



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, and genetic engineering. 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>



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Postdoctoral Position 2016

Population Genomics of Tropical Pines

The Forest Molecular Genetics (FMG) Research Programme offers the following postdoctoral position for 2016-2018:

Population Genomics and Molecular Breeding of Tropical Pine Tree Species

Pine tree species are of the some most widely planted forest trees globally. However, the development of genomic resources for these trees has been hampered by the large size and complexity of their genomes. In particular, there is a need to develop molecular resources for genome-wide assessment of genetic diversity, molecular breeding and gene conservation in pine tree species. The first reference genome for a conifer (spruce, Nystedt *et al.* 2013, *Nature*), a draft genome for a pine species (*P. taeda*, Neale *et al.* 2014, *Genome Biology*; Wegrzyn *et al.* 2014 *Genetics*) and the development of exome capturing technology for pines (Neves *et al.* 2013, *The Plant Journal*) are enabling the development of genomic resources for population genomic studies in pines. In this postdoctoral project, we will use a recently completed transcriptome assembly for *P. patula* (Visser *et al.* 2015), a tropical pine species widely grown in Southern Africa and South America and a new transcriptome assembly for a related species, *P. tecunumanii* (Visser *et al.* unpublished), to design and use exome capturing technology and next-gen DNA sequencing strategies for SNP marker discovery towards genome-wide genotyping, population genomics analysis and molecular breeding of tropical pine species grown in South Africa and South America. The project is supported by the South African forestry industry and by the Forestry Sector Innovation Fund (FSIF). A postdoctoral bursary of **R265,000 p.a.** (tax-free) is available immediately. Candidates should have postgraduate (PhD) training and research experience, as well as, at least one peer-reviewed publication in molecular and/or population genetics. The position is available immediately and applications will be accepted until **15 May 2016**.

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