



Curriculum Vitae
Nicolas J. Wheeler, Ph.D.
 Department of Pathobiological Sciences
 University of Wisconsin–Madison

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CURRENT POSITION

2017 - **Postdoctoral Fellow**
 Department of Pathobiological Sciences
 University of Wisconsin–Madison, WI US

EDUCATION

2013 - 2017 PhD in Genetics & Genomics
 Iowa State University, Ames, IA US

2009 - 2013 BS in Oxbridge Honors Molecular Biology
 William Jewell College, Liberty, MO US

RESEARCH EXPERIENCE

2017 - **Postdoctoral Research**
 Department of Pathobiological Sciences, College of Veterinary Medicine, University of Wisconsin-Madison

- Studied sensory, receptor, and secretory biology of filarial nematodes
- Advised by [Mostafa Zamanian](#)

2017 - **Postdoctoral Fellowship**
 Merck Global Health Institute, Darmstadt, Germany
 Department of Pathobiological Sciences, University of Wisconsin-Madison

- Developed techniques for transgenesis in the schistosome-vector *Biomphalaria glabrata* and its associated cell line, Bge
- Sequenced and published the genome of the Bge cell line
- Advised by [Mostafa Zamanian](#) and [Tim Yoshino](#)

2013 - 2017 **Doctoral Research**
 Department of Biomedical Sciences, School of Veterinary Medicine, Iowa State University

- Genetics, bioinformatics, and evolutionary phylogenetics research focused on drug-target identification in parasitic flatworms
- Utilized free-living flatworms as models for parasites
- Advised by [Tim Day](#)

2009 - 2013 **Undergraduate Research**
 Department of Biology, William Jewell College

- Bioinformatics and developmental biology research on free-living flatworms
- Identified the Notch signaling pathway in *Schistosoma mansoni* and used RNAi to inhibit its functionality in *Schmidtea mediterranea*
- Advised by [Rose Reynolds](#)

2011 - 2012 **Honors Research**
 Department of Microbiology and Immunology, Indiana University School of Medicine, IUPUI

- Protozoan parasitology research. Studied the "acetyl-ome" of *Toxoplasma gondii*
- Advised by [William Sullivan](#) and [Victoria Jeffers](#)

PROFESSIONAL AFFILIATIONS

- 2019 - **Global Schistosomiasis Alliance**
eliminateschisto.org
 – Member of the Research Working Group
 – Lead the snail/vector control work stream
- 2020 - **American Society of Tropical Medicine and Hygiene**
 – Member

PUBLICATIONS

‡ Corresponding author(s) § Equal contribution

Citations: 107, h-index: 4 | [Google Scholar link](#)

7. **Wheeler NJ**, Heimark ZW, Airs PM, Mann A, Bartholomay LC, Zamanian M[‡]. *Genetic and functional diversification of chemosensory pathway receptors in mosquito-borne filarial nematodes*. **PLOS Biology** 2020 [Accepted Manuscript].
6. Maier T, **Wheeler NJ**, Namigai EKO, Tycko J, Grewelle RE, Woldeamanuel Y, Klohe K, Perez-Saez J, Sokolow SH, De Leo GA, Yoshino TP, Zamanian M[‡], Reinhard-Rupp J[‡]. *Gene drives for schistosomiasis transmission control*. **PLOS NTD** 2019. 13(12):e0007833.
5. **International Helminth Genomes Consortium**. 2018. *Comparative genomics of the major parasitic worms*. **Nature Genetics** 2019. doi:10.1038/s41588-018-0262-1
 – Associated: **Wheeler NJ**, Day TA, Zamanian M. *GPCR identification in parasitic worm genome assemblies*. **Nature Protocol Exchange** 2018. doi:10.1038/protex.2018.061
4. **Wheeler NJ**, Dinguiard N, Marquez J, Gonzalez A, Zamanian M, Yoshino TP, Castillo MG[‡]. *Sequence and structural variation in the genome of the *Biomphalaria glabrata* cell line*. **Parasites & Vectors** 2018. 11(1):496.
3. Hahnel S, **Wheeler NJ**, Lu Z, Wangwiwatsin A, McVeigh P, Maule A, Berriman M, Day TA, Ribeiro P, Grevelding CG[‡]. *Tissue-specific transcriptome analyses provide new insights into GPCR signaling in adult *Schistosoma mansoni**. **PLOS Pathogens** 2018. 14(1):e1006718.
2. **Wheeler NJ**, Agbedanu PN, Kimber MJ, Ribeiro P, Day TA, Zamanian M[‡]. 2015. *Functional analysis of *Girardia tigrina* transcriptome seeds pipeline for anthelmintic target discovery*. **Parasites & Vectors** 2015. 8(1):34.
1. Zamanian M, Agbedanu PN, **Wheeler NJ**, McVeigh P, Kimber MJ, Day TA[‡]. *Novel RNAi-mediated approach to G protein-coupled receptor deorphanization: proof of principle and characterization of a planarian 5-HT receptor*. **PLOS One** 2012. 7(7):e40787.

