

INSTRUMENTS

REAGENTS

CELL CULTURE

APPLICATIONS

SUPPORT

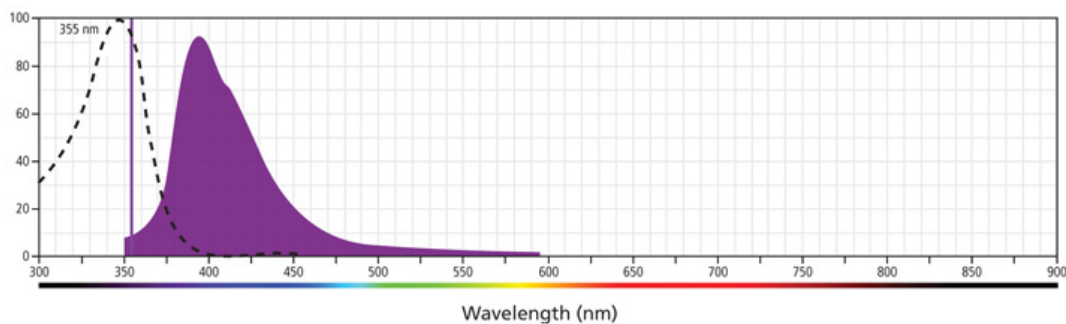
Home / Applications / [Spectrumguidepage](#)

ABSORPTION AND EMISSION SPECTRA

When making decisions about which fluorochromes to use in your experiments, you'll want to know their relative emission spectra. Simply click on the spectrum thumbnail to view histograms that represent the absorption and emission spectra for each BD™ fluorochrome.

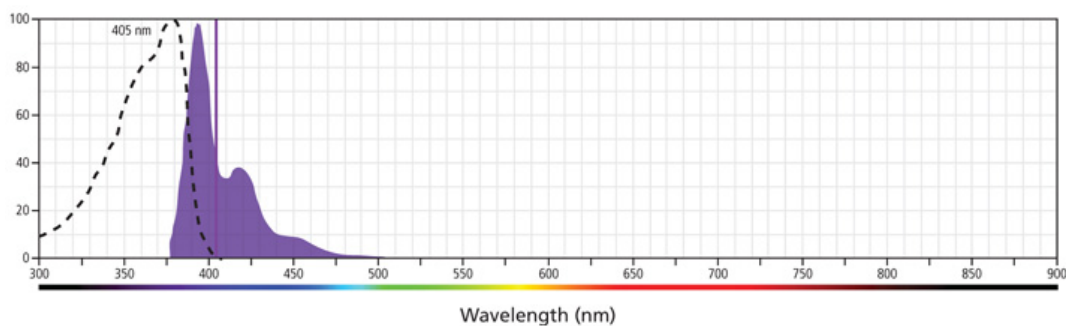
[More Information](#)
[Ask BD](#)
[Sign Up for Email Updates](#)
[Help](#)
[Ordering Support](#)
[Training](#)

BD Horizon Brilliant™ Ultraviolet 395 (BUV395) (Ex-Max 348 nm/Em-Max 395 nm)


[Enlarge \(+\)](#)

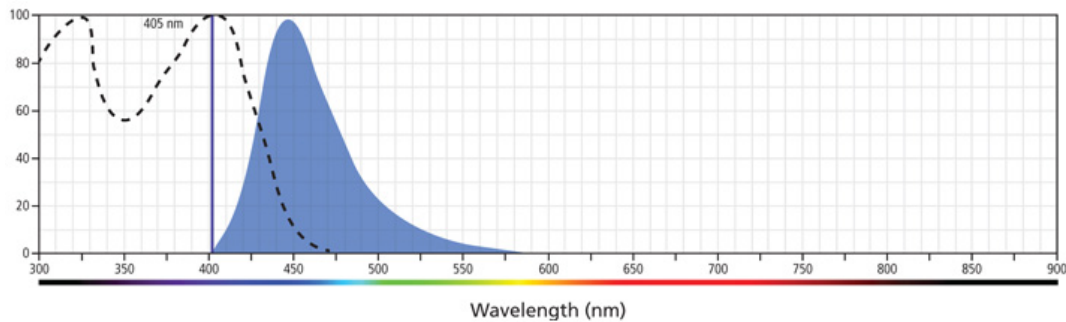
BUV395 is a UV-excitabile dye that has been developed exclusively by BD Biosciences. With an excitation max of 348 nm and emission max of 395 nm, BUV395 can be excited by the 355-nm laser and detected in a 379/28 filter. This dye is optimal for multicolor flow cytometry because it has little to no spillover into other detectors.

BD Horizon Brilliant™ Violet 421 (BV421) (Ex-Max 407 nm/Em-Max 421 nm)


[Enlarge \(+\)](#)

BV421 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 nearly identical excitation and emission properties but different spillover characteristics, BD Horizon BV421, Pacific Blue™, and BD Horizon™ V450 cannot be used simultaneously.

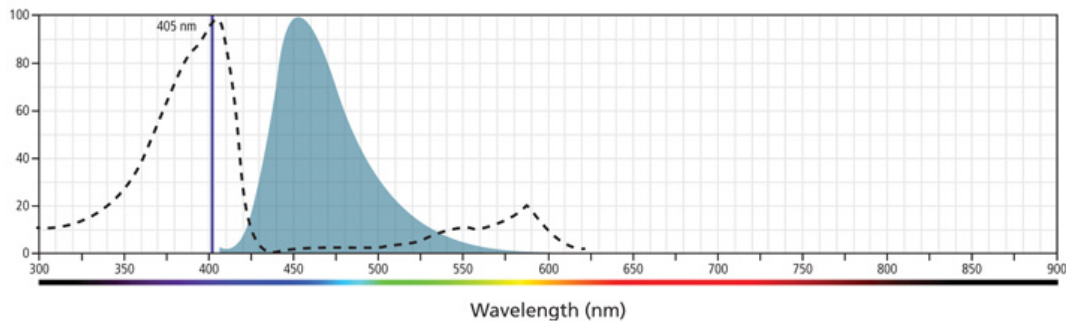
BD Horizon™ V450 (Ex-Max 404 nm/Em-Max 448 nm)



Enlarge (+)

BD Horizon™ V450 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, BD Horizon BV421, Pacific Blue™, and BD Horizon V450 cannot be used simultaneously.

