Target Audience

Microbiologists, clinical microbiologists, infectious disease specialists and clinicians

Faculty Members

Önder Ergönül, Koç University, Turkey
Paul Higgins, Cologne, Germany
Katy Jeannot, Besançon, France
Onur Karatuna, Växjö, Sweden
Surbhi Malhotra-Kumar, Antwerp, Belgium
Joseph Meletiadis, Athens, Greece
Thierry Naas, Paris, France
Nicolla Petrosillo, Rome, Italy
Garyfallia Poulakou, Athens, Greece
Spyros Pournaras, Athens, Greece
Gian-Maria Rossolini, Florence, Italy
Nikolaos Strepis, Rotterdam, Netherlands
Sophia Vourli, Athens, Greece
Ann Versporten, Antwerp, Belgium
Raffaele Zarrilli, Naples, Italy

Organisers

- **ESCMID Study Group for Antimicrobial Resistance Surveillance (ESGARS)**

Course Coordinators

Spyros Pournaras, Athens, Greece
Surbhi Malhotra-Kumar, Antwerp, Belgium

Contact

Contact Person (Scientific Programme)

Spyros Pournaras
National and Kapodistrian University of Athens, Laboratory of Clinical Microbiology
Attikon University Hospital
1, Rimini Street
17123 Athens
Greece
+30 210 583 23 53
spournaras@med.uoa.gr

Administrative Secretariat

Athina Samara and Giota Georgiou
National and Kapodistrian University of Athens, Laboratory of Clinical Microbiology
Attikon University Hospital
1, Rimini Street
17123 Athens
Greece
+30 210 583 19 00
spournaras@med.uoa.gr
Athina Samara and Giota Georgiou
+30 210 583 19 00
athi-samara@biol.uoa.gr or pc.georgiou@gmail.com

ESGARS ESCMID STUDY GROUP FOR ANTIMICROBIAL RESISTANCE SURVEILLANCE
European Society of Clinical Microbiology and Infectious Diseases

ESCMID MANAGING INFECTIONS PROMOTING SCIENCE

ESCMID MANAGING INFECTIONS PROMOTING SCIENCE

ESCMID Postgraduate Technical Workshop

Last-line antibiotics against XDR/PDR Gram-negatives: Understanding phenotype-genotype correlations and PK/PD approaches

Athens, Greece
7 – 9 June 2023

ESCMID Postgraduate Technical Workshop

Organisation

Course Venue
ATTIKON University Hospital
Laboratory of Clinical Microbiology
1, Rimini Street
17123 Athens
Greece
http://attikonhospital.gov.gr/index.php/iatriki-ypiresia/ergastiria-iatrikis-sxolis-ekpa/klinikis-mikroviologias

Registration Procedure

Register on the ESCMID website at www.escmid.org/education by 5 May 2023.

Registration Fee

Onsite Registration Fee
EUR 700 for ESCMID members
EUR 850 for all others

The registration fee includes all course materials, 3 coffee breaks, 3 lunches, 2 dinners, social event, local transportation pass.

ESCMID provides a number of attendance grants for ESCMID 'Young Scientist' members. The Grant covers the registration fee but not travel costs.

Attendance Grant Application Deadline: 12/02/2023
Notification Deadline: 23/02/2023

Course Programme

Wednesday, 7 June 2023

08.30 – 09.00	**Arrival, Registration**
09.00 – 09:15	**Welcome and presentation of the course** *Surbhi Malhotra Kumar and Spyros Pournaras*
09:15 – 10:00	**Epidemiology and existing treatment options of XDR/PDR Gram-negative infections** *Garyfallia Poulakou*
10:00 – 10:30	**Old Antibiotics for XDR/PDR Gram-negatives: State of the art** *Gian-Maria Rossolini*
10:30 – 11:00	**Colistin resistance in MDR Gram-Negative Pathogens** *Surbhi Malhotra-Kumar*
11:00 – 11.15	**Coffee break**
11:15 – 11:45	**Colistin PK/PD-New data** *Sophia Vourli*
11:45 – 12:15	**Fosfomycin-New data on efficacy for the treatment of MDR in critically ill patients** *Garyfallia Poulakou*
12:15 – 12:45	**Antimicrobial stewardship for anti-Gram-Negative antibiotics: role of rapid diagnostic tests** *Thierry Naas*
12:45 – 13:30	**Lunch and group photo session**
13:30 – 14:00	***In vitro* models for optimizationof antibiotics' dosing** *Joseph Meletiadis*
14.00 – 17:00	**Hands-on: Simulation of a colistin dosing scheme in an *in vitro* PK/PD model** *Joseph Meletiadis*

