Texas Red BCN

Catalog Number: 70514
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	586 nm
Emission Wavelength	603 nm

Applications

Texas Red BCN is a clickable derivative of Sulforhodamine 101 (Texas Red), a widely used red fluorescent dye for labeling biomolecules, particularly peptides and oligonucleotides. Texas Red is characterized by its high quantum yield and photostability, properties that have established its widespread use in fluorescence-based applications. Nevertheless, its hydrolytic instability and limited aqueous solubility often impede efficient bioconjugation. To overcome these challenges, the BCN derivative incorporates a polyethylene glycol (PEG) linker, which enhances hydrophilicity and reduces steric hindrance. This modification improves conjugation efficiency while preserving the native interactions of the labeled biomolecules.

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.