

セミナーのご案内

世界標準の教科書Molecular Biology of The CellやCell Movement等の著者としても知られるDennis Bray教授の講演会を開催いたします。

COMPUTER-BASED ANALYSIS OF BACTERIAL CHEMOTAXIS

Emeritus Professor Dr. Dennis Bray
University of Cambridge, UK

日時: 7月14日(火曜日) 10:30 — 12:00

場所: 理学部2号館 409室

要旨:

- Bacteria such as *E.coli* can detect and swim towards distant sources of food and away from poisons. Proteins responsible for this chemotaxis response have been identified, biochemically characterized and their atomic structure determined. It is one of the best-understood forms of biological behaviour.
- *E. coli* chemotaxis is an excellent system for computer simulations. Programs based on ordinary differential equations (ODEs) allow the concentrations of signalling intermediates to be calculated and the swimming of both wild type and mutant bacteria predicted. Programs linked to graphical displays can test the response of bacteria of any specified genotype to precisely defined stable gradients of any required shape (including those that are difficult, or impossible, to achieve in the real world)
- Not all data can be easily fit by ODE simulations. As experimental approaches become more quantitative and closer to the molecular details, so more sophisticated methods of computation become necessary. We have developed stochastic programs to represent individual protein molecules, in the correct location in the cell and chemical state. These allow the diffusion of molecules in the cytoplasm to be analysed and help us unravel the complicated molecular events of signal processing.

For more information please see: www.pdn.cam.ac.uk/comp-cell

問い合わせ:

北大電子研 中垣俊之 (nakagaki@es.hokudai.ac.jp, phone 011-706-9432)