FAKULTÄT FÜR CHEMIE

universität wien

Einladung zum Vortrag von

Assoc. Prof. Dr. David Canovas Lopez
University of Sevilla, BOKU Tulln

„Fungal Nitric Oxide: Wieso, weshalb, warum? Wer nicht fragt bleibt dumm"

Nitric oxide (NO) is a remarkable gaseous molecule with multiple and important roles in organisms ranging from bacteria to humans. However, the study of the biology of NO in fungi has been hindered by the lack of a complete knowledge on the different metabolic routes that allow a proper NO balance, and the regulation of these routes. Fungi have developed NO detoxification mechanisms to combat the toxic effects of nitrosative stress, which have been mainly characterized by their connection to pathogenesis or nitrogen metabolism. However, the progress on the studies of NO anabolic routes in fungi has been hampered by efforts to disrupt candidate genes that gave no conclusive data until recently. NO production in A. nidulans is boosted during reproduction, and requires a functional nitrate reductase (NR) gene (niaD) that is upregulated under these conditions even in the presence of the repressing nitrogen source ammonium. NO levels are also modulated by light, a general environmental cue and a regulator of fungal reproduction. The light-dependent modulation of nitric oxide levels involves NO catabolism by the mitochondrial flavohemoglobin fhbB, and agaA, an arginase that controls the intracellular concentration of the NO precursor arginine. Addition of arginine to the cultures provokes a transient increase of the production of NO. However, analogs of arginine did not affect the production of NO. Mutants in the urea cycle genes show differences in NO levels compared to the wild type strain. Taken together our findings indicate that that light-dependent developmental processes in A. nidulans interfere with nitric oxide metabolism which – in addition to nitrate reduction - is modulated by enzymes of the urea cycle.

Mittwoch, 19. April 2017, 16:30 Uhr
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