

CFX Maestro Software

For Bio-Rad CFX Real-Time PCR Instruments





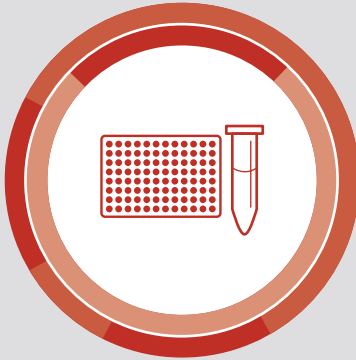
CFX Maestro Software is real-time PCR software that not only collects data, but understands your data and what you want to do with it, combining data collection, statistics, and publication tools into one comprehensive package.

Whether you are a novice researcher running your first qPCR experiment or are analyzing thousands of samples across hundreds of runs, CFX Maestro was built with your needs in mind and to work in whatever way is best for you.

IT'S qPCR SOFTWARE THAT WORKS LIKE YOU DO

CFX Maestro Software for CFX Real-Time PCR Instruments

An easy-to-learn yet powerful system for push-button data collection, data analysis, and data visualization.



Easy Plate Setup and Reference Gene Selection

- Quickly set up experiments with both technical replicates and biological groups
 - Identify reference gene stability and select ideal reference genes
 - Simplify experimental design and primer design with PrimePCR Assay integration
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Push-Button Data Analysis and Statistics

- Automatically calculate C_q values and reaction efficiency
 - Easily perform statistical analyses, including *t*-tests and one-way ANOVA
 - Efficiently analyze multiplate studies
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Publication-Ready Graphics

- Visualize your results in bar charts, box and whisker graphs, clustergrams, and volcano plots
- Edit and annotate graphs and export for publication or presentations

EASY PLATE SETUP AND REFERENCE GENE SELECTION



Intuitive Plate Setup

CFX Maestro is built to help you quickly get started collecting data. Set up plates using a visual interface that color codes replicates for confirmation of accurate layout. Studies can be designed with both technical replicates and biological groups.

Plate setup can be performed before, during, or even after your real-time PCR run is complete — at whatever time is most convenient for you.

Select Your Ideal Reference Genes

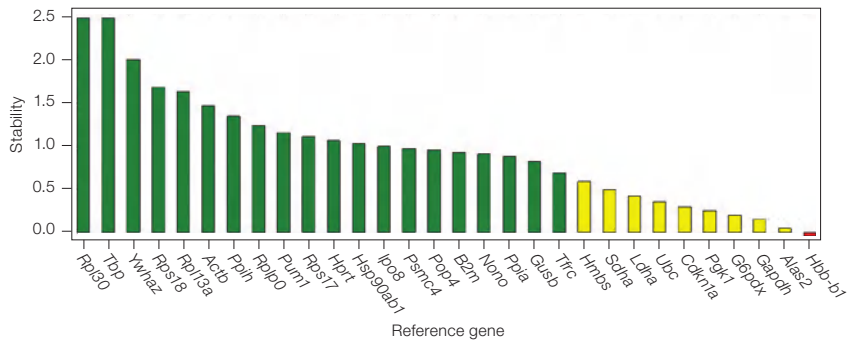
Stable reference genes are essential when performing gene expression analysis. CFX Maestro Software's Reference Gene Selection Tool will compare the stability of multiple reference genes, providing you with information about which reference genes are most likely to be expressed at consistent levels in all your samples throughout your runs, helping to ensure reliable relative expression data.

PrimePCR Assay Integration

Want to simplify your primer design, run design, and setup? With CFX Maestro and PrimePCR it's easy. Drag and drop a PrimePCR run file into CFX Maestro to automatically populate plate setup and run conditions. Post-run, ensure run quality with included PCR controls (positive control, RT, gDNA, and RNA quality controls).

