

Qsep₁₀₀ Series

Fragment Analyzer

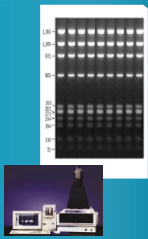
DNA/RNA
Samples



Gel
Preparation



Gel
Imaging



Manual
Loading



Electrophoresis



All in One Step

Qsep₁₀₀ Series DNA/RNA Fragment Analyzer

BiOptic develops, manufactures and commercializes fully integrated analysis system based on capillary gel electrophoresis (CGE)

Qsep₁₀₀ capillary gel electrophoresis (CGE) system is a fully automated fragment analyzer for DNA, RNA and Protein analysis. The easy-to-use system simplifies numbers of complicated and time-intensive steps of gel electrophoresis including gel preparation, sample loading, electrophoresis and gel image.

Unlike conventional CE system, the capillary, fluorophore and gel-matrix are integrated as a disposable pen-shaped gel-cartridge. The embedded RFID chip gives the identity of the cartridge and allows the customers to monitor the condition of it.

The system provides an user-friendly software "Q-Analyzer". The intuitive graphic user interface enables the user to accomplish the tests in a few steps. Even inexperienced technician can operate the system with a short training.

Qsep100 system is a powerful tool for Life Science, Agriculture, Pharmaceutical Industry, and Food Science research.

Applications

- PCR Product Screening
- Genotyping
- Next Generation Sequencing (NGS) QC
- Restriction Fragment Length Polymorphism (RFLP)
- Oligonucleotides Analysis
- Genomic DNA Analysis
- Plasmid Purification & Vector Cloning Analysis
- RNA Analysis
- Protein Profiling (fluorescence detection)

Specifications

- Detection: Fluorescence
- Light Source: LED
- Separation Voltage: 1-15KV
- Connectivity: USB
- Power Source: AC 100-240V
- Maximum Power: 30W
- System Weight: 15Kgs
- Dimensions: 38x30x40 cm

Highlights

Automated Sample Handling

Automated process for 1~96-wells

Disposable Gel-Cartridge

No need for gel preparation

100-300 samples per cartridge

Rapid Analysis

2-7 minutes per sample

Resolution

1-4bp (Between 100-500bp)

Sensitivity

Detects as low as 0.1ng/ul (5pg/ul in DDW)

Minimum Sample Volume

1ul in Micro-Vial (Cat. No.:C104250)

20ul in standard PCR tube

Sample consumption: less than 1pl

Software: Q-Analyzer

Relative qualitative and quantitative analysis

Electropherogram

Gel-Image

Customer-oriented report

Model



	Qsep ₁₀₀	Qsep ₁₀₀ Advance
LightSource (Excitation)	Green Light (525nm)	Blue Light (480nm)
Fluorescence Detection	590nm ~	530nm ~
Sensitivity (S serialscartridge)	Excellent	Good
Sensitivity (N serialscartridge)	Good	Excellent
*Protein Labeling Dye	Chromeo-P503	Chromeo-P503 /FITC

Say Goodbye to Slab-gel Electrophoresis

Disposable Cartridge

Different types of cartridge are available for DNA, RNA, and Protein applications. Users are advised to choose a suitable kit from the cartridge list in accordance with their requirement.

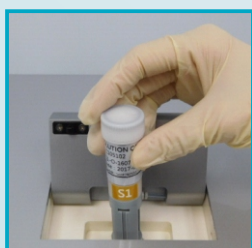


Respective cartridge is programmed for 100 to 300 samples. The Kit provides all the consumables needed for your test.

