

Melissa Ling

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EDUCATION

Doctor of Philosophy in Molecular Engineering

Sept 2020 – Present

University of Washington, Seattle, WA

- **Cumulative GPA:** 3.97/4.00
- Awarded College of Engineering Dean's Fellowship

Bachelor of Science in Biomedical Engineering (Biochemical Focus)

Aug 2016 – May 2020

The Pennsylvania State University (Schreyer Honors College), University Park, PA

- **Cumulative GPA:** 3.99/4.00
- Department of Biomedical Engineering Student Marshal

RESEARCH AND INDUSTRY EXPERIENCE

Graduate Research Assistant (Pun Laboratory)

Mar 2021 – Present

Department of Bioengineering, Seattle, WA

- Developed aptamer-based resin chromatography system for isolation of CD8+ T-cells from PBMCs
- Optimized buffer conditions, cell load, and aptamer conjugation mechanisms to minimize nonspecific binding

Undergraduate Researcher (Gomez Laboratory)

Aug 2019 – May 2020

Department of Chemical Engineering, University Park, PA

- **Thesis:** *The Role of Lamin A/C and the LINC Complex in TGF β 1-induced Epithelial-Mesenchymal Transition*
- Studied the effects of matrix rigidity on nuclear organization and gene expression in epithelial-mesenchymal transition
- Employed skills in tissue culture, Western Blotting, and fluorescence microscopy to analyze biomechanical cues in cells

BioProcess Development Purification Summer Intern

May 2019 – Aug 2019

Seattle Genetics, Bothell, WA

- Screened chromatography resins for antibody purification using high-throughput technology and statistical analysis
- Identified the best resins providing robust aggregate clearance below 2% to support a two-column purification platform
- Prepared and gave presentation about chromatography resin screening process and result trends

Undergraduate Researcher (Transformative Biomaterials and Biotechnology Laboratory)

Sept 2018 – May 2019

Department of Biomedical Engineering, University Park, PA

- Synthesized citrate-based polymer composites for bone tissue from citrate, soybean oil, hydroxyapatite, and polyurethane
- Systematically tested reactant ratios, reaction times, and temperature to optimize injectable citrate-polymer material

Chemical and Synthetic Development Analytical Chemistry Intern

May 2018 – Aug 2018

Bristol-Myers Squibb, New Brunswick, NJ

- Used HPLC (Size-Exclusion Chromatography) to screen chemical samples in the drug product development process
- Established a general method to detect polymeric impurities in small-molecule drugs down to a 0.025% sensitivity
- Prepared and gave presentation about general method development study at company research symposium

LEADERSHIP AND INVOLVEMENT

Organic Chemistry Instrument Room Undergraduate Teaching Assistant

Aug 2018 – Dec 2018

Eberly College of Science, University Park, PA

- Instructed undergraduate peers in using chemistry lab instrumentation for synthetic organic chemistry products
- Successfully learned, performed, and taught NMR, IR, UV-Vis, and GC procedures for structure characterization

Organic Chemistry Learning Assistant

Aug 2017 – Dec 2017

Eberly College of Science, University Park, PA

- Led office hours twice a week to facilitate group learning sessions for undergraduate students in organic chemistry
- Collaborated with undergraduate peers to understand concepts from lecture practice problems and homework

Service Chair, Society of Women Engineers

Aug 2017 – Dec 2018

Math Instructor, Mathnasium of State College

Aug 2017 – May 2018

SKILLS

Software: SolidWorks CAD, MATLAB, COMSOL, JMP, R, Python

Laboratory: Buffer Prep, Reaction Set-Up/Work-Up, Column Chromatography, HPLC, NMR, IR, GC, UV-Vis, Cell Culture, Western Blotting, Immunofluorescence Microscopy, Column Packing, ÄKTA, Tecan Liquid Handler