



**Yinzhi Lang, Ph.D.**

**Research Assistant Professor**

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## **Biographical Sketch**

Yinzhi Lang, PhD, is a Research Assistant Professor in the Department of Pharmacotherapy and Translational Research at the UF College of Pharmacy. Dr. Lang completed her PhD program in 2016 from Ocean University of China and worked as a senior Scientist in Shanghai Greenvally Pharmaceutical Co.Ltd between 2016 and 2018. In 2018, Dr. Lang joined the College of Pharmacy at UF as a Postdoc and has received systematic training in antimicrobial pharmacology, pharmacokinetics and pharmacodynamics from Dr. Bulitta and his collaborators. In 2021, Dr. Lang was appointed as a Research Assistant Professor at UF. Her current research focus on elucidating the mechanisms of drug action and resistance via the latest mass spectrometry (**MS**)-based technology and Quantitative & Systems Pharmacology (**QSP**) modeling approach.

Dr. Lang has over 11 years of experience working with identification and quantification of biological endogenous molecules using liquid chromatography with tandem mass spectrometry (**LC-MS/MS**)-based approaches. This includes the in-depth component and structural analysis of polysaccharides, oligosaccharides, glycoproteins, and glycolipids from marine algae, human milk, animal meat byproducts and microbial cells. For the pharmaceutical compounds, she has created a series of novel UPLC-MS/MS assays to quantify the target site penetration of various classes of antibiotics in Gram-negative bacteria and the intracellular accumulation of antiviral nucleosides/nucleotides analogs in mammalian cells. Further, she has significantly contributed to the development of advanced QSP models, which can integrate the experimental mechanistic data with pathogen killing and resistance to rationally optimize anti-infective therapy. Moreover, she has extensive experience in pharmacokinetics and pharmacodynamics analysis of anti-infectives in *in vitro* and mouse infection models. Dr. Lang is leading and co-leading multiple federal funded anti-infective pharmacology research programs to create novel insights to combat serious infections.

### ***Publications from PhD (as of 8/23/2021)***

### **Published**

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Peer-reviewed research papers	22
All papers	25
Patents	1
International conference abstracts	58
Ongoing Research Projects – Awarded (Role: PD/PI or Co-I)	6
Grant Application – Under Review (Role: Co-I)	3

Pubmed Bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/1tsW5pHvXgA5I/bibliography/public/?sortBy=pubDate&sdirection=descending>

## CURRICULUM VITAE

### Yinzhi Lang, Ph.D.

#### Education

09/2011 to 06/2016 **Ph.D. in Medicinal Chemistry** School of Medicine and Pharmacy, Ocean University of China, Qingdao, Shandong, China. *Advisor: Dr. Guangli Yu.*

**Thesis title: Development and application of LC/MS-based methods for the analysis of human milk glycome:**

- Developing novel semi-preparative HPLC methods to achieve 26 purified isobaric oligosaccharides from human milk samples, and characterizing their chain structures in-depth by ESI-CID/HCD-MS/MS.
- Developing a novel combination strategy of glycan labeling and LC-MS/MS for rapid and reliable compositional profiling analysis of human milk oligosaccharides (HMOs, ~200 diverse structures).
- Developing an integrated design for simultaneously isolating and profiling analysis of five types of glycans and glycoconjugates, including HMOs, *N/O*-glycans from glycoproteins, glycosaminoglycans from proteoglycans, and glycolipids.
- Characterizing the expression dynamics of glycans associated with different lactation stages to support future research on optimizing infant formula design.

**Preparation and characterization of glycoconjugates from IRA rabbit meat byproducts and sea cucumber:**

- Extraction, isolation and identification of chondroitin sulfate C and chondroitin sulfate A (Mw: 13~59 kDa) from IRA rabbit meat byproducts (lungs and ear cartilages) by preparative LC, HPLC and NMR.
- Extraction, isolation and structural characterization of novel O-glycan containing mucins from IRA rabbit intestines by offline ESI-MS/MS.
- Extraction, isolation and structural characterization of novel fucosylated chondroitin sulfates (Mw: 2~30 kDa) from sea cucumber by a combination of enzymatic extraction, preparative LC separation, NMR analysis, and bottom-up analyses using ESI-MS/MS to characterize their degraded oligosaccharides as well as using GC-EI-MS/MS to characterize their methylated derivatives.

09/2007 to 06/2011 **B.S. in Pharmacy** School of Pharmacy, Yantai University, Yantai, Shandong, China.

#### Work experience

08/2021 to present **Research Assistant Professor** – Department of Pharmacotherapy and Translational Research, College of Pharmacy (COP), University of Florida (UF), Orlando, FL.