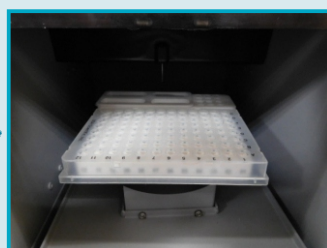
Content	DNA Cartridge Kit	RNA Cartridge Kit
Separation buffer	1x separation buffer	*10X separation buffer
Dilution buffer	1x dilution buffer	*10X dilution buffer
Mineral Oil	v	v
Buffer tray	v	v
Alignment Marker	v	**

* User needs to use DEPC water to dilute the stock buffers before testing
 ** Contact with BiOptic for more details

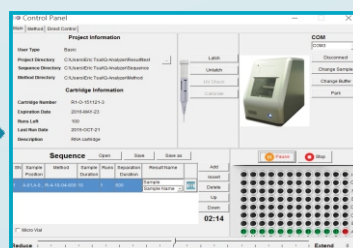
Few steps to run your test



Insert Gel-Cartridge



Place Samples



Choose Method and Run



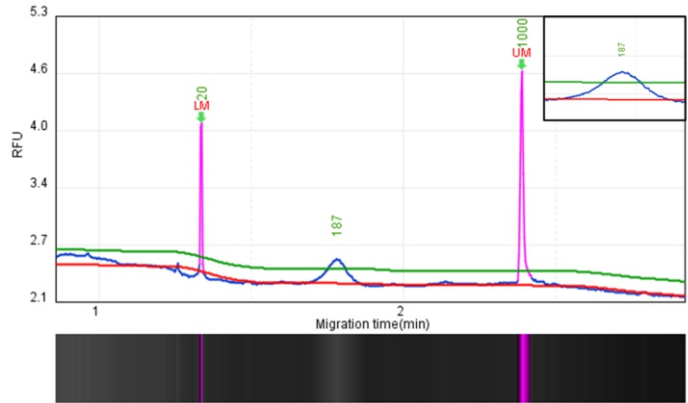
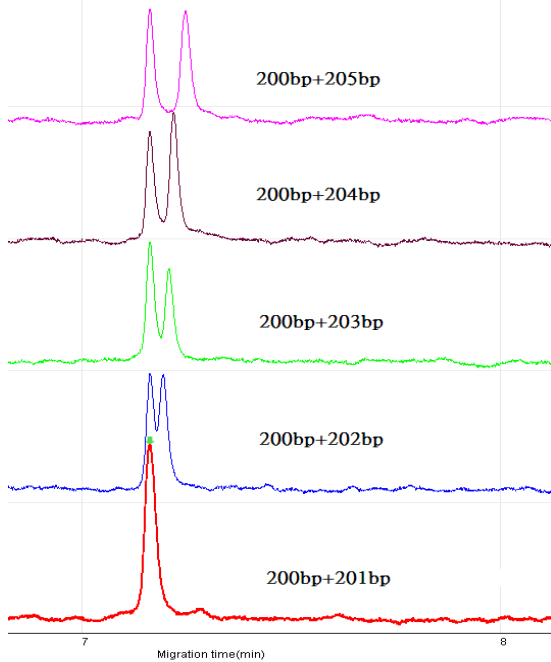
Display Results

Qsep₁₀₀ Series DNA/RNA Fragment Analyzer

High Resolution and Sensitivity

Resolution is subjected to the conformation and Sequence of DNA sample, the High Resolution cartridge (S1) is able to resolve 1-4bps difference.

Sensitivity is affected by the salt condition of the sample. Lower salt condition can enhance the sensitivity.



	Range (bp)	pg/μl	% total	pmol/L	Avg. size
cfDNA	100-300	4.03	71.80	33.27	184.28

High Resolution:

The PCR Products are designed for same sequence with 1 to 5 bp difference. 2bp is resolved in this test.

