



Vinayak Agarwal, PhD
Assistant Professor
School of Chemistry and Biochemistry
School of Biological Sciences
Georgia Institute of Technology
vagarwal@gatech.edu | www.agarwallab.com
Ph: 404-385-3798

November 2, 2021

The Agarwal laboratory at Georgia Tech is seeking to recruit **postdoctoral scientists** with the broad motivation of **reconstituting natural product biosynthetic pathways *in vitro***. There are two major reasons why we are interested in pursuing this work.

First is our belief that **to build is to understand**. Oftentimes, in natural product biosynthetic schemes, we encounter entirely new biochemical transformations. Even for well characterized reactions, we may not know the selectivity and specificity determinants that are built into multi-step (or multi-modular) biosynthetic schemes. Do we have a complete inventory of all enzymes? What is the yield/diversity compromising bottleneck(s)? What should be our engineering targets? Building natural products *in vitro* when we know the identity and role of each component in the reaction soup allows access to these questions.

Our second motivation is to **build natural products in the discovery mode**. By sequential reconstitution of biosynthetic reactions, we are looking to construct cryptic natural products. Our effort is complementary to synthetic biology techniques while providing a straightforward engineering-able entry to mix-and-match combinatorial biosynthesis. For a traditional synthetic biological workflow, some biosynthetic gene clusters may be difficult to access, such as those from uncultivable symbionts. Building molecules in the discovery mode then allows us to build the natural product↔gene cluster correlations in such situations.

Proficiency in recombinant protein production, biochemical assay design and implementation, developing analytical readouts, and in chemical synthesis is desirable. The Agarwal laboratory at Georgia Tech is well equipped and exceptional institutional resources for mass spectrometry and NMR are available. The research environment is enriched by neighboring laboratories engaged in natural product isolation and structure determination, chemical synthesis, synthetic biology, and chemical ecology.

The available positions are **fully funded** multi-year positions. However, we will encourage, actively help, and share preliminary data for postdoctoral funding applications. We will help you build a portfolio that **matches your career goals**, including but not limited to pedagogical training.

The position will start as soon as the selected applicant is available and includes salary at the NIH scale and benefits, collaborative opportunities, and opportunities for travel to conferences and symposia. **To apply**, please **e-mail Vinayak Agarwal** (vagarwal@gatech.edu) with **(i)** a curriculum vitae (CV), **(ii)** a one-page statement of how your research experience and interests fit this position and **(iii)** contact information for 3 references. Applications will be considered until position is filled.

These positions are funded from the NIH, NSF, and the Research Corporation for Science Advancement.