

S3 Cell Sorter :

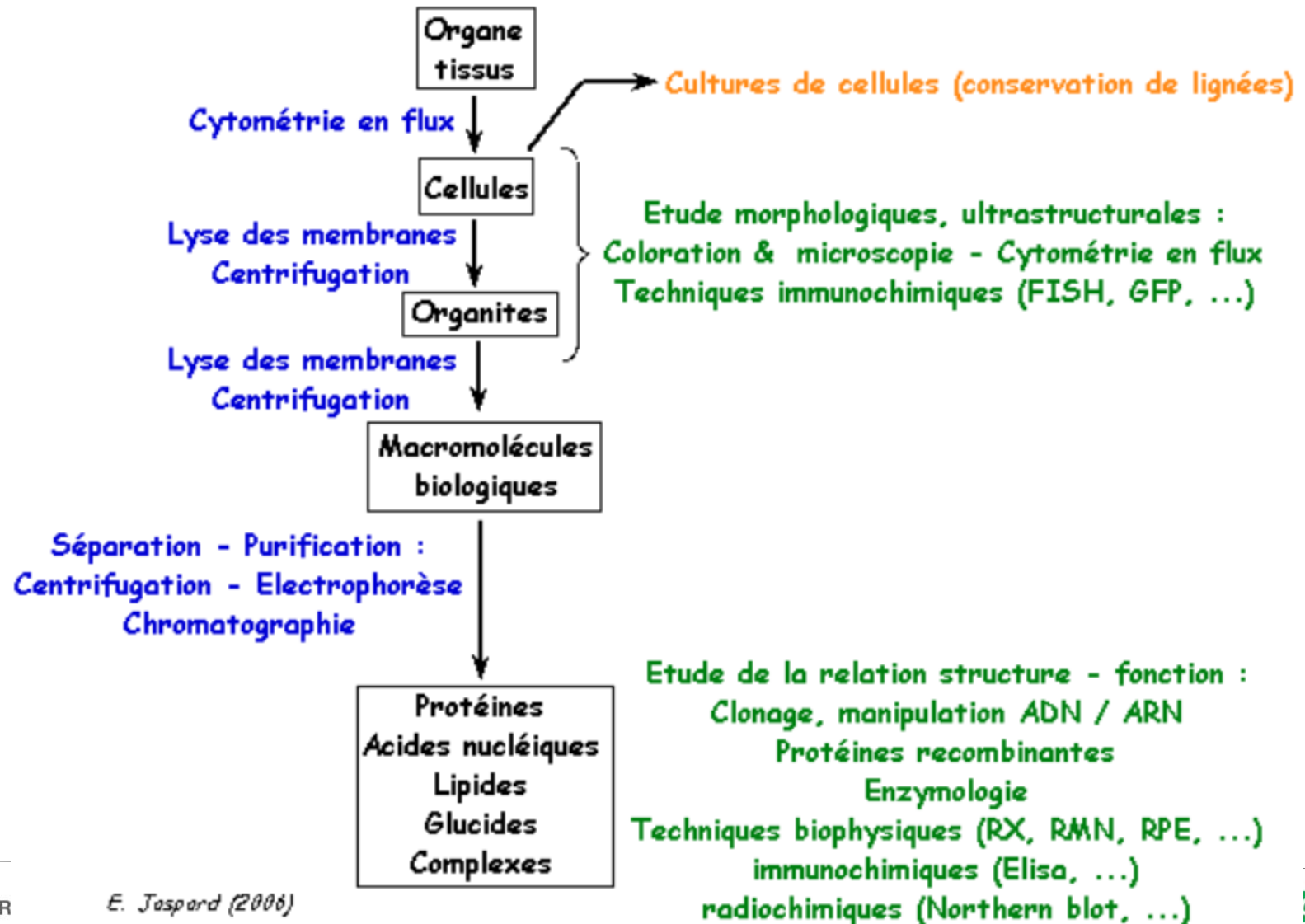
Simplified and affordable cell sorter

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De la purification des tissus à l'analyse des macromolécules



What is Flow Cytometry?



