

EDUCATION

Ph.D. Student University of Chicago, Chicago, IL Committee on Genetics, Genomics, and Systems Biology	June 2020 – Present
M.D. Candidate Pritzker School of Medicine, University of Chicago, Chicago, IL Completed M1 and M2; entered Ph.D. Program after M2	August 2018 – Present
Bachelor of Science with Honors University of Chicago, Chicago, IL Majors: Biological Chemistry, Chemistry, and Biological Sciences	September 2014 – June 2018 Dean's List: 2014-2017 GPA: 3.900/4.000

HONORS AND AWARDS

Growth, Development and Disabilities Training Program Appointee, University of Chicago	April 2020
Ting-Wa Wong MD, PhD Scholarship, University of Chicago	April 2020
Summer Research Program Overall Excellence in Basic Sciences, University of Chicago	August 2019
Keystone Symposia Scholarship Awardee, Keystone Symposia Foundation	December 2018
Frances E. Knock Prize for Outst. Acad. Achievement in Chemistry, University of Chicago	May 2018
Phi Beta Kappa Honor Society, Chapter Beta of Illinois, University of Chicago	May 2017
University of Chicago Student Marshal, University of Chicago	April 2017
Katen Scholar, University of Chicago	Summer 2016
Beatrice G. and Nate H. Sherman Fellowship, University of Chicago	May 2015

RESEARCH EXPERIENCE

Student Researcher Principal Investigator: Dr. Alexander J. Ruthenburg Department of Molecular Genetics and Cell Biology, University of Chicago <ul style="list-style-type: none">Developed a novel form of chromatin immunoprecipitation to assess and quantify internal histone modificationsServed as systems administrator to manage and maintain lab servers and promote integration of computational resources with ongoing research projects throughout the labDeveloped novel bioinformatic methods for genome-wide data analysisWorked in multiple ongoing collaborations on the roles of histone modifications as epigenetic regulators	February 2015 – Present
Chart Abstracter Principal Investigator: Dr. Renslow Sherer Section of Infectious Diseases, University of Chicago <ul style="list-style-type: none">Performed chart abstractions as part of a project characterizing natural history of the first 414 COVID-19 admissions to the University of Chicago Medical Center	May 2020 – Present
Research Consultant Epicypther, Inc. Durham, North Carolina, USA <ul style="list-style-type: none">Trained researchers at Epicypther, Inc. on-site in Durham in methods and principles of calibrated chromatin immunoprecipitation, including methods for expanding the scope of the methodConsulted on feasibility of simplification and consolidation of materials and procedures for commercializationWorked to prepare documentation and troubleshooting guides for calibrated chromatin immunoprecipitation kit	March 2017 – April 2018

PRESENTATIONS AND PUBLICATIONS

PEER REVIEWED PUBLICATIONS

Shah RN*, Ruthenburg AJ*. Sequence deeper without sequencing more: Bayesian resolution of ambiguously mapped reads. *PLOS Comput. Biol.* 17(4), e1008926 (2021). ***Corresponding authors.**

Grzybowski AT*, **Shah RN***, Richter WF, Ruthenburg AJ. Native internally calibrated chromatin immunoprecipitation for quantitative studies of histone post-translational modifications. *Nat. Protoc.* 14, 3275-3302 (2019). ***Contributed equally.**

Shah RN, Grzybowski AT, Cornett EM, Johnstone AL, Dickson BM, Boone BA, Cheek MA, Cowles MW, Maryanski D, Meiners MJ, Tiedemann RL, Vaughan RM, Arora N, Sun ZW, Rothbart SB, Keogh MC, Ruthenburg AJ. Examining the roles of H3K4 methylation states with systematically characterized antibodies. *Mol. Cell* 72, 162-177 (2018).

Werner MS, Sullivan MA, **Shah RN**, Nadadur R, Grzybowski AT, Galat V, Moskowitz I, Ruthenburg AJ. Chromatin-enriched lncRNAs are cell-type specific enhancers for proximal genes. *Nat. Struct. Mol. Biol.* 24, 596-603 (2017).

MANUSCRIPTS UNDER REVIEW

Grzybowski AT*, **Shah RN***, Elias J, Chen Z, Hattori T, Lechner CC, Lewis PW, Koide S, Fierz B, Ruthenburg AJ. Calibrated quantitative measurements of H3K4me3 and H3K27me3 coexistence in embryonic stem cell chromatin redefine bivalency. Under Review, *Nat. Comm.* ***Contributed equally.**

Richter WF, **Shah RN**, Ruthenburg AJ. Non-canonical H3K79me2-dependent pathways promote the survival of MLL-rearranged leukemia. Under Review, *eLife*. Preprint available on bioRxiv (doi: 10.1101/2020.12.04.411215).

