Innovative biochemistry conjugation method from Interchim

Click Chemistry (Azide / alkyne reaction)
A versatile and reliable conjugation chemistry for linking covalently in very mild conditions

Click chemistry can be used for the synthesis of a variety of conjugates. Virtually any biomolecules can be involved, and labeling with small molecules, such as fluorescent dyes, biotin, and other groups can be readily achieved.

Chemistry
The Click chemistry involves the reaction between an azide and an alkyne (i.e. acetylene), forming a covalent chemical bond.

```
                    \           \                          \    \            \      \     \          \  \       \  \     \  \     \  \     \  \\
alkyne        \           \                          \    \            \      \     \          \  \   \ \ \ \ \   \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \\
+                  \           \                          \    \            \      \     \          \  \   \ \ \ \ \   \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \\
azide               \           \                          \    \            \      \     \          \  \   \ \ \ \ \   \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \\
                        \           \                          \    \            \      \     \          \  \   \ \ \ \ \   \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \\
                                      \                             \         \                          \           \      \                       \   \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \\

\[ + \text{Cu(I)} \rightleftharpoons \text{triazole (conjugate)} \]
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This Cu(I) catalyzed [3+2] azide-alkyne cycloaddition is also known as CuAAC reaction. It yields the efficient formation of a non-toxic triazole from biological building blocks that have been modified with non-perturbing azides and unactivated alkynes.

This process has unprecedented tolerance and reliability. It is pH-independent, and it can be carried out in water at ambient temperature. It applies to conjugation and solid phase immobilization.

*Note: both azido and acetylenic groups are nearly never encountered in natural biomolecules. Hence, the reaction is highly bioorthogonal and specific.*

The only needed things are azido- and alkyne-labeled biomolecules, dyes, and surfaces. Interchim BioScience provides a variety of reagents, notably in the Uptima range.

- **Standard Click Chemistry reagents** (Alkyne reagents) - CuAAC
  uses alkyne ligators and azide ligators, to activate i.e. amines (ZL5530 & ZL5540), or nucleic acids (with amidite-Alkynes)
  Alkyne and Azide react in presence of Copper(II)-TBTA complex FY2780

- **Copper-free Click Chemistry reagents** (DBCO & BCN reagents) - SPAAC
  use cyclooctynes ligators (DBCO, BCN) and azide ligators, to activate i.e. amines or other biomolecules
  DBCO/BCN and azide partners react directly (SPAAC reaction).

Uptima and FluorProbes NHS reagents are useful to incorporate an alkyne, an azide or directly a label on a aminated molecule

**Reagents** (for CuAAC)

- **Alkyne** reagents: Fluorescent – Fluor dyes
  Nucleotides
  Alkyne-activated ligands are used for CuAAC Click chemistry.

- **Azide** reagents: Fluorescent – FluorProbes dyes, Cy dyes
  Non Fluorescent labels (biotin) and ligands
  Azides are useful reagents for ligation of ligands via Click chemistries, Hydrazone ligation, or via Staudinger ligation.

