

# Kathleen A. Stringer, PharmD, FCCP

## CURRICULUM VITAE

**PRIMARY POSITION:** Professor of Clinical and Translational Pharmacy  
Department of Clinical Pharmacy  
College of Pharmacy  
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## EDUCATION and TRAINING

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July 1994-  
June 1996 American Foundation for Pharmaceutical Education (AFPE)  
Post-PharmD Fellow in Experimental Pulmonary Research  
University of Colorado Health Sciences Center  
Denver, CO 80262

July 1986-  
August 1988 Fellow in Cardiovascular Research  
Clinical Pharmacokinetics Laboratory  
Millard Fillmore Hospital  
Buffalo, New York 14209

July 1985-  
June 1986 Clinical Pharmacy Practice Resident  
University of Illinois Hospital  
Chicago, Illinois 60612

June 1985 Doctor of Pharmacy Degree  
University of Michigan  
College of Pharmacy

September 1984-  
May 1985 Pharmacy Intern  
University of Michigan Hospital  
Ann Arbor, Michigan 48109

September 1979-  
April 1981 Pre-Pharmacy Coursework  
University of Michigan  
College of Literature, Science, & Art

**LICENSURE:** Michigan License #5302026041 (active)

**CERTIFICATES  
and CERTIFICATIONS:** Informatics and Statistics for Metabolomics  
Canadian Bioinformatics Workshops, June 2011

Board Certified Pharmacotherapy Specialist, August 1992  
Recertified, December 1999 and December 2006

**FELLOWSHIPS:** Elected Fellow, American College of Clinical Pharmacy (FCCP), May 1995

**PROFESSIONAL EXPERIENCE and ACADEMIC APPOINTMENTS:**

January 2022-present	Deputy Director, The Max Harry Weil Institute for Critical Care Research & Innovation
April 2021-present	Member, Precision Health at the University of Michigan
January 2018-present	Albert B. Prescott endowed collegiate professorship, University of Michigan College of Pharmacy
October 2016-present	Professor, Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, University of Michigan Medical School (secondary appointment)
November 2015-December 2021	Associate Director, Michigan Center for Integrative Research in Critical Care (MCIRCC) <i>now the Weil Institute</i> Department of Emergency Medicine University of Michigan Health System Ann Arbor, Michigan
July 2014-present	Director, the Nuclear Magnetic Resonance (NMR) Metabolomics Laboratory College of Pharmacy University of Michigan Ann Arbor, Michigan
July 2012-present	Professor of Clinical & Translational Pharmacy (with tenure) Department of Clinical Pharmacy College of Pharmacy University of Michigan Ann Arbor, Michigan
August 2011-present	Affiliate member, Center for Computational Medicine University of Michigan
July 2007-June 2012	Associate Professor of Clinical Pharmacy (with tenure) Department of Clinical, Social and Administrative Sciences College of Pharmacy University of Michigan Ann Arbor, Michigan
December 2007-present	Member, University of Michigan Comprehensive Cancer Center
July 2006-June 2007	Associate Professor of Clinical Pharmacy (with tenure) Department of Pharmaceutical Sciences School of Pharmacy University of Colorado Health Sciences Center Denver, Colorado
October 2003-June 2007	Associate Professor Graduate Program in Toxicology and Pharmaceutical Sciences Graduate School University of Colorado Health Sciences Center

October 2003- June 2007	Associate Member Cancer Center University of Colorado Health Sciences Center
July 1997- June 2006	Associate Professor (with tenure) Department of Clinical Pharmacy School of Pharmacy University of Colorado Health Sciences Center
September 1988- June 1997	Assistant Professor School of Pharmacy University of Colorado Health Sciences Center
January 1984- September 1984	Research Assistant Department of Pharmacology University of Michigan Medical School Ann Arbor, Michigan 48109
May 1982- April 1984	Pharmacy Intern Sinai Hospital of Detroit Detroit, Michigan 48325

## RESEARCH SUPPORT

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<b>R01HL166816 (MPI: Washko, Han, Stringer)</b> NIH/National Heart, Lung and Blood Institute <i>Role of Vascular and Small Airway Abnormality in the Evolution of COPD</i>	pending	20% effort
		\$5,881,046 (total costs)
This application proposes to study the relationship between small airway and vascular signals detected by computed tomography and the blood metabolome in study participants at risk for the development of COPD.		
<b>R01 HL161130 (MPI: Dickson, Sjoding, Stringer)</b> NIH/National Heart, Lung and Blood Institute <i>The Role of the Microbiome in the Acute Respiratory Distress Syndrome: A Translational, Molecular Approach</i>	pending	15% effort
		\$5,060,751 (total costs)
This application proposes to study the relationship between the diversity of the gut microbiome and the pathogenesis and severity of the acute respiratory distress syndrome.		
<b>R01 HL164422 (MPI: Huang, Stringer)</b> NIH/National Heart, Lung and Blood Institute <i>Role of the Microbiome and Metabolome in Early COPD</i>	pending	15% effort
This application proposes to study the interface between the blood metabolome and the gut and lung microbiome and their influence on the development of chronic obstructive pulmonary disease (COPD).		
<b>R56 HL155055 (PI: O'Dwyer)</b> NIH/National Heart Blood and Lung Institute <i>Gut Microbiota and Host Regulatory Cross-talk in Pulmonary Fibrosis</i>	9/22/21-8/31/22	5% effort
This project will generate additional preliminary data about the relationship between the composition of the gut microbiota, signaling molecules in the blood such as short-chain fatty acids, and the development of pulmonary fibrosis. These data will support a planned R01 re-submission.		
<b>R21 AI154239 (PI: Ambroggio)</b> NIH/National Institute of Allergy & Infectious Disease	4/1/21-3/31/23	consultant

**Metabolomic Prediction of Pneumonia Severity**

This application proposes to test the feasibility of a metabolomics approach to predicting pneumonia severity in children. The University of Michigan Metabolomics Laboratory will assay the urine samples for this project.

**21-AAR00271 (PI: Hertz)** 7/1/21-3/31/23 5% effort  
 American Cancer Society  
*Nutrient Insufficiency and Peripheral Neuropathy Risk* \$750,000 (total costs)  
 This study will utilize serum samples collected from a large cohort of breast cancer patients enrolled in a SWOG clinical trial of paclitaxel to assess metabolomics and vitamin D status.

**K01 AI125413** 3/1/17- 2/28/2022 mentor  
 NIH/National Institute of Allergy & Infectious Diseases  
*Metabolomics Evaluation of the Etiology of Pneumonia*  
 The objective of this prospective cohort study is to determine distinct metabolite profile for major classes of pathogens that cause community-acquired pneumonia (CAP) in children (e.g., virus, typical and atypical bacteria). Urine and blood samples will be collected from children diagnosed with CAP in the Emergency Department or who are hospitalized at Cincinnati Children's Hospital Medical Center.

**R35 GM136312 (PI: Stringer)** 4/1/20- 3/31/25 36% effort  
 NIH/National Institute of General Medical Sciences  
*Translational Metabolomics in Critical Care* \$1,913,535 (total costs)  
 This Maximizing Investigators' Research Award (MIRA) proposes a translational metabolomics approach to study complex critical illnesses like sepsis. It also will utilize metabolomics to further understanding of the mechanisms that underpin adverse drug reactions.

**K23 HL51751 (PI: Labaki)** 7/1/19-6/30/24 mentor  
 NIH/National Heart, Lung and Blood Institute  
*Leveraging Serum Metabolomics to Understand Clinical Phenotypes in COPD*  
 Dr. Labaki will leverage blood biospecimens collected from the SPIROMICS study to conduct and gain training in metabolomics and the clinical phenotyping of COPD.

**R01 GM127787 (PI: Rosania)** 10% effort (concurrent with R35)  
 NIH/National Institute of General Medical Sciences  
*L-Carnitine as a Metabolic Biomarker of Drug Toxicity Risk* 1/20/19-11/30/22 \$2,047,712 (total costs)  
 In this application, we hypothesize that intracellular accumulation of weakly basic small molecule drugs is associated with perturbations in mitochondrial function, predisposing individuals to idiosyncratic ADRs. One extracellular biomarker of mitochondrial function that could be used to pinpoint individuals at increased risk of drug-induced ADRs is L-carnitine.

**Michigan Center for Clinical and Health-related Research Synergy Award** 1% effort  
*Bridging the Translational Gap in Acute Respiratory Distress Syndrome (ARDS) with an Innovative Porcine Model* 9/1/18-8/30/19 \$100,000

This award is aimed at developing a new and novel experimental model of ARDS that recapitulates the human condition. Furthermore, the project is designed as a team science project that will forge sustained collaborative relationships that are needed for the writing and submission of a large program project grant application.

