

Rosalyn Abbott  
Carnegie Mellon University

**Service to professional societies:** I have been a member of BMES (with a short lapse during the height of the COVID19 pandemic) since 2014. At the BMES annual meetings, I have given talks, presented posters, participated in the “Meet the Faculty Forum,” reviewed abstracts, and served as session chairs. I recently attended the CMBE SIG annual meeting in Puerto Rico where I received the Rising Star Award and was inspired by the talks and the opportunity to network with leaders. I am actively involved in the International Federation for Adipose Therapeutics and Science society where I have given talks, reviewed abstracts, served as session chairs, and served on the organizing committee for the last 5 years. I am also a member and participate in the American Society for Engineering Education where I have given talks and reviewed abstracts.

**Motivation for serving the CMBE SIG as a council member:** My lab at Carnegie Mellon University is a multidisciplinary group at the intersection of biomedical engineering and material science. We focus on tissue engineering and are leaders in examining the role of tissue lipid accumulation in a variety of diseases and applications. This general approach is applied to 1) engineer adipose tissue grafts to increase retention and functionality of reconstructive surgery, 2) develop disease models, 3) increase the number of donor livers available for transplantation via defatting protocols, and 4) cultivate high lipid content meat products to decrease the environmental impact of traditional agriculture methods. Our research is guided by a clinical and/or environmental need and utilizes cellular and molecular approaches to address the need. Serving as a council member for the CMBE SIG would be an excellent opportunity for me to help shape the future of tissue engineering and related fields - such as the up-and-coming cellular agriculture community. It would also provide me with the opportunity to network with leaders in the CMBE field to increase collaborative opportunities and help drive my clinically related research to make an impact.

**Vision for CMBE:** What I found most inspiring at the CMBE SIG annual meeting this year was how the conference attracted leaders in the field who were available after their talks to informally talk about their science and network with. I found the intimate feel of the meeting was excellent for me to get advice, mentorship, and explore collaborative opportunities. I would love to see more students involved in the SIG with opportunities available to underrepresented minorities in our field to participate. I also presented my work on cellular agriculture, which spurred many discussions on how cellular and molecular techniques can be applied to help this relatively young field. It would be great to bring more researchers together to tackle this adjacent problem that needs the expertise of the CMBE community.

# Rosalyn D. Abbott, Ph.D.

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## Education

**Ph.D.**, Bioengineering, University of Vermont, Burlington, VT, May 2012

**M.S.**, Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY, December 2008

**B.S.**, Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY, May 2008

## Research Experience

2017 – *Present*

### **Tenure-Track Assistant Professor**

Departments of Biomedical Engineering and Materials Science & Engineering (courtesy)  
Carnegie Mellon University, Pittsburgh, PA

Affiliations: McGowan Institute of Regenerative Medicine, Institute for Green Science

2012 – 2017

### **Postdoctoral Fellow**, Mentor: Dr. David Kaplan

Biomedical Engineering, Tufts University, Medford, MA

2009 – 2012

### **Graduate Student Research Fellow**, Mentors: Dr. Helene Langevin (Neurological Sciences) and Dr. James Iatridis (Mechanical Engineering)

University of Vermont, Burlington, VT

Summer 2008

### **Biomedical Engineer**

MicroCHIPS, Bedford, MA

2007 – 2008

### **Undergraduate Research Assistant**, Mentor: Dr. Eric Ledet

Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY

Summer 2007

### **Summer Research Internship**, Mentor: Dr. James Iatridis

Mechanical Engineering, University of Vermont, Burlington, VT

2006 – 2007

### **Undergraduate Research Assistant**, Mentor: Dr. John Brunski

Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY

## Consulting

February 2024 – *Present*

### **BaconBio**

Consult on the development of non-immortalized adipocyte cell lines from different species.

January 2024 – *Present*

### **Boundless Impact Research and Analytics**

Evaluate Life Cycle Analyses (LCA) of cultivated meat products.

May 2021 – *Present*

### **Co-founder of Biombyx**, a biomaterial startup company

Current seed funding: \$177,611.00

February 2018 – *Present*

### **Mission Barns, Berkeley, CA**

Consult on the addition of fat to *in vitro* cultured meat. I help with protocols, troubleshooting, and talk to potential investors to provide scientific context.

June 2018 – *Present*

### **AccessEngineering from McGraw Hill**

Develop introductory biomedical engineering content for the website that I use as a demo in the class "Introduction to Biomedical Engineering."

## Teaching Experience

Spring, 2024

CMU – 42-701/27-709: Biomaterials (35 students)

Spring, 2024

CMU – 42-701: Biomedical Engineering Seminar (152 students)

Spring, 2024	CMU – 42-801: Biomedical Engineering Seminar (17 students)
Fall, 2023	CMU – 42-101: Introduction to BME (76 students)
Fall, 2023	CMU – 42-701: Biomedical Engineering Seminar (164 students)
Fall, 2023	CMU – 42-801: Biomedical Engineering Seminar (15 students)
Spring, 2023	CMU – 42-610: Introduction to Biomaterials (30 students)
Spring, 2023	CMU – 42-701: Biomedical Engineering Seminar (148 students)
Spring, 2023	CMU – 42-801: Biomedical Engineering Seminar (18 students)
Spring, 2023	CMU – Guest lecture in Introduction to BME
Fall, 2022	CMU – 42-101: Introduction to BME (58 students)
Fall, 2022	CMU – 42-701: Biomedical Engineering Seminar (181 students)
Fall, 2022	CMU – 42-801: Biomedical Engineering Seminar (14 students)
Fall, 2022	CMU – Guest lecture in Cellular and Molecular Biotechnology (42-623)
Summer, 2022	CMU – 99-520: Engineering Approaches for COVID-19 Solutions (9 students)
Spring, 2022	CMU – 42-610: Introduction to Biomaterials (41 students)
Spring, 2022	CMU – Guest lecture in Introduction to BME
Fall, 2021	CMU – 42-101: Introduction to BME (65 students)
Fall, 2021	CMU – Guest lecture in Cellular and Molecular Biotechnology (42-623)
Summer, 2021	CMU – 99-520: Engineering Approaches for COVID-19 Solutions (17 students)
Spring, 2021	CMU – 42-610: Introduction to Biomaterials (22 students)
Spring, 2021	CMU – Guest lecture in Introduction to BME
Fall, 2020	CMU – 42-101: Introduction to BME (37 students)
Fall, 2020	CMU – Guest lecture in Cellular and Molecular Biotechnology (42-623)
Summer, 2020	CMU – 99-520: Biomedical Engineering Approaches for COVID-19 Solutions (19 students)
Spring, 2020	CMU – Guest lecture in “BME in Everyday Life”
Spring, 2020	CMU – Guest lecture in Introduction to BME (42-101)
Fall, 2019	CMU – Guest lecture in Professional Issues in Biomedical Engineering (42-201)
<i>Fall, 2019</i>	<i>Maternity leave</i>
Spring, 2019	CMU – 42-681: Engineering and Analysis of Complex Disease Models (13 students)
Spring, 2019	CMU – Guest lecture in Introduction to BME
Fall, 2018	CMU – Guest lecture in professional issues in biomedical engineering
Fall, 2018	CMU – 42-101: Introduction to BME (50 students)
Spring, 2018	CMU – Guest lecture in Introduction to BME (42-101)
Spring, 2018	CMU – Guest lecture in professional issues in biomedical engineering (42-201)
Fall, 2017	CMU – 42-101: Introduction to BME (63 students)
Fall, 2017 – Spring 2018	CMU – BME design team (3 students)
Fall, 2017	CMU – Guest lecture in stem cell engineering (42-673)
Fall, 2017	CMU – Guest lecture in professional issues in biomedical engineering (42-201)
Fall, 2016	Tufts – Adjunct faculty for BME153 - Biomaterials and Regenerative Medicine (58 students, senior and graduate students from BME and CE)
Fall, 2015	Tufts – Co-instructed as an adjunct faculty for BME153 - Biomaterials and Regenerative Medicine (53 students, senior and graduate students from BME and CE)
Fall, 2015	Tufts – Co-instructed the lab portion of BME3 Sophomore Design and Research I
Fall, 2014	Tufts – Co-instructed the lab portion of BME3 Sophomore Design and Research I
June 16-20, 2014	Tufts – Taught a Tissue Engineering workshop for graduate students
Summer, 2014 – 2017	Tufts – Started a Tissue Engineering focused journal club for graduate students and postdocs
Fall, 2013	Tufts – Co-instructed the lab portion of BME3 Sophomore Design and Research I
Spring, 2013	Tufts – Guest lectured BME50 Introduction to Biomedical Engineering
Fall, 2012	Tufts – Co-instructed the lab portion of BME3 Sophomore Design and Research I

## **Honors, Awards, and Societies**

2024	BMES Cellular and Molecular Bioengineering Rising Star Award
2023	NSF CAREER Award
2022	The Health Longevity Catalyst Award
2021	Innovative Models for Undergraduate Research Faculty Fellows Program
2020	Provost's Inclusive Teaching Fellow
2019	National Institute of Health Early Career Reviewer
2018 – Present	American Society for Engineering Education
2018	Wimmer Faculty Fellow
2015, 2016	Tufts University Best Course Nomination
2015	Tufts University Sophomore Undergraduate Significant Impact Nomination
2014, 2015, 2016	Tufts University Senior Undergraduate Significant Impact Nomination
2013 – 2017	Kaplan Lab Leader
2009-2010	Graduate Student Senator for Mechanical Engineering
2009	Graduate Student Travel Mini-grant
2009 – Present	American Association for the Advancement of Science
2004-2010	Dean's list, every semester
2008	First Place Biomedical Engineering Senior Design Competition at RPI
2007 – Present	Tau Beta Pi, National Engineering Honor Society
Spring 2006 – Present	Society of Biomedical Engineers (Student Elected Board Senior Year of Undergrad)
Spring 2005	Academic Citation in Differential Equations
Fall 2004 – Present	Society of Women Engineers
Fall 2004 – Fall 2008	Women Mentoring Program
Fall 2004 – Spring 2008	Gold Medalist Scholarship for RPI
Fall 2004 – Spring 2008	Leadership Scholarship for RPI
2003	Girl Scout Gold Award
2001	Girl Scout Silver Award
1993 – Present	Girl Scout (Delegate for the North Country of New York, 2002-2003)

