QIAxcel —
One Step Electrophoresis System

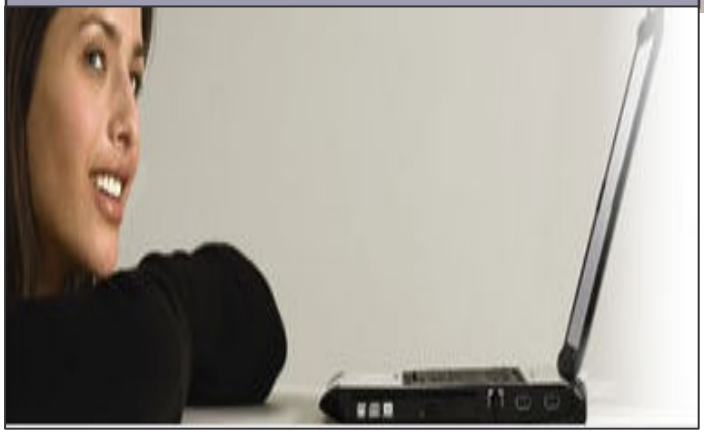
For DNA fragments & RNA analysis

Standardization & Ease Of Use

1970	1975	1980	1985	1990	1995	2000	2005	2010

Computers Yesterday

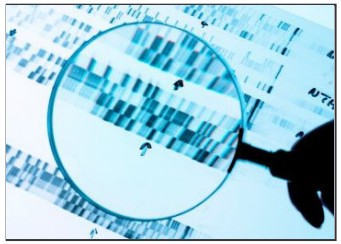
Computers Today



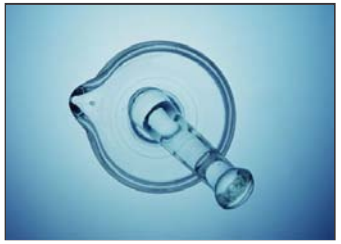
- Highly complex systems
- Restricted access (specialists only)
- High capital investment required
- Narrow application range
- Incompatibility between systems

- Easy to use
- Accessible for everybody
- Affordable products
- Broad application range
- Highly standardized

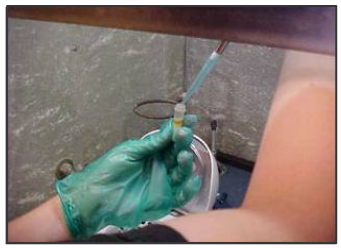
Multiple Examples in the World of Molecular Biology




Radioactive labeling OR automated sequencing?




Mortar and pestle OR TissueRuptor?




Phenol/chloroform OR QIAcube?

?

Agarose gel electrophoresis OR ?

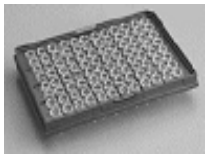
The world of nucleic acid separation will change!

Revolutionizing Current Genetic Analysis Work

One-step into bioinformatics

Bioinformatics

Breaking Barrier



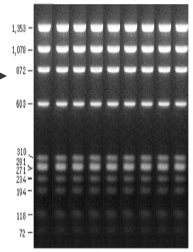
DNA/RNA samples

Manual loading

Electrophoresis

Slab gel preparation

Gel imaging

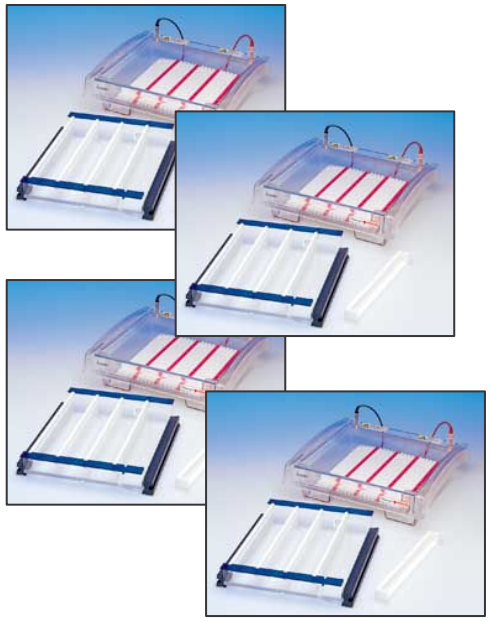


Time & $$$

- Data Presentation
- Data Analysis
- Data Comparison
- Data Storage
- Data Transfer

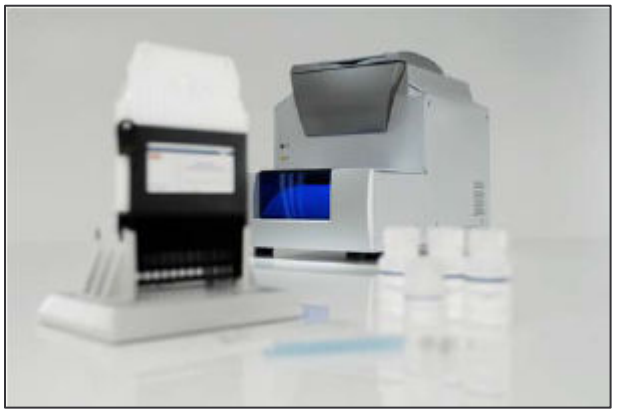
Conventional slab gel method for genetic analysis

QIAxcel Positioning
Understanding potential customer usage



Pathway to Success

- Throughput
- Ease of Use
- Standardization



The Problem:

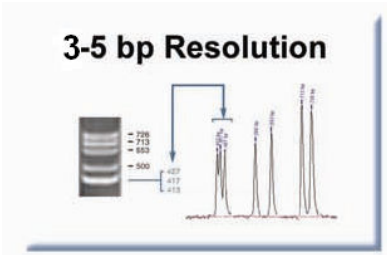
- Agarose gels are low throughput
- Too much hands on time per gel
- Ethidium Bromide handling and waste
- Errors in gel handling and documentation
- No inter-lab standardization

The Solution:

- **QIAxcel**

No More Slab-gel Analysis

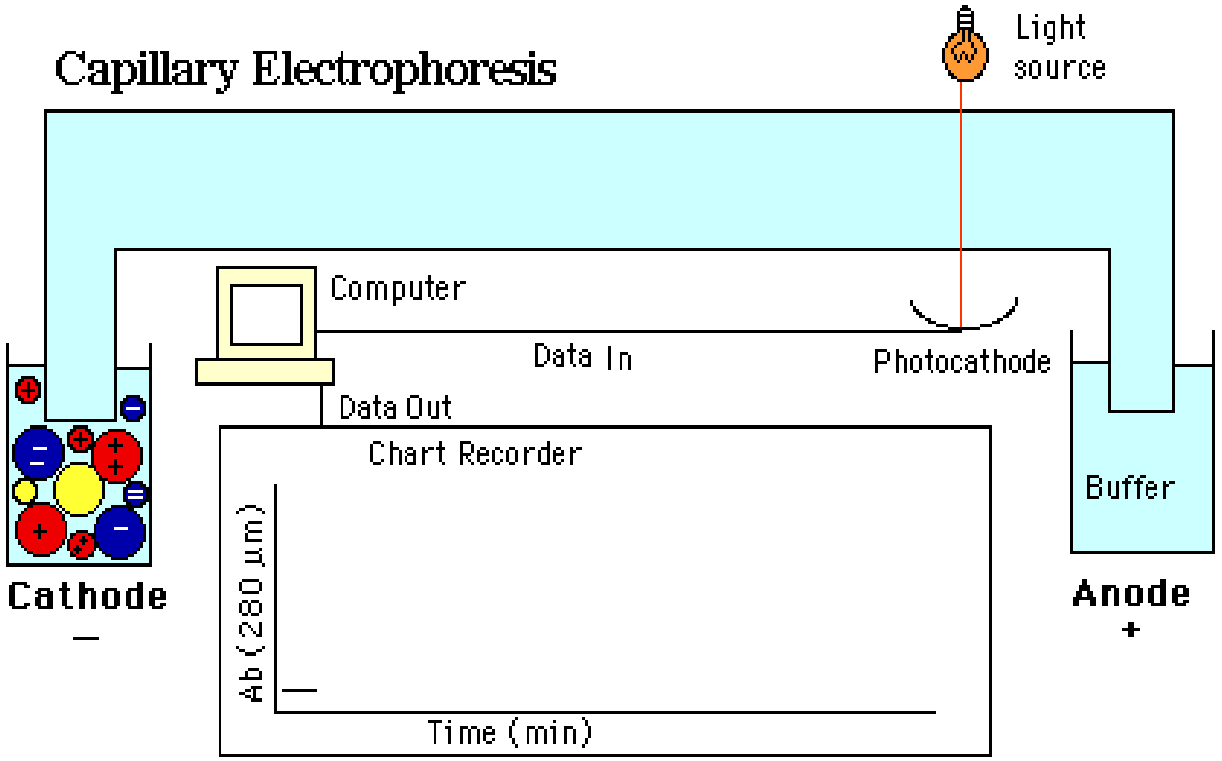
Key features of the QIAxcel system



Key features

1. Fully automated DNA fragment and RNA analysis
2. Ready-to-run gel cartridges
3. Fast processing: 12 samples in 3-10 min.
4. Up to 96 samples per run
5. Sample input amounts < 0.1µl
6. Detection limit of 0.1 ng/µl
7. High resolution of 3-5bp
8. Digital data output