- **Complementary** reagents for click chemistry: Azide ou Alkyne – NHS
  CLICK labeled molecules Capture Kit

- **Auxillary** reagents for click chemistry: Catalyzers and buffers

- Please contact interbiotech@interchim.com for other molecules to be custom-modified by acetylene or DBCO
Fluorescent Dyes - Alkynes: see FT-DQP790

- Alkyne-PEO-CR110
  Fluor 488-Acetylene (56-Carboxyfluorescein); Abs/Em = 501/525 nm
  FP-DQP790, 1mg / 5mg
- Alkyne-PEO-CR6G
  Fluor 525-Acetylene (56-Carboxyfluorescein 6G); Abs/Em = 522/544 nm
  FP-DQP800, 1mg / 5mg
- Alkyne-PEO-TAMRA
  Fluor 545-Acetylene (TMR-Ac-Acetylene); MW:647.73; Abs/Em = 546/565 nm
  FP-DQP810, 1mg / 5mg
- Alkyne-PEO-SRB
  Fluor 568 -Acetylene; Abs/Em = 568/584 nm
  FP-DQP820, 1mg / 5mg
- Alkyne-PEO-SR101
  Fluor 585 -Acetylene; Abs/Em = 584/603 nm
  FP-DQP30, 1mg / 5mg

* (with a sulfo-propyl substituent):
  Alkyne-Trisulfo-CY3
  Tri-SulfoCy3 -Acetylene; MW:761.92; Abs/Em = 550/570nm
  FP-1C830, 1mg / 5mg / 25mg / 100mg
- Alkyne-Trisulfo-CY5
  Tri-SulfoCy5 -Acetylene; MW:787.96; Abs/Em = 647/663nm
  FP-1C840, 1mg / 5mg / 25mg / 100mg
- Alkyne-Trisulfo-CY6
  Tri-Sulfo-Cy7-Acetylene; MW:1010.22; Abs/Em = 753/775nm
  * (with aethyl substituent):
  Alkyne-DiSulfo-CY3
  Disulfo-Eth-CY7-Acetylene; CF60 CO2 salt; MW:781.86; Abs/Em = 555/565nm; Soluble in DMSO
  FP-LQV030, 1mg
- Alkyne-DiSulfo-CY5
  Disulfo-Eth-CYS-Acetylene, CF60 CO2 salt; MW:807.90; Abs/Em = 649/666nm; Soluble in DMSO
  FP-LQV090, 1mg
- Alkyne-TetraSulfo-CY5.5
  TetraSulfo-Eth-CYS.5-Acetylene, CF60 CO2 salt; MW:1088.14; Abs/Em = 578/701nm; Soluble in DMSO
  FP-LQV230, 1mg
- Alkyne-DiSulfo-CY7
  Disulfo-Eth-CY7-Acetylene; CF60 CO2 salt; MW:833.93; Abs/Em = 748/776nm; Soluble in DMSO
  * (with a methyl substituent):
  Alkyne-Sulfo-CY3
  Monocys -Acetylene; MW:573.75; Abs/Em = 550/567nm; EC:96000; QY:0.15
  FP-1C4620, 1mg / 5mg / 25mg / 100mg
- Alkyne-DiSulfo-CY3
  DisulfoCy3 -Acetylene Na salt; MW:675.79; Abs/Em = 548/567nm; EC:162000; QY:0.15
  FP-1A6320, 1mg / 5mg / 25mg / 100mg
- Alkyne-DiSulfo-CY5
  DisulfoCy5 -Acetylene Na salt; MW:701.83; Abs/Im = 646/664nm; EC:271000; QY:0.28
  * (with a methyl substituent):
  Alkyne-DiSulfo-CY3
  DisulfoCy3 -Acetylene K salt; MW:691.91(+653.2); Abs/Em = 548/563nm; EC:162000; QY:0.61; CF260.0.03; CF280.0.26 – Solubility is good in Water, DMF, DMSO
  FP-O6390, 1mg / 5mg / 25mg / 100mg
- Alkyne-DiSulfo-CY5
  DisulfoCy5-Acetylene; MW:947.43; Abs/Em = 673/691nm; EC:199500; QY:0.84; CF260.0.20; CF280.0.03 – Solubility is good in Water, DMF, DMSO
  Inquire
- Alkyne-DiSulfo-CY5
  DisulfoCy5-Acetylene Ksalt; MW:717.84; Abs/Em = 649/662nm; EC:271000; QY:0.25; CF260.0.04; CF280.0.04 – Solubility is very good in Water, DMF, DMSO
  FP-SJ9060, 1mg / 5mg / 25mg / 100mg
- Alkyne-TetraSulfo-CY5.5
