

# JASON BRITT GILES, PHD

1295 N Martin Ave B207JJ3, Tucson, AZ 85719 | jasonbgiles@arizona.edu | Work: 520.626.0221 | Cell: 928.242.5549 | Website: <https://jasong-biology.quarto.pub/>

## RESEARCH EXPERIENCE

**POSTDOCTORAL RESEARCH ASSOCIATE I**, UNIVERSITY OF ARIZONA, COLLEGE OF PHARMACY, DEPARTMENT OF PHARMACY PRACTICE, ADVISOR: DR. JASON KARNES  
**06/2023-CURRENT**

- Performed replication analysis of previous GWAS association using large clinical cohort (~3500 patients) extracted from electronic health records (EHR)
- Generated polygenic risk scores (PGS), using previously published scores in PGS catalog, to identify potential confounders not captured in original cohort data collection due to limited EHR availability

**GRADUATE RESEARCH ASSOCIATE**, UNIVERSITY OF ARIZONA, COLLEGE OF PHARMACY, DEPARTMENT OF PHARMACY PRACTICE, ADVISOR: DR. JASON KARNES  
**08/2018-06/2023**

- Cardiovascular research focus on Heparin-Induced Thrombocytopenia (HIT)
- Analysis of two genome wide association studies (Cohort size ~4000 & ~800)
- Investigated clinical and demographic variables extracted from EHR as potential risk factors in HIT
- Discovered biologically plausible, statistically significant associated between gene and risk of HIT

**GRADUATE RESEARCH ASSISTANT**, UNIVERSITY OF SOUTHERN CALIFORNIA, PHARMACOLGY AND PHARMACEUTICAL SCIENCES DEPT, ADVISOR: DR. IAN HAWORTH  
**08/2016-05/2018**

- Performed docking of peptides to Major Histocompatibility Complex (MHC) Class I & II
- Elucidated novel binding mechanism of MHC Class II

**UNDERGRADUATE RESEARCH ASSISTANT**, UNIVERSITY OF ARIZONA, EVOLUTIONARY BIOLOGY DEPT, ADVISOR: DR. NOAH WHITEMAN  
**03/2014-05/2015**

- Researched evolutionary transition of fly genus *Scaptomyza* to feed on living tissue of mustard plants
- Studied adaptation of Glutathione S-Transferase (GST) enzymes for breakdown of mustard oils, the main defense mechanism of mustard plants Brassicaceae

**UNDERGRADUATE RESEARCH ASSISTANT**, UNIVERSITY OF ARIZONA, NEUROSCIENCE DEPT, ADVISOR: DR. CHARLES HIGGINS  
**03/2012-10/2013**

- Studies predatory insects (*Mantis religiosa*) and response to sensory stimuli
- Conducted electrophysiology and electronically recorded stimuli responses via Central Nervous System

## SKILLS & ABILITIES

- R programming
- Statistics
- Genomic tools (SHAPE-IT, Minimac, PLINK, HLA imputation, VCFtools, Beagle, etc.)
- Methods: meta-analysis, linear/logistic models, Bayesian approaches, zero-inflated models, stepwise regression, survival analysis
- High-Performance Computing interface (AllofUs Biobank, UArizona HPC)
- Jupiter Notebooks / R Markdown
- Post Genome Wide Association Study pipelines (pathway analysis, polygenic risk score, gene set enrichment analysis)
- Bash
- Git & GitHub
- Open Science / reproducibility best practices
- Implementation of RNA-seq pipelines
- Docker / Containers

## EDUCATION

**UNIVERSITY OF ARIZONA, TUCSON, AZ**  
**DOCTORATE IN PHARMACOLOGY & TOXICOLOGY, MAY 2023 GPA: 3.8**  
**Doctorial Research**

- Interrogated the influences of the immune-mediate adverse drug response, Heparin-Induced Thrombocytopenia (HIT)
- Thesis: *Genetic, Demographic and Laboratory Predictors of Anti-PF4/heparin Antibody Response in Heparin-Induced Thrombocytopenia*

**UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES, CA**

MASTER OF SCIENCE IN MOLECULAR PHARMACOLOGY & TOXICOLOGY, **MAY 2018**, GPA: 3.63

**Master's Research**

- Development of *in silico* protein-peptide docking program
- Thesis: *Solvation as driving force for Peptide Docking to MHC class II*

