

Amy L. Pasternak, PharmD, BCPS

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Present Position

Clinical Assistant Professor
Department of Clinical Pharmacy
University of Michigan College of Pharmacy
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Ann Arbor, MI 48109
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Education

Doctor of Pharmacy 2014
Ohio Northern University, Ada, OH

Additional Training

Clinical Translation Pharmaceutical Sciences Post-Doctoral Fellow 2016-2018
University of Michigan College of Pharmacy, Ann Arbor, MI
Mentor: Daniel Hertz, PharmD, PhD

- Primary research project: "Determining the impact of CYP3A genetic variants on sublingual tacrolimus trough concentrations in lung transplant recipients"
- Clinical Pharmacist for pediatric CNS precision medicine tumor board

PGY2 Clinical Pharmacogenetics Pharmacy Residency 2015-2016
St. Jude Children's Research Hospital
Program Director: Kristine R. Crews. PharmD, BCPS, FCCP

PGY1 Pharmacy Residency 2014-2015
Cleveland Clinic Hillcrest Hospital
Program Director: Mary Temple-Cooper, MS, PharmD, BCPS, FCCP

Licensure/Certifications

Board Certified Pharmacotherapy Specialist 2016-present

Licensed Pharmacist
State of Ohio 2014-present
State of Tennessee 2015-2020
State of Michigan 2016-present

Academic Positions and Professional Appointments

Affiliate member, University of Michigan Comprehensive Cancer Center 2018-present

Manuscripts

Published

21. **Pasternak AL**, Marshall VD, Gersch CL, et al. Evaluating the Impact of CYP3A5 Genotype on Post-Transplant Healthcare Resource Utilization in Pediatric Renal and Heart Transplant Recipients Receiving Tacrolimus. *Pharmgenomics Pers Med*. 2021 Mar 12;14:319-326. doi: 10.2147/PGPM.S285444. eCollection 2021.
20. Shakeel F, Fang F, Kwon JW, Koo K, **Pasternak AL**, Henry NL, Sahai V, Kidwell KM, Hertz DL. Patients carrying DPYD variant alleles have increased risk of severe toxicity and related treatment modifications during fluoropyrimidine chemotherapy. *Pharmacogenomics*. 2021 Feb;22(3):145-155. doi: 10.2217/pgs-2020-0154. Epub 2021 Jan 7.
19. Shugg T, **Pasternak AL**, London B, Luzum JA. Prevalence and types of inconsistencies in clinical pharmacogenetic recommendations among major U.S. sources. *NPJ Genom Med*. 2020 Oct 30;5:48. doi: 10.1038/s41525-020-00156-7. eCollection 2020.
18. Ward KM, Taubman DS, Pasternak AL, et al. Teaching psychiatric pharmacogenomics effectively: Evaluation of a novel interprofessional online course. *JACCP*. 2020;4(2).
17. Johengen EK, Ward KM, Coe AB, **Pasternak AL**. Assessing the knowledge, perceptions, and practiced of primary care clinicians towards pharmacogenetics. *JACCP*. 2020; 4(1).
16. **Pasternak AL**, Ward KM, Ateya MB et al. Establishment of a Pharmacogenetics Service Focused on Optimizing Existing Pharmacogenetic Testing at a Large Academic Health Center. *J Pers Med*. 2020 Oct 3;10(4):154. doi: 10.3390/jpm10040154.
15. Zhu J, **Pasternak AL**, Crona DJ. The future research into genetics and precision dosing of tacrolimus: what do we need to know? *Pharmacogenomics*. 2020 Oct;21(15):1061-1064. doi: 10.2217/pgs-2020-0093. Epub 2020 Sep 8.
14. Lipp M, **Pasternak AL**, Ward KM. The MTHFR C677T genetic variant associations with depression and depression treatment: what does it mean and what can you do with the results? *Current Psychiatry*. 2020. 19(10):41-53.
13. Hockings JK, **Pasternak AL**, Erwin AL, et al. Pharmacogenomics: An Evolving Clinical Tool for Precision Medicine. *Cleve Clin J Med*. 2020 Feb;87(2):91-99. doi: 10.3949/ccjm.87a.19073.
12. Marcath LA, **Pasternak AL**, Hertz DL. Challenges to Assess Substrate-Dependent Allelic Effects in CYP450 Enzymes and the Potential Clinical Implications. *Pharmacogenomics J*. 2019 Dec;19(6):501-515. doi: 10.1038/s41397-019-0105-1. Epub 2019 Oct 15
11. **Pasternak AL***, Kidwell KM, Dempsey JM et al. Impact of CYP3A5 phenotype on tacrolimus concentrations after sublingual and oral administration in lung transplant. *Pharmacogenomics*. 2019. PMID: 30983501.
10. Maklja Z, **Pasternak A**, Stallard A, et al. Molecular profiling and targeted therapy in pediatric gliomas: review and consensus recommendations. *Neuro-Oncology*. 2019. PMID: 30805642
9. Hertz DL, Glatz A, **Pasternak AL** et al. Integration of Germline Pharmacogenetics into a Tumor Sequencing Program. *JCO Precision Oncology*. Epub July 23, 2018.
8. **Pasternak AL***, Zhang L, Hertz DL. CYP3A pharmacogenetic association with tacrolimus pharmacokinetics differs based on route of drug administration. *Pharmacogenomics*. 2018 Apr;19(6):563-576. doi: 10.2217/pgs-2018-0003. Epub 2018 Apr 9. PMID: 29629825
7. **Pasternak AL**, Ward KM, Luzum JA, et al. Germline genetic variants with implications for disease risk and therapeutic outcomes. *Physiol Genomics*. 2017 Oct 1;49(10):567-581. doi: 10.1152/physiolgenomics.00035.2017. Epub 2017 Sep 8.

