
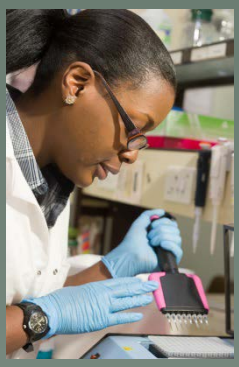

The Forest Molecular Genetics (FMG) Programme

The Forest Molecular Genetics (FMG) Programme, headed by Prof. Zander Myburg, is based at the University of Pretoria's Department of Genetics and is affiliated with the Forestry and Agricultural Biotechnology Institute (FABI) and the Genomics Research Institute (GRI). Our research focuses on the genetic control of wood development in fast-growing plantation trees, primarily *Eucalyptus* and tropical pines grown in South Africa. Furthermore, we study the defence mechanisms in forest trees with a view to protect trees from pests and pathogens. We use a number of research and technology platforms, namely: tree genomics, high-throughput DNA marker analysis, functional genetics, genetic engineering, as well as wood phenotyping. We work in close collaboration with South African forestry companies, such as Sappi, Mondi, Hans Merensky and York Timbers to develop capacity and resources for the application of tree biotechnology in operational tree improvement programmes. In addition to industry funding, our research is supported by grants from the National Research Foundation (NRF), the Technology and Human Capacity for Industry Programme (THRIP), Forestry Sector Innovation Fund (FSIF) and the Department of Science and Technology (DST) of South Africa.

For more information or to submit an application, please contact the FMG Project Coordinator, Mrs Marja O'Neill, at marja.oneill@up.ac.za, telephone: 012 420 6377
http://www.fabinet.up.ac.za/index.php/research-groups/forest-molecular-genetics

UNIVERSITEIT VAN PRETORIA
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Forest Molecular Genetics Programme

Forest Molecular Genetics (FMG)

MSc/PhD Position in Population Genomics 2016

The Forest Molecular Genetics (FMG) Research Programme has the following MSc/PhD position available to start as soon as possible in 2016:

Genome Diversity Atlas for *Eucalyptus* trees

With the completion of the reference genome sequence for *Eucalyptus* (Myburg et. al. 2014, *Nature*) and development of genome-wide genotyping resources such as a 60,000 SNP marker chip (Silva-Junior et al. 2015, *New Phytologist)*, it has become possible to address fundamental questions about genome diversity in the species rich genus of *Eucalyptus.* Knowledge of the genome diversity of *Eucalyptus* tree species is essential for understanding the population genetics and evolution of these species and for guiding gene conservation and molecular breeding efforts. We have embarked on a project aimed at generating a Genome Diversity Atlas for all commercially important eucalypt species grown in South Africa. In parallel, we will be working with collaborators in Australia (University of Tasmania) to compare genome diversity represented in South African breeding populations with that of natural populations for the same species in Australia building on previous genome-wide analyses performed with our collaborators (Hudson et al. 2015, *New* Phytologist). A postgraduate (MSc or PhD) position is available that will focus on genome diversity, population genomics and gene conservation in natural and breeding populations of *Eucalyptus* tree species of interest to commercial forestry in South Africa. The project will also focus on identifying and tracking genomic introgression patterns in F1 and advanced-generation interspecific hybrids using a custom SNP marker array. The PhD project will include a genome mapping and genome-wide association study (GWAS) in an experimental *E. grandis x E. urophylla* F1 hybrid nested association mapping (NAM) population. The project is supported by the SA forestry industry and by the Forestry Sector Innovation Fund (FSIF). A bursary package (SIF, industry/THRIP) of R120,000 p.a. (MSc), or R150,000 (PhD) is available immediately. Candidates should have undergraduate training in molecular and/or population genetics and meet the minimum requirements for the MSc or PhD degree programme in Genetics or Biotechnology at the University of Pretoria. The position is available immediately and applications will be accepted until 15 May 2016.

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