Melissa Ling

mling13@uw.edu • (484) 723-3254 • melissaling.weebly.com

SUMMARY OF QUALIFICATIONS

- 5+ years of experience in wet laboratory techniques: cell culture, PCR, western blotting, IF staining, flow cytometry
- Proficient in chemical synthesis and analytical chemistry: RAFT, HPLC, NMR, IR, GC, UV-Vis
- Six months of industrial lab experience in small-molecule and protein purification: chromatography, column packing, ÄKTA, Tecan liquid handler
- Curricular foundation in SolidWorks CAD, MATLAB, COMSOL, JMP, R, and Python
- Effective leadership, organization, and commitment to DEI, demonstrated through extracurricular role in GradSWE

EDUCATION

Doctor of Philosophy in Molecular Engineering Sept 2020 – Present
University of Washington, Seattle, WA

- **Awarded NSF GRFP Fellowship**
- 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
- Designed an *in vitro* blood-brain barrier model for drug delivery analysis of aptamers and polymeric nanoparticles
- Determined mechanism of polySTAT, a hemostat, using flow cytometry and chromogenic assays

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 TGFβ1-induced Epithelial-Mesenchymal Transition*
- Studied the effects of matrix rigidity on nuclear organization and gene expression in epithelial-mesenchymal transition
- Performed 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

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

Graduate Society of Women Engineers Outreach Officer Aug 2021 – Present

- Managed the outreach committee and organized outreach events for undergraduates and underprivileged K-12 students

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