User Guide
High Sensitivity (N1) Cartridge Kit (C105105/C105205)

A. Specifications

Specification	Description
DNA Sizing Range	20-5,000 bp
L.O.D	5 pg/µL
Resolution*	4-10 bp
Sample Number	100 runs
Shelf Life	4 months

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

B. Kit Components and Storage Conditions

Item	Storage Condition
High Sensitivity Cartridge (C105105/C105205)	4-27°C (Do Not Freeze)
20-1,000 bp Alignment Marker (C109100-500A, 100 µL)	Short-Term (≤ 6 months): 4-27°C Long-Term (> 6 months): -20°C
Separation Buffer (C104406, 50mL)	4-27°C
Dilution Buffer (C104405, 15mL)	4-27°C
Mineral Oil (C104404, 8mL)	4-27°C

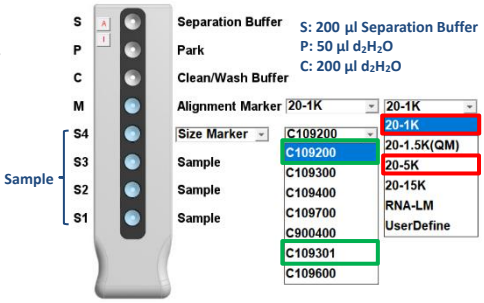
C. Cartridge Unpacking Preparation

New cartridge must pass HV check and calibration before use. Please follow unpacking guide to unpack and use C109100-500A Alignment to do calibration.

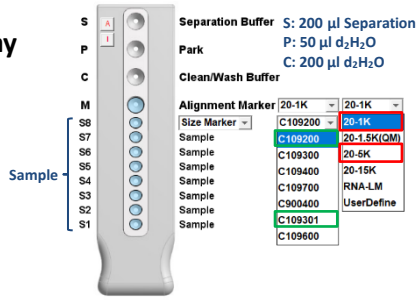
D. Buffer and Marker Preparation

Qsep100

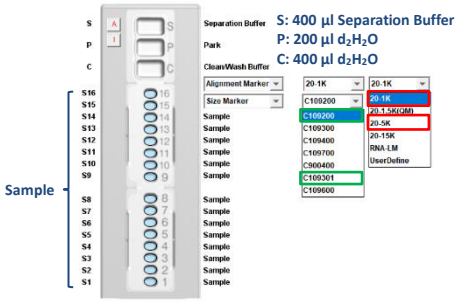
Qsep1 8-well tray



Qsep1 12-well tray



Qsep1-Plus
16+3 well tray



E. Sample Preparation

Sample Volume Requirements

0.2 mL Tube: 20 µL Micro Vial (C104250): 2 µL

0.1 mL Tube: 10 µL 16+3-Well Tube (C104254): 10 µL

Recommended Sample Concentration

Fragment sample: 5-200 pg/µl

***NOTE: When fragment sample concentration is over 500 pg/µl, dilute sample 10X with 0.5X dilution buffer.**

Smear sample (NGS library/cfDNA): 50-1000 pg/µl

***NOTE: When smear sample concentration is over 1000 pg/µl, dilute sample 10X with 0.5X dilution buffer.**

***NOTE: If sample is eluted in water, add dilution buffer to make the sample into 0.5X dilution buffer condition.**

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

Markers required:

20 bp-1000 bp Alignment Marker (C109100): 20 µl

20X diluted 15-622bp Size Marker (C109200): 20 µl

Materials	Volume (µl)
Size Marker (15-622bp) (C109200)	1
Dilution Buffer (C104402)	19
Total	20

E-2. Sample size within range from 20 bp to 5000 bp

Markers required:

20 bp-5000 bp Alignment Marker (C109102): 20 µl

10X diluted 50-3000bp Size Marker (C109301): 20 µl

Materials	Volume (µl)
Size Marker (50-3000bp) (C109301)	2
Dilution Buffer (C104402)	18
Total	20

***NOTE: If sample is eluted in nuclease-free water, using dilution buffer to make the sample into 0.5X dilution buffer condition is suggested.**