	1	2	3	4	5	6	7	8	9	10	11	12	
A	Unk-1 Actin 0Hr Mouse 1	Unk-1 Actin 0Hr Mouse 1	Unk-1 Actin 0Hr Mouse 1	Unk-6 Actin 0Hr Mouse 2	Unk-6 Actin 0Hr Mouse 2	Unk-6 Actin 0Hr Mouse 2	Unk-11 Actin 0Hr Mouse 3	Unk-11 Actin 0Hr Mouse 3	Unk-11 Actin 0Hr Mouse 3	Unk-16 Actin 0Hr Mouse 4	Unk-16 Actin 0Hr Mouse 4	Unk-16 Actin 0Hr Mouse 4	A
B	Unk-2 Actin 1Hr Mouse 1	Unk-2 Actin 1Hr Mouse 1	Unk-2 Actin 1Hr Mouse 1	Unk-7 Actin 1Hr Mouse 2	Unk-7 Actin 1Hr Mouse 2	Unk-7 Actin 1Hr Mouse 2	Unk-12 Actin 1Hr Mouse 3	Unk-12 Actin 1Hr Mouse 3	Unk-12 Actin 1Hr Mouse 3	Unk-17 Actin 1Hr Mouse 4	Unk-17 Actin 1Hr Mouse 4	Unk-17 Actin 1Hr Mouse 4	B
C	Unk-3 Actin 2Hr Mouse 1	Unk-3 Actin 2Hr Mouse 1	Unk-3 Actin 2Hr Mouse 1	Unk-8 Actin 2Hr Mouse 2	Unk-8 Actin 2Hr Mouse 2	Unk-8 Actin 2Hr Mouse 2	Unk-13 Actin 2Hr Mouse 3	Unk-13 Actin 2Hr Mouse 3	Unk-13 Actin 2Hr Mouse 3	Unk-18 Actin 2Hr Mouse 4	Unk-18 Actin 2Hr Mouse 4	Unk-18 Actin 2Hr Mouse 4	C
D	Unk-4 Actin 3Hr Mouse 1	Unk-4 Actin 3Hr Mouse 1	Unk-4 Actin 3Hr Mouse 1	Unk-9 Actin 3Hr Mouse 2	Unk-9 Actin 3Hr Mouse 2	Unk-9 Actin 3Hr Mouse 2	Unk-14 Actin 3Hr Mouse 3	Unk-14 Actin 3Hr Mouse 3	Unk-14 Actin 3Hr Mouse 3	Unk-19 Actin 3Hr Mouse 4	Unk-19 Actin 3Hr Mouse 4	Unk-19 Actin 3Hr Mouse 4	D
E	Unk-5 Actin 4Hr Mouse 1	Unk-5 Actin 4Hr Mouse 1	Unk-5 Actin 4Hr Mouse 1	Unk-10 Actin 4Hr Mouse 2	Unk-10 Actin 4Hr Mouse 2	Unk-10 Actin 4Hr Mouse 2	Unk-15 Actin 4Hr Mouse 3	Unk-15 Actin 4Hr Mouse 3	Unk-15 Actin 4Hr Mouse 3	Unk-20 Actin 4Hr Mouse 4	Unk-20 Actin 4Hr Mouse 4	Unk-20 Actin 4Hr Mouse 4	E
F	Std-1 1.00E+12	Std-2 1.00E+11	Std-3 1.00E+10	Std-4 1.00E+09	Std-5 1.00E+08	Std-6 1.00E+07	Std-7 1.00E+06	Std-8 1.00E+05	Std-9 1.00E+04	Std-10 1.00E+03	Std-11 1.00E+02	Std-12 1.00E+01	F
G	Std-1 1.00E+12	Std-2 1.00E+11	Std-3 1.00E+10	Std-4 1.00E+09	Std-5 1.00E+08	Std-6 1.00E+07	Std-7 1.00E+06	Std-8 1.00E+05	Std-9 1.00E+04	Std-10 1.00E+03	Std-11 1.00E+02	Std-12 1.00E+01	G
H	Std-1 1.00E+12	Std-2 1.00E+11	Std-3 1.00E+10	Std-4 1.00E+09	Std-5 1.00E+08	Std-6 1.00E+07	Std-7 1.00E+06	Std-8 1.00E+05	Std-9 1.00E+04	Std-10 1.00E+03	Std-11 1.00E+02	Std-12 1.00E+01	H

Quickly visualize and confirm plate layout. Wells can be color-coded by sample, by biological replicate, and by technical replicate.



Automatically identify ideal reference genes. Results of a PrimePCR Reference Gene Plate analysis showing the ideal and most stable reference genes in green.

