

Curriculum Vitae
Sean L. Beckwith, Ph.D.

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CV Prepared: September 2021

EDUCATION

- April 2018 **Ph.D.** from Stanford University, Stanford, CA
Department of Biology – Cell, Molecular and Organismal Biology Ph.D. program
Dissertation Advisor: Dr. Ashby Morrison
Dissertation Committee: Dr. Tim Stearns, Dr. Or Gozani, Dr. Joe Lipsick
Dissertation Title: “Genetic interaction mapping identifies the INO80 chromatin remodeler as a key metabolic regulator in yeast”
- June 2012 **B.A.** from Carleton College, Northfield, MN
Magna Cum Laude; Biology Major, Biochemistry Concentration

RESEARCH POSITIONS

- 2018 - present **Postdoctoral Research Fellow** with Dr. David Garfinkel, University of Georgia
- 2013 - 2018 **Doctoral Student** with Dr. Ashby Morrison, Stanford University
Dissertation: “Genetic interaction mapping identifies the INO80 chromatin remodeler as a key metabolic regulator in yeast”
- Spring 2013 **Graduate Rotation Student** with Dr. Martha Cyert, Stanford University
Studies of calcineurin substrate specificity
- Winter 2013 **Graduate Rotation Student** with Dr. Ashby Morrison, Stanford University
Studies of subunit roles in the yeast INO80 chromatin remodeling complex
- Fall 2012 **Graduate Rotation Student** with Dr. Mary Beth Mudgett, Stanford University
Studies of plant host-microbe interaction
- Summer 2011 **Summer Undergraduate Research Fellow** with Dr. Mary Lou Guerinot, Dartmouth College
Project: “Characterization of *At4g33666* in *Arabidopsis thaliana*”
- Summer 2010 **Summer Undergraduate Research Fellow** with Dr. Michael Buszczak, University of Texas Southwestern Medical Center
Project: “Improved targeting of exogenous DNA to generate knockouts in *Drosophila*”

FELLOWSHIPS & AWARDS

Research Fellowships

- 2020-2022 **NIH F32 Ruth L. Kirschstein National Research Service Award (NRSA)**
- 2015-2016 **Stanford Genome Training Program**
The SGTP is an NIH-funded training program for nominated students in genomics.
- 2012-2015 **Stanford Graduate Fellowship**
The SGF Science and Engineering 3-year full fellowship is awarded on a nomination basis to a limited number of students annually.

- 2014 **National Science Foundation Graduate Research Fellowship Program** – Honorable Mention.
- 2011 **Summer Undergraduate Research Fellowship**, Dartmouth College
- 2010 **Summer Undergraduate Research Fellowship**, University of Texas Southwestern Medical Center

Teaching Awards

- 2015 **Excellence in Teaching Award** – Stanford Biosciences, Stanford University
Awarded to two students annually “whose teaching distinguishes them as valued contributors to the School of Medicine and Biosciences community”.
- 2014 **Excellence in Teaching Award** – Department of Biology, Stanford University
Awarded to top 20% Teaching Assistants in department each year. Award received for teaching Bio 44X.
- 2013 **Excellence in Teaching Award** – Department of Biology, Stanford University
Awarded to top 20% Teaching Assistants in department each year. Award received for teaching Bio 44X.

Additional Awards

- 2021 **Professional Development Support Fund Award** – Postdoctoral Association, UGA
Awarded for presentation at CSHL Transposable Element Meeting, Oct 2020.