Real-Time Analysis of Capillary Electrophoresis

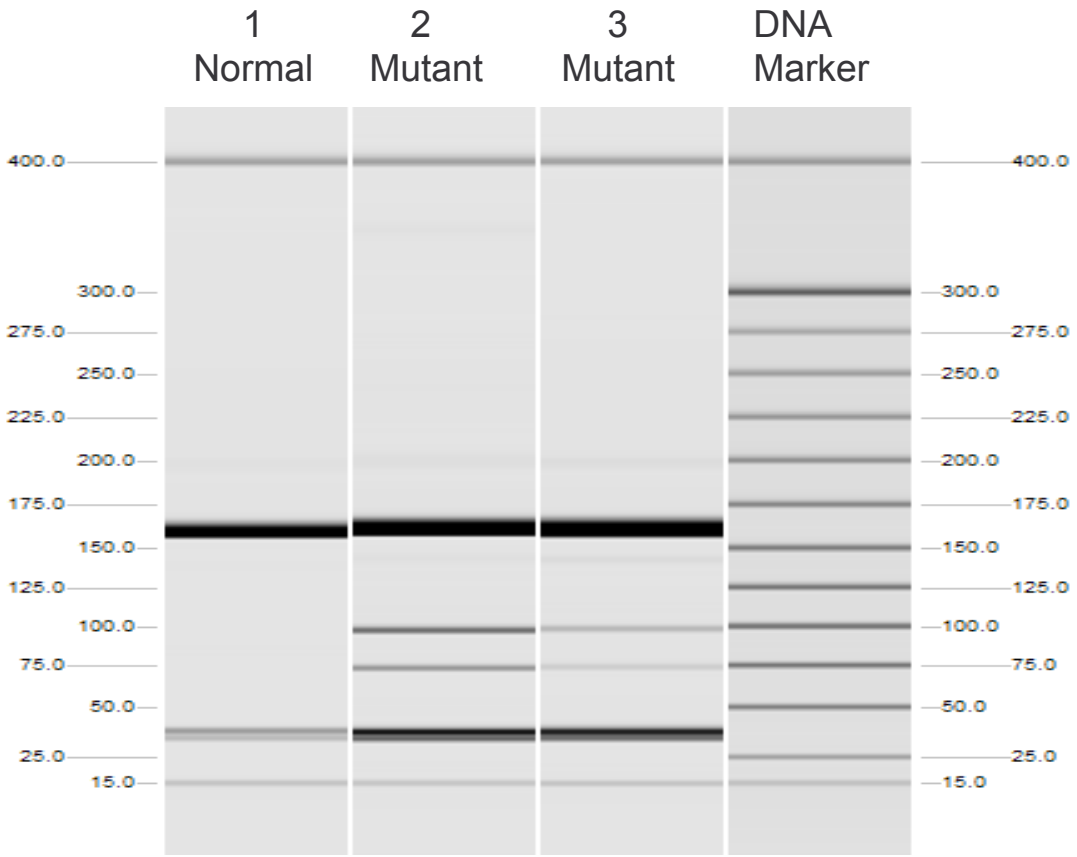


QIAxcel Gel Cartridge
Product Overview

Gel Cartridge Name	Analyte	Size Range	Best Resolution				Run Time*	Example Applications
			100bp - 500bp	500bp - 1kb	1kb - 5kb	5kb - 10kb		
QX DNA High Resolution Cartridge	DNA	15bp-5kb	3-5bp	50bp	200bp-500bp	-	7-12 min	High-resolution genotyping
QX DNA Screening Cartridge	DNA	15bp-5kb	20bp-50bp	50bp-100bp	500bp	-	5 min	Fast PCR screening
QX DNA Large Fragment Cartridge	DNA	15bp-10kb	3-5bp	50bp	100bp	500bp	22 min	Large and long size range
QX RNA Quality Control Cartridge	RNA	200bp-10kb	200b	200b	500b 1kb	1kb	10 min	Checking RNA quality

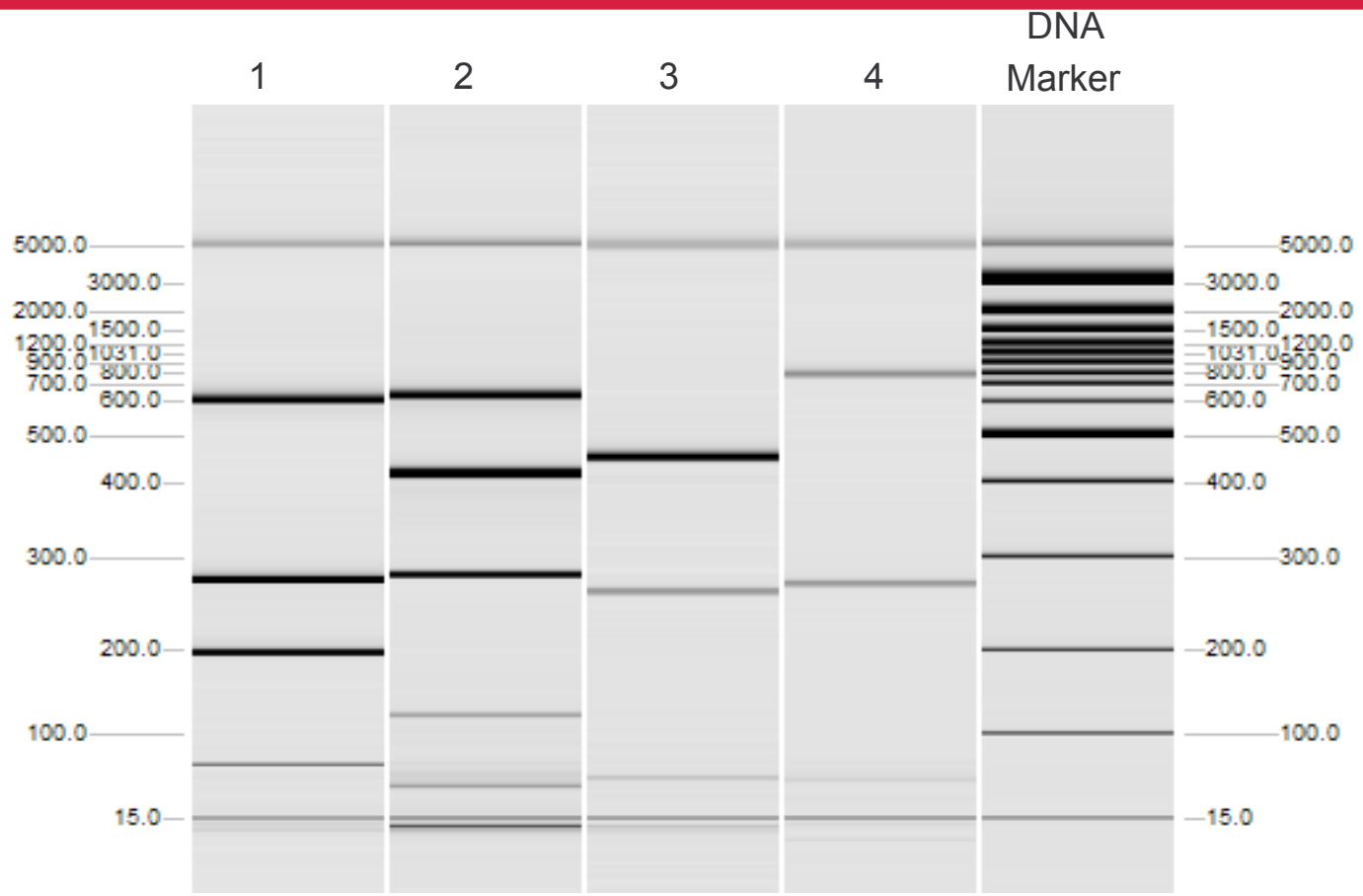
* Run time given for 12 samples; run times will also depend on the software method being chosen to analyze samples

