Course Objectives
The workshop is intended to introduce the emerging role of next-generation sequencing in clinical and public health microbiology and support the building of national and regional capacity in this area. Special focus will be placed on available sequencing technologies, their implementation in the microbiology laboratory settings, the use of various bioinformatics tools for analysing NGS outputs and clinical interpretation. Capacity building will take place using relevant exemplars such as surveillance of infection, outbreak investigation and control, antimicrobial resistance and food and water microbiology. Moreover, the course aims to create new networks between microbiologists, infectious disease specialists, bioinformaticians and other allied professions in the region in order to facilitate the application of NGS in the European neighbourhood.

Faculty Members
João André Carriço, Lisbon, Portugal
Eric Claas, Leiden, Netherlands
Eddie Cytryn, Beit Dagan, Israel
Amparo Fernandez Rodriguez, Madrid, Spain
Alexander Friedrich, Groningen, Netherlands
Dag Harnsén, Münster, Germany
Colin Mackenzie, Düsseldorf, Germany
Jacob Moran-Gilad, Beer-Sheva, Israel
Maria Luisa Ricci, Rome, Italy
John Rossen, Groningen, Netherlands
Ines Steffens, Stockholm, Sweden

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Scientific picture outside: A minimum spanning tree of a core genome MLST analysis performed during an outbreak. © John Rossen
Scientific picture inside: A shotgun sequence representing a clinical sample analysed by metagenomics tools. © Jacob Moran-Gilad

ESCMID Postgraduate Education Course
Regional Capacity-Building for Integration of Next-Generation Sequencing in the Clinical Microlab
Herzliya, Israel
30 Oct – 1 Nov 2017

Target Audience
60 – 100 microbiologists, epidemiologists, infectious disease specialists and bioinformaticians from hospital and public health settings from Middle Eastern, European, Balkan and African countries.

Organizers
• ESCMID Study Group for Genomic and Molecular Diagnostics – ESGMD
• ESCMID Study Group for Epidemiological Markers – ESGEM

Co-Organizers
• ESCMID Study Group for Forensic and Postmortem Microbiology – ESGFOR
• ESCMID Study Group for Legionella Infections – ESGLI
• The Israeli Society for Infectious Diseases – ISID

Course Coordinators
• João André Carriço, Lisbon, Portugal
• Alexander Friedrich, Groningen, Netherlands
• Hajo Grundmann, Freiburg, Germany
• Jacob Moran-Gilad, Beer-Sheva, Israel
• John Rossen, Groningen, Netherlands
Course Programme

Monday, 30 October 2017

08:00 – 09:00 Registration
09:00 – 09:30 Welcome and introduction of the Study Groups, ESGMD and ESGEM representatives
09:30 – 10:15 Overview of next-generation sequencing and new technologies in medical microbiology. Alexander Friedrich
10:15 – 11:00 The basics of NGS I – overview of sequencing platforms and related equipment. Eric Claas
11:00 – 11:30 Coffee break
11:30 – 12:15 The basics of NGS II – nucleic acid extraction and library preparation for microbial NGS. John Rossen
12:15 – 13:00 Interactive discussion I – how to set up wet NGS in the hospital microbiol? Panel of faculty members; moderator: Alexander Friedrich
13:00 – 14:00 Lunch
14:00 – 14:45 Overview of molecular typing approaches for bacterial pathogens. João André Carriço
14:45 – 15:30 Advanced NGS I – how to infer clinically relevant information from bacterial whole-genome sequences? Jacob Moran-Gilad
15:30 – 16:00 Coffee break
16:00 – 17:30 Advanced NGS II – bacterial typing applications using NGS. Dag Hansen

Tuesday, 31 October 2017

08:30 – 08:45 Summary of day 1
08:45 – 09:15 Case presentation I – NGS application for multi-resistant Gram-negative rods. Colin Mackenzie
09:15 – 09:45 Case presentation II – NGS application for hospital outbreaks. John Rossen
09:45 – 10:30 Metagenomics I – NGS application for microbiome analysis. Paul Savetkoul
10:30 – 11:00 Coffee break
11:00 – 11:45 Metagenomics II – applications in water systems. Maria Luisa Ricci
11:45 – 12:30 Metagenomics III – applications in environmental surveillance of resistance. Eddie Egtryn
12:30 – 13:30 Lunch
14:15 – 15:00 Industry talks. To be confirmed
15:00 – 15:30 Case presentation III – NGS applications for One Health challenges. Jacob Moran-Gilad
15:30 – 16:15 Interactive discussion II – interpretation of NGS findings – the clinical point of view. Panel of faculty members; moderator: Dag Hansen
16:15 – 17:00 Interactive discussion III – quality issues in implementing new technology in the lab. Panel of faculty members; moderator: Eric Claas
18:00 – 22:00 Social event and dinner

Wednesday, 1 November 2017

08:30 – 08:45 Summary of day 2
08:45 – 09:30 Bioinformatics I – international databases of genomes and genes, quality issues of bacterial genomes. João André Carriço
09:30 – 10:30 Interactive discussion IV – I have sequenced a bacterial genome – what is next? Panel of faculty members; moderator: João André Carriço
10:30 – 11:00 Coffee break
11:00 – 11:45 Bioinformatics II – graphical representation of WGS analysis. João André Carriço
11:45 – 12:30 Considerations in publication of NGS-based studies – reflections from Eurosurveillance. Ines Steffens
12:30 – 13:00 Concluding remarks & farewell

Organization

Course Venue
Daniel Herzliya Hotel
60 Ramat Yam
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Registration Procedure
Register now online on the ESCMID website at www.escmid.org/education.
Registration deadline is 29 September 2017.

Registration Fee
• EUR 500 for ESCMID members (Full Membership/Young Scientist Membership)
• EUR 650 for all others

The fee includes the full scientific programme, coffee breaks, lunches, social activity and the conference dinner. Travel and accommodation are not included.

Attendance Grants
ESCMID provides a number of attendance grants for ESCMID “young scientist members”. The grant covers the registration fee. Travel and accommodation are not included. Please apply via the ESCMID website at www.escmid.org/education before 16 August 2017. Applicants will be informed about their acceptance by 30 August 2017.

CME Accreditation
The organizers of the course will apply for European CME accreditation through EACCME.