ORAL PRESENTATIONS

Shah RN. Quantitative Studies of Histone Modifications. Pritzker School of Medicine Summer Research Program Symposium at The University of Chicago, Chicago, IL. August 2019.

Shah RN. Quantitative Studies of Histone Modifications. Keystone Symposia on Epigenetics and Human Disease at Banff, Alberta, Canada. March 2019.

Shah RN, Grzybowski AT, Ruthenburg AJ. Quantifying Internal Histone Modifications. Midstates Consortium for Math and Science Undergraduate Research Symposium in the Biological Sciences and Psychology at The University of Chicago, Chicago, IL. November 2016.

Shah RN, Grzybowski AT, Ruthenburg AJ. Developing Calibrated Chromatin Immunoprecipitation for Internal Modifications. Biological Sciences Collegiate Division Summer Fellowship Symposium at The University of Chicago, Chicago, IL. September 2015.

POSTER PRESENTATIONS

Shah RN, Grzybowski AT, Ruthenburg AJ. Quantitative Studies of Histone Modifications. Keystone Symposia on Epigenetics and Human Disease at Banff, Alberta, Canada. March 2019.

Shah RN, Grzybowski AT, Cornett EM, Johnstone AL, Cheek MA, Meiners MJ, Rothbart SB, Keogh M-C, Ruthenburg AJ. Probing H3K4 Methylform Specificity. Undergraduate Research Symposium at The University of Chicago, Chicago, IL. October 2017.

Shah RN, Grzybowski AT, Ruthenburg AJ. Quantifying Internal Histone Modifications. National Cancer Institute Site Visit at Northwestern University Physical Sciences – Oncology Center, Evanston, IL. November 2016.

Shah RN, Grzybowski AT, Ruthenburg AJ. Denaturative Internally Calibrated Chromatin Immunoprecipitation to Quantify Internal Histone Modifications. Katen Scholars/Potter Fellows Research Symposium at The University of Chicago, Chicago, IL. August 2016.

Shah RN, Grzybowski AT, Ruthenburg AJ. Denaturative Internally Calibrated Chromatin Immunoprecipitation Can Quantify Internal Histone Modifications. Undergraduate Research Symposium at The University of Chicago, Chicago, IL. October 2015.

TEACHING EXPERIENCE

Teaching Assistant, Biological Dynamics University of Chicago	Spring 2021
Teaching Assistant, Molecular Biology of the Cell University of Chicago	Fall 2020
Peer Educator, The Human Body University of Chicago	Fall 2019
Teaching Assistant, Biological Dynamics University of Chicago	Spring 2018
Teaching Assistant, Principles of Physiology University of Chicago	Fall 2017
Teaching Assistant, Katzenbach Scholars Program University of Chicago	Summer 2017
Teaching Assistant, Biological Dynamics University of Chicago	Spring 2017
Teaching Assistant, Molecular Biology of the Cell University of Chicago	Fall 2016
Teaching Assistant, Biological Dynamics University of Chicago	Spring 2016

VOLUNTEER EXPERIENCE

New Life Volunteering Society, Chicago, IL • Volunteered in free clinic for underserved patients on the north side of Chicago as clinical volunteer	September 2018 – Present
University of Chicago Medical Center, Chicago, IL • Volunteered in Emergency Room, NICU waiting room, and Hematology-Oncology Outpatient Clinic	April 2015 – October 2017
NorthShore University HealthSystem, Glenbrook Hospital, Glenview, IL • Worked at nursing stations and in Environmental Health and Safety for data analysis and to streamline processes • Over 1,300 total volunteer hours logged	June 2012 – December 2016

CAMPUS INVOLVEMENT

Pritzker Dean's Council Representative • Representative of the Growth, Development, and Disabilities Training Program (GDDTP) to the Pritzker School of Medicine Dean's Council, working with administration to express the views of the GDDTP MD/PhD students.	October 2020 – Present
Pritzker Class Technology Representative • Technology representative for Pritzker Class of 2022, working with administration to promote more effective use of technology in the medical school and to provide feedback on implementations therein	November 2018 – Present
Model United Nations of the University of Chicago (MUNUC) • Served on thirteen-person Executive Committee to organize Model United Nations conference for over 2,700 high school students with the aim of teaching speaking and writing skills and fostering awareness of global issues • Served as Under-Secretary-General, directly leading five committee chairs as they developed their Model United Nations committees, trained staff, and operated their respective committees for over 650 high school students	October 2014 – February 2018
University of Chicago Model United Nations Team • Competed with top-ranked University of Chicago Model UN Team at competitions across North America • Helped teach new team members the speaking and writing skills needed for competitive success • Successfully operated several committees in which college students from North America competed	October 2014 – April 2018