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Investigation of the stress response system of *A. fumigatus* by redox proteomics

It has been shown that regulation of the redox homeostasis is an important trait for pathogenic microorganisms to survive in the host. To gain more insights into the mechanisms how *A. fumigatus* maintains redox homeostasis and to learn which proteins are specifically modified under redox imbalance, we aim to characterize the changes of the redox proteome of *A. fumigatus* under several in vitro stress conditions. To study the impact of reactive oxygen (ROS) and nitrogen species (RNS) on post-translation modification of proteins involved in the stress response system of *A. fumigatus* 2D-gel electrophoresis (2-DE) will be used. Furthermore, we will analyze the impact of hypoxia at the redox homeostasis of *A. fumigatus*. Overall, the aim of the project is to identify and characterize redox-based changes in the proteome of *A. fumigatus* under stress oxidative conditions as well as to elucidate significance of these changes on shaping the fungal adaptome.

Publications

Shekhova E, Ivanova L, Krüger T, Stroe MC, Macheleidt J, Kniemeyer O, Brakhage AA (2019) Redox

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Hillmann F, Shekhova E, Kniemeyer O (2015) Insights into the cellular responses to hypoxia in filamentous fungi. *Curr Genet* 61(3), 441-455. Details PubMed

Supervisor

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