

**John P. McCutcheon**  
PERT Postdoctoral Fellow  
Department of Ecology and Evolutionary Biology  
University of Arizona  
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**Education:**

2006 Ph.D., Computational Biology, Washington University.  
2000 M.S., Human Genetics, University of Utah.  
1996 B.S., Biochemistry, University of Wisconsin at Madison.

**Research positions:**

2006-present PERT Postdoctoral Fellow with Professor Nancy Moran, Department of Ecology and Evolutionary Biology, University of Arizona. *Genomics of insect-bacterial symbioses.*

2000-06 Graduate Research Assistant with Professor Sean Eddy, Department of Genetics, Washington University. *Computational screens for non-coding RNAs in Saccharomyces cerevisiae. Methods development for screening environments for novel microbial 16S rDNA sequences.*

1996-99 Graduate Research Assistant with Professor Venki Ramakrishnan, Department of Biochemistry, University of Utah. *Structural studies of the small ribosomal subunit from Thermus thermophilus.*

1995-96 Undergraduate Thesis Research with Professor James Dahlberg, Department of Biomolecular Chemistry, University of Wisconsin. *Interactions of a small RNA with DNA polymerase I from Escherichia coli.*

**Fellowships and awards:**

2006-2009 Postdoctoral Excellence in Research and Teaching (PERT) Fellowship, NIH Division of Minority Opportunities in Research, University of Arizona.

2001 NSF Graduate Research Fellowship Honorable Mention.

1999-2000 NIH Predoctoral Training Grant in Genome Science, University of Utah.

1996 Mary Shrine Peterson Undergraduate Research Award, Department of Biochemistry, University of Wisconsin.

**Teaching:**

2008 Instructor, Microbiology, Pima Community College, Tucson, AZ. *Designed entire curriculum, prepared and gave all lectures, supervised the lab section.*

2004-05 Participant in the Young Scientists Program, a program designed to attract disadvantaged high school students into scientific careers. *Conducted visits to St. Louis area high schools, developed some curriculum.*

2002 Teaching assistant, Introduction to Genomics, Washington University. *Gave lectures, created and conducted computer lab sections, developed and graded assignments and exams.*

2001 Teaching assistant, Computational Molecular Biology, Washington University. *Created and gave one lecture, conducted study sections, and graded assignments and exams.*

1998 Teaching assistant, Biological Chemistry, University of Utah. *Created and gave one lecture, conducted study sections, graded assignments and exams.*

### **Invited talks:**

- 2008 University of Georgia, Athens  
CNRS Symbiosis Meeting, Roscoff, France  
Wageningen University, The Netherlands
- 2009 University of Montana  
University of California, Davis  
Congress of the International Symbiosis Society, Madison, Wisconsin  
Dalhousie University, Halifax, Nova Scotia, Canada

### **Publications:**

12. **McCutcheon, J.P.**, McDonald, B.R., and Moran, N.A. Convergent evolution of metabolic roles in bacterial co-symbionts of insects. *In review*.
11. **McCutcheon, J.P.**, McDonald, B.R., and Moran, N.A. Origin of an alternative genetic code in the extremely small and GC-rich genome of a bacterial symbiont. *PLoS Genetics*. In press.
10. Moran, N.A., **McCutcheon, J.P.**, and Nakabachi, A. 2008. Genomics and evolution of heritable bacterial symbionts. *Annu. Rev. Genet.* **42**:165-190.
9. **McCutcheon, J.P.** and Moran, N.A. 2007. Parallel genomic evolution and metabolic interdependence in an ancient symbiosis. *Proc. Natl. Acad. of Sci. U.S.A.* **104**:19392-19397.
8. Shendure, J., Porreca, G.J., Reppas, N.B., Lin, X., **McCutcheon, J.P.**, Rosenbaum, A.M., Wang, M.D., Zhang, K., Mitra, R.D., and Church, G.M. 2005. Accurate multiplex polony sequencing of an evolved bacterial genome. *Science* **309**:1728-1732.
7. **McCutcheon, J.P.** and Eddy, S.R. 2003. Computational identification of non-coding RNAs in *Saccharomyces cerevisiae* by comparative genomics. *Nucleic Acids Res.* **31**:4119-4128.
6. Clemons, W.M.Jr., Broderson, D.E., **McCutcheon, J.P.**, May, J.L., Carter, A.P., Morgan-Warren, R.J., Wimberly, B.T., and Ramakrishnan, V. 2001. Crystal structure of the 30 S ribosomal subunit from *Thermus thermophilus*: purification, crystallization and structure determination. *J. Mol. Biol.* **310**:827-843.
5. Clemons, W.M.Jr., Wimberly, B.T., May, J.L., **McCutcheon, J.P.**, Capel, M.S., and Ramakrishnan, V. 1999. Structure of a bacterial 30S ribosomal subunit at 5.5 Angstrom resolution. *Nature* **400**:833-840.
4. Wimberly, B.T., Guymon, R., **McCutcheon, J.P.**, White, S.W., and Ramakrishnan, V. 1999. A detailed view of a ribosomal active site: the structure of the L11-RNA complex. *Cell* **97**:491-502.
3. **McCutcheon, J.P.**, Agrawal, R.K., Philips, S.M., Grassucci, R.A., Gerchman, S.E., Clemons, W.M.Jr., Ramakrishnan, V., and Frank, J. 1999. Location of translational initiation factor IF3 on the small ribosomal subunit. *Proc. Natl. Acad. Sci. U.S.A.* **96**: 4301-4306.
2. Gamble, T.R., Yoo, S., Vajdos, F.F., von Schwedler, U.K., Worthylake, D.K., Wang, H., **McCutcheon, J.P.**, Sundquist, W.I., and Hill, C.P. 1997. Structure of the carboxyl-terminal dimerization domain of the HIV-1 capsid protein. *Science* **278**:849-853.
1. Felden, B., Himeno, H., Muto, A., **McCutcheon, J.P.**, Atkins, J.F., and Gesteland, R.F. 1997. Probing the structure of the *Escherichia coli* 10Sa RNA (tmRNA). *RNA* **3**:89-103.