

CURRICULUM VITAE: Owen McAndrew Kelly

University of Michigan
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EDUCATION

University of Michigan	Ann Arbor, MI
Ph.D. Candidate in Biomedical Engineering (August 2023 - Present)	
Master of Science in Biomedical Engineering (August 2023 - May 2025)	
Boston University	Boston, MA
Bachelor of Science in Biomedical Engineering (September 2019 – May 2023)	
GPA: 3.86/4.00	
Honors: Magna Cum Laude	
Archbishop Williams High School	Braintree, MA
High School Diploma (September 2015 – May 2019)	

AWARDS

- Biomedical Engineering Chair's Award for Excellence at the University of Michigan (2023), Engineering Alumni Association Student Leader Award at Boston University (2023), Student Advisor Award at Boston University (2023), Scarlet Key Honor Society at Boston University (2023), Undergraduate Research Opportunities Program at Boston University (2021 - 2022)

RESEARCH EXPERIENCE

Dynamic Nanomedicines Lab at the University of Michigan; Ann Arbor, MI

Doctoral Researcher with Dr. Alexandra Piotrowski-Daspit (August 2023 - Present)

- Designing polymer-based nanoparticles encapsulating effective gene-editing technologies for local delivery to the lungs to treat cystic fibrosis and other genetic diseases
- Conjugating peptides to the surface of polymeric nanoparticles to increase uptake efficiency in specific cell types
- Testing nanoparticle conjugates in air-liquid interface (ALI) models, lung organoids, and precision cut lung slices (PCLS) from humans as *ex vivo* models

The Tien Group at Boston University; Boston, MA

Undergraduate Researcher (November 2020 – May 2023)

- Researched the effect that lymphatic endothelial cells have on escape and invasion of MDA-MB-231 breast cancer tumors by creating a 3D *in vitro* model
- Characterized tumor-lymphatic model for markers seen *in vivo*
- Imaged, analyzed, cultured, and maintained tumor-lymphatic samples daily

Senior Capstone Research Project (September 2022 – May 2023)

- Created novel *in vitro* model of human luminal breast cancer microenvironment
- Analyzed tumor samples daily to calculate extent of invasion into extracellular matrix and escape into lymphatic vessels

PUBLICATIONS

1. Kelly, O.M., Hanna, A.R., Byrne, A., Green, J.A., Perisse, I.V., Wells, K., Murray, S.A., Polejaeva, I.A., Tarantal, A.F., Issadore, D., and Piotrowski-Daspit, A.S., "Towards Clinical Translation of Nanomedicines: Formulation Scale-up and Large Animal Models" *Adv Drug Del Rev*, in revision.
2. Panovich, P.M., Ganesan A., Markey, A.I., Stevens, M.E., Kelly, O.M., and Piotrowski-Daspit, A.S. "Engineered cargo-free nanoparticle decoys for phagocytic modulation of macrophages" *J Control Release*, in press.
3. Seibel, A.J., Kelly, O.M., Dance, Y.W., Nelson, C.M., & Tien, J., "Role of Lymphatic Endothelium in Vascular Escape of Engineered Human Breast Microtumors" *Cell Mol Bioeng*. 2022 Nov 7;15(6):553-569.

MANUSCRIPTS IN PREPARATION

1. Kelly, O.M., Kashyap, V., Ponnusamy, V., Stevens, M., Markey, A., Walker, N., Khater, J., Peters-Golden, M., Huang, S., Spence, J., Bordeau, B., Thurber, G., Piotrowski-Daspit, A.S., "Engineered peptide-nanoparticle conjugates for targeting airway epithelial cells"

ABSTRACTS AND PRESENTATIONS

1. Kelly, O.M., Kashyap, V., Akin, E., Tessier, P., Bordeau, B., Piotrowski-Daspit, A.S., "Engineered peptide-nanoparticle conjugates for targeting airway epithelial cells" [invited talk], North American Cystic Fibrosis Conference (Seattle, WA; 2025).

