

Jeffrey S. Thompson

Associate Professor of Biology
Talbot Hall of Biological Science
Denison University
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EDUCATION:

The University of California, Los Angeles, California
Ph.D. in Molecular Biology, 1994

Kalamazoo College, Kalamazoo, Michigan
B.A. in Biology, *cum laude*, 1988

PROFESSIONAL POSITIONS HELD:

Denison University, Granville, Ohio
Associate Professor of Biology, since 2009
Assistant Professor of Biology, 2003-2009
Courses Taught: Introduction to the Science of Biology, Cell and
Molecular Biology, Genetics, Genomics, Immunology
Research Program: The role of histone modifications in DNA damage
repair in *Saccharomyces cerevisiae*

Georgian Court College, Lakewood, New Jersey
Assistant Professor of Biology, 1998-2003
Courses Taught: Immunology, Introductory Biology,
Introduction to Genetics, Molecular Genetics, Advanced
Immunology, Advanced Molecular Genetics
Research Program: The role of histones in heterochromatin-mediated
silencing in *Saccharomyces cerevisiae*

Anne Arundel Community College, Arnold, Maryland
Adjunct Biology Faculty, 1997-1998
Courses Taught: Introductory Biology

The Johns Hopkins University School of Medicine, Baltimore, Maryland
Post-Doctoral Research Fellow, 1994-1998
Research Advisor: Dr. Andrew Feinberg
Project: Regulation of genomic imprinting in humans

The University of California, Los Angeles, California

Graduate Student Researcher 1991-1994

Staff Research Associate, 1989-1991

Research Advisor: Dr. Michael Grunstein

Doctoral Dissertation: The role of the histone N termini in heterochromatin-like repression in *Saccharomyces cerevisiae*

The Upjohn Company, Kalamazoo, Michigan

Laboratory Technician, 1988

Research Advisor: Dr. Russ Lehrman

Project: Bovine somatotropin receptor binding *in vivo*

National Institutes of Health, Bethesda, Maryland

Laboratory Technician/Undergraduate Research Student, 1987

Research Advisor: Dr. Bruce Chassy

Senior Undergraduate Thesis Project: Characterizing a novel β -galactosidase gene from *Lactobacillus casei*

Kalamazoo College, Kalamazoo, Michigan

Teaching Assistant, 1987-1988

Courses Taught: Cell Biology, General Zoology

PUBLICATIONS:

*undergraduate student co-author; †graduate student co-author; ‡equal contributing authors

Shaffer C,...(42 other co-authors), **Thompson JS**,...(5 other co-authors), and Elgin SCR. 2010. The Genomics Education Partnership: Successful Integration of Research into Laboratory Classes at a Diverse Group of Undergraduate Institutions. *CBE-Life Sciences Education* 9:55-69.

Lopatto D,...(28 other co-authors), **Thompson JS**,...(7 other co-authors), and SCR Elgin. 2008. Genomics Education Partnership. *Science* 322:684-685.

Evans ML*, Bostelman LJ*, Albrecht AM*, Keller AM*, Strande NT*, and **JS Thompson**. 2008. UV sensitive mutations in histone H3 in *Saccharomyces cerevisiae* that alter specific K79 methylation states genetically act through distinct DNA repair pathways. *Current Genetics* 53:259-274.

Bostelman LJ*, Keller AM*, Albrecht AM*, Arat A*, and **JS Thompson**. 2007. Methylation of histone H3 lysine-79 by Dot1p plays multiple roles in the response to UV damage in *Saccharomyces cerevisiae*. *DNA Repair* 6:383-395.

