

Strategic projects

RESTORE4Cs – Modelling Restoration of wetlands for Carbon pathways, Climate Change mitigation and adaptation, ecosystem services, and biodiversity, Co-benefits

36 months; €6,6 M (UAveiro: €747 K)

Funded by the European Commission through the Horizon Europe, the project RESTORE4Cs is a Research and Innovation Action led by the University of Aveiro, under the scientific coordination of Ana Lillebø, Vice-Rector of the University and Principal Researcher of DBIO/CESAM, in a consortium of 15 European partners from 9 countries.

With a focus on coastal wetlands throughout Europe, this project aims to assess the role of restoration action on wetlands capacity for climate change mitigation and a wide range of ecosystem services, using an integrative socio-ecological systems approach.

RESTORE4Cs will deliver standardised methodologies and approaches for the prioritisation of restoration promoting carbon-storage and greenhouse gases (GHG) emissions abatement, while improving the ecological status and the provision of additional ecosystem services such as flood regulation and coastal erosion protection. Aligned with the implementation of Climate and Biodiversity policies, this project plays a vital role in advancing the objectives of the European Green Deal.

To achieve these goals, RESTORE4Cs has identified six case pilots for its activities, encompassing coastal wetland ecosystems with varying preservation statuses (well-preserved vs. altered) and presenting different alterations and existing restoration measures. These case pilot sites provide a good geographical representation within Europe and its biogeographical regions: Mediterranean: (Ebro Delta and Camargue), Atlantic (Ria de Aveiro and Oosterschelde/Grevelingen Delta), Baltic (Curonian Lagoon) and the Black Sea (Danube Delta), providing invaluable insights into wetland restoration in different contexts. The University of Aveiro team will focus on the Ria de Aveiro coastal lagoon case study, exploring the role of seagrass meadows to the promoting of blue carbon-storage and greenhouse gases emissions abatement.

The RESTORE4Cs consortium brings together a multidisciplinary team that possesses the expertise necessary to drive progress in the field of wetland restoration and to bridge the gap between research and policy. By prioritising restoration activities that enhance carbon pathways, mitigate climate change and support biodiversity, this project leads the way to a more sustainable and resilient future.

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N.º 101056782

More information
<https://www.restore4cs.eu>



A-AAGORA – Blueprint for Atlantic-Arctic Agora on cross-sectoral cooperation for restoration of marine and coastal ecosystems and increased climate resilience through transformative innovation

42 months; €8,4 M (UAveiro: €1,7 M)

The A-AAGORA project is a Horizon Europe Innovation Action of the Mission “Restore our Ocean and Waters by 2023”, for the Atlantic & Arctic Basins Lighthouse. The project aims to develop a methodology for a coordinated approach to the co-development of implementable nature-based solutions in coastal areas.

A-AAGORA builds on the successful implementation of nature-based solutions in three demonstrators (Centro Region Portugal, Cork County Ireland and Troms Arctic Archipelago Norway), representing different starting points that will serve as pilots of innovative actions, providing important data for global ocean science and direct research in the coastal and marine regions. The three demonstrators will act as platforms for the development and deployment of transformative innovations of all forms – technological, social, business, governance. The project will then identify areas and locations where the tested nature-based solutions can be replicated or scaled-up. The Living Lab concept will foster the exchange synergies at multiple scales between researchers and users, decision-makers and local communities, industry, and SMEs, integrating existing and new

knowledge, co-designing and co-implementing with citizens and stakeholders in a deliberative democracy process. This will be the basis for the creation of a community of practice and a digital knowledge system. The project will also co-develop blueprints for the Atlantic-Arctic lighthouse for the restoration, protection and preservation of our ocean, seas, and waters.

A-AAGORA will demonstrate that restoration of aquatic ecosystems is possible at a large scale through reduction of pressures, Ecosystem based Management, and effective nature-based solutions including blue reforestation to boost coastal resilience to climate change impacts.