- Cytometry
 - The study of the physical and biochemical properties of cells and cell-like particles

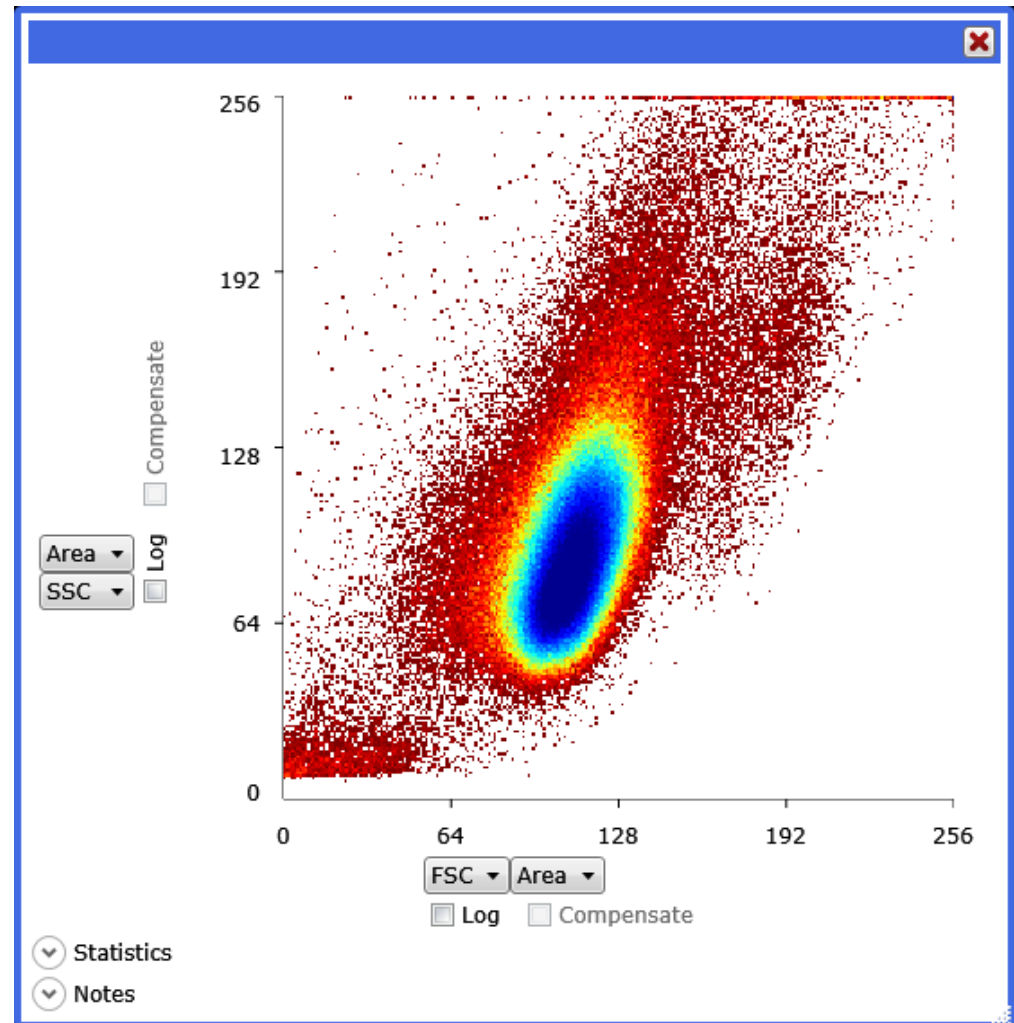
- Flow Cytometry
 - Measuring properties of cells in flow
 - Measurements are made as the cells (or particles) which are suspended in a fluid suspension pass single file by an interrogation point

- Flow Sorting
 - Sorting (separating) cells based on properties measured in flow

Measurements made by a Flow Cytometer/Sorter



- **Physical characteristics**
 - Relative size of the cell (scattered light)
 - Relative complexity of cells (refracted light)
- **Fluorescence**
 - Intrinsic fluorescence
 - Extrinsic fluorescence
- **Time**



Introducing the Bio-Rad S3 Cell Sorter



- Compact
- Easy to use
- Affordable

S3 - Simplified Setup

- **Startup Automatically**

Hands off, scheduled startup

- warms up lasers
- flushes sample lines
- aligns stream
- stabilizes droplets and side streams

- **Bead Calibration**

Operator loads beads, final steps - 7 min

- auto CV peaking
- self-adjusts PMT voltage
- precision calculation of drop delay
- collects 5,000 events for QC

- **Creates QC and Trending report**

QCReportWindow

SN: 0005

Daily QC Report

QC Status

9/17/2012 15:37:21.063 Passed

Parameter	CV	Voltage	Pass/Fail
FL1	2.49	558	Passed
FL2	1.63	483	Passed
FL3	1.84	510	Passed
FL4	1.90	512	Passed

