

**JASON A. BURDICK, PH.D.**  
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@BURDICKLAB

**UNIVERSITY OF COLORADO BOULDER**  
**BIOFRONTIERS INSTITUTE**  
**DEPARTMENT OF CHEMICAL AND BIOLOGICAL ENGINEERING**

## EDUCATION

**B.S. Chemical Engineering**, University of Wyoming, Laramie, WY, May 1998

**Ph.D. Chemical Engineering**, University of Colorado, Boulder, CO, August 2002

*Dissertation: Synthesis and Characterization of Osteoinductive Photocurable Scaffolds: A Tissue Engineering Approach to Enhance Bone Regeneration*

## PROFESSIONAL EXPERIENCE

**Research Assistant.** Dr. Kristi S. Anseth, Mentor. Department of Chemical Engineering, University of Colorado, Boulder, CO, January 1999 to June 2002

**Research Associate.** Dr. Kristi S. Anseth, Mentor. Department of Chemical Engineering, University of Colorado, Boulder, CO, July to December 2002

**Postdoctoral Fellow.** Dr. Robert Langer, Mentor. Department of Chemical Engineering, MIT, Cambridge, MA

**Research Fellow.** Department of Surgery, Massachusetts General Hospital and Harvard Medical School  
January 2003 to June 2005

**Wilf Family Term Assistant Professor.** Department of Bioengineering, University of Pennsylvania, Philadelphia, PA, July 2005 to June 2010

**Associate Professor.** Department of Bioengineering, University of Pennsylvania, Philadelphia, PA, July 2010 to June 2013

**Visiting Scholar.** Dr. Fiona Watt, Mentor. Wellcome Trust Centre for Stem Cell Research, University of Cambridge, Cambridge, UK, Fall 2011

**Professor.** Department of Bioengineering, University of Pennsylvania, Philadelphia, PA, July 2013 to April 2018

**Robert D. Bent Professor of Bioengineering.** Department of Bioengineering, University of Pennsylvania, Philadelphia, PA, May 2018 to Dec 2021

**Adjunct Professor.** Department of Bioengineering, University of Pennsylvania, Philadelphia, PA, Jan 2022 to Present

**Bowman Endowed Professor.** BioFrontiers Institute and Department of Chemical and Biological Engineering, University of Colorado, Boulder, CO, Jan 2022 to Present

## HONORS AND AWARDS

1999-2000	Colorado Institute for Research in Biotechnology Fellowship
2000-2002	Department of Education GAANN Fellowship, Macromolecular Chemistry and Engineering
2000	2 <sup>nd</sup> place, poster competition, 13 <sup>th</sup> Annual Colorado Biotechnology Symposium
2001	1 <sup>st</sup> place, Society for Biomaterials Orthopaedic Special Interest Group Graduate Student Award
2002	2 <sup>nd</sup> place, Department of Chemical Engineering Annual Research Symposium
2002	1 <sup>st</sup> place, Society for Biomaterials Dental/Craniofacial Special Interest Group Graduate Student Award
2002	Department of Chemical Engineering Max S. Peters Outstanding Graduate Student Award
2003-2004	Spinal Cord Research Foundation Postdoctoral Fellowship
2004-2009	NIH/NIDCR K22 Scholar Development and Faculty Transition Award
2005-2010	Recipient of Wilf Family Term Chair

2007-2009 ACS Petroleum Research Fund Early Career Grant  
 2007-2024 Editorial Board, *Journal of Biomedical Materials Research A*  
 2007-2012 Packard Foundation Fellowship in Science and Engineering  
 2008-2010 Faculty of 1000 Medicine – Musculoskeletal Repair & Regeneration  
 2008-2010 Coulter Foundation Early Career Award  
 2009-2011 Editorial Board, *Tissue Engineering*  
 2009-2014 National Science Foundation CAREER Award  
 2009 National Academy of Engineering US Frontiers of Engineering Participant  
 2009 National Academy of Sciences Chinese-American Kavli Frontiers of Science Participant  
 2010-2016 Editorial Board, *Biomedical Materials*  
 2011-2016 Editorial Board, *Biomacromolecules*  
 2011-2014 Editorial Board, *ACS Applied Materials and Interfaces*  
 2011 Elected Fellow, American Institute for Medical and Biological Engineering (AIMBE)  
 2011 NIH/NIBIB Edward C. Nagy New Investigator Award  
 2011 Kalpana Chalwa Outstanding Recent Alumni Award, University of Colorado  
 2012-2019 Emerging Topics Editor, *Tissue Engineering*  
 2012 Special Issue Editor, Injectable Gels for Organ/Tissue Repair, *Biomedical Materials*  
 2013 National Academy of Sciences Kavli Frontiers of Science Speaker  
 2014-2018 American Heart Association Established Investigator Award  
 2014 National Academy of Engineering Frontiers of Engineering Speaker  
 2014-2023 Associate Editor, *ACS Biomaterials Science and Engineering*  
 2016 Young Talent Award, Conference of Molecular Engineering of Polymers  
 2017-2023 Editorial Board, *Biofabrication*  
 2018 Clemson Award for Basic Research, Society for Biomaterials  
 2018 George H. Heilmeier Faculty Award for Excellence in Research  
 2018 Recipient of Robert D. Bent Professorship  
 2019 Chaffer Visiting Fellowship, University of Otago – New Zealand  
 2019 *Acta Biomaterialia* Silver Medal Award  
 2019 Fellow, Biomedical Engineering Society (BMES)  
 2019- Executive Editorial Board, *Advanced Healthcare Materials*  
 2019 Fellow, National Academy of Inventors (NAI)  
 2020 Fellow Biomaterials Science and Engineering, IUS-BSE  
 2020-2023 Editorial Board, *Bioengineering*  
 2021- Editorial Board, *Materials Futures*  
 2022-2024 Editorial Advisory Board, *Chemical Reviews*  
 2022- NIH Biomaterials and Biointerfaces (BMBI) Study Section Member  
 2022- Editorial Board, *International Journal of Bioprinting*  
 2023 International Fellow, The Canadian Academy of Engineering  
 2023- Executive Advisory Board, *Advanced NanoBiomed Research*  
 2024- Executive Editorial Board, *Biofabrication*  
 2024 International Award, European Society for Biomaterials  
 2024- Editorial Board, *npj Biomedical Innovations*  
 2024, 2023, 2022, 2021, 2020, 2019, 2018 Top 1% Highly Cited Researchers, Clarivate Analytics  
 2024 Member, National Academy of Medicine  
 2025- International Advisory Board, *Advanced Materials*  
 2025 Overall Achievement Award, Department of Chemical & Biological Engineering, CU Boulder

## TEACHING EXPERIENCE

### **University of Colorado**

**Tissue Engineering (CHEN 4802/5802)**, Spring 2023, 38 students  
**Tissue Engineering (CHEN 4802/5802)**, Spring 2024, 50 students  
**Tissue Engineering and Biofabrication (BIEN 4802/5802)**, Spring 2025, 40 students  
**Biofabrication Laboratory (CHEN 5838)**, Spring 2025, 5 students  
**Tissue Engineering and Biofabrication (BIEN 4802/5802)**, Fall 2025  
**Biofabrication Laboratory (CHEN 5838)**, Fall 2025

### ***University of Pennsylvania***

**Biomaterials (BE 512)**, Fall 2005, 32 students  
**Bioengineering Laboratory I (BE 209)**, Fall 2006, 84 students  
**Biomaterials (BE512)**, Spring 2007, 26 students  
**Bioengineering Laboratory I (BE 209)**, Fall 2007, 49 students  
**Biomaterials (BE512)**, Spring 2008, 32 students  
**Bioengineering Laboratory I (BE 209)**, Fall 2008, 40 students  
**Bioengineering Laboratory I (BE 209)**, Fall 2009, 28 students  
**Tissue Engineering (BE 553)**, Spring 2010, 31 students  
**Bioengineering Laboratory I (BE 209)**, Fall 2010, 24 students  
**Bioengineering in the World (BE 280)**, Spring 2012, 9 students  
**Tissue Engineering (BE553)**, Spring 2013, 38 students  
**Biomaterials (BE220)**, Spring 2013, 93 students  
**Tissue Engineering (BE553)**, Spring 2014, 35 students  
**Biomaterials (BE220)**, Spring 2014, 72 students  
**Tissue Engineering (BE553)**, Spring 2015, 30 students  
**Biomaterials (BE220)**, Spring 2015, 57 students  
**Tissue Engineering (BE553)**, Spring 2016, 41 students  
**Biomaterials (BE220)**, Spring 2016, 61 students  
**Tissue Engineering (BE553)**, Spring 2017, 41 students  
**Biomaterials (BE220)**, Spring 2017, 57 students  
**Tissue Engineering (BE553)**, Fall 2017, 37 students  
**Tissue Engineering (BE553)**, Spring 2019, 41 students  
**Tissue Engineering (BE553)**, Spring 2020, 48 students  
**Tissue Engineering (BE553)**, Fall 2020, 31 students  
**Tissue Engineering (BE553)**, Fall 2021, 38 students

**Faculty**, Global Biomedical Service Program, Hong Kong and Qing Yuan, China, Summer 2009

**Faculty**, International Development Summer Institute – Africa Program, Ghana, Africa, Summer 2012

### **Research Mentor for:**

#### ***Postdoctoral Associates:***

**Sujata Sahoo, PhD** September 2006 to September 2007

**Manoj Charati, PhD** November 2008 to October 2010 (currently: Merck)

**Harini Sundararaghavan, PhD** October 2008 to June 2011 (currently: Wayne State University)

**Liming Bian, PhD** September 2009 to July 2012 (currently: South China University of Technology)

**Murat Guvendiren, PhD** July 2008 to June 2013 (currently: New Jersey Institute of Technology)

**Danielle Soranno, MD** July 2011 to June 2013 (currently: Indiana University)

**Will Gramlich, PhD** March 2012 to July 2013 (currently: University of Maine)

**Julianne Holloway, PhD** July 2012 to December 2015 (currently: Arizona State University)

**Christopher Highley, PhD** September 2012 to December 2017 (currently: University of Virginia)

**Brendan Purcell, PhD** September 2013 to August 2014 (currently: Prohibix)

**Steven Caliarì, PhD** September 2013 to August 2016 (currently: University of Virginia)

**Adrienne Rosales, PhD** September 2014 to June 2017 (currently: University of Texas - Austin)

**Yi-Cheun Yeh, PhD** November 2014 to July 2017 (currently: National Taiwan University)

**Sebastian Vega, PhD** January 2015 to August 2018 (currently: Rowan University)

**Kwang Hoon Song, PhD** July 2015 to May 2019 (currently: Incheon National University)

**Dawn Pedrotty, MD, PhD** August 2015 to August 2016 (currently: Vanderbilt University)

**Su-Chin Heo, PhD** August 2015 to December 2016 (currently: University of Pennsylvania)

**Kalil Abdullah, MD** June 2016 to May 2017 (currently: University of Pittsburgh)

**Claudia Loebel, MD, PhD** August 2016 to August 2021 (currently: University of Pennsylvania)

**Matthew Davidson, PhD** January 2017 to Present

**Andrew Daly, PhD** January 2018 to January 2021 (currently: NUI Galway)

**Mikyung Shin, PhD** March 2018 to August 2019 (currently: Sungkyunkwan University, SKKU)

**Katrina Wisdom, PhD** October 2018 to February 2020 (currently: GSK)

**Taimoor Qazi, PhD** March 2019 to August 2022 (currently: Purdue University)

**Claire Witherel, PhD** October 2019 to October 2021 (currently: Integra)  
**Meg Cooke, PhD** Jan 2022 to Present  
**Gabriel Rodriguez-Rivera, PhD** September 2022 to August 2024 (currently: Villanova University)  
**Chima Maduka, PhD** September 2022 to Present  
**Hannah Zlotnick, PhD** October 2022 to Present  
**Keisuke Nakamura, PhD** April 2023 to Present  
**Manuela Garay Sarmiento, PhD** April 2024 to Present  
**Nikolas Di Caprio, PhD** February 2025 to Present

**Research Technicians/Specialists:**

**Robert Metter**, Summer 2008 to Summer 2009  
**Kevin Hou**, Summer 2009 to Summer 2010  
**Heather Weber, MS**, Spring 2012 to Summer 2012  
**Reena Rai, MS**, Summer 2010 to Summer 2014  
**Sarah van Keulen**, Fall 2014 to Summer 2015  
**Janna Sloand**, Summer 2015 to Summer 2016  
**Andrew Rouff**, Summer 2016 to Summer 2017  
**Karyll Davis**, Fall 2017 to Summer 2018

**Graduate Students (PhD):**

**Cindy Chung, PhD, NSF Graduate Research Fellow**, Summer 2004-Summer 2009 (currently: Seran BioScience)  
*Dissertation: Development and Characterization of Photocrosslinkable Hyaluronic Acid Hydrogels for Cartilage Regeneration*

**Darren Brey, MS, PhD**, Fall 2005-Summer 2010 (currently: U Louisville)  
*Dissertation: Combinatorial Polymer Synthesis and High-throughput Screening Technology to Identify Optimal Approaches for Mineralized Tissue Engineering*

**Jamie Ifkovits, PhD, Ashton Fellow, AHA Predoctoral Fellow**, Spring 2006-Summer 2010 (currently: GSK)  
*Dissertation: Acellular and Radically Polymerized Biodegradable Materials to Control Tissue Interactions after Myocardial Infarction*

**Joshua Katz, PhD, NSF Graduate Research Fellow**, Spring 2007-Spring 2011 (currently: Roquette)  
*Dissertation: Chemical Modifications to Vesicle Forming Diblock Copolymers: Development of Smart Functional Polymersome Membranes*

**Sudhir Khetan, PhD, NSF Graduate Research Fellow**, Spring 2008-Summer 2012 (currently: Union College)  
*Dissertation: Engineering Hyaluronic Acid Hydrogel Degradation to Control Cellular Interactions and Adult Stem Cell Fate in 3D*

**Elena Tous, PhD**, Spring 2009-Summer 2012 (currently: Spark Therapeutics)  
*Dissertation: Tunable Acellular Hyaluronic Acid Hydrogel Systems to Attenuate Left Ventricular Remodeling*

**Ross Marklein, PhD, NSF Graduate Research Fellow**, Fall 2007-Summer 2012 (currently: FDA)  
*Dissertation: Spatially and Temporally Controlled Mechanical Signals to Direct Human Mesenchymal Stem Cell Behavior*

**Brendan Purcell, PhD, AHA Predoctoral Fellow**, Spring 2009-Summer 2013 (currently: Prohibix)  
*Dissertation: Injectable Hydrogels for Local Protein Delivery to Engineer Myocardial Remodeling*

**Iris Kim, PhD, NSF Graduate Research Fellow**, Spring 2010-Summer 2014 (currently: MCRA)  
*Dissertation: Engineered Fibrous Hyaluronic Acid Hydrogels for Cartilage Repair*

**Shauna Dorsey, PhD**, Spring 2011 to Fall 2014 (currently: US Army)  
*Dissertation: MRI Evaluation of Injectable Hyaluronic Acid Hydrogel Therapy to Attenuate Myocardial Infarct Remodeling*

**Ryan Wade, PhD, NSF Graduate Research Fellow**, Fall 2010-Summer 2015 (currently: Exponent)  
*Dissertation: Engineering Extracellular Matrix Signals into Fibrous Hyaluronic Acid Hydrogels*

**Christopher Rodell, PhD, AHA Predoctoral Fellow**, Spring 2012 to Summer 2016 (currently: Drexel University)  
*Dissertation: Development of Shear-thinning and Self-healing Hydrogels through Guest-Host Interactions for Biomedical Applications*

**Leo Wang, PhD, AHA and NIH F30 Predoctoral Fellow**, Fall 2014 to Spring 2018 (currently: UPenn)  
*Dissertation: Injectable Hydrogels to Deliver RNA Interference Therapeutics for Myocardial Infarction*

**Josh Mealy, PhD, NSF Graduate Research Fellow**, Spring 2014 to Summer 2018 (currently: GSK)  
*Dissertation: Guest-host Interactions to Engineer Injectable Hydrogels for Controlled Degradation and Release for Cardiac Repair*

**Mi Kwon, PhD, NSF Graduate Research Fellow**, Spring 2014 to Summer 2019 (currently: Bausch + Lomb)

*Dissertation: Engineering the Interface: Hyaluronic Acid Hydrogels that Mediate MSC Chondrogenesis for Cartilage Tissue Engineering*

**Minna Chen, PhD, AHA Predoctoral Fellow**, Fall 2013 to Summer 2019 (currently: ZS Consulting)

*Dissertation: Injectable Hyaluronic Acid Hydrogels for the Delivery of Cell-based Therapeutics to the Heart*

**Jonathan Galarraga, PhD, NSF Graduate Research Fellow**, Fall 2016 to Fall 2021 (currently: Vivodyne)

*Dissertation: Biofabrication Approaches with Hyaluronic Acid Hydrogels for Cartilage Repair*

**Selen Uman, PhD, AHA Predoctoral Fellow**, Fall 2018 to Summer 2022 (currently: UCSF)

*Dissertation: Injectable Hydrogels to Deliver Extracellular Vesicles for Treatment after Myocardial Infarction*

**Victoria Muir, PhD, NSF Graduate Research Fellow**, Summer 2018 to Summer 2022 (currently: University of Delaware)

*Dissertation: Designing Hyaluronic Acid Granular Hydrogels for Biomaterials Applications*

**Margaret Prendergast, PhD, NSF Graduate Research Fellow**, Fall 2018 to Summer 2022 (currently: J&J/Janssen)

*Dissertation: Fundamentals and Application of 3D Suspension Bath Bioprinting for the Engineering of Meniscal Tissue*

**Karen Xu, PhD, NIH F30 Predoctoral Fellow**, Fall 2020 to Spring 2024 (currently: finishing MD, UPenn)

*Dissertation: Engineering Hydrogel Microstructure to Promote Meniscus Repair*

**Nikolas Di Caprio (UPenn BE PhD Candidate)**, Fall 2019 to Spring 2025 (currently: Postdoc, CU Boulder)

*Dissertation: Engineering Dynamic Granular Composites for the Repair of Cartilage Tissue*