**UNIVERSITY OF ARIZONA, TUCSON, AZ**

BACHELOR OF SCIENCE IN BIOLOGY, BIOCHEMISTRY & HISTORY MINOR, **MAY 2015**, GPA: 3.52

**Selected Achievements and Awards**

- Accepted in The Honors College, Fall 2012
- Dean's list, 4 Semesters

- PUBLICATIONS** | (1) **Giles JB**, Rollin J, Martinez KL, Selleng K, Thiele T, Pouplard C, Sheppard JI, Heddle NM, Phillips EJ, Roden DM, Gruel Y, Warkentin TE, Greinacher A, Karnes JH. Laboratory and Demographic Predictors of Functional Assay Positive Status in Suspected Heparin-Induced Thrombocytopenia: A Multicenter Retrospective Cohort Study. *Thromb Res.* 2023 [In Press].
- (2) Steiner HE, Carrion KC, **Giles JB**, Lima AR, Yee K, Sun X, Cavallari LH, Perera MA, Duconge J, Karnes JH. Local Ancestry-Informed Candidate Pathway Analysis of Warfarin Stable Dose in Latino Populations. *Clin Pharmacol Ther.* 2022 Nov 2. PMID: 36321873.
- (3) Steiner HE, Patterson HK, **Giles JB**, Karnes JH. Bringing pharmacomicrobiomics to the clinic through well-designed studies. *Clin Transl Sci.* 2022 Oct;15(10):2303-2315 Epub 2022 Aug 9. PMID: 35899413
- (4) **Giles JB**, Steiner HE, Rollin J, Shaffer CM, Momozawa Y, Mushiroda T, Inai C, Selleng K, Thiele T, Pouplard C, Heddle NM, Kubo M, Miller EC, Martinez KL, Phillips EJ, Warkentin TE, Gruel Y, Greinacher A, Roden DM, Karnes JH. Genome-wide association study of platelet factor 4/heparin antibodies in heparin-induced thrombocytopenia. *Blood Adv.* 2022 Jul 26;6(14):4137-4146. PMID: 35533259
- (5) Karnes JH, Rollin J, **Giles JB**, Martinez KL, Steiner HE, Shaffer CM, Momozawa Y, Inai C, Bombin A, Shi M, Mosley JD, Stanaway I, Selleng K, Thiele T, Mushiroda T, Pouplard C, Heddle NM, Kubo M, Phillips EJ, Warkentin TE, Gruel Y, Greinacher A, Roden DM. ABO O blood group as a risk factor for platelet reactivity in heparin-induced thrombocytopenia. *Blood.* 2022 Jul 21;140(3):274-284. PMID: 35377938
- (6) Morningstar-Kywi N, Wang K, Asbell TR, Wang Z, **Giles JB**, Lai J, Brill D, Sutch BT, Haworth IS. Prediction of Water Distributions and Displacement at Protein-Ligand Interfaces. *J Chem Inf Model.* 2022 Mar 28;62(6):1489-1497. Epub 2022 Mar 9. PMID: 35261241.
- (7) Miller E, Norwood C, **Giles JB**, Huddart R, Karnes JH, Whirl-Carrillo M, Klein TE. PharmGKB summary: heparin-induced thrombocytopenia pathway, adverse drug reaction. *Pharmacogenet Genomics.* 2022 Jan 31. Epub ahead of print. PMID: 35102073.
- (8) **Giles JB**, Miller EC, Steiner HE, Karnes JH. Elucidation of Cellular Contributions to Heparin-Induced Thrombocytopenia Using Omic Approaches. *Front Pharmacol.* 2022 Jan 21; 12:812830. PMID: 35126147
- (9) Steiner HE, Gee K, **Giles J**, Knight H, Hurwitz BL, Karnes JH. Role of the gut microbiome in cardiovascular drug response: The potential for clinical application. *Pharmacotherapy.* 2021 Nov 25. Epub ahead of print. PMID: 34820870.
- (10) Steiner HE, **Giles JB**, Patterson HK, Feng J, El Roubi N, Claudio K, Marcatto LR, Tavares LC, Galvez JM, Calderon-Ospina CA, Sun X, Hutz MH, Scott SA, Cavallari LH, Fonseca-Mendoza DJ, Duconge J, Botton MR, Santos PCJL, Karnes JH. Machine Learning for Prediction of Stable Warfarin Dose in US Latinos and Latin Americans. *Front Pharmacol.* 2021 Oct 29; 12:749786. PMID: 34776967
- (11) Deshpande P, Hertzman RJ, Palubinsky AM, **Giles JB**, Karnes JH, Gibson A, Phillips EJ. Immunopharmacogenomics: Mechanisms of HLA-Associated Drug Reactions. *Clin Pharmacol Ther.* 2021 Sep;110(3):607-615. Epub 2021 Jul 17. PMID: 34143437
- (12) Karnes JH, Weiner HW, Schwantes-An T, Natarajan B, Sweatt AJ, Chaturvedi A, Arora A, Batai K, Nair V, Steiner HE, **Giles JB**, Yu J, Hosseini M, Pauciulo MW, Lutz KA, Coleman AW, Feldman J, Vanderpool R, Tang H, Garcia JGN, Yuan JXJ, Kittles R, Perez VDJ, Zamanian RT, Rischard F, Tiwari HK, Nichols WC, Benza RL, Desai AA. Genetic admixture and survival in diverse populations with pulmonary arterial hypertension. *Am J Respir Crit Care Med.* 2020. PMID: 31916850

