QIAxcel — Pure Excellence

QIAGEN®

Sample & Assay Technologies

The QIAxcel system — for effortless DNA fragment and RNA analysis

Perform DNA fragment analysis in as little as ten minutes for twelve samples — with no need for tedious agarose gel preparation. The revolutionary QIAxcel system (Figure 1) replaces traditional, labor-intensive gel analysis of DNA and RNA — streamlining your workflow and reducing time to result. The QIAxcel system fully automates sensitive, high-resolution capillary electrophoresis for up to 96 samples per run. Ready-to-run gel cartridges (Figure 2) allow 96 samples to be prepared with a minimum of hands-on interaction, reducing manual handling errors and eliminating the need for tedious gel preparation.

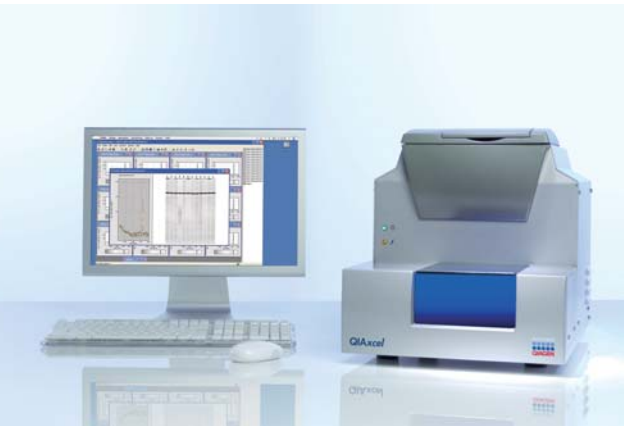

Figure 1. QIAxcel analyzer.

The QIAxcel system provides:

- Safety and convenience with ready-to-use gel cartridges
- Analysis of up to 96 samples without manual intervention
- Robust results for nucleic acid concentrations as low as 0.1 ng/µl
- Confident data interpretation with a resolution down to 3–5 bp
- Standardized processing with digital data collection

Table 1. QIAxcel Kits for high-resolution capillary electrophoresis

Application	Resolution	QIAGEN kit
DNA		
15 bp – 5 kb	3–5 bp for fragments <500 bp	QIAxcel DNA High Resolution Kit (1200)
15 bp – 5 kb	20–50 bp for fragments <1 kb	QIAxcel DNA Screening Kit (2400)
15 bp – 10 kb	200–500 bp for fragments 1–10 kb	QIAxcel DNA Large Fragment Kit (600)
RNA		QIAxcel RNA Quality Control kit (1200)

Figure 2. QIAxcel Gel Cartridges.

Overcome gel-electrophoresis bottlenecks

The QIAxcel system consists of the QIAxcel analyzer, a novel multiplexed fluorescence detection design including an array of light-emitting diodes and micro-optical collectors (Figure 2), the QIAxcel Gel Cartridges, the BioCalculator software, and a computer. The ready-to-run gel cartridges contain 12 separation micro-channels with a built-in gel matrix for fast, high-resolution analysis of up to 96 samples in parallel. Hands-free sample loading and self-contained components minimize exposure to hazardous chemicals such as ethidium bromide. The high detection sensitivity provided by the QIAxcel analyzer enables robust results even with low concentrations of nucleic acid. With a resolution of 3–5 bp for fragments smaller than 0.5 kb, the QIAxcel analyzer ensures greater accuracy than slab-gel methods as well as greater confidence in data interpretation. Sample consumption is less than 0.1 µl per analysis, saving your precious sample for further downstream analysis.

The QIAxcel system not only speeds up your DNA and RNA analysis applications by eliminating slab-gel analysis but also contributes to streamlining your entire sample purification and analysis workflow (Figure 3).