**Abhishek Dhand (UPenn BE PhD Candidate)**, Fall 2019 Spring 2025 (currently: Vivodyne)

*Dissertation: Digital Light Processing of Hydrogels for Biomedical Applications from In Vitro Disease Models to Tissue Adhesives*

**Morgan Riffe (CU MSE PhD Candidate)**, Spring 2022 to Present

**Alyse DeFoe (CU ChBE PhD Candidate)**, NSF Graduate Research Fellow, Spring 2022 to Present

**Kendra Worthington (CU ChBE PhD Candidate)**, NSF Graduate Research Fellow, Fall 2022 to Present

**Mackenzie Obenreder (CU ChBE PhD Candidate)**, AHA Predoctoral Fellow, Fall 2022 to Present

**Arkodip Mandal (CU ChBE PhD Candidate)**, Fall 2023 to Present

**Aina Solsona Pujol (CU ChBE PhD Candidate)**, Fall 2023 to Present

**Lorin Danielsen (CU ChBE PhD Candidate)**, Spring 2024 to Present

**Alex Favela (CU ChBE PhD Candidate)**, Spring 2024 to Present

**Jonathan Taasan (CU ChBE PhD Candidate)**, Fall 2024 to Present

#### **Graduate Students (Masters):**

**Anthony Fagnoli (MS, Systems Engineering)**, Spring 2007

**Yousef Mazhar (MS/MBA, Biotechnology)**, Summer 2007

**Jeffrey Devlin (MS, Bioengineering)**, Spring 2008-Summer 2008

*Thesis: Electrospun Photocrosslinkable Scaffolds with Drug Delivery Capabilities*

**David Lau (MS, Bioengineering)**, Summer 2008-Fall 2008

*Thesis: Controlling Porosity in Biodegradable and Photocrosslinkable Electrospun Scaffolds*

**Ian Lee (MS Bioengineering)**, Spring 2009 to Fall 2009

*Thesis: Using Near Infrared Light-Sensitive Gold Nanorods to Trigger Drug Release in Polypeptide Hydrogels*

**Derrick Hsu (BS/MS Materials Science and Engineering)**, Spring 2009 to Fall 2009

**Kolin Hribar (BS/MS, Bioengineering)**, Summer 2009 to Spring 2011

*Thesis: Novel Optical Properties and Drug Delivery Applications of Polymer-Gold Nanorod Composites*

**Vyas Ramanan (BS/MS, Bioengineering)**, Fall 2009 to Spring 2011

*Thesis: Development of Light-Responsive Biomaterial Systems for Dynamic Control of Material Properties*

**Heather Weber (MS, Bioengineering)**, Fall 2010 to Summer 2011

*Thesis: Modulating Local Inflammation via Hydrogel/Microsphere Composites*

**Hoang (Jack) Lu (MS, Bioengineering)**, NSF Graduate Research Fellow, Summer 2010 to Summer 2012

*Thesis: Development of Injectable Shear-thinning 'Dock-and-Lock' Hydrogel Systems for Therapeutic Delivery*

**Vanessa Chuo (BS/MS Candidate, Bioengineering)**, Fall 2012 to Spring 2013

*Thesis: Controlling the Delivery of Tissue Inhibitors of Metalloproteinases from Hyaluronic Acid-Based Hydrogels*

**Henry Ma (MS Candidate, Bioengineering)**, Spring 2013 to Spring 2014

*Thesis: Development of Hydrogels with Protease-Degradable Crosslinks for Controlled Drug Delivery*

**Stephen Leong (MS Candidate, Chemical Engineering)**, Spring 2013 to Spring 2014

*Thesis: A Hyaluronic Acid Based Construct for Wound Healing*

**Neville Dusaj (MS Candidate, Biochemistry)**, Summer 2015 to Spring 2016

*Thesis: Injectable and Cytocompatible Tough Double Network Hydrogels through Tandem Guest-Host Chemistry and Covalent Crosslinking*

**Janna Sloand (MS Candidate, Bioengineering)**, Summer 2015 to Spring 2016

*Thesis: Design and Characterization of Guest-Host Modified Polymers for RNAi Delivery from an Injectable Hydrogel System*

**Andrew Rouff (MS Candidate, Bioengineering)**, Summer 2016 to Summer 2017

*Thesis: 3D Printing of Guest-Host Hydrogels into Dual-Network Hydrogels for Synthetic Vessel Fabrication*

**James Howard (MS Candidate, Bioengineering)**, Summer 2016 to Spring 2017

*Thesis: Supramolecular Injectable Hydrogel Drug Delivery System as a Treatment for Myocardial Infarction*

**Mu-Huan Lee (MS Candidate, Bioengineering)**, Fall 2016 to Summer 2017

**Tibby Duan (MS Candidate, Bioengineering)**, Spring 2018 to Spring 2019

*Thesis: Hydrogel Properties influence Nascent ECM Distribution in 3-Dimensional Hydrogels*

**Gabe Mickel (MS Candidate, Nanotechnology)**, Fall 2018 to Summer 2019

**Liah Dukaye (MS Candidate, Materials Science & Engineering)**, Fall 2021

**Bradley Taha (CU MS Candidate ChBE)**, Spring 2022 to Spring 2023

**Sara Boyd (CU MS Candidate MSE)**, Spring 2023 to Summer 2024

**Cade Pair (CU MS Candidate BME)**, Spring 2024 to Spring 2025

**Braden Johnson (CU MS Candidate BME)**, Fall 2024 to Spring 2025

#### ***Visiting Students/Faculty:***

**Tamar Sterling (MD Candidate, Jefferson University)**, Summer 2007

**Brigid Reilly (DVM Candidate, Penn)**, Summer 2007

**Cheng-Hung Chou (PhD Candidate, National Taiwan University, Taiwan)**, Spring 2007-Spring 2008

**Sejakhosi Mohale, MS**, Instructor at University of Lesotho, Africa, Summer 2010

**Renata Sala (PhD, Universidade Federal de Sao Carlos, Brazil)**, Summer 2015-Summer 2016

**Liliang Ouyang (PhD, Tsinghua University, China)**, Fall 2015-Summer 2016

**Sara Trujillo-Munoz (PhD, University of Glasgow)**, Fall 2016

**Matteo D'Este, PhD (AO Foundation)**, Fall 2017-Spring 2018

**Barbara Mendes (PhD, University of Minho)**, Spring 2019-Summer 2019

**Manuela Garay Sarmiento (PhD, DWI Leibniz)**, Fall 2022

**Stefan Pendlmayr (PhD, Aarhus University)**, Spring 2023

**Aina Solsona Pujol (BS, Universitat de Barcelona)**, Spring 2023

**Ian Woods (Postdoc, RCSI, Ireland)**, Fall 2023

**Daniela Trindade (PhD, ICBAS-UPorto Biomedical Sciences)**, Fall 2024-Spring 2025

**Manuel Gomez-Florit (Researcher, Institut d'Investigació Sanitària Illes Balears – IdISBa)**, Spring 2025

#### ***Undergraduate Students (Senior Design/Senior Thesis):***

**Alexander Kent and Will Lee**, Enhanced Integration of Engineered Cartilage with Native Tissue, 2006-2007

**An Nguyen, Andrea Tan, Sounok Sen**, Chitosan Hydrogels for Intervertebral Disc Replacement, 2006-2007

**Robert Metter, Chia Wu, Laura Michelis, Jason Phan**, Engineered Multi-Component Nanofibrous Scaffolds, 2007-2008

**Rachel Howitt**, High-throughput Screening of MSC Osteogenesis, 2008

**Ludovic Vincent, Louis Wang, Benjamin Hsu**, Electrospun Scaffolds for Meniscus Regeneration, 2008-2009

**Anthony Peters**, High-throughput Technology in Tissue Engineering, 2008-2009

**Katherine Wu, Michael Beecham, Zen Liu, Matt Canver**, Designing a Novel Electrospinning Apparatus, 2009-2010

**David Zhai, Cyrus Huang, Fabio Raman, Sophia Chen**, Electrospinning Fibers with varied Depth Alignment, 2010-2011

**Mollie Sussman, Steve Leung, Logan Troppito, Julie Xu**, Catheter Delivery of Hydrogels, 2012-2013

**Jeffrey Chudakoff**, Stimuli-responsive Microgels, 2014-2015

**Emily Zhang**, Business Plan for Biotech Startup on Cardiac Repair, 2015-2016

#### ***Undergraduate Students (Research/Independent Study):***

**Alan Peterson**, Fall 1999-Spring 2000

**Laney Philpott (NSF REU Program)**, Summer 2000

**Ryan Bender**, Summer 2001

**Janice Huang**, Fall 2000-Spring 2002

**Mariah Mason**, Fall 2000-Spring 2002

**Stephen Lee**, Summer 2003-Fall 2003

**Philip Alexander**, Fall 2003

**Thomas Kraehenbuehl**, Fall 2003-Spring 2004

Ellen Liang, Fall 2003-Spring 2005  
Surbhi Puri, Fall 2005-Spring 2006  
Radhika Gupta (Merck Undergraduate Research Fellow), Fall 2006-Spring 2007  
Andrea Tan (Merck Undergraduate Research Fellow), Summer 2006-Summer 2007  
Clarence Quah, Spring 2007  
Elizabeth Hirst (NSF REU Program), Summer 2007  
Robert Metter, Summer 2006-Spring 2008  
Robert Mozia (NSF AMP Program), Summer 2007 to Summer 2008  
Katherine Wu, Spring 2007 to Spring 2009  
Felix Messerschmitt, Spring 2008  
Derrick Hsu, Spring 2008  
Michael Beecham (NSF REU Program), Spring 2008 to Spring 2009  
Vyas Ramanan (Provost's Undergraduate Research Mentorship Program), Summer 2008 to Summer 2009  
Zen Liu (Penn Genome Frontiers Institute Program), Summer 2008, Spring 2009  
Kolin Hribar, Summer 2008 to Spring 2009  
Eric Cohen (NSF REU Program), Summer 2009 to Fall 2009  
David Zhai, Spring 2010 to Summer 2011  
Cari Meisel, Spring 2010 to Fall 2010  
Ormarie Vazquez (NSF REU Program), Summer 2010  
Mollie Sussman, Fall 2010 to Summer 2012  
Yuk Mun Li (NSF REU Program), Summer 2011  
Leron Arama, Spring 2012 to Summer 2012, Spring 2013 to Fall 2013  
Teddy Guenin, Summer 2012  
Nailah Seale (NSF REU Program), Summer 2012  
Gregory Winter (High School Student), Summer 2012  
Emily Zhang, Summer 2011, Summer 2012  
Cassi Henderson, Spring 2013  
Ethan Bassin (Rachleff Scholars Program), Summer 2013 to Spring 2014, Fall 2014 to Spring 2015  
Adam Kaminski, Summer 2013  
Gi Yun Lee (Rachleff Scholars Program), Spring 2014 to Spring 2015  
Neville Dusaj (Vagelos Program), Spring 2014 to Spring 2015  
Zoe Steier (NSF REU Program), Summer 2014  
James Howard (NSF AMP Program), Summer 2014  
Bria Macklin (SUIP Program), Summer 2014  
Justin Morena (Rachleff Scholars Program), Spring 2015 to Summer 2015  
Elizabeth Soulas (NSF REU Program), Summer 2015  
Alex Zhao (Rachleff Scholars Program), Fall 2015 to Spring 2016  
Matthew Morrow (NSF REU Program), Summer 2016  
Young-Hun Kim, Spring 2017-Spring 2018  
Jon Durel (NSF REU Program), Summer 2017  
Claude King (NSF REU Program), Summer 2017  
Anna Schoonen (NSF REU Program), Summer 2018  
Nikolas Di Caprio (NSF REU Program), Summer 2018  
Zhengkun Chen (Hong Kong Polytechnic University), Fall 2018  
Christina Hummel (NSF REU Program), Summer 2019  
Patricia Mensah (SUIP Program), Summer 2019  
Bruce Enzmann (NSF REU Program), Summer 2020-Summer 2021  
Kayla Brown (NSF REU Program), Summer 2021  
Julio Rivera De Jesus (NSF REU Program), Summer 2021  
Shoshana Weintraub (Littlejohn Program), Spring 2020-Spring 2022  
Jonathan Taasan (NSF REU Program), Summer 2023  
Bianca Meurer-zeman, Fall 2023-Spring 2025  
Declan Goddard, Spring 2024 to present  
Lovie Deloney (NSF REU Program), Summer 2024  
Joshua Lee, Summer 2024  
Stella Rydahl-Kim, Fall 2024 to present  
Arianna McCarty, Summer 2025 to present

## PUBLICATIONS

### Peer Reviewed:

1. A.K. Burkoth, **J. Burdick**, K.S. Anseth, Surface and Bulk Modifications to Photocrosslinked Polyanhydrides to Control Degradation Behavior, *Journal of Biomedical Materials Research*, 51: 352-359, 2000.
2. **J.A. Burdick**, A.J. Peterson, K.S. Anseth, Conversion and Temperature Profiles During the Photoinitiated Polymerization of Thick Orthopaedic Biomaterials, *Biomaterials*, 22: 1779-1786, 2001.
3. **J.A. Burdick**, L.M. Philpott, K.S. Anseth, Synthesis and Characterization of Tetrafunctional Lactic Acid Oligomers: A Potential *In Situ* Forming Orthopaedic Biomaterial, *Journal of Polymer Science, A, Polymer Chemistry*, 39: 683-692, 2001.
4. **J.A. Burdick**, M.N. Mason, K.S. Anseth, *In Situ* Forming Lactic Acid Based Orthopaedic Biomaterials: Influence of Oligomer Chemistry on Osteoblast Attachment and Function, *Journal of Biomaterials Science. Polymer Edition*, 12: 1253-1265, 2001.
5. K.S. Anseth and **J.A. Burdick**, New Directions in Photopolymerizable Biomaterials, *MRS Bulletin*, 27:130-138, 2002.
6. **J.A. Burdick**, R.F. Padera, J.V. Huang, K.S. Anseth, An Investigation of the Cytotoxicity and Histocompatibility of *In Situ* Forming Lactic Acid Based Orthopaedic Biomaterials, *Journal of Biomedical Materials Research (Applied Biomaterials)*, 63: 484-491, 2002.
7. **J.A. Burdick** and K.S. Anseth, Photoencapsulation of Osteoblasts in Injectable RGD-Modified PEG Hydrogels for Bone Tissue Engineering, *Biomaterials*, 23: 4315-4323, 2002.
8. **J.A. Burdick**, M.N. Mason, A.D. Hinman, K. Thorne, K.S. Anseth, Delivery of Osteoinductive Growth Factors from Degradable PEG Hydrogels Influences Osteoblast Differentiation and Mineralization, *Journal of Controlled Release*, 83: 53-63, 2002.
9. A.K. Poshusta, **J.A. Burdick**, D.J. Mortisen, R.F. Padera, D. Ruehlman, M.J. Yaszemski, K.S. Anseth, Histocompatibility of Photocrosslinked Polyanhydrides: A Novel *In Situ* Forming Orthopaedic Biomaterial, *Journal of Biomedical Materials Research*, 64A: 62-69, 2003.
10. **J.A. Burdick**, W.S. Dernel, D. Frankel, K.S. Anseth, An Initial Investigation of Photocurable 3-Dimensional Lactic Acid Based Scaffolds in a Critical-Sized Cranial Defect, *Biomaterials*, 24: 1613-1620, 2003.
11. K.A. Davis, **J.A. Burdick**, K.S. Anseth, Photopolymerized Crosslinked Degradable Copolymer Networks for Tissue Engineering Applications, *Biomaterials*, 24: 2485-2495, 2003.
12. **J.A. Burdick**, T. Lovestead, K.S. Anseth, Kinetic Chain Lengths in Highly Crosslinked Networks Formed by the Photoinitiated Polymerization of Degradable Divinyl Monomers: A GPC Investigation, *Biomacromolecules*, 4: 149-156, 2003.
13. X. Jia, **J.A. Burdick**, J. Kobler, R.J. Clifton, J.J. Rosowski, S.M. Zeitels, R. Langer, Synthesis and Characterization of *In Situ* Crosslinkable Hyaluronic Acid-Based Hydrogels with Potential Application for Vocal Fold Regeneration, *Macromolecules*, 37: 3239-3248, 2004.
14. **J.A. Burdick**, A. Khademhosseini, R. Langer, Fabrication of Gradient Hydrogels Using a Microfluidics/ Photopolymerization Process, *Langmuir*, 20: 5153-5156, 2004.
15. A. Khademhosseini, J. Yeh, S. Jon, G. Eng, K.Y. Suh, **J.A. Burdick**, R. Langer, Molded PEG Microstructures for Capturing and Shear Protecting Cells Within Microfluidic Channels, *Lab On A Chip*, 4: 425-430, 2004.
16. D.G. Anderson, **J.A. Burdick**, R. Langer, Smart Biomaterials, *Science*, 305: 1923-1924, 2004.
17. T.M. Lovestead, **J.A. Burdick**, K.S. Anseth, C.N. Bowman, Understanding Multivinyl Monomer Photopolymerization Kinetics through Modeling and GPC Investigation of Degradable Networks, *Polymer*, 46: 6226-6234, 2005.



