

# CF<sup>®</sup> Dyes Quick Reference

Visible spectrum

Far-red

Near-infrared

CF <sup>®</sup> dye	$\lambda_{ex}$ (nm)	$\lambda_{em}$ (nm)	Excitation*	Replacement for	Features and applications
CF@350	347	448	UV	Alexa Fluor <sup>®</sup> 350, AMCA, DyLight <sup>®</sup> 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 <sup>®</sup> 405, Cascade Blue <sup>®</sup> , DyLight <sup>®</sup> 405	<ul style="list-style-type: none"> <li>Better compatibility with common instruments</li> </ul>
CF@405M	408	452	405 nm	BD Horizon <sup>™</sup> V450, eFluor <sup>®</sup> 450, Pacific Blue <sup>®</sup>	<ul style="list-style-type: none"> <li>More photostable than Pacific Blue<sup>®</sup> dye 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 <sup>®</sup>	<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 <sup>®</sup> , BD Horizon <sup>™</sup> V500, Krome Orange <sup>™</sup>	<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 <sup>®</sup> 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>Green dye with unique spectral properties</li> </ul>
CF@488A	490	515	488 nm	ATTO 488, Alexa Fluor <sup>®</sup> 488, Cy <sup>®</sup> 2, DyLight <sup>®</sup> 488, FAM, FITC, Fluorescein	<ul style="list-style-type: none"> <li>Less non-specific binding and less red spill-over than Alexa Fluor<sup>®</sup> 488</li> <li>Very photostable</li> <li>Compatible with super-resolution imaging by TIRF</li> </ul>
CF@514	516	548	488 nm	Alexa Fluor <sup>®</sup> 514	<ul style="list-style-type: none"> <li>Green dye that can be separated from CF@488A by spectral unmixing</li> </ul>
CF@532	527	558	532 nm	Alexa Fluor <sup>®</sup> 532, ATTO 532	<ul style="list-style-type: none"> <li>Significantly brighter than Alexa Fluor<sup>®</sup> 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 super-resolution microscopy</li> </ul>
CF@543	541	560	532, 543, or 546 nm	Alexa Fluor <sup>®</sup> 546, Tetramethylrhodamine (TAMRA)	<ul style="list-style-type: none"> <li>Brighter than Alexa Fluor<sup>®</sup> 546</li> </ul>
CF@555	555	565	532, 543, 546, 555, or 568 nm	Alexa Fluor <sup>®</sup> 555, ATTO 550, Cy <sup>®</sup> 3, DyLight <sup>®</sup> 549, TRITC	<ul style="list-style-type: none"> <li>Brighter than Cy<sup>®</sup>3 Validated in multicolor super-resolution imaging by STORM</li> </ul>
CF@568	562	583	532, 543, 546, 555, or 568 nm	Alexa Fluor <sup>®</sup> 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, 543, 546, 555, or 568 nm	Alexa Fluor <sup>®</sup> 568, ATTO 565, DY-560, Rhodamine Red	<ul style="list-style-type: none"> <li>Yields brighter conjugates compared to spectrally similar dyes</li> </ul>
CF@583	583	606	532, 543, 546, 555, or 568 nm	Cy <sup>®</sup> 3.5	<ul style="list-style-type: none"> <li>Yields brighter conjugates compared to spectrally similar dyes</li> </ul>
CF@594	593	614	532, 543, 546, 555, or 568 nm	Alexa Fluor <sup>®</sup> 594, ATTO 594, DyLight <sup>®</sup> 594, Texas Red <sup>®</sup>	<ul style="list-style-type: none"> <li>Yields the brightest conjugates among spectrally similar dyes</li> <li>Extremely photostable</li> </ul>
CF@594ST	593	614	532, 543, 546, 555, or 568 nm	Unique dye for STORM	<ul style="list-style-type: none"> <li>Specifically designed for super-resolution imaging by STORM</li> </ul>
CF@620R	617	639	633 or 635 nm	LightCycler <sup>®</sup> 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 <sup>®</sup> 633, Alexa Fluor <sup>®</sup> 647, Cy <sup>®</sup> 5, DyLight <sup>®</sup> 633	<ul style="list-style-type: none"> <li>Yields the brightest antibody conjugates among spectrally similar dyes</li> <li>Far more photostable than Alexa Fluor<sup>®</sup> 647</li> <li>Compatible with super-resolution TIRF, FIONA, and gSHRImP</li> </ul>
CF@640R	642	662	633, 635, or 640 nm	Alexa Fluor <sup>®</sup> 647, ATTO 647N, Cy <sup>®</sup> 5, DyLight <sup>®</sup> 649	<ul style="list-style-type: none"> <li>Has the best photostability among dyes with Cy<sup>®</sup>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, 635, or 640 nm	Alexa Fluor <sup>®</sup> 647, ATTO 647N, Cy <sup>®</sup> 5, DyLight <sup>®</sup> 649	<ul style="list-style-type: none"> <li>Brighter than Cy<sup>®</sup>5</li> <li>Compatible with multicolor super-resolution imaging by STORM</li> </ul>
CF@660C	667	685	633, 635, or 640 nm	Alexa Fluor <sup>®</sup> 660	<ul style="list-style-type: none"> <li>Much brighter and more photostable than Alexa Fluor<sup>®</sup> 660</li> <li>Compatible with multicolor super-resolution imaging by STORM</li> </ul>
CF@660R	663	682	633, 635, or 640 nm	Alexa Fluor <sup>®</sup> 660	<ul style="list-style-type: none"> <li>Brighter than Alexa Fluor<sup>®</sup> 660</li> <li>The most photostable 660 nm dye</li> </ul>
CF@680	681	698	680 or 685 nm	Alexa Fluor <sup>®</sup> 680, Cy <sup>®</sup> 5.5, DyLight <sup>®</sup> 680, IRDye <sup>®</sup> 680LT	<ul style="list-style-type: none"> <li>The brightest among spectrally similar 680 nm dyes</li> <li>Validated in multicolor STORM and 2-color 3D super-resolution imaging</li> <li>Compatible with LI-COR<sup>®</sup> Odyssey<sup>®</sup> System</li> </ul>
CF@680R	680	701	680 or 685 nm	Alexa Fluor <sup>®</sup> 680, Cy <sup>®</sup> 5.5, DyLight <sup>®</sup> 680, IRDye <sup>®</sup> 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<sup>®</sup> Odyssey<sup>®</sup> System</li> <li>Compatible with STED and single molecule spectroscopy</li> </ul>
CF@750	755	777	680 or 685 nm	Alexa Fluor <sup>®</sup> 750, Cy <sup>®</sup> 7, DyLight <sup>®</sup> 750, IRDye <sup>®</sup> 750	<ul style="list-style-type: none"> <li>Exceptionally bright and stable</li> <li>Highly water soluble without bearing excessive charge</li> <li>Validated in super-resolution imaging by STORM</li> </ul>
CF@770	770	797	785 nm	DyLight <sup>®</sup> 800, IRDye <sup>®</sup> 800CW, ZW800-1	<ul style="list-style-type: none"> <li>Exceptionally bright and stable</li> <li>Compatible with LI-COR<sup>®</sup> Odyssey<sup>®</sup> System</li> </ul>
CF@790	784	806	785 nm	Alexa Fluor <sup>®</sup> 790	<ul style="list-style-type: none"> <li>Exceptionally bright and stable</li> <li>Highly water soluble without bearing excessive charge</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> </ul>

