May-June 2026

Dear All,

I am pleased to share the **May-June 2026 Newsletter**.

Inside, you will find reports on the events that took place throughout May and June We have also included a content summary for your information; more details of all documents are available on the OHD website.
Additionally, brief overview of our current progress is provided. While not exhaustive, we hope it serves as a helpful "snapshot" of where we stand.
The newsletter starts with a letter by our young researcher ***Rokaya Ahmad*** *from prof.* ***Guy Caljon's*** *laboratory in Antwerp.* We publish her letter as we have received it. This is what she wants to communicate!
We have a busy schedule ahead for the final 3 months of the project.
Thank you all for your continued collaboration and participation in our events. We look forward to seeing you at our next online or in presence meeting. In the meantime, we wish you a Summer time.
Best regards,
Paola

Summary of OneHealthdrugs Events of May - June 2026

Updates on OneHealthdrugs COST Action

Letter from Rokaya Ahmad, PhD- WG4 Member and a very recent PhD Awardee from Prof. Guy Cajon's team

I am Rokaya, a farmer, veterinarian, researcher, and scientific staff member! My journey began with studying a Bachelor of Veterinary Medicine at Assiut University, Egypt. Even though it was quite tough, I truly enjoyed it and got an "excellent with honours" score for the 5-year program combined. That allowed me to become a staff member in the Department of Parasitology.

At the parasitology department, I taught the practical courses of parasitology and started my research career as a master's student. Teaching helped me strengthen my own understanding of parasitology and improved my ability to explain complex concepts in a simple and practical way. It is a valuable experience that developed my mentoring skills. For my master's degree, I conducted research on the comparative screening of avian protozoa in house-raised versus farm-raised chickens. My work involved microscopy and histopathological examinations. We showed the site specificity of Eimeria and Cryptosporidium, and their lesion scores. We also reported Blastocystis, Trichomonas, Chilomastix, and Entamoeba infections. This experience strengthened both my diagnostic skills and my scientific curiosity regarding parasite biology. Alongside my master's studies, I was actively involved in laboratory diagnosis of clinical parasitology cases, admitted from the hospital to our lab. Among many cases, it was especially remarkable to witness the emergence of Capillaria infections, report a case of intestinal acariasis, and diagnose two imported malaria cases and one case of cutaneous leishmaniasis. It was great to directly translate my experience to the patients and clinic. Also in the veterinary hospital: many cases of Cryptosporidium, Fasciola, Babesia, Theileria, Osterus ovis, mites, ticks, etc. Wow, parasitology is so significant in people and animal life, and that needs to change!!! In 2021, the Egyptian Missions Program announced a call for applications, which recommended having invitations from at least two different universities. Looking around for high-quality teams, I came across a PhD vacancy advertised on FindAPhD by Professor Guy Caljon and Prof. Louis Maes at the Laboratory of Microbiology, Parasitology and Hygiene of the University of Antwerp, describing a highly interesting project focused on studying the mechanism of action of antileishmanial compounds and the transmission biology of Leishmania using genetic engineering approaches such as overexpression, cosmid libraries, and CRISPR techniques. I chose Professor Guy's laboratory because the project was clearly defined, intellectually inspiring, and closely aligned with my growing interest in molecular parasitology and host–parasite interactions.

This PhD journey marked a transition in my scientific career — from classical parasitology toward modern molecular and genetic approaches aimed at understanding parasite biology at a deeper level. It has allowed me to combine my diagnostic background with advanced molecular tools and has shaped my vision as a researcher seeking to contribute to both fundamental and translational parasitology research.

During my PhD, I started working on the mechanism of action of antileishmanial aminopyrazole compounds, continuing the work initiated by my former colleague, Dr. Magali Van Den Kerkhof, after

she demonstrated the high promise of these compounds against Leishmania. I continued the work on mechanism of action and resistance of novel antileishmanial aminopyrazole compounds, where we applied chemical mutagenesis, whole-genome sequencing, CRISPR-Cas9 gene editing, and proteomic approaches, and successfully identified and validated the drug target and resistance-associated mutations in Leishmania. This work is currently close to acceptance in a major international peer-reviewed scientific journal, and constitutes my first thesis result chapter. The second result chapter focused on developing a novel nuclear transport assay in Leishmania parasites using a genetically engineered fluorescent reporter system to investigate nuclear import as a potential therapeutic target for drug discovery. In addition, we demonstrated the potency of Importazole against different protozoan parasites. This chapter is submitted to another major scientific journal. The third chapter focused on the characterization of a presumed drug efflux transporter (EAMA family transporter) in Leishmania. This work was performed together with the Erasmus master student, Ms. Gaia Gastoldi, whom I supervised during the project. This work has been published in the International Journal for Parasitology – Drugs and Drug Resistance (IF: 3.4).

