Interchim Innovations

Interbiotech - BioScience Innovations

H10E

CF dyes Labeling agents

CF® dyes are designed for labeling biomolecules in advanced fluorescent detection techniques. Applications include multiple labeling, FRET, Quenching, polarisation anisotropy fluorescence, and life time resolved fluorescence, with protein as well as with nucleic acids.
More on our most popularly used CF dyes CF350, CF488A, CF620R, CF640R, CF647

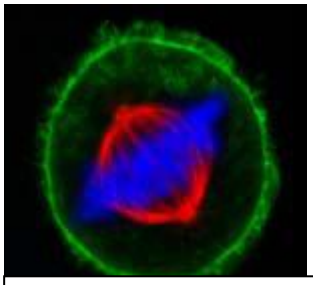
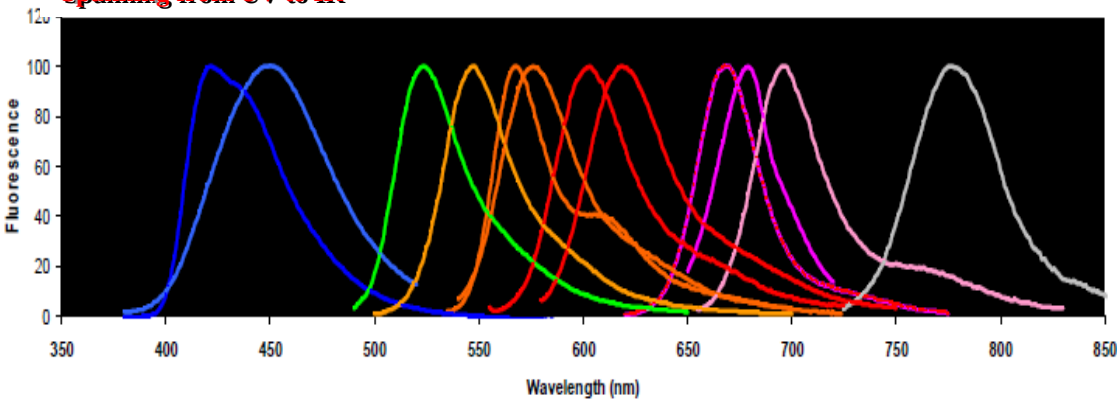


Figure 1. HeLa cells were stained with CF 555 phalloidin (red), mouse anti-á-tubulin followed by goat anti-mouse CF 488 IgG (green) and DAPI (blue), respectively.

Fluorescence Emission Spectra of CF Dyes

Spanning from UV to IR



ADVANTAGES

Brightness
CF dyes match or surpass the brightness of AF dyes and Cy dyes.

Photostability
CF dyes are among the most photostable dyes, and formed conjugates are also more stable.

Specificity and in-vivo Stability
CF-labeled antibodies offer superior specificity and improved half-life for in-vivo imaging.

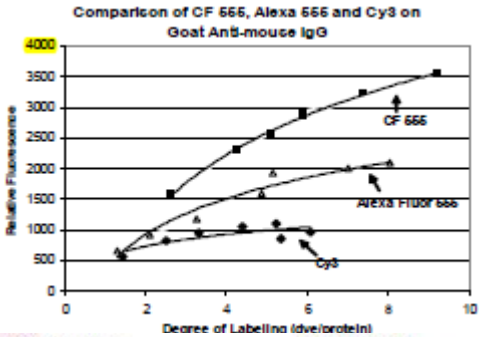
pH Insensitivity
CF dyes remain highly fluorescent over a wide pH range.

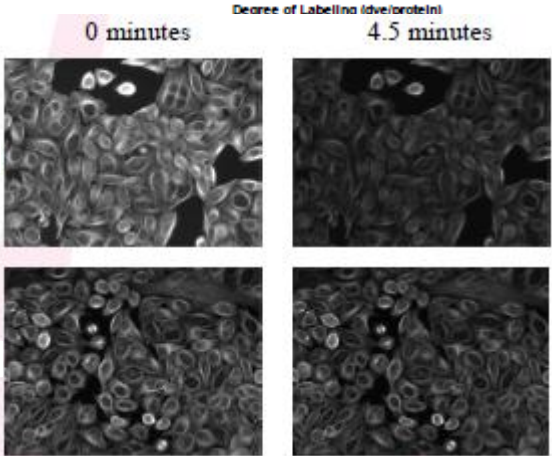
Solubility
CF dyes are highly soluble in both water and a wide range of organic solvents.

Compatibility
CF dyes are compatible with common excitation sources and existing filters.

Color Selection
Largest dye collection with wavelengths ranging from UV to near IR.

