Research Project for PhD Student

**Project Title:**
Emerging parasitic disease: epidemiological, diagnostic and experimental approach

**Project Supervisor:** (name only)
Dr. Jan Slapeta

**Project Champion:** (name and email address)
Dr. Jan Slapeta
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**Host unit:** (e.g., research institute, school/discipline hosting the project)
Faculty of Veterinary Science, University of Sydney

**Host Unit’s URL:**
http://www.vetsci.usyd.edu.au/about/staff/jslapeta.shtml

**One Sentence Project Summary:** (single sentence for Google-style search results)
The project *Emerging parasitic diseases: epidemiological, diagnostic and experimental approach* will focus on development and elucidation of the epidemiology of newly or neglected disease in veterinary parasitology including (i) haemo- / tissue- parasites (*Atoxoplasma*, *Babesia*) and (ii) gastrointestinal parasites (*Giardia*, *Cryptosporidium*, *Tritrichomonas*).

**Project Synopsis:** (about 250 words max)
The project *Emerging parasitic disease: epidemiological, diagnostic and experimental approach* will focus on development and elucidation of the epidemiology of newly or neglected disease in veterinary parasitology including (i) haemo- / tissue- parasites (*Atoxoplasma*, *Babesia*) and (ii) gastrointestinal parasites (*Giardia*, *Cryptosporidium*, *Tritrichomonas*). This project aims to elucidate the molecular identity and relationships between different isolates using PCR diagnostic techniques using rDNA and protein coding genes. On the other hand, this study will deliver and validate the PCR diagnostic protocol for epidemiological studies and elucidating the biology of these organisms.

This investigation will develop a collection of diagnostic procedures accurately and rapidly identifying the causative parasite. The investigation will be developed with close relationship with clinicians to deliver clinically meaningful applications. The study will further investigate the impact of the diagnosed agents onto the host population to reconstruct the epidemiology of the disease. To elucidate the causality of these agents an experimental studies will be conducted to provide direct evidence of the pathogen impact on the host.

This presents opportunities for PhD topic projects: (1) Development of diagnostic procedures and DNA based techniques; (2) Epidemiological, clinical and host interaction issues and (3) Experimental study on laboratory animals to elucidate the hosts specificity.

**Keywords for Research Area and Clinical Condition** (these are needed so that people may search by key word):
Enter Research Area keywords here . . .
Veterinary Medicine
Parasitology
Emerging Disease
Diagnostics
Enter Clinical Condition keywords here . . . . .  
Cryptosporidiosis  
Giardiosis  
Trichomonosis  
Atoxoplasmosis  
Babesiosis

**Other Information:** (Optional) (e.g., techniques used in the project - e.g., electron microscopy, current PhD topics; scholarships/funding available; possible research areas for PhDs topics; etc.)

(1) Development of diagnostic procedures and DNA based techniques;  
   Molecular biology diagnostic techniques: DNA isolation, PCR, cloning etc.  
(2) Epidemiological, clinical and host interaction issues  
   DNA based species identification, literacy in parasitic condition  
   Collaboration and interaction with a clinicians and clients  
(3) Experimental study on laboratory animals to elucidate the hosts specificity  
   Isolation and culturing of the pathogen, cell-culture, experimental propagation