FEBS PC2024 program

June 09-15, 2024

Faculty of Science University of South Bohemia Ceske Budejovice Czech Republic

	Lectures **8:30–12:30** **7:45-8:30** Breakfast **13:00-14:00** Lunch	**Lab Exercises** **14:00–19:00** **15:30** Coffee and tea time **19:00** Dinner (Tue, Thu)	**Evening events** **20:00**
Sunday June 09	**18:00-20:00** Registration		
Monday June 10	**9:00-12:00** Registration **10:00-11:30** **practical WS1** - How "random" microseeding can dramatically increase the number of crystal structures that your lab can produce [Patrick Shaw Stewart, Douglas Instruments] **practical WS2** - Exploring the Invisible World with Nikon and Nanolive [Barbora Kobidová]		
Monday June 10 **13:35** Coffee and tea time **16:15** Coffee and tea time	**12:00-12:15** Welcome and Course remarks [Ivana Kutá Smatanová & Pavlína Řezáčová] **12:15-12:30** Prologue by the USB representative – vice-rector for science and development [Luděk Berec] Prologue by the FSci USB representative **12:30-12:45** Introduction of FEBS activities by the FEBS ACC representative [Mutay Aslan] **12:45-13:15** Tackling the reproducibility crisis in scientific research [Sara Fuentes, Managing Editor of FEBS Open Bio] (on-line) **13:15-13:35** Greeting speech by Rolf Hilgenfeld (on-line) Greeting speech by Juan Ma Garcia-Ruiz (on-line) **14:00-14:45** AlphaFold and biochemical considerations for protein crystallization [Joe Ng] **14:45-15:30** InCellCryst - A streamlined approach for protein crystallization in living cells [Lars Redecke] **15:30-16:15** Crystallization of membrane proteins in lipidic systems [Martin Caffrey] **16:45-17:30** Synthetic macrocycles as mediators of protein crystallization [Peter Crowley] **17:30-18:15** From target structures to drugs [Andrea Brancale] **18:15-19:00** The Chemistry of Mushroom Magic [Bernhard Rupp]		Welcome party
Tuesday June 11 **10:30** Coffee and tea time	**8:30-9:15** From protein solution to crystals: Nature and formation of protein crystals [Bernhard Rupp] **9:15-10:00** From protein expression and purification to crystallization [Sergio Martínez Rodríguez] **10:00-10:30** Crystallization for the desperate [Terese Bergfors] **10:45-11:25** Hofmeister ion series and the protein phase diagram [Jeroen Mesters] **11:25-12:05** Protein crystallization by capillary counter-diffusion methods [Jose A. Gavira] **12:05-12:45** Construct design and limited proteolysis strategies [Jerome Basquin] **12:45-13:00** A Crystallographer's guide to the Galaxy [Paul Driver, Molecular Dimensions]	1. Intracellular protein crystallization [L. Redecke] 2. Conventional techniques and crystallization of own proteins and [J. Mesters] 3. Crystallization of membrane proteins in lipidic system [M. Caffrey] 4. Observation of crystal growth / Seeding [T. Bergfors] 5. Crystallization under oil [L. Govada] *Optional exercises* Capillary protein crystallization using counter-diffusion techniques [J. Gavira] "The secret life of your crystallization drop"? [B. Rupp]	Discussion with speakers and tutors of the day + posters section I Theory of X-ray diffraction I. [Jeroen Mesters]
Wednesday June 12 **11:00** Coffee and tea time	**8:30-9:15** Analyzing, scoring and optimizing Crystallization Conditions applying advanced Dynamic Light Scattering (DLS) Techniques [Christian Betzel] **9:15-9:45** Protein as the main variable in crystallization [Ľubica Urbániková]	1. Observation of crystal growth / Seeding [T. Bergfors] 2. Experimental phasing: practical considerations [J. Basquin] 3. "Random" Microseeding [P. Pachl, P. Shaw Stewart]	