6. Hertz DL, Luzum JA, **Pasternak AL**, et al. Institutional profile of pharmacogenetics within the University of Michigan College of Pharmacy. *Pharmacogenomics*. 2017; doi: 10.2217/pgs-2017-0107. [Epub ahead of print]
5. **Pasternak AL**, Crews KR, Caudle KE, et al. The impact of the UGT1A1*60 allele on bilirubin serum concentrations. *Pharmacogenomics*. 2017;18(1):5-16.
4. **Pasternak AL**, Link NA, Richardson C, Rose PG. Effect of Prophylactic Extended-Infusion Carboplatin on Incidence of Hypersensitivity Reactions in Patients with Ovarian, Fallopian Tube, or Peritoneal Carcinomas. *Pharmacotherapy*. 2016;36(7):723-30.
3. **Pasternak A**, Axtell S. What is the risk of developing diabetes mellitus (DM) while taking a statin? *OSHP Bulletin*. 2014;36(6):4-5.
2. Long L, **Pasternak A**, Hazlet E, et al. The Impact of Pharmacogenomics of Chemotherapeutic Drug Development and Use. *Pharmacy and Wellness Review*. 2012;3(3):70-3.
1. Ginty SE, **Pasternak A**, Desko L, et al. Pharmacogenomic Implications Regarding Second Generation Antipsychotics Clozapine and Risperidone. *Pharmacy and Wellness Review*. 2012;3(1):35-8.

*Denotes corresponding author

Book Chapters

1. **Pasternak AL**, Hertz DL. Oncology Pharmacogenomics. In '*Pharmacogenomics: A Primer for Clinicians (1)*'. USA. McGraw Hill. p97-114.

Abstracts

11. Leino A, **Pasternak A**. Impact of CYP3A5 Phenotype on Early Time in Therapeutic Range among Pediatric Renal and Heart Transplant Recipients [abstract]. *Am J Transplant*. 2020; 20 (suppl 3).
10. Ward KM, **Pasternak AL**, Ateya M et al. First Year Experiences of a Pharmacogenetics Service at a Large Academic Medical Center. Clinical Pharmacogenetics Implementation Consortium Meeting. Memphis, TN. June 2019
9. **Pasternak AL**, Hayes D, Flynn AJ. Pilot evaluation of a computable pharmacogenetics toolkit to interpret and provide CPIC treatment recommendations. Clinical Pharmacogenetics Implementation Consortium Meeting. Memphis, TN. June 2019
8. **Pasternak AL**, Kidwell K, Dempsey J, et al. The impact of CYP3A5 genotype on tacrolimus trough concentrations varies between routes of administration. American Society of Clinical Pharmacology and Therapeutics. Orlando, FL. March 2018
7. Hockings JK, **Pasternak AL**, Haidar CE, et al. Impact of *CYP2C19* Genotype-Guided Voriconazole Dosing Strategy at a Pediatric Institution. Hematology Oncology Pharmacists Association Annual Meeting. Anaheim, CA. March 2017.
6. **Pasternak A**, Haidar CE, Kornegay N, et al. Impact of tacrolimus dose and CYP3A5 phenotype on whole-blood tacrolimus concentrations. St. Jude Fellows Research Symposium. St. Jude Children's Research Hospital, Memphis, TN. April 2016.
5. **Pasternak A**, Haidar CE, Baker DK, et al. Evaluation of a new formulary voriconazole dosing strategy in a pediatric population. Mid-South Pharmacy Residency Conference. Memphis, TN. April 2016.
4. **Pasternak A**, Haidar CE, Kornegay N, et al. Impact of initial intravenous tacrolimus dose on the first tacrolimus concentration in a pediatric hematopoietic stem cell transplant population. ASHP Midyear Meeting. New Orleans, LA. December 2015.

