

Growing
ideas
through
networks

COST Action CA21111 - OneHealthdrugs

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

Joint Webinar – COST Actions OneHealthdrugs & ENVIRANT

Maria Paola Costi
Action Chair



JOINT WEBINAR: INTERFACE OF ANIMAL HEALTH, ENVIRONMENTAL SUSTAINABILITY & DRUG-RELATED CHALLENGES

OneHealthDrugs (CA2111)

DISCOVERY OF DRUGS FOR VECTOR-BORNE INFECTIONS

QUALITY AND REDUCED ENVIRONMENTAL IMPACT

Date: 15th May, 2026

Time: 14:00 – 16:00 CET

Online Webinar

ENVIRANT (CA23154)

ENVIRONMENTAL OCCURRENCE & IMPACT OF ANTHELMINTICS

PROPOSING SUSTAINABLE PRACTICES

~~How~~ can the One Health approach help us develop more sustainable antiparasitic strategies while reducing environmental impact?

Join this joint webinar bringing 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 ENVIRANT 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 will provide 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.

Date: 15th May, 2026

Time: 14:00 – 16:00 CET

Online Webinar

<https://us06web.zoom.us/j/82264495864?pwd=aBGPdAkKbKdbSJMq7cLpl6F3gsMn4t.1>

ANTWERP JUNE 4, 2025



CONTENT

1. Action overview
2. The Action progress towards its objectives
3. Forward look

1. Action overview

1. Action Overview



DURATION: 4 years 1 November 2022 – 23 October 2026

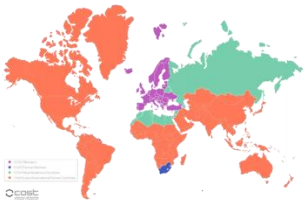


TOTAL BUDGET: € 820.485,15



GRANT HOLDER: Università di
Modena e Reggio Emilia
Italy

Scientific MARIA PAOLA COSTI
Financial Lorena Rebecchi
Manager Maria Cristina Notarsanto
Legal Rita Cucchiara



MEMBER COUNTRIES: 34 (of which 20 ITC)
Overall participants from 54 countries worldwide



PARTICIPANTS: 365 WG members +
about 1050 all participants

2. The Action progress towards its objectives

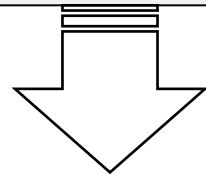
OneHealth*drugs* Action

MAIN AIMS

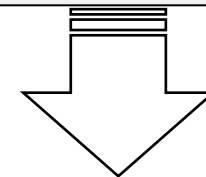
To coordinate the ongoing R&D activity on novel drugs against Neglected Infectious Diseases (NID) taking into consideration the global social and economic context of the diseases.

SPECIFIC OBJECTIVES

To enrich the pipeline with high quality, effective, reduced cost leads and candidate drugs, with improved tolerability on one hand and having minimal environmental impact, by incorporating the principles of the One Health in every step of the research process.



RESEARCH COORDINATION



CAPACITY BUILDING

Key Concepts

ADDRESSING
VECTOR BORNE PARASITIC DISEASE



Drug research and
development
Innovation towards
OneHealth concepts for
human and animal
therapy.



WG actions

Drug R&D

Design, structural
biology & strategies

Synthetic chemistry and
extractions

Biological evaluation (HTS,
HCTS), parasitology, target
profiling, PAINS profiling,
hit&lead selection)

Mechanism of action studies
and proof of concepts, new
targets from multiomics
approaches

In vivo studies,
Biodistribution, Drug delivery,
in vivo toxicity, *in vivo*
antiparasite activity,

Innovation & green

Host-parasite driven discovery, target degraders,
compounds degradation prediction, multiple
targeting of extracts mixtures in silico prediction.

Microwave, flux chemistry, **green chemistry
concepts**, natural products, chimeric compounds,
organic **waste material**, **natural compounds
extraction**, **metabolic degradation analysis**

Ecotoxicology of pharmaceuticals, **biomarkers and
indicators on selected species**, molecular
parasitology

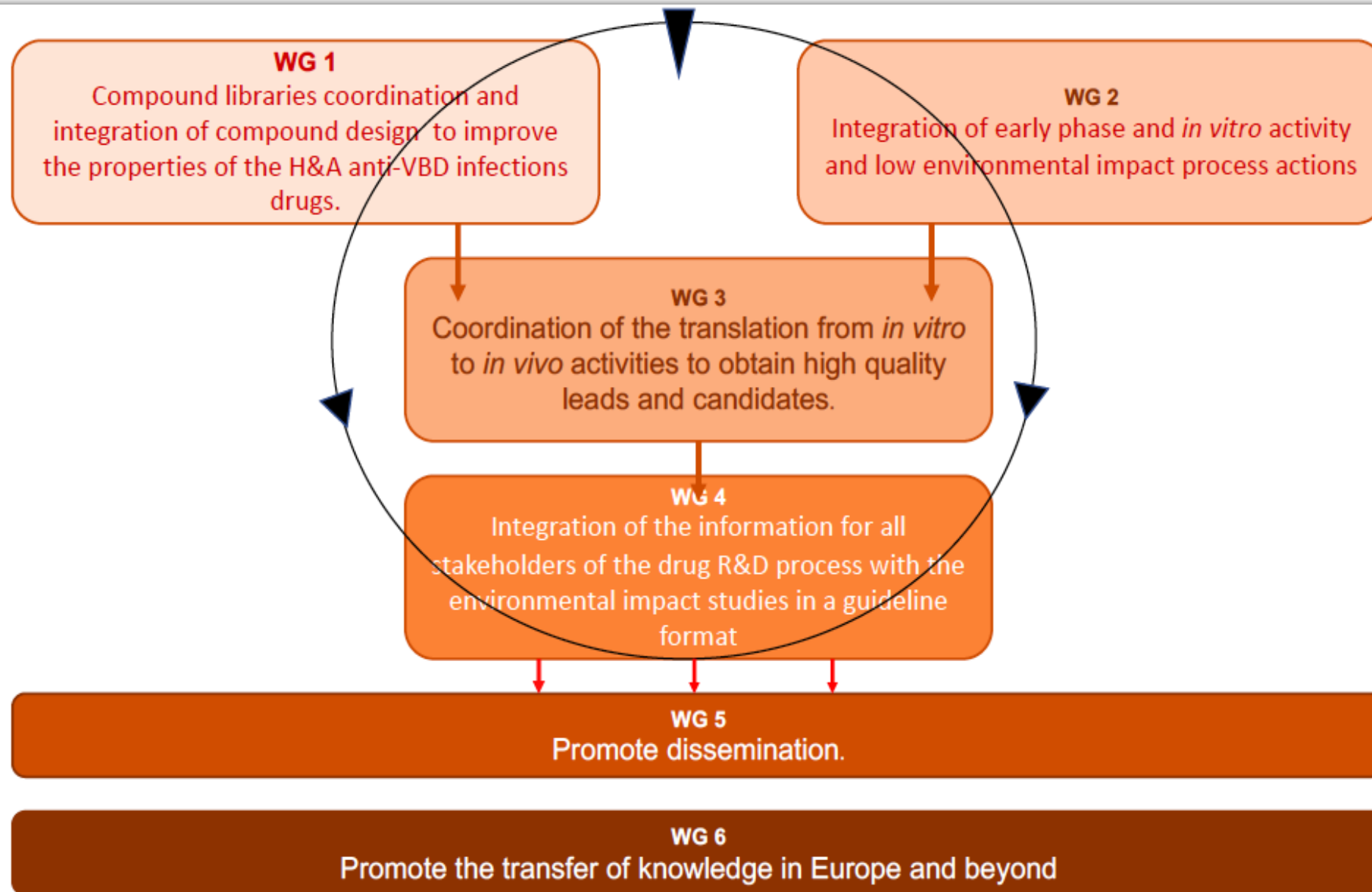
Proteomics, genomics and transcriptomics,
cellular and molecular parasitology, new target
identification, drug resistance studies, cellular host
parasite interactions predictions

Pharmacokinetics, pharmacodynamic, **drug
targeting using chemical vectorization and
nanotechnology using biodegradable drug carriers**,
in vivo tolerance and activity

Action structure

WGs

HGs



HG1-Science Communication

HG2- Grant Awarding Team

HG3- Stakeholders' involvement

HG4- Young researcher activities

HG5- Training school organization

HG6- Environmental impact and Ecotoxicology

HG7- Drug chemistry advancements in biodegradability including prediction

RESEARCH COORDINATION Specific

Objectives

1. Coordination and integration of the medicinal chemistry programs by collecting and re-using **compounds databases**. *In silico prediction* of compounds (biodegradability) behaviors to improve the properties of the antiparasitic drugs.

2. Coordination of the *in vitro* activity of the R&D process and integration of the necessary actions for the reduction/prevention of the drugs impact on the environment.

3. Coordination of the *translation from in vitro-to-in vivo* activities to obtain high quality leads and candidates.

4. Coordination of the activities to incorporate procedures and assays of the antiparasitic drugs R&D program in the **guideline** format.

5. Dissemination and transfer of knowledge

CAPACITY BUILDING Objectives

6. To build a sustainable network of European stakeholders from the fields of human and veterinary drug discovery, parasitology, pharmacology, omics, environmental and health science and communication, collaborating within and across disciplines towards the common goal of discovering and developing new drugs against VB parasitic diseases

7. 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.

