Request for industrial partners to join the Advisory Board (05/11/2020)

Project title: Enzyme prediction toolbox

Acronym: EnzyMares

Project ID	
Type	Intercluster cSBO project
Supporting clusters	De Blauwe Cluster & Flanders' FOOD
Period	4 years
Starting date	1 September 2021
Total project budget (M€)	2.7
Subsidy percentage	according to SBO regulations
Coordinator	UGent-EMBRC
Industrial partners (Advisory Board)	current partners not disclosed at the moment
Knowledge partners (Applicants)	UGent, KU Leuven, VIB, VITO, Bio Base Europe Pilot Plant

Project description

Introduction

Enzymes are used in many industrial sectors including the chemical, food, (aqua-)feed, agricultural, cosmetic, pharmaceutical and nutraceutical industries. The needs of industry to routinely develop more efficient, sustainable and more economically competitive industrial production processes is currently in conflict with the current available enzymes. Hence, there is still an unmet need for new, improved and/or more versatile enzymes. Despite the wealth of enzymes available in the (marine and terrestrial) environment, many potential enzymes remain largely unexplored due to time- and financial constraints to take up a large-scale biodiscovery project for many industry partners.

Recent advances in molecular technology allow for a high-throughput screening of potential enzymes based on genomic data. However, the translation of genomic data to enzyme annotation and function specificity and ultimately reaction conditions and production requires a high level of multidisciplinary expertise, often not available within a single industry or partner. Furthermore, these processes are time-consuming leaving little opportunity for a fast innovative track from discovery to industry.

Here, we propose a multidisciplinary consortium of academic and industry expertise to translate this knowledge pipeline to a viable algorithm and toolbox available to a wide selection of industry partners. By combining multi-omic data and enzyme validation data in a multi-parameter algorithm that predicts enzyme specificity based on pattern recognition, newly discovered enzymes can be quickly available for industrial processes. This AI tool could boost new enzyme discovery and more importantly lower time-to-market for industries.

Goals

1. Optimization of enzyme discovery pathway (from genome to functional enzyme annotation) through integrative data analysis and AI
2. Multi-parameter AI algorithm to predict enzymatic activity
3. Proof-of-concept through case study enzyme validation and production
    a. Screening for enzyme activity
    b. Optimization of reaction conditions
    c. Upscaling of enzyme production

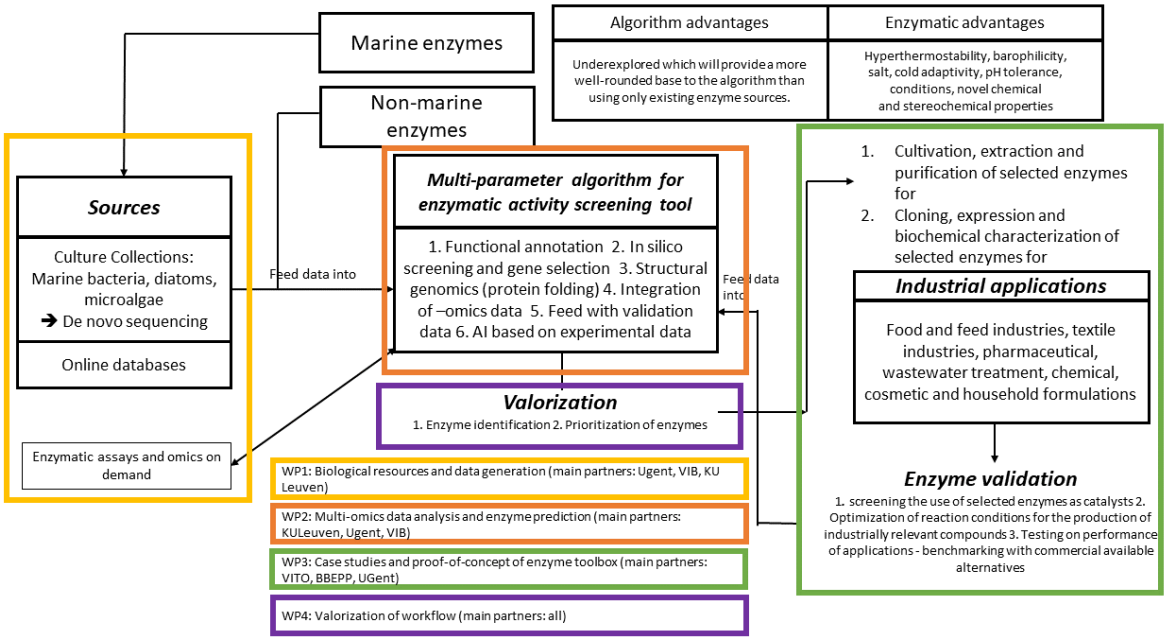

Figure: Graphical representation of the proposed work packages.

Request

To foster interaction with the industry, the project partners are looking for companies that wish to be involved in this strategic basis research (SBO) project.

The primary role of companies during the preparation phase is:

- to provide guidance on the project scope from an economic point of view;
- to provide input on company expectations from the current project; and
- to provide input on generic cases that can be part of the validation experiments

During the SBO project execution, companies will serve as a sounding board as a member of the industrial Advisory Board. In addition, companies can start up parallel R&D activities related to the subject of this cSBO project at their own expenses or through VLAIO-funded projects. These parallel R&D activities will not be part of this cSBO project, but companies can (assisted by the spearhead clusters) start the preparation of the R&D project and explore the possibility to obtain funding from the Agency for Innovation and Entrepreneurship. The Advisory Board is open to all interested companies, including companies established outside the Flemish region.

How to reply to this request

Please send an **email before 27 November 2020 (12h00)** to jdehouwer@catalisti.be with lgarciagonzalez@catalisti.be in Cc, and **briefly describe your interest and potential contribution** to the project. After submission of your offer, you will be contacted for more information on the project contents, and a Letter of Intent will be provided to join the Advisory Board of the project. Feel free to contact Johan De Houwer (jdehouwer@catalisti.be; +32 468 32 25 57) or Linsey Garcia-Gonzalez (lgarciagonzalez@catalisti.be; +32 479 45 04 26) for any further questions you might have related to this request.

Important notice: Companies that wish to be involved in this cSBO project, will need to be (at least) entry member of Catalisti and/or a member of one of the supporting clusters (De Blauwe Cluster & Flanders' FOOD). For more information on membership and membership fees, please visit our website (http://catalisti.be/membership-2/) or contact Johan De Houwer (jdehouwer@catalisti.be). In compliance to SBO regulations, all commercial members of the Advisory Board are required to make an in-cash contribution of minimum € 250/year in the case of an SME or minimum € 1 000/year in the case of a large enterprise.