- Determination of tobramycin concentrations in plasma and tracheal aspirate of pediatric patients using latest LC-MS/MS to generate novel and urgently needed data to optimize tobramycin-based therapy for pediatric patients. (Collaboration with Dr. Erik A. Jensen, the Children's Hospital of Philadelphia, Philadelphia, PA).
- Optimizing novel assays to determine the outer membrane permeability of  $\beta$ -lactams and  $\beta$ -lactamase inhibitors as well as the intracellular accumulation of aminoglycosides in resistant *K. pneumoniae* strains to inform rationally optimized dosage regimens (Collaboration with Dr. Zackery Bulman, University of Illinois at Chicago, Chicago, IL.)
- Employing latest intracellular target site penetration and receptor binding assays of anti-*M. tuberculosis* agents to provide the mechanistic basis for rational optimization of

dosage regimens to generate novel and urgently needed data to optimize antibiotic combination therapies that can successfully combat *M. tuberculosis*. (Collaboration with Dr. George L. Drusano, UF-COM, Orlando, FL)

- Developing and rationally optimizing orally administered dosage regimens of novel  $\beta$ -lactam and tarocin combinations against methicillin susceptible and methicillin resistant staphylococci via Quantitative and Systems Pharmacology (QSP) modeling. (Collaboration with Dr. Terry Roemer, Prokaryotics, INC. New Jersey, NJ)
- Determining and optimizing combination dosage strategies that can successfully combat SARS-CoV-2, based on mechanistic target site concentration assays, and dynamic *in vitro* infection models. (Collaboration with Dr. George L. Drusano and Dr. Ashley N. Brown, UF-COM, Orlando, FL)
- Exploring the  $\beta$ -lactam structure-penetration relationships via computational chemistry and multivariate data analysis to identify rapid penetrating antibiotic structure features.
- Optimizing and employing the UPLC-MS/MS methods to assess the *in vitro* membrane permeability, cell uptake and lysosomal sequestration of 11 inhaled drugs in healthy bronchial and alveolar epithelial cell models. These *in vitro* data will significantly contribute to the PBPK modeling analyses which are urgently needed to understand and predict pulmonary absorption and tissue retention of inhaled drugs. (Collaboration with Dr. Rodrigo Cristofolletti, UF-COP, Orlando, FL)
- Creating a series of UPLC-MS/MS assays to analyze the pharmacokinetic profiles of various antibacterial or antiviral agents in the hollow fiber *in vitro* infection models and murine models.

10/2018 to  
07/2021

**Postdoc** – Department of Pharmacotherapy and Translational Research, College of Pharmacy (COP), University of Florida (UF), Orlando, FL. *Mentor: Dr. Jürgen B. Bulitta*

- Developing innovative assays that accounts for time-dependent release of  $\beta$ -lactamase enzymes to precisely determine the outer membrane permeability of  $\beta$ -lactams in resistant *A. baumannii* strains.
- Creating UPLC-MS/MS data for multiple antibiotic classes to validate their PK target concentrations in hollow fiber infection model (Collaboration with Dr. Cornelia Landersdorfer, Monash University, Melbourne, Victoria, Australia)
- Population pharmacokinetic modeling, Monte Carlo simulations and optimal study design for enrofloxacin and florfenicol in the giant danio (*Devario aequipinnatus*) following oral and bath administration (Collaboration with Dr. Roy P.E. Yanong, UF-IFAS, Tampa, FL).
- Characterizing the outer membrane permeability of 6  $\beta$ -lactams to combat *New Delhi Metallo*- $\beta$ -lactamase and CTX-M-Co-producing *Klebsiella pneumoniae* (KP). (Collaboration with Dr. Brian Tsuji, Buffalo, NY)
- Developing novel UPLC-MS/MS assays to characterize the intracellular penetration and accumulation of antiviral agents (galidesivir, favipiravir, Merck EIDD-1931, and remdesivir) and their active neo-nucleotide triphosphate metabolites. Developing QSP modeling to characterize the metabolism pathways and optimize therapy regimens, to combat SARS-CoV-2. (Collaboration with Dr. George L. Drusano and Dr. Ashley N. Brown, UF-COM, Orlando, FL)
- Developing novel UPLC-MS/MS assays to characterize the intracellular penetration and accumulation of anti-cancer agents (cytarabine) and the biosynthesis of its active neo-nucleotide triphosphate metabolites (collaboration with Dr. Jatinder Lamba, UF-COP, Gainesville)