## **Ongoing Research Support**

NIH T32 - Training in Biomechanics in Regenerative Medicine (NIBIB) (Lindsey Huff)	09/2023-08/2025
Amount: Tuition + Stipend	
<i>Shear Stress Characterization during 3D Printing Lipid Laden Tissue for Adipose Tissue Engineering and Reconstructive Medicine</i>	
Role: Mentor	
Pennsylvania Infrastructure Technology Alliance (PI: Rosalyn Abbott)	8/2023 – 7/2024
Amount: \$77,611.00	
<i>Tuning Acoustically-Sensitive Silk Scaffold Degradation for Improved, Personalized Craniofacial Soft Tissue Regeneration</i>	
National Science Foundation (PI: Rosalyn Abbott)	4/2023 – 3/2028
Amount: \$600,000.00	
<i>CAREER: 3D Printing High Lipid Content Cultivated Meat to Minimize Livestock Environmental Impacts</i>	
Focused Ultrasound Foundation (PI: Rosalyn Abbott)	4/2023 – 3/2025
Amount: \$100,000.00	
<i>Low Intensity Focused Ultrasound for the non-invasive triggering of silk scaffold degradation</i>	
National Science Foundation (PI: Rosalyn Abbott)	9/2022 – 8/2025
Amount: \$435,845.00	
<i>Advanced biomanufacturing of scalable, perfusable, pre-vascularized adipose tissues</i>	

Mayo Clinic (PI: Rosalyn Abbott) 4/2022 – 3/2025  
 Amount: \$313,019.00  
*Long-Term Liver Defatting Using Normothermic Machine Perfusion*

**Completed Research Support**

CMU Presidential Research Fellowship (PI: Lindsey Huff) 1/2023 – 1/2024  
 Amount: Tuition + Stipend  
 Role: Mentor

National Academy of Medicine (PI: Rosalyn Abbott) 11/2022-10/2023  
 Amount: \$50,000.00  
*Tailoring Tissue Engineering Approaches to the Aging Population*

Center for Technology Transfer and Enterprise Creation Funding (PI: Rosalyn Abbott) 10/2021-10/2024  
 Amount: \$50,000.00  
*Development of acoustically-responsive silk biomaterials to improve regenerative outcomes*

Center for Machine Learning and Health Fellowship (PI: Nathan Roblin) 9/2022 – 8/2023  
 Amount: Tuition + Stipend + \$3000.00  
 Role: Mentor

Experiment Funding (PIs: Rosalyn Abbott and Adam Feinberg) 2/2022 – 1/2023  
 Amount: \$10,000.00  
*3D printing a steak with lab-grown cow cells*

CMU Presidential Research Fellowship (PI: Elizabeth Johnston) 1/2022 – 1/2023  
 Amount: Tuition + Stipend  
 Role: Mentor

Innovation Partnership Funding (PI: Rosalyn Abbott) 10/2021-10/2022  
 Amount: \$6,000.00  
*Tuning Acoustically-Sensitive Silk Scaffold Degradation for Improved, Personalized Craniofacial Soft Tissue Regeneration*

NSF Innovation Corps (PIs: Rosalyn Abbott and Megan DeBari) 9/2021 – 9/2022  
 Amount: \$3,000.00  
*Improving soft tissue repair using personalized biomaterials*

Samuel and Emma Winters Foundation (PI: Rosalyn Abbott) 07/2021-06/2022  
 Amount: \$10,000.00  
*Synthesizing Biomimetic Mosquito inspired Painless Polymeric Microneedles to Enable Pulsatile Insulin Release*

Swartz Center for Entrepreneurship Innovation Commercialization Fellowship (PI: M. DeBari) 06/2021-06/2022  
*Personalized Biomaterials for Improved Tissue Regeneration*  
 Amount: \$50,000.00  
 Role: Mentor

Innovative Models for Undergraduate Research (CMU) (PI: Rosalyn Abbott) 10/2020 – 10/2021  
 Amount: \$4,000.00  
*BME approaches to COVID19 solutions*

Dowd Fellowship (PI: Megan DeBari) 09/2020 – 09/2021  
 Amount: Tuition + Stipend  
*Ultrasound-Triggered Silk Scaffold Degradation for Improved Soft Tissue Regeneration*  
 Role: Mentor

NIH T32 - Training in Biomechanics in Regenerative Medicine (NIBIB) (Elizabeth Johnston)	09/2020-09/2021
Amount: Tuition + Stipend	
<i>Characterization of Biological and Mechanical Properties of Fibrotic Adipose Tissue to Inform Better Regenerative Outcomes</i>	
Role: Mentor	
Provost Inclusive Teaching Fellowship (CMU), (PI: Rosalyn Abbott)	03/2020 – 03/2021
Amount: \$5,000.00	
<i>Increasing the diversity of experts in "Introduction to Biomedical Engineering"</i>	
CIT Equipment Grant (PI: Katie Whitehead)	03/2021 – 06/2021
Amount: \$59,266.00	
<i>A Luminex 200 System for Multiplexed Detection of Proteins and Nucleic Acids</i>	
Role: co-PI	
NIH T32 - Training in Biomechanics in Regenerative Medicine (NIBIB) (Mallory Griffin)	09/2019-09/2020
Amount: Tuition + Stipend	
<i>Characterization of Biological and Mechanical Properties of Fibrotic Adipose Tissue to Inform Better Regenerative Outcomes</i>	
Role: Mentor	
Graduate Education for Minorities Fellowship Program (PI: Claude King)	07/2019-12/2020
Amount: Tuition	
<i>FRESH 3D Printing of Silk Fibroin to Repair Soft Tissue Defects</i>	
Role: Mentor	
Wimmer Faculty Fellow (CMU), (PI: Rosalyn Abbott)	04/2018 – 04/2019
Amount: \$3,000.00	
<i>Updating Introduction to Biomedical Engineering</i>	
CIT Equipment Grant (PI: Adam Feinberg)	03/2018 – 06/2018
Amount: \$410,000.00	
<i>Multiphoton Confocal Microscope Upgrade: Part II</i>	
Role: co-PI	

## Manuscripts

1. *Pre-print*: DeBari MK, Johnston EK, Scott JV, Ilzuka E, Sun W, Webster-Wood VA, **Abbott RD**. Human subcutaneous adipose tissue variability is driven by TGIF1, ACTA2, adipocyte density, and ancestral history of the patient. Resubmitted 1/24/2024 to Heliyon (HELIYON-D-23-41211) with a preprint available at: <https://www.biorxiv.org/content/10.1101/2023.05.31.543052v1>
2. Johnston EK, Dassau T, Muraskin NA, **Abbott RD**. Automated adipocyte and lipid tracer for immunohistochemistry images. Submitted to Scientific Reports 2/16/2024.
3. Dewal RS, Yang FT, Baer LA, Vidal P, Hernandez-Saavedra D, Seculov NP, Ghosh A, Noé F, Togliatti O, Hughes L, DeBari MK, West MD, Soroko R, Sternberg H, Malik NN, Puchulu-Campanella E, Wang H, Yan P, Wolfrum C, **Abbott RD**, Stanford KI. Transplantation of Committed Pre-adipocytes from Brown Adipose Tissue improves Whole-body Glucose Homeostasis. *iScience*. 2024 Jan 17.
4. Roblin NV, DeBari MK, Shefter SL, Ilzuka E, **Abbott RD**. Development of a More Environmentally Friendly Silk Fibroin Scaffold for Soft Tissue Applications. *Journal of Functional Biomaterials*. 2023 Apr 18;14(4):230.  
➔ *Featured as an Editor's Choice Article*.
5. Johnston EK, **Abbott RD**. Adipose Tissue Paracrine-, Autocrine-, and Matrix-Dependent Signaling during the Development and Progression of Obesity. *Cells*. 2023, 12(3), 407.

