XFD546 BCN

Catalog Number: 70605
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	561 nm
Emission Wavelength	572 nm

Applications

XFD546 BCN is an orange-emitting fluorescent dye used for labeling peptides, oligonucleotides, proteins, and other biomolecules via click chemistry. Structurally similar to Alexa Fluor™ 546 (Thermo Fisher Scientific), it is efficiently excited by 488 nm and 532 nm laser lines, making it suitable for fluorescence microscopy and flow cytometry. The dye exhibits high aqueous solubility and maintains fluorescence stability across a broad pH range (pH 4–10). It allows high molar ratio conjugation to proteins with minimal quenching, producing bright, stable conjugates for sensitive detection. XFD546 BCN is also compatible with multicolor fluorescence assays and super-resolution microscopy methods such as STORM.

To improve conjugation performance, XFD546 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.