BRETT J. SCHOFIELD

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EDUCATION

Ph.D. **University of California, Berkeley**
Molecular and Cell Biology, Dec 2013

Dissertation – Satb1 as Traffic Cop: Directing Chromatin Compaction, Transcription, and Molecular Flux
Jan Liphardt (chair), Carlos Bustamante (co-chair), Gary Karpen, and Robert Fischer

Examination Fields: Genetics, Molecular Biology, Cell Biology, Immunology, and Microscopy.

BA **Lewis and Clark College**
Biochemistry and Molecular Biology, *Cum laude*, 2007

Honors Thesis – Exploring the *in vivo* consequences of severing the Ltv1:RpS3 interaction.
Deborah Lycan (chair)

TEACHING EXPERIENCE

Principles of Microbiology; Diablo Valley College Spring 2015
Fundamentals of Biological Science; Diablo Valley College Sp '14 / Sp '15
Fundamentals of Biological Science with Laboratory; Diablo Valley College Sp '14 - Fa'15
I independently taught multiple sections of introductory biology (including courses for majors), and an advanced microbiology course with a laboratory component as an Adjunct Instructor. I designed all the course content, homework, quizzes, and exams. I held regular office hours and review sessions, and helped mentor students.

Biology Bootcamp; Diablo Valley College Fall 2015
I designed and taught a one day preparatory course for MESA (Math, Engineering, Science Achievement) students who were starting or continuing their education in the life sciences. MESA seeks to help educationally and economically disadvantaged students by providing them with individualized mentorship, and preparation specific to the science and engineering fields.

Facilitating Discussion in STEM Fields; University of California, Berkeley Fall 2013
I was invited to teach a workshop for new Graduate Student Instructors. It focused on fostering student engagement through the application of active learning techniques.

Genetics, Genomics, and Cell Biology; University of California, Berkeley Spring 2010
Cell and Systems Biology; University of California, Berkeley Fall 2008
I served as a Graduate Student Instructor for these two upper-division courses. I independently taught two discussion sections of ~30 students for each course. I designed problem sets, administered quizzes, and held both regular office hours and weekly mini-review sessions.

Investigations in Cell and Molecular Biology; Lewis and Clark College Spring 2007
As a Teaching Assistant, I set up and tested laboratory experiments and helped students conduct them. I administered and graded a practical laboratory final examination.

PROFESSIONAL TRAINING

An Introduction to Evidence-Based Undergraduate STEM Teaching 2014

I received a Statement of Accomplishment for the successful completion of this six-week long massive open online course (MOOC) produced by the Center for the Integration of Research, Teaching, and Learning (CIRTL) on current research into effective pedagogical methods in the STEM fields, and how to implement these findings into the classroom.

Summer Institute for Preparing Future Faculty, UC Berkeley 2013

I completed a competitive six week program on pedagogy and the responsibilities of a faculty member within the university system.

Mentoring Series Workshop, UC Berkeley 2013

I attended a month long course on fostering positive mentor-mentoree relationships in the classroom and laboratory.

Laboratory Safety Officer, UC Berkeley 2008-2013

I applied for and received BSL2 Biological Use Authorization for my laboratory, oversaw the training of new lab personnel, and ensured that the lab was in compliance with new federal and state safety requirements.

Syllabus and Course Design Workshop, UC Berkeley 2012

I participated in a workshop series devoted to developing new courses, including setting clear learning objectives, designing worthwhile assignments, and selecting appropriate assessment techniques.

Graduate Student Instructor Training, UC Berkeley 2008

My training included a semester-long course on pedagogy in the life sciences, an online course on Professional Standards and Ethics of Teaching, and a conference on teaching styles and techniques.

RESEARCH EXPERIENCE

University of California, Berkeley; Berkeley, CA 2007-2013

Graduate Student with Dr. Jan Liphardt and Dr. Carlos Bustamante

Independent biophysical inquiries into the ability of the chromatin architectural proteins Satb1, Satb2, and CTCF to alter the local and global organization of chromatin, and the consequences of these changes to the transcription of affected genes. Techniques used include:

- A number of confocal and traditional fluorescence microscopy techniques including: FRAP, *in vivo* FRET, FISH, Single-Molecule RNA FISH, correlation spectroscopy, PCF, and Immunofluorescence.
- Maintenance of mammalian tissue culture lines, Murine stem cells, and primary Murine thymocytes, as well as the creation of new genetically stable cell lines.
- A variety of cloning techniques including Sequence and Ligase Independent Cloning (SLIC), and the creation of long repeated sequences such as LAC arrays.

