

Erik R. Hanschen
hanschen@email.arizona.edu
e.hanschen@gmail.com (secondary)

Education

- University of Arizona*, Tucson, AZ *current*
Doctor of Philosophy, Ecology and Evolutionary Biology
Supervisor: Dr. Richard E. Michod
Committee: Dr. Mike S. Barker, Dr. Régis Ferrière, Dr. Bradley J. S. C. Olson
- University of Arizona*, Tucson, AZ 2014
Master of Science, Ecology and Evolutionary Biology
Supervisor: Dr. Richard E. Michod
Committee: Dr. Mike S. Barker, Dr. Régis Ferrière, Dr. Bradley J. S. C. Olson
- University of British Columbia*, Vancouver, BC 2011
B.Sc., Honors Integrated Sciences and a Minor in Arts with Distinction
Supervisor: Dr. Michael Doebeli
Dean's Honor List: 2007-2011

Employment History

- PhD Student August 2011-*current*
Michod Lab, Ecology and Evolutionary Biology, University of Arizona
- Research Assistant August 2016-*current*
Michod Lab, Ecology and Evolutionary Biology, University of Arizona
- Research Assistant September 2013-August 2014
Michod Lab, Ecology and Evolutionary Biology, University of Arizona
- Laboratory Researcher January 2009-August 2011
Doebeli Lab, Zoology and Mathematics, University of British Columbia
- Field and Laboratory Assistant Researcher May 2008-April 2009
Walters Lab, Fisheries Centre, University of British Columbia

Publications † corresponding author *equal contribution

- Hanschen E. R.***, D. R. Davison*, Z. I. Grochau-Wright, R. E. Michod†. Individuality and the major evolutionary transitions. *In* S. Gissis, E. Lamm, and A. Shavit, eds. *Landscapes of Collectivity in the Life Sciences*. MIT Press, Cambridge, Massachusetts. *In press*.
- Hanschen E. R.†**, T. N. Marriage, P. J. Ferris, T. Hamaji, A. Toyoda, A. Fujiyama, R. Neme, H. Noguchi, Y. Minakuchi, M. Suzuki, H. Kawai-Toyooka, D. R. Smith, H. Sparks, J. Anderson, R. Bakarić, V. Luria, A. Karger, M. W. Kirschner, P. M. Durand, R. E. Michod, H. Nozaki, B. J. S. C. Olson†. 2016. The *Gonium pectorale* genome demonstrates co-option of cell cycle regulation during the evolution of multicellularity. *Nature Communications* 7:11370. doi: 10.1038/ncomms11370.
- Hanschen E. R.†**, D. E. Shelton, R. E. Michod. 2015. Evolutionary transitions in individuality and recent models of multicellularity. Pp. 165-188 *in* A. M. Nedelcu and I. Ruiz-Trillo, eds. *Evolutionary Transitions to Multicellular Life: Principles and mechanisms*. Springer, Dordrecht, Netherlands. doi: 10.1007/978-94-017-9642-2_9.

Hanschen E. R.[†], P. J. Ferris, R. E. Michod. 2014. Early Evolution of the Genetic Basis for Soma in the Volvocaceae. *Evolution* 68(7): 2014-2025. doi: 10.1111/evo.12416.

Scholarships and Fellowships

Roy P. Drachman Galileo Circle Scholarship. 2016. University of Arizona, College of Science. \$1,000 USD.

College of Science Graduate Research Award. 2016. University of Arizona, College of Science. \$1,000 USD.

Graduate Student Award for Scholarship. 2016. University of Arizona, College of Science. \$100 USD.

Darwin/Wallace Biodiversity Scholarship. 2015. University of Arizona, Department of Ecology and Evolutionary Biology. \$1,000 USD.

National Institute of Health NIGMS Fellowship. 2015-2016. University of Arizona. \$39,420 USD.

Galileo Circle Scholarship. 2015. University of Arizona, College of Science. \$1,000 USD.

National Institute of Health NIGMS Fellowship. 2014-2015. University of Arizona. \$39,420 USD.

Galileo Circle Scholarship. 2014. University of Arizona, College of Science. \$1,000 USD.

NSERC-CREATE BRITE Undergraduate Summer Research Award. 2011. University of British Columbia Biodiversity Research Center. \$6,000 CAN.

National Science Foundation IGERT Fellowship. 2011-2013. University of Arizona. \$64,000 USD.