**University of Mississippi Medical Center (PI: Puskarich)**  
*Advancing the metabolic phenotyping of sepsis patients through the integration of functional mitochondrial assessment, metabolomics, and mitochondrial proteomics* 7/1/17-6/30/18 0% effort  
 \$ 20,000 (to UM)  
 We will conduct the metabolomics assays and analysis on platelet and whole blood samples from the University of Mississippi as part of this collaborative project.

**Massey Traumatic Brain Injury (TBI) Challenge (PI: Korley)**

Michigan Center for Integrated Research in Critical Care 7/1/17-6/30/18 0% effort  
*Identification of Pharmacodynamic Biomarkers for Optimizing TBI treatment studies* \$120,000 (total costs)

This application proposes the use of an experimental model of TBI to identify small molecule and protein biomarker candidates of TBI severity.

**American Thoracic Society Foundation (PI: Dickson) 12/30/16-12/29/18**

*Bacterial Translocation in sepsis: a multifaceted molecular approach* 1% effort  
 \$100,000 (total costs)

Existing serum samples collected from sepsis patients will be used to assay for specific bacterial metabolites and bacterial DNA in order to find a "bacterial footprint" in the blood of bacterial translocation.

**R01 FD005393 (PI: Stringer & Schumacher)**

11/1/16-10/31/21

15% effort

Food and Drug Administration

\$2,000,000 (total costs)

*IND119678 Phase II Safety & Efficacy of Inhaled Activase for Acute Plastic Bronchitis*

This is a phase II clinical trial protocol to test the efficacy and safety of inhaled tissue plasminogen activator (tPA; Activase) in children with acute plastic bronchitis.

**R01 GM111400 (PI: Stringer)**

4/1/16-3/31/20

20% effort

NIH/National Institute of General Medical Sciences

\$1,204,516 (total costs)

*L-Carnitine Pharmacometabolomics in Sepsis (CaPS)*

This study will capitalize on the infrastructure of the phase II clinical trial of L-carnitine for sepsis in order to metabolically phenotype sepsis patients following metabolic provocation with carnitine.

**University of Michigan Health System (UMHS)- Peking University Health Science Center (PUHSC)****Joint Institute Research Award (PI: Standiford)**

8/1/15-7/31/17

5% effort\*

This is a collaborative project in which serum samples from both institutions will be assayed by NMR to generate metabolomics data. Samples from healthy controls and smokers with and without chronic obstructive pulmonary disease will be analyzed. \*Funding covers per sample analytical costs that includes effort.

**R01 GM103799-S1 (PI: Jones)**

7/1/15-6/30/17

10% effort

NIH/National Institute of General Medical Sciences

\$113,943 (total costs)

*Carnitine for the Treatment of Vasopressor Dependent Septic Shock*

This is a phase II randomized clinical trial of carnitine efficacy and safety in septic shock. The supplement will fund the metabolomics assay of serum samples collected as part of the phase I trial in order to inform a targeted metabolomics approach for the phase III study.

**R01 GM069438-S1 (PI: Younger)**

6/1/13-12/31/15

10% effort

Administrative Supplement

NIH/National Institute of General Medicine Sciences

\$152,415 (total costs)

*Complement C5a in Human Sepsis- Metabolomics Supplement*

The goal of this project is to use novel assays of host bactericidal activity and C5a generation and to measure function in a subset of sepsis patients. The supplement request funds to support metabolomics assays to complete and elaborate these data.

**R01 MH082784-S3 (PI: Ellingrod)**

6/1/14-5/31/15

5% effort

NIH/National Institute of Mental Health

\$77,750 (total costs)

*Antipsychotic and folate pharmacogenetics- Sex Differences Metabolomics Supplement*

The goal of this project is to genetically phenotype patients who respond and do not respond to folate supplementation and to characterize risk of metabolic syndrome. The supplement funds permits characterization of sex-differences in the metabolome.

**R01 MH082784-S2 (PI: Ellingrod)**

6/1/14-5/31/15

5% effort

NIH/National Institute of Mental Health

\$155,500 (total costs)

*Antipsychotic and folate pharmacogenetics- Metabolomics Supplement*

The goal of this project is the genetically phenotype patients who respond and do not respond to folate supplementation and to characterize risk of metabolic syndrome. The supplement funds the metabolomics component of this work.

**Upjohn Award (PI: Stringer)** 1/01/14-12/31/14 \$50,000

University of Michigan College of Pharmacy

*Validation of potential differentiating metabolites of age-related DVT*

The goal of this project is twofold- first, to generate untargeted NMR metabolomics data to direct a targeted approach to metabolite biomarker discovery in DVT and second, to provide training in metabolomics to a post-doctorate.

**MCubed (Stringer, Standiford, Ellingrod)** 6/1/13-12/31/14 \$50,000

*Macrophage-targeted Immunomodulatory Therapies for Lung Diseases*

This is a University of Michigan program that fosters collaboration among a diverse group (cube) of faculty to help drive innovative research. The funds support a post-doctorate.

**R01 HL095091 (PI: Wakefield)** 11/1/12-5/31/13 2.5% effort  
\$6472 (sub-award)

NIH/National Heart, Lung and Blood Institute

*Novel Therapeutic Targets for Venous Thromboembolism*

The goals of this application are to define the role of VWF in venous thrombosis, develop new aptamers to VWF and P-selectin, test these aptamers in models of venous thrombosis, and determined the clinical value of new biomarkers. The sub-award is aimed at generating metabolomics data to complement the clinical findings of the trial.

**T32 HL007749 (PI: Standiford)** 7/1/13-6/30/18 mentor

NIH/ National Heart, Lung and Blood Institute

*Multidisciplinary Training Program in Lung Disease*

This is a pulmonary training grant that uniquely offers trainees multi-disciplinary training opportunities in clinical and translational science.

**R25 GM103798 (PI: Barnes)** 9/1/12-8/31/17 0% effort

NIH/National Institute of General Medicine Sciences

*UAB Metabolomics Workshop: from Design to Decision*

This is a National Training Resource funded by NIGMS. The goal of this project is to provide an education and training venue in metabolomics to workshop participants.

**R01 GM078200 (PI: Rosania)** 7/1/12-6/30/16 5% effort  
\$1,847,000 (total costs)

*Chemical Address Tags: A Cheminformatics & Image Data Management and Analysis Plan*

The goal of this project is to develop machine vision and image analysis tools to identify Chemical Address Tags by relating the chemical structure of small molecules to their subcellular localization as apparent in image data.

**The Griese-Hutchinson Award (PI: Magdo)** 5/1/12-4/31/13 0% effort  
\$25,000 (total costs)

*Comparison of cell-mediated and humoral immunity in Fontan patients with protein-losing enteropathy and plastic bronchitis, healthy Fontan patients, and thymectomized two-ventricle patients*

The primary goal of this project is to assess whether there are differences in immune function in patients with Fontan physiology that may contribute to the development of plastic bronchitis and protein losing enteropathy.

**CCMB Pilot Research Grant (PI: Karnovsky)** 4/1/11-3/31/13 10% effort

University of Michigan

Center for Computational Medicine and Bioinformatics (CCMB) \$50,000 (total costs)

*Integrative Analysis of Metabolomic and Transcriptional Profiles of Sepsis and Sepsis-induced Acute Lung Injury (ALI)*

The major goal of this project is to generate pilot data to support the concept that metabolomics can differentiate the phenotypes of sepsis and sepsis-induced ALI.

**The Daniel Foy Plastic Bronchitis Research Fund (PI: Stringer)** 0% effort  
This fund was established with an initial gift of \$25,000 to support plastic bronchitis research.

**The Rocco Hines Heart Award (co-PI: Stringer)** 3/1/11-2/28/12 0% effort  
University of Michigan Congenital Heart Center \$50,000 (total costs)  
*Development of a Fontan Complications Database*

The goal of this project is to utilize social media such as Facebook to identify patients with plastic bronchitis and protein losing enteropathy, complications of Fontan physiology. The database will be derived using a survey that captures information about patients with and without these complications.

**R15 HD065594 (PI: Stringer)** 7/15/10-6/30/13 10% effort  
NIH/National Institute of Child Health and Human Development \$463,337 (total costs)  
*Pulmonary Formulation of Tissue Plasminogen Activator for Plastic Bronchitis*

The goals of this project are to show that a pulmonary formulation of tPA (pf-tPA) is an effective treatment for fibrin plastic bronchitis casts and to generate data to support the safe translation of pf-tPA from the bench to the pediatric plastic bronchitis population.

