

**Joel L. Sachs**

**Date of Birth:** 6, October 1971  
**Place of Birth:** Chicago, Illinois  
**E-mail:** [joels@ucr.edu](mailto:joels@ucr.edu)  
**Web:** [www.sachslab.com](http://www.sachslab.com)

**Updated:** November 2011  
**Citizenship:** United States  
**Mobile:** 510-717-5091

**Institute of Integrative Genomic Biology (IIGB):**

Department of Biology  
 2219 Herman T. Spieth Hall  
 University of California  
 Riverside, California 92521. USA  
 Tel: 951-827-6357 Fax: 951-827-4286

**Professional Preparation:**

University of California-Riverside	Biology / IIGB	Assistant Professor	2007-
University of California-Berkeley	Integrative Biology	Post-doc	2004-2007
University of Texas	Integrative Biology	PhD,	2004
University of North Dakota	Zoology	MS,	1998
University of Iowa	Biology	BA,	1993

**Grants and Awards:**

2012-2017	NSF-IOS/DEB CAREER Award: <i>Evolution of host control over symbiosis, dysbiosis in anthropogenic landscapes</i>	\$587,486
2010-2011	NSF Research Experiences for Undergraduates supplement	\$22,475
2009-2010	Academic Senate Research Award, UC-Riverside	\$1,470
2009-2010	University of California-Riverside Research mentor of the year award	
2008-2011	NSF-DEB Grant <i>The evolution and origins of uncooperative rhizobia</i>	\$250,000
2008-2009	Academic Senate Research Award, UC-Riverside	\$2,100
2008-2009	Regents Fellowship, UC-Riverside	\$5,000
2006-2007	NIH Ruth Kirschstein National Research Service Award <i>The evolution of parasitism in rhizobial bacteria.</i>	\$99,224
2003	NSF Doctoral Dissertation Improvement Grant <i>Experimental selection for cheating in a mutualistic symbionts</i>	\$9,212
2003-2004	Bess Heflin Fellowship, University of Texas	\$17,000
2003-2004	Zoology Scholarship for Excellence, University of Texas	\$1,050
2003-2004	Carl Gottfried Hartman Graduate Fellowship, University of Texas	\$5,000
2001	Excellence in Teaching Award-Nomination, University of Texas	
1999-2002	Dean's Excellence Fellowship, University of Texas	
1995-1998	University of North Dakota. Perfect GPA	
1995	University of North Dakota. APSAC Field Research Grant.	
1990-1993	University of Iowa Dean's List- Three semesters.	
1989	National Merit Commendation.	

**Publications:**

- 26- **Sachs, J. L.** 2011. Origins, evolution and breakdown of bacterial symbioses. *Encyclopedia of Biodiversity* 2nd Edition, Edited by S. A. Levin. *In press*.
- 25- **Sachs, J. L.**, Russell, J. E. and Hollowell, A. C. 2011. Evolutionary instability of symbiotic function in *Bradyrhizobium*. *PLoS One*. 6:11:e26370.
- 24- Friesen, M.L., Porter, S.S., Stark, S.C., & von Wettberg, E.J. **Sachs, J.L.**, Martinez-Romero, E. 2011. Microbially-mediated Plant Functional Traits. *Annual Review of Ecology Evolution and Systematics*. 43: 23-46.
- 23- **Sachs, J.L.**, Skophammer, R.G., and Regus, J.U. 2011. Evolutionary transitions in bacterial symbiosis. *Proceedings of the National Academy of Sciences USA*. 108:10800-10807
- 22- **Sachs, J.L.**, Essenberg, C. and Turcotte, M. M. 2011. New paradigms for the evolution of beneficial infections. *Trends in Ecology and Evolution*. 26: 202-209.
- 21- Abbot, P. et al. 2011 (135 authors). Inclusive theory and eusociality. *Nature* 471, E1-E4.
- 20- **Sachs, J.L.**, Russell, J. E., Lii, Y. E., Black, K. C., Lopez, G., and Patil, A. S. 2010. Host control over infection and proliferation of a cheater symbiont. *J. Evol. Biol.*23:1919-1927.
- 19- **Sachs, J.L.**, Ehinger, E. O., & Simms, E. L. 2010. Origins of cheating and loss of symbiosis in wild *Bradyrhizobium*. *J. Evol. Biol.*23:1075-1089.
- 18- Medina, M. and **Sachs, J.L.** 2010. Symbiont genomics; Our new tangled bank. *Genomics* 95:129-137.
- 17- **Sachs, J.L.**, Kembel, S.W., Lau, A.H., and Simms, E.L. 2009. In situ phylogenetic structure and diversity of wild *Bradyrhizobium* communities. *Appl. Envir. Microbiol.* 75: 4727-4735.
- 16- **Sachs, J.L.** and Simms, E.L. 2008. The origins of uncooperative rhizobia. *Oikos* 117: 961-966
- 15- **Sachs, J.L.** 2008. Resolving the first steps to multicellularity. *Trends in Ecology and Evolution* 23:245-248.
- 14- **Sachs, J.L.** and Rubenstein, D. R. 2007. The evolution of cooperative breeding; is there cheating? *Behavioral Processes* 76:131-137.
- 13- **Sachs, J.L.**, Hughes, C.R., Nuechterlein, G.L., and Buitron, D. 2007. The evolution of colonial breeding in birds: A test of hypotheses with the red-necked grebe. *The Auk* 124:628-642.
- 12- **Sachs, J.L.**, and Simms, E.L. 2006. Pathways to mutualism breakdown. *Trends in Ecology and Evolution* 21:585-592.
- 11- **Sachs, J.L.** 2007. The nature of human culture. *Book Review of 'The Origin and Evolution of Cultures'* 2005 Robert Boyd and Peter J. Richerson, Oxford University Press, New York, U.S.A. *Quarterly Review of Biology* 82:183-184.
- 10- **Sachs, J.L.** 2006. Cooperation within and among species. *J. Evol. Biol.*19:1415-1418.
- 9- **Sachs, J.L.** and Wilcox, T.P. 2006. A shift to parasitism in the jellyfish symbiont *Symbiodinium microadriaticum*. *Proceedings of the Royal Society of London. B.* 273:425-429
- 8- Simms, E. L., Taylor, D. L., Povich, J., Shefferson, R. P., **Sachs, J. L.**, Urbina, M., and Tauszick, Y. 2006. An empirical test of partner choice mechanisms in a wild legume-rhizobium interaction. *Proceedings of the Royal Society of London. B.* B 273:77-81.
- 7- **Sachs, J.L.** 2006. A clash of biology and culture. *Book Review of 'Techno-cultural Evolution, Cycles of Creation and Conflict.'* 2006 William McDonald Wallace, Potomac Books, Dulles, Virginia, U.S.A. *Quarterly Review of Biology* 81:425-426.
- 6- **Sachs, J.L.** and Bull, J.J. 2005. Experimental evolution of conflict mediation between genomes. *Proceedings of the National Academy of Sciences USA* 102:390-395