J. Fred Muir Memorial Scholarship in Science. 2011. University of British Columbia. \$500 CAN.

Departmental Research Recruitment Fellowship. 2011. Indiana University. \$8,000 USD *declined*.

NZIAS Postgraduate Fellowship. New Zealand Institute for Advanced Study. 2011-2014. \$91,500 NZD *declined*.

President's Entrance Scholarship. University of British Columbia. 2007. \$5,000 CAN.

Robert C. Byrd Honors Scholarship. 2007-2011. United States Department of Education. \$6,000 USD *in name only*.

Grants and Other Awards

Travel Grant Award. 2015. University of Arizona Graduate and Professional Student Council. \$750 USD.

Travel Grant Award. 2015. International *Volvox* Conference. \$1,500 USD.

Undergraduate Research Intern. 2014. University of Arizona NASA Space Grant. \$1,500 USD.

Travel Grant Award. 2014. University of Arizona Graduate and Professional Student Council. \$500 USD.

Travel Grant. 2013. American Genetics Association. \$1,000 USD.

Travel Grant Award. 2013. University of Arizona Graduate and Professional Student Council. \$379 USD.

Travel Grant. 2013. Company of Biologists. \$300 USD.

Honorable Mention. 2013. National Science Foundation Graduate Research Fellowship.

Honorable Mention. 2012. National Science Foundation Graduate Research Fellowship.

Travel Grant. 2011. American Genetics Association. \$550 USD.

Presentations

- The evolution of sex and mating systems in the volvocine algae. 2016. **E. R. Hanschen**. UA EEB Tuesday Seminar. Tucson, Arizona.
- Cell cycle regulation and the evolution of multicellularity. 2016. **E. R. Hanschen**, R. E. Michod, B. J. S. C. Olson. Society for the Study of Evolution, Austin, Texas
- Comparative transcriptomics and the evolution of multicellularity. 2016. T. N. Marriage, **E. R. Hanschen**, B. J. S. C. Olson. Society for the Study of Evolution, Austin, Texas.
- Evolution of sex in the volvocine green algae. 2016. **E. R. Hanschen**. Society for the Study of Evolution, Austin, Texas.
- Cell cycle regulation and the evolution of multicellularity. 2015. **E. R. Hanschen**. UA EEB Tuesday Seminar. Tucson, Arizona.
- A reduction in histones during the evolution of multicellularity. 2015. J. Anderson, **E. R. Hanschen**, B. J. S. C. Olson. Ecological Genomics Symposium. Manhattan, Kansas.
- The Volvocales Genome Project: Update and Methodology. 2015. **E. R. Hanschen**, T. N. Marriage, B. J. S. C. Olson. International *Volvox* Conference. Cambridge, United Kingdom.
- Eudorina illinoisensis* and the origin of somatic cells. 2015. **E. R. Hanschen**, B. Chavez-Diaz, M. Herron, R. E. Michod. International *Volvox* Conference. Cambridge, United Kingdom.
- Cell cycle regulation and the evolution of multicellularity. 2015. **E. R. Hanschen**. International *Volvox* Conference. Cambridge, United Kingdom.
- Genetic Basis for Cellular Differentiation is Present in Undifferentiated Volvocine Green Algae. 2015. Z. I. Grochau-Wright, **E. R. Hanschen**, P. J. Ferris, B. J. S. C. Olson, R. E. Michod. International *Volvox* Conference. Cambridge, United Kingdom.
- Cell cycle regulation and the evolution of multicellularity. 2015. **E. R. Hanschen**. European Society for Evolutionary Biology. Lausanne, Switzerland.
- Evolutionary History of Genes Underlying Cellular Differentiation in the Volvocine Algae. 2015. Z. I. Grochau-Wright, **E. R. Hanschen**, P. J. Ferris, B. J. S. C. Olson, R. E. Michod. Astrobiology Science Conference. Chicago, Illinois.
- Cell cycle regulation and the origin of multicellularity. 2015. **E. R. Hanschen**. University of Arizona Origins Seminar. Tucson, Arizona.
- Early evolution of the genetic program for multicellularity. 2015. **E. R. Hanschen**. UA EEB Tuesday Seminar. Tucson, Arizona.
- Diversity of gene birth and death rates across Eukaryotes. 2014. **E. R. Hanschen**, M. Barker. Society for the Study of Evolution. Raleigh, North Carolina.
- Understanding the benefit of soma during the origin of cellular differentiation. 2014. **E. R. Hanschen**, R. E. Michod. Society for the Study of Evolution. Raleigh, North Carolina.
- Early Evolution of the Genetic Basis for Soma in the Volvocine Green Algae. 2014. **E. R. Hanschen**, P. J. Ferris, B. J. S. C. Olson, R. E. Michod. Society for the Study of Evolution. Raleigh, North Carolina.
- The Volvocales Genome Project. 2014. B. J. S. C. Olson, **E. R. Hanschen**, T. N. Marriage, T. Hamaji, P. Durand, H. Nozaki, P. J. Ferris, J. Featherston, M. Suzuki, H. Kawai-Toyooka, A. Fujiyama, A. Toyoda, S. Brown, M. Coleman, R. E. Michod. International Conference on the Cell and Molecular Biology of *Chlamydomonas*. Pacific Grove, California.

