Séminaire ibs

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Conférencier invité

Vendredi 22 Juin 2012

A 11h - Salle des séminaires de l'IBS

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Novel methyl transfer reactions: Expanding the chemistry of radical SAM enzymes

Methylation is among the most widespread chemical modification encountered in biomolecules from small organic compounds to large macromolecules such as proteins and DNA. Despite its simple structure, the methyl group plays a pivotal and critical role in many major biological processes including epigenetics, cancer or bacterial resistance to antibiotics. Enzymes catalyzing methyl transfer reactions (i.e. methyltransferases) have been widely studied and the wide majority of them use a simple mechanism which proceeds via an S(N)2 displacement and the use of S-adenosyl-L-methionine (AdoMet) as methyl donor.

Recently, a new family of enzymes, using a radical-based mechanism, has been identified as catalyzing a broad range of chemically difficult reactions. This large super-family of enzymes, because of their unusual mechanism employing SAM and radical chemistry, was called radical S-adenosyl-L-methionine enzymes or radical SAM enzymes.

In this seminar we will present recent advances in the understanding of methylation reactions catalyzed by radical SAM enzymes and will demonstrate that they can use unprecedented chemistry to methylate inactivated sp2 hybridized carbon atoms.

Hôte : J. Fontecilla (IBS/Metallo)