Fuminori Tanizawa

PhD Candidate in Immunology · Stanford University School of Medicine

fuminori [at] stanford [dot] edu | fuminoritanizawa.com | Google Scholar | ORCID 0000-0001-5310-096X

Education

Stanford University *Stanford, CA*

PhD in Immunology, School of Medicine (GPA 3.99 / 4.00) *Sep 2025 – Present*

Thesis research: Natural killer cells in naturally acquired immunity to malaria (Advisor: Dr. Prasanna Jagannathan)
Computational & Systems Immunology track; qualifying examination passed (Nov 2026)

Harvey Mudd College *Claremont, CA*

BS in Mathematical and Computational Biology, with High Distinction (GPA 3.93 / 4.00) *Aug 2021 – May 2025*

Thesis research: Mitochondrial protein degradation and immune response in *Drosophila melanogaster* (Advisor: Dr. Jae Hur)
Humanities concentration in Environmental Analysis; Dean's List (all semesters)
Departmental Honors in Biology; Computer Science; and Humanities, Social Sciences & the Arts

Research Experience

Stanford University School of Medicine *Stanford, CA*

Doctoral Researcher, Jagannathan Lab *Jun 2026 – Present*

Advisor: Dr. Prasanna Jagannathan, Division of Infectious Diseases and Geographic Medicine
Project: NK cell receptors in repeated malaria infection and vaccination

- Investigate how repeated malaria, chemoprevention and vaccination shape NK cell receptors and function in children, using samples from cohort studies and clinical trials in Uganda.
- Combine spectral flow cytometry and genotyping of NK cell receptors with functional NK cell assays.

Stanford University School of Medicine *Stanford, CA*

Rotation Student, Immunology PhD Program *Sep 2025 – Jun 2026*

Rotations with Dr. Prasanna Jagannathan, Dr. Elizabeth Egan and Dr. Catherine Blish

- Completed three rotations across infectious disease and human immunology, spanning parasite biology, host–pathogen interaction and computational analysis of immune responses.

Harvey Mudd College *Claremont, CA*

Undergraduate Researcher and Senior Thesis Student, Hur Lab *Sep 2021 – May 2025*

Advisor: Dr. Jae Hur, Department of Biology
Project: Mitochondrial protein degradation and immune response in *Drosophila melanogaster*

- Proposed and carried out a senior-thesis project asking whether increasing mitochondrial protein degradation by the protease ClpXP changes the response to bacterial infection.
- Established infection, survival, bacterial-load and antimicrobial-peptide (RT-qPCR) assays, and tested flies that overexpress ClpXP under GeneSwitch control.
- Found no detectable effect of ClpXP overexpression on survival, bacterial load or antimicrobial-peptide expression, despite a clear immune response to infection.

Johns Hopkins University *Baltimore, MD*

Summer Undergraduate Research Fellow (BSI-SIP), Mugnier Lab *May 2024 – Aug 2024*

Mentor: Dr. Monica Mugnier, Department of Molecular Microbiology and Immunology
Project: The extravascular environment and *Trypanosoma brucei* antigenic diversity

- Collected extracellular fluid from the heart, lungs and fat of *T. brucei*-infected mice, where most of the parasite's antigenic diversity is found, as part of a team optimizing the method (intravenous injection, cardiac puncture, perfusion).
- Compared the fluid with serum and cell lysate by SDS-PAGE and measured IgM and IgG by ELISA, finding proteins absent from serum and antibody levels mostly lower than in serum, most clearly in fat.
- Presented a poster at the Johns Hopkins C.A.R.E.S. Symposium (2024).

Harvey Mudd College *Claremont, CA*
Undergraduate Researcher, Schulz Lab *Sep 2023 – May 2024*
Mentor: Dr. Danae Schulz, Department of Biology
Project: The HAT complex protein EAF6 in lifecycle differentiation of *Trypanosoma brucei*

- Designed and cloned a doxycycline-inducible RNAi construct against EAF6, a subunit of a histone acetyltransferase complex.
- Tracked differentiation from the bloodstream form to the insect form over three days with an EP1-GFP procyclin reporter and flow cytometry, finding similar rates in knockdown and control cells, which may reflect leaky RNAi.
- Co-authored the lab's related study of the bromodomain protein Bdf3, published in *mSphere* (2026).

Scripps Research *La Jolla, CA*
Summer Undergraduate Research Fellow, Srinivasan Lab *May 2023 – Aug 2023*
Mentor: Dr. Supriya Srinivasan, Department of Neuroscience
Project: Genomic regulators of lipid metabolism and longevity in *Caenorhabditis elegans*

- Cloned tissue-specific rescue constructs by Gibson assembly to restore the metabolic regulator *hlh-11* in one tissue at a time; built and sequence-verified three of five.
- Designed a CRISPR/Cas9 strategy to delete nearly the whole *hlh-11* gene, with a co-CRISPR marker and a PCR screen for edited animals.
- Imaged the HLH-11 GFP reporter with NeuroPAL in initial experiments to identify the neurons that express it, crossed the reporter into the *hlh-11* mutant, and set up a larger lifespan experiment with a colleague.

National University of Singapore *Singapore*
Amgen Scholar, Monteiro Lab *May 2022 – Aug 2022*
Mentor: Dr. Antónia Monteiro, Department of Biological Sciences
Project: Behavioral effects of odorant injection on larvae and eggs of *Bicyclus anynana*

- Tested, as part of a team study, whether injecting a food odor into butterfly larvae or eggs changes the odor preference of the larvae and their offspring.
- Injected isoamyl acetate into larvae and eggs and measured odor preference in two-choice assays, finding in preliminary results at the concentration tested that the injected larvae kept their own preference, while their offspring and larvae from injected eggs leaned slightly toward the odor.
- Presented the work at, and co-emceed, the Amgen Scholars Asia Symposium.

