Delaware Flow NanoCytometer™: Ultrasensitive Nanoparticle Detection in Flow

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NIH Flow Cytometry Interest Group 2023 Meeting
September 12, 2023

Delaware Flow NanoCytometer™

***Delaware* was built for purpose for EV researchers**

- high scattering and FL sensitivity
- two separate SSC channels (375 + 405, 488)
- did not compromise full functionality
- multiplexing of up to 6 FL channels
- high throughput (up to 2000 particles/sec)
- ease of use (including *Cavour*, *Shasta*, *Panama* acquisition and visualization software)
- not restricted to EVs, can do cell analysis also
- performance verified on a variety of materials

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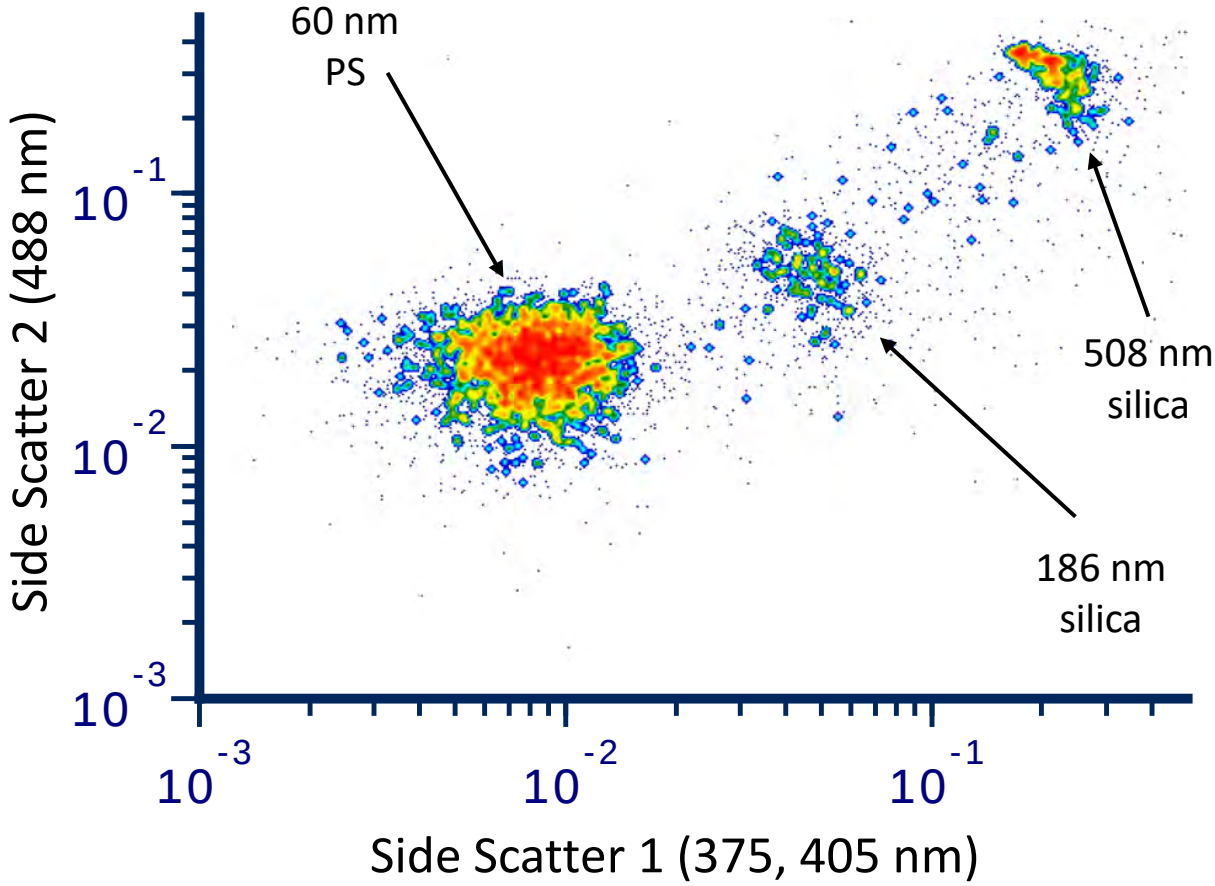
Delaware: 60-nm Scattering Detection Sensitivity (PS NPs)

Improve sensitivity

- low noise electronics
- proprietary collection optics
- high power lasers
- multiple wavelength scatter
- proprietary background reduction algorithms



Silica nanospheres from Alpha Nanotech
Polystyrene nanospheres from Spherotech

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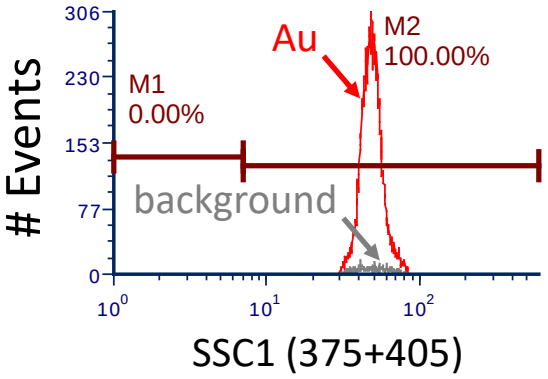
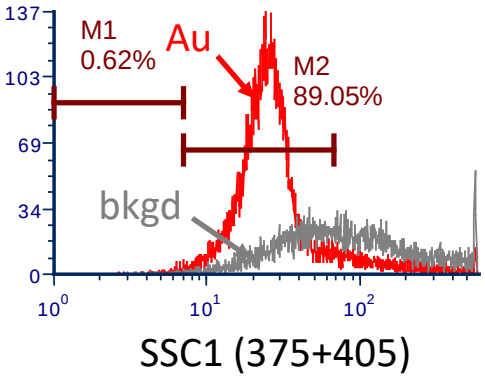
Delaware: 28-nm Scattering Detection Sensitivity (Gold NPs)

