



CFX384 Touch™ Real-Time PCR Detection System

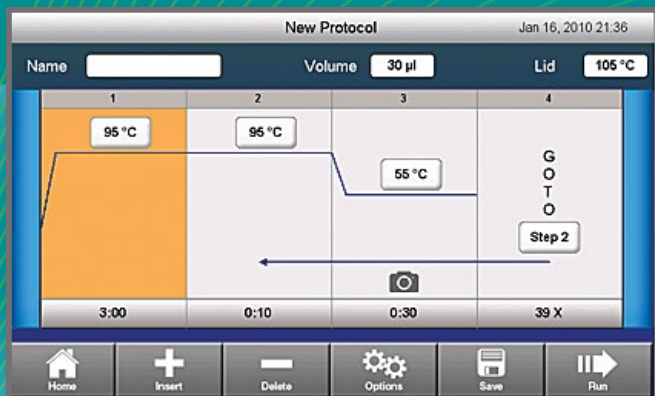


ADVANCING qPCR TOGETHER

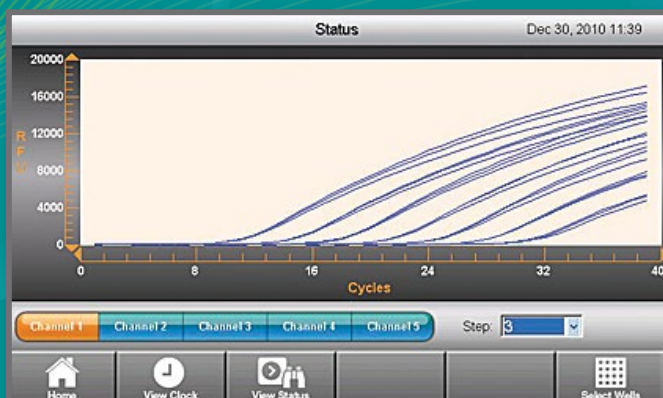


Easily start runs using the intuitive touch screen.

The CFX384 Touch Real-Time PCR Detection System builds on the power and flexibility of the C1000 Touch™ Thermal Cycler to create a high-throughput real-time PCR system. With unrivaled stand-alone functionality, innovative optical design, and unsurpassed thermal cycler performance, the CFX384 Touch System shortens the time between getting started and obtaining great results.



Quickly customize run parameters.



Monitor run progress in real time by viewing the amplification traces on the LCD display.



qPCR That Stands Alone

Real-time PCR runs can be performed in stand-alone mode without the CFX384 Touch System being attached to a computer. Easily set up runs using the intuitive touch screen. The amplification data traces can be viewed on the touch screen while a run is in progress so you can quickly decide your next experimental step even before your run has finished. When a run is complete, export the data using a USB flash drive, or directly email the data from the C1000 Touch Chassis. The CFX384 Touch System truly stands alone.

With the CFX384 Touch System you can:

- **Generate excellent and robust results right away** — quick installation and factory-calibrated optics let you set up the system in seconds
- **Rely on performance** — long-lasting solid-state technology with LEDs and photodiodes provides precise quantification and target discrimination
- **Minimize sample and reagent usage** — 4-target multiplex experiments yield optimal results using sample volumes as low as 3 µl
- **Analyze results when and where you want** — receive email notification with an attached data file when a run is finished
- **Save research time** — well-grouping software feature provides the flexibility to analyze multiple experiments from a single plate
- **Configure the system to fit your laboratory needs** — run without a computer, run up to 4 instruments from 1 computer, or integrate with the CFX Automation System II for higher throughput

UNIFORM THERMAL CYCLING

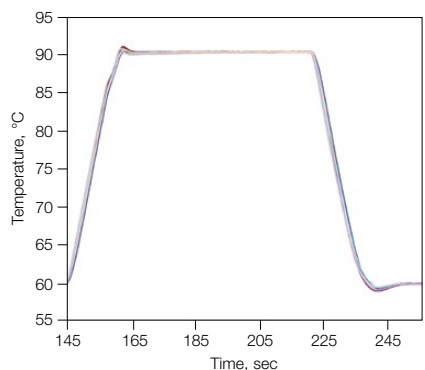
The CFX384 Touch Real-Time PCR Detection System, with up to four-target detection and powerful data analysis, brings flexibility and simplicity to researchers performing high-throughput real-time PCR in a 384-well format. With the precise thermal control of the C1000 Touch Thermal Cycler, the CFX384 Touch System delivers sensitive, reliable detection for real-time PCR applications.

