Distinguished Visitor Programme

Prof. David Patterson
President & Senior Fellow, Eleanor Roosevelt Institute for Cancer Research, University of Denver

Biography

Prof. Patterson's research focuses on the roles of specific metabolic genes in brain development and particularly in their role in cognitive development in Down syndrome. We are examining this by construction and analysis of transgenic mice expressing these genes. Genes include genes from chromosome 21 involved in interrelated aspects of purine, folate, and oxygen radical metabolism. Work on neurodegeneration focuses on mechanisms by which mutations in superoxide dismutase lead to neuronal death. Again, transgenic mouse models provide the primary experimental system.

In addition to his appointment as President and Senior Scientist at ERI, Prof. Patterson is a Professor in the Department of Biochemistry and Molecular Genetics as well as a Professor in the Department of Medicine at the University of Colorado Health Sciences Center (UCHSC). Prof. Patterson is also on the Executive Faculty of the Graduate School, a member of the Continuing Medical Education Advisory Committee (CME), and Associate Director of Basic Research of the University of Colorado Cancer Center. Prof. Patterson serves on the External Advisory Committee for the Program on Genes, Aneuploidy and Mammalian Development at Johns Hopkins University; the Science Advisory Board of the National Down Syndrome Society; and the External Advisory Committee of the Program on the "Biology of Down Syndrome" for the University of California San Francisco. Prof. Patterson also serves on the Medical and Scientific Advisory Board for the Alzheimer's Association Rocky Mountain Chapter. He is on the Editorial Board for Somatic Cell and Molecular Genetics and the Academic Press Encyclopedia of Human Biology. He is a member of the American College of Medical Genetics, the Human Genome Organization (HUGO), and editor of Chromosome 21, GDB.

Prof. Patterson received the Theodore D. Tjossem Research Award from the National Down Syndrome Congress in 1989 and the Bonfils-Stanton Foundation Award in Recognition of Significant and Unique Contributions in the Field of Science in 1992.

Prof. Patterson is recognized as one of the world's leading researchers on Down syndrome. The Eleanor Roosevelt Institute plays a major role in the study of this condition, which is the leading genetic cause of mental retardation and is accompanied by heart defects, premature aging and increased risk of leukemia. ERI's approach is to identify individual genes that may be responsible for each feature of Down syndrome and to devise ways of counteracting the effects of these genes.
Lecture Abstract

15 April 2004, 30 Biopolis Street, Matrix Building, Level 4, Theatrette 3A, Singapore 138671, 6.15 pm - 7.15 pm

"The Promise of Ameliorating the Cognitive Disabilities Faced by Persons with Down Syndrome"

Down syndrome, the most frequent genetic cause of significant cognitive disability, affecting ~1/800 live births, is caused by trisomy of human chromosome 21. People with Down syndrome are at increased risk for Alzheimer's disease, leukemia, poor motor coordination, and a variety of other conditions. Significant progress has been made to enhance the lives of persons with Down syndrome through advances in medical care, education, and inclusion. We believe that additional progress in maximizing the abilities and minimizing the disabilities of persons with Down syndrome can be made through a detailed understanding of the biological basis for these disabilities and the specific nature of the disabilities. This will allow rational design of effective medical strategies to ameliorate the disabilities faced by persons with Down syndrome. Indeed, clinical trials are now under way to achieve this end. I will discuss approaches to achieve this goal, and reasons for optimism that it may be accomplished in the near future.