Thursday, 8 June 2023

08:30 – 09:30	**Cephalosporins-BLIs and Carbapenems-BLIs combinations-PK/PD and efficacy** *Joseph Meletiadis*
09:30 – 10:00	**New beta-lactams active against CRAB** *Raffaele Zarrilli*
10:00 – 10:30	**New beta-lactams active against CRPA** *Katy Jeannot*
10:30 – 11:00	**Resistance to the new beta-lactams/BLIs combinations** *Spyros Pournaras*
11:00 – 11.15	**Coffee break**
11:15 – 11:45	**The global usage of last-line antibiotics to treat carbapenem-resistant infections** *Ann Versporten*
11:45 – 12:15	**Therapeutic potential of new beta-lactam/beta-lactamase inhibitors to treat XDR/PDR Gram-negative infections** *Nicolla Petrosillo*
12:15 – 12.45	**Therapeutic potential of non-beta-lactam last-line options to treat XDR/PDR Gram-negative infections** *Önder Ergönül*
12:45 – 13:30	**Lunch**
13:30 – 14:30	**Combination therapy against MDR infections-Current data and future perspectives** *Garyfallia Poulakou*
14:30 – 15:00	**Antimicrobial Susceptibility Testing for Polymyxins: EUCAST Recommendations** *Onur Karatuna*
15:00 – 17:30	**Hands-on: Antimicrobial susceptibility testing for colistin** *Onur Karatuna*

The following colistin susceptibility testing methods will be demonstrated and then performed by the participants:

- **Reference broth microdilution method**
- **Commercial systems for colistin susceptibility testing (MIC based and colorimetric tests)**
- **Use of selective culture media for early detection of colistin-resistant isolates**

18:00	**Event: Athens's city walk tour and dinner**

Friday, 9 June 2023

08:30 – 09:00	**Using Genomics to Track Global Antimicrobial Resistance** *Paul Higgins*
09.00 – 11:30	**Hands-on: Demonstration of whole genome sequencing procedure using Illumina** *Nikolaos Strepis*
11:30 – 12.00	**Coffee break**
12:00 – 13:00	**Hands-on: Antimicrobial susceptibility testing for colistin** *Onur Karatuna* **Reading results of susceptibility testing from the previous day**
13:00 – 14:00	**Lunch**
14:00 – 17:00	**Hands-on: Demonstration of whole genome analysis: Identifying genetic modification linked to last-line antibiotics' resistance in Gram-negative bacteria** *Nikolaos Strepis*
17:00 – 17:15	**Concluding remarks and farewell** *Spyros Pournaras, Surbhi Malhotra-Kumar*

Course Objectives

Multi-drug resistant (MDR) Gram-negatives are important nosocomial pathogens and management of infections due to these organisms is one of the major challenges for clinicians.The minimal treatment options available include old antibacterials, like polymyxins and fosfomycin, or new combinations of β-lactam antibiotics plus a β-lactamase inhibitor (BLI) (e.g. ceftolozane/tazobactam, ceftazidime/avibactam cefepime/zidebactam, meropenem/vaborbactam, imipenem/relebactam, aztreonam-avibactam). Although promising, neither old nor new antibacterials can be considered as "panacea" for the treatment of MDR Gram-negative infections, because each group has limitations.

Polymyxins are still recognised as a last-line choice for MDR infection treatment. Better characterization of the polymyxins' pharmacokinetics (PKs) during the last years, has led to better dosing schemes and to better efficacy. Remaining issues are raising polymyxins resistance rates, discrepancies inpolymyxin susceptibility testing and further optimization of colistin PK/PD.Intravenous fosfomycin was reintroduced into clinical practice almost a decade ago, for the treatment of MDR Gram-negative bacteria in critically ill patients. Although fosfomycinPKs are not complicated and the drug is active against a large number of MDR Gram-negatives, it is still considered as salvage treatment for MDR infections, due to the fear of resistance development during treatment together with the lack of PK studies in the critically ill.

As for newer β-lactam-β-lactamase inhibitor combinations, most of them are active against carbapenem-producing Enterobacteriaceae (CRE) and carbapenem-resistant P. aeruginosa (CRPA), with less options available against carbapenem-resistant Acinetobacter baumannii (CRAB) and metallo-beta lactamase- (MBL)-producing strains. More specifically, ceftazidime-avibactam inhibits KPC and partly OXA- type carbapenemases, whereas aztreonam-avibactam is active against all CRE and CRPA, but not against CRAB. Cefepime-taniborbactam also shows a broad spectrum of activity against CRE and CRPA, including AmpC producers, but not CRAB. Meropenem-vaborbactam is active against KPC-producers and ceftolozane-tazobactam against CRPA.Imipenem-relebactam is active against Ambler class A and class C β-lactamases and AmpC-overproducing P. aeruginosa, but again not against CRAB. Few agents are targeting CRAB, such as cefiderocol or sulbactam-durlobactam.

This Postgraduate Educational Course will comprise state-of-the-art lectures dealing with resistance to last-line antibiotics, phenotypic and molecular diagnostic approaches and treatment issues concerning the use of last-line options. A major focus will be on hands-on wet-lab activities for susceptibility testing (co-organized with the EUCAST Development Laboratory), resistance detection using third-generation long-read sequencing and bioinformatics analysis using an automated whole-genome sequencing pipeline and in silicoPK/PD modelling for optimization of dosing of last-line antibiotics, including new combinations of beta-lactams/beta-lactamase inhibitors.