Shizuoka University *Shizuoka, Japan*
Visiting High-School Researcher, JST Global Science Campus *Jul 2018 – Apr 2021*
Mentor: Dr. Hiroyuki Takemoto, Research Institute of Green Science and Technology
Project: Sleep and food odor preference in *Drosophila melanogaster*

- Developed the research question and designed the experiments with Dr. Takemoto.
- Built odor traps and a rotating device that disturbs sleep, and ran the odor-choice experiments, including in flies raised on different foods.
- Showed that flies whose sleep was disturbed at night shifted their preference toward the odor of the food they were reared on.
- Published the work as first author in *Scientific Reports* (2021) and presented it at the Animal Behavior Society and Biophysical Society of Japan annual meetings (2020).

Publications

Peer-Reviewed Journal Articles

2. Kim EJ, Goroza EL, Tan AY, Lin JJ, Saucedo KC, **Tanizawa F**, Smith JE, Schulz D. The bromodomain protein Bdf3 is sufficient to activate expression of a procyclin gene in bloodstream stage African trypanosomes. *mSphere*. 2026;11(6):e00021-26. doi:10.1128/msphere.00021-26
1. **Tanizawa F**, Takemoto H. Sleep contributes to preference for novel food odours in *Drosophila melanogaster*. *Sci Rep*. 2021;11(1):9395. doi:10.1038/s41598-021-88967-1

Presentations

Oral Presentations

1. **Tanizawa F**, Takemoto H. Sleep deprivation alters food odor preference in *Drosophila*. Lightning talk at: Animal Behavior Society Annual Meeting; July 2020; virtual.

Poster Presentations

3. **Tanizawa F**, So J, Beaver A, Singer L, Mugnier M. Characterizing the effect of the extravascular environment on *Trypanosoma brucei* antigenic diversity. Poster presented at: Johns Hopkins Career, Academic, and Research Experiences for Students (C.A.R.E.S.) Symposium; July 2024; Baltimore, MD.
2. **Tanizawa F**, Gowri V, Monteiro A. Behavioral effects of odorant injection on larvae and eggs of *Bicyclus anynana*. Poster presented at: Amgen Scholars Asia Symposium; August 2022; Singapore.
1. **Tanizawa F**, Takemoto H. Sleep and novel odor preference in *Drosophila melanogaster*. Poster presented at: Biophysical Society of Japan Annual Meeting; September 2020; virtual.

Fellowships and Funding

Stanford Baker Fellow, Stanford University. PhD fellowship *2025 – Present*

Ezoe Memorial Recruit Foundation Scholar (Japan). Full scholarship for PhD study, $95,000/year; 54th cohort; foundation established by Hiromasa Ezoe, founder of Recruit (parent company of Indeed and Glassdoor) *2025 – 2027*

BSI-SIP Scholar, Johns Hopkins University School of Medicine. Summer research fellowship *2024*

Ben Huppe Memorial Fellowship, Harvey Mudd College. Summer research grant for work at Scripps Research *2023*

Amgen Scholar, National University of Singapore. Summer research program *2022*

Tadashi Yanai Foundation Scholar (Japan). Full scholarship for undergraduate study, $115,000/year; 5th cohort; foundation established by UNIQLO's Tadashi Yanai *2021 – 2025*

Masason Foundation Scholar (Japan). Full scholarship from high school; 2nd cohort; foundation established by SoftBank's Masayoshi Son *2018 – 2025*

Honors and Awards

Mindlin Prize for Innovative Ideas in Science, Harvey Mudd College. For the senior thesis *2025*

Departmental Honors in Biology; Computer Science; and Humanities, Social Sciences & the Arts, Harvey Mudd College *2025*

CS Research Mentorship Program, Google Research. Mentorship in computational and bioinformatics research (mentor: Dr. Albert Cohen) *2023*

Grand Prize and Minister of Health, Labour and Welfare Award, 10th High School Bio Summit (Japan); also the Best Presentation Award *2020*

Grand Prize and Minister of Education (MEXT) Award, National Student Research Presentation, Global Science Campus of the Japan Science and Technology Agency (Japan). For high-school research *2020*

Skills

Flow cytometry: Spectral flow cytometry (Cytek Aurora), including panel design and unmixing in SpectroFlo; conventional flow cytometry (Attune NxT); high-parameter analysis in FlowJo; high-dimensional analysis (UMAP, FlowSOM)

Immunology: NK cell functional assays, ELISA, PBMC isolation and whole-blood processing from primary human samples

Parasitology: *Plasmodium falciparum* culture; *Trypanosoma brucei* culture, electroporation, doxycycline-inducible RNAi and differentiation assays (EP1-GFP reporter)

Molecular biology and imaging: PCR and RT-qPCR, molecular cloning (Gibson assembly), CRISPR/Cas9 deletion design (sgRNAs, HDR template, co-CRISPR marker and PCR screen), Western blotting and SDS-PAGE, immunoprecipitation; fluorescence and confocal microscopy, immunofluorescence

Model organisms: *Mus musculus* (handling, IV/IP injection, cardiac puncture, perfusion, tissue harvest, collection of tissue extracellular fluid); *Drosophila melanogaster* (genetics, GeneSwitch overexpression, bacterial infection, survival and bacterial-load assays, behavioral assays); *Caenorhabditis elegans* (genetic crosses, reporter imaging with NeuroPAL, lifespan assays); *Bicyclus anynana* (microinjection, behavioral assays)

Computational: R (statistical analysis and visualization), Python, MATLAB, C++; SnapGene, Benchling, ImageJ/Fiji, Git

Languages: Japanese (native), English (fluent)