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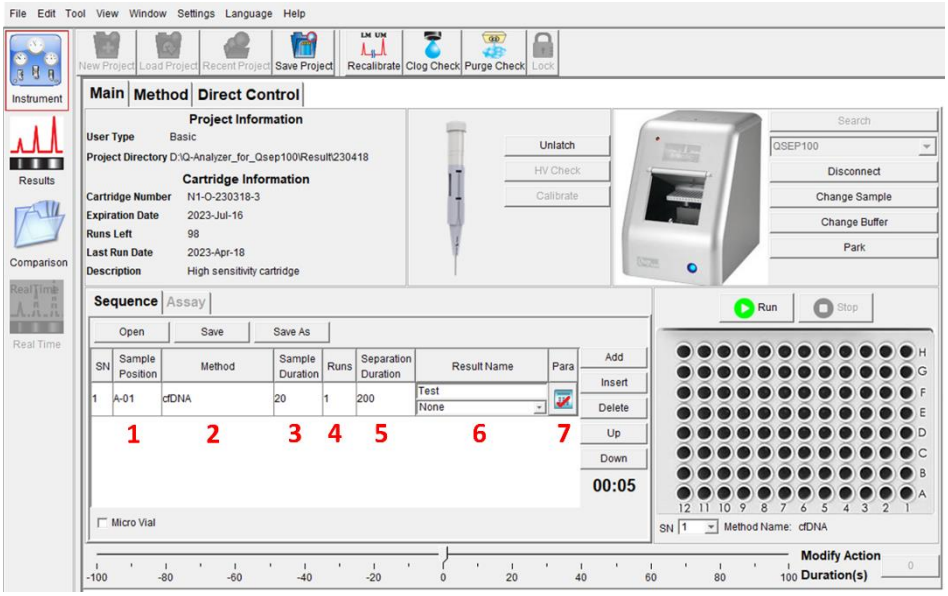
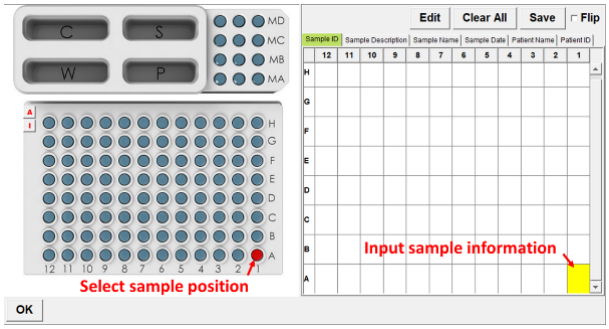
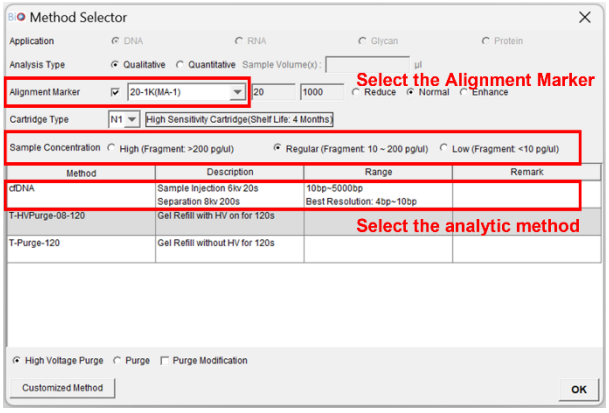
F. Software Operation



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



2. Select the alignment marker and the analytic method "cfDNA" in Method Selector.



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

Sample concentration	High (4kV, 20s)	Regular (6kV, 20s)	Low (8kV, 20s)
Fragment DNA	>200 pg/μl	10~200 pg/μl	<10 pg/μl
Smear DNA	> 1000 pg/μl	50-1000 pg/μl	<50 pg/μl

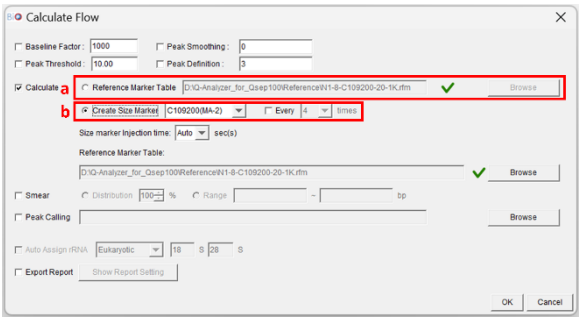
3. Sample Duration: adjust the sample injection time to increase/decrease injection amount.

