

4. Nominee CV

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AMY C. FAN

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EDUCATION

9/2016 – Pres.

Stanford University, Stanford, CA
Ph.D. Candidate, Immunology Graduate Program

9/2011 - 2/2015

Massachusetts Institute of Technology (MIT), Cambridge, MA
Major: Biology
Minor: Asia and Asian Diaspora Studies
GPA: 4.8/5.0

RESEARCH EXPERIENCE

6/2017 - Pres.

PhD Candidate, Immunology Graduate Program, Stanford University, Stanford, CA
Advisor: Dr. Ravindra Majeti, Department of Medicine
Dissertation: Determine how RUNX1 mutations drive leukemogenesis through cell-autonomous and non-autonomous mechanisms using CRISPR/Cas9 engineered primary human samples.

1/2015 - 6/2016

Academic Research Technician, Broad Institute of MIT & Harvard, Harvard University, Cambridge, MA
Advisor: Dr. Deborah Hung, Department of Molecular and Cellular Biology
Projects:

- Developed low-input and single-cell RNA-Seq methods to simultaneously probe host and intracellular pathogen transcripts.
- Investigated how PmrAB/PhoPQ activity in *S. Typhimurium* modulates Type I IFN response in macrophages.

1/2013 - 12/2014

Undergraduate Research Assistant, Whitehead Institute for Biomedical Research, MIT, Cambridge, MA
Advisor: Dr. Robert Weinberg, Department of Biology
Projects:

- Characterized the role of phospholipase A2 and its downstream effectors to regulate fatty acid metabolism in the epithelial mesenchymal transition.
- Probed T cell and mesenchymal cancer cell interaction.

1/2012-5/2012

Undergraduate Research Assistant, MIT Department of Biology, MIT, Cambridge, MA
Advisor: Dr. Michael Laub, Department of Biology
Project: Identified DnaA regulators to elucidate control of asymmetric DNA replication in asymmetrically dividing *C. crescentus*.

AWARDS AND HONORS

6/2019

Excellence in Service to Graduate Students, Stanford Biosciences

5/2019

Community Impact Award, Stanford Alumni Association

5/2019

Excellence in Advocacy, Stanford Diversity and Advocacy Committee

8/2018

Stanford Biosciences Travel Grant

3/2017

National Science Foundation Graduate Research Fellowship

9/2016

Stanford Graduate Fellowship

6/2015

Gene Brown Prize, MIT Department of Biology

6/2014

MIT Amgen Scholar Program, Amgen Foundation

PROFESSIONAL MEMBERSHIPS

- 2018 – Pres.** International Society of Experimental Hematology
2017 – Pres. Association for Women in Science
2017 – Pres. National Center for Faculty Diversity and Development

PUBLICATIONS

- Betin, V.,* Penaranda, C.,* Bandyopadhyay, N., Yang, R., Abitua, A., Bhattacharyya, R., **Fan, A.**, Avraham, R., Livny, J., Shores, N., Hung, D.T. (*In revision*). Hybridization-based targeted capture of pathogen mRNA enables paired host-pathogen transcriptional analysis. *Sci Rep*. *Co-first authors
- Avital, G.,* Avraham, R.,* **Fan, A.**, Hashimshony, T., Hung, D.T., and Yanai, I. (2017). scDual-Seq: mapping the gene regulatory program of Salmonella infection by host and pathogen single-cell RNA-sequencing. *Genome Biol.* 18, 200. *Co-first authors
- Avraham, R., Haseley, N., **Fan, A.**, Bloom-Ackermann, Z., Livny, J., and Hung, D.T. (2016). A highly multiplexed and sensitive RNA-seq protocol for simultaneous analysis of host and pathogen transcriptomes. *Nat. Protoc.* 11, 1477–1491.

