

## Theresa M. Raimondo

School of Engineering • Brown University • Engineering Research Center Rm. 337  
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### CURRENT ACADEMIC APPOINTMENT

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#### Assistant Professor of Engineering, tenure-track

January 1, 2024 – present

School of Engineering

Division of Biology and Medicine, Department of Molecular Biology, Cell Biology, and Biochemistry (joint)

- The Raimondo Lab (<https://sites.brown.edu/raimondo-lab/>) is broadly focused on the design of targeted drug-delivery vectors and novel RNA-based therapeutics for applications in cancer, immunotherapy, and tissue regeneration.

### MEMBERSHIPS

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Member, Legorreta Cancer Center, Cancer Therapeutics Program, *Brown University*

2024 – present

Trainer, Therapeutic Sciences Graduate Program, *Brown University*

2024 – present

Member, Brown RNA Center, *Brown University*

2024 – present

### EDUCATION & TRAINING

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#### Massachusetts Institute of Technology, postdoctoral associate

June 2019 – Dec. 2023

Koch Institute of Integrative Cancer Research

Advisors: Daniel G. Anderson and Robert Langer

Focus: RNA and lipid nanoparticle optimization for cancer immunotherapy

#### Harvard University, Ph.D.

March 2019

Engineering Sciences – Biomedical Engineering

Advisor: David J. Mooney

Dissertation title: *Biomaterial Directed Immune Modulation and*

*Tissue Regeneration in the Context of Skeletal Muscle Injury*

#### Brown University, Sc.B.

May 2011

Chemical and Biochemical Engineering, *magna cum laude*

Tau Beta Pi Engineering Honor Society

Undergraduate research advisors: Anubhav Tripathi and Thomas J. Webster

Focus: microfluidic *in vitro* transcription (Tripathi); nanoscale surface topography/ cell adhesion (Webster)

### SERVICE

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#### To Department / University

• Faculty Exploratory Advisor for First-year Engineering undergraduates (5 students)

2024 – present

• IBEAM BME Seminar Series Faculty Lead, *Brown University*

2024 – present

• Biomedical engineering PhD admissions Committee, *Brown University*

2024 – present

• Faculty mentor, Women in Science & Engineering (WiSE) Networking Gala, *Brown University* April 26, 2024

• Postdoctoral Representative, *MIT Institute Committee: Women's Advisory Group*

2022 – 2023

• Chemical Engineering Rising Stars Program, Host, *Massachusetts Institute of Technology*

Sept. 2022

• Organizing committee, Marbel Center for Cancer Nanomedicine Poster Symposium at MIT

May 2022

#### To the Profession

• AI/ML-guided Biomaterials Design and Synthesis, Session Chair, *BMES annual conference*

2024

• Abstract Reviewer, *BMES annual conference*

2024

• Reviewer, *Nature Communications*

2023 – present

#### To the Community

• Faculty speaker, Brown in Focus: Medicine

2024

*A half-day immersion experience for local legislative constituents*

- Invited researcher, *11<sup>th</sup> Annual American Cancer Society-Cancer Action Network Rhode Island Research Breakfast* for cancer survivors, politicians, and scientist 2024
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## **AFFILIATIONS**

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- Biomedical Engineering Society (BMES) 2024 - present
- American Institute of Chemical Engineers (AIChE) 2024 - present
  - Women in Chemical Engineering (WIC) 2024 - present
  - Early Career Community (ECC) 2024 - present
- Society for Biomaterials (SFB) 2024 - present

## **AWARDS & FELLOWSHIPS**

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- American Cancer Society – Institutional Research Grant, Junior Faculty Recipient 2024 – 2025
- Northeast Bioengineering Conference (NEBEC) Faculty Innovator Award 2024
- MIT Faculty Founder Prize Competition Finalist 2023 – 2025
- nanoDDS Conference Research Poster Award 2023
- Convergence Scholar, *Massachusetts Institute of Technology* 2021 – 2022
- National Science Foundation Graduate Research Fellowship 2012 – 2017
- Gordon Research Conference, Biomaterials & Tissue Engineering Award for Excellence in Poster Presentation 2017
- Smith Family Graduate Science and Engineering Fellowship, *Harvard University* 2012
- Domenico Ionata Prize for excellence in engineering teaching assistant, *Brown University* 2011
- Vincent and Ruby DiMase Summer Fellowship, *Brown University* 2010
- Undergraduate Teaching and Research Award, *Brown University* 2009

