



Medisch Genetisch Centrum zuid-west Nederland  
special course  
10th edition  
Next generation sequencing (NGS) data analysis  
Leiden University Medical Center, August 29–31, 2016  
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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/>



## Preliminary program

### Monday, August 29

09:00 Welcome coffee and sign-in: the Paleijhs

#### 1. The technologies, their output, and technology-related problems (lecture hall C5)

*chair: Johan den Dunnen*

- 09:30 Introduction to Next-Generation Sequencing – Johan den Dunnen (LUMC Leiden)
- 10:00 Illumina – Wilfred van IJcken (EMC Rotterdam)
- 10:30 Coffee break
- 11:00 Ion Torrent – Tom van Wezel (LUMC Leiden)
- 11:30 PacBio RSII – Yahya Anvar (LUMC Leiden)
- 12:00 Oxford Nanopore – Wigard Kloosterman (UMC Utrecht)

Lunch 12:30 – 13:30

#### 2. General Data Analysis (lecture hall C5)

*chair: Jeroen Laros (LUMC Leiden)*

- 13:30 Alignment methods – Wibowo Arindrarto (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 Data visualization – Rutger Brouwer (EMC Rotterdam)

16:30 End of Day 1

## Tuesday, August 30

### 3. Things to Know and Specific Applications I (lecture hall C5)

*chair: Judith Boer (EMC Rotterdam & LUMC Leiden)*

- 09:00 Think before you start – Judith Boer (EMC Rotterdam)
- 09:30 QC issues – Peter-Bram 't Hoen (LUMC Leiden)
- 10:00 ChIP-Seq and DNA methylation – Hendrik Marks (Radboudumc Nijmegen)
- 10:45 Coffee break
- 11:15 Statistics for NGS – Renee Menezes (VUMC Amsterdam)
- 11:45 RNA expression profiling – Peter-Bram 't Hoen (LUMC Leiden)

Lunch 12:30 – 13:30

Computer Practicals: J1-82 (PC room) and J1-83 (laptop room)

- CLCbio – Andre Koper (CLCbio)
- NextGene – Fons Elstrodt (Bioke)

13:30 30 participants CLCbio (laptop room), 30 participants NextGene (PC room)

15:00 Coffee break

15:30 30 participants NextGene (PC room), 30 participants CLCbio (laptop room)

17:00 End of Day 2

## Wednesday, August 31

### 4. Specific applications II (lecture hall C5)

*chair: Bas Dutilh (Utrecht University)*

- 09:00 Metagenomics – Bas Dutilh (Utrecht University)
- 09:30 Exome sequencing in a diagnostic setting – Claudia Ruivenkamp (LUMC Leiden)
- 10:00 Analysis of long molecule sequencing data – Hans Jansen (ZF Screens)
- 10:30 Coffee break
- 11:00 Structural variation analysis using NGS data – Victor Guryev (ERIBA/UMCG Groningen)
- 11:30 Non-invasive prenatal testing – Rutger Brouwer (EMC Rotterdam)

Lunch 12:00 – 13:00

Computer Practicals: J1-82 (PC room) and J1-83 (laptop room)

- Introduction to Galaxy – Saskia Hilterman (EMC Rotterdam) and Andrew Stubbs (EMC Rotterdam)
- Interpreting NGS exome data using genome browsers – Sander van der Zeeuw (LUMC Leiden), Sander Bollen (LUMC Leiden), Peter van 't Hof (LUMC Leiden)

13:00 30 participants Introduction to Galaxy (PC room), 30 participants Interpreting NGS exome data using genome browsers (laptop room)

14:30 Coffee break

15:00 30 participants Interpreting NGS exome data using genome browsers (laptop room), 30 participants Introduction to Galaxy (PC room)

16:30 End of Day 3 – Please return evaluation forms and badges