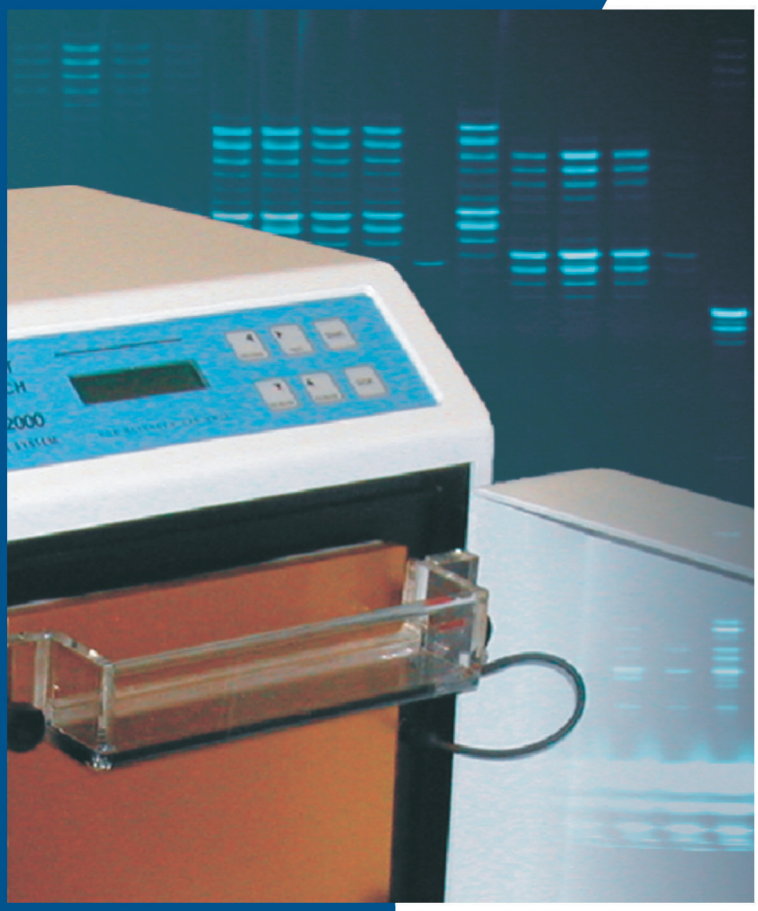
Gel-Scan™ 3000

real-time DNA fragment analysis



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LIFE SCIENCE

Real-time DNA Fragment Analysis

The Gel-Scan™3000 is a real-time gel electrophoresis system designed for rapid fragment analysis. High resolution gel electrophoresis data can now be produced in minutes rather than hours with the capability to re-run a single gel five times without the loss of resolution.

The excitation and detection of DNA fragments is maximized in this highly sensitive system by using a 10 mW green laser and PMT detector, facilitating detection of approximately 100 attomoles and resolution of a single base pair. The Gel-Scan offers the flexibility to choose between either targeted fluorescent primers or ethidium bromide as detectors for either denaturing or non-denaturing gel electrophoresis.

The easy-to-use data capture software controls the instrument and displays the gel image in real-time during a run. The data files are also saved in a format which can be read by any fragment analysis software package.

The Gel-Scan 3000 offers rapid throughput with high resolution and sensitivity and is ideal for most fragment analysis applications, including SSCP.

- **Touch panel for total control of gel voltage and temperature**
- **Peltier mounting plate to heat or cool the gel**
- **Convenient 20 cm gel format, also runs longer 32 cm gels**
- **A scanning 532nm laser at the base of gel generates a high resolution image of the DNA fragments**

Advanced Features

Micro-satellites in 30 Minutes

Ultra-Thin gels result in very fast run times, Figure 1 shows a di-nucleotide repeat (180 nt) with base line resolution run in approximately 30 minutes.

Re-usable (80 µm and 200 µm) Gels

Reload the same gel up to 5 times without any reduction in resolution. The result is a saving in terms of reagents and labour. It is now possible to pour one gel in the morning and use it all day!

Microtrough™ Gel System

The design of the gel apparatus facilitates easy pouring of gels with a reduced level of bubble formation as a result of the capillary action between the glass plates. The gel combs have a 4.5 mm spacing between wells, facilitating the use of a multi-channel pipettor with standard micro tips for easy sample loading.

Ultra Cool Gel Control

The glass gel plates are fixed to a Peltier controlled heat dissipation plate. The gel can be heated or cooled from 15°C to 50°C, depending on the application.

