

**XFD680 TCO**

Catalog Number: 70107

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
Molecular Weight	N/A
Soluble In	DMSO

**Spectral Properties**

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Excitation Wavelength	681 nm
Emission Wavelength	704 nm

**Applications**

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XFD680, manufactured by AAT Bioquest, is a bright near-infrared fluorescent dye structurally equivalent to Alexa Fluor™ 680 (ThermoFisher). It exhibits a high fluorescence quantum yield, excellent photostability, and superior aqueous solubility, ensuring consistent and reliable performance in various applications. Its pH-independent fluorescence across a broad range (pH 4–11) allows it to maintain stability under diverse experimental conditions. The dye also enables high molar ratio protein conjugation with minimal self-quenching, producing brighter conjugates and enhancing detection sensitivity. Its long-wavelength emission minimizes interference from autofluorescent background signals, enabling accurate detection in complex biological systems.

XFD680 is optimized for red laser excitation and is compatible with flow cytometers equipped with spectral detection systems. It delivers robust and uniform labeling, with high signal intensity and reproducibility, making it ideal for fluorescence imaging, flow cytometry, and other analytical techniques. XFD680 is also widely utilized in advanced applications such as multiplexed western blot detection and stochastic optical reconstruction microscopy (STORM), where its superior photophysical properties enhance resolution and sensitivity.

XFD680 TCO is particularly useful for labeling tetrazine-modified biomolecules under copper-free conditions. It reacts with tetrazine-functionalized molecules, forming a stable conjugate via a dihydropyrazine moiety. This click reaction is favored over others due to its extremely fast kinetics and higher yields under mild reaction conditions, making it a popular choice for researchers.