Stellenbosch University – Department of Microbiology

Postdoctoral Research Fellowship: Molecular detection and risk assessment of antifungal-resistant pathogenic yeasts in river water

Host Department: Department of Microbiology, Stellenbosch University

Value of Award: R320000 p/a **Duration:** 6 months, renewal up to 18 months

We seek a postdoctoral fellow to join our multidisciplinary environmental mycology team in the Department of Microbiology at Stellenbosch University.

The fellowship forms part of the Water Research Commission (WRC)-funded project *Advancing Risk Management of Climate-Driven Antifungal AMR in River Water with Community-Centred Approaches*. The project investigates how climate-driven changes in river water conditions influence the prevalence, antifungal resistance and virulence of the opportunistic pathogenic yeasts in the Eerste River system in the Western Cape. It combines molecular surveillance with community engagement to quantify the exposure risk faced by river-adjacent communities. The successful applicant will work at the interface of environmental microbiology, molecular diagnostics and quantitative microbial risk assessment (QMRA), within a team that collaborates nationally and internationally.

The appointed candidate will refine molecular methods for detecting and quantifying opportunistic pathogenic fungi in river water, and contribute to quantitative risk analyses based on the data collected during the project to date. They will be expected to publish their research results in high-impact journals and present at local and international conferences. They will also provide day-to-day bench supervision to a postgraduate student and prepare progress reports and presentations for the WRC.

The fellowship is available for a maximum 18 months, starting in 2027, subject to satisfactory performance. Because of funder timelines, the successful candidate must be able to register as a postdoctoral fellow at Stellenbosch University by 1 February 2027. Please note that postdoctoral fellows are not appointed as SU employees and, therefore, are not eligible for employee benefits. Postdoctoral fellowships are also awarded tax-free.

Hosts:

- Prof Riaan den Haan, Chair at Department of Microbiology

Team Leads:

- Dr Cleo Conacher, Department of Microbiology
- Prof Alf Botha, Department of Microbiology

Requirements:

- PhD in Microbiology, Molecular Biology, Biotechnology or a related field (must have graduated within the last five years)
- Excellent communication skills in English (both written and verbal)
- A proven publication record and a demonstrated capacity to conduct independent research (minimum one relevant article published in a peer-reviewed journal)
- Experience in data analysis and statistics (e.g. R or Python), including multivariate approaches
- Willingness and capability to take part in field sampling of river water in Stellenbosch

Specific areas of research include:

- Refinement and optimisation of eDNA extraction and qPCR-based detection and quantification of opportunistic yeasts in river water, including the design and validation of species-specific primers and markers of antifungal resistance and virulence
- Execution of antimicrobial resistance assays
- Contributing to quantitative microbial risk assessment (QMRA) by integrating pathogen concentration, river physicochemical, climate and community exposure data collected to date
- Multivariate analyses linking environmental and climatic parameters to the prevalence of pathogenic yeasts
- Continued river water sampling, eDNA extraction and molecular detection, as required
- Day-to-day bench supervision of an MSc student
- Writing progress reports and presentations for the WRC, as well as manuscripts for publication

Commencement of duties: latest 1 February 2027.

Closing date: 9 December 2026. Applications will be reviewed as they are received. Stellenbosch University reserves the right not to award the fellowship, or to re-advertise the position, should no suitable candidate be found.

Application process: Send a letter of application, accompanied by a comprehensive curriculum vitae, including list of publications, proof of PhD qualification, and the names and contact details of two referees, to Dr Cleo Conacher at cleopostdoc@gmail.com. Should you not hear from us within two weeks of the closing date, please consider your application unsuccessful.