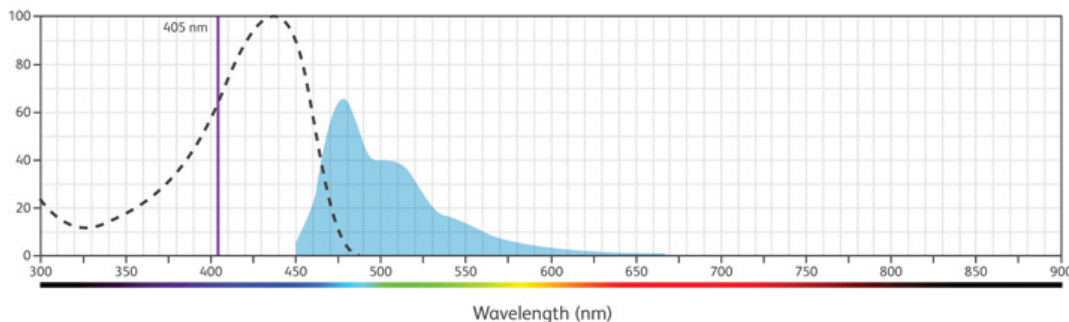
Pacific Blue™ (Ex-Max 401 nm/Em-Max 452 nm)



Enlarge (+)

Pacific Blue™ 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, BD Horizon BV421, Pacific Blue™, and BD Horizon V450 cannot be used simultaneously.

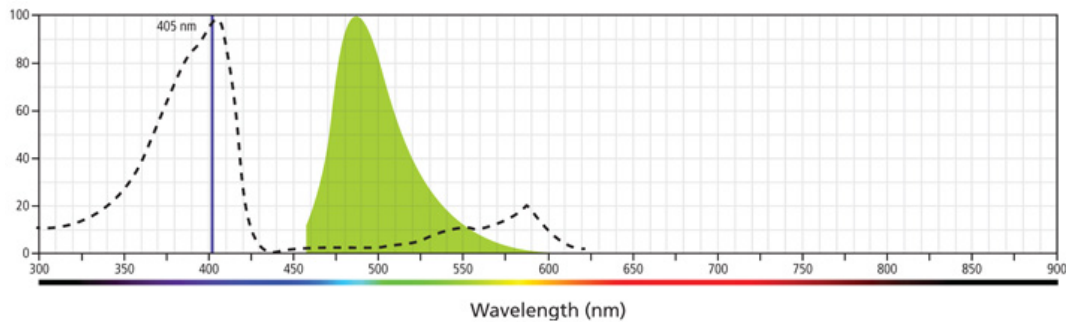
BD Horizon Brilliant™ Violet 480 (BV480) (Ex-Max 436 nm/Em-Max 478 nm)



Enlarge (+)

BD Horizon™ BV480 is part of the BD Horizon Brilliant™ Violet family of dyes. With an Ex Max of 436-nm and Em Max at 478-nm, BD Horizon BV480 can be excited by the violet laser and detected in the BD Horizon™ BV510 (525/40-nm) filter set. BV480 has less spillover into the BD Horizon™ BV605 detector and, in general, is brighter than BD Horizon BV510. Due to similar excitation and emission properties, BV480, BV510 and V500 cannot be used simultaneously.

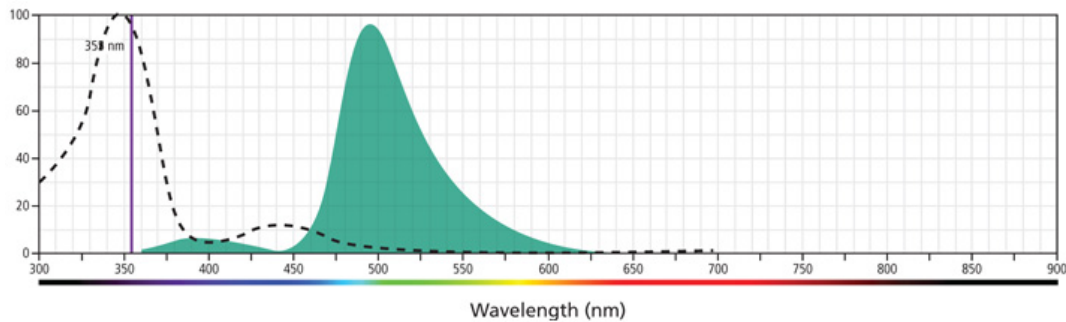
AmCyan (Ex-Max 457 nm/Em-Max 491 nm)



Enlarge (+)

AmCyan is a 108-kDa protein derived from *Anemonia majano*. With an excitation peak of 457 nm and an emission peak of 491 nm, it can be used on violet laser–equipped flow cytometers in combination with BD Horizon BV421, BD Horizon V450, or Pacific Blue™, but not BD Horizon™ V500.

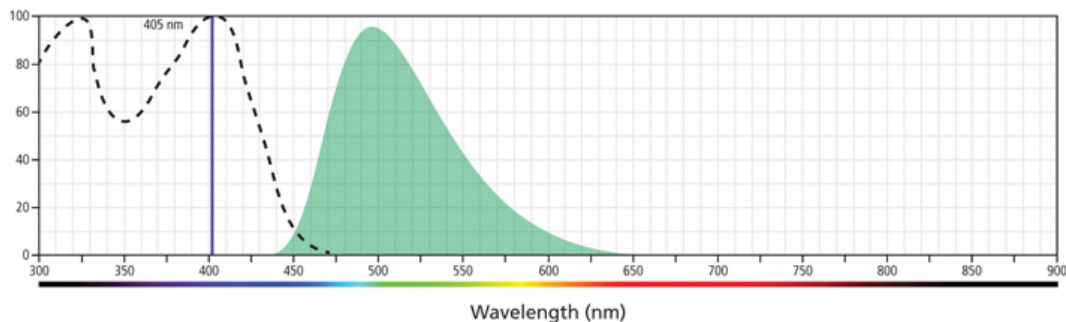
BD Horizon Brilliant™ Ultraviolet 496 (BUV496) (Ex-Max 348 nm/Em-Max 496 nm)



Enlarge (+)

BD Horizon™ BUV496 is a tandem fluorochrome that combines BD Horizon BUV395 and an acceptor dye with an Em Max at 496 nm. Due to the excitation of the acceptor dye by other laser lines, there may be significant spillover into the channel detecting BD Horizon V500 or BV510 (for example, 525/40-nm filter). BUV496 has been exclusively developed by BD Biosciences for instruments equipped with a 355-nm UV laser.