3. **Pasternak A**, Link NA, Richardson C, Rose PG. Prophylactic extended-infusion carboplatin effect on hypersensitivity reactions (HSR) in patients with gynecologic malignancies. Ohio College of Clinical Pharmacy Spring Meeting. Cleveland, OH. April 2015
Ohio Pharmacy Residency Conference. Ada, OH. May 2015.
2. **Pasternak A**, Link NA, Wirick N. Evaluation of a novel dosing strategy for Intravenous Immune Globulin (IVIG) in hospitalized patients in a community hospital. University Health Systems Consortium Pharmacy Council Meeting. Anaheim, CA. December 2014.
1. **Pasternak A**, Link NA, Richardson C, Rose PG. An interim analysis of prophylactic conversion to extended-infusion carboplatin effect on the development of hypersensitivity reactions in patients with gynecologic malignancies. ASHP Midyear Meeting. Anaheim, CA. December 2014.

Teaching and Mentoring

University of Michigan College of Pharmacy

Didactic

Pharmacy Practice Skills II (P514: PharmD) 2020-present
Course Coordinator and Instructor: Calculations and institutional pharmacy communication (25 hrs)

Pharmacy Practice Skills I (P504: PharmD) 2020-present
Instructor: Calculations (12 hrs)

Therapeutics (P702: PharmD) 2020-2021
Course Coordinator

Research and Clinical Translation in Pharmacogenomics (CPTS822: Graduate) 2020-present
Lecturer: Pharmacogenetic Implementation (3 hr)

Intro to Drug Development (PS101: BSPS) 2020-present
Lecturer: Drug interactions (1 hr)

Biopharm & Pharmacogenetics (PS718: PharmD) 2019-2020
Course co-coordinator and lecturer (4 hr)

Introduction to Precision Health (P217: BSPS) 2019-present
Lecturer: Implementing pharmacogenetics (1 hr)

Pharmacotherapeutics I (P620: Nurse practitioner) 2018-present
Lecturer: Pharmacogenetics (4 hr)

Therapeutics (P612: PharmD) 2016-2020
Lecturer: Pharmacogenomics lab (3 hr)

Pharmacy Student Seminar (P730: PharmD) 2016
Teaching Assistant 2018-present
Advisor

- Class of 2020: Vy Ngyuen, Travis Robinson, David Hayes
- Class of 2019: Julia Fuhst, Katlyn Holt

- Class of 2018: Christopher German

Clinical Trials for Translational Scientists (P647: PharmD) 2017
Lecturer: Blinding (1 hr)

Research

Research Elective (P570: PharmD)
Rand Daboul: Utilization of clopidogrel, Impact of CYP2D6 genotype on ondansetron toxicity, Wn 2021
Impact of CYP3A5 genotype on healthcare utilization in adult heart transplant
David Hayes: Evaluating the prevalence of drug-gene interactions in a real-world population Wn 2020

Clinical Pharmacy Translation Sciences PhD Rotation
Abbie Leino: Impact of CYP3A5 phenotype on intra-patient tacrolimus variability Fall 2019

PharmD Investigations:
Class of 2023: Christopher David
Class of 2022: Anne Grech, Gabriela Wong, Kaitlyn Kinney, Rand Daboul
Class of 2021: David Hayes, Vy Nyguen, Travis Robinson
Class of 2019: Christopher German

Undergraduate Research Opportunity Program (UROP)
Liliana Camaj 2017-2018

Experiential

APPE Co-preceptor: Pharmacogenomics
Class of 2021: Grace Hohn, Hee Jae Choi

APPE: COVID-19
Week 2 preceptor for 10 APPE students April 2020
Group preceptor for 5 APPE students May 2020

