

Cell imaging

Jean-Marc Verbavatz

Capacity: 20

Language: English

Prerequisites:

Basic knowledge in cell biology

Where?

Grands Moulins Campus,
Institut Jacques Monod

When?

12-16 sept. 2022

Evaluation:

Oral presentation of practicals

Questions:

Jean-marc.verbavatz@u-
paris.fr

Number ECTS: 3

Total numbers of hours:

30

Teaching format:

conferences, lectures,
practicals

Teaching objectives

- To provide fundamental and practical knowledge on techniques used in biology to image cells from molecules to tissues and to analyze images obtained from microscopes (lectures, practicals).
- To demonstrate the pros and cons of different types of microscopy from light microscopy to electron microscopy (lectures, practicals)
- To provide examples of using cell imaging techniques, to address a biological question (conferences)

Teaching outline

Lectures:

- Introduction to optical and light microscopy
 - fluorescence microscopy
 - optical sectioning of thick samples
 - labelling for light microscopy
- Super resolution microscopy
- Introduction to electron microscopy
 - Cryo EM
 - 3D EM
 - Correlative light/electron microscopy
- From sample preparation to image processing
- Quantitative imaging and image analysis

Practicals:

- Wide-field, spinning disk, confocal microscopy
- Transmission EM, scanning EM, 3D EM
- Image processing, image analysis

Conferences (examples):

Quantitative imaging of collective cell migration
Correlative imaging of *Candida albicans* invasion into cells