

CURRICULUM VITAE

Michael Stephen Werner

University of Utah
School of Biological Sciences
257 South 1400 East
Salt Lake City, UT 84112-0840
Tel. (801) 585-0471
michael.werner@utah.edu

Academic Appointments

2020 – curr. **Assistant Professor**, School of Biological Sciences, University of Utah
Phenotypic plasticity, new gene regulation, extremophile biology

Academic Training

2016 - 2020 **Postdoctoral Fellow**, Max Planck Institute, Advisor: Dr. Ralf J. Sommer. Epigenetics of developmental plasticity and new gene regulation.

Education

2009 - 2016 **PhD**, University of Chicago, Advisor: Dr. Alex J. Ruthenburg. Chromatin and non-coding RNA regulation of cellular differentiation.

2005 - 2009 **B.Sc.**, Stetson University, Advisor: Dr. Alicia Slater. Microsatellite identification and genotyping of freshwater invertebrates.

Awards

2013-2016 Chicago Biomedical Consortium (CBC) Scholar
2011-2012 Teaching Assistant Award, University of Chicago
2012 Biological Sciences Division Travel Award, University of Chicago
2012 Honorable Mention, Ford Foundation Pre-doctoral Fellowship
2010 Honorable Mention, NSF Pre-doctoral Fellowship
2009 Outstanding Research: Biology, Stetson University
2009 Outstanding Student in Major: Molecular Biology, Stetson University
2008 NSF Research Experience Undergraduate Fellowship, U. of Notre Dame

Lab Personnel Funding

2021-curr. NSF Postdoctoral Research Fellowship in Biology (Julie Jung). 2 years, \$138,000.
2022-curr. PITCH Chemical Biology Training Grant (Audrey Brown). Graduate student stipend for 1 year with option for renewal.
2021-curr. Genetics Training Grant (Thomas King). Graduate student stipend for 2 years (brought from previous lab)
2022-curr. Undergraduate Research Scholarship (Samantha Nestel): \$5,000
2021-curr. UROP:

- Benjamin Natividad (2x): \$2,000
- Hannah Lee: \$1,000
- Bryce Bosworth: \$1,000

Grants: pending & upcoming submissions

- Sept., 2022 NSF Division of Environmental Biology; Evolutionary Processes Cluster. Budget (estimate): \$600,000
- Sept., 2022 NIH Maximizing Investigators' Research Award (MIRA) for Early-Stage Investigators (R35). Budget: \$1,000,000
- Dec., 2022 NSF Division of Mol. and Cellular Bio.; Genetic Mechanisms Cluster. Budget (estimate): \$850,000

Grants: past funding

n/a

Grants: reviewed but not funded

- 2022 Center on Aging Pilot Grant (Internal; \$30,000)
- 2021 HCI Cancer grant (Internal; total cost: \$30,000)
- 2021 NASA Exobiology C.5 (Total budget: \$872,672.00)
- 2021 NSF-NRT, Sen. Pers. University of Utah, PI: Sarah Bush (\$12,730 salary & fringe; \$2,999,324 overall requested funds for 40 graduate students over five years)
- 2021 Franklin Research Grant, American Philosophical Society (\$6,000 direct costs)

Instrumentation Grants

- 2020 MiSeq: co-sponsor (\$2,000 commitment), School of Biological Sciences & Cell Center, University of Utah

Peer-Reviewed Research Publications

Total: 10

2022

Werner, M.S., Loschko, T., King, T., Theska, T., Franz-Wachtel, M., Macek, B., Sommer, R.J. Histone 4 lysine 5/12 acetylation is a plasticity code that carries epigenetic memory of environmental exposure. *BioRxiv*. DOI: 10.1101/2022.07.21.500386 (In Review, *Nature Comm.*)*

**Comments were positive and we are confident that we can address reviewer concerns. Target resubmission date: October 15th. A significant portion of the manuscript was conducted in my lab here at the University of Utah and thus will include U. of Utah affiliation.*

2021

Renahan, T.S., Lo, W.S., **Werner, M.S.**, Rochat, J., Herrmann, M., Sommer, R.J. Nematode biphasic "boom and bust" dynamics are dependent on host bacterial load while linking dauer and mouth-form polyphenisms. *Environmental Microbiology* 23.