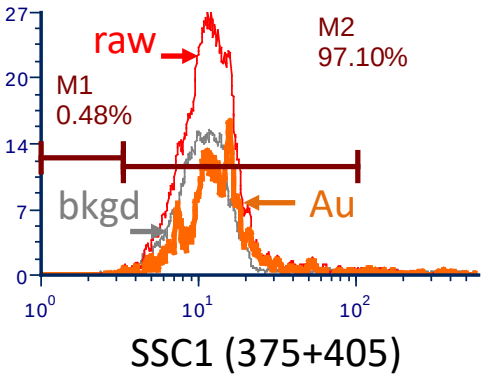
102 nm Gold

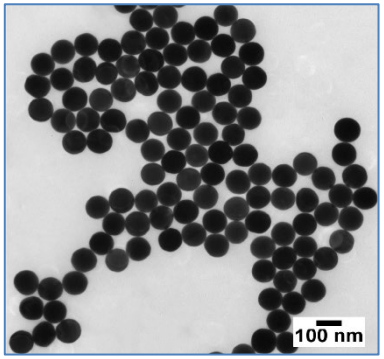


50 nm Gold



28 nm Gold





Gold NPs from nanoComposix (sized by TEM)

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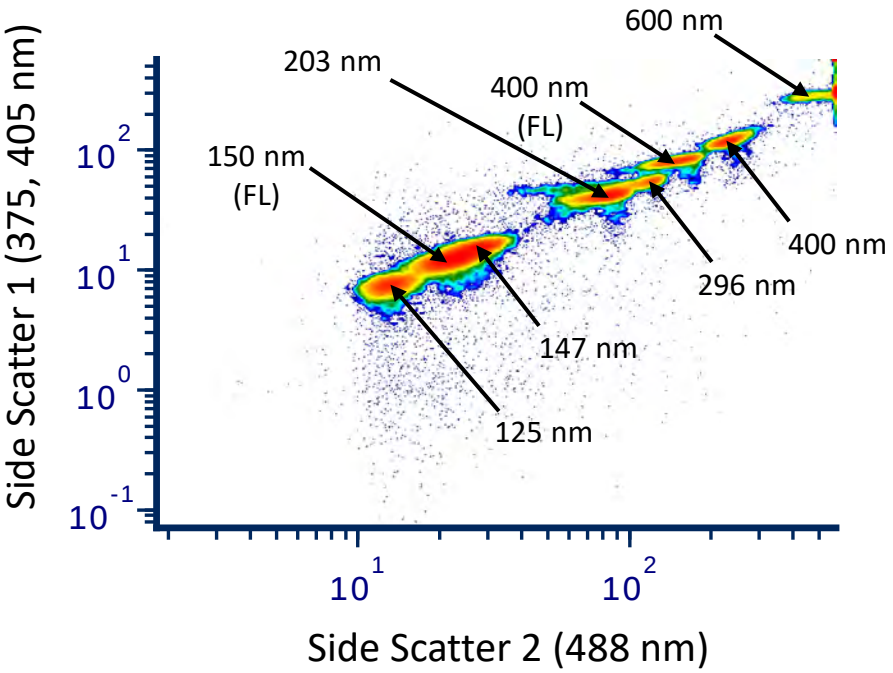
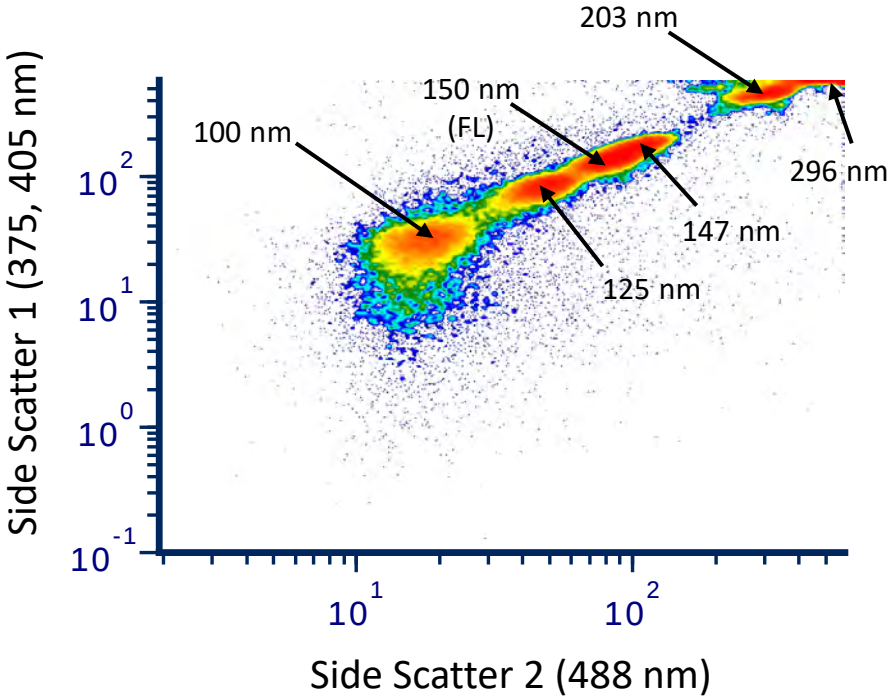
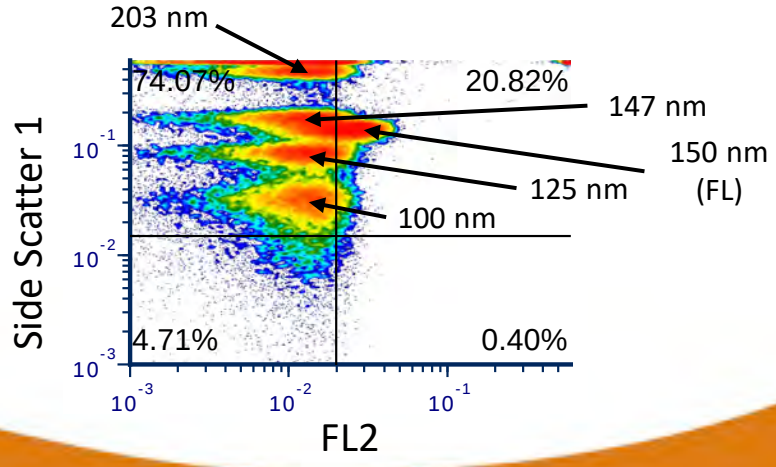
Delaware: 22-nm Resolution

