

Peyton Panovich

4th year Ph.D. Candidate

Department of Biomedical Engineering

University of Michigan

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DYNAMED Lab

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Education

University of Michigan

Doctor of Philosophy in Biomedical Engineering

Ann Arbor, Michigan

Expected Spring 2028

University of Michigan

Masters in Biomedical Engineering

Ann Arbor, Michigan

May 2025

University of Kansas

Bachelor of Science in Chemical Engineering

Minor in Business, Minor in Biomedical Engineering

Honors Program

Lawrence, Kansas

May 2023

Research Experience

University of Michigan, Graduate Student

Department of Biomedical Engineering

Research Mentor: Dr. Alexandra Piotrowski-Daspit

Exploration of polymeric nanoparticles for nucleic acid delivery to multiple organs *in vivo* with a focus on engineering decoy nanoparticles for improved tissue tropism and reduced off-target accumulation

Ann Arbor, Michigan

2023-Present

University of Kansas, Undergraduate Researcher

Department of Pharmaceutical Science

Research Mentors: Dr. Cory Berkland and Dr. Grant Downes

Functionalization and synthesis of pro-insulin for antigen-specific immunotherapy for type 1 diabetes

Lawrence, Kansas

2021-2023

Johns Hopkins University, REU Summer Scholar

Department of Chemical and Biological Engineering

Research Mentors: Dr. Sangmoo Jeong and Alli Abolarin

Role of serine and glycine modulation on the metabolic behavior of acute myeloid leukemia for use in combination therapies for synergistic therapeutic efficacy

Baltimore, Maryland

Summer 2022

University of Nebraska Lincoln, REU Summer Scholar

Lincoln, Nebraska

Department of Biological Systems Engineering

Summer 2021

Research Mentors: Dr. Angela Pannier and Kari Heck

Optimization of loading plasmid DNA into bacterial outer membrane vesicles for oral vaccine and gene delivery platform

University of Kansas, Undergraduate Researcher

Lawrence, Kansas

Department of Bioengineering

2020- 2021

Research Mentors: Dr. Kenneth Fischer and Dr. Nolan Norton

Segmentation of thumb metacarpal and trapezium bones from MRI scans for development of 3-D models and analysis of osteoarthritic risk of micropipette operation.

University of Kansas, Undergraduate Researcher

Lawrence, Kansas

Department of Chemical Engineering

2019-2020

Research Mentors: Dr. Mei He and Dr. Shaobo Ruan

Investigation of UV light treatment for increased exosome secretion of cells

University of Kansas Medical Center, Biotechnology Program

Kansas City, Kansas

Department of Cancer Biology

2018-2019

Research Mentors: Dr. Prasad Dandawate and Dr. Shrikant Anant

Cucurbitacin B and I inhibits colon cancer cell growth by targeting the Notch signaling pathway

Publications

Viola, H., Carter, H., Griffin, K., Medina Costa, R., McDonald, A., Callow, B., Gonzalez de Los Santos, F., **Panovich, P.**, Carey, S., Martinez, M., Chen, R., Hunter, Z., Piotrowski-Daspit, A., Luker, G., Moore, B., Shea, L. Antifibrotic Monocyte Activation by Nanoparticles Resolves Murine Pulmonary Fibrosis, *Biomaterials*, Under review

Liu, J., Plaster, E., Fan, M., Ahmed, D., Roy, A., Duran, P., **Panovich, P.**, Piotrowski-Daspit, A., Aguilar, A., Killian, L., Loebel, C. Nascent Extracellular Matrix Converts Biomaterial Cues into Cell Fate Decisions, *Advanced Science*, Under review

Panovich, P., Ganesan, A. Markey, A., Stevens, M, Kelly, O., Piotrowski-Daspit, A (2026). Engineered Cargo-Free Nanoparticles Decoys for Phagocytic Modulation of Macrophages, *Journal of Controlled Release*, 392:114699.

Panovich, P. Ganesan, A. Angadi, A. Piotrowski-Daspit, A. (2025) Recent Advances in the Application of Polymeric Nanoparticles to the Pulmonary Delivery of mRNA, *Nanomedicine (Lond)*, 1-17.

