



<https://uit.no/project/hotbio>



HOTBIO is a MSCA Doctoral Network in marine biodiscovery where secondary metabolites from marine microorganisms will be developed into well-characterised compounds that can be applied as medicines, agrochemicals or aquaculture drugs. This goal will be achieved by combining the chemical diversity that can be accessed through a traditional bioprospecting pipeline with downstream efforts such as computer-aided drug design (CADD), medicinal chemistry, target deconvolution and ADMET profiling.

Project background

The HOTBIO consortium will train a new generation of researchers to develop marine microbial natural products from the seabed to the bedside. This project expands a conventional marine biodiscovery pipeline by employing cutting edge technology, including computer aided drug design, chemical synthesis of optimised compounds (i.e. medicinal chemistry), target deconvolution and extensive ADMET profiling. This will advance the bioactive microbial secondary metabolites to the later stages of preclinical development.

Just like the field of marine biodiscovery, this consortium is highly multidisciplinary, with experts from the fields of microbiology, chemistry, high throughput screening, genome mining, innovation, commercialization, molecular biology, and computational chemistry. The partners will work synergistically to optimise the learning experience for the candidates. The consortium is composed of seven European beneficiaries from six different countries (Germany, Spain, Italy, Poland, Belgium and Norway), three partners from Switzerland and the United Kingdom, as well as associated partners from Austria, Ghana and India.

Project 4: Microbiology, novel strains isolation, and exploitation of a collection of marine-derived microbial extracts as source of new compounds

Host institution: Stazione Zoologica Anthon Dohrn, Italy. www.szn.it

Supervisor: Dr Donatella de Pascale

Objectives: Isolation and characterization of promising marine bacteria and improvement of secondary metabolites production (especially antimicrobials, siderophores and biosurfactants) by exploring different cultivation approaches. Strains will be collected from different extreme locations and isolated applying a wide range of conditions and substrates to maximise the biodiversity. Then, the most diverse will be identified and initially cultivated in 96x Deepwell plates (OSMAC approach, axenic cultures and co-cultivation). A wide range of screening will be applied in order to select

Department of Ecosustainable Marine Biotechnology

promising candidates for the lab scale-up. Genomes of the best microbial candidates will be sequenced and subjected to a genome mining approach for the identification of novel biosynthetic gene clusters (BGCs). Along with the OSMAC (One Strain Many Compounds) approach, special co-cultivation systems will be explored to induce the expression of silent BGCs which will be further chemically analysed. As a matter of fact, this part of the project will be followed by the extraction and metabolic profiling of the samples in order to apply a fast dereplication approach. Mass spectrometry and the use of molecular networking will allow the selection of new potential molecules which will be further purified and identified by NMR.

Who can apply?

We are looking for talented and motivated candidate.

Desiderable Master degree: Biology, Biotechnology, Chemistry, Chemical engineering.

Language skills required: Fluent English written and spoken.

Eligibility Criteria:

Mobility: At the time of recruitment, the researcher must not have resided or carried out his/her main activity (work, studies, etc.) in Italy for more than 12 months in the 36 months immediately before the recruitment date. Time spent as part of a procedure for obtaining refugee status under the Geneva Convention or compulsory national service are not taken into account.

The candidate must agree to work exclusively for the action.

Selection process

Evaluation criteria: Academic background (up to 40 points)

Knowledge and specific achievements (up to 35 points)

Shortlisted candidates will be invited for an interview in which the selection committee will assess the applicant's communication skills, initiative, and motivation to pursue a PhD. (up to 25 points)

Website for additional job details: <https://uit.no/project/hotbio>

How to apply?

Please send a motivation letter and the CV to: chiara.melchiorre@szn.it o donatella.depascale@szn.it

Application deadline is fixed by 20 April, 2023