



April 2021

Postdoctoral Fellowship 2021/2022 RNAi - maize fungal pathogen

A Postdoctoral Fellowship is available in the research group of Prof Dave Berger at the University of Pretoria, South Africa.

Required Qualification: PhD in Plant Molecular Biology/Biotechnology, Genetics, Microbiology, Biochemistry, Bioinformatics or related field.

Preferred experience: An excellent track record in plant molecular biology or fungal genetics. Knowledge of current models of the molecular basis of plant disease resistance and fungal pathogenicity. Good communication skills, a willingness to mentor postgraduate students and contribute to the improvement of maize, a staple diet for the people of Africa.

Description: The MPPI research group has an on-going research project on grey leaf spot (GLS) disease of maize caused by the fungal pathogen *Cercospora zeina*. GLS is a threat to food security in sub-Saharan Africa. We recently showed that *C. zeina* takes up external RNA and silences a GFP transgene in the fungus (Marais et al. 2019).

This well-funded Postdoc project aims (i) to develop an RNA fungicide against GLS using nanotechnology; and (ii) to use functional genomics tools to explore the molecular basis of RNAi in fungi using *C. zeina* as a model system.

Several tools have been developed for the project, namely a GFP-tagged *C. zeina* strain, a transformation system for *C. zeina*, a high quality PacBio genome sequence, *in vitro* and *in planta* RNAseq data, and a glasshouse inoculation system (Christie et al. 2017; Swart et al. 2017).

Prof Dave Berger is leader of the Molecular Plant-Pathogen Interactions (MPPI) Lab, Plant and Soil Sciences Department, Forestry and Agricultural Biotechnology Institute (FABI), Genomics Research Institute (GRI) at the University of Pretoria, South Africa. <http://tinyurl.com/FABI-MPPI>

The position is available immediately (May 2021-) for 1.5 years and will remain open until a suitable candidate is found (first closing date for applications: 28 April 2021). Please apply by forwarding a complete CV with contact details of three referees (including phone numbers and email addresses) to Prof. Dave Berger (dave.berger@fabi.up.ac.za). Applicants should clearly describe their expertise and verifiable publication outputs relevant to this position. Please note that unsuccessful applicants will not be contacted.

Christie N et al & Berger DK (2017) Systems genetics reveals a transcriptional network associated with susceptibility in the maize–grey leaf spot pathosystem. *The Plant Journal* 89 (4):746-763.

Marais I, Theron J, Crampton B, Berger D (2019) External RNA uptake by *Cercospora zeina* and *Exserohilum turcicum* and the possible development of RNA fungicides against maize yield limiting pathogens. Paper presented at the XVIII International Congress on Molecular Plant-Microbe Interactions, Glasgow, Scotland.

Swart V et al & Berger DK (2017) Complementation of CTB7 in the Maize Pathogen *Cercospora zeina* Overcomes the Lack of In Vitro Cercosporin Production. *Mol Plant Microbe Interact* 30 (9):710-724.