Screening in RFLP (High Resolution Cartridge)



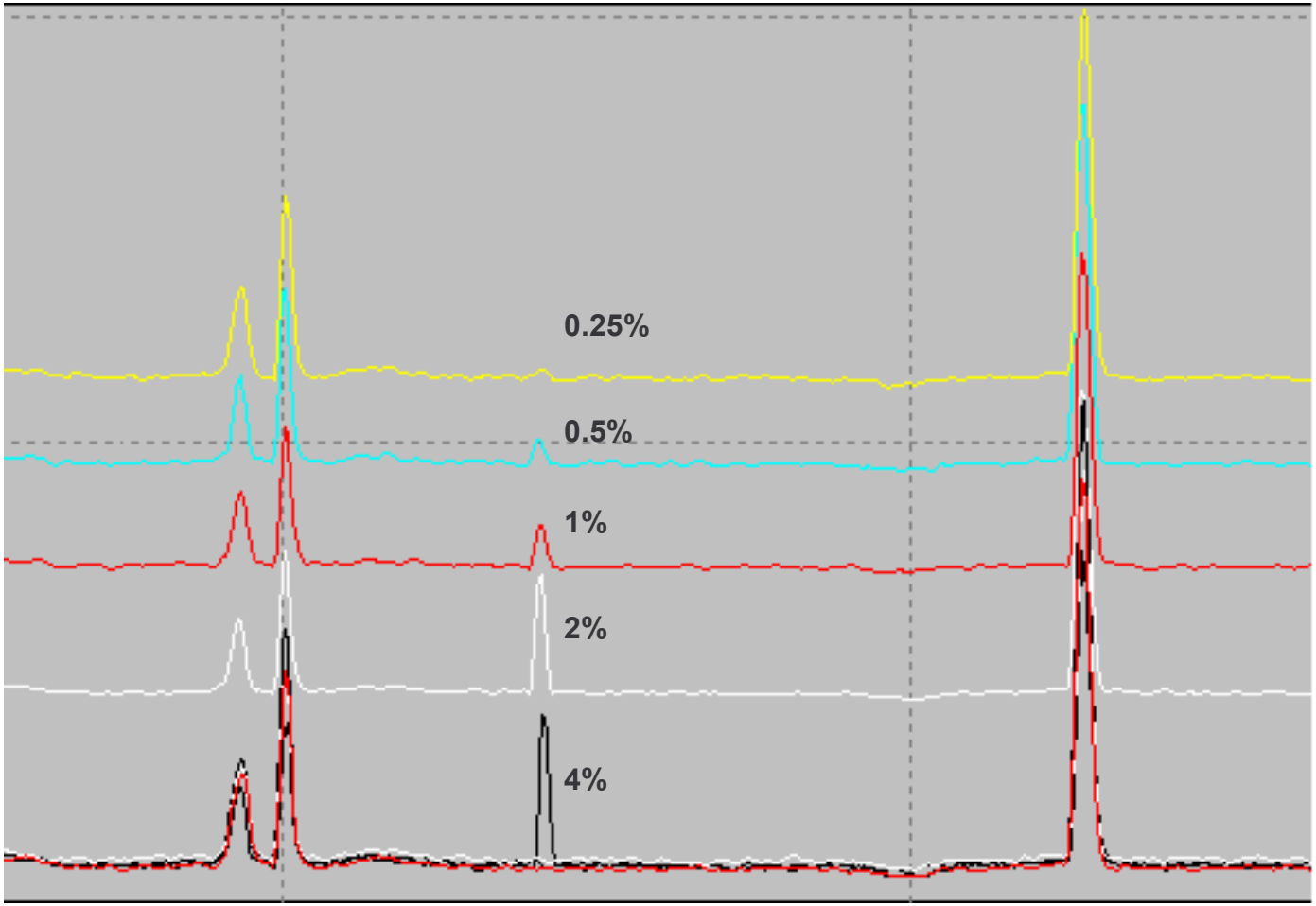
Place purified digested amplified DNA solution (10 µl) in 0.2 ml PCR tube strips into the sample tray. Separate and detect the DNA fragments using GCK-5000 cartridge and 0M330 method (5kV for 330 seconds separation) .