18. B.A. Pfeifer, **J.A. Burdick**, R. Langer, Formulation and Surface Modification of Poly(Ester-Anhydride) Micro- and Nanospheres, *Biomaterials*, 26: 117-124, 2005.
19. **J.A. Burdick**, C. Chung, X. Jia, M.A. Randolph, R. Langer, Controlled Degradation and Mechanical Behavior of Photopolymerized Hyaluronic Acid Networks, *Biomacromolecules*, 6: 386-391, 2005.
20. S. Levenberg, **J.A. Burdick**, T. Kraehenbuehl, R. Langer, Neurotrophin Induced Differentiation of Human Embryonic Stem Cells on 3-Dimensional Polymeric Scaffolds, *Tissue Engineering*, 11: 506-512, 2005.
21. B.A. Pfeifer, **J.A. Burdick**, S. Little, R. Langer, Poly(ester-anhydride):Poly( $\beta$ -amino ester) Micro- and Nanospheres: DNA Encapsulation and Cellular Transfection, *International Journal of Pharmaceutics*, 304, 210-219, 2005.
22. **J.A. Burdick**, M. Ward, E. Liang, M.J. Young, R. Langer, Stimulation of Neurite Outgrowth by Neurotrophins Delivered from Degradable Hydrogels, *Biomaterials*, 27: 452-459, 2006.
23. P.M. George, D.A. LaVan, **J.A. Burdick**, C.Y. Chen, E. Liang, R. Langer, Electrically Controlled Drug Delivery from Biotin-Doped Conductive Polypyrrole, *Advanced Materials*, 18: 577-581, 2006.
24. Y. Yeo, **J.A. Burdick**, C.B. Highley, R. Marini, R. Langer, D.S. Kohane, Peritoneal Application of Chitosan and UV-crosslinkable Chitosan, *Journal of Biomedical Materials Research A*, 78A:668-675, 2006.
25. J. Piantino, **J.A. Burdick**, D. Goldberg, R. Langer, L.I. Benowitz, An Injectable, Degradable Hydrogel for Trophic Factor Delivery Enhances Axonal Rewiring and Improves Performance after Spinal Cord Injury, *Experimental Neurology*, 201: 359-367, 2006.
26. C. Chung, J. Mesa, M.A. Randolph, M. Yaremchuk, **J.A. Burdick**, Influence of Gel Properties on Neocartilage Formation by Auricular Chondrocytes Photoencapsulated in Hyaluronic Acid Networks, *Journal of Biomedical Materials Research A*, 77A: 518-525, 2006.
27. C. Chung, J. Mesa, G.J. Miller, M.A. Randolph, T. Gill, **J.A. Burdick**, Effects of Auricular Chondrocyte Expansion on Neocartilage Formation in Photocrosslinkable Hyaluronic Acid Networks, *Tissue Engineering*, 12:2665-2673, 2006.
28. D.G. Anderson, C.A. Tweedie, N. Hossain, S.M. Navarro, D.M. Brey, K.J. Van Vliet, R. Langer, **J.A. Burdick**, A Combinatorial Library of Photocrosslinkable and Degradable Materials, *Advanced Materials*, 18:2614-2618, 2006.
29. A. Khademhosseini, G. Eng, J. Yeh, J. Fukuda, J. Blumling, R. Langer, **J.A. Burdick**, Micromolding of Photocrosslinkable Hyaluronic Acid for Cell Encapsulation and Entrapment, *Journal of Biomedical Materials Research A*, 79A:522-532, 2006.
30. Y. Yeo, W. Geng, T. Ito, D.S. Kohane, **J.A. Burdick**, M. Radisic, Photocrosslinkable Hydrogel for Myocyte Cell Culture and Injection, *Journal of Biomedical Materials Research B, Applied Biomaterials*, 81B:312-322, 2007.
31. E. Figallo, C. Cannizzaro, S. Gerecht, **J.A. Burdick**, R. Langer, N. Elvassore, G. Vunjak-Novakovic, Micro Bioreactor Array for Controlling Cellular Microenvironments, *Lab on a Chip*, 7:710-719, 2007.
32. S. Gerecht, **J.A. Burdick**, L.S. Ferreira, S.A. Townsend, R. Langer, G. Vunjak-Novakovic, Hyaluronic Acid Hydrogel for Controlled Self-renewal and Differentiation of Human Embryonic Stem Cells, *Proceedings of the National Academy of Sciences (PNAS)*, 104:11298-11303, 2007.
33. J.L. Ifkovits and **J.A. Burdick**, Photopolymerizable and Degradable Biomaterials for Tissue Engineering Applications, *Tissue Engineering*, 13:2369-2385, 2007.
34. C. Chung and **J.A. Burdick**, Engineering Cartilage Tissue, *Advanced Drug Delivery Reviews*, 60:243-262, 2008.
35. D.M. Brey, J.L. Ifkovits, R.I. Mozia, J.S. Katz, **J.A. Burdick**, Controlling Poly( $\beta$ -amino ester) Network Properties through Macromer Branching, *Acta Biomaterialia*, 4:207-217, 2008.

36. B.M. Baker, A.O. Gee, R.B. Metter, A.S. Nathan, R.L. Marklein, **J.A. Burdick**, R.L. Mauck, The Potential to Improve Cell Infiltration in Composite Fiber-Aligned Scaffolds by the Selective Removal of Sacrificial Fibers, *Biomaterials*, 29:2348-2358, 2008.
37. S. Sahoo, C. Chung, S. Khetan, **J.A. Burdick**, Hydrolytically Degradable Hyaluronic Acid Hydrogels with Controlled Temporal Network Structures, *Biomacromolecules*, 9:1088-1092, 2008.
38. D.M. Brey, I. Erickson, **J.A. Burdick**, Influence of Macromer Molecular Weight and Chemistry on Poly( $\beta$ -amino ester) Network Properties and Initial Cell Interactions, *Journal of Biomedical Materials Research A*, 85A:731-741, 2008.
39. C. Chung, I.E. Erickson, R.L. Mauck, **J.A. Burdick**, Differential Behavior of Auricular and Articular Chondrocytes in Hyaluronic Acid Hydrogels, *Tissue Engineering A*, 14:1121-1131, 2008.
40. J.L. Ifkovits, R.F. Padera, **J.A. Burdick**, Biodegradable and Radically Polymerized Elastomers with Enhanced Processing Capabilities, *Biomedical Materials*, 3:034104, 2008.
41. A.R. Tan, J.L. Ifkovits, B.M. Baker, D.M. Brey, R.L. Mauck, **J.A. Burdick**, Electrospinning of Photocrosslinked and Degradable Fibrous Scaffolds, *Journal of Biomedical Materials Research A*, 87A:1034-1043, 2008.
42. R.D. Hubbard, J.J. Martinez, **J.A. Burdick**, B.A. Winkelstein, Controlled Release of GDNF Reduces Nerve Root-Mediated Behavioral Hypersensitivity, *Journal of Orthopaedic Research*, 27:120-127, 2009.
43. J.S. Katz and **J.A. Burdick**, Hydrogel Mediated Delivery of Trophic Factors for Neural Repair, *Wiley Interdisciplinary Reviews – Nanomedicine and Nanobiotechnology*, 1:128-139, 2009.
44. C. Chung and **J.A. Burdick**, Influence of 3D Hyaluronic Acid Microenvironments on Mesenchymal Stem Cell Chondrogenesis, *Tissue Engineering A*, 15:243-254, 2009.
45. **J.A. Burdick** and G. Vunjak-Novakovic, Engineered Microenvironments for Controlled Stem Cell Differentiation, *Tissue Engineering A*, 15:205-219, 2009.
46. S. Khetan, J.S. Katz, **J.A. Burdick**, Sequential Crosslinking to Control Cellular Spreading in 3-Dimensional Hydrogels, *Soft Matter*, 5:1601-1606, 2009.
47. J.S. Katz, D.H. Levine, K.P. Davis, F.S. Bates, D.A. Hammer, **J.A. Burdick**, Membrane Stabilization of Biodegradable Polymersomes, *Langmuir*, 25:4429-4434, 2009.
48. I.E. Erickson, A.H. Huang, C. Chung, R. Li, **J.A. Burdick**, R.L. Mauck, Differential Maturation and Structure-Function Relationships in Mesenchymal Stem Cell and Chondrocyte Seeded Hydrogels, *Tissue Engineering A*, 15:1041-1052, 2009.
49. R.L. Mauck, B.M. Baker, N.L. Nerurkar, **J.A. Burdick**, W.J. Li, R.S. Tuan, D.M. Elliott, Engineering on the Straight and Narrow: The Mechanics of Nanofibrous Assemblies for Fiber-Reinforced Tissue Regeneration, *Tissue Engineering B*, 15:171-193, 2009.
50. **J.A. Burdick**, Cellular Control in Two Clicks, *Nature*, 260:469-470, 2009.
51. M. Brigham, A. Bick, E. Lo, A. Bendali, **J.A. Burdick**, A. Khademhosseini, Mechanically Robust and Bioadhesive Collagen and Photocrosslinkable Hyaluronic Acid Semi-Interpenetrating Networks, *Tissue Engineering A*, 15:1633-1643, 2009.
52. C. Chung, M. Beecham, R.L. Mauck, **J.A. Burdick**, The Influence of Degradation Characteristics of Hyaluronic Acid Hydrogels on In Vitro Neocartilage Formation by Mesenchymal Stem Cells, *Biomaterials*, 30:4287-4296, 2009.
53. K.C. Hribar, R.B. Metter, J.L. Ifkovits, T. Troxler, **J.A. Burdick**, Light-Induced Temperature Transitions in Biodegradable Polymer and Nanorod Composites, *Small*, 5:1830-1834, 2009.
54. A. Peters, D.M. Brey, **J.A. Burdick**, High-throughput and Combinatorial Technologies for Tissue Engineering Applications, *Tissue Engineering B*, 15:225-239, 2009.

55. M.B. Charati, J.L. Ifkovits, **J.A. Burdick**, J.G. Linhardt, K.L. Kiick, Hydrophilic Elastomeric Biomaterials based on Resilin-like Polypeptides, *Soft Matter*, 5:3412-3416, 2009.
56. J.L. Ifkovits, J.J. Devlin, G. Eng, T.P. Martens, G. Vunjak-Novakovic, **J.A. Burdick**, Biodegradable Fibrous Scaffolds with Tunable Properties Formed from Photocrosslinkable Poly(glycerol sebacate), *Applied Materials and Interfaces*, 1:1878-1886, 2009.
57. B.M. Baker, N.L. Nerurkar, **J.A. Burdick**, D.M. Elliott, R.L. Mauck, Fabrication and Modeling of Dynamic Multi-Polymer Nanofibrous Scaffolds, *Journal of Biomechanical Engineering*, 131:101012, 2009.
58. P.M. George, R. Saigal, M.W. Lawlor, M.J. Moore, D.A. LaVan, R.P. Marini, M. Sellig, M. Makhni, **J.A. Burdick**, R. Langer, D.S. Kohane, Three-dimensional Conductive Constructs for Nerve Regeneration, *Journal of Biomedical Materials Research A*, 91A:519-527, 2009.
59. M. Guvendiren, S. Yang, **J.A. Burdick**, Swelling-induced Surface Patterns in Hydrogels with Gradient Crosslinking Density, *Advanced Functional Materials*, 19:3038-3045, 2009.
60. S. Khetan and **J.A. Burdick**, Cellular Encapsulation in 3D Hydrogels for Tissue Engineering, *Journal of Visualized Experiments*, 32, 2009.
61. J.L. Ifkovits, H.G. Sundararaghavan, and **J.A. Burdick**, Electrospinning Fibrous Polymer Scaffolds for Tissue Engineering and Cell Culture, *Journal of Visualized Experiments*, 32, 2009.
62. I.E. Erickson, A.H. Huang, S. Sengupta, S. Kestle, **J.A. Burdick**, R.L. Mauck, Macromer Density Influences Mesenchymal Stem Cell Chondrogenesis and Maturation in Photocrosslinked Hyaluronic Acid Hydrogels, *Osteoarthritis and Cartilage*, 17:1639-1648, 2009.
63. R.A. Marklein and **J.A. Burdick**, Controlling Stem Cell Fate with Material Design, *Advanced Materials*, 22:175-189, 2010.
64. R.A. Marklein and **J.A. Burdick**, Spatially Controlled Hydrogel Mechanics to Modulate Stem Cell Interactions, *Soft Matter*, 6:136-143, 2010.
65. R.B. Metter, J.L. Ifkovits, K. Hou, L. Vincent, B. Hsu, L. Wang, R.L. Mauck, **J.A. Burdick**, Biodegradable Fibrous Scaffolds with Diverse Properties by Electrospinning Candidates from a Combinatorial Macromer Library, *Acta Biomaterialia*, 6:1219-1226, 2010.
66. J.S. Katz, S. Zhong, B.G. Ricart, D.J. Pochan, D.A. Hammer, **J.A. Burdick**, Modular Synthesis of Biodegradable Diblock Copolymers for Designing Functional Polymersomes, *Journal of the American Chemical Society*, 132:3654-3655, 2010.
67. H.G. Sundararaghavan, R.B. Metter, **J.A. Burdick**, Electrospun Fibrous Scaffolds with Multi-scale and Photopatterned Porosity, *Macromolecular Bioscience*, 10:265-270, 2010.
68. L.C. Ionescu, G.C. Lee, B.J. Sennett, **J.A. Burdick**, R.L. Mauck, An Anisotropic Nanofiber/Microsphere Composite with Controlled Release of Biomolecules for Fibrous Tissue Engineering, *Biomaterials*, 31:4113-4120, 2010.
69. J.S. Katz and **J.A. Burdick**, Light-Responsive Biomaterials: Development and Applications, *Macromolecular Bioscience*, 10:339-348, 2010.
70. D.M. Brey, C. Chung, K.D. Hankenson, J.P. Garino, **J.A. Burdick**, Identification of Osteoconductive and Biodegradable Polymers from a Combinatorial Polymer Library, *Journal of Biomedical Materials Research A*, 93A:807-816, 2010.
71. M. Guvendiren, **J.A. Burdick**, S. Yang, Kinetic Study of Swelling-Induced Surface Pattern Formation and Ordering in Hydrogel Films with Depth-Wise Crosslinking Gradient, *Soft Matter*, 6:2044-2049, 2010.
72. J.L. Ifkovits, E. Tous, M. Minakawa, M. Morita, J.D. Robb, K.J. Koomalsingh, J.H. Gorman, R.C. Gorman, **J.A. Burdick**, Injectable Hydrogel Properties Influence Extent of Post-Infarction Left Ventricular Remodeling in an Ovine Model, *Proceedings of the National Academy of Sciences (PNAS)*, 107:11507-11512, 2010.

73. M. Guvendiren and **J.A. Burdick**, The Control of Stem Cell Morphology and Differentiation by Hydrogel Surface Wrinkles, *Biomaterials*, 31:6511-6518, 2010.
74. M.B. Charati, I. Lee, K.C. Hribar, **J.A. Burdick**, Light-sensitive Polypeptide Hydrogel and Nanorod Composites, *Small*, 6:1608-1611, 2010.
75. S. Khetan and **J.A. Burdick**, Patterning Network Structure to Spatially Control Cellular Remodeling and Stem Cell Fate within 3-Dimensional Hydrogels, *Biomaterials*, 31:8228-8234, 2010.
76. V. Ramanan, J.S. Katz, M. Guvendiren, E. Cohen, R.A. Marklein, **J.A. Burdick**, Photocleavable Side Groups to Spatially alter Hydrogel Properties and Cellular Interactions, *Journal of Materials Chemistry*, 20:8920-8926, 2010.
77. M. Guvendiren, **J.A. Burdick**, S. Yang, Solvent Induced Transition from Wrinkles to Creases in Thin Film Gels with Depth-Wise Crosslinking Gradients, *Soft Matter*, 6:5795-5801, 2010.
78. J.L. Ifkovits, K. Wu, R.L. Mauck, **J.A. Burdick**, The Influence of Fibrous Elastomer Structure and Porosity on Matrix Organization, *PLoS ONE*, 5:e15717, 2010.
79. D.M. Brey, N.A. Motlekar, J.P. Garino, S.L. Diamond, R.L. Mauck, **J.A. Burdick**, High-throughput Screening of a Small Molecule Library for Promoters and Inhibitors of Mesenchymal Stem Cell Osteogenic Differentiation, *Biotechnology and Bioengineering*, 108:163-174, 2011.
80. S. Khetan and **J.A. Burdick**, Patterning Hydrogels in 3-Dimensions towards Controlling Cellular Interactions, *Soft Matter*, 7:830-838, 2011.
81. R.C. Gorman, B.M. Jackson, **J.A. Burdick**, J.H. Gorman, Infarct Restraint to Limit Adverse Ventricular Remodeling, *Journal of Cardiovascular Translational Research*, 4:73-81, 2011.
82. L. Bian, D.Y. Zhai, R.L. Mauck, **J.A. Burdick**, Coculture of Human Mesenchymal Stem Cells and Articular Chondrocytes Reduces Hypertrophy and Enhances Functional Properties of Engineered Cartilage, *Tissue Engineering A*, 17:1137-1145, 2011.
83. **J.A. Burdick** and G. Prestwich, Hyaluronic Acid Hydrogels for Biomedical Applications, *Advanced Materials*, 23:H41-H56, 2011.
84. K.C. Hribar, M.H. Lee, D. Lee, **J.A. Burdick**, Enhanced Release of Small Molecules from Near-Infrared Light Responsive Polymer-Nanorod Composites, *ACS Nano*, 5:2948-2956, 2011.
85. H.G. Sundararaghavan and **J.A. Burdick**, Gradients with Depth in Electrospun Fibrous Scaffolds for Directed Cellular Behavior, *Biomacromolecules*, 12:2344-2350, 2011.
86. L. Bian, D.Y. Zhai, E. Tous, R. Rai, R.L. Mauck, **J.A. Burdick**, Enhanced MSC Chondrogenesis Following Delivery of TGF- $\beta$ 3 from Alginate Microspheres within Hyaluronic Acid Hydrogels *In Vitro* and *In Vivo*, *Biomaterials*, 32:6425-6434, 2011.
87. D. Hanjaya-Putra, V. Bose, Y.I. Shen, J. Yee, S. Khetan, K. Fox-Talbot, C. Steenbergen, **J.A. Burdick**, S. Gerecht, Controlled Activation of Morphogenesis to Generate Functional Human Microvasculature in a Synthetic Matrix, *Blood*, 118:804-815, 2011.
88. M. Morita, C.E. Eckert, K. Matsuzaki, M. Noma, L.P. Ryan, **J.A. Burdick**, B.M. Jackson, J.H. Gorman, M.S. Sacks, R. C. Gorman, Modification of Infarct Material Properties Limits Adverse Ventricular Remodeling, *Annals of Thoracic Surgery*, 92:617-624, 2011.
89. E. Tous, B.P. Purcell, J.L. Ifkovits, **J.A. Burdick**, Injectable Acellular Hydrogels for Cardiac Repair, *Journal of Cardiovascular Translational Research*, 4:528-542, 2011.
90. I.L. Kim, R.L. Mauck, **J.A. Burdick**, Hydrogel Design for Cartilage Tissue Engineering – A Case Study with Hyaluronic Acid, *Biomaterials*, 32:8771-8782, 2011.

