Artificial intelligence and data-driven approaches for addressing the global challenge of antibiotic resistance

PROGRAM

11 March, Day 1

11:00 -12:00 **Registration and Mounting of Posters**

12:00 -13:00 **Lunch**

13:00 -13:15 **Welcome (Alison Holmes, Erik Kristiansson)**

13:15-14:40

Session 1-Data-Driven Insights into Infection Biology

Chair: Erik Kristiansson, Chalmers University of Technology, Sweden

13:15-13:45 **Resolving microbial genomes in complex communities at the single-cell level**
Laura Carroll, Umeå University, Sweden

13:45-14:00 **Towards large-scale proactive surveillance of AMR**
Johan Bengtsson-Palme, Chalmers University of Technology, Sweden

14:00-14:15 **Characterising insights in infection biology through the use of routine clinical datasets in healthcare**
Damien Ming, Fleming Initiative, UK

14:15-14:30 **Machine learning identifies genetic and ecological determinants of antibiotic resistance gene dissemination**
David Lund, Chalmers University of Technology, Sweden

14:30-14:40 **Session wrap-up**

14:40 -15:10 **Coffee break**

15:10-16:35

Session 2: Applications of Diagnostic and Surveillance Data

Chair: Alison Holmes, Imperial College London, UK

15:10-15:40	**Title: TBD** David Aanensen, University of Oxford, UK
15:40-15:55	**Using EHR data and AI for improved infection surveillance and antimicrobial stewardship** Suzanne Ruhe-van der Werff, Karolinska Institutet, Sweden
15:55-16:10	**Building the economic case for diagnostics to address AMR** Nina Zhu, Imperial College London, UK (Online)
16:10-16:25	**Phenotypic Antibiotic Susceptibility Testing at the limit of one bacterial cell** David Fange, Uppsala University, Sweden
16:25-16:35	**Session wrap-up**

16:35 -17:30	**Group discussions.** (Refreshments will be served)
17:30 -18:00	**Summary of group discussion**
18:00 - 19:00	**Poster sessions**
19:00	**Dinner**

12 March, Day 2

09:00-10:25

Session 3: Novel Data Approaches for Diagnostics and Patient Level Care

Chair: Johan Elf, Uppsala University

09:00-09:30	**Image analysis and machine learning for live single cell classification and phenotyping** Carolina Wählby, Uppsala University, Sweden

09:30-09:45	**Low cost biosensors for patient level diagnostics in the era of AI-driven antimicrobial stewardship** Sanjiv Sharma, University of Liverpool, UK
09:45-10:00	**Machine-learning for prediction of antimicrobial resistance from genomics data** Christian Giske, Karolinska Institutet, Sweden
10:00-10:15	**Leveraging digital technologies to enhance multiplexing in real-time PCR** Jesus Rodriguez-Manzano, Imperial College London, UK
10:15-10:25	**Session wrap-up**

10:25 –11:00 **Coffee break**

11:00-12:40

Session 4: Research Translation and Implementation of AI in Healthcare

Chair: Jesus Rodriguez-Manzano, Imperial College London, UK

11:00-11:30	**Pathways towards translation of AI research to impact. The Uganda experience.** Daudi Jjingo, Makerere University, Kampala, Uganda
11:30-11:45	**AI-driven diagnostic support for antibiotic-resistant infections** Anna Johnning, Chalmers University of Technology, Sweden
11:45-12:00	**AI-powered decentralised diagnostic technologies** Nick Moser, Google DeepMind, hosted at Fleming Initiative and Imperial College London, UK
12:00-12:10	**Session wrap-up**

12:10 -12:30 **Closing remarks (Alison Holmes, Erik Kristiansson)**

12:30- **Lunch and departure**