

**Matthew D. Herron**  
Senior Research Scientist  
School of Biology, Georgia Institute of Technology  
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### EDUCATION

- Ph.D. Ecology and Evolutionary Biology, University of Arizona, 2009. Dissertation title: Evolution of multicellularity and cellular differentiation in the volvocine algae.
- M.S. Ecology and Evolutionary Biology, University of Arizona, 2006.
- M.S. Biology, University of Central Florida, 2003. Thesis title: Sciurid phylogeny and the evolution of African ground squirrels.
- B.A. Political Science, University of Central Florida, 1993.
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### PUBLICATIONS

*PEER-REVIEWED* (\* indicates undergraduate author)

- Herron, M. D.**, S. A. Zamani-Dahaj, & W. C. Ratcliff. 2018. Trait heritability in Major Transitions. *BMC Biology* 16:145. doi: 10.1186/s12915-018-0612-6
- Herron, M. D.**, W. C. Ratcliff, J. Boswell, & F. Rosenzweig. 2018. Genetics of a de novo origin of undifferentiated multicellularity. *Royal Society Open Science* 5:180912. doi: 10.1098/rsos.180912
- Hanschen, E. R., **M. D. Herron**, J. J. Wiens, P. J. Ferris, H. Nozaki, & R. E. Michod. 2018. Multicellularity drives the evolution of sexual traits. *The American Naturalist* 192: E93-E105. doi: 10.1086/698301.
- Boyd, M.\*, F. Rosenzweig, & **M. D. Herron**. 2018. Analysis of motility in multicellular *Chlamydomonas reinhardtii* evolved under predation. *PLoS ONE* 13: e0192184. doi: 10.1371/journal.pone.0192184
- Herron, M. D.** 2017. Cells, colonies, and clones: individuality in the volvocine algae. Pp. 63-81 in. S. Lidgard & L. Nyhart (eds.) *Biological Individuality: Integrating Scientific, Philosophical, and Historical Perspectives*. Chicago, University of Chicago Press. ISBN: 9780226446455
- Hanschen, E. R., **M. D. Herron**, J. J. Wiens, P. J. Ferris, H. Nozaki, & R. E. Michod. 2017. Repeated evolution and reversibility of self-fertilization in the volvocine green algae. *Evolution* 72:386-398. doi: 10.1111/evo.13394
- Ratcliff, W. C., **M. D. Herron**, E. Libby, & P. Conlin. 2017. Nascent life cycles and the emergence of higher-level individuality. *Philosophical Transactions of the Royal Society B* 372: 20160420. doi: 10.1098/rstb.2016.0420
- Nozaki, H., W. Mahakham, S. Athibaf, K. Yamamoto, M. Takusagawa, O. Misumi, **M. D. Herron**, F. Rosenzweig, & M. Kawachi. 2017. Rediscovery of the “ancestral *Volvox*” species: Morphology and phylogenetic position of *Pleodorina sphaerica* (Volvocales, Chlorophyceae) from Thailand. *Phycologia* 56:469–475. doi: 10.2216/17-3.1
- Herron, M. D.** 2016. Origins of multicellular complexity: *Volvox* and the volvocine algae (Meeting Review of the Third International *Volvox* Meeting). *Molecular Ecology* 25:1213–1223. doi: 10.1111/mec.13551
- Herron, M. D.** 2016. Fitness and individuality in complex life cycles. *Philosophy of Science* 83: 828-834.

