# Workshop in Omics Integration and Systems Biology

6 - 10 September
Online

NBIS SciLifeLab Universitet Stockholms


**Rui Benfeitas**

National Bioinformatics Infrastructure Sweden - NBIS
Science for Life Laboratory

Stockholm, Sweden



**Nikolay Oskolkov**

National Bioinformatics Infrastructure Sweden - NBIS
Science for Life Laboratory

Lund, Sweden



**Ashfaq Ali**

National Bioinformatics Infrastructure Sweden - NBIS
Science for Life Laboratory

Lund, Sweden

# Instructions

**Please remain muted**
during lectures

**Camera on**
throughout, if possible

**Raise your hand**
to ask questions

**Chat**
Please do not use Zoom chat
Use HackMD

**Important links**
are on **canvas**

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***Please note this session will be recorded***

# Mentimeter

Go to

**https://www.menti.com/x13m4v8fyx**

Or **www.menti.com** and use the code **1645 5389**

# Mentimeter

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## Where are you connecting from?

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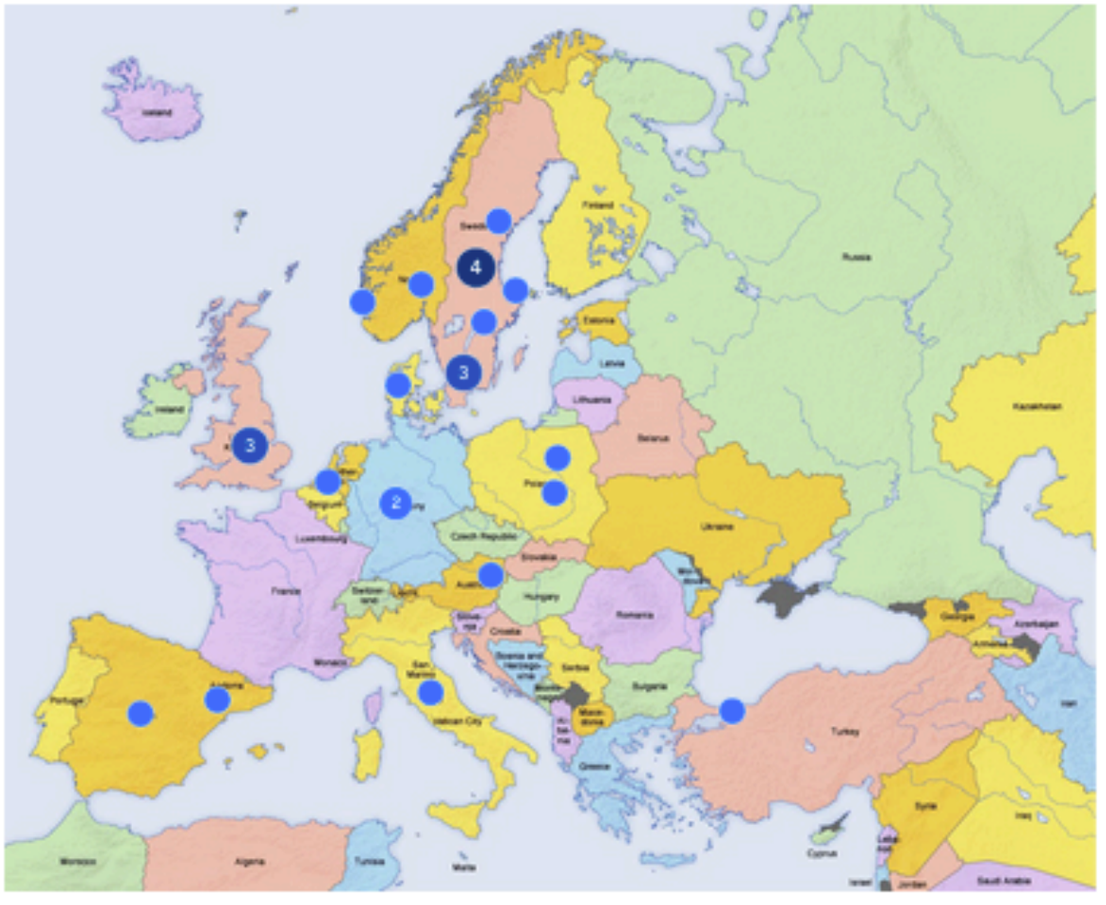


