

CURRICULUM VITAE
Jennifer L. Güler, Ph.D.
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EDUCATION

Doctorate of Philosophy. Johns Hopkins School of Medicine, Baltimore, MD. *Cellular and Molecular Medicine* (May 2007). Dissertation title: Mitochondrial fatty acid synthesis and its contribution to trypanosome metabolism.

-National Science Foundation Visiting Researcher at the BIKEN Institute, Osaka University, Osaka, Japan (Jun-Aug 2002).

-Biology of Parasitism Course at the Marine Biological Laboratory, Woods Hole, MA (Jun-Aug 2004).

Bachelors of Science. University of California Santa Barbara. *Microbiology* (Dec 2000).

-Education Abroad at the University of New South Wales, Sydney, Australia (Jan-Dec 1999).

POSITIONS & EXPERIENCE

Tenure Track Assistant Professor in the Department of Biology, University of Virginia, Charlottesville, VA. Aug 2016-present

(Mechanisms of antimalarial resistance initiation/Metabolic basis for cross-resistance)

Research Assistant Professor in the Department of Biology, University of Virginia, Charlottesville, VA. Aug 2013-July 2016

(Mechanisms of antimalarial resistance initiation/Metabolic basis for cross-resistance)

Senior Research Scientist in the lab of Dr. Pradipsinh K. Rathod, Department of Chemistry, University of Washington. Seattle, WA. Sept 2011-Aug 2013

(Genome plasticity of patient-isolated *Plasmodium falciparum* parasites-South Asia)

Postdoctoral Researcher in the lab of Dr. Pradipsinh K. Rathod, Department of Chemistry, University of Washington. Seattle, WA. Jun 2008-Sept 2011

(Development of drug resistance by *Plasmodium falciparum* parasites)

Volunteer Researcher for Dr. Clive Shiff, Malaria Institute, Johns Hopkins School of Public Health at the Malaria Institute at Macha, Zambia. Jan-Mar 2008

(Environmental influences on the flight paths of malaria vector mosquitoes)

Postdoctoral Researcher in the lab of Dr. Paul T. Englund, Department of Biological Chemistry, Johns Hopkins School of Medicine. Baltimore, MD. Mar-Dec 2007

(Mitochondrial metabolism of *Trypanosoma brucei*)

PUBLICATIONS (*denotes equal contributions)

Untaroiu AM, Carey MA, **Guler JL***, Papin JA* (2019). Leveraging the effects of chloroquine on resistant malaria parasites for combination therapies. *BMC Bioinformatics*. Apr 15;20(1):186. doi: 10.1186/s12859-019-2756-y.

Huckaby AC, Granum CS, Carey, MA, Szlachta K, Al-Barghouthi B, Wang YH, **Guler JL** (2019). Complex DNA structures trigger copy number variation across the *Plasmodium*