Superior brightness





CF dyes are based on the core structure of cyanine or rhodamine (but few are coumarin, pyrene). A **patented chemical modification** restrict the intramolecular mobility, giving a higher quantum yield, and **avoids excess ionic charge** that typically results from the sulfonation approach to improve the water solubility as performed in the Cy™ and AF dyes. It hence avoids non-specific binding, hence undesired background, and also avoids protein IsoElectricPoint dramatic change that affects labeled proteins properties (i.e. Ab/ag interaction). Finally, the CF dyes are provided in a relatively more stable for of SE that heavily sulfonated dyes, which is more resistant to hydrolysis. As a result, labeling efficiency is improved, adding benefits to intrinsically more photostable, bright and biocompatible fluorescence.
The CF® fluorophores are available as different derivatives for conjugation with conventional chemistry methods, as well as affinity probe conjugates and kits.

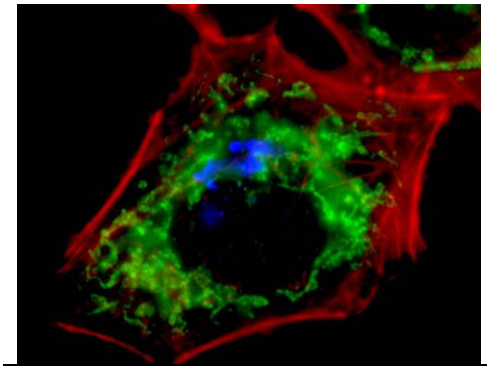
		Reactive Dyes (CF™ Dye/Catalog number)																		
	Unit Size	CF350	CF405S	CF405M	CF488A	CF543	CF555	CF568	CF594	CF620R	CF633	CF640R	CF647	CF660C	CF660R	CF680	CF680R	CF750	CF770	CF790
Amine	1 mg	92035	92036		92037		92038	92039	92040		92041	92043	92042							
Aminooxy	1 mg	92050	92055	92056	92051			92057	92052		92053	92058			92059		92054			
Hydrazide	1 mg	92151			92152		92153	92154	92158		92156	92157	92136							
Maleimide	1 umol	92020	92030	92021	92022		92023	92024	92025	92033	92026	92034	92027	92028	92031	92029	92032			
Succinimidyl Ester	1 umol	92109	92110	92111	92120		92130	92131	92132	92106	92133	92108	92135	92137	92134	92139	92107	92142	92150	
	0.25 umol																			92155
SE Protein Labeling Kit	3 labelings	92210	92211	92212	92213		92214	92215	92216		92217	92225	92218	92219	92223	92220	92226	92221	92222	

CF dyes are also available as labelling kits for in vivo experiments.
conjugated to secondary antibodies for I.Assays, nucleotides for qPCR,
conjugated to phalloidin, annexinV, … for probing cells.

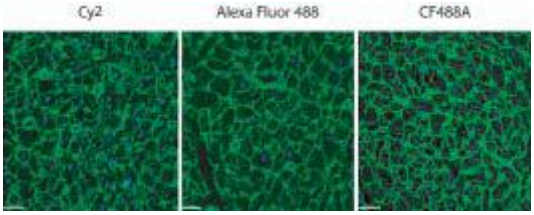
See full description of each dye, and available conjugates in the mini-catalog (SH)

Featured CF dyes

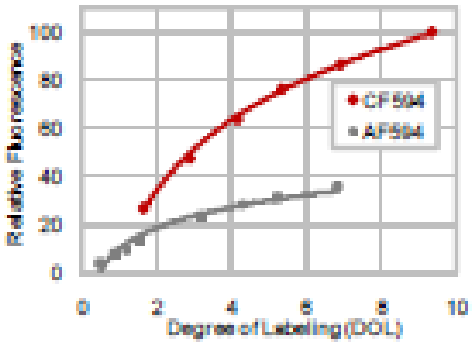
CF405S



CF488

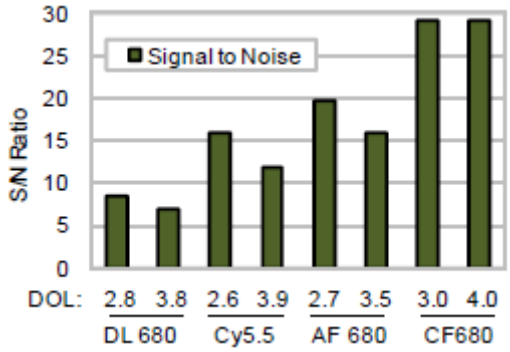


CF594



See CF dyes table below
and full description of each dye, and available conjugates in the mini-catalog (SH)

CF680



CF770

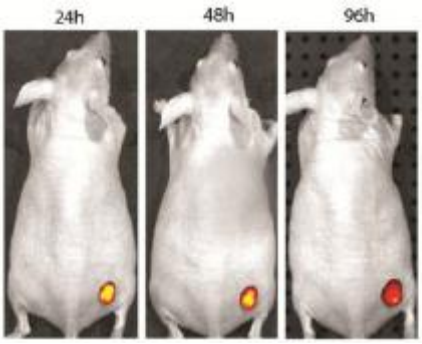


Figure 2. Tumors in mice were imaged using an IVIS imaging system (Caliper Life Sciences) 24 hours, 48 hours, and 96 hours after IV injection of Avastin conjugated to CF750. Images courtesy of Caliper Life Sciences.