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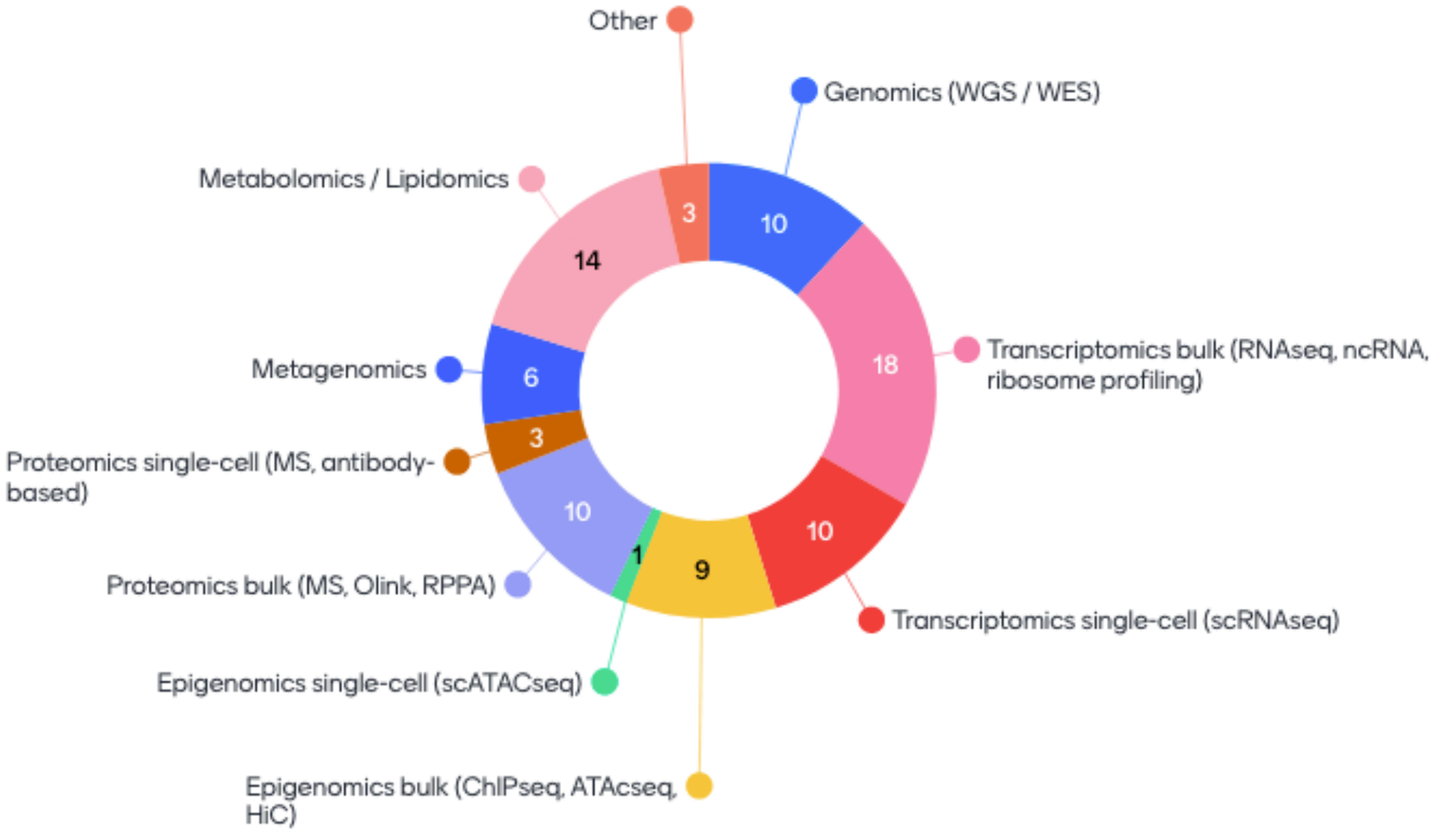
# Mentimeter

