Tiffani Hui

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Education

Tufts University, Medford, MA — Sept 2020–Present
Ph.D., Chemistry (GPA: 3.80)

Wellesley College, Wellesley, MA — Sept 2017–May 2020
B.A., Biochemistry (GPA: 3.68)

Boston University, Boston, MA — Sept 2016–May 2017
Coursework Toward: Biochemistry (GPA: 3.65)

Research Experience

Tufts University, Department of Chemistry, Medford, MA — Sept 2020–Present
Graduate Research Assistant | Advisor: Dr. Yu-Shan Lin

- Training machine learning models using molecular dynamics simulation results to enable fast and accurate structure prediction of cyclic peptides
- Performing molecular dynamics simulations using GROMACS to characterize cyclic-peptide structures
- Used Rosetta to create homology models and calculate the changes in protein stability upon mutations to help collaborators (Shoulders Lab, MIT) interpret their experimental deep mutational scanning results

Wellesley College, Department of Chemistry, Wellesley, MA — Feb 2017–Feb 2020
Undergraduate Research Assistant | Advisor: Dr. Adrian Huang

- Synthesized, purified, and analyzed *N*-substituted pyrazoles using column and thin layer chromatography to study the regioselectivity of *N*-substitution reactions of pyrazoles
- Prepared and analyzed synthesis products at multiple time points during the synthesis to monitor reaction progress using a 500MHz NMR
- Provided new lab members with trainings to help them safely perform laboratory protocols

MIT, Department of Mechanical Engineering, Cambridge, MA — Mar 2019–May 2019
Undergraduate Research Assistant | Advisor: Dr. Kripa Varanasi

- Performed protein crystallization experiments using functionalized nanoparticles to develop robust crystallization methods
- Imaged and classified crystallization results using Zeiss Axio Zoom Microscope to provide labeling for machine learning application

Publication

J. Yoon, E. E. Nekongo, J. E. Patrick, **T. Hui**, A. M. Phillips, A. I. Ponomarenko, S. J. Hendel, R. M. Sebastian, Y. M. Zhang, V. L. Butty, C. B. Ogbunugafor, Y.-S. Lin, M. D. Shoulders, "The endoplasmic reticulum proteostasis network profoundly shapes the protein sequence space accessible to HIV envelope," PLOS Biol. 20, e3001569 (2022).

Work Experience

Vertex Pharmaceuticals, Boston, MA — Jun 2019–Aug 2019
Analytical Development Intern (HPLC)

- Investigated variable chromatographic conditions on selectivities of multiple Vertex compounds to create a database for future HPLC method developments
- Analyzed data using statistical approaches (PCA-HCA) to cluster results and rationalize similar experimental conditions
- Presented data-driven HPLC method development at internal poster presentation to share the method with scientists across different departments

Ferring Pharmaceuticals, Parsippany, NJ May 2018–Aug 2018
Analytical Development Intern

- Performed viscosity measurements for a liquid suspension using a Malvern KINEXUS Rheometer to develop a robust viscosity testing method for degradation studies
- Recorded experiments in Electronic Lab Notebook with proper documentation procedure to provide accountability and easy transfer of knowledge
- Became familiar with ICH, USP, and FDA guidelines to understand standards in method development and sample stability

Amneal Pharmaceuticals, Piscataway, NJ Jun 2017–Aug 2017
Analytical Research & Development Intern

- Analyzed dissolution data on HPLC with Empower3 software to help assess precision and robustness of in-vitro release testing methods
- Performed globule size distribution experiments for ophthalmic emulsions using Malvern Mastersizer to aid in method development

Teaching Experience

Tufts University, Department of Chemistry, Medford, MA Sept 2020–Dec 2020
Teaching Assistant for Organic Chemistry Laboratory I (CHEM 53)

- Assisted students in safely performing organic chemistry techniques such as synthesis, recrystallization, and filtration to enable students to gain hands-on experience with laboratory skills
- Provided constructive feedback on graded laboratory reports to help students improve on communicating scientific results

Wellesley College, Pforzheimer Learning and Teaching Center, Wellesley, MA Sept 2019–Dec 2019
Supplemental Instructor (SI) for Intro. Cell and Molecular Biology (BISC 110)

- Held weekly review sessions and office hours to help students review material taught in lecture
- Assisted in preparing activities and lesson plans to promote active learning during SI sessions