

CF® Dye Reference Guide

	Dye	Ex/Em (nm)	Excitation	Alternative for	Specialized Applications	Brightness*	Photostability*
Visible spectrum	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, DyLight® 488, FAM, FITC	SIM, STED, STORM, 2-Photon, TIRF, DNA-PAINT	● ● ●	● ●
	CF®498	498/519	488 nm	ATTO 488	STORM	● ●	● ●
	CF®503R	503/532	488 nm	ATTO 488	STORM	● ●	● ●
Far-red	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®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	● ● ●	●
Near-infrared	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	NIR WB, STORM, 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, SMS	● ●	● ● ●
	CF®700	695/720	680 or 685 nm	Alexa Fluor® 700, DyLight® 700, BD Horizon™ Red 718, Spark Red™ 718		● ●	● ●
	CF®710	712/736	680 or 685 nm	Alexa Fluor® 700		● ●	● ● ●
	CF®725	729/750	680 or 685 nm	Unique near-IR dye		● ●	● ● ●
	CF®740	742/767	680 or 685 nm	Alexa Fluor® 750, Cy®7, DyLight® 750, IRDye® 750		● ●	● ● ●
	CF®750	755/777	680 or 685 nm	Alexa Fluor® 750, Cy®7, DyLight® 750, IRDye® 750	Photoacoustic imaging, STORM, NIR WB	● ●	●
	CF®770	770/797	785 nm	DyLight® 800, IRDye® 800CW, ZW800-1	NIR WB	● ●	●
	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	NIR WB	● ●	●

FLImP: Fluorophore localization imaging with photobleaching; SIM: Structured illumination microscopy; STED: Stimulated emission depletion; STORM: Stochastic optical reconstruction microscopy; TIRF: Total internal reflection fluorescence; FIONA: Fluorescence imaging with one-nanometer accuracy; ExM: Expansion microscopy; SMT: Single-molecule tracking; SMS: Single molecule spectroscopy; SMLM: Single-molecule localization microscopy; NIR WB: near-infrared western blot.

*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	RPE-Astral™616 566/617 nm
CF®488A 490/515 nm	CF®647Plus 652/668 nm
CF®568 562/583 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®550R 551/577 nm
CF®440 440/515 nm	CF®620R 617/639 nm
CF®450 405/460 nm	CF®660C 667/685 nm
CF®503R 503/532 nm	CF®800 797/816 nm
CF®405L 395/545 nm	CF®820 822/835 nm
CF®514 516/548 nm	CF®850 852/870 nm
	CF®870 852/870 nm

SIM

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

Bright & photostable

For microscopy & confocal imaging

CF®488A 490/515 nm	CF®640R 642/662 nm
CF®532 527/558 nm	CF®660R 663/682 nm
CF®543 541/560 nm	CF®680R 680/701 nm
CF®568 562/583 nm	CF®710 712/736 nm
CF®594 593/614 nm	CF®725 729/750 nm
CF®633 630/650 nm	CF®750 755/777 nm

The Fab Four

Our go-to team for 4-color confocal

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

STED

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

STORM

CF®498 498/519 nm	CF®583R 586/609 nm	CF®680 681/698 nm
CF®505 505/519 nm	CF®597R 597/619 nm	CF®680R 680/701 nm
CF®555 555/565 nm	CF®647 650/665 nm	CF®750 755/777 nm
CF®568 562/583 nm	CF®660C 667/685 nm	

Near-infrared

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

CF®680 681/698 nm	CF®750 755/777 nm
CF®680R 680/701 nm	CF®770 770/797 nm
CF®700 695/720 nm	CF®790 784/806 nm
CF®710 712/736 nm	CF®800 797/816 nm
CF®725 729/750 nm	CF®820 822/835 nm
CF®740 742/767 nm	CF®850 852/870 nm
	CF®870 876/896 nm

Near-IR western

Best match for LI-COR Odyssey®

CF®680 681/698 nm	CF®770 770/797 nm
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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®405M 416/452 nm	CF®594 593/614 nm
CF®488A 490/515 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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