91. **J.A. Burdick** and F.M. Watt, High-throughput Stem Cell Niches, *Nature Methods*, 8:915-916, 2011.
92. V.V. Ramanan, K.C. Hribar, J.S. Katz, **J.A. Burdick**, Nanofiber-Nanorod Composites Exhibiting Light-Induced Reversible LCST Transitions, *Nanotechnology*, 22:494009, 2011.
93. E. Tous, J.L. Ifkovits, K.J. Koomalsingh, T. Shuto, T. Soeda, N. Kondo, J.H. Gorman, R.C. Gorman, **J.A. Burdick**, Influence of Injectable Hyaluronic Acid Hydrogel Degradation Behavior on Infarction Induced Ventricular Remodeling, *Biomacromolecules*, 12:4127-4135, 2011.
94. M. Guvendiren, H.D. Lu, **J.A. Burdick**, Shear-Thinning Hydrogels for Biomedical Applications, *Soft Matter*, 8:260-272, 2012.
95. M.H. Lee, K.C. Hribar, T. Brugarolas, N.P. Kamat, **J.A. Burdick**, D. Lee, Harnessing Interfacial Phenomena to Program the Release Properties of Hollow Microcapsules, *Advanced Functional Materials*, 22:131-138, 2012.
96. J.A. Elser, B.P. Purcell, I.A. Allana, **J.A. Burdick**, K.B. Margulies, Ischemia Induces P-Selectin-Mediated Selective Progenitor Cell Engraftment in the Isolated-Perfused Heart, *Journal of Molecular and Cellular Cardiology*, 52:105-112, 2012.
97. H.D. Lu, M.B. Charati, I.L. Kim, **J.A. Burdick**, Injectable Shear-Thinning Hydrogels Engineered with a Self-Assembling Dock-and-Lock Mechanism, *Biomaterials*, 33:2145-2153, 2012.
98. L. Bian, D.Y. Zhai, E.C. Zhang, R.L. Mauck, **J.A. Burdick**, Dynamic Compressive Loading Enhances Cartilage Matrix Synthesis and Distribution and Suppresses Hypertrophy in hMSC-Laden Hyaluronic Acid Hydrogels, *Tissue Engineering A*, 18:715-724, 2012.
99. **J.A. Burdick**, Injectable Gels for Tissue/Organ Repair, *Biomedical Materials*, 7:024100, 2012.
100. I.E. Erickson, S.R. Kestle, K.H. Zellars, G.R. Dodge, **J.A. Burdick**, R.L. Mauck, Improved Cartilage Repair via In Vitro Pre-Maturation of MSC Seeded Hyaluronic Acid Hydrogels, *Biomedical Materials*, 7:024110, 2012.
101. M. Guvendiren and **J.A. Burdick**, Stiffening Hydrogels to Probe Short- and Long-Term Cellular Responses to Dynamic Mechanics, *Nature Communications*, 3:792, 2012.
102. I.E. Erickson, S.R. Kestle, K.H. Zellars, M.J. Farrell, M. Kim, **J.A. Burdick**, R.L. Mauck, High Stem Cell Seeding Densities in Hyaluronic Acid Hydrogels Produce Engineered Cartilage with Native Tissue Properties, *Acta Biomaterialia*, 8:3027-3034, 2012.
103. D. Hanjaya-Putra, K. Wong, K. Hirotsu, S. Khetan, **J.A. Burdick**, S. Gerecht, Spatial Control of Cell-mediated Degradation to Regulate Vasculogenesis and Angiogenesis in Synthetic Hydrogels, *Biomaterials*, 33:6123-6131, 2012.
104. R.A. Marklein, D.E. Soranno, **J.A. Burdick**, Magnitude and Presentation of Mechanical Signals Influence Adult Stem Cell Behavior in 3-Dimensional Macroporous Hydrogels, *Soft Matter*, 8:8113-8120, 2012.
105. E. Tous, H.M. Weber, M.H. Lee, K.J. Koomalsingh, T. Shuto, N. Kondo, J.H. Gorman, D. Lee, R.C. Gorman, **J.A. Burdick**, Tunable Hydrogel-Microsphere Composites that Modulate Local Inflammation and Collagen Bulking, *Acta Biomaterialia*, 8:3218-3227, 2012.
106. B.P. Purcell, J.A. Elser, A. Mu, K.B. Margulies, **J.A. Burdick**, Synergistic Effects of SDF-1 $\alpha$  Chemokine and Hyaluronic Acid Release from Degradable Hydrogels on Directing Bone Marrow Derived Cell Homing to the Myocardium, *Biomaterials*, 33:7849-7857, 2012.
107. S.W. Lee, K.E. Tetley, I.L. Kim, **J.A. Burdick**, D. Lee, Controlling the Cell-Adhesion Properties of Poly(acrylic acid)/Polyacrylamide Hydrogen-Bonded Multilayers, *Macromolecules*, 45:6120-6126, 2012.
108. B.M. Baker, R.P. Shah, A.M. Silverstein, J.L. Esterhai, **J.A. Burdick**, R.L. Mauck, Sacrificial Nanofibrous Composites Provide Instruction without Impediment and Enable Functional Tissue Formation, *Proceedings of the National Academy of Sciences (PNAS)*, 109:14176-14181, 2012.

109. J.S. Katz, K.A. Eisenbrown, E.D. Johnston, N.P. Kamat, J. Rawson, M.J. Therien, **J.A. Burdick**, D.A. Hammer, Soft Biodegradable Polymersomes from Caprolactone-Derived Polymers, *Soft Matter*, 8:10853-10862, 2012.
110. R.J. Wade and **J.A. Burdick**, Engineering ECM Signals into Biomaterials, *Materials Today*, 15:454-459, 2012.
111. **J.A. Burdick** and W.L. Murphy, Moving from Static to Dynamic Complexity in Hydrogel Design, *Nature Communications*, 3:1269, 2012.
112. L. Bian, C. Hou, E. Tous, R. Rai, R.L. Mauck, **J.A. Burdick**, The Influence of Hyaluronic Acid Hydrogel Crosslinking Density and Macromolecular Diffusivity on Human MSC Chondrogenesis and Hypertrophy, *Biomaterials*, 34:413-421, 2013.
113. M. Guvendiren and **J.A. Burdick**, Stem Cell Response to Spatially and Temporally Displayed and Reversible Surface Topography, *Advanced Healthcare Materials*, 2:155-164, 2013.
114. H. Sundararaghavan, R.L. Saunders, D.A. Hammer, **J.A. Burdick**, Fiber Alignment Directs Cell Motility over Chemotactic Gradients, *Biotechnology and Bioengineering*, 110:1249-1254, 2013.
115. **J.A. Burdick**, R.L. Mauck, J.H. Gorman, R.C. Gorman, Acellular Biomaterials: An Evolving Alternative to Cell-Based Therapies, *Science Translational Medicine*, 5:176ps4, 2013.
116. D. Hanjaya-Putra, Y.I. Shen, A. Wilson, K. Fox-Talbot, S. Khetan, **J.A. Burdick**, C. Steenbergen, S. Gerecht, Integration and Regression of Implanted Engineered Human Vascular Networks During Deep Wound Healing, *Stem Cells Translational Medicine*, 2:297-306, 2013.
117. S. Khetan, M. Guvendiren, W.R. Legant, D.M. Cohen, C.S. Chen, **J.A. Burdick**, Degradation-mediated Cellular Traction Directs Stem Cell Fate in Covalently Crosslinked Three-dimensional Hydrogels, *Nature Materials*, 12:458-465, 2013.
118. I.L. Kim, S. Khetan, B.M. Baker, C.S. Chen, **J.A. Burdick**, Fibrous Hyaluronic Acid Hydrogels that Direct MSC Chondrogenesis through Mechanical and Adhesive Cues, *Biomaterials*, 34:5571-5580, 2013.
119. L. Bian, M. Guvendiren, R.L. Mauck, **J.A. Burdick**, Hydrogels that Mimic Developmentally Relevant Matrix and N-cadherin Interactions Enhance MSC Chondrogenesis, *Proceedings of the National Academy of Sciences (PNAS)*, 110:10117-10122, 2013.
120. H.D. Lu, D.E. Soranno, C.B. Rodell, I.L. Kim, **J.A. Burdick**, Secondary Photocrosslinking of Injectable Shear-Thinning Dock-and-Lock Hydrogels, *Advanced Healthcare Materials*, 2:1028-1036, 2013.
121. J.W. MacArthur, B.P. Purcell, Y. Shudo, J.E. Cohen, A. Fairman, A. Trubelja, J. Patel, P. Hsiao, E. Yang, K. Lloyd, W. Hiesinger, P. Atluri, **J.A. Burdick**, Y.J. Woo, Sustained Release of Engineered Stromal Cell Derived Factor 1- $\alpha$  from Injectable Hydrogels Effectively Recruits Endothelial Progenitor Cells and Preserves Ventricular Function Following Myocardial Infarction, *Circulation*, 128:S79-S86, 2013.
122. M. Guvendiren and **J.A. Burdick**, Engineering Synthetic Hydrogel Microenvironments to Instruct Stem Cells, *Current Opinion in Biotechnology*, 24:841-846, 2013.
123. J.A. Schuman, J.R. Zurcher, Ashley A. Sapp, **J.A. Burdick**, R.C. Gorman, J.H. Gorman, E.C. Goldsmith, F.G. Spinale, Localized Targeting of Biomaterials following Myocardial Infarction: A Foundation to Build on, *Trends in Cardiovascular Medicine*, 23:301-311, 2013.
124. W.M. Gramlich, I.L. Kim, **J.A. Burdick**, Synthesis and Orthogonal Photopatterning of Hyaluronic Acid Hydrogels with Thiol-Norbornene Chemistry, *Biomaterials*, 34:9803-9811, 2013.
125. C.B. Rodell, A.L. Kaminski, **J.A. Burdick**, Rational Design of Network Properties in Guest-Host Assembled and Shear-Thinning Hyaluronic Acid Hydrogels, *Biomacromolecules*, 14:4125-4134, 2013.
126. W.M. Gramlich, J.L. Holloway, R. Rai, **J.A. Burdick**, Transdermal Gelation of Methacrylated Macromers with Near-infrared Light and Gold Nanorods, *Nanotechnology*, 25:014004, 2014.

127. S.R. Eckhouse, B.P. Purcell, J.R. McGarvey, D. Lobb, C.B. Logdon, H. Doviak, J.W. O'Neil, J.A. Schuman, C.P. Novak, K.N. Zellars, S. Pettaway, R.A. Black, A. Khakoo, T. Lee, R. Mukherjee, J.H. Gorman, R.C. Gorman, R.A. Black, **J.A. Burdick**, F.G. Spinale, Local Hydrogel Release of Recombinant TIMP-3 Attenuates Adverse Left Ventricular Remodeling after Experimental Myocardial Infarction, *Science Translational Medicine*, 6:223ra21, 2014.
128. M.I. Dishowitz, F. Zhu, H.G. Sundararaghavan, J.L. Ifkovits, **J.A. Burdick**, K.D. Hankenson, Jagged1 Immobilization to a Poly( $\beta$ -amino ester) Polymer Activates the Notch Signaling Pathway and Induces Osteogenesis, *Journal of Biomedical Materials Research A*, 102:1558-1567, 2014.
129. B.P. Purcell, I.L. Kim, V. Chuo, T. Guenin, S.M. Dorsey, **J.A. Burdick**, Incorporation of Sulfated Hyaluronic Acid Macromers into Degradable Hydrogel Scaffolds for Sustained Molecule Delivery, *Biomaterials Science*, 2:693-702, 2014.
130. Y.I. Shen, H.E. Abaci, Y. Krupsi, L.C. Weng, **J.A. Burdick**, S. Gerecht, Hyaluronic Acid Hydrogel Stiffness and Oxygen Tension Affect Cancer Cell Fate and Endothelial Sprouting, *Biomaterials Science*, 2:655-665, 2014.
131. B.P. Purcell, D. Lobb, M.B. Charati, S.M. Dorsey, R.J. Wade, K.N. Zellars, H. Doviak, S. Pettaway, C.B. Logdon, J.A. Shuman, C. Novak, J.H. Gorman, R.C. Gorman, F.G. Spinale, **J.A. Burdick**, Injectable and Bioresponsive Hydrogels for On-Demand Matrix Metalloproteinase Inhibition, *Nature Materials*, 13:653-661, 2014.
132. D.E. Soranno, H.D. Lu, H.M. Weber, R. Rai, **J.A. Burdick**, Immunotherapy with Injectable Hydrogels to Treat Obstructive Nephropathy, *Journal of Biomedical Materials Research A*, 102: 2173-2180, 2014.
133. E. Tous Kichula, H. Wang, S.M. Dorsey, S.E. Szczesny, D.M. Elliott, **J.A. Burdick**, J.F. Wenk, Experimental and Computational Investigation of Altered Mechanical Properties in Myocardium after Hydrogel Injection, *Annals of Biomedical Engineering*, 7:1546-1556, 2014.
134. J.E. Cohen, B.P. Purcell, J.W. MacArthur, A. Mu, Y. Shudo, J.B. Patel, C.M. Brusalis, A. Trubelja, A.S. Fairman, B.B. Edwards, M.S. Davis, G. Hung, W. Hiesinger, P. Atluri, K.B. Margulies, **J.A. Burdick**, Y.J. Woo, A Bioengineered Hydrogel System Enables Targeted and Sustained Intramyocardial Delivery of Neuregulin, Activating the Cardiomyocyte Cell Cycle and Enhancing Ventricular Function in a Murine Model of Ischemic Cardiomyopathy, *Circulation: Heart Failure*, 7:619-626, 2014.
135. M. Guvendiren, M. Perepelyuk, R.G. Wells, **J.A. Burdick**, Hydrogels with Differential and Patterned Mechanics to Study Stiffness Mediated Myofibroblastic Differentiation of Hepatic Stellate Cells, *Journal of the Mechanical Behavior of Biomedical Materials*, 38:198-208, 2014.
136. M.P. Lutolf and **J.A. Burdick**, Editorial: Stem Cell-Materials Interactions, *Biomaterials Science*, 2:1545-1547, 2014.
137. J.L. Holloway, H. Ma, R. Rai, **J.A. Burdick**, Modulating Hydrogel Crosslink Density and Degradation to Control Bone Morphogenetic Protein Delivery and In Vivo Bone Formation, *Journal of Controlled Release*, 191:63-70, 2014.
138. J.R. McGarvey, S. Pettaway, J. Shuman, C.P. Novak, K.N. Zellars, P. Freels, R.L. Echols, **J.A. Burdick**, J.H. Gorman, R.C. Gorman, F.G. Spinale, Targeted Injection of a Biocomposite Material Alters Macrophage and Fibroblast Phenotype and Function Following Myocardial Infarction: Relation to LV Remodeling, *Journal of Pharmacology and Experimental Therapeutics*, 350:71-709, 2014.
139. C.B. Rodell and **J.A. Burdick**, Radicals Promote Magnetic Gel Assembly, *Nature*, 514:574-575, 2014.
140. J.J. Green and **J.A. Burdick**, Editorial: Nanoscale Biomaterials, *Journal of Materials Chemistry B*, 2:8039-8042, 2014.
141. C.B. Highley, C.B. Rodell, I.L. Kim, R.J. Wade, **J.A. Burdick**, Ordered, Adherent Layers of Nanofibers Enabled by Supramolecular Interactions, *Journal of Materials Chemistry B*, 2:8110-8115, 2014.
142. R.J. Wade and **J.A. Burdick**, Advances in the Engineering of Nanofibrous Scaffolds for Biomedical Applications: From Electrospinning to Self-Assembly, *Nano Today*, 9:722-742, 2014.
143. C.B. Rodell, J.W. MacArthur, S.M. Dorsey, R.J. Wade, L.L. Wang, Y.J. Woo, **J.A. Burdick**, Shear-thinning Hydrogels with Secondary Autonomous Covalent Crosslinking to Modulate Viscoelastic Properties In Vivo, *Advanced Functional Materials*, 25:636-644, 2015.

