Image-based systems biology: A quantitative approach to elucidate the kinetics of fungal morphologies and virulence.

Mech F, Figge MT (2012) Image-based systems biology: A quantitative approach to elucidate the kinetics of fungal morphologies and virulence. In: Highlight Papers of the German Conference on Bioinformatics 2012 German Conference on Bioinformatics, Jena, GCB.

Details



Abstract

Aspergillus fumigatus and *Candida albicans* are the major human-pathogenic fungi. There is a variety of experimental set-ups available to investigate the virulence and morphologies of both fungi. Imaging of these experiments using fluorescence microscopy yields vast amounts of image data which could not be analysed manually. Therefore, we applied the approach of ‘image-based systems biology’. It comprises the automated image analysis with subsequent statistical feature analysis, followed by mathematical modelling. Application of ‘image-based systems biology’ to *A. fumigatus* phagocytosis assays and *C. albicans* epithelial invasion assays reveals important factors of the virulence of wild-type *A. fumigatus* and enables the quantitative description of the morphological transition of *C. albicans*, during invasion of the epithelium.

Beteiligte Forschungseinheiten

Angewandte Systembiologie Marc Thilo Figge Mehr erfahren

Leibniz-HKI-Autor*innen



Marc Thilo Figge

Details



Franziska Mech

Details