CLASSY

Cell-Like ‘Molecular Assembly Lines’ of Programmable Reaction Sequences as Game-Changers in Chemical Synthesis

www.fetopen-classy.eu

DURATION
01.11.2019 – 30.04.2024

BUDGET
3.08 million euro

CALL TOPIC
Horizon 2020-FETOPEN-2019-RI

COORDINATOR
Universidad Autónoma de Madrid (UAM), Spain

THE CLASSY PROJECT

- Inspired by the elegance with which living cells synthesize an enormous variety of complex products, C**LASSY's** overarching objective is to create a microfluidic platform of microreactors, to emulate living cells in their capacity to self-regulate and catalyse programmable multistep synthetic processes.
- This microfluidic platform of microreactors will be able to synthesise complex molecules through programmable reaction sequences in molecular assembly lines.
- The project CLASSY will become one of the first steps toward zero-waste streams and the truly green chemical factory of the future.

Main objectives

The consortium has set three specific objectives that will be addressed over four years:

I
- the development of a microfluidic platform for the immobilisation of multiple enzymes or peptide catalysts in microfluidic compartments, so to produce a versatile set of flow reactors that can catalyse a variety of single-step reactions;

II
- the delivery of a new type of hybrid molecules capable to selectively control the catalysis of specific single-step reactions through programmable activation/deactivation of self-synthesising catalysts;

III
- the study of microfluidic programming of cascade reactions by selective activation/deactivation of catalysts that operate sequentially

Key CLASSY project Innovations

Cell-like molecular assembly lines

- Compartmentalisation of the different reaction steps
- Replication of regulation components

Long-term Innovations

Multiple reactions in programmable & self-regulation reactors

- Single-step processes
- Multistep reaction sequences

Impact

CLASSY will support essential pillars for Europe`s future, such as:

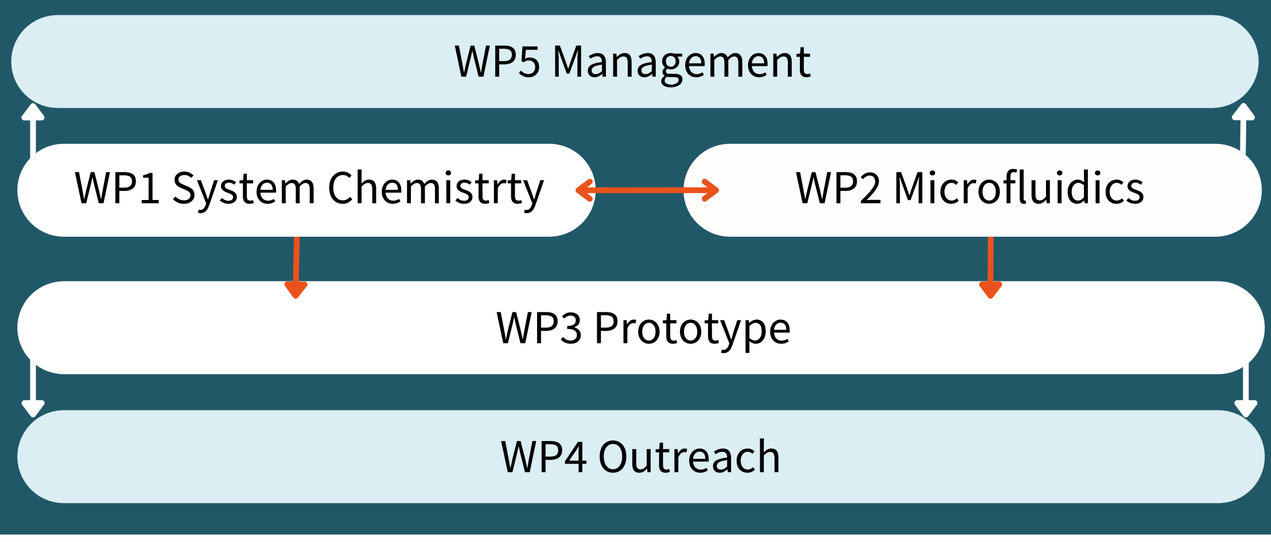
renewability

sustainability

zero waste emissions

energetic efficiency

Implementation



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CLASSY Partners

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