6. Johnston EK, **Abbott RD**. Adipose Tissue Development Relies on Coordinated Extracellular Matrix Remodeling, Angiogenesis, and Adipogenesis. *Biomedicines*. 2022, 10(9), 2227. **Feature Paper**.
7. DeBari MK, Ng WH, Griffin MD, Kokai LE, Marra KG, Rubin JP, Ren X, **Abbott RD**. Engineering 3D Vascularized Adipose Tissue Construct using a Decellularized Lung Matrix. *Biomimetics*. 2021 6(3), 52.  
 → *Results and figures from this paper were featured in a commentary: Karanfil AS, Louis F, Matsusaki M. Biofabrication of vascularized adipose tissues and their biomedical applications. Mater Horiz. 2023 Feb 15.*
8. DeBari MK, King C, Altgold TA, **Abbott RD**. Silk Fibroin as a Green Material. *ACS Biomater Sci Eng*. 2021 Jul 14.
9. Kochhar D, DeBari MK, **Abbott RD**. The Materiobiology of Silk: Exploring the Biophysical Influence of Silk Biomaterials on Directing Cellular Behaviors. *Front Bioeng Biotechnol*. 2021;9:697981.
10. DeBari MK, Niu X, Scott JV, Griffin M, Pereira SR, Cook KE, He B, **Abbott RD**. Therapeutic Ultrasound Triggered Silk Fibroin Scaffold Degradation. *Adv Healthc Mater*. 2021 Mar.
11. DeBari MK, **Abbott RD**. Adipose Tissue Fibrosis: Mechanisms, Models, and Importance. *International Journal of Molecular Sciences*. 2020 Aug; 21(17).
12. Griffin MD, Pereira SR, DeBari MK, **Abbott RD**. Mechanisms of Action, Chemical Characteristics, and Model Systems of Obesogens. *BMC Biomedical Engineering*. *BMC Biomed Eng*. 2020; 2: 6.
13. **Abbott RD**, LeBlanc S, Melville MC, Moore S, Zapanta CM. Work in progress: Incorporating interactive modules related to cell culture and plasmid design into introduction to biomedical engineering. American Society of Engineering Education. June 2020.
14. Bender R, McCarthy M, Brown T, Bukowska J, Smith S, **Abbott RD**, Kaplan DL, Williams C, Wade J, Alarcon A, Wu X, Lau F, Gimble JM, Frazier TP. Human Adipose Derived Cells in Two- and Three-Dimensional Cultures: Functional Validation of an In Vitro Fat Construct. *Stem Cells International*. *Stem Cells Int*. 2020; 4242130.
15. McCarthy M, Brown T, Alarcon A, Williams C, Ma M, Wu X, **Abbott R**, Gimble J, Frazier T. Fat-on-a-Chip models for research and discovery in obesity and its metabolic co-morbidities. *Tissue Eng Part B Rev*. 2020 Mar 26.
16. DeBari MK, Keyser MN, Bai MA, **Abbott RD**. 3D Printing with Silk: Considerations and Applications. *Connect Tissue Res*. 2020 Mar;61(2):163-173.
17. DeBari MK, **Abbott RD**. Microscopic considerations for optimizing silk biomaterials. *WIREs Nanomedicine & Nanobiotechnology*. *Wiley Interdiscip Rev Nanomed Nanobiotechnol*. 2019 Mar;11(2):e1534.
18. Lightfoot-Vidal SE, Tamamoto KA, Nguyen H, **Abbott RD**, Cairns DM, Kaplan DL. 3D Biomaterial Matrix to Support Long Term, Full Thickness, Immuno-competent Human Skin Equivalents. *Biomaterials*. 2019 Apr;198:194-203.
19. Deardorff PM, McKay TB, Wang S, Ghezzi CE, Cairns DM, **Abbott RD**, Funderburgh JL, Kenyon KR, Kaplan DL. Modeling Diabetic Corneal Neuropathy in a 3D In Vitro Cornea System. *Sci Rep*. 2018 Nov 23;8(1):17294.
20. **Abbott RD**, Borowsky FE, Alonzo C, Zieba A, Georgakoudi I, Kaplan DL. Variability in responses observed in human white adipose tissue models. *J Tissue Eng Regen Med*. 2018 Mar;12(3):840-847.
21. Wang RY\*, **Abbott RD\***, Zieba A, Borowsky FE, Kaplan DL. Development of a Three-Dimensional Adipose Tissue Model for Studying Embryonic Exposures to Obesogenic Chemicals. *Ann Biomed Eng*. 2017 Jul;45(7):1807-1818.  
 \* *These authors contributed equally to this work.*
22. Cairns DM, Chwalek K, Moore YE, Kelley MR, **Abbott RD**, Moss S, Kaplan DL. Expandable and Rapidly Differentiating Human Induced Neural Stem Cell Lines for Multiple Tissue Engineering Applications. *Stem Cell Reports*. 2016 Sep 13;7(3):557-570.
23. **Abbott RD**, Wang RY, Reagan MR, Borowsky FE, Zieba A, Marra KG, Rubin JP, Ghobrial IM, Kaplan DL. The use of silk as a scaffold for mature, sustainable unilocular adipose 3D tissue engineered systems. *Adv Healthc Mater*. 2016 Jul;5(13):1667-77.
24. **Abbott RD**, Kaplan DL. Engineering Biomaterials for Enhanced Tissue Regeneration. *Current Stem Cell Reports*. 2016 Jun; 2(2):140-146.
25. Frazier TP, Bowles A, Lee S, **Abbott R**, Tucker HA, Kaplan D, Wang M, Strong A, Brown Q, He J, Bunnell BA, Gimble JM. Serially transplanted non-pericytic CD146- Adipose Stromal/Stem Cells in silk bioscaffolds regenerate adipose tissue in vivo. *Stem Cells*. 2016 Apr;34(4):1097-111.
26. **Abbott RD**, Kimmerling EP, Cairns DM, Kaplan DL. Silk as a Biomaterial to Support Long-Term Three-Dimensional Tissue Cultures. *ACS Appl Mater Interfaces*. 2016 Aug 31;8(34):21861-8.

27. **Abbott RD**, Wang RY, Kaplan DL. White Adipose Tissue Engineered Model for Studying Metabolic Behavior Ex Vivo Tiss. Eng. Part A. 2015 21, S317-S317.
28. **Abbott RD**, Borowsky FE, Quinn KP, Bernstein DL, Georgakoudi I, Kaplan DL. Non-invasive assessments of adipose tissue metabolism *in vitro*. Ann Biomed Eng. 2016 Mar;44(3):725-32.
29. **Abbott RD**, Kaplan DL. Strategies for improving the physiological relevance of human engineered tissues. Trends Biotechnol. 2015 Jul;33(7):401-7.
30. **Abbott RD**, Raja WK, Wang RY, Stinson JA, Glettig DL, Burke KA, Kaplan DL. Long term perfusion system supporting adipogenesis. Methods. 2015 Aug;84:84-9.
31. Tokareva OS, Glettig DL, **Abbott RD**, Kaplan DL. Multifunctional spider silk polymers for gene delivery to human mesenchymal stem cells. J Biomed Mater Res B Appl Biomater. 2015 Oct;103(7):1390-401.
32. **Abbott RD**, Kaplan DL. 3D Tissue Engineered Systems for Regenerative Approaches, Drug Discovery, and Toxicity Screening. JoVE. 2014 Oct 16; 5517.
33. Bellas E, Lo TJ, Fournier EP, Brown JE, **Abbott RD**, Gil ES, Marra KG, Rubin JP, Leisk GG, Kaplan DL. Injectable Silk Foams for Soft Tissue Regeneration. Adv Healthc Mater. 2015 Feb 18;4(3):452-9.
34. **Abbott RD**, Purmessur D, Monsey RD, Brigstock DR, Laudier DM, Iatridis JC. Degenerative Grade Affects the Responses of Human Nucleus Pulposus Cells to Link-N, CTGF, and TGFβ3. J Spinal Disord Tech. 2013 May;26(3):E86-94.
35. **Abbott RD**, Koptiuch C, Iatridis JC, Howe AK, Badger GJ, Langevin HM. Stress and matrix-responsive cytoskeletal remodeling in fibroblasts. J Cell Physiol. 2013 Jan;228(1):50-7. **Highlight article.**
36. **Abbott RD**, Howe AK, Langevin HM, Iatridis JC. Live free or die: Stretch-induced apoptosis occurs when adaptive reorientation of annulus fibrosus cells is restricted. Biochem Biophys Res Commun. 2012 May 4;421(2):361-6.
37. **Abbott RD**, Purmessur D, Monsey RD, Iatridis JC. Regenerative Potential of TGFβ3+Dex and Notochordal Cell Conditioned Media on Degenerated Human Intervertebral Disc Cells. J Orthop Res. 2012 Mar;30(3):482-8.
38. Purmessur D, Schek RM, **Abbott RD**, Ballif BA, Godburn KE, Iatridis JC. Notochordal tissue increases proteoglycan accumulation and promotes a healthy nucleus pulposus phenotype in human MSCs. Arthritis Res Ther. 2011 May 31;13(3):R81.
39. Barbir A, Michalek AJ, **Abbott RD**, Iatridis JC. Effects of enzymatic digestion on compressive properties of rat intervertebral discs. J Biomech. 2010 Apr 19;43(6):1067-73.
40. Sanders GP, Linley S, Ramsey DS, **Abbott RD**, Puzas JE, Glennon JC, DiRisio DJ, Lawrence J, Carl A, Ledet EH. Effects of Chronic Cyclic Loading on the Lumbar Spine: An In Vivo Pilot Study. Spine J. 2009 Oct 9(10): 26S–27S.

## Patents

1. DeBari M, **Abbott-Beauregard R**. "Acoustically responsive biomaterials." United States Provisional Invention Disclosure Submitted, April 29, 2021.
2. DeBari M, **Abbott-Beauregard R**, Niu X, He B. "Therapeutic ultrasound triggered silk fibroin scaffold degradation." United States Patent 17/142,478, filed January 6, 2021. Patent pending.
3. Ren X, **Abbott-Beauregard R**, Griffin M, Ng WH, "The use of vascularized acellular organ scaffold for engineering high-density, cellularized tissue for reconstructive implantation," United States Provisional Invention Disclosure Submitted, March 14, 2019.
4. Kaplan DL, Lightfoot Vidal S, **Abbott RD**, Zhao S, Cairns D, Omenetto FG, "Innervated artificial skin," United States Patent US11298443B2.