Michigan Medicine Pharmacy Residency

Research Project Preceptor
Carolanne Wartman, PGY1 Pharmacy Practice Resident; Assessing the impact of CYP2D6 phenotype on ondansetron and palonosetron toxicity 2020
Carl Okerberg, PGY1 Pharmacy Practice Resident; Evaluating the impact of transporter pharmacogenetics on HGG treatment response 2020
Emily Hoylman, PGY2 Ambulatory Care; Assessing the knowledge, perceptions, and practices of primary care clinicians towards pharmacogenetics 2019
Lauren Schumacher, PGY2 Transplant; SLCO1B3 Polymorphisms and Clinical Outcomes in Kidney Transplant Recipients 2019

Resident Research Series 2017-present

Coordinator

Rotation Preceptor: Pharmacogenomics elective

Mary Jo Elder, PGY2 Ambulatory Care	2021
Carl Okerberg, PGY1 Pharmacy Practice	2021
Madison Irwin, PGY2 Pain and Palliative Care	2021
Roberta Wilson, PGY1 Pharmacy Practice	2021
Grace Baek, PGY1 Pharmacy Practice	2020
Madeline Lipp, PGY1 Pharmacy Practice	2019

University of Tennessee College of Pharmacy

Pharmacogenomics (PHSC 222)	2016
Guest Lecturer: Clinical Implementation of Pharmacogenetics	

St. Jude Children's Research Hospital

Advanced Pharmacy Practice Experience Student Topic Discussion	2015-2016
Coordinator and facilitator for monthly pharmacogenetics topic discussion	

Preparing Future Faculty Seminar Series

Rackham Graduate School-Center for Research Learning and Teaching University of Michigan	2017
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Teaching and Learning Program

Teaching Certificate	2016
University of Tennessee College of Pharmacy, Memphis, TN Program Director: Joe Swanson, PharmD, BCPS	

Invited Presentations

Precision health: One size does not fit all. Improving health outcomes that are unique to you and your family	Sept 2020
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2020 Precision Health Virtual Symposium: At the Intersection of Research and Community

Introduction to Psychiatric Pharmacogenomics	2019-2020
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Psychiatric Pharmacogenomics: A Practical Guide to Gene-Drug Interactions and Tests CME E-learning Course; ACCME and ACPE accredited

Evaluating Pharmacogenomics in MGI	December 2019
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Michigan Genomics Initiative User Workshop, Ann Arbor, MI

A Pharmacist's Guide to Applying Pharmacogenetics in Practice.	October 2019
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University of Michigan Tom D. Rowe 68th Annual Pharmacy Lectures. Ann Arbor, MI; ACPE accredited

Pharmacogenetic Testing: When is it useful and why might our patients ask us to do it?	December 2018
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26th Annual Primary Health Care of Women Conference & Integrative Health in Primary Care, Ann Arbor, MI; ACCME accredited

PGx Research Advancing Practice- Lessons Learned from the University of Michigan Hospitals November 2018
85th Annual NABP/District IV Meeting, Grand Rapids, MI; ACPE accredited

Is the efficacy of proton pump inhibitor therapy influenced by CYP2C19 genotype? May 2016
St. Jude Children's Research Hospital. Memphis, TN; ACPE accredited

CYP3A5 and tacrolimus implementation October 2015
Clinical Pharmacogenetics Implementation Consortium Monthly Meeting

Clinical Pharmacogenetics at St. Jude October 2015
Nursing Affiliate Conference, St. Jude Children's Research Hospital

Professional Memberships/Affiliations

Pharmacogenomics Research Network	2017-present
American Society of Pharmacology and Therapeutics	2016-present
Clinical Pharmacogenetics Implementation Consortium	2015-present
American College of Clinical Pharmacy	2015-present
American Society of Health-Systems Pharmacists	2014-2016
The Rho Chi Society	2013-present
Kappa Psi Professional Pharmaceutical Fraternity	2010-present

Honors and Awards

St. Jude Fellows Research Symposium Junior Investigator Award, 2016
Ohio College of Clinical Pharmacy Presentation Style Award, 2014
Cleveland Clinic APPE Student Award, 2014

Service

Michigan Medicine Genetics Taskforce 2020-present
Genetic testing policies and procedures working group, Co-Chair

Curriculum and Assessment sub-committee: Clinical Skills 2020-present
University of Michigan College of Pharmacy