  TetraSulfoCy5.5 -Acetylene K salt; MW:1034.30; Abs/Em = 673/691nm; EC:199500; QY:0.84; CF260.0.20; CF280.0.03 – Solubility is good in Water, DMF, DMSO
  FP-O6410, 1mg / 5mg / 25mg / 100mg
- Alkyne-DiSulfo-CY7
  DisulfoCy7 -Acetylene K salt; MW:745.3; Abs/Em = 750/737nm; EC:240600; QY:0.84; CF260.0.04; CF280.0.04 – Solubility is good in DMF, DMSO, significant in water
  FP-O5590, 1mg / 5mg / 25mg / 100mg
- Alkyne-TetraSulfo-CY7.5
  TetraSulfoCy7.5-Acetylene tri-K salt; MW:1120.46(+1005.2); Abs/Em = 778/797nm; EC:222000; QY:0.89; CF260.0.09; CF280.0.09 – Solubility is good in Water, DMF, DMSO
  * (no sulfo):
  Alkyne-CY3
  Cy3 -Acetylene; MW:530.14; Abs/Em = 555/570nm; EC:150000; QY:0.31; CF260.0.04; CF280.0.09
  Inquire
- Alkyne-CY5
  Cy5 -Acetylene; MW:566.18; Abs/Em = 646/662nm; EC:250000; QY:0.2; CF260.0.03; CF280.0.04
  Inquire
- Alkyne-CY5
  Cy5 -Acetylene; MW:566.30; Abs/Em = 648/710nm; EC:209000; QY:0.2; CF260.0.02; CF280.0.03
  Inquire
- Alkyne-CY7
  Cy7 -Acetylene; MW:622.38; Abs/Em = 750/773nm; EC:199000; QY:0.23; CF260.0.02; CF280.0.029
  Inquire
- Alkyne-CY7.5
  Cy7.5-Acetylene; MW:722.40(+886.4); Abs/Em = 788/808nm; EC:223000
  Inquire

See technical sheets:
- FT-1A6320 (FluoProbes CYanine-Alkynes)
- FT-DQP790 (FluoProbes CYanine-DBCO)
- FT-HO7250 (FluoProbes CYanine-Azide)
- PH-BB060K Clickable Fluorescent dyes
● **Biotin Alkynes:**
Acetylene-PEO₄ -Biotin
MW:457.58; (M)
DQP650, 25mg / 100mg / 1g

● **PEO spacer(PEGs) - Alkynes:**
Acetylene-PEO₄ -Amine, - Acid, -NHS, -Maleimide: inquire +DQP61/3/4

● **Nucleotides - Alkynes:**
Propargyl-CEP-oligonucleotides are used for attachment of azide-containing reporter groups such as biotin or fluorescent dyes by click chemistry. This allows the synthesis of highly-modified DNA strands carrying multiple labels in a density that is not achieved by classic labeling techniques.

- **propargyl** is an alkyl functional group of 2-propynyl (structure: HC≡C–CH₂−).
- CEPs (Cyanethyl-N,N-diisopropyl Phosphoramidites) functional group is used to synthesize oligonucleotides by automated standard protocols.

5-Propargyloxy-dU CEP
5-Octadiynyl-dU CEP
Alkynyl-modifier-C6-dT CEP
5-(Propargyloxy)-2'-deoxyuridine
5-(1,7-Octadiyn-1-yl)-2'-deoxyuridine
5'-O-(Dimethoxytrityl)-5-(propargyloxy)-2'-deoxyuridine
5-Octadiynyl-TMS-dU CEP
5-Octadiynyl-TMS-dC CEP
5-Octadiynyl-dC CEP
5-Octadiynyl-TIPS-dU CEP

More reagents: inquire +BA0174; +DQI62,DQI57,MM982,ZC68/9,DQP20/1,ZC667/8,IX028,DQO71/2/3/5 | DQP21

2’-O- and 3’-O-Propargyl CEPs and other alkyne-containing CEPs (C8- TIPS- and TMS- versions)

More description here.
Azides Click Chemistry reagents

- **Fluorescent dyes - Azides:**
  Standard Dyes such as Cy3, Tamra or Texas Red have been thoroughly selected to cover the whole UV-Vis spectrum. Novel Alternative Dyes are available as well.

