

Jonathan L. Jacobs

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Objective

Contribute to an interdisciplinary research program in biology that integrates experimental technologies drawn from bioinformatics, genomics, and molecular biology.

Professional Profile

- Research experience with a broad base of expertise in bioinformatics, genomics, molecular biology, and yeast genetics.
- Strong molecular biology skill set that includes cloning, dual-luciferase assays, Northern analysis, microarray preparation and analysis, PCR, quantitative real-time PCR, and yeast genetics.
- Strong programming skills with PERL and MySQL on multiple platforms including Linux and OS X.
- Scientific software expertise includes ApE, BLAST, Clustal W, Excel, FASTA, mfold, NUPACK, pknots, RNAMotif, and Sigma Plot.
- Excellent writing skills and the proven ability to obtain extramural funding.

Education

University of Maryland, College Park, MD (2002 – 2006).

- Ph.D. Cell Biology & Molecular Genetics (Expected).
- “Programmed -1 Ribosomal Frameshift Signals Influencing mRNA Stability in Eukaryotic Genomes.”

Rutgers University / University of Medicine & Dentistry of New Jersey, Piscataway, NJ (1999 – 2001).

- Graduate Assistant, Department of Molecular Genetics & Microbiology.

The University of Arizona, Tucson, AZ (1995 – 1999).

- Bachelor of Science in Agriculture. Major in Plant Biology. Minor in Chemistry.

Professional & Teaching Experience

Graduate Research Assistant, University of Maryland, College Park, MD (2002 – 2006).

- Advisor: Jonathan D. Dinman, Ph.D.
- Development of research project designed to identify and verify the functionality and biological impact of computationally identified programmed -1 ribosomal frameshift signals in *Saccharomyces cerevisiae*.

Teaching Assistant, University of Maryland, College Park, MD (2004).

- Assisted with teaching and tutoring for a graduate seminar course: Eukaryotic Protein Translation.

Instructor, Westlake Internet Training, Washington, DC (2003 – 2004) .

- Taught intensive 1-2 week professional development courses including: Introduction to CGI Scripting with PERL, Advanced PERL - Database Driven Websites, Fundamentals of Relational Databases, Introduction to SQL and Database Design.

Graduate Research Assistant, University of Medicine & Dentistry of New Jersey, Piscataway, NJ (1999 – 2001).

- Advisor: Jonathan D. Dinman, Ph.D.

Instructor, EEI Communications, Inc., Alexandria, VA (1999).

- Taught professional development courses including: Adobe Photoshop, Macromedia Dreamweaver, and Web Page Development.

Lab Assistant, Dr. Ken Feldmann, Dept. Plant Biology, The University of Arizona, Tucson, AZ (1997-1999).

- General lab and greenhouse support staff. Maintenance of lab seed stocks and living collections.

Webmaster, Department of Agricultural Education, The University of Arizona, Tucson, AZ. (1996-1999).

- Design and maintenance of departmental homepage and various course websites.

Publications

1. Jacobs JL, Belew AT, Rakauskaitė R, Dinman JD, "Endogenous Programmed -1 Ribosomal Frameshift Signals in Yeast Can Destabilize mRNAs." (submitted to *PLoS Biology*).
2. Plant EP, Perez-Alvarado GC, Jacobs JL, Mukhopadhyay B, Hennig M, Dinman JD, "A three-stemmed mRNA pseudoknot in the SARS Coronavirus frameshift signal." *PLoS Biology* 3, e172 (2005).
3. Jacobs JL, Dinman JD, "Systematic analysis of bicistronic reporter assay data." *Nucleic Acids Res.* (32), e160 (2004).
4. Plant EP, Wang P, Jacobs JL, Dinman JD, "A programmed -1 ribosomal frameshift signal can function as a cis-acting mRNA destabilizing element." *Nucleic Acids Res.* (32), 784-90 (2004).
5. Plant EP, Muldoon Jacobs KL, Harger JW, Meskauskas A, Jacobs JL, Baxter JL, Petrov AN, Dinman JD, "The 9-Å solution: How mRNA pseudoknots promote efficient programmed -1 ribosomal frameshifting." *RNA* (9), 168-174 (2003).

