

## COUMARIN 343 – Azide conjugates for Click chemistry

Activated fluorescent dyes containing azide moiety for labeling by Click Chemistry  
i.e. conjugation to **Alkyne modified** proteins, peptides, amino-modified DNAs and oligos.

### Products Description

Fluorescent dye – Azide conjugate	Cat.number	MW	$\lambda_{Abs./Em.}$ (nm)	EC	QY	Store
• Coumarin 343 azide	FP-BLUAZO	441.48	437 / 477	44000	0.63	-20°C
• Coumarin 343 X azide	FP-AQAV20	480.56	437 / 477	44000	0.63	-20°C

### Introduction

Coumarin 343 is a blue emitting fluorophore with an emission maximum around 480 nm. This dye forms a FRET pair with fluorescein, and can harvest blue light energy for the subsequent transfer to other fluorophores.

The azide derivative can be conjugated with alkynes in a copper-catalyzed and copper-free Click chemistry reactions. The molecule contains a long aminohexanoyl linker that provides separation between the dye, and the azide function

Click chemistry is a versatile reaction that takes place between two groups: **azide** and **alkyne** (terminal acetylene). It can be used for the synthesis of a variety of conjugates of "partner" biomolecules, once each contains or has been grafted respectively with an azide or an alkyne group. Virtually any biomolecules can be involved, and labeling with small molecules, such as fluorescent dyes, biotin, and other groups can be readily achieved. Both azido and alkyne groups are nearly never encountered in natural biomolecules. Hence, the reaction is highly bioorthogonal and specific.

Fluorescent – Azides (as well as the superior [FluoProbes](#) dye **-Azide** conjugates, i.e. FP488-Azide #[YE4970](#)), are to be used combined with [Click Chemistry reagents](#) such as :

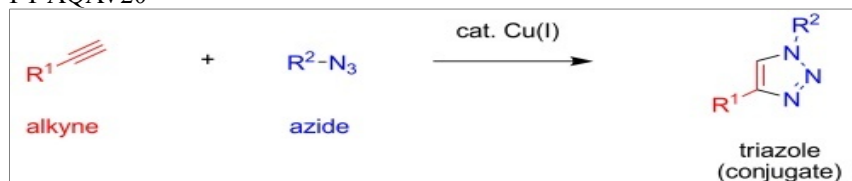
- Pentynoic acid activator** [ZL5530](#) to modified amine containing biomolecules with an alkyne residue
- Copper(II)-TBTA complex** [FY2780](#) to catalyse the conjugation reaction by click chemistry.

### Technical and Scientific Information

- **Click Chemistry reaction**

**Click Chemistry** is a reaction between azide and alkyne yielding covalent product - 1,5-disubstituted 1,2,3-triazole. This process is also known as CuAAC - Cu catalyzed alkyne azide cycloaddition.

FT-AQAV20



Click Chemistry is based on copper catalysis. The catalyst is often introduced as [Cu-TBTA](#) complex. Among the vast variety of organic reactions, Click Chemistry has been selected as a conjugation chemistry reaction because of 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<sup>+</sup> during standard oligo synthesis. Proteins labeled with azide and alkyne can be made using azide activated ester<sup>+</sup> and alkyne activated ester<sup>+</sup>.
- ▶ **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.
- ▶ **Protocol is simple!** For example see our recommended [DNA labeling protocol](#).

Click Chemistry thus became a tool for universal modification of DNA, proteins, conjugate preparation, and fluorescent labeling. This is where Lumiprobe comes to help - we provide reagents and protocols for the facile and efficient synthesis of diverse azido- and alkyne-labeled biomolecules, as well as reactive fluorescent dyes and other reporter groups. With these reagents, you can perform easy preparation of conjugates in your lab. Here are just several examples.

See the technical sheet [FT-FY2780](#) for more information on Click Chemistry and protocols.

## Related / associated products and documents

\*Fluorescent reagents for Click Chemistry: Azide conjugates of

- Superior [FluoProbes](#) dyes, activated by [-Azide \(protocol\)](#), i.e. FP488-Azide #[YE4970](#)
- [CyDyes](#) dyes, activated by [Azide](#), i.e. Cy3 azide [FP-EV0900](#) and Cy5- Azide [FP-EV0910](#)
- [Conventional dyes](#) activated by [Alkyne](#), i.e. CR110 [FP-DQP790](#), CR6G

\*Other Alkyne reagents

- **Pentynoic acid activator** [ZL5530](#) to modified amine containing biomolecules with an alkyne residue
- **Copper(II)-TBTA complex** [FY2780](#) to catalyse the conjugation reaction by click chemistry.
- **Alkyne Amidite, 5'-terminal** [ZL5500](#)
- **Alkyne Amidite, hydroxyprolinol** [ZL5510](#)

\*Other labels or modification reagents for Click Chemistry:

- Biotin – Azide conjugates, such as Biotin-PEG azide [FJ6751](#) and Desthiobiotin-PEG azide [FZ8440](#)
- Azidobutyric acid NHS ester [ZL5540](#)
- Aminoxy-PEG azide [FZ8700](#)

## Ordering information

Catalog size quantities and prices may be found at <http://www.interchim.com>. Please inquire for higher quantities (availability, shipment conditions).

For any information, please ask : Uptima / Interchim; Hotline : +33(0)4 70 03 73 06

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Rev.K10E