doi: 10.1086/687867

- Nozaki, H., N. Ueki, O. Misumi, K. Yamamoto, S. Yamashita, **M. D. Herron** and F. Rosenzweig. 2015. Morphology and reproduction of *Volvox capensis* (Volvocales, Chlorophyceae) from Montana, USA. *Phycologia*. doi: 10.2216/15-14.1
- Herron, M. D.** & A. M. Nedelcu. 2015. Volvocine algae: from simple to complex multicellularity. pp. 129-152 in A. M. Nedelcu & I. Ruiz-Trillo (eds.) *Evolutionary transitions to multicellular life: Principles and mechanisms*. ISBN: 978-94-017-9642-2
- Herron, M. D.**, S. Ghimire\*, C. R. Vinikoor\*, & R. E. Michod. 2014. Fitness trade-offs and developmental constraints in the evolution of soma: an experimental study in a volvocine alga. *Evolutionary Ecology Research* 16:203-221. abstract
- Ratcliff, W. C., **M. D. Herron**, K. Howell, F. Rosenzweig, & M. Travisano. 2014. Experimental evolution of an alternating uni- and multicellular life cycle in *Chlamydomonas reinhardtii*. *Nature Communications* 4:2742. doi: 10.1038/ncomms3742
- Herron, M. D.** & M. Doebeli. 2013. Parallel evolutionary dynamics of adaptive diversification in *Escherichia coli*. *PLoS Biology* 11(2):e1001490. doi: 10.1371/journal.pbio.1001490
- Herron, M. D.**, A. Rashidi, D. E. Shelton, & W. W. Driscoll. 2013. Cellular differentiation and individuality in the “minor” multicellular taxa. *Biological Reviews of the Cambridge Philosophical Society* 88(4):844-861. doi: 10.1111/brv.12031
- Leliaert, F., D. R. Smith, H. Moreau, **M. D. Herron**, H. Verbruggen, C. F. Delwiche, & O. De Clerck. 2012. Phylogeny and molecular evolution of the green algae. *Critical Reviews in Plant Sciences* 31(1):1-46. doi: 10.1080/07352689.2011.615705
- Herron, M. D.** & M. Doebeli. 2011. Adaptive diversification of a plastic trait in a predictably fluctuating environment. *Journal of Theoretical Biology* 285(1):58-68. doi: 10.1016/j.jtbi.2011.06.007
- Nedelcu, A. M., W. W. Driscoll, P. M., Durand, **M. D. Herron**, & A. Rashidi. 2011. On the paradigm of altruistic suicide in the unicellular world. *Evolution* 65(1):3-20. doi: 10.1111/j.1558-5646.2010.01103.x
- Herron, M. D.**, A. G. Desnitskiy, & R. E. Michod. 2010. Evolution of developmental programs in *Volvox* (Chlorophyta). *Journal of Phycology* 46(2):316-324. doi: 10.1111/j.1529-8817.2009.00803.x
- Herron, M. D.** 2009. Many from one: lessons from the volvocine algae on the evolution of multicellularity. *Communicative & Integrative Biology* 2(4):368-370. doi: 10.4161/cib.2.4.8611
- Herron, M. D.**, J. D. Hackett, F. O. Aylward\*, & R. E. Michod. 2009. Triassic origin and early radiation of multicellular volvocine algae. *Proceedings of the National Academy of Sciences, USA* 106(9):3254-3258. doi: 10.1073/pnas.0811205106
- Pepper, J. W. & **M. D. Herron**. 2008. Does biology need an organism concept? *Biological Reviews of the Cambridge Philosophical Society* 83(4):621-627. doi: 10.1111/j.1469-185X.2008.00057.x
- Herron, M. D.** & R. E. Michod. 2008. Evolution of complexity in the volvocine algae: transitions in individuality through Darwin’s eye. *Evolution* 62(2):436-451. doi: 10.1111/j.1558-5646.2007.00304.x
- Jiang, Z. J., T. A. Castoe, C. C. Austin, F. Burbrink, **M. D. Herron**, J. McGuire, C. L. Parkinson, & D. Pollock. 2007. Comparative mitochondrial genomics of snakes: extraordinary substitution rate dynamics and functionality of the duplicate control region. *BMC Evolutionary Biology* 7:123. doi: 10.1186/1471-2148-7-123
- Michod, R. E. & **M. D. Herron**. 2006. Cooperation and conflict during evolutionary transitions in individuality. *Journal of Evolutionary Biology* 19(5):1406-1409. doi: 10.1111/j.1420-9101.2006.01142.x