- falciparum* genome. *Nucleic Acids Research*. Feb 28;47(4):1615-1627. doi: 10.1093/nar/gky1268.
- Guler JL**, Rosenthal PJ (2018). Mass drug administration to control and eliminate malaria in Africa: how do we best utilize the tools at hand? *Clinical Infectious Diseases*. doi: 10.1093/cid/ciy871.
- Carey MA*, Covelli V*, Brown A, Medlock G, Haaren M, Cooper J, Papin J, **Guler JL** (2018). Influential parameters for the analysis of intracellular parasite metabolomics. *mSphere*. Apr 18;3(2). doi: 10.1128/mSphere.00097-18.
- Kassaza K, Operario DJ, Nyehangane D, Coffey C, Namugosa M, Turkheimer L, Ojuka P, Orikiriza P, Mwangi-Amumpaire J, Byarugaba F, Bazira J, **Guler JL**, Moore CC, Boum Y (2017). Detection of *Plasmodium* species by high resolution melt analysis of DNA from blood smears acquired in Southwestern Uganda. *Journal of Clinical Microbiology*. Dec 26;56(1). pii: e01060-17. doi: 10.1128/JCM.01060-17.
- Carey M, Papin J*, **Guler JL*** (2017). Novel Plasmodium falciparum metabolic network reconstruction identifies shifts associated with clinical antimalarial resistance. *BMC Genomics*. Jul 19;18(1):543. doi: 10.1186/s12864-017-3905-1.
- Pholwat S, Liu J, Stroup S, Jacob S, Banura P, Moore C, Huang F, Laufer M, Hout E*, **Guler JL*** (2017). The Malaria TaqMan Array Card: 87 assays for Plasmodium falciparum drug resistance, speciation, and genotyping in a single reaction. *Antimicrobial Agents and Chemotherapy* Mar 6. pii: AAC.00110-17. doi: 10.1128/AAC.00110-17.
- White J, Mascarenhas A, Pereira L, Dash R, Walke JT, Gawas P, Sharma A, Manoharan SK, **Guler JL**, Maki JN, Kumar A, Mahanta J, Valecha N, Dubhashi N, Vaz M, Gomes E, Chery L, Rathod PK (2016). In vitro adaptation of Plasmodium falciparum reveal variations in cultivability. *Malar Journal*. Jan 22;15(1):33.
- Guler JL**, White J, Phillips MA, Rathod PK (2015). Atovaquone tolerance in Plasmodium falciparum parasites selected for high level resistance to a dihydroorotate dehydrogenase inhibitor. *Antimicrobial Agents and Chemotherapy*. Jan;59(1):686-9.
- Guler JL***, Freeman DL*, Ahyong V, Patrapuvich R, White J, Gujjar R, Phillips MA, Derisi J, Rathod PK (2013). Asexual populations of the human malaria parasite, *Plasmodium falciparum*, use a two-step genomic strategy to acquire accurate, beneficial DNA amplifications. *PLoS Pathogens*. May;9(5):e1003375.
- Narayanasamy K, Chery L, Basu A, Duraisingh MT, Escalante A, Fowble J, **Guler JL**, Herricks T, Kumar A, Majumder P, Maki J, Mascarenhas A, Rodrigues J, Roy B, Sen S, Shastri J, Smith J, Valecha N, White J, Rathod PK (2012). Malaria evolution in South Asia: knowledge for control and elimination. *Acta Tropica*. Mar;121(3):256-66.
- Clayton AM*, **Guler JL***, Lindsay ME*, Gluenz E, Gull K, Smith T, Jensen RE, Englund PT (2011). Depletion of mitochondrial acyl carrier protein in bloodstream-form *Trypanosoma brucei* causes a kinetoplast segregation defect. *Eukaryotic Cell*. Mar;10(3):286-92.
- Autio KJ, **Guler JL**, Kastaniotis AJ, Englund PT, Hiltunen JK (2008). The 3-hydroxyacyl-ACP dehydratase of mitochondrial fatty acid synthesis in *Trypanosoma brucei*. *FEBS Letters*. 582(5):729-33.
- Guler JL**, Protivínská E, Smith TK, Lukeš J, Englund PT (2008). Mitochondrial fatty acid synthesis is required for normal mitochondrial function and morphology in *Trypanosoma brucei*. *Molecular Microbiology*. 67(5):1125-42.
- Lee SH, **Stephens JL**, Englund PT (2007). A fatty acid synthesis mechanism specialized for parasitism. *Nature Reviews Microbiol*. 5:287-97

Stephens JL, Lee SH, Paul KS, Englund PT (2007). Mitochondrial fatty acid synthesis in *Trypanosoma brucei*. *J Biol Chem*. 282:4427-36.

Lee SH, **Stephens JL**, Paul, KS, and Englund PT (2006). Fatty acid synthesis by elongases in trypanosomes. *Cell*. 126:691-9.

Chen Y, DeWeese T, Dilley J, Zhang Y, Li Y, Ramesh N, Lee J, Pennathur-Das R, Radzyminski J, Wypych J, Brignetti D, Scott S, **Stephens J**, Karpf DB, Henderson DR, Yu DC. (2001). CV706, a prostate cancer-specific adenovirus variant, in combination with radiotherapy produces synergistic anti-tumor efficacy without increasing toxicity. *Cancer Res*. 61:5453-60.

