

WG3 Workshop

Advances in antituberculosis drug development and treatment strategies

April 3rd to 4th, 2025
Krakow, Poland

Faculty of Chemistry, Building A, Main Hall
Jagiellonian University
Gronostajowa 2
30-387 Krakow, Poland
Local time: GMT+1.

April 3rd 2025

08.00h Registration

09.00h Opening

Grażyna Stochel, Ewa Augystynowicz-Kopeć & Jose Dominguez

09.10h Short treatment regimens – a breakthrough in management of TB and drug-resistant TB

Askar Yedilbayev (Regional TB Adviser at World Health Organization, Regional Office for Europe World Health Organization)

Session I – synthesis of new antituberculosis drugs

Chairpersons: Jose Domínguez and Grażyna Stochel

09.40h Discovery of novel DrpE1 and MmpL3 inhibitors as novel antitubercular agents

Jan Korabecny (University Hospital Hradec Kralove, Czech Republic)

10.00h From Laboratory to Patient: Trends in the Synthesis of New Anti-Tuberculosis Molecules

Daniel Szulczyk (Medical University of Warsaw, Poland)

10.20h Development of novel DNA gyrase inhibitors as potent antimycobacterial compounds

Martina Hrast Rambaher (University of Ljubljana, Faculty of Pharmacy, Slovenia)

10.40h Make an old drug great again – synthesis of
isoniazid-boron cluster conjugates

Agnieszka Olejniczak (IBM PAN Łódź, Poland)

11.00h The potential of isoniazid derivatives in the fight against
DS and MR TB

Filomena Martins (University of Lisbon, Portugal)

11.20h Coffee break

Session II – evaluation of antituberculosis activity *in vitro* and *in vivo*

Chairpersons: Mafalda Sarraguça and Elżbieta Pamuła

12.00h In-vitro antimicrobial activity evaluation: compounds,
mycobacteriophages and impact of external factors

Alicia Lacombe (Germans Trias i Pujol Research Institute, IGTP, Centro de
Investigación Biomédica en Red Enfermedades Respiratorias, Spain)

12.20h *Drosophila melanogaster* as a model for infectious
diseases

Pere-Joan Cardona Iglesias (Germans Trias i Pujol Research Institute, IGTP,
Spain)

12.40h Modeling mycobacterial treatment responses in
Drosophila melanogaster

Maria Vidal Ramos (Germans Trias i Pujol Research Institute (IGTP), Spain)

13.00h Zebrafish model for testing therapeutic strategies against
mycobacterial infections

Milka Hammarén (Tampere University & EMBL, Finland)

13.20h Antibiotic tolerant biofilms as therapeutic targets to shorten treatments

Rosa Korhonen (Tampere University, Finland)

13.40h A perspective on the scale-up and GMP manufacturing bottlenecks when developing new products - how to bring the product from lab to clinics

Nazende Günday-Türeli (MyBiotech GmbH, Germany)

14.00h Lunch

15.30h Working Group 3 meeting: Compounds database and reviews in elaboration

April 4th 2025

Session III – drug delivery systems for antituberculosis drugs

Chairpersons: Tânia Silva and Agnieszka Kyzioł

09.00h Polymer nanoencapsulation of antimicrobials against intracellular bacterial pathogens

Manuel Arruebo (University of Zaragoza, Spain)

09.20h Nano Delivery Systems Based on Therapeutic Deep Eutectic Systems for Enhanced Tuberculosis Treatment

Mafalda Sarraguça (LAQV-REQUIMTE; Faculty of Pharmacy, University of Porto, Portugal)

09.40h Lipidic and polymeric inhalable drug delivery systems to the lungs

Elżbieta Pamuła (AGH University of Krakow, Poland)

10.00h Theranostics containing nanoporous metal-organic frameworks for inhalation therapy of tuberculosis – Questions and Concerns

Przemysław Dorożyński (Faculty of Pharmacy, Jagiellonian University CM, Poland)

10.20h Co-encapsulation of natural compounds and antimicrobial peptides as a potential delivery systems in the treatment of *Mycobacterium tuberculosis*

Viktoria Milkova (Institute of Physical Chemistry, Bulgarian Academy of Sciences, Bulgaria)

10.40h Lipid nanoparticles as drug delivery systems for pulmonary administration of antibiotics

Idoia Gallego Garrido (Lab. NanoBioCel research group, Center for Research and Advanced Studies Lucio Lascaray, University of the Basque Country, Spain)

11.20h Coffee break

Session IV – new strategies for tuberculosis treatment

Chairpersons: Askar Yedilbayev and Ewa Augystynowicz-Kopeć

11.30h Establishing a pre-clinical pipeline for drug discovery against *Mycobacterium abscessus*

Tânia Silva (Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto, Portugal)

11.50h **New approaches to treat mycobacterial infections**
Lydia Tabernero (The University of Manchester, Medicine and Health
Manchester Academic Health Science Centre, England)

12.10h **Role of natural compounds in overcoming drug
resistance in *Mycobacterium tuberculosis***
Elwira Steniawska (Medical University of Lublin, Poland)

12.30h **Assessment of Polynucleotide Phosphorylase
Activity as a Novel Molecular Target for Drug
Discovery or Repurposing**
Przemysław Płociński (University of Łódź, Poland)

12.50h **Molecular insight into *M. tuberculosis* resistance to
novel aroylhydrazone derivatives through *in vitro*
mutagenesis and whole genome sequencing**
Violeta Valcheva (Stephan Angeloff Institute of Microbiology,
Bulgaria)

13.10h **Optimization of macrophage infection with
mycobacteria for drug development**
Clara Bento (University of Porto, Portugal)

13.30h Closing remarks

13.45h Lunch



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