NUS National University of Singapore

Public Lecture

6 July 2004

Golden era in human therapeutics:

Convergence of nano-, bio-, and information technology

by

NUS Distinguished Visitor
Professor Vincent H.L. Lee, Ph.D., D.Sc.
Hosted by Dean Tan Eng Chye, Faculty of Science, NUS

Professor Vincent Lee has been referred to as the "acknowledged leader in the world in the science and technology of peptide and protein drug delivery" and as "the most highly cited author in the area of ocular drug delivery".

Professor Lee is the Associate Director of Office of Pharmaceutical Science, Center for Drug Evaluation and Research, Food and Drug Administration, USA and the Adjunct Professor of Pharmaceutical Sciences, School of Pharmacy, University of Southern California.

Public Lecture
Tuesday 6 July
1800-1930hrs
NUS LT31

What is science fiction today may soon become a therapeutic reality. In another decade, patients will have access to delivery systems of nano-dimensions loaded with a biotechnology product. This new generation of drug delivery systems is unique in having a strong sense of tropism. It is preprogrammed with the equivalent of a GPS receiver to guide the delivery system to a specific location in cells of a specific type. This presentation will discuss the impact of these developments on research, education, and quality of life.

Lecture 1
Wed 30 June
1600-1700hrs
NUS LT 24

Active drug transport: Opportunities for drug design, delivery, and formulation

This presentation is on a rapidly expanding area of drug discovery research on engaging membrane transporter proteins for navigation towards their target. The resulting drug candidate comprises a drug activity target and a drug delivery target. The drug activity target, typically a membrane-bound receptor protein, is usually well characterized. The drug delivery target, which for many decades was underappreciated, is now in the spot light. Undoubtedly, the selection of the final candidate would require insight, experience, as well as access of the principal investigator to a large collaborative network. This is a fertile ground for future research to harness the specificity of drug transporter proteins for mediating drug uptake and distribution, to identify new excipients that would amplify the efficiency of drug delivery to the target, and much more.

Lecture 2
Fri 2 July
1800-1930hrs
NUS LT 24

Targeted drug delivery to treat retinopathologies

Ocular drug delivery is in the midst of a revolution that will give birth to a library of drug delivery platforms for a wide range of age-related pathologies affecting the back of the eye. The emergence of protein pharmaceuticals as the first lie of therapeutics has further increased the stake of developing innovative delivery platforms. This presentation will highlight the gaps in knowledge that can only be filled through integrated multidisciplinary research effort. It is anticipated that much of what will be learned in the eye can be extrapolated to the brain.