

Postdoctoral Fellowship in Synthetic Biology

Where: Department of Biology at the University of Florida, Gainesville

Scientific fields: synthetic biology, building a synthetic cell, biomolecular engineering, directed evolution, in vitro evolution, cell-free synthetic biology.

Overview. A postdoctoral fellow position is open in the field of Synthetic Biology is available in a project on Bottom-Up Engineering of a Synthetic Living System led by Dr. Zhanar Abil in the Department of Biology at the University of Florida.

Research. As a postdoctoral fellow, the candidate will have the opportunity to contribute to exciting projects centered around bottom-up engineering of a synthetic living system. We strive to better understand the general processes of life and life's origins by engineering synthetic life from non-living components. Our current research endeavors primarily focus on engineering cell-free processes that mimic the cyclically catalytic nature of living organisms. To achieve this, we will engineer in vitro self-replicating gene circuits run by a customized cell-free transcription-translation systems in cell-like artificial compartments. We will study their collective biopolymer synthesis, evolutionary dynamics, adaptability, and ability to be integrated into more complex gene networks. Our research will focus on in vitro reconstitution and evolution of biomolecular networks responsible for DNA replication, transcription, translation, information decoding, and energy regeneration. This work will provide valuable insight on essential biogenic processes, such as biogenesis of ribosomes, translation factors, and energy regeneration complexes, which are difficult research subjects in vivo.

The Abil lab. Our lab opened in the Fall of 2023. We have access to state-of-the-art shared instruments for synthetic biology projects. We strive to establish an inclusive, supportive, and scientifically vigorous environment for all our members. The postdoctoral associate will contribute heavily to the establishment of the lab's culture and infrastructure, pioneering new projects, mentoring students, and will be able to advance his/her career on multiple fronts in research. More information can be found here: <https://abillab.biology.ufl.edu/>

Qualifications. The successful candidate must have:

- Ph.D. or equivalent degree in chemical or biomolecular engineering, systems or synthetic biology, molecular biology, biochemistry, biophysics, or adjacent fields.
- A strong publication record demonstrating research productivity and showcasing the ability to independently design and conduct experiments.

In addition, expertise or experience with one or more of these fields and techniques are highly desired:

- Cell-free systems or synthetic cell models
- Protein or nucleic acid engineering
- Directed evolution or experimental evolution
- Bioinformatics and next-generation sequencing data analysis
- Microscopy or flow cytometry
- Proteomics or transcriptomics

- Structure-function analysis

Job Description. The post-doctoral associate will contribute heavily to the establishment of the lab's culture and infrastructure, pioneering new projects, mentoring students, and will be able to advance his/her career on multiple fronts in research.

This position will be initially awarded for one year, and, contingent upon strong performance and conduct and availability of funds, may be renewed for up to one/two/three years.

Compensation. The salary is competitive and commensurate with qualifications and experience, and the compensation includes a full benefits package.

University of Florida. Over the past 10 years, the State of Florida invested over 1.5 billion dollars to advance the University of Florida. UF research expenditures averaged over \$950M per year over the last 3 years. As a result, UF is now the 6th ranked public university in America (US News & World Report). The Herbert Wertheim College of Engineering, The SHANDS Hospital, and the College of Medicine, all in proximity, foster cross-college, highly interdisciplinary collaborations. The city of Gainesville is a university town with a relatively low cost of living, a high quality of life, and a location ~2 hours from 3 major cities (Orlando, Tampa, and Jacksonville). University of Florida counts among its greatest strengths — and a major component of its excellence — that it values broad diversity in its faculty, students, and staff and creates a robust, inclusive and welcoming climate for learning, research and other work. The University of Florida is an Equal Opportunity Employer. Please see <https://diversity.clas.ufl.edu/diversity-statement/> for more information about diversity and inclusion in the College of Liberal Arts and Sciences.

Application. If you are interested, please email Zhanar Abil at abilz@ufl.edu to express your interest in applying for the position and include:

1. Letter of application of no more than 2 pages summarizing the applicant's qualifications, interests, suitability for the position, and career objectives.
2. A complete *curriculum vitae*
3. A list of at least three references. After initial review, letters of recommendation will be requested from the references for selected applicants.

Applications will be reviewed immediately, and the position will remain open until filled.