

## Workshop "Thermodynamically Unstable Proteins: Chance or necessity?"

A workshop entitled "Thermodynamically Unstable Proteins: Chance or Necessity?" will be held in Trieste, Italy from the 14th to the 16th of December 2009, in a spectacular location by the sea, next to the Miramare castle, with a maximum of 100 participants.

The aim of the workshop is to discuss why several functionally important mesophile proteins have an intrinsic low thermodynamic stability.

Intrinsically unfolded proteins have recently taken centre stage in biology, as it has been recognised that a number of such proteins, characterised by a lack of an inherent tertiary structure but able to assume a three-dimensional fold upon interaction with their partners, play an essential role in nature. We would like to put emphasis on a quite different aspect of this concept: several fully structured mesophile proteins have a limited range of thermodynamic stability.

What is this due to? Is this necessary for their function or is it a mere chance of evolution? There are certainly examples where protein instability appears to be instrumental for function activation under specific conditions. In other instances, an intrinsic instability could be simply the result of an evolutionary cul-de-sac, as it seems the case when only one orthologue of a large family is unstable.

The workshop programme brings together an international pool of scientists and covers both the theoretical and experimental aspects of the problem, ranging from bioinformatics, thermodynamics, order/ disorder transitions, folding, transient complexes and cold denaturation. The choice of Trieste, with a long tradition in theoretical studies coupled with a strong emphasis in synchrotron- based and other biophysical techniques for the structural characterization of biological molecules, reflects the necessity of bringing together experimentalists and theoreticians who could tackle the problem in a complementary and synergistic fashion.

For further information, program and registration please check the following web site: <http://www.elettra.trieste.it/proteininstability09/>