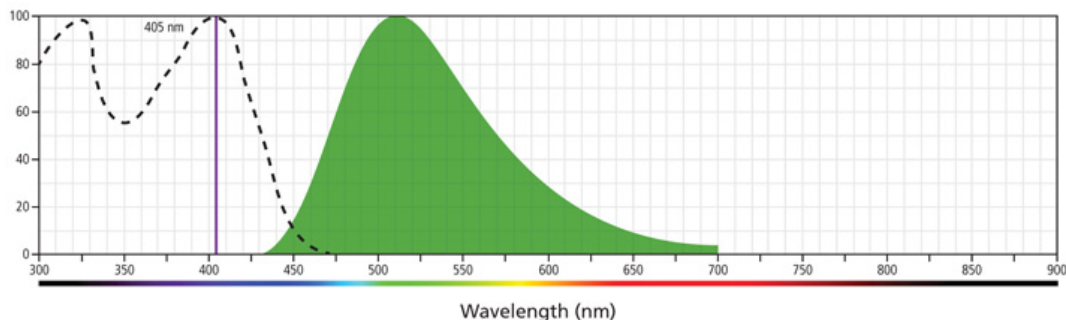
BD Horizon™ V500 (Ex-Max 415 nm/Em-Max 500 nm)



Enlarge (+)

BD Horizon™ V500 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™.

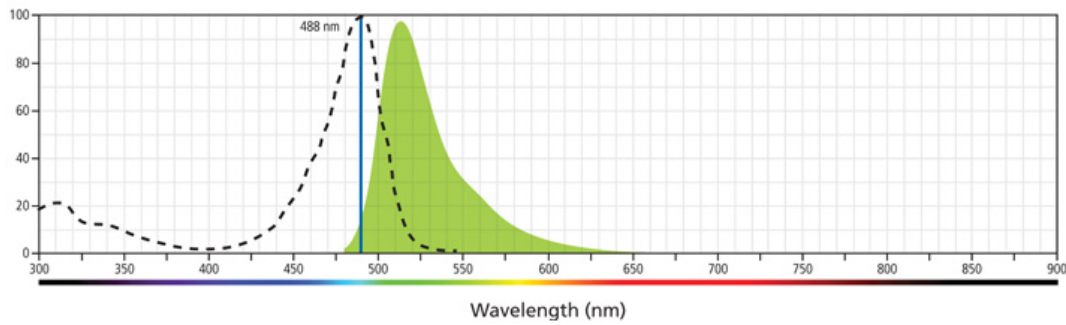
BD Horizon Brilliant™ Violet 510 (BV510) (Ex-Max 405 nm/Em-Max 510 nm)



Enlarge (+)

BV510 is a polymer-based dye that is brighter than BD Horizon V500. Due to similar excitation and emission properties, BD Horizon BV510 and BD Horizon V500 cannot be used simultaneously.

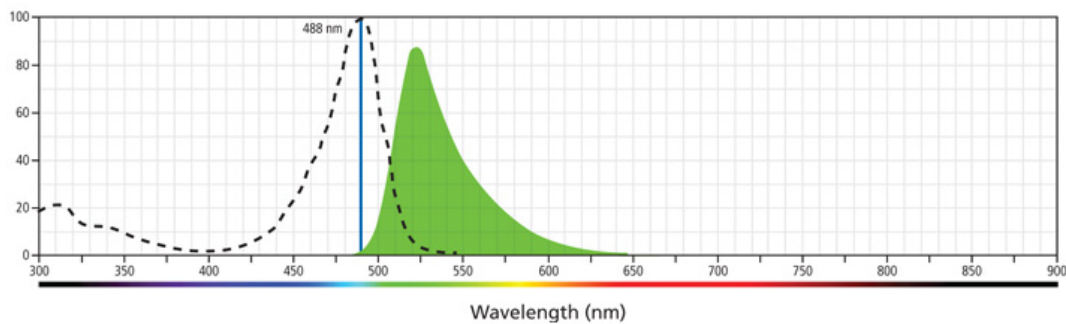
BD Horizon Brilliant™ Blue 515 (BB515) (Ex-Max 490 nm/Em-Max 515 nm)



Enlarge (+)

BB515 is a dye that was exclusively developed by BD Biosciences as an additional bright dye for the blue laser. This dye is significantly brighter than FITC and has less spillover into the PE channel. Due to similar excitation and emission properties, BB515, FITC, and Alexa Fluor® 488 cannot be used simultaneously.

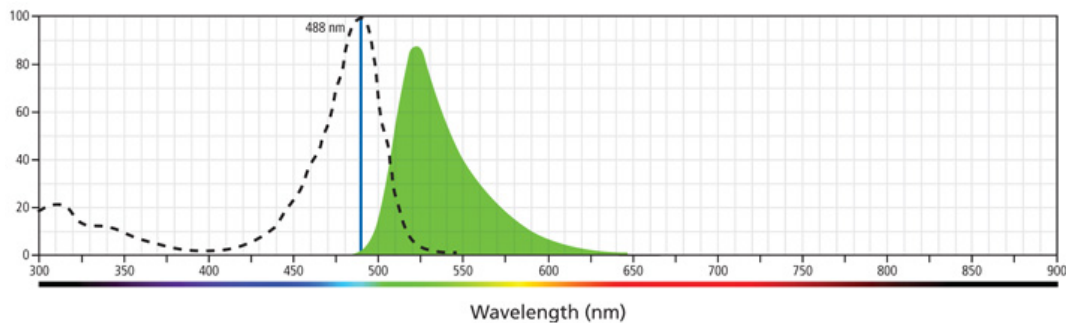
Alexa Fluor® 488 (Ex-Max 495 nm/Em-Max 519 nm)



Enlarge (+)

Alexa Fluor® 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.

