



Modena 6 February 2025

Dear All,

Please find attached the January-February 2025 newsletter, which includes this month's appointments and dissemination events.

Details of the OHD COST Action activities for Year 3 are also included.

Happy reading!

See you at the various events!

Paola

Content List

- Summary of Action participants
- Outcome of the COST OFFICE evaluation of YEAR1 and 2.
- KPIs
- STSM and ecotox/environmental considerations
- Stakeholders' involvement
- SURVEYS
- EU projects calls - another objective for everyone who:
 - -wants to take the leadership of a new project
 - -wants to contribute/participate
- Who is willing to lead a new publication issue for the COST Action network
- OneHealthdrugs Ambassadors-evaluation ongoing
- 3rd year networking activities planned

Update on Action Members

Action situation at the Proposal stage, a year ago, and at today. There is a clear increase in the number of participants and also in the Countries signing the MoU. At today there are 303 participants, 51 Countries, including a few international partners, 33 Countries signing the MoU. The list of Countries and number of participants per Country was shown. This means we are achieving a good dissemination level within and outside Europe, consistently with the Action's objectives. However, a great number of participants does not correspond to a high number of participants active on the Action activities.

	2024	2025	Increase 2024-2025	KoM Jan 2022	Increase 2022 -2025
PARTICIPANTS	234	303	+69	68	+235
PARTICIPANTS' COUNTRIES	46	51	+5	32	+19
COUNTRIES SIGNING MoU	32	33	+1	28	+5

COST Action -Progress Review at 24 months (24/10/2022 to 24/10/2024)

The overall project reporting process started in July 2024 to avoid a last-minute rush. We collected information for the report and simultaneously we had to submit the financial plan for the 3rd year. The Progress Report was sent, and we received an evaluator report that the Chair will share with everybody. Overall, the Progress Report was positively appreciated, however some points are still to be improved.

COST Action -Progress Review at 24 months (24/10/2022 to 24/10/2024)

Major outcomes, impacts and successes

The Action shows a high level of activity as evidenced by the high number of meetings, STSMs and workshops organised. There are already a significant amount of high-quality research papers published as well as applications for new research projects, which shows the high dynamics among the network. For improvement points:

- The action may consider to simplify the website to make retrieval of information easier and understandable;
- The action may put more emphasis on making the publications available open access.
- There is also room for making a clear plan on monitoring and achieving the impact: are there any green chemistry solutions in the pipeline? Are there new leads to act on One Health VBD? Is there evidence of interactions with industry?

Plans for addressing issues identified in the report

- For the survey on Veterinarian's awareness of environmental impact, please link up with the new COST Action ENVIRANT (environmental impact of anthelmintics). They are doing similar activities and it may be more efficient to launch a survey together, also in order to minimize the survey fatigue among respondents.

Activity with stakeholders was not performed because it is planned from the 3rd year on. The overall evaluation was, however, "excellent".

Activity goals for Year 3

There are the Action specific objectives and yearly goals, which are divided per WG. The goals are linked to the Deliverables' achievements.

Deliverables for year 1 and 2 are almost all achieved to 100%.

This year there are 5 Deliverables to complete. WG5 and WG6 have no deliverables for this year, but they are working for achieving the Deliverables "cumulative over time" that can be completed only at the end of the Action.

Deliverable

YEAR 1 and YEAR 2

- D1_Website and social media platform launched and available. M4 (WG5).
- D2_Report on imaging and target engagement studies. M18 (WG3).
- D3_Report on biomarker and receptor-based assays in ecotoxicology. M18 (WG1, WG2, WG4).
- D4_Web resource - Coordination of compound libraries resources. M24 (WG1).
- D5_Report on compounds in silico pattern degradation prediction. M24 (WG1).
- D6_Report on omics and validation technologies. M24 (WG1-WG4).

YEAR 3

- D7_Report on target selected and structural biology. M36 (WG1).
- D8_Report on compounds synthesized. M36 (WG2).
- D9_Report on coordination of different medicinal chemistry technologies. M36 (WG2).
- D10_Report on One Health nanotechnology system for animal models studies. M36 (WG1, WG2, WG3).
- D11_Report on coordination of ecotoxicology assays and model systems. M36 (WG2, WG3).

