

# BD Biosciences Fluorochrome/Laser Reference Chart

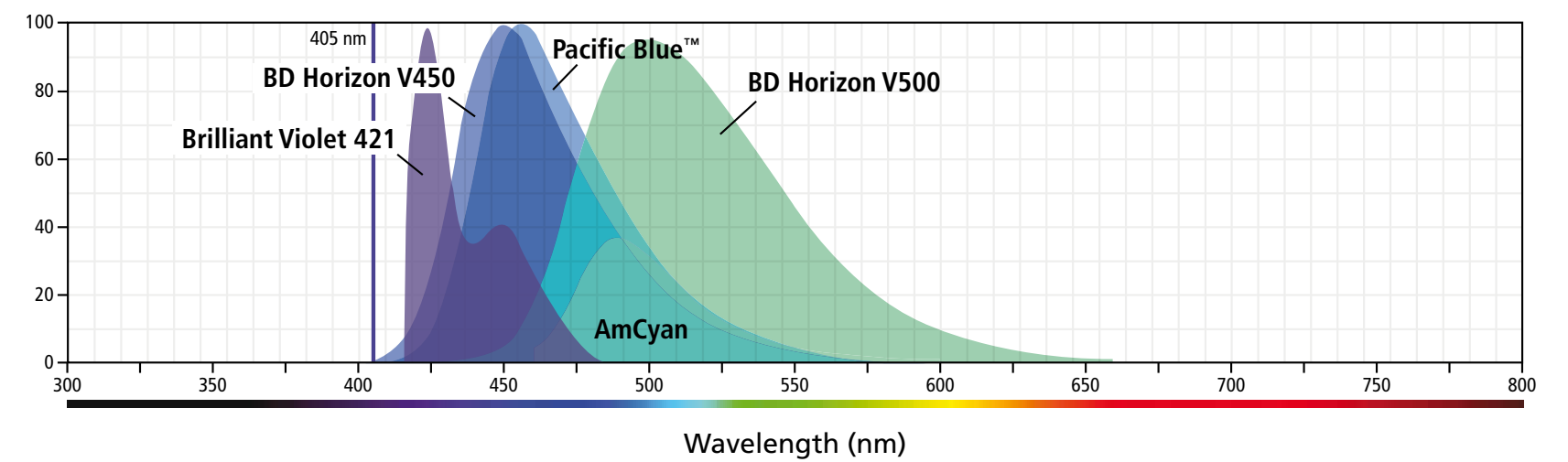
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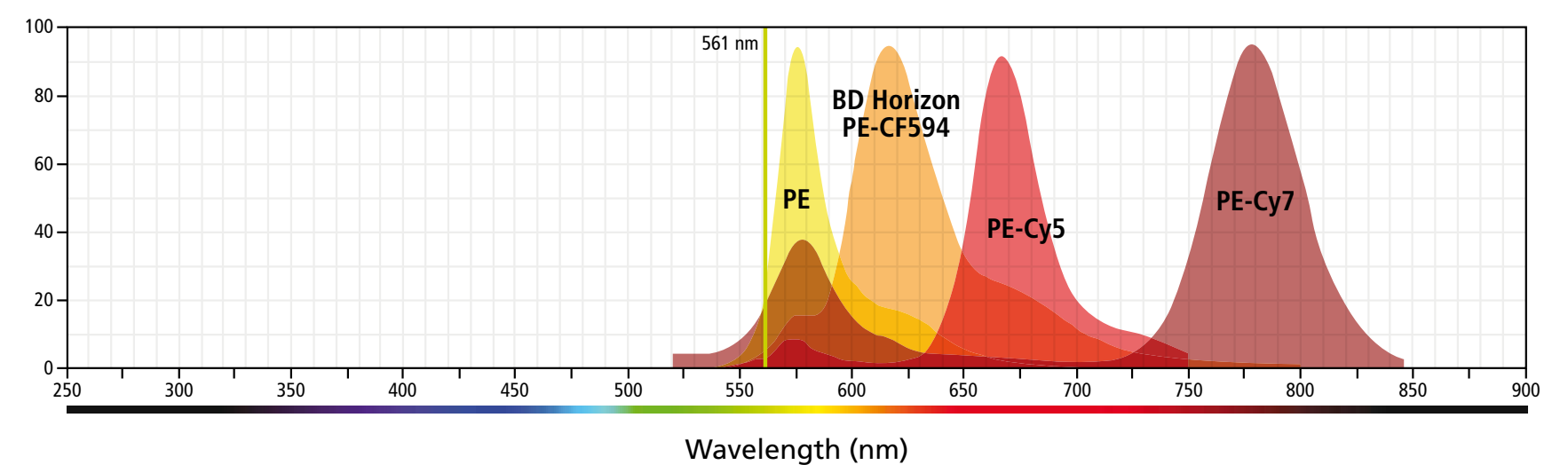
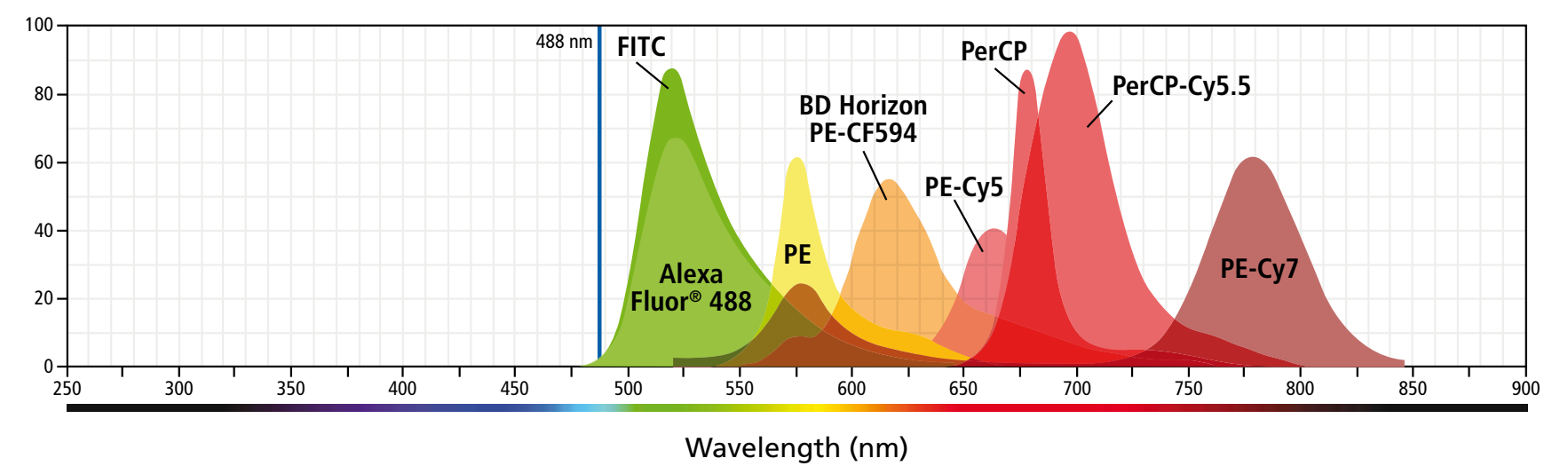
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Visit our website for tools and information related to multicolor panel design including the interactive Fluorescence Spectrum Viewer, Multicolor Antibody Reagents Catalog, Human and Mouse Panels, and more.

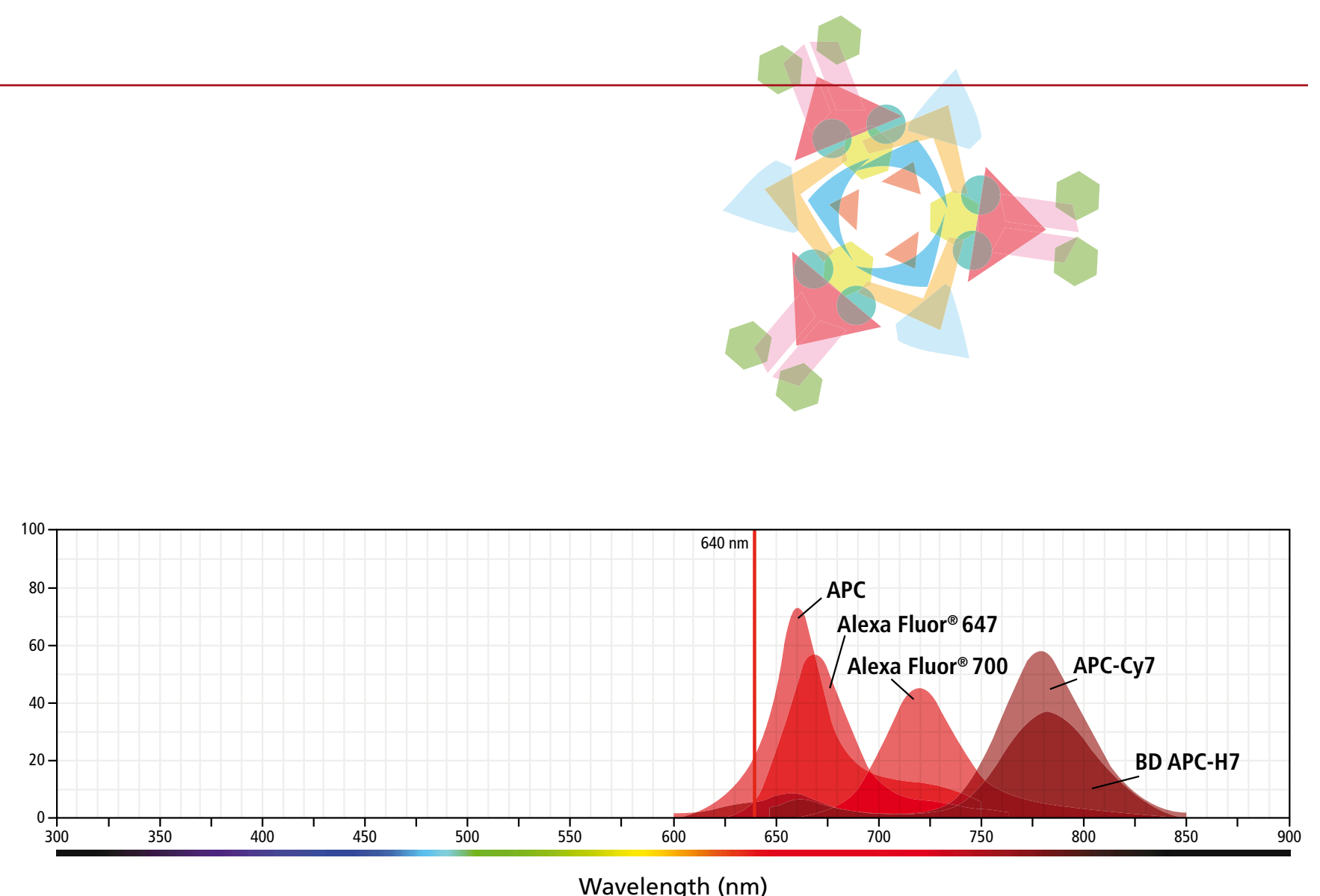
Analyzers		Sorters		Excitation Laser Line	Fluorochrome	
BD Accuri™ C6	BD FACSCalibur™	BD FACSVerser™	BD FACSCanto™ II			BD LSRFortessa™ and Special Order BD LSRFortessa