PRESENTATIONS

- Fan, A.**, Nuno, K., Nakauchi, Y., Köhnke, T., Kim, S., Reinisch, A., Cruz-Hernandez, D., Majeti, R. (Aug 2019). Modeling the pathogenesis of RUNX1 deficiency in inherited AML predisposition syndromes in primary cells. *International Society of Experimental Hematology Annual Scientific Meeting*. Brisbane, Australia. (Poster Presentation)
- Fan, A.** & Majeti, R. RUNX1 in normal and malignant hematopoiesis. (Jul 2019). *Stanford Stem Cell Club*. Stanford, CA. (Oral Presentation)
- Fan, A.** & Majeti, R. Cell autonomous and non-autonomous effects of RUNX1 deficiency in inherited AML predisposition syndromes. (Nov 2018). *Stanford Maternal and Child Health Research Institute Symposium*. Stanford, CA. (Poster Presentation)
- Fan, A.** & Majeti, R. Modeling RUNX1 deficiencies in primary human cells. (Nov 2018). *Stanford Immunology Science in Progress Seminar Series*. Stanford, CA. (Oral Presentation)
- Fan, A.** & Majeti, R. Cell autonomous and non-autonomous effects of RUNX1 deficiency in inherited AML predisposition syndromes. (Nov 2018). *Stanford Immunology Annual Scientific Conference*. Asilomar, CA. (Poster Presentation)
- Fan, A.**, Reinisch, A., & Majeti, R. Modeling the Effects of RUNX1 Deficiency in Inherited AML Predisposition Syndromes in Primary Cells. (Aug 2018). *International Society of Experimental Hematology Annual Scientific Meeting*. Los Angeles, CA. (Poster Presentation)
- Fan, A.** & Hung, D. Regulation of LPS modifications in *Salmonella* to modulate host immune response. (Nov 2015). *Broad Research Associates Poster Session*. Cambridge, MA. (Poster Presentation)
- Fan, A.**, Avital, G., Avraham, R., Hashimshony, T., Hung, D., Yanai, I. Studying host-pathogen interactions using single-cell RNA-Seq. (Sep 2015). *CSHL Meeting: Microbial Pathogenesis and Host Response*. Cold Spring Harbor, NY. (Poster Presentation).
- Fan, A.** & Weinberg, R. Phospholipases and Lipid Metabolism in Breast Cancer Metastasis. (Aug 2014). *Amgen Scholar Summer Poster Session*. Cambridge, MA. (Poster Presentation).
- Fan, A.** & Weinberg, R. Role of PLA2 Enzymes in the Epithelial Mesenchymal Transition. (Jan 2014). *MIT Biology Undergraduate Research Symposium*. Cambridge, MA. (Poster Presentation).

TEACHING

- 4/2019 - Pres.** **Course Coordinator, IMMUNOL 223: Biology and Disease of Hematopoiesis**, Stanford University
Propose and design new 3-unit graduate-level elective focused on historic perspective of hematopoiesis and hematopoietic diseases.
- 4/2019 - Pres.** **Instructor, BIOS 284: Diversifying Graduate Admissions**, Stanford University
Propose, design, and teach new 1-unit course to teach strategies and knowledge for advocating and negotiating for improved admissions processes.
- 5/2018 - 8/2018** **Course Coordinator: Immunology Graduate Program StartUp**, Stanford University
Design weeklong boot-camp to expose incoming Immunology graduate students to faculty, resources, and core immunology wet-lab techniques.
- 7/2015 - 10/2017** **Freelance Writer: Secret of Life (secretoflife.org)**, Broad Institute of MIT & Harvard
Created content for immunology chapter and designed practice problems for online multimedia textbook for MIT/EdX Intro Biology courses.
- 9/2014 - 12/2014** **Teaching Assistant: 7.012: Introduction to Biology**, MIT Department of Biology
Created learning and review materials. Lead recitation sections, office hours, and review sessions. Graded problem sets and exams. 7.0/7.0 evaluation by students.
- 1/2012 - 5/2012** **Teaching Assistant: 7.02: Intro to Experimental Biology & Communication**, MIT Department of Biology
Lead biweekly lab sections and exam review sessions. Graded pre-labs and lab reports. 6.0/7.0 evaluation by students.