Led by Ana Lillebø, Vice-Rector of the University of Aveiro and Principal Researcher at DBIO/CESAM, this ambitious project brings together a consortium of 30 partners from 8 different countries, with complementary expertise in policy, governance, ecology, environmental economics, stakeholder engagement, technology development, business and international fora.

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N.º 101093956

More information
<https://a-agora.eu/>



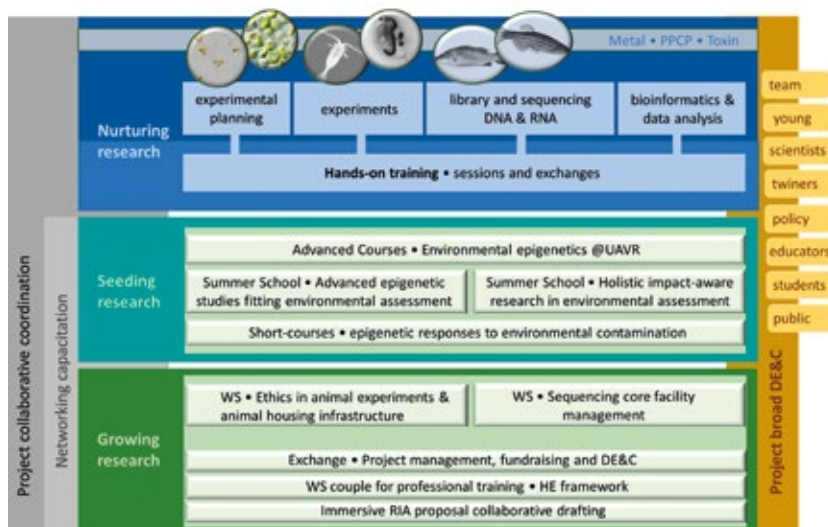
EPIBOOST: BOOSTing excellence in environmental EPIgenetics

36 months; €1,5 M (UAveiro: €658 K)

EPIBOOST is a Twinning Coordination and Support Action (CSA) of the Horizon Europe programme started on October 1st 2022. Its aims are strongly linked to the capacitation of the Coordinator, the University of Aveiro, UAveiro) towards excellence in research and research support in the field of environmental epigenetics, specifically concerning the integration of this field in the regulatory ecological risk assessment of aquatic ecosystems. The aims and ambition of the project are promoted and deeply supported through a strategic partnership with the University of Ghent (UGent, Belgium) and Consejo Superior de Investigaciones Científicas (CSIC, Spain). The scientific coordination is ensured by Joana Luísa Pereira (CESAM and Department of Biology, UAveiro), then by Jana Asselman (UGent) and Laia Navarro Martin (IDAEA-CSIC). Several UAveiro research units are involved: CESAM, iBiMED, CIDTFF and DigiMedia.

The project aims at leveraging the research profile of UAveiro in the field of environmental epigenetics through capacity building activities that cover 5 specific objectives. The first focuses on the

implementation of optimized protocols, through training sessions and exchanges between partners towards the development of the embedded research project that will produce knowledge about the suitability of DNA methylation signatures as informative biomarkers of environmental contamination and effects in aquatic organisms. The second objective is focused on nurturing the human talent that will underpin the European critical mass in the area of environmental epigenetics, by organizing several training events (advanced courses, summer schools and short courses at scientific meetings) targeted at young EU researchers. The third and fourth objectives tackle the absolute need for infrastructure and technical support, as well as of an empowered science management atmosphere, for boosting world-class levelled research in environmental epigenetics. In this context, an immersive training program in key aspects of research (ethics and animal housing; sequencing technologies), exchange of science managers, research management and administration training, and collaborative preparation of funding applications are foreseen. The fifth objective addresses the growth of the network and influential capacity of the consortium through a systematic strategy of involving international experts in capacity building activities and raising awareness among stakeholders.



