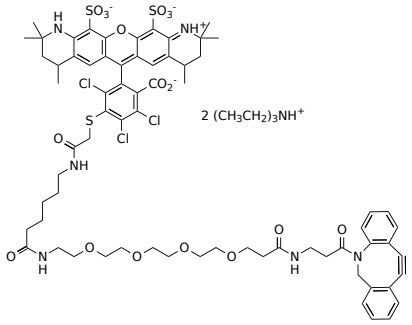
XFD546 PEG4 DBCO

Catalog Number: 70056
Unit Size: 1 mg

Product Details

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

Chemical Properties

Appearance	Solid
Molecular Weight	1669.33
Soluble In	DMSO
Chemical Structure	

Spectral Properties

Excitation Wavelength	561 nm
Emission Wavelength	572 nm

Applications

XFD546, manufactured by AAT Bioquest, is structurally identical to Alexa Fluor™ 546 (ThermoFisher). It exhibits bright orange fluorescence and is readily excited by laser lines at 488 nm or 532 nm, making it highly suitable for applications such as fluorescence microscopy and flow cytometry. XFD546 demonstrates enhanced aqueous solubility due to the incorporation of a PEG4 linker and pH-insensitivity over a broad range (pH 4–10), ensuring stable signal generation under varying experimental conditions. Additionally, the dye enables high molar ratio conjugation to proteins with minimal fluorescence quenching, facilitating the generation of brighter conjugates for enhanced detection sensitivity. With its high fluorescence quantum yield and superior photostability, XFD546 is particularly advantageous for detecting low-abundance biological targets, providing researchers with improved sensitivity and precision in quantitative fluorescence-based assays. The DBCO derivative of XFD546 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, XFD546 DBCO serves as an effective alternative to copper-dependent fluorescent alkynes.