

CURRICULUM VITAE

Aditi Ganesan
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EDUCATION

University of Michigan

Bachelor of Science in Engineering: Biomedical Engineering
Minor: Electrical Engineering

Ann Arbor, MI
Expected May 2026

RESEARCH EXPERIENCE

Dynamic Nanomedicines Lab, Michigan Biomedical Engineering

Undergraduate Research Assistant
Advisor: Dr. Alexandra Piotrowski-Daspit

Ann Arbor, MI
Aug. 2024 – Present

- Developing “decoy” pretreatment techniques to improve tissue tropism and reduce phagocytic clearance of polymeric nanoparticle therapeutic vehicles for *in vivo* systemic nucleic acid delivery to multiple organs
- Investigating the relationship between immune state and macrophage phagocytic clearance of polymeric nanoparticles
- Exploring the use of poly(amine-co-ester) polyplexes for delivery of anticodon-editing transfer RNA in the context of cystic fibrosis in collaboration with Lueck lab (PI Dr. John Lueck) at University of Rochester

Jones/Li Lab, Michigan Medicine

Undergraduate Research Assistant
Advisor: Dr. Morgan Jones

Ann Arbor, MI
June 2022 – May 2024

- Investigated hematopoietic stem cell inflammatory stress management in myeloid disease using *in vivo* NF- κ B reporter
- Implemented competitive transplant techniques to monitor long-term hematopoietic stem cell reconstitution potential

BD Technologies and Innovation

R&D Intern – Molecular Diagnostics

Research Triangle Park, NC
May – Aug. 2024

- Conducted assay development, testing, and optimization for library expansion of point-of-care molecular diagnostic test

Arborsense Inc.

Laboratory Assistant
Advisor: Dr. Xudong (Sherman) Fan

Ann Arbor, MI
June 2025 – Sept. 2025

- Performed testing of wearable biomarker detection system for drug abuse on patient sweat samples

PUBLICATIONS

Panovich PM, **Ganesan A**, Angadi AR, Piotrowski-Daspit AS. Recent advances in the application of polymeric nanoparticles to the pulmonary delivery of mRNA. *Nanomedicine (Lond)*. 2025 May 30;1-17. doi: 10.1080/17435889.2025.2509477.

Panovich PM, **Ganesan A**, Stevens ME, Piotrowski-Daspit AS. Engineered cargo-free nanoparticle decoys for phagocytic modulation of macrophages. *Journal of Controlled Release*. In press.

ABSTRACTS AND PRESENTATIONS

1. **Ganesan A**, Panovich PM, Piotrowski-Daspit A. Macrophage Polarization Affects Phagocytic Clearance of Polymeric Nanoparticles. *2025 Biomedical Engineering Society Meeting*, San Diego, CA. Oct. 11, 2025, poster
2. **Ganesan A**, Panovich PM, Piotrowski-Daspit A. Polarization of Macrophages affects Phagocytic Clearance of Polymeric Nanoparticles. *2025 BME Research Symposium*, Ann Arbor, MI. May 13, 2025, poster
3. **Ganesan A**, Panovich PM, Piotrowski-Daspit A. Polarization of Macrophages affects Phagocytic Clearance of Polymeric Nanoparticles. *2025 Ohio Valley Cystic Fibrosis Consortium*, Dublin, OH. March 17, 2025, poster
4. **Ganesan A**, Jones MA, Li Q. Hematopoietic Stem Cell Function is Characterized by the Activation of the NF- κ B pathway. *Michigan 2024 Undergraduate Research Symposium*, Ann Arbor, MI. April 5, 2024, poster
5. **Ganesan A**, Jones MA, Li Q. Hematopoietic Stem Cell Function is Characterized by the Activation of the NF- κ B pathway. *22nd Annual University of Michigan Pathology Research Symposium*, Ann Arbor, MI. Nov. 3, 2023, poster

PROJECT EXPERIENCE

iGEM Team: Michigan Synthetic Biology Team

Ann Arbor, MI

Co-President

Nov. 2024 – Dec. 2025

- Developed targeted cancer therapy platform utilizing magnetotactic and aerotactic properties of *Magnetospirillum magneticum* AMB-1 engineered to express Cytolysin A under control of a heat shock promoter; Gold medal

Director of External Affairs

Nov. 2023 – Nov 2024

- Engineered *Pseudomonas putida* S16 with a tetrahydrofuran monooxygenase gene complex to degrade local water pollutant 1,4-dioxane; designed bioreactor compatible with existing water treatment infrastructure; Silver medal

Team Member

Jan. 2023 - Present

- Developed loop-mediated isothermal amplification assay for point of care detection of single nucleotide polymorphism in gene PAR4 to inform thrombin-based drug efficacy; Gold medal and “Best Diagnostic” nominee

Photoacoustic Precision Biopsy Project

Ann Arbor, MI

BIOMEDE 450 at University of Michigan

Aug. 2025 – Dec. 2025

- Designed and tested prostate biopsy device with combined tissue sampling and real time imaging capabilities for senior capstone project, in collaboration with Chad Ellimootil, MD (Urology) and Dr. Gary Xu, PhD (Ophthalmology)

TEACHING EXPERIENCE

Instructional Aide: Quantitative Physiology (BIOMEDE 419)

Ann Arbor, MI

Professor: Dr. Alexandra Piotrowski-Daspit

Jan. 2026 – Present

- Holds weekly office hours, assists with creation of course materials for upper-level physiology course

Instructional Aide: Quantitative Cell Biology (BIOMEDE 418)

Ann Arbor, MI

Professor: Dr. Aaron Morris

Aug. 2025 – Dec. 2025

- Held weekly office hours to answer student questions and assisted with grading for upper-level course on cell biology

SKILLS

Computer Language and Software: Python, MATLAB/Simulink, Java, R, COMSOL, SolidWorks, FlowJo, GraphPad Prism, ImageJ/FIJI, Adobe Illustrator

Wet-Lab Technique: Library Preparation, Primer/Probe Design, PCR, qPCR/RT-qPCR, LAMP, Gel Electrophoresis, Flow Cytometry, Mammalian Cell Culture, Bacterial Cell Culture, Bacterial Transformation, Plasmid Design, Gibson Assembly, Fluorescence Microscopy (EVOS), Mouse Handling/Dissection, Competitive Bone Marrow Transplant, Whole Organ Imaging (IVIS), ex-vivo tissue culture (human precision-cut lung slices), Cryostat Microtome operation, Polymeric Nanoparticle Formulation, Ultrasonication, Lyophilization, Rotary Evaporator operation,