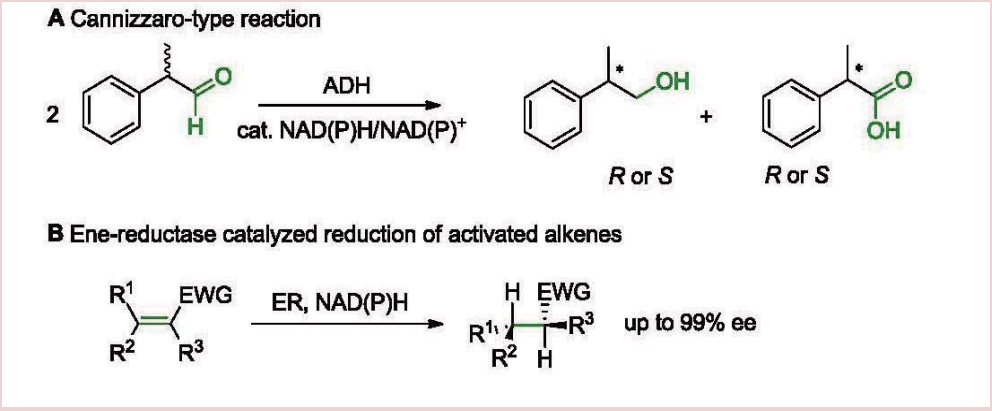
発酵生理学 特別セミナー

◆ 平成 26 年 12 月 16 日（火） 10:00～12:00

農学部 2 号館 101　応用生命科学専攻 第 4 セミナー室

Development of Redox Biocatalysits for the Synthesis of Enantiopure Molecules

Redox biocatalysis offers attractive tools for the asymmetric synthesis of enantiopure molecules, including important drug precursors, by combining high chemo-and stereo-selectivity with environmentally friendly processes. This will be illustrated in the following two examples: -The alcohol dehydrogenase (ADH)-catalyzed asymmetric Cannizzaro-type reaction (Scheme 1A) allows the overall redox-neutral disproportionation of racemic 2-phenylpropanal using catalytic amount of nicotinamide cofactor, leading to the formation of the corresponding alcohol and carboxylic acid in up to >99% ee. -The asymmetric reduction of activated alkenes catalyzed by ene-reductases from the Old Yellow Enzyme (OYE) family of flavoproteins has been applied to a broad range of substrates. Diversity at the protein level allows the stereocomplementary reduction of various alkenes. Important guidelines can be delineated from the abundant data while new features relevant for synthetic applications are still emerging (Scheme 1B).



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