- **FluoProbes – Azides** are superior fluorescent dyes (see characteristics, protocol)
  
<table>
<thead>
<tr>
<th>Dye Code</th>
<th>Emission</th>
<th>Dye Code</th>
<th>Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>FluoProbes488 – Azide (494/519nm)</td>
<td>B38820</td>
<td>FluoProbes565A – Azide (563/592nm)</td>
<td>YE4990</td>
</tr>
<tr>
<td>FluoProbes647N – Azide (653/674nm)</td>
<td>YE5020</td>
<td>FluoProbes594 – Azide (591/617nm)</td>
<td>FJ0800</td>
</tr>
<tr>
<td>FluoProbes782 – Azide (738/800nm)</td>
<td>JV1940</td>
<td>FluoProbes831 – Azide (844/986nm)</td>
<td>JV7790</td>
</tr>
</tbody>
</table>

- **FluoProbes488 – Azide** is superior fluorescent dyes (see characteristics, protocol)

- **FluoProbes CYanine – Azides**: See technical sheet: FT-HO7250 (FluoProbes CYanine-Azide)

- **Classic fluorescent dyes +**:
  See PH-BB60K; incl. (Picolyl-) Azide – Fluorescent dyes.

- **Carboxyfluorescein-PEO azide**: More description here.
- **Carboxyfluorescein-dipivalate PEO azide**: More description here.
- **TET-PEO-azide**: More description here.
- **DANSYL-TEG-N3**: More description here.

- **Biotin Azides**
  Biotin-azide | ZC6710.
  Desthiobiotin-PEO azide | More description here.
  Biotin-PEO azide | More description here.

- **PEO spacer (PEGs) - Azides**: PEO2 to PEO8-Azides linkers and crosslinkers: inquire - DQP22/3, ZC684 to ZC689 - DQP66
  
  For example:  
  Aminooxy-PEO-azide | More description here.
  Amino-PEO azide | More description here.

- **Nucleotides - Azides**: inquire

  Azide-CEP-oligonucleotides are used for attachment of azide-containing reporter groups such as biotin or fluorescent dyes by click chemistry. This allows the synthesis of highly-modified DNA strands carrying multiple labels in a density that is not achieved by classic labeling techniques.

  Azide is a functional group for click reactino with alhynes

  CEPs (Cyanoethyl-N,N-disopropyl Phosphoramidites) functional group is used to synthesize oligonucleotides by automated standard protocols.

  Inquire for a products list

- **Other Azides:**
  Folate-PEO2 azide | More description here.
  Tocopherol-PEO azide | More description here.
  Water soluble dansyl-PEO azide | More description here.
  PQQ-PEO azide | More description here.
  Cholesteryl-PEO azide | More description here.

  More: Ferrocene, -DNP, -DABSYL, -Pyrene : inquire

Activators for Click Chemistry

- **NHS activated Alkyne and Azide** - to activate amines(proteins)
  Alkyne Amine-Activator #ZL5532,
  Azide Amine-Activator #ZL5542
Auxiliary reagents for Click Chemistry: catalyzers; buffers:

- Copper sources, reduction and stabilization

The efficiency of a copper (Cu(I))-catalyzed Azide-Alkyne click chemistry reaction (CuAAC) strongly depends on the presence of copper ions in the +1 oxidation state (Cu(I)).

Different copper catalyst sources, reduction reagents and Cu(I) stabilizing ligands are available, however, for most bioconjugation applications the combination of CuSO₄ as copper catalyst source, sodium ascorbate as a reduction reagent and a water-soluble Cu(I) stabilizing ligand such as THPTA[1,2] or BTTAA[3,4] is recommended (Tab. 1).

An optimal balance between reaction speed and Cu(I) concentration can be achieved using THPTA or BTTAA in combination with Picoly-Azide detection reagents (Picoly-Azides of Biotin or Picoly-Azides of fluorescent dyes) that contain an additional internal copper chelating moiety[4].

Presolski et. al.[1] (Download pdf) and Hong et. al.[2] provide a general protocol for CuAAC reactions that may be used as a starting point for the set up and optimization of individual assays.

Table 1: Overview of available reaction reagents for Cu(I) catalyzed Azide-Alkyne click chemistry (CuAAC).

