

## Which Cell Sorter Should You Use

### Available Options:

- 5 Laser HCI Aria 17 Color
- 4 Laser Wintrobe Aria 14 Color
- 5 Laser Wintrobe Cytex Aurora Spectral Cell Sorter 64 detectors (Boris)
- 2 Laser Wintrobe Propel Labs Avalon

### Instrument comparison summary

	BD Aria				Aurora Boris		Avalon
Nozzle	70um	85um	100um	130um	70um	100um	100um
Pressure (PSI)	70	45	20	12	60	17	20
Max event rate (k/sec)	24	15	10	4	15	8	6
Total cells per hour (X10 <sup>6</sup> )	86	54	36	14.4	54	28.8	21.6
Sorted Cells per ml collection volume	1X10 <sup>6</sup>	450,000	250,000	150,000	625,000	200,000	225,000
Collection Options	15ml, 5ml, 96well, up to 4 way sort*				15ml, 5ml, 96well, up to 6 way sort***		5ml- 2 way
* 4 way only available into 5ml tubes    ***6 way sort only available into eppendorf							

There are a handful of essential details that will help you determine which sorter is most appropriate for your application. First of all, we now have one Aria cell sorter located in HCI and the others are located in Wintrobe. All of our instruments are available to anybody, but geographically speaking one may be a better fit. Next, look over the instrument configuration comparison and make sure you choose the instrument with the correct excitation lasers and emission filters (See Below). In 2022 the Flow Core added a 5 laser 64 detector Spectral Cell Sorter that matches the Auroras on campus. In addition, both Arias have virtually the same filters except only the HCI Aria sorter has the UV laser!! Beyond that there are a couple other features to the instruments that would limit your options.

1. The BD Arias and Aurora Sorter Boris are the only instruments that can sort into 96 well plates.
2. The BD Arias and Boris can sort into 4 populations at once into Eppendorf or 5ml tubes. Boris can also sort into 6 populations at once if needed but only into eppendorfs.
3. The BD Arias have a 70um, 85um, 100um or 130um nozzles. Boris has 70um and 100um.

### A warning about sorting on Boris

Boris is a spectral cytometer with the same configuration as the Aurora analyzers. If you do not have controls to set up your experiment we don't run your experiment!!!! Often people will show

up without appropriate controls and we can still most of the time make things work. This is unwise and should be avoided but stuff happens..... Boris is much less forgiving. So if you are wanting to sort on Boris, consult with the Flow Core staff first!!!!

### **Who could/should use the Avalon?**

The Avalon comes with a standard 100um nozzle and was originally purchased with the idea that we would move a lot of the GFP and/or RFP type samples off the Arias to free them up for more multicolor work. But this sorter can be used for anything. Its maximum event rate is about 25million cells per hour. But keep in mind that you can only sort 2 populations at once and only into 5ml tubes. So, if you need GFP single pos, RFP single pos, and double positives all from the same tube you should probably use one of the Arias. The only other tiny drawback is that you can fit about 900,000 cells per collection tube. So, if you need 10 million cells back you may want to consider sorting on one the Arias which can sort into 15ml tubes and will give you less tubes to spin down in the end. But overall the Avalon is a nice little instrument and will also save you some money since it's cheaper.