ACCURIS INSTRUMENTS

GenoSep™
CAPILLARY ELECTROPHORESIS SYSTEM

Capillary Electrophoresis System

DNA | RNA | Protein Characterization
NGS Library QC | cfDNA Analyses





1- 4 bp
Analytical Resolution

0.2 pg/µL
Detection Sensitivity

Up to 240
Samples per Cartridge

Introducing

GenoSep™

Accuris GenoSep™ is a compact capillary electrophoresis system for high-resolution nucleic acid and protein characterization. The system combines automated capillary electrophoresis with sensitive fluorescence detection to deliver accurate fragment sizing, quantification, and quality assessment for DNA, RNA, proteins, NGS libraries, and cell-free DNA (cfDNA) samples.

GenoSep™ System includes:



Air-pump GenoSep Instrument

GenoSep Separation Technology

The Accuris GenoSep™ instrument utilizes convenient, reusable cartridges to separate nucleic acids and proteins. Each cartridge incorporates a proprietary polymer matrix and a fused silica capillary. During analysis, programmable high voltage is applied through the capillary to generate an electric field that drives the electrophoretic migration of macromolecules through the polymer matrix. Differences in electrophoretic mobility result in size-based separation, and fluorescently labeled fragments are detected as they pass the optical detection window. User-selectable voltages enable methods to be optimized for different applications and fragment size ranges. Figure 1 displays HeLa RNA separation using GenoSep.

Representative RNA Separation

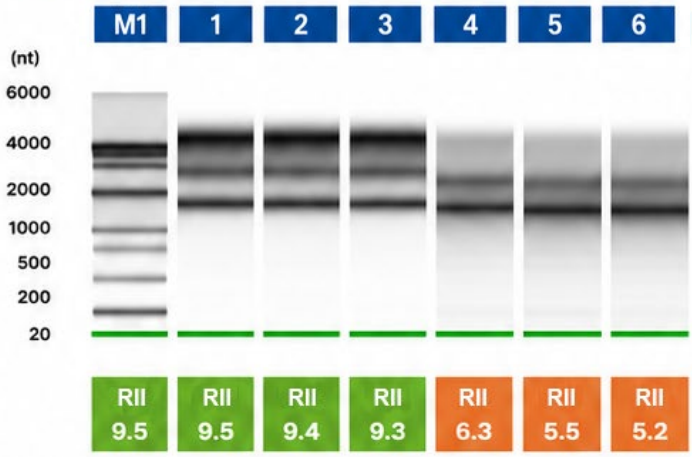


Figure 1: Fragmented HeLa RNA analysis on GenoSep. Lane M1: Marker. Lanes 1,2 & 3: triplicate of HeLa RNA. Lanes 4,5 & 6: triplicate run of processed HeLa RNA.

Capillary Electrophoresis Overview



Sample
Prepare DNA, RNA, or protein samples

Capillary Electrophoresis
Fragments are separated by size inside a polymer-filled cartridge under high voltage

Fluorescence Detection
LED-induced fluorescence provides highly sensitive detection of labeled fragments.

Results
Electropherogram and virtual gel images are generated automatically

Performance

To ensure exceptional sensitivity and reproducibility, each GenoSep™ cartridge is produced under a rigorous manufacturing process to ensure consistent results from cartridge to cartridge. Precision high-voltage control with automated instrument operation allw the GenoSep™ system to deliver highly reproducible migration times, enabling accurate fragment sizing and reliable comparison between runs. Figure 2 demonstrates the reproducible results obtained from repeated analyses of the same sample. Consistent migration profiles provide reliable assessment of sample integrity.

The GenoSep™ system also provides exceptional sensitivity, with a limit of detection as low as 2 pg (Fig. 3). This high sensitivity is achieved through LED-induced fluorescence detection, optimized optical design, and a proprietary low-background separation matrix that minimizes background noise and enhances signal-to-noise performance.

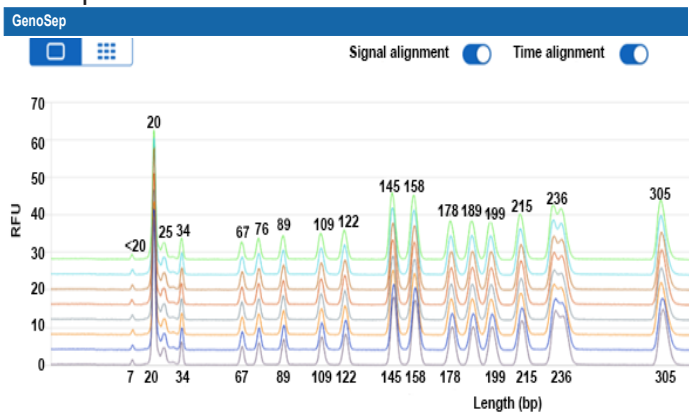
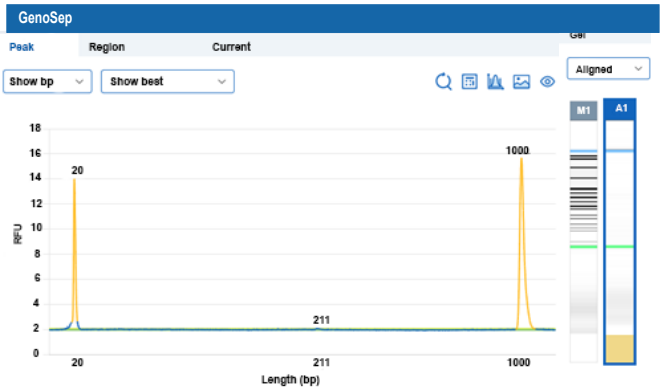