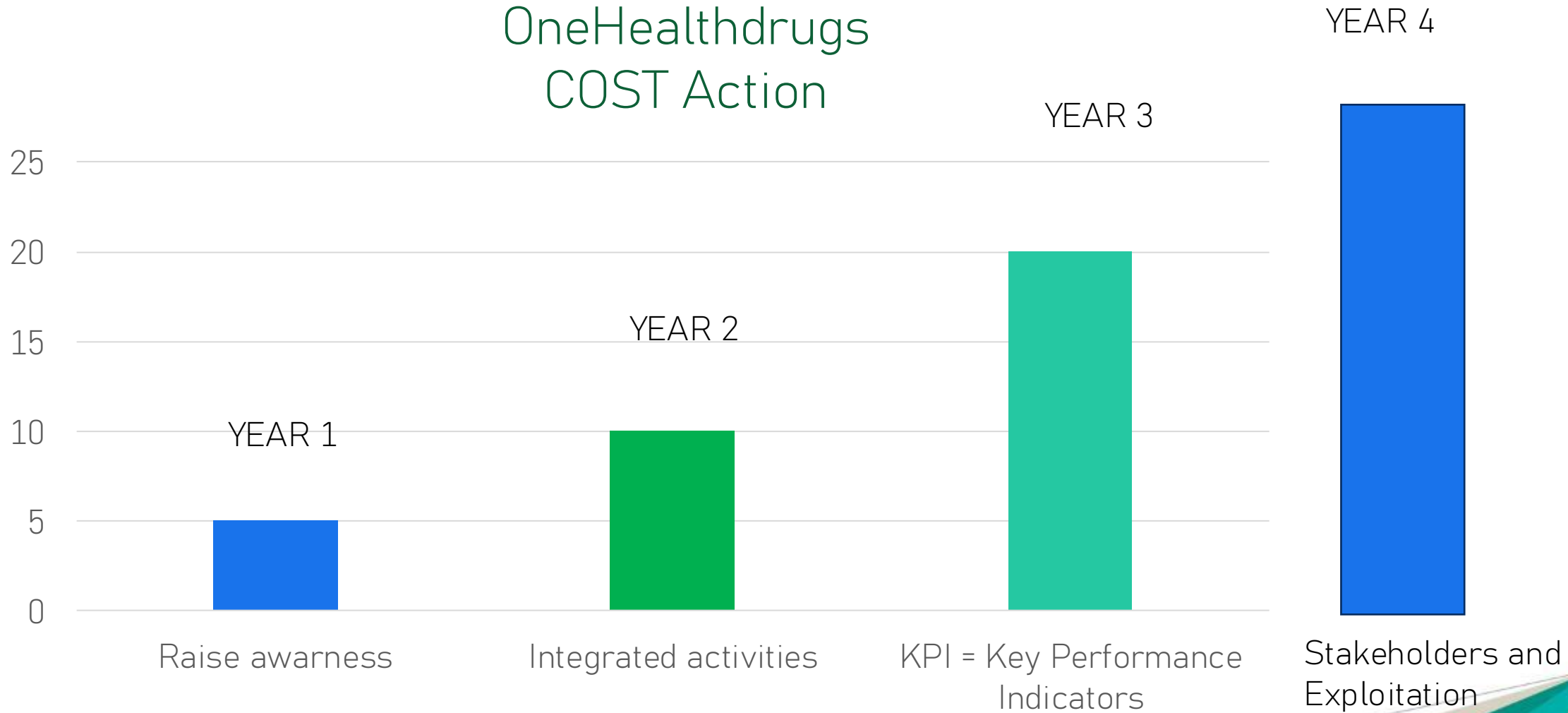
8. To cooperate with non-European world-leading experts within each scientific field covered, thereby ensuring mutual benefits and the best possible platform for any research and educational activities within the Action.

9 To increase the interest of SMEs, industries, local, national governmental institutions in drug discovery research to implement the research activity in the field and ensure a constant feeding of the drug discovery pipeline with new chemical entities with One Health profile, thus supporting the innovation needed in the field

5. *Dissemination and transfer of knowledge*

RESULTS

The learning process during OneHealthdrugs COST Action



Networking Activities

EVENTS

Meetings, Workshops, Conferences

About 8-10 in presence/year **24 in presence**

About 40-50 from remote/year **150 in remote**

60 planned YEAR 4

Training Schools

7 performed

1 - 2 Planned Year 4

MOBILITY

OF RESEARCHERS

STSM

7 year1 + 8 year 2 + 6 year 3 = 21 Done

6-8 Planned YEAR 4

VNS Grant

1 year1 + 1 year3 = 2 Done

1 Planned YEAR 4

PRESENTATION AT EXTERNAL CONFERENCES

ITC YRI G

2 year1 Done

1 Planned YEAR 4

YRI G

1 year3 Done

1 Planned YEAR 4

OHD1-TARGET DATABASE PROJECT

OHD2 - DATABASE
COMPOUNDS
PROJECT

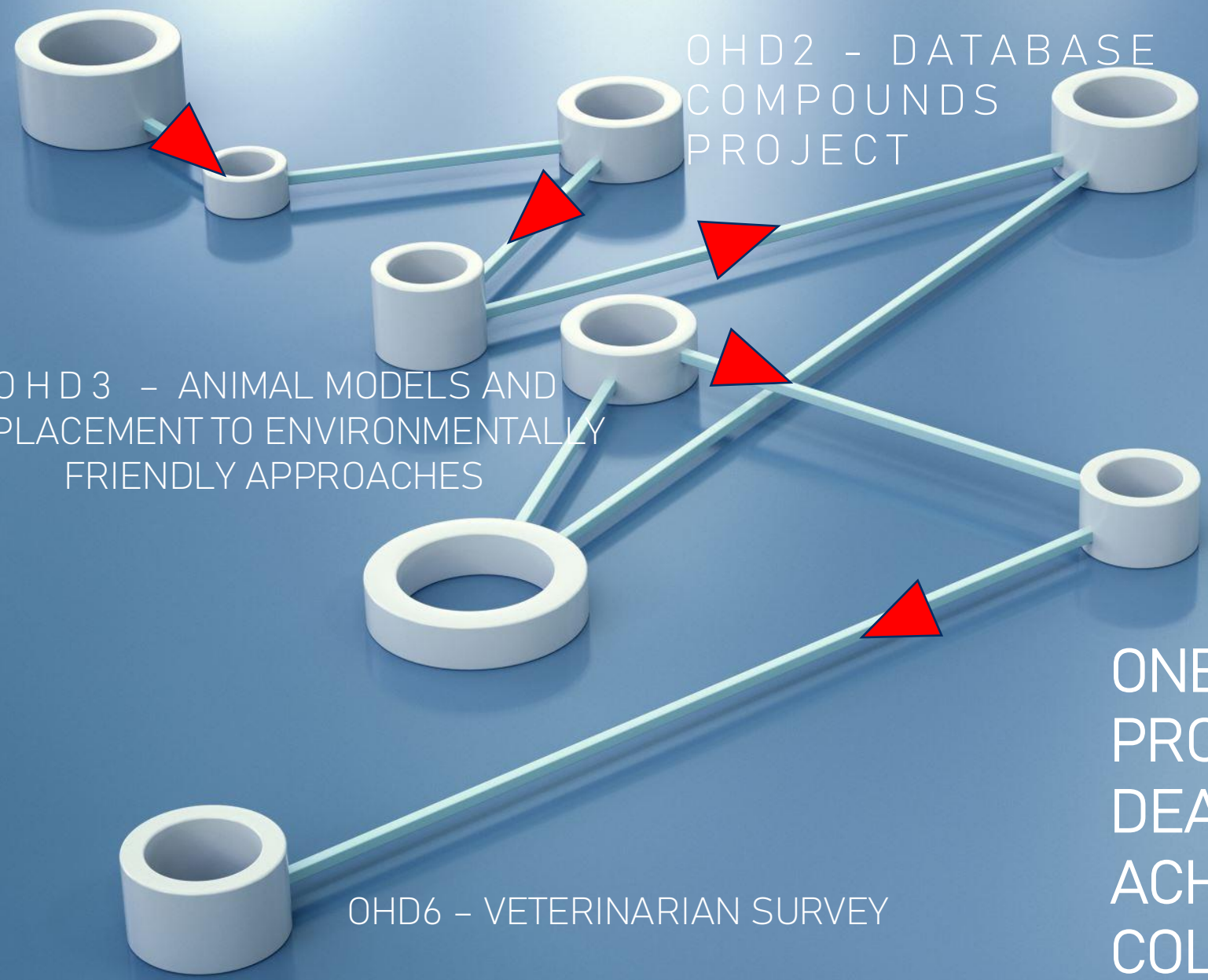
OHD4 - ENVIRONMENTAL
IMPACT OF VETERINARY DRUGS
AGAINST VBPD

OHD3 - ANIMAL MODELS AND
REPLACEMENT TO ENVIRONMENTALLY
FRIENDLY APPROACHES

OHD5 - BROOKS
PROJECT ON SCIENTIFIC
LANGUAGE
HARMONIZATION

OHD6 - VETERINARIAN SURVEY

ONEHEALTH*DRUGS*
PROJECTS TO FACILITATE
DEALIVERABLES
ACHIEVEMENTS AND FAVOR
COLLABORATIONS



Main achievements



Ecotoxicology
Assay (2)



