



PC16 003 FEBS co-sponsored by Instruct course programme

June 27 - July 2, 2015 Nové Hradý

| | Lectures 8:30-13:00 | Lab Exercises 14:30-18:30 | Evening events 20:00 |
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| Monday June 27 | 10:00-14:00 Registration 13:00-14:00 Lunch | | |
| Monday June 27 14:45 Coffee and tea time | 14:00-14:30 Welcome and Course remarks [Ivana Kuta Smatanova & Pavlína Řezáčová] 14:30-14:45 Prologue by the dean of Faculty of Science [František Vácha] 15:15-16:00 Principles of protein crystallization: The nature of Protein Crystals and the Physical Chemistry of their formation [Bernhard Rupp] 16:00-16:45 Crystallization of membrane proteins in lipidic systems [Martin Caffrey] 16:45-17:30 An introduction to crystal morphology and crystal growth mechanisms [Juan M. García-Ruiz] 17:30-18:15 Conventional crystallization methods and their modifications [Jeroen Mesters] | | Welcome party – representative quarters of the castle [19:00] Dancing with Campanello [20:30] |
| Tuesday June 28 10:45 Coffee and tea time | 8:30-9:15 Principles of protein crystallization II: Methods, evaluation, and properties of 'real' crystals [Bernhard Rupp] 9:15-10:00 Capillary counterdiffusion technique for pro- tein crystallization and screening [Juan M. Garcia-Ruiz] 10:00-10:45 Interpretation of the crystallization drop re- sults [Terese Bergfors] 11:00-11:30 Crystallization of Protein-Nucleic Acid Complexes [Christian Biertümpfel] 11:30-11:50 Seeding Strategies for "Random" Crystal Screening and Crystal Optimization [Stefan Kolek] 11:50-12:10 UV to the rescue! [Jessica Bruystens] 11:15-12:00 Publication of scientific results with emphasis on crystallization communications [Howard Einspahr] | 1. Conventional techniques and their modifications, crystallization of own proteins [J. Mesters] 2. "The secret life of your crystalliza- tion drop"? [B. Rupp] 3. Crystallization of membrane pro- teins in lipidic system [M. Caffrey] 4. Observation of crystal growth / See- ding [T. Bergfors] 5. Capillary protein crystallization using counter-diffusion techniques [J. Gavira] <i>Optional exercise:</i> Conventional tech- niques and crystallization of own pro- teins [J. Mesters, E. Urbániková] <i>Optional exercise:</i> Practical Consid- erations for the Crystallization of Pro- tein-Nucleic Acid Complexes [Ch. Biertümpfel] <i>Optional exercise:</i> Evaluation of crys- tallization trials with the UVEX micros- cope [J. Bruystens] <i>Optional exercise:</i> "Random" Microse- eding [S. Kolek, M. Sharpe] | Theory of X-ray diffraction [Jeroen Mesters] Discussion with "speakers of the day" + posters |
| Wednesday June 29 10:15 Coffee and tea time | 8:30-9:00 From protein expression and purification to its crystallization [Radka Chaloupkova] 9:00-9:45 Preparation of protein samples for crystalli- zation experiments [Pavlína Řezáčová] 9:45-10:15 Preparation of macromolecular complexes for crystallization [Ivana Nemcovicova] | 1. Observation of crystal growth / Se- eding [T. Bergfors] 2. Capillary protein crystallization using counter-diffusion techniques [J. Gavira] 3. "Random" Microseeding [S. Kolek, M. Sharpe] 4. Publication of scientific results with emphasis on crystallization communications [H. Einspahr] | Chocolate fountain Discussion with "speakers of the day" + posters |



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| Wednesday June 29 10:15 Coffee and tea time | 10:30-11:30 Protein as the main variable in crystallization [Lubica Urbániková] 11:30-12:00 What to do if everything has failed" [Terese Bergfors] 12:00-12:45 A historical perspective on protein crystallization from 1840 to the present day [Richard Giegé] | 5. Practical Considerations for the Crystallization of Protein-Nucleic Acid Complexes [Ch. Biertümpfel] <i>Optional exercise:</i> "The secret life of your crystallization drop"? [B. Rupp] <i>Optional exercise:</i> Conventional techniques and crystallization of own proteins [J. Mesters, L. Urbániková] <i>Optional exercise:</i> Evaluation of crystallization trials with the UVEX microscope [J. Bruystens] | |
| Thursday June 30 10:45 Coffee and tea time | 8:30-9:15 Crystallization microfluidic systems: strategies and perspectives [Claude Sauter] 9:15-10:00 Crystallization Screening – New Approaches [Marc L. Pusey] 10:00-10:45 Tips and tricks for protein crystal manipulation and handling [José A. Gavira] 11:00-11:45 DLS measurements prior to crystallization experiments [Christian Betzel] 11:45-12:30 Some methods to maximize the probability of protein crystallization [Da-Chuan Yin] 12:30-12:50 Assessing the diffraction quality of crystals [Vernon Smith] | 1. Dynamic light scattering [K. Dierks, Ch. Betzel] 2. Trace Fluorescent Labeling for Protein Crystallization Screening [M. Pusey] 3. Crystallization under oil [L. Govada] 4. From the biomolecule solution to its 3D structure in a microfluidic chip [C. Sauter] 5. Publication of scientific results with emphasis on crystallization communications [H. Einspahr] <i>Optional exercise:</i> Conventional techniques and crystallization of own proteins [J. Mesters, L. Urbániková] <i>Optional exercise:</i> Practical Crystallography - how to perform a diffraction experiment? [V. Smith, S. Freisz] | Theory of X-ray diffraction [Jeroen Mesters] Round table discussion + student presentations |
| Friday July 1 10:30 Coffee and tea time | 9:00-9:45 Unconventional crystallization strategies and techniques for screening and optimisation [Naomi E. Chayen] 9:45-10:30 Large volume crystal growth in restricted geometry for neutron crystallography [Joe Ng] 10:45-11:30 Optimisation of crystal growth for neutron crystallography [Monika Budayová-Spano] 11:30-12:15 Preparation of Micro- and Nano-Crystals for Free-Electron-Laser and Synchrotron Radiation Sources [Christian Betzel] 12:15-12:45 A rational approach to crystallising proteins in the pharmaceutical industry, the impact of micro seed matrix seeding [Allan D'Arcy] 12:45-13:00 Lecture by Chair of the FEBS ACC [Beata G. Vértessy] | 1. Dynamic light scattering [K. Dierks, Ch. Betzel] 2. Trace Fluorescent Labeling for Protein Crystallization Screening [M. Pusey] 3. Crystallization under oil [L. Govada] 4. From the biomolecule solution to its 3D structure in a microfluidic chip [C. Sauter] 5. Practical Crystallography - how to perform a diffraction experiment? [V. Smith, S. Freisz] <i>Optional exercise:</i> Conventional techniques and crystallization of own proteins [J. Mesters, L. Urbániková] <i>Optional exercise:</i> Crystals for neutron diffraction [J. Ng] | 19:00 Farewell dinner |
| Saturday July 2 10:45 Coffee and tea time | 9:30-12:30 Crystal observation, testing, handling, mounting and cryocooling [J. Brynda, P: Pacht] | | |