

**Jamie M. Bacher**

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**Date of Birth:** 20 March 1975  
**Social Security Number:** 307 19 9158

**Place of Birth:** Montreal, Canada  
**Citizenship:** Canada

**The Scripps Research Institute**  
 10550 N. Torrey Pines Rd. BCC-379  
 La Jolla, CA 92037, USA

**Telephone:** (858) 784-8974  
**Fax:** (858) 784-8990  
**email:** [jbacher@scripps.edu](mailto:jbacher@scripps.edu)

**Education:**

- UNIVERSITY OF TEXAS AT AUSTIN, Ph. D. in Molecular Biology, 2002  
 Supervising Professor: Andrew D. Ellington  
 Thesis title: Exploration of adaptation to unnatural amino acids
- MCGILL UNIVERSITY, BSc in Biology, 1997  
 Undergraduate Research Supervisors: Graham Bell & Thomas Bureau
- JOHN ABBOTT COLLEGE, DCS in Health Sciences, 1994

The University of Texas at Austin was 15<sup>th</sup>, and McGill University was 1<sup>st</sup> in Canada, and 21<sup>st</sup> overall, in a recent ranking of world universities by the Times of London. View the listings:  
<http://images.thetimes.co.uk/TGD/picture/0..157854.00.jpg>

**Professional Experience:**

- THE SCRIPPS RESEARCH INSTITUTE, Post-Doctoral Fellow, La Jolla, CA. 2003-present  
 Supervisor: Paul Schimmel
- MAXYGEN INC., Post-Doctoral Fellow, Redwood City, CA. 2002-2003.  
 Supervisor: Willem P. C. Stemmer
- UNIVERSITY OF TEXAS AT AUSTIN, Graduate Research Assistant. 1997-2002
- UNIVERSITY OF TEXAS AT AUSTIN, Teaching Assistant.
  - Spring 2000, Physical Methods for Biochemistry
  - Spring 1999, Intro to Biochemistry II
- INDIANA UNIVERSITY – BLOOMINGTON, Research Assistant, Chemistry Department, summer 1997  
 Supervisor: Andrew D. Ellington

**Publications:**Publications in print:

- **J. M. Bacher**, V. de Crécy-Lagard, P. Schimmel, 2005. Inhibited cell growth and protein functional changes from an editing defective tRNA synthetase. *Proceedings of the National Academy of Science* **102**:1697-1701
- D. Metzgar, **J. M. Bacher**, V. Pezo, J. Reader, V. Döring, P. Marlière, P. Schimmel and V. de Crécy-Lagard, 2004. *Acinetobacter* sp. ADP1: an ideal model organism for genetic analysis and genome engineering. *Nucleic Acids Research* **32**(19):5780-90.
- **J. M. Bacher**, R. A. Hughes, J. T.-F. Wong and A. D. Ellington, 2004. Evolving new genetic codes. *Trends in Ecology and Evolution*, **19**(2):69-75.
- **J. M. Bacher**, J. J. Bull and A. D. Ellington, 2003. Evolution of phage with a chemically ambiguous proteome. *BMC Evolutionary Biology* **3**:24.
- **J. M. Bacher** and A. D. Ellington, 2003. The directed evolution of organismal chemistry: Unnatural amino acid incorporation. Book Chapter. Translation Mechanisms, Lapointe, J. and Brakier-Gingras, L. eds. Landes Bioscience and Eureka.com.
- **J. M. Bacher**, B. D. Reiss and A. D. Ellington, 2002. Anticipatory evolution and DNA shuffling. *Genome Biol.* **3**(8):reviews1021.1-1021.4
- **J. M. Bacher** and A. D. Ellington, 2001. Selection and characterization of *Escherichia coli* variants capable of growth on an otherwise toxic tryptophan analogue. *Journal of Bacteriology* **183**(18): 5414-25.

- **J. M. Bacher** and A. D. Ellington, 1998. Nucleic acid selection as a tool in drug discovery, *Drug Discovery Today*, 3(6):265-273.

Publications in press:

- **J. M. Bacher\*** and A. D. Ellington. Global incorporation of unnatural amino acids in *Escherichia coli*. Book Chapter. Methods in Molecular Biology: Protein Engineering Protocols, Arndt, K. and Mueller, K., eds. Humana Press.

Manuscripts submitted:

- **J. M. Bacher\***, D. Metzgar, and V. de Crécy-Lagard\*. Evolutionary tuning of transformability in *Acinetobacter baylyi*. Target journal: Public Library of Science - Biology.

Manuscripts in preparation:

- H. A. Syrett, S. Karageorgi, E. A. Davidson, A. D. Ellington and **J. M. Bacher\***. Chemical malleability and robustness: Exploring organismal amino acid analogue tolerance. Target journal: Applied and Environmental Microbiology.

