Harnessing Rubisco oxygenation reaction for advancing sustainable biotechnology

Fact Sheet

Project Information

ROAD
Grant agreement ID: 101065339

Funded under
Marie Skłodowska-Curie Actions (MSCA)

DOI
10.3030/101065339

Total cost
€ 0,00

EU contribution
€ 214 934,40

Coordinated by
DANMARKS TEKNISKE UNIVERSITET
Denmark

Project description

Engineered bacterial platforms synthesise glycolate directly from RuBisCo

Ribulose-1,5-bisphosphate carboxylase/oxygenase (RuBisCo) is Earth’s most abundant enzyme, used by bacteria, algae and terrestrial plants to convert atmospheric CO2 into organic compounds. Despite its critical importance, RuBisCo’s carbon fixation is not completely efficient, often generating a glycolate precursor as a side product. Glycolate is a versatile chemical that can serve as a substrate for other higher value-added products. With the support of the Marie Skłodowska-Curie Actions programme, the ROAD project will harness RuBisCo’s inefficiency, modifying
and augmenting it to enable a novel microbial biorefinery for glycolate production directly from CO2 using engineered bacterial platforms.

**Fields of science**

engineering and technology, environmental engineering, energy and fuels, renewable energy, natural sciences, biological sciences, microbiology, bacteriology, natural sciences, earth and related environmental sciences, atmospheric sciences, meteorology, biosphera, social sciences, economics and business, economics, bioeconomy, natural sciences, biological sciences, biochemistry, biomolecules, proteins, enzymes

**Keywords**

Metabolic Engineering, Synthetic Biology, Biosensors, Rubisco, CO2 fixation, Bioeconomy

**Programme(s)**

HORIZON.1.2 - Marie Skłodowska-Curie Actions (MSCA)

**Topic(s)**

HORIZON-MSCA-2021-PF-01-01 - MSCA Postdoctoral Fellowships 2021

**Call for proposal**

HORIZON-MSCA-2021-PF-01

See other projects for this call

**Funding Scheme**

MSCA-PF - MSCA-PF
DANMARKS TEKNISKE UNIVERSITET

Net EU contribution
€ 214,934.40

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Region
Danmark > Hovedstaden > Københavns omegn

Activity type
Higher or Secondary Education Establishments

Links
Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Other funding
€ 0.00

EC signature date 1 July 2022
Last update: 26 August 2022

Permalink: https://cordis.europa.eu/project/id/101065339

European Union, 2023