CF® Dye Reference Guide

Visible spectrum

Far-red

Near-infrared

Dye	Ex/Em (nm)	Excitation	Alternative for	Specialized Applications	Brightness*	Photostability*
CF®350	347/448	UV	Alexa Fluor® 350, AMCA, DyLight® 350		●	●
CF®405S	411/431	405 nm	Alexa Fluor® 405, Cascade Blue™, DyLight® 405	SIM	●	● ●
CF®405M	416/452	405 nm	BD Horizon™ V450, eFluor® 450, Pacific Blue™	SIM, STED, 2-Photon	●	● ●
CF®405L	413/547	405 nm	Pacific Orange™, Qdot™ 565, Spark Violet™ 538		●	●
CF®430	426/498	405 nm	Pacific Green™, BD Horizon™ V500, Krome Orange™		●	● ●
CF®440	440/515	405 nm	Alexa Fluor® 430		●	● ●
CF®450	450/538	405 nm	Unique dye		●	●
CF®488A	490/515	488 nm	ATTO 488, Alexa Fluor® 488, Spark Blue™ 515 Cy®2, DyLight® 488, FAM, FITC	SIM, STED, STORM, 2-Photon, TIRF, DNA-PAINT	● ● ●	● ● ●
CF®503R	503/532	488 nm	ATTO 488		● ● ●	● ● ●
CF®505	505/519	488 nm	ATTO 488	STORM	● ● ●	● ● ●
CF®514	516/548	488 nm	Alexa Fluor® 514, Spark Blue™ 550		● ●	● ● ●
CF®532	527/558	532 nm	Alexa Fluor® 532, ATTO 532, Qdot™ 565		● ●	● ● ●
CF®535ST	535/568	532 nm	Unique dye for STORM	STORM	● ●	●
CF®543	541/560	532 to 546 nm	Alexa Fluor® 546, Tetramethylrhodamine (TAMRA)		● ● ●	● ●
CF®550R	551/577	532 to 568 nm	Unique dye		● ● ●	● ● ●
CF®555	555/565	532 to 568 nm	Alexa Fluor® 555, ATTO 550, Cy®3, DyLight® 549, TRITC	SIM, STORM	● ● ●	● ●
CF®568	562/583	532 to 568 nm	Alexa Fluor® 568, Spark YG™ 581, ATTO 565, Rhodamine Red	SIM, STED, STORM, TIRF	● ● ●	● ● ●
CF®570	568/591	532 to 568 nm	Alexa Fluor® 568, Spark YG™ 593, ATTO 565, DY-560, Rhodamine Red		● ● ●	● ●
CF®583	583/606	532 to 568 nm	Cy®3.5, Texas Red®		● ●	● ●
CF®583R	586/609	532 to 568 nm	Cy®3.5, Texas Red®	STORM	● ● ●	●
CF®594	593/614	532 to 568 nm	Alexa Fluor® 594, ATTO 594, DyLight® 594, Texas Red®	STED, 2-Photon	● ● ●	● ● ●
RPE-Astral™616	565/617	488 nm or 561 nm	PE-Texas Red®, PE/Dazzle™ 594, PE-CF®594		● ● ●	●
CF®597R	597/619	561 to 568 nm	Alexa Fluor® 594, ATTO 594, DyLight® 594	STORM	● ● ●	●
CF®620R	617/639	633 or 635 nm	LightCycler® Red 640		● ●	● ● ●
CF®633	630/650	633 or 635 nm	Alexa Fluor® 633, Alexa Fluor® 647, Cy®5, DyLight® 633	TIRF, FIONA, gSHRImP, SMT	● ● ●	● ● ●
CF®640R	642/662	633 to 640 nm	Alexa Fluor® 647, ATTO 647N, Cy®5, DyLight® 649	SIM, STED, TIRF, FLImP, 2-Photon	● ● ●	● ● ●
CF®647	652/668	633 to 640 nm	Alexa Fluor® 647, ATTO 647N, Cy®5, DyLight® 649	STORM	● ● ●	●
CF®647Plus	652/668	633 to 640 nm	Alexa Fluor® 647, ATTO 647N, Cy®5, DyLight® 649		● ● ●	●
CF®660C	667/685	633 to 640 nm	Alexa Fluor® 660, Spark NIR™ 685	STORM, MINFLUX	● ●	● ●
CF®660R	663/682	633 to 640 nm	Alexa Fluor® 660	SMLM, DNA-PAINT	● ●	● ● ●
CF®680	681/698	680 or 685 nm	Alexa Fluor® 680, Cy®5.5, DyLight® 680, IRDye® 680LT	Near-IR western, STORM, 3D SMLM, MINFLUX	● ● ●	● ●
CF®680R	680/701	680 or 685 nm	Alexa Fluor® 680, Cy®5.5, DyLight® 680, IRDye® 680LT	STED, STORM, SMT, 2-Photon, single molecule spectroscopy	● ●	● ● ●
CF®700	695/720	680 or 685 nm	Alexa Fluor® 700, DyLight® 700, BD Horizon™ Red 718, Spark Red™ 718		● ●	● ●
CF®750	755/777	680 or 685 nm	Alexa Fluor® 750, Cy®7, DyLight® 750, IRDye® 750	Photoacoustic imaging, STORM	● ●	●
CF®770	770/797	785 nm	DyLight® 800, IRDye® 800CW, ZW800-1	Near-IR western	● ●	●
CF®790	784/806	785 nm	Alexa Fluor® 790		● ●	●
APC-Astral™813	788/813	633 to 640 nm	APC/Fire™ 810		● ● ●	●
CF®800	797/816	785 nm	Spectrally similar to Indocyanine green		● ●	●
CF®820	822/835	785 nm	DY-820		● ●	●
CF®850	852/570	808 nm	Unique dye		● ●	●
CF®870	876/896	808 nm	Unique dye		● ●	●

