

**Medicinal Chemistry in Parasitology**



**CHEMOTHERAPY TOWARDS  
DISEASES CAUSED BY  
ENDOPARASITES**

**COST Action CM1307**

**Joint COST Action CM1307 2<sup>nd</sup> Conference  
/ WG2 and WG3 Meetings**

**OCTOBER 26-28, 2015**

Belgrade, Serbia

[www.costcm1307.org/CM1307\\_2/1st\\_Meeting.html](http://www.costcm1307.org/CM1307_2/1st_Meeting.html)

This Joint COST Action CM1307 2<sup>nd</sup> Conference/ WG2 and WG3 Meetings has been organized by the Institute of Nuclear Sciences VINCA of Belgrade, Serbia.

The conference and the Working Group meetings will be held in Palace Hotel, Toplicin Venac 23, Belgrade, Serbia ([office@palacehotel.rs](mailto:office@palacehotel.rs)).

The meeting is focused on seven complementary topics :

- 1- Medicinal chemistry
- 2- Natural products
- 3- Biological targets
- 4- Drug targeting
- 5- Novel therapeutic approaches, tools to decipher drug mechanism of action
- 6- Drug resistance
- 7- Biology for possible therapeutic considerations

This 2<sup>nd</sup> COST CM1307 conference is followed by the meetings of two chemistry Working Groups :  
WG2 dedicated to Medicinal Chemistry and WG3 dedicated to Natural Products.

**Organizing Committee:**

Sanja Glisic (Institute of Nuclear Sciences VINCA, Belgrade, RS)  
Veljiko Veljkovic (Institute of Nuclear Sciences VINCA, Belgrade, RS)  
Nevena Veljkovic (Institute of Nuclear Sciences VINCA, Belgrade, RS)  
Milan Sencanski (Institute of Nuclear Sciences VINCA, Belgrade, RS)  
Draginja Radosevic (Institute of Nuclear Sciences VINCA, Belgrade, RS)  
Philippe Loiseau (University Paris-Sud-CNRS, FR)

**Scientific committee:**

Elisabeth Davioud-Charvet (CNRS-University of Strasbourg, FR)  
Harry de Koning (University of Glasgow, UK)  
Luise Krauth-Siegel (University of Heidelberg, GE)  
Philippe Loiseau (University Paris-Sud-CNRS)  
Fred Opperdoes (University of Louvain, BE)  
Karin Seifert (LSHTM, UK)  
Tom Solmajer (University of Ljubljana, SL)  
Thomas Schmidt (University of Münster, GE)  
Ana Tomas (University of Porto, PT)

## SCIENTIFIC PROGRAM

### October 25

18:30 *Registration and welcome drink at the Palace Hotel*

### October 26

9:00 **Loiseau P.M.**, *COST Action CM1307 Chair*  
Opening remarks

#### OPENING LECTURE

9:10 **Lepesheva G.**, *Vanderbilt University Nashville, Tennessee, USA (Invited speaker)*  
Structure-based development of antimicrobial agents targeting sterol 14-alpha-demethylase

#### MEDICINAL CHEMISTRY

*Chairpersons: T. Calogeropoulou, M. Botta*

10:00 **Botta M.** *University of Sienna, Italy (lecture)*  
Novel fungal chitinase inhibitors and their possible use in the fight against parasites

10:50 **Calogeropoulou T.**, *University of Athens, Greece*  
Design, synthesis and evaluation of antiparasitic activity of heteroaryl-substituted ether phospholipid derivatives

11:15 **Mangalagiu I.** *University of Iasi, Romania*  
New polifunctional nitrogen derivatives as smart versatile building blocks for multiple tasks

11:40-12:00 : *Coffee break*

#### NATURAL PRODUCTS

*Chairpersons: T. Schmidt, J.M. Alunda*

12:00 **Schmidt T.**, *University of Muenster, Germany*  
Sesquiterpene lactones target the trypanothione system of *Trypanosoma* species in different ways

12:25 **Alunda J.M.** *Universidad Complutense, Madrid, Spain*  
*In vitro* antileishmanial activity of silybin and related flavonolignans from milk thistle

12:50-14:15 : *Lunch and poster viewing*

## **BIOLOGICAL TARGETS**

*Chairpersons: A. Tomas, L. Krauth-Siegel*

- 14:15 : **Soldati-Favre D.**, *University of Geneva, Switzerland*  
Fundamental roles of *Toxoplasma gondii* aspartyl protease 5 at the host-parasite interface
- 14:40 : **Joachim A.**, *Institute of Parasitology, University of Vienna, Austria*  
*Cystoisospora suis*: searching for drug targets *in vitro*
- 15:05 : **Toma A.**, *IBMC, University of Porto, Portugal*  
Alternative NADH dehydrogenase of *Leishmania*: a putative drug target for leishmaniasis
- 15:30 : **Krauth-Siegel L.**, *Universität Heidelberg, Germany*  
Trypanothione/tryparedoxin-dependent peroxidases, essential enzymes with stage-specific roles in *Trypanosoma brucei*
- 15:55 : **De Koning H.**, *University of Glasgow, UK*  
Evaluation of kinetoplastid purine and pyrimidine metabolism as a target for antiparasite drugs
- 16:20-16:40 *Coffee break*

