AATOM™ 647N BCN

Catalog Number: 70567
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	645 nm
Emission Wavelength	663 nm

Applications

AATOM™ 647N BCN is a clickable derivative of AATOM™ 647N, a red fluorescent dye designed for labeling peptides, oligonucleotides, and other biomolecules. AATOM™ 647N is known for its strong absorption, high fluorescence quantum yield, and excellent thermal and photo-stability. The dye is moderately hydrophilic, with an excitation maximum between the 625-660 nm range, making it compatible with the 647 nm He:Ne laser, 647 nm Krypton-Ion laser, and 650 nm diode laser. AATOM™ 647N maintains stable fluorescence across a broad pH range (pH 2-11), supporting its application under diverse experimental conditions. Upon conjugation to a substrate, the dye becomes cationic, carrying a net positive charge of +1. Unlike cyanine dyes, AATOM™ 647N demonstrates enhanced resistance to atmospheric ozone degradation, which increases its reliability in microarray applications. AATOM™ 647N is ideal for advanced applications in single-molecule detection and high-resolution microscopy techniques, including PALM, dSTORM, and STED microscopy. It is also compatible with flow cytometry (FACS), fluorescence in situ hybridization (FISH), and a variety of other biological assays.

To improve conjugation performance, AATOM™ 647N 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.
This product is manufactured by AAT Bioquest and is not affiliated with ATTO-TEC GmbH.