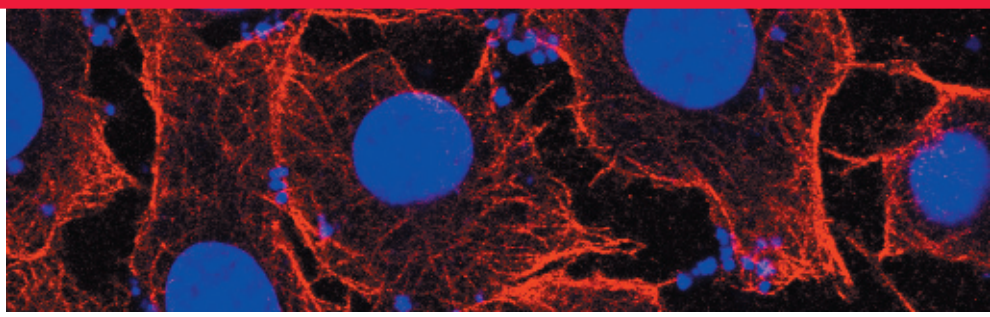

Dr Vida van Staden

Department of Genetics, Natural and Agricultural Sciences Faculty

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Key Publications

Venter, E., Van der Merwe, C.F. & Van Staden, V. 2012. Utilization of cellulose microcapillary tubes as a model system for culturing and viral infection of mammalian cells. *Microsc. Res. and Techn.* 75: 1 452-1 459.

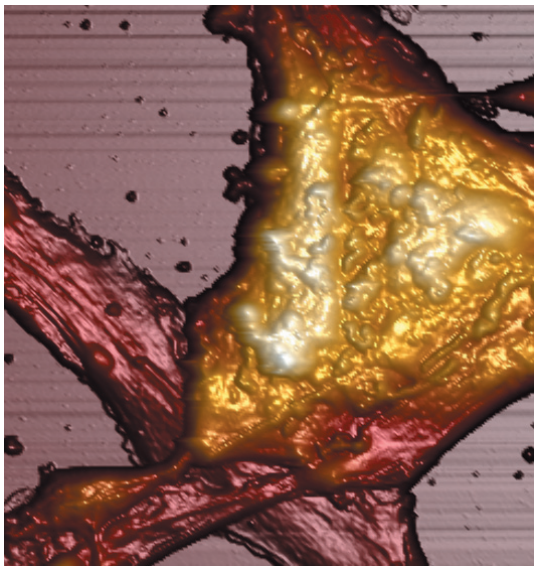
Meiring, T.L., Huismans, H. & Van Staden, V. 2009. Genome segment reassortment identifies non-structural protein NS3 as a key protein in African horse sickness virus release and alteration of membrane permeability. *Arch. Virol.* 154: 263-271.

Huismans, H., Van Staden, V., Fick, W.C., Van Niekerk, M. & Meiring, T.L. 2004. A comparison of different orbivirus proteins that could affect virulence and pathogenesis. *Vet. Ital.* 40(4): 417-425.

African horse sickness virus molecular biology and virulence

Vida van Staden (née Jurriaanse) received her PhD in 1993 with her thesis entitled 'Characterisation and expression of the gene that encodes non-structural protein NS3 of African horse sickness virus'. She has been a member of staff of the Department of Genetics for 20 years, and is currently a senior lecturer. Thousands of undergraduate students have passed through her hands in their introductory genetics modules, while on a postgraduate level she has successfully supervised 11 MSc and two PhD degrees to completion. Currently, three MSc and two PhD candidates are enrolled under her supervision.

She is on the executive committee of the SA Genetics Society. She has also authored 12 scientific publications and her research findings have been presented at 35 local and 18 international meetings.



Research

Many aspects of the AHSV lifecycle remain unclear, specifically the determinants of its cellular pathogenicity in the mammalian host. Questions of particular interest are how the virus differentially interacts with mammalian and insect cell types, the role of non-structural proteins in the virus replication cycle, viral release mechanisms from mammalian and insect cells, and the cell death pathways activated in host cells. Dr Van Staden's research group is addressing these questions using different approaches. They study structure-function relationships in individual AHSV proteins, and the extent to which variation in a single protein may contribute to virus phenotypic properties. This is based on working with prokaryotic and eukaryotic gene expression systems. Their research utilises different AHSV strains and generates genomic reassortants where one or more genes are exchanged between two parental viruses. These viruses are assessed in tissue culture models, where interaction of different viral proteins, interaction of viral and cellular proteins, and host cell responses can be studied.