XFD532 BCN

Catalog Number: 70604
Unit Size: 1 mg

Product Details

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

Chemical Properties

Appearance	Solid
Molecular Weight	N/A
Soluble In	DMSO

Spectral Properties

Excitation Wavelength	534 nm
Emission Wavelength	553 nm

Applications

XFD532 BCN is a clickable derivative of XFD532, a yellow-emitting fluorescent dye designed for labeling peptides, oligonucleotides, proteins, and other biomolecules. Structurally analogous to Alexa Fluor™ 532 (Thermo Fisher Scientific), XFD532 is optimized for excitation at 532 nm using a frequency-doubled Nd:YAG laser. The dye exhibits high photostability and brightness, yielding strong signal intensity with minimal photobleaching during prolonged imaging or flow cytometric analysis. It is water-soluble and maintains consistent fluorescence across a broad pH range (4–10), ensuring reliable performance in diverse experimental conditions. XFD532 BCN is particularly suitable for multicolor fluorescence applications and advanced super-resolution microscopy techniques, including STORM.

To improve conjugation performance, XFD532 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.