# XFD514 BCN

Catalog Number: 70603
Unit Size: 1 mg

## Product Details

| | |
|---|---|
| Storage Conditions | Freeze (< -15 °C), Minimize light exposure |
| Expiration Date | 12 months upon receiving |

## Chemical Properties

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|---|---|
| Appearance | Solid |
| Molecular Weight | N/A |
| Soluble In | DMSO |

## Spectral Properties

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|---|---|
| Excitation Wavelength | 518 nm |
| Emission Wavelength | 543 nm |

## Applications

XFD514 BCN is a clickable derivative of XFD514, a green fluorescent dye used for labeling peptides, oligonucleotides, proteins, and other biomolecules. Structurally analogous to Alexa Fluor™ 514 (Thermo Fisher Scientific), XFD514 exhibits high photostability and brightness, making it suitable for advanced imaging and flow cytometry applications. The dye is water-soluble and maintains consistent fluorescence across a wide pH range (pH 4–10), ensuring reliable performance under diverse experimental conditions. It is particularly well-suited for multicolor fluorescence studies and super-resolution microscopy techniques such as STORM.

To improve conjugation performance, XFD514 BCN incorporates a PEG spacer, which reduces steric hindrance and minimizes potential interference with target binding sites. This design maximizes conjugation efficiency while preserving the biological activity of the resulting conjugate. The bicyclononyne (BCN) moiety enables strain-promoted azide–alkyne cycloaddition (SPAAC) with azido groups, forming stable triazole linkages under catalyst-free conditions. In addition, unlike dibenzocyclooctyne (DBCO), BCN also reacts efficiently with tetrazines through an inverse electron-demand Diels–Alder (IEDDA) reaction. This reaction is rapid, selective, and bioorthogonal, allowing labeling of biomolecules under physiological conditions without the need for metal catalysts or disruption of native biological processes.


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