

SEMINAR

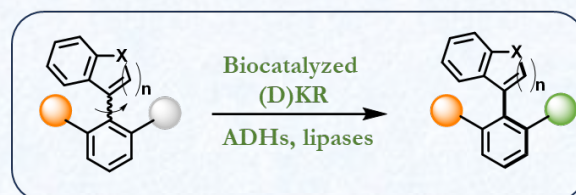
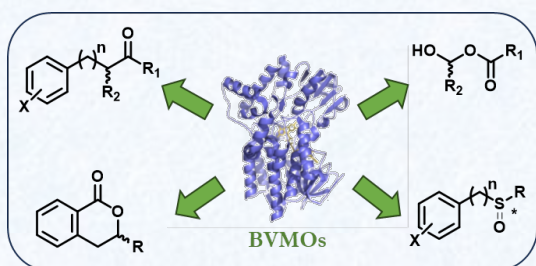
Biocatalytic synthesis with Baeyer-Villiger monoxygenases and advances in atroposelective biocatalysis

Prof. Gonzalo de Gonzalo Calvo

Departamento de Química Orgánica, Facultad de Química, Universidad de Sevilla
and Centro de Innovación en Química Avanzada (ORFEO-CINQA)

Baeyer-Villiger monoxygenases represent a group of oxidative biocatalysts able to perform a wide set of oxygenation processes under mild conditions, usually with exquisite regio- and/or enantioselective. The efforts made in the application of these biocatalysts for the preparation of chiral ketones, esters, alcohols and sulfoxides will be reviewed, focusing on all the advances performed to optimize the biocatalytic procedures by employing protein engineering, novel cofactor recycling systems and the use of non-conventional media.

Additionally, compounds presenting axial chirality, specially those containing heteroatoms, constitute a fascinating class of derivatives playing an important role in many areas of Chemistry, including asymmetric catalysis, natural products and bioactive compounds, and materials science. Among the different catalytic methodologies developed for the atroposelective synthesis of (hetero)biaryls, biocatalysis has been scarcely applied in relative terms, but there is an increasing interest in these techniques. The novel strategies developed for the preparation of chiral heterobiaryl alcohols, amines and esters employing different types of biocatalysts in (dynamic) kinetic resolution processes will be shown.



Friday 05/04/2024, 11:30 am

«Bertolini» Room, Via Mancinelli 7, Milano

Short CV: Prof. Gonzalo de Gonzalo got his Ph.D. in Chemistry at the University of Oviedo in 2003. He spent two years (2004-2005) in Milano at the Istituto di Chimica del Riconoscimento Molecolare (now SCITEC), C.N.R., working with Dr. Giacomo Carrea and Dr. Gianluca Ottolina. After an additional short stage at the University of Graz (Austria) in 2006 under the supervision of Prof. Wolfgang Kroutil, he moved back to the University of Oviedo with a Juan de la Cierva Contract. He then spent one year (2010) at the University of Groningen (the Netherlands) in the research group of Prof. Marco Fraaije. In 2011 he started to work at the R&D Department of the pharmaceutical company Antibióticos S.A.U (Spain). In 2014 he was awarded with a Ramón y Cajal research contract at the University of Seville and in 2019 he got his position as Assistant Professor at the Department of Organic Chemistry of the University. His scientific activity is documented by more than 90 publications and two books edited. His research is focused on the study and application of different types of biocatalysts for the preparation of valuable chiral compounds, as well as on the development of more sustainable methodologies for chemical processes