

Postdoctoral associate- experimental evolution / microbial genetics / quantitative biology

The Ratcliff lab at Georgia Tech (<http://ratclifflab.biology.gatech.edu/>) is seeking to hire a postdoctoral associate to work on the evolution of multicellularity. The successful candidate will work as part of an interdisciplinary team to examine the evolutionary dynamics of adaptation in the 'snowflake yeast' model system. Specifically, we are interested in understanding how multicellular adaptation occurs prior to the origin of genetically-regulated development. The successful candidate will work closely with physicist Peter Yunker (<https://yunkerlab.gatech.edu/>) and mathematical biologist Eric Libby (<http://ericlibby.github.io/>) as we integrate synthetic biology and experimental evolution with mathematical and computational models.

This position will be renewed annually for three years. Salary is commensurate with experience. The successful candidate will ideally start in the spring or early summer of 2017.

Under guidance from Dr. Ratcliff, the candidate will be expected to:

- Identify mutations in experimentally-evolved snowflake yeast using next gen sequencing and bioinformatic analysis (e.g., snp calling, bulked segregant analysis, etc.).
- Examine the function of these mutations by:
 - i) Creating defined yeast strains via transformation.
 - ii) Examining multicellular phenotype and cellular behavior using confocal and high-throughput fluorescence microscopy and flow cytometry.
 - iii) Identifying the fitness consequences of key mutations.
- Use these experiments to help refine and parameterize physical models describing the growth of snowflake yeast (led by Dr. Yunker) and models examining their evolution (led by Dr. Libby).
- Disseminate this research by taking the lead on writing papers, giving talks at national and international meetings, and participating in scientific outreach projects.

Requirements

- A PhD in evolutionary biology, molecular biology, genomics, biophysics, or related fields.
- Proficiency with scientific programming (preferably using Python or R) for both large-scale data analysis (e.g., bioinformatics) and constructing analysis pipelines (e.g., for large microscopy datasets).
- A record of scientific creativity and strong capacity for independent thought.

Desired qualifications

- Experience with yeast transformation and molecular biology.
- Experience with bioinformatic analysis of next generation sequencing data.
- Familiarity with mathematical or computational modeling approaches would be helpful for collaboration, but it will not be a major responsibility of this position.
- Ability to make clear, elegant figures for papers and talks.
- Enthusiasm! We're a pretty excited bunch- science is more fun when you're really into it.

The position will remain open until filled. Applications will be considered as they arrive, so please don't hesitate to contact Dr. Ratcliff if you are interested. To apply, please send you cover letter, CV, a brief

summary of past work (or link to a description on your website), and the names and email addresses of two to three references to Dr. Ratcliff at ratcliff@gatech.edu. Please include 'Postdoc application' in the subject line of your email.

Georgia Tech (in Atlanta, GA) is experiencing a renaissance in evolutionary microbiology. The successful candidate will be in a highly collaborative environment, with the opportunity for extensive interactions among faculty studying microbial evolution, including Sam Brown (<http://biosci.gatech.edu/people/sam-brown>), Frank Rosenzweig (<http://biosci.gatech.edu/people/frank-rosenzweig>), Brian Hammer (<http://www.hammerlab.biology.gatech.edu/>), Joshua Weitz (<http://ecothery.biology.gatech.edu/>), Peter Yunker (<https://yunkerlab.gatech.edu/>), Steve Diggie (<http://www.stevediggie.net/who-are-we.html>), Eric Gaucher (<http://www.gauchergroup.biology.gatech.edu/>), Frank Stewart (<http://marine-micro.biology.gatech.edu/>), Matthew Herron (<http://matthewherron.net>) and others. Atlanta itself is a good place to live – Midtown, Georgia Tech's neighborhood, [was named one of the 5 best neighborhoods in the country](#) – with lots of things to do and a reasonable cost of living.

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