



Secondary metabolite Pipeline

Discovery and exploitation of novel marine products and biomolecules



Despite their high potential for biotechnological and pharmaceutical applications, only a small fraction of compounds that marine microbes are capable of producing have been isolated so far. Natural product discovery pipelines involve distinct technologies and expertise in areas such as compound extraction, fractionation, isolation and purification, determination of biological activities, as well as structural characterization.

The expertise required for successful natural product discovery from marine organisms exists in different European Research Infrastructure, but is often fragmented and not always easily accessible. Hence, the EMBRIC secondary metabolite pipeline will offer access to marine microbe collections and scientific networks to facilitate exploration of novel lead compounds or bioactive molecules that can potentially be used in health care, nutrition, as well as in agriculture and aquaculture.

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Bioprofiling of Marine Extracts

We offer initial profiling of marine extracts to identify interesting properties such as antibacterial, antifungal or cytotoxic activities. Promising results will be followed up with in-depth analyses.

Compound Identification

Access to cutting-edge discovery pipelines required for compound identification including extract preparation, fractionation, MS, NMR and chemical structure elucidation. Network of experts that can be contacted for experimental advice.

Rapid Dereplication

Access to expert databases early in the discovery process facilitates comparison of identified compounds with known analytical signatures and chemical structures, thus allowing rapid identification of new chemical entities.

Chemical Hit Optimization

Assistance during the hit-to-lead optimization process (e.g., ADME profiling, SAR profiling).

Visibility in European Compound Collections

Quality control of discovered compounds and incorporation of new compounds into European compound libraries for efficient exposure to biological assays.

Design of Production Pipelines

Support during setup of novel production pipelines to ensure reliable supply of compounds from marine organisms that are hard to culture (e.g., heterologous expression of synthesis gene clusters).

Contact person for questions and inquiries

Prof Dr Mark Brönstrup

Department of Chemical Biology
Helmholtz Centre for Infection Research
T +49 (0)531-6181-3400
E mark.broenstrup@helmholtz-hzi.de
www.helmholtz-hzi.de/en

Current Bottlenecks

- Limited access to comprehensive compound libraries and data regarding secondary metabolites
- Lack of access to chemical hit optimization facilities, Medicinal Chemistry Experts and Natural Product Chemists

Solutions

- Build comprehensive libraries and facilitate access to existing data
- Establish network of experts, institutions and organisations that offer assistance for the characterisation, optimisation and industrial production of marine secondary metabolites

EMBRIC Partners



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654008