

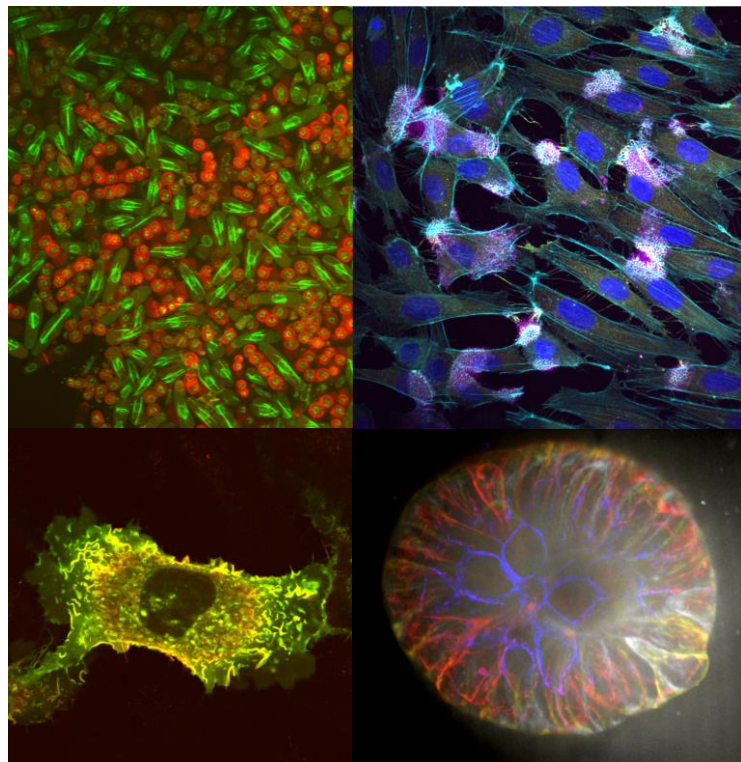
Pasteur Course

Principles and Applications of Fluorescence Microscopy

2025

PROGRAM

10 March – 21 March 2025



PRINCIPLES AND APPLICATIONS OF FLUORESCENCE MICROSCOPY

DIRECTORS

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Audrey SALLES

Location

Institut Pasteur - Education Center - Pavillon Emile ROUX & Pavillon Louis Martin
28, rue du Docteur Roux 75015 Paris

Lectures : Room No. 6

Practical Work: Room on the ground floor & THECLab (05-S1-01)

Thursday, March the 6th

12:30 – 13:15 **Mandatory Pre-start Meeting via Zoom**  Visio

Virginie PONTICELLI
Sylvie MALOT
Murielle ALMOUSSA
(Institut Pasteur, France)

WEEK 1

Monday, March the 10th

8:00 – 8:30 **Registration of participants and delivery of Badges**

8:30 – 9:30 **Welcome, Admin, and Introduction**

Jost ENNINGA
Gaël MONERON
Jean-Yves TINEVEZ
Education Center Staff
(Institut Pasteur, France)

9:30 – 12:00 **Basic optics I**
Geometrical and Gaussian optics
Basic principles of a light microscope
Contrast techniques

Gaël MONERON

12:15 **Photo Session**

13:30 – 18:30 **Bench optics practicals**

Gaël MONERON
Michele CERMINARA
Mickael LELEK
(Institut Pasteur, France)

19:00 **Welcome drinks**

Tuesday, March the 11th

9:00 – 12:00 **Basic optics II**
Coherence of light
Diffraction, Fourier optics, Resolution, PSF
Objective lenses and aberrations

Gaël MONERON

13:30 – 18:30 **Bench optics practicals**

Gaël MONERON
Michele CERMINARA
Mickael LELEK

Wednesday, March the 12th

9:00 – 12:00	Basic optics III Photo-physics Multi-color imaging strategies Lamps, LEDs, LASERs, Wavelength separation	Gaël MONERON
13:30 – 14:30	Imaging modalities and detectors Wide field / beam scanning Cameras / point detectors	Jean-Yves TINEVEZ
14:30 – 18:30	Bench optics practicals	Gaël MONERON Michele CERMINARA Mickael LELEK

Thursday, March the 13th

9:00 – 10:30	Confocal, FLIM and Image Scanning Microscopy	Giuseppe VICIDOMINI <i>(IIT Genova, Italy)</i>
10:30 – 12:00	Multi-photon microscopy	Emiliano RONZITTI <i>(Vision Institute, France)</i>
13:30 – 14:00	Imaging Organoids	Minhee KIM <i>(Institut Pasteur, France)</i>
14:00 – 17:00	PSFs practicals on commercial microscopes	All
17:30 – 18:30	Wrap-up on PSF and Open questions session	

Friday, March the 14th

9:00– 10:30	STED microscopies and beyond	Gaël MONERON <i>(Institut Pasteur, France)</i>
10:30 – 12:00	SMLM, SAF and MODLOC	Guillaume DUPUIS <i>(Univ. Paris-Sud, France)</i>
13:30 – 15:00	Innovative labelling in fluorescence microscopy	Arnaud GAUTIER <i>(Sorbonne University, France)</i>
15:00 – 18:30	Fixed preparation imaging practicals	All

Saturday, March the 15th

9:00 – 10:30	Single molecule, FCS microscopies	Kirsten BACIA (Martin Luther University Halle-Wittenberg, Germany)
10:30 – 13:00	Introduction to Image analysis for Life-Science microscopy	Jean-Yves TINEVEZ
13:00 – 14:00	Image analysis – Image restoration in microscopy	Jean-Yves TINEVEZ
14:00 – 18:00	Image analysis practicals Image analysis Data presentations	Stéphane RIGAUD Jean-Yves TINEVEZ

WEEK 2

Monday, March the 17th

9 :00 – 10:30	Assay Development & High Content Screening	Tim WAI (Institut Pasteur, France)
10:30 – 12:00	Probes development & FRET	Robert E. CAMPBELL (University of Tokyo, Japan)
13:30 – 18:30	Fixed preparation imaging practicals	All

Tuesday, March the 18th

9:00 – 10:30	Introduction to Structured Illumination Microscopy	Audrey SALLES (Institut Pasteur, France)
10:30 – 12:00	Adaptive Optics for fluorescence microscopy	Alexandra FRAGOLA (Paris-Saclay University, France)
13:30 – 18:30	Live cell imaging practicals	All

Wednesday, March the 19th

9:00-10:30	Optogenetic indicators and actuators	Kristine SCHAUER (Institut Gustave Roussy, France)
10:30 – 12:00	Introduction to Image analysis for Life-Science microscopy	Jean-Yves TINEVEZ (Institut Pasteur, France)
13:30 – 18:30	Live cell imaging practicals	All

Thursday, March the 20th

9:00 – 10:30	Light sheet microscopy	Willy SUPATTO <i>(Polytechnique, France)</i>
10:30 – 12:00	Correlative microscopies	Anna-Maria LENNON-DUMÉNIL <i>(Institut Curie, France)</i>
13:30 – 18:30	Live cell imaging practicals	All

Friday, March the 21st

9:00 – 10:30	Closing Lecture	Jost ENNINGA <i>(Institut Pasteur, France)</i>
10:30 – 18:00	Analysis and final presentations	
18:00 – 18:30	Exam & Course evaluation	
19:00	Aperitif/Dinner/Social	