## **DRUG TARGETING**

*Chairpersons : G. Barrat, D. Gryko*

- 16:40 : **Gryko D.**, *Polish Academy of Sciences, Warsaw, Poland*  
Vitamin B12 as a potential drug delivery vehicle
- 17:05 : **Barratt G.**, *CNRS-University Paris-Sud, France*  
New formulations of Amphotericin B to improve its therapeutic index for leishmaniasis treatment
- 17:30 : **Loiseau P.M.**, *CNRS-University Paris-Sud, France*  
New formulations of 2-*n*-propylquinoline for the treatment of visceral leishmaniasis
- 18:00 : *Belgrade Sightseeing - Guided Walking Tour*
- 20:00 : *Gala dinner*

October 27

## NOVEL THERAPEUTIC APPROACHES, TOOLS TO DECIPHER DRUG MECHANISM OF ACTION

*Chairpersons : E. Davioud-Charvet, N. Fasel*

- 9:00 **Costi M.P.**, *University of Modena, Italy*  
Novel drug discovery pipeline to spur innovations against Trypanosomatidic infections
- 9:25 **Garcia-Sosa A.**, *University of Tartu, Estonia*  
Designing new antimicrobial and anti-parasite compounds with safe chemical libraries
- 9:50 **Davioud-Charvet E.**, *CNRS-University of Strasbourg, France*  
Design of fluorescent probes to image chloroquine efflux from the digestive vacuolar pH of *P. falciparum* resistant parasite
- 10:15 **Fasel N.**, *University of Lausanne, Switzerland*  
High content microscope based high-throughput drug screening against double-stranded endoymbiont *Leishmania* RNA virus containing *Leishmania guyanensis* using primary murine macrophages
- 10:40 **Viira B.**, *University of Tartu, Estonia*  
Data organizing, analyzing and modeling for malaria compounds
- 11:05 **Maran U.**, *University of Tartu, Estonia*  
pH-dependence of membrane permeability for anti-parasitic and infection drugs for wide range of pH: experiment and modelling
- 11:30-11:50 : *Coffee break*
- 11:50 : **Gemma S.**, *University of Siena, Italy*  
Development of novel therapeutic approaches against sexual and asexual malaria parasite stages

## DRUG RESISTANCE

*Chairpersons : F. Gamarro, L. Maes*

- 12:15 : **Hendricks S.**, *University of Antwerp, Belgium*  
Evidence of a drug-specific impact of experimentally selected paromomycin and miltefosine resistance on parasite fitness in *Leishmania infantum*
- 12:40 : **Maes L.**, *University of Antwerp, Belgium*  
Genomic and molecular characterization of miltefosine resistance in a

*Leishmania infantum* strain that acquired resistance through experimental selection at intracellular amastigote level

13:05 : **Gamarro P.**, *CSIC, Granada, Spain*

Failure of antimonial treatment associated with drug resistance in a dog with natural *Leishmania infantum* infection

13:30-14:30 : *Lunch and poster viewing*

## **BIOLOGY FOR POSSIBLE THERAPEUTIC CONSIDERATIONS**

*Chairpersons : J. Lukes, S. Paessler*

14:30 : **Paessler S.**, *University of Texas Medical Branch, Galveston, USA*  
(Invited Speaker)

Microbial coinfections and their impact on the immune system: incidence in therapy

15:20 : **Eberarhdt L.**, *University of Antwerp, Belgium*

Evaluation of homogeneity of *L. infantum* and *L. donovani* infection in the hamster by real-time DNA qPCR and Giemsa-stained imprints

15:45 : **Lukes J.**, *Institute of Parasitology, Ceske Budejove, Czech Republic*

The trypanosomatid flagellate *Paratrypanosoma confusum* has a unique morphology and complex life cycle

16:10 : **Silaghi-Dumitrescu R.**, *University of Cluj-Napoca, Romania*

(Per)oxidation cascades induced by globins and related proteins: towards analytical tools of possible use for antiparasitic drugs

16:35-16:55 : *Coffee break*

## **CLOSING CONFERENCES**

16:55 : **Frézard F.**, *Federal University of Minas Gerais, Belo Horizonte, Brasil*  
(Invited speaker)

Innovative nanocarriers for improved therapy of leishmaniasis

17:45 : **Ioset J.R.**, *DNDi, Geneva, Switzerland*

(Invited speaker)

Drug discovery against kinetoplastid diseases: the DNDi perspective

18:30 : *Concluding remarks and closure of the annual plenary COST conference*

20:00 : *Dinner (to be paid by the participants)*

## October 28

9:00-12:00 Meetings of the COST Working Groups in two separate rooms then common discussion: WG2 (Medicinal chemistry) and WG3 (Natural products)

12:00 *Quick lunch for WG participants and MC members*

12:30-14:30 **COST Management Committee meeting** only for MC members and MC substitutes