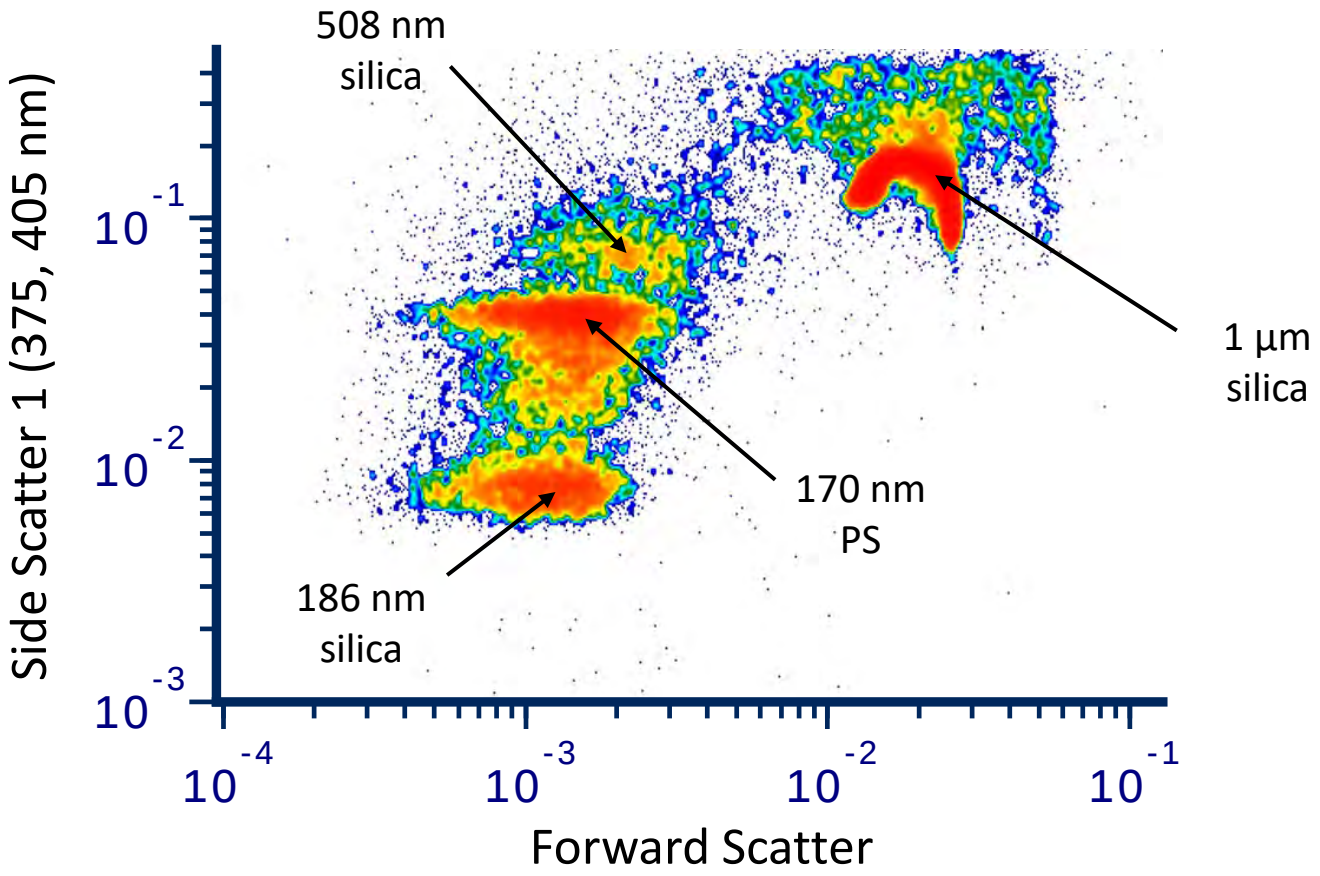




Rosetta PS calibration
nanoparticles from Exometry



Delaware: Large Dynamic Range



Silica nanospheres from Alpha Nanotech
Polystyrene nanospheres from Spherotech

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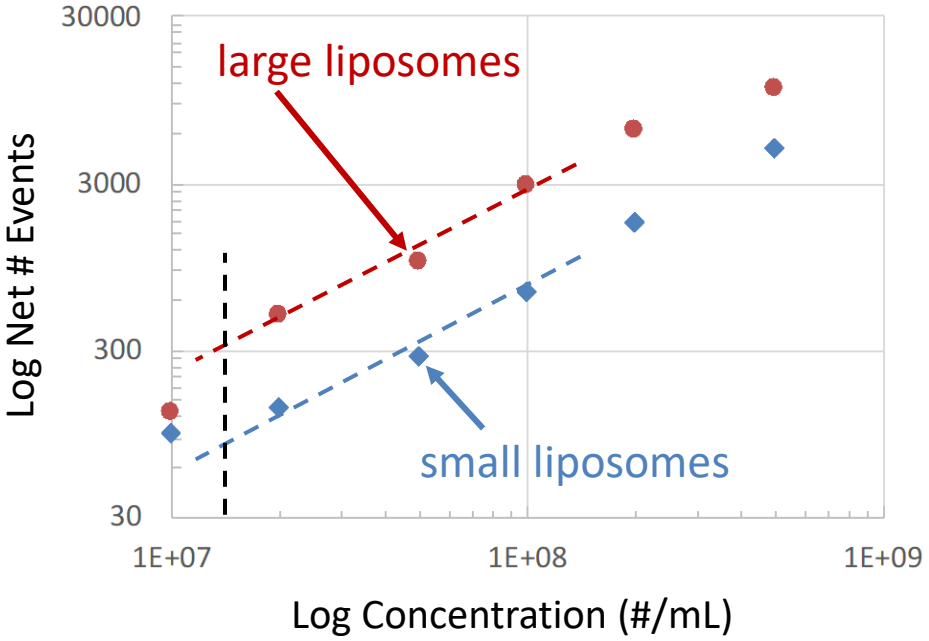