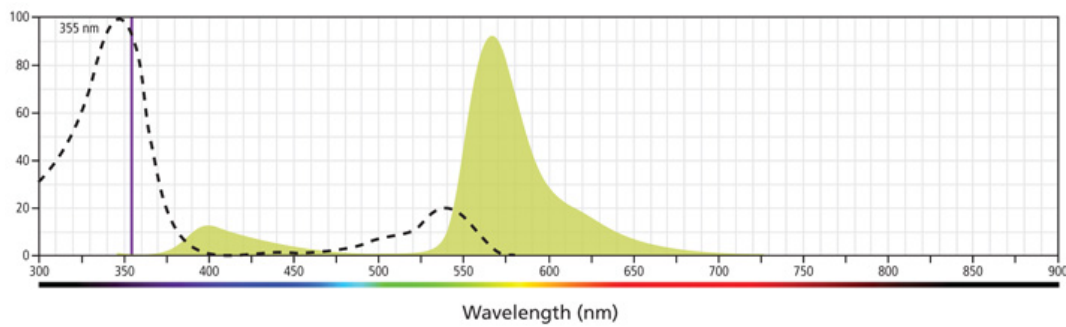
FITC (Ex-Max 494 nm/Em-Max 520 nm)



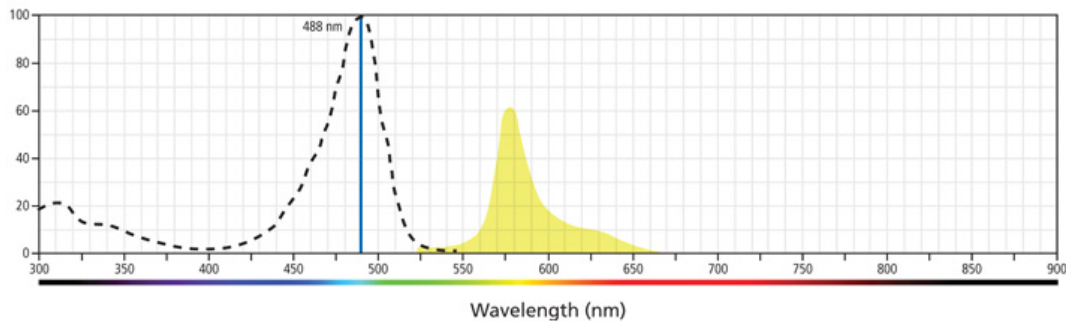
Enlarge (+)

FITC, 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.

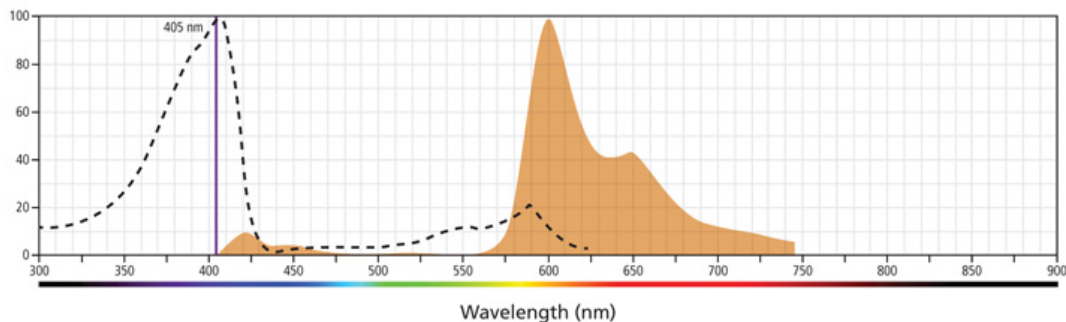
BD Horizon Brilliant™ Ultraviolet 563 (BUV563) (Ex-Max 348 nm/Em-Max 563 nm)

**Minimize (-)**

BUV563 is a tandem fluorochrome that combines BD Horizon BUV395 and an acceptor dye with an Em Max at 563 nm. Due to the excitation of the acceptor dye by other laser lines, there may be spillover into channels detecting PE (eg, 575/26-nm filter) and PE-CF594 (eg, 610/20-nm filter). BUV563 has been exclusively developed by BD Biosciences for instruments equipped with a 355-nm UV laser.

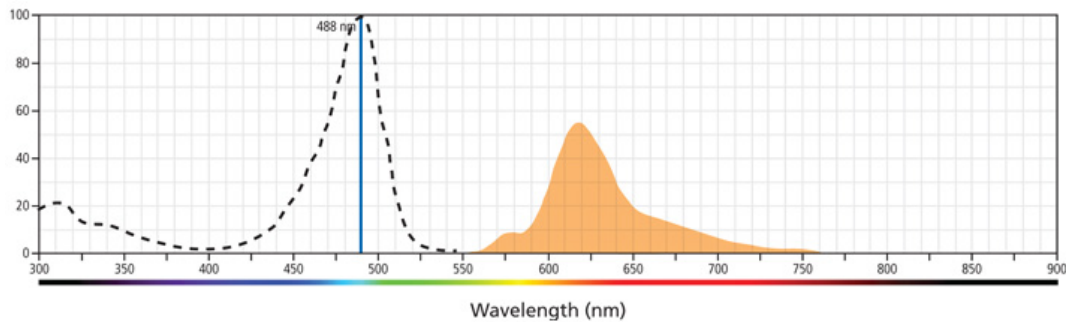
PE (Ex-Max 496 nm/Em-Max 578 nm)**Enlarge (+)**

R-phycoerythrin (PE) is an accessory photosynthetic pigment found in red algae. It exists in vitro as a 240-kDa protein with 23 phycoerythrobilin chromophores per molecule. This makes PE one of the brightest fluorochromes for flow cytometry applications, but its photobleaching properties make it unsuitable for fluorescence microscopy.

BD Horizon Brilliant™ Violet 605 (BV605) (Ex-Max 407 nm/Em-Max 605 nm)**Enlarge (+)**

BV605 is a tandem fluorochrome that combines BD Horizon BV421 and an acceptor dye with emission at 605nm. These conjugates are very bright, exhibiting similar brightness to equivalent PE conjugates. Due to the excitation of the acceptor dye by the green (532-nm) and yellow-green (561-nm) lasers, there will be significant spillover of the BD Horizon BV605 signal into the PE and BD Horizon PE-CF594 detectors off the green or yellow-green lasers.