- Determination of gentamicin, amikacin, ceftazidime and avibactam concentrations in hollow fiber infection model to validate their PK target concentrations (Collaboration with Dr. Zackery Bulman, University of Illinois at Chicago, Chicago, IL).
- 04/2018 to 08/2018    **Postdoc** – College of Veterinary Medicine, Mississippi State University, Mississippi State, MS, United States. Supervisor: *Prof. Dr. Xiufeng Wan*.
- Building an efficient workflow for influenza viral glycoproteomics to provide mechanistic data for the interactions between influenza cell and host tropisms.
- 07/2016 to 02/2018    **Scientist II** –Shanghai Greenvalley Pharmaceutical CO. Ltd., Shanghai, China  
R&D of the GV-971 for treatment Alzheimer’s disease (AD), phase III clinical study:
- Developing instrumental analysis methods (GC-MS, CE-MS, LC-MS) for QC and ADME study of an innovative anti-AD agent GV-971 (Phase III, NCT04520412).
  - Establishing nano-LC-MS/MS based proteomics platform to discover clinical diagnostic biomarkers of AD.
  - Exploring the ‘microbiota-gut-brain axis’ theory to elucidate novel pharmacological mechanisms of GV-971 for treating AD.
- 03/2013 to 09/2013    **Research Intern** – China Kangda Food Chemistry CO. Ltd., Qingdao, Shandong, China  
Extraction and characterization of chondroitin sulfates and mucins from IRA rabbit meat byproducts.

## Teaching

- 2021 Spring    Full Course Teaching Assistant – **Translational Clinical Pharmacology**  
Department of Pharmacotherapy and Translational Research, COP, UF.
- Concepts and Principles of PKPD In vitro (IVIVC) → animal → human scaling
  - Basic Modeling Methods and Study Design Empiric and Mechanistic Models for Translational Analyses Population Modeling Methods & Software Achieving Patient Target Goals Precisely Translational Drug Development in Action
- 2022            Laboratory studies training – **Basic and advanced UPLC-MS/MS based techniques**  
Department of Pharmacotherapy and Translational Research, COP, UF.
- Principles of UPLC and ESI-MS<sup>n</sup> for separating, structural elucidation and quantification of various types of compounds.
  - Basic and advanced sample handling methods for enhanced analysis of analytes with different structure features and from different matrices.

## Peer-Reviews

- 2022            Reviewer for four MDPI journals.
- Reviewed 3 manuscripts for *International Journal of Molecular Sciences*
  - Reviewed 2 manuscripts for *Marine Drugs*
  - Reviewed 4 manuscripts for *Molecules*
  - Reviewed 2 manuscript for *Biomedicines*
  - Reviewed 1 manuscript for *Antibodies*

## Research interests

Treatment for infectious diseases, Quantitative and Systems Pharmacology (**QSP**) modeling, Pharmacokinetics/Pharmacodynamics (**PK/PD**) modeling, Translational and Clinical Pharmacology, Research and development (**R&D**) of anti-infective drugs, Neurodegenerative diseases, Infant formula design, LC/MS-based omics to elucidate relationships between microbe and host systems.

## Honors and awards

- 10/2015 Excellent Post-graduate Direct Scholarship, Ocean University of China
- 09/2014 University Scholarship, First prize, Ocean University of China
- 09/2012 University Scholarship, First prize, Ocean University of China
- 10/2010 University Scholarship, Second prize, Yantai University
- 10/2009 University Scholarship, First prize, Yantai University
- 10/2008 University Scholarship, First prize, Yantai University

## Researching skills

- **11 years** of experience in state-of-the-art LC/MS-based analyses, including Agilent 1260, Agilent 1290 (Agilent), Acquity I-Class UPLC system (Waters), LTQ Orbitrap XL, LTQ Orbitrap Fusion, LTQ Orbitrap Fusion / Q Extractive high-resolution mass spectrum (Thermo-Fisher Scientific), SCIEX Q-trap 6500+ (MRM) (AB SCIEX) and Q-TOF (Agilent).
- **4 years** of experience in developing QSP, PK/PD modeling in anti-infective pharmacology field.
- Highly proficient in a large array of modeling, simulation and statistical analysis, software packages (including S-ADAPT-TRAN, NONMEM, MONOLIX, Phoenix WinNonLin, R, Shiny, NLMIXR, Berkeley Madonna, SPSS, XLSTAT, SIMCA & GraphPad Prism).
- Highly proficient in a large array of structural characterization, identification and quantification software packages (including FTIR, MestReNova, DeconTools, GlycResoft, GlycoWorkbench, PMi-Byonic, Proteome Discoverer, Skyline-daily, Scaffold, Thermo Fisher Scientific Xcalibur™, AB Sciex Analyst®, and Agilent MassHunter)
- Extensive experience in measuring microbial & mammalian intracellular drugs and metabolites
- Extensive experience in membrane permeability and intracellular drug accumulation studies
- Extensive experience in LC-MS/MS based proteomics, glycomics and glycoproteomics studies.
- Extensive experience in qualification and quantification of large macromolecules using bottom-up combination strategies of chemical/enzymatical degradation, derivatization, and LC-MS/MS.
- Extensive experience in extraction, semi-preparative purification and in-depth characterization of unknown compounds using LC, HPLC, FTIR, NMR, and MS/MS technologies.
- Programming skills: Certificated by National Computer Rank Examination (NCRE) (China): **Visual C++ (Rank II) Certificate** and **Internet technology (Rank III) Certificate**.
- Highly proficient in literature searching and management (Endnote & Notepress)
- Teaching assistant for course **PHA6133**, "Translational Clinical Pharmacology"