**MICHR Pilot Research Project Grant (PI: Stringer)** 9/1/07-8/31/08 10% effort  
Michigan Institute for Clinical and Health Research (MICHR) \$21,500 (total costs)  
*Tissue Plasminogen Activator Polymorphisms in ALI/ARDS*

**R42 HL071439 (PI: Stringer)** 7/1/05-6/30/08 25% effort  
NIH/National Heart, Lung and Blood Institute \$833,044 (total costs)  
*Safety of Lung Delivered Tissue Plasminogen Activator*

**Cancer Center Pilot Project Grant (PI: Stringer)** 2/1/04-1/31/06 5% effort  
American Cancer Society and the University of Colorado Cancer Center \$20,000 (direct costs)  
*Prolongation of Neutrophil Lifespan by Cigarette Smoke: Implications in the Pathogenesis of Lung Cancer*

**R41 HL071439 (PI: Stringer)** 9/15/03-9/14/04 30% effort  
NIH/National Heart, Lung and Blood Institute \$99,693 (total costs)  
*Lung Delivery of Tissue Plasminogen Activator*

**Tobacco External Research Award (PI: Stringer)** 7/1/01-6/30/04 25% effort  
Philip Morris External Research Program \$350,000.00 (total costs)  
*Modulation of Neutrophil Function by Cigarette Smoke Extract*

**New Investigator Award (PI: Jung)** 7/1/00-6/30/01 0% effort  
American College of Clinical Pharmacy \$10,000 (total costs)  
*Characterization of the Mechanism of Anti-inflammatory Activity of Clarithromycin*

**Investigator-initiated Pilot Project (PI: Jung)** 7/1/00-6/30/01 0% effort  
Abbott Laboratories \$35,000 (total costs)  
*The Mechanism of Anti-inflammatory Activity of Clarithromycin: Inhibition of LPS-induced NF-KB Activation and TNF- $\alpha$  in Pulmonary Epithelial Cells and Macrophages*

**Grant-in-Aid Award (PI: Stringer)** 8/1/96-7/30/98 15% effort  
National American Heart Association \$118,630 (direct costs)  
*Modulation of Inflammation by Plasminogen Activators*

**Amgen-Biotechnology Award (PI: Stringer)** 7/1/96-6/30/97 0% effort  
American College of Clinical Pharmacy \$10,000.00 (direct costs)

*Role of Plasminogen Activators in Inflammatory Lung Disease*

<b>Pilot Project Grant (PI: Stringer)</b> University of Colorado Hospital Authority Grants Program <i>Evaluation of a heparin titration nomogram on patient outcomes at university hospital</i>	9/1/95-8/31/98	0% effort \$17,500 (direct costs)
<b>G. A. Pfeiffer Clinical Pharmacy Post-PharmD Fellowship</b> American Foundation for Pharmaceutical Education Joe M. McCord, PhD, advisor	7/1/94-6/30/96	50% effort \$55,000 (stipend)
<b>Thrombolysis in Myocardial Infarction (TIMI) Study</b> Harvard Medical School <i>TIMI-9: Thrombolysis and thrombin inhibition in acute myocardial infarction</i>	8/1/94-7/31/95	0% effort \$12,000 (direct costs)
<b>Retepase Clinical Study (site PI: Stringer)</b> Boehringer Mannheim Pharmaceuticals <i>A randomized, open-label, multicenter, angiographic study to compare the effects of 10+10 rPA with front-loaded alteplase in patients with acute myocardial infarction</i>	7/1/94-6/30/95	0% effort \$13,200 (direct costs)
<b>Clinical Study (site PI: Stringer)</b> Dupont-Merck Pharmaceuticals <i>Coumadin-Aspirin Reinfarction Study (CARS)</i>	7/1/94-6/30/96	0% effort \$20,000 (direct costs)
<b>Regional Grant-in-Aid (PI: Stringer)</b> American Heart Association of Colorado <i>Effect of SK, tPA and anistreplase on rat footpad edema</i>	7/1/93-6/30/94	0% effort \$16,000 (direct costs)
<b>Pilot Project Grant (PI: Stringer)</b> Bristol Meyers Squibb <i>Effect of streptokinase and streptokinase plus heparin on neutrophil chemotaxis</i>	7/1/93-12/31/93	0% effort \$1500 (direct costs)
<b>TIMI Study (site PI: Stringer)</b> Ciba-Geigy Pharmaceuticals <i>TIMI-6: A multi-center, open-label, ascending dose, safety and tolerability trial to compare the effects of CGP 39393 and heparin when given in conjunction with streptokinase to patients with acute myocardial infarction</i>	7/1/92-6/30/93	0% effort \$70,400 (direct costs)
<b>Ancillary Project Grant (co-PI: Stringer)</b> SmithKline-Beecham <i>Effect of three thrombolytic agents on neutrophil function and free radical generation</i>	7/1/90-6/30/91	0% effort \$12,500 (direct costs)
<b>CU Clinical Research Center (PI: Stringer)</b> NIH <i>Effect of three different doses of verapamil on the disposition of theophylline</i>	10/1/90-9/30/91	0% effort \$3500 (direct costs)
<b>Clinical Study (site PI: Stringer)</b> Beecham Laboratories <i>Multicenter investigation of alteplase vs. anistreplase in acute myocardial infarction</i>	7/1/89-6/30/90	0% effort \$25,000 (direct costs)
<b>Young Investigator's Award (PI: Stringer)</b> Association of Colleges of Pharmacy (ACCP) <i>Effect of three different doses of verapamil on the disposition of theophylline</i>	10/1/89-9/30/90	0% effort \$5000 (direct costs)
<b>Clinical Study (site PI: Stringer)</b> Boehringer Mannheim Pharmaceutical Corporation <i>A multicenter study of the efficacy and safety of intravenous torsemide as adjunctive therapy in patients with acute</i>	10/1/88-9/30/89	0% effort \$20,000 (direct costs)



## PUBLICATIONS

My full bibliography can be found here: <https://www.ncbi.nlm.nih.gov/myncbi/kathleen.stringer.1/bibliography/public/>

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118. Willmer AR, Dunne S, Swanson R, Almeida D, Ammerman NC, **Stringer KA**, Capparelli EV, Rosania GR. An Adaptive Biosystems Engineering Approach towards Modeling the Soluble-to-Insoluble Phase Transition of Clofazimine. *Pharmaceutics*. 2021 Dec 22;14(1). doi: 10.3390/pharmaceutics14010017. PubMed PMID: 35056913; PubMed Central PMCID: PMC8779763.
117. Dunne S, Willmer AR, Swanson R, Almeida D, Ammerman NC, **Stringer KA**, Capparelli EV, Rosania GR. Quantitative Analysis of the Phase Transition Mechanism Underpinning the Systemic Self-Assembly of a Mechanopharmaceutical Device. *Pharmaceutics*. 2021 Dec 22;14(1). doi: 10.3390/pharmaceutics14010015. PubMed PMID: 35056910; PubMed Central PMCID: PMC8780429.
116. Sharma R, Zhou M, Tiba MH, McCracken BM, Dickson RP, Gillies CE, Sjoding MW, Nemzek JA, Ward KR, **Stringer KA**, Fan X. Breath analysis for detection and trajectory monitoring of acute respiratory distress syndrome in swine. *ERJ Open Research* 2021; DOI: 10.1183/23120541.00154-2021.
115. Ambroggio L, Florin TA, Williamson K, Pfefferman C, Wagner BD, Yeomans L, Kim JH, Sucharew H, Macaluso M, Ruddy RM, Shah SS, **Stringer KA**. Respiratory colonization and short-term temporal changes in the urinary metabolome of children. *Metabolites* 2021, 11(8), 500; <https://doi.org/10.3390/metabo11080500> - 30 Jul 2021. Online ahead of print. PubMed PMID: 34436441 PMCID: PMC8400807.
114. Shi J, Yi Z, Jin L, Zhao L, Raskind A, Yeomans L, Simeone DM, Kwon R, Lyssiotis C, **Stringer KA**. Cystic fluid metabolites distinguish malignant from benign pancreatic cysts. *Neoplasia*, 2021 Nov;23(11):1078-1088. doi: 10.1016/j.neo.2021.09.004. Epub 2021 Sep 25. PubMed PMID: 34583246 PMCID: PMC8479274
113. Chen L, Chen CS, Sun Y, Henry NL, Stringer KA, Hertz DL. Feasibility of pharmacometabolomics to identify potential predictors of paclitaxel pharmacokinetic variability. *Cancer Chemother Pharmacol*. 2021 Jun 5. doi: 10.1007/s00280-021-04300-7. Online ahead of print. PubMed PMID: 34089352 PMCID: PMC8319133
112. Puskarich MA, Gillies C, Jennaro TS, Evans CR, Karnovsky A, McHugh CE, Flott T, Jones AE, **Stringer KA**<sup>+</sup>. Pharmacometabolomics identifies candidate predictor metabolites of an L-carnitine mortality benefit in septic shock (preprint: medRxiv 2021.01.28.21250687; doi: <https://doi.org/10.1101/2021.01.28.21250687>). *Clin Transl Sci*. 2021 Jul 3. doi: 10.1111/cts.13088.
111. Ward KM, Burghardt K, Kraal AZ, Jaeger A, Yeomans L, McHugh C, Karnovsky A, **Stringer KA**<sup>+</sup>, Ellingrod VL. Genetic and metabolite variability in one-carbon metabolism applied to an insulin resistance model in patients with schizophrenia receiving atypical antipsychotics. *Front Psychiatry*. 2021 May 25;12:623143. doi: 10.3389/fpsy.2021.623143. eCollection 2021. PubMed PMID: 34113268 PMCID: PMC8185170
110. Tiba MH, McCracken BM, Leander DC, Colmenero CI, Nemzek JA, Sjoding MW, Konopka KE, Flott TL, VanEpps JS, Daniels RC, Ward KR, **Stringer KA**<sup>+</sup>, Dickson RP. A novel swine model of the acute respiratory distress syndrome using clinically relevant injury exposures. *Physiol Rep*. 2021 May;9(9):e14871. doi: 10.14814/phy2.14871. PubMed PMID: 33991456; PubMed Central PMCID: PMC8123544. (preprint: bioRxiv. 2021:2021.01.24.427964. doi: 10.1101/2021.01.24.427964).
109. Sulaiman I, Wu BG, Li Y, Tsay JC, Sauthoff M, Scott AS, Ji K, Koralov SB, Weiden M, Clemente J, Jones D, Huang YJ, **Stringer KA**, Zhang L, Geber A, Banakis S, Tipton L, Ghedin E, Segal LN. Functional lower airways genomic profiling of the microbiome to capture active microbial metabolism. *Eur Respir J*. 2021 Jan 14:2003434. doi: 10.1183/13993003.03434-2020. Online ahead of print. PMID: 33446604. PMCID: *in process*.