Dandawate, P., Subramaniam, D., **Panovich, P.**, Standing, D., Krishnamachary, B., Kaushik, G., Thomas, S. M., Dhar, A., Weir, S. J., Jensen, R. A., & Anant, S. (2020). Cucurbitacin B and I inhibits colon cancer growth by targeting the Notch signaling pathway. *Scientific Reports*, 10(1), 1.

Presentations

University of Michigan BME Symposium, Ann Arbor, Michigan May 2026
Poster Presentation on “Engineered Cargo-free Nanoparticle Decoys for Phagocytic Modulation of Macrophages”

Ohio Valley Cystic Fibrosis Consortium, Columbus, OH March 2026
Oral Presentation on “Cargo-free Nanoparticle Decoys Modulate Phagocytic Clearance of Polymer Nanoparticles for Improved Delivery to the Lung”

North American Cystic Fibrosis Conference, Seattle, WA October 2025
Poster presentation on “Esomeprazole and Cargo-free Nanoparticle “Decoys” Modulate Phagocytic Clearance of Polymeric NPs for Improved Delivery to the Lung and Gastrointestinal Tract”

Annual Biomedical Engineering Society Meeting, San Diego, CA October 2025
Oral presentation on “Esomeprazole and Cargo-free Nanoparticle “Decoys” Modulate Phagocytic Clearance of Therapeutic NPs”

University of Michigan BME Symposium, Ann Arbor, MI. May 2025
Poster Presentation on “Cargo-free Nanoparticle and Esomeprazole decoys Prevent Phagocytic Clearance of Therapeutic Polymeric Nanoparticles”

Ohio Valley Cystic Fibrosis Consortium, Columbus, OH March 2025
Poster Presentation on “Cargo-free Nanoparticle and Esomeprazole decoys Prevent Phagocytic Clearance of Therapeutic Polymeric Nanoparticles”

Annual Biomedical Engineering Society Meeting, Baltimore, MD. October 2024
Poster presentation on “Cargo-free Nanoparticle and Esomeprazole decoys Prevent Phagocytic Clearance of Therapeutic Polymeric Nanoparticles”

Bio interfaces and Regenerative Medicine Monthly Meeting, Ann Arbor, MI August 2024
Oral presentation on “Cargo-free Nanoparticle and Esomeprazole decoys Prevent Phagocytic Clearance of Therapeutic Polymeric Nanoparticles”

Ohio Valley Cystic Fibrosis Consortium, Columbus, OH March 2024
Poster Presentation on “Engineered Decoy Pretreatment Avoids Phagocytic Clearance of Polymeric Nanoparticles”

Institute for Nano Biotechnology In-House Symposium, Baltimore, MD August 2022
Oral presentation on “Effect of Serine/Glycine on Metabolic Behavior of Acute Myeloid Leukemia”

Johns Hopkins University Annual C.A.R.E.S Symposium, Baltimore, MD July 2022
Oral presentation on “Effect of Serine/Glycine on Metabolic Behavior of Acute Myeloid Leukemia”

Annual Biomedical Engineering Society Meeting, Orlando, FL October 2021
Poster presentation on “Optimization of Loading Plasmid DNA into Bacterial Outer Membrane Vesicles”

University of Nebraska Lincoln Summer Research Program Symposium, Lincoln, NE July 2021
Poster presentation on “Optimization of Loading Plasmid DNA into Bacterial Outer Membrane Vesicles”

University of Kansas Undergraduate Research Symposium, Lawrence, KS April 2021
Oral presentation on “Developing 3-D Models of Thumb Carpometacarpal Joints to Analyze Impact of Pipette Operation”

INTEL International Science and Engineering Fair, Phoenix, Arizona May 2019
Poster presentation on “The Effect of Cucurbitacin B and I on Colon Cancer Cell Proliferation”

Abstracts at Scholarly Meetings

Liu, J., Plaster, E., Fan, M., Ahmed, D., Roy, A., Duran, **P., Panovich**, P., Piotrowski-Daspit, A., Aguilar, A., Killian, L., Loebel, C. (2026) Nascent Extracellular Matrix Converts Biomaterial Cues into Cell Fate Decisions, *Society for Biomaterials*: Atlanta, GA