## Professional memberships

American Society for Microbiology (ASM); International Society for Pharmacometrics (IsoP); European Society of Clinical Microbiology and Infectious Diseases (ESCMID)

**EXECUTIVE SUMMARY**

<b>Funding</b>	<b>Total</b> (since 2018)
3 Grants application - under review (Role: Co-Investigator)	\$23,581,978
6 Active grants / contracts - ongoing	\$13,189,452
2 Active grants / contracts (Role: Principal investigator)	\$130,279
4 Active grants (Role: Co-Investigator)	\$13,059,173
3 Grants – not awarded (Role: Co-Investigator)	\$26,379,377
Participated 6 grants when was Postdoc	\$14,123,000

<b>Publications</b>	<b>Total</b> (since 2014)
<b>All papers</b>	<b>25</b>
Peer-reviewed papers & book chapters	22
Original research papers	20
Review papers	2
Patents	1
International/National conference abstracts/posters	58
Invited workshop lectures	2

**RESEARCH GRANTS****GRANT APPLICATIONS – Under Review**

Bulitta JB (PD/PI), Drusano GL (Co-I), **Lang Y (Co-I)**, Louie A (Co-I), Boyce J (Co-I), Bonomo R (Co-I), Lee R (Co-I).

Mechanistically optimized beta-lactam combination dosing strategies to combat resistant *Klebsiella pneumoniae*.

National Institutes of Health, **NIH / NIAID**, R01 for PA-20-185  
07/01/2023 – 06/30/2028, \$3,743,664

Copik A (PD/PI, Contact), Altomare D (PD/PI), Bulitta JB (Co-I), **Lang Y (Co-I)**.

Bacterial vesicles for stimulation of innate immunity to treat cancer.

National Institutes of Health, **NIH / NCI**, R01 for PA-22-085 (Microbial-based Cancer Imaging and Therapy - Bugs as Drugs)

07/01/2023 – 06/30/2028, \$3,562,020

Bulitta JB (PD/PI, Contact), Purcell B (PD/PI), Heine H (Co-I), **Lang Y (Co-I)**, Louie A (Co-I), Drusano GL (Co-I).

Creating a prototype platform for the rational use of efficacious oral and intravenous double  $\beta$ -lactam antibiotic combinations that can combat resistant pathogens.

Medical CBRN Defense Consortium, **MCDC**, RPP-22-11, objective area: Treatment (TRE-22-11):

Therapeutic Medical Countermeasure Strategies for Addressing Emerging Bacterial Threats  
01/01/2023 – 12/31/2027, \$16,276,294. (Enhanced White Paper submitted)