During my PhD journey, I joined the COST Action One Health Drugs network, which gave me the opportunity to interact with researchers from different countries and scientific backgrounds working on parasitic diseases and drug discovery. I am sincerely grateful to the COST Action One Health Drugs network for its continuous support throughout my doctoral studies and for enabling my participation in numerous scientific events. Through this network, I actively presented my PhD work in several international scientific meetings and workshops. In 2024, I presented a 5-minute pitch in Oxford (UK) during the conference "Advancements in Structural and Functional Drug Discovery of Vector-borne Diseases", where I discussed the discovery of novel drug action mechanisms using antileishmanial aminopyrazoles. Later, I gave an oral presentation during the online One Health Drug (OHD) Marathon Days entitled "Towards knowing your target in Leishmania: Establishment of validated in situ assays for antileishmanial drug discovery", for which I received the award for Best Oral Presentation. This award supported my participation in the One Health Drugs Thematic Workshop in Tirana, Albania (2025), where I presented both an oral presentation on nuclear protein import in Leishmania and a 5-minute pitch focused on the mode of action of antileishmanial aminopyrazoles using chemical mutagenesis approaches. These experiences significantly improved my scientific communication skills, increased my confidence in presenting and discussing research internationally, and added substantial value to my academic and professional profile.

I recently successfully defended my PhD dissertation and remain in academia with a postdoctoral appointment at the University of Antwerp, where I will further develop my skills in the field of immunoparasitology.

Workshop activities

- **Workshop online - Virtual screening of OHD Compound libraries against parasitic targets (EVENT 1), 13.05.2026**

The OHD:LUB Project is one of the OneHealthdrugs COST Action's premier success story, showcasing how interdisciplinary synergy can fast-track drug discovery.
Its workflow bridges the gap from supercomputing to sustainable therapy through three key phases:
Phase I: High-Velocity Virtual Screening – Leveraging the Vega HPC system, the team (led by Podlipnik and Jukić) has screened 36,000+ compounds against 22 targets. With 21 targets already docked, they are now using 3D interaction fingerprints to refine the most promising hits.
Phase II: The "Green" Triage – In a pioneering move, the project uses ML-driven ecotoxicity models (in collaboration with Daniele Aiello) to filter hits. This creates a "Green Drug Score," ensuring candidates are both potent and environmentally benign from the outset.
Phase III: Experimental Validation – The OHD CA has launched a "call to action." Labs willing to contribute enter the list of Expert Laboratories in discipline of the drug discovery area. While labs prepare protein purification, others provides HTS and ADMET testing infrastructure. STSM funding is prioritized for young researchers to travel and conduct the final physical assays. More information at www.onehealthdrugs.com under EVENTS.
Check out the website at https://www.onehealthdrugs.com/events/scientific-meeting/meeting-2026/workshop-online-the-ohd-lub-project-results-1st-round-target-screening-and-ohd-compound-prioritization/

This project is presented in the OHD website under COLLABORATE tab and represents one of the main assets of the OHD action after its end (October 2026).
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- **Joint Webinar – COST Actions OneHealthdrugs & ENVIRANT, 15.05.2026**

How can the One Health approach help us develop more sustainable antiparasitic strategies while reducing environmental impact?
By Joining this joint webinar brought together two COST Actions working at the interface of animal health, environmental sustainability and drug-related challenges:
OneHealthdrugs (CA21111) https://onehealthdrugs.com/
OneHealthDrugs aims to coordinate the discovery of drugs that stop vector-borne infections in both human and veterinary settings according to the principles of the optimal profile for both organisms, increasing quality and reducing environmental impact.
ENVIRANT (CA23154) https://envirant.eu/

The objective of ENVIRNAT is to advance, consolidate and disseminate research and knowledge on the environmental occurrence and ecological impact of anthelmintics administered to livestock and to propose more sustainable practices and methods to minimize their use in the control of helminth infections.
The webinar provided an overview of:
• the activities and achievements developed by OneHealthdrugs during its final Grant Period,
• the ongoing and future activities planned within ENVIRANT during its second Grant Period, specifically on current challenges and research activities related to the detection of environmental residues of anthelmintic drugs and their potential impact.

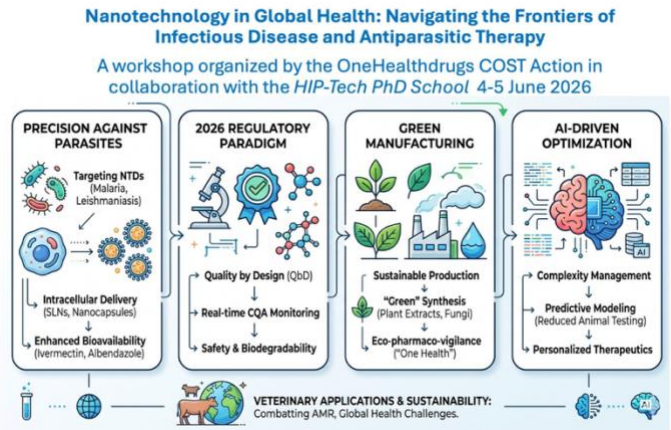
- **Online workshop - Success stories and challenges in One-Health drug discovery for VBDs, 18.05.2026**

This workshop provided a state-of-the-art overview and helped define a collaborative, multidisciplinary roadmap within COST Action CA21111 across all career stages, bringing together senior and early-career members to highlight success stories and challenges in One Health drug discovery strategies for vector-borne parasitic diseases, encountered in both scientific and communication activities across the network.