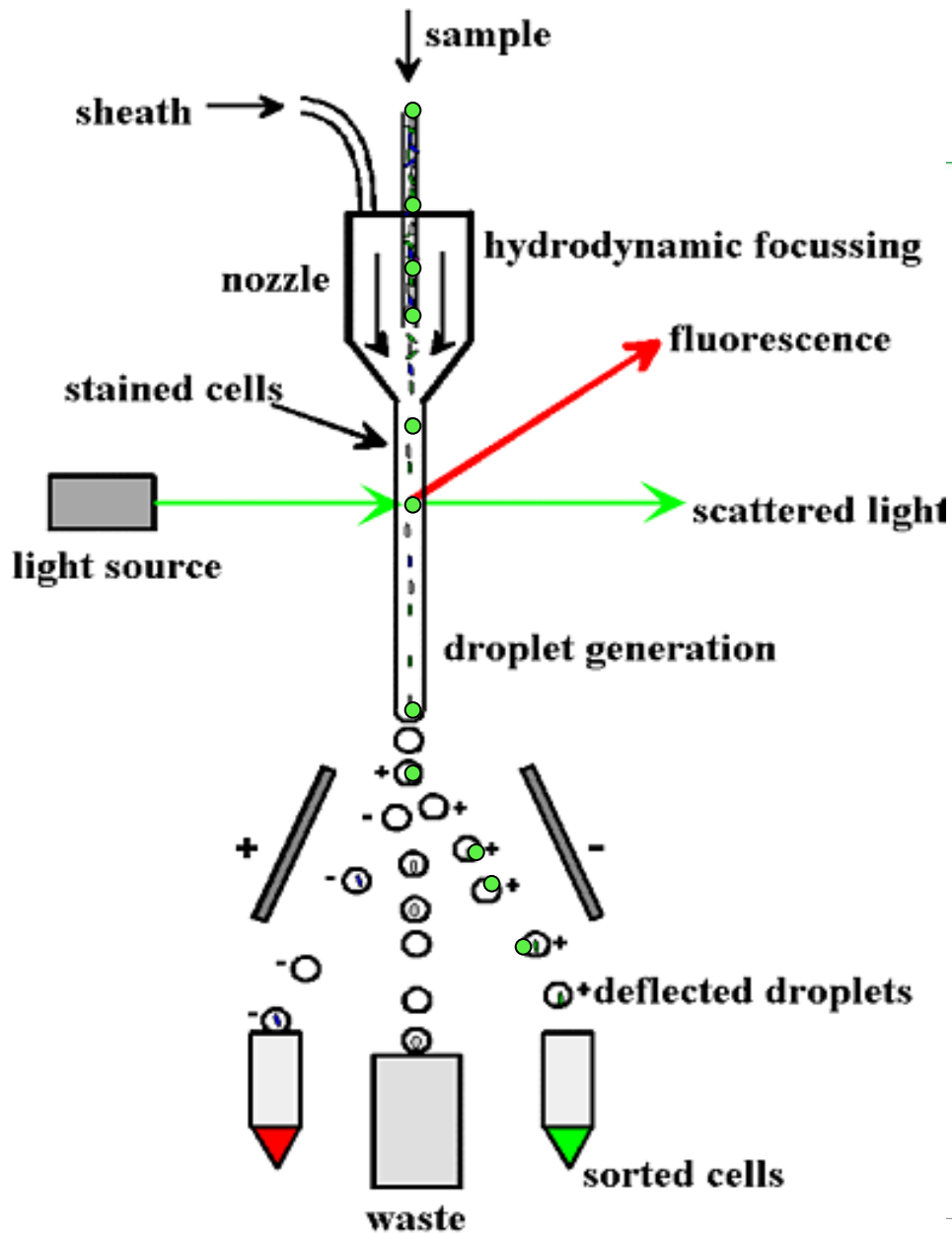
Sort Settings

Amplitude	Frequency	Drop Delay
21.15	38524	29.61

Comments

Printer icon

Help icon



Sample flows into the flow cell