- Herron, M. D.**, J. M. Waterman, & C. L. Parkinson. 2005. Phylogeny and historical biogeography of African ground squirrels: the role of climate change in the evolution of *Xerus*. *Molecular Ecology* 14(9):2773-2788. doi: 10.1111/j.1365-294X.2005.02630.x
- Herron, M. D.**, T. A. Castoe, & C. L. Parkinson. 2004. Sciurid phylogeny and the paraphyly of Holarctic ground squirrels (*Spermophilus*). *Molecular Phylogenetics and Evolution* 31(3):1015-1030. doi: 10.1016/j.ympev.2003.09.015
- Herron, M. D.** & J. M. Waterman. 2004. *Xerus erythropus*. *Mammalian Species* 748:1-4. doi: 10.1644/748
- Waterman, J. M. & **M. D. Herron**. 2004. *Xerus princeps*. *Mammalian Species* 751:1-3. doi: 10.1644/751

### **IN REVIEW**

- Herron, M. D.**, J. M. Borin, J. C. Boswell, J. Walker, I-C. K. Chen, C. A. Knox\*, M. Boyd\*, F. Rosenzweig, & W. C. Ratcliff. *De novo* origins of multicellularity in response to predation. In review for *Scientific Reports*, preprint available as *bioRxiv* 247361.
- Gulli, J. G., **M. D. Herron**, & W. C. Ratcliff. Evolution of altruistic cooperation among multicellular proto-organisms. In review for *Evolution*.

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## **GRANTS AND FELLOWSHIPS**

### **RESEARCH GRANTS**

- 2015 – 2018 NSF Division of Environmental Biology (DEB-1457701/1723293): *Collaborative research: de novo evolution of multicellularity in a unicellular volvocine alga*. PIs: **M. Herron**, A. Nedelcu (U New Brunswick), W. Ratcliff (Georgia Tech); Co-PI: F. Rosenzweig (U Montana). Total budget \$1.05 million; U Montana budget \$774,735 including \$109,285 subaward to U New Brunswick.
- 2015 – 2017 NASA Astrobiology: Exobiology and Evolutionary Biology Program: Origin and evolutionary consequences of multicellular life cycles (NNX15AR33G). PI: William Ratcliff; Co-Is: **M. Herron**, E. Libby. UMT subaward \$42,474.
- 2015 – 2019 NASA Astrobiology Institute Cycle 7 Cooperative Agreement Notice (NNA17BB05A): *Reliving the history of life: experimental evolution of major transitions*. PI: F. Rosenzweig; Co-Is: V. Cooper, S. Copley, P. Gerrish, **M. Herron**, M. Kinnersley, J. McCutcheon, S. Miller, G. Sherlock, E. Smith, P. Sniegowski. Total budget \$8.3 million; budget for Co-I Herron's project \$1.3 million, including 5 years support for a postdoc, a graduate student, and an undergraduate.
- 2013 – 2015 John Templeton Foundation (43285): *Experimental Evolution of Multicellularity*. PI: M. Travisano; Co-PIs: M. Borrello, T. Dean, **M. Herron**, W. Ratcliff, F. Rosenzweig, W. Soto. [U Montana subaward (Herron & Rosenzweig) \$317,000]
- 2013 NASA EPSCoR / Montana Space Grant Consortium Research Initiation Grant (G149-13-4R1063): *Genetics of a novel origin of multicellularity* [\$49,641].
- 2008 – 2010 National Science Foundation Doctoral Dissertation Improvement Grant, DEB0806778: *Dissertation Research: Experimental Evolution in Volvocine Algae* [\$11,984]

### **SMALLER RESEARCH GRANTS**

- 2005 Sigma Xi Grant-in-Aid of Research: *A comparative study of the evolution of complexity in Volvocales* [\$550]

- 2005 Society for Integrative and Comparative Biology Grant-in-Aid of Research: *Experimental selection of feeding rates in rotifers* [\$815]
- 2005 Society of Systematic Biologists Graduate Student Award: *A comparative study of the evolution of complexity in Volvocales* [\$1800]
- 2002 University of Central Florida Biology Graduate Committee Grant [\$1000]