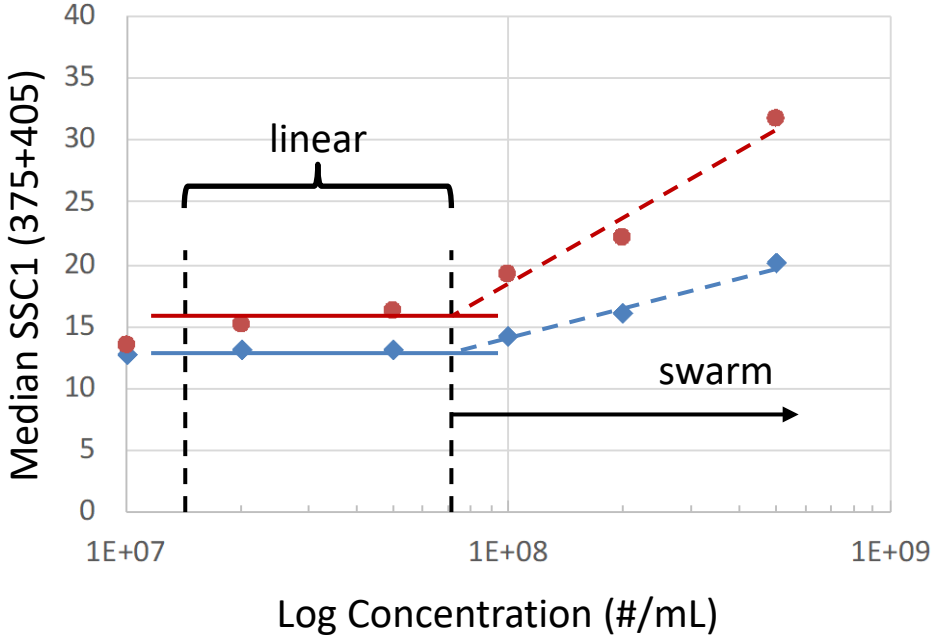
Delaware: Detection of 58- and 177-nm Liposome Standards





ACOERELA

Acoerela liposome standards
Sized by nanoFCM at 177 nm and 58 nm

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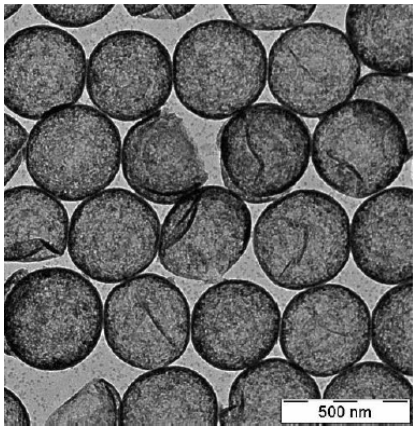
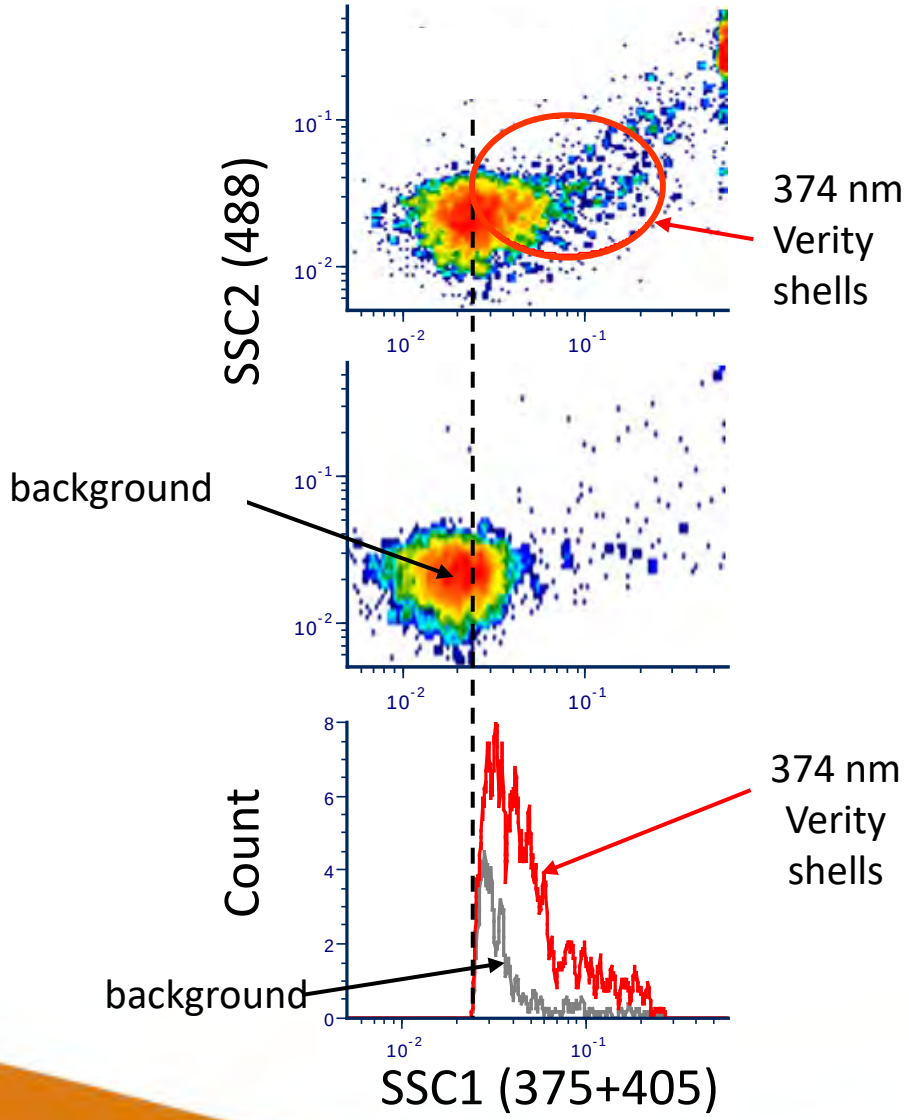
Delaware: Organosilica Shells

