BD FACSCelesta™ Flow Cytometer Configuration Sheet
Blue-Violet-Yellow Green (BVYG) Laser Configuration

The BD FACSCelesta™ flow cytometer is designed to simplify the use of multicolor flow cytometry and allow researchers to benefit from new innovations in instrument and reagent technology. This platform offers multiple configurations to meet varied application needs.

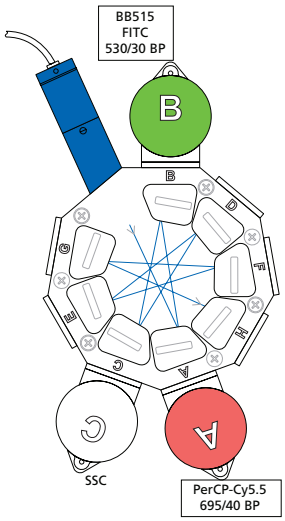
The BVYG configuration of the BD FACSCelesta includes blue, violet, and yellow-green lasers, optimized to get the most out of the legacy fluorochromes and BD Horizon Brilliant™ dyes shown in the optical path diagrams. While a blue laser has long been standard in flow cytometry, the violet laser is gaining popularity as more bright violet-excited fluorochromes, such as BD Horizon Brilliant™ Violet reagents, are introduced and enthusiastically adopted. The yellow-green laser, which optimally excites phycoerythrin (PE) and bright PE-based tandem dyes as well as advanced fluorescent proteins, allows markers to be spread across more lasers, further reducing the overall compensation needed for a multicolor panel.

Multicolor flow cytometry panel design has presented challenges for researchers, such as varying marker expression, varying dye brightness, and significant emission spillover between fluorescence channels. The combination of bright, narrow-spectrum, BD Horizon Brilliant fluorochromes and sensitive optics results in panels that can readily resolve even dim populations, yet are easy to use and compensate. The system operates with BD FACSDiva™ software, a collection of convenient and easy-to-use tools for flow cytometer and application setup, data acquisition, and data analysis.

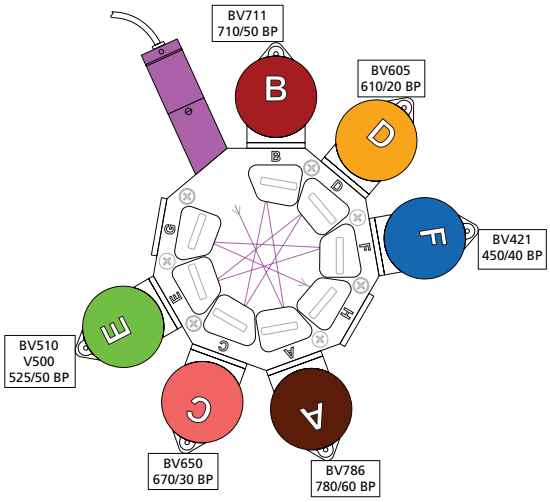
Optical path diagrams and fluorochrome support

Laser polygons show fluorochromes, mirrors, filters, and optical paths for the BD FACSCelesta BVYG configuration.