### **FELLOWSHIPS & AWARDS**

- 2012 – 2014 NASA Postdoctoral Program in Astrobiology: *The evolution of complexity by multicellular development and cellular differentiation: a theoretical and experimental investigation*
- 2008 – 2009 National Science Foundation Teaching Fellowship, Biology from Molecules to Ecosystems (BioME)
- 2009 Galileo Circle Scholar, University of Arizona College of Science
- 2008 Hoshaw Memorial Scholarship, University of Arizona EEB Department (“...the highest honor for graduate students in the Department of Ecology and Evolutionary Biology”)
- 2004 University of Arizona Graduate College Fellowship
- 2001 University of Central Florida Merit Fellowship

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### **COURSES TAUGHT**

- 2016 The “Major Transitions” in Evolution (as Instructor), University of Montana.
- 2010 Evolutionary Dynamics (as Teaching Assistant), University of British Columbia
- 2008 – 2009 Biotechnology (as Graduate Fellow), Tucson High Magnet School
- 2008 – 2009 Research Methods (as Graduate Fellow), Tucson High Magnet School
- 2005 Environmental Biology Lab (as Teaching Assistant), University of Arizona
- 2002 – 2003 Population Biology and Evolution Lab (as Instructor), University of Central Florida
- 2002 Population Biology and Evolution Lab (as Teaching Assistant), University of Central Florida

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### **PRESENTATIONS AND WORKSHOPS**

#### **INVITED PRESENTATIONS AND WORKSHOPS**

- 2018 Origins of multicellular and sexual complexity in volvocine green algae. NASA Astrobiology Institute Executive Council Meeting, Georgia Institute of Technology, September, 2018.
- 2018 Evolution of multicellularity in *Chlamydomonas reinhardtii* in response to predation. University of Georgia, March, 2018.
- 2017 Evolution of multicellular development in the volvocine algae. University of Rochester, February, 2017.
- 2017 Evolution of multicellular development in the volvocine algae. Miami University Ohio, February, 2017.
- 2017 Evolution of biological complexity in the volvocine algae. University of Arizona, January, 2017.
- 2016 Development and evolution of *Volvox* and related algae (keynote address). Phycomorph

2016. Limassol, Cyprus, September 2016.
- 2015 Evolution of multicellularity and cellular differentiation in the volvocine algae. Santa Fe Institute, February 2015.
- 2015 Origins of multicellular development in the volvocine algae. University of California, San Diego, February 2015.
- 2015 Exploring the evolution of multicellularity using comparative and experimental approaches. University of California, San Diego, February 2015.
- 2015 Origins of multicellular development in the volvocine algae. University of California, Berkeley, January 2015.
- 2014 *Fitness and individuality in complex life cycles*. Philosophy of Science Association 24<sup>th</sup> Biennial Meeting, November 2014.
- 2014 *De novo evolution of multicellularity in Chlamydomonas*. NASA Postdoctoral Program Alumni Seminar ([astrobiology.nasa.gov/seminars/featured-seminar-channels/early-career-seminars/2014/10/6/de-novo-evolution-of-multicellularity-in-chlamydomonas/](http://astrobiology.nasa.gov/seminars/featured-seminar-channels/early-career-seminars/2014/10/6/de-novo-evolution-of-multicellularity-in-chlamydomonas/)).
- 2014 Origins of multicellular development in the volvocine algae. University of Hawaii, Hilo, April 2014.
- 2014 Origins of multicellular development in the volvocine algae. University of Missouri-St. Louis, March 2014.
- 2014 Origins of multicellular development in the volvocine algae. University of California, Riverside, February 2014.
- 2014 Origins of multicellular development in the volvocine algae. Indiana University, January 2014.
- 2013 *Individuality in the "minor" multicellular taxa*. KITP Conference: Cooperation and the Major Evolutionary Transitions
- 2013 *Complexity and individuality in the volvocine algae*. What is an individual? Where philosophy, history, and biology coincide (Workshop)
- 2012 *Cellular differentiation and individuality in the "minor" multicellular taxa*. Cain Conference *E. pluribus unum*: bringing biological parts and wholes into historical and philosophical perspective
- 2011 *Algae are way cool because...* University of British Columbia Beaty Biodiversity Museum "Way Cool" Lecture Series (Public lecture)
- 2011 *Evolution of multicellularity in the volvocine green algae*. EPSRC Workshop: Evolution of Microbial Cooperation
- 2009 *Phylogenetic inference using molecular sequence data*. Workshop for high school teachers at the Arizona Center for STEM Teachers workshop Discovering Darwin Days: Teaching Evolution in the K-12 Classroom.

