

CURRICULUM VITAE

1. BIOGRAPHICAL SKETCH

1.1 GENERAL INFORMATION

Surname	Morar-Leather			
First names	Darshana			
Citizenship	South African	Title	Dr.	Female
Place of birth	Bethal, Mpumalanga	Date of birth	1977/08/04	
Department	Veterinary Tropical Diseases	Position	Lecturer	
Direct Telephone	8278	Direct Telefax	8312	
E-mail	Darshana.Morar@up.ac.za			
Date of appointment	2003.01.03	Permanent full-time		

1.2 ACADEMIC QUALIFICATIONS OBTAINED

Degree/	Field of study	Tertiary Institution	Year	Distinctions
PhD	Veterinary Science	University of Pretoria	2009	
MSc	Veterinary Science	University of Pretoria	2003	Yes
BSc (Hons)	Microbiology	University of Pretoria	1999	
BSc (Hons) - Majors: Molecular and Cell Biology; Industrial Microbiology (<i>Distinction for Work Study</i> Microbiology)				
BSc	Microbiology and Plant Pathology	University of Pretoria	1998	

1.3 WORK EXPERIENCE TO DATE

01/2007 - current	Lecturer and Researcher	Faculty of Veterinary Science Department of Veterinary Tropical Diseases
01/2003 - 12/2006	Junior Lecturer and Researcher	Faculty of Veterinary Science Department of Veterinary Tropical Diseases
09/2001- 12/2002	Junior Researcher	Faculty of Veterinary Medicine, Department of Infectious Diseases and Immunology
01/1999- 06/1999	Undergraduate Tutor	Department of Microbiology

2. TEACHING and RESEARCH ACTIVITIES

01/2007 - current Lecturer and Researcher

- ▶ One of five committee members that organized the First Southern African Student Symposium on Veterinary Tropical Diseases in 2009. It was a two-day symposium and students from various countries participated. It was a very successful symposium.
- ▶ Research, networking and collaboration in the fields of Molecular Biology, Immunology – Bovine Tuberculosis and Tuberculosis Diagnostics in Wildlife.
- ▶ Supervision and co-supervision of research projects performed by post graduate students.
- ▶ Course co-ordinator for Basic Microbiology [first year veterinary nurses].
- ▶ Lecturer (1st and 2nd year students) in the following subjects: Basic Microbiology, Bacterial Diseases and Immunodiagnostic Techniques
- ▶ Teaching assistant for online courses (Research Methodology, Protein module of the Molecular Biology course and Applied Serology).

01/2003 -12/2006 Junior Lecturer and Researcher

- ▶ Gained valuable experience as member of a team that was involved in structuring and compiling the Molecular biology course for the M.Sc. online degree programme that is offered by the Department of Veterinary Tropical Diseases (2005 and 2006).

LIST OF POSTGRADUATE STUDENTS

1. Leruo Tego Keokilwe (February 2011 - December 2013)

Degree: MSc Veterinary Science

My Role: Primary supervisor

Output/s: Dissertation Title: An investigation of the cause of enteritis in ostrich (*Struthio camelus*) chicks in the Western Cape Province, South Africa.

Conference: South African Society for Microbiology Conference attendance and Study Visit (24-30 November 2013)

Manuscript in progress: Title: Investigating the cause of enteritis in ostrich (*Struthio camelus*) chicks in the Western Cape Province, South Africa

2. Marie Mény (March – November 2012)

Degree: Master's degree Animal Health and Epidemio-surveillance in Tropical Regions

My Role: Co-supervisor; Trained the student in the techniques required for processing the samples. I assisted the student with processing of some of the samples and performed the ELISAs on all the samples. Also provided guidance and advice where required.

Output/s: Dissertation Title: Evidence of *Mycobacterium avium* complex infection in white rhinoceroses (*Ceratotherium simum*) of South Africa; (Primary supervisor: Prof G. Fosgate, UP)

Contribution: Samples that were collected during this project had a dual purpose. The first to achieve the aims as listed in the MSc candidate's dissertation, and a second to contribute towards establishing a database of rhinoceros samples to be tested in the rhinoceros IFN- γ specific ELISA. This aim was achieved and a total of 75 rhinoceroses samples from BTB-endemic and BTB-free areas in South Africa were tested on the ELISA. The results of this project was presented at the International Wildlife TB Conference in 2012 and the data was published in the Journal of Transboundary and Emerging Diseases in October 2013.