Go to **www.menti.com** and use the code **1645 5389**

## Which omics do you use in your research?

Mentimeter

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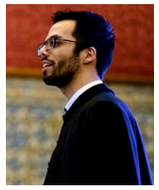
# Themes

**Before the course**

Installation
Data pre-processing



**Rui Benfeitas**, NBIS

**Nikolay Oskolkov**, NBIS

**Day 1**

Machine learning view of integration
Unsupervised integration

**Ricard Argelaguet**
Babraham Institute, UK

MOFA and personalised medicine

**Day 2**

Supervised integration through Mixomics

**Kim-Anh Lê Cao**
Melbourne University, Australia

Deep Learning for Integrative Omics
Single-cell and UMAP

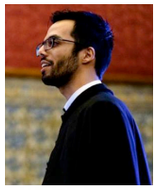
**Nikolay Oskolkov**, NBIS

# Themes

**Day 3**

Biological network analysis

Signalling networks and GWAS



**Rui Benfeitas**, NBIS

**Pedro Beltrão**

EMBL-EBI, UK

**Day 4**

Network fusion
Non-negative matrix factorisation

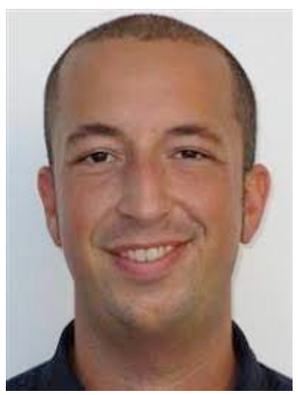
Genome-scale metabolic modeling

**Sergiu Netotea**

NBIS, Gothenburg

**Day 5**

Gene-set analysis and Reporter Features
Network meta-analysis



**Nikolaus Sonnenschein**

DTU, Denmark

**Ashfaq Ali**, NBIS

# Open seminars

# Invited seminars

Online Seminar

## Network based analysis of 1002 GWAS study defines a pleiotropy map of human cell biology

**Dr. Pedro Beltrao, EMBL - EBI**
**United Kingdom**

September 8, 15:00-16:00

Zoom and Youtube

Summary and online registration at
**scilifelab.se/events**

Sign up and read more: **scilifelab.se/events** ⟶

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# Invited seminars

Online Seminar

## Metabolic Atlas: genome-scale metabolic models for easy browsing and analysis

**Mihail Anton, Metabolic Atlas, Chalmers Univ. Technology**

September 10, 13:00-13:55