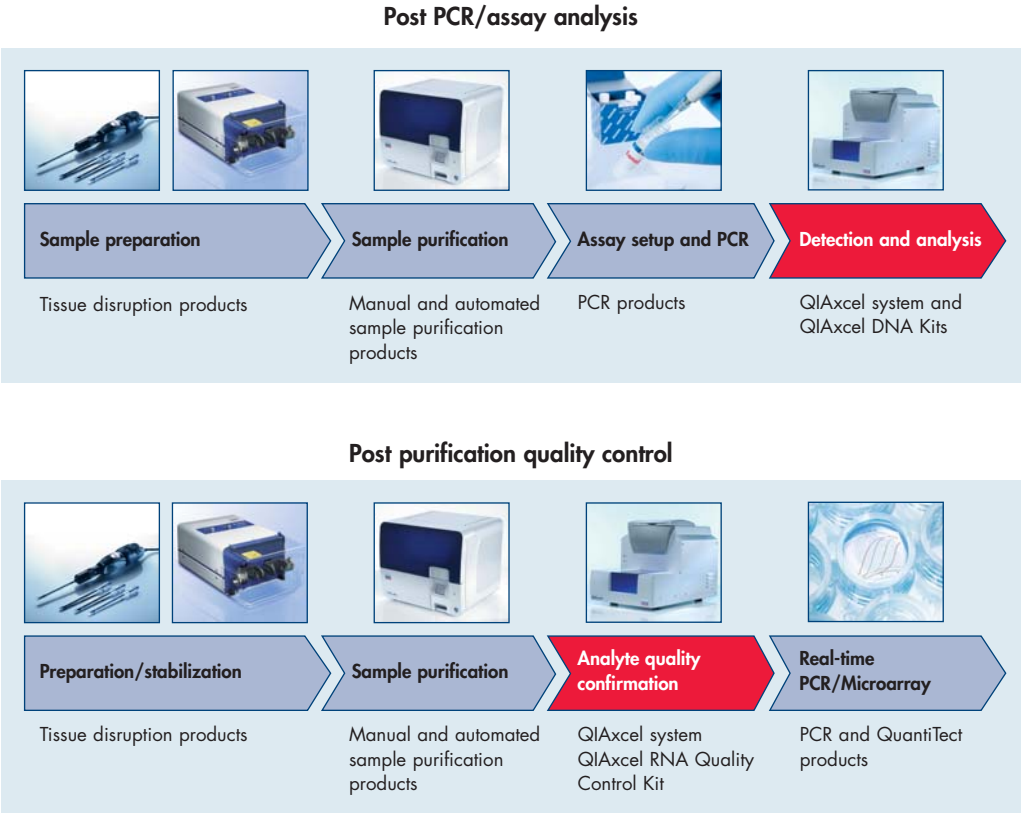

Figure 3. Streamline your workflow.

A versatile solution for your electrophoresis

The QIAxcel system offers a broad range of optimized applications and is highly suited for research in academic as well as pharmaceutical, biotechnology, and biomedical laboratories. Preprogrammed methods, in combination with the corresponding gel cartridges, allow separation and analysis of a variety of nucleic acids, including single or multiple PCR fragments, DNA digested with restriction endonucleases, synthesized oligonucleotides, total RNA, and cRNA.

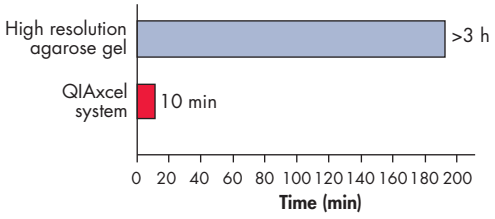

Figure 4. Reduced run times. Nucleic acid separation on the QIAxcel system takes less than 10% of the time on conventional high-resolution agarose.

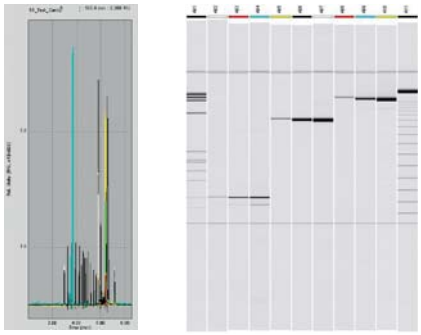

Figure 5. Electropherogram and gel image example.

