

4th PRAGUE AUTUMN SCHOOL NEXT-GEN SEQ DATA ANALYSIS

Quality Control, Read Mapping, Visualization and Downstream Analyses

8. - 12. 10. 2018

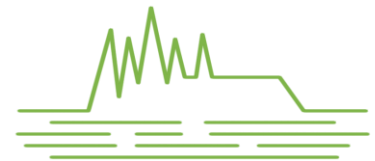
Conference Centre, Institute of Molecular Genetics, Prague, Czech Republic

Who Should Attend?

Molecular biologists or data analysts interested in Next-Generation Sequencing (NGS) data analysis. You should be computer literate and have a basic understanding of molecular biology (DNA, RNA, gene expression, PCR).

Scope and Topics

The goal of this workshop is to give you a deeper understanding of the Next-Generation Sequencing technology with a special focus on bioinformatics issues. All workshop participants will perform important steps of NGS data analysis tasks themselves.



5 days of hands-on training

1st Day: Linux as a scientific tool

Go beyond the graphical user interface!

- General introduction to data analysis
- Unix environment for bioinformatic analysis
- Introduction to the Linux system
- Basic commands in Terminal and their practical use
- Overview of common data formats

2nd – 3rd Day: Basic operations with NGS data

Get a full picture of NGS workflow!

- Working with data from NCBI and other databases (SRATool kit)
- Quality control of sequence data (FastQC, MultiQC, ...)
- Editing sequences in various programs (FASTX-Toolkit, ...)
- Introduction to alignment
- Read mapping (BWA, Bowtie2, ...)
- Preparation of the reference sequence
- Alignment visualization (Tablet, IGV, UCSC, ...)

4th Day: *De novo* assembly

Theory and hands on until you master...

- Various approaches to *de novo* assembly (Velvet, SPAdes, ...)
- Evaluating assembly (Quast, ...)
- Assembly visualization (Tablet, ...)

5th Day: Variant Calling

Explore the open source world of variants!

- Preparation of sequencing data
- Identification of variants - SNPs, INDELs (SAMtools, GATK)
- SNP analysis
- Annotation of variants (SnpEff)
- Visualization of variants

Seats and Fees

25 Seats available, registration fee: 1.150 Euro plus VAT (21%)

The workshop language is English. Registration fee includes: Workshop materials, Lunches/Coffee breaks, Workshop dinner. Computer infrastructure provided. Please kindly notice that lodging, travel and other incidental expenses are the responsibility of the attendee and that no labwork is to be performed during the course.

Workshop is organized by SEQme, Dobris, Czech Republic

Registration: www.seqme.eu/courses

The speakers are specialists focusing on data analysis but also sample processing in NGS lab and other related tasks and therefore as a team able to provide a comprehensive insight into the whole NGS workflow in context. More information about our services can be obtained at www.seqme.eu.

Maria, Institute of Botany, Pruhonice: *The quality of the course was very high, it was really helpful to hear the detailed explanation of how to set all parameters and what effect these settings have. I also appreciate the speed of the workshop - there was enough time to go through all tasks, try them out.*

