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## Evidence of strain-specific variations in gene expression of two *Theileria parva* isolates

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*Theileria parva*, an apicomplexan intracellular protozoan parasite, infects and transforms bovine and buffalo lymphocytes causing 2 recognized disease syndromes in cattle, East Coast Fever (ECF) and Corridor Disease (CD). It is still not clear as to why *T. parva* infections cause different disease syndromes in cattle. In order to study strain-specific changes in gene expression in ECF and CD isolates, Next Generation Sequencing was used to analyze transcriptome of *T. parva* Muguga and *T. parva* 7014, respectively. RNA sequence analysis revealed differential expression of 1048 genes between the two isolates. The majority of DEGs were genes encoding sub-telomeric fragment-related protein family (SVSP) (n=85) followed by ribosomal proteins (n=33), membrane/inter-membrane proteins (n=32), signal peptide containing proteins (n=24), transcription/translation/elongation factors (n=23), transporters (n=15) and antigens (n=13). Forty pathways were affected by products of DEGs. The findings of this study provide evidence of variations in gene expression between ECF and CD strains investigated, with most DEGs down-regulated in *T. parva* 7014 (n=742, 70.8%). Furthermore, genes involved in the ability of the parasite to transform host cells, including members of CD8+ T-cell target antigens, TA9/TP9, SVSP and TashAT gene families, may be the objects of further investigations into understanding the molecular dynamics of ECF and Corridor disease. Many of the DE genes were hypothetical proteins (340), emphasising the need to identify their biological function in order to elucidate their molecular importance in the genetic diversity of *T. parva* parasites.

### Biography

Kgomotso P Sibeko-Matjila has completed her PhD in 2009 from University of Pretoria, South Africa. Subsequently, she was appointed as a Senior Lecturer in the Department of Veterinary Tropical Diseases, University of Pretoria. She has authored and co-authored nine papers in reputed journals and is currently a Primary Supervisor to three PhD and four MSc students.

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