MENTORING EXPERIENCE

Current Graduate Students (as of July 2019):

Jennifer McDaniels (Ph.D Candidate, Infectious Disease Training Grant- 2015/17, Recipient of Minority Health International Research Training Fellowship- 2016)

Adam Huckaby (Ph.D Candidate, Infectious Disease Training Grant- 2016/17, recipient of Society of Fellows Dissertation Fellowship-2019/20)

Audrey Brown (Ph.D Candidate, Cell Biology Training Grant- 2018)

Shiwei Liu (Ph.D Candidate, GIDI iGrant recipient- 2018)

Mukhethwa Munzhedzi (co-mentor of Ph.D. candidate at the University of Venda, South Africa, recipient of GDIRT fellowship- 2018/19).

Past Mentees

Vincent Covelli, D.O.- Division of Infectious Disease clinical fellow, *Jul 2014-Jul 2017*. Current Position: Infectious Disease at St. Mary High Desert Medical Group. Victorville, CA

Maureen Carey, Ph.D- Biomedical Sciences Graduate Program (Microbiology, Immunology, and Cancer, Cell Biology Training Grant, 2015-17), *Feb 2015-Aug 2018*. Current Position: Postdoctoral Fellow with Dr. William Petri, UVA Division of Infectious Disease. Charlottesville, VA.

TEACHING EXPERIENCE

Course Instructor for Our World of Infectious Disease (BIOL 3090) at University of Virginia. Spring terms 2018, 2019.

Guest Lecturer for Epidemics Forum at University of Virginia. Sept 2016. Topic of lecture: *Mosquito-borne diseases*

Capstone Lecture for Human Biology majors at University of Virginia. Nov 2014 and 2016. Topic of lecture: *Malaria control*

Guest Lecturer for *Microbial Pathogenesis Course*, University of Virginia Microbiology Department. Nov 2013, Oct 2014 and 2016. Topic of lecture: *Antigenic Variation*

Group Leader for *Responsible Conduct of Research Course* (BIMS 7100), University of Virginia School of Medicine. March 2015. Topics: *Research Misconduct* and *Human Subjects Research*

Adjunct Instructor at North Seattle Community College. Summer term 2011. Teach Microbiology (Biol 260), a 5 credit combined laboratory and lecture course (30 students)

Teaching Apprentice in the Biology department, University of Washington. Spring quarter 2010. Design and co-teach global health lectures/activities for the senior seminar course *Hot Topics in Disease Prevention* (25 students)

Guest Lecturer for *Biology of Parasitism Course*, Johns Hopkins School of Public Health. Mar 2007. Topic of lecture: *Trypanosoma brucei* and African Sleeping Sickness

Teaching Assistant for *Molecules and Cells* metabolism section, Johns Hopkins School of Medicine. Oct 2004. Hold discussion sessions, exam reviews, and journal clubs for medical students

Tutor for *Biochemistry and Molecular Biology*, Johns Hopkins School of Medicine. 2002- 2003 Academic year. Design and lead discussion sections and exam reviews for first year graduate students