- Smith PH[†] and **JS Thompson**. 2003. Has polyploidy shaped the evolution of the eukaryotic genome? A re-examination of Ohno's genome duplication hypothesis. *Bios* 74:110-117.
- Thompson JS**, Snow ML[†], Giles S*, McPherson LE*, and M Grunstein. 2003. Identification of a functional domain within the essential core of histone H3 that is required for telomeric and *HM* silencing in *Saccharomyces cerevisiae*. *Genetics* 163:447-452.
- Cost GJ, **Thompson JS**, Reichard B-A, Lee J-Y, and AP Feinberg. 1997. Lack of imprinting of three human cyclin-dependent kinase inhibitor genes. *Cancer Res.* 57:926-929.
- Thompson JS**, Reese KJ, DeBaun MR, Perlman EJ, and AP Feinberg. 1996. Reduced expression of the cyclin-dependent kinase inhibitor gene p57^{KIP2} in Wilms Tumor. *Cancer Res.* 56:5723-5727.
- Matsuoka S[‡], **Thompson JS**[‡], Edwards MC, Barletta JM, Grundy P, Kalikin LM, Harper JW, Elledge SJ, and AP Feinberg. 1996. Imprinting of the gene encoding a human cyclin-dependent kinase inhibitor, p57^{KIP2}, on chromosome 11p15. *Proc. Natl. Acad. Sci. USA* 93:3026-3030.
- Feinberg AP, Kalikin LM, Johnson LA, and **JS Thompson**. 1994. Loss of imprinting in human cancer. *Cold Spring Harbor Symp. Quant. Biol.* 59:357-364.
- Thompson JS**, Ling X, and M Grunstein. 1994. Histone H3 N terminus is required for telomeric and silent mating locus repression in yeast. *Nature* 369:245-247.
- Thompson JS**, Johnson LM, and M Grunstein. 1994. Specific repression of the yeast silent mating locus *HMR* by an adjacent telomere. *Mol. Cell. Biol.* 14:446-455.
- Thompson JS**, Hecht A, and M Grunstein. 1993. Histones and the regulation of heterochromatin in yeast. *Cold Spring Harbor Symp. Quant. Biol.* 58:247-256.

PRESENTATIONS:

[‡]presenting author; *undergraduate student co-author; [†]graduate student co-author

- Thompson JS**[‡], Rossodivita AA*, and MR Ansbro*. Regulation of UV repair via sister chromatid exchange by distinct histone H3 K79 methylation states in *Saccharomyces cerevisiae*. *Yeast Genetics and Molecular Biology Meeting*, 2010.

- Chung H-M, Frohlich DR, **Thompson JS**[‡], Shaw M, Leung W, Shaffer C, Lopatto D, and SCR Elgin. The Genomics Education Partnership: Bringing Genomics into the Undergraduate Curriculum in Diverse Settings (poster). 2nd RECOMB Satellite Conference on Bioinformatics Education, 2010.
- Rossodivita AA^{‡*} and **JS Thompson**. Unlocking the roles of distinct histone H3 lysine-79 methylation states in recombination repair in *Saccharomyces cerevisiae* (poster). Ohio Academy of Science Meeting, 2010.
- Ansbro MR*, Mecoli JP*, Rossodivita AA*, and **JS Thompson**[‡]. Histone H3 K79 methylation states play distinct roles in DNA damage checkpoint response and recombination repair in *Saccharomyces cerevisiae* (poster). FASEB Summer Research Conference on Epigenetics, Chromatin, and Transcription, 2009.
- Bhatiya CIS^{‡*}, Havill JT, and **JS Thompson**. An Algorithm for Detecting TPP Riboswitches in Archaea (poster). Ohio Collaborative Conference on Bioinformatics, 2009.
- Strande NT*, Evans ML*, Lee AE*, Albrecht AM*, Keller AM*, and **JS Thompson**[‡]. Histone H3 K79 methylation states, regulated by histone H4 acetylation, play distinct roles in response to DNA damage caused by UV radiation in *Saccharomyces cerevisiae* (poster). FASEB Summer Research Conference on Yeast Chromosome Structure, Replication and Segregation, 2008.
- Evans ML*, Albrecht AM*, Bostelman LJ*, Keller AM*, and **JS Thompson**[‡]. Histone H3 K79 methylation and histone H4 acetylation play multiple overlapping roles in the response to UV damage in *Saccharomyces cerevisiae* (poster). FASEB Summer Research Conference on Chromatin & Transcription, 2007.
- Albrecht AM*, Evans ML*, Bostelman LJ*, Keller AM*, and **JS Thompson**[‡]. Histone H3 plays multiple methylation-dependent and independent roles in the response to UV damage in *Saccharomyces cerevisiae* (platform presentation). The 9th Annual Midwest DNA Repair Symposium, 2007.
- Evans ML^{‡*} and **JS Thompson**. Acetylation states of lysine residues in the histone H4 N-terminus have a combinatorial effect on UV-induced DNA damage repair in *Saccharomyces cerevisiae* (poster). The 9th Annual Midwest DNA Repair Symposium, 2007.

