

CLICKable (Desthio)Biotinylation Reagents



Labeling of a molecule e.g. a **protein** with a **biotin / desthiobiotin** moiety (biotinylation/desthiobiotinylation) is routinely performed for its subsequent affinity purification via streptavidin agarose or the detection via fluorescent or HRP-labeled streptavidin.

Due to the extremely high affinity of biotin towards **streptavidin** ($K_d = 10^{-15}$ M), the biotinylated molecule/streptavidin-interaction is essentially irreversible under physiological conditions^[1].

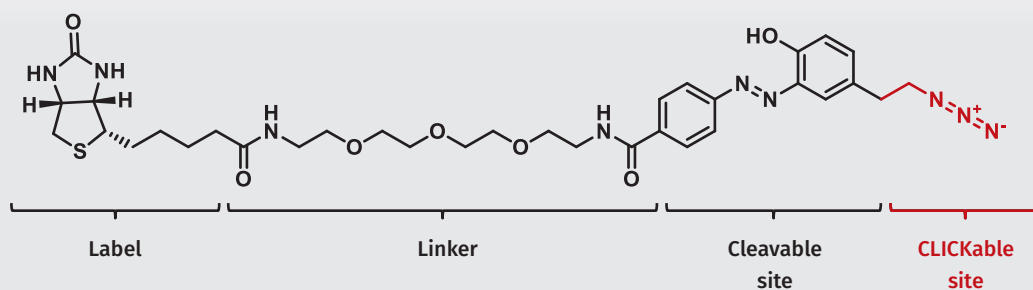
Desthiobiotin however, binds less tightly to **streptavidin** and desthiobiotinylated molecules are therefore easily eluted from the complex in the presence of excess biotin^[2].

Talk to us for custom synthesis of functionalized molecules (e.g. specific labels)



Figure 1:

Chemical structure of **Diazo Biotin-Azide** as schematic example of a chemically cleavable and **CLICKable** (desthio)biotinylation reagent.



A tool-box of **CLICKable** reagents for (desthio)biotinylation with different cleavability characteristics is available to match your specific application requirements:

Label	Azide	Alkyne	DBCO*	Tetrazine	6-Methyl-Tetrazine
Biotin	Azide-PEG ₃ -Biotin				
	Biotin-Azide	Acetylene-PEG ₄ -Biotine	DBCO-PEG ₄ -Biotin	Tetrazine-PEG ₄ -Biotine	6-Methyl-Tetrazine-PEG ₄ -Biotin
	Picolyl-Azide-PEG ₄ -Biotin		Sulfo-DBCO-Biotin		
Biotin with chemically cleavable linker	Diazo Biotin-Azide				
	Dde Biotin-Azide	Diazo Biotin-Alkyne	Diazo Biotin-DBCO		
	Disulfide Biotin-Azide	Dde Biotin-Alkyne	Dde Biotin-DBCO		
	DADPS Biotin-Azide				
Biotin with photocleavable linker	Photocleavable Biotin-Azide	Photocleavable Biotin-Alkyne	Photocleavable Biotin-DBCO		
cleavable linker	Azide-PEG ₃ -Desthiobiotin	Acetylene-PEG ₄ -Desthiobiotin	DBCO-PEG ₄ -Desthiobiotin		

DADPS = Dialkoxydiphenylsilane, DBCO = Dibenzocyclooctyne, also known as ADIBO (= Azadibenzocyclooctyne) or DIBAC (= Dibenzoazacyclooctyne), Dde = Dimedone, PEG = Polyethylene glycol.

Selected References

- [1] Diamandis et al. (1991) The biotin-(strept)avidin system: principles and applications in biotechnology. Clin. Chem. **37**:625.
- [2] Hirsch et al. (2002) Easily reversible desthiobiotin binding to streptavidin, avidin, and other biotin-binding proteins: uses for protein labeling, detection, and isolation. Anal. Biochem. **308**:343.