**Laser intersects and
Computer makes the decision**

Stream is charged

Charged Droplet is broken off

Droplet is deflected

Drop Delay

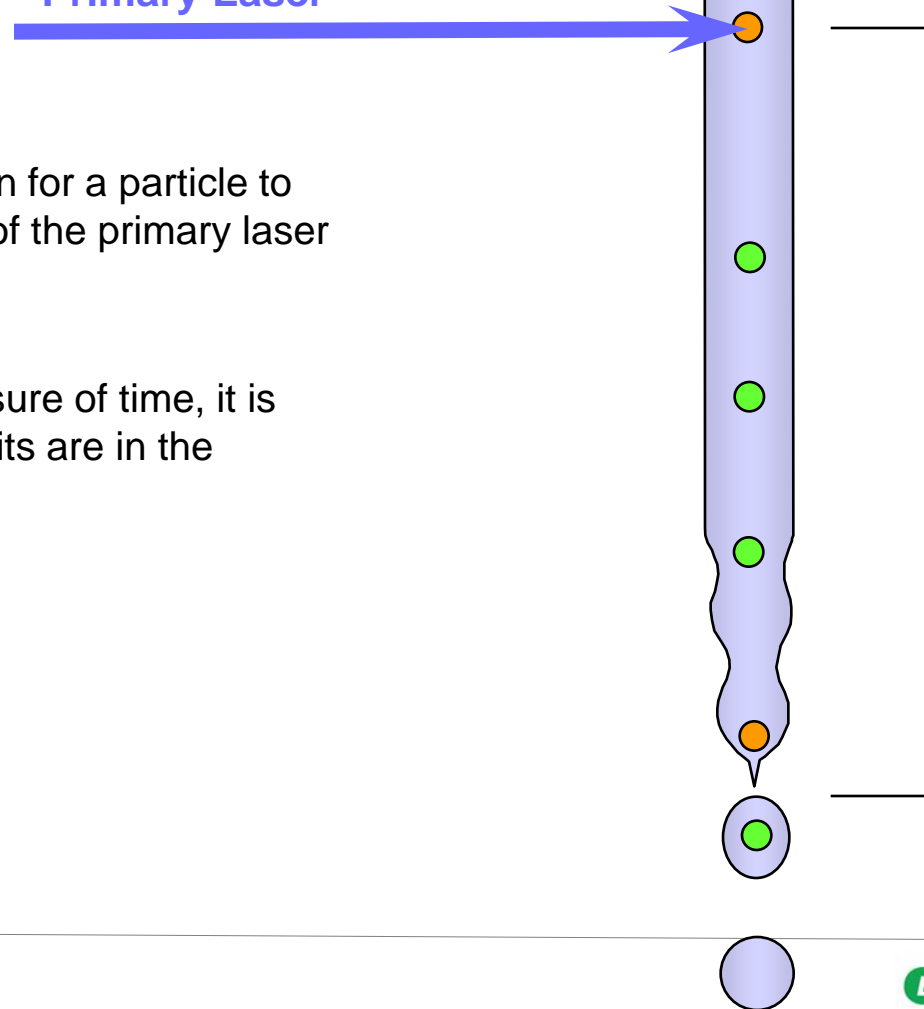
Primary Laser

- Definition

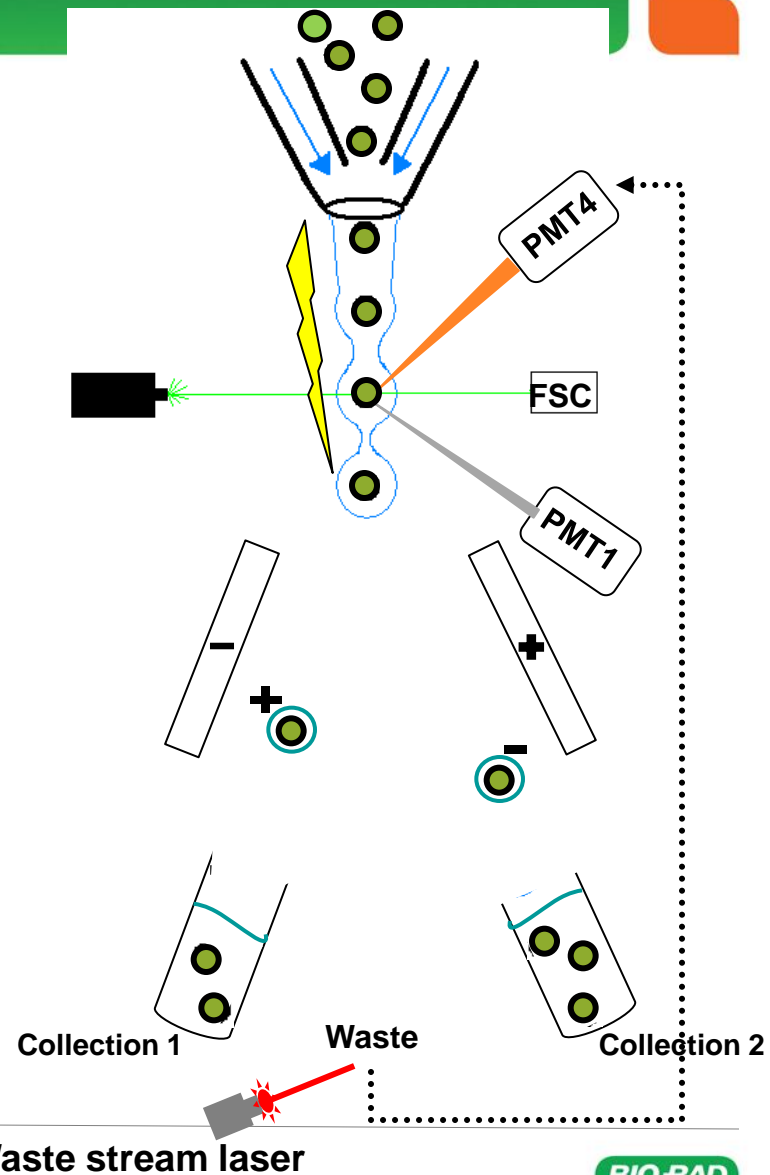
