

Thermodynamic Barriers to Protein Folding/Unfolding

J.M. Sanchez-Ruiz^{C, S}

*Facultad de Ciencias Departamento de Química Física Fuentenueva s/n 18071-Granada
sanchezr@ugr.es*

Protein folding equilibrium and kinetics are usually analyzed in terms of chemical models which implicitly assume well-defined macrostates separated by high free-energy barriers. However, protein folding/unfolding is not a chemical reaction in the sense that strong covalent bonds are not broken/formed (only weak non-covalent interactions are). I will describe recent experimental studies which suggest that the folding barriers for small proteins are low and, in some cases, even non-existent, producing the so-called barrierless or downhill folding regime. I will also discuss the role of natural selection in determining protein folding barriers.