
Green features	Less waste and sustainable packaging		

Customize TaqMan primers and probes your way

Our Specialty Manufacturing service offers even more customized solutions for those truly challenging real-time PCR assay designs and formats. From off-catalog dye offerings to specialized formulation and volume requirements to specific assay plating arrangements, our Specialty Manufacturing team will work with you to design your perfect assay.

For more information, email specialty_oligos@thermofisher.com

Need GMP oligos? Powered by more than 100 years of combined experience, we offer dedicated ordering and fulfillment services that can be integrated into your organization's systems and processes. Our capabilities extend to the production of GMP oligonucleotide components for IVD and ASRs.

For more information, email gmp-oligos@thermofisher.com

For *In Vitro* Diagnostic Use.

Commercial supply partnerships for MDx assay developers

The Original Equipment Manufacturer (OEM) and Commercial Supply team empowers you, our customers, to make the world better by facilitating your path to commercialization. Leveraging our state-of-the-art genetic sciences tools and solutions, we help our partners commercialize MDx assays within a wide range of applications, including infectious disease and oncology.

Partnering with us provides you value beyond just the products. We bring the right mix of solutions you need to help you on your path and combine these with the quality you can expect from the world leader in serving science.

Support during the development, deployment, delivery, and commercialization process includes:

- Product optimization
- Globalized footprint
- Custom manufacturing
- High-efficiency technology transfer
- Compliance documentation support
- Security of supply
- Quality
- Custom assay development
- Novel content and technology

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As part of Thermo Fisher Scientific, our global regulatory team with expertise in established quality management systems, FDA-, NMPA-, and CE-IVD-compliant facilities, manufacturing quality standards, and global trade compliance can support your business, allowing you the freedom to focus on your priorities.

Enhanced training

PCR-based applications are essential to many laboratory workflows and techniques. Fortunately, we offer qPCR training courses just for you. For more detailed course information and to enroll, go to thermofisher.com/educationconnect*

Find out how we can help
power your journey.

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