3. Anthony Craig (2012)

Degree: Honours in Wildlife Management

My Role: Primary supervisor

Output: Mini dissertation Title: A study evaluating the biosecurity and farm management practices on Ostrich (*Struthio camelus*) farms in the Eastern and Western Cape Provinces of South Africa

4. Janneke Schreuder (August 2010 - May 2011)

My Role: Co-supervisor; I trained the student in the ELISA technique.

Degree: Honours Program Project of the University of Utrecht, The Netherlands. (Excellent Research Track Student)

Output/s: Mini dissertation Title: Diagnosis of bovine tuberculosis in lions and rhinoceroses

Workshops:

1. Bovine TB Study Group Meeting November 2010;

Title of presentation: Optimization of the rhinoceros IFN- γ ELISA.

2. 4th European Wildlife Disease Association (EWDA) Student Workshop February 2011;

Title of presentation: IFN- γ assays for detection of *Mycobacterium bovis* infections in lions and rhinoceroses

Manuscript submitted (2013) Title: Detection of native lion IFN- γ in whole blood cultures using a feline interferon-gamma assay. Journal: Journal of Wildlife Diseases.

3. RESEARCH OUTPUTS

A sensitive semi-nested PCR method for the detection of *Shigella* in spiked environmental samples. 2001; *Water Research* 35 (4) 869-74 Theron J, Morar D, Du Preez M, Brozel VS and Venter SN

Cloning, sequencing and expression of white rhinoceros (*Ceratotherium simum*) interferon-gamma (IFN- γ) and the production of rhinoceros IFN- γ specific antibodies. 2007; *Veterinary Immunology and Immunopathology* 115 (1) 146-154. D Morar, E Tijhaar, A Negrea, J Hendriks, D Van Haarlem, J Godfroid, AL Michel, VPMG Rutten

Zoonotic tuberculosis and brucellosis in Africa: neglected zoonoses or minor public-health issues? The outcomes of a multi-disciplinary workshop. 2009; *Annals of Tropical Medicine and Parasitology* 103 (5), 401-411. Tanguy Marcotty, F Matthys, Jacques Godfroid, Leen Rigouts, G Ameni, N Gey van Pittius, R Kazwala, J Muma, P Van Helden, Karl Walravens, LM De Klerk, C Geoghegan, D Mbotha, M Otte, K Amenu, N Abu Samra, C Botha, M Ekron, A Jenkins, F Jori, N Kriek, C McCrindle, A Michel, D Morar, F Roger, E Thys, Peter Van den Bossche

Functional CD1d and/or NKT cell invariant chain transcript in horse, pig, African elephant and guinea pig, but not in ruminants. 2009; *Molecular Immunology* 46 (7) 1424-143. Frank A Loorigh van Beeck, Peter Reinink, Roel Hermsen, Dirk M Zajonc, Marielle J Laven, Axel Fun, Milana Troskie, Nico J Schoemaker, Darshana Morar, Johannes A Lenstra, Lonneke Vervelde, Victor PMG Rutten, Willem van Eden, Ildiko Van Rhijn

Pulmonary infection due to *Mycobacterium goodii* in a spotted hyena (*Crocuta crocuta*) from South Africa. 2008; *Journal of Wildlife Diseases*. Paul David Van Helden, Nicolaas C Gey van Pittius, Robin M Warren, Anita Luise Michel, Tiny M Hlokwe, Darshana Morar, Jacques Godfroid, Elizabeth C Du Plessis, Roy G Bengis

Development of a lion-specific interferon-gamma assay. 2012; *Veterinary Immunology and Immunopathology* 149 (3) 292-297. M Maas, PJS van Kooten, J Schreuder, D Morar, E Tijhaar, AL Michel, VPMG Rutten

The Elephant Interferon Gamma Assay: A Contribution to Diagnosis of Tuberculosis in Elephants. 2013; *Transboundary and Emerging Diseases* 60 (1) 53-59. T Angkawanish, D Morar, P van Kooten, I Bontekoning, J Schreuder, M Maas, W Wajjwalku, A Sirimalaisuwan, A Michel, E Tijhaar, VPMG Rutten
First two authors contributed equally to this study.

Towards Establishing a Rhinoceros-Specific Interferon-Gamma (IFN- γ) Assay for Diagnosis of Tuberculosis. 2013; *Transboundary and Emerging Diseases* 60 (1) 60-66. D Morar, J Schreuder, M Mény, PJS Kooten, E Tijhaar, AL Michel, VPMG Rutten.