\* Corresponding author

**Honors and Associations:**

- Member, Microbial Comparative Genome Analysis Consortium. Dr. Margaret Riley, University of Massachusetts – Amherst, Head.
  - Proposal to DOE **accepted** to sequence *Burkholderia phymatum* **STM815**
- Organizing committee, International Conference on Aminoacyl-tRNA Synthetases: From the Genetic Code to Human Diseases & Medicine, La Jolla, CA, 2006. <http://www.aars2006.com/>
- Member, San Diego Microbiology Group, 2003-5.
- External Reviewer, NASA, Research Opportunities in Space Science and the Astrobiology: Exobiology and Evolutionary Biology; and Planetary Protection Research programs. Fall, 2004.
- Referee, Molecular Biology and Evolution, FEBS Letters.
- Member, Nucleic Acids Club, 2004-5, The Scripps Research Institute.
- Member, RNA Club, 1999-2002, The University of Texas at Austin.
- Maxygen, Inc. “**Spot Award**,” recognizing exceptional effort and results, 2002, \$500.
- UT-Austin. **Joseph F. Short Memorial Molecular Biology Endowed Fellowship**, 2002, \$650.
- UT-Austin. **Harrington Dissertation Fellowship**, 2001-2002. Approx. total value, \$35,000.

The Harrington award is the highest honor available to continuing students. For more information, please see: <http://www.utexas.edu/harrington>

**Presentations:**

Invited Talks:

- Evolutionary tuning of competence in *Acinetobacter baylyi*. San Diego State University, Host: Anca Segall, 22 September, 2005.
- Exploration of adaptation to unnatural amino acids
  - The Scripps Research Institute, Host: Paul Schimmel, 21 March, 2003.
  - Maxygen, Inc., Host: Willem Stemmer, 18 March, 2002.
  - Yale University, Host: Margaret Riley, 6 November, 2001.
  - Harvard University, Host: David Liu, 7 September, 2001
  - Massachusetts General Hospital, Host: Jack Szostak, 6 September, 2001

Talks at conferences, seminars etc.:

- Evolutionary tuning of transformability in *Acinetobacter baylyi*, Analytical Genetics Meeting, October 2005.

- Invasion of a primitive genetic code affords a growth rate advantage. San Diego Microbiology Group Annual Meeting, May 2005.
- An ambiguous genetic code results in disruption of the *E. coli* proteome. International Conference on Aminoacyl-tRNA Synthetases: Ancient Molecules for Future Biology and Medicine, July, 2004.
- Exploring fitness effects of recombination in *Acinetobacter* sp. ADP1. San Diego Microbiology Group Annual Meeting, May, 2004.
- The evolution and characterization of bacteria that use an unnatural amino acid. Seminar in Nucleic Acids Series, Host: Susan Martinis, University of Houston, 28 July, 1999.
- Unnatural selection: the road less traveled. Towards a Comprehensive Dynamics of Evolution – Exploring the Interplay of Selection, Neutrality, Accident and Function. Santa Fe Institute, October 1998.
- Guest lecturer on *in vitro* selection technologies and graduate studies for the course ‘Applied Microbiology and Immunology’ at McGill University, 19 March 1998

**Posters:**

- Evolution of diminished competency in *Acinetobacter* sp. ADP1. Gordon Research Conference on Microbial Population Biology, July 2005
- Revising the genetic code by an editing-deficient isoleucyl-tRNA synthetase. Gordon Research Conference on Microbial Population Biology, July 2005
- Experimental evolution of diminished transformability in the competent and recombinogenic bacterium, *Acinetobacter* sp. ADP1. San Diego Microbiology Group Annual Meeting, May 2005.
- Observation of error catastrophe of an editing-deficient aminoacyl tRNA synthetase mutant of *Escherichia coli*. The tRNA World; 20<sup>th</sup> International tRNA Workshop, October 2003.
- Adaptation of Q $\beta$  to an unnatural amino acid. Gordon Research Conference on Microbial Population Biology, July-August, 2001.
- Evolution and characterization of *Escherichia unColi*. Astrobiology Institute Meeting, The Scripps Research Institute, La Jolla, CA, July, 1999.
- *Escherichia unColi*: Selection of bacteria with an altered genetic code. Directed evolution of industrial enzymes conference, San Diego, CA, September 1998.

**References:**

Paul Schimmel  
Professor  
The Scripps Research Institute  
[schimmel@scripps.edu](mailto:schimmel@scripps.edu)

Andrew Ellington  
Professor  
The University of Texas at Austin  
[andy.ellington@mail.utexas.edu](mailto:andy.ellington@mail.utexas.edu)

Jim Bull  
Professor  
The University of Texas at Austin  
[bull@bull.biosci.utexas.edu](mailto:bull@bull.biosci.utexas.edu)

Valérie de Crécy-Lagard  
Assistant Professor  
University of Florida – Gainesville  
[vcrecy@ufl.edu](mailto:vcrecy@ufl.edu)