



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Veterinary Science

Research project on parasitology available in the Department Veterinary Tropical Diseases

Project title: Development and optimization of *in vitro* culture methods to establish *Theileria equi* and *Babesia caballi* parasite populations.

Degree: MSc (Veterinary Science)

Study duration: 2 years (starting date: immediately)

Minimum academic requirements: Honour's degree or equivalent in a relevant field. Experience in and knowledge of molecular biology and *in vitro* culture techniques is an advantage.

Funding: Essential research funds are available, does not include living costs/stipend.

Background: The detection of *Theileria equi* and *Babesia caballi* as the causative agents of equine piroplasmosis has been significantly complicated by the identification of diverse parasite genotypes (genotypes A to E) in many parts of the world. Four of these have been detected in South African equid populations and due to the high seroprevalence of asymptomatic carrier animals in the region; many countries impose stringent import restrictions on the movement of horses from South Africa. Recent studies have indicated that both nucleic acid-based and OIE-recognized serological methods of the detection of these parasites are compromised by the extensive genetic variation in both the 18SrRNA gene used for molecular and the antigen-encoding genes used in serological detection. Molecular genotyping revealed that most equids screened in South Africa had multiple genotype infections. Furthermore, evidence was presented that each of the *T. equi* genotypes identified segregated independently in each of the three studied equid populations, reinforcing the idea that they represent independent entities corresponding to separate species.

Aim of the project:

The project will involve the establishment of *in vitro* cultures of distinct *T. equi* and *B. caballi* parasite genotypes. Using the established molecular assays, field samples will be screened for piroplasm infections. Preliminary data shows that most equids are infected with multiple parasite genotypes and therefore identifying single infections might not be possible. This study will therefore aim to develop and optimize *in vitro* culture protocols to obtain a homogenous parasite population derived from a single parasite genotype.

- **CONTACT PERSON:** Dr. Raksha Vasantry Bhoora, Department Veterinary Tropical Diseases; E-mail: raksha.vasantrybhoora@up.ac.za Telephone: +27 (0)12 529 2401

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

Deadline for submission of applications: 26 February 2021