				<b>Violet Laser (405 nm)</b>		
				405 nm	<b>Brilliant Violet™ 421</b> (Ex <sub>max</sub> 407 nm/Em <sub>max</sub> 421 nm) is a polymer based dye excited by the violet laser and is one of the brightest fluorochromes offered by BD Biosciences. Conjugates are typically 10 times brighter than Pacific Blue™ conjugates and are often as bright as or brighter than PE conjugates. Due to similar excitation and emission properties, Brilliant Violet 421, Pacific Blue™, and BD Horizon V450 cannot be used simultaneously.	
				405 nm	<b>BD Horizon™ V450</b> (Ex <sub>max</sub> 404 nm/Em <sub>max</sub> 448 nm) is a coumarin dye excited by the violet laser that exhibits spectral properties similar to Pacific Blue™. Conjugates are typically as bright or brighter than comparable reagents conjugated to Pacific Blue™. Due to nearly identical excitation and emission properties but different spillover characteristics, Pacific Blue™, Brilliant Violet 421, and BD Horizon V450 cannot be used simultaneously.	
				405 nm	<b>Pacific Blue™</b> (Ex <sub>max</sub> 401 nm/Em <sub>max</sub> 452 nm) is based on the 6,8-difluoro-7-hydroxycoumarin fluorophore, and is strongly fluorescent, even at neutral pH. Due to nearly identical excitation and emission properties but different spillover characteristics, Pacific Blue™, Brilliant Violet 421, and BD Horizon V450 cannot be used simultaneously.	
