



Constitution Day celebration, 17th of May (Photo by Petter Heibæk, cropped)

Target Audience

Technicians, (molecular) biologists, medical (molecular) microbiologists, infectious diseases specialists, public health specialists and bioinformaticians who would like an introduction and an update on how to use next-generation sequencing in routine diagnostics of infectious diseases.

Faculty Members

Hege Vangstein Aamot, Lørenskog, Norway
Ola Brynhildsrud, Oslo, Norway
Patricia Campbell, Lørenskog, Norway
João André Carrico, Lisbon, Portugal
Natacha Couto, Groningen, Netherlands
Adrian Egli, Basel, Switzerland
Nicole Fischer, Hamburg, Germany
Stefan Green, Chicago, IL, United States
Gilbert Greub, Lausanne, Switzerland
André Ingebretsen, Oslo, Norway
Mirjam Kooistra-Smid, Groningen, Netherlands
Sonja Lagström, Lørenskog, Norway
Aitana Lebrand, Geneva, Switzerland
Jacob Moran-Gilad, Beer Sheva, Israel
Paula Mölling, Örebro, Sweden
Justin O'Grady, London, UK
Helena Seth-Smith, Basel, Switzerland
Silke Peter, Tuebingen, Germany
John W.A. Rossen, Groningen, Netherlands
Henrik Westh, Hvidovre, Denmark

Contact

For the Scientific Programme

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ESCMID Postgraduate
Technical Workshop

**Next-generation
sequencing in routine
clinical microbiology
and infectious diseases**

**Lørenskog, Norway
13 – 16 May 2020**



Photo by Anniken Sandvik

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Technical Workshop

**Next-generation
sequencing in routine
clinical microbiology
and infectious diseases**

Organisers

ESCMID Study Group for Genomic and Molecular Diagnostics (ESGMD)
ESCMID Study Group for Epidemiological Markers (ESGEM)
Akershus University Hospital, Norway
University Medical Centre Groningen (UMCG), Netherlands

Course Coordinators

Hege Vangstein Aamot, Lørenskog, Norway
John W.A. Rossen, Groningen, Netherlands

Course Objectives

With a multitude of benefits, Next-Generation Sequencing (NGS) technology is revolutionizing microbiological diagnostics and NGS is on the way on becoming the new gold standard. The workshop will highlight opportunities and challenges with this technology and present how it can be used in clinical diagnostic settings. As bioinformatics is a known challenge for most non-bio-informaticians, a practical e-lab will be included where we focus on data processing, analysis and interpretation of data.

Course Programme

Wednesday 13 May 2020

- 08:00 Registration
09:00 Welcome to Norway
Merete Holth
09:10 Welcome to the course
John W.A. Rossen

Session 1: Introduction to NGS

Chairs: *John W.A. Rossen, Hege Vangstein Aamot*

- 09:15 NGS: the basics
Stefan Green
10:15 Sequencing technologies and platforms
Aitana Lebrand
11:15 Coffee break
11:45 Sample preparation and sequencing
Stefan Green
12:30 Bioinformatics for non-bioinformaticians
Ola Brynhildsrud
13:15 Lunch
14:15 QC of the bioinformatic pipelines
Jacob Moran-Gilad
15:00 Analyses and visualization of metagenomic data
João André Carriço
15:45 Coffee break
16:15 Added value of long read sequencing
Justin O'Grady
17:15 Welcome reception (drinks and bites)

Thursday 14 May 2020

Session 2: Clinical applications – Part 1

Chairs: *Stefan Green and Natacha Couto*

NGS from a clinical view

- 08:30 Challenges with current microbiological diagnostics and opportunities with NGS to provide some insight on patients prognosis by looking at the virulome
Gilbert Greub

- 09:30 Translating NGS to the clinic: challenges and opportunities
Henrik Westh
10:30 Coffee break

Amplicon sequencing

- 11:00 Amplicon sequencing of human papillomavirus – possible markers for cervical cancer
Sonja Lagström
11:45 Added clinical value of 16S–23S amplicon-based sequencing in a clinical setting
Mirjam Kooistra-Smid
12:30 Lunch

Whole genome sequencing

- 13:30 The use of WGS in a hospital setting
André Ingebretsen
14:15 The role of whole genome sequencing in anti-microbial susceptibility testing of bacteria
Silke Peter
15:00 Coffee break
15:30 NGS for outbreak detection – there is more
– 16:30 than the core genome!
Helena Seth-Smith
18:00 Social event and dinner

Friday 15 May 2020

Session 3: Clinical applications – Part 2

Chairs: *Patricia Campbell, Henrik Westh*

Metagenomic sequencing

- 09:00 Shotgun metagenomic sequencing of infected tissue
Hege Vangstein Aamot
09:45 When dealing with difficult to culture microbes – identification of *Neisseria gonorrhoeae* in throat samples
Patricia Campbell
10:30 Coffee Break
11:00 Application of metagenomics for bacteremia
Paula Mölling
11:45 Metagenomics for typing
Natacha Couto
12:30 Lunch
13:30 The pros and cons of metagenomic sequencing for infectious disease diagnosis – is the juice worth a squeeze?
Nicole Fischer
14:15 Machine learning in microbiology diagnostics
Adrian Egli
15:00 Coffee Break
15:30 Integrative and machine learning metagenomic approaches
John W.A. Rossen
16:15 Farewell to participants not attending the practicals

Saturday 16 May 2020

Session 3: Bioinformatics – e-lab

Trainers: *Natacha Couto, Hege Vangstein Aamot, John W. A. Rossen, Sonja Lagström, Helena Seth-Smith*

- 08:30 Practicals on:
– 16:00
- Quality control
 - Assembly and annotation
 - Pipelines
 - Visualization tools
 - Virulence and resistance markers

Organisation

Course Venue

Akershus University Hospital
Sykehusveien 25
1478 Lørenskog, Norway

Registration Procedure

Register on the ESCMID website at www.escmid.org/education.
Registration closes on 1 April 2020.

Registration Fee

EUR 400 for ESCMID members
EUR 500 for all others

The fee includes the course, coffee, lunches, welcome reception and the social dinner. Travel and accommodation are not included. Attendees participating in the bioinformatics practicals will be charged an extra fee of 100 EUR (members) or 150 EUR (non-members).

Attendance Grants

ESCMID provides a number of attendance grants for ESCMID “young scientist members”. The grant covers the registration fee, but not travel or accommodation costs. Please apply via the registration website by 1 March 2020. Applicants will be informed about their acceptance by 15 March 2020.

CME Accreditation

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

Recommended Accommodation

Thon Hotel Arena
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