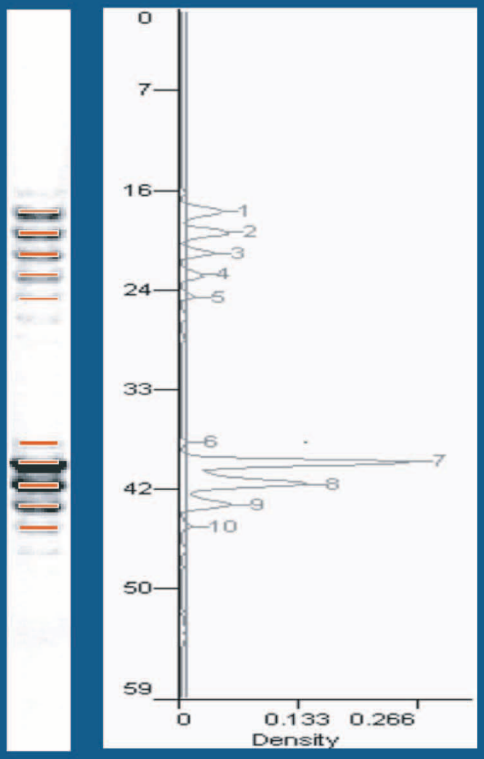

***Figure 1**: 20cm denaturing gel, run in 30 minutes to resolve a 180nt di-nucleotide repeat (peak 7)*

Run SSCP Gels in 1 Hour

With a combination of Ultra-Thin Gels run at 100V/cm and sub-ambient temperature control, SSCPs no longer take all day to run.

Sensitivity of Detection

The sensitivity of the Gel-Scan 3000 is maximized by using a 10 mW diode laser for fluorophore excitation and a PMT, which can detect a single photon, for fluorescence detection .Titration of a pUC19 DNA marker in the presence of ethidium bromide, demonstrated the sensitivity of detection to approximatly 176 attomole (calculations for the 67 bp fragment, data not shown). Likewise when using a HEX labeled primer the detection limit is less than 100 attomole per band.

Single base pair resolution

Precision optics combined with ultra-thin gels and Peltier-cooled back plates enables single base pair resolution on the Gel-Scan 3000. Figure 2 shows the pUC19 DNA marker fragments electrophoresed in the presence of ethidium bromide. Even with a non-denaturing gel a 1 base change is resolved between 111 and 110 bp.

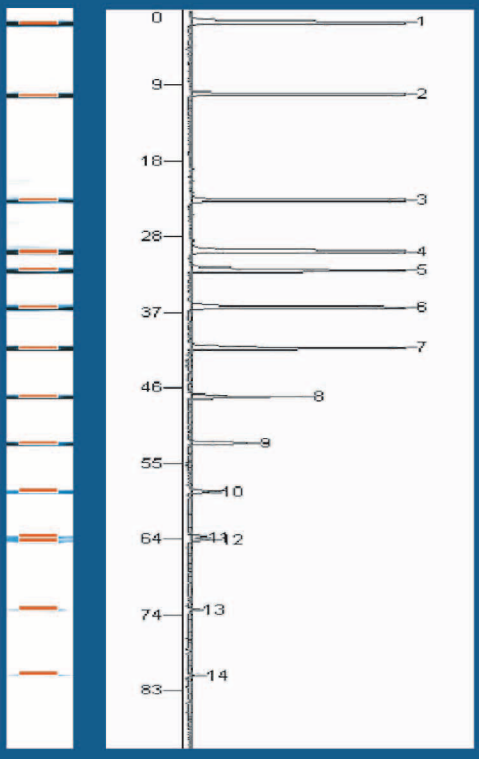

***Figure 2**: Puc19 ladder, stock diluted 30x, 1uL loaded. (Peaks 11, 12 are 111, 110 bp)*

Gel-Scan™ 3000 Specifications

Laser Source:	Solid State
Power:	10 mWatts.
Lifetime:	6,000 hours.
High Voltage Supply:	300-3000Vdc (Settable from Keypad)
Detected Fluorophores:	Hex, Tamra, Ethidium
Gel Dimensions:	32cm (H) x 20cm (W) 18cm (H) x 20cm (W)
Comb Sizes:	48 well 0.25mm sharkstooth 48 well 80um (Ultra-Thin)
Gel Thickness:	80um or 0.25mm
Physical Dimensions:	300(W) x 300(D) x 420(H) mm
Temperature Range:	5 - 50°C
Weight:	21Kg.
Electrical Requirements:	100-120Vac @ 5 Amps (50/60Hz) or 200-240Vac @ 3 Amps (50/60Hz)

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