MENTORING

- 9/2019 - Pres.** **Mentor**, Enhancing Diversity in Graduate Education Program, Stanford University
Advise incoming mechanical engineering graduate students from diverse backgrounds on transitioning to graduate school.
- 10/2017- Pres.** **Volunteer**, Stanford Science Penpals
Exchange letters with underserved middle and high school student populations.
- 9/2017 – Pres.** **Mentor**, Stanford Biosciences Student Association NSF Mentorship Program
Guide and provide feedback to graduate students applying to the NSF GRFP.
- 3/2019 - 8/2019** **Lab Co-Mentor**, Majeti lab, California Institute for Regenerative Medicine (CIRM), Stanford University
Trained Master's student in experimental design, data analysis, and science communication: oral, poster, and thesis.
- 6/2018 - 8/2019** **Lab Mentor**, Majeti lab, Stanford Institutes of Medicine Summer Research Program (SIMR)
Trained first-generation high school student in experimental techniques, data analysis, and science communication: oral and poster. Guided student through the college application process.
- 10/2017** **Mentor**, Stanford Graduate Pathways to STEM
Guided students from underrepresented minorities, first generation, and low-income families through graduate school application process.

- 4/2017 - 10/2017** **Program Leader**, Stanford ADVANCE Institute
Developed 8 week writing workshop for incoming graduate students from diverse backgrounds. Individually mentored students on transitioning to graduate school.
- 6/2017 - 8/2017** **Mentor**, Stanford Medical Youth Science Program
Mentored high school seniors from underrepresented groups regarding the college application process and biomedical career path.
- 3/2012 - 4/2013** **Mentorship Program Chair**, MIT China Care
Planned biweekly events to connect American-raised, adopted Chinese orphans to Chinese culture and student mentors.

UNIVERSITY SERVICE

- 9/2019 - Pres.** **Student Representative to the Executive Committee, Stanford Immunology Graduate Program**
Represent student interests and viewpoints in determining graduate program policies, such as structuring curricula and admissions requirements.
- 7/2019 - Pres.** **Student Representative, Biosciences Diversity Advisory Council**, Stanford University
Evaluate graduate student admissions applications to assign funding for interviews and fellowships.
- 9/2018 - 8/2019** **Graduate Student Representative, Diversity Cabinet**, Stanford University
Represented student interests in Stanford Medicine strategic planning.
- 9/2018 - 5/2019** **Student Representative, Committee on Graduate Admissions and Policy**, Stanford University
Represented student perspectives on graduate policies, including graduate mentorship and admissions policies and documents.
- 6/2018 - 5/2019** **President, Biomedical Association for the Interest of Minority Students (BioAIMS)**, Stanford University
Advocated for graduate students on diversity, equity, and inclusion issues. Collaborated to create cross-campus programs to address diversity in student mentorship and to improve the graduate admissions process.
Awards:
 - **2 Diversity & Inclusion Innovation Fund awards**, Vice Provost for Graduate Education
 - **Leaving a Legacy Campus Impact Award**, Student Activities and Leadership
- 6/2017 - 5/2018** **Financial Officer, Biomedical Association for the Interest of Minority Students (BioAIMS)**, Stanford University
Coordinated funds to educate about and respond to national issues and events. Managed \$20k budget.
- 1/2014 - 12/2014** **President, MIT New House Dormitory Executive Team**
Represented interests of NH4 living group. Oversee NH4 executive team.
- 1/2013 - 12/2013** **Judicial Chair, MIT New House Dormitory Executive Team**
Rewrote constitution to reflect current dormitory organization. Mediated dorm-wide conflicts.
- 1/2012 - 12/2012** **Campus Preview Weekend (CPW) and Residential Exploration (REX) Chair, MIT New House Dormitory Executive Team**
Oversaw 40+ events and budget proposals. Coordinated 70+ volunteers. Managed \$12,500 budget.