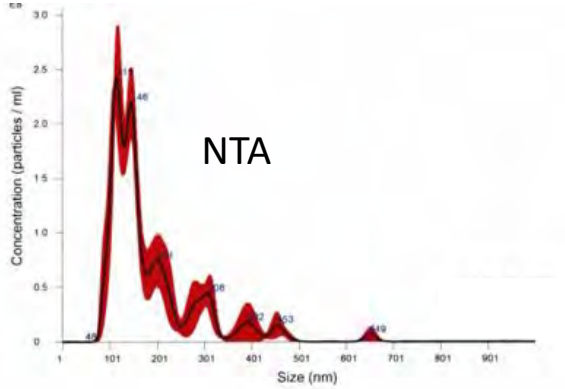


- very thin silica shell
- aqueous center
- very low scattering contrast

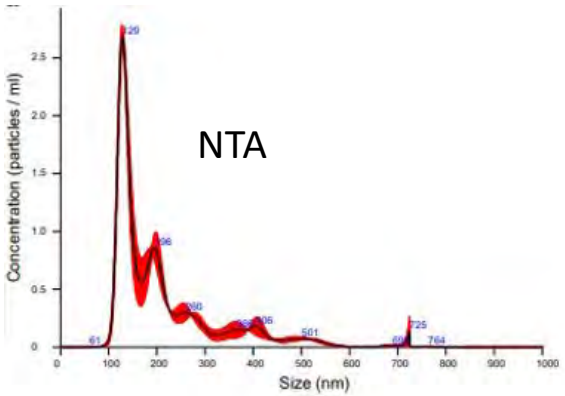
374-nm Verity Shells™ hollow organosilica nanosphere shells from Exometry