Superior Uniformity

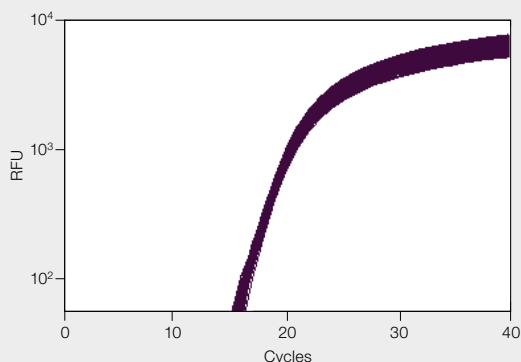
Precision of the temperature steps is critical for the rate and efficiency of PCR. To obtain reliable, consistent results, all sample wells must maintain proper temperature throughout each incubation step. The CFX384 Touch System maintains tight temperature uniformity at all points during a run — even while ramping. Its fast and accurate thermal control ensures all wells reach temperature uniformity within 10 sec of arrival to produce accurate quantitative results with shortened temperature steps.

Thermal Gradient for Easy Optimization

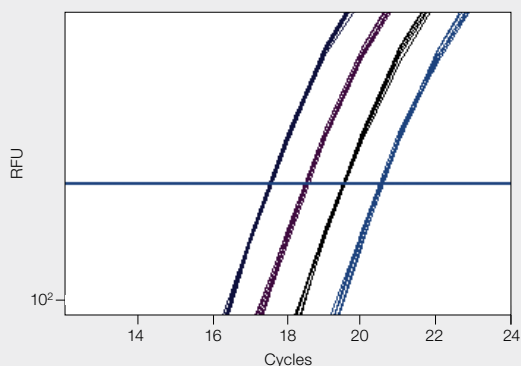
With the thermal gradient feature of the CFX384 Touch System, you can determine the optimal temperature for primer annealing in a single experiment, minimizing the use of precious samples and reagents and saving valuable research time. You can program a temperature gradient of up to 24°C across the reaction block, with exceptional temperature uniformity and reproducibility within each gradient zone.



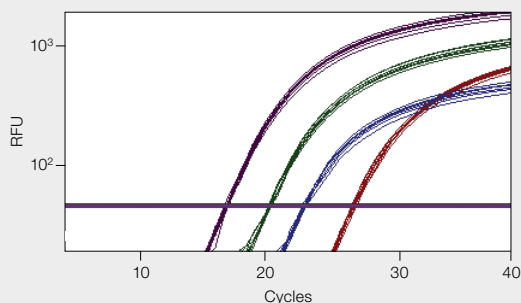
Superior uniformity with rapid arrival at target temperature. 1000-series thermal cyclers exhibit high average ramp rates, rapid settling time, and tight thermal uniformity throughout the ramp. This graph shows the temperature measured by probes in 12 wells across a sample block. The traces are nearly indistinguishable due to the tight uniformity.



Excellent uniformity. *IL-1β* plasmid template diluted to 10^5 copies/reaction amplified in the presence of a FAM-labeled detection probe with iQ™ Supermix. Graph shows 384 replicates of 5 μ l reactions. Average quantification cycle (Cq) = 18.11 ± 0.045 . RFU, relative fluorescence units.



Precise target discrimination. One-cycle spacing between Cq values is precisely maintained in a series of twofold dilutions of human genomic DNA from 120 to 15 ng. *IL-1β* target was amplified using a FAM-labeled detection probe with iQ Supermix. Graph shows eight replicates for each dilution with the following average Cq values: 17.47 ± 0.02 , 18.44 ± 0.03 , 19.43 ± 0.02 , 20.44 ± 0.03 . RFU, relative fluorescence units.



Accurate multiplex gene expression at low volumes. Human spleen RNA was transcribed into cDNA using the iScript™ cDNA Synthesis Kit. cDNA (50 ng) was amplified in four replicate 3 μ l reactions using four reporter dyes to monitor fluorescence data from four targets: ■, FAM/actin; ■, Cy5/tubulin; ■, HEX/GAPDH; ■, Texas Red/IL-2. RFU, relative fluorescence units.