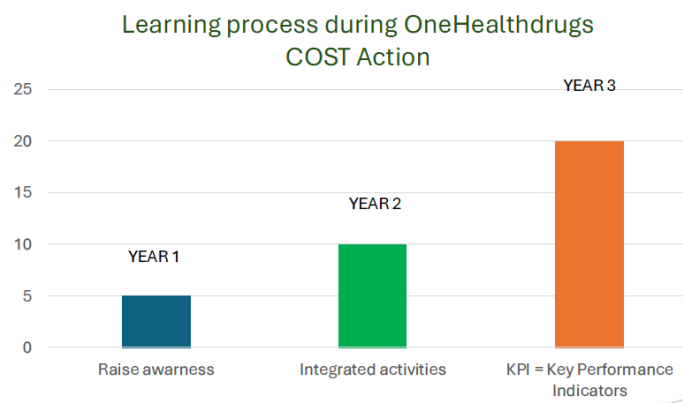
YEAR 4

- D12_Report on HTS assays and structural biology. M42 (WG1, WG2, WG3).
- D13_Report on integration of ecotox studies from WG1-WG3 and perspective for benefits upon such integration. M42 (WG4).
- D14_Report on SOP coordination on standardization of animal experiments. M42 (WG3).
- D15_Report on compounds degradability in vitro. M42 (WG1, WG2).
- D16_Roadmaps to assess the environmental effects of pharmaceuticals and their degradation products/metabolites. M44 (WG4).
- D17_Report on progress on compounds in the discovery pipeline M48 (WG3, WG4).
- D18_Report about compounds collections. M48 (WG1).
- D19_Report on compounds identified from natural sources and organic waste. M48 (WG1, WG2).
- D20_White paper composed and distributed. M48 (WG4-WG5).
- D21_Report on internal coordination of the transfer of knowledge and exploitation plan. M48 (WG1-WG6).
- D22_Report on external coordination of the transfer of knowledge and exploitation plan. M48 (WG1-WG6).

Key Performance Indicators (KPIs)

These are measurable indicators of progress toward our objectives, though they are linked to each goal indirectly. We will begin tracking Key Performance Indicators (KPIs) in year 3. Initially, it's difficult to define and measure them effectively. We first needed to launch our Action, allow it to run for a while, and integrate diverse disciplines that weren't traditionally involved. This integration was crucial for establishing shared

understanding and collaborative processes. Now that we've reached a good point, we can begin quantifying our progress in year 3. Each working group leader should analyze these examples and discuss/refine how to best quantify the KPIs for their specific group.



STSM (Short Term Fellowship)

The 4th STSM closed with 6 applications approved. Most of them are for very short mission, only one is talking the full available budget. Sheraz Gul: Lorenzo Raffaellini has already started the STSM to analyse compounds and he invites everybody in the Action to send 1-2mg of compounds to be characterised, in view of the publication.

Description of the STSM activity by L.Raffaellini.

Pharmaceuticals are potent tools used to treat human and animal pathologies, and their usage has been increased in the last decades¹. Given their extensive handling, it is not surprising that residues of several APIs (Active Pharmaceutical Ingredients) have been found in the environment². Pharmaceutical pollution consists in water and soil contamination, which can evolve in different scenarios. Among them, it has been demonstrated that therapeutic substances can produce toxic effects on non-target organisms³. Furthermore, the presence of small amount of antibiotics in the environment promotes drug-resistance acquisition by bacteria⁴, that causes over one million of excess deaths yearly⁵. In light of the above, it is our duty to respond to the call for preventive ecotox profiling of novel compounds with therapeutic potential, with the aim of developing more sustainable drugs, safeguarding our health and that of the environment.

STSM COST Action goals (CA21111, OHD)

- **Training:** Training in *in-vitro* assay development, screening and ADMET profiling. Training in a variety of *in-silico* methods to understanding the mechanism of action of active compounds in phenotypic assays.
- ***In-vitro* ADMET profiling:** Biological pomegranate extract and synthesised urolithin analogues provided by Home Institution will be tested in the *in-vitro* ADMET assay panel developed at the Host Institution, and the most optimal substances progressed to *in-vitro* testing in a model of *Leishmania* and ZV to evaluate their antiparasitic and antiviral potential.
- ***In-silico* compound annotation:** Interrogation of public databases and all biological data retrieval will provide insights into the mode of action of the compounds. This exercise will result in a knowledge graph which will link compounds, druggable targets, *in-vitro* and *in-vivo* activities, ADMET, ecotoxicology and clinical data.