2020

Theska T, Sieriebriennikov B, Wighard SS, **Werner MS***, Sommer RJ*. (2020). Geometric Morphometrics of Microscopic Animals as Exemplified by Model Nematodes. Nature Protocols. (*co-corresponding author)

2019

n/a

2018

Werner, M.S.*, Claaßen, M.H.*, Renahan, T.*, Dardiry, M., and Sommer, R.J. (2018). Adult Influence on Juvenile Phenotypes by Stage-Specific Pheromone Production. *iScience* 10, 123–134. (*co-first author)

Werner, M.S., Sieriebriennikov, B., Prabh, N., Loschko, T., Lanz, C., and Sommer, R.J. (2018). Young genes have distinct gene structure, epigenetic profiles, and transcriptional regulation. *Genome Res.* 28, 1675–1687.

Gupta, A., Xu, J., Lee, S., Tsai, S.T., Zhou, B., Kurosawa, K., **Werner, M.S.**, Koide, A., Ruthenburg, A.J., Dou, Y., et al. (2018). Facile target validation in an animal model with intracellularly expressed monobodies. *Nature Chemical Biology* 14, 895–900.

2017

Werner, M.S., Sieriebriennikov, B., Loschko, T., Namdeo, S., Lenuzzi, M., Dardiry, M., Renahan, T., Sharma, D.R., and Sommer, R.J. (2017). Environmental influence on *Pristionchus pacificus* mouth form through different culture methods. *Sci. Rep.* 7, 7207.

Werner, M.S., Sullivan, M.A., Shah, R.N., Nadadur, R.D., Grzybowski, A.T., Galat, V., Moskowitz, I.P., and Ruthenburg, A.J. (2017). Chromatin-enriched lncRNAs can act as cell-type specific activators of proximal gene transcription. *Nat. Struct. Mol. Biol.* 24, 596–603.

***Corresponding highlight in NSMB: Gayen & Kalantry, Chromatin-enriched lncRNAs: a novel class of enhancer RNAs**

Yang, X.H., Nadadur, R.D., Hilvering, C.R., Bianchi, V., **Werner, M.**, Mazurek, S.R., Gadek, M., Shen, K.M., Goldman, J.A., Tyan, L., et al. (2017). Transcription-factor-dependent enhancer transcription defines a gene regulatory network for cardiac rhythm. *Elife* 6.

2016

n/a

2015

Werner, M.S., and Ruthenburg, A.J. (2015). Nuclear Fractionation Reveals Thousands of Chromatin-Tethered Noncoding RNAs Adjacent to Active Genes. *Cell Rep.* 12, 1089–1098.

***Faculty 1000 recommendation**

Reviews & Previews

Total:2

Sommer, R.J., Dardiry, M., Lenuzzi, M., Namdeo, S., Renahan, T., Sieriebriennikov, B., and **Werner, M.S.** (2017). The genetics of phenotypic plasticity in nematode feeding structures. *Open Biol.* 7.

Werner, M., and Ruthenburg, A.J. (2011). The United States of Histone Ubiquitylation and Methylation. *Molecular Cell* 43, 5–7.

Community Service

- 2021 Diversity Fellows Program, University of Utah. Workshop leader on 'Writing a Personal Statement'.
- 2021 Poster Judge, University of Utah Undergraduate Research Symposium
- 2021 Evaluated Genetics Student Training Grant (GTG) Applications
- 2021 Evaluated Research Undergraduate Opportunities (UROP) Applications
- 2021 SACNAS National Diversity in STEM (NDiSTEM) Digital Conference

Professional Societies

Genetics Society of America

Teaching (academic years)

