

Eco-friendly synthesis of targeted antimicrobial peptides and small molecules

Second Training School

25-27 March, Rome

**Organized in collaboration with Sapienza University of Rome and
UnitelmaSapienza**



SAPIENZA
UNIVERSITÀ DI ROMA



UnitelmaSapienza
Università degli Studi di Roma

Scientific Committee:

Mattia Mori (on behalf of the EURESTOP Core Group)

Bruno Botta

Francesca Ghirga

Andrea Calcaterra

Maria Luisa Mangoni

Organizing Committee:

Mattia Mori

Francesca Ghirga

Susanna Piva

Antonella Cerreto

Margherita Mazzola

Carolina Altília

25 March, 2024:

Exploring nature as a source of new antimicrobials and resistance-modifying agents

Trainers: [Cristina Nativi](#), [Laura Cheti Baldaccini](#) and [Andrea Sodini](#) (University of Florence); [Camarone Silvia](#), [Bruno Casciaro](#), [Gabriele Cianfoni](#), [Lara Lamelza](#), [Valentina Pastore](#), [Giorgia Fabrizio](#) and [Enea Gino Di Domenico](#) (Sapienza University of Rome)

08:30 – 09:00 **Registration of participants**

09:00 – 09:15 **Opening:**

Mattia Mori (Action Chair)

Mariana Damian and Nadia Decarolis (Biotage),

Francesca Ghirga and Maria Luisa Mangoni (Local organizers)

09:15 – 10:15 **Lesson #1 Antimicrobial peptides: general features and methodologies for their biological characterization.** [Bruno Casciaro](#)

10:15 – 10:45 **Coffee break**

10:45 – 12:15 **Lesson #2 Proline-rich antibacterial peptides: Synthesis and Structure. The Drosocin case of study.**

Overview: [Cristina Nativi](#)

Solid Phase synthesis: [Laura Cheti Baldaccini](#)

Peptides' structural investigation: [Andrea Sodini](#)

12:15 – 13:15 **Lesson #3 From higher plants to fight antibiotic resistance: advanced strategies in natural products chemistry.** [Silvia Cammarone](#) and [Francesca Ghirga](#)

13:15 – 14:15 **Lunch break**

14:15 – 15:15 **Lesson #4 Antibiotic resistance and beyond: implications for human health and treatment perspectives.** [Enea Gino Di Domenico](#)

15:15 – 17:30 **Lab Training #1,2**

1. Natural product isolation – how to get pure compounds from plant materials. [Gabriele Cianfoni](#) and [Lara Lamelza](#) (UNIROMA1-CAMPUS Building CU032)

2. Analysis of antibiotic activity in planktonic bacteria and biofilms. [Valentina Pastore](#) and [Giorgia Fabrizio](#) (UNIROMA1_off-CAMPUS)

26 March, 2024:

Peptide Workflow: from synthesis to evaporation

Trainers: [Mariana Damian](#) and [Nadia Decarolis](#) (Biotage Sweden AB)

09:00 – 10:45 **Lesson #5: Workflow concept introduction and Automated Peptide Synthesis.** [Mariana Damian](#) and [Nadia Decarolis](#)

10:45 – 11:15 **Coffee break**

11:15 – 13:00 **Lab Training #3 Group 1: Automated peptide synthesis programming.**
[Mariana Damian](#)

11:15 – 13:00 **Lab Training #4 Group 2: Flash purification and Advanced Evaporation.**
[Nadia Decarolis](#) (UNIROMA1-CAMPUS Building CU019)

13:00 – 14:30 **Lunch break**

14:30 – 16:15 **Lab Training #4 Group 1: Flash purification and Advanced Evaporation.**
[Nadia Decarolis](#) (UNIROMA1-CAMPUS Building CU019)

14:30 – 16:15 **Lab Training #3 Group 2: Automated peptide synthesis programming.**
[Mariana Damian](#)

16:15 -16:45 **Break**

16:45-17:15 **Lesson #6: Peptide Flash purification tips and tricks.** [Mariana Damian](#)

27 March, 2024:

Exploiting genomics and nanotechnology to mitigate the impact of antimicrobial resistance

Trainers: [Alessandra Carattoli](#), [Carlotta Marianecchi](#), [Federica Rinaldi](#), [Jacopo Forte](#), [Maria Rosa Loffredo](#), and [Floriana Capiello](#) (Sapienza University of Rome)

09:00 – 10:00 **Lesson #7 Bacterial genomics applied to the investigation of emerging, novel antimicrobial resistance mechanisms** [Alessandra Carattoli](#)

10:00 – 11:00 **Lesson #8 Nano strategies for overcoming multidrug resistance.** [Carlotta Marianecchi](#)

11:00 – 11:30 **Coffee break**

11:30 – 13:30 **Flash presentations**

13:30 – 15:00 **Lunch break**

15:00 – 17:00 **Lab Training # 5,6**

5. Fluorescence and biological assays to evaluate the mechanism(s) of action of membrane-active peptides. Maria Rosa Loffredo and Floriana Cappiello (UNIROMA1-CAMPUS Building CU027)

6. Antimicrobial essential oil formulations: design, preparation and characterization. Federica Rinaldi and Jacopo Forte (UNIROMA1-CAMPUS Building CU019)

The *lessons* will take place in Università degli Studi di Roma **UnitelmaSapienza** (Sala Conferenze), which is located at Piazza Sassari, 4, 00161 Rome, Italy.

The *lab training* will take place in **Sapienza University** Campus (UNIROMA1_CAMPUS) and off-Campus (UNIROMA1_off-CAMPUS), which are located at Piazzale Aldo Moro 5, and Via dei Sardi 70, 00185, Rome, Italy, respectively.