

EXPRESSION OF INTEREST FOR A HORIZON 2020/HORIZON EUROPE PROJECT

Title of the targeted call for proposals and/or Topic of interest:

Area 3: Industry for a clean and circular economy

Topic 3.1: Closing the industrial carbon cycle to combat climate change

Contact details

Country	FRANCE
Name of the organisation	Aix-Marseille University (AMU)
Laboratory	M.I.O.
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Short description of AMU:

Aix-Marseille University (AMU) was created in 2012, resulting from the merger of the University of Provence, University of the Mediterranean and Paul Cézanne University. It has more than 78,000 students including 10,000 international students, 7,680 faculty and staff members, 12 doctoral schools and nearly 3,300 PhD students. AMU is home to 132 research facilities. It has undertaken the HRS4R labeling process since June 1st, 2019 and is coordinator of the Erasmus + European University Network "CIVIS". AMU has been involved in more than 100 FP7 projects and until now 101 H2020 projects.

AMU Laboratory:

Mediterranean Institute of Oceanography (MIO). The MIO research laboratory is a component of the OSU-Pytheas Institute and is under the joint direction of Aix-Marseille University, Toulon University, the CNRS and the IRD. Our goal is to better understand the oceanic system and its evolution in response to global changes. The MIO constitutes a center of expertise in marine biology, ecology, biodiversity, microbiology, halieutics, physics, chemistry, biogeochemistry and sedimentology. Our working environment is the world ocean, alongside its continental, atmospheric and sediment interfaces.

Areas of potential contribution:

Indicate your expertise and areas of potential contribution + a short profile of the persons who may be involved in the project.

The MIO's research approach is aimed at better understanding the functioning of marine ecosystems and studying the biotechnological potential of certain marine microorganisms. This very general research is based on skills in Biology, Ecology, Bioinformatics, Microbiology, Fisheries, Physics, Chemistry, Biogeochemistry and Sedimentology. Especially, the MEB team of the MIO has a strong expertise in energy conversion using microorganisms; it develops several research programs focusing on the synthesis of bioenergy from biomass and/or waste. Emphasizing is done on BioH₂ synthesis from food waste using extremophilic microorganism. It has also developed electromicrobial cells to study extremophilic electroactive microorganisms ; these study aim to get a better understanding of the molecular mechanisms allowing the electroactivity of microorganisms and to optimize environmental factors for production of highly valuable molecules (as H₂, formate....) from CO₂ using electrophilic microorganism.

Domains of expertise : Microbiology of extremophiles, Electromicrobiology, Bioenergy Interaction virus/microorganisms, Impact of viruses on industrial cultures of microorganisms/algae, Development of molecular tools for detection and monitoring of the viral load in specific environments

Keywords :

- Extremophilic microorganisms (salt, pH, temperature, pressure...)
- Marine microorganisms
- Anaerobic microorganisms
- Fermentative bioprocesses
- electromicrobiology
- Biogas production from organic waste by extremophilic microorganisms (Biohydrogen, Methane).
- From biological CO₂ fixation (autotrophic and electrotrophic thermophilic microorganisms) to the production of electrofuels.
- Virus (isolation, culture and genetic characterization)
- Development of molecular tools for detection and monitoring of the viral load in specific environments (e.g. sewage, coastal anthropized environment...)

People involved :

- Pierre-Pol Liebgott, Yannick Combet-Blanc : Bioenergy, electromicrobiology
- Marianne Quemeneur, Gael Erauso : extremophiles, metagenomics
- Patricia Bonin, Alain Dolla, Valérie Michotey : microbial ecology, omics, genetics
- Guillaume Blanc/Christelle Desnues : virus