6-TAMRA BCN

Catalog Number: 70513
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	552 nm
Emission Wavelength	578 nm

Applications

6-TAMRA BCN is a clickable derivative of 6-Carboxytetramethylrhodamine (6-TAMRA), commonly used for labeling biomolecules such as oligonucleotides. 6-TAMRA is a well-characterized orange-red fluorescent dye known for its high brightness, pH-insensitive fluorescence, and good photostability. To minimize steric hindrance and reduce potential interference with biomolecular interactions after conjugation, the molecule incorporates a polyethylene glycol (PEG) spacer. 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.