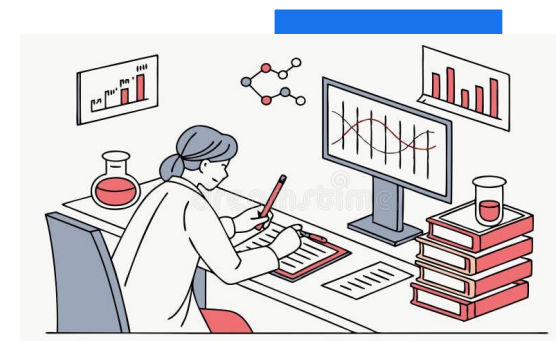
AI BASED Ecotox
algorithm to predict
compounds with clean
profile



OneHealthdrugs database
[https://www.cclab.unicz.it/
ohd/index.php](https://www.cclab.unicz.it/ohd/index.php)
and novel candidates
ongoing

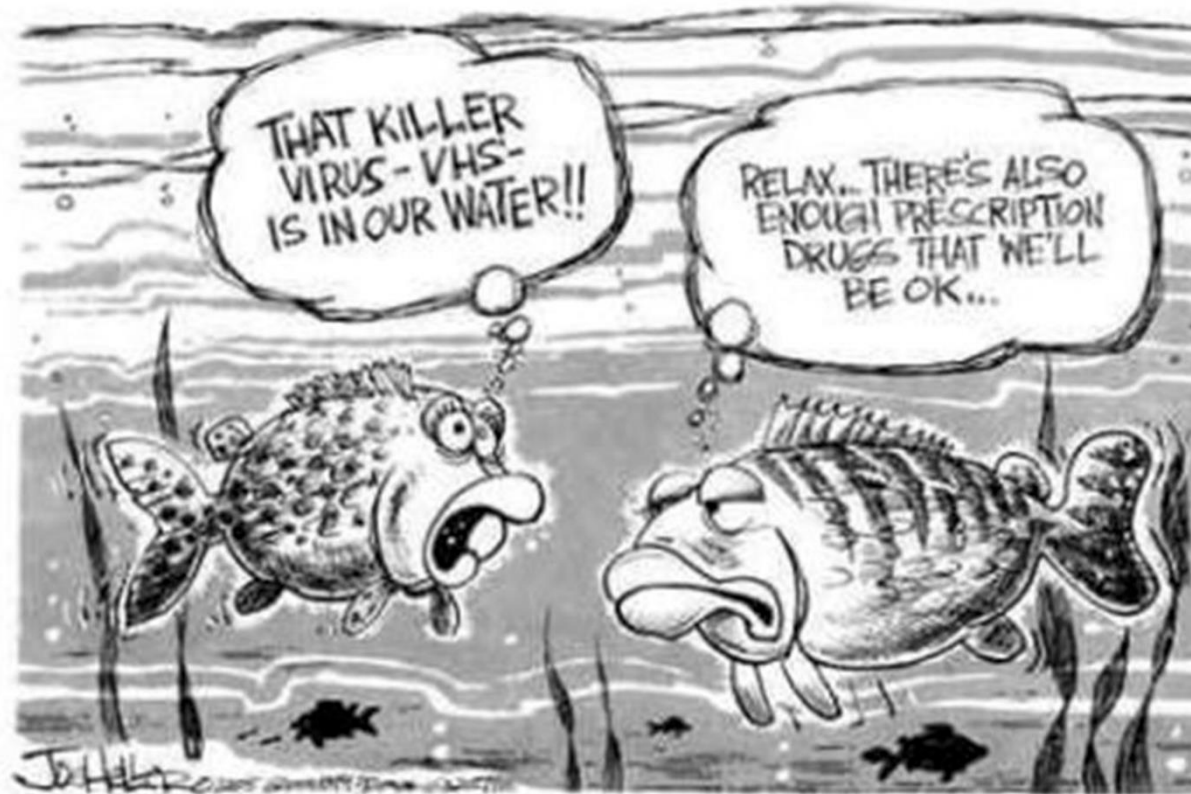


Career
Development and OHD
ambassadors



Publications
>115

ACHIEVEMENTS



Do not worry! We have some solution😊

Program OHD (45'):

Maria Paola Costi – (UNIMORE) Action chair – OHD Overview

Sandra Gemma –(University of Siena) Horizontal group on Biodegradation of pharmaceuticals

Title: *Biodegradability in the drug discovery pipeline*

Daniele Aiello – (UNIMORE, member of the Ecotoxicity/Docking Team)

Title: *Integrating Machine Learning and GreenDrugScore - GDS- for Compound Prioritization*

Eleni Chontzopoulou - (CloudPharm, SME, Athens)

Title: *G.AI.A: An Integrated Machine-Learning Platform for Predicting Bioaccumulation and Ecotoxicity of Pharmaceuticals.*

Marco Mazzorana - (Diamond center for structural biology) – Core group member –

Title: *From Molecules to Ecosystems: Structural Biology and Biophysics in a One-Health Framework*

Theodora Calogeropoulou - (NHRF , Athens) - WG2 Leader -

Title: *Integration of early phase studies and low environmental impact actions*

Sheraz Gul (Fraunhofer) - Horizontal Group 4 Leader on Training School –

Title: *In-vitro assays in drug discovery*

Guy Caljon - (Antwerp University, Antwerp) -WG3 leader –

Title: *A roadmap for the discovery of high-quality leads and drug development candidates considering the One Health concepts*

Harry de Koning (University of Glasgow, Glasgow) WG6 Leader -

Title: *A survey of veterinarians on the One Health implications of drugs against parasitic vector-borne diseases.*

WG2

Activities



The OHD database was set up with more than 10000 antiparasitic compounds, that includes chemical-specific information enriched with target specific and off-target effects including ecotox properties.



Surveys were conducted to collect hits and leads antiparasitic compounds serving as the basis for further development with inputs from the Action members.



Information on sustainable technologies from medicinal chemistry projects of the Action participants was collected



In silico assessment of ecotoxicology properties of hits and leads In silico valuation of molecular and ecotoxicological properties for the identified scaffolds of interest (COMPoI)



Collecting strategies for the characterization of the biological properties and environmental impact (ecotox) of the different leads

