

# CF® Dye Reference Guide

Visible spectrum

Far-red

Near-infrared

Dye	Ex/Em (nm)	Excitation	Replacement for	Features and applications
CF@350	347/448	UV	Alexa Fluor® 350, AMCA, DyLight® 350	<ul style="list-style-type: none"> <li>Brightest blue fluorescent conjugates for 350 nm excitation</li> <li>Highly water-soluble and pH-insensitive</li> </ul>
CF@405S	404/431	405 nm	Alexa Fluor® 405, Cascade Blue™, DyLight® 405	<ul style="list-style-type: none"> <li>Brighter signal due to better compatibility with common instruments</li> </ul>
CF@405M	408/452	405 nm	BD Horizon™ V450, eFluor® 450, Pacific Blue™	<ul style="list-style-type: none"> <li>More photostable than Pacific Blue™, with less green spill-over</li> <li>Excellent choice for super-resolution imaging by SIM</li> </ul>
CF@405L	395/545	405 nm	Pacific Orange™	<ul style="list-style-type: none"> <li>405 nm excitable orange fluorescent dye for multicolor detection</li> </ul>
CF@430	426/498	405 nm	Pacific Green™, BD Horizon™ V500, Krome Orange™	<ul style="list-style-type: none"> <li>Photostable 405 nm excitable green dye</li> <li>Perfect match for the CFP filter set</li> </ul>
CF@440	440/515	405 nm	Alexa Fluor® 430	<ul style="list-style-type: none"> <li>Photostable 405 nm excitable green dye</li> </ul>
CF@450	450/538	405 nm	Unique dye	<ul style="list-style-type: none"> <li>Unique violet-excitable green dye</li> </ul>
CF@488A	490/515	488 nm	ATTO 488, Alexa Fluor® 488, Cy@2, DyLight® 488, FAM, FITC, Fluorescein	<ul style="list-style-type: none"> <li>Less charge, for lower non-specific binding</li> <li>Less red spill-over than Alexa Fluor® 488</li> <li>Validated for 2-photon and TIRF</li> </ul>
CF@503R	503/532	488 nm	Unique dye	<ul style="list-style-type: none"> <li>Unique green dye or multispectral detection or FRET</li> <li>Photostable rhodamine-based dye</li> </ul>
CF@514	516/548	488 nm	Alexa Fluor® 514	<ul style="list-style-type: none"> <li>Green dye distinguishable from 488 nm dyes by spectral unmixing</li> </ul>
CF@532	527/558	532 nm	Alexa Fluor® 532, ATTO 532	<ul style="list-style-type: none"> <li>Significantly brighter than Alexa Fluor® 532</li> </ul>
CF@535ST	535/568	532 nm	Unique dye for STORM**	<ul style="list-style-type: none"> <li>Orange dye designed for STORM</li> </ul>
CF@543	541/560	532 to 546 nm	Alexa Fluor® 546, Tetramethylrhodamine (TAMRA)	<ul style="list-style-type: none"> <li>Significantly brighter than Alexa Fluor® 546</li> </ul>
CF@550R	551/577	532 to 568 nm	Unique dye	<ul style="list-style-type: none"> <li>Unique orange/red dye for multispectral detection or FRET</li> <li>Photostable rhodamine-based dye</li> </ul>
CF@555	555/565	532 to 568 nm	Alexa Fluor® 555, ATTO 550, Cy@3, DyLight® 549, TRITC	<ul style="list-style-type: none"> <li>Brighter than Cy@3</li> <li>Validated in multicolor STORM</li> </ul>
CF@568	562/583	532 to 568 nm	Alexa Fluor® 568, ATTO 565, Rhodamine Red	<ul style="list-style-type: none"> <li>Optimized for the 568 nm line of the Ar-Kr mixed-gas</li> <li>Brighter and more photostable than Alexa Fluor® 568</li> <li>Compatible with TIRF and multicolor STORM</li> </ul>
CF@570	568/591	532 to 568 nm	Alexa Fluor® 568, ATTO 565, DY-560, Rhodamine Red	<ul style="list-style-type: none"> <li>Brighter than Alexa Fluor® 568</li> </ul>
CF@583	583/606	532 to 568 nm	Cy@3.5, Texas Red®	<ul style="list-style-type: none"> <li>Brighter than Cy@3.5</li> </ul>
CF@583R	586/609	532 to 568 nm	Cy@3.5, Texas Red®	<ul style="list-style-type: none"> <li>Brighter than Cy@3.5 and Texas Red®</li> <li>Ideal for FRET when paired with R-PE</li> </ul>
