**Jieqiang Zhou, B.Sc.**

Senior Bioanalyst (LC-MS/MS, Proteomics, Metabolomics)

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 **Education:**

2009 B.Sc. in Pharmacy, Guilin Medical University, China

**PROFESSIONAL EXPERIENCE:**

2009 to 2015 Group Leader, Shanghai ChemPartner, China

2015 to 2018 Scientist, Shanghai Green Valley Pharmaceutical, China

2018 to 2020 Senior Bioanalyst, College of Pharmacy, Univ. of Florida

Since 2020 Ph.D. Student, College of Pharmacy, University of Florida

**RESEARCH**

To develop the bioanalytical assays for combating SARS-CoV-2. Mr. Zhou primarily focuses on developing the many different assays for galidesivir, favipiravir, and remdesivir, as well as their intracellular metabolites. This project aims to evaluate these drugs and their metabolites in extracellular and intracellular environments of multiple cell lines.

Multiplexed-analysis of polar antibiotics presents a challenge for efficient and specific quantification with liquid chromatography-tandem mass spectrometry (LC-MS/MS). Mr. Zhou is developing novel and efficient LC-MS/MS assays for different antibiotics, β-lactamase inhibitors, and antivirals, including their active metabolites. These assays present a cornerstone of novel mechanistic insights on the penetration of the antibiotic to their bacterial (e.g. periplasmic or intracellular) target site and thereby greatly benefit our lab’s NIH/NIAID [R01 AI136803](https://projectreporter.nih.gov/project_info_description.cfm?aid=9486440&icde=40712796) on “Combating resistant superbugs by understanding the molecular determinants of target site penetration and binding” (PI Bulitta).

Specifically, Mr. Zhou developing novel assays and creating data on the permeability of the outer membrane towards β-lactam antibiotics and β-lactamase inhibitors. He is investigating how various outer membrane changes are affecting antibiotic permeability and identifying which structural determinants of antibiotics are contributing to maximizing permeability and minimizing efflux. An additional branch of this research is to investigate strategies of how to *permeabilize* the outer membrane by antibiotic combination therapies. These assays are providing mechanistic insights on this question at the molecular level, which will also greatly benefit our lab’s second R01 on combating multidrug-resistant *Acinetobacter baumannii* ([NIH/NIAID R01 AI130185](https://projectreporter.nih.gov/project_info_description.cfm?aid=9449014&icde=37416362&ddparam=&ddvalue=&ddsub=&cr=1&csb=default&cs=ASC&pball=)). Overall, this work will provide novel strategies on how to greatly improve the antibiotic target site concentrations and enable us, for the first time, to establish mass balance equations for β-lactam receptor binding, efflux and β-lactamase related hydrolysis at the periplasmic target site. This will substantially support our ability to combat multidrug-resistant Gram-negative ‘superbugs’.

Before joining the University of Florida and the Center for Pharmacometrics & Systems Pharmacology, Mr. Zhou has been working for 6 years in the Drug Metabolism and Pharmacokinetics (DMPK) department of Shanghai ChemPartner, a preclinical CRO. In this company, he served as the group leader of bioanalysts. He has been playing a critical role in many projects, including the LC-MS/MS Method Development, and provided a substantial experience for the quantification of biomarkers, polar and unstable compounds. He is highly familiar with the following LC-MS/MS instruments: API6500, API5500, API4000, Waters UPLC, and Agilent 6410. Since 2015, he joined Shanghai Green Valley Pharmaceutical CO, Ltd. Green Valley plans to submit the marketing authorization application of GV-971 for treatment of mild-to-moderate Alzheimer’s disease (AD) to the China National Drug Administration in 2018. In this company, Mr. Zhou focused on the development of LC-MS/MS assays for AD-biomarker, oligosaccharide, and protein using proteomics and metabolomics.

**PUBLICATIONS**

1. Sayed ARM, Shah NR, Basso K, Kamat M, Jiao Y, Moya B, Sutaria DS, Lang Y, Tao X, Liu W, Shin E, **Zhou J**, Werkman C, Louie A, Drusano GL, Bulitta JB. First penicillin-binding protein occupancy patterns for 15 β lactams and β-lactamase inhibitors in *Mycobacterium abscessus*. Antimicrob Agents Chemother 2020. PMID: [33106266](https://pubmed.ncbi.nlm.nih.gov/33106266/)
2. Kim TH\*, Tao X\* (\*joint first), Moya B, Jiao Y, Green KB, **Zhou J**, Lang Y, Sutaria DS, Zavascki AP, Barth AL, Reeve SM, Schweizer HP, Deveson Lucas D, Boyce JD, Bonomo RA, Lee RE, Shin BS, Louie A, Drusano GL, Bulitta JB#. (**#**: Corresponding author) Novel cassette assay to quantify the outer mem­brane permeability of five β-lactams simultaneously in carbapenem-resistant *Klebsiella pneumoniae* and *Enterobacter cloacae*.**mBio**. 2020; 11. pii: e03189-19. [PMID: 32047131](https://www.ncbi.nlm.nih.gov/pubmed/32047131)
3. Lodise TP, Smith NM, O'Donnell N, Eakin AE, Holden PN, Boissonneault KR, **Zhou J**, Tao X, Bulitta JB, Fowler VG, Chambers HF, Bonomo RA, Tsuji BT. Determining the optimal dosing of a novel combination regimen of ceftazidime/avibactam with aztreonam vs. NDM-1-producing Enterobacteriaceae using a hollow-fibre infection model. J Antimicrob Chemother. 2020; 75:2622-2632. [PMID: 32464664](https://pubmed.ncbi.nlm.nih.gov/32464664/)

**PROFESSIONAL TRAINING (modeling)**

* Introduction to Pharmacokinetics and Biopharmaceutics with **Phoenix WinNonlin** (UF, FL, Spring Semester 2020)
* Modeling and simulation with **Monolix Suite** (2 days, UF,FL, 2019)
* Introductory workshop in Population PK data analysis with **NONMEM7®** (3 days, UF, FL, 2019)
* Hands-on experience with Model-informed drug development using **Simcyp** (4 days, UF, FL, 2018)
* Population pharmacokinetic/Pharmacodynamics modeling using **S-ADAPT** (2 days, taught by Dr. Bulitta, University of Buffalo, NY, 2018)

**Google Scholar Citations:**

<https://scholar.google.com/citations?hl=en&user=XTI0_CQAAAAJ>