

NETWORK OF EXCELLENCE IN MARINE GENOMICS

1 General Objectives of the NoE.

The overall aim of the NoE is to set up and develop a European Network of Excellence, referred to as "Marine Genomics", which will be devoted to the implementation of high-throughput approaches in genomics and in all of its derived fields in the biology and ecology of marine organisms. "Marine Genomics" will promote, develop, and spread throughout the European Union a broad range of genomic approaches, including high throughput genome sequencing, transcriptome analysis and proteomics, to investigate a wide range of questions related to the functioning of marine ecosystems and to the biology of marine organisms. With this aim in view, the NoE groups and integrates into networks experts in genomics, proteomics, and bio-informatics with marine biologists who can make use of high-throughput (HTP) genomics data. They will thus have the opportunity to expand their expertise by working with core genomics facilities. In practice, this will involve the dedication and the development of common research infrastructure, both in genomics, through the Excellence Centers in Genomics in Europe, and in marine biology, i.e., in the marine and inland laboratories that have launched (or intend to launch) large-scale programs in marine genomics. The knowledge generated will lead to environmental goods and services, better management and cultivation practices of genetic resources and biodiversity. Joining together these distinct scientific communities will establish Europe as a leading force in marine genomics. This should in turn facilitate collaboration with other countries such as those where exploitation of marine resources is economically important and has major ecological impacts.

2 CASEB role in the NoE.

The core aspect of the research in Program 7 is to understand how disruptions caused by human activities, specifically copper mining and the associated metal enrichment of coastal waters, affect coastal marine benthic ecosystems. Within this general theoretical framework, we are using the algae *Enteromorpha compressa* (Chlorophyta) and *Scytosiphon lomentaria* (Phaeophyta) as biological models. We are now interested in preparing a cDNA library from each species to analyze by functional genomics the over-expressed genes in order to unveil the intimacy of the heavy metal tolerance process in seaweeds. We are also studying the biodiversity and function of bacteria from a) sites exposed and not exposed to copper pollution and b) the microbiota associated with shellfish from areas with high levels of paralytic shellfish poisoning (PSP) toxins. The ecological, eco-physiological, biochemical, genetic, evolutionary and biotechnological questions related to these biological models would benefit with the use of genomic approaches. Our group has access to a sequencing facility at CASEB and to a Center for Genomics and Bioinformatics at the P. Universidad Católica de Chile.

3 Interactions.

As a result of the approval of the NoE by the EU, The Chilean partners (FONDAP Centers CASEB and COPAS) decided to join efforts and combine scientific objectives, in order to optimize the use of resources already available and to submit a proposal for additional funding to CONICYT. The Deputy Director of CASEB was chosen to lead the initiative, which is at the final stage of negotiation with CONICYT officials.

4 Partners.

Partner 1 France Innovation Scientifique et Transfert - SA FIST
Partner 2 Centre National de la Recherche Scientifique CNRS
Partner 3 Institut Français de Recherche pour L'Exploitation de la Mer IFREMER
Partner 4 Max Planck Institute for Marine Microbiology Bremen MPIMM
Partner 5 Max Planck Institute for Chemical Ecology Iena MPICE
Partner 6 Max Planck Institute for Molecular Genetics Berlin MPIMG
Partner 7 Bielefeld University Bielefeld Univ.
Partner 8 Humboldt University UBER
Partner 9 German Research Centre for Biotech Braunschweig GBF
Partner 10 Alfred Wegener Institute Bremerhaven AWI
Partner 11 Heidelberg EMBL
Partner 12 Natural Environment Research Council NERC
Partner 13 University of Birmingham Birmingham Univ
Partner 14 University of Hull UHULL
Partner 15 University of Oxford Oxford Univ
Partner 16 Marine Biological Association MBA
Partner 17 University of Warwick UoW
Partner 18 University of Newcastle UNEW
Partner 19 University of Wales Swansea UWS
Partner 20 University of Cardiff UWC
Partner 21 Centre of Marine Sciences Faro CCMAR
Partner 22 Stazione Zoologica « Anton Dohrn » Napoli SZN
Partner 23 Palermo IBIM-CNR
Partner 24 Università degli Studi di Padova UNIPD
Partner 25 Israel Oceanographic & Limnological Research Haifa IOLR
Partner 26 Technion Israel Institute of Technology TECHNION
Partner 27 Katholieke University Leuven K.U.Leuven
Partner 28 University of Groningen RUG
Partner 29 Sars International Centre for Marine Molecular Biology, Bergen UiB
Partner 30 Norwegian School of Veterinary Sciences, Oslo NVH
Partner 31 Institut of Oceanology Gdynia IO PAS
Partner 32 Danish Institut for Fisheries research DIFRES
Partner 33 Consejo Superior de Investigaciones Científicas CSIC

Partner 34 Centre of AquacultureTarragona IRTA
Partner 35 University of Barcelona UB
Partner 36 University of Crete UoC
Partner 37 Institute of Marine Biology of Crete IMBC
Partner 38 Royal Swedish Academy, Kristineberg Marine Station KMRS
Partner 39 University of Gothenberg UGOT
Partner 40 Parco Tecnologico Padano s.r.l. PTP LODI
Partner 41 Genteix limited Genetix
Partner 42 Prokaria ltd Reykjavik Iceland Prokaria
Partner 43 Pontificia Universidad Catolica de Chile PUCCH
Partner 44 Universidad de Conception de Chile COPAS