AAT Bioquest®

**Product Information Sheet**

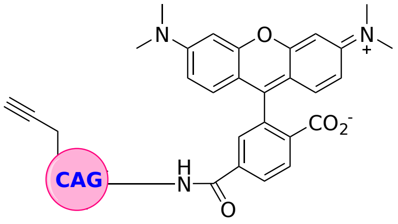
# FastClick™ 6-TAMRA Alkyne

Catalog Number: 72863
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 | 738.89 |
| Soluble In | DMSO |
| Chemical Structure |  <br>[CAG=Click-Assisting Group] |

## Spectral Properties

| | |
|---|---|
| Excitation Wavelength | N/A |
| Emission Wavelength | N/A |

## Applications

FastClick™ 6-TAMRA Alkyne contains both the moiety of FastClick (for assisting click efficiency) and 6-TAMRA fluorophore (as the fluorescence tag) for developing 6-TAMRA-based fluorescent probes. It readily reacts with an azido-modified biomolecule under extremely mild conditions. 6-TAMRA is one of the most common orange-red fluorophores used for labeling biomolecules, in particular, for labeling oligonucleotides. 6-TAMRA conjugates are widely used in fluorescence-based nucleic acid detections such PCR and FISH etc. 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 BTTAA). 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.