<table>
<thead>
<tr>
<th>Copper (Cu) catalyst</th>
<th>Reduction reagent</th>
<th>Cu(I) stabilizing Ligand</th>
</tr>
</thead>
<tbody>
<tr>
<td>CuSO₄</td>
<td>Sodium Ascorbate</td>
<td>THPTA</td>
</tr>
<tr>
<td>CuBr</td>
<td></td>
<td>BTTAA</td>
</tr>
</tbody>
</table>

Available reaction reagents for Cu(I) catalyzed Azide-Alkyne click chemistry (CuAAC):

- **Protein Reaction Buffer Kit**
  - **MRU690**
    - Kit Contents: 2.5 ml Reaction Buffer (250 mM), 0.6 mg Additive 1, 11 mg Additive 2, 0.25 ml Copper (II) Sulfate (20 mM), Reducing Agent

- **Click Solvent** – Click chemistry grade
  - ZC6950, 1 ml
  - ZC6951, 10x 1 ml

- **CuSO₄ - click chemistry grade** – Click chemistry grade
  - 1H3690, 10 mg
  - 1H3691, 5x 10 mg

- **CuBr - click chemistry grade**
  - ZC6930, 5mg
  - ZC6931, 10x 5 mg

- **Na-Ascorbate – Click chemistry grade**
  - 10487F, 10 mg
  - 10487G, 10mg

- **THPTA**
  - MRU020, 100mg
  - MRU021, 500mg
  - MRU022, 1g

- **TBTA-Ligand**
  - ZC6940, 5mg
  - ZC6941, 10mg

- **BTTAA**
  - 2-(4-((bis((1-(tert-butyl)-1H-1,2,3-triazol-4-yl)methyl)amino)methyl)-1H-1,2,3-triazol-1-yl)acetic acid

- **Copper(II)-TBTA complex #FY2780**
  - See FT-FY2780

- **AzidoAniline Hydro.**
  - ZC6900

Selected references:
Fluorimetric assessment of Click Chemistry reaction.

The efficiency of Cu(I)-catalyzed Azide-terminal Alkyne Click Chemistry reactions (CuAAC) strongly depends on the presence of the copper catalyst in the +1 oxidation state (Cu(I)). While different copper sources, reduction reagents and Cu(I) stabilizing ligands are available, the Cu(II) salt CuSO₄ – in combination with sodium ascorbate (reduction reagent) and THPTA (Cu(I) stabilizing ligand) – has become the catalyst of choice for most biomolecule labeling applications.

Biomolecule labeling however, often requires optimization of reaction conditions (e.g. type of copper source, ligand or copper source/ligand ratio...). Assay performance (i.e. rate of product formation) can be conveniently monitored in real time using the pro-fluorogenic dye 3-Azido-7-hydroxycoumarin. The non-fluorescent Azide form of 3-Azido-7-hydroxycoumarin strongly increases its fluorescence upon Cu(I)-catalyzed conjugation to a terminal Alkyne that is triggered by formation of a triazole moiety (Fig. 1). Removal of unreacted dye before measurements is therefore not required.

When setting up a new CuAAC labeling assay, the general protocol provided by Presolski et al. and Hong et al. may be used as a starting point for subsequent optimization.

**Figure 1:** The pro-fluorogenic dye 3-Azido-7-hydroxycoumarin becomes highly fluorescent upon Cu(I)-catalyzed conjugation to a terminal Alkyne moiety. Progress of product formation can be monitored by measuring the fluorescence increase at 477 nm.

3-Azido-7-hydroxycoumarin IOK790, 1mg IOK791, 5mg

Abs/Em = 404/477 nm, Soluble in DMSO, DMF, MeOH, MeCN (rem: solution in DMSO and DMF are not suitable for longterm storage); (M)

Selected References:


**CLICK labeled molecules Capture Kit**

Click Chemistry Capture Kit WXS271, 1kit

The Click Chemistry Capture Kit provides all necessary reagents to covalently capture specific sub-classes of proteins by a Cu(I)-catalyzed azide-alkyne cycloaddition reaction (CuAAC). The proteins of interest need to be metabolically, enzymatically or chemically azido- or alkyne-tagged. Subsequently, the resin containing the covalently attached proteins can be washed with high stringency, virtually eliminating any non-specifically bound proteins. Upon protease digestion, this yields a highly pure peptide pool that is ideal for mass spectroscopy (e.g. LC MS/MS) based analysis.

