Biosketch:

Dr. Minjun Chen received his B.Sc (1997) and Ph.D. (2003) from Zhejiang University, Hangzhou, China. He worked as an assistant and then associate professor in the school of pharmacy, Shanghai Jiaotong University, Shanghai. He also worked as a postdoctoral fellow for University of Medicine and Dentistry of New Jersey (UMDNJ) in Piscataway, New Jersey and the FDA’s national center for toxicological research (NCTR) in Jefferson, Arkansas. Currently, Dr. Chen is a principal investigator working at the Division of Bioinformatics and Biostatics of the FDA’s NCTR and serve as the adjunct faculty and mentor for the bioinformatics program joint by Univ. of Arkansas at Little Rock (UALR) and Univ. of Arkansas for Medical Sciences (UAMS). He received the FDA award for outstanding junior investigator (2012) and the NCTR scientific achievement award (2014). He and Dr. Eileen E Navarro Almario (CDER/OCS) launched the FDA Liver Toxicity Interest Group in 2014, and now the group has been endorsed by the FDA’s Office of the Chief Scientist as an official working group including > 60 members of FDA scientists with interest and expertise in liver toxicity or liver diseases. Currently, he is the editor together with Dr. Yvonne Will (Pfizer) to create a Springer book titled “Drug-Induced Liver Toxicity”. His primary research interests encompass drug-induced liver injury, biomarker discovery, bioinformatics, and toxicogenomics. His current research focus is in two areas: (1) development of the Liver Toxicity Knowledge Base (LTKB) to address the public health concerns related to drug-induced liver injury, and (2) identification of predictive biomarkers for the prognostics and predicting the outcome of chemotherapy of breast cancer patients for personalized medication. Dr. Chen has authored or co-authored more than 70 scientific publications and book chapters.
Abstract: 2017 III-3_Chen: Rule-of-Two + RM as predictors – can they help predict DILI?

Drug-induced liver injury (DILI), although rare, is a frequent cause of adverse drug reaction (ADR) resulting in warnings and withdrawals of numerous medications. Despite best efforts, current testing strategies aimed at identifying hepatotoxic drugs prior to human trials are not sufficiently powered to predict the complex mechanisms leading to DILI. Recent advances in the field have discovered that several drug properties and toxicological properties, such as daily dose, lipophilicity and the capability to form reactive metabolites (RM), are strongly associated with serious DILI potential in humans. Here, we will introduce the Rule-of-Two model (i.e. daily dose ≥ 100mg/day and logP ≥ 3) and DILIScore model (i.e. a scoring model derived from daily dose, logP and formation of RM) developed by the NCTR research team. We will discuss the applications of these models in the context of regulatory processes and independent validations reported in literature. Our studies suggest that Rule-of-Two + RM as predictors could help predict DILI risk in humans.