AATOM™ 633 BCN

Catalog Number: 70564
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	629 nm
Emission Wavelength	651 nm

Applications

AATOM™ 633 BCN is a clickable derivative of AATOM™ 633, a red fluorescent dye designed for labeling peptides, oligonucleotides, and other biomolecules. AATOM™ 633 is known for its strong absorption, high fluorescence quantum yield, and excellent thermal and photo-stability. It exhibits moderate hydrophilicity and is optimally excited within the 610-645 nm wavelength range, compatible with both the 633 nm line of the He-Ne laser and the 635 nm line of the diode laser. The dye maintains stable fluorescence over a wide pH range (2-11), allowing for its use in diverse experimental conditions. Upon conjugation to a substrate, AATOM™ 633 becomes cationic, carrying a net positive charge of +1. AATOM™ 633 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™ 633 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.