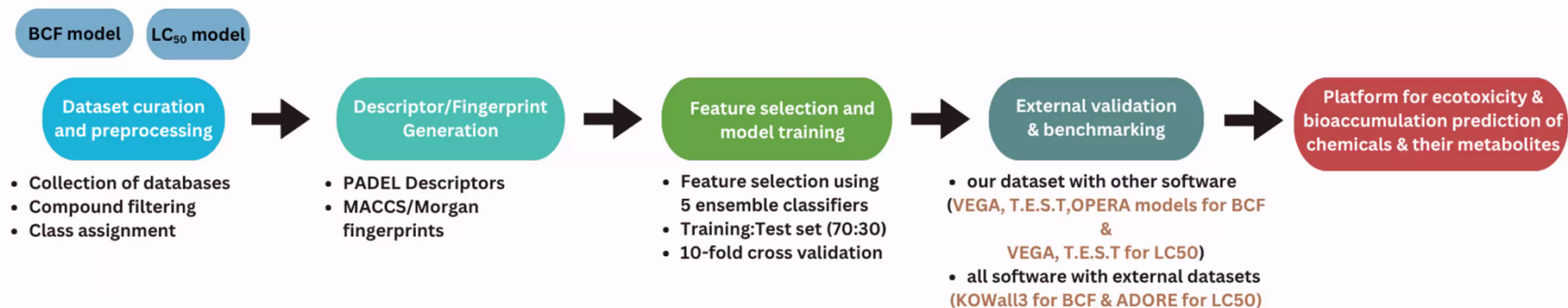


Organisation of workshops, meetings, training schools

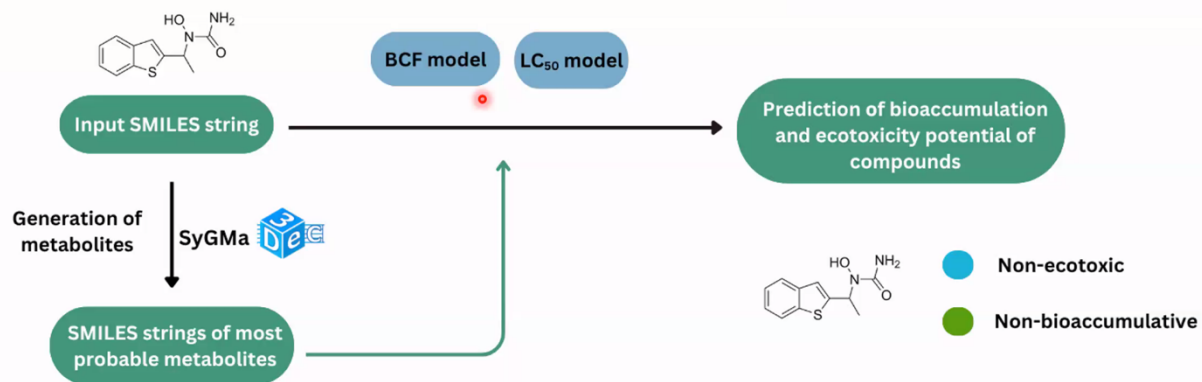
Eleni - Cloudpharm



Integrated Workflow Visualization



Webserver deployment workflow



Possible inputs

Occurrence

Analytical chemistry data
Omics data

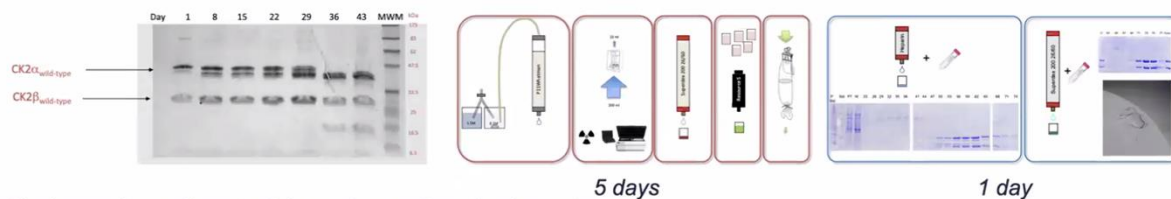
Effects

Toxicity in patients
Ecotoxicology
Field data

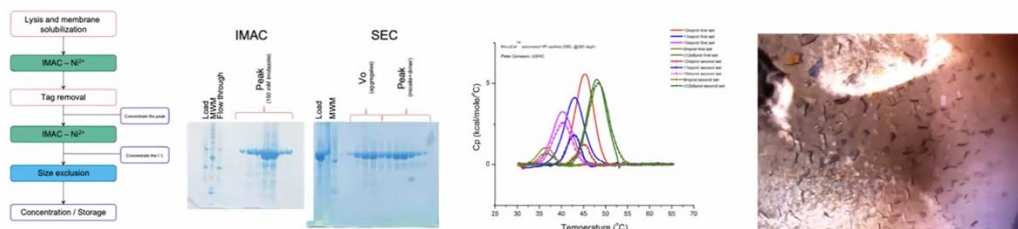
But mechanisms might be unclear
and sources of uncertainty remain

Fit-for-purpose purification

More preps with comparable results (and avoid spoiling results)

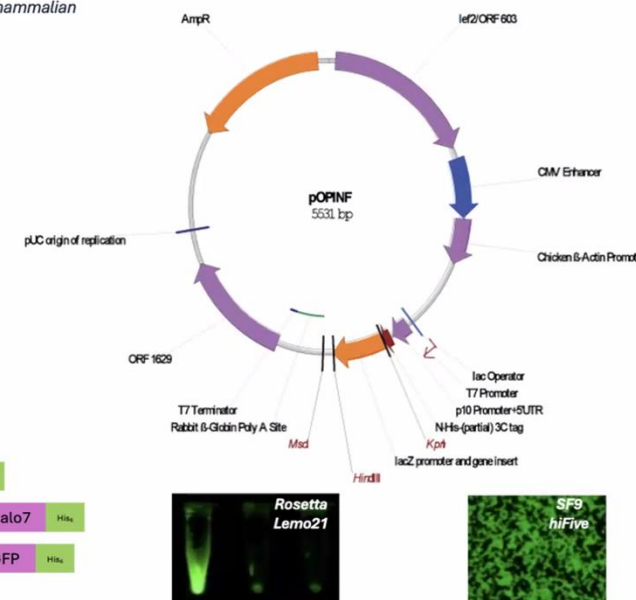
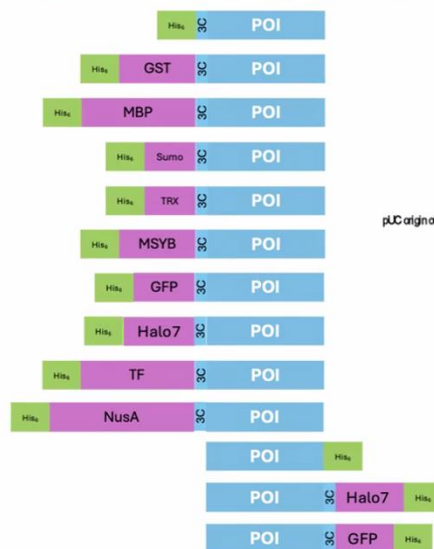


Achieving purity at all cost might produce sub-optimal samples



A User-Centred Workflow: Exportable, Portable Methods

Multi-host vectors *E. coli*, insect, mammalian



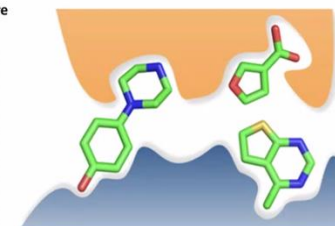
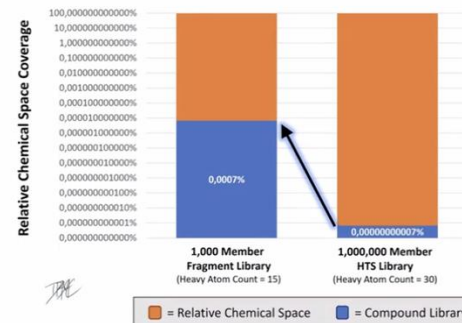
Berrow, et al. (2007) Nucleic Acids Res. 35(6):e45
Berrow, et al. (2009) Methods Mol Biol. (2009) 498:75-90
Rird (2011) Methods 55 29-37

Talking: Mazzorana, Marco (DLSL...)

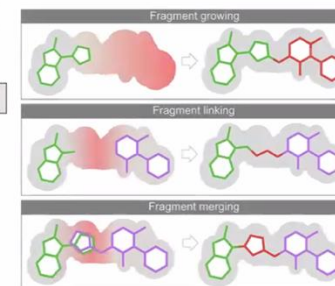
OPPF-UK

Fragment-based drug discovery (XChem)

Fragment Library covers relative chemical space 10 million times more
with a thousand times less compounds



- Highly sensitive
- Target and binding site agnostic
- Directly yields structural information that can drive hit-to-lead and lead optimisation



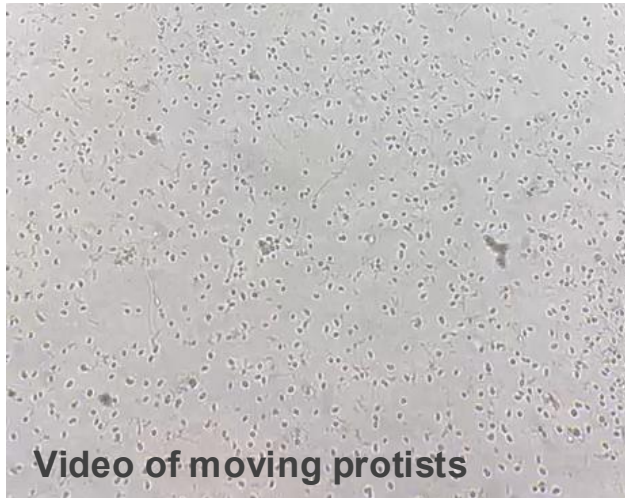
- Development to increase docking sites will produce higher affinity compounds (second round)

- Molecular weight < 300 Da
- mM - μ M affinities **BUT** highly efficient
- Often identified by biophysical methods
- Libraries typically 500-1000 compounds

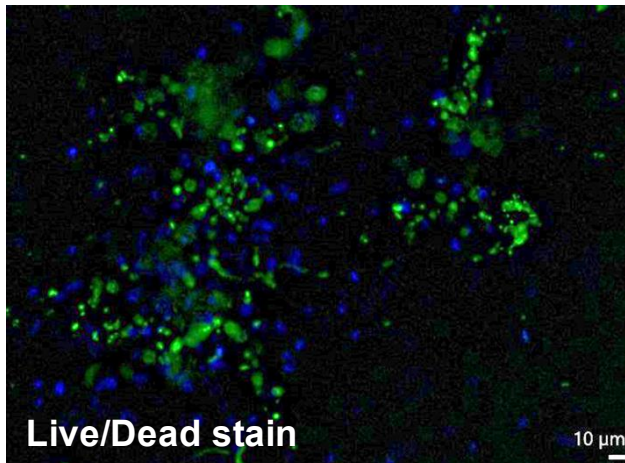


A. New ecotoxicology assay concept and development

A highly prevalent free-living protist as off-target species,
very closely related to infectious kinetoplastid parasites

