

DBCO-TEG-phosphoramidite

<http://de.lumiprobe.com/p/dbco-teg-phosphoramidite>

DBCO-TEG phosphoramidite is designed for the incorporation of a DBCO group at the 5' end of oligonucleotides. Due to sterical effects DBCO conjugates with azides in copper-free click reactions. This bioorthogonal method allows for bioconjugation without the toxic effects associated CuAAC method, making it suitable for biological applications. The TEG spacer increases solubility and helps separate the hydrophobic DBCO moiety from the oligonucleotide backbone, minimizing potential steric hindrance during reactions.

Unlike alkyne click reagents DBCO-TEG enables reactions without the need for copper catalysts, avoiding potential toxicity and complications associated with copper in biological systems.

The DBCO moiety exhibits high reactivity towards azides, allowing for efficient conjugation within a relatively short time frame (4-17 hours at room temperature) compared to other reagents.

DBCO is bioorthogonal, meaning it does not react with other functional groups in biological systems (e.g., amines, hydroxyls), making it suitable for in vivo applications. It is also tolerant to tetrazine reagents and may be used in tandem with other click-reagents like [TCO-phosphoramidite](#) for example, to achieve orthogonal oligonucleotide modification.

DBCO-TEG phosphoramidite is stable during standard oligonucleotide synthesis conditions, including deprotection with ammonium hydroxide, which allows for straightforward handling and processing.

The triethylene glycol (TEG) spacer enhances solubility and reduces steric hindrance, facilitating more efficient conjugation reactions compared to other click reagents that may lack such spacers.

DBCO-TEG-modified oligonucleotides remain compatible with a range of reaction conditions, including UltraMild deprotection protocols, which can be advantageous for sensitive applications.

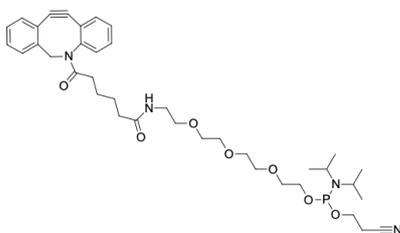
Recommendations for using the reagent:

Coupling: 10-12 minutes at room temperature.

Compatible solvents: Anhydrous acetonitrile is preferred. DBCO-TEG-modified oligonucleotides can be conjugated with azide-containing compounds in organic solvents (e.g., DMSO) or aqueous buffers. Reaction completion typically occurs within 4-17 hours at room temperature.

Cleavage: stable to deprotection with ammonium hydroxide for 2 hours at 65 °C or overnight at room temperature. Compatible with AMA for deprotection, showing only slight degradation of the cyclooctyne after 2 hours.

Oxidation: for oxidation step recommended to use 0.5 M CSO in anhydrous acetonitrile, Iodine oxidation is suitable to no more than 8-10 cycles.



Struktur von DBCO-TEG-Phosphoramidit

Allgemeine Eigenschaften

Erscheinungsform:	weiße Paste
Molekülmasse:	708.84
CAS-Nummer:	1527468-08-1
Molekülformel:	C ₃₈ H ₅₃ N ₄ O ₇ P

- Löslichkeit: In den meisten wasserfreien organischen Lösungsmitteln (z. B. DMSO, DMF, Acetonitril, DCM, Aceton, Toluol). Empfindlich gegenüber Feuchtigkeit in Lösungsmitteln.
- Qualitätskontrolle: NMR ^1H and ^{31}P (95 %)
- Lagerungsbedingungen: 12 Monate ab dem Wareneingang bei $-20\text{ }^\circ\text{C}$ an einem lichtgeschützten Ort. Transport: bei Raumtemperatur bis zu drei Wochen. Trocken lagern.
- Rechtliche Hinweise: Dieses Produkt wird nur für Forschungszwecke angeboten und verkauft. Es wurde nicht auf Sicherheit und Wirksamkeit in Nahrungsmitteln, pharmazeutischen Produkten, medizinischen Vorrichtungen, Kosmetika sowie für gewerbliche oder andere Einsatzzwecke getestet. Der Verkauf gewährt oder impliziert nicht die Erlaubnis zur Verwendung in der In-vitro-Diagnostik, bei der Herstellung von Nahrungsmitteln oder pharmazeutischen Produkten, in medizinischen Vorrichtungen sowie in kosmetischen Erzeugnissen.