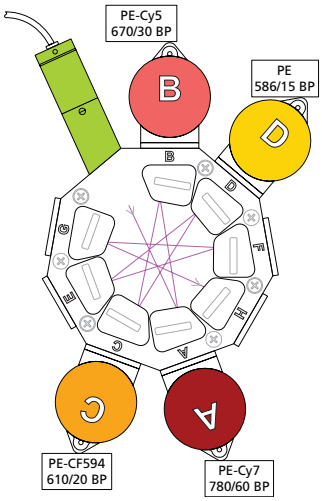
Blue laser



Violet laser



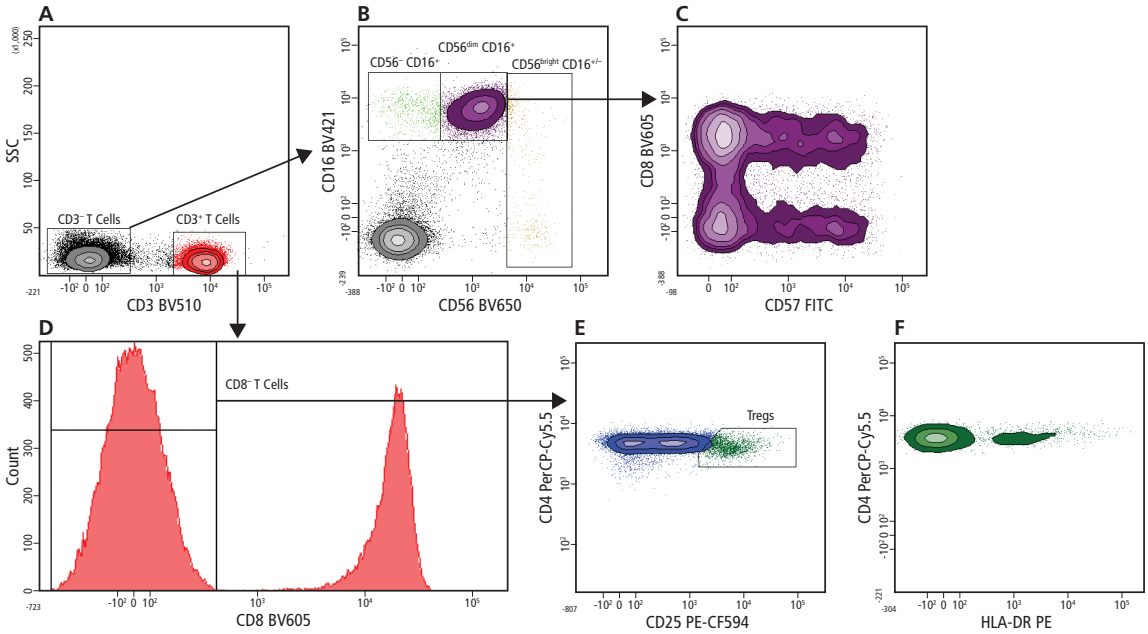
Yellow-Green laser



Other fluorochromes supported:
BD Horizon™ Fixable Viability Stain 520

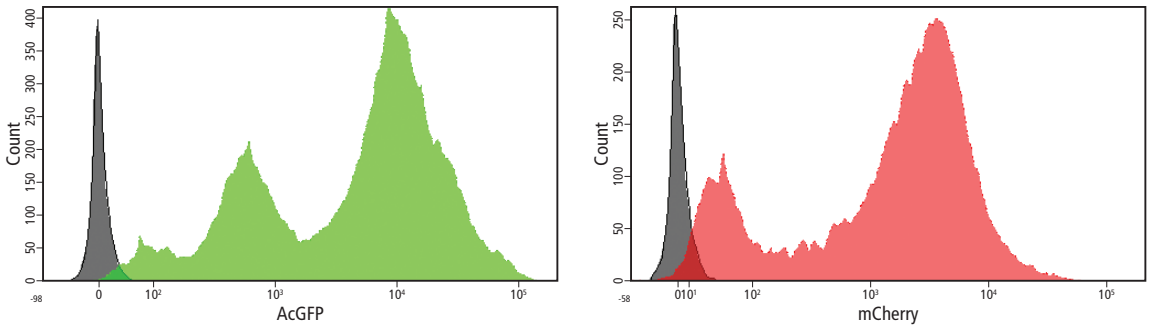
Other fluorochromes supported:
BD Horizon™ Fixable Viability Stain 450, 510

Other fluorochromes supported:
BD Horizon™ Fixable Viability Stain 570, 620



8-color NK and Treg Analysis on the BD FACSCelesta BVYG Configuration.

This panel demonstrates the sensitivity and resolution of the BD FACSCelesta flow cytometer configured with the 561-nm yellow-green laser in detecting rare cell subpopulations. After normal human whole blood was washed and lysed, BD Horizon Brilliant and traditional dyes were used to identify rare NK-cell and Treg subpopulations. **A.** Cells were gated to select the $CD3^+$ or $CD3^-$ lymphocytes. **B.** $CD3^-$ lymphocytes were analyzed to show the three subsets of NK cells based on CD16 and CD56 expression. **C.** Gated on the $CD56^{dim}CD16^+$ NK-cell population, surface markers were used to identify CD57 and CD8 NK-cell subpopulations. **D.** Gated on $CD3^+$ T cells, $CD8^-$ T cells were identified. **E.** Using surface markers, Tregs were identified from the $CD8^-CD4^+$ helper T cells based on CD25 expression. **F.** Gated on Tregs, Treg activated and resting subsets can be resolved based on HLA-DR expression.



Expression of Fluorescent Proteins in Transfected Human Embryonic Kidney Cells.

HEK-293 cells were transfected over 24 hours with AcGFP (left) or mCherry (right), fixed with BD Cytofix™ Fixation Buffer (Cat. No. 554655), and cryopreserved for one week. After thawing, cells were washed and then analyzed by flow cytometry. Transfected cells (green or red) were compared to wild type (black) for expression of AcGFP or mCherry, respectively.

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Excitation Laser	Fluorochrome	Ex_{max}	Em_{max}	Relative Brightness
Violet (405 nm)	BD Horizon Brilliant™ Violet 786 (BV786)	407 nm	786 nm	
	BD Horizon Brilliant™ Violet 711 (BV711)	407 nm	711 nm	
	BD Horizon Brilliant™ Violet 650 (BV650)	407 nm	650 nm	
	BD Horizon Brilliant™ Violet 605 (BV605)	407 nm	602 nm	
	BD Horizon Brilliant™ Violet 510 (BV510)	405 nm	510 nm	
	BD Horizon Brilliant™ Violet 421 (BV421)	407 nm	421 nm	
Blue (488 nm)	PerCP-Cy™5.5	482 nm	695 nm	
	BD Horizon Brilliant™ Blue 515 (BB515)	490 nm	515 nm	
	FITC	494 nm	520 nm	
Yellow-Green (561 nm)	PE-Cy™7	496 nm	785 nm	
	PE-Cy™5	496 nm	667 nm	
	BD Horizon™ PE-CF594	496 nm	612 nm	
	PE	496 nm	578 nm	

Relative Brightness Key:

- Dim
- Moderate
- Bright
- Brightest

Ordering Information

Description	Cat. No.
BD FACSCelesta™ Flow Cytometer, BVYG Configuration	**660345**
BD FACSCelesta™ High Throughput Sampler (HTS) Option	**658946**
BD FACSFlow™ Supply System	**649908**
BD FACSCelesta™ Standard Workstation Bundle	**660472**

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