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

<table>
<thead>
<tr>
<th>Capability</th>
<th>LSR II</th>
<th>Influx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell Sorting</td>
<td>No – cell analysis only</td>
<td>Yes – low to high speed depending on instrument setup. Will sort bacteria, eukaryotic cells up to plant protoplasts. 2 &amp; 4 way sorting to tubes &amp; 1 way sorting to multiwell culture plates.¹</td>
</tr>
<tr>
<td>Cells analyzed</td>
<td>Cells must be in single cell suspension. Bacteria¹ and eukaryotic cells up to 50 μm diameter.</td>
<td>Cells must be in single cell suspension. Bacteria² and eukaryotic cells up to plant protoplasts.</td>
</tr>
<tr>
<td>Data Acquisition software</td>
<td>DIVA</td>
<td>SortWare</td>
</tr>
<tr>
<td>488 nm laser excitation</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td># of Flr colors from 488</td>
<td>4–FITC, PE, PerCP-Cy5.5³, PE-Cy7</td>
<td>FITC, PI, PerCP-Cy5.5. GFP vs YFP</td>
</tr>
<tr>
<td>561 nm laser excitation</td>
<td>not available</td>
<td>4–PE, PE-TxRed, PE-Cy5, PE-Cy7; mCherry, mTomato, RFP⁴</td>
</tr>
<tr>
<td>633 LSR;640 Influx</td>
<td>3–APC, Alexa 700, APC-Cy7</td>
<td>3–APC, Alexa 700, APC-Cy7</td>
</tr>
<tr>
<td>407 nm laser (violet)</td>
<td>2–AmCyan, Pacific Orange</td>
<td>2–AmCyan, Pacific Orange</td>
</tr>
<tr>
<td>355 nm laser (uv)</td>
<td>not available</td>
<td>2–DAPI(450nm), multiple choices available for 2nd color⁵; Indo 1 Ca flux.</td>
</tr>
<tr>
<td>Total Parameters</td>
<td>11</td>
<td>16</td>
</tr>
</tbody>
</table>

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.