## Book Chapters

1. Huff LK, Ling Z, DeBari MK, Ren X, **Abbott RD**. “Repurposing Decellularized Lung Matrices to generate Vascularized Adipose Tissue.” Adipose-Derived Stem Cells Methods and Protocols. 3rd edition. Edited by Jeffrey Gimble, Bruce Bunnell, Cecilia Sanchez, and Trivia Frazier. Lab protocol Series - Methods in Molecular Biology, published by Springer Nature 2024.
2. Griffin MD, **Abbott RD**. “Bioreactors and Microphysiological Systems for Adipose-Based Pharmacologic Screening.” Scientific Principles of Adipose Stem Cells. Edited by Peter Rubin, Kacey Marra, and Lauren Kokai. Academic Press 2021.
3. **Abbott RD**, Kaplan DL. “Signaling and Architectural Cues Necessary for 3D Diabetic Tissue Models.” Engineering 3D Tissue Test Systems. Edited by Burg KJL, Dréau D, Burg T. Taylor & Francis Group, Boca Raton, FL 33487. CRC Press 2018. Pages 299–320.

## Invited Seminars

1. “3D Printing High Lipid Content Cultivated Meat to Minimize Livestock Environmental Impacts.” Biomedical Engineering Society - Cellular and Molecular Bioengineering Rising Star Talk. January 5, 2024.
2. “The Science of Alt Protein: Adipocyte bioprinting to improve the flavor of cultivated meat products.” Good Food Institute Seminar Series. December 14, 2023
3. “Fat chat - from engineering adipose tissue to defatting liver organoids.” Rutgers University, November 15, 2023.
4. “Fat chat - from engineering adipose tissue to defatting liver organoids.” University of Vermont, June 26, 2023.
5. “Adipose tissue engineering for regenerative applications and disease modelling.” University of Toledo, Virtual, February 3, 2023.
6. “Introduction and Overview of the Field” for the panel “Adipose Tissue Models and Microphysiological Systems” at the International Federation of Adipose Tissue Science and Therapeutics Annual Conference. Fort Lauderdale, FL. November 4, 2022.
7. “Developing diverse expert videos to improve sense of belonging in the Introduction to Biomedical Engineering course.” Spotlight on Inclusive Teaching: Enhancing Diversity, Equity, and Belonging in Course Design and Delivery, Carnegie Mellon University, Virtual, November 2, 2022.
8. “Adipose tissue engineering for regenerative applications and disease modelling.” University of Maryland, Virtual, October 21, 2022.
9. “Adipose tissue engineering for regenerative approaches and disease modeling.” Cellular Approaches to Tissue Engineering and Regeneration (CATER) Seminar Series, Pittsburgh, PA, March 25, 2022.
10. “Human Adipose Tissue Models for the Study of Metabolic Disease.” Marshall University, Virtual, March 18, 2022.
11. “Fat chat - from adipose tissue engineering to lipid accumulation in liver organoids.” Transforming Transplant Seminar Series with Mayo Clinic, Virtual, January 7, 2022.
12. “Adipose tissue engineering for regenerative applications and disease modelling.” University of Delaware, Virtual, October 22, 2021.
13. “Human adipose tissue models for the study of metabolic disease.” University of Colorado, Virtual, February 18, 2021.
14. Keynote for “Engineered microenvironments in disease.” World Biomaterial Congress, Virtual, December 11, 2020.
15. “Biomaterials for Soft Tissue Defects.” The McGowan Institute for Regenerative Medicine, Pittsburgh, PA, November 5, 2019.
16. Keynote at Society of Women Engineers. Pittsburgh, PA, May 2, 2019.
17. “The use of in vitro tissue engineered models to study metabolic disease” Biomechanics and Regenerative Medicine Seminar, Pittsburgh, PA, April 17, 2019.
18. “Creating metabolic diseases in vitro using human adipose tissue engineered models,” the Institute of Cellular Therapeutics Seminar at Allegheny General Hospital, Pittsburgh, PA, March 28, 2019.
19. “The use of in vitro tissue engineered models to study metabolic disease,” The Ohio State, Columbus, OH, January 11, 2019.

20. "Creating metabolic diseases in vitro using human adipose tissue engineered models," Institute for Green Science, Pittsburgh, PA, November 13, 2018.
21. "Studying human adipose metabolism through in vitro tissue engineered approaches," The Adipose Stem Cell Research Laboratory, Pittsburgh, PA, October 2, 2017.
22. "Silk Biomaterials for Medical Applications." Industrial Partnership for Research in Interfacial and Materials Engineering. Minneapolis, MN, May 31, 2017.
23. "Development of a tissue engineered adipose model for studying metabolic disease." Carnegie Mellon University, Pittsburgh, PA, March 9, 2017.
24. "Development of a tissue engineered adipose model for studying metabolic disease." UMass Lowell, Lowell, MA, March 8, 2017.
25. "Development of a tissue engineered adipose model for studying metabolic disease." City College of New York, New York, NY, March 1, 2017.
26. "Development of a tissue engineered adipose model for studying metabolic disease." Union College, Schenectady, NY, February 15, 2017.
27. "Development of a tissue engineered adipose model for studying metabolic disease." University of California, San Diego, CA, February 8, 2017.
28. "Development of a tissue engineered adipose model for studying metabolic disease." Worcester Polytechnic Institute, Worcester, MA, February 6, 2017.
29. "A Complex Co-culture White Adipose Tissue Model for Predicting Therapeutic Responses." Workshop on the Adipose Tissue Niche: Roles in Health and Disease. National Institutes of Health Campus, Bethesda, MD. November 29-30, 2016.
30. "Development of a tissue engineered adipose model for studying metabolic disease." Colorado State University, Fort Collins, CO, May 9, 2016.
31. "Development of a tissue engineered adipose model for studying metabolic disease." Rensselaer Polytechnic Institute, Troy, NY, January 19, 2016.
32. "Development of a tissue engineered adipose model for studying metabolic disease." Syracuse University, Syracuse, NY, January 12, 2016.
33. "Biomaterials for Regenerative Engineering." Material Research Society Fall Meeting, Boston, MA, November 29-December 4, 2015.

## Conference Presentations

1. Dassau T, Johnston EK, Muraskin NA, **Abbott RD**. PixCell: A Novel Automated Software for Adipocyte and Lipid Tracing in Immunofluorescent Images. AIChE Annual Student Conference, November 4, **Poster**, 2023.
2. Johnson EC, Johnston EK, DeBari MK, Xu H, **Abbott, RD**. Investigating Obesogenic Effects of Common Artificial Food Colors on Adipose Tissue. Biomedical Engineering Society, Seattle, WA, October 14, **Poster**, 2023.
3. Huff L, Coffin B, Arun N, Obergfell G, Feinberg A, **Abbott R**. 3D Printing Lipid Laden Tissue for Adipose Tissue Engineering and Reconstructive Medicine. Biomedical Engineering Society, Seattle, WA, October 12, **Poster**, 2023.
4. Johnston EK, DeBari MK, Zhou Q, Campbell P, **Abbott RD**. Adipose Tissue Contains Extracellular Lipids Associated with Regions of Collagen. Washington, DC, October 6, **Podium**, 2023.
5. Dassau T, Johnston EK, Muraskin NA, **Abbott RD**. Coming into Focus: PixCell as a Novel Automated Software for Adipocyte and Lipid Tracing in Immunofluorescent Images. Berg Symposium at CMU, September 21, **Poster**, 2023.  
➔ **Awarded the Berg Scholar Award which provides funds to attend the AIChE Annual Student Conference**
6. Huff L, Coffin B, Arun N, Obergfell G, Feinberg A, **Abbott R**. 3D Printing Lipid Laden Tissue for Adipose Tissue Engineering and Reconstructive Medicine. Biomedical Engineering Forum at CMU, Virtual, September 22, **Virtual Poster**, 2023.  
➔ **Awarded the Outstanding Presentation Award**

