

AMBIOCAS

AMINE SYNTHESIS THROUGH BIOCATALYTIC CASCADES

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INTRODUCTORY BROCHURE



AMBIOCAS is a Collaborative Project (small or medium-scale focused research project) funded under 7th FWP (Seventh Framework Programme)

WHAT ARE THE OBJECTIVES OF AMBIOCAS?

AMBIOCAS is a Collaborative Project (small or medium-scale focused research project) started on January 1, 2010 and funded by the Seventh European Framework Programme for Research and Technological Development.

AMBIOCAS addresses problems currently facing the European chemical industries, within the context of the thematic priority entitled: "Knowledge Based BioEconomy – the KBBE".

Six industrial and academic partners from five European countries are uniting their efforts within the AMBIOCAS consortium from 2010 to 2013.

WHAT ARE THE OBJECTIVES OF AMBIOCAS?

AMBIOCAS aims to engineer transaminase libraries that will be applied as the main enzymatic technology to deliver the amine functionality in the commercially valuable products of both chiral and bulk amine targets. These enzymes will be used in enzymatic cascades where simple starting materials are converted into the required intermediates for transamination or further enzymatic steps will be used to remove products from the transaminase reaction which will add value by extra functionality.

WHO ARE THE PARTNERS OF AMBIOCAS?

The University of Manchester
University of Graz
Denmark Technical University
Evonik DEGUSSA GmbH
University of Groningen
CLEA Technologies B.V.

United Kingdom
Austria
Denmark
Germany
Netherlands
Netherlands

Welcome to AMBIOCAS

SEVENTH FRAMEWORK PROGRAMME

THEME KBBE-2009-3-3-02

Integrated multi-enzyme, multistep biocatalytic engineering

Call: FP7-KBBE-2009-3

Project acronym: AMBIOCAS

Project full title: AMINE SYNTHESIS THROUGH BIOCATALYTIC CASCADES

Grant agreement no.: 245144

The University of Manchester is leading a £2.2 million (€2.56 Million) project to develop new green chemical processes.



The 'Amine synthesis through biocatalytic cascades' (AMBIOCAS) programme brings together microbiologists, enzymologists, chemists, engineers and process development experts involved in research to develop the next generation of green manufacturing methods for the chemical industry.

Led by Professor Nick Turner, Director of the Centre of Excellence for Biocatalysis, Biotransformations and Biocatalytic Manufacture (CoEBio3), the three-year project involves six partners from academia and industry.

Funded by the European Union FP7 programme, the project is expected to make a major contribution to efforts to replace traditional chemical manufacturing – reliant on highly toxic chemicals and solvents – with so-called 'white biotechnology', which employs the power of natural biocatalysts and modern manufacturing techniques to deliver safer and less environmentally damaging industrial methods.

White biotechnology is a term used mainly in Europe for the application of nature's catalysts, such as enzymes and cells, in biotechnology for industrial purposes. The use of the word 'white' distinguishes it from other biotechnologies such as 'red' (medicinal) and 'green' (plant) biotechnology.

The term covers the manufacturing of chemicals, alternative energy and biomaterials and has the potential to enable economies to become less dependent on fossil fuels.

Partners involved in the project are:

- * The University of Manchester-CoEBio3 (United Kingdom) led by Professor Nick Turner
- * University of Graz (Austria) led by Professor Wolfgang Kroutil
- * Denmark Technical University (Denmark) led by Professor John Woodley.
- * Evonik DEGUSSA (Germany) led by Dr Jan Pfeffer.
- * University of Groningen (Netherlands) led by Professor Bauke Dijkstra.
- * CLEA Technologies (Netherlands) led by Professor Roger Sheldon.

Professor Nick Turner said: "I warmly welcome all the partners to the programme and congratulate them on helping put together a proposal that achieved a 100% score in the tough EU assessment process. I am confident that over the next three years we can deliver high quality results from this small but highly rated consortium."

Notes for editors

For more information please call Alex Waddington, Media Relations, The University of Manchester, Tel 0161 275 8387.

A summary of the project can be found at http://cordis.europa.eu/fetch?CALLER=FP7_PROJ_EN&ACTION=D&DOC=8&CAT=PROJ&QUERY=01261c97c851:ad20:2131adc0&RCN=93230

About CoEBio3: Based in the University of Manchester the CoEBio3 is the UK's leading research organisation, designed to provide a world-class scientific environment in which the necessary research and development can be carried out to create new biocatalyst-based processes to meet the changing needs of the chemical industry in the next 10-20 years.

CoEBio3 will train graduate and postdoctoral scientists such that they possess the necessary combination of skills in chemistry, biology and engineering needed to support these changes.

CoEBio3 has a dedicated pilot biomanufacturing facility, available to both academic and industrial groups. CoEBio3 supplies the research, training and development services to enable the application of white biotechnology to produce chemical entities with an applied "genes to kilos" philosophy. For more information see <http://www.coebio3.manchester.ac.uk/>

SOME RECENT LITERATURE REFERENCES PERTAINING TO ω -TRANSAMINASES

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12. Koszelewski, Dominik; Lavandera, Ivan; Clay, Dorina; Rozzell, David; Kroutil, Wolfgang. **Asymmetric synthesis of optically pure pharmacologically relevant amines employing ω -transaminases.** *Advanced Synthesis & Catalysis* (2008), 350(17), 2761-2766.
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