## **INVITED TALKS**

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- Brown Medical Alumni Association, Board of Directors Meeting, *Warren Alpert Medical School of Brown University* Oct., 2024
- Committee on Medical and Health Affairs, Corporation Meeting, *Brown University* Oct., 2024
- 225 Dyer Lab Opening Event with Wexford Science and Technology, hosted by *Brown Technology Innovations* Oct., 2024
- Cancer Therapeutics Program Seminar, *Brown University* Sept., 2024
- Engineering – Cancer Symposium, Legorreta Cancer Center, *Brown University* Aug., 2024
- Presidential Advisory Council Meeting, invited by Mukesh Jain, *Brown University* June, 2024
- American Cancer Society Delegation at Legorreta Cancer Center, *Brown University* May, 2024
- MIT Faculty Founders Initiative, *Broad Institute, Cambridge, MA* May, 2024
- Northeast Bioengineering Conference, *Stevens Institute of Technology* April, 2024
- Biomedical Engineering Seminar, *Brown University* March, 2024
- Pathobiology Graduate Program Seminar, *Brown University* Feb., 2024
- Danaher Nanomedicine Day, *Koch Institute for Integrative Cancer Research at MIT* Nov., 2022
- Friday Focus Seminar, *Koch Institute for Integrative Cancer Research at MIT* July, 2020

## **TEACHING**

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*Student evaluations: 5=“strongly agree”, 1=“strongly disagree”*

### **Brown University**

ENGN 1491: Biomaterials  
(enrollment: 63)

Fall 2024

## **INCLUSIVE TEACHING & MENTORSHIP TRAINING**

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- Inclusive Mentoring Workshop: Building Equity-Minded Lab Environments, Dr. Bryan Dewsbury, *Brown University* April 10, 2024
- Maximizing your Mentoring, Dr. Melissa Walsh, *Brown University* March 5, 2024
- Inclusive Pedagogy in Engineering, Dr. Stacey Lawrence, Engineering Faculty Retreat, *Brown University* Jan. 22, 2024
- Learning Equity and Diversity (LEADer) Certificate, *Massachusetts Institute of Technology* Winter 2023
- Kaufman Teaching Certificate, Teaching & Learning Laboratory, *Massachusetts Institute of Technology* Fall 2021

## **CONFERENCES**

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### **Oral Presentations**

Raimondo, T.M. "RNA-Lipid Nanoparticle Directed Immune Modulation" Biomedical Engineering Society annual meeting, Baltimore, MD, October 2024.

Raimondo, T.M., Shi D., Toyonaga S., Anderson D.G. "In vivo Natural Killer Cell Activation with siRNA-Lipid Nanoparticles for Cancer Immunotherapy" Biomedical Engineering Society annual meeting, Baltimore, MD, October 2024.

Raimondo, T.M. "Therapeutic Macrophage Activation using RNA-Lipid Nanoparticles in Metastatic Ovarian Cancer" Society for Biomaterials, Northeast Regional Symposia, Boston, MA, Sept. 2024.

Raimondo, T.M., Shi D., Toyonaga S., Anderson D.G. "Therapeutic Macrophage-gene Silencing Using siRNA-LNPs in Metastatic Ovarian Cancer" nanoDDS Conference, Boston MA, Sept. 2023.

Raimondo, T.M. and Mooney, D.J. "IL4 Conjugated Gold Nanoparticles Direct Macrophage Polarization *In Vivo* Following Ischemia Surgery." Biomedical Engineering Society annual meeting, Minneapolis, MN, October 2016.

Raimondo, T.M. and Mooney, D.J. "IL4 Conjugated Gold Nanoparticles Direct Human Macrophage Polarization *In Vitro*." Biomedical Engineering Society annual meeting, Tampa, FL, October 2015.

