

## Postdoctoral Research Fellowships – Synthetic Biology

Department of Microbiology, Faculty of Science University of Stellenbosch, Stellenbosch  
7600, South Africa

### Position

We are seeking **three** postdoctoral fellows in synthetic biology with relevant experience in high-throughput (HTP) design-build-test-learn cycles in *E. coli*, *K. pastoris* and/or *S. cerevisiae* with the aim of producing valuable enzymes or proteins. Types of activities could include design and construction of expression cassettes, *in vitro* transcription/translation, host transformation and culturing, clonal selection, product screening, genetic parts characterization, protein/enzyme assay development and optimisation, technical know-how of setting up and integrating HTP equipment/workflows, curating strain and plasmid repositories, preparing buffer and media, stocking consumables, authoring training and protocol documents, etc.

### Key duties could include:

- Design, cloning and assembly of multi-fragment DNA constructs for heterologous protein expression in the aforementioned microbial hosts
- Perform high-throughput cell-free experiments and workflows
- Genetic modification and selection microbial production hosts
- High-throughput cultivation and screening of microbial production hosts
- Analysis of data and interpretation of results against model predictions
- Use of computational tools and databases
- Learn established workflows and implement improvements
- Support organization of training, protocol, and other document development
- Assist in general lab chores such as solution prep, cleaning, organization, etc.
- Maintain a laboratory notebook, track and QC data
- Attend seminars and participate in group and project meetings and lab activities

The fellowships are available for a minimum period of one year, starting 1 January 2022, or shortly thereafter, and is renewable for a maximum duration of 2 years, depending on performance. A minimum scholarship of ZAR350 000 per annum is available for these positions and, provided that the necessary procedures are put in place, this amount will be free of income tax. Please note that postdoctoral fellows are not appointed as employees and are therefore not eligible for employee benefits.

### Research

The research work falls within the Microbial Biotechnology theme of the Departments of Process Engineering and Microbiology, Stellenbosch University. The research groups are collaborating with public and private funders on the development of a high-throughput protein engineering and production platform. The postdoctoral researcher will be expected to contribute significantly to:

- Effective completion of assigned experimental tasks, with rapid progress and high quality of outputs.
- Technical advisory to other researchers in the group, where appropriate and required

- Coordination of research activities between partners in the project
- Developing new areas of research within the research group
- Writing new funding proposals to sustain research activities
- Management of laboratory equipment and space
- Publication of research outputs from current and previous projects in high quality international journals

## **Required qualifications and skills**

### ***Minimum qualification:***

PhD in Synthetic Biology, Microbiology, Biochemistry, Molecular Biology or a related field, obtained within the past five years, with preferable 3 years of relevant experience in a laboratory setting.

### ***Any combination of the following minimum skills will be highly preferred:***

- Hands-on experience in cloning and assembly of DNA and growth of microbes combined with setting up and integrating HTP workflows
- Demonstrated experience with designing, executing, and reporting cell-free experiments
- Experience with protein reporter, detection, and/or quantification approaches
- Proficient in working with laboratory automation software and/or programming. Protocol design and programming liquid handling systems
- Use of DNA design software, word processing, data collaboration tools, presentation and spreadsheet applications, and familiarity with concepts in statistics and tools to analyse data

### ***Additionally, applicants are required to have:***

- Strong organizational, time management, record keeping, and prioritization skills
- Independent, hard-working, and highly self-motivated
- Excellent communication and interpersonal relationship skills
- Ability to maintain a positive attitude when faced with challenges
- Desire to work in a team and assist other team members
- Ability to conduct research independently and manage multiple tasks in parallel

## **Applications**

A cover letter and *curriculum vitae*, including all research outputs, complete academic transcripts, degree certificates and the contact details of at least 3 academic references. Merge all documents into a single PDF and attach it to the application. Incomplete applications will not be considered.

**Applications should be sent to:** Dr Heinrich Volschenk, Department of Microbiology, Faculty of Science, Stellenbosch University, Private Bag X1, Matieland, 7602, South Africa

**E-mail:** volschenkh@sun.ac.za and see

<http://www.sun.ac.za/english/faculty/science/microbiology> for more details on the department and the University of Stellenbosch.

**Closing date for applications is 31 October 2021.** The university reserves the right not to fill the position.