- 2022 Instructor, BIOL 5120 Gene Expression
- 2021 Instructor, BIOL 7961 Advanced Topics in Biochemistry and Molecular Biology
- 2020 Guest lecturer, BIOL 7961 Advanced Topics in Biochemistry and Molecular Biology (Instructor: James Gagnon)
- 2020 Guest lecturer, BIOL 7306 Scientific Writing and Communication (Instructors: Dean Castillo, Ofer Rog)
- 2021 Guest lecturer, Biol 7406 Critical Analysis (Instructors: John 'Jack' Longino)

Postdoctoral Training

Total: 1

2021-curr. Julie Jung, PhD

Graduate Student Training

Total:3

- 2022-curr. Audrey Brown, MCEB graduate student, thesis advisor
- 2020-curr. Shelley Reich, MCEB graduate student, thesis advisor
- 2021-curr. Thomas King, MCEB graduate student, thesis advisor
- 2022-curr. Madelyn Purnell, EEOB graduate student, thesis advisor

Undergraduate Training

Total: 6

2021-curr. Samantha (Sam) Nestel, ACCESS student (Biology)

2021-curr. Hiraya Natividad (Biology)
2021-curr. Hannah Lee (Biology)
2021-curr. Hephzibah Kaleem, ACCESS student (Biochemistry)
2021-curr. Bryce Bosworth (Biology)
2022-curr. Collin Caldwell (Biology)

Visiting Scientist **Total:1**

2020-2021. Tobias E. Loschko, visiting technician from the Sommer lab, Max Planck Institute

Post-baccalaureate Training **Total:1**

2021 Emilia A. Tugolukova, post-bac internship, mentor.
Current: Master's student at Purdue University in Bioinformatics

Other Training (rotations) **Total:3**

2022 Hyrum Diesen (MCEB program)
2021 Audrey Brown (MCEB program)
2021 Miranda Dietz (MB program)

Dissertation Committees (not including Werner Lab) **Total:12**

2020-curr. Shengzhou Wang, Gagnon Lab, Biology (Chair)
2020-curr. Catalina Anthony, Hollien Lab, Biology
2020-curr. Sarah Gross, Clark Lab, Biology
2020-curr. Sam West, Jorgensen Lab, Biology
2021-curr. Alexis Schmid, Gagnon Lab, Biology
2021-curr. Victor Chau, Baldomero Lab, Biology
2021-curr. Vincent Mays, Horvath Lab, Biology (Chair)
2021-curr. Andrew Butts, Caron Lab, Biology (Chair)
2021-curr. Ameris Pizzaro, Caron Lab, Biology (Chair)
2021-curr. Elaine Tan, Longino Lab, Biology
2021-curr. Sam Linde, Caron Lab, Biology
2021-curr. Abraham Aharonoff, Ercan Lab, (NYU) Biology

Refereeship

Grant Refereeships

2021 National Science Centre Poland, submitted proposal: *Regulation of microRNAs production in stem cells and during early differentiation*

Journal Refereeships

- 2021 Nature Communications, submitted manuscript: *Wnt/beta-catenin signal controls pole-specific chromatin remodeling during planarian regeneration*
- 2022 Journal of Nematology, submitted manuscript: *The Draft Genome of the Carrot Cyst Nematode Heterodera carotae*

University Committees (Academic years)

- 2022-2023 Faculty Search Committee in SBS (Chair, Markus Babst)
- 2020-2021 Graduate Student Admissions
- 2021-2022 Graduate Student Admissions

Invited Seminars (2020-present)

- 2022 **New York University (NYU) Department of Biology; Host: Sevinc Ercan**
Title: *"Epigenetic mechanisms of phenotypic plasticity"*
- 2021 **Modern Brines Conference, Lunar and Planetary Institute (virtual)**
Title: *"Living nematodes in America's dead sea"*
- 2021 **International *Pristionchus* Meeting (virtual)**
Title: *"Histone acetylation licenses phenotypic plasticity and developmental speed"*
- 2020 **Mathematical Biology Seminar, University of Utah (virtual)**
Title: *"The epigenetic mechanisms of phenotypic plasticity"*