

# User Guide Standard (S2) Cartridge Kit (C105201/C105801)

#### A. Specifications

Specifications	Description
DNA Sizing Range	20-5000 bp
L.O.D	0.1 ng/µl
Resolution	4-10 bp
Sample number (per cartridge)	200 runs
Shelf life	6 months

\* Best resolution is determined by the 15-622 DNA Size Marker (C109200).

## For new cartridge, please follow unpacking guide to unpack and use 20bp-1000bp Alignment Marker to do calibration.

#### **B. Sample Preparation**

#### Sample volume requirement

0.2 ml tube: 20 µl

0.1 ml tube (C104252): 10 μl

Micro Vial: 2 µl

### **Recommended sample concentration**

Fragment sample: 0.1-10 ng/µl

\*NOTE: When fragment sample concentration is over 10 ng/ $\mu$ l, please 10X dilute sample by 1X dilution buffer.

Smear sample: 2-50 ng/µl

\*NOTE: When smear sample concentration is over 50 ng/ $\mu$ l, please 10X dilute sample by 0.1X dilution buffer.

\*NOTE: If sample is eluted in water, adding dilution buffer to make the sample in 0.2X or 0.1X dilution buffer condition.

- Section B-1: sample size in 20-1000 bp
- Section B-2: sample size in 20-5000 bp

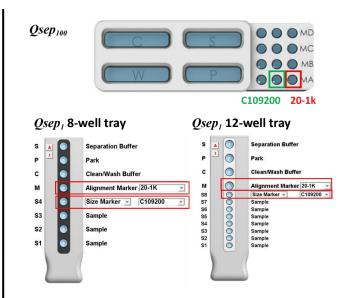
### B-1. Sample size within range from 20 bp to 1000 bp

Marker required:

20bp-1000bp Alignment Marker (C109100): 20 μl 15-622bp Size Marker (C109200): 20 μl

\*NOTE: All the markers should be loaded at regular 0.2 ml PCR tube, Except for the size marker for *Qsep*<sub>1</sub> 12-well tray (size marker put at "S8" position needs to use 0.1ml tube (C104252)).

Click "Change Buffer", place alignment marker and size marker at corresponding position:



## B-2. Sample size within range from 10 bp to 5000 bp

Marker required:

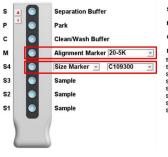
20bp-5000bp Alignment Marker (C109102): 20 μl 50-3000bp Size Marker (C109300): 20 μl

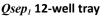
\*NOTE: All the markers should be loaded at regular 0.2 ml PCR tube, except the size marker for *Qsep*<sub>1</sub> 12-well tray (size marker put at "S8" position needs to use 0.1 ml tube (C104252).

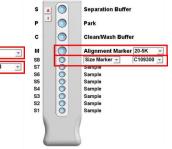
Click "Change Buffer", place alignment marker and size marker at corresponding position:



Qsep<sub>1</sub> 8-well tray







\*NOTE: If sample is eluted in nuclease-free water, please use dilution buffer to dilute it

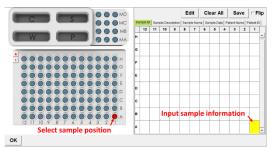


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## **C. Software Operation**

Bio Q-Anal	alyzer for Qsep100 Basic							
File Edit To	ool View Window Settings Language Help							
	New Project Load Project Recent Project Save Project							
Instrument	Main Method Direct Control							
	Project Information User Type Basic Unlatch	Search						
	Project Directory C:\Users\MaxCheng\Q-Analyzer for Qsep100\Res	COM3						
Results	Cartridge Information							
	Cartridge Number S2-O-200102-30 Calibrate	Change Sample						
14	Expiration Date 2020-Jun-30	Change Buffer						
	Runs Left 19 Last Run Date 2020-I/lar-25	Park						
Comparison	Description Standard catridge							
RealTime	Personal Anti-							
<u></u>	Sequence	O Stop						
Real Time	Sequence Open Save Save As							
	SN Sample Method Sample Runs Separation Result Name Para Add							
	Position Duration Duration Insert							
	1 A-01 M-4-10-08-160 10 1 160 IESI Delete							
	1 2 3 4 5 6 7							
		00000c						
	00:04							
	Micro Vial SN Method Name:							
	·	Modify Action						
	-100 -80 -60 -40 -20 0 20 40 60 80 10	0 Duration(s)						