Bibliography

- (1) *The Global Use of Medicines 2024: Outlook to 2028*; IQVIA Institute for Human Data Science, 2024.
- (2) Boxall, A. B. A. The Environmental Side Effects of Medication: How Are Human and Veterinary Medicines in Soils and Water Bodies Affecting Human and Environmental Health? *EMBO Reports* **2004**, 5 (12), 1110–1116. <https://doi.org/10.1038/sj.embor.7400307>.
- (3) Gunnarsson, L.; Snape, J. R.; Verbruggen, B.; Owen, S. F.; Kristiansson, E.; Margiotta-Casaluci, L.; Österlund, T.; Hutchinson, K.; Leverett, D.; Marks, B.; Tyler, C. R. Pharmacology beyond the Patient – The Environmental Risks of Human Drugs. *Environment International* **2019**, 129, 320–332. <https://doi.org/10.1016/j.envint.2019.04.075>.
- (4) Geneva: World Health Organization. Guidance on Wastewater and Solid Waste Management for Manufacturing of Antibiotics, 2024. <https://iris.who.int/bitstream/handle/10665/378471/9789240097254-eng.pdf?sequence=1>.

(5) Murray, C. J. L. et Al. Global Burden of Bacterial Antimicrobial Resistance in 2019: A Systematic Analysis. *The Lancet* **2022**, 399 (10325), 629–655. [https://doi.org/10.1016/S0140-6736\(21\)02724-0](https://doi.org/10.1016/S0140-6736(21)02724-0).

For the 5th STSM call, we propose to include the “ecotox/environmental impact” is in some way addressed by each STSM, because this is one of the major objectives of the Action. In the STSM application we should include the question “How will the project take into consideration the ecotox/environmental impact?”. This is possible even if the projects are not directly working on ecotox/environmental impact. In principle all projects can consider this concept in some way. Federica suggests adding into the STSM Application Form a question about how the “ecotox/environmental impact” concept is taken into account. The answers should be research-work related, not generic. One just need to consider somehow among the below reported topics:

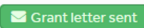
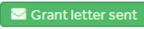
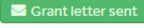
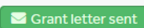
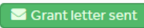
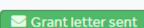
- green/greener objectives
- good laboratory green practice
- optimal animal models/replacement
- sustainability approaches

The 5th call will open the 15th of February and close the March 30, 2025

STSM

4th STSM CALL

6 granted

Ehab Elmahallawy	STSM		Unraveling the Mechanisms of Action of Antikinetoplastid Nucleoside Prodrugs: Bridging the Gap in Drug Efficacy and Mechanisms	2400.00	13/01/2025 28/02/2025
Hamed Eid A Alkhalaf	STSM		Metabolism of anti-kinetoplastid nucleoside leads in Leishmania and Trypanosoma species.	2400.00	07/04/2025 16/05/2025
Lorenzo Raffellini	STSM		In-vitro and in-silico analysis of neglected infectious disease compounds from an ADMET and ecotoxicology perspective	4000.00	13/01/2025 12/07/2025
Lori Doko	STSM		Robotic Plate Production and Antiparasitic Screening: Hands-On Cell Culturing and Data Analysis for Drug Discovery.	2400.00	10/02/2025 28/03/2025
Paula Schwarz	STSM		Blood brain barrier – derived peptide shuttles for drug delivery to the CNS	1200.00	13/01/2025 24/01/2025
Sohaib hourfane	STSM		Combined Experimental and Computational Exploration of Cannabis sativa and Boswellia carterii Phytocompounds: A Targeted Approach Toward Inhibiting Leishmania donovani	2400.00	01/06/2025 31/07/2025

Stakeholders' involvement

Last November 18th there was a first meeting organised by WG5 and WG6 for exploring ways to involve stakeholders. There were very few participants, but very interested. Based on the Action interests, some key people were identified as stakeholders advisory board. Now we have to identify some more key people and then which objectives we would like to reach with the stakeholders. We can deal with regulatory aspects and practical exploitation of our products, meaning identifying the “promising compounds” early on. Theo suggested a group of stakeholders: industry, international organisations and Associations. *Clara Lima, Harry de Koning and Godwin Ebiloma will go in March 2025 to an International Conference of 3 different societies for veterinary parasitology and this could be a good platform to contact some stakeholders. Aleksander suggests that the same Conference could also be a good place to contact pharma industry. Clara suggests an internal meeting to prepare for the Conference contacts.*

The idea is to broaden our work also to non-vector borne diseases. We are working in that direction; we should try to understand which stakeholders we want to reach in this group.

Surveys

There are many surveys going on and they all are in the web site, but the Action's participant will receive communications for each of them and will be invited to participate.

EU Project Calls

Tomorrow morning there is going to be a meeting to discuss about the IHI (Innovative Health Initiatives) calls 9 and 10. (<https://www.ih.europa.eu/apply-funding/ih-call-9>). The IHI promotes calls twice a year and we can start planning for projects for the upcoming and for the second deadline.