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<sup>+</sup>authors contributed equally to the work/co-senior author

108. Tiba MH, McCracken BM, Dickson RP, Nemzek JA, Colmenero CI, Daniels RC, Konopka KE, Van Epps JS, **Stringer KA**<sup>+</sup>, Ward KR. A comprehensive assessment of multi-system responses to a renal inoculation of uropathogenic *E. coli* in swine. 2020 Dec 11;15(12):e0243577. doi: 10.1371/journal.pone.0243577. eCollection 2020. PubMed PMID: 33306742 PMCID: PMC7732124
107. Puskarich MA, McHugh C, Flott TL, Karnovsky A, Jones AE, **Stringer KA**<sup>+</sup>. Serum Levels of Branched Chain Amino Acids Predict Duration of Cardiovascular Organ Failure in Septic Shock. Shock. 2020 Nov 3;. doi: 10.1097/SHK.0000000000001687. [Epub ahead of print] PubMed PMID: 33156242; PubMed Central PMCID: PMC8089113.
106. Tian Y, Qu S, Alam H, Williams AM, Wu Z, Deng Q, Pan B, Zhou J, Liu B, Duan X, **Stringer KA**, Standiford TJ, and Li Y. Peptidylarginine Deiminase 2: Mechanistic insights into its role in sepsis. JCI Insights 2020 2020;5(20):e138873. <https://doi.org/10.1172/jci.insight.138873>. PubMed Central PMCID: PMC7605547
105. Tian Y, Russo RM, Li Y, Karmakar M, Liu B, Puskarich MA, Jones AE, **Stringer KA**, Standiford TJ, Alam HB. Serum citrullinated histone H3 concentrations differentiate patients with septic versus non-septic shock and correlate with disease severity. Infection 2021; 49:83–93. doi.org/10.1007/s15010-020-01528-y. PubMed Central PMCID: PMC7527151
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  14. **Stringer KA\***, Mallet J, Clarke M, Lindenfeld J. Effect of three different doses of oral verapamil on the disposition of theophylline. *Eur J Clin Pharmacol* 1992;43:35-8.
  13. **Stringer KA\***, Lindenfeld J. Hirudins: Anti-thrombin anticoagulants. *Ann Pharmacother* 1992;26:1535-40.
  12. **Stringer KA**. Update on risk factors for coronary heart disease. *J Pract Nurs* 1991;41:43-9.
  11. Marinac JS, North DS, **Stringer KA\***. Anistreplase: A novel thrombolytic agent for acute myocardial infarction. *Drug Intel Clin Pharm* 1990;24:607-15.
  10. Janiczek N, Smith DE, Chang T, Sedman AJ, **Stringer KA**. Pharmacokinetics of pirlmenol enantiomers and pharmacodynamics of pirlmenol racemate in patients with premature ventricular contractions. *J*

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\*corresponding author



Clin Pharmacol 1997;37:502-13.

9. **Stringer KA\***, Branconi JM, Abadier RA, Wilton JH, Royal SH. Disposition of oral dipyridamole in patients undergoing thallium-201 myocardial imaging. *Pharmacotherapy* 1992;12:83-7.
8. **Stringer KA**, Switzer DF, Abadier R, Lebsack ME, Sedman AJ, Chrymko M. The effect of pirofenol administration on the anticoagulant activity of warfarin. *J Clin Pharmacol* 1991;31:607-610.
7. Anderson JL, Sorensen SG, Moreno FL, Hackworthy RA, Browne KF, Dale HT, Leya F, Dangoisse V, Eckerson HW, Marder VJ and The TEAM-2 Investigators. Multicenter patency trial of anistreplase compared with streptokinase in acute myocardial infarction. *Circulation* 1991;83:126-40.
6. Gin AS, **Stringer KA\***, Welage LS, Wilton JH, Matthews GE. The effect of verapamil on the pharmacokinetic disposition of theophylline. *J Clin Pharmacol* 1989;29:728-32.
5. Tisdale JE, **Stringer KA\***, Antalek M, Matthews GE. Streptokinase-induced anaphylaxis. *Drug Intel Clin Pharm* 1990;23:984-7.
4. **Stringer KA**, Goldfarb AL, Cetnarowski AB, Lebsack ME, Sedman A. Enhanced pirofenol elimination by rifampin. *J Clin Pharmacol* 1988;28:1094-7.
3. **Stringer KA\***, Royal SH, Hicks P, Branconi JM, Sloan R. Verapamil preceded by calcium in the treatment of supraventricular tachycardia. *Drug Intel Clin Pharm* 1988;22:575-6.
2. Jackson CV, Mickelson JK, **Stringer K**, Lucchesi BR. Electrolysis-induced myocardial dysfunction. *J Pharmacol Methods* 1986;15:305-20.
1. **Stringer KA**, Berardi RR. Does digoxin decrease gastric blood flow? *Drug Intel Clin Pharm* 1986;20:363-4.

#### BOOK CHAPTERS:

Kelly RS, **Stringer KA**, Wendt CH. (2020) Biomarkers in Obstructive Airway Diseases. In: Gomez J., Himes B., Kaminski N. (eds) *Precision in Pulmonary, Critical Care, and Sleep Medicine*. Respiratory Medicine. Humana, Cham. [https://doi.org/10.1007/978-3-030-31507-8\\_10](https://doi.org/10.1007/978-3-030-31507-8_10)

**Stringer KA**, Lopez L. Acute Myocardial Infarction. In: *Pharmacotherapy*, 5th edition. Dipiro J, Talbert R, Yee G, Wells BG, Posey M, eds. Appleton and Lange, Stamford, CT, 2002. p. 251-272.

**Stringer KA**, Lopez L. Acute Myocardial Infarction. In: *Pharmacotherapy*, 4th edition. Dipiro J, Talbert R, Yee G, Wells BG, Posey M, eds. Appleton and Lange, Stamford, CT, 1999. p. 211-231.

**Stringer KA**, Lopez L. Acute myocardial infarction. In: *Pharmacotherapy Self-Assessment Program, Second Edition (PSAP II)*. Carter BL, Angaran DM, Lake KD, Raebel MA, eds. American College of Clinical Pharmacy, Kansas City, MO, 1997. p. 123-143 (peer reviewed).

