Maiya Yu

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Education

University of Michigan — **Ann Arbor, MI**
Bachelor of Science — *September 2017 – May 2021*
Pure Mathematics, Honors Biochemistry; Minor in Computer Science — *GPA: 3.613*

Research Experience

Tall Lab, University of Michigan — **Ann Arbor, MI**
Department of Pharmacology — *September 2018 – Present*
Undergraduate Research Assistant — *October 2017 – April 2018*

- Assisted in development of Dual-Dual expression system for G proteins.
- Researched effects of phosphorylation on function of G protein chaperone protein Ric-8A.
- Used anion exchange columns and fast protein liquid chromatography to purify protein for structural and functional studies.
- Cultured bacteria and insect cells in order to obtain protein for purification.
- Performed molecular biology and culture work to develop dual-dual expression system, including subcloning and transformation of bacterial plasmids, transfection of bacmids, infection, and harvesting of insect cells.
- Ran Bradford assays, SDS-PAGE, and Phos-tag PAGE to analyze protein concentrations after purification.
- Performed binding assays using radioactive nucleosides in order to test successful protein folding and phosphorylation.

Ren Lab, University of Texas at Austin — **Austin, TX**
Department of Biomedical Engineering — *June 2018 – August 2018*
Undergraduate Researcher

- Researched chemotherapeutic potential of several naphthalene-2,6-diyl-based Aldolase A inhibitors.
- Used molecular dynamics simulations and the AMOEBA chemical force field to analyze binding and compute binding free energy of several aldolase-inhibitor systems.
- Wrote Python scripts to analyze specific atomic level interactions and to calculate solvent-accessible surface area.

Other Experience

MWrite Program, University of Michigan — **Ann Arbor, MI**
Department of Chemistry and Sweetland Writing Center — *January 2020 – May 2020*
Writing Fellow — *January 2019 – May 2019*

- Supported students and faculty in implementation of Write-to-Learn assignments in second-semester Organic Chemistry lab course.
- Held office hours to support students in a one-on-one environment.
- Met with faculty and other fellows to discuss prompt implementation and student success.
- Provided technical support to students using the Canvas peer-review interface.
- Provided students with feedback on responses to encourage revision and deeper thinking.

Math Lab, University of Michigan — **Ann Arbor, MI**
Department of Mathematics — *January 2019 – Present*
Math Tutor

- Tutored courses including Pre-Calculus, Calculus 1, 2 and 3, Differential Equations, and both proof-based and non-proof-based Linear Algebra.
- Adapted teaching style to meet different student needs.
- Provided guidence in small group and individual settings.

Presentations

BioTalk Seminar, Ann Arbor, MI August 7, 2020

- **Oral Presentation,** A Dual-Dual Expression System for Purification of G Protein α Subunits and Heterotrimers

GPCR Retreat, Bromont, Quebec, Canada September 27, 2019

- **Poster,** A Dual-Dual Expression System for Purification of G Protein α Subunits and Heterotrimers

Pharmacology SURF Symposium, Ann Arbor, MI August 8, 2019

- **Oral Presentation,** A Dual-Dual Expression System for Purification of G Protein α Subunits and Heterotrimers

Biomedical Engineering Society Annual Meeting, Atlanta, GA October 20, 2018

- **Poster,** Computational studies of novel inhibitors of aldolase A via molecular dynamic simulations

Summer Scholars Symposium, Austin, TX August 2, 2018

- **Poster,** Computational studies of novel inhibitors of aldolase A via molecular dynamic simulations

UROP Symposium, Ann Arbor, MI April 18, 2018

- **Poster,** Protein Kinase CK2 Phosphorylation of Ric-8A Potentiated its Enzymatic Activities Towards G protein α Subunits and Permitted its Crystallization

Publications

1. Wenxi Yu, **Maiya Yu**, Makaía M. Papasergi-Scott, and Gregory G. Tall. Production of phosphorylated Ric-8A proteins using Protein Kinase CK2. *Protein Expression and Purification*, 154:98 – 103, 2019

2. Rui Qi, Brandon Walker, Zhifeng Jing, **Maiya Yu**, Gabriel Stancu, Ramakrishna Edupuganti, Kevin N. Dalby, and Pengyu Ren. Computational and experimental studies of inhibitor design for Aldolase A. *The Journal of Physical Chemistry B*, 123(28):6034–6041, 2019. PMID: 31268712

3. Alexander Vizurraga, Rashmi Adhikari, Jennifer Yeung, **Maiya Yu**, and Gregory G Tall. Mechanisms of Adhesion G protein Coupled Receptor activation. *Journal of Biological Chemistry*, 2020

Activities

University of Michigan Science Olympiad Club **Ann Arbor, MI**
University of Michigan *May 2019 – Present*
Executive Director

- Procured funding for the organization by writing fundraising letters and holding individual meetings with potential sponsoring units.
- Coordinated organization and oversaw 13-person board of directors.
- Oversaw expansion of organization to include over 200 volunteers and event to reach nearly 1000 students.
- Supported board of directors and volunteers in administrative and executive role.

University of Michigan Science Olympiad Club **Ann Arbor, MI**
University of Michigan *July 2017 – May 2019*
Human Resources Officer

- Developed protocols and conduct policies for tournament volunteers to comply with University policies.
- Coordinated and recruited over 100 tournament volunteers to ensure events ran smoothly.

Skills

Computer Skills

- Python, C++, Bash, LaTeX, HTML, and CSS
- Adobe Illustrator, Microsoft Office, G Suite, Molecular Dynamics Simulations, VMD, Pymol, and Jmol

Biochemistry

- SDS PAGE, Phos-Tag PAGE, Bradford Assay, Bacteria Culture, Column Chromatography, Western Blot, GTPγS time course assay, PCR, Subcloning, Insect Cell Culture, and DNA Purification

Other

- Public Speaking, Science Communication

Honors and Achievements

- **University Honors**, Fall 2017, Winter 2018, Fall 2018, Winter 2020
- **Mary E.Wilsberg Scholarship**, 2017-2018, 2018-2019, 2019-2020, 2020-2021
- **National Merit Finalist**, 2017-2018