OHD Project toward OneHealthdrugs objectives

We have 5 OHD projects on going, others are in the pipeline.

OHD1, led by Ulrike Wittig and Cecilia Pozzi. **Biotarget Database**. It is in Fairdom database: <https://fairdmhub.org>. Still not public, to access it, users should register. The Database, divided by disease or vector. For each of them, there are the compounds and who uploaded them and who is the owner. It is possible to request contacts to the owner of the datafile. The compounds can be directly uploaded by the users or sent to Ulrike/Cecilia for them to upload. Let's contribute to the initiative!

OHD2. Database compound projects, led by Theodora, Federica Pellati, Daniele Aiello and others. Antiparasitic drug discovery and scaffold with low environmental impact. Step 1: compound from literature. Collected over 1.000 compounds that will be inserted into the database. The paper with metadata analysis is being prepared. At the end they expect to identify scaffolds with low ecotoxic profile.

Step 2: compounds will be from Action participants and collaborators. They are going to send a survey to gather the data.

Daniele Aiello presents the compound database and "chemoteca". The workflow to prepare the database and the chemicals analysis was presented. For each compound the ecotoxicity was evaluated using the virtual lab. Now they are in the phase of Beta-testing and collecting feed-back. There have been some access problems, which are being solved. Daniele showed the molecules profile and history in the database.

The description of the OHD chemotheca database handling will be described after the **WG2 organizational Meeting 2025-02-07 15:15 - 16:15 CET Online**.

Information below

2nd WG2 Operational Meeting Year 3 and OHD database training

7 February 2025, 14:00 – 16.00 CET online

https://teams.microsoft.com/l/meetup-join/19%3aJdu4-YOGoTWvm2EtTXTcbi08m9LpmYFMY_vTAu_mQGU1%40thread.tacv2/1738445528487?context=%7b%22Tid%22%3a%22e787b025-3fc6-4802-874a-9c988768f892%22%2c%22Oid%22%3a%22ac391189-1971-4664-9abf-5dbf09f2a671%22%7d

AGENDA

14.00-15.00

OHD database training (Daniele Aiello)

15.00-16.00 (WG2 2nd operational meeting 2025)

1. Update on the progress of CA21111 compound database first paper.
2. Update on WG2 + HG7 Workshop on "Green and bioinformatic approaches including biodegradability prediction in antiparasitic drug discovery" and of training school on "In silico prediction methods for ecotoxicity and bioaccumulation"
3. Discussion on the collection of Medicinal Chemistry projects from the Action members

OHD3 project. Review. Guy Cajon is preparing an academic roadmap for writing SOPs, which is going to be submitted to the Journal of Antimicrobials as part of the 50th anniversary Special Edition. He presented the methodology.

OHD4 project. Clara Lima is running the projects on One Health in the veterinary research.

OHD5 project. Brook's project, led by Harry de Koning, Clara Lima, Godwin Ebiloma. The Action is very multi-actors and with different languages. This project is to evaluate how the language influences the multidisciplinary reciprocal understanding. A survey, composed of 4 parts was drafted and is ready to be distributed to the Action participants. It takes about 20 min to be completed. It is totally anonymous. Then a paper will be published on cross-talk among different disciplines.

Call for a new editorial issue

Those who would like to lead one new issue focusing on some topics interesting for the action can write to the Maria Paola Costi/Anabela Cordeiro. The topics that are listed below are not well covered by publications from the Action and could be the focus of one or more issues. She asked for volunteers to coordinate the publication of one or more issues.

Delivery

Antiparasitic with low environmental impact

Translational science

Natural product

OneHealthdrugs Ambassadors

We have received six applications so far. The selection results will be published next week. As a reminder, Ambassadors will have the opportunity to attend Action activities (supported by the Action), play a key role with stakeholders, and have a few specific actions. Personal motivation is a very important evaluation criterion. All details are described in the Call, which is published on the Action website.

OH Ambassadors already exist as "official" figures, but none specialize in "drugs"—this focus is unique to our Action.

Events planned for the Action 3rd Working Period

There are about 60 events planned for this year, which is congruent with the large number of Action participants. Some events have already taken place. All of them are listed in the calendar published in the Action web site.

