Allison Hung

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Education

Columbia University in the City of New York Expected Graduation: May 2020
B.A. in Biological Sciences | GPA: 3.79 | Dean's List | National Merit Scholar

Research Experiences

Dietrich Lab, Columbia University Spring 2018, Fall 2019
Research Assistant, UN3500 research for credit

- 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.
- Currently, I am using this model to identify genes linked to virulence in *P. aeruginosa*. I am also optimizing an imaging protocol to visualize bacterial colonization within the host.

Persat Lab, Swiss Federal Institute of Technology in Lausanne Summer 2019
Summer Research Program

- 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 Winter 2016-Winter 2018
Research Assistant, Summer Undergraduate Research Fellowship, UN3500 research for credit

- I investigated the link between intestinal bile acid and glucose regulation.
  To do this, I developed intestinal organoids from mouse stem cells to model the intestinal environment. I measured the secretion of glucose regulatory hormones in response to addition of different bile acids, and created a possible model to explain my results.

Johnson Lab, UC San Francisco Summer 2018
Amgen scholar, Summer Research Training Program

- 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
Summer Research Intern

- I altered the lab's predictive protein folding algorithm to account for multiple protein structure and use 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.

Coursework

Biology, Biochemistry, Developmental Biology, Virology, Cell Biology
Physics 1 & 2, Calculus (Multivariable), Statistics, Python
Intensive General Chemistry / Lab, Organic Chemistry / Lab

Activities

Columbia Synthetic Biology Initiative -- Project Lead

- I help produce 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 mentor first and second year students pursuing a science major. I offer advice on courses and undergraduate research, and organize bonding events within my group of mentees.

Columbia Splash -- Volunteer Teacher / Admin

- I teach free Saturday classes to high school students on biochemistry, microbiology, and Chinese calligraphy.
- As part of the admin team, I help plan and organize the event, which occurs once every semester and involves over 500 students.

Awards

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

Selected 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)