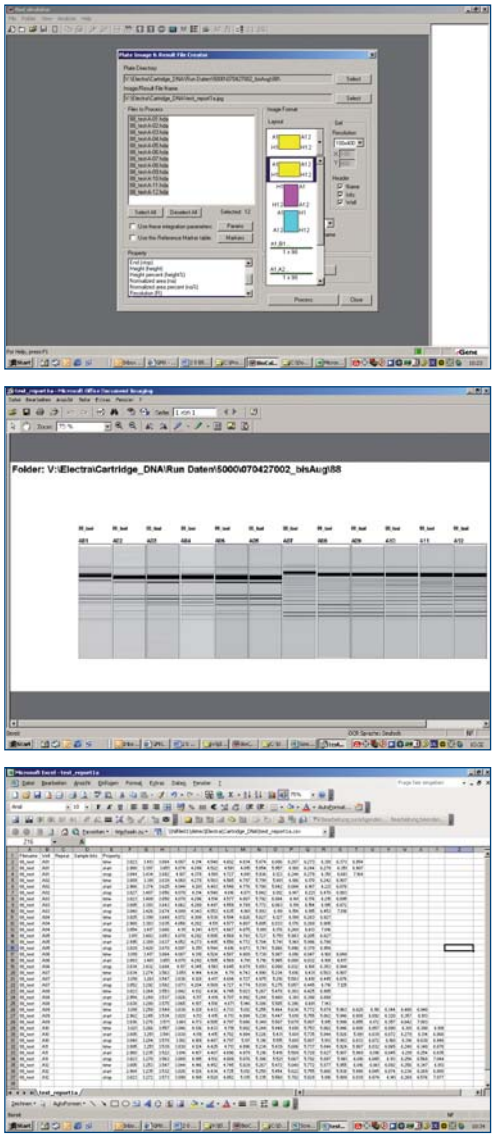

Figure 6. Easy data export. The user-friendly BioCalculator software provides a variety of functions and options allowing data to be saved and exported in a range of formats.

Taking ease of use to a new level

Just a few, simple steps are performed to operate the QIAxcel system: load the gel cartridge of your choice, fill and load buffer tray, and load your samples in 96-well plates or in PCR tube or strips, select the separation method to be used — and go! Tedious gel preparation and extensive user training is eliminated, streamlining the workflow in your lab and facilitating integration of the system in your daily routine (Figure 4). Within minutes of starting a run, you can watch the first results appearing in real-time on the computer screen (Figure 5).

Convenient data analysis and storage

The BioCalculator software, provided with the QIAxcel system, is a powerful and user-friendly tool designed to support data collection and analysis. Data can be viewed in both electropherogram and gel image formats. Interactive tools simplify analysis and facilitate quick data interpretation. Results can be viewed individually or overlay views can be created for sample and data comparison. All-in-one analysis for multiple data sets simplifies evaluation and a unique algorithm calculates and generates a tabular display of a variety of peak properties, including number of peaks as well as the height, width, and area of each peak. Comprehensive data reports can be easily generated and saved or exported to meet your documentation needs (Figure 6).

Bringing you peace of mind

QIAGEN offers unrivaled instrument support and assures continued success with your QIAxcel system. You benefit from comprehensive instrument service that fully covers costs for labor, travel, and repair parts during the warranty period. We also offer Warranty PLUS extended warranties, giving you complete cost control and enhanced coverage through priority response time.

Unmatched speed of analysis

The QIAxcel DNA Screening Kit is the ideal solution for routine evaluation of fragments for restriction endonuclease digestion, qualitative single or multiplex PCR, and other DNA applications. The use of the gel cartridges for DNA screening streamlines the workflow in your lab by minimizing analysis time for fragments of 15 bp to 5 kb in size — 96 samples are processed in approximately 1 hour (Figure 7). A resolution of 20–50 bp can be obtained for fragments smaller than 1 kb. Sample consumption is less than 0.1 µl, leaving you virtually all your precious sample for further downstream use.