Analysis for Multiplex PCR (DNA Screening Cartridge)



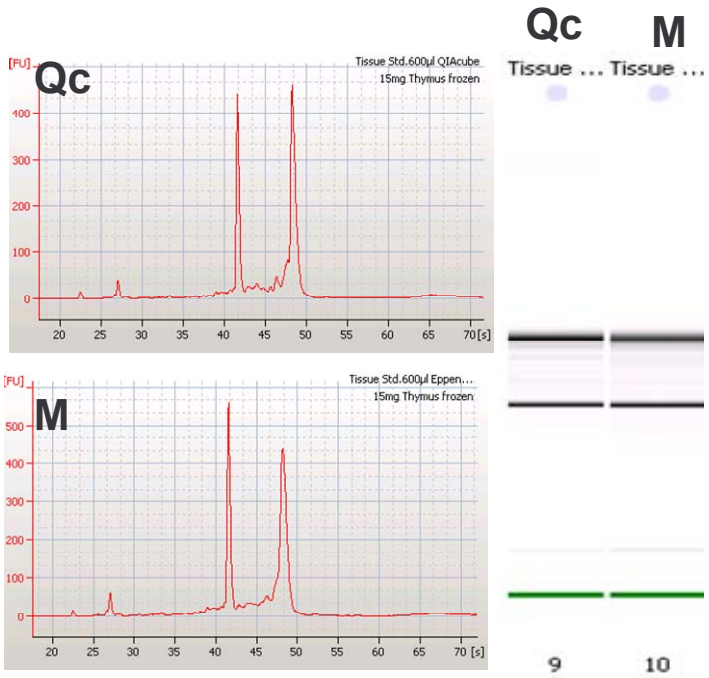
Place amplified DNA solution (10 µl) in 0.2 ml PCR tube strips into the sample tray. Separate and detect the multiplex DNA fragments using GCK-5000 cartridge and 0M400 method.

Detection of GMO below 1% (EU standard) (High Resolution Cartridge)

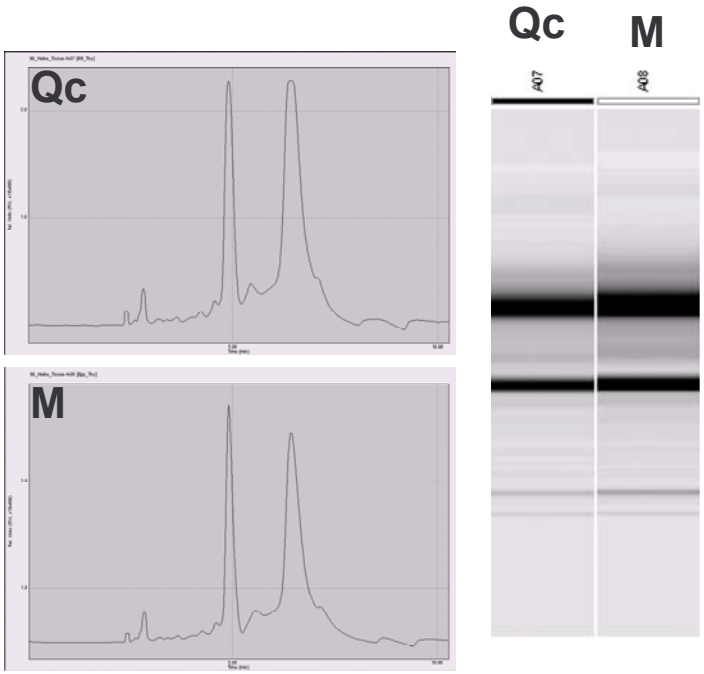


Total RNA Analysis
(QX RNA Quality Control Cartridge)