### **CONFERENCE PRESENTATIONS**

- 2017 Evolution of multicellularity in *Chlamydomonas reinhardtii* in response to predation. Fourth International *Volvox* Conference.
- 2017 *De novo* origin of multicellularity in response to predation. Astrobiology Science Conference.
- 2016 Genetics of experimentally evolved multicellularity. Second ASM Conference on Experimental Microbial Evolution (poster).

- 2015 *Experimental evolution of multicellularity in Chlamydomonas reinhardtii*. Third International *Volvox* Conference.
- 2015 *Experimental evolution of multicellularity in the green alga Chlamydomonas reinhardtii*. Astrobiology Science Conference.
- 2014 *Experimental evolution of multicellularity in Chlamydomonas reinhardtii*. First ASM Conference on Experimental Microbial Evolution.
- 2013 *Experimental evolution of a multicellular life cycle in Chlamydomonas reinhardtii*. Second International *Volvox* meeting
- 2012 *Genetics of adaptive diversification*. Astrobiology Science Conference
- 2011 *Fitness trade-offs and developmental constraints in the evolution of soma: an experimental study in a volvocine alga*. First International *Volvox* Conference
- 2011 *Multicellularity and cellular differentiation in the volvocine green algae*. International Society for the History, Philosophy, and Social Studies of Biology.
- 2010 *Metabolic diversification by genetic assimilation*. Evolution 2010
- 2010 *Adaptive dynamics of genetic assimilation*. Evo-WIBO
- 2009 *Does biology need an organism concept?* Arizona State University Center for Social Dynamics and Complexity 1<sup>st</sup> International Conference: Group as Individual in Social Dynamics
- 2008 *Estimation of divergence times in the volvocine algae* (Poster). 13<sup>th</sup> International Conference on the Cell and Molecular Biology of *Chlamydomonas*
- 2007 *Artificial selection for colony size in Pleodorina* (Poster). University of Arizona Center for Astrobiology: Evolutionary Watersheds: Genome or Biome?
- 2006 *A comparative study of the evolution of complexity in volvocine algae*. Evolution 2006
- 2006 *Reconstruction of ancestral character states in the volvocine algae*. 12<sup>th</sup> International Conference on the Cell and Molecular Biology of *Chlamydomonas*
- 2004 *Evolution of the African ground squirrel genus Xerus: Phylogenetic and phylogeographic patterns reflect the influence of climate change* (Poster). Florida Academy of Sciences
- 2003 *Molecular phylogeny of the Sciuridae inferred from mitochondrial cytochrome-b sequences*. Florida Academy of Sciences

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### POSITIONS

- 2016 – present Senior Research Scientist – School of Biology, Georgia Institute of Technology
- 2014 – 2016 Research Assistant Professor – Division of Biological Sciences, University of Montana
- 2012 – 2014 Postdoctoral Fellow – NASA Astrobiology Institute, NASA Postdoctoral Program
- 2010 – 2012 Postdoctoral Research Fellow – University of British Columbia, Department of Zoology, Laboratory of Michael Doebeli
- 2010 – 2011 Teaching Assistant - University of British Columbia, Department of Zoology
- 2005 – 2009 Graduate Research Associate – University of Arizona, EEB Department. Laboratory of Richard Michod
- 2005 Graduate Teaching Associate – University of Arizona, EEB Department.
- 2004 Technical Expert – University of Arizona, EEB Department. *Phylogenetic reconstruction of Volvocales (Chlorophyta)*

