

# ANGELA K. HILLIKER

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The University of Richmond  
Department of Biology  
28 Westhampton Way  
Gottwald Center for the Sciences, Room B211  
The University of Richmond, VA 23173

## EDUCATION

### **Ph.D. Molecular Genetics and Cell Biology**

The University of Chicago, Chicago, Illinois. August, 2006.

### **B.A. Biology with Highest Honors**

Oberlin College, Oberlin, Ohio. June 1999.

## TEACHING AND OUTREACH EXPERIENCE

### *Teaching:*

**Assistant Professor of Biology, The University of Richmond, Richmond, Virginia. Fall 2011-current.**

Department of Biology.

Courses taught: Molecular Genetics (lecture and lab).

**Visiting Assistant Professor, St. Mary's College of Maryland, St. Mary's City, Maryland. Fall 2006-Spring 2007.**

Department of Biology.

Courses taught: Contemporary Biosciences (for non-majors), Genetics Lab, and Molecular Biology Lecture and Lab.

**Teaching Assistant, The University of Chicago, Chicago, Illinois. 2000-2001**

Department of Molecular Genetics and Cell Biology.

Graduate Courses: Cell Biology I and Genetic Mechanisms.

### *Other Teaching/Mentoring Experience:*

**Mentor, Honors Biology 181, The University of Arizona, Tucson, Arizona.**

Fall 2009 and Spring 2010.

Meet with a group of introductory honors biology students weekly for one month to lead discussions and critique of primary literature. Helped students learn to read research articles and reviews, critique the papers, and present their critiques orally.

**Group Leader, Undergraduate Biology Research Program (UBRP), The University of Arizona, Tucson, Arizona.**

Summer Research Program for undergraduates. May-August 2009.

Meet monthly with students to help them develop skills in oral and poster presentations to diverse audiences. Counseled students on a variety of topics, including execution of a research project and careers in science.

**Volunteer, Museum of Science and Industry, Chicago, Illinois.**

Science Connections Program, May 2005-August 2006.

Interact with guests of all ages and backgrounds in the Genetics Exhibit to answer questions about the exhibit and teach related concepts including the function of DNA and genes.

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## RESEARCH EXPERIENCE

### **Leukemia and Lymphoma Postdoctoral Fellow, The University of Arizona**

Department of Molecular and Cellular Biology, June 2008-June 2011.

*Research Topic:* “The DEAD-box protein Ded1 modulates translation by formation and resolution of a pre-initiation complex” Supervisor: Dr. Roy R. Parker.

### **Research Associate, Howard Hughes Medical Institute, The University of Arizona**

Department of Molecular and Cellular Biology, July 2007-June 2008.

*Research Topic:* “A Dual Role for the DEAD-box ATPase, Ded1p, in translation initiation and repression.” Supervisor: Dr. Roy R. Parker.

### **Research Assistant, The University of Chicago**

Department of Molecular Genetics and Cell Biology, October 2000-July 2006.

*Graduate Dissertation:* “The Role of Small Nuclear RNAs in Activating and Remodeling the Spliceosome.” Supervisor: Dr. Jonathan P. Staley.

### **Research Assistant, Oberlin College**

Biology Department, May 1998 to May 1999. Awarded Highest Honors.

Honors Undergraduate Research with Dr. Taylor S. Allen

*Honors Thesis:* “The Biological Role of Troponin I in the Nematode *Caenorhabditis elegans*: analysis of gene activity and expression of four putative isoforms.”

### **Winter Term Research Assistant, University of Arizona**

Department of Plant Sciences, January 1998.

Constructed plasmids to localize GFP to the nucleus of *Arabidopsis thaliana* in the lab of Dr. David Galbraith.

### **Participant in Undergraduate Research Program, Duke University**

Carolinas and Ohio Science Education Network (COSEN) and Pew Charitable Trusts, July 1996.

Rotated through several labs to gain exposure to different types of biological research ranging from genetic engineering to marine biological fieldwork.

## HONORS AND AWARDS

Acceptance to attend the NIGMS Workshop for Postdocs Transitioning to Independent Positions. 2010. NIH, Bethesda, MD.

Career Development Award from the Leukemia and Lymphoma Society. 2008. Postdoctoral fellow funded for three years.

Offered a Ruth L. Kirschstein National Research Service Award (NRSA) from NIH (priority score 180). 2008. Declined Funding.

