

Daniel Chan

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Education

University of Chicago **Chicago, IL, USA**
MS (admitted as a PhD student), Microbiology (Infectious disease focused department) 2011–2016

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

Fellowships: Global Community Biosummit 5.0 Fellow (2021)

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

Service

Biotech Without Borders **New York, NY, USA**
President March 2020–present

- Reopened the lab in a new location after closing due to SARS-CoV-2 pandemic
- Organised volunteers, membership, and community members to sustain the group and generate mission-aligned programming
- Facilitated collaboration between institutional and independent actors
- Established an organisational structure to manage shared laboratory and administrative resources

Free Radicals **New York, NY, USA**
Member January 2021–present

- Organised social events to build community within a non-hierarchical organisation
- Facilitated meetings to train members in the process of workshop scheduling, development and facilitation

Global Community Biosummit 5.0 **Online**
Organiser October 2021–March 2022

- Reviewed submissions for and scheduled a program of 19 online workshops delivered over 3 days
- Moderated the online workshop space over Zoom and Slack
- Contributed to and edited the conference proceedings for publication

University of Chicago, Biological Sciences Dept. Dean's Council **Chicago, IL, USA**
Departmental Representative September 2013–March 2016

- Communicated constituents' concerns to a group of peers to make joint decisions
- Planned a recurrent graduate student social coffee hour

PLOS ONE
Reviewer, Ad Hoc May 2013

Work/Research Experience

Intouch Solutions, Editorial **New York, NY, USA**
Senior Medical Analyst, Manager: Jaii Phillips-Beckley September 2018–January 2022

- Checked claims in pharmaceutical advertisements for accuracy as per FDA guidances and scientific literature
- Solicited consensus for style and claim edits to marketing materials
- Communicated through reports and presentations the medical/scientific aspects of pharmaceuticals to strategy and marketing teammates
- Conducted competitive analyses of marketed and pipeline pharmaceuticals/medical devices
- Trained team members across departments in evolving business processes

Genspace, OpenPlant project

Community Lab Member

New York, NY, USA

April 2018–February 2020

- Attended and contributed to meetings designed identify scientific goals and make progress on key milestones
- Set up and managed Trello and Zotero accounts for coordinating the team
- Built a plant incubator for liverworts and published the plans online

Intouch Solutions, Creative Services

Scientific Analyst, Manager: Jaii Phillips-Beckley

New York, NY, USA

January 2017–September 2018

University of Chicago, Department of Microbiology

Graduate Student, PI: Dr. Julianne Bubeck Wardenburg

Chicago, IL, USA

September 2011–December 2016

- Managed an independent scientific research project in a BSL2+ laboratory
- Supervised and trained a visiting MD student to complete a small research project
- Cultured 3D organotypic tissue equivalents using primary human keratinocytes
- Generated and complemented bacterial mutants of *Staphylococcus aureus*
- Prepared and imaged specimens for immunofluorescent microscopy and scanning electron microscopy

University of Waterloo, Department of Biology

Senior Thesis Student, Supervisor/PI: Dr. John J Heikkila

Waterloo, ON, Canada

September 2010–June 2011

- Applied previous molecular biology skills to a new scientific context
- Cloned and purified two heat shock proteins
- Performed assays to assess molecular chaperone function of the recombinant protein

Yale University, Department of Neurobiology

Research Assistant, PI: Dr. Nenad Šestan

New Haven, CT, USA

January 2010–September 2010

- Developed a polysome purification protocol using gradient centrifugation
- Measured promoter strength in a neuroblastoma cell line using luciferase reporters
- Assisted in management of a transgenic mouse colony
- Cloned and prepared large amounts of plasmid DNA for *in utero* electroporation

University Health Network, Cancer Genomics and Proteomics

Research Technician, PI: Dr. Nickolay Chirgatz

Toronto, ON, Canada

Fall 2008, Summer 2009

- Optimized insect cell protein expression for fragment-based drug discovery
- Cloned a variety of cancer stem cell protein targets to improve solubility
- Small scale protein purification

logen Corporation, Fermentation R&D

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

Ottawa, ON, Canada

January 2008–April 2008

- Modelled small scale bioreactor data using Excel Solver to improve upstream process
- Processed samples using HPLC SOPs to determine the progress of fermentations
- Conducted a small study on the nutritional requirements of different yeast species

Outreach

YouTube Microbiology Journal Club

Host

Online

May 2020–present

- Recorded biweekly 1-1.5 hour episodes highlighting interesting microbiology research and responding live to viewer questions and comments
- Researched and recorded >36 long-form videos explaining the findings of a scientific publication
- Directed multi-channel traffic to grow a YouTube channel from <100 subscribers to >300
- Manage the collected references in Zotero as a shared resource for the public

Analytics Lounge, Community Lab

Microscope Section Lead

Chicago, IL, USA

March 2017–September 2017

- Staffed monthly open house sessions to engage the public
- Developed and executed a microscope based booth activities for "hackerspace" events
- Managed the chemical supplies and chemical safety