4. OTHER SCHOLARLY RESEARCH-BASED CONTRIBUTIONS

LIST OF CONFERENCE PRESENTATIONS/POSTERS	
Conference	Title and description
9 - 12 September 2012 International Wildlife Tuberculosis Conference: A specialist <i>M. bovis</i> Conference for those interested in wildlife TB Kruger National Park, South Africa	Oral presentation: Rhinoceros specific IFN- γ assay towards the diagnosis of Bovine Tuberculosis.
April 2007 2 nd European Wildlife Disease Association – Student Workshop, Sithonia, Greece	Poster presentation: Cloning, sequencing and expression of white rhinoceros (<i>Ceratotherium simum</i>) Interferon-gamma (IFN- γ) and the production of rhinoceros IFN- γ specific antibodies.
27-30 September 2006 7 th Conference of the European Wildlife Disease Association – St Vincent, Italy	Oral presentation: Development of an ELISA for the detection of interferon-gamma (IFN- γ) as a diagnostic tool for tuberculosis in elephants.
28 October 2005 16 th Symposium on Tropical Animal Health and Production, Utrecht University, The Netherlands	Oral presentation: A multi-species interferon-gamma (IFN- γ) ELISA for detection of <i>Mycobacterium bovis</i> infection in various wildlife species.
June 2005 Wildlife Disease Conference Cairns, Australia	Oral presentation: The development of an interferon-gamma assay for the diagnosis of bovine tuberculosis in rhinoceros.

5. CURRENT RESEARCH PROJECTS

Brief description of current and planned research interests

Current research towards validating the rhinoceros specific IFN- γ ELISA

1. Validation of the Rhinoceros IFN- γ assay with known BTB positive animals.

Research with regards to validating the rhinoceros IFN- γ ELISA is currently being undertaken and preliminary results from this ELISA as well as other immune-diagnostic tests are being analysed. The research group involved in this project are hoping to publish the outcomes of this project by the year 2015.

2. Publication of the results on the generation of white rhinoceros IFN- γ specific recombinant chicken antibodies and its use in the Rhino IFN- γ ELISA.

Planned future research

BTB Research 2014-2019

Apart from the project and the visions listed above, there is much concern about the presence of BTB in game parks and reserves previously free of BTB. A possible reason for this is the relocation of some game species, some of which may play a role as maintenance hosts, but are not (required) tested for exposure to *M. bovis*. Therefore, urgent research is required to perform a study on the prevalence of BTB in some game species, especially in the Kruger National Park, but also other National Parks where BTB is endemic. Another potential project is to perform research in identifying the presence of BTB/TB in baboons as well as vervet monkeys in South Africa; especially since there is a lot more contact between these animals and humans in urban and rural areas in South Africa, due to human encroachment of natural and wildlife habitats.

Immunodiagnostic assay development and immunological profiling of specific vector-borne diseases

East Coast Fever and Corridor Disease (2014 – 2017)

Principal investigator: Dr Kgomotso Sibeko-Matjila

I am one of 5 co-workers on the project and will be involved in the co-supervision of a PhD candidate. The PhD candidate will be looking at the immunological profile in the host organism.

***Babesia rossi* in dogs (2015-2016)**

Principal investigator: Prof Tshepo Matjila (UNISA)

I will be involved in a project towards developing a diagnostic assay for the detection of *Babesia rossi* in dogs. My role is dedicated towards supervising the PhD candidate on the protein expression and antibody production aspects of the research project.

***Babesia canis* in dogs (2015-2017)**

Principal investigator: Dr Luis Neves

My contribution in this project is related to developing tools for a diagnostic test to be used in dogs. A further aspect will be to look at the immunological profile of the disease in the host. This work will be performed by a PhD candidate.

Ostrich project (2014/5-2017)

Study leader: Dr Darshana Morar-Leather

An investigation of the cause of enteritis in ostrich chicks in the Western Cape Province was a research project that was completed by Dr Leruo Keokilwe towards his Master's degree. The next step is to perform molecular typing of *Salmonella* species and *Escherichia coli* samples that were isolated during the project. This work will be performed by an MSc candidate. Dr Leruo Keokilwe is employed at the Botswana National Veterinary Laboratory (BNVL) and will be the co-supervisor on the project, leading to collaboration between BNVL and UP. Funding has yet to be secured for the project. Once this has been established, a suitable candidate will be identified to perform the project. This will commence by mid-2014 or in the beginning of 2015.

Other interests

Research:

1. Recombinant antibody technology (not only directed towards BTB diagnostics)
 - Improving our understanding of structure and function of antibodies in relation to diseases of interest
 - Phage and scFv antibodies
 - Characterisation of antibodies

WHY? To develop a large variety of engineered antibody molecules for research, diagnosis, and therapy.

Fun and relaxation:

2. Nia, Yoga and Ecstatic Dancing