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N.º 101078991

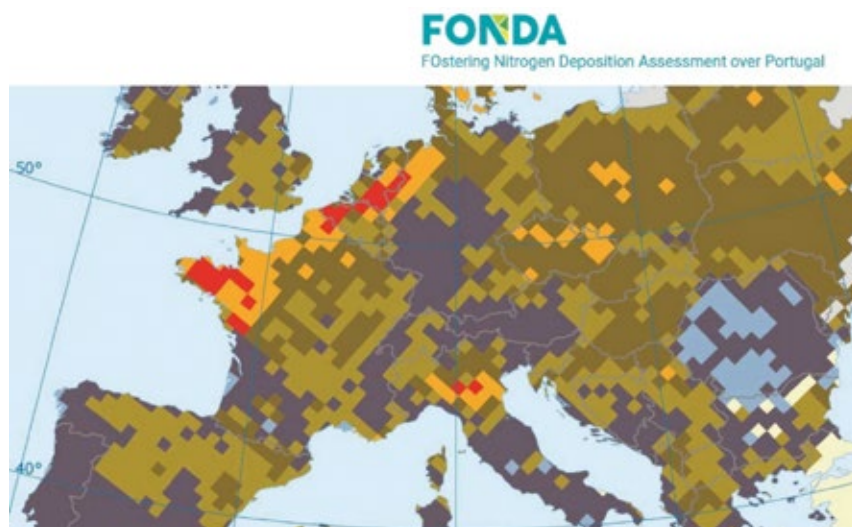
More information
<https://epiboostweb.ua.pt>

FONDA – FOstering Nitrogen Deposition Assessment over Portugal

36 months; €1,1M (UAveiro €677K)

FONDA is one of the Twinning projects, funded by Horizon Europe, coordinated by UAveiro, with the goal of modeling and mapping of pollutants like nitrogen. As a Twinning project, inside Widening purposes, FONDA aims to promote research excellence through networking, exchange and training. In the area of air quality modeling, the FONDA project, with a funding higher than 1.000 k euros, will allow to foster and capacity building the research group lead by Alexandra Monteiro – the project coordinator – and bring excellence to this scientific and technological field in UAveiro.

The FONDA – project FOstering Nitrogen Deposition Assessment over Portugal project focuses on the area of modeling and mapping of atmospheric emissions, particularly of ammonia. The project involves the formation of a strategic partnership with the Dutch R&D institution TNO and the University of Berlin (FUB), Germany, and will enable to better understand the impact of this pollutant on our ecosystems (particular critical in terms of nitrogen critical loads) and the interactions between atmospheric chemistry, biodiversity, and climate change. Two summer schools and two international workshops will be organized to better promote the scientific capacity and knowledge transfer in this RD&I among other younger researchers. This Twinning project will also promote the development of technical, administrative and scientific skills of the UAveiro, strengthening its capacity to successfully develop new research and innovation projects in one of the advanced scientific areas of the European Research Area.



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N.º 101079482

More information
<https://fonda.web.ua.pt/>

SupraLife – Unlocking the scientific excellence and innovation capacity of the University of Aveiro in supramolecular multicomponent biomaterials for enabling advanced biomaterials for healthcare

36 months; € 1,5M (UAveiro €1M)

SupraLife is a Twinning project funded by the European Union's Horizon Europe research and innovation programme and coordinated by the University of Aveiro (UAveiro, Portugal), being the activities headed by the COMPASS Research Group, which belongs to the Associate Laboratory CICECO – Aveiro Institute of Materials within the Department of Chemistry. The consortium also encompasses the Eindhoven University of Technology (TU/e, The Netherlands), the University of Bordeaux (UBx, France) and its affiliated entities Polytechnic Institute of Bordeaux (Bordeaux INP, France) and French National Centre for Scientific Research (CNRS, France) as the internationally leading partner organizations.

UAveiro has been actively engaged in a significant number of international collaborations with world-leading research groups and companies in the Chemistry field focusing on the covalent-driven chemical modification of small organic compounds, natural products, and natural-origin macromolecules, as well as on their structural and biological characterization.