- 2002 – 2003 Instructor – University of Central Florida, Department of Biology.
- 2002 Graduate Teaching Assistant – University of Central Florida, Department of Biology.
- 2001 – 2003 Graduate Research Assistant – University of Central Florida, Department of Biology.  
Laboratory of Christopher Parkinson

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## PROFESSIONAL SERVICE

### ***MEETING & EVENT ORGANIZATION***

- 2017 Session chair and member of program committee, Fourth International *Volvox* Conference
- 2017 Session chair and member of program committee, Astrobiology Science Conference
- 2016 Session chair and member of program committee, Second ASM Conference on Experimental Microbial Evolution
- 2015 Session co-chair, Astrobiology Science Conference
- 2015 Member, Organizing Committee, Third International *Volvox* Conference
- 2014 Member, Program Committee, First ASM Conference on Experimental Microbial Evolution
- 2013 Co-organizer, NESCent Catalysis Meeting “Evolutionary origins of multicellularity”
- 2013 Member, Organizing Committee, Second International *Volvox* Conference
- 2011 Member, Organizing Committee, First International *Volvox* Conference
- 2008 – 2009 Committee Chair, College of Science Graduate Awards Banquet, University of Arizona
- 2008 – 2009 Member, *ad hoc* planning committee for EEB Darwin Day celebration, University of Arizona

### ***MENTORSHIP & OUTREACH***

- Postdoctoral Kimberly Chen, Pedram Samani, Katrin Schmidt
- Graduate Jared Betz, Jacob Boswell, Charles Lindsey
- Undergraduate Jacob Boswell, Magrethe Boyd, Charles Knox, Niveda Shanmugam, Kyle Hamilton, Sophia Sukkestad
- High School Rory Anderson
- 2017 U.S. Department of Energy National Science Bowl, question writer
- 2015, 2017 SAGANet Mentor, Astrobiology Science Conference
- 2015 Faculty Host, Tribal College Professional Development Workshop
- 2015 Poster judge, Astrobiology Science Conference
- 2013 Research Mentor, University of Montana Introductory Multicultural Summer Undergraduate Research Experience
- 2010 – 2012 Museum Educator, Beaty Biodiversity Museum, Vancouver, BC, Canada
- 2006 – 2014 Science fair judging: Montana Space Grant Consortium Student Research Symposium, 2014; Montana Science Fair, 2013, 2014, 2015, & 2016; Vancouver District Science Fair, 2010; University of Arizona Graduate and Professional Student Council Travel Grant, 2009; Booth-Fickett Magnet School Science Fair, 2009; Pusch Ridge Christian Academy

Science Fair, 2008 & 2009; University of Arizona Graduate & Professional Student Council Student Showcase, 2006 & 2008.

### **REFeree SERVICE**

- Journals American Journal of Botany, The American Naturalist, Axios Review, Biology & Philosophy, BMC Biology, BMC Developmental Biology, BMC Evolutionary Biology, European Journal of Phycology, Evolution, Evolutionary Applications, Evolutionary Biology, Frontiers in Marine Science, Frontiers in Plant Science, Genome Biology & Evolution, Geobiology, Journal of Biogeography, Journal of Eukaryotic Microbiology, Journal of Theoretical Biology, Journal of Mammalogy, Molecular Biology & Evolution, Molecular Ecology, Philosophy & Theory in Biology, Planta, PLoS Biology, PLoS ONE, Proceedings B, Protist, Transactions of the Royal Society of South Africa, Trends in Ecology & Evolution
- Review Editor Frontiers in Plant Science
- Books Two book proposals for Elsevier
- Grants NASA Exobiology Program: Advanced Life (panelist and virtual panelist); National Science Foundation, Division of Evolutionary Biology (panelist); National Science Foundation, Division of Environmental Biology: Evolutionary Ecology (*ad hoc* reviewer); NASA Postdoctoral Program (*ad hoc* reviewer and virtual panelist), U.K. Biotechnology and Biological Sciences Research Council (*ad hoc* reviewer)

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### **POPULAR MEDIA & SCIENCE NEWS COVERAGE**

