

XFD700 BCN

Catalog Number: 70611

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	696 nm
Emission Wavelength	719 nm

Applications

XFD700 BCN, a clickable derivative of XFD700, is a bright near-infrared fluorescent dye used for labeling peptides, oligonucleotides, and other biomolecules via click chemistry. Structurally similar to Alexa Fluor™ 700 (Thermo Fisher Scientific), it is readily excited by 633–640 nm laser lines and provides moderate fluorescence intensity ideal for imaging high-abundance targets. The dye exhibits excellent water solubility, stable fluorescence across pH 4–10, and minimal background autofluorescence, ensuring strong signal-to-noise performance in complex biological samples. In multicolor flow cytometry, XFD700 BCN fits between APC and APC-iFluor® 780, enabling clear spectral resolution and reliable multiplexing.

To improve conjugation performance, XFD700 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.