



Medisch Genetisch Centrum zuid-west Nederland
special course
9th edition
Next generation sequencing (NGS) data analysis
University Medical Center Groningen, September 28–30, 2015
*Martijn Vermaat, Jeroen Laros, Wilfred van IJcken,
Judith Boer, Marianna Bevova, Victor Guryev, Johan den Dunnen*



This course aims at PhD students, postdocs, and senior researchers who are interested in, planning, or already working with next-generation sequencing. We welcome researchers from both the genomics and bioinformatics fields. Currently available technologies as well as hardware and software solutions will be presented and discussed. The focus of the course will be on the data and ways to analyse these.
Registration link: <http://www.medgencentre.nl/>



Monday, September 28

09:00 Welcome coffee and sign-in: location – room T.B.A.

1. The technologies, their output, and technology-related problems (auditorium)

chair: Martijn Vermaat (LUMC Leiden)

- 09:30 Introduction to Next-Generation Sequencing – Johan den Dunnen (LUMC Leiden)
- 10:00 Illumina Genome Analyzer – Marianna Bevova (ERIBA/UMCG Groningen)
- 10:30 Coffee break
- 11:00 Single Cell Genomics – Diana Spierings (ERIBA/UMCG Groningen)
- 11:30 PacBio RSII – Johan den Dunnen (LUMC Leiden)
- 12:00 Future developments: single molecule sequencing – Wigard Kloosterman (UMC Utrecht)
- 12:30 Lunch

2. General Data Analysis (auditorium)

chair: Jeroen Laros (LUMC Leiden)

- 13:30 Alignment methods – Martijn Vermaat (LUMC Leiden)
- 14:00 Variant calling using GATK – Ies Nijman (UMC Utrecht)
- 14:30 Combining tools into a pipeline – Jeroen Laros (LUMC Leiden)
- 15:00 Coffee break
- 15:30 De Novo assembly – Erwin Datema (KeyGene)
- 16:00 Structural variation analysis using NGS data – Victor Guryev (ERIBA/UMCG Groningen)
- 16:30 End of Day 1

Tuesday, September 29

3. Things to Know and Specific Applications I (auditorium)

chair: Judith Boer (EMC Rotterdam & LUMC Leiden)

- 09:00 Think before you start – Judith Boer (EMC Rotterdam & LUMC Leiden)
- 09:30 Metagenomics – Sasha Zhernakova (UMCG Groningen)
- 10:15 QC issues – Peter-Bram 't Hoen (LUMC Leiden)
- 10:45 Coffee break
- 11:15 RNA expression profiling – Peter-Bram 't Hoen (LUMC Leiden)
- 12:00 Statistics for NGS – Lude Franke (UMCG Groningen)

Lunch 12:30 – 13:30

Computer Practicals: Rooms T.B.A.

- CLCbio – Holger Karas (CLCbio)
- T.B.A. – Victor Guryev (ERIBA/UMCG Groningen)

13:30 30 participants CLCbio (room T.B.A.), 30 participants T.B.A. (room T.B.A.)

15:00 Coffee break

15:30 30 participants T.B.A. (room T.B.A.), 30 participants CLCbio (room T.B.A.)

17:00 End of Day 2

Wednesday, September 30

4. Specific applications II (auditorium)

chair: Marianna Bevova (ERIBA/UMCG Groningen)

- 09:30 DNA methylation and ChIP-Seq – Hendrik Marks (Radboudumc Nijmegen)
- 10:00 De Novo assembly applications – Ken Kraaijeveld (VU Amsterdam)
- 10:30 Coffee break
- 11:00 Data visualization – Rutger Brouwer (EMC Rotterdam)
- 11:30 Non Invasive Prenatal Testing – Frank Sleutels (EMC Rotterdam)
- 12:00 Exome sequencing in a diagnostic setting – Christian Gilissen (UMCN Nijmegen)

Lunch 12:30 – 13:30

Computer Practicals: Rooms T.B.A.

- Introduction to Galaxy – Rutger Brouwer (EMC Rotterdam), Frank Sleutels (EMC Rotterdam) and Leon Mei (LUMC Leiden)
- Interpreting NGS exome data – Christian Gilissen (UMCN Nijmegen)

13:30 30 participants Introduction to Galaxy (room T.B.A.), 30 participants Interpreting NGS exome data (room T.B.A.)

15:00 Coffee break

15:30 30 participants Interpreting NGS exome data (room T.B.A.), 30 participants Introduction to Galaxy (room T.B.A.)

17:00 End of Day 3 – Please return evaluation forms and badges