INNOVATIVE OPTICAL DESIGN

CFX384 Touch
REAL-TIME PCR
DETECTION SYSTEM

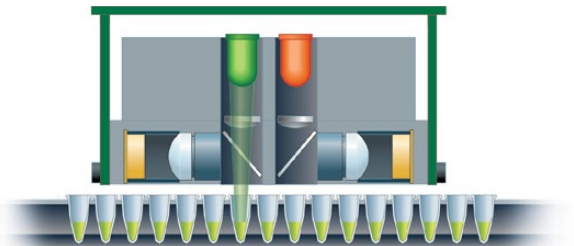
The solid-state optical technology of the CFX384 Touch System provides sensitive detection for precise quantification and target discrimination. Scanning just above the sample plate, the optics shuttle individually illuminates and detects fluorescence from each well with high sensitivity and no cross talk.

Four-Target Multiplexing

The CFX384 Touch System can discriminate up to four targets in a single reaction well. The optical filter sets are designed to maximize fluorescence detection for specific dyes in specific channels. At every position and with every scan, the optics shuttle is reproducibly centered above each well, so the light path is always fixed and optimal, and there is no need to sacrifice data collection in one of the channels to normalize to a passive reference.

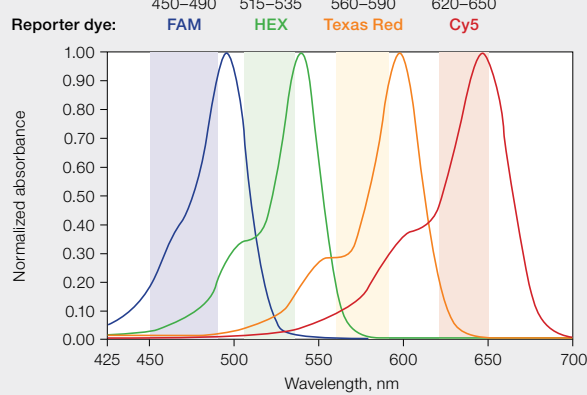
Multiple Data Acquisition Modes

The CFX384 Touch System can acquire data using several modes. Choose to acquire data for SYBR® Green I, EvaGreen, and single-color FAM protocols using the fast scan mode, or choose to acquire data from all channels when performing multiplex protocols. The CFX384 Touch System includes one channel with an LED-filter photodiode combination designated for single-color fluorescence resonance energy transfer (FRET) experiments, further expanding your experimental options.

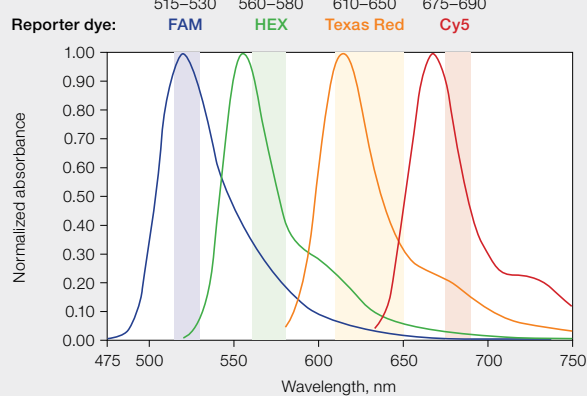


As the optics shuttle of the CFX384 Touch System travels across the plate, light is focused directly into the center of each sample well. Side view of the optics shuttle shows the green LED firing over a well.

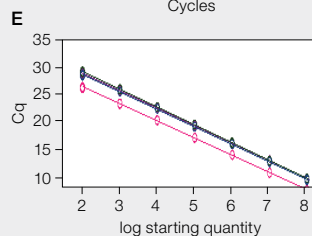
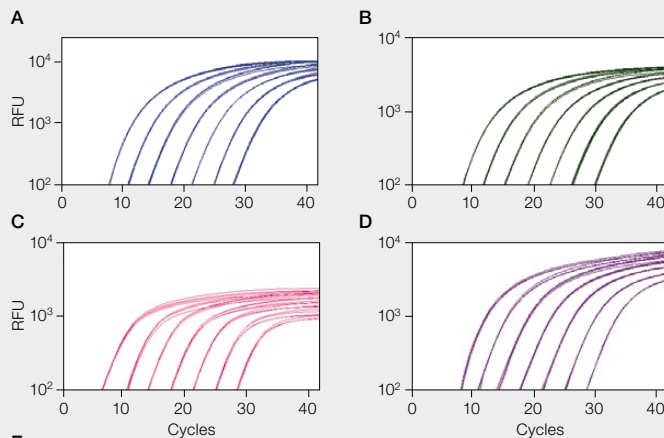
Excitation



Detection



Discrete excitation and detection wavelengths for the CFX384 Touch System enable thorough data discrimination.



