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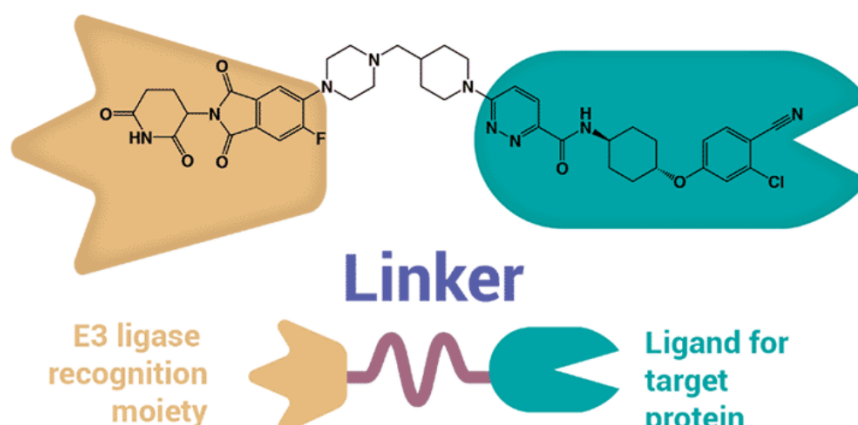


ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

7TH ONEHEALTHDRUGS TRAINING SCHOOL

SYNTHETIC CHEMISTRY OF ANTIMICROBIAL DRUGS AND PROTAC'S STRATEGY

Modena 1-3 October 2026



Abstract:

Training School on Synthesis of Antimicrobials and PROTAC Strategy

Co-organization of University of Modena and Reggio Emilia and University of Bologna

This training school offers an overview of one pivotal and emerging fields in modern medicinal chemistry: the **synthesis of novel antimicrobial agents** and example of the revolutionary **PROTAC (Proteolysis-Targeting Chimera) strategy**. In an era of escalating antimicrobial resistance, the demand for innovative therapeutic approaches is critical. This program will equip participants with the theoretical knowledge and practical insights necessary to address the synthetic aspects and the challenge.

The program is designed for early-career researchers, Ph.D. students, and post-doctoral fellows in medicinal chemistry, chemical biology, and related disciplines. Key topics will include advanced synthetic methodologies for developing new small-molecule antimicrobials, the fundamental principles of PROTAC design, and the application of this groundbreaking technology to combat infectious diseases. We will explore how PROTACs can redirect a cell's own machinery to degrade disease-causing proteins, a paradigm-shifting approach that differs from traditional inhibition. The compounds design and synthesis will be in proposed in the context of greener approaches, including considerations for the ecotoxicity indicators.



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Through lectures and interactive sessions, attendees will learn to critically evaluate potential drug targets and design molecules for both antimicrobial activity and targeted protein degradation. The goal of this training is to foster the next generation of drug discoverers by providing the skills needed to innovate and contribute to the fight against global health threats.

Program

Dates: October 1–3, 2025

Location: Modena (Day 1–2), Bologna (Day 3)

Day 1 – Wednesday, October 1 (Modena, Via Campi 103, Sala Riunioni 2nd floor)

11:00 – 11:15 | Introduction

- Welcome remarks by Maria Paola Costi, Action Chair

11:15 – 13:00 | Scientific Talks

- Sheraz Gul - General concepts in pharmaceutical research and modalities of drugs.
- Maria Paola Costi – Leads, Scaffolds, and Targets in Vector-Borne Parasitic Infections.
- Daniele Aiello – Benzothiophene-Flavonols as Novel Scaffolds Against Leishmania and Trypanosoma.

12:40-13:00 Introduction to Laboratory sessions and presentation/report preparation.

13:00 – 13:45 | Lunch Break

14:00 – 16:00 | Laboratory Sessions (Group A & Group B)

- Group A: Lab Session 1 (MW assisted chalcones synthesis + Work-up – D. Aiello, A. Venturelli)
- Group B: Lab Session 2 (Green Hydrogenation by H-Cube Continuous Flow - C. Sorbi, F. Borghi)

16:00 – 16:15 | Coffee Break

16:15 – 18:00 | Laboratory Sessions (Group Swap)

- Group A: Lab Session 2 (Green Hydrogenation by H-Cube Continuous Flow C. Sorbi, F. Borghi)
- Group B: Lab Session 1 (MW assisted chalcones synthesis + Work-up – D. Aiello, A. Venturelli)



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20.00 Social Dinner – Pizza Together – Ristorante “La Smorfia” - Modena

Day 2 – Thursday, October 2 (Modena, Via G. Campi 103, Room 0.2)

09:30 – 11:00 | Laboratory Sessions (Group A & Group B)

- Group A: Lab Session 1 (*Synthesis of H80 and workup* – D. Aiello, A. Venturelli)
- Group B: Lab Session 2 (*In-situ Click Chemistry* – E. Caselli, N. Santi, L. Svolacchia Brusoni)

11:00 – 11:15 | Coffee Break

11:15 – 13:00 | Laboratory Sessions (Group Swap)

- Group A: Lab Session 2 (*In-situ Click Chemistry* – E. Caselli, N. Santi, L. Svolacchia Brusoni)
- Group B: Lab Session 1 (*Synthesis of H80 and Work-up* – D. Aiello, A. Venturelli)

13:00 – 14:00 | Lunch Break

14:00 – 17:30 | Scientific Lectures

- Nicolò Santi - Discovery of Boronic Acids-Based β -Lactamase Inhibitors Through In Situ Click Chemistry
- Daniele Aiello - From High-Throughput Screening to Machine Learning-Driven Hit Optimization in Small Molecule Synthesis
- Theodora Calogeropoulou – Exploiting by-products of the cashew industry for the sustainable development of novel antiparasitic agents.

16:15 – 16:30 | Coffee Break

16:30 – 17:30 | OHD Attendees Presentations (5 minutes each + 5 minutes for questions)

17:30 – 18:00 | Open Discussion & Q&A

20.30 Social Dinner -

Day 3 – Friday, October 3 (Bologna)

Morning – Travel to the University of Bologna (30 minutes by train)

Location: Navile, UE1, Room 2B •Via della Beverara 123/1, Bologna



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9:30 – 12:30 | Lectures

- 9:30 – 10:00 Maria Laura Bolognesi, University of Bologna – “*Opportunities and Challenges of Using Targeted Protein Degradation in Vector-Borne Parasitic Diseases*”
- 10:00 – 10:30 Sheraz Gul, Fraunhofer Institute for Molecular Biology and Applied Ecology – *Overview of PROXIDRUGS PROTACS project* (<https://www.proxidrugs.de/>).
- 10:30 – 11:00 Andrea Millelli, University of Bologna - “Synthetic approaches to Targeted Protein Degradation”
- 11:30 - 12:00 Eleonora Diamanti, University of Bologna - “Exploring innovative medicinal chemistry strategies to fight antimicrobial resistance”
- 12:00 - 12:30 Claudia Albertini, IRBM, Rome, Italy – “PROTAC Toolkit Platform”

12:30 – 14.00 – Light Lunch – To be confirmed

14.00 – 14.30 COST Action Wrap-up and Closing Remarks