PROFESSIONAL PRESENTATIONS

- 2019 -The evolution of copy number variations in the malaria genome. **Invited Talk**. PAraCon conference, Pennsylvania State University, State College, PA (August 2019).
- 2018 -Assessment of the sensitivity and accuracy of the malaria Taqman array card in a field setting. **Poster**. Molecular Parasitology Meeting, Woods Hole, MA (Sept 2018).
-Genetic and Metabolic Resistance of the Malaria Parasite. **Invited Talk**. Research Seminar at Center for Infectious Disease Dynamics, Pennsylvania State University, State College, PA (April 2018).
- 2017 -Novel Approaches to Prevent and Track Malaria Drug Resistance. **Invited Talk**. UVA Global Infectious Disease Symposium, Charlottesville, VA (May 2017).
-Genetic and Metabolic Resistance of the Malaria Parasite. **Invited Talk**. Research Presentation at the Armed Forces Health Surveillance Branch, Silver Spring, MD (March 2017).
- 2016 -Genetic and Metabolic Resistance of the Malaria Parasite. **Invited Talk**. Research Seminar at Georgetown University, Washington DC (Dec 2016).
-TaqMan array card for the rapid detection of known antimalarial drug resistance markers. **Poster**. Molecular Parasitology Meeting, Woods Hole, MA (Sept 2016).
- 2015 -Detection of DNA in Extracellular Vesicles Isolated from Malaria-infected Red Blood Cells. **Poster**. International Society for Extracellular Vesicles. Washington, DC (April 2015).
- 2014 -Antimalarial resistance: from basic biology to clinical considerations. **Invited talk**. Medical Grand Rounds at the University of Virginia School of Medicine. Charlottesville, VA (Nov 2014).
- 2012 -Malaria parasites use a two-step genomic strategy to acquire beneficial DNA amplifications. **Talk**. Molecular Parasitology Meeting, Sept 2012. Woods Hole, MA.
-The initiation of resistance in malaria parasites. **Invited talk** (hosted by Dr. William Petri). Division of Infectious Disease and International Health at the University of Virginia School of Medicine, July 2012. Charlottesville, VA.
- 2010 -Target gene duplication in ARMD *Plasmodium falciparum* acquiring drug resistance. **Talk**. Seattle Parasitology Meeting, May 2010. Seattle, WA.
-Target gene amplification in ARMD *Plasmodium falciparum* acquiring drug resistance. **Talk**. American Society of Tropical Medicine and Health Annual Meeting, Nov 2010. Atlanta, GA.
- 2009 -ARMD *Plasmodium falciparum* acquire drug resistance to DSM1. **Poster**. Molecular Parasitology Meeting, Sept 2009. Woods Hole, MA.
- 2007 -A molecular link between mitochondrial fatty acid synthesis and respiration in *Trypanosoma brucei*. **Poster**. Kinetoplastid Molecular and Cellular Biology Meeting, Apr 2007. Woods Hole, MA.
- 2006 -Mitochondrial fatty acid synthesis in *Trypanosoma brucei*. **Talk (Opening plenary session)**. Molecular Parasitology Meeting, Sep 2006. Woods Hole, MA

- 2005 -Mitochondrial fatty acid synthesis in *Trypanosoma brucei*. **Poster**. American Society of Biochemistry and Molecular Biology, April 2005. San Diego, CA
-Mitochondrial fatty acid synthesis in *Trypanosoma brucei*. **Poster**. Kinetoplastid Molecular and Cellular Biology Meeting, Apr 2005. Woods Hole, MA
- 2004 -Acyl carrier protein in *Trypanosoma brucei*. **Poster**. Molecular Parasitology Meeting, Sep 2004. Woods Hole, MA
-Role of acyl carrier protein in fatty acid synthesis and respiration of *Trypanosoma brucei*. **Talk**. Tri-state Trypanosome meeting, Feb 2004. Rockefeller University, New York, NY.

SERVICE, FELLOWSHIPS & AWARDS

Ad hoc peer review and editing at international journals

- Associate Guest Editor for PLoS Genetics and PLoS Computational Biology
- Reviewer for: Journal of Infectious Disease, PLoS Computational Biology

HMI Teaching Apprenticeship at the University of Washington. Dec 2010.

- Selected to design a quarter-long class with two other postdocs

Molecular Parasitology Meeting outstanding presentation awardee. Oct 2006.

- Awarded to the top 30 talks at the meeting (>300 in attendance)

American Society of Biochemistry and Molecular Biology graduate student travel award. Mar 2005.

- Provided funding for travel to San Diego

Student representative on the Cellular and Molecular Medicine advisory board.

2004-2005 Academic year.

- Elected by graduate student class to be the liaison between students and faculty board

National Science Foundation/ Ministry of Science and Education (Japan) Fellowship.

Jun 2002.

- Selected and funded by the NSF East Asia and Pacific Summer Institute for US graduate students to travel to perform research in Osaka, Japan

Harriman Pharmacology Award, University of California, Santa Barbara. Jun 2000.

- Provided support for a semester of research in a pharmacology lab

OUTREACH

Program Creator and Director for Infectious Disease in 3D Internship Program (University of Virginia). *2019-present*. Lead undergraduate students through the process of constructing virtual reality-based teaching tools focused on infectious disease education

Workshop Leader for Seattle Expand Your Horizons (Seattle University). *2010-2012*. Design and lead a 4 hour workshop for 5th grade girls on science and technology topics (Topic: Malaria Madness Relay Race)

Volunteer Scuba Diver/Educator at the National Aquarium in Baltimore. *2002-2007*. Feed aquatic animals and present short public lectures on ocean-dwelling animals and marine conservation

MEMBERSHIPS

AAAS member since 2008

ASTMH member since 2010

ISEV member since 2015

ASM member since 2017