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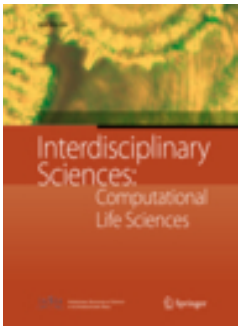

Interdisciplinary Sciences: Computational Life Sciences

Editor-in-Chief: Dong-Qing Wei
ISSN: 1913-2751 (print version)
Journal no. 12539
International Association of Scientists in the Interdisciplinary Areas

1. Contribution form Prof. Luc Montagnier

Interdiscip Sci Comput Life Sci (2009)
DOI: 10.1007/s12539-009-0036-7

Title: Electromagnetic Signals Are Produced By Aqueous Nanostructures Derived From Bacterial Dna Sequences
Author: Luc MONTAGNIER, Jamal AÄISSA, Stephane FERRIS, Jean-Luc MONTAGNIER, Claude LAVALLEE

Interdisciplinary Sciences: Computational Life Sciences (IS) features an important articles from Professor Luc Montagnier's group. This paper uncovers a new property of DNA inducing specifically vibrating structures in water, thus building a new bridge between Physics and Biology.

Luc Montagnier received the Nobel Prize in Physiology or Medicine in 2008 for his discovery of the human immunodeficiency virus (HIV), which has been identified as the cause of AIDS. This discovery led directly to the development of a test for detecting the presence of HIV in blood samples.

Luc Montagnier is also the chairman of the Editorial Board of Interdisciplinary Sciences: Computational Life Sciences (IS).

2. Contribution form Prof. Dennis Salahub

Interdiscip Sci Comput Life Sci (2009)
DOI: 10.1007/s12539-009-0031-3
Title: Exploring the Molecular Origin of the High Selectivity of Multisubunit RNA Polymerases by Stochastic Kinetic Models
Authors: Rui ZHU, Aur´elien de la LANDE, Rui ZHANG, Dennis R. SALAHUB

In this paper, Dennis Salahub's group gives an explanation for the molecular origins of the high fidelity of RNA polymerases based on an event-driven model which uses a stochastic simulation algorithm. These results help to understand how RNA polymerases distinguish matched NTPs from unmatched NTPs and 2'-dNTPs.

Prof. Dennis R. Salahub at the University of Calgary in Canada is a leading theoretical and computational chemist/biologist. His group is best known for contributions to Density Functional Theory (DFT) and the deMon code, which is being incorporated into a multiscale modeling environment that includes quantum chemistry, molecular dynamics and the Kinetic Monte Carlo approach to extend the dynamics to larger spatial and longer temporal scales.

3. Contribution form Prof. Hong Guo

Interdiscip Sci Comput Life Sci (2009) 1: 12–20
DOI: 10.1007/s12539-008-0011-8
Title: A Peptide-Linkage Deletion Procedure for Estimate of Energetic Contributions of Individual Peptide Groups in a Complex Environment: Application to Parallel β-Sheets
Authors: Haobo GUO, Andrey GORIN, Hong GUO

In this paper, Hong Guo's group proposed a peptide-linkage deletion procedure for extracting the energy contributions of the individual hydrogen bond acceptors and donors in complex protein environments. As a demonstration of the usefulness of this procedure, they applied this approach to parallel beta-sheets. They found that the energetic contributions to the stability from the H-bond acceptors (C=O) can be significantly greater than that from the donors (N-H). The imbalance could be explained by the stabilization of the beta-sheets through the interactions involving the C-H groups.

Dr. Hong Guo at the University of Tennessee has made important contribution to understand the origin of high catalytic efficiency and selectivity for enzymes by use of state-of-the art computational approaches. His researches would, in addition to being of fundamental scientific importance, also improve the basis for designing inhibitors, efficient drugs and enzyme mimics.