

**PhD opportunity (PREPARE EPSILON) – Vaccine vector development**

**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 viral threats within a One Health surveillance framework. The incumbent will be involved in the development and characterisation of an alpha virus–based vaccine vector platform. African Alphaviruses are under-studied viruses of veterinary and zoonotic importance. Its genomic organisation and biological properties make it an interesting candidate for exploration as a viral vector platform for vaccine delivery. This PhD project will investigate the feasibility of using alphaviruses in a controlled, attenuated, or replication-restricted form to deliver antigens from other pathogens and characterise these viruses to investigate the seroprevalence of Middelburg in humans and animals and the utility of the vector to measure a neutralising antibody response thereby contributing to next-generation vaccine technologies. Work will include BSL-2 and BSL-3 laboratory environments.

**Location:** The Emerging Viral Threats, One Health Surveillance and Vaccines (EViTOH) division of the Infectious Disease and Oncology Research Institute (IDORI), at the University of the Witwatersrand (Wits) [EViTOH - Wits University](#) invites applications from suitably qualified candidates for a PhD opportunity at WITS in Johannesburg, South Africa). This will be under the co-supervision of Prof Marietjie Venter, Distinguished Professor and NRF SARChI chair and head of EViTOH and Prof Betty Maepa of the Wits/MRC Antiviral Gene therapy Unit.

**Responsibilities:** To design and characterise an alpha virus–based vaccine vector candidate suitable for vaccine applications. Assess antigen expression models and evaluate immunological responses triggered by the alpha virus-based construct. To write ethics applications to the human and animal ethics committees as well as section 20 applications, to present findings internally or externally, to report findings as high-impact publications and to attend and present at national and international conferences.

**Requirements:** MSc in Virology, Molecular and Cell Biology, Microbiology, Immunology or related field. The candidate must have strong laboratory skills in molecular biology and immunology and Virology, strong written and oral communication skills, a strong interest in vaccine technology and vector platforms and vectorborne zoonotic diseases. The candidate should also have a record of demonstrated experience in molecular 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 arboviruses or alphaviruses, as well as vaccine design and development, immunology and antigen expression. Experience working in a biosafety level 3 laboratory, genome sequencing, molecular virology, phylogenetics and bioinformatics analysis. A relevant publication record.

**Application process:** Interested candidates that fit the criteria can email Prof Marietjie Venter ([marietjie.venter1@wits.ac.za](mailto:marietjie.venter1@wits.ac.za); cc [lekita.govindasamy@wits.ac.za](mailto:lekita.govindasamy@wits.ac.za)) with the email subject line: **PhD (PREPARE EPSILON – Vaccine vector development)** 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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