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FLImP: Fluorophore localization imaging with photobleaching; SIM: Structured illumination microscopy; STED: Stimulated emission depletion; STORM: Stochastical optical reconstruction microscopy; TIRF: Total internal reflection fluorescence; FIONA: Fluorescence imaging with one-nanometer accuracy; ExM: Expansion microscopy; SMT: Single-molecule tracking; SMLM: Single-molecule localization microscopy.

*The relative brightness and photostability of CF® Dyes shown in this table are intended as a general guideline. The values are partially based on extinction coefficients and dye structure, as well as our experience with antibody conjugates in immunofluorescence and flow cytometry experiments. Many factors, such as degree of labeling (DOL), laser power, filters, and gain, influence the performance of fluorescent dyes on a given instrument.

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

Use our CF® Dye Selection Tool at www.biotium.com to find the best CF® Dyes for your application and instrument configuration.

Flow Fundamentals

Our most recommended dyes for flow cytometry

- **CF®405M** 416/452 nm
- **CF®488A** 490/515 nm
- **CF®568** 562/583 nm
- **RPE-Astral™616** 566/617 nm
- **CF®647Plus** 652/668 nm
- **CF®700** 695/720 nm
- **APC-Astral™813** 788/813 nm

Alternative spectra

For FRET, multispectral imaging, or other specialized applications

- **CF®430** 426/498 nm
- **CF®440** 440/515 nm
- **CF®450** 405/460 nm
- **CF®503R** 503/532 nm
- **CF®405L** 395/545 nm
- **CF®514** 516/548 nm
- **CF®550R** 551/577 nm
- **CF®620R** 617/639 nm
- **CF®660C** 667/685 nm
- **CF®800** 797/816 nm
- **CF®820** 822/835 nm
- **CF®850** 852/870 nm
- **CF®870** 852/870 nm

SIM

- **CF®405S** 411/431 nm
- **CF®405M** 416/452 nm
- **CF®488A** 490/515 nm
- **CF®555** 555/565 nm
- **CF®568** 562/583 nm
- **CF®640R** 642/662 nm

Bright & photostable

For microscopy & confocal imaging

- **CF®488A** 490/515 nm
- **CF®532** 527/558 nm
- **CF®543** 541/560 nm
- **CF®568** 562/583 nm
- **CF®594** 593/614 nm
- **CF®633** 630/650 nm
- **CF®640R** 642/662 nm
- **CF®660R** 663/682 nm
- **CF®680R** 680/701 nm
- **CF®750** 755/777 nm

The Fab Four

Our go-to team for 4-color confocal

- **CF®405S** 411/431 nm
- **CF®488A** 490/515 nm
- **CF®568** 562/583 nm
- **CF®640R** 642/662 nm

STED

- **CF®405M** 416/452 nm
- **CF®488A** 490/515 nm
- **CF®568** 562/583 nm
- **CF®594** 593/614 nm
- **CF®640R** 642/662 nm
- **CF®680R** 680/701 nm

STORM

- **CF®488A** 490/515 nm
- **CF®505** 505/519 nm
- **CF®535ST** 535/569 nm
- **CF®555** 555/565 nm
- **CF®568** 562/583 nm
- **CF®583R** 586/609 nm
- **CF®597R** 597/619 nm
- **CF®647** 650/665 nm
- **CF®660C** 667/685 nm
- **CF®680** 681/698 nm
- **CF®680R** 680/701 nm
- **CF®750** 755/777 nm

Near-infrared

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

- **CF®680** 681/698 nm
- CF®680R 680/701 nm
- **CF®700** 695/720 nm
- **CF®750** 755/777 nm
- **CF®770** 770/797 nm
- **CF®790** 784/806 nm
- **CF®800** 797/816 nm
- **CF®820** 822/835 nm
- **CF®850** 852/870 nm
- **CF®870** 852/870 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®568** 562/583 nm
- **CF®633** 630/650 nm
- **CF®640R** 642/662 nm

2-photon

- **CF®405M** 416/452 nm
- **CF®488A** 490/515 nm
- **CF®594** 593/614 nm
- **CF®640R** 642/662 nm
- **CF®680R** 680/701 nm

CF® Dyes are being tested in new applications all the time, visit biotium.com for the most up-to-date information.

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