

3D-CLEM Imaging function and ultrastructure

Practical course

November 18. – 21. 2025
IMCF-BIOCEV, Průmyslová 595, Vestec

Programme

Tuesday, Nov. 18

- 08:30 – 09:00** **Registration** [Lecture room U1.038]
- 09:00 – 09:15** Welcome address & organization details
[Aleš Benda](#) [Lecture room U1.038]
- 09:15 – 10:00** Introduction to 3D & CLEM principles and workflows
[David Liebl](#) [Lecture room U1.038]
- 10:00 – 10:45** From experimental model to microscope and imaging
[Petra Prokšová](#) [Lecture room U1.038]
- 10:45 – 11:00** **Coffee break & Presentation of participants** [IMCF room M1.004]
- 11:00 – 12:00** Super-resolution fluorescence microscopy & CLEM applications
[Dalibor Pánek](#), [Marie Olšinová](#) [Lecture room U1.038]
- 12:00 – 13:00** **Lunch** [BIOCEV canteen]
- 13:00 – 13:45** Fluorescence Microscopy Under Cryogenic Conditions – Cryo-CLEM
[Piotr Jurkiewicz](#) [Lecture room U1.038]
- 13:45 – 14:30** (Cryo)-Electron Tomography and its application in (cryo)-CLEM
[Jiří Mikšátko](#) [Lecture room U1.038]
- 14:30 – 14:45** **Coffee break** [IMCF room M1.004]
- 14:45 – 15:30** Volume-EM: principles, sample preparation and CLEM applications
[Daniela Popelková](#), [Eva Ďurínová](#) [Lecture room U1.038]
- 15:30 – 16:15** A practical guide to multimodal data correlation
[Zuzana Čočková](#) [Lecture room U1.038]
- 16:15 –** **Get together (pizza & drinks)** [IMCF room M1.004]

Wednesday, Nov. 19

- 09:00 – 10:30** Demo & hands on sessions:
Group A: Sample preparation and 3D Fluorescence microscopy
[Dalibor Pánek](#), [Marie Olšinová](#), [Petra Prokšová](#) [Lab L1.004]
Group B: Cryo-fixation (Plunge freezing and High-pressure freezing)
[Jiří Mikšátko](#), [David Liebl](#) [Lab M1.024]
- 10:30 – 10:45** **Coffee break** [IMCF room M1.004]
- 10:45 – 12:15** Demo & hands on sessions:
Group A: Sample preparation and 3D Fluorescence microscopy
[Dalibor Pánek](#), [Marie Olšinová](#), [Petra Prokšová](#) [Lab L1.004]
Group B: Cryo-Fluorescence microscopy
[Piotr Jurkiewicz](#) [Lab M1.015]

- 12:15 – 13:00 **Lunch** [BIOCEV canteen]
- 13:00 – 14:30 Demo & hands on sessions:
Group A: Sample processing & ultramicrotomy for EM
Daniela Popelková, Eva Ďurínová [Lab M1.011 & M1.015]
Group B: Electron Tomography
Jiří Mikšátko, David Liebl [Lab M1.019]
- 14:30 – 14:45 **Coffee break** [IMCF room M1.004]
- 14:45 – 16:15 Demo & hands on sessions:
Group A: Electron microscopy (SEM, FIB-SEM)
Daniela Popelková, Eva Ďurínová [Lab M1.013]
Group B: Cryo-Transmission Electron Microscopy
Jiří Mikšátko, David Liebl [Lab M1.019]
- 16:15 **Debriefing** [IMCF room M1.004]

Thursday, Nov. 20

- 09:00 – 10:30 Demo & hands on sessions:
Group B: Sample preparation and 3D Fluorescence microscopy
Dalibor Pánek, Marie Olšinová, Petra Prokšová [Lab L1.004]
Group A: Cryo-fixation (Plunge freezing and High-pressure freezing)
Jiří Mikšátko, David Liebl [Lab M1.024]
- 10:30 – 10:45 **Coffee break** [IMCF room M1.004]
- 10:45 – 12:15 Demo & hands on sessions:
Group B: Sample preparation and 3D Fluorescence microscopy
Dalibor Pánek, Marie Olšinová, Petra Prokšová [Lab L1.004]
Group A: Cryo-Fluorescence microscopy
Piotr Jurkiewicz [Lab M1.015]
- 12:15 – 13:00 **Lunch** [BIOCEV canteen]
- 13:00 – 14:30 Demo & hands on sessions:
Group B: Sample processing & ultramicrotomy for EM
Daniela Popelková, Eva Ďurínová [Lab M1.011 & M1.015]
Group A: Electron Tomography
Jiří Mikšátko, David Liebl [Lab M1.019]
- 14:30 – 14:45 **Coffee break** [IMCF room M1.004]
- 14:45 – 16:15 Demo & hands on sessions:
Group B: Electron microscopy (SEM, FIB-SEM)
Daniela Popelková, Eva Ďurínová [Lab M1.013]
Group A: Cryo-Transmission Electron Microscopy
Jiří Mikšátko, David Liebl [Lab M1.019]
- 16:15 **Debriefing** [IMCF room M1.004]

Friday, Nov. 21

09:00 – 09:45	FM & EM data processing: 3D reconstruction, segmentation, volume rendering, correlation Zuzana Čočková [Lecture room U1.038]
09:45 – 10:30	FM & EM data processing: 3D reconstruction, segmentation, volume rendering, correlation Jiří Mikšátko [Lecture room U1.038]
10:30 – 10:45	Coffee break [IMCF room M1.004]
10:45 – 11:30	3D-CLEM Applications: Invited lecture Jaromír Novák (IBT, CAS) [Lecture room U1.038]
11:30 – 12:15	3D-CLEM Applications: Invited lecture Michal Franek (CEITEC, MUNI.cz) [Lecture room U1.038]
12:15 – 13:00	Lunch [BIOCEV canteen]
13:00 – 13:45	3D-CLEM Applications: Invited lecture Pavel Křepelka (CEITEC, MUNI.cz) [Lecture room U1.038]
13:45 – 14:30	Troubleshooting, Discussion, Q&A
14:30 – 14:45	Coffee break [IMCF room M1.004]
14:45 – 16:00	Optional hands-on sessions [IMCF Labs]
16:00	End of the course

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