PUSH-BUTTON DATA ANALYSIS AND STATISTICS



Automatic Cq and Efficiency Calculation

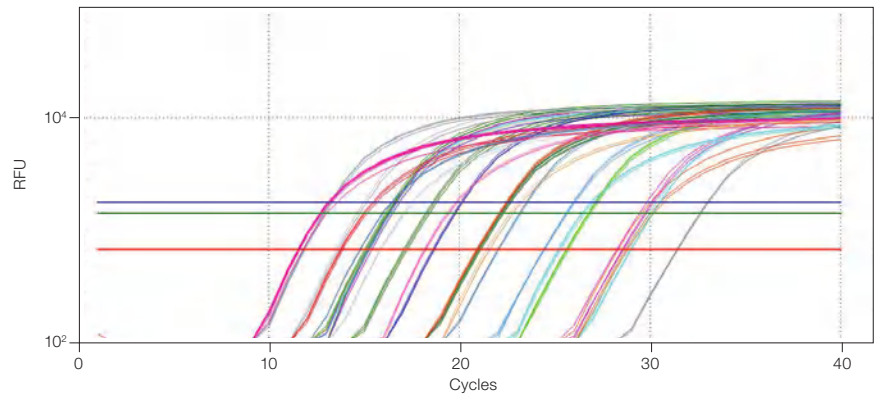
CFX Maestro Software has tools that allow you to view, analyze, and understand your data. A baseline threshold will automatically be set for each reaction target to calculate Cq value, or you can adjust thresholds yourself by simply clicking and dragging the threshold line. If a standard curve is present, CFX Maestro will automatically calculate reaction efficiency.

Statistical Analysis in Seconds

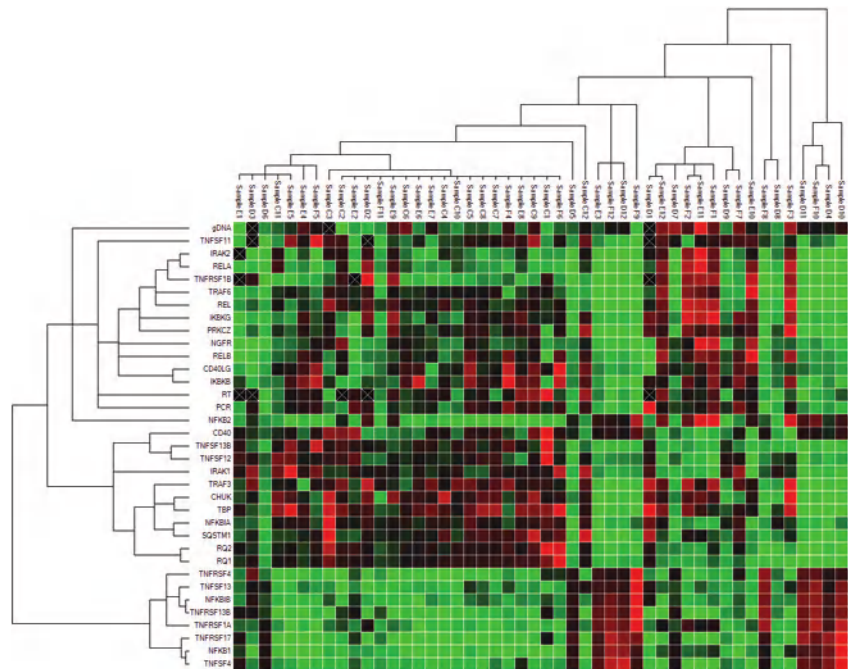
With just a few mouse clicks you can perform allelic discrimination, view normalized expression levels, perform *t*-tests, or analyze your data with one-way ANOVA.

Streamlined Multiplate Study Analysis

CFX Maestro can also automate data analysis for multiplate studies. Combine dozens or even hundreds of plates using the Gene Study function and perform statistical analysis on all your data in aggregate, without the need to export and combine large datasets in a separate software program.



View each individual amplification trace and color code them by target, by sample, or randomly by well. RFU traces and baseline thresholds for three different target genes.



Combine multiple runs for analysis. Clustergram showing gene expression levels grouped by hierarchical similarity in a 24-plate study.

