

# “Cell Biology and Infection: Digital image processing/analysis tools for Quantitative Light Microscopy Imaging”

## Program

### 1<sup>st</sup> Day, Monday, July 4

#### Processing and quantification of biological images/ tools and applications

08:30-09:00	<i>Registration</i>
09:00-09:30	<b>Haralabia Boleti</b> , <i>Hellenic Pasteur Institute</i> , Introduction to the course/Opening remarks
09:30-10:30	<b>Participants</b> , 2 min presentation on their projects and the question(s) they have come to resolve in the course
10:30-10:50	<i>Coffee break</i>
10:50-11:40	<b>Jean-Christophe Olivo- Marin</b> , <i>Institut Pasteur</i> , Image analysis and computer vision tools for the processing and quantification of biological images. Icy, the open source computer software for bioimaging.
11:40 -12:30	<b>Szymon Stoma</b> , <i>ScopeM, ETH Zurich</i> , ImageJ/Fiji open source computer software for bioimaging. Introduction to the software and image processing basics

#### Practical session on ImageJ/Fiji

12:30 - 13:30	ImageJ/Fiji hands on practical Instructors: <b>S. Stoma, E. Xingi, F. de Chaumont</b>
13:30 - 14:30	<i>Lunch</i>
14:30 -16:30	ImageJ/Fiji hands on practical
16:30 - 16:50	<i>Coffee break</i>
16:50 - 18:30	ImageJ/Fiji hands on practical
21:00-23:00	<i>Welcoming Dinner</i>

### 2<sup>nd</sup> Day, Tuesday, July 5

#### Processing and quantification of microscopy data (images and videos)/ tools and applications

09:00 - 9:45	<b>Dimitra Thomaidou</b> , <i>Hellenic Pasteur Institute</i> , Analysis of digital images and videos derived from multiphoton microscopy intravital imaging
09:45-10:30	<b>Fabrice de Chaumont</b> , <i>Institut Pasteur</i> , Icy: new features and future
10:30 -10:50	<i>Coffee break</i>

## Practical session on Icy

11:00- 13:30	Icy hands on practical <i>Instructors: F. de Chaumont, A. Dufour, S. Dallongeville, L. Danglot, J. Mutterer</i>
13:30- 14:30	<i>Lunch</i>
14:30 -16:30	Icy hands on practical
16:30-16:50	<i>Coffee break</i>
16:50-18:30	Icy hands on practical

## 3<sup>rd</sup> Day, Wednesday, July 6

### Cell motility and dynamics of phagocytosis and intracellular traffic

09:00-09:45	<b>Alexandre Dufour</b> , <i>Institut Pasteur</i> , Deciphering cellular morpho-dynamics using Bioimage Informatics
09:45-10:30	<b>Chiara Zurzolo</b> , <i>Institut Pasteur</i> , Imaging Prions spreading in neurodegenerative diseases: Role of Tunneling Nanotubes (TNTs)
10:30-10:50	<i>Coffee break</i>
10:50-11:35	<b>Florence Niedergang</b> , <i>Institut Cochin</i> , Imaging phagosome formation, closure and maturation in normal and virus-infected macrophages.

### Practical session on ImageJ/Fiji

11:40- 13:30	ImageJ/Fiji hands on practical <i>Instructors: S. Stoma, E. Xingi, F. Nierdengang, J. Mutterer</i>
13:30-14:30	<i>Lunch</i>
14:30 -16:30	ImageJ/Fiji hands on practical
16:30-16:50	<i>Coffee break</i>
16:50-18:30	ImageJ/Fiji hands on practical

## 4<sup>th</sup> Day, Thursday, July 7

### Super-resolution and high throughput Imaging based screening

09:00- 09:45	<b>Lyndia Danglot</b> , <i>Institut Jacques Monod</i> , Morphometric analysis of neuronal networks: from memory to super-resolution structure of the synapse
09:45-10:30	<b>Franco Perez</b> , <i>Institut Curie</i> , Systematic analysis of the secretory pathway in mammalian cells
10:30 -10:50	<i>Coffee break</i>
10:50 -11:35	<b>J. Pizarro Cerda</b> , <i>Institut Pasteur</i> , Automated High Throughput

	Microscopy-based RNAi screening of mammalian cell invasion by the bacterial pathogen <i>Listeria monocytogenes</i>
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### Practical session on Icy

11:40- 13:30	Icy hands on practical <i>Instructors : F. de Chaumont, A. Dufour, S. Dallongeville, F. Perez, J. Mutterer</i>
13:30- 14:30	<i>Lunch</i>
14:30 -16:30	Icy hands on practical
16:30-16:50	<i>Coffee break</i>
16:50-18:30	Icy hands on practical

### 5<sup>th</sup> Day, Friday, July 8

#### Imaging of pathogen host interaction

09:00- 09:45	<b>Freddy Frischknecht</b> , <i>Center for Infectious Diseases, Heidelberg University</i> , Understanding malaria parasite migration
09:45-10:30	<b>Isabelle Tardieux</b> , <i>Institut of Advanced BioSciences, Univ. Grenoble Alpes</i> , Multi-Imaging Approaches to Decode How <i>Toxoplasma</i> Parasites Invade Target Cells
10:30 -10:50	<i>Coffee break</i>
10:50 -11:35	<b>Jerome Mutterer</b> , <i>Institut de Biologie Moléculaire des Plantes</i> , <b>Image ethics for publication</b> (what can be done and what should be avoided)

#### Informal tutorials with the instructors/ Practice on Icy and ImageJ/Fiji

11:40- 13:30	Participants will choose modules from Icy or ImageJ/Fiji and practice with the help of the instructors on their own projects. <i>Instructors : F. de Chaumont, A. Dufour, S. Dallongeville, S. Stoma, J. Pizarro Cerda, E. Xingi, I. Tardieux, F. Frishchnecht, J. Mutterer</i>
13:30- 14:30	<i>Lunch</i>
14:30 -16:00	Preparation of participants' presentations
16:00-17:45	<b>Participants' Presentations</b> , 3- 4 min presentation of the results from the student's course projects
17:45-18:00	<b>Haralabia Boleti</b> , Closing remarks <i>END of Course</i>
19:30- 21:00	<b>Cultural/Social event</b> <i>Guided tour to the New Acropolis Museum</i>
21:00-23:00	<i>Farewell Dinner</i>