144. R.J. Wade, E.J. Bassin, W.M. Gramlich, **J.A. Burdick**, Nanofibrous Hydrogels with Spatially Patterned Biochemical Signals to Control Cell Behavior, *Advanced Materials*, 27:1356-1362, 2015.
145. M.B. Fisher, N.S. Belkin, A.R. Milby, E.A. Henning, M. Bostrom, M. Kim, G. Meloni, G.R. Dodge, **J.A. Burdick**, T.P. Schaer, D.R. Steinberg, R.L. Mauck, Cartilage Repair and Subchondral Bone Remodeling in Response to Focal Lesions in a Mini-Pig Model: Impact of Injury Type and Treatment, *Tissue Engineering A*, 3:850-860, 2015.
146. J.R. McGarvey, N. Kondo, W. Witschey, M. Takebe, C. Aoki, **J.A. Burdick**, F.G. Spinale, J.J. Pilla, J.H. Gorman, R.C. Gorman, Injectable Microsphere Gel Progressively Improves Global Ventricular Function, Regional Contractile Strain, and Mitral Regurgitation after Myocardial Infarction, *Annals of Thoracic Surgery*, 99:597-603, 2015.
147. R.J. Wade, E.J. Bassin, C.B. Rodell, **J.A. Burdick**, Protease Degradable Electrospun Fibrous Hydrogels, *Nature Communications*, 6:6639, 2015.
148. R.L. Mauck and **J.A. Burdick**, From Repair to Regeneration; Biomaterials to Reprogram the Wound Microenvironment, *Annals of Biomedical Engineering*, 43:529-542, 2015.
149. S.M. Dorsey, M. Haris, A. Singh, W.R.T. Witschey, C.B. Rodell, F. Kogan, R. Reddy, **J.A. Burdick**, Visualization of Injectable Hydrogels using Chemical Exchange Saturation Transfer MRI, *ACS Biomaterials Science & Engineering*, 1:227-237, 2015.
150. C.B. Rodell, R. Rai, S. Faubel, **J.A. Burdick**, D.E. Soranno, Local Immunotherapy via Delivery of Interleukin-10 and Transforming Growth Factor beta Antagonist for Treatment of Chronic Kidney Disease, *Journal of Controlled Release*, 206:131-139, 2015.
151. C.B. Rodell, R.J. Wade, B.P. Purcell, N. Dusaj, **J.A. Burdick**, Selective Proteolytic Degradation of Guest-Host Assembled, Injectable Hyaluronic Acid Hydrogels, *ACS Biomaterials Science & Engineering*, 1:277-286, 2015.
152. D. Mojsejenko, J.R. McGarvey, S.M. Dorsey, J.H. Gorman, **J.A. Burdick**, J.J. Pilla, R.C. Gorman, J.F. Wenk, Estimating Passive Mechanical Properties in a Myocardial Infarction using MRI and Finite Element Simulations, *Biomechanics and Modeling in Mechanobiology*, 14:633-647, 2015.
153. K. Ihada-Stansbury, J. Ames, S. Sanyal, N. Aiad, K.C. Kawabata, I. Levental, H.G. Sundararaghavan, K. Miyazono, **J.A. Burdick**, P. Janmey, R.G. Wells, P.L. Jones, The Homeobox Gene Transcription Factor Prx1 Regulates Pulmonary Vascular Smooth Muscle Cell Differentiation via its Control over Matrix Properties, *Pulmonary Circulation*, 5:382-397, 2015.
154. J.R. McGarvey, D. Mojsejenko, S.M. Dorsey, A. Nikou, **J.A. Burdick**, J.H. Gorman, B.M. Jackson, J.J. Pilla, R.C. Gorman, J.F. Wenk, Temporal Changes in Infarct Material Properties: An In Vivo Assessment using MRI and Finite Element Simulations, *Annals of Thoracic Surgery*, 100:582-589, 2015.
155. S.M. Dorsey, J.R. McGarvey, H. Wang, A. Nikou, L. Arama, K.J. Koomalsingh, N. Kondo, J.H. Gorman, J.J. Pilla, R.C. Gorman, J.F. Wenk, **J.A. Burdick**, MRI Evaluation of Injectable Hyaluronic Acid-Based Hydrogel Therapy to Limit Ventricular Remodeling after Myocardial Infarction, *Biomaterials*, 69:65-75, 2015.
156. J.L. Holloway, H. Ma, R. Rai, K.D. Hankenson, **J.A. Burdick**, Synergistic Effects of SDF-1 $\alpha$  and BMP-2 Delivery from Proteolytically Degradable Hyaluronic Acid Hydrogels for Bone Repair, *Macromolecular Bioscience*, 15:1218-1223, 2015.
157. M. Kim, S.J. Yeo, C.B. Highley, P.J. Yoo, **J.A. Burdick**, J. Doh, D. Lee, One-step Generation of Multi-functional Polyelectrolyte Microcapsules via Nanoscale Interfacial Complexation in Emulsion (NICE), *ACS Nano*, 9:8269-8278, 2015.
158. C.B. Highley, C.B. Rodell, **J.A. Burdick**, Direct 3D Printing of Shear-thinning Hydrogels into Self-healing Hydrogels, *Advanced Materials*, 27:5075-5079, 2015.
159. J.E. Mealy, C.B. Rodell, **J.A. Burdick**, Sustained Small Molecule Delivery from Injectable Hydrogels through Host-Guest Mediated Retention, *Journal of Materials Chemistry B*, 3:8010-8019, 2015.



160. A.C. Gaffey, M.H. Chen, C.M. Venkataraman, A. Trubelja, C.B. Rodell, P.V. Dinh, G. Hung, J.W. MacArthur, R.V. Sooppan, **J.A. Burdick**, P. Atluri, Injectable Shear-thinning Hydrogels to Deliver Endothelial Progenitor Cells, Enhance Cell Engraftment, and Improve Ischemic Myocardium, *Journal of Thoracic and Cardiovascular Surgery*, 150:1268-1277, 2015.
161. I.L. Kim, C.G. Pfeifer, M.B. Fisher, V. Saxena, G.R. Meloni, M. Kwon, M. Kim, D.R. Steinberg, R.L. Mauck, **J.A. Burdick**, Fibrous Scaffolds with Varied Fiber Chemistry and Growth Factor Delivery Promote Repair in a Porcine Cartilage Defect Model, *Tissue Engineering A*, 21:2680-2690, 2015.
162. B.M. Baker, B. Trappmann, W.Y. Wang, M.S. Sakar, I.L. Kim, V.B. Shenoy, **J.A. Burdick**, C.S. Chen, Cell-Mediated Fiber Recruitment Drives Extracellular Matrix Mechanosensing in Engineered Fibrillar Microenvironments, *Nature Materials*, 14:1262-1268, 2015.
163. M.W. Tibbitt, C.B. Rodell, **J.A. Burdick**, K.S. Anseth, Progress in Material Design for Biomedical Applications, *Proceedings of the National Academy of Sciences (PNAS)*, 112:14444-14451, 2015.
164. C.B. Rodell, J.E. Mealy, **J.A. Burdick**, Supramolecular Guest-Host Interactions for the Preparation of Biomedical Materials, *Bioconjugate Chemistry*, 26:2279-2289, 2015.
165. **J.A. Burdick**, Robert L. Mauck, and S. Gerecht, To Serve and Protect: Hydrogels to Improve Stem Cell-Based Therapies, *Cell Stem Cell*, 18:13-15, 2016.
166. J. Groll, T. Boland, T. Blunk, **J.A. Burdick**, D.W. Cho, P.D. Dalton, B. Derby, G. Forgacs, Q. Li, V.A. Mironov, L. Moroni, M. Nakamura, W. Shu, S. Takeuchi, G. Vozzi, T.B.F. Woodfield, T. Xu, J.J. Yoo, J. Malda, Biofabrication: Reappraising the Definition of an Evolving Field, *Biofabrication*, 8:013001, 2016.
167. P. Viswanathan, M. Guvendiren, W. Chua, S.B. Teleman, K. Liakath-Ali, **J.A. Burdick**, F.M. Watt, Mimicking the Topography of the Epidermal-Dermal Interface with Elastomer Substrates, *Integrative Biology*, 8:21-29, 2016.
168. C.B. Highley, G.D. Prestwich, **J.A. Burdick**, Recent Advances in Hyaluronic Acid Hydrogels for Biomedical Applications, *Current Opinion in Biotechnology*, 40:35-40, 2016.
169. S.R. Caliri, M. Perepelyuk, B.D. Cosgrove, Shannon J. Tsai, G.Y. Lee, R.L. Mauck, R.G. Wells, **J.A. Burdick**, Stiffening Hydrogels for Investigating the Dynamics of Hepatic Stellate Cell Mechanotransduction during Myofibroblast Activation, *Scientific Reports*, 6:21387, 2016.
170. M.B. Fisher, N.S. Belkin, A.H. Milby, E.A. Henning, N. Soegaard, M. Kim, C. Pfeifer, V. Saxena, G.R. Dodge, **J.A. Burdick**, T.P. Schaer, D.R. Steinberg, R.L. Mauck, Effects of Mesenchymal Stem Cell and Growth Factor Delivery on Cartilage Repair in a Mini-Pig Model, *Cartilage*, 7:174-184, 2016.
171. S.R. Caliri and **J.A. Burdick**, A Practical Guide to Hydrogels for Cell Culture, *Nature Methods*, 13:405-414, 2016.
172. A. Nikou, S.M. Dorsey, J.R. McGarvey, J.H. Gorman, **J.A. Burdick**, J.J. Pilla, R.C. Gorman, J.F. Wenk, Computational Modeling of Healthy Myocardium in Diastole, *Annals of Biomedical Engineering*, 44:980-992, 2016.
173. S.L. Vega, M. Kwon, R.L. Mauck, **J.A. Burdick**, Single Cell Imaging to Probe Mesenchymal Stem Cell N-Cadherin Mediated Signaling within Hydrogels, *Annals of Biomedical Engineering*, 44:1921-1930, 2016.
174. S.R. Caliri, M. Perepelyuk, E. Soulas, G.Y. Lee, R.G. Wells, **J.A. Burdick**, Gradually Softening Hydrogels for Modeling Hepatic Stellate Cell Behavior During Fibrosis Regression, *Integrative Biology*, 8:720-728, 2016.
175. C.B. Highley, M. Kim, D. Lee, **J.A. Burdick**, Near-Infrared Light Triggered Release of Molecules from Supramolecular Hydrogel-Nanorod Composites, *Nanomedicine*, 11:1579-1590, 2016.
176. S.R. Caliri, S.L. Vega, M. Kwon, E.M. Soulas, **J.A. Burdick**, Dimensionality and Spreading Influence MSC YAP/TAZ Signaling in Hydrogel Environments, *Biomaterials*, 103:314-323, 2016.
177. D.E. Soranno, C.B. Rodell, C. Altmann, J. Duplantis, A. Andres-Hernando, **J.A. Burdick**, S. Faubel, Delivery of Interleukin-10 via Injectable Hydrogels Improves Renal Outcomes and Reduces Systemic Inflammation following Ischemic Acute Kidney Injury in Mice, *American Journal of Physiology – Renal Physiology*, 311:F362-F372, 2016.

178. C.B. Rodell, C.B. Highley, M.H. Chen, N.N. Dusaj, C. Wang, L. Han, **J.A. Burdick**, Evolution of Hierarchical Porous Structures in Supramolecular Guest-Host Hydrogels, *Soft Matter*, 12:7839-7847, 2016.
179. Y.C. Yeh, C.B. Highley, L. Ouyang, **J.A. Burdick**, 3D Printing of Photocurable Poly(glycerol sebacate) Elastomers, *Biofabrication*, 8:045004, 2016.
180. C.B. Rodell, N.N. Dusaj, C.B. Highley, **J.A. Burdick**, Injectable and Cytocompatible Tough Double-Network Hydrogels Through Tandem Supramolecular and Covalent Crosslinking, *Advanced Materials*, 28:8419-8424, 2016.
181. J.S. Miller and **J.A. Burdick**, Editorial: Special Issue on 3D Printing of Biomaterials, *ACS Biomaterials Science & Engineering*, 2:1658-1661, 2016.
182. L. Ouyang, C.B. Highley, C.B. Rodell, W. Sun, **J.A. Burdick**, 3D Printing of Shear-Thinning Hyaluronic Acid Hydrogels with Secondary Crosslinking, *ACS Biomaterials Science & Engineering*, 2:1743-1751, 2016.
183. C.B. Rodell, M.E. Lee, H. Wang, S. Takebayashi, T. Takayama, T. Kawaura, J.S. Arkles, N.N. Dusaj, S.M. Dorsey, W.R.T. Witschey, J.J. Pilla, J.H. Gorman, J.F. Wenk, **J.A. Burdick**, R.C. Gorman, Injectable Shear-Thinning Hydrogels for Minimally Invasive Delivery to Infarcted Myocardium to Limit Left-Ventricular Remodeling, *Circulation: Cardiovascular Interventions*, 9:e004058, 2016.
184. H. Wang, X. Zhang, S.M. Dorsey, J.R. McGarvey, K.S. Campbell, **J.A. Burdick**, J.H. Gorman, J.J. Pilla, R.C. Gorman, J.F. Wenk, Computational Investigation of Transmural Differences in Left Ventricular Contractility, *Journal of Biomechanical Engineering*, 138:114501, 2016.
185. A. Nikou, S.M. Dorsey, J.R. McGarvey, J.H. Gorman, **J.A. Burdick**, J.J. Pilla, R.C. Gorman, J.F. Wenk, Effects of Using the Unloaded Configuration in Predicting the In Vivo Diastolic Properties of the Heart, *Computer Methods in Biomechanics and Biomedical Engineering*, 19:1714-1720, 2016.
186. B.D. Cosgrove, K.L. Mui, T.P. Driscoll, S.R. Caliari, K.D. Mehta, R.K. Assoian, **J.A. Burdick**, R.L. Mauck, N-cadherin Adhesive Interactions Modulate ECM Mechanosensing and Fate Commitment of Mesenchymal Stem Cells, *Nature Materials*, 15, 1297-1306, 2016.
187. L.L. Wang, J.N. Sloand, A.C. Gaffey, C.M. Venkataraman, Z. Wang, A. Trubelja, D.A. Hammer, P. Atluri, **J.A. Burdick**, Injectable, Guest-Host Assembled Polyethylenimine Hydrogel for siRNA Delivery, *Biomacromolecules*, 18:77-86, 2017.
188. L.L. Wang and **J.A. Burdick**, Engineered Hydrogels for Local and Sustained Delivery of RNA-interference Therapies, *Advanced Healthcare Materials*, 6:1601041, 2017.
189. S.L. Vega, M.Y. Kwon, **J.A. Burdick**, Recent Advances in Hydrogels for Cartilage Tissue Engineering, *European Cells and Materials Journal*, 33:59-75, 2017.
190. L. Ouyang, C.B. Highley, W. Sun, **J.A. Burdick**, A Generalizable Strategy for the 3D Printing of Hydrogels from Non-viscous Photocrosslinkable Inks, *Advanced Materials*, 29:1604983, 2017.
191. V. Ramjee, D. Li, L.J. Manderfield, F. Liu, K.A. Engleka, H. Aghajanian, C.B. Rodell, W. Lu, V. Ho, T. Wang, L. Li, A. Singh, D. Cibi, **J.A. Burdick**, M.K. Singh, R. Jain, J.A. Epstein, Epicardial YAP/TAZ Orchestrate an Immune Suppressive Response following MI, *Journal of Clinical Investigation*, 127:899-911, 2017.
192. X. Cao, E. Ban, B.M. Baker, Y. Lin, **J.A. Burdick**, C.S. Chen, V.B. Shenoy, A Multi-scale Model Predicts Increasing Focal Adhesion Size with Decreasing Stiffness in Fibrous Matrices, *Proceedings of the National Academy of Sciences (PNAS)*, 114:E4549-E4555, 2017.
193. C. Loebel, C.B. Rodell, M.H. Chen, **J.A. Burdick**, Shear-thinning and Self-healing Hydrogels as Injectable Therapeutics and for 3D-Printing, *Nature Protocols*, 12:1521-1541, 2017.
194. M. Kim, M.J. Farrell, D.R. Steinberg, **J.A. Burdick**, R.L. Mauck, Enhanced Nutrient Transport Improves the Depth-Dependent Properties of Tri-Layered Engineered Cartilage Constructs with Zonal Co-culture of Chondrocytes and MSCs, *Acta Biomaterialia*, 58:1-11, 2017.

195. B. Trappmann, B.M. Baker, W.J. Polacheck, C.K. Choi, **J.A. Burdick**, C.S. Chen, Matrix Degradability Controls Multicellularity of Collective Cell Migration, *Nature Communications*, 8:371, 2017.
196. Y.C. Yeh, L. Ouyang, C.B. Highley, **J.A. Burdick**, Norbornene-modified Poly(glycerol sebacate) as a Photocurable and Biodegradable Elastomer, *Polymer Chemistry*, 8:5091-5099, 2017.
197. Y.C. Yeh, E.A. Corbin, S.R. Caliarì, L. Ouyang, S.L. Vega, R. Truitt, L. Han, K.B. Margulies, **J.A. Burdick**, Mechanically Dynamic PDMS Substrates to Investigate Changing Cell Environments, *Biomaterials*, 145:23-32, 2017.
198. R.L. Sala, M.Y. Kwon, M. Kim, S. Gullbrand, E.A. Henning, R.L. Mauck, E.R. Camargo, **J.A. Burdick**, Thermosensitive Poly(N-vinylcaprolactam) Injectable Hydrogels for Cartilage Tissue Engineering, *Tissue Engineering A*, 23:935-945, 2017.
199. A.M. Rosales, S.L. Vega, F.W. DelRio, **J.A. Burdick**, K.S. Anseth, Hydrogels with Reversible Mechanics to Probe Dynamic Cell Microenvironments, *Angewandte Chemie*, 129:12300-12304, 2017.
200. M.C. Lampi, M. Guvendiren, **J.A. Burdick**, C.A. Reinhart-King, Photopatterned Hydrogels to Investigate the Endothelial Cell Response to Matrix Stiffness Heterogeneity, *ACS Biomaterials Science & Engineering*, 3:3007-3016, 2017.
201. H. Wang, C.B. Rodell, M.E. Lee, N.N. Dusaj, J.H. Gorman, **J.A. Burdick**, R.C. Gorman, J. Wenk, Computational Sensitivity Investigation of Hydrogel Injection Characteristics for Myocardial Support, *Journal of Biomechanics*, 64:231-235, 2017.
202. F. Qu, J.L. Holloway, J.L. Esterhai, **J.A. Burdick**, R.L. Mauck, Programmed Biomolecule Delivery to Enable and Direct Cell Migration for Connective Tissue Repair, *Nature Communications*, 8:1780, 2017.
203. L.L. Wang, Y. Liu, J.J. Chung, T. Wang, A.C. Gaffey, M. Lu, C.A. Cavanaugh, S. Zhou, R. Kanade, P. Atluri, E.E. Morrissey, **J.A. Burdick**, Sustained miRNA Delivery from an Injectable Hydrogel Promotes Cardiomyocyte Proliferation and Functional Regeneration after Ischaemic Injury, *Nature Biomedical Engineering*, 1:983-992, 2017.
204. M.H. Chen, L.L. Wang, J.J. Chung, Y.H. Kim, P. Atluri, **J.A. Burdick**, Methods to Assess Shear-Thinning Hydrogels for Application as Injectable Biomaterials, *ACS Biomaterials Science & Engineering*, 3:3146-3160, 2017.
205. S.L. Vega, M.Y. Kwon, K.H. Song, C. Wang, R.L. Mauck, L. Han, **J.A. Burdick**, Combinatorial Hydrogels with Biochemical Gradients for Screening 3D Cellular Microenvironments, *Nature Communications*, 9:614, 2018.
206. L. Moroni, T. Boland, **J.A. Burdick**, C. De Maria, B. Derby, G. Forgacs, J. Groll, Q. Li, J. Malda, V.A. Mironov, C. Mota, M. Nakamura, W. Shu, S. Takeuchi, T.B.F. Woodfield, T. Xu, J.J. Yoo, G. Vozzi, Biofabrication: A Guide to Technology and Terminology, *Trends in Biotechnology*, 36:384-402, 2018.
207. T.L. Rapp, C.B. Highley, B.C. Manor, **J.A. Burdick**, I.J. Dmochowski, Ruthenium-Crosslinked Hydrogels with Rapid, Visible-Light Degradation, *Chemistry – A European Journal*, 24:2328-2333, 2018.
208. L.L. Wang, C.B. Highley, Y.C. Yeh, J.H. Galarraga, S. Uman, **J.A. Burdick**, 3-dimensional Extrusion Bioprinting of Single- and Double-network Hydrogels Containing Dynamic Covalent Crosslinks, *Journal of Biomedical Materials Research A*, 106A:865-875, 2018.
209. C. Loebel and **J.A. Burdick**, Engineering Stem and Stromal Cell Therapies for Musculoskeletal Tissue Repair, *Cell Stem Cell*, 22:325-339, 2018.
210. Z. Gong, S.E. Szczesny, S.R. Caliarì, E.E. Charrier, O. Chaudhuri, X. Cao, Y. Lin, R.L. Mauck, P.A. Janmey, **J.A. Burdick**, V.B. Shenoy, Matching Material and Cellular Timescales Maximizes Cell Spreading on Viscoelastic Substrates, *Proceedings of the National Academy of Sciences (PNAS)*, 115:E2686-E2695, 2018.
211. A.M. Rosales, C.B. Rodell, M.H. Chen, M.G. Morrow, K.S. Anseth, **J.A. Burdick**, Reversible Control of Network Properties in Azobenzene-Containing Hyaluronic Acid-Based Hydrogels, *Bioconjugate Chemistry*, 29:905-913, 2018.
212. L. Ouyang, **J.A. Burdick**, W. Sun, Facile Biofabrication of Heterogeneous Multilayer Tubular Hydrogels by Fast Diffusion-Induced Gelation, *ACS Applied Materials & Interfaces*, 10:12424-12430, 2018.

