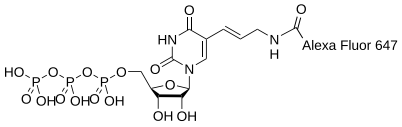
XFD647-UTP

Catalog Number: 17116, 17117
Unit Size: 25 nmoles, 100 nmoles

Product Details

Storage Conditions	Freeze (< -15 °C), Minimize light exposure
Expiration Date	6 months upon receiving

Chemical Properties

Appearance	Liquid dark blue
Molecular Weight	1380.21
Soluble In	Water
Chemical Structure	

Spectral Properties

Excitation Wavelength	650 nm
Emission Wavelength	671 nm

Applications

XFD647, manufactured by AAT Bioquest, is a far-red fluorescent dye that is structurally similar to Alexa Fluor™ 647 (Thermo Fisher), offering high photostability and intense fluorescence. When conjugated to uridine triphosphate (UTP), XFD647-UTP functions as an alternative to UTP in T7 RNA polymerase-mediated in vitro transcription, enabling the synthesis of fluorescently labeled RNA probes. These probes are highly suited for multicolor fluorescence-based applications, including dual-color expression profiling, microarrays, fluorescence in situ hybridization (FISH), chromosome identification, whole chromosome painting, karyotyping, and gene mapping.

XFD647-UTP efficiently incorporates into RNA transcripts through T7 RNA polymerase, imparting robust fluorescence for the visualization and quantification of RNA localization, distribution, and dynamics in live or fixed-cell systems. With excitation and emission maxima at 650 nm and 671 nm, respectively, XFD647-UTP-labeled RNA is readily detectable under fluorescence microscopy and gel electrophoresis without additional post-staining. Furthermore, XFD647-UTP facilitates single-molecule fluorescence resonance energy transfer (smFRET) experiments, allowing real-time monitoring of co-transcriptional RNA folding and structural dynamics at the molecular level. The exceptional photostability and narrow emission profile of XFD647-labeled nucleotides make them highly advantageous for multiplexed fluorescence imaging, enabling precise signal discrimination in complex biological samples.