	9:45-10:15 Unconventional crystallization strategies and techniques for screening and optimization [Lata Govada] **10:15-11:00** Microfluidics in action: crystallization and crystallography in microchips [Claude Sauter] **11:15-11:45** What's this in my drop? Identifying drop phenomena". [Terese Bergfors] **11:45-12:30** Microseed Matrix Screening and its use in Structure Based Drug Discovery [May E. Sharpe] **12:30-13:00** Sample preparation for routine and advanced structural biology, including serial data collection and microED [Patrick Shaw Stewart, Douglas Instruments]	4. Capillary protein crystallization using counter-diffusion techniques [J. Gavira] 5. AlphaFold and biochemical considerations for protein crystallization [Joe Ng] 6. From the biomolecule solution to its 3D structure in a microfluidic chip [C. Sauter] *Optional exercises* Crystallization under oil [L. Govada] Conventional techniques and crystallization of own proteins and [J. Mesters]	Visit of town Ceske Budejovice and the evening in own direction
Thursday June 13 **10:30** Coffee and tea time	**8:30-9:00** Using Fluorescence to Find Your Crystals [Crissy L. Tarver] **9:00-9:45** Crystallization Screening Results Analysis and Condition Prediction [Marc L. Pusey] **9:45-10:30** Crystallographic fragment-screening: workflow, tools and procedures [Manfred Weiss] **10:45-11:30** Introduction to single particle analysis by cryo-EM [Oksana Degtjarik] **11:30-12:15** Sample preparation for single particle cryo-EM [Iuliia Iermak] **12:15-12:35** Advancements in Imaging Technologies and Microscopy: Exploring the Invisible World with Nikon and Nanolive [Barbora Kobidová, Zbyněk Halbhuber, Altium International]	1. Dynamic light scattering [K. Dierks, Hevila Brognaro] 2. Trace Fluorescent Labeling and Low Cost Fluorescent Imaging [M. Pusey, C. Tarver] 3. Crystal observation, testing, handling, mounting and cryocooling [J. Brynda, P. Pachl] 4. Intracellular protein crystallization [L. Redecke] 5. Soaking and co-crystallization 6. [B. Kaščáková] 7. "Random" Microseeding [P. Pachl, P. Shaw Stewart]	Discussion with speakers and tutors of the day + posters section II Theory of X-ray diffraction II. [Jeroen Mesters] Poster prize awards
Friday June 14 **10:45** Coffee and tea time **15:30** Coffee and tea time	**8:30-9:15** Preparation of protein samples for crystallization experiments [Pavlína Řezáčová] **9:15-10:00** Preparation and crystallization of protein complexes: Tricks and examples from our host-virus studies [Ivana Nemčovičová] **10:00-10:45** Extremely brilliant X-ray sources and new opportunities in macromolecular crystallography [Petr Pachl] **11:00-11:45** How to trap small objects in a beam of light [Dušan Novotný, MT-M] 3 students awarded by poster prize will give max 10min lectures **12:00-12:10** Student presentation 1 **12:10-12:20** Student presentation 2 **12:20-12:30** Student presentation 3	**15:00-15:30** Round table discussion and final remarks [speakers and organizers] **15:30-19:00** **work in the lab** *Optional exercises:* • Crystal observation, testing, handling, mounting and cryocooling [P. Pachl, J. Brynda] • Conventional techniques and crystallization of own proteins [J. Mesters] • Intracellular protein crystallization [L. Redecke] • Trace Fluorescent Labeling and Low Cost Fluorescent Imaging [M. Pusey, C. Tarver] • AlphaFold and biochemical considerations for protein crystallization [Joe Ng]	**19:30** Closing ceremony followed by Farewell dinner
Saturday June 15	*Optional exercises:* • Crystal observation, testing, handling, mounting and cryocooling [P. Pachl, J. Brynda] • Conventional techniques and crystallization of own proteins [J. Mesters] • Intracellular protein crystallization [L. Redecke] • Trace Fluorescent Labeling and Low Cost Fluorescent Imaging [M. Pusey, C. Tarver] • AlphaFold and biochemical considerations for protein crystallization [Joe Ng]		
	12:00 Lunch take away and End of the course		