

# Conformational stability of globular proteins

**Giuseppe Graziano**

Department of Science and Technology, University of Sannio  
Via Port'Arsa 11 – 82100 Benevento, Italy; E-mail: graziano@unisannio.it

The following arguments could be treated in the lectures.

1. The classical experiments by Anfinsen on RNase A: reversibility and cooperativity of the unfolding process. Experimental approaches to study the conformational stability of globular proteins: circular dichroism and differential scanning calorimetry.
2. The stability curve of a globular protein as a function of temperature: marginal stability and the existence of cold denaturation. Pressure-induced denaturation.
3. Interactions determining the conformational stability: conformational entropy and H-bonds; water and the hydrophobic effect.
4. The physical origin of the hydrophobic effect; a theoretical approach to rationalize the occurrence of cold denaturation and other features of the thermodynamic stability of globular proteins.
5. The denaturation mechanism of urea and guanidinium chloride, and the counteraction provided by TMAO.
6. Misfolding and the action of GroEL-GroES; misfolding and the formation of amyloid aggregates-fibrils; domain-swapping as a mechanism for amyloid fibrils formation.