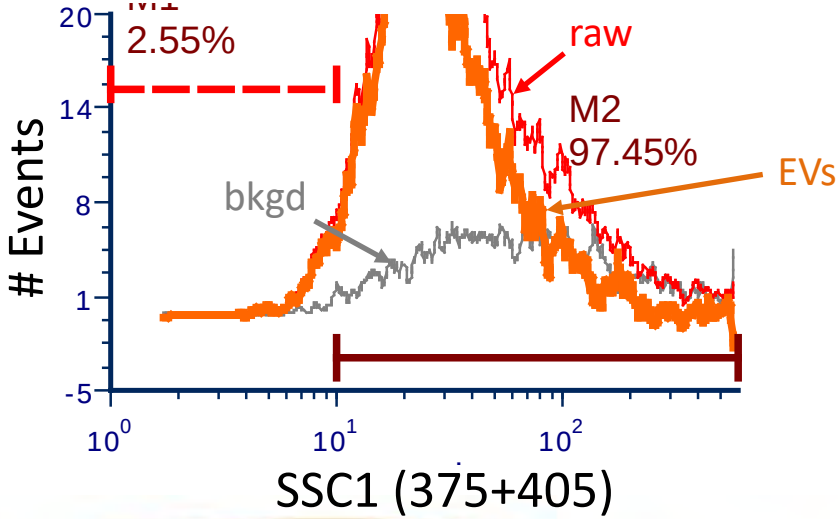
Delaware: HeLa- and PC3-Derived EVs

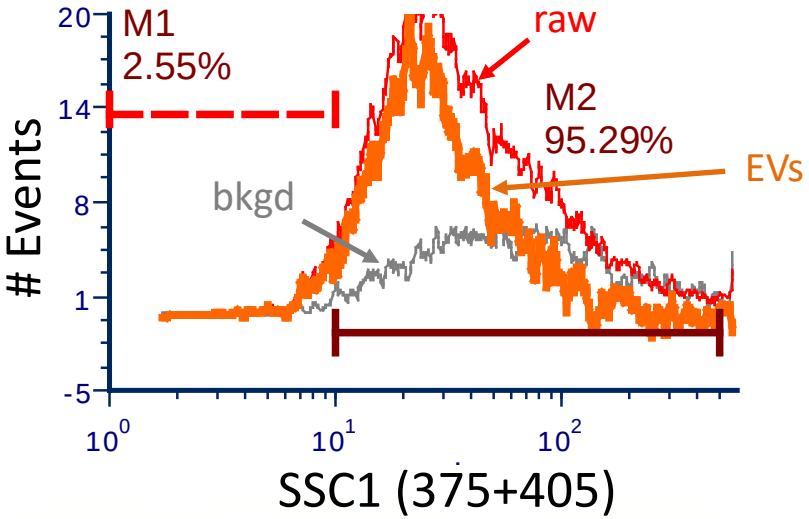


HeLa EVs



PC3 EVs





EVs purified and measured on NTA in the lab of Dr. Fatah Kashanchi at George Mason University

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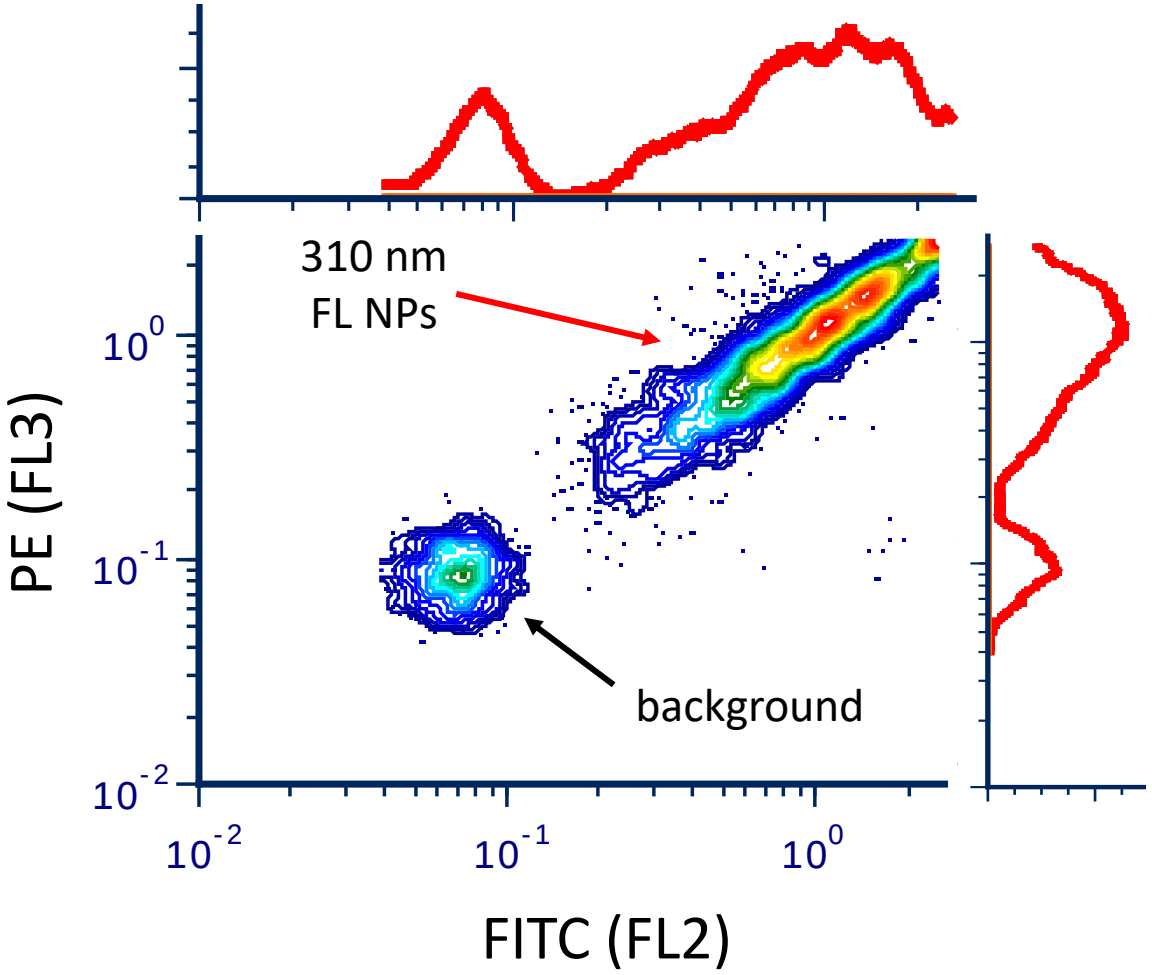
Delaware: Up to 6 Fluorescence Channels

- up to 6 FL channels
- analysis of cargo
- cross-correlate marker expression in individual EVs
- critical for correlating with EV function



