



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA  
Faculty of Veterinary Science

## Post-doctoral fellowship in parasitology in the Department Veterinary Tropical Diseases

**Project title:** Development of a recombinant vaccine against *Babesia bovis* and *B. bigemina* for cattle

**Study duration:** 18 months (starting date: immediately)

**Minimum academic requirements:** PhD in molecular biology

**Restriction:** This position is open for national and international applicants (already having permits to work in South Africa)

**Added advantage and preference:** Undergraduate veterinary degree

**Funding:** Research funds available: Stipend R200 000 pa.

**Background:** Cattle in tropical areas are under threat of *Babesia bovis* and *B. bigemina* infections that are transmitted by Ixodid ticks. Amongst other control measures, vaccination with Babesia strains that are of limited virulence is being used. These vaccines are difficult to produce (live animals are required), bear the risk of contamination with other pathogens, and have a short half life which hampers large scale use. Results from *B. divergens* and *B. canis* revealed that vaccination with partially purified protein fractions from in vitro cultures of the parasite induced protective immunity. The protective activity was linked to a merozoite membrane molecule that was attached to the parasite membrane with a glycosylphosphatidylinositol (GPI) anchor. Recombinant proteins based on the identified proteins were successfully used to vaccinate vertebrate hosts against virulent challenge infection.

**Aim of the project:** The aim of the project is to (1) identify the homologous GPI-anchored proteins of *B. bovis* and *B. bigemina*, (2) produce recombinant proteins in *E. coli* expression systems, (3) evaluate the immunizing capacity of the proteins in experimental animal models (cattle).

**CONTACT PERSON:** Prof. Tshepo Matjila or Dr. Raksha Bhoora, Department Veterinary Tropical Diseases; E-mail ([tshupo.matjila@up.ac.za](mailto:tshupo.matjila@up.ac.za); [raksha.vasatraibhoora@up.ac.za](mailto:raksha.vasatraibhoora@up.ac.za))

Please send your CV, certified academic records and motivational letter to one of the above-mentioned contact persons. Two academic reference letters will be an advantage in the selection of the successful candidate

**Deadline for submission: 31 March 2023**