213. L. Guo, H.J. Kim, H. Wang, J. Monaghan, F. Frevermuth, J.C. Sung, K. O'Donovan, C.M. Fare, Z. Diaz, N. Singh, Z.C. Zhang, M. Coughlin, E.A. Sweeny, M.E. DeSantis, M.E. Jackrel, C.B. Rodell, **J.A. Burdick**, O.D. King, A.D. Gitler, C. Lagier-Tourenne, U.B. Pandey, Y.M. Chook, J.P. Taylor, J. Shorter, Nuclear-import Receptors Reverse Aberrant Phase Transitions of Disease-Linked RNA-binding Proteins with Prion-like Domains, *Cell*, 173:677-692, 2018.
214. S. Ilkhanizadeh, H. Sabelström, Y.A. Miroshnikova, A. Frantz, W. Zhu, A. Idilli, J.N. Lakins, C. Schmidt, D.A. Quigley, T. Fenster, E. Yuan, J.R. Trzeciak, S. Saxena, O.R. Lindberg, J.K. Mouw, **J.A. Burdick**, S. Magnitsky, M.S. Berger, J.J. Phillips, D. Arosio, D. Sun, V.M. Weaver, W. Weiss, A.I. Persson, Antisecretory Factor-mediated Inhibition of Cell Volume Dynamics Produces Anti-tumor Activity in Glioblastoma, *Molecular Cancer Research*, 16:777-790, 2018.
215. M.Y. Kwon, S.L. Vega, W.M. Gramlich, M. Kim, R.L. Mauck, **J.A. Burdick**, Dose and Timing of N-cadherin Peptides Regulates MSC Chondrogenesis within Hydrogels, *Advanced Healthcare Materials*, 7:1701199, 2018.
216. L. Moroni, **J.A. Burdick**, C.B. Highley, S.J. Lee, Y. Morimoto, S. Takeuchi, J.J. Yoo, Biofabrication Strategies for 3D in vitro Models and Regenerative Medicine, *Nature Reviews Materials*, 3:21-37, 2018.
217. J.E. Mealy, J.J. Chung, H.H. Jeong, D. Issadore, D. Lee, P. Atluri, **J.A. Burdick**, Injectable Granular Hydrogels with Multifunctional Properties for Biomedical Applications, *Advanced Materials*, 30:1705912, 2018.
218. C.W. Chen, L.L. Wang, S. Zaman, J. Gordon, M.F. Arisi, C.M. Venkataraman, J.J. Chung, G. Hung, A.C. Gaffey, L.A. Spruce, H. Fazelinia, R.C. Gorman, S.H. Seeholzer, **J.A. Burdick**, P. Atluri, Sustained Release of Endothelial Progenitor Cell-Derived Extracellular Vesicles from Shear-Thinning Hydrogels Improves Angiogenesis and Promotes Function after Myocardial Infarction, *Cardiovascular Research*, 114:1029-1040, 2018.
219. L.L. Wang, J.J. Chung, E.C. Li, S. Uman, P. Atluri, **J.A. Burdick**, Injectable and Protease-Degradable Hydrogel for siRNA Sequestration and Triggered Delivery to the Heart, *Journal of Controlled Release*, 285:152-161, 2018.
220. K.H. Song, C.B. Highley, A. Rouff, **J.A. Burdick**, Complex 3D-printed Microchannels within Cell-degradable Hydrogels, *Advanced Functional Materials*, 28:1801331, 2018.
221. B.P. Purcell, S.C. Barlow, P.E. Perreault, L. Freeburg, H. Doviak, J. Jacobs, A. Hoenes, K.N. Zellars, A.Y. Khakoo, T. Lee, **J.A. Burdick**, F.G. Spinale, Delivery of a Matrix Metalloproteinase Responsive Hydrogel Releasing TIMP-3 following Myocardial Infarction: Effects on Left Ventricular Remodeling, *American Journal of Physiology: Heart and Circulatory Physiology*, 315:H814-H825, 2018.
222. H. Wang, C.B. Rodell, X. Zhang, N.N. Dusaj, J.H. Gorman, J.J. Pilla, B.M. Jackson, **J.A. Burdick**, R.C. Gorman, J.F. Wenk, Effects of Hydrogel Injection on Borderzone Contractility Post Myocardial Infarction, *Biomechanics and Modeling in Mechanobiology*, 17:1533-1542, 2018.
223. Y.M. Klyachkin, A. Idris, C.B. Rodell, H. Tripathi, S. Ye, P. Nagareddy, A. Asfour, E. Gao, R. Annabathula, M. Ratajczak, **J.A. Burdick**, A. Abdel-Latif, Cathelicidin Related Antimicrobial Peptide (CRAMP) Enhances Bone Marrow Cell Retention and Attenuates Cardiac Dysfunction in a Mouse Model of MI, *Stem Cell Reviews and Reports*, 14:702-714, 2018.
224. J. Groll, **J.A. Burdick**, D.W. Cho, B. Derby, M. Gelinsky, S.C. Heilshorn, T. Jungst, J. Malda, V.A. Mironov, K. Nakayama, A. Ovsianikov, W. Sun, S. Takeuchi, J.J. Yoo, T.B.F. Woodfield, A Definition of Bioinks and their Distinction from Biomaterial Inks, *Biofabrication*, 11:013001, 2018.
225. C.B. Highley, K.H. Song, A.C. Daly, **J.A. Burdick**, Jammed Microgel Inks for 3D Printing Applications, *Advanced Science*, 6:1801076, 2019.
226. M.H. Chen, J.J. Chung, J.E. Mealy, S. Zaman, E.C. Li, M.F. Arsi, P. Atluri, **J.A. Burdick**, Injectable Supramolecular Hydrogel/Microgel Composites for Therapeutic Delivery, *Macromolecular Bioscience*, 19:1800248, 2019.
227. M. Kim, D.R. Steinberg, **J.A. Burdick**, R.L. Mauck, Extracellular Vesicles Mediate Improved Functional Outcomes in Engineered Cartilage Produced from MSC/Chondrocyte Co-Cultures, *Proceedings of the National Academy of Sciences (PNAS)*, 116:1569-1578, 2019.

228. C. Loebel, A. Ayoub, J.H. Galarraga, O. Kossov, H. Simaan-Yameen, D. Seliktar, **J.A. Burdick**, Tailoring Supramolecular Guest-Host Hydrogel Viscoelasticity with Covalent Fibrinogen Double Networks, *Journal of Materials Chemistry B*, 7:1753-1760, 2019.
229. A.C. Gaffey, M.H. Chen, A. Trubelja, C.M. Venkataraman, C.W. Chen, J.J. Chung, S. Schultz, C.M. Sehgal, **J.A. Burdick**, P. Atluri, Delivery of Progenitor Cells with Injectable Shear-thinning Hydrogel Maintains Geometry and Normalizes Strain to Stabilize Cardiac Function after Ischemia, *The Journal of Thoracic and Cardiovascular Surgery*, 157:1479-1490, 2019.
230. J.M. Patel, K.S. Saleh, **J.A. Burdick**, R.L. Mauck, Bioactive Factors for Cartilage Repair and Regeneration: Improving Delivery, Retention, and Activity, *Acta Biomaterialia*, 93:222-238, 2019.
231. C. Loebel, R.L. Mauck, **J.A. Burdick**, Local Nascent Protein Deposition and Remodeling Guide Mesenchymal Stromal Cell Mechanosensing and Fate in Three-dimensional Hydrogels, *Nature Materials*, 18:883-891, 2019.
232. M. Shin, J.H. Galarraga, M.Y. Kwon, H. Lee, **J.A. Burdick**, Gallol-derived ECM-mimetic Adhesive Bioinks Exhibiting Temporal Shear-thinning and Stabilization Behavior, *Acta Biomaterialia*, 95:165-175, 2019.
233. J.H. Galarraga and **J.A. Burdick**, Protein Patterning: Moving Hydrogels to the 4<sup>th</sup> Dimension, *Nature Materials*, 18:914-915, 2019.
234. M.D. Davidson, K.H. Song, M.H. Lee, J. Llewellyn, Y. Du, B.M. Baker, R.G. Wells, **J.A. Burdick**, Engineered Fibrous Networks to Investigate the Influence of Fiber Mechanics on Myofibroblast Differentiation, *ACS Biomaterials Science & Engineering*, 5:3899-3908, 2019.
235. M.Y. Kwon, C. Wang, J.H. Galarraga, E. Pure, L. Han, **J.A. Burdick**, Influence of Hyaluronic Acid Modification on CD44 Binding towards the Design of Hydrogel Biomaterials, *Biomaterials*, 222:119451, 2019.
236. M. Shin, K.H. Song, J.C. Burrell, D.K. Cullen, **J.A. Burdick**, Injectable and Conductive Granular Hydrogels for 3D Printing and Electroactive Tissue Support, *Advanced Science*, 6:1901229, 2019.
237. J.H. Galarraga, M.Y. Kwon, **J.A. Burdick**, 3D Bioprinting via an In Situ Crosslinking Technique towards Engineering Cartilage Tissue, *Scientific Reports*, 9:19987, 2019.
238. A.C. Daly, L.A. Riley, T. Segura, **J.A. Burdick**, Hydrogel Microparticles for Biomedical Applications, *Nature Reviews Materials*, 5:20-43, 2020.
239. W. Sun, B. Starly, A.C. Daly, **J.A. Burdick**, J. Groll, G. Skeldon, W. Shu, Y. Sakai, M. Shinohara, M. Nishikawa, J. Jang, D.-W. Cho, M. Nie, S. Takeuchi, S. Ostrovidov, A. Khademhosseini, R.D. Kamm, V. Mironov, L. Moroni, I.T. Ozbolat, The Bioprinting Roadmap, *Biofabrication*, 12:022002, 2020.
240. M.D. Davidson, E. Ban, A.C.M. Schoonen, M.H. Lee, M. D'Este, V.B. Shenoy, **J.A. Burdick**, Mechanochemical Adhesion and Plasticity in Multi-fiber Hydrogel Networks, *Advanced Materials*, 32:1905719, 2020.
241. S. Uman, A. Dhand, **J.A. Burdick**, Recent Advances in Shear-thinning and Self-healing Hydrogels for Biomedical Applications, *Journal of Applied Polymer Science*, 137:48668, 2020.
242. M.E. Prendergast and **J.A. Burdick**, Recent Advances in Enabling Technologies in 3D Printing for Precision Medicine, *Advanced Materials*, 32:1902516, 2020.
243. J.J. Chung, J. Han, L.L. Wang, M.F. Arisi, S. Zaman, J. Gordon, E. Li, S.T. Kim, Z. Tran, C.W. Chen, A.C. Gaffey, **J.A. Burdick**, P. Atluri, Delayed Delivery of Endothelial Progenitor Cell-Derived Extracellular Vesicles via Shear-Thinning Gel Improves Post-Infarct Hemodynamics, *The Journal of Thoracic and Cardiovascular Surgery*, 159:1825-1835, 2020.
244. **J.A. Burdick**, A.J. Garcías, Special Issue: Biomaterials in Mechanobiology, *Advanced Healthcare Materials*, 9:2000412, 2020.
245. K.H. Song, S.J. Heo, A.P. Peredo, M.D. Davidson, R.L. Mauck, **J.A. Burdick**, Influence of Fiber Stiffness on Meniscal Cell Migration into Dense Fibrous Networks, *Advanced Healthcare Materials*, 9:1901228, 2020.

246. M.D. Davidson, **J.A. Burdick**, R.G. Wells, Engineered Biomaterial Platforms to Study Fibrosis, *Advanced Healthcare Materials*, 9:1901682, 2020.
247. S.H. Hong, M. Shin, E. Park, J.H. Ryu, **J.A. Burdick**, H. Lee, Alginate-boronic acid: pH-triggered Bio-inspired Glue for Hydrogel Assembly, *Advanced Functional Materials*, 30:1908497, 2020.
248. S.J. Heo, K.H. Song, S. Thakur, L.M. Miller, X. Cao, A.P. Peredo, B.N. Seiber, F. Qu, T.P. Driscoll, V.B. Shenoy, M. Lakadamyali, **J.A. Burdick**, R.L. Mauck, Nuclear Softening Expedites Interstitial Cell Migration in Fibrous Networks and Dense Connective Tissues, *Science Advances*, 6:eaax5083, 2020.
249. S. Uman, L.L. Wang, S.L. Thorn, Z. Liu, J.S. Duncan, A.J. Sinusas, **J.A. Burdick**, Imaging of Injectable Hydrogels Delivered into Myocardium with SPECT/CT, *Advanced Healthcare Materials*, 9:2000294, 2020.
250. C.B. Rodell, Z.L. Zhang, N.N. Dusaj, Y. Oquendo, M.E. Lee, W. Bouma, J.H. Gorman, **J.A. Burdick**, R.C. Gorman, Injectable Shear-Thinning Hydrogels Prevent Ischemic Mitral Regurgitation and Normalize Ventricular Flow Dynamics, *Seminars in Thoracic and Cardiovascular Surgery*, 32:445-453, 2020.
251. D.S. Li, R. Avazmohammadi, C.B. Rodell, E.W. Hsu, **J.A. Burdick**, J.H. Gorman, R.C. Gorman, M.S. Sacks, How Hydrogel Inclusions Modulate the Local Mechanical Response in Early and Fully Formed Post-Infarcted Myocardium, *Acta Biomaterialia*, 14:296-306, 2020.
252. L. Ouyang, J.P.K. Armstrong, Y. Lin, J.P. Wojciechowski, C. Lee-Reeves, D. Hachin, K. Zhou, **J.A. Burdick**, M.M. Stevens, Expanding and Optimizing 3D Bioprinting Capabilities using Complementary Network Bioinks, *Science Advances*, 6:eabc5529, 2020.
253. K.S. Lim, J.H. Galarraga, X. Cui, G.C.J. Lindberg, **J.A. Burdick**, T.B.F. Woodfield, Fundamentals and Applications of Photocrosslinking in Bioprinting, *Chemical Reviews*, 120:10662-10694, 2020.
254. C. Loebel, M.Y. Kwon, C. Wang, L. Han, R.L. Mauck, **J.A. Burdick**, Metabolic Labeling to Probe the Spatiotemporal Accumulation of Matrix at the Chondrocyte-Hydrogel Interface, *Advanced Functional Materials*, 30:1909802, 2020.
255. S. Trujillo, S.L. Vega, K.H. Song, M.J. Dalby, **J.A. Burdick**, M. Salmeron-Sanchez, Engineered Full-length Fibronectin-Hyaluronic Acid Hydrogels for Stem Cell Engineering, *Advanced Healthcare Materials*, 9:2000989, 2020.
256. J.E. Cohen, A.B. Goldstone, H. Wang, B.P. Purcell, Y. Shudo, J.W. MacArthur, A.N. Steele, M.J. Paulsen, B.B. Edwards, C.N. Aribéana, N.C. Cheung, **J.A. Burdick**, Y.J. Woo, A Bioengineered Neuregulin-Hydrogel Therapy Reduces Scar Size and Enhances Post-Infarct Ventricular Contractility in an Ovine Large Animal Model, *Journal of Cardiovascular Development and Disease*, 7:53, 2020.
257. B.B. Mendes, A.C. Daly, R.L. Reis, R.M.A. Domingues, M.E. Gomes, **J.A. Burdick**, Injectable Hyaluronic Acid and Platelet Lysate-derived Granular Hydrogels for Biomedical Applications, *Acta Biomaterialia*, 119:101-113, 2021.
258. A.C. Daly, M.E. Prendergast, A.J. Hughes, **J.A. Burdick**, Bioprinting for the Biologist, *Cell*, 184:18-32, 2021.
259. B.D. Cosgrove, C. Loebel, T.P. Driscoll, T.K. Tsinman, E.N. Dai, S.J. Heo, N.A. Dymant, **J.A. Burdick**, R.L. Mauck, Nuclear Envelope Wrinkling Predicts Mesenchymal Progenitor Cell Mechano-Response in 2D and 3D Microenvironments, *Biomaterials*, 270:120662, 2021.
260. A.C. Daly, M.D. Davidson, **J.A. Burdick**, 3D Printing of High Cell-Density Heterogenous Tissue Models through Spheroid Fusion within Self-Healing Hydrogels, *Nature Communications*, 12:753, 2021.
261. T.H. Qazi and **J.A. Burdick**, Granular Hydrogels for Endogenous Tissue Repair, *Biomaterials and Biosystems*, 1:100008, 2021.
262. J.A. Zepp, M.P. Morley, C. Loebel, M.M. Kremp, F.N. Chaudhry, M.C. Basil, J.P. Leach, D.C. Liberti, T.K. Niethamer, Y. Ying, S. Jayachandran, A. Babu, S. Zhou, D.B. Frank, **J.A. Burdick**, E.E. Morrissey, Genomic, Epigenomic, and Biophysical Cues Controlling the Emergence of the Lung Alveolus, *Science*, 371:eabc3172, 2021.