**ONGOING PROJECTS – Awarded**

1. **Lang Y (PD/PI)**, Bulitta J (Co-I)  
Determination of tobramycin concentrations in plasma and tracheal aspirate of pediatric patients using latest LC-MS/MS  
National Institutes of Health, NIH, 1R34HL155690 – **Philadelphia Children’s Hospital Subcontract**  
03/01/2022 – 07/31/2024, \$60,279 (UF subaward)
2. Drusano GL (PD/PI), Louie A (Co-I), Bulitta JB (Co-I), **Lang Y (Co-I)**, Kim S (Co-I), Neely M (Co-I), Prideaux B (Co-I)  
Optimizing Multi-drug *Mycobacterium tuberculosis* Therapy for Rapid Sterilization and Resistance Suppression  
National Institutes of Health, **NIH / NIAID**, PA-20-185  
12/01/2022 – 11/30/2027, \$6,627,424
3. Bulman ZP (PD/PI), Mankin A (Co-I), Bulitta JB (Co-I), **Lang Y (Co-I)**, Li J (Co-I), Hauser AR (Co-I), Ozer EA (Co-I)  
Precise Combination Strategies Targeting Carbapenem-Resistant *Klebsiella pneumoniae*  
National Institutes of Health, **NIH / NIAID**, PA-20-185  
09/01/2022 – 08/31/2027, \$3,756,365 (\$602,036 UF-subaward)
4. Cristofolletti R (PD/PI), Hochhaus G (Co-I), Bulitta JB (Co-I), **Lang Y (Co-I)**, Mullin J (Co-I), Le Merdy M (Co-I), AlQaraghuli F (Co-I), Lukacova V (Co-I).  
Advancing *in vitro* and (patho)physiology-based pharmacokinetics models to understand and predict pulmonary absorption and tissue retention of inhaled drugs.  
U.S. Food and Drug Administration, **FDA**, 75F40122C00182.  
09/30/2022 – 09/29/2025, \$1,844,289.
5. Roemer T (PD/PI), Louie A (UF-subaward PI), Bulitta JB (Co-I), **Lang Y (Co-I)**, Drusano (GL)  
SBIR: Prokaryotics SBIR Phase 2b.  
Development of a PO-administered beta-lactam-tarocin combination agent to treat methicillin susceptible and methicillin resistant staphylococci.  
National Institutes of Health, **NIH / NIAID**, R44AI136213  
7/1/2022 – 6/30/2025, \$814,903 (UF-subaward)
6. Bulitta JB (PD/PI), **Lang Y (PD/PI)**  
Supporting antimicrobial target site penetration research  
**Curza**, Donation, 2022, \$70,000
7. Tsuji BT (PD/PI), Bulitta JB (PD/PI), Louie A (Co-I), Moya B (Co-I), Drusano GL (Co-I), Chen L (Co-I), Kreiswirth BN (Co-I), Bulman ZP (Co-I)  
Novel Strategies for Antibiotic Combinations to Combat Gram-negative Superbugs  
National Institutes of Health, **NIH / NIAID**, 1R01AI148560-01  
12/20/2019 – 11/30/2024, \$3,920,000  
**Role:** Postdoc named on grant application.
8. Bulitta JB (PI), Lee RE (Co-I), Schweizer HP (Co-I), Louie A (Co-I), Moya B (Co-I), Drusano GL (Co-I), Basso KB (Co-I), Copik A (Co-I), Bonomo R (Co-I), Balasubramanian V (Co-I)  
Combating resistant superbugs by understanding the molecular determinants of target site penetration and binding  
National Institutes of Health, **NIH / NIAID**, 1R01 AI136803-01  
8/10/2018 – 7/31/2023, \$5,728,000  
**Role:** Postdoc
9. Bulitta JB (PI), Louie A (Co-I), Boyce JD (Co-I), Bonomo R (Co-I), Drusano GL (Co-I)

Next-generation combination dosing strategies to combat resistant *Acinetobacter baumannii*  
National Institutes of Health, **NIH / NIAID**, 1R01AI130185-01,  
11/08/2017 – 10/31/2022, \$3,409,000

**Role:** Postdoc

## COMPLETED PROJECTS

10. Bulitta JB (PD/PI), **Lang Y (Co-I)**

First characterization of antibiotic target site penetration and receptor binding by  $\beta$ -lactam antibiotics in *Mycobacterium tuberculosis*

**UF College of Pharmacy**, Research Enhancement, PROSPER Seed / Pilot Funding  
7/1/2021 – 1/31/2022, \$20,000

11. Bulitta JB, Jiao Y, **Lang Y**, Zhou J.

Developing innovative therapeutic strategies to combating Sars-CoV-2.

**UF Clinical and Translational Science Institute**, UF-CTSI, seed funding grant.  
4/1/2020 – 12/31/2020, \$50,000

**Role:** Postdoc named on grant

12. Luna BM (PI), Spellberg B, **Bulitta JB (Sub-award PI)**, Louie A, Drusano GL, and Robert Bonomo  
A Preclinical Mouse Model of *Acinetobacter baumannii* Infection for Antibacterial Development  
U.S. Food and Drug Administration, **FDA**, BAA-17-00123, HHSF223201710199C  
9/25/2017 – 12/31/2021, \$996,000 (UF-subaward)

**Role:** Postdoc

## Major Peer-Reviewed Grant Applications – Not Awarded

13. Bulitta JB (PD/PI, Contact), Purcell B (PD/PI), Heine H (Co-I), **Lang Y (Co-I)**, Louie A (Co-I),  
Drusano GL (Co-I).