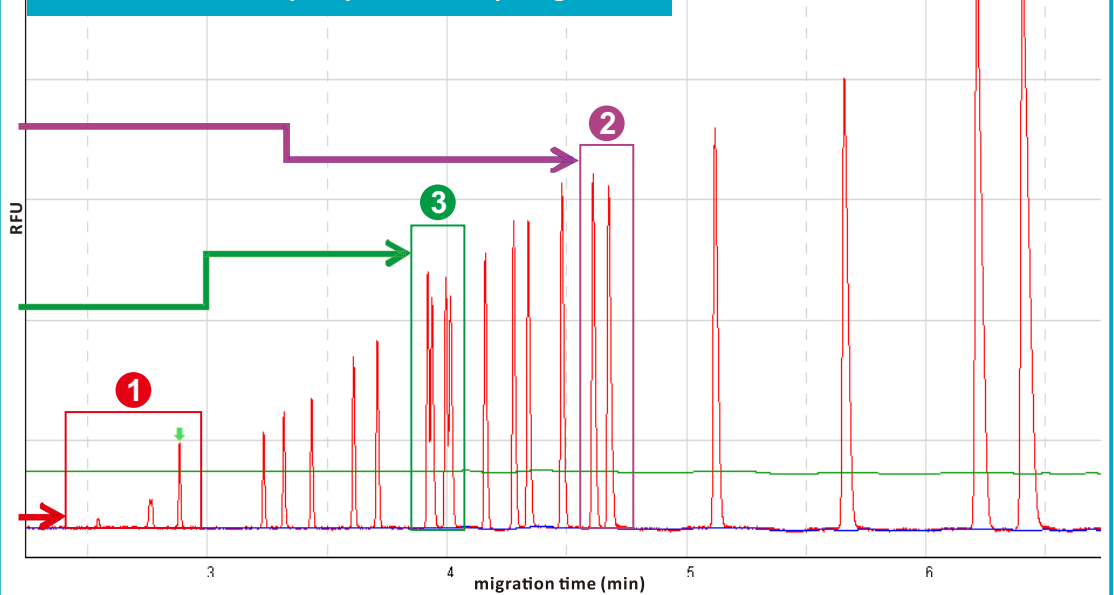
High Sensitivity:

The Cell-Free DNA (cfDNA) sample with the concentration of 4.03 pg/μl (measured by Qubit-fluorometer) is detected by High sensitivity cartridge.

Fragment Size (bp)

1	622
2	527
3	404
4	307
5	242
6	238
7	217
8	201
9	190
10	180
11,12	160
13,14	147
15	123
16	110
17	90
18	76
19	67
20,21	34
22,23	26
24	15
25,26	9

The restriction map of pBR322-*MspI* digestion



System highlights

- 1 High sensitivity: 15, 26 and 34bps fragments are detected. (15bp: 0.056ng/ul, 26bp: 0.194ng/ul, 34bp: 0.253ng/ul)
- 2 High resolution: 238bp, 242bp fragments (4 bp differences) is resolved.
- 3 High resolution: The fragments (147/147 and 160/160 bps) with same size, but different sequences are well resolved.

Excellent Tool for QC

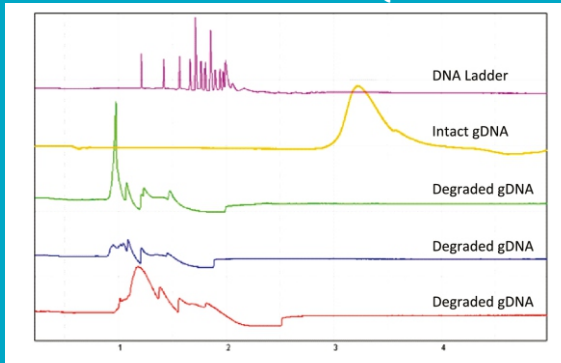
DNA/RNA Quality Control

Sample quality is the most important factor for a good result

The success of NGS, downstream gene expressing analysis, such as qPCR, microarray analysis, and other DNA/ RNA-based applications, relies on the sample quality.