Confidently analyze data from a broad range of sample concentrations even when multiplexing four targets. A–D, fluorescence data from a series of tenfold dilutions of plasmid DNA (10^3 – 10^2 copies) amplified using reporter dyes to monitor four targets: ■, FAM/actin; ■, HEX/GAPDH; ■, Texas Red/cyclophilin; ■, Cy5/tubulin; E, standard curves generated from data in A–D, reaction efficiencies range from 98 to 103%. Cq, quantification cycle; RFU, relative fluorescence units.

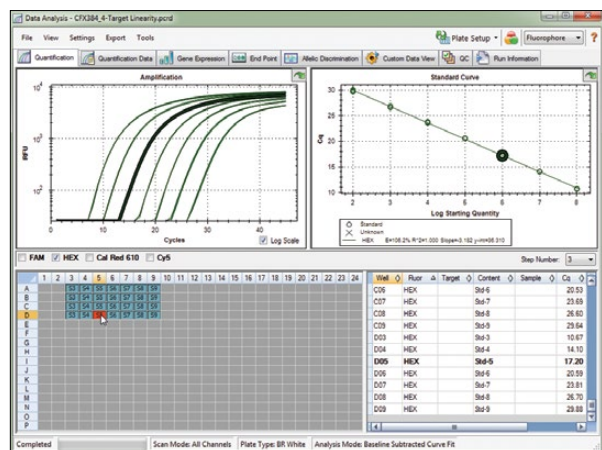
POWERFUL SOFTWARE

CFX Manager™ Software

CFX Manager Software accommodates individual user needs and different types of experiments with intuitive navigation and customizable settings.

With CFX Manager Software you can:

- **Get started quickly** — use intuitive navigation, a new Startup Wizard, and a streamlined interface
- **Stay organized** — reserve multiple instruments using the Scheduler and rapidly set up reactions with the Master Mix Calculator
- **Analyze results when and where you want** — receive email notification with an attached data file when a run is finished
- **Make decisions about your data faster** — visualize all of your run's data easily with Custom Data View
- **Extract more meaningful information from your run** — analyze data using bar chart, clustergram, scatter plot, volcano plot, or heat map analysis employing multiple reference genes and individual reaction efficiencies
- **Export only the data you want** — specify what to export and the preferred format with Custom Data Export



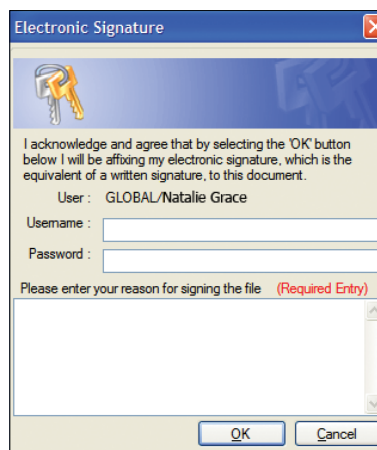
Easily identify specific samples using the multipane data highlighting feature.

The Security You Need

The Security Edition of CFX Manager Software integrates the power of the CFX384 Touch Real-Time PCR Detection System with good laboratory practice standards for data collection and analysis.

Have confidence in the security of your data:

- **Mandatory password-protected log-in** — valid Windows 7 or Windows 8 user name and password are required
- **Hardware protection key (HASP HL key)** — key must be attached to a USB port on the computer to use the software
- **File encryption** — files cannot be opened or edited using other programs
- **Automatic file checking** — integrity and validity are checked each time a file is opened
- **Electronic signatures** — more than one electronic signature can be applied to any file that can be opened within the software
- **Time- and date-stamped audit trails** — read-only information displayed in the audit trail can be viewed only while the data file of interest is open



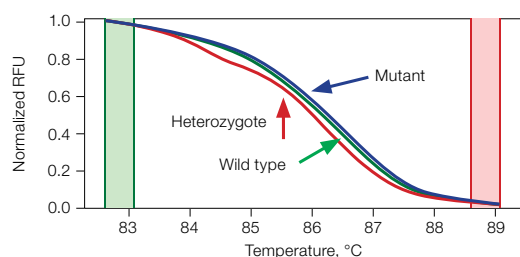
Reliably track data files using electronic signatures.

