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 Código: 33119  
 Centro: Facultad de Ciencias  
 Titulación: Máster en Física de la Materia Condensada y de los  
 Sistemas Biológicos  
 Nivel: Máster  
 Tipo: Optativa  
 N° de créditos: 4 ECTS

Go, N., Noguti, T. and Nishikawa, T. (1983). Dynamics of a small globular protein in terms of low-frequency vibrational modes. *Proc. Natl. Acad. Sci. USA* 80, 3696–3700.

Amadei, A, Linssen, A. B. M. and Berendsen, H. J. C. (1993). Essential dynamics of proteins. *Proteins: Struct. Funct. Genet.* 17, 412–425.

A. and Go, N. (1995). Harmonicity and anharmonicity in protein dynamics: a normal modes and principal component analysis. *Proteins: Struct. Funct. Genet.* 23, 177–186

Tirion, M. M. (1996). Large amplitude elastic motions in proteins from a single-parameter, atomic analysis. *Physical Review Letters* 77, 1905–1908.

Atilgan AR, Durell SR, Jernigan RL, Demirel MC, Keskin O, Bahar I. Anisotropy of fluctuations dynamics of proteins with an elastic network model. *Biophys J.* 2001; 80: 505-515.

Mendez R, Bastolla U. Torsional Network Model: Normal Modes in Torsion Angle Space Better Correlate with Conformation Changes in proteins. *Phys Rev Lett.* 2010; 104:228103.

— Computational drug design

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Bernard Munos: Lessons from 60 years of pharmaceutical innovation. *Nature Reviews in Drug Discovery*, 2009, 8, 959-968. (<http://www.nature.com/nrd/journal/v8/n12/full/nrd2961.html>)

Hugo Kubinyi: The changing landscape in drug discovery. *Computational Approaches to Structure Based Drug Design*, R. M. Stroud, Ed., Royal Society of Chemistry, London, 2007, 24-45. (<http://www.kubinyi.de/rsc.pdf>)

Caterina Bissantz, Bernd Kuhn, and Martin Stahl: A medicinal chemistry guide to molecular interactions. *Journal of Medicinal Chemistry* 2010. (<http://pubs.acs.org/doi/abs/10.1021/jm100112j>)

Tjelvar S. G. Olson, Mark A. Willians, William R. Pitt and John E. Ladbury: The thermodynamics of protein-ligand interaction and salvation: insights for ligand design. *Journal of Molecular Biology*, 2008, 384, 1002-1017.

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## Wikipedia articles

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Mutation  
 Natural selection