A

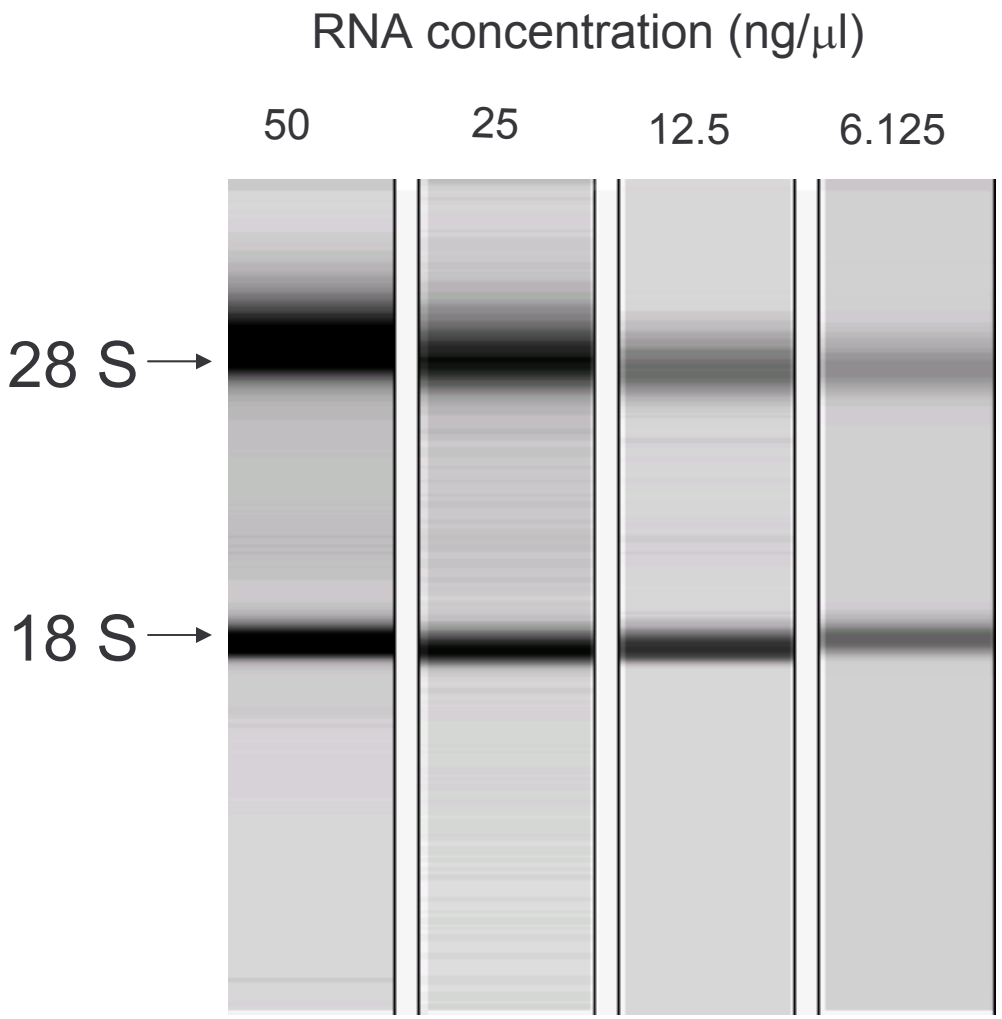


B



Total RNA was purified from 15 mg of thymus stabilized in RNAlater using the RNeasy Mini Kit and the RNeasy Mini Kit (600µl Protocol) on the QIAcube (Qc) or manually (M). 1 µl of eluate was analyzed on the Agilent 2100 Bioanalyzer (A) or on the QIAxcel system (B)

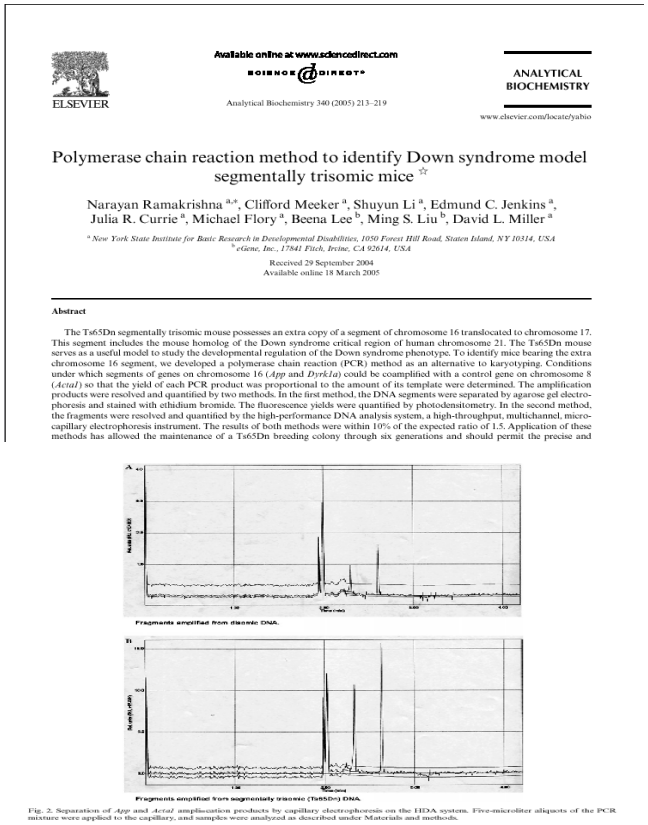
Quantitation of Total RNA
(QX RNA Quality Control Cartridge)



Total automatic analysis time: 10 minutes

Customer Applications: Molecular Diagnosis of Diseases

(Fast & accurate gene dosage measurement)



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Analytical Biochemistry 340 (2005) 213–219
ANALYTICAL BIOCHEMISTRY
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Polymerase chain reaction method to identify Down syndrome model segmentally trisomic mice ☆

Narayan Ramakrishna [a,*], Clifford Meeker [a], Shuyun Li [a], Edmund C. Jenkins [a], Julia R. Currie [a], Michael Flory [a], Beena Lee [b], Ming S. Liu [b], David L. Miller [a]

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Received 29 September 2004
Available online 18 March 2005