**Publications continued:**

- 5- **Sachs, J.L.** 2005. A biohistory of ascendance and decline. *Book Review of 'The Biology of Civilisation, Understanding Human Culture As a Force In Nature.'* 2004 Stephen Boyden, University of New South Wales Press, Sydney. *Quarterly Review of Biology* 80:507-508.
- 4- **Sachs, J. L.**, Mueller, U. G., Wilcox, T. P., and Bull, J. J. 2004. The Evolution of Cooperation, *Quarterly Review of Biology* 79:135-160.
- 3- **Sachs, J.L.** 2004. The evolving field of cooperation. *Review of 'Genetic and Cultural Evolution of Cooperation.'* 2003. Dahlem workshop report. Peter Hammerstein, Ed. Dahlem University Press, Cambridge. *Quarterly Review of Biology* 79:458-459.
- 2- Nuechterlein, G.L., Buitron, D., **Sachs, J.L.** and Hughes, C.R. 2003. Red-necked Grebes become semi-colonial when prime nesting habitat is available, *Condor*. 105: 80-94.
- 1- **Sachs, J.L.**, Hughes, C.R. 1999. Characterization of microsatellite loci for red-necked grebes *Podiceps grisegena*. *Molecular Ecology*. 8, 687-688.

**Press and Scientific Coverage**

1. Fast friends, sworn enemies. L. Pennisi 2003. *Science* 302:774-775.
2. Evolution of cooperation: The benefits of ridesharing. G. J. Velicer 2005. *Heredity* 95:116-117.
3. How genomics has affected the concept of microbiology. N. Ward & C. M. Fraser 2005. *Current Opinion in Microbiology* 8:1-8.
4. Perfect Strangers. B Borrell. 2005. *Berkeley Science Review* 5 (2):14-15.
5. On the origin of cooperation. L. Pennisi 2009. *Science* 325:1196-1199.
6. Nature's recourse. S. Milius 2010. *Science News* 178:22

**Recent Technical lectures** (\* = invited lecture)

- 2011\* September 26 Universität Wien, Vienna, Austria  
 2011\* March 10 Harvey Mudd College, Claremont, California  
 2011\* January 26. University of Illinois Department of plant Science. Champaign, Illinois.  
 2011\* January 20-21. Evolution of Microbial Cooperation Workshop. Bath, England  
 2011\* January 6-8. National Academy of Sciences Sackler Colloquium. Irvine, California.  
 2010\* September 21-22. Royal Netherlands Academy of Arts and Sciences Colloquium  
 "Evolution of conflict and cooperation" Amsterdam, Netherlands  
 2010\* August 21. Integrated Microbial Diversity Program. Canadian Institute For Advanced Research. Seattle, Washington.  
 2010 June 25-29. Society for the Study of Evolution, Portland, Oregon.  
 2010\* January 19. Portland State University. Department of Biology, Portland, Oregon.  
 2009\* August 19. American Academy for Advancement of Sciences – Pacific Division, San Francisco, California.  
 2009\* August 17. International Symbiosis Society Meeting, Madison, Wisconsin.  
 2008\* October 25-26 Experimental Evolution Conference Max Planck Institute for Evolutionary Biology. Plön, Germany.