

# AATOM™ 647N DBCO

Catalog Number: 2837

Unit Size: 1 mg

## Product Details

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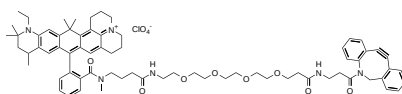
Storage Conditions	Freeze (< -15 °C), Minimize light exposure
Expiration Date	12 months upon receiving

## Chemical Properties

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Appearance	Solid dark blue
Molecular Weight	1251.96
Soluble In	DMSO

Chemical Structure



## Spectral Properties

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Excitation Wavelength	645 nm
Emission Wavelength	663 nm

## Applications

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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.

The 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.