- Evolution of a Soma-Determining Gene. 2014. P. J. Ferris, **E. R. Hanschen**, Z. I. Grochau-Wright, B. J. S. C. Olson, and R. E. Michod. International Conference on the Cell and Molecular Biology of *Chlamydomonas*. Pacific Grove, California.
- Discovery of *regA* family genes in non-Volvox species. 2014. Z. I. Grochau-Wright, P. J. Ferris, **E. R. Hanschen**, B. J. S. C. Olson, and R. E. Michod. International Conference on the Cell and Molecular Biology of *Chlamydomonas*. Pacific Grove, California.
- Developing a Model Organism to Investigate the Evolution of Cellular Differentiation. 2014. B. Chavez-Diaz, **E. R. Hanschen**, Z. I. Grochau-Wright, R. E. Michod. UA EEB Undergraduate Research Poster Session. Tucson, Arizona.
- The Ecological Context of the Evolution of Cellular Differentiation. 2013. **E. R. Hanschen**. UA EEB Tuesday Seminar. Tucson, Arizona.
- Sex and Cell Types: Understanding the Evolution of Volvocine Cell Types. 2013. **E. R. Hanschen**, R. Ferrière, R. E. Michod. International *Volvox* Conference. Fredericton, New Brunswick.
- Evolution of a soma-determining gene. 2013. P. J. Ferris, **E. R. Hanschen**, Q. Li, Z. Grochau-Wright, R. E. Michod. International *Volvox* Conference. Fredericton, New Brunswick.
- The SAND Domain and the Evolution of Multicellular Complexity. 2013. A. M. Nedelcu, **E. R. Hanschen**. International *Volvox* Conference. Fredericton, New Brunswick.
- The Volvocales Genome Project. 2013. B. J. S. C. Olson, **E. R. Hanschen**, T. N. Marriage, T. Hamaji, P. Durand, H. Nozaki, P. J. Ferris, J. Featherston, M. Suzuki, H. Kawai-Toyooka, A. Fujiyama, A. Toyoda, S. Brown, M. Coleman, R. E. Michod. International *Volvox* Conference. Fredericton, New Brunswick.
- Volvox*: unique example of the evolution of division of labor. 2013. **E. R. Hanschen**. NESCent Catalysis Meeting, Evolutionary Origins of Multicellularity. Durham, North Carolina.
- Beyond germ/soma: the evolution of many cell types. 2013. **E. R. Hanschen**, R. E. Michod. UA IGERT Epigenomics Symposium. Tucson, Arizona.
- Beyond germ/soma: the evolution of many cell types. 2013. **E. R. Hanschen**, R. E. Michod. Kavli Institute for Theoretical Physics: Cooperation and the Major Evolutionary Transitions. Santa Barbara, CA. Publicly available at <http://online.kitp.ucsb.edu/online/multicell-c13/hanschen/>
- Evolution of a soma-determining gene. 2013. P. J. Ferris, **E. R. Hanschen**, Q. Li, Z. Grochau-Wright, R. E. Michod. Kavli Institute for Theoretical Physics: Cooperation and the Major Evolutionary Transitions. Santa Barbara, California.
- Evolution of complex multicellularity: lateral transfer and convergent evolution of a transcription factor gene family. 2013. **E. R. Hanschen**. UA EEB Tuesday Seminar. Tucson, Arizona.
- The Origin of the Genetic Basis for Reproductive Altruism in Green Algae. 2012. **E. R. Hanschen**, P. J. Ferris, R. E. Michod. UA IGERT Population Genetics Symposium. Tucson, Arizona.
- Gene Duplication Rates in the Rhodophytes. 2012. **E. R. Hanschen**. UA EEB Tuesday Seminar. Tucson, Arizona.
- Elucidating the Origins of the *regA* Gene. 2011. P. J. Ferris, Q. Li, **E. R. Hanschen**, R. E. Michod. International *Volvox* Conference. Tucson, Arizona.
- A Broader Look at the Origin of the VARL Gene Family. 2011. **E. R. Hanschen**, P. J. Ferris, R. E. Michod. International *Volvox* Conference. Tucson, Arizona.