1. Place sample and select corresponding position, then input Sample information (optional).



2. Select alignment marker and analytic method in Method

#### Selector.

Method Select	or			
Application	DNA	C RNA	C Glycan	C Protein
Analysis Type	Qualitative C Q	uantitative Sample Volu	t the Alignment Ma	
Alignment Marker 🔽 20-1K(MA-1) 💌 20				mal C Enhance
Cartridge Type	S2 💌 Standard C	artridge(Shelf Life: 6 Mon	ths)	
Sample Concentration	C High (Fragment >	10 ng/ul) 🤅 R	egular (Fragment: 0.1 ~ 10 ng/ul)	C Low (Fragment <0.1 ng/ul)
Method		Description	Range	Remark
M-4-10-08-160		njection 4kv 10s on 8kv 160s	10bp~5000bp Best Resolution: 4bp~10bp	
M-4-10-10-120		njection 4kv 10s on 10kv 120s	10bp~5000bp Best Resolution: 10bp~50bp	
gDNA(NGS)		njection 4kv 10s on 8kv 200s		Sheared Genomic DNA
		with HV on for 120s	Select the analyt	ic method
T-Purge-120	Gel Refil	without HV for 120s		
High Voltage Purg	e C Purge 🗆 Purg	Modification		
		e mouniouroll		
Customized Metho				0

#### \*NOTE: Based on sample concentration to adjust injection condition

Sample concentration	High (2kV, 10s)	Regular (4kV, 10s)	Low (8kV, 10s)
Fragment DNA	> 10 ng/µl	0.1-10 ng/μl	0.01-0.1 ng/μl
Smear DNA	> 50 ng/µl	2-50 ng/µl	0.5-2 ng/μl

- 3. Sample Duration: adjust the sample injection time to increase/decrease injection amount.
  \*NOTE: Do not set the injection time over 20 sec.
- 4. Runs: reputation time.
- 5. Separation Duration: adjust the duration to extend/reduce the separation time.

#### \*NOTE: Step 3-5 are optional.

- 6. Input the result name for result file.
- 7. Click "Para" . Choose to use reference (a) or create size marker (b) to do the calculation.

Baseline Factor: 200 Peak Threshold: 10.0		ak Smoothing : 0 ak Definition : 3					
🔽 Calculate a 🔿 Refe	ence Marker Table	xCheng\Q-Analyzer	for Qsep100/Refere	nce\S2-8-C109200	-20-1K.rfm 🗸		Browse
b Crea	Charles and the second second second	09200(MA-2)	F Every 4	▼ tmes			
Pataras	e Marker Table:	(1200(mH2)		_			
		yzer for Qsep100iRef	erence\S2-8-C10920	0-20-1K.rfm		~	Browse
T Smear C Dist	buton 100 <u>+</u> %	C Range	~ [		bp	_	
F Peak Calling							Browse
🗖 Auto Assign 185 285							
Create Report Shi	w Report Salting	1					

\*NOTE: When using create size marker function, select the size marker you use. e.g. 20-1k is paired with C109200, 20-5k is paired with C109300.

8. Click "Run" to start analysis.



\*NOTE: Please renew the alignment marker every 20 runs.

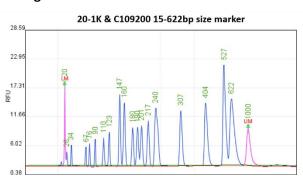
Contact Information: Company Name: BiOptic Inc. Address: (23141) No.108-3, Minquan Rd., Hsin-Tien District, New Taipei City, Taiwan (R.O.C) Tel: +886-2-2218-8726, Fax: +886-2-2218-8727, E-mail: service@bioptic.com.tw

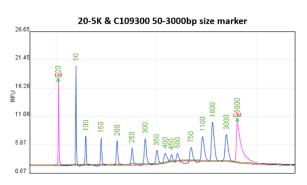


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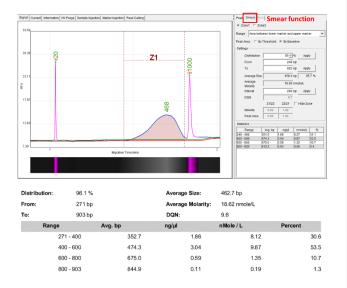
## **D. Result and Application**

• Alignment Marker & Size Marker





## Fragmented & Library Sample Validation



Using smear function to get average size, molarity, and size distribution of fragmented DNA or library DNA sample

## E. Troubleshooting

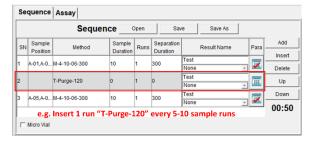
Please ensure that the system is working well, and the operation follows the instructions first.

Sometimes there will be some residues left in DNA sample after extraction.

These residues might cause unstable current at sample injection or separation steps. Here is a list of solutions to help fix the occurrence.

- 1. Use dilution buffer to dilute the sample.
- 2. Centrifuge the sample for a while to make the residues accumulate at the bottom of the tube.
- 3. Insert a "T-purge-120" method between several sample runs.

e.g. insert 1 run "T-Purge-120" every 5-10 sample runs.



## F. Cartridge Discard

Please wear the gloves before discarding cartridge.



1. Bend the cartridge tip.

- 2. Open the cap on gel reservoir and remove the inner cap.
- 3. Pour the gel into the chemical waste container.
- 4. Cartridge can throw it into the bin.

Cartridge tip