Spherotech UltraRainbow 310-nm fluorescent nanoparticles

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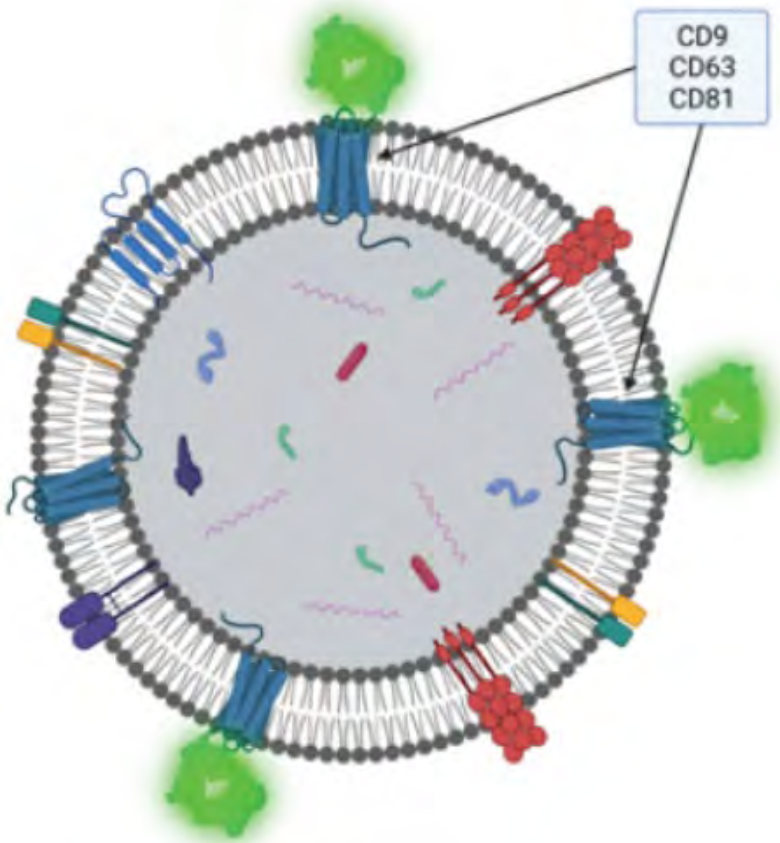
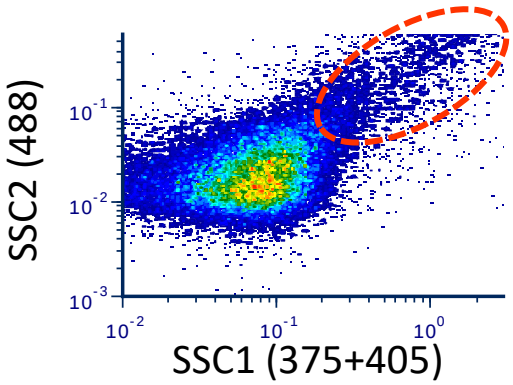
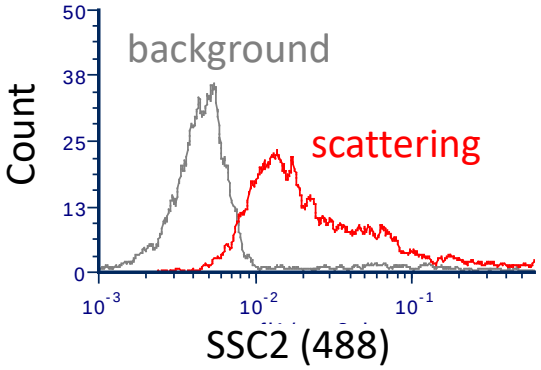
Delaware: Tetraspanin Detection in EVs

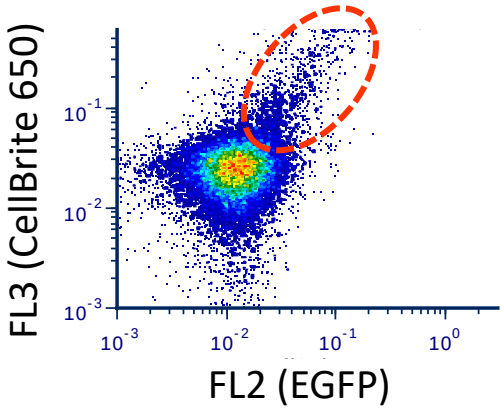


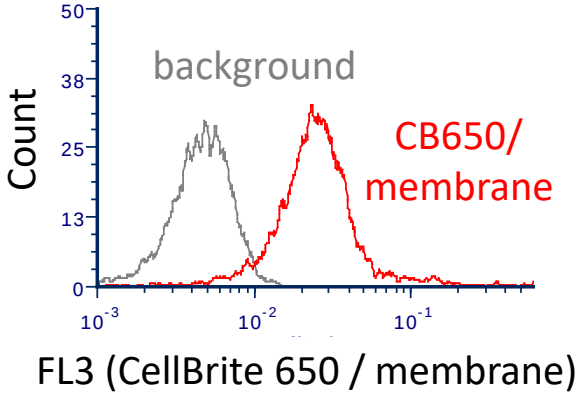
HEK293-derived Fluo-EVs from HansaBioMed
CellBrite Steady 650 stain from Biotium