Reinvigorating old antibiotics in efficacious combination therapies.

Medical CBRN Defense Consortium, **MCDC**, RPP-22-10: objective area: ReVAMP: ReinVigorating  
Abandoned AntiMicrobial Products – Novel Broad Spectrum Antibacterial Medical Countermeasures  
(MCM) for Treatment of Biothreat Bacterial Infections

01/01/2023 – 12/31/2027, \$18,802,044. (Enhanced White Paper, *Applied in 2022*)

14. Bulman ZP (PD/PI), Mankin A (Co-I), Bulitta JB (Co-I), **Lang Y (Co-I)**, Li J (Co-I), Hauser AR (Co-I),  
Ozer EA (Co-I)

Targeting Carbapenem-Resistant *Klebsiella pneumoniae* with Molecularly Precise Combination  
Strategies

National Institutes of Health, NIH / NIAID

11/1/2021 – 9/30/2026, \$3,772,557 (\$606,000 UF-subaward, *Applied in 2021*)

15. Brown A, Drusano GL (Co-I), Bulitta JB (Co-I), **Lang Y (Co-I)**, Tuanyok A (Co-I)

Optimizing combination therapy for COVID-19

National Institutes of Health, **NIH / NIAID**, R01 for PA-20-185

09/01/2022 – 08/31/2027, \$3,804,776. (*Applied in 2021*)

## PUBLICATIONS

### PubMed Bibliography

<https://www.ncbi.nlm.nih.gov/myncbi/1tsW5pHvXgA5I/bibliography/public/?sortby=pubDate&sdirection=descending>

**Google Scholar Citations:** [https://scholar.google.com/citations?user=Ai5\\_bQkAAAAJ&hl=en](https://scholar.google.com/citations?user=Ai5_bQkAAAAJ&hl=en)



**Web of Science Researcher:** <https://www.webofscience.com/wos/author/record/GLU-8044-2022>

**ResearchGate:** <https://www.researchgate.net/profile/Yinzhi-Lang/research>

**Orcid:** <https://orcid.org/0000-0002-6857-4516>

## Full Papers Published

1. Brown AN, **Lang Y**, Zhou J, Franco EJ, Hanrahan KC, Bulitta JB, Drusano GL. Why Molnupiravir Fails in Hospitalized Patients. *mBio*. 2022 Nov 14: e0291622. [PMID: 36374076](#).  
IF<sub>2020</sub>: **7.87**, Cites: **none yet**
2. Smith NM, Boissonneault KR, Chen L, Petraitis V, Petraitiene R, Tao X, Zhou J, **Lang Y**, Kavaliauskas P, Bulman ZP, Holden PN, Cha R, Bulitta JB, Kreiswirth BN, Walsh TJ, Tsuji BT. Mechanistic Insights to Combating NDM- and CTX-M-Coproducing *Klebsiella pneumoniae* by Targeting Cell Wall Synthesis and Outer Membrane Integrity. *Antimicrob Agents Chemother*. 2022 Aug 4: e0052722. [PMID: 35924913](#).  
IF<sub>2020</sub>: **5.19**, Cites: **none yet**
3. Bilal H, Tait JR, **Lang Y**, Zhou J, Bergen PJ, Peleg AY, Bulitta JB, Oliver A, Nation RL, Landersdorfer CB. Simulated Intravenous versus Inhaled Tobramycin with or without Intravenous Ceftazidime Evaluated against Hypermutable *Pseudomonas aeruginosa* via a Dynamic Biofilm Model and Mechanism-Based Modeling. *Antimicrob Agents Chemother*. 2022 Mar 15; 66: e0220321. [PMID: 35041509](#).  
IF<sub>2020</sub>: **5.19**, Cites: **1**
4. Tait JR, Bilal H, Rogers KE, **Lang Y**, Kim TH, Zhou J, Wallis SC, Bulitta JB, Kirkpatrick CMJ, Paterson DL, Lipman J, Bergen PJ, Roberts JA, Nation RL, Landersdorfer CB. Effect of Different Piperacillin-Tazobactam Dosage Regimens on Synergy of the Combination with Tobramycin against *Pseudomonas aeruginosa* for the Pharmacokinetics of Critically Ill Patients in a Dynamic Infection Model. *Antibiotics (Basel)*. 2022 Jan 13; 11:101. [PMID: 35052977](#).  
IF<sub>2020</sub>: **4.64**, Cites: **none yet**
5. **Lang Y\***, Shah NR\* (\*joint first authors), Tao X, Reeve SM, Zhou J, Moya B, Sayed ARM, Dharuman S, Oyer JL, Copik AJ, Fleischer BA, Shin E, Werkman C, Basso KB, Deveson Lucas D, Sutaria DS, Mégroz M, Kim TH, Loudon-Hossler V, Wright A, Jimenez-Nieves RH, Wallace MJ, Cadet KC, Jiao Y, Boyce JD, LoVullo ED, Schweizer HP, Bonomo RA, Bharatham N, Tsuji BT, Landersdorfer CB, Norris MH, Soo Shin B, Louie A, Balasubramanian V, Lee RE, Drusano GL, Bulitta JB. Combating multidrug-resistant bacteria by integrating a novel target site penetration and receptor binding assay platform into translational modeling. *Clin Pharmacol Ther*. 2021 Feb 11. [PMID: 33576025](#)  
IF<sub>2020</sub>: **6.875**, Cites: **4**
6. **Lang Y**, Zhang Y, Wang C, Huang L, Liu X, Song N, Li G, Yu G. Comparison of different labeling techniques for the LC-MS profiling of human milk oligosaccharides. *Front Chem*. 2021, 9: 691299. [PMID: 34589467](#)  
IF<sub>2020</sub>: **5.22**, Cites: **2**
7. Sayed ARM, Shah NR, Basso KB, 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  $\beta$ -Lactams and  $\beta$ -Lactamase Inhibitors in *Mycobacterium abscessus*. *Antimicrob Agents Chemother*. 2020 Dec 16; 65: e01956-20. [PMID: 33106266](#). IF<sub>2020</sub>: **5.19**, Cites: **8**
8. Kim TH, Tao X, 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. Novel cassette assay to quantify the outer membrane permeability of five  $\beta$ -lactams simultaneously in carbapenem-resistant *Klebsiella pneumoniae* and *Enterobacter cloacae*. *mBio*. 2020; 11. pii: e03189-19. [PMID: 32047131](#)  
IF<sub>2020</sub>: **7.87**, Cites: **11**