Lewis and Clark College; Portland, OR 2005-2007

Undergraduate Research Assistant with Dr. Deborah Lycan

Genetic investigation of the factors that control the nuclear export of the small (40S) ribosomal subunit in *S. cerevisiae*. Techniques used include:

- Genetic screening and manipulations in budding yeast.
- Detecting protein interaction domains by site-directed mutagenesis and two-hybrid assays.
- Time-lapse fluorescence microscopy.

University of Utah; Salt Lake City, UT 2002-2004
Summer Research Assistant with Dr. Thomas M. McIntyre
I examined platelets to see if they had the the ability to splice unmodified pre-mRNA sequences, and what mechanisms they had to regulate the process. Techniques used include:

- Traditional and quantitative PCR.
- Creation of an optimized protocol for the preparation of platelet cell extracts.

PEER-REVIEWED PUBLICATIONS

- Fassio CA, **Schofield BJ**, Seiser RM, Johnson AW, and Lycan DE. (2010). Dominant mutations in the late 40S biogenesis factor Ltv1 affect cytoplasmic maturation of the small ribosomal subunit in Saccharomyces cerevisiae. *Genetics.* 185(1):199-209.

MANUSCRIPTS IN PREPARATION

- **Schofield BJ**, Ghosh RP, Shi Q, and Liphardt JT. In vivo biophysical characterization of Satb1 and competition with Satb2.
- **Schofield BJ**, Ghosh RP, Shi Q, and Liphardt JT. Satb1 induces global chromatin reorganization that is independent of initial chromatin configuration.

PRESENTATIONS OF ORIGINAL RESEARCH

- *Mechanisms of Gene Regulation.* Invited speaker for the Mathematics, Engineering, Science Achievement (MESA) program seminar series at Diablo Valley College, Pleasant Hill, CA; April 2015.
- *Satb1 as traffic cop: Changing the path of molecular diffusion in the nucleus.* Oral presentation at the Asilomar Chromatin and Chromosomes Conference, Pacific Grove, CA; December 2014.
- *Satb1 as Traffic Cop: Directing Chromatin Compaction, Transcription, and Molecular Flux.* Invited speaker for the Biochemistry and Molecular Biology Seminar Series at Lewis and Clark College, Portland, OR; February 2014.
- *Binding MARs through alternative domain cooperation: A Satb1 story.* Oral presentation at the Asilomar Chromatin and Chromosomes Conference, Pacific Grove, CA; December 2013.
- *A three way control of nuclear homeostasis – Satb1 at the crossroads of chromatin architecture, transcriptional state and molecular flux between chromatin compartments.* Poster presentation at the Physical Sciences Oncology Center Annual Meeting, Tampa Bay, FL; April, 2012.
- *Spatiotemporal analysis of Satb1/Satb2 nuclear dynamics reveals a picture of context dependent cooperation and competition.* Poster presentation at Bay Area Physical Sciences Oncology Center Annual Site Visit, San Francisco, CA; September, 2011.
- *Exploring Fibrillar Collagen Organization and the Organization of Satb1 Nuclear Architecture.* Poster presentation at Bay Area Physical Sciences Oncology Center Annual Site Visit, San Francisco, CA; September, 2010.
- *Specific mutations in Ltv1 affect 40S ribosome subunit export and cytoplasmic maturation.* Poster presentation at the American Society for Cell Biology Annual Meeting, San Francisco, CA; December 2008.
- *How young ribosomes get out of the house*. Oral presentation at the Murdock College Science Research Conference, Forest Grove, OR; October 2006.
- *Exploring the role of the putative Nuclear Export Sequence region of Ltv1*. Oral and poster presentation at the John S. Rogers Research Program Presentations, Portland, OR; July, 2006.
- *Exploring the role of LTV1 in Nuclear Export of the 40S ribosomal subunit*. Oral and poster presentation at the John S. Rogers Research Program Presentations, Portland, OR; July, 2005.