

## Exo-BCN-PNP

<http://www.lumiprobe.com/p/exo-bcn-pnp-carbonate>

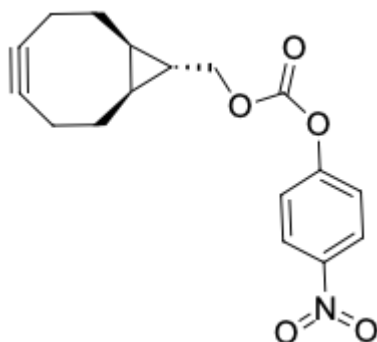
BCN-PNP carbonate is a tool to introduce BCN moiety via carbamate linkage with primary amino groups of substrate. Reaction conditions is similar to NHS-amino linkage but PNP ester provides less off-target hydrolysis and higher conjugation yield forming hydrolytically stable bond with substrate.

Bicyclononyne (BCN) is one of the most reactive cyclooctynes for copper-free click chemistry. Both exo- and endo- isomers are active and have near the same power of reactions constants [1,2]. BCN reacts even faster than DBCO [1] with aromatic azides and comparing to dibenzofused systems has two advantages. First, it contains a plane of symmetry which prevents the formation of mixtures of stereoisomeric products. Second, BCN provides lower lipophilicity which is typically more beneficial when reaction is performed in aqueous solutions. Unlike DBCO, BCN reactivity is not only limited to azides (SPAAC) and nitrones (SPANC), but also covers [tetrazines](#) (IEDDA) [2] and more recently tetrazoles (photoclick) [3] providing exceptional reaction rates.

[1] Jan Dommerholt et al. Readily Accessible Bicyclononynes for Bioorthogonal Labeling and Three-Dimensional Imaging of Living Cells. *Angewandte Chemie*. 2010. 49(49). 9422-9425.

[2] Wagner et al. Origin of Orthogonality of Strain-Promoted Click Reactions. *Chemistry*. 2015. 21(35).12431-12435.

[3] Gangam Srikanth Kumar et al. Superfast Tetrazole-BCN Cycloaddition Reaction for Bioorthogonal Protein Labeling on Live Cells. *Journal of the American Chemical Society*. 2022. 144(1). 57-62.



**Structure of exo-BCN-PNP**

### General properties

Appearance: off-white solid

Molecular weight: 315.32

Molecular formula: C<sub>17</sub>H<sub>17</sub>NO<sub>5</sub>

Solubility: good in DMF, DMSO, acetonitrile

Quality control: NMR <sup>1</sup>H and HPLC-MS (95+%)

Storage conditions: 24 months after receipt at -20°C in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate.

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