PUBLICATION-READY GRAPHICS

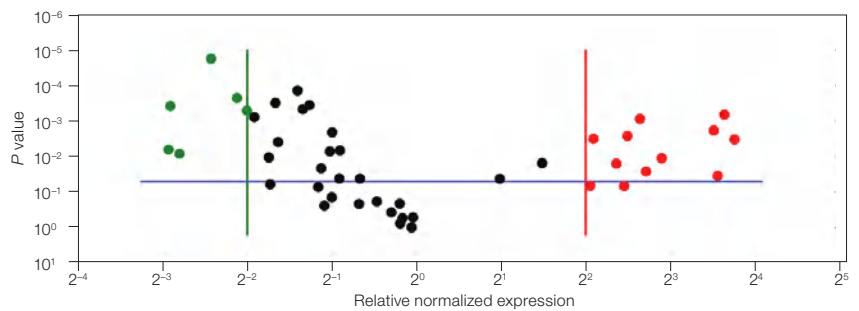


Multiple Data Visualization Options

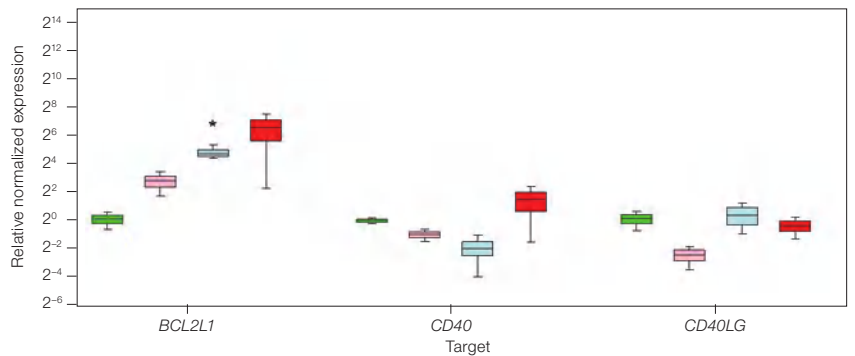
Visualize your data to suit your needs using bar charts, volcano plots, box and whisker plots, and more. Change colors, fonts, titles, and legends, and annotate your graphs with *P* values, text, and arrows to call out specific data.

Export High-Resolution Graphics

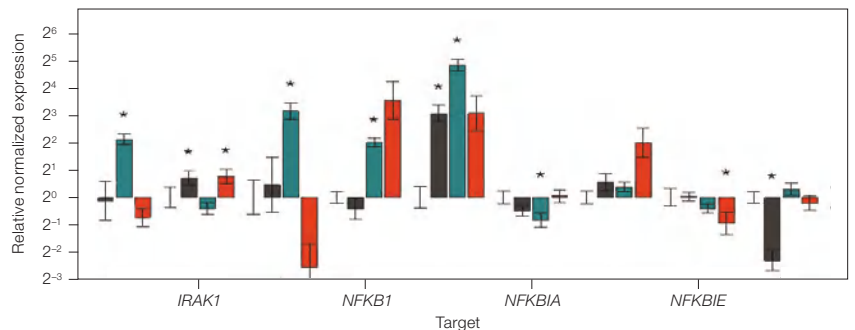
With CFX Maestro Software, creating publication-quality images for posters, presentations, or journals is painless. Simply choose which data view to export then set your image size and resolution, and CFX Maestro will generate a beautiful graph of your data in .jpg, .png, or .bmp format.



Volcano plots support rapid identification of genes of interest with statistically significant fold-level changes.



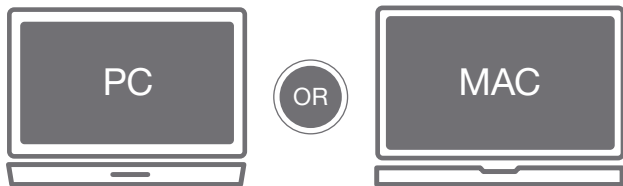
Box and whisker plots provide a visual representation of data medians and quartiles.



Bar charts provide a standard means to view relative normalized gene expression levels and can also be annotated with *P* values to provide statistical significance of your data.

qPCR SOFTWARE THAT WORKS LIKE YOU DO

WORK ANYWHERE ON PC OR MAC



Work on your own computer, anywhere, without the need for an Internet connection. CFX Maestro Software now lets both PC and Mac users utilize the integrated data analysis, statistics, and publication tools of CFX Maestro.

