

UniCat Seminar

PROF. MIGUEL S. TEIXEIRA

Instituto de Tecnologia Química e Biológica (ITQB), Lissabon

Reductive strategies for protection against oxygen and superoxide anion

The appearance of oxygen in Earth atmosphere about 2.5 billion years ago had tremendous impacts on life. On the first hand, it allowed the development of the most energy requiring organisms, such as multicellular life forms. But, on the other hand, it posed a continuous threat to all life forms. The controlled, enzymatic reduction of oxygen to water (by membrane-bound respiratory oxygen reductases, or soluble oxygen reductases) is harmless and associated to energy conservation and/or oxygen detoxification; among these enzymes are the flavodiiron oxygen/nitric oxide reductases.

On the opposite, the un-controlled, univalent reduction processes of O₂ release quite toxic species, such as the superoxide anion, hydrogen peroxide or the deadly hydroxyl radical. All living beings known to date possess enzymes to deal with both superoxide and hydrogen peroxide, accelerating their removal. Among such enzymes, are the superoxide reductases. After a general overview on the chemical and biological background on these chemical and metabolic processes, our latest data on both flavodiiron reductases, namely possible determinants for their substrate specificity, and on 1-Fe superoxide reductases, namely their catalytic mechanisms and structures, will be presented.

Tuesday, June 03, 2014 at 5:15 PM
PC 203

Prof. Hildebrandt (TUB)
Organizer

Coffee and cake will be served 30 minutes before the lecture. Guests are cordially invited to attend!
Prof. Dr. Matthias Driess - Chair of the Cluster of Excellence UniCat - www.unicat.tu-berlin.de