EXPANDED CAPABILITIES

CFX384 Touch
REAL-TIME PCR
DETECTION SYSTEM

Precision Melt Analysis™ Software

Precision Melt Analysis Software imports and analyzes data files generated by the CFX96 Touch™, CFX Connect™, or CFX384 Touch Real-Time PCR Detection System to genotype samples based on their DNA thermal denaturation properties. The software can be used for a variety of applications, including scanning for new gene variants, screening DNA samples for single nucleotide polymorphisms (SNPs), identifying insertions/deletions or other unknown mutations, and determining the percentage of methylated DNA in unknown samples.



Quickly and accurately genotype samples using Precision Melt Analysis Software. Discrimination of human hemochromatosis S65C SNP genotypes (A to T substitution). Data from homozygous wild type (■), mutant (■), and heterozygote (■) samples are shown on a normalized melt curve plot. RFU, relative fluorescence units.

qbase+ Software

qbase+ Software is a powerful tool that imports and analyzes data generated by the CFX96 Touch, CFX Connect, or CFX384 Touch System. This platform-independent software package is available for major computer operating systems such as Microsoft Windows, Macintosh, and Linux.

Key features of qbase+ Software:

- **Reliable validation** — based on proven solutions for quality control, normalization, and inter-run calibration
- **Efficient data analysis** — import and consolidate information from multiple runs and multiple instruments to quickly analyze your complete data set, and use a guided statistical wizard to determine significance
- **Streamlined publication submission** — export an RDML file containing annotations, such as sample and assay information, to conform to the minimum information for publication of quantitative real-time PCR experiments (MIQE) guidelines

Expanding Your Throughput

CFX Manager Software can independently run up to four instruments. You can easily maximize your work efficiency by integrating one or two CFX Systems with the CFX Automation System II. This automated plate handler comes with an easy-to-use software package that makes running and analyzing large-volume experiments simple.



CFX Automation System II

Consumables That Provide Optimal Performance

Optimal real-time PCR results rely on the synergy of all the products, so Bio-Rad created optimized components for each step of your experiment. The advanced formulation of Bio-Rad's reverse transcription kits ensures ultrasensitive and highly unbiased cDNA synthesis. Our patented* Sso7d fusion DNA polymerase provides superior performance with complex samples and difficult-to-amplify targets. PrimePCR™ Assays are expertly designed and wet-lab validated for proven performance. Each assay for the human, mouse, and rat genomes was experimentally tested for optimal efficiency, specificity, sensitivity, and linear dynamic range. Plastics are manufactured for optimal fit and cycling performance and warp-free Hard-Shell® Plates are ideal for automation.

Together, these products provide unmatched real-time PCR results. What will you discover when you can see details you could not before?

* U.S. patents 6,627,424; 7,541,170; and 7,560,260.



Specifications

Thermal Cycler	
Chassis	C1000 Touch
Maximum ramp rate	2.5°C/sec
Average ramp rate	2°C/sec
Heating and cooling method	Peltier
Lid	Heats up to 105°C
Temperature	
Range	0–100°C
Accuracy	±0.2°C of programmed target at 90°C
Uniformity	±0.4°C well-to-well within 10 sec of arrival at 90°C
Gradient	
Operational range	30–100°C
Programmable span	1–24°C
Optical Detection	
Excitation	5 filtered LEDs
Detection	5 filtered photodiodes
Range of excitation/emission wavelengths	450–690 nm
Sensitivity	Detects 1 copy of target sequence in human genomic DNA
Dynamic range	10 orders of magnitude
Scan time	
All channels	<20 sec
Single channel fast scan	8 sec
CFX Manager Software	
Operating systems	Windows 7, Windows 8
Memory	Minimum 1 GB
Multiplex analysis	Up to 4 targets per well
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, clustergram, scatter plot, volcano plot, and heat map Multiple file gene expression analysis for comparison of an unlimited number of Cq values Allelic discrimination End-point analysis
Data export	Save, copy, and print all graphs and spreadsheets from right-click menu Export specified data in multiple formats Copy and paste into Microsoft Excel, Word, or PowerPoint file Customizable reports containing run settings, data graphs, and spreadsheets can be directly printed or saved as PDFs
System	
Licensed for real-time PCR	Yes
Sample capacity	384 wells
Sample size	1–30 μ l (5–20 μ l recommended)
Communications	USB 2.0
Electrical approvals	IEC, CE
Dimensions (W x D x H)	33 x 46 x 36 cm (13 x 18 x 14 in.)
Weight	21 kg (47 lb)