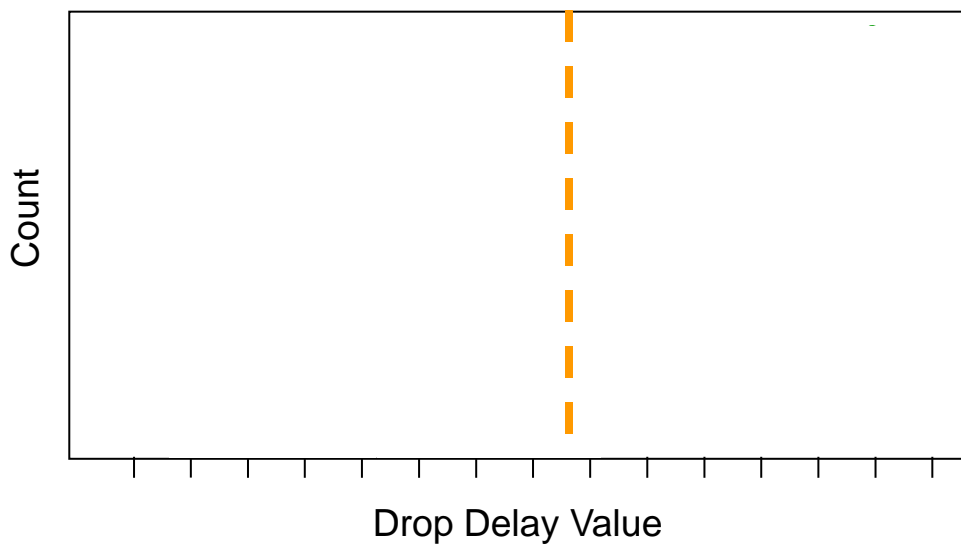
The *Drop Delay* is the time duration for a particle to travel from the interrogation point of the primary laser to the last attached drop.

