

AATOM™ 647 BCN

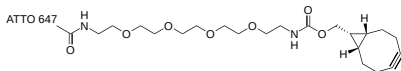
Catalog Number: 70565

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	987.29
Soluble In	DMSO
Chemical Structure	

Spectral Properties

Excitation Wavelength	646 nm
Emission Wavelength	667 nm

Applications

AATOM™ 647 BCN is a clickable derivative of AATOM™ 647, a red fluorescent dye designed for labeling peptides, oligonucleotides, and other biomolecules. AATOM™ 647 is known for its strong absorption, high fluorescence quantum yield, and excellent photostability. The dye is highly hydrophilic, with an excitation maximum between the 615-660 nm range, making it compatible with the 647 nm He:Ne laser, 647 nm Krypton-Ion laser, and 650 nm diode laser. As a zwitterionic molecule, AATOM™ 647 carries a net neutral charge. The dye is stable under physiological pH conditions and in buffers with a pH of up to 8, though it gradually degrades at higher pH levels. AATOM™ 647 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™ 647 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.