- (13) Dab Brill, **Giles JB**, Ian S. Haworth, Aiichiro Nakano: WaterAlignment: Identification of displaced water molecules in molecular docking using Jonker and Volgenant shortest path augmentation for linear assignment. *Comput. Phys. Commun.* 244: 324-328 (2019). <https://doi.org/10.1016/j.cpc.2019.06.021>

#### BOOK CHAPTERS

- (1) **Jason B. Giles**, Dab A. Brill, Alexis Chavoya, Ian S. Haworth. Algorithms for the Predictions of Peptides Binding to Major Histocompatibility Complex (MHC) Molecules [Book Chapter]. *Advances in Chemistry Research Volume 46*. ISBN: 978-1-53614-216-7. August 2018.

#### EXTRAMURAL ABSTRACTS

- (1) **Giles JB**, Kiana L Martinez, Jo-Ann Sheppard, Kayla Lucier, Jerome Rollin, Kathleen Selleng, Thomas Thiele, Claire Pouplard, Yves Gruel, Andreas Greinacher, Nancy M Heddle, Dan M Roden, Theodore E Warkentin, Jason H Karnes (2023) Lack of Association Between Abo Blood Groups and Rhesus Antigen with Heparin-Induced Thrombocytopenia. *Pharmacogenomics Research Network Annual Meeting (PGRN)*, Memphis, TN. June 2023.
- (2) Steiner, H., El Rouby, N., Claudio, K., Rodrigues Marccatto, L., **Giles JB.**, Rodrigues Botton, M., Scott, S., Cavallari, L., Duconge, J., Caleb De Lima Santos, P., Karnes, J. (2021) "(Pt21-012) Validity of International Warfarin Pharmacogenetics Consortium (Iwpc) Dosing Algorithm and Application of Machine Learning to Predict Warfarin Dose Variability In Us Latino And Latin American Populations." *American Society of Clinical Pharmacology and Therapeutics Annual Meeting*. Virtual. Mar. 2021.
- (3) Knight, H., Steiner, H.E., **Giles, J.B.**, Heise, W., Karnes, J.H. Potential for Dietary Vitamin K Intake to Predict Variability in Weekly Warfarin Dose. *6th Annual Arizona Biomedical Research Centre (ABRC)-Flinn Research Conference (Virtual)*, February 2021.
- (4) **Giles JB**, Jérôme Rollin, Christian M Shaffer, Heidi E Steiner, Yukihide Momozawa, Ian Stanaway, Taisei Mushiroda, Claire Pouplard, Nancy Heddle, Michiaki Kubo, Elizabeth Phillips, Theodore E. Warkentin, Yves Gruel, Andreas Greinacher, Dan Roden, Jason Karnes; Genome-Wide Association Study Identifies Variation in ABO As Risk Factor for Platelet Reactivity in Heparin-Induced Thrombocytopenia. *Blood* 2020; 136 (Supplement 1): 38–39.
- (5) Steiner HE, **Giles JB**, Knight H, Fox K, Stanaway IB, Heise W, Karnes JH. Association of the ABO O Blood Group with Increased Warfarin Stable Dose. *Pharmacogenomics Research Network Annual Meeting*, October 2020.
- (6) Karnes, J. H., Wiener, H., Schwantes-An, T.-H., Natarajan, B., Chaturvedi, A., Arora, A. H., Batai, K., Nair V., Steiner, H.E., **Giles JB**, Desai, A. (2019). Abstract 10124: Genetic Admixture and Survival in Diverse Populations with Pulmonary Arterial Hypertension (PAH). *American Heart Association Scientific Sessions*, Philadelphia, PA, Nov 2019.
- (7) Gutierrez L, **Giles JB**, Jang M, Akhtari M, Haworth I, Alachkar H; Development of T Cell Receptor Analysis Based Strategy to Identify Leukemia Specific Neoantigens. *Adoptive Immunotherapy*. *Blood* 2018; 132 (Supplement 1): 4549.