Invited Talks

1. "mRNA Suicide." February 1st 2006, MOCB Seminar Series, University of Maryland, College Park, MD.
2. "mRNA Suicide." January 27th 2006, Hosted by Dr. Roy Parker, University of Arizona, Tucson, AZ.
3. "mRNA Suicide: Destabilization By Programmed Ribosomal Frameshifting." EMBL Conference on Protein Synthesis and Translational Control, September 14th – 18th 2005, EMBL Heidelberg, Germany.
4. "SARS-CoV: Ribosomal Frameshifting with a Novel Triple-Helix RNA Pseudoknot." 3rd Annual Virology Retreat, October 25th 2003, University of Maryland, College Park, MD.

Posters

1. Jacobs JL & Dinman JD, "mRNA Suicide: Control of Gene Expression By Programmed Ribosomal Frameshifting.", National Library of Medicine Informatics Training Conference, July 12th – 13th, 2005, Bethesda, MD.
2. Jacobs JL, Plant EP, Dinman JD, "mRNA Suicide: Control of Gene Expression By Programmed Ribosomal Frameshifting.", 12th Annual International Conference on Intelligent Systems in Molecular Biology, July 31st – August 4th, 2004, Glasgow, United Kingdom.
3. Plant EP, Muldoon Jacobs KL, Harger JW, Meskauskas A, Jacobs JL, Baxter JL, Petrov AN, Dinman JD, "The 9-Å solution: How mRNA pseudoknots promote efficient programmed -1 ribosomal frameshifting." Gordon Research Conference on Nucleic Acids, June 2nd – 6th, 2003, Salve Regina University, Newport, RI.
4. Jacobs JL & Dinman JD, "-1 Programmed Ribosomal Frameshift Signals in *Saccharomyces cerevisiae*." Gordon Research Conference on Nucleic Acids, June 2nd – 6th, 2003, Salve Regina University, Newport, RI.
5. Jacobs JL & Dinman JD, "Identification of -1 Programmed Ribosomal Frameshift Signals in *Saccharomyces cerevisiae*." 10th Annual International Conference on Intelligent Systems in Molecular Biology, August 3rd – 7th, 2002, Edmonton, Canada.

Awards, Fellowships, and Scholarships

1. National Library of Medicine Individual Biomedical Informatics Fellowship (#1F37-LM-08333-01), "Identification of Programmed Frameshift Signals in Yeast." \$129,672 (2004 - 2007).
2. Intelligent Systems for Molecular Biology Travel Fellowship (Brisbane, Australia), \$1600 (2003).
3. CBMG Graduate Student Travel Fellowship (Gordon Research Conference, Newport, RI), \$600. (2003)
4. Andrew J. Moyer Summer Research Fellowship, \$2000 (2003).
5. Intelligent Systems for Molecular Biology Travel Fellowship (Edmonton, Canada), \$1500 (2002).
6. University of Arizona College of Agriculture Ambassadors Service Award (1999).
7. Dougherty Foundation Agricultural Extension Scholarship, \$2000 (1998).
8. H. Muramoto Scholarship, \$1000 (1998).
9. University of Arizona College of Agriculture Ambassadors Service Award (1998).
10. Arizona Spirit of Achievement Scholarship, \$3000 (1997).
11. Ruben M. Hess Scholarship, \$1500 (1997).
12. University of Arizona College of Agriculture Ambassadors Service Award (1997).
13. Arizona Resident Education Grant, \$2000 (1996).
14. University of Arizona College of Agriculture Ambassadors Service Award (1996).
15. Arizona Resident Education Grant, \$1200 (1995).
16. Arizona Trustees Scholarship, \$1600 (1995).

Professional Affiliations

- American Association for the Advancement of Science. Member since 2005.
- Bioinformatics Organization. Member since 2005.
- International Society for Computational Biology. Member since 2002.

References

- **Jonathan D. Dinman, Ph.D.**
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- **Steve M. Mount, Ph.D.**
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- **Eric H. Baehrecke, Ph.D.**
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