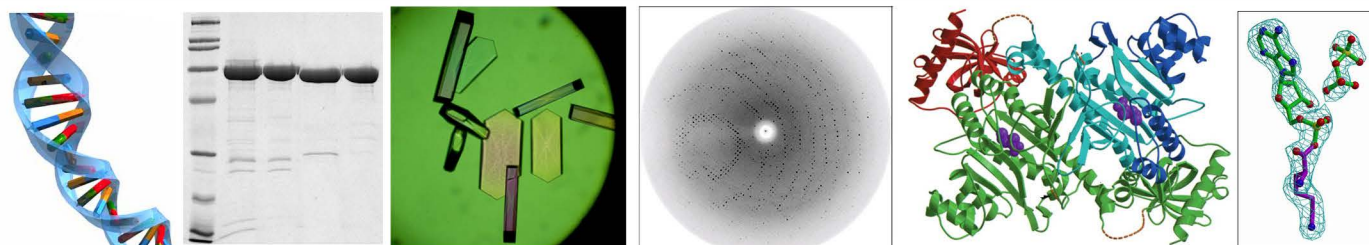




From Genes to Atomic Structures: an Introduction to Synchrotron-Based Structural Biology

23 - 27 April 2012
Miramare - Trieste, Italy



Brief Description:

The last decade has seen an exponential growth in the results obtained by macromolecular crystallography, both in terms of number of structures and their complexity. This growth is having a significant impact on molecular and cellular biology, as more and more macromolecular structures have been instrumental in elucidating biological functions.

The objective of this introductory workshop is to expose the participants to the methodologies used to solve macromolecular structures, using single crystal X-ray diffraction techniques. Structural biology is an interdisciplinary research area, requiring expertises from both the life sciences and the physical sciences: the school aims to bridge the gap between physics and biology by providing a comprehensive overview of the field, starting from the gene to obtain the atomic structure. A short overview of other structural biology techniques will also be presented. The educational program will be based both on lectures and practical sessions.

The school is part of a joint initiative between Elettra, IAEA and SESAME, the Middle East synchrotron radiation facility in Jordan.

Main Topics:

- Bioinformatics analysis to identify structural targets and optimise constructs design
- Molecular biology and cloning techniques
- Protein expression and purification
- Crystallisation
- Data collection & reduction
- Structure determination
- Model building, refinement and model validation
- Small Angle X-ray Scattering (SAXS)
- An overview of other structural biology techniques

Participation:

Scientists and students from all countries that are members of the United Nations, UNESCO or IAEA may attend the School, with particular emphasis on scientists coming from countries that are active members of the SESAME consortium. As it will be conducted in English, participants should have an adequate working knowledge of this language. Although the main purpose of the Centre is to help research workers from developing countries, through a programme of training activities within a framework of international cooperation, a limited number of students and post-doctoral scientists from developed countries are also welcome to attend. As a rule, travel and subsistence expenses of the participants should be borne by the home institution. Every effort should be made by candidates to secure support for their fare (or at least half-fare). However, limited funds are available for some participants, who are nationals of, and working in, a developing country. Such support is available only for those who attend the entire activity. There is no registration fee.

How to Apply:

The "On-line Application" form can be accessed at the **ICTP activity website:**

http://cdsagenda5.ictp.trieste.it/full_display.php?id=a11160

Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form.

Activity Secretariat

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Lecturers

Heinz Amenitsch - Austrian Academy
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Deadline

2 December, 2011