263. A.P. Dhand, J.H. Galarraga, **J.A. Burdick**, Enhancing Biopolymer Hydrogel Functionality through Interpenetrating Networks, *Trends in Biotechnology*, 39:519-538, 2021.
264. J.J. Chung, S.T. Kim, S. Zaman, M.R. Helmers, M.F. Arisi, E. Li, Z. Tran, C.W. Chen, P. Altshuler, M.H. Chen, **J.A. Burdick**, P. Atluri, Therapeutic Efficacy of Cryopreserved, Allogeneic Extracellular Vesicles for Treatment of Acute Myocardial Infarction, *International Heart Journal*, 62:381-389, 2021.
265. A.R. Martin, J.M. Patel, R.C. Locke, M.R. Eby, K.S. Saleh, M.D. Davidson, M.L. Sennett, H.M. Zlotnick, A.H. Chang, J.L. Carey, **J.A. Burdick**, R.L. Mauck, Nanofibrous Hyaluronic Acid Scaffolds Delivering TGF- $\beta$ 3 and SDF-1 $\alpha$  for Articular Cartilage Repair in a Large Animal Model, *Acta Biomaterialia*, 126:170-182, 2021.
266. R. Cruz-Acuna, G. Vunjak-Novakovic, **J.A. Burdick**, A.K. Rustgi, Emerging Technologies Provide Insights on Cancer Extracellular Matrix Biology and Therapeutics, *iScience*, 24:102475, 2021.
267. J.M. Patel, C. Loebel, K.S. Saleh, B.C. Wise, E.D. Bonnevie, L.M. Miller, J.L. Carey, **J.A. Burdick**, R.L. Mauck, Stabilization of Damaged Articular Cartilage with Hydrogel-mediated Reinforcement and Sealing, *Advanced Healthcare Materials*, 10:2100315, 2021.
268. B. Yang, K. Wei, C. Loebel, K. Zhang, Q. Feng, R. Li, D.S. Wong, X. Xu, C. Lau, X. Chen, P. Zhao, C. Yin, **J.A. Burdick**, Y. Wang, L. Bian, Enhanced Mechanosensing of Cells in Synthetic 3D Matrix with Controlled Biophysical Dynamics, *Nature Communications*, 12:3514, 2021.
269. W.J. Gordian-Velez, D. Chouhan, R.A. Espana, H.I. Chen, **J.A. Burdick**, J.E. Duda, D.K. Cullen, Restoring Lost Nigrostriatal Fibers in Parkinson's Disease based on Clinically-Inspired Design Criteria, *Brain Research Bulletin*, 175:168-185, 2021.
270. M. Bouché, Y.C. Dong, S. Sheikh, K. Taing, D. Saxena, J.C. Hsu, M.H. Chen, R.D. Salinas, H. Song, **J.A. Burdick**, J. Dorsey, D.P. Cormode, A Novel Treatment for Glioblastoma Delivered by a Radiation Responsive and Radiopaque Hydrogel, *ACS Biomaterials Science & Engineering*, 7:3209-3220, 2021.
271. N. Oliva, M. Shin, **J.A. Burdick**, Editorial: Special Issue on Advanced Biomedical Hydrogels, *ACS Biomaterials Science & Engineering*, 9:3993-3996, 2021.
272. Y.C. Dong, M. Bouché, S. Uman, **J.A. Burdick**, D.P. Cormode, Detecting and Monitoring Hydrogels with Medical Imaging, *ACS Biomaterials Science & Engineering*, 9:4027-4047, 2021.
273. V.G. Muir, T.H. Qazi, J. Shan, J. Groll, **J.A. Burdick**, Influence of Microgel Fabrication Technique on Granular Hydrogel Properties, *ACS Biomaterials Science & Engineering*, 9:4269-4281, 2021.
274. M.L. Becker and **J.A. Burdick**, Introduction: Polymeric Biomaterials, *Chemical Reviews*, 121:10789-10791, 2021.
275. V.G. Muir and **J.A. Burdick**, Chemically Modified Biopolymers for the Formation of Biomedical Hydrogels, *Chemical Reviews*, 121:10908-10949, 2021.
276. M.E. Prendergast, M.D. Davidson, **J.A. Burdick**, A Biofabrication Approach to Align Cells within Bioprinted Photocrosslinkable and Cell-degradable Hydrogel Constructs via Embedded Fibers, *Biofabrication*, 13:044108, 2021.
277. M.D. Davidson, M.E. Prendergast, E. Ban, K.L. Xu, G. Mickel, P. Mensah, A. Dhand, P.A. Janmey, V.B. Shenoy, **J.A. Burdick**, Programmable and Contractile Materials through Cell Encapsulation in Fibrous Hydrogel Assemblies, *Science Advances*, 7:eabi8157, 2021.
278. J.M. Patel, M.L. Sennett, A.R. Martin, K.S. Saleh, M.R. Eby, B.S. Ashley, L.M. Miller, G.R. Dodge, **J.A. Burdick**, J.L. Carey, R.L. Mauck, Resorbable Pins to Enhance Scaffold Retention in a Porcine Chondral Defect Model, *Cartilage*, 13:1676S-1687S, 2021.
279. B. Yin, J. Ni, C.E. Witherel, M. Yang, **J.A. Burdick**, C. Wen, S.H.D. Wong, Harnessing Cell-derived Exosomes for Osteoarthritis Theranostics, *Theranostics*, 12:207-231, 2022.

280. J.H. Galarraga, R.C. Locke, C.E. Witherel, B. Stoeckl, M. Castilho, R.L. Mauck, J. Malda, R. Levato, **J.A. Burdick**, Fabrication of MSC-laden Composites of Hyaluronic Acid Hydrogels Reinforced with MEW Scaffolds for Cartilage Repair, *Biofabrication*, 14:014106, 2022.
281. D.E. Midgett, S.L. Thorn, S.S. Ahn, S. Uman, R. Avendano, I. Melvinsdottir, T. Lysy, J.S. Kim, J.S. Duncan, J.D. Humphrey, X. Papademitris, **J.A. Burdick**, A.J. Sinusas, CineCT Platform for *In Vivo* and *Ex Vivo* Measurement of 3D High Resolution Lagrangian Strains in the Left Ventricle Following Myocardial Infarction and Intramyocardial Delivery of Theranostic Hydrogel, *Journal of Molecular and Cellular Cardiology*, 166:74-90, 2022.
282. C. Loebel, A. Saleh, K.R. Jacobson, R. Daniels, R.L. Mauck, S. Calve, **J.A. Burdick**, Metabolic Labeling of Secreted Matrix to Investigate Cell-Material Interactions in Tissue Engineering and Mechanobiology, *Nature Protocols*, 17:618-648, 2022.
283. T.H. Qazi, J. Wu, V.G. Muir, S. Weintraub, S. Gullbrand, D. Lee, D. Issadore, **J.A. Burdick**, Anisotropic Rod-shaped Particles Influence Injectable Granular Hydrogel Properties and Cell Invasion, *Advanced Materials*, 34:2109194, 2022.
284. M.E. Prendergast and **J.A. Burdick**, Computational Modeling and Experimental Characterization of Extrusion Printing into Suspension Baths, *Advanced Healthcare Materials*, 11:2101679, 2022.
285. T.H. Qazi, V.G. Muir, **J.A. Burdick**, Methods to Characterize Granular Hydrogel Rheological Properties, Porosity, and Cell Invasion, *ACS Biomaterials Science & Engineering*, 8:1427-1442, 2022.
286. T.H. Qazi, M. Blatchley, M.D. Davidson, F. Yavitt, M.E. Cooke, K.S. Anseth, **J.A. Burdick**, Programming Hydrogels to Probe Spatiotemporal Cell Biology, *Cell Stem Cell*, 29:678-691, 2022.
287. V.G. Muir, M.E. Prendergast, **J.A. Burdick**, Fragmenting Bulk Hydrogels and Processing into Granular Hydrogels for Biomedical Applications, *Journal of Visualized Experiments*, 183:e63867, 2022.
288. A.P. Dhand, M.D. Davidson, J.H. Galarraga, T.H. Qazi, R.C. Locke, R.L. Mauck, **J.A. Burdick**, Simultaneous One-pot Interpenetrating Network Formation to Expand 3D Processing Capabilities, *Advanced Materials*, 34:2202261, 2022.
289. C. Loebel, A.I. Weiner, M.K. Eiken, J.B. Katzen, M.P. Morley, V. Bala, F.L. Cardenas-Diaz, M.D. Davidson, K. Shiraishi, M.C. Basil, L.T. Ferguson, J.R. Spence, M. Ochs, M.F. Beers, E.E. Morrissey, A.E. Vaughan, **J.A. Burdick**, Microstructured Hydrogels to Guide Self-Assembly and Function of Lung Alveolospheres, *Advanced Materials*, 34:2202992, 2022.
290. V.G. Muir, T.H. Qazi, S. Weintraub, B.O. Torres Maldonado, P.E. Arratia, **J.A. Burdick**, Sticking Together: Injectable Granular Hydrogels with Increased Functionality via Dynamic Covalent Inter-particle Crosslinking, *Small*, 18:2201115, 2022.
291. K.A. Rose, N. Gogotsi, J.H. Galarraga, **J.A. Burdick**, C.B. Murray, D. Lee, R.J. Composto, Shape Anisotropy Enhances Nanoparticle Dynamics in Nearly Homogeneous Hydrogels, *Macromolecules*, 55:8514-8523, 2022.
292. J.H. Galarraga, A.P. Dhand, B.P. Enzmann, **J.A. Burdick**, Synthesis, Characterization, and Digital Light Processing of a Hydrolytically Degradable Hyaluronic Acid Hydrogel, *Biomacromolecules*, 24:413-425, 2023.
293. S.L. Thorn, J.A. Shuman, M.R. Stacy, B.P. Purcell, H. Doviak, **J.A. Burdick**, F.G. Spinale, A.J. Sinusas, Matrix Metalloproteinase-Targeted SPECT/CT Imaging for Evaluation of Therapeutic Hydrogels for the Early Modulation of Post-Infarct Myocardial Remodeling, *Journal of Cardiovascular Translational Research*, 16:155-165, 2023.
294. K. Shiraishi, P.P. Shah, M.P. Morley, C. Loebel, G.T. Santini, J. Katzen, M.C. Basil, S.M. Lin, J.D. Planer, E. Cantu, D.L. Jones, A.N. Nottingham, S. Li, F.L. Cardenas-Diaz, S. Zhou, **J.A. Burdick**, R. Jain, E.E. Morrissey, Biophysical Forces Mediated by Respiration Maintain Lung Alveolar Epithelial Cell Fate, *Cell*, 186:1-15, 2023.
295. S.J. Heo, S. Thakur, X. Chen, C. Loebel, B. Xia, R. McBeath, **J.A. Burdick**, V.B. Shenoy, R.L. Mauck, M. Lakadamyali, Aberrant Chromatin Reorganization in Cells from Diseased Fibrous Connective Tissue in Response to Altered Chemomechanical Cues, *Nature Biomedical Engineering*, 7:177-191, 2023.
296. V.G. Muir, S. Weintraub, A.P. Dhand, H. Fallahi, L. Han, **J.A. Burdick**, Influence of Microgel and Interstitial Matrix Compositions on Granular Hydrogel Composite Properties, *Advanced Science*, 10:2206117, 2023.



297. M.E. Prendergast, S.J. Heo, R.L. Mauck, **J.A. Burdick**, Suspension Bath Bioprinting and Maturation of Anisotropic Meniscal Constructs, *Biofabrication*, 15:035003, 2023.
298. R.C. Locke, H.M. Zlotnick, B.D. Stoeckl, G.W. Fryhofer, J.H. Galarraga, A.P. Dhand, M.H. Zgonis, J.L. Carey, **J.A. Burdick**, R.L. Mauck, Linguistic Analysis Identifies Emergent Biomaterial Fabrication Trends for Orthopaedic Applications, *Advanced Healthcare Materials*, 12:2202591, 2023.
299. N. Di Caprio and **J.A. Burdick**, Engineering Biomaterials to Guide Spheroid Formation, Function, and Fabrication into 3D Tissue Constructs, *Acta Biomaterialia*, 165:4-18, 2023.
300. J.H. Galarraga, H.M. Zlotnick, R.C. Locke, S. Gupta, N.L. Fogarty, K.M. Masada, B.D. Stoeckl, L. Laforest, M. Castilho, J. Malda, R. Levato, J.L. Carey, R.L. Mauck, **J.A. Burdick**, Evaluation of Surgical Fixation Methods for the Implantation of MEW-Reinforced HA Hydrogel Composites in Porcine Cartilage Defects, *International Journal of Bioprinting*, 9:775, 2023.
301. K.L. Xu, R.L. Mauck, **J.A. Burdick**, Modeling Development using Hydrogels, *Development*, 150:dev201527, 2023.
302. R. Goldshmid, H. Simaan-Yameen, L. Ifergan, C. Loebel, **J.A. Burdick**, D. Seliktar, Modulus-dependent Effects on Neurogenic, Myogenic and Chondrogenic Differentiation of Human Mesenchymal Stem Cells in Three-dimensional Hydrogel Cultures, *Journal of Biomedical Materials Research A*, 111:1441-1458, 2023.
303. R. Avendano, D.E. Midgett, I. Melvinsdottir, S.L. Thorn, S. Uman, Z. Pickell, S.R. Lee, Z. Liu, M. Mamarian, J.S. Duncan, F.G. Spinale, **J.A. Burdick**, A.J. Sinusas, Improvement in Cardiac Function and Regional LV Strain Following Intramyocardial Injection of a Theranostic Hydrogel Early Post Myocardial Infarction in a Porcine Model, *Journal of Applied Physiology*, 135:405-420, 2023.
304. A. Schwab, M.A. Wesdopr, J. Xu, F. Abinzano, C. Loebel, R. Levato, D. Eglin, R. Narcisi, M.J. Stoddart, J. Malda, **J.A. Burdick**, M. D'Este, G. JVM van Osch, Modulating Design Parameters to Drive Cell Invasion into Hydrogels for Osteochondral Tissue Formation, *Journal of Orthopaedic Translation*, 41:42-53, 2023.
305. Y.C. Dong, L.M. Nieves, J.C. Hsu, A. Kumar, M. Bouche, U. Krishnan, K.J. Mossburg, D. Saxena, S. Uman, T. Kambayashi, **J.A. Burdick**, M.M. Kim, J.F. Dorsey, D.P. Cormode, Novel Combination Treatment for Melanoma: FLASH Radiotherapy and Immunotherapy Delivered by a Radiopaque and Radiation Responsive Hydrogel, *Chemistry of Materials*, 25:9542-9551, 2023.
306. I.E.M. de Jong, M.L. Hunt, D. Chen, Y. Du, J. Llewellyn, K. Gupta, D. Li, D. Erxleben, F. Rivas, A.R. Hall, E.E. Furth, A. Najji, C. Liu, A. Dhand, **J.A. Burdick**, M.G. Davey, A.W. Flake, R.J. Porte, P.A. Russo, J.W. Gaynor, R.G. Wells, A Fetal Wound Healing Program after Intrauterine Bile Duct Injury May Contribute to Biliary Atresia, *Journal of Hepatology*, 79:1396-1407, 2023.
307. R. Cruz-Acuña, S.W. Kariuki, K. Sugiura, S. Karaiskos, E.M. Plaster, C. Loebel, G. Efe, T.A. Karakasheva, J.T. Gabre, J. Hu, **J.A. Burdick**, A.K. Rustgi, Engineered Hydrogel Reveals Contribution of Matrix Mechanics to Esophageal Adenocarcinoma and Identifies Matrix-Activated Therapeutic Targets, *Journal of Clinical Investigation*, 133:e168146, 2023.
308. M. Fainor, B.S. Orozco, V.G. Muir, S. Mahindroo, S. Gupta, R.L. Mauck, **J.A. Burdick**, H.E. Smith, S.E. Gullbrand, Mechanical Crosstalk between the Intervertebral Disc, Facet Joints and Vertebral Endplate following Acute Disc Injury in a Rabbit Model, *JOR Spine*, 6:e1287, 2023.
309. A. Mora-Boza, A. Mulero-Russe, N. Di Caprio, **J.A. Burdick**, A. Singh, A.J. Garcia, Facile Photopatterning of Perfusible Microchannels in Synthetic Hydrogels to Recreate Microphysiological Environments, *Advanced Materials*, 35:2306765, 2023.
310. K.L. Xu, N. Di Caprio, H. Fallahi, M. Dehghany, M.D. Davidson, L. Laforest, B.C.H. Cheung, Y. Zhang, M. Wu, V. Shenoy, L. Han, R.L. Mauck, **J.A. Burdick**, Microinterfaces in Biopolymer-based Biocontinuous Hydrogels Guide Rapid 3D Cell Migration, *Nature Communications*, 15:2766, 2024.
311. N. Di Caprio, M.D. Davidson, A.C. Daly, **J.A. Burdick**, Injectable MSC Spheroid and Microgel Granular Composites for Engineering Tissue, *Advanced Materials*, 36:2312226, 2024.

