IMS Public Lecture

Genes, Disease and Genetic Diseases

Speaker: **Professor Terry Speed**
University of California at Berkeley and
Walter & Eliza Hall Institute of Medical
Research, Australia

Date: **Wednesday, 7 January 2004**
Time: **6:30 pm - 7:30 pm**
Venue: **LT 26 (Science Canteen)**
Faculty of Science
National University of Singapore

FREE ADMISSION

Abstract

Emerging from its beginnings about 100 years ago with the rediscovery of Mendel's laws of hereditary, genetics is now experiencing a hitherto unimagined explosion in molecular and biological data brought about by breakthroughs in biotechnology. This has spawned the new field of bioinformatics which is helping biomedical scientists in storing, retrieving, displaying, analyzing and interpreting the complex of data. The advent of the recent human and other genome projects has resulted in geneticists turning to mathematics and statistics for assistance in unraveling the connection between genes and diseases. From the earliest recognition of the role of single gene defects in rare hereditary diseases such as cystic fibrosis, Huntington's chorea and Duchenne's muscular dystrophy, it is now known that more common diseases like diabetes and multiple sclerosis and susceptibility to malaria may be caused by multiple genes and by the environment. Such diseases are known as complex genetic traits and pose a much greater challenge to human geneticists in bearing and resolving the overall human disease burden.

This talk will illustrate some aspects of statistical genetics and bioinformatics in the context of our continuing efforts to understand particular complex genetic traits.

About the Speaker

Terry Speed is world renowned for his important contributions to the applications of statistics to genetics and molecular biology, and in particular, to biomolecular sequence analysis, the mapping of genes in experimental crosses and human pedigrees, and the analysis of gene expression data. A member of the NIH Genome Study Section from 1995 to 1998, he investigated fundamental problems arising from the Human Genome Project.

He is a Fellow of the Australian Academy of Sciences, American Statistical Association, Institute of Mathematical Statistics and American Association for the Advancement of Science. He has been on the editorial boards of many international journals including the Annals of Statistics, Journal of the American Statistical Association, Statistical Science, Bernoulli and Journal of Computational Biology. He is currently the President of the US-based Institute of Mathematical Statistics.

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