2. **Kelly, O.M.**, Kashyap, V., Bordeau, B., Piotrowski-Daspit, A.S., “Engineered peptide-nanoparticle conjugates for targeting airway epithelial cells” [poster], Biomedical Engineering Society 2025 Annual Meeting (San Diego, CA; 2025).
3. **Kelly, O.M.**, Kashyap, V., Akin, E., Tessier, P., Bordeau, B., Piotrowski-Daspit, A.S., “Antibody/peptide-nanoparticle conjugates for specific cell-type targeting” [poster], Ohio Valley Consortium Conference (Columbus, OH; 2025).
4. **Kelly, O.M.**, Akin, E., Tessier, P., Bordeau, B., Piotrowski-Daspit, A.S., “Antibody/peptide-nanoparticle conjugates for specific cell-type targeting” [poster], Biomedical Engineering Society 2024 Annual Meeting (Baltimore, MD; 2024).
5. **Kelly, O.M.**, Piotrowski-Daspit, A.S., “Antibody-nanoparticle conjugates for specific cell-type targeting of nucleic acid therapeutics” [poster], Ohio Valley Consortium Conference (Columbus, OH; 2024).
6. Seibel, A.J., **Kelly, O.M.**, Dance, Y.W., & Tien, J., “Improving the stability of engineered lymphatic vessels under fluid-draining conditions” [poster], 49th Annual Northeast Bioengineering Conference (Philadelphia, PA; 2023).
7. Seibel, A.J., **Kelly, O.M.**, Dance, Y.W., Nelson, C.M. & Tien, J., “Tumor cells ablate lymphatic endothelium during vascular escape of engineered breast microtumors” [poster], Biomedical Engineering Society 2022 Annual Meeting (San Antonio, TX; 2022).
8. Seibel, A.J., **Kelly, O.M.**, Dance, Y.W., Nelson, C.M. & Tien, J., “Lymphatic endothelium slows invasion and vascular escape of engineered human breast microtumors” [poster], 2022 National Cancer Institute Tissue Engineering Collaborative Annual Meeting (Madison, WI; 2022).
9. Seibel, A.J., **Kelly, O.M.**, Dance, Y.W., Nelson, C.M. & Tien, J., “Role of lymphatic endothelium in vascular escape of engineered human breast tumors” [poster], 48th Annual Northeast Bioengineering Conference (New York, NY; 2022).
10. Seibel, A.J., **Kelly, O.M.**, Dance, Y.W., Nelson, C.M. & Tien, J., “Lymphatic endothelium slows tumor progression in a tissue-engineered model of human breast cancer” [poster], 2021 National Cancer Institute Tissue Engineering Collaborative Annual Meeting (virtual; 2021).
11. Seibel, A.J., **Kelly, O.M.**, Dance, Y.W., Nelson, C.M. & Tien, J., “Lymphovascular escape of human breast microtumors” [poster], Biomedical Engineering Society 2021 Annual Meeting (virtual; 2021).
12. Seibel, A.J., Dance, Y.W., **Kelly, O.M.**, Nelson, C.M. & Tien, J., “Lymphovascular escape of human breast microtumors” [poster], 47th Annual Northeast Bioengineering Conference (virtual; 2021).

ACADEMIC PROJECTS

Developing an *in vitro* model of luminal breast cancer

The Tien Group at Boston University (September 2022 – May 2023)

- Developing a 3D *in vitro* invasion and escape model of luminal ER+ human breast cancer cells into lymphatic vasculature

Truss Project

ENG EK301 at Boston University (September 2020 – December 2020)

- Engineered a scaled-down truss that can bear a load using mechanics principles learned in the class

Pulse Oximeter Project

ENG EK210 at Boston University (September 2020 – December 2020)

- Designed and manufactured a pulse oximeter using engineering principles

TEACHING EXPERIENCE

Private Tutor

Julie’s Tutoring (March 2022 – Present)

- Tutors middle school, high school, and college students with algebra, geometry, calculus, and chemistry to enhance the student’s understanding of the material
- Communicates with the student’s parents to personalize my teaching methods and plan for each student

Learning Assistant

CH171 at Boston University (September 2022 – December 2022)

- Lead discussion sections and hosts personal office hours to reinforce the course material with students enrolled in CH171

VOLUNTEER AND LEADERSHIP EXPERIENCE

Prayers for Charlotte

Board Member (April 2017 – April 2020); Braintree, MA

- Served as one of the primary coordinators of the road race for our 501c3 foundation, in honor of my sister Charlotte, who passed to childhood cancer

Camp Sunshine

Volunteer (July 2019 and August 2020); Casco, ME

- Volunteered as a counselor for a retreat camp for children battling life-threatening illnesses.

Boston University College of Engineering

President of Student Government (May 2022 – May 2023); Boston, MA

Vice President of Student Government (September 2021 – May 2022); Boston, MA

- Worked on proposals to improve the experiences of engineering students, including but not limited to professional speaker events, social events, diversity in engineering socials, and game nights

Boston University College of Engineering

Student Advisor Coordinator (May 2022 – December 2022); Boston, MA

- Lead student advisor program, a course that serves to aid incoming freshmen in the College of Engineering with the adjustment to college
- Organized and developed lecture and discussion sections for the course including the theme and content of each section
- Served as a liaison between faculty advisors and student advisors

Student Advisor (September 2020 – May 2022); Boston, MA

- Assisted freshmen with class planning, time management, student opportunities, diversity & inclusion in engineering, etc.
- Met with students weekly to discuss progress on their semesters

PROFESSIONAL EXPERIENCE

South Shore Orthopedics; Hingham, MA

Medical Scribe (May 2022 – September 2022)

- Assisted orthopedic surgeons in the clinic by documenting any procedures or exams that take place during patient appointments
- Updated patients' medical records throughout the duration of the appointment
- Attained foundational knowledge of medical terminology

Pappas Rehabilitation Hospital for Children; Canton, MA

Student Service Aide (June 2021 - August 2021)

- Worked as a 1-on-1 helper for physically disabled children by assisting them with recreation and personal care.
- Changed and fed children throughout the day