

Ann L. Kirchmaier

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Education and Research Experience:

<u>Institution and Location</u>	<u>Degree</u>	<u>Year Conferred</u>	<u>Field of Study</u>
St. Olaf College, Northfield, MN	B.A.	1988	Biology
University of Wisconsin, Madison, WI	Ph.D.	1997	Oncology

Current Position:

- 2009-Present Associate Professor. Department of Biochemistry, Purdue University, West Lafayette, IN.
- 2002-2009 Assistant Professor. Department of Biochemistry, Purdue University, West Lafayette, IN.

Previous Positions:

- 1997-2002 Postdoctoral Fellow. University of California, Department of Molecular and Cell Biology, Division of Genetics & Development, Berkeley, CA.
Advisor: Jasper Rine, Ph.D.
- 1991-1997 Graduate Student. University of Wisconsin, Department of Oncology, Madison, WI.
Dissertation: "Characterization of *oriP* and EBNA-1 of Epstein-Barr Virus."
Advisor: Bill Sugden, Ph.D.
- 1988-1991 Laboratory Assistant. Biotechnology, Quality Control Division, The Upjohn Company, Kalamazoo, MI.
- 1987 Research Internship in *Drosophila* Genetics. Washington University Medical School, St. Louis, MO. Advisor: Dan Hartl, Ph.D.

Fellowships, Awards and Honors:

- 2013 Millionaires Club, College of Agriculture, Purdue University
- 2012 Seed for Success Award, Purdue University
- 2012-2017 University Faculty Scholar, Purdue University
- 2009 Ellison Foundation Fellowship, Molecular Biology of Aging Workshop
- 2003-2005 Sidney Kimmel Scholar, Sidney Kimmel Foundation for Cancer Research
- 2001-2002 American Cancer Society Senior Postdoctoral Fellowship, PF-01-126-01-MBC
- 1998-2001 National Research Service Award, National Institutes of Health, 1 F32 GM19392
- 1991-1995 National Institutes of Health Predoctoral Fellowship, T32-CA-09135.
- 1991 National Science Foundation Fellow, Summer Institute in Japan for U.S. Graduate Students in Science and Engineering. Host: Eisai, Ltd., Tsukuba Science City, Japan
- 1987-1988 Alliss Educational Foundation Scholarship
- 1987-1988 Odden Scholarship
- 1986-1987 LB (In-College) Scholarship
- 1984-1988 Robert B. and Sophia Whiteside Scholarship

Professional Societies:

American Association for the Advancement of Science
Genetics Society of America
American Society for Microbiology

Publications:

Research Publications:

1. Jiji Chen, Andrew Miller, Ann L. Kirchmaier, and Joseph M.K. Irudayaraj. Single Molecule Tools Elucidate H2A.Z Nucleosome Composition. *J. Cell Sci.* 125:2954-64, 2012.
2. Andrew Miller, Jiji Chen, Taichi E. Takasuka, Jennifer L. Jacobi, Paul D. Kaufman, Joseph M.K. Irudayaraj, and Ann L. Kirchmaier. Proliferating Cell Nuclear Antigen (PCNA) Is Required for Cell-Cycle Regulated Silent Chromatin on Replicated and Nonreplicated Genes. *J. Biol. Chem.* 285:35142-35154, 2010.
3. Bo Yang, Andrew Miller and Ann L. Kirchmaier. HST3/HST4-Dependent Deacetylation of Lysine 56 of Histone H3 in Silent Chromatin. *Mol. Biol. Cell* 19:4993-5005, 2008.
4. Bo Yang, Jeanette Britton and Ann L. Kirchmaier. Insights into the Impact of Histone Acetylation and Methylation on Sir Protein Spreading and Silencing in *S. cerevisiae*. *J. Mol. Biol.* 381: 826-844, 2008.
5. Andrew Miller, Bo Yang, Tiaunn Foster and Ann L. Kirchmaier. Proliferating Cell Nuclear Antigen and ASF1 Modulate Silent Chromatin in *Saccharomyces cerevisiae* via Lysine 56 on Histone H3. *Genetics* 179:793-809, 2008.
6. Bo Yang and Ann L. Kirchmaier. Bypassing the Catalytic Activity of Sir2 for SIR Protein Spreading in *S. cerevisiae*. *Mol. Biol. Cell.* 17:5287-5297, 2006.
7. Ann L. Kirchmaier* and Jasper Rine. Cell-Cycle Requirements in Assembling Silent Chromatin in *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* 26:852-862, 2006. (*Corresponding author.)
8. Laura N. Rusché, Ann L. Kirchmaier and Jasper Rine. Ordered Nucleation and Spreading of Silenced Chromatin in *S. cerevisiae*. *Mol. Biol. Cell.* 13:2207-2222, 2002.
9. Ann L. Kirchmaier and Jasper Rine. DNA Replication-Independent Silencing in *S. cerevisiae*. *Science* 291:646-650, 2001.
10. Guanghuan Tu, Ann L. Kirchmaier, Denny Ligitt, Yong Liu, Wei Hong Yu, Shuqing Liu, Timothy D. Heath, Ann Thor and Robert J. Debs. Non-Replicating Epstein-Barr Virus-Based Plasmids Extend Gene Expression and Can Improve Gene Therapy *in vivo*. *J. Biol. Chem.* 275:30408-30416, 2000.
11. Ann L. Kirchmaier and Bill Sugden. Rep*: a Viral Element that Can Partially Replace the Origin of Plasmid DNA Synthesis of Epstein-Barr Virus. *J. Virol.* 72:4657-4666, 1998.
12. Ann L. Kirchmaier and Bill Sugden. Dominant-Negative Inhibitors of EBNA-1 of Epstein-Barr Virus. *J. Virol.* 71:1766-1775, 1997.
13. Ann L. Kirchmaier and Bill Sugden. Plasmid Maintenance of Derivatives of *oriP* of Epstein-Barr Virus. *J. Virol.* 69:1280-1283, 1995.