“Outstanding” ranking (ranked 6 out of 55) for American Cancer Society Postdoctoral Fellowship application. 2008.

Outstanding Work in Molecular Genetics and Cell Biology. Departmental award given to one graduate per year. The University of Chicago. 2006-2007.

Honorable Mention for Best Dissertation in the Biological Sciences Division. The University of Chicago. 2006-2007.

Outstanding Poster Award, Rustbelt RNA Meeting, 2004.

Biological Science Division’s Nominee for the William Rainey Harper Fellowship, The University of Chicago, 2004.

National Science Foundation Graduate Research Fellowship, Honorable Mention, 2001.

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Genetics and Regulation Training Grant Recipient from the National Institute of General Medical Sciences, The University of Chicago, 1999-2002.

Phi Beta Kappa Honor Society, The Zeta Chapter of Ohio, 1999.

Sigma Xi Research Society, Associate Member, 1999.

Highest Honors in Biology, Oberlin College, 1999.

Norman Wright Prize in Biology, Oberlin College, 1999.

## FUNDING SOURCES

Career Development Award from the Leukemia and Lymphoma Society. June 2008-June 2011.

## PUBLICATIONS

### *Original Peer Reviewed Articles:*

**Hilliker, A. K.**, Gao, Z., Jankowsky, E., and Parker, R.R. (2010) The DEAD-box protein Ded1 modulates translation by the formation and resolution of an eIF4F-mRNA complex. In press at Molecular Cell.

Beckham, C., **Hilliker, A.**, Cziko, A.M., Noueir, A., Ramaswami, M., and Parker, R. (2008) The DEAD-Box RNA Helicase Ded1p Affects and Accumulates in Saccharomyces cerevisiae P-Bodies. Mol Biol Cell, 19: 984-993.

**Hilliker, A. K.**, Mefford, M. A., and Staley, J. P. (2007) U2 toggles iteratively between the stem IIa and stem IIc conformations to promote pre-mRNA splicing. Genes and Development, 7: 821-834.

- Ranked as a paper of special interest in a review by Valadkhan, S. (2007) Current Opinion in Structural Biology, 17:310–315.
- Rated as a “must read” for “new finding” and “interesting hypothesis” by Reinhard Lührmann: Faculty of 1000 Biology, 17 Apr 2007  
<http://www.f1000biology.com/article/id/1078778/evaluation>

**Hilliker, A. K.** and Staley, J. P. (2004) Multiple functions for the invariant AGC triad of U6 snRNA. RNA, 10: 921-928.

- Ranked as a paper of outstanding interest in a review by Valadkhan, S. (2005) Current Opinion in Chemical Biology, 9: 603-8.

**Burkeen, A. K.**, Maday, S. L., Rybicka, K. K., Sulcove, J.A., Ward, J., Huang, M. M., Barstead, R., Franzini-Armstrong, C. and T. StC. Allen. (2004) Disruption of Caenorhabditis elegans Muscle Structure and Function Caused by Mutation of Troponin I. Biophysical Journal, 86: 991–1001.

### *Reviews and Commentaries:*

**Hilliker, A.** and Parker, R. (2008) Stressed out? Make some modifications! Nat Cell Biol, 10(10): 1129-1130.

- News and Views of Article: Ohn, T., Kedersha, N., Hickman, T., Tisdale, S., and Anderson, P. (2008) A functional RNAi screen links O-GlcNAc modification of ribosomal proteins to stress granule and processing body assembly. Nat Cell Biol, 10(10): 1224-1231.

### *Abstracts:*

Mefford, M.A., **Hilliker, A.K.** and Staley, J.P. (2005) Remodeling the Spliceosome for Exon Ligation. 10<sup>th</sup> Annual Meeting of the RNA Society. Madison, Wisconsin.

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- Preist, J., **Burkeen, A.**, Rybicka, K., Franzini-Armstrong, C., and T. St.C. Allen. (2001) Structural and Functional Disruption of Muscle Caused by Troponin I Mutation. 13<sup>th</sup> International *C. elegans* Meeting. Madison, Wisconsin.
- Burkeen, A. K.**, Arant, J. N., Cogen, J. F., Warren, N. A., and T. StC. Allen. (1999) Paralysis caused by Mutation of Troponin I in the Nematode *Caenorhabditis elegans*. Biophysical Journal 76: A278.