Events in presence:

- **18/03/2025 and 19/03/2025 -21/03/2025 March;** the Workshop and the training School co-organised with Cloudpharma in Greece. Deadline for registration: February 3rd, might be postponed
- **2025/05/15 – 2025/05/16 May -Workshop "Surveillance, prevention and therapies against parasitic diseases in humans and animals"] Tirana (Albania):** Workshop in Albania, the organisation is ongoing
- **2025-06-04 - 2025-06-06 June:** Antwerp Annual Conference, organised by Guy Cajon
- **08/09/2025 -10/09/2025 September:** Training School in Latvia, organised by E. Parisini
- **There are 2 new opportunities:** 1 for training school in Slovenia in July and one for Paul Ehrlich in Nantes (F) in June, which are being organised. For these two events there will be specific announcements.

Events IN PRESENCE planned for 3rd Working Period

GREECE-March 2025 Workshop "Green and bioinformatic approaches including biodegradability prediction in antiparasitic drug discovery" [HG7] 2025-03-18 09:00:00- 17:00:00 CET Athens (Greece) "In silico prediction method for ecotoxicity and bioaccumulation" [WG2+HG6+HG7] 19/03/2025 - 21/03/2025 Athens (Greece)	ALBANIA-May 2025 Workshop "Surveillance, prevention and therapies against parasitic diseases in humans and animals" [WG2, WG3, WG6] Tirana (Albania) 2025-05-15 10:00:00 - 2025-05-16 12:00:00 Hybrid	BELGIUM-June 2025 OHD 2025 Conference "Strategies for breaking the chain between the parasite reservoir in animals and infections in humans" [WG3 + all WGs/HGs] Antwerp (Belgium) 2025-06-04 09:00:00 - 2025-06-06 16:00:00	BELGIUM-September 2025 Stakeholder Workshop [WG5+WG6] Brussels (Belgium) Start Date 2025-09-09 09:00:00 - 16:00:00 Face to face
FRANCE-June 2025 33rd Annual GP2A Conference & XIVth Paul Ehrlich MedChem Euro-PhD Network Meeting 2025-06-11-13 Nantes (FR)	SLOVENIA-July 2025 Erasmus Mundi Summer School on Chemoinformatics 2025-06-30 - 2025-07-04 Ljubljana (Slovenia)	Latvia-September 2025 Training School "Expression, purification and basic characterization of target protein samples for drug binding studies" 08/09/2025 - 10/09/2025 Riga (Latvia)	

Athens Workshop and 5th Training School

Hosting laboratories: Cloudpharm P.C., Cana Laboratories - 446 Iraklion Avenue, Iraklio 14122, Attica, Greece

WS Green and bioinformatic approaches including biodegradability prediction in antiparasitic drug discovery - <https://onehealthdrugs.com/events/scientific-meeting/green-and-bioinformatic-approaches-including-biodegradability-prediction-in-antiparasitic-drug-discovery/>

In presence and in remote attendance.

For reimbursement, the submission of an abstract is required.

Deadline for abstract submission postpone to **February 15, 2025**. If interested, please contact sandra.gemma@unisi.it

5TH OHD TRAINING SCHOOL - In silico prediction method for ecotoxicity and bioaccumulation - <https://onehealthdrugs.com/events/training-schools/5th-ohd-training-school-in-silico-prediction-method-for-ecotoxicity-and-bioaccumulation/>

Deadline for application: 10 February 2025

Forthcoming meeting February

2 changes have been included: the 8thMCmeeting is on the 19 February (not 18th)

He Strategic advisory meeting will be in remote. The meeting in presence is postponed.

February 2025

WG4 organizational Meeting
2025-02-25 14:00:00 - 15:00:00 CET
Online

WG2 organizational Meeting
2025-02-07 14:00:00 - 15:00:00 CET
Online

8thMC meeting
2025-02-19 14:30:00 - 17:00:00
Online

One Health drugs against parasitic vector borne diseases in Europe and beyond
OneHealthdrugs

Cost Action CA21111

HG4 meeting (Young Researcher and Investigators meeting)

2025-02-20 17:00:00 - 18:00:00 CET

Online

WG6 organizational Meeting

2025-02-24 15:00:00 - 16:00:00 CET

Online

Strategic Advisory Meeting [WG5+WG6]

2025-02-27 11:00:00 - 13:00:00 CET

Anticipating the dates of March 2025

Core Group Meeting

2025-03-13 14:30:00 - 16:00:00 CET

Online

Workshop "Green and bioinformatic approaches including biodegradability prediction in antiparasitic drug discovery" [HG7]

2025-03-18 09:00:00- 17:00:00 CET

Athens (Greece)

Face to face

Training School

"In silico prediction method for ecotoxicity and bioaccumulation" [WG2+HG6+HG7]

19/03/2025 -21/03/2025

Athens (Greece)

HG2 STSM Grants awarding group meeting

2025-03-26 10:00:00 - 12:00:00

Online

March 2025