BIO-TALK: Investigating cellular logistics with live-cell STED super-resolution microscopy

FRANCESCA BOTTANELLI

July 04, 2023 to July 05, 2023

Mir-Puig Elements (MP202)

Abstract:

This course aims to equip attendees with the necessary skills to successfully conduct **live -cell stimulated emission depletion (STED) microscopy** experiments

It will include a comprehensive lecture that covers essential techniques for sampl preparation, along with practical considerations and imaging parameters specifically tailore to live-cell STED imaging. Furthermore, a pipeline for generating CRISPR-Cas9 knock-in cel lines will be discussed, enabling participants to observe nanoscale dynamics at th endogenous expression level

In addition to the informative lectures, participants will have the opportunity to engage i two hands-on practical sessions. These sessions will take place at the SLN facility, wher attendees will gain practical experience imaging both overexpressed intracellular marker and knock-in cell lines

Registration:

Participation is open to all ICFOnians

Please note that registration is required due to limited availability. If you are interested in participating, kindly fill out the registration form provided here by **June 21**

Confirmation emails will be sent to accepted applicants on May 22.

Agenda:

Tuesday, July 4: Lecture + practical session

9.30-11.00 **Live-cell STED** lecture: tips for sample preparation and practical considerations and imaging parameters for live-cell STED imag

ng 11.00-11.30 coffee

reak 11.30-13.15 practical session (group 1

13.15-14.30 lunch br

ak 14.30-16.15 practical session (group 2

16.15-16.45 coffee br

ak 16.45-18.30 practical session (group 3

Wednesday, July 5: Lecture + practical session

9.30-11.00 **CRISPR-CAS9 Knockin** lecture: pipeline for the generation of CRISPR-Cas knock in cell lines to be able to follow nanoscale dynamics at endogenous expression level [

Solid background in molecular biology required for this session]

11.00-11.30 coffee bre

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13.15-14.30 lunch br

ak 14.30-16.15nd2practical session (group 2

16.15-16.45 coffee br

ak 16.45-18.30nd2practical session (group 3

About the trainer:

Dr. Francesca Bottanelli is an assistant professor in the Biochemistry department at Freie Universitat in Berlin. She developed a passion for imaging and cell biology during her hD with Dr. Jürgen Denecke at the University of Leeds (UK). She then moved to the USA to c rry out post-doctoral work Dr. James Rothman and was very excited to be working on the development of super-resolution techniques (STED in particular) and their applic tion to cell biological questions. During her post-doctoral work, she developed novel la elling strategies for multi-color live-cell STED imaging (in collaboration with Dr. Joerg ewersdorf lab) and applied these tools to better understand how the Golgi -the main sorting tation of the cell- works. In her independent position she continues to pursue both h r passions (STED and

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Golgi). Should you require any additional information regarding the course content, please do not hesitate to contact **Dr. Felix Campelo** (felix.campelo@icfo.eu) from Single Molecule Biophotonics research group, who is the scientific organizer of the course.

Hosted by: Academic Affairs