\*Visible and far-red dyes can be excited by a UV light source for epifluorescence microscopy.



# CF® Dye Product Lines

## Bioconjugates

### Primary antibodies

- More than 1000 mouse & rabbit monoclonal antibodies
- Protein array-validated monospecific recombinant monoclonals
- Validated in IHC and other applications
- Choose from 13 bright and photostable CF® dyes
- Also available with R-PE, APC, PerCP, HRP, AP, or biotin
- Available purified without BSA, ready to use for Mix-n-Stain™ labeling or other conjugation
- Offered in affordable 100 uL sizes

### Anti-tag antibodies

- Antibodies against GFP, RFP, biotin, HA-tag, 6X His tag, and more
- Choose from several bright and photostable CF® dye options

### Secondary antibodies

- Wide variety of host and target species
- F(ab)'2, highly cross-adsorbed, and isotype-specific antibodies available
- Choose from 20 bright and photostable CF® dyes
- Also available with R-PE, APC, PerCP, HRP, AP, or biotin
- Available in multiple sizes, liquid format or lyophilized

### Other bioconjugates

- Streptavidin
- Phalloidin
- Annexin V
- BSA, dextrans, transferrin, and cholera toxin
- Lectins
- Nucleotide conjugates

## Reactive Dyes and Labeling Kits

### Mix-n-Stain™ Antibody Labeling Kits

- The simplest antibody labeling protocol available
- Label your antibody with your choice of more than 20 CF® dye colors, biotin, DNP, digoxigenin, or FITC in just 30 minutes, with minimal hands-on time
- No post-labeling purification required
- Labeling is covalent, suitable for multiplex staining
- Choice of small-scale labeling sizes preserves precious primary antibodies
- Kits tolerate common antibody buffer components and stabilizer proteins
- Mix-n-Stain™ kits also available for labeling antibodies with R-PE, APC, Per-CP, R-PE-CF®750T, HRP, AP, and glucose oxidase

### Mix-n-Stain™ Small Ligand Labeling Kits

- For labeling small molecules on primary amines
- Label 0.1 umol SNAP-Tag®, CLIP-Tag™, or HaloTag® ligand
- Choose from 10 CF® dye colors for surface targets, or 3 CF® dye colors for intracellular targets

### CF® Dye SE and VivoBrite™ Protein Labeling Kits

- Everything you need to label and purify 3 x 1 mg antibody or other protein using standard conjugation techniques
- VivoBrite™ kits feature our superior near-IR CF® dyes for in vivo imaging

### Reactive Dyes

- Our full selection of CF® dyes with a wide variety of functional groups

### Related Products and Accessories

- TrueBlack® autofluorescence quencher, background suppressor, and blocking buffer for IF or western
- EverBrite™ Antifade Mounting Media
- CoverGrip™ Coverslip Sealant
- RedDot™ and NucSpot® nuclear counterstains
- Ready-to-use, preservative-free PFA, buffers, blocking agents, Pap pens, and more

[www.biotium.com](http://www.biotium.com)

General Inquiries: [order@biotium.com](mailto:order@biotium.com)

Technical Support: [techsupport@biotium.com](mailto:techsupport@biotium.com)

Phone: 800-304-5357

