Target Audience:
Medical doctors and pharmacists, nurses or other healthcare professionals with an MSc or PhD are eligible, provided they completed the basic module or have experience in IPC and biofilm-related clinical or laboratory work.

Confirmed faculty members
Roxana Duda, Bucharest, Romania
Dragos Florea, Bucharest, Romania
Gatiela [Pircalabiru] Gradisteau, Bucharest, Romania
Luminita Muresescu, Bucharest, Romania
Marcela Popa, Bucharest, Romania
Ramona Stefania Popescu, Bucharest, Romania
Liliana Preotescu, Bucharest, Romania
Oana Sandulescu, Bucharest, Romania
Oana Sandulescu, Bucharest, Romania
Anca Streinu-Cercel, Bucharest, Romania
Adrian Streinu-Cercel, Bucharest, Romania

Module Coordinator
Oana Sandulescu, Bucharest, Romania

Biofilm-driven infections: research and clinical relevance

Module objectives
When adopting a sessile lifestyle, bacteria gain the adaptive ability to tolerate a wide range of antimicrobials, becoming increasingly resilient. In such cases, antimicrobial treatment of biofilm-driven infections may fail not necessarily due to resistance but rather through tolerance and target evasion. This course will provide up to date information on:

- the clinical relevance of microbial consortia
- the role of quorum sensing in inter-microbial cooperation
- in vitro biofilm assessment
- infection prevention and control strategies for biofilm-driven infections
- clinical management of biofilm-associated infections.
Wednesday, 11 November 2020

Understanding biofilms and their clinical relevance

Location: National Institute for Infectious Diseases

“Prof. Dr. Matei Bals”
Chair: Oana Sandulescu

Registration and coffee. Orientation.

09:00 Registration and coffee. Orientation.
09:30 Welcome lecture and pre-course assessment
Dana Sandulescu
10:00 sessile versus planktonic mode of growth
Dana Sandulescu
10:15 Bacterial “common goods” and quorum sensing
Dana Sandulescu
10:30 Inter-microbial cooperation
Dana Sandulescu
10:45 Persistor cells and antimicrobial tolerance
Anca Streinu-Cercel
11:00 Models for studying biofilms and assessing anti-biofilm activity
Anca Streinu-Cercel
11:30 Lunch break
12:30 Microbial consortia – clinical relevance and impact of antimicrobial therapy
Liliana Preoteasa
12:55 Microbial consortia in chronic wounds
Liliana Preoteasa
13:20 Host-pathogen interactions in chronic wounds
Liliana Preoteasa
13:45 Managing biofilm-associated lung infections in patients with cystic fibrosis
Roxana Papescu
14:15 Handing out assignments
14:30 Coffee break and transfer to ICUB

Location: Research Institute of the University of Bucharest

Chair: Mariana Carmen Chifiriuc
15:30 Practical activities: Good laboratory practices, correct use of personal protective equipment and biological safety cabinets
Luminita Marutescu, Marcelo Popa, Gratiaela (Pircalabioru) Gradisteana
16:00 Practical activities (parallel groups): Assessment of the biofilm mode of growth – part 1: plating and incubating with and without biofilm active agents
Luminita Marutescu, Marcelo Popa, Gratiaela (Pircalabioru) Gradisteana
17:30 End of day

Thursday, 12 November 2020

Foreign body driven infections – infection control and prevention of biofilms

Location: National Institute for Infectious Diseases “Prof. Dr. Matei Bals”
Chair: Anca Streinu-Cercel

09:00 Prevention of catheter-related urinary tract infections
Ramona Stefania Papescu
09:20 Elimination of device-associated cardiovascular infections
Ramona Stefania Papescu
09:40 Peri-operative measures to limit and control biofilm development on orthopedic prostheses
Ramona Stefania Papescu
10:00 Managing chronic osteomyelitis
Adrian Streinu-Cercel
10:30 Understanding biofilms in ENT (chronic otitis media, chronic rhinosinusitis)
Radu Duda
11:00 Coffee break
11:30 Molecular tools for biofilm investigation
Dragos Florea
12:15 Clinical case discussions
Anca Streinu-Cercel
13:30 Lunch break and transfer to ICUB

Location: Research Institute of the University of Bucharest

Chair: Mariana Carmen Chifiriuc
14:30 Practical activities (parallel groups): Assessment of the biofilm mode of growth – part 2: assessing microbial growth, staining the biofilm
Luminita Marutescu, Marcelo Popa, Gratiaela (Pircalabioru)
15:00 Practical activities (parallel groups): resuspending and reading optical densities; interpreting results
Luminita Marutescu, Marcelo Popa, Gratiaela (Pircalabioru) Gradisteana
16:00 Practical activities (parallel groups): interpreting the anti-biofilm activity of various agents
Luminita Marutescu, Marcelo Popa, Gratiaela (Pircalabioru) Gradisteana
16:30 End of day

Friday, 13 November 2020

Targeting biofilms – from research to clinical practice

Location: National Institute for Infectious Diseases “Prof. Dr. Matei Bals”
Chair: Oana Sandulescu

09:00 Gram-positive versus Gram-negative biofilms – common grounds and essential differences
Dana Sandulescu
09:20 Types of biofilm active agents (natural products, antimicrobial agents, synthetic peptides, anti-biofilm materials and devices)
Dana Sandulescu
09:50 Biofilm active agents – mechanisms of action
Dana Sandulescu
10:15 Bacteriophages or bacteriophage-derived enzymes as anti-biofilm options
Anca Streinu-Cercel
10:30 Combination therapy to create biofilm active regimens
Anca Streinu-Cercel
11:00 Coffee break
11:30 Presentations of assignments
Ramona Stefania Papescu
12:30 Lunch break
14:15 Questions and answers
Dana Sandulescu
14:45 Final examination and course evaluation
15:15 End of day