Allison Hung

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Education

University of California, Berkeley 2020-present
PhD student in Molecular & Cell Biology | IAP Amgen Fellow

Columbia University in the City of New York 2016-2020
BA in Biological Sciences | GPA: 3.80 | Dean's List | National Merit Scholar

Research

Dietrich Lab, Columbia University Spring 2018, Fall 2019
Microbiology ; host-pathogen interactions

- I established assays to model *Pseudomonas aeruginosa* infections using the wax moth *Galleria mellonella* as a host, using previously published methods. I verified the robustness of these assays by comparing virulence in wildtype vs. known avirulent strains.
- I used this model to identify genes linked to virulence in *P. aeruginosa*. I also optimized an imaging protocol to visualize bacterial colonization within the host.

Persat Lab, EPFL Summer 2019
Microbiology ; host-pathogen interactions

- I characterized changes in antibiotic efflux in *Pseudomonas aeruginosa* following attachment to an agar surface. To do this, I designed experiments using RT-qPCR and live imaging of reporter cells to monitor expression of antibiotic efflux pumps in surface-attached vs. planktonic cells.

Haeusler Lab, Columbia University Medical Center 2016 - 2018
Cell signaling ; metabolic homeostasis

- I investigated the link between intestinal bile acid signaling and nutrient regulation. To do this, I developed intestinal organoids from mouse stem cells to model the intestinal environment. I measured the secretion of regulatory hormones in response to addition of different bile acids, and developed an RNA-seq pipeline to examine transcriptional effects.

Johnson Lab, UC San Francisco Summer 2018
Microbiology ; immunology

- I characterized the interactions between *Candida albicans* and the host immune response using a murine macrophage infection model. I compared the immune response to white vs. opaque forms of *C. albicans*, in both wildtype and clinical strains. To do this, I measured cytokine response along with cytotoxicity. I also used live imaging to monitor these host-pathogen interactions directly.

Dill Lab, Stony Brook University Summer 2015
Computational biology ; protein biophysics

- I altered the lab's predictive protein folding algorithm to account for multiple protein structure and used them as guiding heuristics. Using Python and Molecular Dynamics, I added to a "sample enhanced" algorithm so it would more efficiently find a polypeptide's folded conformation.

Publications

T.R. Ahmad, S. Higuchi, E. Bertaggia, **A. Hung**, N. Shanmugarajah, N.C. Guilz, J.R. Gamarra, R.A. Haeusler. Bile acid composition regulates the manganese transporter Slc30a10 in intestine **Journal of Biological Chemistry (JBC)**, doi: 10.1074/jbc.RA120.012792, 2020.

Awards

Amgen Graduate Student Fellowship	2020
ThinkSwiss Research Scholarship	2019
ABRCMS Student Travel Award	2018
Speaker award, UCSF SRTP symposium	2018
American Heart Association Summer Research Fellowship (declined)	2018
Amgen Summer Scholarship	2018
Columbia Summer Undergraduate Research Fellowship	2017
1st place in Biology – Long Island Science and Engineering Fair	2016

Outreach

Columbia Synthetic Biology Initiative -- Project Lead

- I produced a podcast (CU BioBytes) designed for students to learn about systems biology research. This involves general discussions and interviews with faculty members.

Columbia University Science Journal -- Mentor

- I mentored first and second year students pursuing a science major. I offered advice on courses and undergraduate research, and organized bonding events within my group of mentees.

Columbia Splash -- Teacher / Admin

- I taught free Saturday classes to high school students on biochemistry, microbiology, and Chinese calligraphy.
- As part of the admin team, I helped plan and organize the semesterly event, which involved over 500 students. and over 50 teachers.

Presentations

Columbia Undergraduate Research Symposium 2019	[Poster] (Persat)
Mount Sinai Undergraduate Research Fair 2018	[Oral and poster] (Johnson)
ABRCMS 2018	[Poster] (Johnson)
UCSF SRTP symposium 2018	[Oral and Poster] (Johnson)
Columbia SURF symposium 2017, 2018	[Oral and Poster] (Haeusler)
Long Island Science and Engineering Fair 2016	[Poster] (Dill)