- Units

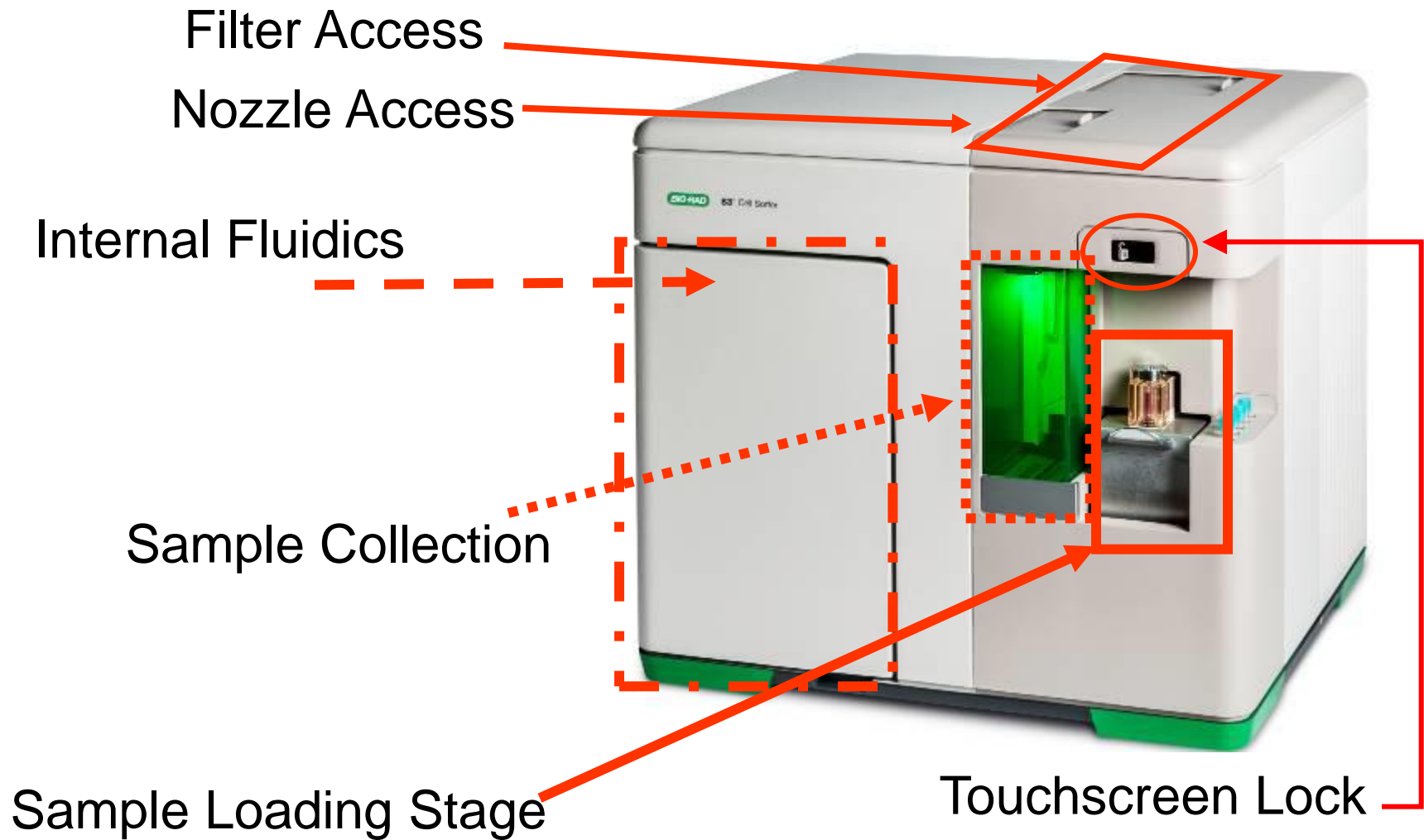
Even though Drop Delay is a measure of time, it is represented as a distance. The units are in the number of drops



- **Drop Delay**
- Distance from point of interrogation to droplet breakoff



System Overview



Fluidics System



■ Onboard fluidics= No Cart

- 8x or 1x Sheath
- DI water
- Waste
- Hot Swap



Sample loading stage



- Reduces carryover with the sample/washing stations
- Temperature control system:
4–37 °C Peltier solid state system

Sort chamber



- Easy to clean plastic surface
- Easy to clean deflection plates
- Window for sort stream camera
- Access to sort tray



Sort collection



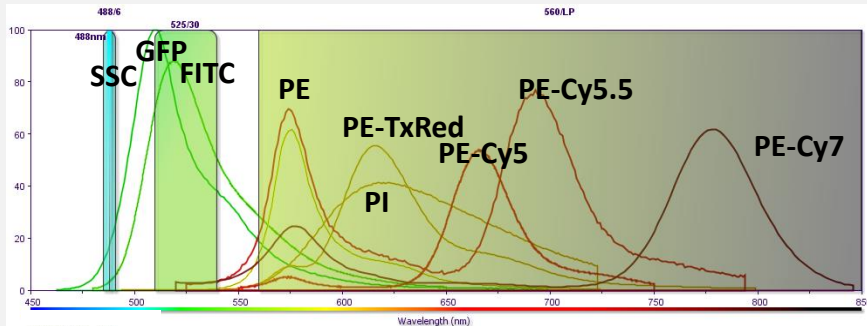
- 2-Way sorting
- Temperature control: 4–37°C
- Up to 5 x 5 ml sample tubes each direction
- Microscope slides
- 8-well strip each direction
- Volume Tracking