**Stringer KA**, Lopez L. Acute myocardial infarction. In: *Pharmacotherapy*, 3rd edition. Dipiro J, Talbert R, Yee G, Wells BG, Posey M, eds. Appleton and Lange, Stamford, CT, 1997. p. 295-322.

#### NEWSLETTERS/LETTERS/MONOGRAPHS/EDITORIALS:

**Stringer KA**. Fibrinolytic therapy for acute lung injury: The case for inhaled tissue plasminogen activator. *Respiratory Drug Delivery*. May, 2009.

**Stringer KA**, Lopez L, Talbert RL. A call for pharmacists to improve the care of patients with myocardial infarction. *Pharmacotherapy* 2001;21:1317-19.

**Stringer KA**, Trujillo TC. Reteplase in the Management of Acute Myocardial Infarction. *Bio-science Communications*. April, 2000.

**Stringer KA**, ed (invited). *Antithrombotics in the Management of Acute Coronary Syndromes*.

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\*corresponding author

Pharmacy and Therapeutics (supplement). February, 1999.

Cohen M, Goodman SG, Grines CL, Samuels LE, **Stringer KA**. Management of unstable angina or non-Q-wave myocardial infarction: Guidelines for treatment with enoxaparin. May, 1999.

Holdsworth MT, Cetnarowski AB, **Stringer KA**. Prostaglandin E1 and streptokinase in acute myocardial infarction. *Am J Cardiol* 1987;60:1215-6.

**Stringer KA**, Watson WA. Caffeine withdrawal symptoms. *Am J Emerg Med* 1987;5:469.

#### ONLINE LECTURE NOTES/PRESENTATIONS and PODCASTS:

**Stringer, KA**. *Principles of Research and Problem Solving* [material type, PowerPoint or PDF]. Retrieved from Open.Michigan Website: <http://open.umich.edu/education/pharmacy/pharm476/winter2011/materials>

Conversation with Drs. Christopher Debiase, Renee Paxton, and Christopher Giuliano about their recent publication regarding Enoxaparin vs. UFH for VTE Prophylaxis in Renally Impaired ICU patients (*Pharmacotherapy*. 2021 May;41(5):424-429). <https://anchor.fm/accp-jrnls/episodes/Enoxaparin-vs--UFH-for-VTE-Prophylaxis-in-Renally-Impaired---Ep-56-e1125g8>

Conversation with Dr. Ryan Rivosecchi about his team's research that challenged the typical fentanyl-based sedation with hydromorphone-based sedation for ECMO patients (*Pharmacotherapy*. 2020 May; 40(5):389-397). [Hydromorphone- vs. Fentanyl-based sedation in ECMO by ACCP JOURNALS • A podcast on Anchor](https://anchor.fm/accp-jrnls/episodes/Hydromorphone-vs.-Fentanyl-based-sedation-in-ECMO-by-ACCP-JOURNALS-A-podcast-on-Anchor)

Conversation with Dr. Rob McLaren about the special issue of *Pharmacotherapy* that was dedicated to Prevention Strategies in the Critically Ill. <https://anchor.fm/accp-jrnls/episodes/Prevention-Strategies-in-the-Critically-Ill---Episode-7-e3h309>

Conversation with Dr. Yaman Kaakeh about her publication "An Overview of Hyperinsulinemic-Euglycemic Therapy in Calcium Channel Blocker and Beta-Blocker Overdose" (*Pharmacotherapy*. 2018 Nov;38(11):1130-114). Available on the @ACCP podcast: on Google Play <https://play.google.com/music/listen#/ps/I7u2chxitze2vyqfsu2ksxqvcym> and iTunes <https://itunes.apple.com/us/podcast/accp-podcast/id1175416904?mt=2>

#### PATENTS/INVENTIONS/DISCOVERIES

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Tissue Plasminogen Activator as an Anti-inflammatory Agent. KA Stringer, Principal Investigator. Patent US #6,497,877 issued December 24, 2002.

Markers for Sepsis Treatment. KA Stringer and AE Jones, Principal Investigators. Provisional patent filed by the University of Michigan, May 1, 2014. Full patent filing, April 28<sup>th</sup>, 2015. PCT/US2015/027956

Compositions and Methods for Delivering Pharmaceutical Agents. R Keswani, GS Yoon, KA Stringer, GR Rosania, C Tian, X Wang. Provisional patent filed by the University of Michigan, January 29<sup>th</sup>, 2016. U.S. Patent Application No. 15/011,047

Calibration Standards for Microscopy Measurements Provisional Patent Application - UM Ref.: 2019-130 - Our Ref.: 30275/54072

Acetylcarnitine (C2) as a Predictive Biomarker for a Mortality Benefit from Supplemental L-carnitine in Patients with Septic Shock U.S. Application No. 16/449,936

**INVITED PRESENTATIONS***(last 10 years)*

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**International**

2020

Metabolomics and sepsis/septic shock: translational aspects. European Society of Clinical Microbiology and Infectious Diseases (ESCMID). Paris, France. *Cancelled due to the COVID pandemic.*

2017

Quantitative <sup>1</sup>H-Nuclear Magnetic Resonance Metabolomics Differentiates Patients with and without Emphysema as Detected by the Percent of Low Attenuation Areas on Chest Computed Tomography (CT). Meeting of the Joint Institute- University of Michigan and Peking University Health Sciences Center. Peking University Medical School, Beijing, China

2016

Pharmacometabolomics: Metabolic Phenotyping of Drug Response. Department of Critical Care Medicine, University of Calgary, Calgary, Alberta, Canada

2011

Pulmonary Delivered Tissue Plasminogen Activator for the Treatment of Plastic Bronchitis. University of British Columbia, Vancouver, Canada

**National**

2018

Application of Metabolomics to Drug Target and Biomarker Discovery in Critical Illnesses. Integration of Glycoscience into Bioinformatics and Personalized Medicine, National Heart Lung and Blood Institute, National Institutes of Health, Bethesda, MD

L-Carnitine Supplementation as a Metabolic Probe of Sepsis Phenotypes. Metabolism of Infectious Diseases Symposium, Colorado State University, Fort Collins, CO

2016

Lung metabolomics: State of the field. NHLBI-sponsored workshop on lung proteomics and metabolomics. National Jewish Health, Denver, CO

2015

Processing and Storage of Samples for Metabolomics Assays. NIH Regional Metabolomics Workshop, University of Alabama, Birmingham, Birmingham, AL

2014

Expert Consultation: Metabolomics in Critical Care. Science and Innovation Center at the American Thoracic Society 2014 International Conference, San Diego, CA

Processing and Storage of Samples for Metabolomics Assays. NIH Regional Metabolomics Workshop, University of Alabama, Birmingham, Birmingham, AL

2013

Processing and Storage of Samples for Metabolomics Assays. NIH Regional Metabolomics Workshop, University of Alabama, Birmingham, Birmingham, AL

2012

Acute Lung Injury Metabolomics. Federation of American Societies for Experimental Biology (FASEB) Science Research Conference, The Lung Epithelium in Health and Disease, Vermont Academy, Saxton River, VT

2011

Metabolomics: the Top-tier of Systems Biology. Genomics and Lung Diseases Workshop. National Heart, Lung and Blood Institute, National Institutes of Health, Bethesda, MD

### **Local/State**

2018

Metabolic phenotyping of sepsis and sepsis drug response. University of Florida College of Pharmacy, Gainesville, FL

2017

Vignettes from the field: Nuclear Magnetic Resonance (NMR) Metabolomics. 5<sup>th</sup> Annual Michigan Regional Comprehensive Metabolomics Resource Core. University of Michigan, Ann Arbor, MI

Metabolic phenotyping of sepsis. MCIRCC Sepsis Collaborative. University of Michigan, Ann Arbor, MI

2016

Pharmacometabolomics: Metabolic phenotyping of drug response. Department of Bioinformatics and Computational Medicine, University of Michigan, Ann Arbor, MI

Vignettes from the field: Nuclear Magnetic Resonance (NMR) Metabolomics. 4<sup>th</sup> Annual Michigan Regional Comprehensive Metabolomics Resource Core. University of Michigan, Ann Arbor, MI

2015

Vignettes from the field: Nuclear Magnetic Resonance (NMR) Metabolomics. 3<sup>rd</sup> Annual Michigan Regional Comprehensive Metabolomics Resource Core. University of Michigan, Ann Arbor, MI  
The metabolomics of drug bioaccumulation in macrophages: The story of clofazimine. University of Michigan Pulmonary Research Conference, Ann Arbor, MI

