

UniCat Seminar

Please note updates of events on www.unicat.tu-berlin.de

Lecturer: **Dr. Jalila Simaan**, Laboratory "BiosCiencas", Institut des Sciences Moléculaires de Marseille (ISM2), UMR 7313, CNRS, Aix Marseille University, France.

Title: **Insights into the mode of action of ACC Oxidase, a non-heme iron containing enzyme: enzymatic system and bioinspired models**

Abstract: 2-oxoglutarate dependent dioxygenases constitute a large group of non-heme iron(II) oxidizing enzymes that utilize 2-oxoglutarate (2-OG) as a cosubstrate and share a strictly conserved fold (double stranded β -helix fold, DSBH). Another key structural motif is their 2-His-1-carboxylate facial triad constituting the Fe(II) coordination pattern. These conserved structural motifs yet provide to the metal enough flexibility to catalyze a wide range of oxidation reactions via the formation of a ferryl-oxo oxidizing intermediate. The 1-aminocyclopropane-1-carboxylic acid Oxidase (ACC Oxidase) is an atypical member of this family since it does not require 2-OG, but ascorbate, for activity. It catalyzes the last step of ethylene biosynthesis, a key hormone in plant development and defense (figure 1).

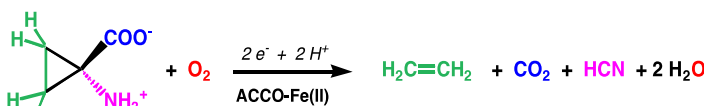


Figure 1: reaction catalyzed by ACCO

Many questions remain unanswered regarding the interaction mode with the substrate, the role of the different cofactors/cosubstrates (ascorbic acid, dioxygen and carbon dioxide) and the catalytic mechanism. Thanks to an interdisciplinary approach we aim at getting more information on this enzyme *via* the understanding of the interactions between the active site and the different substrates, the characterization of putative intermediates, the understanding of the inactivation pathways and the preparation of model complexes.

Find more about Dr. Simaan on:

<http://www.ism2.univ-cezanne.fr/permanents/SIMAAN.php>

Date: **Wednesday, June 5th, 2013 at 5:15 pm**

Location: **TU Berlin, Gerhard Ertl Center
Marchstr. 6, 10587 Berlin
Building BEL, Meeting Room BEL 301**

Organizer: **Prof. Peter Hildebrandt (TUB)**

Coffee and tea will be served thirty minutes prior to the lecture start.
Guests are cordially invited to attend!

Prof. Dr. Matthias Driess, Chair of the Cluster of Excellence UniCat