A new type of helix in protein structure.

Hyeon S. Son (hss@kordic.re.kr)
Korea Research and Development Information Center
P.O. BOX 122, Yusong, Taejon 305-600, Korea

Abstract

Protein folding is a fundamental problem in structural bioinformatics and so numerous studies have been devoted to the subject. As the most common regular secondary conformation in proteins, helix has been an important ingredient of the protein folding problem. In particular, alanine based polypeptides are widely studied to identify the helix folding process in that the alanine amino acid is known to have one of the highest helix propensities. In principle, intrinsic helix propensities can be obtained from gas-phase measurements where solvent effect is absent. Hudgins et al. studied alanine-based peptides in vacuo using high-resolution ion mobility measurement technique. It was reported that introduction of a single lysine at the C terminus resulted in the formation of very stable, monomeric polyalanine helices. We also have investigated helix formation in vacuo with different terminal charge conditions; we have found a new type of helix motif. To the best of our knowledge, this type of helix conformation has not been characterized before and we name it as l-helix.

Curriculum Vitae

Hyeon S. Son

Education

D.Phil.
Lab. of Molecular Biophysics, Biochemistry Dept.,
University College, University of Oxford

BSc (Honours)
Physics Dept. & Computer Science Dept.,
King's College, University of London

Professional Experience

Visiting research assistant professor. 1998~2000
CSM, Chemistry department, POSTECH, Korea.
Bioinformatics.
MD/MC simulation of biofunctinal/organic/inorganic molecules.
MD software development.

Research scientist (Maxplanck Gsellschaft fellowship). 1997~1998
Theory Group, Maxplanck Institut fur Polymerforschung, Mainz, Germany.
MD simulation of polymer materials (biopolymers).

Scientific programmer 1992~1993
CurlSol Microwave Ltd.,
Development of Microwave Simulator.

Research assistant (Research fellowship awarded) 1991
EMBL (c/o ILL, Grenoble)
Quasi Laue Neutron Diffractometer Development

Research assistant and VMS systems manager 1991~1993
Physics Dept. King's College, Univ. of London
Development of the TDFD Microwave simulator for hyperthermia cancer treatment