- Thompson JS[‡]**, Bostelman LJ*, Keller AM*, and A Arat*. Histone H3 plays diverse roles in post-replication repair and nucleotide excision repair of UV-damaged DNA (poster). Yeast Genetics and Molecular Biology Meeting, 2006.
- Bostelman LJ* and **JS Thompson[‡]**. The histone H3 silencing domain participates in Rad6/Rad18-dependent post-replication repair of UV-induced DNA damage (platform presentation). The 7th Annual Midwest DNA Repair Symposium, 2005.
- Bostelman LJ^{‡*} and **JS Thompson**. A domain in histone H3 of *Saccharomyces cerevisiae* plays dual roles in gene silencing and repair of UV-damaged DNA via the Rad6-Rad18 repair pathway (poster). The 9th Annual Council on Undergraduate Research “Posters on the Hill” Event, 2005.
- Thompson JS[‡]**. Analysis of the role of glutamate-73 in histone H3 in the function of a nucleosomal surface silencing domain in yeast (poster). The 69th Cold Spring Harbor Symposium on Quantitative Biology: Epigenetics, 2004.
- Wood M^{‡†} and **JS Thompson**. Highly conserved histone H3 from *Schizosaccharomyces pombe* cannot functionally replace endogenous histone H3 in *Saccharomyces cerevisiae* (platform presentation). New Jersey Academy of Science Annual Meeting, 2003.
- Thompson JS[‡]**, McGough A*, and M Grunstein. The role of histone H3 in heterochromatin-mediated transcriptional silencing in *Saccharomyces cerevisiae* (poster). Yeast Genetics and Molecular Biology Meeting, 2000.
- Thompson JS[‡]**, McGough A*, and M Grunstein. Single amino acid substitutions in the core domain of histone H3 cause derepression of telomeric silencing in *Saccharomyces cerevisiae* (platform presentation). New Jersey Academy of Science Annual Meeting, 2000.
- Smith A^{‡*} and **JS Thompson**. A method for the identification of eukaryotic genomic boundary elements in yeast (platform presentation). New Jersey Academy of Science Annual Meeting, 2000. *Awarded Best Undergraduate Presentation, New Jersey Academy of Science Annual Meeting, 2000.*
- Palanker L^{‡†} and **JS Thompson**. Hormonal control of GCDFP expression in fibrocystic breast cells and implications for pathogenesis of mammary cancer (platform presentation). New Jersey Academy of Science Annual Meeting, 2000. *Awarded Best Graduate Presentation, New Jersey Academy of Science Annual Meeting, 2000.*

Thompson JS[‡] and AP Feinberg. A repeat element at the centromeric boundary of the human 11p15 imprinting domain possesses a telomere-like silencing function (platform presentation). New Jersey Academy of Science Annual Meeting, 1999.

Smith A^{‡*}, Alexander PJ*, and **JS Thompson**. Identification and characterization of genomic boundary elements utilizing a chromatin structure assay (platform presentation). New Jersey Academy of Science Annual Meeting, 1999.

Thompson JS[‡], Reese K, Matsuoka S, Elledge SJ, and AP Feinberg. Imprinting of human p57^{KIP2} on chromosome 11p15 and its role in Wilms' Tumor and Beckwith-Wiedemann Syndrome (poster). Keystone Symposia on Molecular and Cellular Biology: Transcriptional Mechanisms, 1996.

Thompson JS[‡] and M Grunstein. The involvement of histones in telomeric repression (platform presentation). FASEB Summer Research Conference on Chromatin and Transcription, 1993.

Thompson JS[‡] and M Grunstein. Regulation of yeast silent mating locus *HMR* by a proximal telomere (platform presentation). Arrowhead Genetics Conference, 1992.

Thompson JS[‡], Johnson L, and M Grunstein. Differences between yeast silent mating loci *HML* and *HMR* affect the extent of derepression in histone H4 mutant strains (poster). Yeast Genetics and Molecular Biology Meeting, 1991.

RESEARCH ADVISING:

Undergraduate Research Students & Projects:

Denison University:

- Arron Cole: Examining UV sensitivity in yeast strains deficient for Swi4. Fall 2010-Spring 2011.
- Anna Boudoures: Characterization of a UV-induced histone “crosstalk” pathway in *Saccharomyces cerevisiae*. Spring-Summer 2010, Spring 2011.
- Jacob Pfeil: Examining UV-induced changes in histone H3 lysine-79 methylation states by MALDI-TOF mass spectrometry (in the laboratories of Dr. Karolin Luger and Dr. Jessica Prenni at Colorado State University), Summer 2010, Spring 2011.