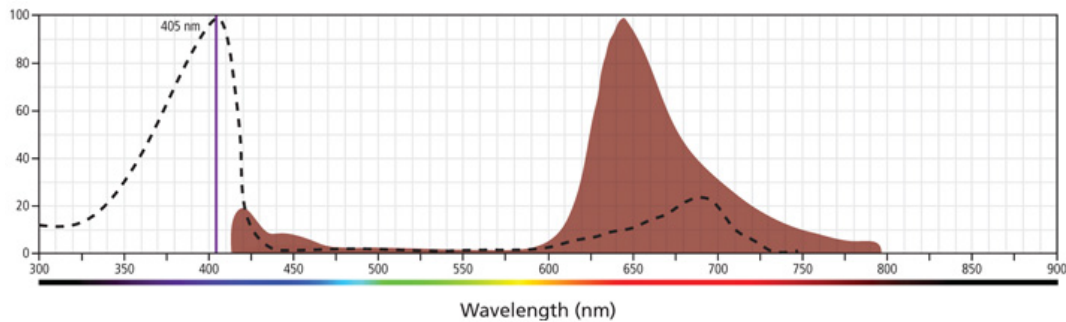
BD Horizon™ PE-CF594 (Ex-Max 496 nm/Em-Max 612 nm)



Enlarge (+)

BD Horizon™ PE-CF594 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 an ideal choice for the PE-Texas Red® detector (610/20 nm).

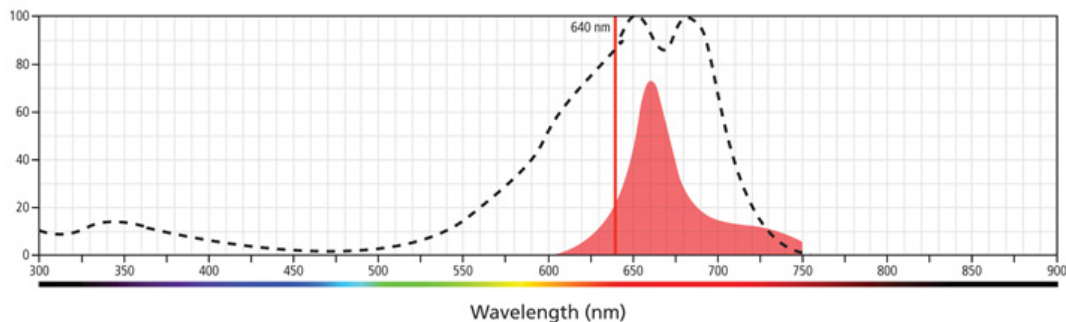
BD Horizon Brilliant™ Violet 650 (BV650) (Ex-Max 407 nm/Em-Max 650 nm)



Enlarge (+)

BV650 is a tandem fluorochrome of BD Horizon BV421 and an acceptor dye with an emission maximum at 650 nm. Due to the excitation and emission characteristics of the acceptor dye, there will be spillover into the APC and Alexa Fluor® 700 detectors. BV650 will have moderate spillover into the BD Horizon™ BV711 detector.

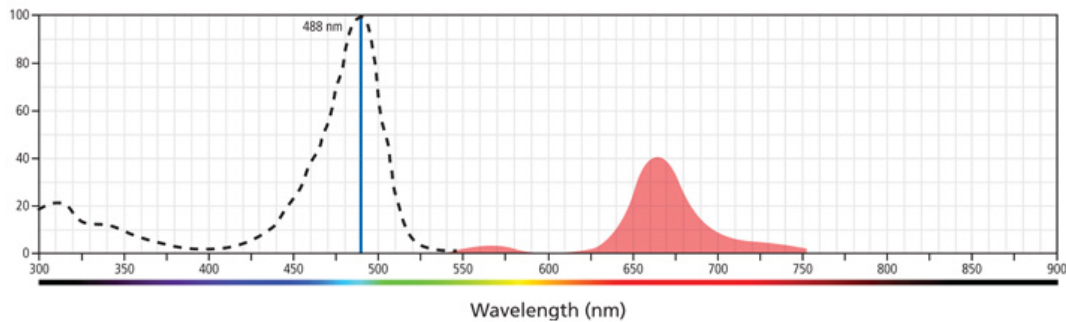
APC (Ex-Max 650 nm/Em-Max 660 nm)



Enlarge (+)

Allophycocyanin (APC), is an accessory photosynthetic pigment found in blue-green algae. Its molecular weight is approximately 105 kDa. APC has six phycocyanobilin chromophores per molecule, which makes 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.

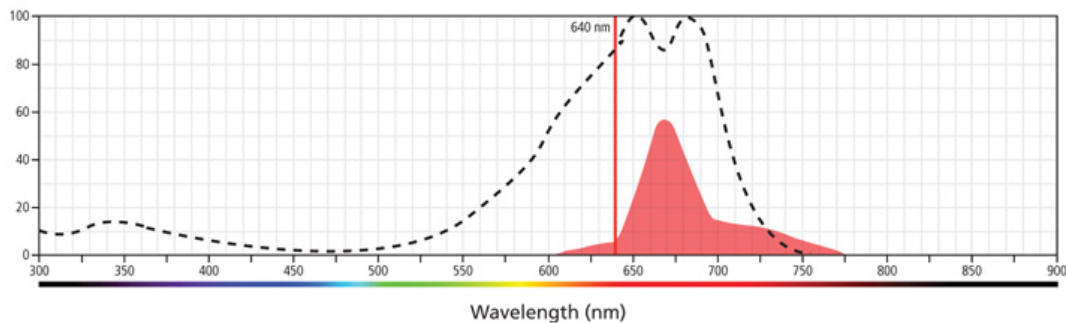
PE-Cy™5 (Ex-Max 496 nm/Em-Max 667 nm)



Enlarge (+)

PE-Cy5™ is a tandem conjugate that combines phycoerythrin and a cyanine dye. 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.