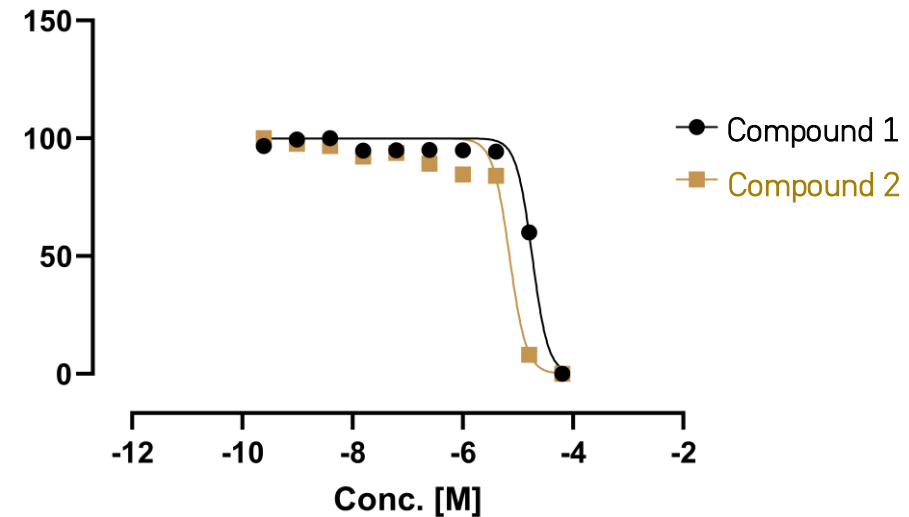


Video of moving protists



Live/Dead stain

10 µm



Read-outs and scripts are being optimized

Project funding application submitted

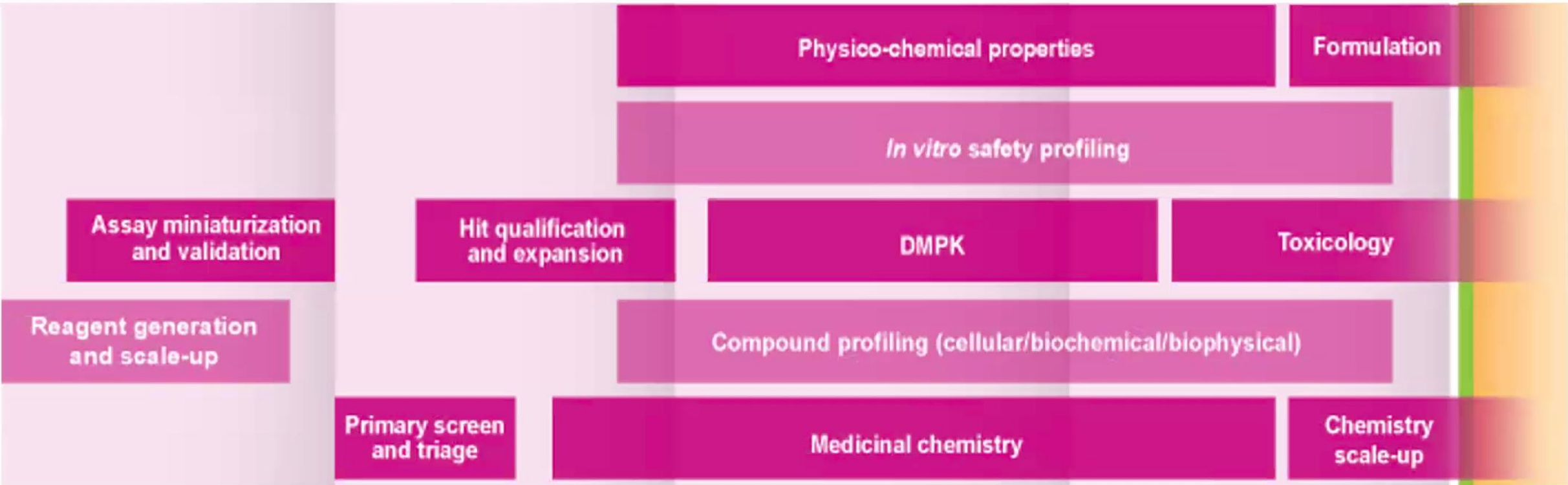
Exploration of patenting

Exploration of validation for OECD regulatory consideration

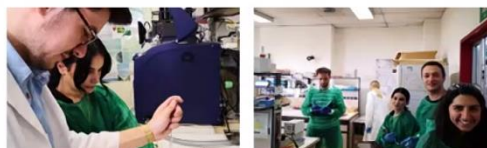
**CONTRIBUTION: STSM IN NETWORK-BASED LABS
(ANTWERPEN AND LANDAU)
CONFIDENTIAL**



	Reagent validation	Assay development	Screening	Hit-to-Lead	Lead-to-Candidate
TYPICAL TIMELINE (M)	< 3	< 6	< 6	12-24	12-24
BIOLOGY SUPPORT	Protein construct generation & purification/detection tags	Functional, binding, cell-based & selectivity assays	Hit confirmation, MoA studies, cytotoxicity, selectivity & ADMET	SAR (potency & selectivity), MoA & ADMET/DMPK	SAR (potency & selectivity), MoA & ADMET/DMPK
MILESTONES	High quality reagents	Fit-for-purpose assays	Validated Hits	Lead Declaration	Candidate Declaration



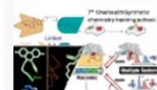
OHD TRAINING SCHOOLS



8th OHD TRAINING SCHOOL - Crash course in ecotoxicology: From concepts to practice

27 May – Friday 29 May 2026 University of
Namur, Namur, Belgium NEW DEADLINE 15
MARCH 2026

[Find out more →](#)



7th OHD Training School on SYNTHETIC CHEMISTRY OF ANTIMICROBIAL DRUGS AND PROTAC'S STRATEGY

University of Modena and Reggio Emilia
and University of Bologna 1-3 October
2025

[Find out more →](#)



6th TRAINING SCHOOL - Expression, purification and basic characterization of target protein samples for drug binding studies

Monday 8 September – Wednesday 10
September 2025 Latvian Institute of
Organic Synthesis, Riga, Latvia

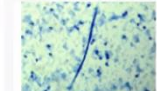
[Find out more →](#)



5TH OHD TRAINING SCHOOL - In silico prediction method for ecotoxicity and bioaccumulation

Wednesday 19 March – Friday 21 March
2025 Cloudpharm P.C., Cano Laboratories -
446 Iraklion Avenue, Iraklio 14122, Attica,
Greece

[Find out more →](#)

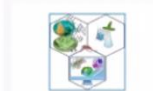


Training school Wednesday 25 September – Friday 27
September 2024

4th OHD Training school - Cell culture as in vitro models for newly developed drugs against vector borne parasitic diseases within the One Health concept

University of Warsaw, Warsaw, Poland

[Find out more →](#)



Natural products training school - Tuesday 18 June –
Thursday 20 June 2024

3rd OHD TRAINING SCHOOL - Natural products in antiparasitic drug discovery: experimental and computational approaches

Department of Pharmacy-University of
Naples Federico II Via D. Montesano 49,
80131, Naples, Italy

[Find out more →](#)



2nd Training School 27-29/09/2023 - 3days school
Siena - Italy

MedChem and structural biology

Tools and strategies for hit and lead
optimization in the One Health
perspective. Participants selected- list
announced!

[Find out more →](#)



8 May – 10 May 2023

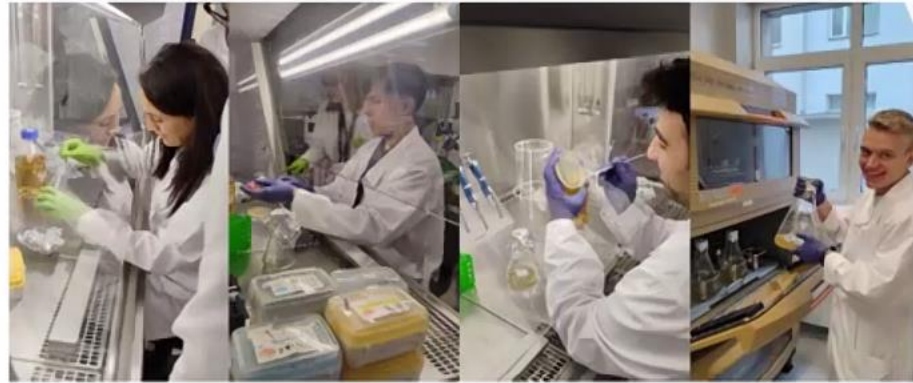
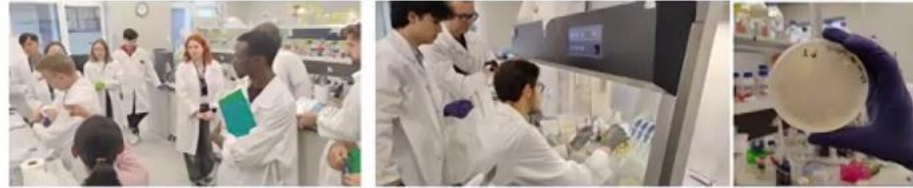
Fraunhofer ITMP, Hamburg, Germany

Training School of the COST Action CA21111 - One
Health drugs against parasitic vector borne
diseases in Europe and beyond

[Find out more →](#)

RULES for selection of participants of the Training Schools-OneHealthdrugs

[Find out more →](#)



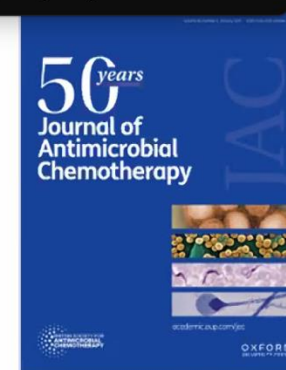
Roadmap – *In vitro* to *vivo* translation

A strategic discovery roadmap towards high-quality leads and drug development candidates for kinetoplastid diseases. Part 1: setting the stage

Sarah Hendrickx^{1†}, Kayhan Ilbeigi^{1†}, Eli S. J. Thoré^{2,3}, Michael G. Bertram^{2,4,5}, Estefanía Calvo-Alvarez⁶, Sener Cintesun⁷, Ana Isabel Olías-Molero⁸, María Jesús Corral⁸, Marta Mateo-Barrientos⁹, Jérôme Estaquier^{10,11}, Sébastien Pomel¹², José María Alunda⁸, Sheraz Gul^{13,14}, Katrien Van Bocxlaer¹⁵, Frédéric Frézard¹⁶, Joana Tavares^{17,18,19}, Anabela Cordeiro Da Silva^{17,18,20}, Maria Paola Costi²¹, Louis Maes^{1‡} and Guy Caljon^{1*‡}

