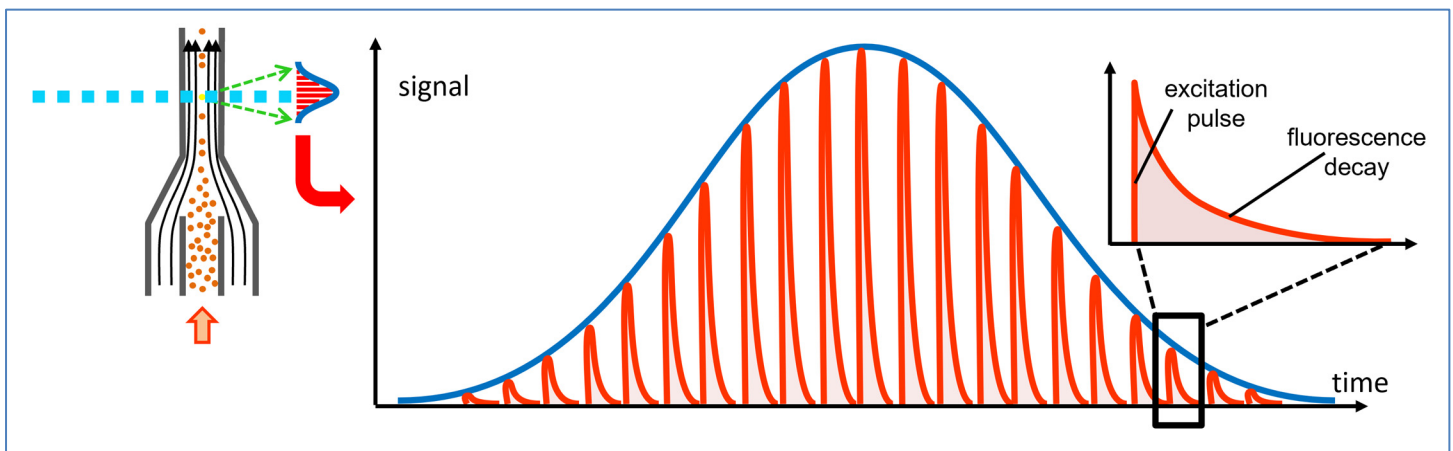
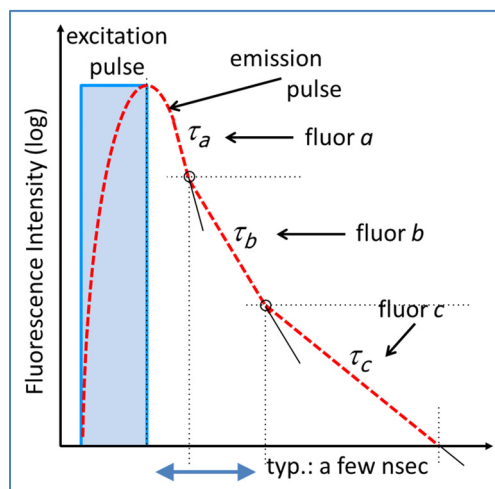


Fluorescence lifetime is a powerful tool that can provide information on cellular processes, protein function, protein-protein interactions. Traditionally image-based, fluorescence lifetime applications have been extremely limited in throughput. The **Danube** combines many of the benefits of FLIM analysis with the high throughput of flow cytometry. The most advanced **fluorescence lifetime flow cytometer** on the market, it provides **direct, time-domain** analysis of fluorescence lifetime, with the ability to measure multi-exponential decay on a cell-by-cell basis at a throughput of up to **1,500 cells/second**.



The Danube pulses excitation light hundreds of times per event, with each pulse yielding a lifetime decay curve measured during the off period



The Danube can resolve multiexponential lifetime decays in a mixed lifetime sample, even if their fluorescence spectra overlap

The **Danube** works by generating extremely short excitation pulses, with each cell being probed hundreds of times as they transit through the interrogation window, resulting in **subnanosecond time resolution** of fluorescence lifetime decay values. The system features Kinetic River's **Shasta** fluidic control system for ultrastable sheath flow and **superior core stream control**. The **Cavour** always-on flowcell monitor allows you to optimize laser alignment and core stream dimensions in real-time **without removing the cover**. The entire system is operated using our intuitive, easy-to-use **Panama** flow cytometry software for instrument control and data visualization, providing researchers with the flexibility their cutting-edge research requires.

Working directly in the time domain, the **Danube** is also capable of simultaneously resolving **multiple lifetime components** within the same cell. This allows the differential quantification of lifetime changes of a given compound in the subcellular environment.

The Danube, or use thereof, may be covered in whole or in part by patents in the U.S. and other jurisdictions. A current list of applicable patents can be found at <https://www.kineticriver.com/kinetic-river-corp-patents>.



Where Light Meets Life™

Danube

Fluorescence Lifetime Flow Cytometer Specifications

Excitation Optics

Single-laser options:

- 405 nm (400 mW)
- 488 nm (200 mW)
- 640 nm (200 mW)

Custom laser options (powers vary 50 – 300 mW):

- 375, 395, 420, 445, 460, 473, 505, 515, 633, 660, 685, 785, 850 nm

All sources pulsed at repetition rates 10 – 100 MHz

Emission Optics

Standard channels:

- FSC: 2 – 10°
- SSC: 90°, 1.25 NA
- 405 laser: FL1 (430/30), FL2 (470/30)
- 488 laser: FL3 (530/30), FL4 (580/30)
- 640 laser: FL5 (660/30), FL6 (710/LP)

Custom channel bandpass selections available for each custom laser option

Fluidics

Hydrostatic sheath pressure injection:

- 8-L capacity, pressure up to 30 psig

Hydrostatic sample pressure injection:

- Injection speed: 0.2 – 20 μ L/min

Signal Processing

Digital waveform sampling:

- up to 1.5 GHz bandwidth
- up to 10-bit resolution (raw data)
- up to 2.5 GS/s per channel

Offline signal analysis:

- multiexponential lifetime fit

The Panama software for instrument control and data visualization

Performance

Fluorescence lifetime:

- interaction time from 0.5 to 20 ns
- down to 500-ps lifetime resolution
- multiexponential decay

Sensitivity (488-nm excitation, 530/30-nm channel):

- FITC \leq 200 MESF (typ.)
- 7/8 Spherotech Rainbow bead peaks
- CV 2% (typ.)

Throughput:

- 1,500 events/s (single channel)

Installation Requirements

Dimensions:

- 24" x 36" x 10" (W x L x H)
(separate sheath and waste tanks)

Weight:

- 160 lbs. (1-laser, 4-detector system)

Environmental:

- 15°–30°C, 60% RH

Power:

- North America: 120 VAC, 50/60 Hz, 5A
- Japan: 100 VAC, 50/60 Hz, 5A
- Rest of world: 230 VAC, 50/60 Hz, 3A

