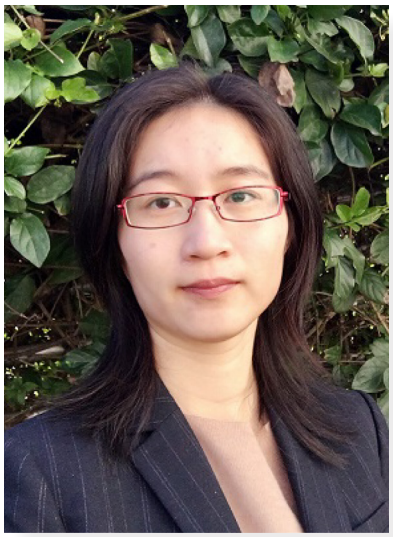

Rice University
George R. Brown School of Engineering
Department of Chemical and
Biomolecular Engineering

Presents

Xuejun Zhu

Graduate Student
Chemical and Biomolecular Engineering
University of California, Berkeley

Tuesday, February 7, 2017 - 2:30 PM
Keck Hall 102

Engineered Biosynthesis of Terminal Alkynes and its Applications

The terminal alkyne functionality is widely used in organic synthesis, pharmaceutical science, and materials. It is also a useful moiety in the azide-alkyne cycloaddition reaction (often known as click chemistry), which has recently emerged to be one of the most powerful tools in chemical biology for the study of diverse biomolecules. Natural products are an important class of biomolecules, and they have been an indispensable source of compounds for modern drug discovery and development. However, the underexplored alkyne biosynthetic tools and tagging strategies limit the applications of click chemistry in natural product research. Our work aims to address these challenges by developing an in situ natural product tagging approach. In this talk, I will first describe the identification and characterization of novel microbial biosynthetic pathways that lead to the generation of the terminal alkyne functionality. I will further show the promise of using the enzymatic machinery for in situ production and incorporation of the unique terminal alkyne tag into various natural product scaffolds. By coupling with different biorthogonal probes, our work may allow broader utilization of the hidden potential of natural products for both pharmaceutical and bio-based chemical applications.

About the Speaker

Xuejun Zhu received her B.S. (2012) in Biosciences from Nanjing University. She will receive her Ph.D. (05/2017) in Chemical and Biomolecular Engineering at the University of California, Berkeley. Her research is focused on biomolecular engineering for pharmaceutical and bio-based chemical applications. Her research interests include the engineered biosynthesis of natural products, and developing chemical biology tools to mine the hidden potential of natural products.