Invited Reviews and Commentaries:

1. Ann L. Kirchmaier. Creating Memories of Transcription. *Proc. Natl. Acad. Sci. USA* 110:13701-13702, 2013.
2. Tiffany J. Young and Ann L. Kirchmaier. Cell Cycle Regulation of Silent Chromatin Formation. *Biochem. Biophys. Acta.* 1819:303-312, 2012.

3. Ann L. Kirchmaier. Ub-Family Modifications at the Replication Fork: Regulating PCNA-Interacting Components. *FEBS Letters*. 585:2920-2928, 2011.
4. Laura N. Rusché, Ann L. Kirchmaier and Jasper Rine. The Establishment, Inheritance, and Function of Silenced Chromatin in *Saccharomyces cerevisiae*. *Annu. Rev. Biochem.* 72:481-516, 2003.

Invited Book Chapters:

1. Andrew Miller and Ann L. Kirchmaier. Analysis of Silencing in *S. cerevisiae*. *in Yeast Genetics: Methods and Protocols*, Jeffery S. Smith, Daniel Burke, Eds., Methods in Molecular Biology Vol. 1205, Jeffery S. Smith, Daniel Burke, Eds., Ch. 17, pp. 275-302, 2014. Humana Press, Springer Science+Business Media, NY.
2. Faeze Saatchi and Ann L. Kirchmaier. HATs, HDACs and the Regulation of Cellular Processes. D. A. Sanders, Ed., Ch. 3, Nova Publishers, Hauppauge, 2013. ISBN:978-1-62808-565-5.
3. Jennifer L. Jacobi and Ann L. Kirchmaier. Propagation of Epigenetic States during DNA Replication. *in Fundamental Aspects of DNA Replication*, Jelena Kusic-Tisma Ed., Ch. 14, pp. 245-270, InTech Publishing, Vienna, Austria, 2011. ISBN: 978-953-307-259-3.
4. Ann L. Kirchmaier. Analysis of Replication of *oriP*-Based Plasmids by Quantitative, Competitive PCR. *in EBV Protocols*, Vol. 174, Methods in Molecular Biology, Joanna Wilson, Ed., pp. 13-22, The Humana Press Inc., Totowa, NJ, 2001.
5. Ann L. Kirchmaier. Introduction of Plasmid Vectors into Cells via Electroporation. *in EBV Protocols*, Vol. 174, Methods in Molecular Biology, Joanna Wilson, Ed., pp. 137-145, The Humana Press Inc., Totowa, NJ, 2001.
6. Ann L. Kirchmaier. Tim A. Bloss, David Mackey and Bill Sugden. Epstein-Barr Viral Plasmid Vectors and Their Amplifiable Derivatives. *in Methods in Molecular Genetics*, Vol. 7: Viral Gene Techniques, Kenneth W. Adolph, Ed., pp. 65 – 86, Academic Press, Inc., San Diego, California, 1995.

Current Research Support:

National Awards:

“Live Single Cell Epigenetic Profiling at Single Molecule Resolution” 1/1/12-12/31/15
W. M. Keck Foundation
Role: Co-P.I.