Abstract

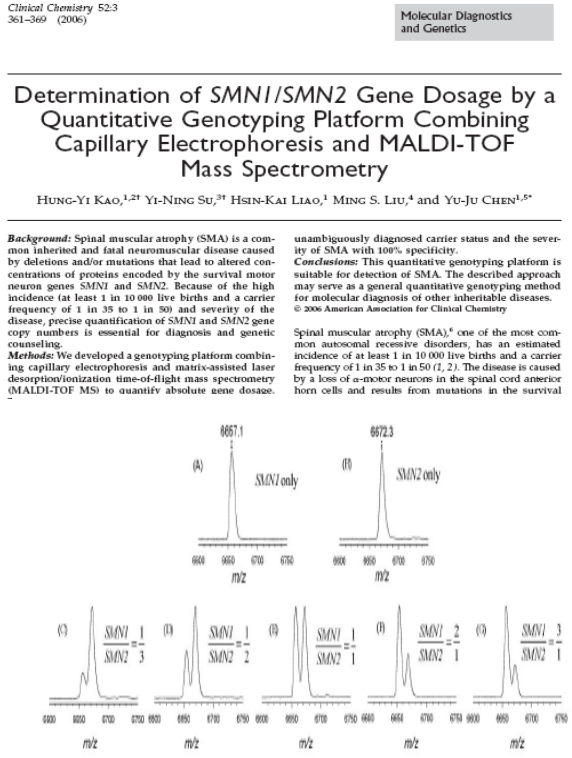
The Ts65Dn segmentally trisomic mouse possesses an extra copy of a segment of chromosome 16 translocated to chromosome 17. This segment includes the mouse homolog of the Down syndrome critical region of human chromosome 21. The Ts65Dn mouse serves as a useful model to study the developmental regulation of the Down syndrome phenotype. To identify mice bearing the extra chromosome 16 segment, we developed a polymerase chain reaction (PCR) method as an alternative to karyotyping. Conditions under which segments of genes on chromosome 16 (*App* and *Dyrk1a*) could be coamplified with a control gene on chromosome 8 (*Actal*) so that the yield of each PCR product was proportional to the amount of its template were determined. The amplification products were resolved and quantified by two methods. In the first method, the DNA segments were separated by agarose gel electrophoresis and stained with ethidium bromide. The fluorescence yields were quantified by photodensitometry. In the second method, the fragments were resolved and quantified by the high-performance DNA analysis system, a high-throughput, multichannel, microcapillary electrophoresis instrument. The results of both methods were within 10% of the expected ratio of 1.5. Application of these methods has allowed the maintenance of a Ts65Dn breeding colony through six generations and should permit the precise and

Fragments amplified from diploid DNA.

Fragments amplified from segmentally trisomic (Ts65Dn) DNA.

Fig. 2. Separation of *App* and *Actal* amplification products by capillary electrophoresis on the HDA system. Five-microliter aliquots of the PCR mixture were applied to the capillary, and samples were analyzed as described under Materials and methods.

Down Syndrome
Analytical Biochemistry 340 (2005) 213-219



Clinical Chemistry 52:3
361–369 (2006)
Molecular Diagnostics and Genetics

Determination of *SMN1*/*SMN2* Gene Dosage by a Quantitative Genotyping Platform Combining Capillary Electrophoresis and MALDI-TOF Mass Spectrometry

Hung-Yi Kao,[1,2†] Yi-Ning Su,[3†] Hsin-Kai Liao,[1] Ming S. Liu,[4] and Yu-Ju Chen[1,5*]

Background: Spinal muscular atrophy (SMA) is a common inherited and fatal neuromuscular disease caused by deletions and/or mutations that lead to altered concentrations of proteins encoded by the survival motor neuron genes *SMN1* and *SMN2*. Because of the high incidence (at least 1 in 10 000 live births and a carrier frequency of 1 in 35 to 1 in 50) and severity of the disease, precise quantification of *SMN1* and *SMN2* gene copy numbers is essential for diagnosis and genetic counseling.
Methods: We developed a genotyping platform combining capillary electrophoresis and matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) to quantify absolute gene dosage.

unambiguously diagnosed carrier status and the severity of SMA with 100% specificity.
Conclusions: This quantitative genotyping platform is suitable for detection of SMA. The described approach may serve as a general quantitative genotyping method for molecular diagnosis of other inheritable diseases.
© 2006 American Association for Clinical Chemistry

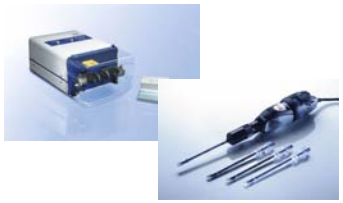
Spinal muscular atrophy (SMA),[6] one of the most common autosomal recessive disorders, has an estimated incidence of at least 1 in 10 000 live births and a carrier frequency of 1 in 35 to 1 in 50 (*1*, *2*). The disease is caused by a loss of α-motor neurons in the spinal cord anterior horn cells and results from mutations in the survival

Spinal Muscular Atrophy (SMA)
Clinical Chemistry 52:3 (2006) 361-369

No More Slab-gel Analysis

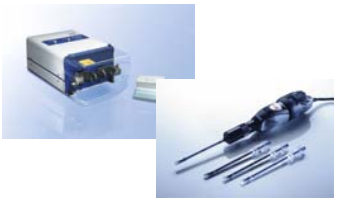
Streamline your workflow

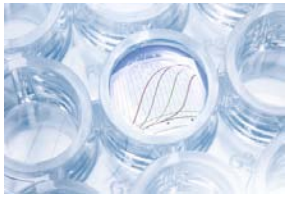
Post PCR Analysis




Sample Preparation	Sample Purification	Assay Setup & PCR	Detection & Analysis
Tissue Disruption Products	Manual and automated sample purification products	PCR Products	QIAxcel System & Gel Cartridges

Post Purification Quality Control



Preparation/Stabilization	Sample Purification	Analyte Quality Conformation	Real Time PCR MicroArray
Tissue Disruption Products	Manual and automated sample purification products	QIAxcel System RNA Gel Cartridge	PCR & Quantitect Products

QIAxcel and QIAGEN PCR Enzymes

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Achieve publication-ready results in no time! Our end-point PCR kits have been functionally validated with the innovative QIAxcel System for effortless fragment analysis, providing a winning combination for PCR and fragment detection.

