THE CHINESE UNIVERSITY OF HONG KONG

School of Life Sciences & School of Pharmacy
Polyglutamine Disease Collaborative Research Group
Seminar Series

Challenges in Brain Drug Delivery - Pharmacokinetic and Methodological Aspects

by

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on

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(Tuesday)

at

11:00 am

in

Room G02
Lo Kwee-Seong Integrated Biomedical Sciences Bldg.
Area 39, The Chinese University of Hong Kong

ALL ARE WELCOME

Abstracts on “Challenges in Brain Drug Delivery - Pharmacokinetic and Methodological Aspects”

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The blood-brain barrier (BBB) and binding to brain parenchyma are the two most important aspects when evaluating new drugs for action within the CNS. The free drug hypothesis states that it is the unbound-drug molecules that can interact with the receptor, be it in the brain interstitial fluid or intracellularly. There are two aspects of brain drug delivery, the rate and the extent of transport across the BBB, of which the extent measure has the closest relationship to clinical success.

Methods for measuring delivery of drugs across the blood-brain barrier (BBB) are now available to accommodate the unbound, active moiety, thereby providing important information on success rate of compounds for CNS action. The methods, united into the Combinatory Mapping Approach (CMA), include measurements of brain tissue binding through the brain slice and the brain homogenate methods and in vivo measurement of the partition coefficient between brain and blood, to find the unbound partition coefficient across the BBB, $K_{p,uu,brain}$. The method has been further developed into CMA-ROI, where ROI is used for the region of interest, with which regional drug uptake and BBB transport can be estimated. With CMA and CMA-ROI, it is also possible to estimate intracellular accumulation of drugs.

The seminar will discuss the pharmacokinetic basis of BBB drug transport, as well as methods and results regarding drug distribution to and in the brain as a whole and also regarding regional distribution.