About us

The University of Messina was founded in 1548 and enjoys a long tradition as a driving force in the Mediterranean area with a strong orientation towards interationalisation, innovation and quality of teaching and research. In the Italian university quality rankings, Unime ranks second among large Southern Italy universities.
Unime is among the top 15 Universities in Italy (11th) for the sustainability of Degree Courses and for the competitiveness of research (14th place), namely the ability to attract resources on the various projects.

- 12 Departments
- 97 Study Courses
- 14 Vocational Masters
- 12 Study courses taught in English
- 6 Double Degree programmes
- 15 Ph.D. programmes
- 4 Campuses in Messina
- Enroled students: 24,000+
- Professors: 1,075
- Technical and Administrative Staff: 745
- Ph.D. students: 262

Università degli Studi di Messina

Tradition and Innovation at the heart of the Mediterranean

EMBRC
EUROPEAN MARINE BIOLOGICAL RESOURCE CENTRE

090 676 1
WWW.UNIME.IT
Piazza Pugliatti, 1 - 98122 Messina
Cod. Fiscale 80004070837
P.IVA 00724160833

Key infrastructures and technologies of the University of Messina for EMBRC.

Facility:
Quarantine room
Research facility for zebrafish use and production
Research facility for aquatic animals use and production
Research facility for aquaculture teleosts
Small animals necropsy room
Laboratory
Research activities:
Preclinical research on aquatic animal models
Experimental research on aquaculture mesocosms
Diagnostic activities for aquaculture
Histopathology of aquatic animals
Gene expression studies
Forensic diagnosis
Analysis of macrobenthos populations
Water analysis for environmental variables
Environmental DNA
Taxonomic identification of aquatic organisms
Fish otolith analysis
Microplastic in aquatic organisms
Lipidomics
Fraud in the fish sector
Heavy and essential metals
Amino acids and biogenic amines

Laboratories described below: LabStREAM, Institute Slavko Bambir, PHARMALAB, MeIT.

LabStREAM. Lab Head Professor Nunziacarla Spanò, Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina.
The Laboratory for the study, research, and exploration of the marine environment (LabStREAM) of the University of Messina is a multidisciplinary team of researchers in marine biology from different departments of University of Messina. The scientific activity is mainly focused on studying marine organisms, their distribution, and relative environmental parameters. Research performed by Lab StREAM concern ecology and biology of benthic and nektonic organisms, taxonomic identification, diet composition and reproduction of aquatic organisms of commercial and ecological interest. Further research topics involve study of carbonate structures present in the inner ear of teleost, the otoliths, monitoring of marine protected areas, environmental impact assessment of artifacts on seabed. A special attention is addressed to the effects of different classes of pollutants (marine litter) on marine organisms. An ichthyology Lab with all the necessary instruments (sector table, stereomicroscopes, ichthyometers, etc) is available. Specifically, the laboratory is equipped not only with the basic instruments, but also with a Zeiss Discovery V8 stereomicroscope equipped with an Axiocam 208 color camera (Carl Zeiss, Jena, Germany), a Zeiss Axio Observer microscope equipped with an Axiocam 208 color camera (Carl Zeiss, Jena, Germany) with objectives (5x, 10x, 20x, 40x, 63x immersion), scanning electron microscope SEM (Zeiss EVO MA10, Carl Zeiss, Jena, Germany), low speed precision miter saw, complete with sample holder universal and set of flanges 65mm and 42mm dia, cutting discs and coolant additive (Minitom, Struers S.A.S., France), pre-sander/polishing machine with variable speed (0-500 rpm) for 200mm dia disc , with automatic water valve, splash

guard and removable container, with LaboUI control panel (LaboPol-20, Struers S.A.S., France); microFT-IT, LumosII, Bruker.

LabStREAM includes the following EMBRC services:

- TAXOMAR-Taxonomic identification of marine macrozoobenthic organisms, teleost, and elasmobranchs. Fish otolith examination and analysis for ecological and zoological research: morphometry, shape analysis, external texture organization, fish age determination, fish stock assessment. SEM used for fish otolith analyses.
- GAO-Genomic identification of aquatic organisms (Teleost and Elasmobranchs) and gene-based analyses (DNA extraction, sequencing and bioinformatic). Environmental DNA analyses.
- LAM-Laboratory for the Analysis of Microplastics. Microplastic extraction, isolation, and identification from biotic matrices. SEM and microFT-IR (Lumos II) are used for microparticle analyses and accurate identification of polymers in ATR, transmission, and reflection spectroscopy.

