

Comparison of Capabilities of the LSR II and Influx Flow Cytometers

The flow cytometers are available for use by prior appointment—contact Louis King at 355-1536 or kingl@msu.edu. Both machines are located in BPS 5115. The cost for using the LSR II is \$20/hr and the Influx is \$40/hr

Capability	LSR II	Influx
Cell Sorting	No – cell analysis only	Yes – low to high speed depending on instrument setup. Will sort bacteria, eukaryotic cells up to plant protoplasts. 2 & 4 way sorting to tubes & 1 way sorting to multiwell culture plates. ⁶
Cells analyzed	Cells must be in single cell suspension. Bacteria ¹ and eukaryotic cells up to 50 µm diameter.	Cells must be in single cell suspension. Bacteria ² and eukaryotic cells up to plant protoplasts.
Data Acquisition software	DIVA	SortWare
488 nm laser excitation	Yes	Yes
# of Flr colors from 488	4–FITC, PE, PerCP-Cy5.5 ³ , PE-Cy7	FITC, PI, PerCP-Cy5.5. GFP vs YFP
561 nm laser excitation	not available	4–PE, PE-TxRed, PE-Cy5, PE-Cy7; mCherry, mTomato, RFP ⁴
633 LSR;640 Influx	3–APC, Alexa 700, APC-Cy7	3–APC, Alexa 700, APC-Cy7
407 nm laser (violet)	2–AmCyan, Pacific Orange	2–AmCyan, Pacific Orange
355 nm laser (uv)	not available	2–DAPI(450nm), multiple choices available for 2 nd color ⁵ ; Indo 1 Ca flux.
Total Parameters	11	16

Footnotes

¹ Bacteria smaller than 0.5 µm may fall below the limit of detection for the LSR II.

² The high sensitivity option allows bacteria as small as 0.24 µm to be detected well above noise.

³ Filter combinations at this detector can vary. Other fluorochromes which can be detected here are: PE-Texas red(rarely used), propidium iodide (630nm), MC540(660nm), PE-Cy5 (670nm). You can have only 1 at a time. Fluorescence conflicts from spectral overlap of these dyes in other detectors can affect the usefulness of the remaining detectors.

⁴ The number of colors which can be used together will be determined by the degree of spectral overlap. Whether there is excessive conflict with PE-Cy5 and PerCP-Cy5.5 on the Influx is yet to be determined and likely experiment dependent. This is a partial list or reporter proteins.

⁵ Protocols used on this machine have used 400 nm, 530 nm, or 670 nm fluorescence. The 450 nm fluorescence is usually associated with the DNA binding dyes DAPI or Hoechst.

⁶ The Influx has an aerosol containment control on the sort collection box now. It was purchased with a custom made Baker culture hood to hold the Influx cytometer. When the latter arrives the Influx will be BSL 2⁺ rated and provide better protection for the sample, sorted cells, and the users.