Waipapa Taumata Rau University of Auckland

Cytek Aurora CS spectral cell sorter



Introduction

Flow cytometry is a cutting-edge analytical technique used to assess the physical and biochemical properties of cells or particles in suspension. As individual cells pass through a focused laser beam, they emit light signals that are captured by a series of detectors. These signals are then converted into electronic data for comprehensive analysis.

Flow cytometry systems measure both light scatter and fluorescence—either naturally emitted by the cells or from fluorescent markers bound to specific cellular components. This enables detailed profiling of cellular characteristics, including:

- *Cell size and granularity*
- *Internal complexity*
- *Surface and intracellular markers*
- *DNA and RNA content*
- *Cell Sorting Capabilities*

Beyond analysis, flow cytometry also enables cell sorting, allowing researchers to isolate specific cell populations based on defined parameters. These sorted cells can be collected for downstream applications such as cell culture, molecular assays, or functional studies.

Our facility features the Cytek Aurora CS Cell Sorter, a state-of-the-art spectral cytometer capable of detecting the full spectrum of emitted light. This allows for the simultaneous assessment of a large number of parameters, enhancing the depth and resolution of cellular analysis.

Notably, this instrument is the first in the Southern Hemisphere to be installed within a Class II biosafety cabinet, providing a safe and aseptic environment for both users and samples during sorting procedures.

Applications

- *Cell sorting - populations of cells can be selectively deposited into collection vessels for further culture or analysis*
- *Measurement of cell properties such as size, internal complexity, internal and external cell components*
- *Phenotypic analysis of intracellular or extracellular markers*
- *Cell cycle analysis*
- *Analysis and sorting of fluorescent protein expression (GFP, DsRed, mCherry, etc) in zebrafish and mammalian cells*
- *DNA content determination*
- *Cytokine detection*
- *Calcium flux*
- *Purification of cell populations for RNA extraction*
- *Purification of cell populations based on internal or external markers*

Software

- *SpectroFlo® CS ver 1.4.1*

Specifications

Configuration

- *5 lasers (UV, Violet, Blue, Yellow-Green and Red)*
- *67 detection channels (64 fluorescence channels, FSC, blue laser SSC and violet laser SSC)*

Lasers

- *355 nm 20 mW*
- *405 nm 100 mW*
- *488 nm 50 mW*
- *561 nm 50 mW*
- *640 nm 80 mW*

Detectors

- *APD detector arrays for each laser*

Nozzles

- *70, 85, 100, 130um*

Collection vessels

- *1.5ml Eppendorfs and 5ml tubes – up to 6-way sort*
- *15ml Falcon tubes – up to 2-way sort*
- *96-well and 384-well plates – single and multi-cell sort*

Contact person

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