Figure 2: Repeated analysis of an identical marker sample demonstrates excellent fragment size accuracy and repeatability.



No.	Size (bp)	Peak from (bp)	Peak to (bp)	Conc. (pg/uL)	RFU
1	20	18	22	NA	12.080
2	211	210	212	0.151	0.140
3	1000	899	1335	NA	13.716

Figure 3: The LOD of the High Sensitivity DNA cartridge can reach down to 0.2 pg/µL.

Software

The included Windows-based GenoSep software allows for instrument control and data analysis. The PC software is quick to install, setup, and begin operation.

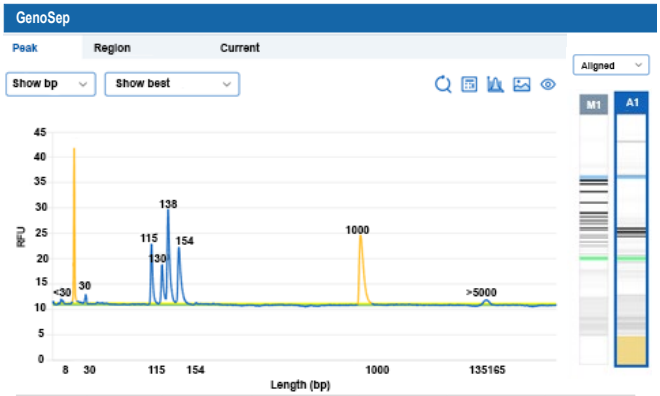
Running an assay is simple - load the samples, select the desired method, and click Run. The software automatically controls the instrument, monitors the analysis in real time, and generates electropherograms, virtual gel images, fragment sizing info, and quantitative results (Fig. 4).

Intuitive Interface

User-friendly design for easy navigation and efficient workflow.

Real-time Analysis

Instant Visualization of data during sample processing.



No.	Size (bp)	Peak from (bp)	Peak to (bp)	Conc. (ng/uL)	RFU
1	<20	7	11	NA	1.137
2	20	18	22	NA	30.909
3	30	29	31	0.069	2.033
4	112	112	124	0.423	12.036

Figure 4: GenoSep software displays gel images, electropherograms, and fragment size data simultaneously.

Simple Three-Step Workflow

From sample to results in just a few easy steps

Step 1: Prepare Samples
Prepare samples according to the assay protocol and add the appropriate size marker and alignment marker, both supplied with the GenoSep™ Fragment Analysis Kit.

Step 2: Load Cartridge & Samples
Insert the ready-to-use GenoSep™ cartridge, load your samples, and start the run. The pre-filled, reusable cartridge eliminates labor-intensive gel preparation, reduces hands-on time, and provides consistent separation performance. Each cartridge can be reused until its maximum rated sample capacity is reached.

Step 3: Start Data Analysis
Click Run to begin the analysis. The GenoSep™ system separates the samples and displays electropherograms in real time as each sample is processed (Fig 5 and 6).

1 Prepare Samples →



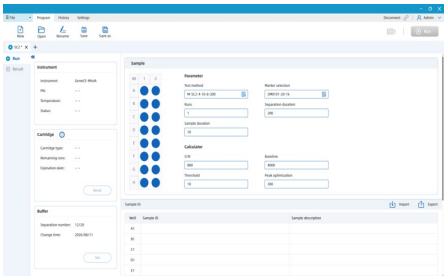
Prepare the samples.

2 Load the Cartridge & Samples →



Place samples and cartridge into the GenoSep instrument.

3 Start the Analysis



Start the run with a single click.