Putative Toxin Identification in Invasive *Prymnesium parvum*. 2011. **E. R. Hanschen**. UA EEB Tuesday Seminar.

The VARL gene family and the evolution of germ/soma differentiation. 2011. **E. R. Hanschen**. UA EEB Tuesday Seminar.

Convergence in the Evolution of Cooperation in Colicinogenic *E. coli*. 2011. **E. R. Hanschen**, M. Le Gac, M. Doebeli. Society for the Study of Evolution. Norman, Oklahoma.

The Role of Spatial Assortment on the Ecological Maintenance of Cooperation. 2011. **E. R. Hanschen**, M. Le Gac, M. Doebeli. UBC: Multidisciplinary Undergraduate Research Conference. Vancouver, British Columbia.

Experimental Evolution of Cooperation in Colicinogenic Bacteria. 2010. **E. R. Hanschen**, M. Le Gac, M. Doebeli. Society for the Study of Evolution. Portland, Oregon.

Teaching

2015. Graduate Guest Lecturer and Teaching Assistant, Introduction to Genomics (ECOL 326). Department of Ecology and Evolutionary Biology, University of Arizona.

Workshops

Biodiversity Media Training, UBC Biodiversity BRITE, April 1, 2011.

Evolutionary Origins of Multicellularity, Catalysis Meeting, National Evolutionary Synthesis Center, May 6-10, 2013.

Strategies for Effective Teaching, University of Arizona Office of Instruction and Assessment, October 10- November 12, 2015.

Service

Peer reviews (1)

- Evolution (1)

Peer reviews joint with supervisor (19)

- Algal Research (1)
- BioEssays (1)
- Biological Reviews (1)
- Biology Letters (1)
- Book chapter (1)
- Journal of Biosciences (2)
- Journal of Theoretical Biology (3)
- Molecular Biology & Evolution (1)
- Nature (2)
- Philosophical Transactions B (2)
- PLoS Computational Biology (1)
- PLoS ONE (1)
- PNAS (1)
- Science (1)

Guest editor joint with supervisor (1)

- PLoS Computational Biology (1)

Responding to creationists

- Seattle Creation Conference; Seattle, Washington; May 31- June 1, 2013
- International Conference on Creationism; Pittsburgh, Pennsylvania; August 4-8, 2013
- Creation Biology Society; Colorado Springs, Colorado; July 23-26, 2014
- Advised response for the Origin Summit at Michigan State University; November 1, 2014

Science Fair Judging (33)

2010-*current*

- University of Arizona Undergraduate Student Showcase (5)
- UA EEB Undergraduate Research Poster Session (4)
- Intel International Science and Engineering Fair (2)
- Arizona Science and Engineering Fair (2)
- Southern Arizona Regional Science and Engineering Fair (5)
- Greater Vancouver Regional Science Fair (2)
- Vancouver District Science Fair (2)
- Tucson Magnet High School Science Fair (4)
- Flowing Wells High School Science Fair (2)
- Booth-Fickett Math/Science Magnet School Science Fair (1)
- Cottonwood Elementary School Science Showcase (3)
- Sycamore Elementary School Science Fair (1)

Graduate Student Representative, UA Ecology and Evolutionary Biology

2012-2013

UA Research Computing and Governance Policies Subcommittee

2013-*current*

International *Volvox* Conference, Organizing Committee Member

2013

International *Volvox* Conference, Organizing Committee Member

2015

Students Mentored

- Abraham Hudak, October 2014-March 2015, high school student
- Baltazar Chavez-Diaz Jr., September 2013-May 2015, UA undergraduate student

UA GPSC Travel Grant Judge: 08/2013

UA GPSC Travel Grant Judge: 09/2014

UA GPSC Travel Grant Judge: 09/2015