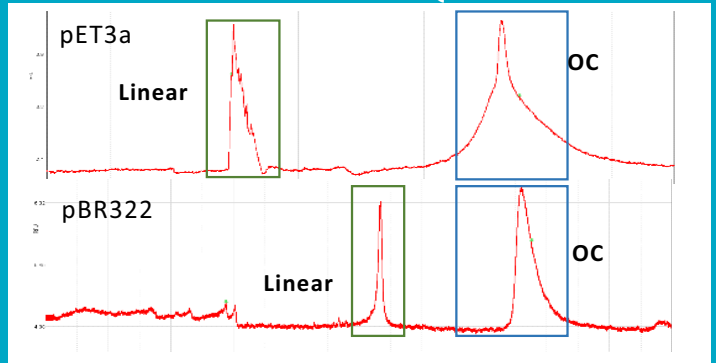
DNA QC

Genomic DNA QC



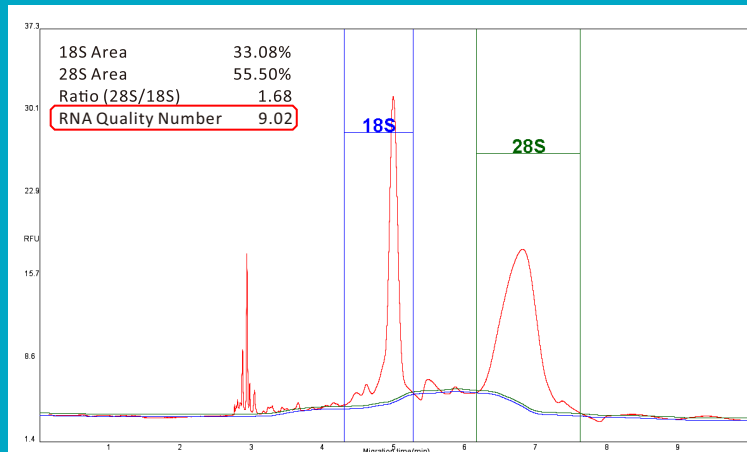
gDNA integrity check

Plasmid DNA QC

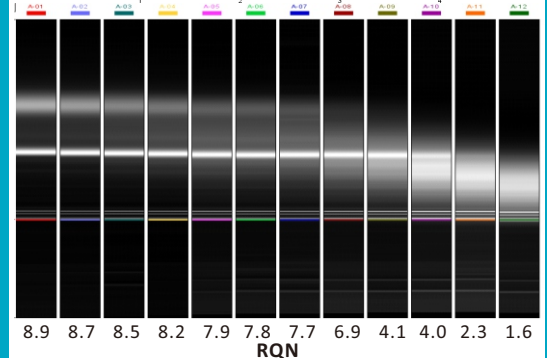
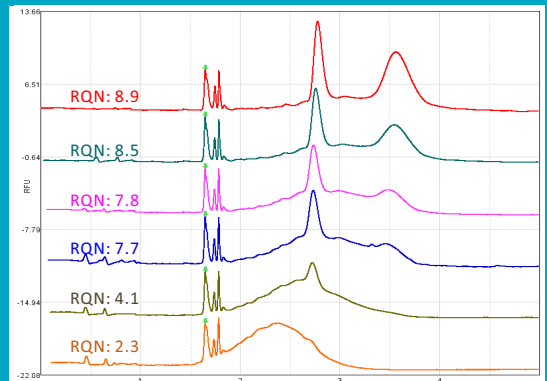


Linear/ Open-Circular forms are resolved

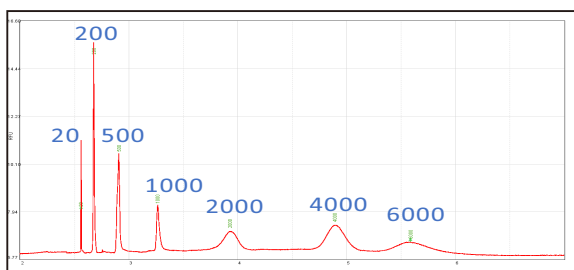
RNA QC



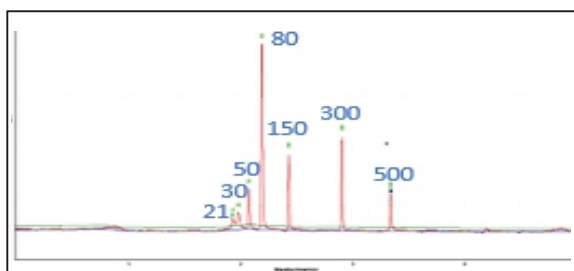
Qsep100 provides an indicator "RNA Quality number (RQN)" for the RNA integrity.