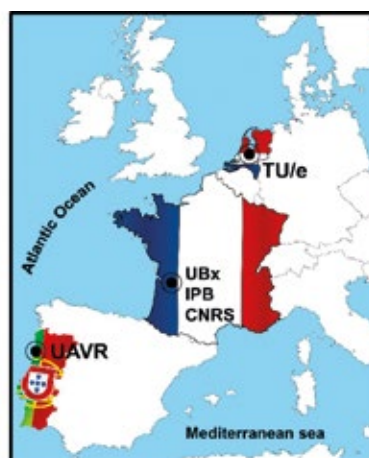
In particular, owing to its strategic maritime location, UAveiro has been taking advantage of the biocompatibility, biodegradability and wide availability of marine-origin polysaccharides to develop high added-value sustainable biomaterials for solving challenges in healthcare.

However, the performance of either native or covalent-based biopolymer derivatives is limited to the native properties of natural-origin polymers, showcasing limited bioactivity, stimuli-responsiveness, unsuitable mechanical properties, and non-adaptive behaviour, thus extensively limiting their use for mimicking living systems, and fulfilling healthcare needs.

SupraLife aims to accelerate the pace on the development of life-like supramolecular multifunctional biomaterials, exhibiting dynamic properties and bioinspired and adaptive behavior, for healthcare by functionalizing biopolymers with self-assembling motifs.

The SupraLife consortium proposes the organisation of joint events, networking activities, short-term on-site trainings and staff exchanges, expert visits, and an exploratory research project for stepping up and stimulating UAveiro's scientific excellence and innovation capacity in the supramolecular biomaterials' chemistry field for enabling advanced biomaterials for healthcare.

Roadmap for the development of complex supramolecular multicomponent biomaterials for healthcare through the establishment of SupraLife's scientific and training network.



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101079482

More information
<https://cordis.europa.eu/project/id/101079482>
<https://www.supralife.eu/>

Egas Moniz Health Alliance

The Egas Moniz Health Alliance (EMHA), a Clinical Academic Center created in 2021, brings together the Hospital Centers of “Baixo Vouga”, “Entre o Douro e Vouga”, and “Vila Nova de Gaia/Espinho”, the University of Aveiro, and the Regional Health Administrations for the North and Center Regions, in representation of six affiliated primary health centers (ACES). These institutions operate according to the highest standards of excellence, as recognized by external evaluation and accreditation bodies encompassing higher education and training, research, and healthcare activities, and have a longstanding collaboration-record of accomplishment.

EMHA aims to foster quality and personalized health care provision to the regional community, to create knowledge, and to translate existing and new knowledge for the benefit of the wider population.

Upon mapping the local public health plans in EMHA's region, priorities requiring action from all stakeholders have been identified for the following health problems: ischemic and haemorrhagic stroke; myocardial

infarction; diabetes mellitus; colorectal cancer; and lung cancer. Therefore, the proposed main challenges to be tackled by EMHA are: i) cardiovascular, metabolic and respiratory conditions; ii) musculoskeletal and rheumatologic conditions; and iii) infection and resistance.

EMHA proposes to capitalise and further develop the knowledge from genomics, proteomics, pharmacogenomics, metabolomics, epigenomics, and to integrate and boost personomics to identify treatments that are uniquely tailored and meaningful for each individual patient.

To achieve such objectives, a multipronged approach has been developed, combining research, innovation, and education and training of health professionals. This includes, among others, promoting the modernization and qualification of health education, and the development of actions promoting quality health care, supported by the contributions from the basic sciences, the clinical health sciences, and medical and social services of the health care units. Furthermore, collaborative research projects, fostering local, national and international research networks focused on the promotion of quality of life of the society will be developed.



More information

<https://www.ua.pt/en/cacemha/>

[egas-moniz-clinical-academic-center](https://www.ua.pt/en/cacemha/egas-moniz-clinical-academic-center)