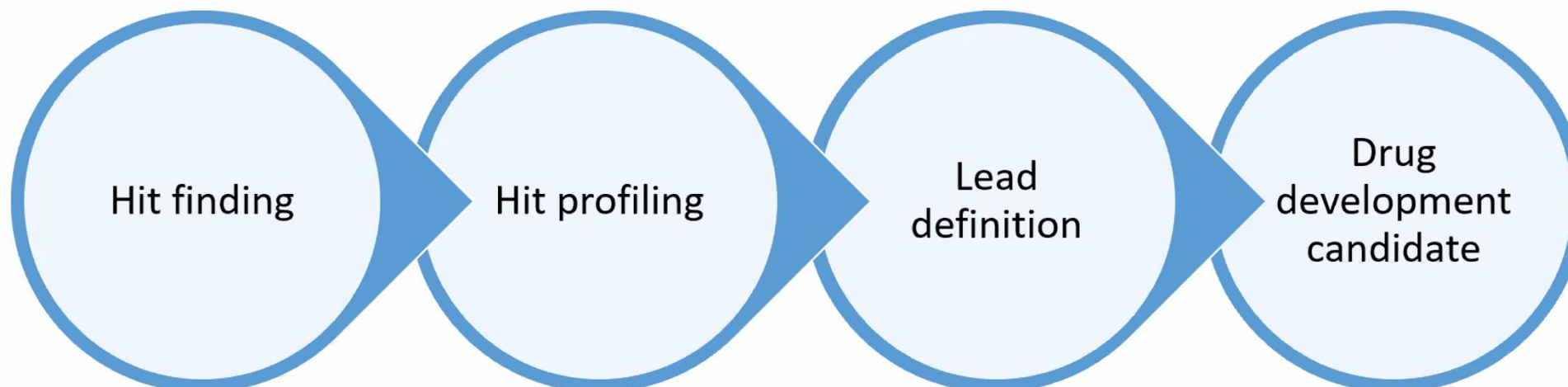


Talking: Guy Caljon



→ Animal experiments →

<i>In silico</i> methods
Chemistry
Primary pharmacology
Toxicology & Secondary pharmacology
Pharmacokinetics
Pharmaceutics



- Efficacy + safety for the host
- Know your compound and target
- Safety for the environment

Conclusions



Antiparasitic veterinary drugs are an emerging One Health concern

Environmental impact of veterinary medicinal products in the environment can be reduced by responsible prescription and waste management

- Need to provide veterinarians with education on the topic
- Improve waste management of unused drugs
- Involve multiple stakeholders for harmonized and sustainable solutions
- Identify the relative OneHealth burdens of equivalent treatment options



European COST Action ENVIRANT (CA23154)

Environmental impact of anthelmintics in livestock and alternatives to minimize their use

María Martínez Valladares DVM PhD

CSIC (Spanish National Research Institute)

mmarva@csic.es



Webinar, 15th May 2026



Funded by the
European Union

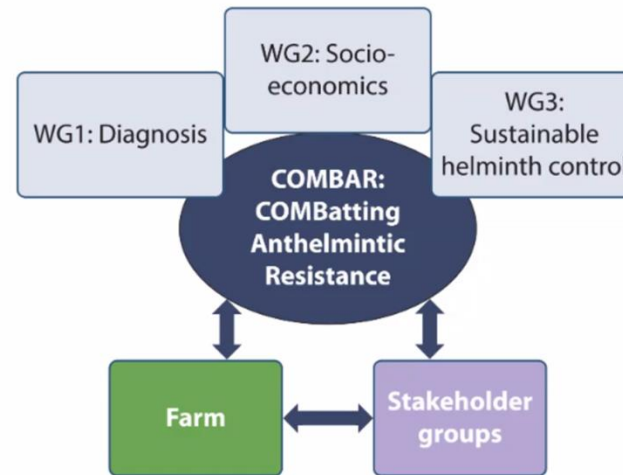
Background



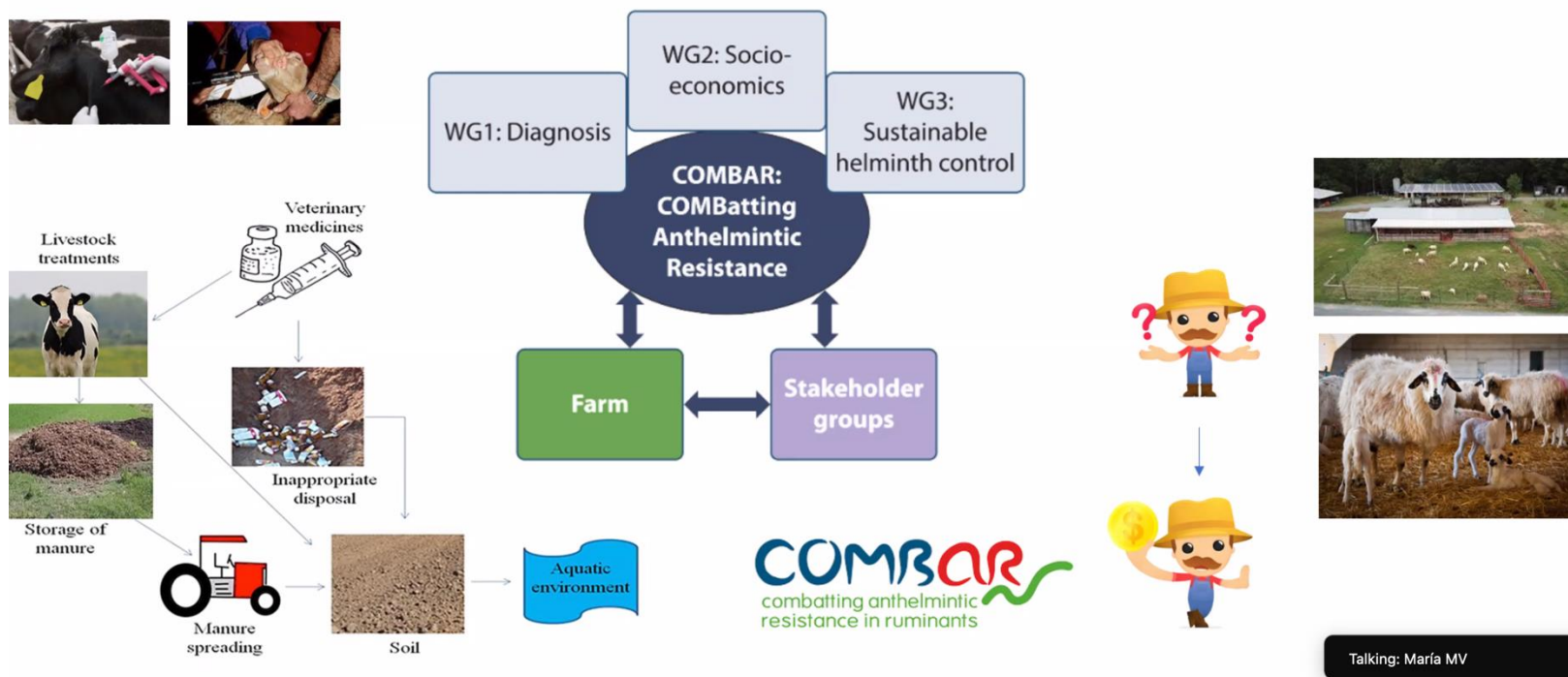
Johannes Charlier, Chair



Smaragda Sotiraki, Vice-Chair



Background





Main Aim

Create a **network** to bring together experts in the field of

Measuring anthelmintic residues in the environment and their impact

Foster the scientific exchange of knowledge needed to

- reduce the use of anthelmintic drugs in livestock
- evaluate new and more sustainable methods to control helminth infections
- support the application of new tools and approaches in this field.



<https://www.cost.eu/actions/CA23154/>



WG1. ANTHELMINTIC RESIDUE OCCURRENCE in environment and associated factors: integrating farm practices and environmental dimensions

OBJECTIVE

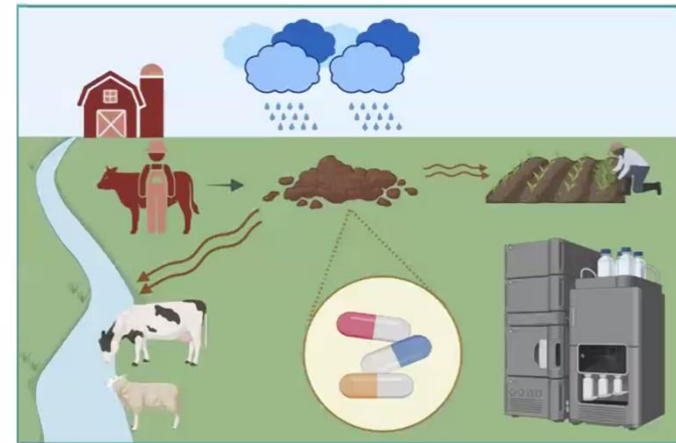
Conduct a comprehensive investigation into the presence of **anthelmintic residues** within the **environment**, while also examining the **interconnected factors** that contribute to their occurrence

WG1 Leaders

Laura Rinaldi - UNINA



Martin Danaher - TEAGASC



WG1. ANTHELMINTIC RESIDUE OCCURRENCE

	TASKS	YEAR 1				YEAR 2				YEAR 3				YEAR 4			
		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40-42	43-45	46-48
		T 1.1															
	T 1.2																
	T 1.3																
	T 1.4																
	Deliverables					D 1.1		D 1.2 - D 1.3						D 1.4			



T1.1. Evaluation of existing **analytical methodologies** and current data on residue occurrence in soil, water sources, plants and invertebrates to determine levels, variation and major knowledge gaps, informing new road maps for future research. **Training School** on analytical methodologies to measure anthelmintic residues.

