



ADVANCED METHODS IN MACROMOLECULAR CRYSTALLIZATION VI

The 1st joint FEBS-INSTRUCT crystallization course in the middle EU
(FEBS PC12-023)



Academic and University Center at Nové Hradý, Czech Republic JUNE 20 - 27, 2014

DATE OF THE COURSE

JUNE 20 - 27, 2014

APPLICATIONS DEADLINE

MARCH 31, 2014

REGISTRATION

<http://febs.img.cas.cz>

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TOPICS

- E.coli* - a factory for recombinant proteins
- From protein expression and purification to protein crystallization
- Protein as the main variable in crystallization
- In vivo* protein crystallization as a new route for structural biology
- Introduction to protein crystallization
- Nucleation of protein crystals
- Morphology and crystal growth mechanisms
- Preparation of protein samples for crystallization experiments
- Protein crystallization screening
- Additives in protein crystallization
- Advanced light scattering methods
- Conventional crystallization methods and their modifications
- Crystallization under oil
- Advanced crystallization techniques
- Counter diffusion methods for protein crystallization and screening
- Lipidic cubic phase crystallization
- Microseeding with automatic systems
- Nanocrystals for future application
- Membrane protein crystallization
- Interpretation of the crystallization drop results
- Crystallization and crystallographic analysis in a microfluidic chip
- Illuminating the screening process with fluorescence
- Tips and tricks for protein crystal manipulation
- Crystal mounting and freezing
- Screening the diffraction quality of protein crystals
- The growth of large crystals for neutron diffraction
- Crystallogensis methods for structural biology
- Publishing your crystallization results

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LOCATION



Nové Hradý is located in the south of the Czech Republic. The Academic and University Center resides in a very stylish chateau, which provides many facilities such as two lecture halls, laboratories and a student dormitory.

INFORMATION

The course is intended for undergraduate (5th year) and postgraduate students and postdocs with an interest in macromolecular crystallization. Number of participant is limited to 25. The crystallization of biological macromolecules is still poorly understood and, as a consequence, success of the common trial-and-error experiments is not predictable. On the other hand, more rational approaches have been developed in the past few years and prospects for the science of crystallogensis are in fact good. Many of the new approaches are based on an improved theoretical insight into the processes of nucleation and crystal growth. The planned course is designed to bring over the message of the benefits of more rational approaches to macromolecular crystallization. The course will consist of theoretical lectures, seminars as well as practical work and demonstrations (lectures 40%, practical work 50%, seminars 10%). For crystallization experiments, typical recipes using commercial proteins (lysozyme, concavalline A, etc.) will be used. In addition, students can bring their own proteins and carry out crystallization trials on these during the course.