Training schools

Challenge 4. Researchers approaches, industrial entities working in the field of VBD, lack communication and interactions in relation to environmental sustainability and innovation. OneHealthdrugs will represent the ideal platform for networking and communication, to establish interaction and contribute to the training of young researchers.
Challenge 5. The transfer of knowledge at European level on H&A drugs R&D is not achieved yet, despite the available initiatives. This COST Action will promote the transfer of knowledge among the different stakeholders also through neighbouring and international partners to train young researchers in the field of the R&D of VBD antiparasitic drugs.

Capacity building Objectives

To facilitate, through investigations, training schools, workshops, and STSM, an expansion of the currently separated R&D platform for the development of new drugs against H&A. This objective is particularly important for Young Researchers and Innovators and for less research-intensive countries.

Description

In line with **Challenge 5** and the **Capacity-Building Objectives** of our Action's MoU, a central tool to train young researchers and transfer knowledge across Europe was the Training School (TS) concept. As outlined in **MoU Sections 3.2.1 and 3.2.2**, the aim of each TS was to provide Young Researchers and Innovators (YRIs) with practical, interdisciplinary skills that connect chemistry, biology, and environmental science. The specific topics covered included theoretical and practical methodologies of human and veterinary drug discovery and extending this further to encompass environmental safety considerations.

Each TS was designed to be run over 3 full days and included lectures delivered by experts drawn from the COST Action and in some cases external speakers who had expertise on specific topics relevant to the TS. In each TS, the theoretical knowledge gained from the lectures were applied to laboratory experiments and computer-based sessions such as assay development & screening, sustainable medicinal chemistry, protein production & structural biology, cheminformatics & in silico ecotoxicology, novel synthetic chemistry and drug modalities, and ecotoxicology & model systems. Beyond the technical learning during each TS, they connected YRIs directly with experienced mentors, encouraged cross-border collaborations, provided a foundation for STSM applications, and an active network of early-career researchers for future job opportunities.

A total of **8 Training Schools** were organized as listed below:

1. Drug discovery against parasitic vector borne diseases in-vitro assay development and screening in drug discovery. 8–10 May 2023. Fraunhofer ITMP, Hamburg, Germany.
2. Medicinal chemistry and structural biology: tools and strategies for hit and lead optimization in the One Health perspective. 27–29 September 2023. University of Siena, Siena, Italy.
3. Natural products in antiparasitic drug discovery: experimental and computational approaches. 18–20 June 2024. University of Naples Federico II, Naples, Italy.

4. Cell culture as in vitro models for newly developed drugs against vector borne parasitic diseases within the One Health concept. 25–27 September 2024. University of Warsaw, Warsaw, Poland.
5. In silico prediction method for ecotoxicity and bioaccumulation. 19–21 March 2025. Cloudpharm P.C., Cana Laboratories, Attica, Greece.
6. Expression, purification and basic characterization of target protein samples for drug binding studies. 8–10 September 2025. Latvian Institute of Organic Synthesis, Riga, Latvia.
7. Synthetic chemistry of antimicrobial drugs and PROTAC's strategy. 1-3 October 2025. University of Modena and Reggio Emilia, Modena, Italy.
8. Crash course in ecotoxicology: From concepts to practice. 27 May–29 May 2026. University of Namur, Namur, Belgium.

The figure below shows the various stages of pre-clinical drug discovery and how TS-1 to TS-8 covered all these aspects to provide the participants with sufficient knowledge and exposure to the experimental methods.

