

FastClick™ XFD647 Alkyne

Catalog Number: 72880

Unit Size: 1 mg

Product Details

Storage Conditions	Freeze (< -15 °C), Minimize light exposure,
Expiration Date	24 months upon receiving

Chemical Properties

Appearance	Solid
Molecular Weight	1281.46
Soluble In	DMSO

Spectral Properties

Excitation Wavelength	650 nm
Emission Wavelength	671 nm

Applications

FastClick™ XFD647 Alkyne contains both the CAG moiety of FastClick (for assisting click efficiency) and Alexa Fluor® 647 fluorophore (as the fluorescence tag) for developing Alexa Fluor® 647-based fluorescent probes. It readily reacts with an azido-containing biomolecule under extremely mild conditions. Alexa Fluor® 647 is a commonly used deep red fluorophore for labeling proteins, nucleic acids, or other biomolecules. It has moderate photostability and excitation that matches the common 647 nm laser line that is equipped with almost all the major new fluorescence instruments. Its conjugates are widely used for imaging and flow cytometry applications in combination with the widely available Cy5 filter set. It is a water-soluble Cy5 derivative that has pH-insensitive fluorescence from pH 4 to pH 10. Alexa Fluor® is a trademark of ThermoFisher Scientific. FastClick™ reagents have been developed by the scientists of AAT Bioquest for enhancing the yield and reaction speed of copper-catalyzed azide-alkyne cycloaddition (CuAAC) reaction. They contain a copper-chelating ligand that significantly stabilizes the Cu(I) oxidation state and thus accelerates the click reaction. They do not require the use of an external copper-chelator (such as the common THPTA or BTAA). The high concentration of copper chelators is known to have a detrimental effect on DNA/RNA, thus causing biocompatibility issues. The introduction of a copper-chelating moiety at the reporter molecule allows for a dramatic raise of the effective Cu(I) concentration at the reaction site and thus accelerates the reaction. Under extremely mild conditions the FastClick™ azides and alkynes react much faster in high yield compared to the corresponding conventional CuAAC reactions. Click chemistry was developed by K. Barry Sharpless as a robust and specific method of ligating two molecules together. Two important characteristics make click chemistry attractive for assembling biomolecules. First, click reactions are bio-orthogonal, thus the click chemistry-functionalized biomolecules would not react with the natural biomolecules that lack a clickable functional group. Second, the reactions proceed with ease under mild conditions, such as at room temperature and in aqueous media.