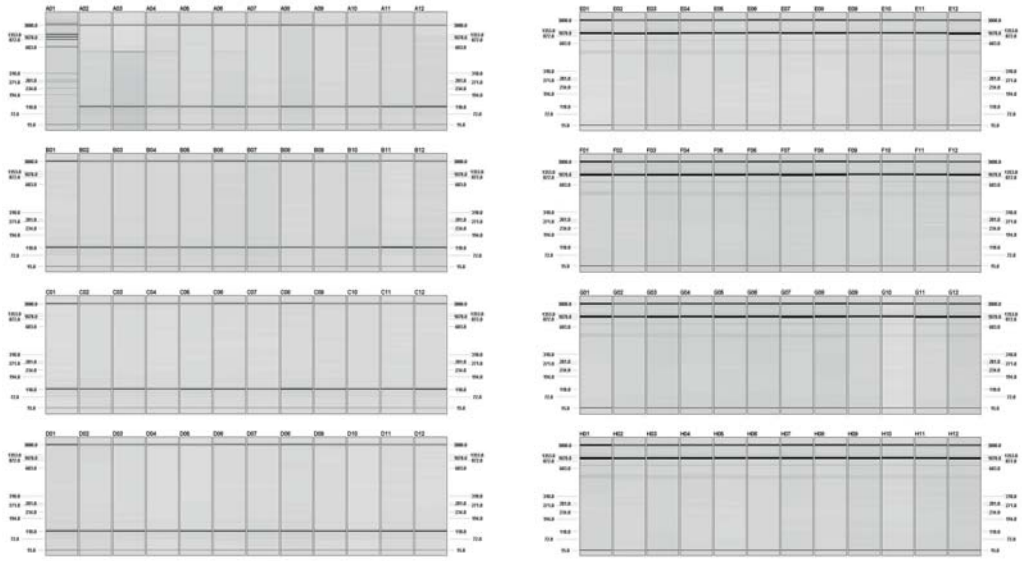

Figure 7. Screenshot showing data from 96 DNA samples. PCR products (120 bp and 1000 bp [47 of each]) obtained using the *Taq* PCR Core Kit and 10 ng DNA template were directly analyzed using the QIAxcel system without prior purification.

High-resolution DNA fragment analysis

Genotyping organisms, PCR-based cDNA library screening, and many other biomedical research and molecular biology applications require discrimination of PCR fragments that vary in size by a small number of base pairs. The QIAxcel high-resolution gel cartridge in combination with the QIAxcel system allows analysis of DNA fragments between 15 bp and 5 kb in size (Figure 8). Fragments smaller than 500 bp can be separated with a resolution of 3–5 bp, providing greater confidence in data interpretation than is possible with conventional high-resolution agarose gel electrophoresis. At a detection sensitivity of 0.1 ng/µl DNA in undiluted amplification reactions, the QIAxcel system offers more robust results with less sample input material.

