

Novel marine biomolecules against biofilms. Application to medical devices



PROJECT DETAILS

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 Horizon 2020
Sub-Programme:
 Societal Challenges
Funding Scheme:
 Research and Innovation
 action
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 € 7.651.315
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 € 575.288

PROJECT DESCRIPTION

Microalgae are a source of secondary metabolites useful as new bioactive compounds. Activity of these compounds against bacterial pathogens and biofilm formation has not been determined yet. Biofilm formation is especially important in infections and tissue inflammation related to implants and catheters. These problems finally cause a release of the implant, which must be removed and replaced by a new one, entailing an increase in antibiotic consumption, together with a health costs of about 50,000-90,000 € per infection episode.

Taking both problems in account, the search of new antimicrobial agents that will be effective against the bacteria in their two ways of life, planktonic and biofilm stage, is a priority need in the clinical practice. For this reason, the overall objective of NOMORFILM project is to search for antibiofilm compounds isolated from microalgae that will be useful in the treatment of this kind of infections and could be incorporated in the manufacturing of medical prosthetic devices. For this purpose, 4,000 microalgae species will be deeply screened specifically for new antibacterial and antibiofilm molecules. Structural elucidation of bioactive compounds from these extracts will assure that only new chemical entities, therefore with anticipated new mechanisms of action, will arise to further project stages, those including toxicity tests and animal models.

Most industrially interesting antibiofilm molecules will be incorporated into nanoparticles in order to develop manufacturing methodologies able to incorporate these compounds into real prosthetic devices matrixes. Marketing of results are assured by the presence of diverse SMEs along the manufacture and distribution of prosthetic devices, and the corresponding consortium agreements with respect to IPRs.

UNIOVI TEAM

Felipe Lombó Brugos ¹
lombofelipe@uniovi.es
Claudio Villar Granja ¹
cjvg@uniovi.es

¹ Department of Functional Biology

PROJECT PARTNERS

Project Coordinator
Fundacio Centre de Recerca en Salut
Internacional de Barcelona, Spain.

Sweden

Karolinska Institutet.

Spain

Universidad de Oviedo.

Universidad de Almería.

MBA Incorporado S.L.

United Kingdom

Nanomedpharma Ltd.

Italy

Universita degli Studi di Firenze.

Fotosintetica & Microbiologica S.R.L

Ktedogen SRL

Portugal

Universidade de Coimbra.

CIIMAR – Centro Interdisciplinar de
Investigação Marinha e Ambiental

Denmark

The Provost, Fellows, Foundation
Scholars & The Other Members of
Board of the College of the Holy &
Undivided Trinity of Queen Elizabeth
Near Dublin

Denmark

Pyrogenesis S.A

France

Universite Pierre et Marie Curie – Paris 6