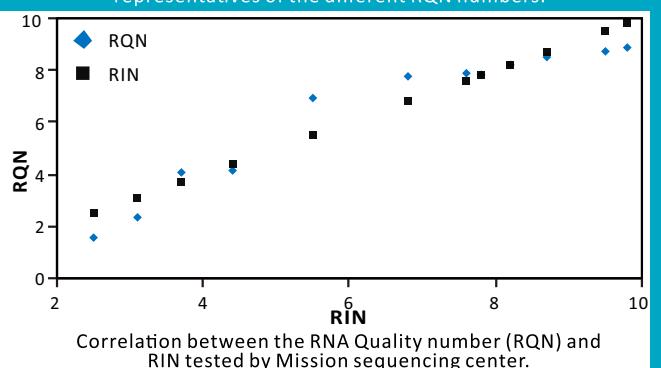
RNA integrity categories: The figures show typical representatives of the different RQN numbers.



Test result of ssRNA ladder



Test result of dsRNA ladder



Correlation between the RNA Quality number (RQN) and RIN tested by Mission sequencing center.

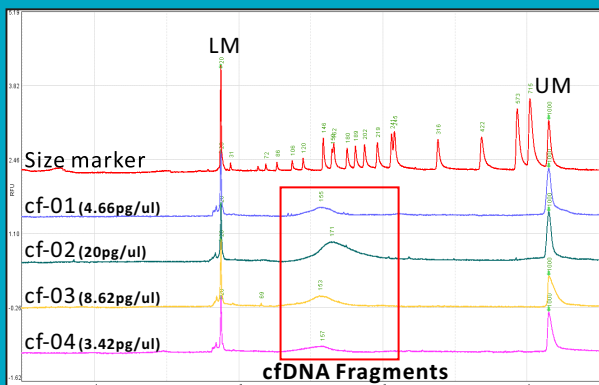
Qsep₁₀₀ Series DNA/RNA Fragment Analyzer

Cell-Free DNA (cfDNA) Detection

Powerful tool for Cell-Free DNA (low concentration DNA fragments) detection

Cell-Free DNA (cfDNA) in the blood plasma comes with very low concentration and is hard to be detected by other systems. The High-Sensitivity cartridge is introduced for this application.

cfDNA detection by High-Sensitivity cartridge



The concentration of cf-04 is 3.42 pg/ul (measured by Qubit-fluorometer).

Advances in Next-Generation Sequencing (NGS) technology now allows using cfDNA as a biomarker for liquid biopsy applications.

Cell-free fetal DNA (cffDNA) is fetal DNA circulating freely in the maternal blood stream. It can be used on Non-invasive prenatal diagnosis (NIPD) to screen for birth defects and inherited diseases.

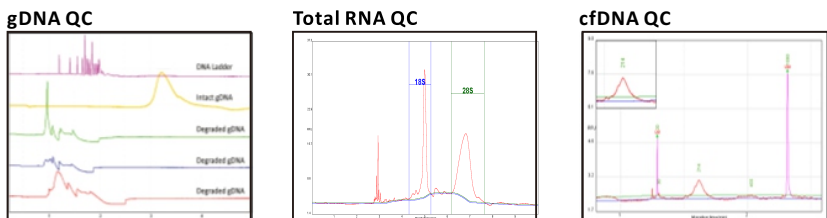
Circulating tumor DNA (ctDNA) is tumor DNA circulating freely in the blood of a cancer patient. Researchers can compare the known cancer markers with ctDNA samples and acquire useful information for cancer prevention and treatment.