Featured CF dyes

CF dye & alt.	MW £ ($g \cdot mol^{-1}$)	$\lambda_{exc}\backslash\lambda_{em}$. max. (nm)	mol. abs. ($M^{-1}cm^{-1}$)	Comments
CF®350 More info	496	247 448	18 000	• UV-excitable bright blue fluorescence • Yields the brightest blue fluorescent conjugates when excited at ~350 nm. A good alternative to AMCA, CB, DL350
CF®405S More info	1169	404 / 431	33 000	• Ideal with blue ~405 nm laser (better compatibility than A405; well centers blue detection window of BD flow cytometers • Outshines A405, also a good alternative to DL405
CF®405M More info	503	408 / 452	41 000	• Similarly to PacificBlue: less spillover in the green channel, as bright, but more photostable. • Also a good alternative to BD HorizonV450, eFluo450, PB • A superior choice in multi-color FCM applications
CF® 485 More info	~602	487 / 513	70 000	• Shorter abs. and emission wavelengths than common green dyes. • Exc. By 470nm blue LED light source. • Minimal fluorescence in the Red detection channels in FCM, PCR
CF® 488 More info	~710	490 / 515	70 000	• A superior green fluorescence, over FITC, Cy2, A488, DL488. • less spillover in the red channel than FITC and A488 • Minimally charge reduces non-specific binding, and yield more stable conjugates, more specific abs • Superior photostability, hence minimal fading
CF® 543 More info	870	541 / 560	100 000	• Compatible with standard filters for A532 • Brighter than A546 at similar labeling degree
CF® 555 More info	7901	555 / 565	150 000	• Orange-red fluorescence . Alternative to Atto550 • Brighter and more photostable than Cy™3, less charge than A555
CF® 568 More info	714	562 / 583	100 000	• Compatible with standard filters for A568, Atto565, RR. • More photostable than A568 – ideal for Confocal µscopy and with Ar-Kr-mixed gas laser
CF® 594 More info	~730	593 / 614	115 000	• Brightest deep-red fluorescence for standard filters for TR • Excited by 532nm, 568nm or 594nm laser lines • Outperforms SR101/TR thanks to high QY and except.solubility • Extremely photostable. Combines with CF350+488A+640R
CF620R More	738	617 / 639	115 0	• Excellent dye for FRET. Replace LightCycler Red640
CF633 More	~820	630 / 650	100 000	• Optimal with 633nm He-Ne laser & 635nm red diode laser lines • Alt. A633, A633, DL633.
CF640R More	~832	642 / 662	105 000	• Optimal with 633/ 63/6405nm laser lines • Alt. A647, 647N, Atto647, Cy5
CF® 647 More info	836	650 / 665	836	• A superior far red fluorescence ; Cy based • Similar to A647, DL649, and brighter than Cy™5
CF660C More	3112	667 / 685	200 000	• Exc.633/635/640nm laser – Altern.A660, APC
CF660R More	888	663 682	100 000	• Exc.633/635/640nm laser – Altern.A660, APC
CF® 680 More info	3241	681 / 698	210 000	• Brightest IR fluorescence; nice water solubility; Cy-based • Alternative to A680, Cy5.5, IRD680
CF® 680R More info	912	680 / 701	140 000	• Recommended in place of A680 for nucleic acids and small molecules; compat. w/Licor Odyssey
CF® 750 More info	3138	755 / 777	250 000	• Better than APC/A750 even exc.at 633nm – Nice in WB • Less charged > less background > better signal to noice
CF® 770 More info	912	770 / 797	220 000	• Less immunogenic + Exceptionally bright and stable • CF680/CF770 double labeling with Licor Odyssey system
CF® 790 More info	3267	784 / 806	210 000	• Less immunogenic + Exceptionally bright and stable over competing dyes
				See available **CF-conjugates** in the mini-catalog (SH)

Related products/documents

Products HighLights Overview, including:

- Other remarquable FluoProbes dyes: i.e.
- FluoLids dyes labeling – , the solid fluorescence technology
- Remarkable conjugation tools: PEO crosslinkers (hydrophilic spacers), Hydrazone chemistry (flexible method using stable activation step), Click Chemistry & Staudinger ligation (versatile and mild conjugation), Multifunctional cross-linkers
- Dialysis and Desalting tools – CelluSep tubings, SpectraPor tubings, GebaFlex, FloatALyser, SlideALyser,...

Information inquire

Reply by Fax : +33 (0) 4 70 03 82 60 or email at interbiotech@interchim.com

☐ I wish to receive the complete documentation about: _____

_____

Name: _____ 2nd name:_____ Position:_____

Company/Institute: _____ Service, Lab:_____

Adress: _____

Zip code: _____ Town: _____

Tel_____ Fax_____ Email: _____