

MIFlowCyt

Aria III Instrument Details

3. Instrument Details

3.1. Instrument Manufacturer

BD Biosciences

<https://www.bdbiosciences.com/en-us>

3.2. Instrument Model

BD FACSAria III

Serial number: P648282F5002

3.3. Instrument Configuration and Settings

3.3.1 Flow Cell and Fluidics

3.3.1.1. Flow Cell Type

Instrument unaltered

Gel-coupled fixed-alignment cuvette flow cell

Rectangular Quartz

Numerical aperture: 1.2

3.3.1.2 Fluidics

Instrument unaltered

70, 100, and 130- μm removable nozzles

Automatic Cell Disposition Unit for slide and plate sorting installed (2019)

Attached to a BD FACSTFlow Fluidics Cart system

Sheath pressure adjustable 5 to 75 psi

Sample collection chamber temperature adjustable 4 to 42° C

3.3.2 Light Sources

Four-laser configuration

- 405 nm solid state

Model:

Serial #604458

Beam height: $9 \pm 3 \mu\text{m}$

Beam width: $65 \pm 7 \mu\text{m}$

>50 mW, elliptical shape

- 488 nm solid state

Model:

Serial #FCD006573

Beam height: $9 \pm 3 \mu\text{m}$

Beam width: $65 \pm 7 \mu\text{m}$

>20 mW, elliptical shape

- 561 nm solid state

Model:

Serial #LDP.1137501.522663

Beam height: $9 \pm 3 \mu\text{m}$

Beam width: $65 \pm 7 \mu\text{m}$

>50 mW, elliptical shape

- 640 nm solid state
 Model:
 Serial #P955423
 Beam height: $9 \pm 3 \mu\text{m}$
 Beam width: $65 \pm 7 \mu\text{m}$
 >18 mW, elliptical shape

3.3.3 Excitation Optics Configuration

Three additional PMTs added to the 405 nm laser detection array (2022)
 All other filters are original to the instrument (2017)

3.3.4. Optical Filters

All other filters are original to the instrument (2017)

3.3.5. Optical Detectors

3.3.5.3. Optical Detector Voltage

Detector voltages for the experiment has been set to:

Laser	Detector Name	BP Filter	Fluorochrome/Dye	Voltage
405 nm (Violet)	A	780/60		
	B	710/50		
	C	670/30		
	D	585/42		
	E	530/30		
	F	450/50		
488 nm (Blue)	A	695/40		
	C	530/30		
	D	SSC		
561 nm (Yellow-Green)	A	780/60		
	B	695/40		
	C	670/14		
	D	610/20		
	E	585/15		
640 nm (Red)	A	780/60		
	B	730/45		
	C	660/20		

3.3.6. Optical Paths

There has been one change to the optical paths since instrument installation

1. Violet laser had new PMTs, pre-amp boards, Master Daq board, DAQ board, and SCI board installed (2022)

The figures below show the current filter and detector configurations:

