

24. Mathematical approaches to better understand and tackle tuberculosis

Friday, 31 October 2014, 08:00 - 10:00

Room 115



Type Symposium

Track Tuberculosis

Topic Other

Description TB has been classically studied from different points of view, with most efforts devoted to clinical, epidemiological or microbiologic aspects of the infection and the disease. However, several researchers have been recently focusing on tuberculosis using mathematical approaches. These studies are often poorly understood by biological or medical scientists, even though the models proposed could be essential to understand some of the mechanisms underlying infection, disease development, transmission or even microbiological cultures.

Target audience Basic researchers, students, clinicians, epidemiologists, drug and vaccine developers.

Objectives

1. To present mathematical models to better understand TB natural history, the disease course and transmission
2. To make clinicians and basic researchers aware of mathematical tools to design better diagnostic approaches
3. To make drug and vaccine developers aware of mathematical tools to design better therapeutic approaches
4. To teach about mathematical resources to be used in research

Keywords Tuberculosis; mathematical models; transmission; disease development; natural history of TB; drug and vaccine development; risk factors.

Coordinator(s) Cris Vilaplana (Spain), Pere-Joan Cardona (Spain)

Chair(s) Pere-Joan Cardona (Spain), Daniel López-Codina (Spain)

Presentations

08:00 - 08:15 A two-pronged data-mining approach to biomarker discovery in Tuberculosis
Denise Kirschner (USA)

08:20 - 08:40 The bubble model: mathematically explaining how active TB is possible
Clara Prats (Spain), Quim Valls (Spain)

08:45 - 09:00 Spatiotemporal analysis of tuberculosis and its risk factors
Carla Nunes (Portugal)

09:05 - 09:20 Mathematical models to understand transmission and to improve case detection
Daniel Okuonghae (Nigeria)

09:25 - 09:40 Mathematical modelling of the epidemiology of tuberculosis
Peter White (UK)

09:45 - 10:00 Discussion