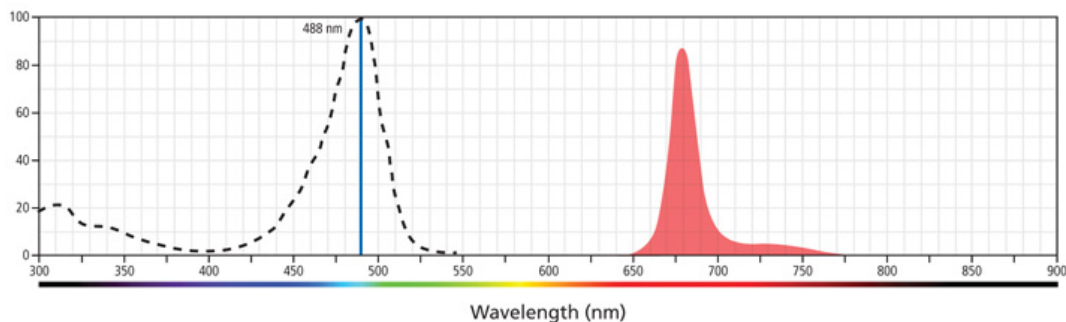
Alexa Fluor® 647 (Ex-Max 650 nm/Em-Max 668 nm)



Enlarge (+)

Alexa Fluor® 647 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.

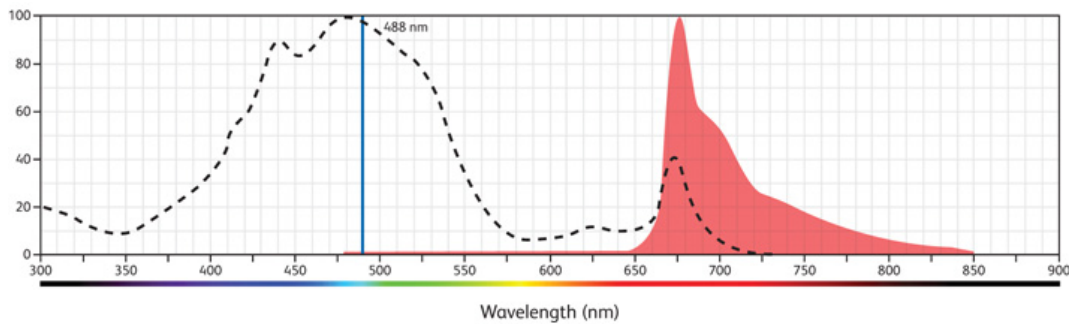
PerCP (Ex-Max 482 nm/Em-Max 678 nm)



Enlarge (+)

PerCP is a component of the photosynthetic apparatus found in the dinoflagellate *Glenodinium*. 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).

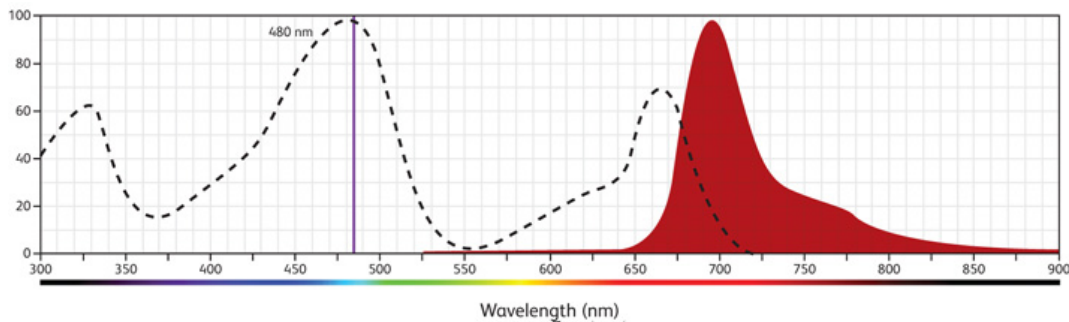
PerCP-Cy5.5 (Ex-Max 482 nm/Em-Max 676 nm)



Enlarge (+)

PerCP-Cy5.5 is a tandem conjugate that combines PerCP with a cyanine dye. 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.

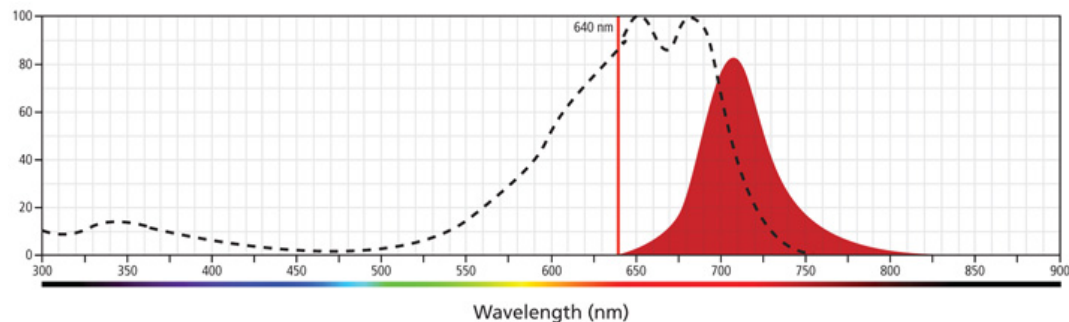
BD Horizon Brilliant™ Blue 700 (BB700) (Ex-Max 485 nm/Em-Max 693 nm)



Enlarge (+)

BB700 is a dye that was exclusively developed by BD Biosciences as brighter alternative to PerCP-Cy5.5. This dye also has less cross-laser excitation off the 405-nm laser, resulting in less spillover into the violet channels compared to PerCP-Cy5.5. Due to similar excitation and emission properties, BD Horizon BB700 and PerCP-Cy5.5 cannot be used simultaneously.

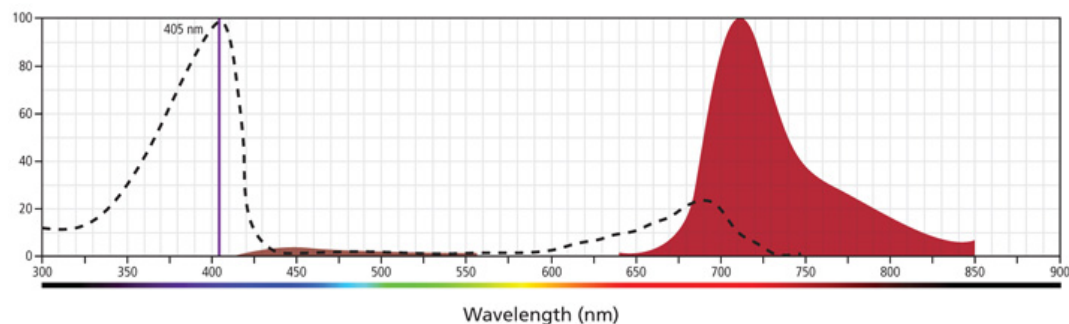
BD Horizon™ APC-R700 (Ex-Max 652 nm/Em-Max 704 nm)



Enlarge (+)

APC-R700 is a tandem fluorochrome that combines APC with R700, a proprietary organic dye. This dye has been developed exclusively by BD Biosciences as a brighter alternative to Alexa Fluor® 700. Due to similar excitation and emission properties, APC-R700 and Alexa Fluor® 700 cannot be used simultaneously.