NGS Fragmentation/Library QC

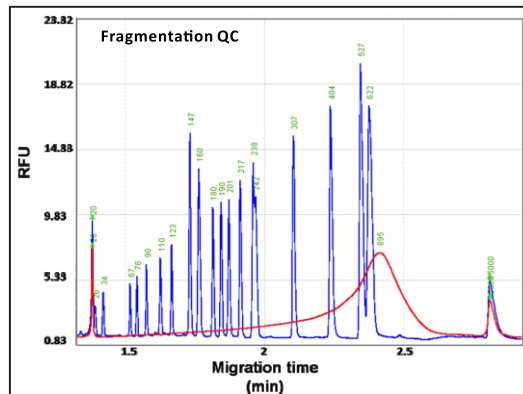
To ensure the success of NGS results, quality check must be conducted in many steps of the workflow.

Qsep100 system is a high-quality control platform for NGS, which provides the easiest & simplest solution for monitoring each stage of library preparation.

Isolation quality check



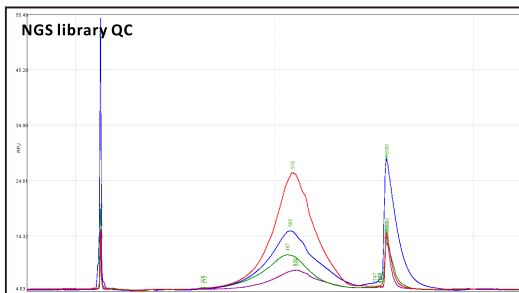
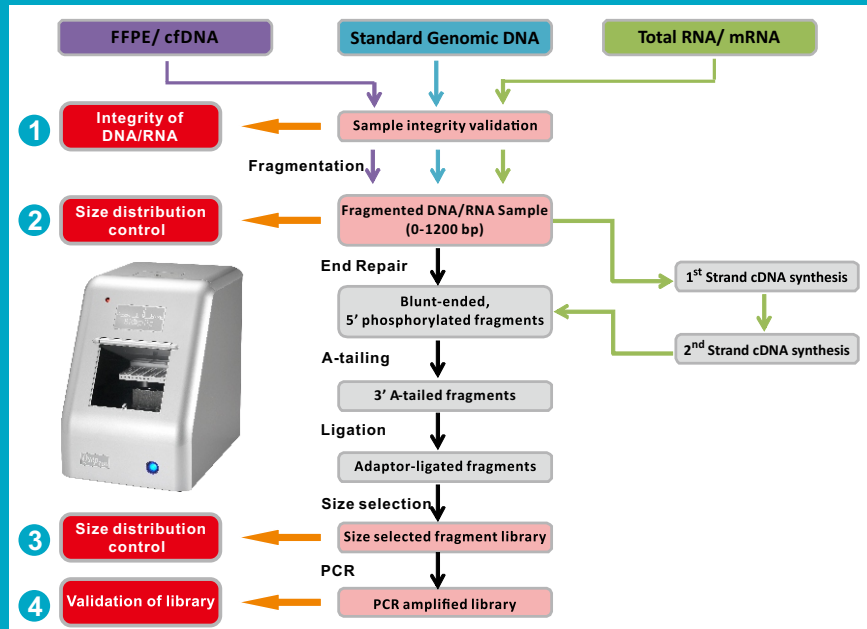
Size distribution and Library quality check



	Range (bp)	ng/ μl	% total	nmole/L	Avg. size
Library	100-5000	55.98	99.71%	101.71	846.96
	400-600	7.63	13.62%	23.75	493.97
	600-800	7.16	15.03%	15.53	709.73
	800-1000	9.22	19.37%	15.82	896.50
	1000-1200	5.29	10.40%	7.52	1082.95