#### INTRAMURAL ABSTRACTS

- (1) **Arizona Biological and Biomedical Science Symposium**. Genome-wide association study of platelet factor 4/heparin antibodies in heparin-induced thrombocytopenia. *University of Arizona*, February 2023.
- (2) **Biophysics Symposium**. Explicit Solvated Docking of Protein-Peptide Interfaces. *Physics and Astronomy Dept. University of Southern California*, October 2017.
- (3) **Graduate Research Symposium**. Explicit Solvated Docking of Peptides to Major Histocompatibility Complex. *University of Southern California*, February 2018.
- (4) **Biophysics Symposium**. Explicit Solvated Docking of Protein-Peptide Interfaces. *Physics and Astronomy Dept. University of Southern California*, October 2017.
- (5) **Moving Targets Symposium**. Explicit Solvated Docking of Protein-Peptide Interfaces. *Pharmacology and Pharmaceutical Sciences Dept. University of Southern California*, August 2017.
- (6) **Undergraduate Biology Research Program**. Duplication of Glutathione S-Transferase Delta 1 (GSTD1) enzyme in *Scaptomyza* for Evolutionary Transition to Living Tissue of *Brassicaceae*. *Ecology and Evolutionary Biology Dept. University of Arizona*. April 2014.
- (7) **Undergraduate Biology Research Program**. Central Nervous System Excitation of Praying Mantids in Response to Stimuli. *University of Arizona*. April 2013.

## CONFERENCES & WORKSHOPS

- (1) **Summer Institute in Statistical Genetics (SISG).** Attended the Summer Institute in Statistical Genetics (SISG) workshop (3 modules). University of Washington, Seattle July 2023.
- (2) **Research Bazaar Arizona.** Annual workshop for researchers to learn new skills in computational methods, bioinformatic techniques and new programming languages. Tucson, AZ May 2022.
- (3) **ABRC-Flinn Research Conference.** Grant awardees from the Arizona Biomedical Research Center, Flinn Foundation and Valley Research Partnership present current research. Phoenix, AZ April 2022.
- (4) **Foundational Open Science Skills.** Workshop ranging from data management to documentation to software management (Weekly). Tucson, Az Fall 2022
- (5) **Research Bazaar Arizona.** Annual workshop for researchers to learn new skills in computational methods, bioinformatic techniques and new programming languages. Tucson, AZ May 2021.

