



DFG Graduiertenkolleg/ Research Training Group 1947

Biochemical, Biophysical, and Biomedical Effects of Reactive Oxygen and Nitrogen Species on Biological Membranes

Freitag, den 22.06.2018, 14:00 Uhr c.t.
SR D213, Institut für Biochemie

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“Fungal adaptations to Oxy-Stress implications for virulence and predatory interactions”

Fungi including *Aspergillus* and *Candida* species have become a major concern for human health. [1] Especially individuals suffering from chronic granulomatous disease (CGD) are among the highest risk group for patients to acquire life-threatening aspergillosis pointing towards a key role of host derived reactive oxygen species (ROS) in the defence against fungal infection.

Earlier views which endowed ROS with direct damaging properties were contradicted by findings which revealed the entire dismutation-based ROS detoxification machinery of *A. fumigatus* as being dispensable for virulence

In contrast, there is accumulating evidence that ROS rather function as signal molecules between both species, e.g. a recent study has shown that ROS are involved in the induction of an apoptosis –like cell death in *A. fumigatus* [2]. There is currently little knowledge on how such signals are perceived by the fungus. We have identified the 2-Cystein-peroxiredoxin Asp3 as a key mediator for redox-homeostasis in *A. fumigatus* and found this protein to be essential for virulence in a mouse model of invasive aspergillosis [3]. During my talk I will highlight how the *in vitro*-function of Asp3 may translate to an essential role *in vivo* and will further report on a similar protein which is involved in the defence of *Candida parapsilosis* against the phagocytic attacks of macrophages and fungivorous amoeba.

Further reading:

[1] Brown GD et al., Sci Transl Med 2012, 4:165rv13

[2] Shlezinger et al., Science 2017, 357:1037-1041

[3] Hillmann et al., Sci Rep 2016, 6:33396

All interested are cordially invited!



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