Ordering Information

Catalog #	Description
184-1100	C1000 Touch Thermal Cycler Chassis , includes USB flash drive, power cord; does not include reaction module
184-5385	CFX384™ Optical Reaction Module , for use with C1000 Touch Thermal Cycler Chassis, includes CFX Manager Software, license for qbase+ Software, communication cable
185-5484	CFX384 Touch Real-Time PCR Detection System , includes C1000 Touch Thermal Cycler Chassis, CFX384 Optical Reaction Module, CFX Manager Software, license for qbase+ Software, communication cable, reagents, consumables
185-5485	CFX384 Touch Real-Time PCR Detection System , includes C1000 Touch Thermal Cycler Chassis, CFX384 Optical Reaction Module, CFX Manager Software, license for qbase+ Software, communication cable
184-5001	CFX Manager Software, Security Edition , includes 1 user license, installation CD, HASP HL key
184-5025	Precision Melt Analysis Software , includes 2 user licenses, installation CD, 2 HASP HL keys, melt calibration kit
184-5075	CFX Automation System II , includes plate handler and barcode scanner, mounting plate, automation software
181-4000	PX1™ PCR Plate Sealer , includes heat sealing instrument
181-4030	Optically Clear Heat Seal , for use with PX1 PCR Plate Sealer, 100
MSB-1001	Microseal® 'B' Adhesive Seals , optically clear, 100
HSP-3805	Hard-Shell 384-Well Standard PCR Plates , white well, clear shell, 50
HSP-3905	Hard-Shell 384-Well Standard PCR Plates , white well, clear shell, barcoded, 50
170-8840	iScript Reverse Transcription Supermix for RT-qPCR , 25 x 20 μ l reactions, includes 100 μ l 5x iScript RT Supermix, iScript RT Supermix No-RT Control
172-5037	iScript Advanced cDNA Synthesis Kit for RT-qPCR , 25 x 20 μ l reactions, includes 100 μ l 5x iScript Advanced Reaction Mix, 25 μ l iScript Advanced Reverse Transcriptase
172-5270	SsoAdvanced™ Universal SYBR® Green Supermix , 2 ml (2 x 1 ml vials), 200 x 20 μ l reactions, 2x qPCR mix, contains Sso7d fusion polymerase, ROX Normalization Dyes
172-5280	SsoAdvanced Universal Probes Supermix , 2 ml (2 x 1 ml vials), 200 x 20 μ l reactions, 2x qPCR mix, contains Sso7d fusion polymerase, ROX Normalization Dyes
172-5160	SsoAdvanced PreAmp Supermix , 1.25 ml (1 x 1.25 ml vial), 50 x 50 μ l reactions, 2x PreAmp Mix, contains dNTPs, Sso7d fusion polymerase, salts, enhancers, stabilizers, other proprietary components
172-5095	SingleShot™ SYBR® Green One-Step Kit , 100 x 50 μ l reactions, includes SingleShot Cell Lysis Reagents, iTaq™ Universal SYBR® Green One-Step Kit, SingleShot RNA Control

Visit bio-rad.com/web/CFX384TouchMore for more information.

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Bio-Rad's real-time thermal cyclers are covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 6,767,512 and 7,074,367.

The use of iQ and SsoAdvanced Supermixes is covered by one or more of the following U.S. patents and corresponding patent claims outside the U.S.: 5,804,375; 5,538,848; 5,723,591; 5,876,930; 5,994,056; 6,030,787; 6,171,785; and 6,258,569. The purchase of these products includes a limited, non-transferable immunity from suit under the foregoing patent claims for using only this amount of product for the purchaser's own internal research. No right under any other patent claim and no right to perform commercial services of any kind, including without limitation reporting the results of purchaser's activities for a fee or other commercial consideration, are conveyed expressly, by implication, or by estoppel. These products are for research use only. Diagnostic uses under Roche patents require a separate license from Roche. Further information on purchasing licenses may be obtained from the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

Hard-Shell Plates are covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 7,347,977; 6,340,589; and 6,528,302.



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