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Ticks and Tick-Borne Diseases

Christine Maritz-Olivier (née Maritz) studied at the University of Pretoria where she obtained a PhD in 2005 with a thesis entitled “The mechanisms regulating exocytosis of the salivary glands of the soft tick, *Ornithodoros savignyi*.” During 2005-2010 she completed a Wellcome Trust funded postdoctoral fellowship, and was appointed as a permanent fulltime senior lecturer in the Department of Genetics in 2010. Research findings have been presented at 19 international conferences and 36 national conferences (8 invited presentations). She is the author of 22 scientific publications, and co-author of a number of invited review papers focussing on gene silencing in vectors and *in silico* vaccine design. She received various national and international awards, including a PhD Mellon Foundation Postgraduate Fellowship (New York), the Bruce and Betty Alberts Endowed Scholarship in Physiology, the Caswell Grave Scholarship and the Frank R. Lillie Fellowship from the Marine Biology Laboratory (MA, USA), a Young Scientist Award from the International Union of Biochemistry and Molecular Biology, Best Biotechnology research program in Gauteng (GDARD) and Exceptional Young Researcher award from the University of Pretoria.

Research

The cattle tick, *Rhipicephalus microplus* is regarded as the most economically important tick worldwide, transmitting the causative agents of redwater (*Babesia*) and gallsickness (*Anaplasma*).

Currently, the groups focus on four pillars of research: Development of tick vaccines, evaluating the genetic diversity of *Rhipicephalus* tick species in Africa, their acaricide resistance status as well as drug development against *Babesia* spp.

Cutting edge technologies such as transcriptomics, interactomics, immunoinformatics, *in vivo* RNAi, recombinant protein expression and animal vaccination trials are utilised in the development and implementation of effective control strategies to alleviate the increasing pressure that cattle ticks are placing on livestock in Africa.

Key Publications

Maritz-Olivier, C, Van Zyl & W, Stutzer, C 2012. A systematic, functional genomics and reverse vaccinology approach to the identification of vaccine candidates in the cattle tick, ticks and tick-borne diseases. (In press)

Badenhorst, A, Nijhof, A, Neitz, A, Jongejan, F & Maritz-Olivier, C 2011. Expression profiling, gene silencing and transcriptional networking of metzincin metalloproteases in the cattle tick, *Boophilus microplus*. *Vet Parasitol*. 2011 Nov 15. (E-pub ahead of print)

De la Fuente, J, Maritz-Olivier, C, Naranjo, V, Ayoubu, P, Nijhof, AM, Almazán, C, Canales, M, Pérez de la Lastra, JM, Galindo, RC, Blouin, EF, Gortazar, C, Jongejan, F & Kocan, KM 2008. Evidence of the role of tick subolesin in gene expression. *BMC Genomics*, 9:372–388.

(Patents pending on promising anti-R. microplus vaccine candidates identified)