## PRESENTATIONS & POSTERS

- (1) **Pharmacogenomic Research Network Conference. Jason Giles,** Heidi Steiner, Hayley Patterson, Jason Karnes. Clinical Predictors of anti-PF4/heparin antibody response in Heparin-Induced Thrombocytopenia. University of Colorado, Denver, CO May 2022.
- (2) **Graduate Student Showcase. Jason Giles,** Heidi Steiner, Jason Karnes. Genome-Wide Association Study of Heparin-Induced Thrombocytopenia. University of Arizona, Tucson, AZ. February 2020.
- (3) **Arizona Biomedical Research Centre-Flinn Research.** Heidi Steiner, **JB Giles,** JB Kaye, A Peralta, J Gonzalez, CW Heise, JH Karnes. University of Arizona, Phoenix, AZ. May 2019.
- (4) **Biophysics Symposium. Jason Giles,** Dabrick Brill, Alexis Chavoya, Ian Haworth. Explicit Solvated Docking of Protein-Peptide Interfaces. Physics and Astronomy Dept. University of Southern California, October 2017.
- (5) **Moving Targets Symposium. Jason Giles,** Dabrick Brill, Ian Haworth. Explicit Solvated Docking of Protein-Peptide Interfaces. Pharmacology and Pharmaceutical Sciences Dept. University of Southern California, October 2017.
- (6) **Postdoctoral Excellence in Research & Teaching Program (PERT).** Presented on research conducted under PERT mentor. University of Arizona. March 2015.
- (7) **Molecular & Cellular Biology Student Seminars.** Physical Exertion Capacity: Use of Stimulants vs. Placebo. Molecular & Cellular Biology Dept. University of Arizona. December 2013.
- (8) **School of Mind, Brain, and Behavior Poster Session.** Novel Techniques for Neural Data Recording. Neuroscience Dept. University of Arizona. April 2013.

## ORAL PRESENTATIONS

- (1) **Clinical Predictors of Antibody Levels in Heparin-Induced Thrombocytopenia.** Pharmacology Data Blitz. University of Arizona, May 2021.
- (2) **Genome-Wide Association Study of Heparin Induced Thrombocytopenia.** Pharmacology Data Blitz. University of Arizona, May 2019.
- (3) **Explicit Solvated Docking of Peptides to Major Histocompatibility Complex.** Graduate Student Symposium. University of Southern California, February 2018.
- (4) **Explicit Solvation of Protein-Peptide Interfaces.** Alachkar Group. University of Southern California, October 2017.
- (5) **Physical Exertion Capacity: Use of Stimulants vs. Placebo.** Co-lead independent research study on effects of stimulants for weight training. University of Arizona. December 2013.

## TEACHING

- (1) **Proctor,** University of Arizona. Organized and disseminated final exams given to PharmD students each semester for Pharmaceutics course. August 2019-May 2022.
- (2) **Mentor,** Bravo Medical Magnet High School. Mentor high school youth and assist in conducting scientific research. Los Angeles, CA May 2017-July 2018
- (3) **Student Representative,** Excellence in Teaching & Curriculum Retreat. Attended School of Pharmacy teaching education conference which addressed curricular integration and the future of the Pharm.D. Program. University of Southern California. August 2017.
- (4) **Undergraduate Teaching Assistant,** Biochemistry 385 (Metabolic Chemistry), University of Arizona, Chemistry & Biochemistry Dept. Advisor: Dr. Roger Miesfeld. January 2015-May 2015.

- (5) **Ambassador**, Pulse Cat Ambassador for Pre-Health Professional Advising Center. Informed students entering college on health care careers. University of Arizona. Academic Year 2014/2015.
- (6) **Science Fair Judge** attended science fair at Flagstaff High School to judge student's projects and inform students about majoring in the biological sciences. Flagstaff, AZ. March 2012.
- (7) **Science Volunteer**, Blue Ridge Middle School. Taught middle school students about physics using real world demonstrations. Lakeside, Arizona. August 2010. Extracurricular

## PROFESSIONAL ORGANIZATIONS

**Member, American Heart Association** Tucson, AZ March 2020 – Present

- Virtually attended 2020 & 2021 Scientific Sessions

**Member, Pharmacogenomics Research Network**, Tucson, AZ 2020-Present

- Submitted abstract and attended virtual 2020 conference, in-person 2022 & 2023.

**Member, American Society for Clinical Pharmacology & Therapeutics**, Tucson, AZ Jan 2021 – Present

- Accepted abstract submitted to 2021 conference.

**Member, Arizona Global Health Project**, Tucson, AZ August 2014-January 2015

- Spread awareness of Global Health Issues
- Culminated with a trip to southern Mexico for a week of basic health exams.

**Elected Member, Pre-Health Professional Advising Center**, Tucson, AZ 2014/2015

- 1 of 15 to be selected as a member of the Pulse Cat Ambassador Program
- Integrated the numerous health clubs and associations to have a unified voice at the University of Arizona
- Lead registration/ check-in

**Member, American Medical Students Association**, Tucson, AZ August 2012-May 2013

- Pre-professional club that sought to inform students about all potential health careers