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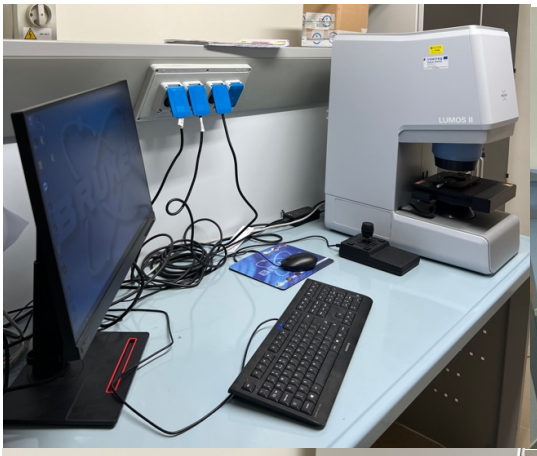
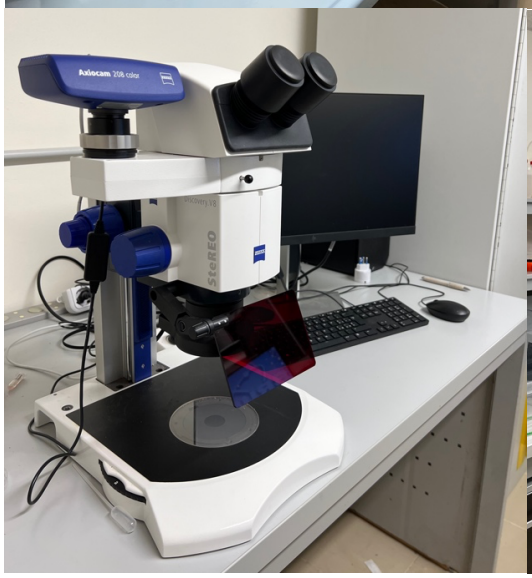
EMBRC EUROPEAN MARINE BIOLOGICAL RESOURCE CENTRE





Institute for Experimental, Comparative, Forensic and Aquatic Pathology, Slavko Bambir.
Lab Head Professor Fabio Marino, Department of Chemical, Biological, Pharmaceutical, and Environmental Science.

The Research team of Veterinary and Comparative Pathology of UNIME runs the Institute for Comparative, Experimental, Forensic and Aquatic Pathology, a facility for experimental aquatic *in vivo* models kept in recirculating aquaculture systems (RAS), performing histological, immunohistochemical and molecular analysis for diagnosis in aquaculture and experimental research. It includes the following EMBRC services:

- ZEBRALAB - Sicilian Zebrafish Resource Center (SZRC), research facility for zebrafish production and use as model organism in preclinical research. Research facility uquipped with aquaria and tanks for aquatic animals experiments and production. Zebrafish production for research; In vivo studies on aquatic models.
- AquaTech - Aquaculture Teaching Facility, research and teaching facility for teleosts reproduction. Experimental research on aquaria, tanks and aquaculture mesocosms.
- AquaPath - Fully equiped quarantine, necropsyroom and laboratorium for histology, immunohistochemistry and molecular biology for diagnosis and gene expression studies. Hatching and culturing of Artemia salina and nanoalgae under strictly controlled environmental parameters; Diagnostic service for aquaculture; Histopathology of aquatic animals and Forensic diagnosis.




PHARMALAB. Lab Head Professor Salvatore Cuzzocrea. Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina.
PHARMALAB includes a team of researchers expert in the field of Pharmacology and Marine Pharmacology. The research of the PHARMALAB focuses on the role of oxidative stress and inflammation in various pathologies that concern both autoimmunity and neurodegenerative disorders, the role of antioxidants and anti-inflammatories of natural and/or synthetic origin, the modulation of autophagy and apoptosis, the modulation and inhibition of specific receptors and the search for new biomarkers. PHARMALB includes the following EMBRC services:

- *MarinePharm* Marine pharmacology: Aquatic organisms screening for immunomodulator, neuroprotective, analgesic, anti-fungal, anti-inflammatory, anticancer, antimicrobial, and antimalarial properties.