### **Poster Presentations**

Holmes-Farley S., Raimondo T.M. "Development of Kinase-Selective siRNA for Therapeutic Silencing Using Lipid Nanoparticles in Ovarian cancer" Biomedical Engineering Society annual meeting, Baltimore, MD, Oct. 2024.

Raimondo T.M., Shi D., Toyonaga S., Anderson D.G. "In vivo Natural Killer Cell Activation with siRNA-LNPs for Cancer Immunotherapy" Drug Carriers in Medicine and Biology Gordon Research Conference, University of Southern Main, ME, Aug. 2024.

Raimondo T.M., Shi D., Toyonaga S., Anderson D.G. "Therapeutic Macrophage-gene Silencing Using siRNA-LNPs in Metastatic Ovarian Cancer." Dr. Samuel M. Nabrit Conference for Early Career Scholars at Brown University, Providence, RI, June 2024.

Raimondo T.M., Shi D., Toyonaga S., Anderson D.G. "Therapeutic Macrophage-gene Silencing Using siRNA-LNPs in Metastatic Ovarian Cancer." Biomedical Engineering Society annual meeting, Seattle, WA, October 2023.

Raimondo T.M., Shi D., Toyonaga S., Anderson D.G. "Therapeutic Macrophage-gene Silencing Using siRNA-LNPs in Metastatic Ovarian Cancer." Immune Modulation & Engineering Symposium, Philadelphia, PA, Dec. 2022.

Raimondo T.M., Shi D., Toyonaga S., Anderson D.G. “Therapeutic Macrophage-gene Silencing Using siRNA-LNPs in Metastatic Ovarian Cancer.” Annual Koch Institute for Integrative Cancer Research at MIT Retreat, Boston, MA, Oct. 2022.

Raimondo T.M., Shi D., Toyonaga S., Anderson D.G. “Therapeutic Macrophage-gene Silencing Using siRNA-LNPs in Metastatic Ovarian Cancer.” Drug Carriers in Medicine and Biology Gordon Research Conference, Mount Snow, VT, Aug. 2022.

Li B., Jiang A.Y., Raji I., Atyeo C., Raimondo T.M., Gordon A.G.R., Rhym L.H., Samad T., Bhatia S., Alter G., Langer R., Anderson D.G. “Engineering dually-adjuvanted mRNA vaccines for SARS-CoV2.” Marble Center for Cancer Nanomedicine Poster Symposium, Cambridge, MA, May 2022.

Raimondo T.M. and Mooney D.J. “Functional Muscle Recovery with Nanoparticle-Directed M2 Macrophage Polarization.” Biomaterials & Tissue Engineering Gordon Research Conference, Holderness, NH, July 2017.

Raimondo T.M., McCalla S.E., and Tripathi A. “Desorption of DNA Decorated Beads Via Conformation Change.” American Institute of Chemical Engineers annual student conference, Salt Lake City, UT, November 2010.

Raimondo T.M., Puckett S., and Webster T.J., “Greater osteoblast and endothelial cell adhesion on nanostructured polymers.” Biomedical Engineering Society annual meeting, Pittsburgh, PA, October 2009.

### Invited Attendance

- mRNA Technology Conference, SBE AIChE, Boston MA, April 2024

### PATENTS

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- Toyonaga S., **Raimondo T.M.**, Shi D.Z., Anderson D.G. (2023) Methods of delivering therapeutic agents, and lipid compositions. United States Patent. Patent No. 63/433629. Publication number WO/2024/135604.
- Toyonaga S., Anderson D.G., **Raimondo T.M.**, Shi D.Z. (2023) Lipid nanoparticles for delivery of agents. United States Patent. Patent No. 63/495958.
- Toyonaga S., Shi D.Z., **Raimondo T.M.**, Anderson D.G. (2023) Lipid composition and method of delivering therapeutic agent. United States Patent. Patent No. 63/417563. Publication number WO/2024/085190.
- Toyonaga S., **Raimondo T.M.**, Shi D.Z., Anderson D.G. (2022) Compositions and Methods for Inhibiting Expression of the Signal Regulatory Protein Alpha (SIRP $\alpha$ ) Gene. United States Patent. Patent No. 63/369926. Publication number WIPO/2024/026308.