7. Johnston EK, Yang L, Cook KE, Taner BC, **Abbott RD**. Engineering a human in vitro steatosis model to screen defatting reagents. Biomedical Engineering Forum at CMU, Virtual, September 22, **Virtual Poster**, 2023.
8. Dassau T, Johnston EK, Muraskin NA, **Abbott RD**. Coming into Focus: PixCell as a Novel Automated Software for Adipocyte and Lipid Tracing in Immunofluorescent Images. Biomedical Engineering Forum at CMU, Virtual, September 22, **Virtual Poster**, 2023.
9. Roblin NV, DeBari MK, Shefter SL, Iizuka E, **Abbott RD**. Development of a More Environmentally Friendly Silk Fibroin Scaffold for Soft Tissue Applications. Biomedical Engineering Forum at CMU, Virtual, September 22, **Virtual Poster**, 2023.
10. Roblin NV, DeBari MK, Shefter SL, Iizuka E, **Abbott RD**. Development of a More Environmentally Friendly Silk Fibroin Scaffold for Soft Tissue Applications. Silk Gordon Research Conference. July 9 - 14, **Poster**, 2023.
11. Huff LK, Amurgis C, Kokai LE, **Abbott RD**. Engineering an Adipose Tissue Organ-on-a-chip Model for Therapeutic Drug Discovery. International Federation for Adipose Therapeutics and Science. Fort Lauderdale, FL, November 4-6, **Podium – Best Papers Session**, 2022.
12. Amurgis C, Huff L, Kokai L, **Abbott R**, Nerone V, Loder S, Johnston E. Investigation of Hydrogel Composition for Superior Adipose Stem Cell Spheroid Adipogenesis. International Federation for Adipose Therapeutics and Science. Fort Lauderdale, FL, November 4-6, **Podium**, 2022.
13. DeBari MK, Nui X, Bin H, **Abbott RD**. Acoustically-Sensitive Silk Scaffolds with Tunable Degradation for Adipose Tissue Regeneration. Society For Biomaterials. Baltimore, MD, April 29, **Podium**, 2022.
14. DeBari MK, Ng WH, Griffin MD, Kokai LE, Marra KG, Rubin JP, Ren X, **Abbott RD**. Vascularized Adipose Tissue Graft using a Decellularized Lung for Soft Tissue Reconstruction. International Federation for Adipose Therapeutics and Science. Fort Lauderdale, FL, November 18-20, **Podium – Best Papers Session**, 2021.
15. DeBari MK, Johnston EK, Griffin MD, Iizuka E, **Abbott RD**. Effect of Patient Demographics on Adipose Tissue Fibrosis. Biomedical Engineering Society Annual Meeting, October 6-8, **Virtual Poster**, 2021.
16. DeBari MK, Johnston EK, Griffin MD, Iizuka E, **Abbott RD**. Effect of Patient Demographics on Adipose Tissue Fibrosis and Regenerative Capacity. Biomedical Engineering Forum at CMU, Virtual, September 17, **Poster**, 2021.
17. Johnston EK, DeBari MK, **Abbott RD**. The Role of Endothelial Cells in Regulating Adipocyte Cell Size. Biomedical Engineering Forum at CMU, Virtual, September 17, **Poster**, 2021.
18. Johnston EK, DeBari MK, Griffin MD, **Abbott RD**. Characterization of Biological and Mechanical Properties of Fibrotic Adipose Tissue to Inform Better Regenerative Outcomes. McGowan Scientific Retreat, Virtual, March 10, **Podium**, 2020.
19. DeBari MK, Nui X, Scott JV, Griffin MD, Pereira SR, Cook KE, Bin H, **Abbott RD**. Silk Fibroin Scaffold Degradation Induced by Focused Therapeutic Ultrasound. Technical Meeting and Exhibition - Materials Science & Technology, Virtual, November 4, **Podium**, 2020.
20. DeBari MK, Ng WH, Griffin MD, Ren X, **Abbott RD**. Vascularized Adipose Tissue Graft using Decellularized Lung for Soft Tissue Reconstruction. Biomedical Engineering Society Annual Meeting, Virtual, October 15, **Podium**, 2020.
21. DeBari MK, Nui X, Scott JV, Griffin MD, Pereira SR, Cook KE, Bin H, **Abbott RD**. Therapeutic Ultrasound Triggered Silk Fibroin Scaffold Degradation. Carnegie Mellon Forum on Biomedical Engineering and Annual Symposium of International Academy of Medical and Biological Engineering, Virtual, September 18, **Poster**, 2020.  
➔ **Awarded the Outstanding Presentation Award**
22. DeBari MK, Nui X, Pereira SR, Griffin MD, Bin H, **Abbott RD**. Therapeutic Ultrasound Triggered Silk Scaffold Degradation for Tissue Regenerative Applications. McGowan Scientific Retreat, Wheeling, WV, March 9, **Poster**, 2020.

23. Griffin MD\*, DeBari MK\*, Chickanosky I, Garg M, Sun W, Webster-Wood V, **Abbott RD**. Characterization of Biological and Mechanical Properties of Fibrotic Adipose Tissue to Inform Better Regenerative Outcomes. McGowan Scientific Retreat, Wheeling, WV, March 9, Poster, 2020.
24. Keyser MN, Periera SR, DeBari MK, Griffin MD, **Abbott RD**. Screening Platform for Studying Human Obesogenic Modes of Action. International Federation for Adipose Therapeutics and Science, Marseille, France, December 5-7, **Podium**, 2019.
25. DeBari MK, Niu X, Periera SR, He B, **Abbott RD**. Therapeutic Ultrasound Triggered Silk Scaffold Degradation for Tissue Regenerative Applications. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16-19, **Poster**, 2019.
26. Chickanosky I, DeBari MK, Niu X, He B, **Abbott RD**. Sonication of Silk Microspheres for Controlled Drug Delivery. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16-19, **Poster**, 2019.
27. Keyser MN, DeBari MK, **Abbott RD**. Investigation of Artificial Food Dyes as Potential Obesogenic Chemicals. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16-19, **Poster**, 2019.
28. Pereira SR, Griffin MD, DeBari MK, **Abbott RD**. Screening Platform for Studying Human Obesogenic Compounds. Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 16-19, **Poster**, 2019.
29. DeBari MK, Nui X, Pereira SR, Griffin MD, Bin H, **Abbott RD**. Controlled Silk Degradation for Tissue Regeneration Using Non-Invasive Ultrasound. Carnegie Mellon Forum on Biomedical Engineering, Pittsburgh, PA, September 20, **Poster**, 2019.
30. DeBari MK, Niu R, Pereira S, He B, **Abbott RD**. Controlled Silk Degradation for Tissue Regeneration Using Non-Invasive Ultrasound. The McGowan Institute for Regenerative Medicine, Pittsburgh, PA, March 11, **Poster**, 2019.
31. Keyser MN, DeBari MK, **Abbott RD**. A complex co-culture white adipose tissue model. International Federation for Adipose Therapeutics and Science, Las Vegas, NV, December 13-15, **Podium**, 2018.
32. McCarthy M, Bender R, Brown T, Bukowska J, Smith S, **Abbott R**, Kaplan D, Williams C, Wade J, Alarcon A, Wu X, Lau F, Gimble J, Frazier T. Fat on a chip model of human subcutaneous adipose tissue. International Federation for Adipose Therapeutics and Science, Las Vegas, NV, December 13-15, **Podium**, 2018.
33. DeBari MK, Niu R, He B, **Abbott RD**. Controlled Silk Degradation for Tissue Regeneration Using Non-Invasive Ultrasound. Regenerative Engineering Symposium – American Institute of Chemical Engineers (AIChE), Pittsburgh, PA, October 27-28, **Poster**, 2018.
34. Kim P, DeBari MK, **Abbott RD**. Effect of Orbital Shaking on Rheological Behavior of Regenerated Silk Fibroin Solutions. Biomedical Engineering Society Annual Meeting, Atlanta, GA, October 17-20, **Poster**, 2018.
35. Lightfoot-Vidal SE, Tamamoto KA, Nguyen H, **Abbott RD**, Cairns DM, Kaplan DL. 3D Biomaterial Matrix to Support Long Term, Full Thickness, Immuno-competent Human Skin Equivalents with Nervous System Components. BMES Annual Meeting, Atlanta, GA, October 17-20, **Podium**, 2018.
36. DeBari MK, Niu R, He B, **Abbott RD**. Controlling the Crystalline Structure of Silk Biomaterials with Non-Invasive Ultrasound Techniques. Biomedical Engineering Forum at CMU, Pittsburgh, PA, September 21, **Poster**, 2018.
37. Griffin MD, **Abbott RD**. Engineering Human Adipose Microenvironments to Study Metabolic Dysfunction in Obesity. Biomedical Engineering Forum at CMU, Pittsburgh, PA, September 21, **Poster**, 2018.
38. **Abbott RD**, Ogurlu R, Kaplan DL. TNFalpha Stimulation Induces Patient-Specific Differences In Insulin Stimulated Glucose Uptake In 3D Adipose Tissue Models. BMES Annual Meeting, Phoenix, AZ October 11-14, **Podium**, 2017.
39. Lightfoot Vidal SE, **Abbott RD**, Kaplan DL. Development of an innervated, full-thickness human skin equivalent for applications in sensory and disease models. Montagna Symposium on the Biology of Skin, Gleneden Beach, OR, October 20-24, **Poster**, 2016.