## PRESENTATIONS

### *Invited Presentations:*

- Hilliker, A.K.** and Parker, R. Ded1p, a DEAD-box ATPase, promotes transitions between translation, P-bodies, and stress granules. 14<sup>th</sup> Annual Meeting of the RNA Society, Madison, Wisconsin. May 2009.
- Hilliker, A.K.** and Parker, R. The role of an RNA-dependent ATPase in control of translation. MCDB/BMB Departmental Retreat, Portal, Arizona, October 2008.
- Hilliker, A.K.**, Buchan, R., Beckham, C., and Parker, R. Insight into translational control through the study of transitions in mRNP composition. 10<sup>th</sup> Anniversary of the Japan RNA Society Meeting. Invited to give platform talk during the session “Ambitious Young Scientists Looking toward the Next Decade.” Sapporo, Japan, July 2008.
- Hilliker, A. K.** & Staley, J. P. U2 snRNA remodels between the chemical steps of splicing. 11<sup>th</sup> Annual Meeting of the RNA Society, Seattle, Washington, June 2006.
- Hilliker, A. K.** & Staley, J. P. Identifying snRNA structures that promote exon ligation. Eukaryotic mRNA Processing Meeting, Cold Spring Harbor Laboratory, New York, August 2005.
- Burkeen, A. K.** & Staley, J. P. Investigation of the AGC Triad of U6 snRNA. Annual Molecular Biosciences Retreat, The University of Chicago, Galena, Illinois. October 2003.
- Burkeen, A. K.** & Staley, J. P. Investigation of the AGC Triad of U6 snRNA. Eukaryotic mRNA Processing Meeting, Cold Spring Harbor Laboratory, New York. August 2003.
- Burkeen, A. K.** & Staley, J. P. Investigation of the AGC Triad of U6 snRNA. 8<sup>th</sup> Annual Meeting of the RNA Society, Vienna, Austria. July 2003.
- Allen, T. S., **Burkeen, A. K.** and Sulcove, J. A. In Vivo Analysis of Troponin I Domains in Muscle Function. Sigma Xi Research Symposium at Oberlin College, Oberlin, Ohio. April 1999.

### *Invited Poster Presentations:*

- Hilliker, A.K.** & Parker, R. Ded1p, a DEAD-box ATPase, promotes transitions between translation, P-bodies, and stress granules. Howard Hughes Medical Institute RNA Meeting at Janelia Farms, Ashburn, Virginia. March 2009.
- Hilliker, A. K.**, Beckham, C. & Parker, R. A dual role for the DEAD-box ATPase Ded1p in translation. Keystone Symposia: Translational Regulatory Mechanisms, Coeur d’Alene, Idaho. January 2008.
- Hilliker, A. K.**, Scott, B. & Staley, J. P. Investigating the function and regulation of the AGC triad of U6 snRNA. Rustbelt RNA Meeting, Mt. Sterling, Ohio. November 2004.
- Hilliker, A. K.** & Staley, J. P. In vitro analysis of the AGC triad of U6. 9<sup>th</sup> Annual Meeting of the RNA Society, Madison, Wisconsin. June 2004.
- Burkeen, A. K.** & Staley, J. P. Investigation of the Formation and Function of Catalytic Core Component U2/U6 Helix Ib. Molecular Genetics Gordon Research Conference, New London, CT. July 2002.
- Burkeen, A. K.** & Staley, J. P. Investigating the Formation and Function of Catalytic Core Component U2/U6 Helix Ib. Seventh Annual Meeting of the RNA Society. Madison,

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Wisconsin. May 2002.

**Burkeen, A. K. & Staley, J. P.** Regulating Formation of U2/U6 Base-Pairing Through Unwinding of U2 Stem-loop I. Eukaryotic mRNA Processing. Cold Spring Harbor Laboratory, New York. August 2001.

**Burkeen, A. K. & Staley, J. P.** Regulating Formation of U2/U6 Base-Pairing Through Unwinding of U2 Stem-loop I. 6<sup>th</sup> Annual Meeting of the RNA Society. Banff, Alberta, Canada. May 2001.

**Burkeen, A. K., Sulcove, J. A., Bucher, E. A. and T. StC. Allen.** In Vivo Analysis of Troponin I Domains in Muscle Function. 12<sup>th</sup> International *C. elegans* Meeting. Madison, Wisconsin. June 1999.

## **WORKSHOPS/ ADDITIONAL TRAINING**

**GCAT Synthetic Biology Workshop**, June 2011, Missouri Western State University.