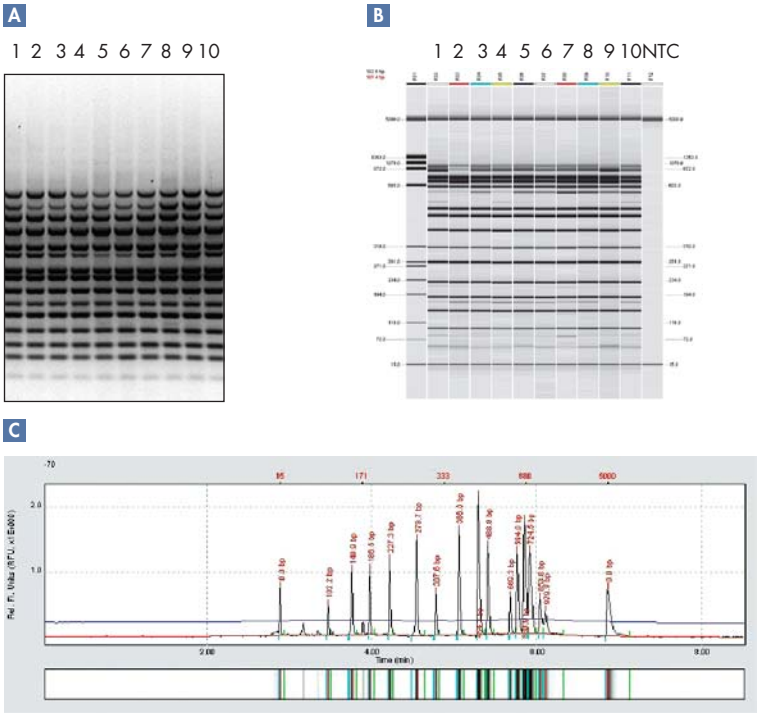

Figure 8. Easy and high resolution analysis of multiplex PCR samples. PCR products were generated using the QIAGEN Multiplex PCR Kit according to the standard protocol. PCR samples (13 µl) were analyzed A on a 2% agarose gel and B and C using the QIAxcel system with the QIAxcel DNA High Resolution Cartridge and the preinstalled OM500 method. B The gel image produced by the QIAxcel system shows much higher resolution than the standard agarose gel technique. C Each sample lane can be visualized individually in electropherogram form. Lane 7 is shown.

Separation of large fragments

The QIAxcel Large Fragment Kit is ideally suited to applications that require analysis of large (up to 10 kb) fragments, such as control of plasmid restriction digests, and deletion screening of inserts (Figure 9).

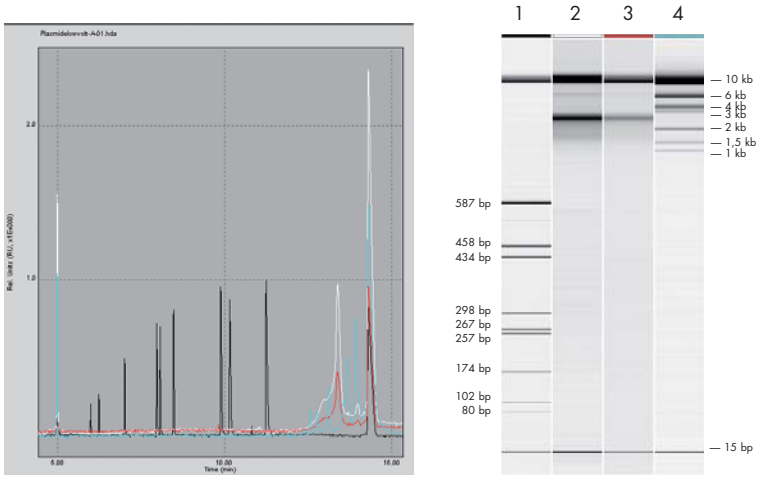

Figure 9. Gel image of large fragments. Plasmid vector purified using the QIAprep® Spin Miniprep Kit (lanes 2 and 3) was analyzed using the QIAxcel system. **Lane 1**: 10 ng/µl pUC18/HaeIII ladder; **Lane 2**: 20 ng/µl pUC19; **Lane 3**: 15 ng/µl pUC19; **Lane 4**: high-molecular-weight ladder.

Quantitative and qualitative RNA analysis

The accuracy of highly sensitive gene expression analysis technologies that involve multi-step procedures, such as microarray, is highly dependent on the quality of the sample RNA, as any inconsistencies in sample preparation will be amplified in subsequent steps. Therefore, determining the quality and quantity of total RNA is essential for success with these experiments.

The QIAxcel RNA Quality Control Kit provides fast and sensitive analysis of the quality and quantity of total RNA (Figure 10), single-stranded cDNA, or fragmented or intact cRNA. Denatured samples can be used directly for QIAxcel analysis. Automated sample loading and analysis reduce manual handling of samples, minimizing the risk of RNA degradation and contamination. The system can detect as little as 5 ng/µl of diluted total RNA (10 ng/µl in original RNA eluate) and 10 ng/µl of cRNA or single-stranded cDNA.

