

# Ethan Mickelson

Doctoral Student in Bioengineering

## HONORS & AWARDS

Kling Scholarship

Provost Scholarship

Asdell Scholarship

Blatt Scholarship

Klinkenberg Scholarship

Founders Scholar (3)

Executive Dean's List Standing (6)

Phi Beta Kappa Member

UW School of Medicine Fellowship Recipient

## SKILLS

Non-Viral and Viral Drug Delivery Systems

Polymer Chemistry

Targeted Therapeutics

Precision Gene Therapies

Peptide Engineering

Solid-Phase Synthesis

Microfluidic Nanoparticle Synthesis

Chemical Fingerprint Machine Learning

Cell/Tissue Culture

Process Engineering

X-Ray Crystallography

Schlenk Line Materials Synthesis

## EDUCATION

### University of Washington

Doctoral Student in Bioengineering

09/2022 - 05/2027

Seattle, WA

*Achievements*

- School of Medicine-Bioengineering Research Fellow

### Indiana University

B.S. Biochemistry

07/2018 - 05/2022

Bloomington, IN

*Achievements*

- 3.92 GPA - Summa Cum Laude/Highest Distinction
- Hutton Honors College Notation

## WORK EXPERIENCE

### Doctoral Research Assistant

Pun Group - University of Washington

09/2022 - Present

Seattle, WA

*Responsibilities*

- Synthesis and targeted delivery of polymer therapeutics for hemostasis and resuscitation of the blood to treat traumatic injuries in prehospital settings
- Regenerating the highly complex architecture of the endothelial glycocalyx following vascular trauma using polymeric biomaterials

### Research Associate in Peptide Engineering

DiMarchi Group - IU Chemistry Department

01/2021 - 05/2022

Bloomington, IN

*Responsibilities*

- Investigating the potential of viral insulin/IGF1-like peptides as therapeutic IGF1 receptor antagonists
- Assembling viral host-like proteins via solid-phase peptide synthesis and building proficiency in bioanalytical techniques

### Associate Instructor - Organic Chemistry I & Organic Chemistry Lab

IU Chemistry Department

08/2020 - 05/2022

Bloomington, IN

*Responsibilities*

- Directly responsible for the education and development of more than 150 undergraduate students
- Leading and managing 15 other undergraduates who assist in facilitating discussion and learning within each course

### Analytical Control Strategy Intern

Eli Lilly and Company

05/2021 - 08/2021

Indianapolis, IN

*Responsibilities*

- Developed an optimal analytical control strategy for viral gene therapies by rigorous performance analyses
- Compiled an extensive amount of data pertaining to the analytical characterization of viral gene therapy drug products

## SKILLS

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Laboratory  
Management

Scientific Writing

Leadership &  
Communication

Passion & Ambition

Creativity & Problem-  
Solving

## WORK EXPERIENCE

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### Research Associate in Small Molecule Drug Design

Dann Group - IU Biochemistry Department

01/2020 - 10/2020

Bloomington, IN

*Responsibilities*

- Developed anti-folate chemotherapeutics for the inhibition of mitochondrial enzymes in the one-carbon metabolic pathway
- Leveraged crystallography, kinetic enzymology, and chemical fingerprint machine learning to design therapeutics

### Crystallography Technician

Macromolecular Crystallography Facility - IU Biochemistry Department

02/2020 - 08/2020

Bloomington, IN

*Tasks/Achievements*

- Programmed and operated robots to isolate conditions for the crystallization of a diverse array of macromolecules
- Coordinated research efforts with dozens of professors; produced and maintained thousands of crystallography samples

### Process Development Intern

Exelead Biopharmaceuticals

05/2019 - 08/2020

Indianapolis, IN

*Responsibilities*

- Engineering nanocarrier formulations for hepatic saRNA gene therapies, recombinant proteins, and ophthalmologically delivered lipid complexes
- Authorship of product development reports, correspondences with research contract clientele, and the company-wide COVID-19 response SOP

## MANUSCRIPTS IN PROGRESS

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### Delivery of Nucleic Acid Therapeutics in Non-Viral Lipid-based Nanocarriers

- Mickelson, E., Keswani, R. & King, B. Delivery of Nucleic Acid Therapeutics in Non-Viral Lipid-based Nanocarriers. (2022).
- Reviewing the structural arrangement of various nucleic acid therapeutics in liposomal, lipid-complex, and lipid nanoparticle delivery systems

### Centennial Insulin Review

- Mayer, J., Mickelson, E. & DiMarchi, R. Centennial Insulin Review. (2022).
- Details the advancement of myriad insulin drug products/technologies
- Authored sections reviewing glucose-responsive insulin delivery systems, pulmonary insulins, and oral insulins