9. Huang Y, Sokolowski K, Rana A, Singh N, Wang J, Chen K, **Lang Y**, Zhou J, Kadiyala N, Krapp F, Ozer EA, Hauser AR, Li J, Bulitta JB, Bulman ZP. Generating Genotype-Specific Aminoglycoside Combinations with Ceftazidime/Avibactam for KPC-Producing *Klebsiella pneumoniae*. *Antimicrob Agents Chemother*. 2021 Jun 21;AAC0069221. [PMID: 34152820](#) IF<sub>2020</sub>: **5.19**, Cites: **4**
10. **Lang Y**, Zhao X, Liu L, Yu G. Applications of mass spectrometry to structural analysis of marine oligosaccharides. *Marine Drugs*. 2014, 12:4005-4030. [PMID: 24983643](#) IF<sub>2020</sub>: **5.12**, Cites: **38**
11. **Lang Y**, Liu S, Wang C, Zhang X, Lv Y, Cai C, Li G, Yu G. Separation and structural sequence analysis of sialylated HMOs via tandem mass spectrometry. *Chemical Journal of Chinese Universities*. 2018, 39:645-652. IF<sub>2019</sub>: **1.06**, Cites: **3**
12. **Lang Y**, Wang C, Chen C, Zhang X, Liu X, Shan X, Cai C, Yu G. Isolation, Purification and Disaccharide Composition Analysis of Chondroitin Sulfate C from IRA Rabbit Lung. *Chinese Journal of New Drugs*. 2016, 10:1165-1169. IF<sub>2020</sub>: **0.10**, Cites: **1**
13. Wang C, **Lang Y**, Li Q, Jin X, Li G, Yu G. Glycosaminoglycanomic profiling of human milk in different stages of lactation by liquid chromatography-tandem mass spectrometry. *Food Chemistry*, 2018, 258:231-236. [PMID: 29655727](#) IF<sub>2020</sub>: **7.514**, Cites: **10**
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### Full Papers Submitted

23. Jiao Y, Bulitta JB#, Kinzig M, Landersdorfer CB, Tao X, Lang Y, Zhou J, Moya B, Höhl R, Holzgrabe U, Stephan U, Sörgel F# (#: joint corresponding authors). Comparable Renal Secretion

and Reabsorption of Ciprofloxacin in Patients with Cystic Fibrosis and Healthy Volunteers assessed via Population Pharmacokinetics. Submitted.

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## Patent

1. Yu G, Zhang Y, Zhu H, Lang Y, Zhao X. Method for preparing high-purity chondroitin sulfate A from rabbit ear cartilage. Chinese Patent. CN103788231A.