40. Cairns DM, Chwalek K, Moore YE, Kelley MR, **Abbott RD**, Moss S, Kaplan DL. Expandable and Rapidly Differentiating Human Induced Neural Stem Cell Lines For Multiple Tissue Engineering Applications. BMES Annual Meeting, Minneapolis, MN, October 5-8, **Poster #1205**, 2016.
41. **Abbott RD**, Alonzo C, Borowsky FE, Georgakoudi I, Kaplan DL. Non-invasive Assessments to Track Human White Adipose Tissue Engineered Models In Vitro. BMES Annual Meeting, Minneapolis, MN, October 5-8, **Poster #869**, 2016.
42. **Abbott RD**, Wang RY, Reagan MR, Borowsky FE, Ghobrial IM, Kaplan DL. Human mature white adipose tissue model for studying lipolytic responses. BMES Annual Meeting, Tampa, FL, October 7-10, **Podium**, 2015.
43. **Abbott RD**, Wang RY, Kaplan DL. White Adipose Tissue Engineered Model for Studying Metabolic Behavior *Ex Vivo*. TERMIS 2015 4th World Congress, Boston, MA, September 8-10, **Poster #1121**, 2015.
44. Bowles A, Lee S, **Abbott R**, Kaplan D, Wang M, Strong A, Brown Q, Bunnell B, Gimble J. Distinguishing adipose 'stromal' versus 'stem' cells in vivo utilizing 3-Dimensional silk scaffolds. International Federation for Adipose Therapeutics and Science. (iFATS), Amsterdam, The Netherlands, November 13-16, **Podium**, 2014.
45. **Abbott RD**, Wang RY, Burke K, Kaplan DL. Long Term In Vitro Culture of Mature White Adipose Tissue. BMES Annual Meeting, San Antonio, TX, October 22-25, **Podium**, 2014.
46. Tokareva O, Glettig DL, **Abbott RD**, Kaplan DL. Recombinant Spider Silks for Delivery of Therapeutic Nucleic Acids. Biomedical Engineering Society Annual Meeting, San Antonio, TX, October 22-25, **Poster**, 2014.
47. Burke K, **Abbott RD**, Kaplan DL. 3D Adipose Tissue Model for Type 2 Diabetes Mellitus. Biomedical Engineering Society Annual Meeting, Seattle, WA, September 25-28, **Podium**, 2013.
48. Tokareva O, Glettig DL, **Abbott RD**, Kaplan DL. Spider Silk Gene Delivery Systems for Cell Specific Targeting. New England Science Symposium. March 2, **Poster**, 2013.
49. **Abbott RD**, Rnjak-Kovacina J, Kaplan DL. Adipose derived stem cell differentiation on silk lamellar scaffolds toward the development of skeletal muscle. WFPC AFIRM Enabling Technologies Workshop, Pittsburgh, PA, February 4-5, **Podium**, 2013.
50. **Abbott RD**, Purmessur D, Brigstock DR, Iatridis JC. Differential Responses of Human Nucleus Pulposus Cells with Varying Degenerative Levels to TGFB3, CTGF, and Link-N. Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, February 4-7, **Poster #1202**, 2012.
51. Purmessur D, Canal Guterl C, Cornejo MC, **Abbott RD**, Cho SK, Laudier D, Iatridis JC. Hydrostatic pressure enhances notochordal cell phenotype and metabolic activity with increased proteoglycan accumulation. Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, February 4-7, **Podium**, 2012.
52. **Abbott RD**, Purmessur D, Monsey RD, Brigstock DR, Iatridis JC. Differential Responses of Human Nucleus Pulposus Cells with Varying Degenerative Levels to TGFβ3+Dex, CTGF, and Link-N. New Horizons In Intervertebral Disc Research, Philadelphia, PA, November 16-18, 2011, **Podium S2.11**, 2011.
53. Purmessur D, Schek, R, **Abbott, R**, Iatridis J. Notochordal cell rich nucleus pulposus tissue increases proteoglycan accumulation and promotes a healthy nucleus pulposus phenotype in human MSC. ISSLS Annual Meeting, **Poster # 212467**, Gothenburg, Sweden, June 14-18, 2011.
54. **Abbott RD**, Purmessur D, Holenstein FO, Godburn KE, Monsey RD, Iatridis JC. TGFβ3 increases the regenerative potential of human degenerated intervertebral disc cells while notochordal cell conditioned medium stimulates proteoglycan synthesis. Annual Meeting of the Orthopaedic Research Society, Long Beach, CA, January 12-16, **Poster # 598**, 2011.
55. **Abbott RD**, Howe AK, Purmessur D, Monsey RD, Iatridis JC. Effect of large matrix strains on human annulus fibrosus cells. Annual Meeting of the Orthopaedic Research Society, Long Beach, CA, January 12-16, **Poster # 721**, 2011.

56. Purmessur D, Godburn K, **Abbott RD**, Schek RM, Iatridis JC. Notochordal cell rich nucleus pulposus tissue increases proteoglycan accumulation and promotes a healthy nucleus pulposus phenotype in human MSCs. Annual Meeting of the Orthopaedic Research Society, Long Beach, CA, January 12-16, **Short Talk and Poster # 355**, 2011.
57. **Abbott RD**, Howe AK, Purmessur D, Monsey RD, Iatridis JC. Adaptive reorientation of human annulus fibrosus cells in response to stretch. The World Forum for Spine Research – The Intervertebral Disc: Montreal Meeting, July 5-8, **Podium ST7-302**, 2010.
58. **Abbott RD**, Purmessur D, Holenstein FO, Godburn KE, Iatridis JC. Regenerative potential of chondrogenic and notochordal cell conditioned media on degenerated human disc cells, The World Forum for Spine Research – The Intervertebral Disc: Montreal Meeting, July 5-8, **Podium B7-03**, 2010.
59. Purmessur D, Godburn KE, **Abbott RD**, Schek RM, Iatridis JC. Effects of notochordal cell conditioned media and TGFβ3 on mesenchymal stem cell differentiation towards a nucleus pulposus phenotype. The World Forum for Spine Research – The Intervertebral Disc: Montreal Meeting, July 5-8, **Poster**, 2010.
60. Purmessur D, Godburn KE, **Abbott RD**, Spees J, Iatridis JC. Differential effects of notochordal cell conditioned media derived from tissue on mesenchymal stem cell differentiation. Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March 6-9, **Poster # 1436**, 2010.
61. Purmessur D, Godburn KE, Walter BA, **Abbott RD**, Iatridis JC. Dose-dependent effects of TGFβ3 injection in large animal organ culture. Annual Meeting of the Orthopaedic Research Society, New Orleans, LA. March 6-9, **Poster #1442**, 2010.
62. Sanders G, Linley S, Ramsey D, **Abbott R**, Puzas J, Glennon J, DiRisio D, Lawrence J, Carl A, Ledet E. Effects of Chronic Cyclic Loading on the Lumbar Spine: An In Vivo Pilot Study. Proceedings of the 24th Annual Meeting of the North American Spine Society. San Francisco, CA. November 10-14, **Podium Abstract #52**, 2009.
63. Sanders GP, Linley S, Ramsey DS, **Abbott R**, Puzas JE, Glennon JC, DiRisio DJ, Belden C, Ledet EH. The Effects of Chronic Cyclic and Static Loading on the Rabbit Lumbar Spine: An In Vivo Pilot Study. Annual Meeting of the Orthopaedic Research Society. Las Vegas, NV. February 22-25, **Poster #256**, 2009.
64. Barbir A, Michalek AJ; **Abbott RD**; Iatridis JC. Effects of enzymatic digestion on compressive properties of rat intervertebral discs, Annual Meeting of the Orthopaedic Research Society, San Francisco, CA. March 2-5, **Poster #1441**, 2008.

## Student Advising at CMU

### (a) Undergraduate Projects

1. Jialing Zhang, "Low Intensity Focused Ultrasound for the non-invasive triggering of silk scaffold degradation," September 2023 – Present.
  - Summer undergraduate research grant (2024)
2. Daniel Aluko, "FRESH 3D Printing Wagyu Steak with Lab-Grown Cow Cells," May 2023 – Present
  - Summer undergraduate research grant (2024)
  - Summer undergraduate research fellowship (2023)
3. Theo Mohideen, "Cellular Agriculture," May 2023 – Present
  - Summer undergraduate research grant (2024)
  - Summer undergraduate research fellowship (2023)
4. Sandra Shefter, "Computationally Modeling the Degradation Profile of Silk Fibroin Scaffolds in Individual Patients for Improvement of Regenerative Tissue Engineering," January 2023 – Present
  - Summer undergraduate research grant (2024)
5. Minho "Jimmy" Kim, " Using Low-Intensity Focused Ultrasound to Tailor Silk Fibroin Degradation to Regenerative Rate In Vivo with C57BL/6J Mice," January 2023 – Present

- Summer undergraduate research grant (2024)
  - Summer undergraduate research fellowship (2023)
6. Giselle Oberfell, "3D bioprinting a Wagyu Steak," April 2022 – Present
    - Summer undergraduate research grant (2024)
    - CMU Meeting of the Minds - Poster Presentation (2023)
    - Summer undergraduate research fellowship (2022)
  7. Eric Johnson, "Investigation of artificial food dyes as obesogens," March 2022 – Present
    - Biomedical Engineering Society Annual Conference – Undergraduate Poster (2023)
    - CMU Meeting of the Minds - Oral Presentation (2023)
    - Summer undergraduate research fellowship (2022)
  8. Tal Dassau, "Quantification of lipid droplet size, density, and distribution in immunofluorescent images," April 2021 – Present
    - Summer undergraduate research grant (2024)
    - AIChE Annual Student Conference (2023)
    - Berg Symposium at CMU (2023)
    - CMU Meeting of the Minds - Oral Presentation (2022)
    - Summer undergraduate research fellowship (2021)
  9. Erica Iizuka, "Freeze-gelled silk scaffolds," April 2021 – May 2022.
    - Summer undergraduate research grant (2022)
    - Summer undergraduate research apprenticeship (2021)
  10. Tahlia Altgold, "Silk Fibroin as a Green Material," January 2020 – May 2021.
    - CMU Meeting of the Minds - Poster Presentation (2021)
    - Summer undergraduate research grant (2021)
    - Summer undergraduate research fellowship (2020)
  11. Chantal Alano, "Adipose tissue engineering," June 2019 – December 2020.
    - Summer undergraduate research grant (2020)
    - Summer undergraduate research apprenticeship (2019)
  12. Maya Garg, "Adipose tissue engineering," June 2019 – May 2022.
    - CMU CIT Senior Honor's thesis (2021 – 2022)
    - Summer undergraduate research grant (2020)
    - Summer undergraduate research apprenticeship (2019)
  13. Isabelle Chickanosky, "Degradable silk biomaterials for tissue engineering," February 2019 – May 2021.
    - Summer undergraduate research grant (2021)
    - CMU Meeting of the Minds - Oral Presentation (2020)
    - Summer undergraduate research grant (2020)
    - Biomedical Engineering Society Annual Conference – Undergraduate Poster (2019)
    - Summer undergraduate research fellowship (2019)
  14. Kameron Bradley, "Mechanistic analysis of accelerated aging with obesity," January 2019 - May 2019.
  15. Shrayi Gupta, "Development of a screening tool for obesogenic chemicals," September 2018 - May 2019.
  16. Sean Pereira, "Development of a screening tool for obesogenic chemicals," May 2018 - December 2020.
    - CMU Meeting of the Minds - Oral Presentation (2020)
    - International summer undergraduate research fellowship (2020)
    - Biomedical Engineering Society Annual Conference – Undergraduate Poster (2019)
    - Summer undergraduate research grant (2019)
    - Summer undergraduate research fellowship (2019)
    - Summer undergraduate research apprenticeship (2018)
  17. Paul Kim, "Effect of Orbital Shaking on Rheological Behavior of Regenerated Silk Fibroin Solutions," May 2018 - September 2018.