- John Snee: Evaluating the role of histone H3 lysine-79 dimethylation in UV repair via a *swi4* knockout in *Saccharomyces cerevisiae*. Spring-Summer 2010.
- Alyssa Rossodivita: Evaluating the role of histone H3 lysine-79 methylation in recombination repair in *Saccharomyces cerevisiae*. Summer 2008, Fall 2009-Spring 2010 (senior research w/ departmental recognition).
- Megan Ansbro: Analysis of the structural significance of histone H3 glutamate-73 by X ray crystallography (in the laboratory of Dr. Karolin Luger at Colorado State University), Summer 2008; Evaluating the effects of histone H3 K79 methylation in sister chromatid recombination, Fall 2008-Spring 2009 (high honors).
- Chinmoy Bhatiya: Investigating TPP riboswitches in Archaea using computational algorithms, Fall 2008-Spring 2009 (co-adviced with Jessen Havill; high honors)
- Jon Mecoli: X ray crystallographic analysis of the histone H3 E73D mutation (in the laboratory of Dr. Karolin Luger at Colorado State University), Summer 2007; Study of the role of histone H3 K79 methylation states in DNA damage checkpoint response in *Saccharomyces cerevisiae*, Summer 2008-Spring 2009 (high honors).
- Ariel Lee: Examination of the role of histone H3 lysine-79 methylation in nucleotide excision repair in *Saccharomyces cerevisiae*. Summer 2007-Spring 2008 (high honors).
- Natasha Strande: Evaluating the relationship between histone H4 N terminal acetylation and H3 lysine-79 methylation in response to UV damage in *Saccharomyces cerevisiae*. Summer 2007-Spring 2008 (senior research project).
- Ashley Albrecht: Epistasis analysis between UV sensitive histone H3 mutations and members of the post-replication repair pathway. Summer 2006-Spring 2007 (high honors).
- Margery Evans: Assessing the effect of the histone H3 E73D mutation on post-translational modifications in the histone H4 N terminus. Summer 2006-Spring 2007 (high honors).

- Andrew Keller: Examining the role of histone H3 in nucleotide excision repair and error-free versus error-prone repair of UV damaged DNA. Summer 2005-Spring 2006 (high honors).
- Karen Siklosi: Point mutations in the human CFTR promoter reveal potential transcriptional regulatory elements that may contribute to clinical phenotypes observed in Cystic Fibrosis (done at Case Western Reserve University). Summer 2005-Fall 2005 (high honors).
- Arzu Arat: Epistatic analysis of Rad52 and Rad6 DNA repair pathways and UV-sensitive histone H3 mutations in *Saccharomyces cerevisiae*. Summer 2005.
- Lindsey Bostelman: A structural domain in histone H3 of *Saccharomyces cerevisiae* plays dual roles in gene silencing and repair of UV-damaged DNA via the Rad18-dependent post-replication repair pathway. Summer 2004-Spring 2005 (high honors).
- Katherine McHugh: The Histone H3 Telomeric Silencing Domain Cooperatively Functions with Transcriptional Silencing Protein Sir3 to Play a Distinct Role in the Repair of DNA Damage Caused by Methyl Methane Sulfonate. Summer 2004-Spring 2005 (honors).
- Leigh Stone: Post-Translational Modifications of Histones H3 and H4 are Important in UV-Mediated DNA Damage Repair in *Saccharomyces cerevisiae*. Summer 2004-Spring 2005 (honors).

Georgian Court College:

- Marci Maloney: Histone H3 silencing mutations cause increased sensitivity to shortwave UV radiation. Spring 2003.
- Susan Karl: Restoration of yeast telomeric silencing in histone H3 mutant strains by *sir3* suppressor mutations. Fall 2002-Spring 2003.
- Leslie McPherson: Evaluation of the effects of mutations in histone H3 on temperature- and UV-sensitivity, and basal transcription in *Saccharomyces cerevisiae*. Spring 2001-Spring 2002.
- Elena Pappas: Analysis of the *Drosophila* scs boundary element as a heterochromatin barrier in *Saccharomyces cerevisiae*. Summer 2001.