Kit Contents:

7 ml Lysis buffer - store at 4 °C
4.8 g Urea - store at ambient temperature
1.5 ml Additive 1 - store at 4 °C
0.5 ml Copper (II) Sulfate (100 mM) - store at ambient temperature
400 mg Additive 2 - store at ambient temperature
7.7 g Agarose wash buffer - store at ambient temperature
10 Empty spin columns - store at ambient temperature
**Detailed technical information**

● **Nucleotides – Alkynes**

Alkyne-bearing nucleoside phosphoramidites enable click chemistry. An attractive strategy for nucleic acid conjugation involves the click reaction of alkyne-bearing oligonucleotides with azide-bearing species to join them via a triazole linkage. Interchim Biosciences offers options: Ethynyl-dU CEP, 5-Octadiynyl-dU CEP, 7-10 Alkynyl-Modifier-C6-dT CEP, and other new compounds.

Use of **5-Propargyloxy-dU CEP**; Employ acetonitrile diluent at the concentration recommended by the synthesizer manufacturer. Use standard coupling protocols; extended coupling times are not required. Cleavage from the solid support may be carried out by standard procedures. Nucleobase deprotection should be done at 55 °C for 8-12 hours. Extended heating is not recommended due to by-product formation.

<table>
<thead>
<tr>
<th>CEPs Nucleic acids</th>
<th>Product #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5-Octadiynyl-dU CEP</strong></td>
<td>IV9770 .BA0308</td>
</tr>
<tr>
<td>CAS: 938186-76-6; MW: 879.98 – Store -20°C</td>
<td></td>
</tr>
<tr>
<td>3’-O(<a href="2-cyanoethoxy">Diisopropylamino</a>phosphino)-5’-O([4,4’-dimethoxytrityl])-5’-[N-hex-5-ynyl]-3(E)-acrylamido]-2’-deoxyuridine</td>
<td></td>
</tr>
<tr>
<td>A much superior reagent for the installation of an alkyne-bearing nucleoside into an oligonucleotide when click reactions are contemplated. The terminal alkyne is more flexible and extends farther away from the pyrimidine ring, thereby allowing more efficient ligation via click chemistry, even when multiple ligations to a single oligo are desired.</td>
<td></td>
</tr>
<tr>
<td><strong>5-Propargyloxy-dU CEP</strong></td>
<td>IV9780 .BA0174</td>
</tr>
<tr>
<td>CAS: MW: 784.83 – Store -20°C, dry</td>
<td></td>
</tr>
<tr>
<td>A modified nucleotides for introducing an alkyne into an oligonucleotide internally or at the 5'-terminus.</td>
<td></td>
</tr>
<tr>
<td><strong>Alkynyl-modifier-C6-dT CEP</strong></td>
<td>.BA0361</td>
</tr>
<tr>
<td>CAS: MW: 879.98 – Store -20°C, dry</td>
<td></td>
</tr>
<tr>
<td>3’-O(<a href="2-cyanoethoxy">Diisopropylamino</a>phosphino)-5’-O([4,4’-dimethoxytrityl])-5’-[N-hex-5-ynyl]-3(E)-acrylamido]-2’-deoxyuridine</td>
<td></td>
</tr>
<tr>
<td>This phosphoramidite features a well-established linker that places the alkyne at a sufficient distance from the oligonucleotide to allow efficient click conjugation.</td>
<td></td>
</tr>
<tr>
<td><strong>5-(Propargyloxy)-2’-deoxyuridine</strong></td>
<td>.PY7712</td>
</tr>
<tr>
<td>CAS: 85367-85-3; MW: 282.25 – Store at -20°C</td>
<td></td>
</tr>
<tr>
<td><strong>5-(1,7-Octadiyn-1-yl)-2’-deoxyuridine</strong></td>
<td>.PY7713</td>
</tr>
<tr>
<td>CAS: 909398-18-1; MW: 332.35 – Store at -20°C</td>
<td></td>
</tr>
</tbody>
</table>
5'-O-(Dimethoxytrityl)-5-(propargyloxy)-2'-deoxyuridine
CAS#: MW: 584.62 – Store +4°C

PY7714

C8-TMS-dU CEP
5-Octadecynyl-TMS-dU CEP
CAS#: MW: 907.12 – Store at -20°C, dry

A modified nucleotides for introducing a protected alkyne into an oligonucleotide

C8-TMS-dC CEP
5-Octadecynyl-TMS-dC CEP
CAS#: MW: 1010.24 – Store at -20°C, dry

C8-Alkyne-dC CEP
5-Octadecynyl-dC CEP
CAS#: MW: 991.28 – Store at -20 °C, dry

C8-TIPS-dU CEP
5-Octadecynyl-TIPS-dU CEP
CAS#: MW: 938.06 – Store at -20°C, dry

Azides for click chemistry

Azide reagents

Desthiobiotin-PEO azide
Desthiobiotin-TEG azide
CAS#: MW: 414.50 – Store at +4°C
for ligation of desthiobiotin via Saudinger ligation or click chemistry.

