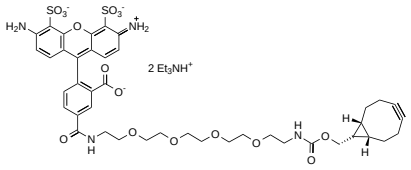
XFD488 BCN

Catalog Number: 70602
Unit Size: 1 mg

Product Details

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

Chemical Properties

Appearance	Solid orange
Molecular Weight	1131.36
Soluble In	DMSO
Chemical Structure	

Spectral Properties

Excitation Wavelength	499 nm
Emission Wavelength	520 nm

Applications

XFD488 BCN is a clickable derivative of XFD488, a green fluorescent dye used for labeling peptides, oligonucleotides, proteins, and other biomolecules. XFD488 is structurally similar to Alexa Fluor® 488 (Thermo Fisher Scientific) with excitation designed for use with the 488 nm laser line of the Argon laser. It emits in the green region of the visible spectrum and is compatible with FITC filter sets. The dye is known for its high photostability, high quantum yield, and pH-insensitive over a wide molar range, ensuring reliable signal performance under diverse experimental conditions, including live-cell imaging. It is well-suited for multicolor fluorescence applications, including flow cytometry and super-resolution microscopy techniques such as STORM.

To improve conjugation performance, XFD488 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.