

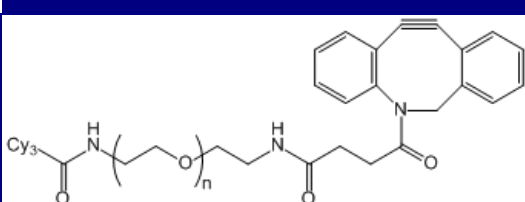
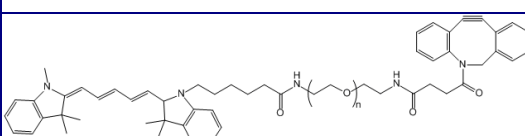
FT-1Q7081

CYanine – PEG- DBCO

CYanine fluorophores functionalized for labeling biomolecules by click chemistry

Products Description

The table below gives main physical and fluorescence characteristics of the activated dyes.

Product name cat.number/qty*	MW (g·mol ⁻¹) +added MW	λ abs./em. (nm)	mol. abs. (M ⁻¹ cm ⁻¹)	Comment, structure
CYanine3 – PEG_x – DBCO (M) [NB] Yellow/pale-yellow solid or semi-solid. Soluble in DMSO or DMF. FP-1Q7070 FP-1Q7080, 5mg FP-AWJT10, 5mg	2000Da 3400Da 5000Da	555 / 570	150 000 QY: 0.31	
CYanine5 – PEG_x – DBCO (M) [NB] Soluble in DMSO or DMF. FP-B42F1 FP-AWJT20, 5mg Inquire FP-AWJSN0, 5mg	556.18 (520.3) 1000Da 2000Da 3400Da 5000Da	646 / 662	250 000 QY: 0.2	
CYanine5.5 – PEG_x – DBCO (M) [NB] FP-AWJT30, 5mg FP-B36JG0, 5mg Inquire	2000Da 3400Da 5000Da	675/694	209 000 QY : 0.2	Appearance: Blue/dark blue solid
CYanine7 – PEG_x – DBCO (M) [NB] Inquire	3400Da	749 / 776	“	

Storage: –20°C for long term, protected from light (M)

[Cyanine fluorophores](#) | [Click Chemistry](#) | [Guidelines for use](#)

Cyanine fluorophores

A variety of **Cyanine dyes** has been used to label proteins, nucleic acids and other biomolecules for fluorescence techniques (imaging, biochemical analysis). They replace advantageously the conventional fluorochromes such as Fluorescein(FITC) and rhodamines (TRITC, RRR).

CY_{anine}3 can replace orange-fluorescent dyes, like Tetramethylrhodamine (TRITC).

CY_{anine}3 is one of the most broadly used fluorophores which can be detected by various fluorometers, imagers, and microscopes. Due to inherently high extinction coefficient, this dye is also easily detected by naked eye on gels, and in solution.

See also alternative superior dye: [FluoProbes547H](#).

CY_{anine}3.5 can replace SulfoRhodamine 101.

See also alternative superior dye: [FluoProbes594](#).

CY_{anine}5 can replace far red fluorescent dyes.

CY_{anine}5 fluorophore has become an incredibly popular label in life science research and diagnostics. Fluorophore emission has maximum in red region, where many CCD detectors have maximum sensitivity, and biological objects have low background. Dye color is very intense, therefore quantity as small as 1 nanomol can be detected in gel electrophoresis by naked eye.

See also alternative superior dye: [FluoProbes647H](#)

CY_{anine}5.5 can replace near infrared fluorescent dyes.

See also alternative superior dye: [FluoProbes682](#).

CY_{anine}7 is a near infrared red fluorophores used in *in vivo* imaging applications.

See also alternative superior dye: [FluoProbes752](#).

CY_{anine}7.5 is a near infrared red fluorophores used for *in vivo* imaging applications.

See also alternative superior dye: [FluoProbes800](#).

Click Chemistry

DBCO (Dibenzylcyclooctyne) is a commonly used strain-promoted cyclooctyne Click chemistry reactive group that can react with azide (-N₃) through 1,3-dipolar cycloaddition without need any catalyst. Reaction between azide and DBCO (Dibenzylcyclooctyne) group allows conjugation between and DBCO (or azide) activated partner (i.e. Cyanine dye) and an azide (or DBCO) activated other partner (proteins, antibodies, peptides, nucleic acid or particles).

Click Chemistry conjugation chemistry offers several advantages:

► **It is very selective.** Click Chemistry reaction takes place only between azide and alkyne components. It does not interfere with most any other organic groups present in DNA and proteins being labeled, such as amino and carboxy groups.

► **There are no azides and alkynes in native biomolecules.** These groups should be specially introduced into DNA and proteins. Alkyne-containing DNA can be prepared with alkyne phosphoramidite⁺ during standard oligo synthesis. Proteins labeled with azide and alkyne can be made using azide activated ester⁺ and alkyne activated ester⁺.

► **Click Chemistry takes place in water.** Aqueous DMSO, DMF, acetonitrile, alcohols, or pure water and buffers can be used for the reaction. The reaction is biocompatible and can take place in living cells.

► **Reaction is quick and quantitative.** Click Chemistry is a tool that allows preparation of nanomoles of conjugates in diluted solutions.

► **The reaction is pH-insensitive.** Unlike reaction of NHS esters with amines, and some other conjugation chemistries, there is no need to control pH in reaction mixture. There is no need to add any special buffer, acid or base - Click Chemistry works well in pH interval of 4-11.

Guideline for use for Click conjugation

- Prepare the azide-containing sample in reaction buffer.

Note : any standard buffer should be suitable, i.e. PBS buffer.

- Add DBCO conjugate to azide activated sample (protein, or any other aminated molecule – i.e. aminoallyl nucleotide).

Note : First intention ratio is 1 mole equivalent of limiting reagent to 1.5-3.0 mole equivalents of highest abundance reagent.

- Incubate the reaction at room temperature for 2-4 hours or 2-12 hours at 4 degree celcius.
- The conjugate is ready for desalting or purification.

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Note : using an optimized coupling ratio, a simple desalting by dialysis or ultrafiltration can be sufficient.
Eventually uncoupled (exces) protein can be checked and removed by size exclusion chromatography.
Coupled ratio can be further characterized (LC-MS).

Related products

* Other CY_{amine} dyes functionalized by **NHS** ([FT-BB7493](#)), **Maleimide** ([FT-JO6660](#)), **Azide** ([FT-HO7250](#)), **Alkyne** ([FT-1A6320](#)), **DBCO** ([FT-1A6320](#): CycloAlkynes, for strain-promoted Click reactions), **Tetrazine** ([FT-WXS720](#)), **Hydrazide** ([LOV050](#)), **Amino** group ([CY3AM0](#)), **Carboxyl** group ([CY3CA0](#)). **3Dye 2D DIGE** ([CY2/CY3/CY5](#)) **labeling kit** ([EV0870](#))

- * **Related labels**
 - Superior [FluoProbes](#) **fluorescent dyes**,
 - activated by –NHS ([list](#)), i.e. FP488-NHS #[BA68000](#) - activated by –Azide, i.e. FP488-Azide #[YE4970](#)
 - Classic dyes such as **FAM, R110, JOE TAMRA, and ROX.**

Ordering information

Catalog size quantities and prices may be found at www.interchim.com/. Please inquire for bigger quantities and for any information, please ask : FluoProbes® / Interchim; Hotline : +33(0)4 70 03 73 06

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