Biotin-PEO azide
Biotin-TEG azide, N-(11-Azido-3,6,9-trioxa-undecylamine)-D(+)-biotinamide
CAS#: MW: 444.55 – Store at +4°C
for ligation of biotin via Staudinger ligation or click chemistry.

See also: Biotin-Hydrazide FJ6741, Biotin-PEG-Azides 78631A
**Amino-PEO-Azide**  
Amino-TEG-Azide: 1-Amino-11-azido-3,6,9-trioxaundecane  
CAS: [34179-38-7], MW: 218.25 – Store at +4°C  
A bi-functional linker with potential applications in oligonucleotide ligations.

**Aminooxy-PEO-Azide**  
Aminooxy-TEG-Azide  
CAS: [134179-38-7], MW: 234.25 – Store at +4°C  
A bi-functional linker, Aminooxy-PEO-azide.

Other AminoOxy-PEOs: FT-JV2290

**Folate-PEO-Azide**  
Folate-TEG-Azide  
CAS: [1313026-32-2], MW: 641.64 – Store at +4°C  
For the introduction by Click or Staudinger ligations of the folate tag for recognition by overexpressed folate receptors in cancer cells.

**Tocopherol-PEO-Azide**  
Tocopherol-TEG-Azide  
CAS: [412319-45-0], MW: 576.55 – Store at +4°C, in the dark  
Water soluble dansyl-PEO-Azide  
dansyl-TEG-Azide; 4-Dansyl-(4-aza-7,10,13-trioxa-15-azido)pentadecylsulfonate  
C23H34N5NaO8S2; CAS: [ ]; MW: 595.67 – Store at +4°C, in the dark

**6-FAM-PEO-Azide**  
6-Carboxyfluorescein-TEG azide  
CAS: [12319-45-0], MW: 576.55 – Store at +4°C, in the dark  
fluorescein azide for fluorescein incorporation via Staudinger ligation or click chemistry. See also FP488-Azide 

**6-FAM-dipivalate-PEO-Azide**  
6-Carboxyfluorescein-dipivalate TEG azide  
MW: 744.79 – Store at -20°C, dark

**BBQ®-PEO-Azide**  
BlackBerry® Quencher 650 - TEG - azide  
CAS: [ ]; MW: 816.90 – Store at -20°C, dark  
A useful long wavelength quencher for Click Chemistry and Staudinger ligation

BlackBerry® Quencher technology is covered under US Patent #7,879,986, Berry & Associates, Inc.  
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**6-TET-PEO-Azide**  
6-Carboxy-2,4,7,7'-tetrachlorofluorescein-TEG azide  
CAS: [ ]; MW: 714.33 – Store at -20°C, dark  
for tetrachloro-fluorescein incorporation via Staudinger ligation or click chemistry
PQQ-EO₂-Azide


Cholesteryl-PEO₂-Azide

CAS [ ]; MW: 630.90; Store at -20°C, dark

for the installation of a methoxatin tag.

for the installation of a cholesteryl tag.
Related products lines
Interbiotec - BioSciences innovation – proposes a complete range of products for protein biochemistry.

Innovative and remarkable chemistries, conjugation methods, labeling and functionalisation
● Standard Click Chemistry reagents
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● ITO slides
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