PUBLICATIONS

ORCID: 0000-0001-6559-1030

- Cottee M[#], **Beckwith S[#]**, Letham S, Kim S, Young G, Stoye J, Garfinkel D, Taylor A. Structure of a Ty1 Restriction Factor Reveals the Molecular Basis of Transposition Copy Number Control. *Nature Communications*. **2021**. doi:10.1038/s41467-021-25849-0.
- Beckwith S**, Schwartz E, Garcia-Nieto P, King A, Gowans G, Wong K, Yao W, Eckley T, Paraschuk A, Peltan E, Lee L, Morrison AJ. The INO80 Chromatin Remodeler Sustains Metabolic Stability by Promoting TOR Signaling and Regulating Histone Acetylation. *PLoS Genetics*. **2018**. doi:10.1371/journal.pgen.1007216.
- Zhou C[#], Johnson S[#], Lee L, Longhurst A, **Beckwith S**, Johnson M, Morrison A, and Narlikar G. The Yeast INO80 Complex Operates as a Tunable DNA Length-Sensitive Switch to Regulate Nucleosome Sliding. *Molecular Cell*. **2018**. doi:10.1016/j.molcel.2018.01.028.
- Yao W[#], King D[#], **Beckwith S**, Gowans G, Yen K, Zhou C, and Morrison AJ. The INO80 Complex Requires the Arp5-Ies6 Subcomplex for Chromatin-Remodeling and Metabolic Regulation. *Molecular and Cellular Biology*. **2016**. doi:10.1128/MCB.00801-15.
- Yao W, **Beckwith S**, Zheng T, Young T, Dinh V, Ranjan A, and Morrison AJ. Assembly of the Arp5 Subunit Involved in Distinct INO80 Chromatin-Remodeling Activities. *The Journal of Biological Chemistry*. **2015**. doi:10.1074/jbc.M115.674887.

[#] = *co-first author*

TEACHING & MENTORING EXPERIENCE

Courses / Instructor of Record

- Winter 2018 BIOL 119: Neurogenetics, San Jose State University
Prepared and taught an upper-division undergraduate cellular and molecular neuroscience course.
- Fall 2016 BIO 296: TA Training in Biology, Stanford University

Taught curriculum on pedagogical techniques for graduate teaching assistants teaching undergraduate biology courses.

Courses / Guest Lectures

- Oct 2019 BCMB 3100: Introduction to Biochemistry and Molecular Biology, University of Georgia
Prepared and delivered guest lecture on primary literature of metabolic pathways.
- April 2017 BIOL 135A: Eukaryotic Cell and Molecular Biology I, San Jose State University
Prepared and delivered guest lecture on CRISPR and genome organization.
- Nov 2015 BIO 110/210: Chromatin Regulation of the Genome, Stanford University
Prepared and delivered two guest lectures on chromatin structure and current experimental methodologies and led discussion of primary literature.

Courses / Teaching Assistantships

- Fall 2015 BIO 168: Explorations in Stem Cell Biology, Stanford University
Co-developed curriculum and assessments, responsibilities included grading, office hours.
- Winter 2014 BIO 44X: Core Molecular Biology Laboratory, Stanford University
Lab instruction of undergraduates, responsibilities included grading, office hours.
- Winter 2013 BIO 44X: Core Molecular Biology Laboratory, Stanford University
Lab instruction of undergraduates, responsibilities included grading, office hours.
- Fall 2011 BIO 350: Evolution, Carleton College
Responsible for grading student assignments.
- Fall 2010 CS 111: Introduction to Computer Science, Carleton College
Responsible for grading student assignments.

Research Mentorship

- 2021-present Undergraduate Student, UGA
- 2019-2021 Research Technician, UGA
Work led to authorship on publication in *Nature Communications*
- 2019-2020 Undergraduate Student, UGA
April 2019: Awarded “Best Undergraduate Poster”, Southeastern Regional Yeast Meeting, Atlanta, GA
- 2015-2017 Undergraduate Student, Stanford
Supervised Honors Thesis
- Fall 2017 Graduate Rotation Student, Stanford
- Fall 2014 Graduate Rotation Student, Stanford
- Summer 2014 Summer High School Student – Stanford Institutes of Medicine Summer Research Program

Academic & Teaching Mentorship

- 2020-2021 Mentor for Peach State Louis Stokes Alliance for Minority Participation
- 2016-2017 Chair of Stanford Biology Department TA Mentorship Program
- 2016 Mentor for Stanford Biology Department TA Mentorship Program
- 2013-2016 Mentor for Stanford Biosciences Student Association

2014-2015 Mentor for Stanford Biology Department First Year Mentorship Program

Academic Support

- 2017 **Preparing Future Professors Fellow**, Faculty mentor at San Jose State University: Dr. Miri VanHoven. Semester-long shadowing program to experience faculty life at partner institution, paired with weekly practicum at Stanford with readings on topics in higher education.
- 2016-2017 **Graduate Teaching Consultant**, Vice Provost for Teaching and Learning, Stanford University
Facilitate small group midterm evaluations, provide video consultations, run microteaching sessions, and other services that enhance and enrich the teaching experiences of graduate teaching assistants at Stanford.
- 2016-2017 **Vice Provost for Teaching and Learning Biology Department Liaison**, Stanford University
Serve as liaison between the Biology Department graduate teaching community and the Vice Provost for Teaching and Learning at Stanford.
- 2016-2017 **Mentors in Teaching Fellow**, Stanford University
Develop skills as an advanced teaching assistant with mentoring role in departmental teaching community.