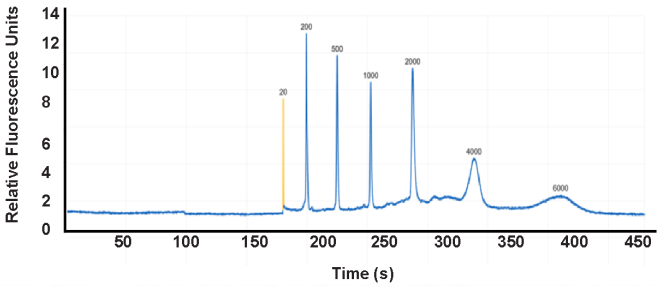


Figure 5: Electropherogram of M Marker (see Figure 1, lane 1)

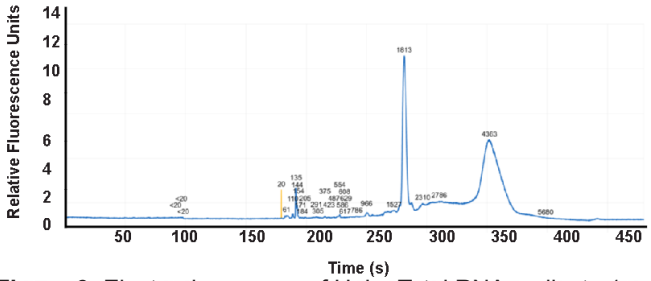


Figure 6: Electropherogram of HeLa Total RNA replicate 1 (see Figure 1, lane2).

Fragment Analysis Kits

GenoSep™ Fragment Analysis Kits provide a comprehensive range of cartridges for high-resolution analysis of DNA, RNA, and proteins. Specialized DNA kits support applications including PCR product analysis, genotyping, NGS library quality control, cfDNA analysis, and characterization of large DNA fragments. RNA and protein kits enable RNA integrity assessment, mRNA and low-input RNA analysis, as well as protein sizing across a broad molecular weight range. Each GenoSep™ cartridge delivers automated fragment analysis with accurate sizing, reliable quantification, and highly reproducible performance.

Each GenoSep™ Fragment Analysis Kit includes a ready-to-use cartridge, size marker, alignment marker, separation buffer, dilution buffer, mineral oil, two buffer tanks, and two 0.2 mL PCR strip tubes. All consumables except the cartridge are available for purchase separately.



	Kit	Separation Range	Maximum Resolution	Number of sample runs	LOD	Application
DNA	High resolution DNA kit	15-5000 bp	1-4 bp	240	1 pg/µL	SSR analysis and multiplex PCR detection
DNA	Standard DNA kit	15-5000 bp	4-10 bp	240	1 pg/µL	NGS library QC, cfDNA detection
DNA	High sensitivity DNA kit	15-5000 bp	4-10 bp	100	0.2 pg/µL	Low-concentration DNA samples
DNA	Large DNA fragment kit	15-165000 bp	4-10 bp	240	20 pg/µL	Large genome analysis, 3rd generation sequencing libraries
RNA	Standard RNA fragment kit	20-6000 nt	N/A	100	5 ng/µL	Total RNA, mRNA, CRISPR QC
RNA	High Sensitivity RNA fragment kit	20-6000 nt	N/A	100	1 ng/µL	Low-concentration RNA samples
Protein	Protein cartridge kit	5-250 kDa	NA	100	0.5 ng/µL	Protein sample analysis

Table: Fragment Analysis Kits available for the GenoSep™ capillary electrophoresis system

Specifications

Parameters	GenoSep
Detection type	Fluorescence
Excitation light source	LED
Software compatibility	PC (Windows 10 or above)
Number of samples per run	1-16
LOD	0.2 pg/μL (optimized)
Resolution	1-4 bp
Sample processing time	3-5 min/sample
Sample consumption	< 0.2 μL
Fragment size CV%	≤2%
Fragment concentration CV%	≤4%
Channels	Single channel
Power	110-240 V/AC, 50/60 Hz
Dimensions (LxWxH)	237×290×311 mm/9.3 x 11.4 x 12.2 in.
Weight	19.14 lb / 8.7 kg



Ordering Information

GenoSep System

Item #	Description
CE1016	GenoSep, 115 V
CE1016-E	GenoSep, 230 V

Ordering Information

Fragment Analysis Kits

Item #	Description
CE1016-DHR	High resolution DNA analysis kit
CE1016-DSR	Standard resolution DNA analysis kit
CE1016-DHS	High sensitivity resolution DNA analysis kit
CE1016-DLF	Large DNA fragment resolution kit
CE1016-RS	Standard RNA resolution kit
CE1016-RHS	High sensitivity RNA analysis kit
CE1016-P	Protein analysis kit

Complete Your Workflow

Pair GenoSep with other Accuris solutions for a complete workflow from sample preparation to detection



AutoMate96

Automated liquid handling with high precision and repeatability.



IsoPure Mini

Magnetic bead-based purification of nucleic acids.



SmartReader Multimode

Microplate reader for absorbance, fluorescence, and luminescence.

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Learn more about GenoSep

Visit GenoSep product page.