Benefits of QIAGEN end-point PCR kits:

- Successful and reliable PCR results at the first attempt
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Sample & Assay Technologies

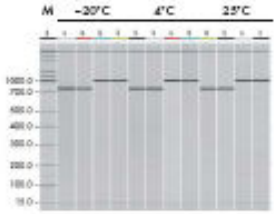

Figure 1. Reliable high-yield PCR independent of storage conditions. PCR was performed using TopTaq Master Mix stored at –20°C, 4°C, and 25°C for 4 months. Two different genes from human genomic DNA (prp, 750 bp in size and Hsg1,1200 bp in size) were amplified according to the standard optimized protocol (duplicates shown). The results show high yields of specific PCR product. Gel image produced by the QIAxcel System. M: QIAPilot 1 kb Plus Marker and QX Alignment Marker 15 bp/10 kb.

Ordering Information

Product	Contents	Cat. No.
QIAGEN Multiplex PCR Kit (100)*	For sensitive multiplex PCR	206143
HotStarTaq® Plus Master Mix Kit (250)*	For specific hot-start PCR	203643
TopTaq™ Master Mix Kit (250)*	For reliable standard PCR	200403
QIAGEN Fast Cycling PCR Kit (200)*	For ultrafast and specific PCR	203743

* Offer is valid until December 31, 2009 and cannot be used in combination with other offers or discounts. Discounts are limited to 3 kits per customer. One-time only offer applies only to products indicated unless stated otherwise. Offer not valid in all countries. May not be combined with any other promotions. Void where prohibited.

The QIAxcel System is intended to be used only in combination with QIAxcel Kits for applications described in the respective QIAxcel Kit handbooks. TopTaq Master Mix Kit is intended for general laboratory use. No claim or representation is intended to provide information for the diagnosis, prevention, or treatment of a disease. All other kits are intended for research use. No claim or representation is intended to provide information for the diagnosis, prevention, or treatment of a disease.

Discover our broad PCR portfolio at www.qiagen.com/goto/PCROverview.

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Sample & Assay Technologies

QIAxcel for Flu Virus Detection

病毒所 QIAxcel DEMO 实验报告

1. **实验目的**：监测全国各省送交国家 CDC 流感病毒感染疑似样本

2. **所用仪器及试剂：**

M48 全自动核酸纯化工作站（QIAGEN 公司）

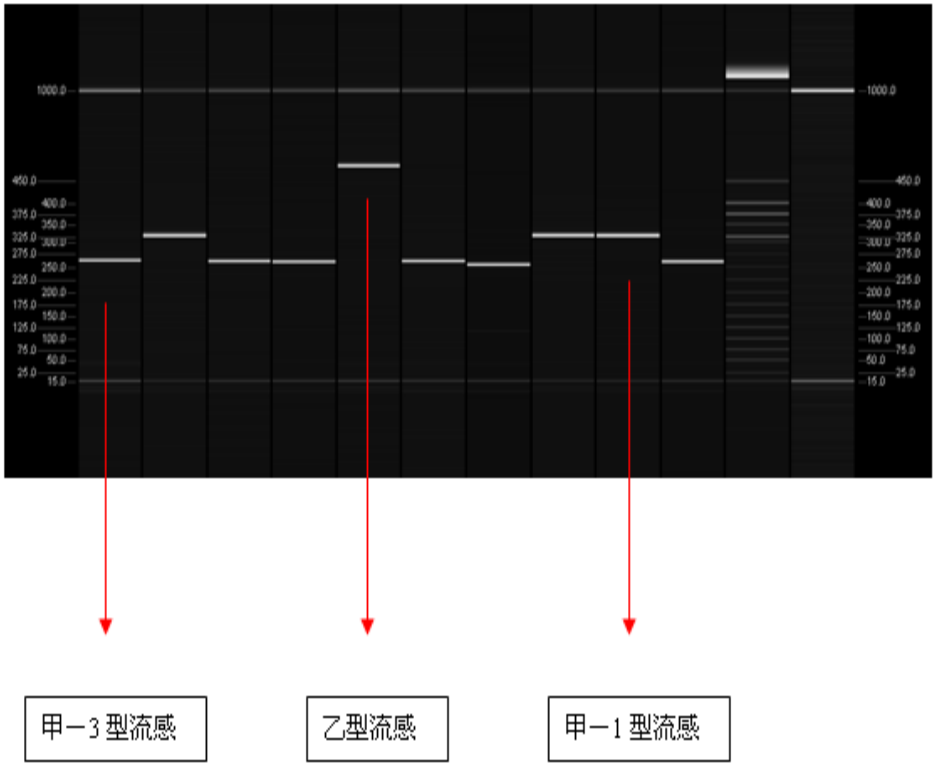
QIAxcel 全自动核酸电泳仪（QIAGEN 公司）

MagAttract Viral RNA M48 Kit(96) （QIAGEN 公司）

Qiagen OneStep RT-PCR Kit(100) （QIAGEN 公司）

3. **实验结果：**

此次实验共检测 119 份疑似流感病毒样本，其中共检测出甲－1 型流感 25 人份；甲－3 型流感 57 人份；乙型流感 8 人份；甲－1 型与甲－3 型交叉感染 6 人份；甲－1 型与乙型流感交叉感染 8 份；阴性样本 15 人份。实验结果见下图：



Welcome to The Next Era in Qualitative and Quantitative Nucleic Acid Analysis

Fast time to results
Streamlined workflow by minimized analysis time

Safety and convenience
Using ready-to-use gel cartridges

High Sensitivity & Low Detection Limit
Cost efficiency and saving of your precious samples

Broad application range
Innovative gel chemistry for a range of applications