



The incidence of life-threatening infections due to opportunistic fungal pathogens has drastically increased over the past two decades. This increase is associated with excessive mortality and directly related to a growing number of patients at risk. Despite this, the clinical diagnosis of these infections is still difficult and often too late for diagnostics-guided patient management. Options for antifungal therapy are limited. Scientists from two major sites in Germany, Jena and Würzburg, with a research focus on human-pathogenic fungi have joined forces in the CRC/TR FungiNet. Both sites run excellence graduate schools, which organize the training of doctoral and postdoctoral researchers of FungiNet. We aim 1) to identify pathogenicity determinants of *C. albicans*, *A. fumigatus* and the emerging fungus *Lichtheimia corymbifera*, (2) to investigate the specific roles of epithelial barriers, the mechanisms of the innate immunity and contributions of the adaptive immune system to the pathogenesis of fungal infections, (3) to identify common principles of fungal pathogenesis and (4) to use this information for the development of new therapeutic approaches. The affiliated early career program of the Jena School for Microbial Communication (JSMC) offers an ambitious, structured and interdisciplinary post-graduate training based on top-level fundamental research.

The Collaborative Research Centre/Transregio 124 – FungiNet  
*Pathogenic fungi and their human host: Networks of interaction*  
invites applications for a

**Doctoral Researcher Position (Ref. No. 207/2019)**

to conduct research in the group of Dr. Kerstin Voigt on the project

**Spore surface attributes as virulence determinants in mucormycosis**

Fungi of the order Mucorales are emerging pathogens and cause life-threatening infections in both animals and humans. Our working group studies the basic principles of virulence in the human pathogenic zygomycete (Mucorales) *Lichtheimia corymbifera*. In order to strengthen our team we seek a young scientist who is interested in contributing to the establishment of a genetic transformation system also with regard to medical and pharmaceutical applications. Differentially expressed genes encoding stress factors during the interaction of *L. corymbifera* with murine alveolar macrophages will be identified in existing genomics, transcriptomics and proteomics data, heterologously expressed in *Saccharomyces cerevisiae* and deleted in *L. corymbifera* and phagocytes followed by infection studies to monitor adherence, phagocytosis, phagolysosomal fusion, survival and virulence in invertebrate and/or murine infection models. The project is ambitious and aims to collect essential key players in our understanding of the pathogenesis of life-threatening zygomycetous pathogens.

**We expect:**

- a Master's degree (or equivalent) in Natural Sciences (Biology, Biochemistry, Pharmacy, Veterinary or Human Medicine). Candidates about to earn their degree are welcome to apply.
- desirable methodological skills: a solid background in standard techniques of molecular biology and microbiology as well as genetic engineering of microorganisms and pigment extraction or bioinformatics with skills genomics, transcriptomics and proteomics analysis are expected. Knowledge of genome assembly and annotation, qPCR/Northern analyses and hands-on experience in fluorescence microscopy, cell culture techniques are advantageous.
- record of prior publications, preferably in generation of genetically modified organisms (microorganisms/cell lines), molecular biology, microbiology, -omics applications, pigment and macromolecular biochemistry, pharmacological applications of biopolymers are beneficial
- Highly motivated individuals with an interest in joining one of the interdisciplinary research areas of the Microverse Cluster
- The ability to work creatively and independently towards developing your own research project
- An integrative and cooperative personality with enthusiasm for actively participating in the dynamic Microverse community



- Excellent English communication skills, both written and spoken

**We offer:**

- a highly communicative atmosphere within an energetic scientific network providing top-level research facilities
- a comprehensive mentoring program and soft skill courses for early career researchers
- *Jena – City of Science*: a young and lively town and a vibrant local cultural agenda

The positions will be financially supported corresponding to TV-L (salary agreement for public service employees). The Friedrich Schiller University Jena is an equal opportunity employer. Disabled persons with comparable qualifications will receive preferential status.

Applications are exclusively accepted via the JSMC Online Application Portal:

<https://apply.jsmc.uni-jena.de/>

Please familiarize yourself with the currently available doctoral projects ([www.microverse-cluster.de](http://www.microverse-cluster.de)) and the application process as described in the Online Application Portal. Selected applicants will be invited to a recruitment meeting in Jena end of August/ mid-September 2019. Awarding decisions will be announced shortly thereafter, and candidates are expected to be available to start their projects in January, 2020.

**Application deadline: 5<sup>th</sup> August 2019**