Fluorochromes



S3: 780BR Model : 1 Laser 2 FL detection

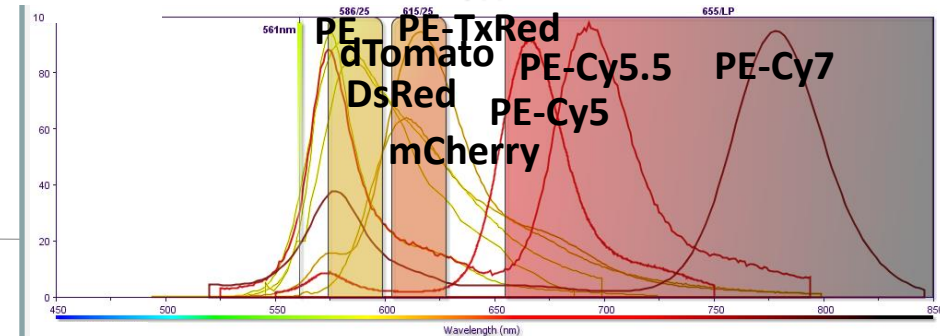
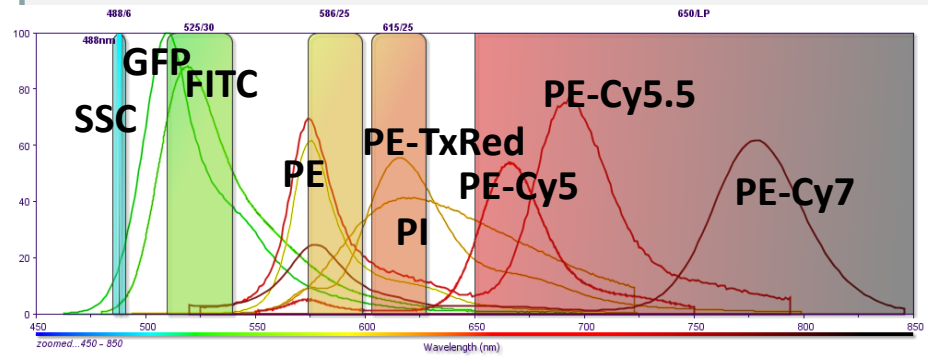
S3 - 780BR Bandpass Filters		
Laser	Bandpass	FL
488	488/6	SSC
488	525/30	FITC GFP YFP
488	560/LP	PE PI PE-TxRed LSS-mKate PE-Alexa647 PE-Cy5 PE-Alexa700 PE-Cy7



S3: 781BR Model : 2 Laser 4 FL detection

S3 - 781BR Bandpass Filters		
Laser	Bandpass	FL
488	488/6	SSC
488	525/30	FITC GFP YFP
488	586/25	PE
488	615/25	PI PE-TxRed LSS-mKate
488	655/LP	PE-Alexa647 PE-Cy5 PE-Alexa700 PE-Cy7

Laser	Bandpass	FL
561	586/25	PE DsRed tdTomato
561	615/25	PI mCherry PE-TxRed
561	655/LP	PE-Alexa647 PE-Cy5 PE-Alexa700 PE-Cy7



Example Applications



- Single-cell cloning of hybridoma cells for the production of monoclonal antibodies
- Sorting progenitor cells in the hunt for pluripotential stem cells
- Purifying different lineages, including stem cells, from bone marrow samples
- Sorting transfected cells with an expression marker, such as fluorescent proteins (eGFP, RFP, mCherry, DsRED, YFP and much more...)
- Multiparameter isolation of cells from mixed populations
- Single-cell sorting for clonogenic assays

High Performance – High-end Features



High speed

- 30,000 eps sorting @ 99% purity
- 100,000 eps acquisition rate for analysis

Up to 2 lasers and 4 colors

- 488nm + 561nm or 640nm (others in the future)

Compensation Wizard

Sample handling

- electronic temperature control: 4°to 37°C
- multiple speed vortexing
- dedicated rinse station to reduce carry-over

User changeable/fixed block optical filters

Compatible with 3rd party software - FCS 3.x



S3 Cell Sorter

Thank you for your attention!

