SCHOOL OF PHARMACY
FACULTY OF MEDICINE
THE CHINESE UNIVERSITY OF HONG KONG

PHARMACY SEMINAR

27 May, 2024 (Monday)   11:00 am – 12:00 nn

G02, G/F, Lo Kwee-seong Integrated Biomedical Sciences Building, Area 39, CUHK

Modeling Delays in Pharmacokinetics and Pharmacodynamics

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Dr. Wojciech Krzyzanski is Associate Professor in the Department of Pharmaceutical Sciences, University at Buffalo. He obtained PhD in Applied Mathematics and MA in Pharmacology and Toxicology from this university. Dr. Krzyzanski's research focuses on pharmacokinetics and pharmacodynamics of drugs acting on cell populations. He applies pharmacometric modelling principles to improve existing therapies with hematopoietic growth factors, corticosteroids, and anti-infectives. His research methods utilize dynamical systems and nonlinear mixed effects. Dr. Krzyzanski is Fellow of International Society of Pharmacometrics. He serves as Associate Editor for Journal of Pharmacokinetics and Pharmacodynamics. He co-authored three book chapters and over 110 publications in peered reviewed journals.

Abstract

Delays are inherent features of many pharmacokinetic and pharmacodynamic systems. The objective of this talk is to introduce three mathematical techniques used to model delays: delay differential equations, distributed delay differential equations, and age structured population models. Applications of these theories will be illustrated with clinical and pre-clinical data. An update on pharmacometric software supporting models with delays and existing numerical challenges will be provided. Future directions of potential advancements of these modeling techniques will be discussed.

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