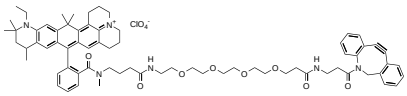
AATOM™ 647N PEG4 DBCO

Catalog Number: 2807
Unit Size: 1 mg

Product Details

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

Chemical Properties

Appearance	Solid dark blue
Molecular Weight	1251.96
Soluble In	DMSO
Chemical Structure	

Spectral Properties

Excitation Wavelength	645 nm
Emission Wavelength	663 nm

Applications

AATOM™ 647N is a rhodamine-derived fluorescent dye specifically optimized for applications in the red spectral region. It exhibits spectral properties comparable to Cy5, with improved aqueous solubility conferred by a PEG4 spacer. The dye is characterized by a high molar absorptivity, robust fluorescence quantum yield, and superior thermal and photostability, making it a reliable choice for demanding experimental conditions. AATOM™ 647N is moderately hydrophilic and has an excitation maximum within the 625-660 nm range, which is well-suited for use with the 647 nm line of Krypton-Ion lasers and the 650 nm line of diode lasers. The dye retains consistent fluorescence across a wide pH spectrum (pH 2-11), ensuring its applicability in diverse biochemical and biophysical assays. Upon conjugation, AATOM™ 647N becomes cationic with a net positive charge of +1. Notably, this dye exhibits enhanced resistance to atmospheric ozone degradation compared to cyanine dyes, increasing its stability and reliability in microarray and other long-term applications. AATOM™ 647N is particularly suitable for high-precision techniques, including single-molecule detection, super-resolution microscopy (e.g., SIM, STED), flow cytometry (FACS), fluorescence in situ hybridization (FISH), and various other advanced biological and analytical methodologies.

The PEG4-DBCO derivative of AATOM™ 647N is a highly reactive cycloalkyne optimized for copper-free click chemistry (SPAAC, strain-promoted azide-alkyne cycloaddition). This derivative exhibits a significantly higher reaction rate with azides compared to other cyclooctynes and copper-catalyzed click reactions (CuAAC). Uniquely, DBCO does not react with tetrazines, allowing for its use in bioorthogonal reactions alongside trans-cyclooctenes and tetrazines. For applications where the presence of copper is problematic, AATOM™ 647N DBCO serves as an effective alternative to copper-dependent fluorescent alkynes. This product is manufactured by AAT Bioquest and is not affiliated with ATTO-TEC GmbH.