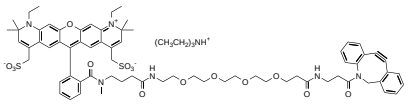
AATOM™ 594 PEG4 DBCO

Catalog Number: 2842
Unit Size: 1 mg

Product Details

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

Chemical Properties

Appearance	Solid purple
Molecular Weight	1412.77
Soluble In	DMSO
Chemical Structure	

Spectral Properties

Excitation Wavelength	602 nm
Emission Wavelength	621 nm

Applications

AATOM™ 594 is a bright, red fluorescent dye characterized by a strong absorption, high fluorescence quantum yield, and exceptional thermal and photostability. The dye exhibits superior water solubility and hydrophilicity, facilitating its use in various aqueous environments. AATOM™ 594 is optimally excited within the 560-615 nm range, making it compatible with both 561 nm and 594 nm laser lines commonly used in advanced fluorescence imaging systems. Upon conjugation to biomolecules, AATOM™ 594 becomes anionic, carrying a net charge of -1, which may influence its binding characteristics and performance in assays. Its photostability and brightness make it particularly suited for high-resolution techniques like single-molecule detection and super-resolution microscopy, including PALM, dSTORM, and STED. Additionally, AATOM™ 594 is highly compatible with flow cytometry (FACS), fluorescence in situ hybridization (FISH), and various other fluorescence-based assays, supporting its broad utility in complex biological studies.

The DBCO derivative of AATOM™ 594 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™ 594 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.