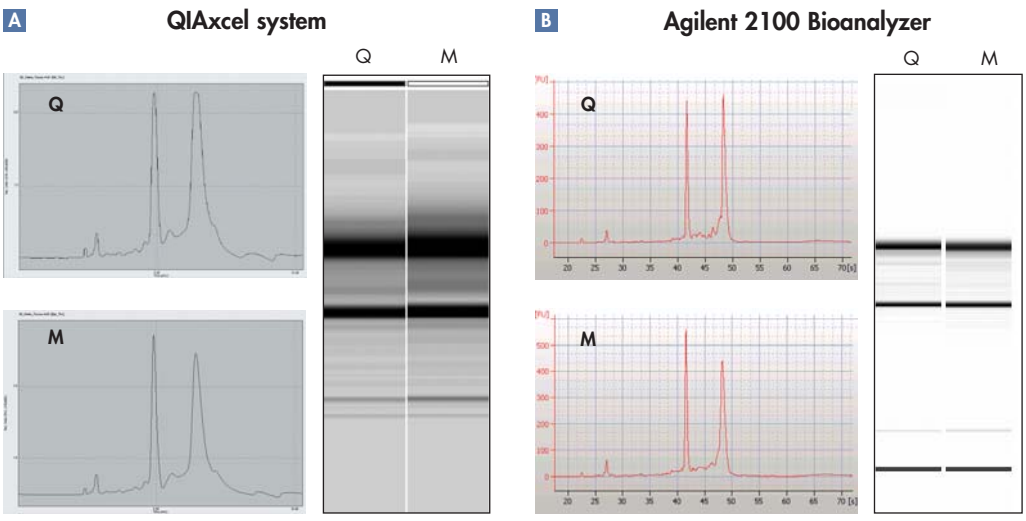

Figure 10. Highest data resolution using the QIAxcel system. Total RNA was purified from 15 mg RNA*later* stabilized thymus tissue using the RNeasy Mini Kit on the QIAcube (**Q**) or manually (**M**). Purified RNA was eluted in 50 µl RNase-free water and eluates were analyzed on **A** the QIAxcel system and **B** the Agilent® 2100 Bioanalyzer.

The throughput capacity of the QIAxcel system makes it highly suited for laboratories employing 96-well RNA purification technologies that need a fast solution for quality control. Unlike other commercially available devices that provide processing of only up to 12 samples at time, the QIAxcel system allows processing of all 96 samples in a single run.

Ordering Information

Product	Contents	Cat. no.
QIAxcel System	Capillary electrophoresis device, including computer, and BioCalculator Analysis software; 1-year warranty on parts and labor	9001421
Warranty PLUS 2 Basic, QIAxcel	3-year warranty, 5-working day response time, all labor, travel, and repair parts	9241202
Gel cartridge kits		
QIAxcel DNA High Resolution Kit (1200)*	QIAxcel DNA High Resolution Gel Cartridge, Buffers, Mineral Oil, QX Intensity Calibration Marker, 12-Tube Strips	929002
QIAxcel DNA Screening Kit (2400)*	QIAxcel DNA Screening Gel Cartridge, Buffers, Mineral Oil, QX Intensity Calibration Marker, 12-Tube Strips	929004
QIAxcel DNA Large Fragment Kit (600)*	QIAxcel DNA Large Fragment Gel Cartridge, Buffers, Mineral Oil, QX Intensity Calibration Marker, 12-Tube Strips	929006
QIAxcel RNA Quality Control Kit (1200)	QIAxcel RNA Quality Control Gel Cartridge, Buffers, Mineral Oil, QX Intensity Calibration Marker, QX Alignment Marker, 12-Tube Strips	929102
Software		
BioCalculator Software	Separate license for use of BioCalculator software on an additional computer	9018391

* QX DNA Size Markers and QX Alignment Marker are not provided with QIAxcel DNA Kits and need to be ordered separately. For information about markers suitable for your application, visit www.qiagen.com/QIAxcel.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

Discover more about how the QIAxcel system can speed up and increase sensitivity for electrophoresis applications at www.qiagen.com/goto/QIAxcel.

www.qiagen.com

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Canada ▪ Orders 800-572-9613 ▪ Fax 800-713-5951 ▪ Technical 800-DNA-PREP (800-362-7737)

China ▪ Orders 86-21-3865-3865 ▪ Fax 86-21-3865-3965 ▪ Technical 800-988-0325

Denmark ▪ Orders 80-885945 ▪ Fax 80-885944 ▪ Technical 80-885942

Finland ▪ Orders 0800-914416 ▪ Fax 0800-914415 ▪ Technical 0800-914413

France ▪ Orders 01-60-920-920 ▪ Fax 01-60-920-925 ▪ Technical 01-60-920-930

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