TAL SCULLY

617-797-1875 ◇ talscully@fas.harvard.edu

EDUCATION

Harvard University, PhD Candidate in Systems Biology *2018 – Present*
Advisor: Allon Klein, PhD, Associate Professor of Systems Biology
Researching the evolution of red blood cells in the tunicate *Ciona robusta*.

Massachusetts Institute of Technology, BS in Physics and in Theater Arts *2014 – 2018*
Selected coursework in science disciplines (GPA: 4.6/5.0):
Physics: Quantum Mechanics I II & III, Statistical Mechanics, Relativity, Junior Laboratory
Chemistry: Organic Chemistry, Thermodynamics and Kinetics, Physical Chemistry II
Computer Science: Mathematics for Computer Science, Engineering Computation & Data Science

RESEARCH EXPERIENCE

Klein Lab, Harvard Medical School Dept. of Systems Biology
PI: Allon Klein, PhD, Assistant Professor of Systems Biology.

Graduate Research Assistant *(May 2019 – Present):* Researching the mechanisms by which red blood cells evolved in vertebrates by doing single cell genomics in a closely-related animal which lacks red blood cells, the tunicate *Ciona robusta*.
Undergraduate Research Intern *(June – Aug 2017):* Developed a computational method for comparing gene expression patterns between species, and used this method to investigate evolutionary conservation of gene expression between *Xenopus tropicalis* and zebrafish.
Graduate student mentors: Caleb Weinreb, PhD and James Briggs, PhD.

Undergraduate Researcher, Buchwald Group, MIT Dept. of Chemistry *Feb 2015 – June 2016*
PI: Stephen L. Buchwald, PhD, Camille Dreyfus Professor of Chemistry.
Mentor: Rana Kashif Khan, PhD.
Developed a synthesis of unnatural amino acids for use in new drugs, and discovered a previously unknown intermediate reaction step. Co-authored paper published in *Chemistry: A European Journal*.

MENTORSHIP AND TEACHING EXPERIENCE

Co-Mentor to Hai Pham, an Undergraduate Intern *June – Aug 2021*
Co-Mentor with Dr. Laura Bagamery, PhD. Hai analyzed a pusblished single-cell genomics dataset of *Ciona robusta* development and identified signatures of red blood cell gene expression.

Teaching Fellow, Science Communication, Harvard Dept. of Systems Biology *Sept – Dec 2019*
Taught graduate students the fundamentals of science communication and story telling, focusing on writing, figure design, and oral presentation.

Teaching Assistant, Junior Laboratory, MIT Dept. of Physics *Sept – Dec 2017*
Taught undergraduates how to approach error analysis, manuscript writing, and oral presentations of fundamental experiments in modern physics.

Volunteer Teacher, SPLASH, MIT Educational Studies Program *Annually, Nov 2014 – 2018*
Developed and taught classes for SPLASH, an annual weekend-long program of classes taught by MIT students to high schoolers. Class topics I taught included Crystal Field Theory, Statistical Mechanics, Special Relativity, Computational Biology, and Improv Comedy.

Co-Lead Organizer, "What is Systems Biology," Cambridge Science Festival *April 2019*
Worked with 4 other graduate students to organize an event open to the public as part of the Cambridge Science Festival. Designed several interactive activities about systems biology at an approachable level for K-12 students.

DIVERSITY, EQUITY, AND INCLUSION EXPERIENCE

Co-Lead, Developing a "Race in Biosciences Journal Club" Curriculum *May 2021 – Present*
Creating a series of journal clubs for publication online, which cover a range of topics at the intersection of race, biology, and academia. This work is done with the Social Issues in Biology student group and Jay Lundy, a hired diversity & equity consultant.

Chair, SSQBio Equity and Inclusion Group *Nov 2020 – Present*
Working to improve equity and belonging among students in the Systems, Synthetic, and Quantitative Biology PhD program. Activities include a pilot program of peer-support events for first-year students.

Chair, Diversity in Graduate Admissions Working Group *July 2020 – Sept 2021*
Established several programs which provide resources and support for students applying to the Systems, Synthetic, and Quantitative Biology PhD program.

Volunteer, Health Professions Recruitment & Exposure Program (HPREP) *Nov 2020 – Jan 2021*
Mentored a high school student one-on-one through HPREP at Harvard Medical School, a 10 week science enrichment program aimed at students from underrepresented backgrounds in STEM.

Speaker, MIT Museum Girl's Day *Nov 2018*
Spoke to girls aged 10+ about optical trapping, an advanced biophysics technique used to study the mechanical properties of biological molecules.

AWARDS AND RECOGNITION

NSF Graduate Research Fellowship Program, Honorable Mention *March 2018*

MIT Emerson Scholarship for Private Music Study, MIT *Sept 2014 – May 2018*

Laya and Jerome B. Wiesner Student Art Award *May 2018*
Institute-wide award presented annually to up to four students (undergraduate or graduate), living groups, organizations or activities for outstanding achievement in and contributions to the arts at MIT.

David Epstein Award *May 2018*
From the MIT Music and Theater Arts Dept. in recognition of distinguished service and musical contribution to the MIT Symphony Orchestra.

Ragnar and Margaret Naess Award *May 2017*
From the MIT Music and Theater Arts Dept. in recognition of exceptional talent and commitment to performance at MIT.

PUBLICATIONS

R. Kashif M. Khan, Yang Zhao, **Tal D. Scully**, and Stephen L. Buchwald. 2018. "Catalytic Arylhydroxylation of Dehydroalanine in Continuous Flow for Simple Access to Unnatural Amino Acids." Chemistry 24 (57): 15215-18.

SKILLS

Computer languages known: Python, MATLAB, LaTeX, JavaScript, jQuery, HTML/CSS.

Proficient in public speaking.