- CMU Meeting of the Minds - Poster Presentation (2019)
  - Biomedical Engineering Society Annual Conference – Undergraduate Poster (2018)
  - Summer undergraduate research fellowship (2018)
18. Michelle Bai, "Degradable silk biomaterials for tissue engineering," January 2018 - May 2019.
    - CMU Meeting of the Minds – Poster Presentation (2019)
    - Summer undergraduate research grant (2019)
    - CMU CIT Senior Honor's thesis (2018 – 2019)
  19. Mia Keyser, "Investigation of artificial food dyes as obesogens," September 2017 - May 2020.
    - ChE Ken Westerberg Award for Excellence in Research (2020)
    - BME Outstanding Undergraduate Research Award (2020)
    - CMU CIT Senior Honor's thesis (2019 – 2020)
    - CMU Meeting of the Minds - Oral Presentation (2020)
    - Biomedical Engineering Society Annual Conference – Undergraduate Poster (2019)
    - Summer undergraduate research grant (2019)
    - Summer undergraduate research fellowship (2018)
  20. Yugesh Ramsaroop, "Degradable silk biomaterials for tissue engineering," September 2017 - May 2019.
    - CMU Meeting of the Minds – Poster Presentation (2020)
    - Summer undergraduate research grant (2019)
  21. Mentor for a BME Design Team, Fall 2017 – Spring 2018.

#### **(b) Master's Students**

1. Khushi Soni, "FRESH 3D printing of skeletal muscle fibers," September 2023 – Present.
2. Kayla Heyward, "The effect of patient demographics on transcriptional regulation in adipose tissue," November 2022 – December 2023.
  - Fellowship awarded: Graduate Education for Minorities Fellowship Program (2022 – 2023)
2. Hanchuan Xu, "Vascular changes in adipose tissue with obesity," September 2022 – Present.
3. Jiani Chen, "The effect of CMV on adipose tissue," May 2022 – Present.
4. Zhou Fang, "Developing Fatty Liver Organoids as a Defatting Drug Testing Platform," July 2021 – May 2022.
5. Qijia Zhou, "Investigating the role of extracellular lipid droplets in adipose tissue," November 2021 – December 2022.
6. Dakshi Kochhar, "The Materiobiology of Silk: Exploring the Biophysical Influence of Silk Biomaterials on Directing Cellular Behaviors," January 2021 – May 2022.
7. Ruhi Naik, "Quantification of lipid droplet size, density, and distribution in immunofluorescent images," August 2020 – February 2021.
8. Spencer Rhodes, "Noninvasive degradation of silk biomaterials," February 2020 – May 2021.
9. Claude King, "Silk Fibroin as a Green Material for Tissue-Based Applications," August 2019 - December 2020.
  - Fellowship awarded: Graduate Education for Minorities Fellowship Program (2019 – 2020)
10. Mallory Griffin, "Complex co-culture white adipose tissue models," August 2018 - May 2020.
  - Fellowship awarded: National Institutes of Health, grant no. T32-EB003392 – BiRM (Biomechanics in Regenerative Medicine) Training Program (2019 – 2020)
11. Brent Ifemembi, "Development of a screening tool for obesogenic chemicals," August 2018 - May 2019.

#### **(c) Ph.D. Students**

1. Lindsey Huff, "Adipose tissue engineering for cellular agriculture, regenerative medicine, and disease modeling," August 2022 – Present.
  - Successfully passed the qualifying exam.



- Fellowships awarded: Mellon University Presidential Research Fellowship (2023 – 2024), New Harvest Fellow (2023 – Present), BiRM (Biomechanics in Regenerative Medicine) Training Program (2023 – Present)
2. Nathan Roblin, "Tailoring Silk Fibroin Degradation to Patient Regenerative Rates," December 2021 – Present.
    - Successfully passed the qualifying exam.
    - Fellowship awarded: Center for Machine Learning and Health Fellowship, School of Computer Science, Carnegie Mellon University (2022-2023).
  3. Elizabeth Johnston, "Vascular adipose tissue interactions during regeneration and fibrosis," August 2020 - Present.
    - Successfully passed the proposal exam.
    - Fellowships awarded: National Institutes of Health, grant no. T32-EB003392 – BiRM (Biomechanics in Regenerative Medicine) Training Program (2020 – 2021), Carnegie Mellon University Presidential Research Fellowship (2022 – 2023)
  4. Megan DeBari, "Accounting for Patient Variability in Designing Biomaterials and Therapeutic Regenerative Strategies," October 2017 – August 2021.
    - Graduated and stayed in the lab for another year to complete a postdoctoral fellowship. She currently works at Phillips.
    - Fellowship awarded: Dowd Fellowship, Carnegie Mellon University (2020-2021)

#### (d) Postdoctoral Researchers

1. Megan DeBari, " August 2021 – June 2022.
  - Founded a startup company "Biombyx" with her PhD/postdoctoral work
  - Fellowship awarded: Swartz Center for Entrepreneurship Innovation Commercialization Fellowship (2021-2022).

#### (e) Dissertation Committees (other laboratories)

1. Colette Bilynsky, Ph.D., Biomedical Engineering, 2023 – Present.
2. Chris Aldrich, Ph.D., Biomedical Engineering, 2023 – Present.
3. Lukas DiBeneditto, M.S., Biomedical Engineering, 2023
4. Hailey Gordon, M.S., Biomedical Engineering, 2022
5. Justin Bobo, Ph.D., Mechanical Engineering, 2021
6. Kalliope Roberts, Ph.D., Biomedical Engineering, 2021
7. Yogesh Somasunder, Ph.D., Chemistry, 2020.
8. Amy Powers, M.S., Biomedical Engineering, 2019

### Undergraduate Mentoring at Tufts University

*Key for class mentoring that was structured by a Biomedical Engineering class at Tufts University:*

*BME3 = Sophomore Design and Research I*

*BME4 = Sophomore Design and Research II*

*BME5 = Junior Design and Research I*

*BME6 = Junior Design and Research I*

*BME7 = Senior Design and Research I*

*BME8 = Senior Design and Research I*

*\*Independent studies outside of the biomedical engineering department at Tufts University.*

Fall 2016 – Spring 2017

Edmund Takata, Biomedical Engineering (*BME3*)

Fall 2016 – Spring 2017

Eddy Ansari, Biomedical Engineering (*BME3*)

Fall 2016 – Spring 2017

Sophia Bunnell, Biomedical Engineering (*BME7*)

Fall 2016 – Spring 2017

Rachel Cunningham, Biomedical Engineering (*BME7*)

Fall 2015 – Spring 2017	Roza Ogurlu, Biomedical Engineering ( <i>BME3, BME4, BME5</i> )
Fall 2015	Alexander Berk, Biomedical Engineering ( <i>BME3</i> )
Fall 2015	Katherine Xu, Biomedical Engineering ( <i>BME3</i> )
Fall 2015	Megan Tse, Biomedical Engineering ( <i>BME3</i> )
Fall 2014 – Summer 2015	David Bernstein, Biomedical Engineering ( <i>BME3, BME4, BME5</i> )
Fall 2014 – Summer 2015	Zack Loewenstein, Biomedical Engineering ( <i>BME3, BME4</i> )
Fall 2014 – Spring 2015	Alan Bartels, Biomedical Engineering ( <i>BME3, BME4</i> )
Fall 2014 – Spring 2015	Andre LaPan, Biomedical Engineering ( <i>BME3, BME4</i> )
Fall 2014	Grant Pemberton, Biomedical Engineering ( <i>BME3</i> )
Fall 2014	Anas Hamad, Biomedical Engineering ( <i>BME3</i> )
Spring 2014 – Summer 2016	*Francis Borowsky, Biology Department at Tufts University
Fall 2013 – Spring 2014	Paul Pemberton, Biomedical Engineering ( <i>BME7, BME8</i> )
Fall 2013 – Spring 2015	Yuki Ito, Biomedical Engineering ( <i>BME3, BME4, BME 5, BME6, accepted into Tufts Biomedical Engineering master's program</i> )
Fall 2013 – Spring 2015	Robert Watson Gifford, Biomedical Engineering ( <i>BME3, BME4, BME5, BME6, BME7, BME8, graduated with a master's degree</i> )
Fall 2013 – Spring 2017	Adam Zeiba, Biomedical Engineering ( <i>BME3, BME6, BME7, master's program</i> )
Fall 2013	Alex Wolfe, Biomedical Engineering ( <i>BME3</i> )
Fall 2013	Nathaniel Skillin, Biomedical Engineering ( <i>BME3</i> )
Fall 2013	Dan Bozovic, Biomedical Engineering ( <i>BME3</i> )
Summer 2013	*Elisa Clark, Bioengineering at Rice University
Spring, 2013 – Spring, 2016	*Rebecca Wang, Chemical Engineering at Tufts University ( <i>graduated with a master's degree</i> )

