



Employing Nanotechnology to Improve the Pharmacokinetic and Pharmacodynamic Behaviors of Drugs

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Tuesday, February 26, 2013

LECTURE: 9:00 AM - 10:00 AM

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Abstract: A number of drugs only give rise to limited clinical response when causing remarkable toxicities. One possible approach to overcome such limitations is the use of nanotechnology via delivering the drugs to the diseased site with a high selectivity. Our group is interested in the design of new drug delivery systems for anticancer drugs and other therapeutics including small molecule drugs, protein/peptide drugs and stem cells using nanotechnology. In our study, linear or cyclic RGD peptides are conjugated to liposomes containing paclitaxel for targeted tumor therapy. We have synthesized SMEDDS for the delivery of rubitecan used for the treatment of pancreatic cancer. We composed new w/o microemulsions of EFE-d whose intraduodenal bioavailability was 208-fold higher than that of control solution. The cRGDyK-modified dual-drug system achieved an optimal antitumor effect, lifespan increase, antineovasculture, antiproliferation, and apoptosis induction, revealing the advantage of active targeting and the modified combination therapy. Recently, we have synthesized cyclodextrin-based folic acid/RGD/estrogen drug complexes for targeted delivery of doxorubicin to tumor cells. In addition, we have synthesized graphite quantum dots (GQDs) for possible use of biosensing and drug delivery.

Biography: Professor Shufeng Zhou is the Associate Vice President of Global Medical Development & Associate Dean of International Research, Colleges of Pharmacy & Medicine, USF, Tampa, FL. Dr Zhou completed his clinical training in China in 1989 and obtained his PhD in 2001 from the University of Auckland, New Zealand. Since 2002, Dr Zhou has served as a faculty in Singapore, Australia, & USA. His research interests are systems pharmacology, nanomedicine, drug metabolism/pharmacokinetics, & pharmacogenomics. He has published more than 320 peer-reviewed papers in various biomedical journals including *New England Journal of Medicine*, *Cancer Research*, etc. He has also published 18 books and book chapters and more than 300 conference abstracts. His work has been cited more than 7,600 times with an H-index of 43. Dr Zhou has given more than 100 invited seminars/keynote presentations to a variety of academic institutes, government agencies, and high-profile international conferences. He has received more than US\$20.0 million grants from various funding bodies and industries. To date, he has trained 24 PhD students, 12 MSc/Honors students, 14 postdoctoral staff and 25 visiting doctors. Dr Zhou serves as an editor-in-chief or editor for 16 biomedical journals & is the editorial board member of 34 biomedical journals. He is a recipient of several national and international awards, a council member of US Pharmacopeia and advisor of World Health Organization (WHO).