

Solutions for Teaching Real-Time PCR



PREPARE YOUR STUDENTS FOR THE FUTURE OF BIOTECHNOLOGY

Real-time PCR, also called quantitative PCR (qPCR), allows simultaneous amplification and quantification of a target DNA molecule. It is an extremely powerful technology for not only determining which DNA is present but also how much.

The use of real-time PCR in research and diagnostics is accelerating as it offers a streamlined, sensitive approach to determining levels of pathogens in tissues and in wastewater, detecting aneuploidies, diagnosing other genetic diseases, and monitoring microbial contaminants in environmental samples, among many other applications. Teaching students this robust technology prepares them for a future in all areas of life science — basic research, biotechnology, medicine, food analysis, diagnostics, and more.

Bio-Rad Can Help

An industry leader in the development of cutting-edge products for biological research and diagnostics, Bio-Rad™ expresses its commitment to science education through its Explorer program, which offers Bio-Rad products at a discount for use in classroom laboratories. This ensures students learn modern biotechnology techniques like real-time PCR using the same equipment they might someday use in research and diagnostics labs. The Explorer program also partners with teachers and industry experts to develop educational kits and training resources to help you achieve your teaching goals.



Educational Kits for Real-Time PCR

Teach the principles and techniques of real-time PCR:

- Examine the impact of pipetting and other factors on sensitivity and accuracy
- Demonstrate standard curve generation and melt curve analysis
- Illustrate the unique benefits and applications of both real-time PCR and conventional, endpoint PCR

Crime Scene Investigator PCR Basics Real-Time PCR Starter Kit

An excellent starting point for novices, this kit uses premade DNA samples to teach the basics of real-time PCR. This eliminates the variables associated with DNA extraction and sample preparation.

GMO Investigator Real-Time PCR Starter Kit

Teach the entire real-time PCR workflow, from DNA extraction from food items to data analysis, as you quantify the amount of genetically modified ingredients.

Visit explorer.bio-rad.com for more information and educational support.

Research-Quality Instruments and Software for Real-Time PCR

CFX Real-Time PCR Systems

CFX Real-Time PCR Systems are used in research and diagnostics laboratories around the world. They offer the performance and reliability you expect from Bio-Rad, packaged in sleek, modern instruments that fit well into any classroom laboratory.

The CFX Opus and CFX Duet Systems feature:

- Quick system setup — easy installation and factory-calibrated optics
- Excellent thermal uniformity and accuracy
- Uniform optical system free of regular calibration requirements



	CFX Opus 96 Real-Time PCR System	CFX Opus 384 Real-Time PCR System	CFX Duet Real-Time PCR System
Features	For multiplex qPCR or when wireless connectivity is desired	For multiplex qPCR or when wireless connectivity is desired	For singleplex or duplex qPCR applications when wireless connectivity is not needed
Wells	96	384	96
Multiplex channels	5 plus FRET	4 plus FRET	2 plus FRET
Stand-alone operation	Yes	Yes	No; requires connection to a PC running CFX Maestro Software (not included)
Wireless connectivity	Yes	Yes	No
Reaction volume	1–50 µl	1–30 µl	1–50 µl

FRET, fluorescence resonance energy transfer.



CFX Maestro Software — Real-Time PCR Data Collection, Analysis, and Statistics

Use CFX Maestro Software to set up experiments, select reference genes, perform statistical analyses, and create high-resolution, publication-quality graphs from your results. This software tool is designed to work seamlessly with CFX Opus Systems and is required to run the CFX Duet System.



Work When and Where You Want

Need flexibility? The CFX Opus Systems offer stand-alone operation in addition to Ethernet and wireless network (WiFi) connectivity. Save your data to a USB memory device, connected computer, or networked file folder. You can also program the systems to send your data or any notifications directly to your email or to a local network for easy access from other locations. The CFX Opus Systems also connect to the Bio-Rad BR.io cloud platform, which allows you to set up experiments and retrieve data remotely — your data are stored directly in the cloud, where they can be viewed and analyzed anywhere you have Internet access.

Visit [BR.io](https://br.io) for more information about the cloud platform.

Have Questions? Need a Quote?

Visit explorer.bio-rad.com to learn more about products and resources for educators.

Contact us at info.bio-rad.com/ExplorerContactUs with any other questions or to request a quote.

Ordering Information (Educator Discount)

The ordering information listed here is for purchases for **educational use only**.

Visit bio-rad.com/qPCR for information on ordering for research use.

Catalog # Description

Educational Kits for Real-Time PCR

- 1662660EDU **Crime Scene Investigator PCR Basics Real-Time PCR Starter Kit**, contains sufficient materials for 8 student workstations (2–4 students per workstation)
- 1662560EDU **GMO Real-Time PCR Starter Kit**, contains sufficient materials for 8 student workstations (2–4 students per workstation)

CFX Real-Time PCR Systems

- 12016265EDU **CFX Duet Real-Time PCR System**, includes power cord, USB cable. Order CFX Maestro Software separately
- 12011319EDU **CFX Opus 96 Real-Time PCR System**, includes CFX Opus 96 System and communication cables. Order CFX Maestro Software separately
- 12011452EDU **CFX Opus 384 Real-Time PCR System**, includes CFX Opus 384 System and communication cables. Order CFX Maestro Software separately
- 12013346EDU **CFX Opus WiFi Adapter**, enables WiFi connection for CFX Opus Systems in North America and other specific countries

CFX Maestro Software

- 12013758EDU **CFX Maestro Software Version 2.3**, compatible with Windows 7 and 10, includes USB installation drive, video quick guides, PDF instruction manual, license for qbase+ Software

Catalog # Description

Reagents and Consumables for Real-Time PCR

- 1708880EDU **iQ SYBR® Green Supermix**, 2.5 ml, (2 x 1.25 ml), 2x qPCR mix, contains dNTPs, iTaq DNA Polymerase, MgCl₂, SYBR® Green I, enhancers, stabilizers, fluorescein; for 100 x 50 µl reactions
- 1725270EDU **SsoAdvanced Universal SYBR® Green Supermix**, 2 ml (2 x 1 ml), 2x qPCR mix, contains dNTPs, Sso7d fusion polymerase, MgCl₂, SYBR® Green I, ROX normalization dyes; for 200 x 20 µl reactions
- HSP9601EDU **Hard-Shell™ 96-Well PCR Plates**, pkg of 50, low profile, thin wall, skirted, rigid, white shell/clear well, 2-component design
- MSB1001EDU **Microseal™ 'B' Adhesive Seals**, pkg of 100, optically clear seal for PCR plates used in PCR and real-time PCR reactions

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