CONFERENCES AND ABSTRACTS

16. **Wheeler NJ**, Zamanian M. *Long-read RNA sequencing in neglected human parasites*. Pacific Biosciences North America User Group Meeting, Newark, DE. September 2019. **(Invited Talk)**
15. **Wheeler NJ**, Heimark ZW, Airs PM, Mann A, Bartholomay LC, Zamanian M. *Genetic and functional diversification of chemosensory pathway receptors in filarial nematode parasites*. World Association for the Advancement of Veterinary Parasitology, Madison, WI. July 2019. **(Poster)**
14. **Wheeler NJ**, Airs PM, Zamanian M. *Mining the excretory-secretory system of filarial nematodes for new anthelmintic targets*. Bridging the Divide: Parasitic Nematodes Workshop, GSA International *C. elegans* Conference, Los Angeles, CA, USA. June 2019. **(Invited Talk)**
13. **Wheeler NJ**, Airs PM, Zamanian M. *Long-read RNA sequencing in neglected human parasites*. Pacific Biosciences Certified Service Provider Launch, Madison, WI, USA. May 2019. **(Invited Talk)**

12. **Wheeler NJ**, Gallo K, Golfinos A, Gilsdorf C, Meikle T, Zamanian M. *Tissue-specific heterologous expression of Brugia malayi GPCRs in Caenorhabditis elegans*. Molecular Helminthology: An Integrated Approach. San Antonio, TX USA. Apr 2019. **(Poster)**
11. **Wheeler NJ**, Heimark Z, To T, Chen E, Airs PM, Zamanian M. *Conserved and divergent aspects of chemosensory signaling in filarial parasitic nematodes*. Molecular Helminthology: An Integrated Approach. San Antonio, TX USA. Apr 2019. **(Poster)**
10. **Wheeler NJ**, Zamanian M. *New insights into neglected diseases*. University of Wisconsin-Whitewater Biology Forum, Whitewater, WI, USA. March 2019. **(Invited Talk)**
9. **Wheeler NJ**, Airs PM, Zamanian M. *Exploring new therapeutic targets for neglected parasites*. Department of Pathobiological Sciences Research Seminar, Madison, WI. March 2019 **(Selected Talk)**
8. **Wheeler NJ**, Dinguiard N, Reinhard-Rupp J, Yoshino TP, Zamanian M. *Progress towards transgenesis in Biomphalaria glabrata and implications for snail control*. Global Schistosomiasis Alliance Meeting. New Orleans, LA USA. Oct 2018. **(Selected Talk)**
7. **Wheeler NJ**, Dinguiard N, Disselhoff G, Maier T, Namigai EK, Tycko J, Reinhard-Rupp J, Yoshino TP, Zamanian M. *Towards transgenesis in Biomphalaria glabrata*. 15th International Symposium on Schistosomiasis. Rio de Janeiro, Brazil. July 2018. **(Invited Talk and Poster)**
6. **Wheeler NJ**, Meikle T, Fraser L, Srinivasan D, To T, Airs P, Kimber MJ, Bartholomay L, Zamanian M. *Exploring sensory pathways and behaviors in filarial nematode parasites. C. elegans* Neuronal Development, Synaptic Function & Behavior Topic Meeting, Madison, WI. June 2018. **(Poster)**
5. **Wheeler NJ**, Meikle T, Bartholomay LC, Zamanian M. *Adapting tools from free-living nematodes to study chemosensory pathways in filarial nematode parasites*. Chicago Area Worm Meeting (CHAWM). Chicago, IL. May 2018. **(Selected Talk)**
4. **Wheeler NJ**, Zamanian M. *Computational and molecular pipelines to combat neglected parasites*. Comparative Biomedical Sciences Recruitment Weekend, Madison, WI. February 2018. **(Selected Talk)**
3. **Wheeler NJ**, Zamanian M, Kimber MJ, Day TA. *The cysloop superfamily of platyhelminths and nematodes*. Molecular Helminthology: An Integrated Approach, Cape Cod, MA. March 2017. **(Poster)**
2. **Wheeler NJ**, Zamanian M, Kimber MJ, Day TA. *Anthelmintic Targets in a Genomic World: a case study in GPCRs*. Anthelmintics: Discovery to Resistance II, San Diego, CA. March 2016. **(Selected Talk)**
1. **Wheeler NJ**, Zamanian M, Day TA. *A Girardia tigrina transcriptome to aid in Neglected Tropical Disease research*. 5th Annual Midwest Neglected Infectious Diseases Meeting, West Bend, IN. July 2015. **(Selected Talk)**