T1.2. Identify **farming practices** contributing to environmental residues by reviewing **anthelmintic** sales, efficacy, dosage, route of administration, and manure-related practices. These factors will be collected in a survey and discussed during a **workshop on farming practices**.

T1.3. Determine how **environmental factors** (soil characteristics, topography, hydrology and climatic conditions) favour the accumulation and persistence of environmental residues. These points will be discussed during a **workshop on environmental factors**.

T1.4 Draft a **conceptual model** to relate residues to farming practices, environmental and climatic conditions, showing key drivers of residue levels either from existing data or hypothesised pathways.

WG1. ANTHELMINTIC RESIDUE OCCURRENCE

		YEAR 1				YEAR 2				YEAR 3				YEAR 4			
		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40-42	43-45	46-48
TASKS	T 1.1																
	T 1.2																
	T 1.3																
	T 1.4																
Deliverables						D 1.1		D 1.2 - D 1.3						D 1.4			



T1.1. Evaluation of existing **analytical methodologies** and current data on residue occurrence in soil, water sources, plants and invertebrates to determine levels, variation and major knowledge gaps, informing new road maps for future research. **Training School** on analytical methodologies to measure anthelmintic residues.

T1.2. Identify **farming practices** contributing to environmental residues by reviewing **anthelmintic** sales, efficacy, dosage, route of administration, and manure-related practices These factors will be collected in a survey and discussed during a **workshop on farming practices**.

T1.3. Determine how **environmental factors** (soil characteristics, topography, hydrology and climatic conditions) favour the accumulation and persistence of environmental residues. These points will be discussed during a **workshop on environmental factors**.

T1.4 Draft a **conceptual model** to relate residues to farming practices, environmental and climatic conditions, showing key drivers of residue levels either from existing data or hypothesised pathways.

D1.1. Scientific review paper on occurrence of anthelmintic residues on different environments (in progress)

D1.2. Scientific opinion papers about farm practices, environmental factors and climatic conditions that favour the accumulation and persistence of environmental residues.

D1.3. A survey of relevant farming practices being carried out in different European countries, which will be used to guide WG4/ WG5.

D1.4. A desk-based survey collating environmental factors, climatic conditions and livestock density and demographics in different European countries, which will later be included in WG5.

2nd survey – Details on Analytical Methods

Most common analytical technique

HPLC: 11 labs

LC-MS: 9 labs

Standard operating procedures available

Yes: 7 labs

No: 8 labs

Most researched AHs

Ivermectin: 11 labs

Albendazole: 9 labs

Mebendazole: 7 labs

Fenbendazole: 5 labs

Levamisole: 5 labs

Funding needed

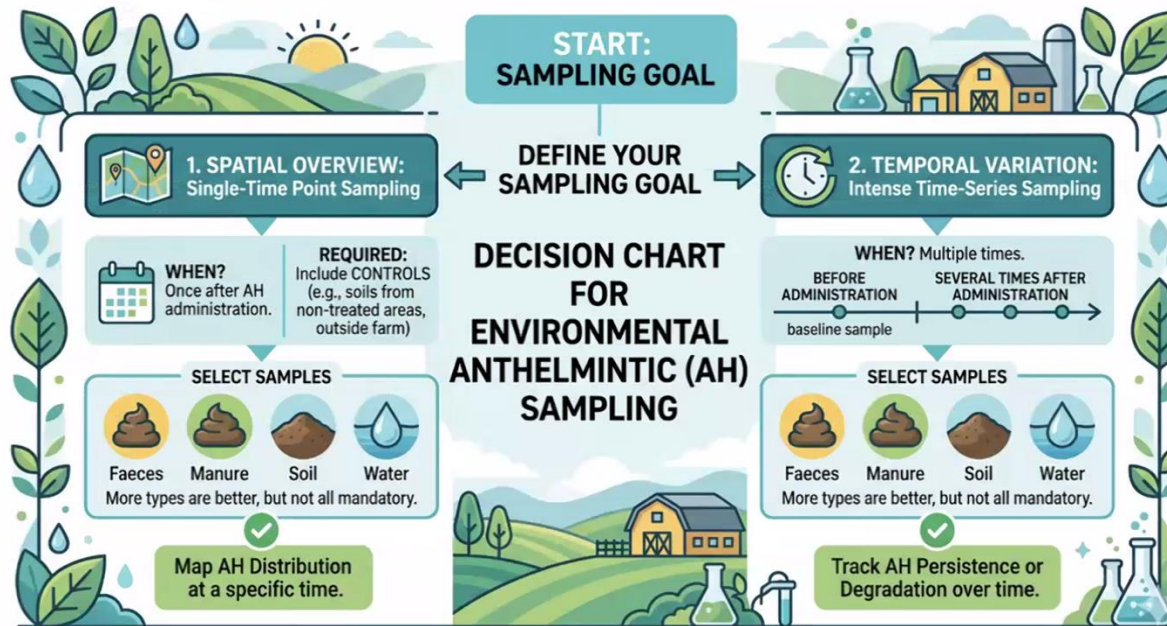
Yes: 9 labs

No: 6 labs



Guidelines for Environmental Sampling to Analyse Anthelmintic Residues in Farm

Version 1 (13/05/2026)



**WG1 & WG2
consensus**

Talking: Laura Binaldi

Join this joint webinar bringing 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 ENVIRANT 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 will provide 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.

Date: 15th May, 2026

Time: 14:00 – 16:00 CET

Online Webinar

<https://us06web.zoom.us/j/82264495864?pwd=aBGPdAkKbKdbSJMq7cLpl6F3gsMn4t.1>

Environmental Risk Assessment

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WG5 – Benefit-cost modelling



Eric Morgan and Vassilis Skampardonis

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- bskamp@uth.gr

To provide a **balanced and evidence-based understanding of the overall impact of anthelmintic (AH) use**, considering both the beneficial effects of the control of parasitic worms for animal health and the associated risks to ecosystems.

A diagram consisting of a dark blue rectangular box with the text 'WG1-4' in white, centered within it. A white arrow points upwards from the top center of the box.

WG1-4



envirant

WG2. Environmental impact of anthelmintic residues: assessing repercussions and risk in ecosystems



Dimitrios Karpouzas

University of Thessaly, Department of Biochemistry and Biotechnology, Lab of Plant and Environmental Biotechnology Larissa, Greece



Stefan Geisen

Wageningen University, Laboratory of Nematology, The Netherlands



Benefits?

↔ Anthelmintics ↔

Costs?

Productivity
Welfare
Profit
Rural livelihoods
Food security
GHG emissions?

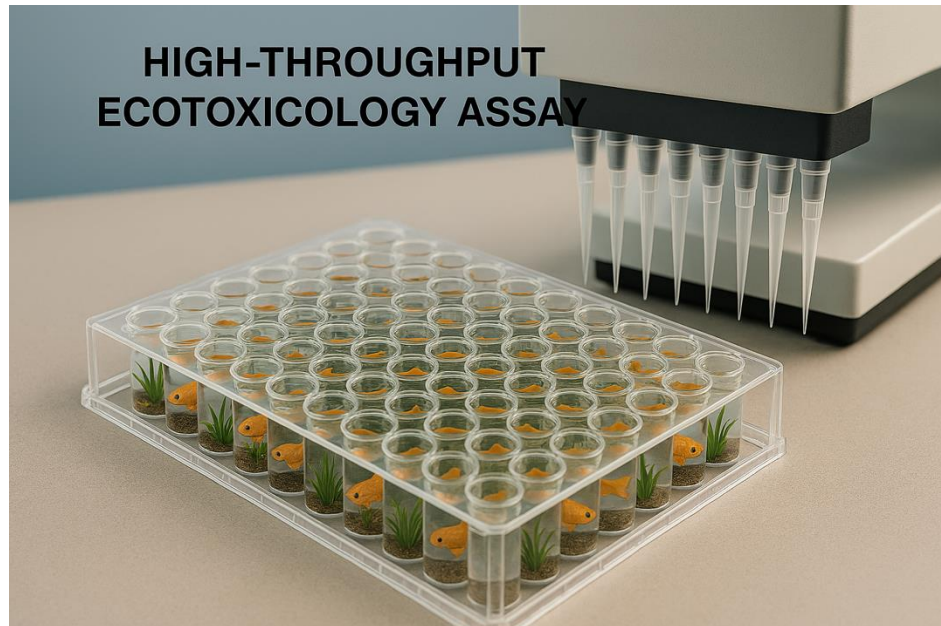


Input costs
Resistance
Dependence
Residues
Environmental impacts

B. Ecotoxicology Assay for Drug Discovery acceleration



Ecotox assay Highthroughput screening format
new



- A 96-well plate with miniature aquatic environments (fish and plants) for parallel compound testing.
- A multi-channel pipette system for automated dosing of lead compounds.
- Title: “High-Throughput Ecotoxicology Assay” for clarity.