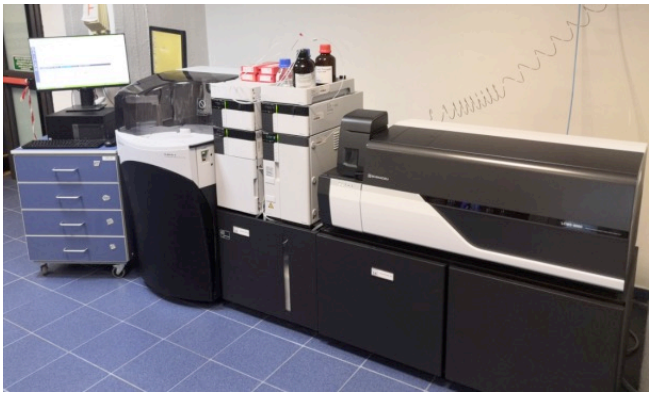
PHARMALAB is perfectly equipped to conduct pharmacology studies with experiments in vivo and in vitro and are also accredited according to ISO9001. Laboratories provide the best and widest service facilities for research into preclinical pharmacology. Laboratories also have advanced computer science-related equipment that improves the performance of the experiment, including the approved Plant with Ministerial Decree No. 331/2013-B, issued on 27/12/2013; the laboratories consist of a separate and fully equipped facility for activities on stables such as mice and rats; Surgical rooms connected with areas of the animal facilities. Laboratory cells culture equipped with number 2 laminar flow hoods; number 2 incubators; number 2 refrigerated counter centrifuges; number 1 Beckman ultracentrifuge; number 2 optical microscopes and number 1 autoclave; number 2 rodent respirators; number 2 infusion pumps; number 4 millar pressure volume catheter; number 2 noninvasive blood pressure recorder; number 2 PowerLAb Instruments Lab Chart software. Laboratory to carry out behavioral tests related to the sphere of pain assessment and joint function including: von frey filament test; tail filck test; randal sellitto test; plantar test; rotarod test. Biochemical and molecular laboratories are fully equipped with for immunoassays (ELISA) and colorimetric assays; western blot analysis and immunohistochemical analysis. For the immunological evaluation the laboratory is equipped of the Flow cytometry instrument.

The laboratory of the Messina Institute of Technology (MeIT) includes a team of researchers expert in the field of analytical chemistry, working under the supervision of Prof. Paola Dugo and Prof. Luigi Mondello, full professors of food chemistry and analytical chemistry, respectively, at the University of Messina.
The research of the MeIT laboratory focuses on the use of innovative chromatographic techniques and multidimensional techniques in combination with mass spectrometry for the study of complex natural matrices and food products. The MeIT laboratory could provide the following services:

1) MeIT_LIPIDS-Investigation of the lipid profile of aquatic organisms through GC-FID/MS, LC-MS methods and direct-MS approaches. The lipid profile will represent a fingerprint of each species, useful against fraudolent activities (mislabeling, etc.) and could be correlated with pathophysiological conditions (food security and food safety implications)

The service will be carried out through the use of instruments available at the UNIME facility:

- AOC6000-GC-FID-QqQ-MS instrument for the automatic extraction and determination of the fatty acid composition

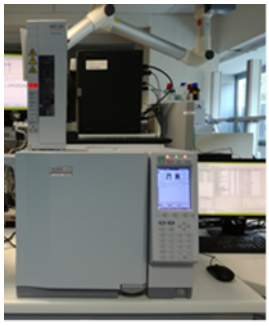
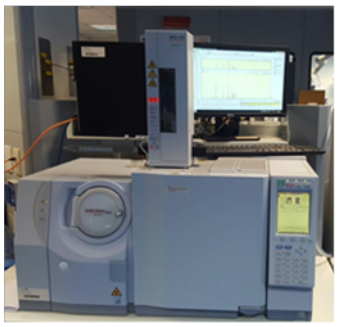


- CLAM-UHPLC-MS/MS for the automatic extraction and determination of the intact lipid composition

- Iknife instrumental setup consisting of an electroknife coupled with a REIMS-Q-TOF system for the rapid fingerprinting of the sample.

2) MeIT_AABA-Determination of the amino acid profile and biogenic amines by means of chromatographic techniques

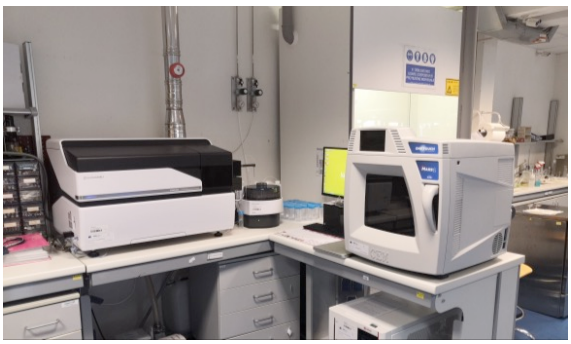
The service will be carried out through the use of instruments available at the UNIME facility:

- GC-FID and GC-MS instrument for the quantification and identification of amino acids and biogenic amines after their manual extraction and derivatization.

3) MeIT_Metals-Determination of essential and toxic metals (heavy metals) by ICP-MS

The service will be carried out through the use of instruments available at the UNIME facility:



- ICP-MS for the determination of metals after sample mineralization through a microwave digestion system