				405 nm	<b>AmCyan</b> (Ex <sub>max</sub> 457 nm/Em <sub>max</sub> 491 nm) is a 108-kDa protein derived from <i>Anemone majano</i> . With an excitation peak of 458 nm and an emission peak of 491 nm, it can be used on violet laser-equipped flow cytometers in combination with BD Horizon V450 or Pacific Blue™, but not BD Horizon V500.	
				405 nm	<b>BD Horizon™ V500</b> (Ex <sub>max</sub> 415 nm/Em <sub>max</sub> 500 nm) is a novel organic dye excited by the violet laser. This dye offers improved brightness over Pacific Orange™ and reduced spillover into the FITC channel when compared to AmCyan. BD Horizon V500 cannot be used simultaneously with AmCyan or Pacific Orange™.	



Analyzers		Sorters		Excitation Laser Line	Fluorochrome	
BD Accuri™ C6	BD FACSCalibur™	BD FACSVerser™	BD FACSCanto™ II			BD LSRFortessa™ and Special Order BD LSRFortessa
				<b>Blue Laser (488 nm) / Yellow-Green Laser (561 nm)</b>		
				488 nm	<b>Alexa Fluor® 488</b> (Ex <sub>max</sub> 495 nm/Em <sub>max</sub> 519 nm) conjugates are highly photostable and remain fluorescent over a broad pH range. The excitation and emission maxima are nearly identical to those of FITC. However Alexa Fluor® 488 tends to be brighter and more optimal for intracellular applications. Due to nearly identical excitation and emission properties but different spillover characteristics, FITC and Alexa Fluor® 488 cannot be used simultaneously. Alexa Fluor® 488 exhibits extraordinary photostability, which makes it highly suitable for fluorescence microscopy.	
				488 nm	<b>FITC</b> (Ex <sub>max</sub> 494 nm/Em <sub>max</sub> 520 nm) fluorescein isothiocyanate, is a fluorochrome with a molecular weight of 389 Da. FITC is sensitive to pH changes and photobleaching. Due to nearly identical excitation and emission properties but different spillover characteristics, FITC and Alexa Fluor® 488 cannot be used simultaneously. FITC is relatively dim and should be reserved for highly expressed markers whenever possible.	
				488 nm 532 nm 561 nm	<b>PE</b> (Ex <sub>max</sub> 496 nm/Em <sub>max</sub> 578 nm) R-phycoerythrin (PE) is an accessory photosynthetic pigment found in red algae. It exists in vitro as a 240-kDa protein with 23 phycoerythrin chromophores per molecule. This makes PE the brightest fluorochrome for flow cytometry applications, but its photobleaching properties make it unsuitable for fluorescence microscopy.	
				488 nm 532 nm 561 nm	<b>BD Horizon™ PE-CF594</b> (Ex <sub>max</sub> 496 nm/Em <sub>max</sub> 612 nm) is a tandem conjugate, developed exclusively by BD Biosciences, that combines PE and CF594. PE-CF594 is a brighter alternative to PE-Texas Red® with improved spectral characteristics. PE-CF594 reagents exhibit very consistent spillover values lot-to-lot, making them ideal choices for the PE-Texas Red® detector (610/20 nm).	
				488 nm 532 nm 561 nm	<b>PE-Cy™5</b> (Ex <sub>max</sub> 496 nm/Em <sub>max</sub> 667 nm) is a tandem conjugate that combines phycoerythrin and the cyanine dye Cy5. Because of its broad absorption range and the fact that its emission spectra are equivalent to APC, PE-Cy5 is not recommended for simultaneous use with APC. The Cy5 molecule has been shown to exhibit nonspecific binding to Fc receptors, which is most apparent on monocyte populations. PE-Cy5 is not recommended for fluorescence microscopy because it is subject to photobleaching.	
				488 nm 532 nm	<b>PerCP</b> (Ex <sub>max</sub> 482 nm/Em <sub>max</sub> 678 nm) is a component of the photosynthetic apparatus found in the dinoflagellate <i>Glenodinium</i> . PerCP is a protein complex with a molecular weight of approximately 35 kDa. Due to its photobleaching characteristics, PerCP conjugates are not recommended for use on flow cytometers with high-power lasers (>25 mW).	
				488 nm 532 nm	<b>PerCP-Cy™5.5</b> (Ex <sub>max</sub> 482 nm/Em <sub>max</sub> 695 nm) is a tandem conjugate that combines PerCP with the cyanine dye Cy5.5. PerCP-Cy5.5 is not subject to photobleaching like PerCP and can be used with stream-in-air flow cytometers. It has less Fc receptor-mediated nonspecific staining than PE-Cy5. Additionally, the PerCP-Cy5.5 tandem conjugate is not as susceptible to fixative or light instability compared to APC-Cy7 and PE-Cy7.	
