

CF™647 Dye

A far-red dye superior to Cy™5 and Alexa Fluor® 647

Technical Summary

Abs/Em Maxima: 650/665 nm

Extinction coefficient: 240,000

Molecular weight: 1058

Flow cytometry laser line: 633 or 635 nm

Microscopy laser line: 633 or 635 nm

Direct replacement for: Cy™5, Alexa Fluor® 647 and DyLight™ 649

Advantages

- Yields antibody conjugates having the best signal-to-noise ratio compared to Alexa Fluor® 647, DyLight™ 649 and Cy™ 5
- Bright
- Highly water-soluble
- pH-insensitive

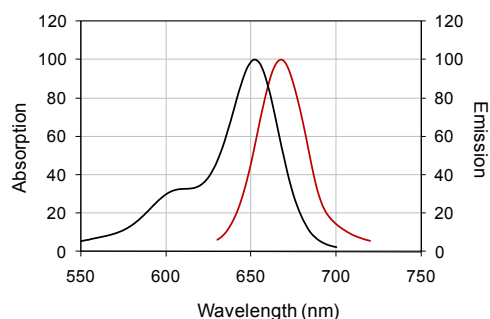


Figure 1. Absorption and emission spectra of CF™647 conjugated to goat anti-mouse IgG in PBS.

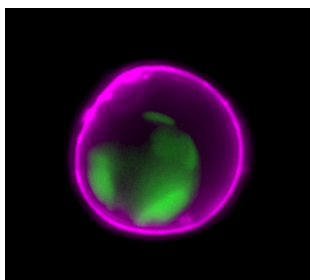


Figure 2. Jurkat cells were treated with staurosporine to induce apoptosis and stained with NucView™488 (live cell caspase-3 detection) and CF™647 Annexin-V. CF™647 Annexin-V staining is pseudocolored magenta.

CF™647 is a cyanine-based far-red fluorescent dye spectrally similar to Cy™5 and Alexa Fluor® 647 (Figure 1). Compared with the other dyes, CF™647 has good fluorescence brightness (Figures 2 and 3A). However, the most attractive feature of CF™647 is its superior signal-to-noise ratio for its antibody conjugates in immunostaining (Figure 3B). Alexa Fluor® 647 bears multiple negative charges, which improve the brightness of the dye but also significantly alter the isoelectric point of antibody conjugates, resulting in lowered specificity of the conjugates. To overcome the problem, a polymer blocking agent, such as Image-it™, is recommended to pre-treat the sample prior to the staining. CF™647, on the other hand, is minimally charged. As a result, antibody conjugates prepared from the dye have excellent specificity.

A list of CF™647-based products are shown in Table 1. A full selection of secondary antibodies, antibody labeling kits, and other bio-conjugates including phalloidin, annexin V and α -bungarotoxin are also available for many CF™ dyes. For more information, please visit the Biotium website at www.biotium.com.

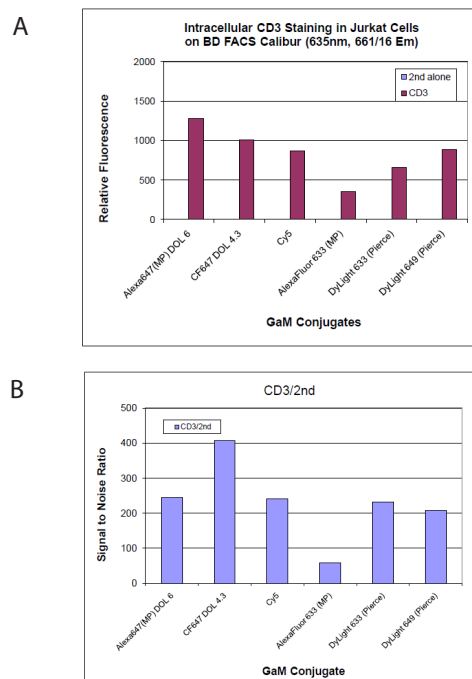


Figure 3. Jurkat cells were fixed, permeabilized and stained with intracellular mouse anti-human CD3 followed by CF™647 (Biotium), AlexaFluor® 647 (Invitrogen) or other commercially available goat anti-mouse IgG conjugates. Stained cells were analyzed on a BD FACS Calibur in the FL4 channel. (A) The bars represent the relative geometric means of the cell population. Background was determined by secondary antibody staining alone. (B) The signal-to-noise ratio of the geometric means from A.