CF@594	593/614	532 to 568 nm	Alexa Fluor® 594, ATTO 594, DyLight® 594, Texas Red®	<ul style="list-style-type: none"> <li>Yields the brightest conjugates among spectrally similar dyes</li> <li>Extremely photostable</li> <li>Validated in 2-photon microscopy</li> </ul>
CF@594ST	593/614	532 to 568 nm	Unique dye for STORM	<ul style="list-style-type: none"> <li>Specifically designed for STORM</li> </ul>
CF@620R	617/639	633 or 635 nm	LightCycler® Red 640	<ul style="list-style-type: none"> <li>Highly fluorescent dye with unique spectral properties</li> </ul>
CF@633	630/650	633 or 635 nm	Alexa Fluor® 633, Alexa Fluor® 647, Cy@5, DyLight® 633	<ul style="list-style-type: none"> <li>The brightest antibody conjugates among spectrally similar dyes</li> <li>Far more photostable than Alexa Fluor® 647</li> <li>Compatible with super-resolution TIRF, FIONA, and gSHRImP</li> </ul>
CF@640R	642/662	633 to 640 nm	Alexa Fluor® 647, ATTO 647N, Cy@5, DyLight® 649	<ul style="list-style-type: none"> <li>Has the best photostability among dyes with Cy@5-like spectra</li> <li>Yields highly fluorescent protein conjugates</li> <li>Compatible with TIRF and FLImP super-resolution techniques</li> </ul>
CF@647	650/665	633 to 640 nm	Alexa Fluor® 647, ATTO 647N, Cy@5, DyLight® 649	<ul style="list-style-type: none"> <li>Brighter than Cy@5</li> <li>Compatible with multicolor super-resolution imaging by STORM</li> </ul>
CF@660C	667/685	633 to 640 nm	Alexa Fluor® 660	<ul style="list-style-type: none"> <li>Much brighter and more photostable than Alexa Fluor® 660</li> <li>Compatible with multicolor super-resolution imaging by STORM</li> </ul>
CF@660R	663/682	633 to 640 nm	Alexa Fluor® 660	<ul style="list-style-type: none"> <li>Brighter than Alexa Fluor® 660</li> <li>The most photostable 660 nm dye</li> </ul>
CF@680	681/698	680 or 685 nm	Alexa Fluor® 680, Cy@5.5, DyLight® 680, IRDye® 680LT	<ul style="list-style-type: none"> <li>The brightest among spectrally similar 680 nm dyes</li> <li>Validated in multicolor STORM and 3D super-resolution imaging</li> <li>Compatible with LI-COR® Odyssey® System</li> </ul>
CF@680R	680/701	680 or 685 nm	Alexa Fluor® 680, Cy@5.5, DyLight® 680, IRDye® 680LT	<ul style="list-style-type: none"> <li>The most photostable 680 nm dye</li> <li>Suitable for labeling nucleic acids and small biomolecules</li> <li>Compatible with LI-COR® Odyssey® System</li> <li>Validated for 2-photon, STED, &amp; single molecule spectroscopy</li> </ul>
CF@700	695/720	680 or 685 nm	Alexa Fluor® 700, DyLight® 700	<ul style="list-style-type: none"> <li>Exceptionally bright and stable</li> <li>Patented pegylated dye for superior performance</li> </ul>
CF@750	755/777	680 or 685 nm	Alexa Fluor® 750, Cy@7, DyLight® 750, IRDye® 750	<ul style="list-style-type: none"> <li>Exceptionally bright and photostable</li> <li>Patented pegylated dye for superior performance</li> <li>Validated in photoacoustic imaging and STORM</li> </ul>
CF@770	770/797	785 nm	DyLight® 800, IRDye® 800CW, ZW800-1	<ul style="list-style-type: none"> <li>Exceptionally bright and stable</li> <li>Patented pegylated dye for superior performance</li> <li>Compatible with LI-COR® Odyssey® System</li> </ul>
CF@790	784/806	785 nm	Alexa Fluor® 790	<ul style="list-style-type: none"> <li>Exceptionally bright and stable</li> <li>Patented pegylated dye for superior performance</li> </ul>
CF@800	797/816	785 nm	Spectrally similar to Indocyanine green	<ul style="list-style-type: none"> <li>Unique long wavelength near-infrared dye</li> <li>Patented pegylated dye for superior performance</li> </ul>
CF@820	822/835	785 nm	DY-820	<ul style="list-style-type: none"> <li>Exceptionally bright and stable</li> <li>Patented pegylated dye for superior performance</li> </ul>

