Special Issue for Protein & Peptide Letters

Guest Editor: Prof. Dr. Abel MORENO

Hot Topic Title: "From Genes to the 3D structure of Proteins: Crystallizing Difficult Targets"

Aims & Scope: The aim of this "Hot Topic" thematic issue will be focused on presenting the stateof- the-art of recent advances in protein crystallization, and protein crystallography applied to crystallizing difficult targets. The scope will be concentrated on theoretical and experimental approaches to deal with the 3D structure of Biological Macromolecules, starting from the protein over-expression going through protein crystallization methods, and finally obtaining the 3D structure of a variety of proteins, which are difficult to crystallize. There will be a substantial revision of physical and chemical strategies that help to understand the process of protein crystallization as well as the obtaining of high-quality protein single crystals for high resolution Xray Crystallography.

Key words: protein over-expression, protein purification, nucleation phenomena, protein crystal growth, protein crystallization, phase diagrams, analysis of protein crystal quality, synchrotron Xray radiation, crystallography of difficult protein complexes.

Subtopics:

1. Protein over-expression of challenging proteins, methods and new techniques. Protein purification, classic methods and non-conventional techniques for marine proteins. Nuria Sanchez Puig and Roberto Arreguin, UNAM (Mexico).

2. Nucleation Phenomena and Phase Diagrams. A rational approach applied to protein crystallization. Neer Asherie (Yeshiva University, New York USA).

3. The Physics of Crystal Growth applied to Biological Macromolecules. Stéphane Veesler, CINAM (France).

4. Predicting the protein crystallization feasibility and Methods of Protein Crystallization and Characterization. Abel Moreno and Nuria Sanchez-Puig, UNAM (Mexico).

5. Enhanced Crystallizability by Protein Engineering Approaches: A General Overview. Alessia Ruggeiero, Flavia Squeglia, Rita Berisio. Italian Research National Council (Italy).

6. "In-situ observation of elementary growth processes of protein crystals by advanced optical microscopy". Gen Sazaki, ILT Hokkaido University, Japan.

7. Hemo-Proteins crystallization, crystal growth, and characterization by Atomic Force Microscopy. Peter Vekilov University of Houston, Texas (USA).

8. Synchrotron Radiation Facilities, X-ray data collection and Crystal Quality Analysis. Vivian Stojanoff et al., BNL-NSLS (USA).

9. New Trends in Protein Crystallography: Solving Difficult Structures. Alejandra Hernández-Santoyo, UNAM (Mexico).

10. Perspectives on High-throughput Technologies Applied to Protein Crystallization. Emmanuel Saridakis, Institute of Physical Chemistry, NCSR “Demokritos” Athens (Greece).

Submission Deadline for Authors: September 2011.