## Invited Workshop Lectures:

1. Bulitta JB, **Lang Y**, Shin E. Phoenix WinNonlin – the Swiss Army Knife of Pharmacokinetics and Pharmacodynamics. SUNY at Buffalo, Buffalo, BY, USA, October 22, 2021.
2. **Lang Y**, Bulitta JB. Development of Tools for Gram-Negative Antibiotic Discovery. National Institute of Allergy and Infectious Disease, Maryland, USA, August 8-9, 2022.

## International Conference Presentations

1. Zhou J, **Lang Y**, Zhang Y, Sayed ARM, Shin E, Werkman C, Louie A, Tsuji BT, Bulman ZP, Drusano GL, Bulitta JB. Intracellular accumulation and washout kinetics of aminoglycosides (AGS) in multidrug-resistant (MDR) *Klebsiella pneumoniae*. AAPS PharmSci 360, Boston; October 16-19, 2022.
2. Werkman C, Shah NR, Lucas DD, Oyer JL, Megroz M, Moya B, Sayed ARM, Elsayed A, Wright A, Sutaria DS, Tao X, **Lang Y**, Zhou J, Shin E, Landersdorfer CB, Jimenez-Nieves RH, Cadet KC, Jiao Y, Copik AJ, Bonomo RA, Louie A, Drusano GL, Boyce JD, Bulitta JB. Simultaneously inactivating three or all four Penicillin-Binding Proteins (PBPs) among PBP1a, 1b, 2 and 3 synergistically kills *Acinetobacter baumannii* (AB). AAPS PharmSci 360, Boston; October 16-19, 2022.
3. Sayed ARM, Elsayed AAS, Shah NR, Sutaria DS, Moya B, Cadet KC, Jimenez-Nieves RH, Shin E, **Lang Y**, Zhou J, Zhang Y, Werkman C, Tsuji BT, Louie A, Drusano GL, Bulitta JB. Whole-cell Penicillin-Binding Protein (PBP) binding profiles of avibactam, aztreonam, ceftazidime and elicited morphological changes in *Klebsiella pneumoniae* (KP). AAPS PharmSci 360, Boston; October 16-19, 2022.
4. Zhang Y, **Lang Y**, Zhou J, Tao X, Sayed A, Shin E, Werkman C, Smith N, Tsuji B, Bulitta J. Periplasmic Target Site Penetration Rates of Two  $\beta$ -lactamase Inhibitors in *Klebsiella Pneumoniae* Carbapenemase-2 (KPC-2) Producing *Klebsiella Pneumoniae* (KP) Characterized by A Novel Assay. ASM Microbe 2022, Online and Washington; June 9-13, 2022.
5. Shin E, Sayed ARM, **Lang Y**, Zhou J, Elsayed A, Sutaria DS, Shah NR, Werkman C, Jimenez-Nieves RH, Zhang Y, Cadet KC, Tao X, Jiao Y, Copik AJ, Bonomo RA, Schweizer HP, Lee RE, Boyce JD, Tsuji BT, Drusano GL, Bulitta JB. Synergistic Killing of *Klebsiella Pneumoniae* By Double  $\beta$ -lactams Combinations Assessed Via Flow Cytometry and Quantitative Systems Pharmacology. ASM Microbe 2022, Online and Washington. June 9-13, 2022.
6. Werkman C, Shah NR, Lucas DD, Oyer JL, Megroz M, Moya B, Sayed ARM, Elsayed A, Wright A, Sutaria DS, Tao X, **Lang Y**, Zhou J, Shin E, Landersdorfer CB, Jimenez-Nieves RH, Cadet KC, Jiao Y, Copik AJ, Bonomo RA, Louie A, Drusano GL, Boyce JD, Bulitta JB. Synergistic killing of *Acinetobacter baumannii* (AB) elicited by simultaneous inactivation of three or all four Penicillin-

- Binding Proteins (PBPs) among PBP1a, 1b, 2 and 3. ASM Microbe 2022, Online and Washington. June 9-13, 2022.
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  9. Sayed ARM, Elsayed AAS, Shah NR, Sutaria DS, Moya B, **Lang Y**, Shin E, Zhou J, Werkman C, Tsuji BT, Louie A, Drusano GL, and Bulitta JB. Poster. First whole-cell penicillin-binding protein (PBP) binding profiles of carbapenems and cefoxitin in *Klebsiella pneumoniae* (KP) – characterizing the mass balance of penetration and binding in periplasm. ECCMID 2022. Online and Lisbon. Apr 23-26, 2022.
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