CONFERENCE PRESENTATIONS

- Aug 2021 **The Mobile Genome: Genetic and Physiological Impacts of Transposable Elements**; Virtual, hosted by EMBO. “Structure of a restriction factor of the *S. cerevisiae* transposon Ty1 reveals the molecular basis of transposition copy number control”. Selected talk.
- April 2021 **Southeastern Regional Yeast Meeting**; Virtual, hosted by Vanderbilt University.
“Structure of a restriction factor of the *S. cerevisiae* transposon Ty1 reveals the molecular basis of transposition copy number control”. Selected talk.
- Oct 2020 **Cold Spring Harbor Laboratory Meeting on Transposable Elements**; Virtual, hosted by CSHL.
“Structure-Function Analysis of a Retrotransposon Restriction Factor”. Poster.
- Aug 2019 **Mobile Genetic Elements Conference**; Woods Hole, MA.
“Structure-Function Analysis of a Retrotransposon Restriction Factor”. Poster.
- Mar 2017 **Stanford Chromosome Dynamics and Genome Maintenance Symposium**; Stanford, CA.
“Genetic dissection of the role of INO80 family chromatin remodelers in epigenetic and metabolic maintenance in *S. cerevisiae*”. Poster.
- May 2016 **Gordon Research Conference: Chromatin Structure and Function**; Les Diablerets, Switzerland.
“The Arp5-Ies6 module is required for INO80 chromatin remodeling and metabolic regulation.”
Poster.
- April 2016 **NHGRI Research Training and Career Development Annual Meeting**; Bethesda, MD.
“A novel mode of chromatin regulation by the INO80 chromatin remodeling complex”. Poster.
- Sept 2014 **Stanford Department of Biology Annual Retreat**; Santa Cruz, CA.
“A novel role for a subunit module of the INO80 chromatin remodeling complex”. Poster.
- Sept 2013 **Stanford Department of Biology Annual Retreat**; Monterey, CA.
“INO80-mediated chromatin remodeling is modulated by the Arp5-Ies6 subcomplex in *S. cerevisiae*”. Poster.
- Oct 2011 **Sigma Xi Math and Science Poster Session**; Carleton College, Northfield, MN.

“Characterization of *At4g33666* in *Arabidopsis thaliana*”. Poster.

Aug 2011 **New Hampshire-IDeA Network of Biological Research Excellence Conference**; Whitefield, NH.
“Characterization of *At4g33666* in *Arabidopsis thaliana*”. Poster.

Aug 2010 **Summer Undergraduate Research Fellows Poster Session**; Dallas, TX.
“Improved targeting of exogenous DNA to generate knockouts in *Drosophila*”. Poster.

PUBLIC & PROFESSIONAL SERVICE

Professional Service

2018-present **Reviewer** for *Bio-protocol*

2015-2017 **Steering Committee Member of Stanford Medicine Teaching and Mentoring Academy**, Stanford University

2016-2017 **Chair of Biology Department TA Mentorship Program**, Stanford University

2015 **Graduate Admissions and Recruiting Committee** – Department of Biology, Stanford University

2014-2015 **Chair of Department of Biology Graduate Student Seminar Series**, Stanford University

2011-2012 **Co-Founder and Chair of Biology Department Journal Club**, Carleton College

Community Engagement

2019-2020 **Georgia Science and Engineering Fair** – Judge
Score high school science fair contestants’ oral presentations

2019-2021 **Georgia Junior Science & Humanities Symposium** – Paper Reader
Review and score research papers

2018-19, 21 **Oconee County Science Fair** – Review Committee
Review science fair project proposals

2013-2015 **ScienceBus** – Volunteer, Stanford University
Science tutoring program for East Palo Alto elementary school students.

2013, 2015 **Stanford Splash** – Volunteer, Stanford University
Student-taught enrichment classes for middle and high school students.

2014 **Stanford Institutes of Medicine Summer Research Program** – Research Mentor
Summer research mentor to high school student.