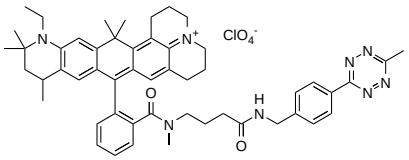
AATOM™ 647N Tetrazine

Catalog Number: 2839
Unit Size: 1 mg

Product Details

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

Chemical Properties

Appearance	Solid blue
Molecular Weight	929.56
Soluble In	DMSO
Chemical Structure	

Spectral Properties

Excitation Wavelength	645 nm
Emission Wavelength	663 nm

Applications

AATOM™ 647N is a rhodamine-based fluorescent dye optimized for use in the red spectral region, with similar spectral characteristics as Cy5. It is characterized by high molar absorptivity, a strong fluorescence quantum yield, and excellent thermal and photostability. The dye is moderately hydrophilic and exhibits optimal excitation within the 625-660 nm range, making it compatible with the 647 nm line of Krypton-Ion lasers and the 650 nm line of diode lasers. 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 particularly effective for high-precision applications such as single-molecule detection, super-resolution microscopy techniques (e.g., SIM and STED), flow cytometry (FACS), fluorescence in situ hybridization (FISH), and various other biological assays.

AATOM™ 647N tetrazine is particularly useful for labeling TCO-modified biomolecules under copper-free conditions. It reacts with TCO-functionalized molecules, forming a stable conjugate via a dihydropyrazine moiety. This click reaction is favored over others due to its extremely fast kinetics and higher yields under mild reaction conditions, making it a popular choice for researchers. This product is manufactured by AAT Bioquest and is not affiliated with ATTO-TEC GmbH.