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Design, and Synthesis of Functionalized Two-Photon Caging Platforms

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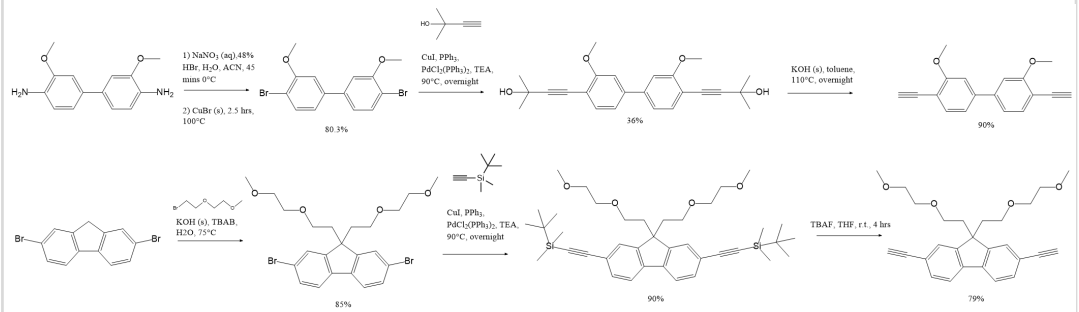
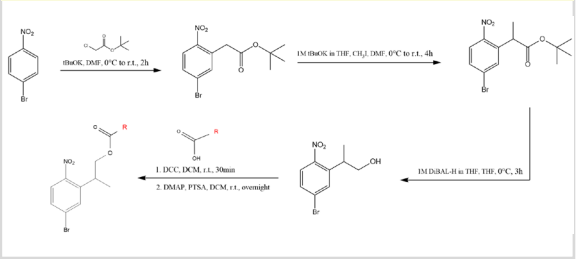
Introduction

Two-photon absorption (TPA) has become popular for biological applications, owing to its advantageous property of being able to achieve photophysical reactivities at long wavelengths in the near infrared region, it minimizes photodamage to materials and biological samples. Furthermore, deep tissue penetration and lower scattering can be achieved with long wavelengths. TPA photocleavable molecules are able to act as protecting groups for biological systems, creating caged compounds. We report the synthesis of triple bond versions of BNSMB and BNSF, serving as cages for phenylalanine for future photocleavage experiments.

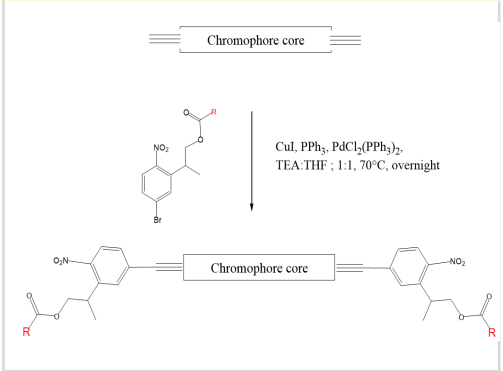
Chromophore Synthesis Pathway



Photolabile Unit Synthesis Pathway



Coupling



Reference

Gug, S., Bolze, F., Specht, A., Bourgogne, C., Goeldner, M., & Nicoud, J. (2008). Molecular engineering of Photoremovable protecting groups for TWO-PHOTON UNCAGING. *Angewandte Chemie International Edition, 47*(49), 9525-9529. doi:10.1002/anie.200803964

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