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.

Funded by the European Union

ADVANCE-TB COST Action's Full Title: Towards an improvement in diagnostics and treatment strategies for TB control. Grant Agreement Number: CA21164.

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 and development of compounds

Chairpersons: Jose Domínguez and Janusz Szklarzewicz

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 Coffee break

11.30h The potential of isoniazid derivatives in the fight against DS and MR TB

Filomena Martins (University of Lisbon, Portugal)

11.50h Development of Narrow-Spectrum Topoisomerase-Targeting Antibacterials against Mycobacteria

Anamarija Zega, (University of Ljubljana, Faculty of Pharmacy, Slovenia)

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

Chairpersons: Mafalda Sarraguça and Elżbieta Pamuła

12.10h In-vitro antimicrobial activity evaluation: compounds, mycobacteriophages and impact of external factors

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

12.30h Optimization of macrophage infection with mycobacteria for drug development

Clara Bento (University of Porto, Portugal)

12.50h *Drosophila melanogaster* as a model for infectious diseases

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

13.10h Modeling mycobacterial treatment responses in *Drosophila melanogaster*

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

13.30h Lunch

15.00h Antibiotic tolerant biofilms as therapeutic targets to shorten treatments

Milka Hammarén (Tampere University & EMBL, Finland)

15.20h Zebrafish model for testing therapeutic strategies against mycobacterial infections

Rosa Korhonen (Tampere University, Finland)

Session III – Working Group 3 meeting

15.40h Compounds database and reviews in elaboration

until 17:00h

April 4th 2025

Session IV – Drug delivery systems for antituberculosis drugs

Chairpersons: Tânia Silva and Agnieszka Kyzioł

08.30h Registration

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 Coffee break

11.10h 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)

11.30h Smart Nanogel-Based Drug Delivery Systems Using Renewable Resources for Tuberculosis Treatment

Pinar Cakir Hatir (Istinye University, Turkey)

Session V – New strategies: from laboratory to patient

Chairpersons: Askar Yedilbayev and Ewa Augystynowicz-Kopeć

11.50h New approaches to treat mycobacterial infections

Lydia Tabernero (University of Manchester, Medicine and Health Manchester Academic Health Science Centre, England)

12.10h Assessment of Polynucleotide Phosphorylase Activity as a Novel Molecular Target for Drug Discovery or Repurposing

Przemysław Płociński (University of Łódź, Poland)

12.30h 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)

12.50h Role of natural compounds in overcoming drug resistance in *Mycobacterium tuberculosis*

Elwira Sieniawska (Medical University of Lublin, Poland)

13.10h Lunch

14.30h Establishing a pre-clinical pipeline for drug discovery against *Mycobacterium abscessus*

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

14.50h 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)

15.10h TB treatment of the future: a clinical perspective

Ilaria Motta (University College London, England)

15.30h Closing remarks

until 15:40h

We hope you enjoyed this workshop!

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