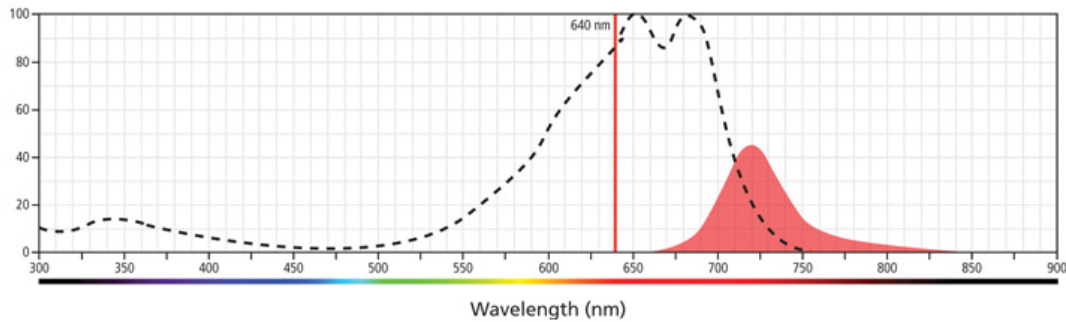
BD Horizon Brilliant™ Violet 711 (BV711) (Ex-Max 407 nm/Em-Max 711 nm)



Enlarge (+)

BV711 is a tandem fluorochrome of BD Horizon BV421 and an acceptor dye with an emission maximum at 711 nm. This dye offers a very bright choice for the violet laser. Due to the excitation and emission characteristics of the acceptor dye, there may be moderate spillover into the Alexa Fluor® 700 and PerCP-Cy5.5 detectors. BV711 will also have moderate spillover into the BD Horizon Brilliant™ Violet 786 detector.

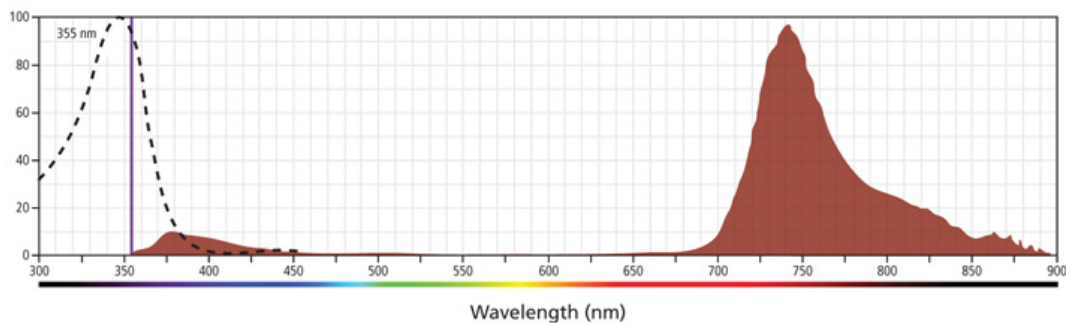
Alexa Fluor® 700 (Ex-Max 696 nm/Em-Max 719 nm)



Enlarge (+)

Alexa Fluor® 700 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.

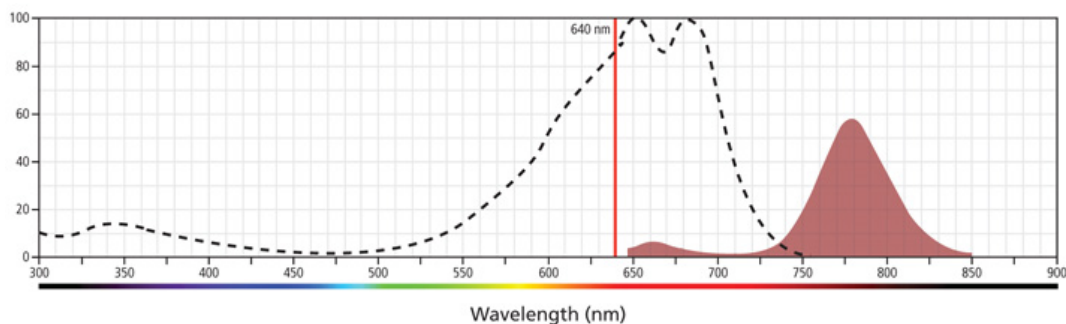
BD Horizon Brilliant™ Ultraviolet 737 (BUV737) (Ex-Max 348 nm/Em-Max 737 nm)



Enlarge (+)

BUV737 is a tandem fluorochrome that combines BD Horizon BUV395 and an acceptor dye with an Em Max at 737 nm. Due to the excitation of the acceptor dye by other laser lines, there may be significant spillover in to channels detecting Alexa Fluor® 700 like dyes (for example, 712/20-nm filter). BUV737 has been exclusively developed by BD Biosciences for instruments equipped with a 355-nm UV laser.

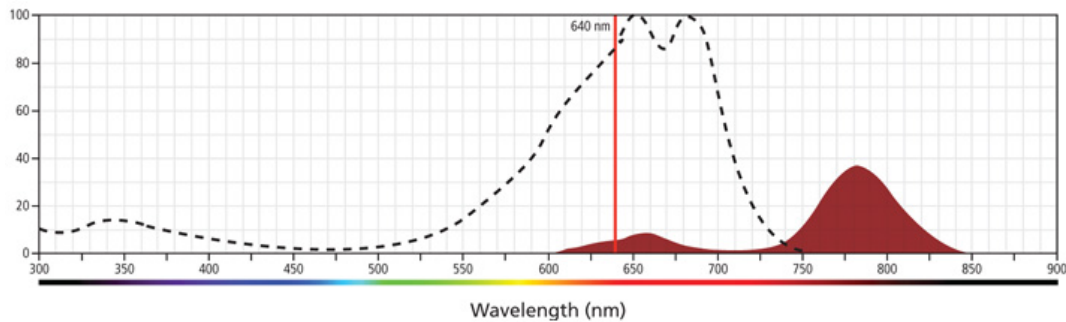
APC-Cy™7 (Ex-Max 650 nm/Em-Max 785 nm)



Enlarge (+)

APC-Cy™7 is a tandem fluorochrome that combines APC and a 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.

