

Daniel Chan

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I advocate for open science practices in order to foster communication both within the scientific community and within the broader public. I am deeply interested in the genetic basis and diversity of social communication among bacteria and other microbial life.

Education

Academic Qualifications.....

University of Chicago **Chicago, IL, USA**
Ph.D. Candidate, Department of Microbiology *2011–present*

University of Waterloo **Waterloo, ON, Canada**
Honours Microbiology and English (Rhetoric) Minor *2006–2011*

Notable Coursework.....

Microbiology graduate core curriculum: Bacterial Pathogenesis, Virology, Host-Pathogen Interactions, Scientific Ethics, Cell Biology I, Molecular Biology I, Protein Fundamentals

Electives: Bioinformatics and Microbial Ecology, Introduction to Scientific Computing for Biologists, Software Carpentry (R)

Certificate programs: Business of Life Sciences, Elements of Successful Teaching in the Sciences, Elements of Successful Writing in the Sciences, Data Analysis in R

Research Positions

Department of Biology **University of Waterloo**
Senior Thesis Student, Supervisor/PI: Dr. John J Heikkila *September 2011–June 2011*
I independently applied previously acquired skills in cloning and protein purification to produce and characterize the molecular chaperone activity of *Xenopus laevis* small heat-shock proteins, HSP27 and α B-crystallin. Site-directed mutagenesis was used to assess the contribution of charged amino acids to chaperone activity.

Department of Neurobiology **Yale University**
Research Assistant, PI: Dr. Nenad Šestan *January 2010–September 2010*
I developed a polysome purification protocol of actively translated RNA using immunoprecipitation followed by ultracentrifugation and fractionation. Research was focused on the mechanisms of NOS1 expression in the developing prefrontal cortex of mice and humans. Lab duties also included animal colony management, primary cell culture and dissection.

Cancer Genomics and Proteomics **University Health Network**
Research Technician, PI: Dr. Nickolay Chirgadze *Fall 2008–Summer 2009*
This lab was organized as a crystallography pipeline working on solving difficult structures from the Structural Genomic Consortium. I was part of the cloning and test expression unit upstream of large scale purification. In my second 4 month term I had a small independent project to optimize HMGCR expression in insect cells.

Fermentation R&D

Iogen Corporation

Research Assistant, Staff Scientist: Dr. Jan-Maarten Geertman

January 2008–April 2008

I was assigned to assist on a project to determine the effects of ethanol concentration on growth parameters of a production strain of *Saccharomyces cerevisiae*. I had a minor project in the lab investigating the nutritional requirements of other yeasts. I also performed routine HPLC to characterize enzymatic digestions from an upstream process.

Awards

University of Waterloo Graduating Dean's Honours List 2011

Recognition awarded for maintaining a cumulative average of >80% in an honours program

WACE International Student Achievement Award 2010

Recognition awarded by the World Association for Co-operative Education for obtaining an exceptional international work placement at Yale University

NSERC Undergraduate Student Research Award 2007

Funding awarded by the Natural Sciences and Engineering Research Council to pursue a research project in cellulosic ethanol R&D at Iogen Corporation

Millennium Excellence Scholarship, Provincial Laureate 2006–2010

Awarded for excellence in community involvement, leadership and academic achievement

University of Waterloo President's Scholarship 2006

Entrance scholarship awarded to individuals with an average of >90% graduating high school

Posters

Interaction of *Staphylococcus aureus* with the *in vitro* human keratinized epithelium

○ 13th Annual Chicago Biomedical Consortium Symposium, *The Unseen Majority:*

Microbes in Health and Disease

October 2015

Interaction of *S. aureus* USA300 with the human keratinized epithelium

○ 6th Annual Northwestern University Skin Disease Research Center Retreat

June 2015

○ University of Chicago Biomedical Sciences Retreat

May 2015

Interaction of *S. aureus* USA300 with the keratinized epithelium

○ 16th International Symposium on Staphylococci and Staphylococcal Infections

August 2014

○ 22nd Annual Midwest Microbial Pathogenesis Conference

August 2014

○ 5th Annual Northwestern University Skin Disease Research Center Retreat

June 2014

Teaching and Mentorship

GeneHackers

iGEM Team: Graduate Advisor

I advised the University of Chicago undergraduates in project selection, planning and execution for two years, one project per year. Students with little previous molecular biology experience were tasked with cloning key constructs to test proof of concept in the International Genetically Engineered Machine standard organism chassis (*E. coli*). The team has improved from Bronze level to Silver during my supervision.

University of Chicago

June 2014–present

Freelance work

Course Tutor, Molecular Basis of Bacterial Disease

I created test questions and walked a single student thorough lectures. She was struggling with the course and the TA did not have enough time for her. A key breakthrough was helping the student to conceptualize a framework to place the disparate lecture topics into context facilitating memorization and synthesis of content.

University of Chicago

January 2014–March 2014

Biological Sciences Division

Teaching Assistant

I was a TA for two courses over two terms. In BIOS 25287 Introduction to Virology, I led journal article discussions, graded assignments/exams, provided feedback, answered questions and gave a single lecture. In BIOS 25216 Molecular Basis of Bacterial Disease I performed the same duties and was also responsible for formulating weekly quizzes, composing the exams and lecturing twice. Class sizes were <30 people.

University of Chicago

January 2013–June 2013

Students Offering Support

Course Tutor

I prepared sample exam questions and a list of topics for the introductory microbiology course. These resources were deposited in the student office. I also led a review session with <20 people consisting of questions and answers.

University of Waterloo

Fall 2008

Service

Biological Sciences Division Dean's Council

Departmental Representative, Microbiology Department

I was responsible for attending meetings to discuss issues of importance to BSD students and administrating funds for student initiated events. I authored some meeting minutes and new student orientation materials. I also reviewed student travel grants and recommended them for funding.

University of Chicago

September 2013–March 2016

PLOS ONE

Reviewer, Ad Hoc

May 2013

Outreach

Groks Science

Radio and Podcast Host

I am the newest addition to the team and have appeared on the radio program (WHPK 88.5) in discussions about science news headlines. I plan to renovate the website and expand the social media engagement of the show to understand our audience and craft a better scientific education message.

www.groks.net

March 2016–present

Microbiology Twitter Journal Club

Attendee and moderator

I contributed to public discussions of open access microbiology papers using the #microtwjc hashtag. Later, I moderated a few discussions myself but the group is in a dormant period at the moment.

microtwjc.wordpress.com

April 2014–January 2016

References and Documentation

- References and documents pertaining to individual entries available on request