In this workshop, Anabela Cordeiro Silva, vice-chair of OneHealthdrugs, has shared her experiences on 'Blended Intensive Program (BIP) on Drug Resistance in Cancer and Infectious Diseases' Then, Clara Lima (OHD ambassador, Former WG6 vice-Leader), Gülşah Bayraktar (WG5 Leader), Elisa Ulassi (OHD ambassador, HG4 Leader), Daniele Aiello (OHD ambassador) has shared both their projects and their personal journeys through OneHealthdrugs Cost Action. Finally, Aurora Gaza and Bianca Martinengo, the STSM awardees, shared their experiences and challenges during their STSM.

- **Nanotechnology in Global Health: Navigating the Frontiers of Infectious Disease and Antiparasitic Therapy In Presence/Online - Modena, 4-5.06.2026**

The One Health drugs COST Action and the HIP-Tech PhD School (University of Modena and Reggio Emilia) convene in June 2026 for an international day focused on Nanotechnology in global health. The integration of nanotechnology into therapeutic areas represents a critical intersection of innovation, regulatory evolution, and environmental stewardship.



In 2026, nanotechnology has transformed the fight against Neglected Tropical Diseases (NTDs) like malaria. By using intracellular targeting via polymeric nanocapsules, drugs are delivered directly into host cells to strike parasites where they hide. Simultaneously, nano-suspensions have boosted the bioavailability of drugs like Ivermectin, allowing for lower, safer doses.

This progress is governed by a rigorous regulatory landscape. Agencies now mandate Quality by Design (QbD), requiring real-time monitoring of particle size and drug loading. To ensure long-term safety, the industry has pivoted toward biodegradable materials that leave no toxic footprint in the patient.

Sustainability is the new manufacturing standard. Through "Green" Synthesis, researchers use plant extracts and fungi instead of hazardous solvents, slashing the carbon footprint of pharmaceutical production. This "One Health" approach extends to eco-pharmaco-vigilance, ensuring that nano-waste does not disrupt aquatic ecosystems or livestock environments, which helps combat antimicrobial resistance.

Powering these breakthroughs is AI-driven optimization. Machine learning now predicts membrane interactions and perfects nanocarrier "recipes," drastically reducing animal testing. From personalized human therapeutics to more efficient veterinary care, these microscopic innovations are solving macroscopic global health challenges.

- **Target Screening and OHd-based compound prioritization (EVENT 2) Project, 22.06.2026. Online.**

The workshop of the “The OHD:LUB project results. 1st round TargetScreening and OHD-compound prioritization” project is organized in the context of the COST Action 21111 OneHealthdrugs – “One Health drugs against parasitic vector-borne diseases in Europe and beyond”.

The workshop provided the platform for the presentation of the results of the OHD:LUB project derived fromthe joined efforts of the University of Ljubljana (Crtomir Podlipnik and Mark Jukic) and UNIMORE (M.P. Costi, D.Aiello) to screen, using *in silico* methods, the OHD chemotheca of >12000 compounds against the 20 OHD Actionprioritised targets from WG1 of Leishmania and other trypanosomatidic parasites.The workshop held with the contribution of medicinal chemists and interested scientists of the OHD COST Action. In particular,those who participated to the OHD:LUB project by contributing with targets suggestions, compounds in house orfrom the OHD database, assay performance (antiparasitic, ecotox evaluation) and ecotox prediction, proteinavailability, structural biology (X-ray). The aim of this workshop is to show the first-round results, start the organization of the next step experimental process, promotemedicinal chemistry networks and program.

The focus of the agenda as follows presentation of the OHD:LUB initiative, detailed description of current tools and methodologies, updates on participating scientists and guidelines for collaborative activitymanagement, planning upcoming experiments and reviewing available exploitationplatforms for testing, including a breakdown of available expertise, coordination of compound-protein target-assay workflows and discussion of next steps.

- **Compounds from natural sources and organic waste for VBDs, 25.06.2026, Online (WG1-WG5/HG4/ HG7 Workshop)**

The workshop was jointly organized by WG1-WG5/HG4/HG7 and covers activities related to sustainable drug discovery for VBDs using natural sources and valorisation of organic waste.
Various secondary metabolites from plants and other organisms have achieved regulatory approval for treating infectious diseases. In addition, valorisation of agro-food by-products and organic waste into valuable precursors towards the synthesis of new drugs against VBDs merges circular economy with sustainable drug discovery leading to the development of eco- friendly, cost-effective antiparasitic drugs.
The current workshop provided insights on the recent trends in natural products research for VBDs, exploring the therapeutic potential of natural products along with sustainable methods for extraction, isolation and synthesis. In addition it will incentivise researchers to employ green, responsible and sustainable approaches in the quest for new efficacious and low cost drugs against these diseases.