***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 and select the tab below to bring information into result name.
7. Click "Para"  . Choose to use (a) reference or (b) create size marker to do the calculation.



***NOTE: When using function "Create Size Marker", select the size marker you use. e.g. 20-1k is paired with C109200, and 20-5k is paired with C109301.**

8. Click "Run"  to start analysis.

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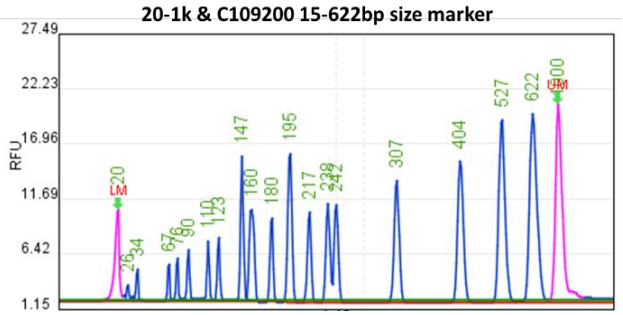
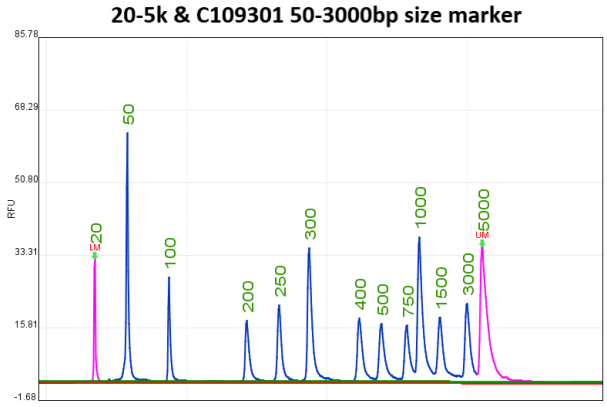
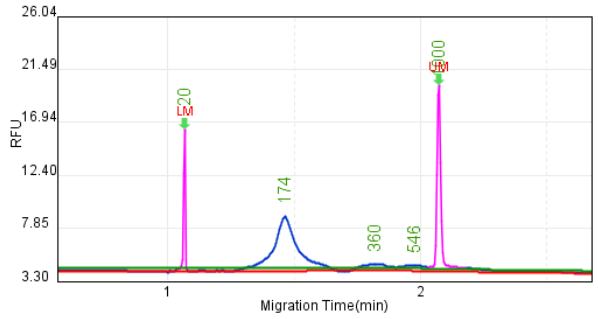
G. Result and Application

- **Alignment Marker & Size Marker**

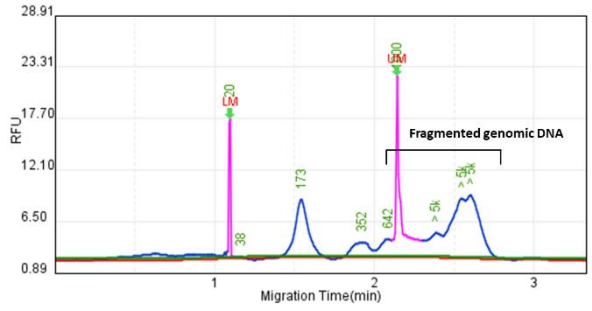




- **Cell-Free DNA**



- **Cell-Free DNA with genomic DNA**

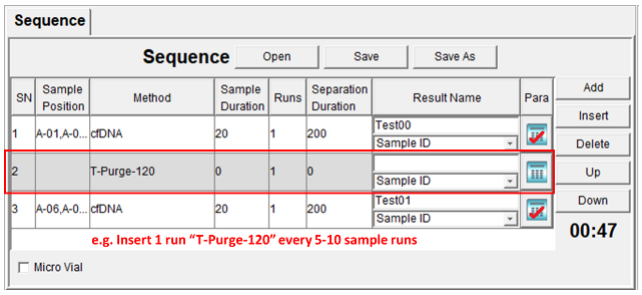


H. Troubleshooting

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

Sometimes, there will be some residues left in cell-free 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 or nuclease-free water to dilute the sample.
   ***NOTE: Final buffer concentration in 0.5X Dilution**
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.



I. Cartridge Discard

Please wear 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 be thrown into the bin.

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