

PhD opportunity (PREPARE EPSILON) –Establishment of rapid diagnostic and Pathogen discovery pipelines to solve outbreaks and describe the epidemiology of emerging and reemerging Severe acute Respiratory viral infections in Africa

Date of advert: December 2025

Application deadline: 31 January 2026

Duration: 3 years through the PREPARE EPSILON Science for Africa

Project background: To complete a PhD study, by publication, focusing on emerging and re-emerging respiratory viral threats within a One Health surveillance framework. Timely detection of emerging infectious diseases is critical for effective outbreak response and epidemic and pandemic preparedness. The incumbent will be involved in establishment of rapid diagnostics assays, and pathogen discovery tools to detect and solve the causes of Severe acute respiratory virus infections in humans and animals in Africa. The project will further focus on defining the clinical and molecular epidemiology and modelling the impact of emerging and reemerging viruses to inform public-health decision-making for epidemic and pandemic preparedness. This PhD project aims to integrate diagnoses, pathogen discovery with the epidemiology of detected pathogens in hospitalised patients, ICUs and fatalities as well as high risk animal product to improve early detection, surveillance of outbreaks of priority pathogens. The work bridges laboratory science, data analysis, and public-health research, offering a multidisciplinary training experience. Work will include BSL-2 and BSL-3 laboratory environments, primarily involving respiratory, and zoonotic viruses.

Location: The Emerging Viral Threats, One Health Surveillance and Vaccines (EViTOH) division of the Infectious Disease and Oncology Research Institute (IDORI) EViTOH - Wits University, and Wits Vaccine and infectious disease analytics unit (VIDA) at the University of the Witwatersrand (Wits). We invite applications from suitably qualified candidates for a PhD opportunity at WITS faculty of Health Science in Johannesburg, South Africa). Students will be co-supervised by Prof Marietjie Venter (SARChi Chair and head of EViTOH) and Prof Michelle Groom, VIDA and work with clinicians and veterinary collaborators.

Responsibilities: To design, perform and validate molecular and diagnostic tests, and combine this data with statistical and epidemiological analysis, as well as database design, maintenance and management, NGS sequencing and phylogenetic analysis. To work with surveillance officers and senior investigators to run clinical sites, to write ethics applications to the human and animal ethics committees, to communicate findings to health authorities and policymakers and, to report findings as high-impact publications and at national and international conferences.

Requirements: MSc in Virology, Molecular Biology, Genetics or a related field, as well as a background in Epidemiology. The candidate must have strong laboratory skills with experience in nucleic acid extraction, PCR, realtime PCR, Sanger and NGS sequencing and bioinformatics analysis. The candidate should also have epidemiological and statistical data analysis skills, have strong written and oral communication skills and demonstrate experience in developing/validating diagnostic techniques. A suitable candidate must show excellent attention to detail, documentation discipline, and understanding of laboratory workflow, have strong work ethics and be self-motivated. Finally, the candidate must complete the CARTA training workshops for PhD fellows.

Additional benefits (not compulsory): Sound knowledge on respiratory, and zoonotic viruses. Experience working in a biosafety level 3 laboratory, perform genomic sequencing and phylogenetic analysis, and knowledge of Epidemiology and statistical data analysis programmes (R, STATA, EPI-info), completion of FELTP or Masters in Public Health or Epidemiology. Exhibit an impressive publication record.

Application process: Interested candidates that fit the criteria can email Prof Marietjie Venter (marietjie.venter1@wits.ac.za; cc lekita.govindasamy@wits.ac.za) with the email subject line: **PhD (PREPARE EPSILON – Diagnostics and surveillance)** and provide a motivation letter outlining your expertise, experience and reason for interest in joining the group, an academic transcript (complete record), a copy of your CV, ID or Passport and VISA if available, SAQA certified qualifications if outside of South Africa and 2 contactable references and email address where we can contact you.

Prof Marietjie Venter (PhD, Medical Virology)(mASSAf)(RSSAf)(IDORIf)
Distinguished Professor & Research Chair:
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