Groks Science

Radio and Podcast Host

Online

March 2016–January 2017

- Read non-fiction books from publicists, screening for interesting ideas
- Acquired and conducted interviews with science authors
- Edited interviews into 10 podcasts for the internet

Microbiology Twitter Journal Club

Online

Attendee and Moderator

April 2014–January 2016

- Contributed to public discussions of open access microbiology journal articles to increase scientific engagement
- Fostered discussions among members using a hashtag on Twitter

Teaching and Mentorship

Biotech Without Borders

New York, NY, USA

Instructor

February 2019–present

- Designed and maintained class materials about biotechnology for the general public
- Guided >50 students across 25 hours of instruction in hand-on lab techniques
- Created marketing materials to support class registrations
- Prepared and presented lectures on key scientific topics for the public and iGEM teams

LEAP

New York, NY, USA

Judge and Guest Speaker

June 2019

- Engaged <15 students in a presentation about the process of creating a DIY plant incubator and how it relates to activism
- Supported student projects by providing constructive reviews of their work

University of Chicago, iGEM Team

Chicago, IL, USA

Graduate Advisor

June 2014–September 2016

- Mentored 3 teams (1/year) to complete 3 separate projects
- Exercised patience with troubleshooting tasks to create a comfortable learning atmosphere
- Encouraged goal setting and critical thinking to perform rigorous and timely research
- Jointly assisted in improving team assessment from bronze to silver

University of Chicago, Freelance Work

Chicago, IL, USA

Course Tutor, *Molecular Basis of Bacterial Disease*

January 2014–March 2014

- Designed test material to assess the progress of the student
- Explained key concepts taking into account my knowledge of the course and the students perspective
- Jointly achieved major improvements to course grades

University of Chicago, Biological Sciences Division

Chicago, IL, USA

Teaching Assistant

January 2013–June 2013

- Provided course support for two courses (Intro. to Virology, *Molecular Basis of Bacterial Disease*) of <30 students each
- Led weekly discussions of scientific papers with an emphasis on conclusions' dependency on experimental techniques
- Designed and graded exams; addressed concerns about grades
- Prepared and delivered a total of 3 lectures

University of Waterloo, Students Offering Support

Waterloo, ON, Canada

Course Tutor

Fall 2008

- Prepared sample exam test questions and review notes for a course (Intro. to Microbiology)
- Led a review session with <20 people consisting of Q&A with a focus on key concepts

Publications

Chan DW and Wardenburg JB. Staphylococcal Smooth Biofilm Morphology on Organotypic Human Keratinocyte Culture is Dependent on *agrA*. *Manuscript in preparation*, 2018.

<https://mfr.osf.io/render?url=https://osf.io/ft7dw/?action=download%26mode=render>

Khamis I, Chan DW, Shirriff CS, Campbell JH, and Heikkila JJ. Expression and localization of the *Xenopus laevis* small heat shock protein, HSPB6 (HSP20), in A6 kidney epithelial cells. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*, 201:12–21, November 2016.

Kwan K, Lam MS, Johnson M, Dube U, Shim S, Rašin MR, Sousa AM, Fertuzinhos S, Chen JG, Arellano J, Chan DW, Pletikos M, Vasung L, Rowitch D, Huang E, Schwartz M, Willemsen R, Oostra B, Rakic P, Heffer M,

Kostović I, Judaš M, and Šestan N. Species-Dependent Posttranscriptional Regulation of NOS1 by FMRP in the Developing Cerebral Cortex. *Cell*, 149(4):899–911, May 2012.

Posters

Staphylococcal Smooth Biofilm Morphology on Organotypic Human Keratinocyte Culture is Dependent on *agrA*

● 23rd Annual Midwest Microbial Pathogenesis Conference

September 2016

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
● University of Chicago Biomedical Sciences Retreat

June 2015

May 2015

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

● 16th International Symposium on Staphylococci and Staphylococcal Infections
● 21st Annual Midwest Microbial Pathogenesis Conference
● 5th Annual Northwestern University Skin Disease Research Center Retreat

August 2014

September 2014

June 2014

Awards

University of Waterloo Graduating Dean's Honours List

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

2011

WACE International Student Achievement Award

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

2010

NSERC Undergraduate Student Research Award

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

2007

Millennium Excellence Scholarship, Provincial Laureate

Awarded for excellence in community involvement, leadership and academic achievement

2006–2010

University of Waterloo President's Scholarship

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

2006

Computational Skills

Data analysis: Microsoft Excel (base, macros, Solver), R (base, tidyverse, data.table, fitdistrplus, orddom, lme4, multcomp), SQL

Data visualization/reporting: Microsoft Powerpoint, R (grid, scales, ggplot2, knitr), LaTeX (beamer)

Scripting/automation: bash, GNU make, Python

Version control: git

Graphics editing: GIMP, Inkscape, Krita

Document preparation: LaTeX, Microsoft Word, Zotero

Web publishing: HTML/CSS

References and Documentation

● References and documents pertaining to individual entries available on request