Fragment distribution of sheared gDNA

NGS Workflow

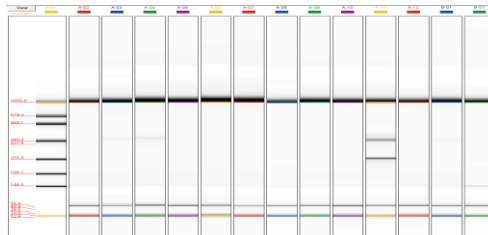
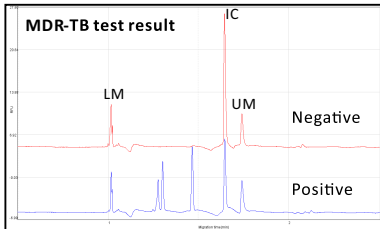
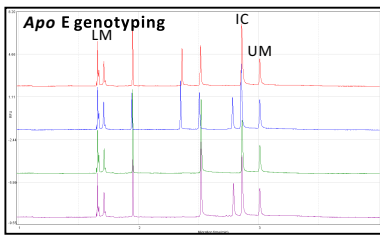


High sensitivity result of serially diluted library sample. Average size of DNA library is 515 bp. Library concentrations are from 0.33 ng/μl to 0.07 ng/μl.

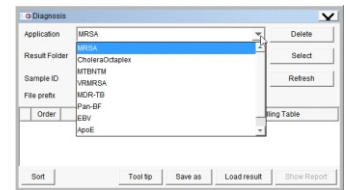
Beyond Your Expectation

Best Partner for MDx

Customized diagnostic report for Multiplex PCR Kits



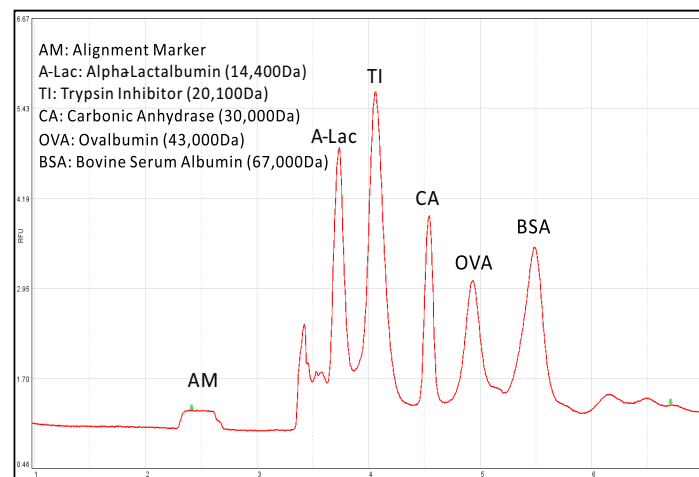
Built-in panel for rapid test Kits



- MDR-TB
- MTB/NTM
- MRSA
- EBV
- VR/MRSA
- HPV Typing
- ApoE
- BRCA2
- Colon Cancer (MSI)
- Cholera Octaplex
- Pan B/F
- AZF (Y-Chromosome deletion)

Test report of rapid test Kits

Protein Profiling



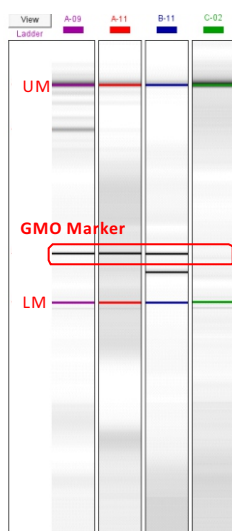
Before profiling, protein sample needs to be conjugated with the labeling dye and denatured.

For more details, please contact BiOptic Inc. or local distributor.

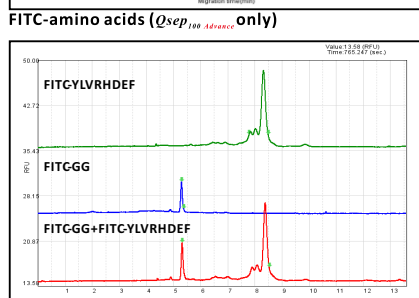
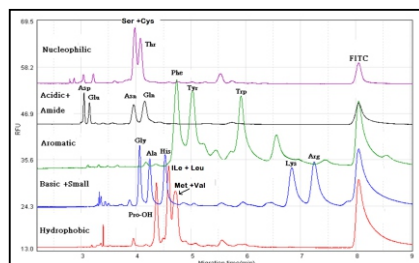
Order information of protein labeling Kits and labeling dye