“Single Cell Quantification of Splice Variants and Epigenetic Regulation of Splicing” 9/1/12-8/31/16
National Science Foundation
Role: Co-P.I.

“Science Learning through Engineering Design (SLED)” 9/15/10-8/31/17
National Science Foundation
Role: Collaborator-SLED Faculty Team Member

State and Institutional Awards:

“Quantitative Sensors for Oncometabolites Leading to Defects in Epigenetic Processes in AML, Gliomas and other Cancers” 6/1/15-5/31/16
Purdue Center for Cancer Research: Innovative Cancer Research Pilot Projects
Role: P.I.

“Factors Modulating Site-Directed Hydroxymethylation.” 5/1/15-4/30/16
Purdue University Biochemistry Department Seed Grants
Role: P.I.

“Replication, Epigenetics and Chromosome Organization Pilot.” 5/1/15-12/31/16
Office of the Vice President of Research, Purdue University
Role: P.I.

“Quantitative Sensors for Oncometabolites Leading to Defects in Epigenetic Processes in AML, Gliomas and other Cancers.” 6/1/15-5/31/16
Role: P.I.

“Synthesis of Cell-Permeable Compounds for Analysis of Epigenetic Processes” 10/1/15-9/30/16
Purdue Center for Cancer Research Shared Resource Project
Role: P.I.

“HI-seq Analyses of Changes in RNA Expression Profiles and their Association with Novel Epigenetic States” 10/1/15-9/30/16
Purdue Center for Cancer Research Shared Resource Project
Role: P.I.

Recent Awards Received by Trainees:

- 2010 Purdue Cancer Center Undergraduate SROP (recipient: undergraduate Zachary McBride)
- 2010 A. H. Ismail Interdisciplinary Program Doctoral Research Travel Award (recipient: graduate student Jennifer Jacobi)
- 2010 Genetics Society of America, 2010 Yeast Genetics and Molecular Biology Meeting Travel Award (recipient: graduate student Jennifer Jacobi)
- 2010 National Science Foundation REU (recipient: undergraduate Katherine Turpen)
- 2010 SURF (recipient: undergraduate Katherine Turpen)
- 2010 Purdue College of Agriculture Undergraduate Research Award (recipient: Amanda Campbell)
- 2012 Purdue College of Agriculture Undergraduate Research Award I, II (recipient: Elizabeth Bell)
- 2012 National Science Foundation; Biochemistry REU Program (recipient: undergraduate Fahkry Daowd)
- 2012, 2013 Purdue College of Agriculture Undergraduate Research Award I, II (recipient: Jessica Gabbard)
- 2012, 2013 Purdue College of Agriculture Undergraduate Research Award (recipient: Alex Kosiak)
- 2013 SURF (recipient: undergraduate Jessica Gabbard)
- 2014 Hassam and Adams Graduate Travel Award, Purdue Center for Cancer Research (recipient: graduate student Tiffany Young)
- 2014 Midwest Chromatin and Epigenetics Meeting Travel and Registration Grant (recipient: graduate student Tiffany Young)
- 2014 Purdue College of Agriculture Undergraduate Research Award (recipient: undergraduate Breanna Frailey)
- 2014 Purdue College of Agriculture Undergraduate Research Award (recipient: undergraduate Jacob Crosser)
- 2014 NSF REU (recipient undergraduate Lindsey Maurice-Walker)
- 2015 Bird Stair Research Fellowship (recipient: graduate student Faeze Saatchi)
- 2015 ASBMB UAN Summer Undergraduate Award (recipient: undergraduate Jacob Crosser)
- 2015 Carroll County Cancer Association PCCR Summer Undergraduate Award (recipient: undergraduate Jacob Crosser)
- 2015 Bird Stair Research Fellowship (recipient: graduate student Hunter Balduf)

2015 Bird Stair Research Fellowship (recipient: graduate student Tiffany Young)
2015 Purdue College of Agriculture Undergraduate Research Award (recipient:
undergraduate Breanna Frailey)

University Program and Center Memberships:

2012-Present Purdue Center for Drug Discovery
2009-Present Purdue Discovery Park; Bindley Biosciences Member
2005-Present Purdue Discovery Park; Oncological Sciences Center Member
2003-Present Purdue University Interdisciplinary Life Sciences Ph.D. Program (PULSe);
Administrative Member and Executive Committee Representative of the PULSe
Training Group Chromatin and Regulation of Gene Expression (ChARGE);
Participatory Member of the PULSe Training Groups Molecular Virology and Molecular
Signaling and Cancer Biology
2002-Present Purdue Cancer Center Member; Member of Cell Identity and Signaling Group