Zoom and Youtube

Summary and online registration at **scilifelab.se/events**

Sign up and read more: **scilifelab.se/events** -⟶

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# Invited seminars

Online Seminar

## Network-based integration and visualization of large-scale data

**Dr. Lars Juhl Jensen, Novo Nordisk CPR Denmark**

September 10, 14:00-15:00

Zoom and Youtube

Summary and online registration at **scilifelab.se/events**

Sign up and read more: **scilifelab.se/events** →

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# Resources

All resources will be shared in the homepage

Lectures will be recorded

Slides and scripts: Schedule or Modules

Questions / Bugs?: HackMD

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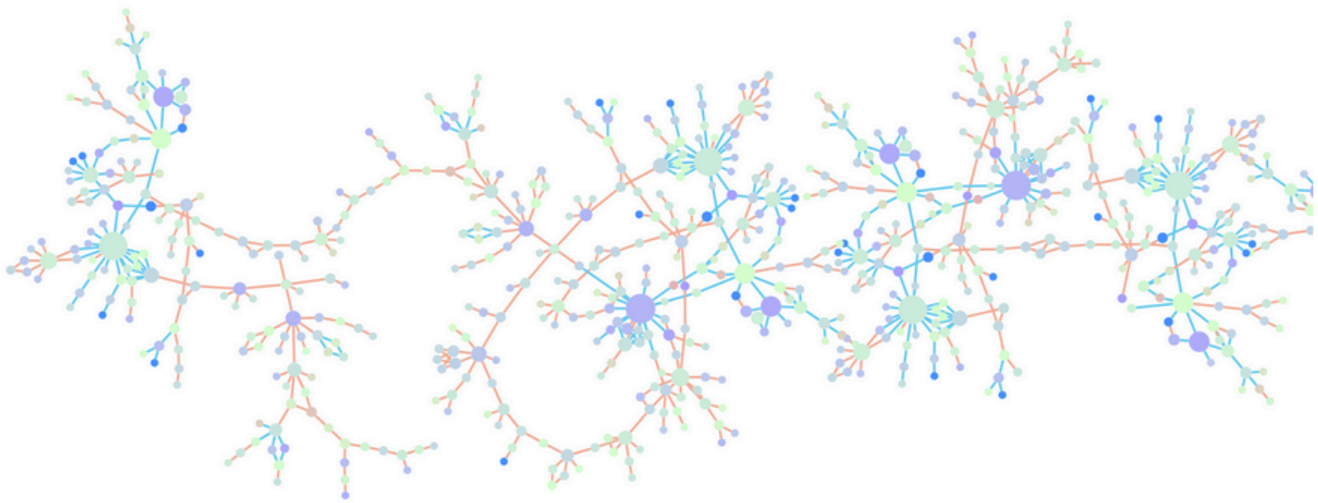
## ELIXIR Omics Integration and Systems Biology



DOI 10.5281/zenodo.4084627

Github repository

6 - 10 September 2021

Online

Connection details

Open seminars

Schedule

Start here

The aim of this workshop is to provide an integrated view of data-driven hypothesis generation through biological network analysis, constraint-based modelling, and supervised and unsupervised integration methods. A general description of different methods for analysing different omics data (e.g. transcriptomics and genomics) will be presented with some of the lectures discussing key methods and pitfalls in their integration. The techniques will be discussed in terms of their rationale and applicability.

# Organization

## Exercises & Assisted Exercises

## Attendance

## Feedback

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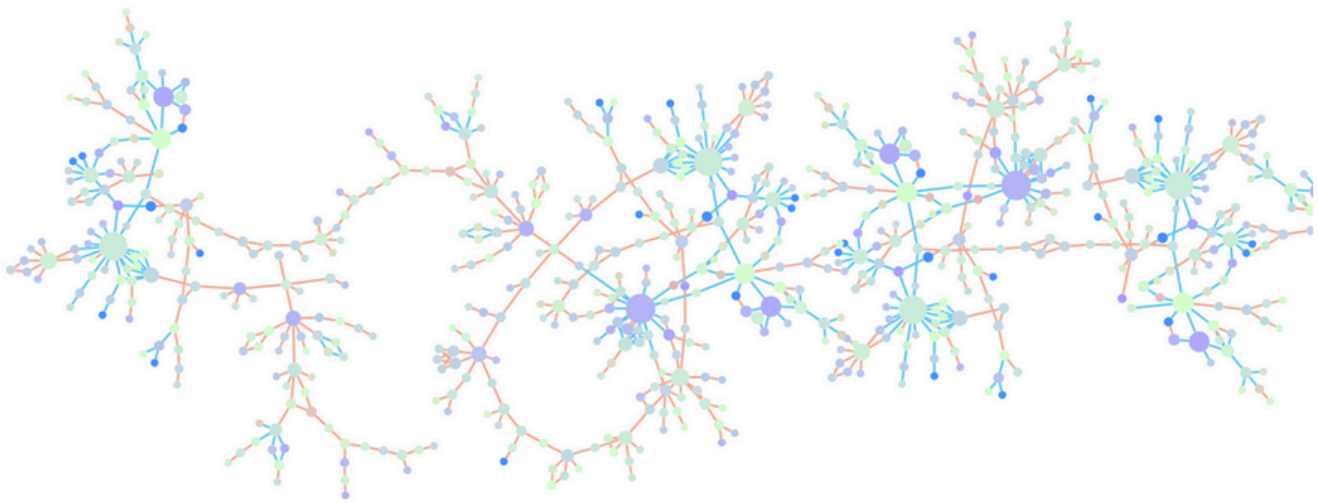
### ELIXIR Omics Integration and Systems Biology



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