### **Government Committees**

2022	NIH Study Section (Member Reviewer Conflict Special Emphasis Panel)
2021	NSF Chemical, Bioengineering, Environmental and Transport Systems (CBET) Panel (Engineering of Biomedical Systems)
2021	NASA (Extended Longevity of 3D Tissues and Microphysiological Systems for Modeling of Acute and Chronic Exposures to Stressors Panel)
2020	NIH Study Section (Biomaterials and Biointerfaces Study Section)
2019	NIH Study Section (Cellular Aspects of Diabetes and Obesity) – Early Career Reviewer
2018	NSF Chemical, Bioengineering, Environmental and Transport Systems (CBET) Panel (Tissue engineering)

### **Journal Involvement**

October 2021 – <i>Present</i>	Frontiers in Biomaterials Science Editorial Board
April 2019 – <i>Present</i>	Biomimetics Editorial Board
February 2023 – Fall 2023	Frontiers in Transplantation – Bioengineering Editorial Board (Associate Editor)
April 2019 – 2021	BioMed Research International, Special Issue Editor: Novel Biomaterial Applications for Modeling Human Disease Using Extracellular Matrix
Fall 2018 – 2020	BMC Biomedical Engineering, Special Issue Editor: Engineering Tissue and Disease Models
Fall 2018 – Fall 2023	BMC Biomedical Engineering, Editorial Board

### **Other Editing Experience**

Fall 2013 – Spring 2017	Boston Professional Group Editing, Boston, MA <ul style="list-style-type: none"> <li>Advanced editing and polishing of scientific manuscripts and cover letters.</li> </ul>
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## **Journal Reviewer**

ACS Applied Polymer Materials  
ACS Biomaterials Science & Engineering  
Acta Biomaterialia  
Adipocyte  
Advanced Healthcare Materials  
Advanced Science  
Biochimie  
Biomimetics  
BMC Biomedical Engineering  
Chemical Reviews  
Connective Tissue Research  
Frontiers in Bioengineering and Biotechnology  
Frontiers In Biomaterials  
Frontiers in Cell and Developmental Biology  
Frontiers in Pharmacology  
International Journal of Molecular Sciences  
International Journal of Obesity  
Journal of Biomaterials Science: Polymer Edition  
Journal of Biomechanical Engineering  
Journal of Cellular Physiology  
Journal of Orthopaedic Research  
Material Science and Engineering  
Nanomedicine: Nanotechnology, Biology, and Medicine  
npj Regenerative Medicine  
PLOS ONE  
Scientific Reports  
Tissue Engineering

## **Society / Field Service**

Invited to work on an action plan for the “Cultured Meat Safety Initiative” with New Harvest and Vireo Advisors, January 12, 2024.

International Federation for Adipose Therapeutics and Science – Introduction to 3D Bioprinting of Living Human Adipose Tissue for Grafting and as a Model to Study Obesity. October 6, 2023.

Discussion Leader, Gordon Research Conference, “Silk Proteins and the Transition to Biotechnologies,” July 10, 2023.

International Federation for Adipose Therapeutics and Science – Organizing Committee (2019, 2021, 2022, 2023, 2024).

International Federation for Adipose Therapeutics and Science – Abstract reviewer (2019, 2021, 2022, 2023, 2024).

Biomedical Engineering Society – Abstract reviewer (2018, 2019, 2021, 2023)

International Federation for Adipose Therapeutics and Science – Angiogenesis and Vascularization. Session Chair November 5, 2022.

International Federation for Adipose Therapeutics and Science – Adipose Tissue Models and Microphysiological Systems Panel Moderator and Invited Speaker. November 4, 2022.

International Federation for Adipose Therapeutics and Science – Matrix. Session Chair November 19, 2021.

International Federation for Adipose Therapeutics and Science – Characterization and Behavior. Session Chair November 19, 2021.

The McGowan Institute for Regenerative Medicine – Member of the Organizing Committee for the Annual Meeting 2020.

International Federation for Adipose Therapeutics and Science – Basic Research. Session Chair December 5, 2019.

Biomedical Engineering Society - Advanced 3D Printing Biomaterials II. Session Chair October 14, 2019

Biomedical Engineering Society - Biomechanics in Cell and Tissue Engineering. Session Chair October 20, 2018

Biomedical Engineering Society - 3D Printing track I and II. Session Chair October 18, 2018

American Heart Association – Grant reviewer. September 18, 2018

American Society for Engineering Education – Abstract reviewer (2018, 2019)

## **Department and University Service**

August, 2022 – *Present*

### **University: TechSpark Faculty Committee**

The three main goals for this committee are to: 1) represent the interests of each engineering department in the Maker Space; 2) enable useful access by all departments in the Maker Space; and 3) discuss current and future plans for the Maker Space.

August, 2022 – *Present*

### **Department: Organization of the BME Seminar Series**

I am in charge of inviting and coordinating the visit for seminar speakers, ensuring diversity and an equal distribution of topics are covered. I am also the instructor for 2 different classes that require students to attend the seminar (42701 and 42801) which involves making other arrangements for students to make up seminars they cannot attend and ensuring attendance to the seminars.

August, 2022 – *Present*

### **Department: BME Undergraduate Affairs Committee**

Reviewing and making decisions on undergraduate petitions, making nominations for undergraduate scholarships, and reviewing and updating the undergraduate curriculum and assessments.

2017, 2018, 2023

### **Department: Graduate Application Reviewer**

Review PhD and MS applications and make admission recommendations.

March, 2021 – August, 2022

### **Department: BME Graduate Affairs Committee**

Reviewing and making decisions on graduate petitions, making nominations for graduate scholarships, reviewing and updating the graduate curriculum and

assessments, and reviewing time frames of students in the program and any disagreements with advisors on graduation dates.

July, 2020 – March, 2021

**Department: Tenure-track Faculty Search Committee**

Review applications, select candidates for interview, assess candidates at chalk talk/seminar/dinner/meeting 1:1, and make recommendation on pros/cons of each candidate to the Department Head.

July, 2019 – March, 2020

**Department: Tenure-track Faculty Search Committee**

Review applications, select candidates for interview, assess candidates at chalk talk/seminar/sample teaching class/dinner/meeting 1:1, and make recommendation on pros/cons of each candidate to the Department Head.

October, 2018 – August, 2022

**Department: Teaching Lab Steering Committee**

Oversight of teaching schedule and operations (including discussing new and current equipment needs and BME course thrust areas), meet monthly to ensure operations are addressed regularly, and approval of all faculty teaching in the BME teaching lab space.

May, 2018 – August, 2022

**Department: Scott Hall Steering Committee**

Discuss and strategize safety hazards/incidences and develop policies to regulate the space.

May, 2018 – October 2018

**Department: Teaching Faculty Search Committee**

Review applications, select candidates for interview, assess candidates at chalk talk/seminar/sample teaching class/dinner/meeting 1:1, and make recommendation on pros/cons of each candidate to the Department Head.

April, 2018 – *Present*

**Department: Founded a Women in BME society at CMU**

Mission: A group of Biomedical Engineers at Carnegie Mellon University founded for the benefits of women to enhance a sense of community through social events and prepare the next generation of scientists through educational seminars.

## **Outreach**

Mentor, "Re-think the Rink." March 6-10, 2023.

Gelfand Outreach for Grades K-2. "You are What You Eat." March 18, 2023.

Society for Biomedical Engineers. "Resume and hiring panel." April 16, 2019.

CMU Alumni event. "Silk biomaterials." April 12, 2019.

Engineering Exploration Experience. July 12, 2019

SWE Outreach Event. March 9, 2019.

Gelfand Outreach for Grades K-2. "You are What You Eat." January 26, 2019.

Gelfand Outreach for Grades K-2. "You are What You Eat." September 29, 2018.

Gelfand Outreach for Grades 3-5. "Science and Engineering Sampler – Biomedical Engineering." June 19, 2018.

Dean's Office Outreach - Homewood Children's Village. Lab Tour Guide for Engineering Day Camp for underprivileged youth in the area. June 15, 2018.

Society of Women Engineers. "Middle School Day." March 9, 2018.

Explore Engineering Day for middle school students. "The Helpful Hydrogel Booth." March 4, 2018.

Gelfand Outreach for Grades K-2. "You are What You Eat." February 24, 2018.

## **Media Coverage**

Mayank Sharma, Tech Times, "[A 3D Printer Can Now Design Custom Chocolates](#)"

Brooke Becher, BuiltIn, "[What is 3D-Printed Meat?](#)"

Robert Downey Jr's Footprint Coalition, "[Show Us Your Stuff.](#)"

Robert Downey Jr's Footprint Coalition, "[Word of the week – Bioprinting.](#)"

The Skimm and the [New York Times](#) featured our [crowd-sourced funding campaign](#).

Richard Jacobs Finding Genius Podcast, "[Cellular Discoveries.](#)"

Regenerative Medicine, "[Abbott Lab Student Helps Build Silk Scaffolding for Tissue](#)"

Advanced Science News, "[Microscopic Considerations for Optimizing Silk Biomaterials](#)"

## **CMU Media Coverage**

["Curating sustainable meat alternatives."](#)

["Krause and Abbott receive NSF CAREER awards."](#)

["CMU and Mayo Clinic to collaborate on transplant innovation."](#)

["Three BME Grad Students Receive Fellowships from the College of Engineering."](#)

["Exploring silk's full potential."](#)

["Crunching Numbers for Regenerative Medicine."](#)

["Altgold Helps Build Silk Scaffolding for Tissue."](#)

["A Quest for Knowledge and Innovation."](#)

["Growing fat cells on silk."](#)