The basics: Know your flow cytometry system

A laser is the light source that excites fluorophores. Flow cytometers use solid-state lasers, argon/RF lasers, krypton lasers, and helium/neon lasers. The emission from a laser is highly monochromatic, monochromatic, and linearly polarized. Flow cytometers use lasers of multiple wavelengths to excite fluorophores simultaneously.

When selecting a laser for flow cytometry applications, consider the following:

1. The excitation wavelength should be near the emission maximum of the fluorophore(s) being used.
2. The laser should be able to excite multiple fluorophores simultaneously.
3. The laser should produce a stable output of light.
4. The laser should be able to operate continuously without overheating.

To select your optimal combination of fluorochromes, visit BD Biosciences.

For detailed information about our newest fluorochromes and instrumentation, visit BD Biosciences.

BD Biosciences Fluorochrome Reference Chart

Visit bdbiosciences.com/colors for detailed information about our newest fluorochromes and instrumentation.

To select your optimal combination of fluorochromes, visit bdbiosciences.com/spectra to use an interactive fluorescence spectrum tool.

Choose a winning combination - Guidelines for selecting reagents for multicolor flow cytometry

1. The basic: Know your instrument

Reagent selection starts with your instrument configuration. The lasers and detectors in your configuration dictate how well you can detect positive signals from your samples. And the number of detectors in your configuration may dictate how many fluorochromes you can use.

2. Fluorochrome overview

Fluorophores are organic or inorganic molecules that absorb light of one wavelength and emit light of another wavelength. They are used in flow cytometry to label antigens, cell populations, and molecules.

3. Minimum-spillower

As you add more lasers and gain more experience, you will find that the minimum-spillower combinations are the most powerful. These combinations can provide greater sensitivity and specificity than more complex combinations.

4. Colors and specificities

The color of a fluorochrome is determined by its wavelength of emission. The specific wavelength of emission is determined by the excitation wavelength of the laser and the absorption characteristics of the fluorochrome.

5. Tandem-dyes

A tandem-dye is a compound that consists of two or more fluorophores. These combinations can provide increased sensitivity and specificity compared to single-dye combinations.

6. Validation

The validation process involves testing the system to ensure that the fluorochromes are working properly and that the data is being acquired accurately.

For additional guidelines, visit bdbiosciences.com/fluorochrome-reference-chart.