GRANTS & PROPOSALS

Driving schistosome-resistance in *Biomphalaria*

Merck KGaA Global Health Institute (MGHI) Postdoctoral Fellowship
 Role: Principal Investigator. | 2017-2021 | Total Direct Costs: \$200,000

An optimized CRISPR/Cas9 protocol for genome editing in *Schistosoma mansoni*

Iowa State University College of Veterinary Medicine Seed Grant
 Role: Primary Author and Co-Investigator. | 2015-2017 | Total Direct Costs: \$40,000

TEACHING

PBS 514, UW–Madison School of Veterinary Medicine

Course Title: Parasitology

2019-2020: Course instructor (4 lectures/semester); Lab instructor (2 lab periods/semester)

– Evaluated 4.4/5 by 119 students in "overall evaluation of Dr. Wheeler's teaching ability"

V PTH 353, Iowa State University

Course Title: Introduction to Parasitology

Spring 2017: Course instructor (1 lecture)

BMS 329, Iowa State University

Course Title: Anatomy and Physiology of Domestic Animals

Spring 2017: Course instructor (3 lectures)

BIO 313, Iowa State University

Spring 2017: Mentored and lead two groups of undergraduates studying synthetic biology in yeast

– Received HHMI certificate of completion

UNDERGRADUATE MENTORING

Elena Garncarz, Undergraduate Researcher (2019 - current)

- Current trainee in the UW-M Biology department
- Honorable mention for the highly competitive UW-Madison Sophomore Research Fellowship

Tran To, Undergraduate Researcher (2017 - 2020)

- Recent graduate of the UW-Madison Pharmacology - Toxicology program
- Accepted into the University of Pennsylvania master of biotechnology program
- Appeared in one Zamanian Lab poster in 2019, and presented her own posters at the 2019 and 2020 UW-Madison Undergraduate and Pharm-Tox Research Symposia

Eric Chen, Undergraduate Researcher (2017 - 2019)

- Current NIH Postbac IRTA award winner and trainee
- Appeared in one Zamanian Lab poster in 2019, and presented his own poster at the UW-Madison Undergraduate Research Symposium

Alexis Mann, Honorary Research Fellow (2017)

- Current PhD student at Johns Hopkins University
- Appeared in one Zamanian Lab accepted manuscript in 2020

SERVICE TO JOURNALS

See my [Publons profile](#) for a validated list of my contributions as an ad-hoc reviewer.

Ad-Hoc Review: *BMC Genomics*, *PLOS Neglected Tropical Diseases*, *Molecular and Biochemical Parasitology*, *International Journal for Parasitology*, *International Journal for Parasitology: Drugs and Drug Resistance*

HONORS & AWARDS

2016: Anthelmintics Conference Travel Grant

2016: ISU GPSS Professional Advancement Grant

2016: Interdepartmental Genetics and Genomics Travel Award

2015-2016: Brown Research Fellowship, Iowa State University (\$10,000)

2013-2017: Graduate College Fellowship, Iowa State University (\$14,400/year)

2013-2017: Biotechnology Fellowship, Iowa State University (\$4,320/year)

2013: B.S awarded with honors, William Jewell College

2009-2013: Jewell Scholarship, William Jewell College (\$30,000/year)

FORMAL TRAINING

2018: FR3 Minicourse, University of Wisconsin-Oshkosh, Dr. Shelly Michalski and Steve Schaar

2018: Research Mentor Training, WISCIENCE, Dr. Anne Lynn Gillian-Daniel and Dr. Michelle Keller-Pearson

2016-2017: Preparing Future Faculty, Iowa State University, Dr. Holly Bender and Karen Bovenmyer