Liu, J., Plaster, E., Fan, M., Ahmed, D., Roy, A., Duran, **P., Panovich**, P., Piotrowski-Daspit, A., Aguilar, A., Killian, L., Loebel, C. (2025) Nascent Extracellular Matrix Converts Biomaterial Cues into Cell Fate Decisions, *Biomaterials International*: Seattle, WA

Peyton Panovich, Aditi Ganesan, Miriam Stevens, Alexandra Piotrowski-Daspit (2025): Esomeprazole and Cargo-free Nanoparticle “Decoys” Modulate Phagocytic Clearance of Polymeric NPs for Improved Delivery to the Lung and Gastrointestinal Tract, *North American Cystic Fibrosis Conference*: Seattle, WA

Peyton Panovich, Aditi Ganesan, Miriam Stevens, Alexandra Piotrowski-Daspit (2025): Esomeprazole and Cargo-free Nanoparticle “Decoys” Modulate Phagocytic Clearance of Therapeutic NPs, *Biomedical Engineering Society Annual Meeting*: San Diego, CA

Peyton Panovich, Alexandra Piotrowski-Daspit (2024): Engineered Pretreatment Prevents Phagocytic Clearance of Therapeutic Nanoparticles, *Biomedical Engineering Society Annual Meeting*: Baltimore, MD

Peyton Panovich, Kari Heck, Amanda E. Ramer-Tait, Angela K. Pannier (2021): Optimization of Loading Plasmid DNA into Bacterial Outer Membrane Vesicles, *Biomedical Engineering Society Annual Meeting*: Orlando, FL (virtual attendance)

Workshops and Trainings

NextProf Pathfinder-Mentor October 2025
Participated as a mentor where I served on a graduate student panel and facilitated student-to-student communication throughout workshop

NextProf Pathfinder October 2024
Workshop designed to prepare early career graduate students for careers in academia

Mentoring Experience

Mentored Public Health undergraduate, Aishani Bajpai, University of Michigan	2026-Present
Mentored BME undergraduate, Aditi Ganesan, University of Michigan	2024-2026

Teaching Experience

Engineering Teaching Consultant University of Michigan	2026-Present
BME 419/519 Quantitative Physiology Graduate Student Instructor University of Michigan	WN2026

Leadership

Biomedical Engineering Graduate Student Council <i>Retreat Chair</i> Managed annual planning of departmental retreat for new and returning graduate students	2024-2025
Biomedical Engineering Graduate Student Council <i>Social Committee Member</i> Organized inter departmental mixers between chemical engineering, biomedical engineering, and pharmaceutical science departments	2023-2026
SELF Engineering Leadership Program <i>Junior-Admit Fellow</i> - Executed “Undergraduate Research Involvement Fair” as personal capstone project - Room and Space lead for High School Design planning committee	2021-2023
Engineering Student Council <i>Vice President of Finance</i> - Directed Funding Advisory Committee for School of Engineering - Distributed funding to student organizations	2021-2022
Engineering Student Council <i>EXPO Finance Chair</i> - Assisted in organizing Engineering Expo event for elementary and middle school students - Tabulated and monitored budget throughout the project	2020-2021

Awards and Honors

Graduate Assistance in Areas of National Need (GAANN) Fellow - Fellowship awarded to graduate students pursuing teaching experience. Provides one year of full funding and opportunities for teaching development	2025
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- National Science Foundation Graduate Research Fellowship: Honorable Mention 2024
- Awarded to meritorious applications
- Tau Beta Pi Engineering Honors Society 2021-Present
- Engineering honor society recognized by esteemed scholarship and honorary character across all engineering disciplines
- Undergraduate Research Award 2021
- Research scholarships awarded to students pursuing creative independent research projects during their undergraduate education at the University of Kansas
- STEMMY Nominee 2020 & 2021
- Recognizes exemplary female scientists in Kansas City Area to increase gender diversity in STEM fields
- Dean's Honor Roll All Semesters 2019-2023
- Awarded to top 10% of students within their field of study at the University of Kansas

Professional Memberships

- American Society of Engineering Educators
- Biomedical Engineering Society
- American Institute of Chemical Engineers
- Society of Women Engineers

References

Alexandra Piotrowski-Daspt, PhD
University of Michigan
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