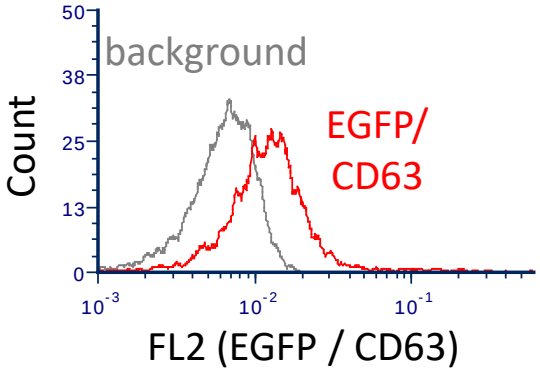
Delaware: Tetraspanin Detection in EVs











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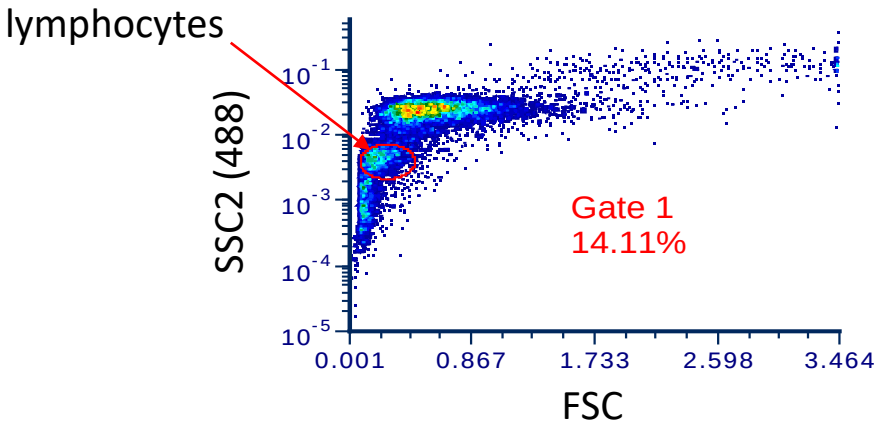
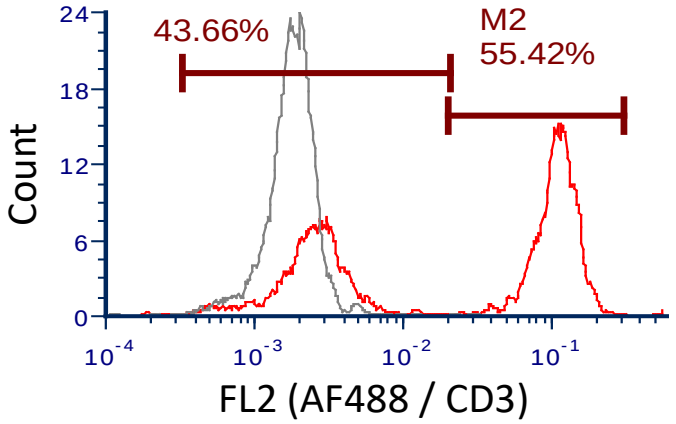
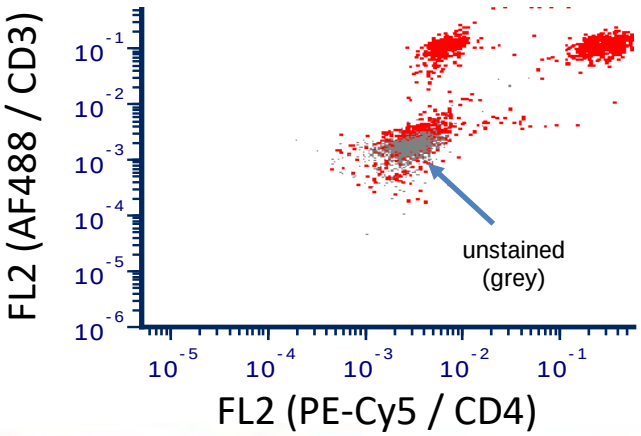
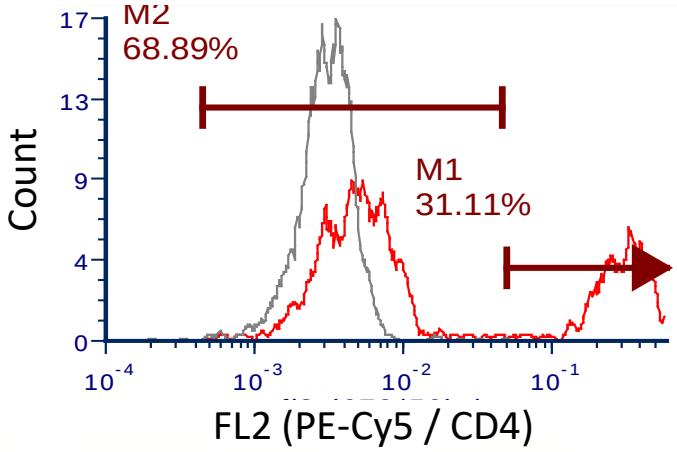
Delaware: Stained VeriCell™ Leukocytes





no compensation





Veri-Cell PBMCs are from BioLegend and were stained for CD3 and CD4 in-house

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Delaware Configurations

Basic Configuration	High Sensitivity Configuration	Five-Laser Configuration
2 Lasers 405 nm, 250 mW 488 nm, 200 mW	**3 Lasers** 375 nm, 70 mW 405 nm, 250 mW 488 nm, 200 mW	**5 Lasers** 375 nm, 70 mW 405 nm, 250 mW 488 nm, 200 mW 561 nm, 100 mW 640 nm, 150 mW
Standard Scattering FSC, SSC (405 and 488 nm)	**Ultrasensitive Scattering** FSC, SSC (375, 405, 488 nm)	**Ultrasensitive Scattering** FSC, SSC (375, 405, 488 nm)
2 Fluorescence Channels 525/50 580/23	**4 Fluorescence Channels** 525/50 580/23 615/24 697/58	**6 Fluorescence Channels** 440/40 (optional) 525/50 580/23 615/24 697/58 755/35

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Delaware Flow NanoCytometer™ for EV Analysis

- 3 configurations for broad range of needs
  - up to 5 lasers
  - fluorescence detection in up to 6 channels
- 60-nm single-NP detection (PS)
- 28-nm single-NP detection (Au)
- 58-nm single-liposome detection
- 22-nm resolution
- cancer cell EVs
- tetraspanin detection in HEK293 EVs
- low background
- wide dynamic range
- intuitive user interface
- *also* measures cells

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info@KineticRiver.com

The *Delaware* provides excellent size sensitivity and resolution **without compromising** multiplexing, throughput, or ease of use

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QUESTIONS?

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