2014

Vignettes from the field: Nuclear Magnetic Resonance (NMR) Metabolomics. 2<sup>nd</sup> Annual Michigan Regional Comprehensive Metabolomics Resource Core. University of Michigan, Ann Arbor, MI

2013

Fibrinolytic Resistance and Responsiveness of Plastic Bronchitis Airway Casts. Pediatric Critical Care Medicine. University of Michigan, Ann Arbor, MI

2012

Plastic Bronchitis & its Treatment with Inhaled tPA. Pediatric Pulmonology Conference. University of Michigan, Ann Arbor, MI

Point-Person-Project: Plastic Bronchitis. Michigan Institute for Clinical and Health Research Seminar Series. University of Michigan, Ann Arbor, MI

Metabolomics and its Application to Biomarker Discovery in Acute Lung Injury. Pharmaceutical Sciences Department, Skaggs School of Pharmacy and Pharmaceutical Sciences; Anesthesiology Department, School of Medicine, University of Colorado Denver, Aurora, CO

Metabolomics: The New Frontier of Biomarker Discovery for Acute Lung Injury? University of Michigan Pulmonary Research Conference, Ann Arbor, MI

Pulmonary Delivered Tissue Plasminogen Activator for the Treatment of Plastic Bronchitis. School of Pharmacy, Virginia Commonwealth University, Richmond, VA

2011

Effective Teaching Strategies Workshop, teaching mentor. Health Sciences Teaching Academy Center for Research on Learning and Teaching (CRLT), University of Michigan, Ann Arbor, MI

## TEACHING, MENTORING & TRAINING

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### UNIVERSITY OF MICHIGAN (2007- present):

#### *College of Pharmacy*

2019- present	Grant Proposal III (CPTS 803) Graduate student course in preparation for preliminary examination
2019- present	Metabolomics & Proteomics (CPTS 824) Lectures and assignments in metabolomics for graduate students
2009- present	Principles of Research and Problem Solving (Pharmacy 614, formerly Pharmacy 476) Course lecturer, coordinator and small group leader (2009-2017) Course lecturer & coordinator (2018- )
2008- present	PharmD Investigations (Pharmacy 565 & 569)
2009- 2016	Opportunities in Pharmacy (Pharmacy 550) Credentialing in Pharmacy lecture
2008- 2018, 2020	PharmD seminar (Pharmacy 680) I mentor and advise 1-2 PharmD students each who give a 40 min formal seminar

#### PharmD Investigation Students:

2008- 2010	Angela Loo, Mollie Kemp, Shari Rosen, Mark Pangrazzi <sup>2</sup> , Michael Lu
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<sup>2</sup>recipient of the 2010 University of Michigan's College of Pharmacy PharmD Student Research Award

2009- 2011	Shelly Ling, Andrew Clark
2010- 2012	Erin Gulbransen, Elizabeth Kelly, Steven Hseuh (through 2010)
2011- 2013	Odilia Chan
2011- 2014	Lauren Heath
2011- 2015	Kristina Brooks
2012- 2015	Melissa Tai, Yihan Sun
2012- 2016	Swan Lin (2015 recipient of the AFPE Gateways Scholar Award & McGlone Award)
2013- 2016	Tony Koehn
2015- 2017	Julie Trexel
2016- 2018	Navya Varshney
2016- 2019	Sichen Wang
2017- 2021	Jeffrey Ciric-Quillama
2019- present	Jacob Pifer, Benjamin Fine, Danielle Kulman
2020- present	Jingyu Hu

Multidisciplinary Clinical Researchers in Training (MCRiT) Program (summer):

2008	Christine Kim
2011	Odilia Chan <sup>3</sup> , Lauren Heath
2012	Kristina Brooks, Melissa Tai
2013	Tony Koehn
2018	Jeffrey Ciric-Quillama

Undergraduate Research Opportunity Program (UROP)

2009	Andrew Schrottenboer (Medical School)
2015- 2018	Casey Schoof (Physician Assistant program)
2016- 2019	Benjamin Andrew (Dental School)
2016- 2018	Rachel Cevigney (Medical School)

Bachelor of Science in Pharmaceutical Sciences (BSPS)

2018- 2019	Min Yue (graduate school, Purdue University)
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<sup>3</sup>finalist for best poster at the Spring MICHR Research Symposium

## Post-doctorates

2012- 2014	Kyoung Ah Min, PhD
2013- 2015	Larisa Yeomans, PhD
2013- 2016	Gi Yoon Sang, PhD; Rahul Keswani, PhD (via MCubed program)
2015- 2018	Kristen Ward (Weise), PharmD (metabolomics)
2016- 2018	Yihan Sun, PharmD

*Graduate School*

## Graduate students:

2015- 2019	Vernon Lalone
2019-	Marc McCann, PharmD
2019-	Theodore Jennaro, PharmD

## Doctor of Philosophy Preliminary Exam/Data Committee Membership:

2010- 2011	Jing-yu Yu	Medicinal Chemistry
2010- 2012	Kyoung Ah Min	Pharmaceutical Sciences
2015- 2019	Mikhail Murashov	Pharmaceutical Sciences
2015- 2019	Vernon Lalone	Pharmaceutical Sciences
2016- 2020	Sang Kim	Pharmaceutical Sciences
2018-	Gayatri Iyer	Computational Medicine & Bioinformatics
2019-	Jen Diaz-Espinosa	Pharmaceutical Sciences
2020-	Mery Vet George	Pharmaceutical Sciences
2021-	Henry Gong	Immunology

## Master of Science Data Committee Membership:

2016	Sarah Donnelly	University of Calgary Department of Medical Sciences
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*Medical School*

## Unit for Laboratory Animal Medicine Training Program

2013- 2015	Portia Allen, DVM	Metabolomics
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## Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine

2020-	Kale Bongers, MD	T32 Mentorship committee member
2021-	Avnee Kumar, MD	Mentorship committee member

## Additional Mentoring Activities

2012- 2014	Andrea Obi, MD Resident, Vascular Surgery University of Michigan	Metabolomics
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2013- present	Lilliam Ambroggio, PhD <sup>4</sup> Assistant Professor University of Cincinnati (2013-2018) University of Colorado (2018- present)	Metabolomics
2016- 2017	William Masch, MD Assistant Professor of Radiology University of Michigan	Launch Committee chair
2016- present	Kristen Ward, PharmD <sup>5</sup> Post-doctoral Fellow University of Michigan	Metabolomics
2017- 2019	Marco Bottino, DDS, PhD Associate Professor of Dentistry University of Michigan	Launch Committee chair
2017- present	Michael Maile, MD <sup>6</sup> Assistant Professor of Anesthesiology University of Michigan	Metabolomics
2018- present	Wassim Labaki, MD <sup>7</sup> Assistant Professor of Internal Medicine Pulmonary Medicine University of Michigan	Metabolomics

#### UNIVERSITY OF COLORADO (1988- 2007)

##### *School of Pharmacy (PharmD curriculum)*

##### Spring Semester (entry-level)

2006	PharmD Student (P3) Seminar (PHRD 5250)
2003-2004	Instructional Methods III (PHRD 4250) Course Co-coordinator Lectures
2002-2004	Comprehensive Patient Care (PHRD 5750) Acute Myocardial Infarction
2001-2007	Research Elective (PHRD 5865) Co-coordinator

##### Fall Semester (entry-level)

2005-2007	Integrated Organ Systems V (PHRD 4720) Cardiology Module, Pathophysiology
2004-2007	Instructional Methods III (PHRD 4250)- Lectures
2002-2004	Integrated Organ Systems V (PHRD 4720) Cardiology Module, Therapeutics

<sup>4</sup>I am serving as Lilliam's metabolomics mentor on her K01 award

<sup>5</sup>I served as Kristen's metabolomics mentor on her KL2 award

<sup>6</sup>I served as Michael's metabolomics mentor on his KL2 award

<sup>7</sup>I am serving as Wassim's metabolomics mentor on his K23 award



2001-2007	Research Elective (PHRD 5865), Co-coordinator
2000-2005	PharmD Student (P3) Seminar (PHRD 5250)
2000-2003	Cardiology Professional Skills (PHRD 4100)
2000-2001	Integrated Organ Systems IV (PHRD 4710) & V (PHRD 4720; 2001, V only) Coordinator; Cardiology Module, Therapeutics

## Fall Semester (track-in)

1997-1998	Advanced Therapeutics/Kinetics (PRDO 5220) and Professional Skills (PRDO 5250) Fall Semester Coordinator
1997-2000	Advanced Therapeutics/Kinetics (PRDO 5220) Cardiology Module, Therapeutics
1997-2000	Professional Skills (PRDO 5250), Cardiology