- Summer Giles: Analysis of yeast histone H3 silencing mutations on basal transcription at the *GALI* promoter. Spring 2001.
- Amy Smith: Development of a yeast system for the analysis of genomic boundary elements. Spring 1999-Spring 2000.
- Audrey McGough: Analysis of temperature-sensitive histone H3 mutations in yeast. Fall 1999.
- Pamela Alexander: Subcloning of the mouse H19 boundary element. Spring 1999.

Masters Thesis Projects (Georgian Court College):

- Karen Snyder: The role of IBRE-1 from the human 11p15 imprinting locus as a genomic boundary element. Spring 2001-Spring 2003.
- Matthew Wood: Functional analysis of the evolutionary conservation of histone H3. Spring 2001-Fall 2002.
- Marilyn Snow: Histone H3 core protein and its involvement in silencing at the telomeres and silent mating loci in *Saccharomyces cerevisiae*. Fall 2000-Spring 2002.
- Maureen Burke: Analysis of the human IBRE-1 repeat sequence as a potential fragile site and transcriptional silencer on chromosome 11p15. Spring 2000-Spring 2002.
- Pamela Smith. Has whole genome duplication shaped the genome? (thesis review paper). Fall 2001.
- Laura Palanker: Hormonally regulated expression in fibrocystic breast cells: implications for cancer. Spring 1999-Summer 2001.
- Christine Burke: Analysis of immunosuppressive drugs in a murine model system (research done at Bristol-Myers Squibb). Spring 1999-Fall 2000.

AWARDS AND ACHIEVEMENTS:

Denison University:

National Institutes of Health R15 Academic Research Enhancement Award (1R15GM093849-01), 2010-2013; \$317,852

Great Lakes Colleges Association New Directions Grant, 2010 (co-written with Jessen Havill); \$3,765

Denison University Research Foundation Grant, 2010; \$5,506

Denison University Research Foundation Grant, 2009; \$1,474

Denison University Research Foundation Grant, 2006; \$6,329

Georgian Court College:

Faculty Award for Innovative Use of Technology in the Classroom, 2001

Faculty Summer Research Grant, 2001

The Johns Hopkins University:

NRSA Postdoctoral Fellowship (5T32CA009071-18), The Johns Hopkins University School of Medicine Oncology Center, 1997-1998

The University of California, Los Angeles:

NRSA Cell and Molecular Biology Training Grant Award (5T32GM007185-20), 1992-1994

UCLA Chancellor's Fellowship, 1991-1992

Kalamazoo College:

Elected to Phi Beta Kappa, 1988

Senior Biology Fellow, 1988

Diebold Biology Scholar, 1987

Heyl Science Scholarship, 1984-1988

Dean's List, 1984-1988

Academic High Honors, 1984-1985

SERVICE ACTIVITIES:

Denison University:

Faculty Development Committee, since 2010

Phi Beta Kappa:

President of Theta of Ohio Chapter, since 2007

Chapter member, since 2003

Sigma Xi Chapter member, since 2007

Anderson Scholarship Selection Committee, 2007-2008, 2010

Board of Trustees Student Affairs Committee, 2008-2009

Denison Scientific Association co-organizer, 2008-2009

Board of Academic Integrity, 2007-2009

Campus Affairs Council, 2007-2009

Board of Trustees Enrollment Committee, 2005-2007

Georgian Court College:

Academic Excellence Night Organizer, 2003
Planning and Resource Allocation Council, 2002-2003
Research Standards Committee, 2002-2003
Faculty Development Collaborative in Technology, 2002-2003
Academic Excellence Night Co-Organizer, 2002
Academic Computing and Technology Committee, 2001-2003
Library Committee, 1999-2001
Biology Graduate Admissions Subcommittee, 1998-2003

Research-Related:

Journal reviewer for *BMC Molecular Biology*, 2009
Journal reviewer for *Genetics*, 2008
Journal reviewer for *Photochemistry and Photobiology*, 2008
Reviewer for the National Research Foundation (South Africa), 2008
Ohio State Science Fair Judge, 2004

PROFESSIONAL MEMBERSHIPS:

Sigma Xi, since 2007
Genomics Education Partnership, since 2007
Genetics Society of America, since 2000
Beta Beta Beta Biology Honor Society, since 1998
Phi Beta Kappa, since 1988