#### Presentation at AbSciCon:

New Scientist: [www.newscientist.com/article/dn27762-one-gene-may-drive-leap-from-single-cell-to-multicellular-life.html](http://www.newscientist.com/article/dn27762-one-gene-may-drive-leap-from-single-cell-to-multicellular-life.html)

#### Herron & Doebeli 2013 *PLoS Biology* study on adaptive diversification:

*PLoS* Primer: Marx, C. J. *PLoS Biol* 11: e1001487. doi: 10.1371/journal.pbio.1001490

Research Highlight: Burgess, D. J. *Nature Reviews Genetics* 14: 240. doi:10.1038/nrg3449

Research Highlight: *Nature* 494: 285. doi:10.1038/494285d

CBC News: [www.cbc.ca/news/technology/evolution-takes-a-similar-course-each-time-study-suggests-1.1375887](http://www.cbc.ca/news/technology/evolution-takes-a-similar-course-each-time-study-suggests-1.1375887)

*Scientific American*: [www.scientificamerican.com/article.cfm?id=predictable-evolution-trumps-randomness-of-mutations](http://www.scientificamerican.com/article.cfm?id=predictable-evolution-trumps-randomness-of-mutations)

Radio Canada International: [www.rcinet.ca/english/daily/interviews-2012/14-03\\_2013-02-26-testing-theories-of-evolution](http://www.rcinet.ca/english/daily/interviews-2012/14-03_2013-02-26-testing-theories-of-evolution)

#### Ratcliff, Herron, et al. 2014 study on experimental evolution of multicellularity:

*Science Daily*: <http://www.sciencedaily.com/releases/2013/11/131106073859.htm>

*New Scientist*: [www.newscientist.com/article/dn24535-alga-takes-first-evolutionary-leap-to-multicellularity.html#.Uo5H8cTkvQN](http://www.newscientist.com/article/dn24535-alga-takes-first-evolutionary-leap-to-multicellularity.html#.Uo5H8cTkvQN)

*Astrobiology Magazine*: <http://www.astrobio.net/topic/origins/origin-and-evolution-of-life/study-provides-clues-to-the-origin-of-biological-complexity/>

#### Herron et al. 2009 *PNAS* study on divergence times in volvocine algae:

*ScienceNOW*: [news.sciencemag.org/biology/2009/02/earlier-debut-famous-alga](http://news.sciencemag.org/biology/2009/02/earlier-debut-famous-alga)

*ScienceDaily*: [www.sciencedaily.com/releases/2009/02/090219140546.htm](http://www.sciencedaily.com/releases/2009/02/090219140546.htm)

*El Mundo*: [www.elmundo.es/elmundo/2009/02/16/ciencia/1234808187.html](http://www.elmundo.es/elmundo/2009/02/16/ciencia/1234808187.html)

#### Herron & Michod 2008 *Evolution* study on ancestral character states in volvocine algae:

Research Focus: Sachs, J. L. *Trends in Ecology & Evolution* 23: 245-248. doi:  
10.1016/j.tree.2008.02.003

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#### REFERENCES

- Dr. Michael Doebeli, Professor, University of British Columbia, Department of Zoology, 6270 University Boulevard, Vancouver, BC V6T 1Z4, Canada, email [doebeli@zoology.ubc.ca](mailto:doebeli@zoology.ubc.ca), phone (604) 822-3878 (postdoctoral advisor)
- Dr. Frank Rosenzweig, Professor, Georgia Institute of Technology, School of Biology, North Avenue, Atlanta, GA 30332, email [frank.rosenzweig@biology.gatech.edu](mailto:frank.rosenzweig@biology.gatech.edu), phone (404) 385-4458 (postdoctoral advisor)
- Dr. Richard E. Michod, Professor and Department Head, University of Arizona, Department of Ecology and Evolutionary Biology, Biosciences West 306, Tucson, AZ 85721, email [michod@u.arizona.edu](mailto:michod@u.arizona.edu), phone (520) 621-1844 (Ph.D. coadvisor)