### PEER-REVIEWED PUBLICATIONS

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Google Scholar profile: [https://scholar.google.com/citations?hl=en&user=5ymUztwAAAAJ&view\\_op=list\\_works](https://scholar.google.com/citations?hl=en&user=5ymUztwAAAAJ&view_op=list_works)

- Li B.\*, Raji I.\*, Gordon A.G.R.\*, Sun L., **Raimondo T.M.**, Oladimeji F.A., Jiang A.Y., Varley A., Langer R., Anderson D.G. “Accelerating ionizable lipid discovery for mRNA delivery using machine learning and combinatorial chemistry” *Nature Materials*, 23:1002-1008, July 2024. DOI: <https://doi.org/10.1038/s41563-024-01867-3>, \*co-first authors
- Li B.\*, Jiang A.Y.\*, Raji I.\*, Atyeo C., **Raimondo T.M.**, Gordon A.G.R., Rhym L.H., Samad T., Maclsaac C., Witten J., Mughal H., Chicz T.M., Xu Y., McNamara R.P., Bhatia S., Alter G., Langer R., Anderson D.G. “Enhancing the immunogenicity of lipid-nanoparticle mRNA vaccines by adjuvating the ionizable lipid and the mRNA” *Nature Biomedical Engineering*, Sept. 2023, DOI: 10.1038/s41551-023-01082-6. \*co-first authors
- **Raimondo T.M.**, Reed K., Shi D., Langer R., Anderson D.G. “Delivering the next generation of cancer immunotherapies with RNA” *Cell*, 186(8):1535-40, March 2023. DOI: 10.1016/j.cell.2023.02.031.
- **Raimondo T.M.** and Mooney D.J. “Anti-inflammatory nanoparticles significantly improve muscle function in a murine model of advanced muscular dystrophy” *Science Advances*, 7(26):eabh3693, June 2021, DOI: <https://www.science.org/doi/10.1126/sciadv.abh3693>

- Smith A., Watkins T., Theocharidis G., Lang I., Leschinsky M., Maione A., Kashpur O., **Raimondo T.M.**, Rahmani S., Baskin J., Mooney D.J., Veves A., Garlick J. "A novel 3D skin disease model to assess macrophage function in diabetes" *Tissue Engineering Part C*, 27(2):49-58, Feb. 2021, DOI: <https://doi.org/10.1089/ten.TEC.2020.0263>
- **Raimondo T.M.**, McCalla S.E. "Adsorption and desorption of DNA-functionalized beads in glass microfluidic channels" *Biomicrofluidics*, 13:054104, Sept. 2019, DOI: <https://doi.org/10.1063/1.5115160>
- **Raimondo T.M.**, Li H., Kwee B.J., Kinsley S., Budina E., Anderson E.M., Doherty E.J., Talbot S.G., Mooney D.J. "Combined delivery of VEGF and IGF-1 promotes functional innervation in mice and improves muscle transplantation in rabbits" *Biomaterials*, 216:119246, Sept. 2019, DOI: <https://doi.org/10.1016/j.biomaterials.2019.119246>
- Shah N.J., Mao A.S., Shih T., Kerr M.D., Sharda A., **Raimondo T.M.**, Weaver J.C., Vrbanac V.D., Deruaz M., Tager A.M., Mooney D.J., Scadden D.T., "An injectable bone marrow-like scaffold enhances T cell immunity after hematopoietic stem cell transplantation" *Nature Biotechnology*, 37:293-302, Feb 2019, DOI: <https://doi.org/10.1038/s41587-019-0017-2>.
- **Raimondo T.M.** and Mooney D.J. "Functional muscle recovery with nanoparticle-directed M2 macrophage polarization in mice" *Proc. Natl. Acad. Sci.*, 115(42):10648-53, Oct. 2018, DOI:10.1073/pnas.1806908115.
- Alonso-Nocelo M., **Raimondo T.M.**, Vining K.H., Lopez-Lopez R., Fuente M., Mooney D.J. "Matrix stiffness and tumor-associated macrophages modulated epithelial to mesenchymal transition of human adenocarcinoma cells" *Biofabrication*, 10(3):035004, March 2018, DOI: 10.1088/1758-5090/aaafbc.
- Kearney C.J., Skaat H., Kennedy S.M., Hu J., Darnell M., **Raimondo T.M.**, Mooney D.J., "Switchable Release of Entrapped Nanoparticles from Alginate Hydrogels" *Advanced Healthcare Materials*, 4(11):1634-1639, Aug. 2015, DOI: 10.1002/adhm.201500254.
- Anderson E.M., Kwee B.J., Lewin S.A., **Raimondo T.M.**, Mehta M., Mooney D.J., "Local Delivery of VEGF and SDF Enhances Endothelial Progenitor Cell Recruitment and Resultant Recovery from Ischemia" *Tissue Engineering Part A*, 21(7-8): 1217-1227. April 2015. DOI:10.1089/ten.tea.2014.0508.
- **Raimondo T.M.**, Puckett S., Webster T.J., "Greater osteoblast and endothelial cell adhesion on nanostructured polyethylene and titanium" *International Journal of Nanomedicine*, 5:647-652, Sept 2010. DOI: 10.2147/IJN.S13047.
- Puckett S.D., Taylor E., **Raimondo T.M.**, Webster T.J., "The relationship between the nanostructure of titanium surfaces and bacterial attachment" *Biomaterials* 31(4):706-713, Feb 2010. DOI: 10.1016/j.biomaterials.2009.09.081.