CF™647 fluorescent reagents

Table 1. CF™647 Product List

Product Name	Size	Cat No.
CF™647-Labeled Secondary Antibody Conjugates		
Donkey Anti-Goat IgG (H+L) whole antibody, 2 mg/mL (min X Chicken, Guinea Pig, Syrian Hamster, Horse, Human, Mouse, Rabbit, and Rat)	0.5 mL	20048
Donkey Anti-Mouse IgG (H+L) whole antibody, 2 mg/mL (min X Bovine, Chicken, Goat, Guinea Pig, Syrian Hamster, Horse, Human, Rabbit, and Sheep)	0.5 mL	20046
Donkey Anti-Rabbit IgG (H+L) whole antibody, 2 mg/mL (min X Bovine, Chicken, Goat, Guinea Pig, Syrian Hamster, Horse, Human, Mouse, Rat, and Sheep)	0.5 mL	20047
Donkey Anti-Sheep IgG (H+L) whole antibody, 2 mg/mL (min X Chicken, Guinea Pig, Syrian Hamster, Horse, Human, Mouse, Rabbit, and Rat)	0.5 mL	20284
Goat Anti-Chicken IgY (IgG) (H+L) whole antibody, 2 mg/mL (min X Bovine, Goat, Guinea Pig, Syrian Hamster, Horse, Human, Mouse, Rabbit, Rat, and Sheep)	0.5 mL	20044
Goat Anti-Guinea Pig IgG (H+L) whole antibody, 2 mg/mL	0.5 mL	20041
Goat Anti-Human IgG (H+L) whole antibody, 2 mg/mL (min X Bovine, Horse, and Mouse)	0.5 mL	20280
Goat Anti-Rabbit IgG (H+L) whole antibody, 2 mg/mL	0.5 mL	20043
Goat Anti-Rabbit IgG (H+L) whole antibody, 2 mg/mL (min X Human, Mouse, and Rat)	0.5 mL	20282
Goat Anti-Rabbit IgG (H+L), F(ab')₂ fragment, 2 mg/mL	0.25 mL	20045
Goat Anti-Rat IgG (H+L) whole antibody, 2 mg/mL (min X Human, Bovine, Horse, and Rabbit)	0.5 mL	20283
Goat Anti-Swine IgG (H+L) whole antibody, 2 mg/mL	0.5 mL	20286
Rabbit Anti-Goat IgG (H+L) whole antibody, 2 mg/mL	0.5 mL	20049
Rabbit Anti-Mouse IgG (H+L) whole antibody, 2 mg/mL (min X Human)	0.5 mL	20285
Other CF™647-Labeled Products		
Annexin V, 50 µg/mL	0.5 mL	29003
Phalloidin	300 U	00041
CF™647 Reactive Dyes and Labeling Kits		
CF™647 amine	1 mg	92042
CF™647 hydrazide	1 mg	92136
CF™647 maleimide	1 µmole	92027
CF™647 succinimidyl ester	1 µmole	92135
Mix-n-Stain™ CF™647 antibody labeling kit, 1x(50-100 µg) labeling	1 labeling	92238
Mix-n-Stain™ CF™647 antibody labeling kit, 1x(20-50 µg) labeling	1 labeling	92259
Mix-n-Stain™ CF™647 antibody labeling kit, 1x(5-20 µg) labeling	1 labeling	92279
CF™647 SE protein labeling kit	3 labelings (for 1 mg protein each)	92218

If you are looking for an antibody conjugate not listed in our catalog, please let us know. We might be able to add it as a new product, or perform a custom conjugation for you.

Listed products are for research use only. Not for use in diagnostic or therapeutic procedures. CF is a trademark of Biotium; CF dye technologies are covered by pending US and international patents. Alexa Fluor is a registered trademark of Invitrogen. Cy is a trademark of GE Healthcare. DyLight is a trademark of ThermoFisher.



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