

2nd International Conference and Exhibition on Traditional & Alternative Medicine

August 25-26, 2014 DoubleTree by Hilton Beijing, China

Systems-based drug screening from natural products: Combination of ADME/T, systems biology, omics and systems pharmacology

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Natural products are known to be essential in maintaining and improving human health for thousands of years. The strategy to discover new drugs from natural products has proved to be very successful. However, due to the complexity of chemical components and mechanisms of action, a search and understanding of therapeutic molecules from natural products based on the traditional method is extremely difficult. Recently, the confluence of spectacular advances in ADME/T prediction, systems biology and systems pharmacology has led to the development of numerous novel potential drugs and therapeutic agents for a wide spectrum of diseases. Therefore, this review is aimed to highlight the progress how to integrate in silico ADME/T, pharmacokinetics, systems pharmacology, omics and systems biology for the discovery of natural products. The invaluable roles that natural products have played, and are continuing to play in the drug discovery process and its future perspectives are emphasized.

Biography

Yonghua Wang is a Full Professor major in Systems Pharmacology at Northwest A & F University, China and is a Visiting Professor at Politecnico di Torino, Italy. He has devoted his research to systems pharmacology, particularly developing methods to understand mechanisms of action for herbs and plant-origin drug discovery by systems biology methods. He is the author or coauthor of 84 scientific papers, book chapters and 17 abstracts. He has applied for 9 patents for new drugs and 3 of them have been authorized. He serves as an Associate Editor for the international journal of microRNA and member of the editorial board for the Journal of Bioequivalence & Bioavailability.

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