



**PHARMACEUTICAL
MICROBIOLOGY
AND CLINICAL
MICROBIOLOGY
RESEARCH
LABORATORIES**

ACTIVITIES

01

02

03

04

The laboratory activities cover a wide range of scientific and applied fields

MICROBIOLOGY AND BACTERIOLOGY

Culturing, isolation, and identification of pathogenic, aerobic, and anaerobic bacteria.
Evaluation of antimicrobial susceptibility (MIC, E-test, Kirby-Bauer).
Post-Antibiotic Effect Studies, Growth and Killing Curves.
Analysis of antimicrobial interactions (FIC) and activity against biofilms.
Microbial Challenge Test (MCT) for the evaluation of the antimicrobial activity of phytoextracts.
Experimental models of infection in vitro and in vivo .
Pharmacokinetic assays and bioavailability studies using microbiological methods.

IMMUNOLOGY

Culture and isolation of immune cells from blood and lymphoid tissues.
Analysis of lymphocyte subpopulations and generation of dendritic cells.
Production of monoclonal antibodies, lymphoproliferation assays, phagocytosis, and measurement of intracellular nitric oxide.
Studies on cytokines (IFN- γ , TNF- α , IL-2, IL-6), chemokines and transcription factors.
Immunofluorescence, chemotaxis, and cell transfer techniques.

MOLECULAR BIOLOGY

Extraction, purification and manipulation of nucleic acids (DNA/RNA).
Transfection, cloning, enzymatic digestion, bacterial transformation.
PCR, RT-qPCR, e tecniche derivate (RFLP, Nested, Multiplex PCR).
Analisi mediante Western, Northern e Southern Blotting.

CELLULAR BIOLOGY

Primary and immortalized cell cultures.
Flow cytometry, MTT assay, apoptosis, cell cycle, adhesion and migration.
Study of antigen expression and cellular response (Elispot, proliferation test).
Morphology and Immunohistochemistry
Histological preparation of tissues (paraffin and cryostats).
Staining techniques: hematoxylin-eosin, PAS, Lugol.
Immunoistochimica, immunocitochimica, FISH e immunofluorescenza.
Organotypic cultures for advanced morphological and functional studies.

Pharmaceutical Microbiology and Clinical Microbiology Research Laboratories

Structured and agreed collaboration between the Pharmaceutical Microbiology Laboratory of the University of Catania and the Clinical Microbiology Laboratory of the University of Molise

For many years, the University of Catania and the University of Molise have been collaborating on joint basic research, scientific support, and consultancy activities, providing public and private entities with advanced know-how for Research & Development (R&D) in the fields of microbiology and biotechnology.

A young and dynamic team of researchers with multidisciplinary expertise in microbiology, immunology, molecular biology, cell biology, and morphology works in the Pharmaceutical Microbiology and Clinical Microbiology laboratories of both universities. This interuniversity collaboration represents a model of integration between academic research and industrial applications, aimed at developing new diagnostic, therapeutic, and technological strategies in the biomedical field. The laboratory serves as a hub for highly innovative scientific activities, both nationally and internationally.



OUR TEAM



Team leader

Prof. Roberto Di Marco, MD, PhD

Degree in Medicine and Surgery,
Specialization in Microbiology and Medical Virology,
Specialization in Clinical Pathology,
Doctor of Philosophy in Microbiological Sciences



roberto.dimarco@unict.it



Skype: roberto.dimarco



+ 39 095 738 4253



WebFax +39 1782210619



**Head of the
Pharmaceutical
Microbiology Laboratory -
UNICT**

Prof. Daria Nicolosi, PhD

Master's Degree in Pharmacy and
Doctor of Philosophy in
Microbiological Sciences



**Head of the Clinical
Microbiology
Laboratory - UNIMOL**

Prof. Giulio Petronio Petronio

Master's Degree in Pharmaceutical
Chemistry and Technology

Dr. Natasha Brancazio



Bachelor's Degree in Biological Sciences
Master's Degree in Biology
PhD Student in Translational and Clinical Medicine

Dr. Maria Di Naro



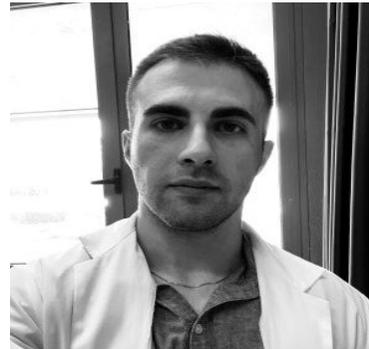
Degree in Pharmaceutical Chemistry and Technology
PhD's Student in Translational and Clinical Medicine

Dr. Marilina Falcone



Bachelor's Degree in Biological Sciences
Master's Degree in Biology
PhD Student in Translational and Clinical Medicine

Dr. Antonio Guarnieri



Degree in Prevention Techniques in the Environment and Workplace
Master's Degree in Prevention Health Professions PhD
Student in Translational and Clinical Medicine

**OUR
TEAM**

Dr. Farwa Mukhtar



Master's Degree in Biotechnology
PhD Student in Translational and Clinical Medicine

Dr. Addis Temie Worku



Bachelor of Science in Biology
Master of Science in Clinical Anatomy
Master of Science in Applied Entomology PhD Student in
Translational and Clinical Medicine

**OUR
TEAM**