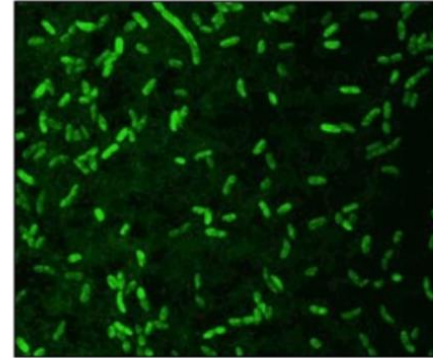
**CONTRIBUTION: STSM IN NETWORK-BASED LABS
(FRAUNOFHER AND UNIPISA)
CONFIDENTIAL**

Innovation – Implementation *Aliivibrio fischeri* toxicity test

Fraunhofer ITMP, Sheraz Gul



WATERTOTMX STD
LUMINESCENT BACTERIAL ASSAYS



- Bioluminescence inhibition assay that employs a marine gram-negative bacterium, *Aliivibrio fischeri* (formerly *Vibrio fischeri*) as the test species.
- The assay is available for use by the OHD Cost action via the Fraunhofer ITMP

The main advantages to this method are:

- Widely used and popular. Many laboratories have the technology to conduct the assay already
- Results can be acquired rapidly (5-30 minutes) according to published international standards
- Luminometer can be benchtop or portable model.
- Low overall cost per sample compared to other bioassays



C. New Artificial Intelligence based method for ecotoxicology profile compounds prediction

Development of GreenDrugScore for characterizing and ranking hits and leads based on their tox-Ecotox profile.

Manuscript Number: JPA-D-25-01801

Leveraging Ecotoxicity Parameters and Machine Learning to Redefine the Drug Discovery Pipeline

Journal of Pharmaceutical Analysis

Under evaluation



CONTRIBUTION: TRAINING SCHOOL GENERATED NETWORK-BASED LABS
(UNIMORE AND FRAUNOFHER)
CONFIDENTIAL



OneHealthdrugs database as an operative tool for ADME-TOX/Ecotoxicology properties prediction

- A compound database for selecting compounds with predictive low environmental impact profile and optimal ADME-TOX properties
- Exploitation with the OHD:LU project. Simulations studies using two databases, the Target databases and the Compound database.

Virtual Chemotheca Project: Data Collection and Management:

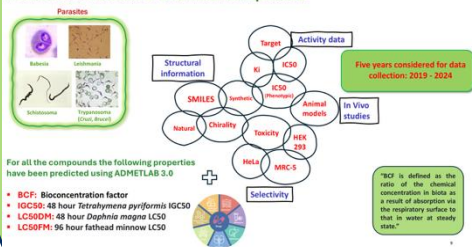
<https://www.cclab.unicz.it/ohd/index.php>

Literature Compounds Collection as training set

- OHD2 *T. Brucei* 2019-2024
- OHD2 *T. Cruzi* 2019-2024
- OHD2 *Schistosoma* 2019-2024
- OHD2 *Babesia* 2019-2024
- OHD2 Leishmania 2019-2024

1498 compounds

Metadata collection of chemical compounds



Total Compounds Collected
12398

**Virtual
Chemotheca
Data Collection
and Management**

GSK Kinetobox (KB)

Collection:

- KB- Chagas collection (GSK)
- KB- Leishmania collection (GSK)
- KB- HAT collection (GSK)

521 compounds

COST Member Contribution:

- Tydock Lib. – Prof. M.P. Costi group.
- ULFKKTLIB - Prof. C. Podlipnik group
- OSA_Lib - Prof. Outi Salo-Ahen, Dr. Seebacher group
- TC_lib – Dr. T. Calogeropoulou group
- UniSi_lib – Prof. S. Gemma group
- MAC-Lib – Prof. M. A. Carvalho group
- DCM –Lib – Prof. D. C. Magri group

OHD database

UNIQUE READY FOR
CALCULATIONS: NEW
SCAFFOLD FOR NEW MED
CHEM PROGRAMS



One Health Drugs Virtual Chemotheca



[Home](#)

Welcome to the OHD Virtual Chemotheca

[Login](#)

This computational facility contains virtual compounds kindly provided by One Health Drugs COST Action CA21111 participants. The compounds are antimicrobials or they are considered good candidates for an antimicrobials activity. The Chemotheca contains different sections:

[News](#)

[Contact us](#)

- a. compounds from metadata;
- b. compounds from proprietary collections obtained by synthetic chemistry
- c. compounds from proprietary collections of natural origin (natural products)
- d. IP protected compounds, only accessible through contact with the owner by email

[Credits](#)

Currently, **12398** compounds are stored and available for registered users.

For each entry, physico-chemical and ADME properties have been theoretically computed. Experimental activity data have been stored, if available.

To access the OHD Virtual Chemotheca all users must be registered by filling this [form](#).

You will receive username and a randomly generated password from our administrative staff.

If you belong to the OneHealthdrugs COST Action CA21111, your nickname should have the following format: surname_ohd

If you do not belong to the OneHealthdrugs COST Action CA21111, your nickname may have the format that you wish.

Registered users have full access to OHD Virtual Chemotheca.

The authentication procedure requires the exchange of session cookies. No other information will be kept from your browser!

Enjoy!

6 SURVEYS performed

Veterinary survey ongoing

- https://ec.europa.eu/eusurvey/runner/OneHealthDrugs_COST_Action_21111
- <https://www.linkedin.com/company/cost-office/posts/?feedView=all>



**PARTICIPATE IN OUR SURVEY FOR
VETERINARY PRACTITIONERS**

https://ec.europa.eu/eusurvey/runner/OneHealthDrugs_COST_Action_21111

☒ Save a backup on your local computer (disable if you are using a public/shared computer)

Survey on Veterinarians' attitudes and perceptions of the environmental impact of drugs prescribed for prevention and treatment of Parasitic Vector-borne Diseases

Fields marked with * are mandatory.



Disclaimer

The European Commission is not responsible for the content of questionnaires created using the EUSurvey service - it remains the sole responsibility of the form creator and manager. The use of EUSurvey service does not imply a recommendation or endorsement, by the European Commission, of the views expressed within them.



Survey on Veterinarians' attitudes and perceptions of the environmental impact of drugs prescribed for prevention and treatment of Parasitic Vector-borne Diseases

This survey is organized by COST Action 21111 'One Health drugs against parasitic vector borne diseases in Europe and beyond (OneHealthdrugs)' (OHD) (<https://onehealthdrugs.com/>). The goal is to explore veterinary professionals' practice regarding One Health approach to parasitic vector-borne diseases affecting animals, as well as the potential environmental impact of veterinary medications used for their prevention and treatment. The information gathered here is devoid of identification. Kindly refrain from including your name, gender, age or other personally identifying information.



Views

Standard [Accessibility Mode](#)

Languages

English

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Career development

Activities performed:

we have an HG dedicated to YRI

Prizes

Session in meetings

We have at least 4 career progression this year.

6 OneHealthdrugs Ambassadors.

Elisa Uliassi

Clara Lima

Daniele Aiello

Confirmed year 4



Communication & Dissemination

Communication tools & contents

Announcements
Networking and Scientific
activities

Gateway
for events and grants
applications

Awareness Raising

Repository
for WG members
(login area)



<https://onehealthdrugs.com/>



About 400 members



newsletter



Publications



IN PREPARATION

- One Health Drugs Against Vector-Borne Parasitic Diseases—a Sustainable Chemical/Biological Approach
- *Special issue of Molecules (ISSN 1420-3049)*. This special issue belongs to the section "Medicinal Chemistry".
- One Health drugs against parasitic diseases
- *Book edited by Wiley.*
- At least 6 Multiauthor papers
- Paper submitted Roadmap for drug discovery pipeline development in antiparasitic drugs discovery.

PUBLISHED

- One Health and Vector Borne Parasitic Diseases

Special issue ACS Infectious Diseases published by the American Chemical Society (ACS)

Paper submitted Roadmap for drug discovery pipeline development in antiparasitic drugs discovery.

- >110 Multiauthors papers published

Dissemination toward stakeholders



STAKEHOLDERS:
*policy makers and
Industry*



GOALS:

Promote the
integration of OHd
principles into
science, policies and
industrial processes
Further involvement
of SMEs
Policy briefs and EU
reccomandations



NEXT STEPS:

Thematic Workshop
*From Research to
Recommendation for
enviornmental
impact of drugs:
Advancing One
Health drugs
through Science,
Policy, and Industry*



EVENT 1

6 March 2026 10:00
- 16:00 COST
premises, Yung
room. Brussels,
Belgium

Thematic Workshop
*One Health for
Policy Makers and
Industry*



EVENT 2.

11 June 2026 Kos
(Greece)

OHD vs international
stakeholders



EVENT 3.

10 July 2026 COST
premises salle
Marie Curie
Brussels (B)

Final Conference
One Health drugs
forward look



Core Objectives for the Final Year

- **Exploitation and Stakeholder Interaction:** This is the key theme, involving targeted interaction with stakeholders (governmental, regulatory, industry, regional) to disseminate results, inform policy (via a forthcoming Policy Brief), and lay the groundwork for potential future initiatives.
- **Project Finalization:** Completing all deliverables and research outcomes established over the previous years, ensuring results are practical, measurable, and meet defined Key Performance Indicators (KPIs).
- **Long-Term Strategy:** Discussing the "future of our action" and working towards establishing a potential, persistent platform or entity to continue One Health drug discovery research beyond the four-year COST Action framework.
- **Advancement of antiparasitic compounds (possibly with low environmental) impact along the drug discovery pipeline.**

This is one of the primary objective of the OHD project. A "*progression during the project*" pipeline should be presented.

Novel leads progressing towards the antiparasitic drug pipeline with safer profile and low environmental impact.

- We have at least 2 patent processes ongoing based on collaboration existing and enriched during within the OHD COST Action activities.

3. Forward look

The action legacy

Seeding activities for **YRI** (including OHD Ambassadors)

Policy Briefs and EU recommendations for
INDUSTRY

A structured permanent **OHD NETWORK**

SCIENTIFIC KNOWLEDGE GENERATED and **NEW
MULTI PARTNER PROJECTS**



www.onehealthdrugs.com