



## LABORATOIRE MER, MOLÉCULES, SANTÉ (MMS) - Équipe d'Accueil 2160 SEA, MOLECULES, HEALTH LABORATORY (MMS) - Research group 2160

*Universities of Nantes and Le Mans, Université Catholique de l'Ouest*

The scientific programme covers an integrated and sustainable management of coastal and estuarine marine ecosystems, particularly through the study of the disturbances which affect them, mainly due to human activities. A better understanding of the biodiversity and functioning of these ecosystems will lead to the identification of organisms interesting for the production of high added-value metabolites for industry and human health.



### 130 people including

53 teachers-researchers | 21 at Le Mans and Laval  
55 doctoral students and postdoctoral fellows | 15 at Le Mans and Laval  
22 administrative and technical staff | 3 at Le Mans and Laval



### Partnerships

The members of MMS collaborate with many regional, national and international laboratories, as well as with industrial partners.



- Facilities for the microalgae cultivation, shellfish aquaculture, biochemical and physiological analyses, molecular and cellular biology
- Animal facility for studies relating to the use of microalgae in nutrition-health
- Bench for pulsed electric fields treatments for the biocompatible extraction of molecules of interest
- Thalassomics technical platform in Nantes, integrated into the Corsaire platform of BiogenOuest

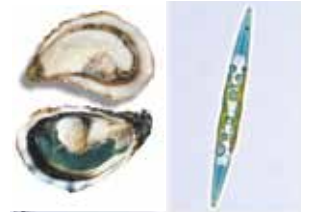
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## 5 research teams

### Remote sensing and benthic ecology (RBE)

Le Mans - Nantes

This team studies the structure and functioning of coastal ecosystems. These ecosystems, which are among the most productive in the world, are exposed to significant threats: global climate change, pressures from human activities, pollution, invasive species. Research topics include benthic ecology, biodiversity, chemiodiversity and phytoplankton ecophysiology, bivalve aquaculture, food interactions within coastal ecosystems and remote sensing. At Le Mans, the team is particularly interested in blue diatoms from the genus *Haslea*, responsible for the greening of oysters.



### Ecotoxicology of emerging contaminants in coastal and estuarine environments (ECEm)

Le Mans - Angers

The research focuses on the ecotoxicology of emerging contaminants (nanomaterials, microplastics, etc.) in coastal and estuarine environments. They aim to increase knowledge and develop assessment tools in order to improve the management of risk relating to the exposure of organisms to these contaminants. The integrative approach to the effects of chemical stress at different levels of biological organisation is particularly appropriate. Special attention is given to the responses of organisms to multiple stresses.



### Metabolism, bioengineering of Microalgae Molecules and Applications (MIMMA)

Le Mans / Laval

The roles of transcription factors in the regulation and the reorientation of the carbon metabolism in microalgae under conditions of stress constitutes the core of the research programme of the team. The understanding of these mechanisms should allow the controlled modulation of carbon fluxes within microalgae in favour of compounds of interest. The potential of these molecules in nutrition and human health, as extracts or purified, natural or modified, are assessed using cellular and/or murine models are tested. The team is also working on the development of innovative methods for extracting molecules from microalgae such as biocompatible extraction.



The **Chemiodiversity of marine fungi and enhancement (ChiChaMVA)** and **Application of marine metabolites in health, nutrition and cosmetology (ANC)** teams are attached to the Université de Nantes.

## Knowledge and enhancement of the biodiversity of marine, coastal and estuarine ecosystems