Curriculum and Assessment sub-committee: Therapeutics 2020-2021
University of Michigan College of Pharmacy

Rho Chi Faculty Advisor 2019-present
Alpha Chapter, University of Michigan College of Pharmacy

PharmD Admissions Committee Member 2018-present
University of Michigan College of Pharmacy

Resident Advisory Committee-Research subcommittee participant 2018-2019
Michigan Medicine Pharmacy Residency Programs

Graduate Education Committee Member 2016-2017
University of Michigan College of Pharmacy

Manuscript reviewer

Journal of Supportive Care in Cancer
Frontiers in Genetics
Pharmacogenomics and Personalized Medicine
Pharmacogenomics Journal
Annals of Pharmacotherapy
Journal of Heart and Lung Transplantation
Cancer Drug Resistance
Bioscience Reports
American Journal of Transplant
Physiological Genomics
International Journal of Molecular Science
Pharmacotherapy
American Journal of Health-System Pharmacy

Book reviewer

American Society of Health Systems Pharmacists

Research Funding

Submitted Grants: Funded

CME Innovation Grant (PI: Parikh and Ward) \$23,000
Office of CME and Lifelong Learning, University of Michigan
Title: Psychiatric Pharmacogenomics: A Practical Guide to Gene – Drug Interactions and Tests
Role: Collaborator

Pharmacogenetics Implementation Traditional Cube (Ward, Parikh, Pasternak) \$60,000
MCubed Project ID: 8403
Role: Co-investigator

Pathways First Grant Award \$50,000
Michigan Institute for Clinical and Health Research (UL1 TR002240)
Title: Determination of a personalized tacrolimus dosing strategy in pediatric renal and heart transplant recipients
Role: Principal Investigator

New Investigator Award \$10,000
American Association of Colleges of Pharmacy
Title: Defining the pharmacogenetic associations for CYP3A5 and IV tacrolimus
Role: Principal Investigator

Research Fund Award (PI: Bernie Marini) \$50,000
Hematology Oncology Pharmacists Association
Title: Optimizing Brain Tumor Precision Medicine Therapy
Role: Co-investigator

Submitted Grants: Not funded

Internal:

Upjohn Research Award (PI: Daniel L. Hertz) \$50,000
University of Michigan College of Pharmacy
Title: Determining the impact of CYP3A genetic variants on initial sublingual tacrolimus dose selection in lung transplant recipients.
Role: Postdoctoral fellow (56% effort)

Investigator-Initiated Translational Science Award (PI: Jeong Park) \$50,000
Michigan Institute for Clinical and Health Research (MICHHR)
Title: Determining the impact of CYP3A genetic variants on initial sublingual tacrolimus dose selection in lung transplant recipients.
Role: Postdoctoral fellow (56% effort)

Investigator Initiated Translational Science Award (PI: Jeong Park) \$50,000
Michigan Institute for Clinical and Health Research (MICHHR)
Title: A pilot evaluation of the impact of CYP3A5 genotype on oral and non-oral tacrolimus exposure in healthy subjects
Role: Postdoctoral Fellow (50%)

IP-X Pilot Grant (PI: Daniel L. Hertz) \$50,000
University of Michigan Health Sciences Council
Title: Inter-professional Pharmacogenetics Care and Service within an Ongoing Tumor Genomics Program
Role: Clinical Pharmacogenetics (20% effort)

External:

Junior Investigator Award \$10,600
American College of Clinical Pharmacy Research Institute
Title: Impact of CYP2C19 genotype on proton pump inhibitor adverse events
Role: Principal Investigator

Pharmacy Practice Advancement Demonstration Grant (PI: Vicki Ellingrod) \$75,000
American Society of Health Systems Pharmacists Foundation
Title: Evaluation of a Patient Centered, Pharmacist-Led Pharmacogenetic Consult Service in Ambulatory Psychiatry
Role: Co-investigator

Research Fund Award (PI: Rachel McDevitt) \$100,000
Hematology Oncology Pharmacists Association
Title: Genotype-guided antiemetic therapy in treatment naïve patients receiving FOLFOX, CAPOX, or FOLFIRI based chemotherapy.
Role: Co-investigator

PhRMA Foundation Translational Medicine and Therapeutics Post-Doctoral Fellowship \$120,000
Title: Determining the impact of CYP3A genetic variation on tacrolimus sublingual dose selection and oral dose conversion in lung transplant patients.
Role: Principal Investigator (100% effort)