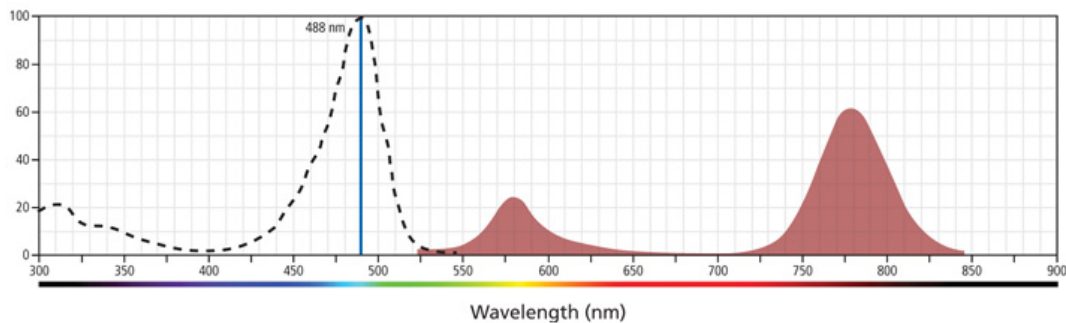
APC-H7 (Ex-Max 650 nm/Em-Max 785 nm)



Enlarge (+)

APC-H7 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.

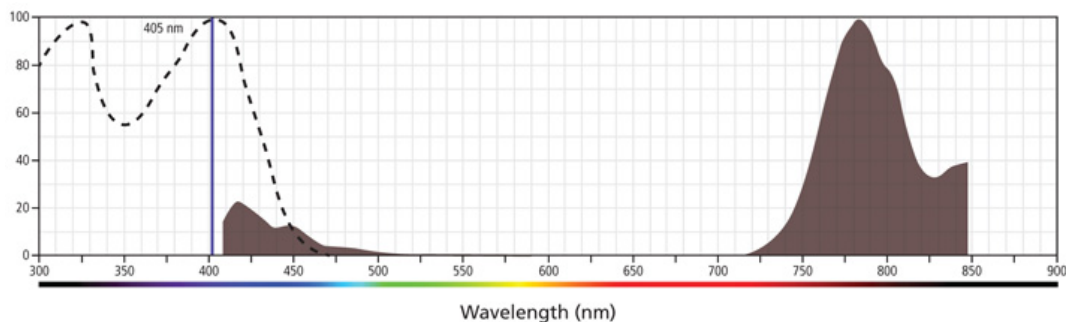
PE-CyTM7 (Ex-Max 496 nm/Em-Max 785 nm)



Enlarge (+)

PE-CyTM7 is a tandem fluorochrome that combines PE and a cyanine dye. 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.

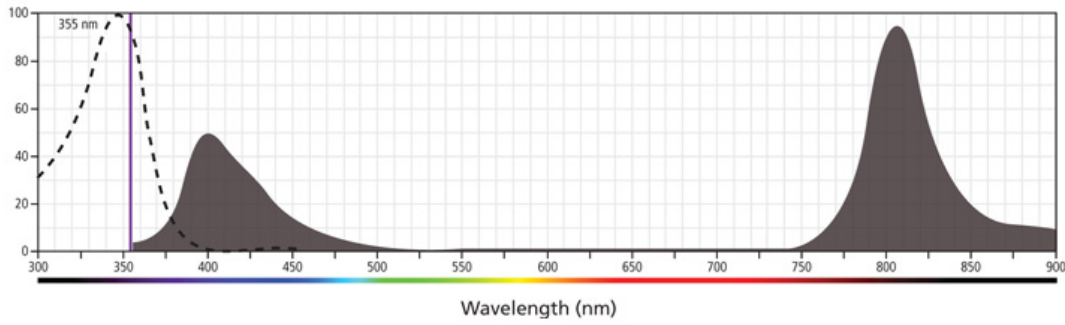
BD Horizon BrilliantTM Violet 786 (BV786) (Ex-Max 407 nm/Em-Max 786 nm)



Enlarge (+)

BV786 is a tandem fluorochrome of BD Horizon BV421 and an acceptor dye with an emission maximum at 786 nm. BV786 offers a bright choice for the 6th detector off the violet laser.

BD Horizon BrilliantTM Ultraviolet 805 (BUV805) (Ex-Max 348 nm/Em-Max 805 nm)



Enlarge (+)

BUV805 is a tandem fluorochrome that combines BD Horizon BUV395 and an acceptor dye with an Em Max at 805 nm. BUV805 has been exclusively developed by BD Biosciences for instruments equipped with a 355-nm UV laser.

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

Alexa Fluor® and Texas Red® are registered trademarks, and Pacific Blue™ and Pacific Orange™ are trademarks of Life Technologies Corporation.

Cy™ is a trademark of GE Healthcare. Cy™ dyes are subject to proprietary rights of GE Healthcare and Carnegie Mellon University, and are made and sold under license from GE Healthcare only for research and in vitro diagnostic use. Any other use requires a commercial sublicense from GE Healthcare, 800 Centennial Avenue, Piscataway, NJ 08855-1327, USA.

Trademarks are the property of their respective owners.

[Ask BD](#) [Email Updates](#) [Contact Info](#) [Webinars](#) [Promotions](#) [Website Feedback](#)

[BD Worldwide](#) [Careers](#) [Privacy](#) [Terms and Conditions](#) [Permission Request](#) [Site Map](#) [Mobile](#)

BD Biosciences provides flow cytometers, reagents, tools, and a wide range of services to support the work of researchers and clinicians who understand disease and improve care.

© 2017 BD. All rights reserved. Unless otherwise noted, BD, the BD Logo, and all other trademarks are property of Becton, Dickinson and Company.