## DOCTORAL THESES DIRECTED

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- Angelina Schorr\* (Biomedical Engineering) 2024 – present  
\*National Science Foundation Graduate Research Fellowship
- Joshua Acosta Gonzalez\* (Biomedical Engineering) 2024 – present  
\*GEM Fellowship, Two-year Diversity Fellowship through Brown University

## MASTER'S THESES DIRECTED

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- ShuLan Holmes-Farley (Biomedical Engineering) 2023 – 2025  
Thesis title: Tuning siRNA-LNPs for Therapeutic Kinase-Selective Silencing Using Lipid Nanoparticles in Ovarian cancer
- Kadhambari Rajendran (Biomedical Engineering) 2023 – 2025  
Thesis title: Optimization of Lipid Nanoparticles for miRNA delivery to breast and colorectal cancer

## UNDERGRADUATE RESEARCHERS ADVISED

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- Lizeth Sanchez, summer UTRA recipient 2024 – present

- Adelaide Poulson, summer UTRA recipient

2024 – present

## **THESIS COMMITTEES SERVED ON**

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### **PhD Theses**

- Zhaowei (Zoey) Jiang (Biomedical Engineering) Thesis defense: Nov. 2024  
(Thesis Advisor: Dr. Anita Shukla)
- Isabelle Nagle (Chemistry) Qualifying exam (lit review): Oct. 2024  
(Thesis Advisor: Dr. Megan Kizer)
- Lily Cordner (Biomedical Engineering) Qualifying exam: June 2024  
(Thesis Advisor: Dr. Ian Wong)
- Carolina Gomez Casas (Biomedical Engineering) Qualifying exam: June 2024  
(Thesis Advisor: Dr. Anita Shukla)
- Camila Carvalho (Biomedical Engineering) Qualifying exam: June 2024  
(Thesis Advisor: Dr. Anita Shukla)

### **Master's Theses**

- Jennifer Piserchia (Biomedical Engineering) 2022 – 2024  
(Thesis Advisor: Dr. Anubhav Tripathi)
- Jennifer Figueroa-Cruz (Biomedical Engineering) 2022 – 2024  
(Thesis Advisor: Dr. Anubhav Tripathi)

### **Undergraduate Theses**

- Albert Wu (Biomedical Engineering) 2020 – 2024  
(Thesis Advisor: Dr. Qian Chen)