## Fall Quarter (add-on)

1993-1997	Introduction to Clinical Research Methodology I (PRDO 5240) Course Coordinator and lectures
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## Winter Quarter (add-on)

1995-1997	Advanced Therapeutics and Pharmacokinetics (PRDO 5620) Cardiology Module Coordinator Acute Myocardial Infarction & Anticoagulation lectures Arrhythmias and Anti-arrhythmic drugs lectures Congestive Heart Failure and Digoxin lectures
1993-1994	Advanced Therapeutics (PRDO 5420) Cardiology Module Coordinator Acute Myocardial Infarction lectures Arrhythmias and Anti-arrhythmic drugs lectures Congestive Heart Failure lectures
1993-1994	Advanced Clinical Pharmacokinetics (PRDO 5660) Anti-arrhythmic drugs lectures

## Spring Quarter (add-on)

1995-1996	Introduction to Clinical Research Methodology II (PRDO 5830) Course Coordinator and 10 h of lecture
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## Doctor of Pharmacy Investigations (Research Advisor)

1993-1995	Patrice Light: Evaluation of the Pharmacokinetic Disposition of Hirudin in Patients with Acute Myocardial Infarction
	Janet Pate: Effect of Streptokinase and Tissue Plasminogen Activator on Neutrophil Protein Kinase C
	Doug Russo: Effect of Heparin on Endothelin-1 Levels in Patients with Congestive Heart Failure

## Experiential Teaching

1994-1999 PharmD Cardiology Research Rotation 1 student/6 weeks, 12 weeks

*School of Pharmacy (B.S. Pharmacy Curriculum, 1988-2000)*

## Fall Semester

1996-1998 Pharmacotherapeutics I (PHPR 4600)  
Acute Myocardial Infarction lectures  
Arrhythmias and Anti-arrhythmic drugs lectures  
Congestive Heart Failure lectures (1992-'98)  
Coronary Artery Disease lectures (1995-'98)

1989-1999 Clinical Pharmacokinetics (CNLP 4490 / PHPR 4790)  
Lidocaine and Procainamide lecture

1988-1990 Pharmacotherapeutics (CNLP 4210)  
Acute Myocardial Infarction lectures  
Arrhythmias and Anti-arrhythmic drugs lectures

## Spring Semester

2000 Pharmacotherapeutics II (PHPR 4610)  
Course Coordinator

1991-1996 Pharmacotherapeutics I (PHPR 4600); Course Coordinator (1991-1992) Acute Myocardial Infarction lectures (6 hrs) Arrhythmias and Anti-arrhythmic drugs lectures; Congestive Heart Failure lectures (1992-1996); Coronary Artery Disease lecture (1995-1996)

## Undergraduate Honors Students (Research)

1992-1993 Janet Pate

1991-1993 Mary Vander Ploeg

1990-1991 Michael Clarke

## Experiential Teaching

1989-1993 BS Cardiology ICU Clinical Rotation 1 student/month, February-April

1989-1993 BS Cardiovascular Research Rotation 1 student/month, May

*Graduate School and Post-Graduate Education and Training*

## University of Colorado Graduate Students (thesis advisor):

2004-2007 John S. Dunn, Masters (no thesis), Pharmaceutical Sciences

## Doctor of Philosophy Dissertation (Committee Member):

2004-2007 John S. Dunn Pharmaceutical Sciences

2003-2005	Lorinda Girouard	Toxicology
1997-2001	Lisa Siconolfi	Biochemistry
1994-1996	James Matsuura	Pharmaceutical Sciences

## Graduate Experiences for Multicultural Students (GEMS) Program (Summer):

2006	Natasha Flores
2005	Joseph Pitluck

## Research Fellows (rotations):

1995-1996	Joseph Saseen, PharmD
1989-1990	Jacqueline Marinac, PharmD

## Medical Resident:

1990	Jane Mallet, MD
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## Medical House Staff Lectures:

1994	Anti-thrombotic Therapy
1995	Cardiology Fellows Lectures: Role of Anticoagulation in Acute Myocardial Infarction

## Clinical Pharmacy Residents:

2002-2003	Nicole Schlobohm, PharmD
2001-2002	Megan Brewer, PharmD
1999-2000	Kristal Morris, PharmD
1997-2000	Deb Sherman, PharmD
1992-1993	Ben Dickenson, BS, RPh
1991	Jeff Heiland, BS, RPh
1990	Rhonda Andersen, BS, RPh

## AWARDS AND HONORS

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2018	Albert B. Prescott Professorship
2014	Michigan Institute for Clinical and Health Research Distinguished Clinical and Translational Research Mentor
2010	Multimedia Teaching Grant from the Center for Research on Learning and Teaching (CRLT) for "Creation of posters for Pharmacy 476 - Principles of Research and

	Problem Solving" \$1211
2009	University of Michigan Teaching with Technology Institute (TTI) Award from the Center for Research on Learning and Teaching (CRLT) for "Development of an On-line Research Proposal Wizard" \$2500
2000	Certificate of Appreciation, Board of Pharmaceutical Specialties, for six years of service to the Specialty Council on Pharmacotherapy
1997	Teacher of the Year Award, Fourth Year Undergraduate Pharmacy Class
1996	Special Appreciation Award presented from the graduating PharmD class
1996	Phi Lambda Sigma
1997	Elected Fellow (FCCP), American College of Clinical Pharmacy
1994	American Foundation for Pharmaceutical Education, Gustavus A. Pfeiffer Clinical Pharmacy Post PharmD Fellowship in Biomedical Sciences
1994	Rho Chi National Pharmacy Honor Society
1989	American Association of Colleges of Pharmacy Young Investigator's Award "Effect of Three Different Doses of Verapamil on the Disposition of Theophylline"
1987	Roche Hospital Pharmacy Research Award "Effect of Theophylline on the Pharmacokinetic Disposition of Theophylline in Cigarette Smokers"

### SERVICE TO THE UNIVERSITY OF MICHIGAN COLLEGE OF PHARMACY

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2021- 2022	Chair, Dean Search Advisory Committee
2019- 2021	Graduate Education Committee
2015- present	Member, Safety Committee
2015- 2016	Member, Tenure-track faculty search committee, ambulatory care
2014- 2015	Chair, Department of Clinical Pharmacy Chair position search committee
2014- 2018	Member, Dean's Executive Committee
2013- 2014	Member, Dean Search Committee
2013	Chair, CSAS Tenure-track Faculty Search Committee, University of Michigan College of Pharmacy
2012	Chair, Tenure-track faculty search committee, Department of Clinical, Social and Administrative Sciences
2012- present	Member, Research Resources Committee
2011	Member, Information Technology Search Committee

2009- 2010	Member, Department of Clinical, Social and Administrative Sciences, Promotion Review Committee
2009- 2013	Member, PharmD Investigations Committee
2009- 2013	Member, Curriculum Committee
2009- 2013	Member, Evidenced-based Medicine sub-committee (Curriculum)

### **SERVICE TO THE UNIVERSITY OF MICHIGAN**

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2016- 2018	Member, Nuclear Magnetic Resonance (NMR) Governing Committee
2015- present	Member, Control Substances Research Review Committee
2013- 2014	Member, Dean Search Committee, College of Pharmacy
2012	Member, Ad-hoc Grievance Hearing Board, Office of the Provost
2013- 2018	Michigan Institute for Clinical & Health Research (MICHR) Pilot Grant Review Committee
2013- present	Michigan Regional Comprehensive Metabolomics Resource Center (MRC) <sup>2</sup> pilot grant reviewer

### **SERVICE TO THE UNIVERSITY OF COLORADO SCHOOL OF PHARMACY**

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2006- 2007	Member, Department of Clinical Pharmacy Appointment, Promotion and Tenure Committee
2005-2006	Chair, Department of Clinical Pharmacy Appointment, Promotion and Tenure Committee
2004-2005	Member, Department of Clinical Pharmacy Appointment, Promotion and Tenure Committee
2003-2004	Chair, Department of Clinical Pharmacy Appointment, Promotion and Tenure Committee
2005-2007	Faculty senate officer (elected)
2001-2003	Faculty senate officer (elected)
1997-2002	Member, Department of Pharmacy Practice Advisory Committee
1997-2002	Member, Appointment, Promotion and Tenure Committee
1997-1998	Member, Assistant Dean Search Committee
1997-1998	Chair, Admissions Committee
1995-1996	Chair, Tenure-track Faculty Search Committee
1994-1998	Chair, PharmD Research Committee

