Distinguished Visitor Programme

Prof Owen Witte
Professor of Microbiology, Immunology, and Molecular Genetics
President’s Chair in Developmental Immunology, University of California, Los Angeles

Biography

Prof. Witte received his B.S. degree from Cornell University, his M.D. degree from Stanford University, and completed his postdoctoral training at the Massachusetts Institute of Technology. Honors include the Milken Foundation Award in basic cancer research, the Rosenthal Award of the American Association for Cancer Research, and the Warren Alpert Foundation Prize. He is a member of the American Academy of Arts and Sciences, and the National Academy of Sciences. Dr. Witte’s research interests include cell growth regulation and differentiation of hematopoietic cells, the function of oncogenes found in certain human leukemias, and the human immunodeficiency disease called X-linked agammaglobulinemia.

His laboratory is concerned with the interrelated problems of cell growth regulation and differentiation of hematopoietic cells. One project centers around a set of in vitro culture techniques which enable us to grow and manipulate defined hematopoietic cell types including B lymphoid and myeloid progenitor cells. A second concentrates on the function of oncogenes found in certain human leukemias including Philadelphia chromosome positive chronic myelogenous leukemia and acute lymphocytic leukemia. In these leukemias the tyrosine kinase function of the ABL oncogene is disregulated by the chromosome translocation and leads to abnormal growth control. A third area is related to the human immunodeficiency called X-linked agammaglobulinemia. They discovered the gene defect in XLA is a specific tyrosine kinase and are now studying its mode of action.

Lecture Abstract

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

"Whole Body Molecular Imaging of Cancer and the Cellular Immune Response"

Cell movement is a critical part of normal physiology, and is particularly important for the normal function of the immune system. Cancers of the blood forming tissues, like leukemias and lymphomas, are highly mobile but not uniform in their distribution. Cancers of solid organs often metastasize, and the pattern and degree of spread is a critical determinant of survival. New methodologies to investigate these processes in animal models and human patients are needed. We have used a variety of non-invasive, quantitative, and three-dimensional molecular imaging techniques, like reporter gene directed Positron Emission Tomography and Bioluminescence to study the pathogenesis of malignancies and the cellular immune response. These new approaches allow the visualization of pathology and response to treatment in a kinetic and spatial manner, and can be of great value in the improved design and testing of new therapeutics.

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