# Dyes At a Glance: Select the Right Dye for Your Application

Use the Spectra Viewer at [www.biotium.com](http://www.biotium.com) to find the best CF® dyes to pair with fluorescent proteins & commonly used probes.

## Bright

For flow, microarray, & other applications where photobleaching isn't a concern

CF@405S 404/431 nm	CF@640R 642/662 nm
CF@488A 490/515 nm	APC 650/660 nm
CF@532 527/558 nm	CF@647 650/665 nm
CF@543 541/560 nm	RPE-CF@647T 496/665 nm
R-PE 496-565/578 nm	CF@660C 667/685 nm
CF@555 555/565 nm	PerCP 482/677 nm
CF@568 562/583 nm	CF@680 681/698 nm
CF@594 593/614 nm	APC-CF@750T 650/780 nm
CF@633 630/650 nm	CF@750 755/777 nm
	CF@770 770/797 nm

## Alternative spectra

For FRET, multispectral imaging, or other specialized applications

CF@450 405/460 nm	CF@550R 551/577 nm
CF@503R 503/532 nm	CF@620R 617/639 nm
CF@514 516/548 nm	CF@660C 667/685 nm
CF@405L 395/545 nm	CF@800 797/816 nm
	CF@820 822/835 nm

## SIM

CF@405S 404/431 nm	CF@568 562/583 nm
CF@405M 408/452 nm	CF@640R 642/662 nm

## Bright & photostable

For microscopy & confocal imaging

CF@405S 404/431 nm	CF@568 562/583 nm
CF@405M 408/452 nm	CF@583R 586/609 nm
CF@430 426/498 nm	CF@594 593/614 nm
CF@440 440/515 nm	CF@633 630/650 nm
CF@450 405/460 nm	CF@640R 642/662 nm
CF@488A 490/515 nm	CF@660R 663/682 nm
CF@532 527/558 nm	CF@680R 680/701 nm
CF@543 541/560 nm	CF@750 755/777 nm

## The Fab Four

Our go-to team for 4-color confocal

CF@405S 404/431 nm	CF@568 562/583 nm
CF@488A 490/515 nm	CF@640R 642/662 nm

## STED

CF@405M 408/452 nm	CF@680R 680/701 nm
CF@488A 490/515 nm	

## STORM

CF@488A 490/515 nm	CF@568 562/583 nm	CF@680 681/698 nm
CF@535ST 527/558 nm	CF@594ST 593/614 nm	CF@680R 680/701 nm
CF@555 555/565 nm	CF@647 650/665 nm	CF@750 755/777 nm
	CF@660C 667/685 nm	

## 405 nm-excitable

For the violet laser

CF@405S 404/431 nm	CF@430 426/498 nm
CF@405M 408/452 nm	CF@440 440/515 nm
CF@405L 395/545 nm	CF@450 405/460 nm

## Near-infrared

Industry-leading NIR dyes for microscopy, flow, *in vivo* imaging, and WB

CF@680 681/698 nm	CF@770 770/797 nm
CF@680R 680/701 nm	CF@790 784/806 nm
CF@700 695/720 nm	CF@800 797/816 nm
CF@750 755/777 nm	CF@820 822/835 nm

## Near-IR western

Best match for LI-COR Odyssey®

CF@680 681/698 nm	CF@770 770/797 nm
----------------------	----------------------

## Photoacoustic imaging

CF@750 755/777 nm
----------------------

## TIRF

CF@488A 490/515 nm	CF@633 630/650 nm
CF@568 562/583 nm	CF@640R 642/662 nm

## 2-photon

CF@488A 490/515 nm	CF@680R 680/701 nm
CF@594 593/614 nm	

CF® dyes are being tested in new applications all the time, visit [biotium.com](http://biotium.com) for the most up-to-date information.