

HDA-GT12 System for Detection of Genetic Disease with Short Tandem Repeat Polymorphism

Introduction:

Bardet-Biedl syndrome exhibits significant clinical and genetic heterogeneity because of multi-allelic participation, making linkage analysis difficult. Previous mutation screens have been carried out by direct sequencing. Because of the increasing number of patients to be screened, a more rapid and cost-effective analysis method is required.

BioCal provides a cost-effective, multi-channel capillary electrophoresis system offering high sensitivity and high resolution for short tandem repeat polymorphism detection. This bench-type HDA-GT12 system uses a fluorescence mechanism for nucleic acid detection. A consumable multi-channel capillary gel cartridge used with the system can automatically inject and analyze 12 strip samples simultaneously for less than 10 minutes or a 96-well plate for 1 hour. This affordable system can be operated easily in research laboratories or industry sectors for different kinds of short tandem repeat polymorphisms (STRP).

Methods:

PCR* amplified DNA samples provided by collaborator were analyzed in the HDA-GT12 system for dinucleotide repeat polymorphism with 6 base pair resolution.

Operation Procedure:

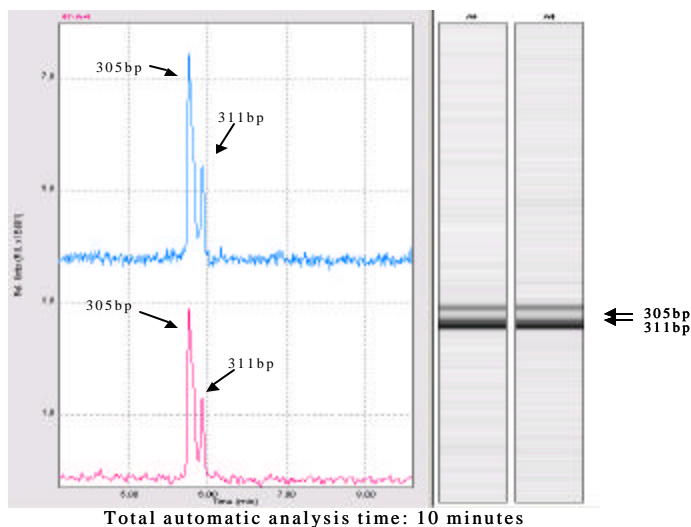
1. Insert BioCal's gel cartridge into the system (cartridge capacity: 1200 samples) (45 seconds).

2. Place PCR DNA solution (20 μ l) in 0.2 ml tube strips (or plates) into the sample tray (30 seconds).
3. Select a method from BioCalculator software and click "run" button to run samples (45 seconds).
4. Separate and detect the STRP DNA fragments (600 seconds at 6 kV).

*The PCR process is covered by patents owned by Hoffmann-LaRoche.

Results:

A specific 305bp and 311bp dinucleotide tandem repeat polymorphism was resolved.



HDA-GT12 System Features:

- Automated process: no need for manual sample loading.
- Replaceable gel cartridge: no need for gel preparation.
- 10-minute electrophoresis time.
- Detection : 0.1 ng/ μ l DNA concentration in the solution.
- Resolution: 1-5 bp in DNA fragment sizes between 50-500 bp.
- 96-sample capacity.
- Data view: in electropherogram or gel-view format.
- Software: digital data for analyses.
- Compact design: fits on any lab bench.
- Competitive system cost and economical consumables.
- HDA-GT12 system is for research use only.