Model	<i>Qsep₁₀₀</i>	<i>Qsep₁₀₀ Advance</i>
Protein Labeling Kit (Cat. No.)	C104600	C104700
*Protein Labeling Dye	Chromeo-P503	Chromeo-P503 /FITC

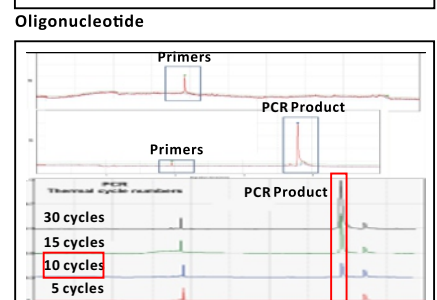
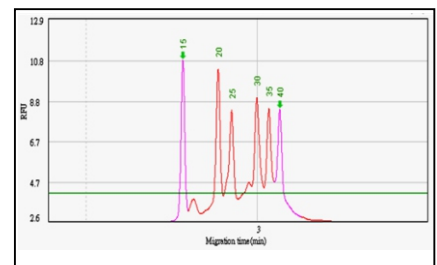
Other Applications



GMO (Soy Bean) sample test



FITC-Oligopeptides (*Qsep₁₀₀ Advance* only)



PCR Optimization (10 cycles is detected)

Order Information

Cartridge Kits for DNA/RNA Applications

Specifications	Standard Cartridge (S2)	High Resolution Cartridge (S1)	Fast Cartridge (F3)	High-Sensitivity Cartridge (N1)	RNA Cartridge (R1)
Order No. (Cat. No.)	C105201 (2 pcs kit) C105801 (8 pcs kit)	C105202 (2 pcs kit) C105802 (8 pcs kit)	C105203 (2 pcs kit) C105803 (8 pcs kit)	C105205 (2 pcs kit)	C105210 (2 pcs kit) C105810 (8 pcs kit)
Sample size range	15-15000bp	15-15000bp	15-5000bp	15-5000bp	
L.O.D.	0.1 ng/uL*	0.1 ng/uL*	0.1ng/uL*		
Analysis time (per sample)	2 - 3 min	3 - 5 min	1 - 2 min	3 - 5 min	5 - 10 min
Sample number (per cartridge)	200 runs	200 runs	300 runs	100 runs	100 runs
Sample consumption (per run)	<0.1 uL	<0.1 uL	<0.1 uL	<0.1 uL	<0.1 uL
Recommended Sample volume	20uL 1uL, when using micro vial (C104250)	20uL 1uL, when using micro vial (C104250)	20uL 1uL, when using micro vial (C104250)	20uL	20uL 1uL, when using micro vial (C104250)
Shelf Life	6 months	6 months	4 months	3 months	4 months

•L.O.D.: 2pg/uL (If diluted in the DD water)

•*Determined by the DNA ladder (15-622 DNA Size Marker: C109200) as sample

Reagents & Accessories

Order No. (Cat. No.)	Product	Specifications
C109100-500A	ALIGNMENT MARKER (20bp&1000bp)	500 uL/ Tube
C109102-500A	ALIGNMENT MARKER (20bp&5000bp)	500 uL/ Tube
C109109-500A	ALIGNMENT MARKER (20bp&1500bp)	500 uL/ Tube
C109110-500A	ALIGNMENT MARKER (20bp&15000bp)	500 uL/ Tube
C109120-500A	ALIGNMENT MARKER (Lower Marker)	500 uL/ Tube
C109200	Size Marker (15-622bp)	500uL/ Tube
C109300	Size Marker (50-3000bp)	500uL/ Tube
C109300-HC	Size Marker (50-3000bp)-HC	250uL/ Tube (High Concentration)
C104250	8-STRIPS Micro Vial (1uL10ul)	10 Units/ Bag
C104201	Separation Buffer Tray	10 Pcs/ Set
C104002	Purge Station	1 Set

This information is subject to change without notice.

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