REGULATORY COMPLIANCE TOOLS



U.S. FDA 21 CFR Part 11 Tools

CFX Maestro Security Edition provides tools to support 21 CFR Part 11 compliance, such as:

- Mandatory password-protected log-in — log-in required; administrator sets user privileges
- Time- and date-stamped audit trails — edit information is tracked and saved with each specific data file for easy tracking
- Electronic signatures — multiple electronic signatures can be applied to a single file at any editing step
- File encryption — file cannot be opened or edited by another program, minimizing risk of data corruption

INSTRUMENT INTEGRATION AND HIGH-THROUGHPUT SOLUTIONS



Designed to Work with CFX Real-Time PCR Instruments

CFX Instruments feature:

- Optical design that ensures superior data uniformity
- Block controls for accurate target temperatures
- 2–5 color multiplexing
- Thermal gradient to optimize run temperatures

LIMS and Automation System Integration

CFX Maestro and CFX Real-Time Instruments are designed for high-throughput qPCR:

- Data export into a designated LIMS folder
- Remote notification of run completion with attached data file
- Multi-instrument connectivity
- Automation systems configuration with the API Reference Guide

Specifications

CFX Maestro Software

Operating systems	Windows 7 (64-bit), Windows 10 (64-bit), macOS Mojave 10.14 (for analysis only)
Memory	Minimum 4 GB
Data analysis modes	PCR quantification with standard curve Melt curve analysis Gene expression analysis by relative quantity (ΔCq) or normalized expression ($\Delta\Delta Cq$) with multiple reference genes and individual reaction efficiencies Data analysis options include bar chart, box and whisker plot, dot plot, clustergram, scatter plot, volcano plot Statistical analysis with <i>t</i> -tests and one-way ANOVA Multiple file gene expression analysis for comparison of an unlimited number of <i>Cq</i> values for multiplate studies Allelic discrimination End-point analysis
Image export	Image size: any Resolution: 72–600 dpi Image format: .jpg, .png, .bmp
Data export	Save, copy, and print all spreadsheets and data from right-click menu Export specified data in multiple formats Copy and paste into Microsoft Word, Excel, or PowerPoint file Customizable reports containing run settings, data graphs, and spreadsheets can be printed directly or saved as PDFs

Ordering Information

Catalog # Description

Software

All software for Windows unless otherwise noted.

12013758	CFX Maestro Software 2.0
12004128	CFX Maestro Software for Mac
12012832	CFX Maestro Software 2.0, Security Edition , 1 license
12013028	CFX Maestro Software 2.0, Security Edition , 5 licenses
12012834	CFX Maestro Software 2.0, Chinese Edition
12012833	CFX Maestro Software 2.0, Russian Edition
1845025	Precision Melt Analysis Software , 2 user licenses, data analysis software for all CFX Real-Time PCR Systems, 2 HASP HL keys, calibration kit

Instruments

12011319	CFX Opus 96 Real-Time PCR System , includes integrated 96-well system, Ethernet cable, USB cable, and power cord
17005940	CFX Opus 96 Real-Time PCR System with Starter Pack , includes integrated 96-well system; Ethernet cable; USB cable; power cord; Hard-Shell 96-Well PCR Plates, low-profile, thin-wall, skirted, white shell/clear well; SsoAdvanced Universal SYBR® Green Supermix, 2 x 1 ml; Microseal 'B' Adhesive Seals, pkg of 100; CFX Maestro Software
12011452	CFX Opus 384 Real-Time PCR System , includes integrated 384-well system, Ethernet cable, USB cable, and power cord
17005939	CFX Opus 384 Real-Time PCR System with Starter Pack , includes integrated 384-well system; Ethernet cable; USB cable; power cord; Hard-Shell 384-Well PCR Plates, thin wall, skirted, clear shell/white well; SsoAdvanced Universal SYBR® Green Supermix, 2 x 1 ml; Microseal 'B' Adhesive Seals, pkg of 100; CFX Maestro Software
1854095	CFX96 Touch Deep Well Real-Time PCR System , includes C1000 Touch Thermal Cycler Chassis, CFX96 Deep Well Optical Reaction Module, cables
1855201	CFX Connect Real-Time PCR System , includes CFX Connect Thermal Cycler Chassis, CFX Connect Optical Reaction Module, USB cable



Bio-Rad's PCR reagents and analytical instruments are manufactured under an ISO 13485:2016 certified Quality Management System and are quality control tested to ensure consistent product performance you can trust.

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