				488 nm 532 nm 561 nm	<b>PE-Cy™7</b> (Ex <sub>max</sub> 496 nm/Em <sub>max</sub> 785 nm) is a tandem fluorochrome that combines PE and the cyanine dye Cy7. PE-Cy7 conjugated reagents are as bright as PE conjugates. PE-Cy7 is particularly sensitive to photo-induced degradation resulting in loss of fluorescence and changes in fluorescence spillover. Extreme caution must be taken to avoid light exposure and prolonged exposure to paraformaldehyde fixative. Fixed cells should be analyzed within 4 hours of fixation in paraformaldehyde or transferred to a paraformaldehyde-free buffer for overnight storage.	



Analyzers		Sorters		Excitation Laser Line	Fluorochrome	
BD Accuri™ C6	BD FACSCalibur™	BD FACSVerser™	BD FACSCanto™ II			BD LSRFortessa™ and Special Order BD LSRFortessa
				<b>Red Laser (640 nm)</b>		
				633 nm 635 nm 640 nm	<b>APC</b> (Ex <sub>max</sub> 650 nm/Em <sub>max</sub> 660 nm), allophycocyanin (APC), is an accessory photosynthetic pigment found in blue-green algae. Its molecular weight is approximately 105 kDa. APC has six phycoerythrin chromophores per molecule, which make it a very bright fluorochrome that is highly suitable for flow cytometry applications. Due to nearly identical excitation and emission properties but different spillover characteristics, APC and Alexa Fluor® 647 cannot be used simultaneously.	
				633 nm 635 nm 640 nm	<b>Alexa Fluor® 647</b> (Ex <sub>max</sub> 650 nm/Em <sub>max</sub> 668 nm) conjugates are highly photostable and remain fluorescent over a broad pH range. The excitation and emission maxima are nearly identical to those of APC. However, APC tends to be brighter while Alexa Fluor® 647 is more optimal for intracellular applications. This fluorochrome exhibits uncommon photostability, making it an ideal choice for use in fluorescence microscopy. Due to nearly identical excitation and emission properties but different spillover characteristics, APC and Alexa Fluor® 647 cannot be used simultaneously.	
				633 nm 635 nm 640 nm	<b>Alexa Fluor® 700</b> (Ex <sub>max</sub> 696 nm/Em <sub>max</sub> 719 nm) is a far-red dye that can be excited with a 633–640 nm laser. This enables multicolor analysis in conjunction with APC or Alexa Fluor® 647 and APC-H7 or APC-Cy7 reagents.	
				633 nm 635 nm 640 nm	<b>APC-Cy™7</b> (Ex <sub>max</sub> 650 nm/Em <sub>max</sub> 785 nm) is a tandem fluorochrome that combines APC and the cyanine dye Cy7. Special precautions must be taken with APC-Cy7 conjugates, and cells stained with them, to protect the fluorochrome from long-term exposure to light. Some APC-Cy7 conjugates show changes in their emission spectra with prolonged exposure to paraformaldehyde. Fixed cells should be analyzed within 4 hours of fixation in paraformaldehyde or transferred to a paraformaldehyde-free buffer for overnight storage. Due to nearly identical excitation and emission properties but different spillover characteristics, APC-Cy7 and APC-H7 cannot be used simultaneously.	
				633 nm 635 nm 640 nm	<b>APC-H7</b> (Ex <sub>max</sub> 650 nm/Em <sub>max</sub> 785 nm) is an APC-cyanine tandem fluorochrome which uses an analog of Cy7 and has similar spectral properties to APC-Cy7. APC-H7 conjugates provide greater stability in light and paraformaldehyde fixatives and have less spillover into the APC channel than APC-Cy7 conjugates. APC-H7 conjugates are typically 75% as bright as equivalent APC-Cy7 conjugates. Due to nearly identical excitation and emission properties but different spillover characteristics, APC-Cy7 and APC-H7 cannot be used simultaneously.	



\* Capable of detecting 8 colors simultaneously (4 blue laser, 2 red laser, 2 violet laser). PE-CF594 and Alexa Fluor® 700 filters are available separately.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

APC-Cy7: US patent 5,714,386.

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