1994-1997	Member, Admissions, Scholastic Advancement and Appeals Committee
1994-1995	Co-chair, Tenure-track Faculty Search Committee
1994	Member, Department Chair Search Committee
1993	Member, Search Committee for Director of Undergraduate Admissions
1991-1994	Chair, Admissions, Scholastic Advancement and Appeals Committee
1989-1991	Member, PharmD Curriculum Committee
1989-1990	Member, Research Seminar Committee
1988-1989	Member, Curriculum Committee

## SERVICE TO THE UNIVERSITY OF COLORADO

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### *School of Medicine*

1992-1996 School of Medicine/University Hospital Acute Coronary Care Task Force

### *School of Nursing*

2002 Member, Dean's Review Committee Appointment, Promotion and Tenure

### *University Hospital*

1998-2003 Acute Coronary Syndromes Sub-committee

1997-1999 Patient care clinical service- Intensive Care Cardiology Service, 2 months/yr

1995-1998 Rapid Response Task Force on Drug Utilization

1994 Development of thrombolytic therapy administration kits for the emergency room

1991-1992 Member, Digoxin Task Force

1988-1996 Intensive Care Cardiology Service, 4 months/y

### *Health Sciences Center*

2005-2007 Faculty Assembly, School of Pharmacy Faculty Senate representative

2001-2003 Faculty Assembly, School of Pharmacy Faculty Senate representative

1990-1994 Human Subject Committee (IRB)

1989-1991 Faculty Council

### *University System*

2003-2006 Member, Faculty Senate Privilege & Tenure Committee (Health Sciences Center rep)

## PROFESSIONAL SERVICE

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### PROFESSIONAL SOCIETY MEMBERSHIPS:

American College of Clinical Pharmacy (ACCP)

American Physiological Society (APS)

American Thoracic Society (ATS)

- *Assembly on Critical Care (primary)*
- *Assembly on Allergy, Immunology and Inflammation (secondary)*
- *Section on Genetics & Genomics*

Metabolomics Society      Metabolomics Association of North America

### PROFESSIONAL SOCIETY APPOINTMENTS/SERVICE:

#### *American College of Clinical Pharmacy (ACCP)*

2018-            Scientific editor, *Pharmacotherapy*  
 2015-2017      Mentor, ACCP Mentored Research Investigator Training (MeRIT) Program  
 2004-2007      Regent (elected), American College of Clinical Pharmacy, Board of Regents  
 2004-2005      Member, Frontiers Campaign  
 2004-2005      FCCP Sub-committee  
 2004            Member, Research Institute Reorganization Committee  
 2002            Member, ACCP Strategic Planning Group  
 2001-2002      Chair, Task Force on Fellowship Training, Research Institute  
 2000-2003      ACCP representative to the Center for Medicare and Medicaid Services' (CMS) National Acute Myocardial Infarction Project  
 1999-2002      Research Institute Trustee (elected)  
 1998            ACCP representative to the AACCP/ACPE Invitational Conference on Certificate Programs, Arlington, VA  
 1997-2002      Member, Research Institute Grant and Fellowship Review Panel  
 1997-1999      Member, 1999 Annual Program Planning Committee  
 1996-1997      Member, Awards Committee  
 1994-2002      Grant reviewer, Cardiovascular research grants  
 1994-1996      Author, Pharmacotherapy Self-Assessment Program (PSAP), Acute Myocardial Infarction  
 1993-1999      ACCP appointed representative to the Specialty Council for Pharmacotherapy, Board of Pharmaceutical Specialties  
 1993-1995      Reviewer, AHCPR, Guidelines for the Management of Unstable Angina  
 1992-present   Abstract Reviewer, Annual and Spring meetings  
 1991-1993      Member, Research Affairs Committee

#### *American Physiological Society (APS)*

2021- present   Member, Editorial Board, *American Journal of Physiology, Lung, Cellular and Molecular Physiology (AJP-Lung)*

#### *American Thoracic Society (ATS)*

2015- 2018      Member, Respiratory Cell and Molecular Biology (RCMB) committee on Proteomics and Metabolomics, ATS

#### *Board of Pharmaceutical Specialties (BPS)*

1997-1999      Chair, Specialty Council on Pharmacotherapy  
 1994-1997      Chair, Cardiology Item Writing Panel

1993-1997 Vice Chair, Specialty Council on Pharmacotherapy

#### REVIEWER/EDITORIAL BOARDS:

2021- Member, Editorial Board, *American Journal of Physiology, Lung, Cellular and Molecular Physiology (AJP-Lung)*

2018- Scientific Editor, *Pharmacotherapy*

2016- 2017 Member, Editorial Board, *Pharmacotherapy*

2009 Grant reviewer, NIH Challenge Grants

2009 Grant reviewer, Italian Cystic Fibrosis Research Foundation

2002- 2005 Grant reviewer, Philip Morris External Research Program

1999-2001 Member, Editorial Board, *American Journal of Health System Pharmacists*

1993 Reviewer, Cardiovascular Chapters, Dipiro, et al. *Pharmacotherapy*, 2nd Edition

1990-1992 Member, Editorial Board and Staff Writer, American Heart Association, Colorado Chapter, Newsletter

1988-1997 Member, Cardiology Editorial Board, *Annals of Pharmacotherapy*

#### Journal referee (alphabetical):

American Journal of Physiology (Lung Cellular and Molecular Physiology)  
 American Journal of Respiratory and Critical Care Medicine  
 Analytical Chemistry  
 Critical Care Medicine  
 Journal of Proteome Research  
 Metabolites  
 Pharmacotherapy

#### SPECIAL ASSIGNMENTS

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2022 Grant application reviewer, ZonMw (The Netherlands Organization for Health Research and Development)

2020 Member, Special Emphasis Panel (ZRG1 CB-T (55) R); Maximizing Investigator Research Awards, NIGMS; National Institutes of Health, Bethesda, MD

2018 Member, Special Emphasis Panel (ZRG1 BCMB-P (50) P); Metabolomics Cores for Undiagnosed Diseases Network (UDN); Common Fund; National Institutes of Health, Bethesda, MD

2016, 2019 Ad hoc member, Surgery, Anesthesiology, and Trauma (SAT) study section; Center for Scientific Review, National Institutes of Health, Bethesda, MD

2015- present Member, University of Michigan Controlled Substances in Research Review Committee

2014- 2018 Member, Data Safety Monitoring Board: Anti-psychotic and folate pharmacogenetics clinical trial (Ellingrod, PI)

2011 Member, Special Emphasis Panel (Ped Pharm ZHD1 DSR-A(50)); National



- Institutes of Health, Bethesda, MD
- Invited participant, Genomics Workshop, National Heart Lung and Blood Institute, National Institutes of Health, Bethesda, MD
- 2005 Chair, External Review Committee for Graduate Programs, University of Utah School of Pharmacy, Salt Lake City, UT
- 1999-2000 6-month sabbatical leave (August 1, 1999-February 1, 2000)
- 1996 Co-chair, Workshop on the NIH Inclusion Guidelines: Challenges for the Future, National Institutes of Health, Bethesda, MD
- 1994 Co-chair, National Meeting of IRB Chairs, NIH Guidelines on the Inclusion of Women and Minorities as Subjects in Clinical Research: Issues of IRBS, National Institutes of Health, Bethesda, MD

## CONSULTANTSHIPS

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- 2021-present FHI Clinical
- 2020- present Member, Therapeutic Monitoring Group; An open label Phase II Clinical Trial of Nebulised tissue plasminogen activator (rt-PA) in patients with COVID-19 ARDS to decrease the duration of ventilatory support and mortality: A pilot study (the PACA trial); University College London, England UK
- 2000-2008 Member, Angiomax Pharmacy Advisory Board, The Medicines Company
- 2001-2004 Member, Melagatran Pharmacy Advisory Board, Astra Zeneca
- 1997-2001 Member, Integrelin Pharmacy Advisory Board, Cor Therapeutics
- 1997-2001 Member, National Acute Coronary Syndromes Advisory Panel, Merck, Inc.
- 1997-1999 Member, Lepirudin Advisory Board, Hoescht Marion Roussel
- 1995-1998 Member, Pharmacy Advisory Board for Reteplase, Boehringer Mannheim Pharmaceuticals
- 1995-2000 Member, Inter-disciplinary Anti-thrombotic Advisory Board, Rhone-Poulenc-Rorer
- 1992-1993 Member, Pharmacy Advisory Board, Manoplax, Boots Pharmaceuticals
- 1990-1992 Member, SmithKline/Beecham Faculty Speakers Bureau, Cardiology
- 1988-1996 Assistant Editor, Drugdex Information System, Micromedex