

Request for industrial Partners (March 5th, 2018)

Project title: Membrane-assisted intensified enzymatic process for synthesis of chiral molecules for use in pharmaceuticals, agrochemicals and fine chemicals

Acronym: INSPIRE (**IN**ten**S**ified **P**rocesses for **chIRal** **moIE**cules)

Project ID	
Type	ICON
Periode	2-3 years
Starting date	TBD
Total project budget (€)	TBD
Total man months	TBD
Subsidy percentage	According to SBO- and O&O regulations
Amount of subsidy (€)	TBD
Coordinator	TBD
Industrial partners (current)	Not disclosed at the moment
Executing Partners	TBD

Project description

Introduction

The production of single enantiomers of chiral intermediates has become increasingly important in the development of pharmaceuticals, agrochemicals, and fine chemicals such as fragrances and flavors. The methods to obtain single enantiomers of chiral molecules include chemical or biocatalytic synthesis. The chemical synthesis are often multi-step processes employing extreme conditions, thus causing problems with isomerization, racemization, epimerization, and rearrangement of the compounds. The biocatalytic processes are conducted under milder conditions and are highly enantio- and regioselective.

One example of such molecules are chiral/optically-active amines. Chiral amines constitute an integral part of several active pharmaceutical ingredients (APIs) used in modern medicine for the treatment of a vast range of diseases and conditions such as pain relief, obesity control, treatment of cancer, diabetes and tuberculosis. During the last decade, the asymmetric enzymatic synthesis with omega-transaminases has been identified as a very powerful method for chiral amine synthesis. Despite the

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advantages, a number of challenges related to the implementation of biocatalytic transamination processes still remain, such as: thermodynamic equilibrium of the reaction, low substrate solubility, substrate and product inhibition, restricted substrate scope and low productivity/stability of the catalyst.

Goal

This project aims at developing a membrane-assisted intensified enzymatic process using the enzyme omega-transaminase for the production/separation of chiral amine molecules for their application in pharmaceuticals and fine chemicals. The expected results are: a purified product stream (g/L product titer) and high total productivity (g product/g enzyme).

Expertise

To complete the consortium, Catalisti is searching for (not limitative):

- Additional industrial partners active in production of fine chemicals, agrochemicals, flavor/fragrances, cosmetics, etc. that are interested in chiral amine molecules for their businesses.
- Industrial partners that are interested in the synthesis of optically-active organic molecules (other than amines).
- Industrial partners that are interested in improved separation of hydrophobic organic compounds (amines, organic acids) from a solution.
- Enzyme/whole cell suppliers, that have their own valorisation rationale (exceeding the level of just selling enzymes/whole cells to the companies involved).

Partners that wish to participate in Catalisti-supported projects, are required to be preferred member of Catalisti. For more information on membership and membership fees please contact Luc Van Ginneken (lvanginneken@catalisti.be).

[How to reply to this request](#)

Please send an **email** before March, 17th, 2018 to lvanginneken@catalisti.be and **briefly describe your interest and potential contribution** to the project. Only offers from industrial partners (and not from universities or research institutes) will be considered at this moment[€]. Based on all offers, the current industrial partners will determine together with Catalisti which partners can join the consortium. After submission of your offer, you can be

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contacted by telephone to further elaborate your offer. The decision will be communicated the latest on March 21st. Please contact Luc Van Ginneken (lvanginneken@catalisti.be, 0477/97.99.47) if you have questions concerning this Request for Partners.

[£]A request for academic/research partners for this project will probably be sent out in the course of March, 2018.

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