312. L.L. Wang, S. Tuohy, A. Nace, K.L. Xu, **J.A. Burdick**, G. Cotsarelis, Local and Sustained Baricitnib Delivery to the Skin through Injectable Hydrogels Containing Reversible Thioimide Adducts, *Advanced Healthcare Materials*, 13:2303256, 2024.
313. D.E. Mason, P. Camacho, M.E. Goeckel, B.R. Tobin, S.L. Vega, P.H. Wu, D. Johnson, S.J. Heo, D. Wirtz, **J.A. Burdick**, L. Wood, B.Y. Chow, A.N. Stratman, J.D. Boerckel, Mechanotransductive Feedback Control of Endothelial Cell Motility and Vascular Morphogenesis, *eLIFE*, 12:RP86668, 2024.
314. A. Pardo, M. Gomez-Florit, M.D. Davidson, M. Ozgen Ozturk-Oncel, R.M.A. Domingues, **J.A. Burdick**, M.E. Gomes, Hierarchical Design of Tissue-Mimetic Fibrillar Hydrogel Scaffolds, *Advanced Healthcare Materials*, 13:2303167, 2024.
315. A.P. Dhand, M.D. Davidson, H.M. Zlotnick, T.J. Kolibaba, J.P. Killgore, **J.A. Burdick**, Additive Manufacturing of Highly Entangled Polymer Networks, *Science*, 385:566-572, 2024.
316. L.A. Krattiger, D.B. Emiroglu, S. Pravato, L.O. Moser, O.A. Bachmann, S.Y. La Cioppa, G.J. Rodriguez Rivera, **J.A. Burdick**, A.J. DeMello, M.W. Tibbitt, M. Ehrbar, Microfluidic Platforms to Screen Granular Hydrogel Microenvironments for Tissue Regeneration, *Advanced Functional Materials*, 34:2310507, 2024.
317. M.B. Riffe, M.D. Davidson, G. Seymour, A. Dhand, M.E. Cooke, H.M. Zlotnick, R.R. McLeod, **J.A. Burdick**, Multi-material Volumetric Additive Manufacturing of Hydrogels using Gelatin as a Sacrificial Network and 3D Suspension Bath, *Advanced Materials*, 36:2309026, 2024.
318. B.R. Nelson, B.E. Kirkpatrick, N.P. Skillin, N. Di Caprio, J.S. Lee, L.P. Hibbard, G.K. Hach, A. Khang, T.J. White, **J.A. Burdick**, C.N. Bowman, K.S. Anseth, Facile Physicochemical Reprogramming of PEG-Dithiolane Microgels, *Advanced Healthcare Materials*, 13:2302925, 2024.
319. V.G. Muir, M. Fainor, B.S. Orozco, R. Hilliard, M. Boyes, H.E. Smith, R.L. Mauck, T.P. Schaer, **J.A. Burdick**, S.E. Gullbrand, Injectable Radiopaque Hyaluronic Acid Granular Hydrogels for Intervertebral Disc Repair, *Advanced Healthcare Materials*, 13:2303326, 2024.
320. D.C. Stewart, B.K. Brisson, B. Dekky, A.C. Berger, W. Yen, E.A. Mauldin, C. Loebel, D. Gillette, C-A. Assenmacher, C. Quincey, D. Stefanovski, E. Cukierman, **J.A. Burdick**, V.F. Borges, S.W. Volk, Prognostic and Therapeutic Implications of Tumor-restrictive Type III Collagen in the Breast Cancer Microenvironment, *npj Breast Cancer*, 10:86, 2024.
321. B.R. Nelson, B.E. Kirkpatrick, C.E. Miksch, M.D. Davidson, N.P. Skillin, G.K. Hach, A. Khang, S.N. Hummel, B.D. Fairbanks, **J.A. Burdick**, C.N. Bowman, K.S. Anseth, Photoinduced Dithiolane Crosslinking, Exchange, and Depolymerization for Multiresponsive Dynamic Hydrogels, *Advanced Materials*, 36:2211209, 2024.
322. S. Uman, N. Weingarten, M. Helmers, A. Iyengar, K.L. Xu, K. Worthington, D. Meldrum, J. Dominic, S. Guevara-Plunkett, A. Schiazza, P. Atluri, **J.A. Burdick**, Engineering and Monitoring the Sustained Release of Extracellular Vesicles from Hydrogels for In Vivo Therapeutic Applications, *Advanced NanoBiomed Research*, 4:2400073, 2024.
323. C.R. Scanzello, K.A. Hasty, C.B. Chung, H. Drissi, N.J. Willet, H. Krug, D. Ewart, S. Jerban, J.F. Baker, C.L. Duvall, D.B.F. Saris, J.M. Brunger, **J.A. Burdick**, K.P. Spindler, T.M. Griffin, Teaming up to Overcome Challenges in the Clinical Translation of New Therapeutics for Osteoarthritis, *Journal of Orthopaedic Research*, 42:2659-2672, 2024.
324. B.E. Kirkpatrick, G.K. Hach, B.R. Nelson, N.P. Skillin, J.S. Lee, L.P. Hibbard, A.P. Dhand, H.S. Grotheer, C.E. Miksch, V. Salazar, T.S. Hebner, S.P. Keyser, J.T. Kamps, J. Sinha, L.J. Macdougall, B.D. Fairbanks, **J.A. Burdick**, T.J. White, C.N. Bowman, K.S. Anseth, Photochemical Control of Network Topology in PEG Hydrogels, *Advanced Materials*, 36:2409603, 2024.
325. K. Nakamura, N. Di Caprio, **J.A. Burdick**, Engineered Shape-morphing Transitions in Hydrogels through Suspension Bath Printing of Temperature-Responsive Granular Hydrogel Inks, *Advanced Materials*, 36:2410661, 2024.
326. A. Mora-Boza, A. Mulero-Russe, N. Di Caprio, **J.A. Burdick**, A. Singh, A.J. Garcia, Facile Photopatterning of Perfusable Microchannels in Hydrogels for Microphysiological Systems, *Nature Protocols*, 20:272-292, 2025.
327. N. Di Caprio, A.J. Hughes, **J.A. Burdick**, Programmed Shape Transformations in Cell-laden Granular Composites, *Science Advances*, 11:eadq5011, 2025.

328. J.S. Lee, B.E. Kirkpatrick, A.P. Dhand, L.P. Hibbard, B.R. Nelson, N.P. Skillin, M.C. Johnson, D. Batan, B.D. Fairbanks, T.J. White, C.N. Bowman, **J.A. Burdick**, K.S. Anseth, Photodegradable Polyacrylamide TangleMers Enable Spatiotemporal Control over Chain Lengthening in High-strength and Low-hysteresis Hydrogels, *Journal of Materials Chemistry B*, 13:894-903, 2025.
329. W.J. Gordian-Velez, K.D. Browne, J.H. Galarraga, D. Chouhan, J.E. Duda, R.A. Espana, H.I. Chen, **J.A. Burdick**, D.K. Cullen, Dopaminergic Axon Tracts within a Hyaluronic Acid Hydrogel Encasement to Restore the Nigrostriatal Pathway, *Advanced Healthcare Materials*, 14:2402997, 2025.
330. A.P. Dhand, M.D. Davidson, **J.A. Burdick**, Lithography-based 3D Printing of Hydrogels, *Nature Reviews Bioengineering*, 3:108-125, 2025.
331. S-H. Lee, Z. Li, E.Y. Zhang, D.H. Kim, Z. Huang, S.J. Lee, H-W. Kang, **J.A. Burdick**, R.L. Mauck, S.C. Heo, Precision Repair of Zone-Specific Meniscal Injuries Using a Tunable Extracellular Matrix-based Hydrogel System, *Bioactive Materials*, 48:400-413, 2025.
332. A. Solsona-Pujol, N. Di Caprio, H.M. Zlotnick, M.D. Davidson, M.B. Riffe, **J.A. Burdick**, Measurement and Comparison of Hyaluronic Acid Hydrogel Mechanics Across Length Scales, *Journal of Biomedical Materials Research A*, 113:e37889, 2025.
333. C.O. Crosby, A.P. Dhand, J.T. Taasan, **J.A. Burdick**, Fabrication of Microgel-Reinforced Hydrogels via Vat Photopolymerization, *ACS Macro Letters*, 14:603-609, 2025.
334. J.E. Mealy, W.M. Torres, L. Freeburg, A. Moore, S.C. Barlow, A. Augsburger, C.V. Maduka, T. Shazly, **J.A. Burdick**, F.G. Spinale, Shear-thinning Hydrogel for Delayed Delivery of a Small Molecule Metalloproteinase Inhibitor Attenuates Post Myocardial Infarction Remodeling, *JACC: Basic to Translational Science*, 10:458-472, 2025.
335. B.R. Nelson, J.T. Cione, B.E. Kirkpatrick, K.M. Kreienbrink, A.P. Dhand, **J.A. Burdick**, C.W. Shields, K.S. Anseth, C.N. Bowman, Multifunctional Dithiolane Monomers for Multi-scale Recyclable Light-driven Additive Manufacturing, *Polymer Chemistry*, 16:2108-2116, 2025.
336. F. Alisafaei, D. Shakiba, Y. Hong, G. Ramahdita, Y. Huang, L.E. Iannucci, M.D. Davidson, M. Jafari, J. Qian, C. Qu, D. Ju, D.R. Flory, Y.Y. Huang, P. Gupta, S. Jiang, A. Mujahid, S. Singamaneni, K.M. Pryse, P-H.G. Chao, **J.A. Burdick**, S.P. Lake, E.L. Elson, N. Huebsch, V.B. Shenoy, G.M. Genin, Tension Anisotropy Drives Fibroblast Phenotypic Transition by Self-Reinforcing Cell-Extracellular Matrix Mechanical Feedback, *Nature Materials*, 24:955-965, 2025.
337. M.E. Cooke, M.B. Riffe, M.E. Gomes, R.M.A. Domingues, **J.A. Burdick**, Biofabrication in Suspension Media – A Decade of Advances, *Biofabrication*, 17:033001, 2025.
338. K.L. Xu, R.L. Mauck, **J.A. Burdick**, Hydrogel Design to Understand and Guide 3D Cell Migration, *Regenerative Engineering and Translational Medicine*, in press.
339. C. Wang, M. Fan, S.J. Heo, S.M. Adams, T. Li, Y. Liu, Q. Li, C. Loebel, **J.A. Burdick**, X.L. Lu, D.E. Birk, F. Alisafaei, R.L. Mauck, L. Han, Structure, Mechanics and Mechanobiology of Fibrocartilage Pericellular Matrix Mediated by Type V Collagen, *Advanced Science*, in press.
340. A.P. Dhand, B.E. Kirkpatrick, M. Garay-Sarmiento, B.R. Nelson, C.E. Miksch, B. Meurer-Zeman, H.M. Zlotnick, A. Mandal, J.S. Lee, J. Cione, C.N. Bowman, K.S. Anseth, **J.A. Burdick**, Digital Light Processing of Photoresponsive and Programmable Hydrogels, *Science Advances*, in press.
341. M.E. Cooke, N. Di Caprio, J. Killgore, **J.A. Burdick**, Tailoring Agarose Fluid Gels for use in Suspension Bath Bioprinting and Culture of Spheroid-based Bioinks, *Biofabrication*, in revision.
342. A.Z. Huang, L.S. Prael, K. Xu, R.L. Mauck, **J.A. Burdick**, A.J. Hughes, Engineering Kidney Developmental Trajectory Using Culture Boundary Conditions, *Nature Communications*, in revision.

343. R.C. Locke, L. Miller, E.A. Lemmon, S.S. Assi, D.L. Jones, E.D. Bonnevie, **J.A. Burdick**, S.J. Heo, R.L. Mauck, Rapid Restoration of Cell Phenotype and Matrix Forming Capacity Following Transient Nuclear Softening, *Acta Biomaterialia*, in revision.
344. L. Ifergan-Azriel, O. Bar-Am, G. Saar, C. Loebel, **J.A. Burdick**, D. Seliktar, Hydrogel Viscoelasticity Alters Encapsulated MSC Spreading and In Vivo Degradation Behavior, *ACS Biomaterials Science & Engineering*, in revision.
345. A.P. Dhand, M.A. Juarros, T.G. Martin, G.J. Rodriguez-Rivera, D.R. Hunt, M.C. Obenreder, C.O. Crosby, B. Meurer-Zeman, Q. McAfee, H. Valle-Ayala, H.M. Zlotnick, D.N. Goddard, C.C. Ebmeier, **J.A. Burdick**, L.A. Leinwand, Digital Light Processing 3D Printing enables High Throughput Fabrication of Human Engineered Heart Tissues for Disease Modeling, *Nature Communications*, in revision.
346. M. Kim, M.L. Sennett, J.M. Patel, B.A. Ashley, B.D. Stoeckl, M.R. Eby, A.R. Martin, D.H. Kim, H.M. Zlotnick, J.M. Friedman, A.L. Neuwirth, E. Koyama, E.A. Henning, N. Pleshko, D.R. Steinberg, **J.A. Burdick**, R.L. Mauck, In Vivo Translation of an Injectable Chondrocyte-laden "Micro-noodle" to Promote Cartilage Repair, *Acta Biomaterialia*, in revision.
347. K.L. Xu, Y. Zhang, G. Kotsaris, A. DeFoe, B. Stoeckl, M.D. Davidson, **J.A. Burdick**, R.L. Mauck, Controlling 3D Contractility via Engineered Fibrous Hydrogel Composites, *Advanced Materials*, in revision.
348. I.H. Melvinsdottir, D. Midgett, S.R. Lee, S.L. Thorn, S. Uman, R. Avendano, T. Lysy, F.T. Zohora, K. Chen, M. Mamarian, J.S. Duncan, F.G. Spinale, **J.A. Burdick**, A.J. Sinusas, Intramyocardial Hydrogel Delivery Decreases Left Ventricular Remodeling and Increases Angiogenesis Post Myocardial Infarction, *Circulation: Cardiovascular Imaging*, in revision.
349. S. Uman, J. Dominic, K. Worthington, P. Atluri, **J.A. Burdick**, Production Scale-up and Characterization of Extracellular Vesicles for Therapeutic Applications, *Trends in Biotechnology*, in revision.
350. K. Nakamura, N. Di Caprio, J.T. Taasan, C.O. Crosby, **J.A. Burdick**, Dynamic Regulation of Granular Hydrogels through Guest-Host Interactions to Spatiotemporally Guide Cell Migration, *Advanced Science*, in revision.

#### **Books:**

1. **J.A. Burdick** and R.L. Mauck (editors), *Biomaterials for Tissue Engineering Applications: A Review of the Past and Future Trends*, Springer Verlag, 2011.

#### **Book Chapters:**

1. **J.A. Burdick** and M.M. Stevens, Biomedical Hydrogels, in *Biomaterials, Artificial Organs, and Tissue Engineering* (eds. J. Jones and L. Hench), Woodhead Publishing Ltd., Cambridge, 2005.
2. S. Gerecht, **J.A. Burdick**, C. Cannizzaro, G. Vunjak-Novakovic, 3D Cultivation of Human Embryonic Stem Cells, in *Embryonic Stem Cells (Human Cell Culture)* (eds. J. Masters, B. Palsson, J. Thomson), Springer Verlag, 2007.
3. R.L. Mauck and **J.A. Burdick**, Engineering Cartilage Tissue, in *The Tissue Engineering Book: State of the Art, Visions, and Limitations* (ed. N. Pallua), Springer Science + Business Media, 2010.
4. S. Khetan, V. Ramanan, and **J.A. Burdick**, 3D Encapsulation of Cells in Hydrogels using Radical and Addition Polymerizations, in *3-D Tissue Engineering (Methods in Bioengineering)* (eds. M.L. Yarmush and R.S. Langer), Artech House Publishing, 2010.
5. H. Sundararaghavan and **J.A. Burdick**, Cell Encapsulation, in *Comprehensive Biomaterials* (eds. P. Ducheyne, K.E. Healy, D.W. Hutmacher, D.W. Grainger, C.J. Kirkpatrick), Elsevier, 2011.
6. M. Guvendiren, B. Purcell, **J.A. Burdick**, Photopolymerizable Systems, in *Comprehensive Polymer Science* (eds. R. Langer and D. Tirrell), Elsevier, 2012.

7. J.S. Katz and **J.A. Burdick**, Synthetic Biomaterials, in *The Biomedical Engineering Handbook, 4<sup>th</sup> Edition* (eds. J. Fisher, A. Mikos, Tissue Engineering Section), CRC Press, 2013.
8. M. Guvendiren and **J.A. Burdick**, Hydrogels with Dynamically Tunable Properties, in *Integrative Mechanobiology: Micro and Nano Techniques in Cell Mechanobiology* (eds. Y. Sun, C. Simmons, D. Kim), Cambridge University Press, 2015.
9. S.M. Dorsey and **J.A. Burdick**, Hydrogels for Cardiac Repair, in *Applications of Hydrogels in Regenerative Medicine* (eds. A. Khademhosseini and U. Demirci), World Scientific Publishing Company, 2016.
10. K.G. Abdullah and **J.A. Burdick**, Local and Topical Treatment of Glioblastoma, in *Glioblastoma* (eds. K. Abdullah and S. Brem), Elsevier, 2016.
11. H. Sundararaghavan and **J.A. Burdick**, Cell Encapsulation, in *Comprehensive Biomaterials II* (eds. P. Ducheyne, K.E. Healy, D.W. Hutmacher, D.W. Grainger, C.J. Kirkpatrick), Elsevier, 2017.

## PRESENTATIONS

### Invited Lectures:

1. Utilizing Photopolymerization in the Field of Tissue Engineering: Specific Applications in Bone Regeneration, Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN, March 2003.
2. Utilizing Photopolymerization in the Field of Tissue Engineering: Specific Applications in Bone Regeneration, Department of Biomedical Engineering, University of California – Davis, Davis, CA, May 2003.
3. Photopolymerizable Biomaterials, Biomedical Applications of Chemical Engineering Seminar, Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, March 2004.
4. The Nuts and Bolts of the Academic Job Search (Speaker and Panel Discussion Participant), Massachusetts Institute of Technology, Cambridge, MA, June 2004.
5. Injectable Hydrogels for Cartilage Regeneration, Musculoskeletal Research Symposium for Fellows and Junior Faculty, Harvard Medical School - Children's Hospital, Boston, MA, April 2005.
6. Cell Encapsulation in Photopolymerizable Hydrogels, Cell & Tissue Engineering: 3-D Culture in Health and Disease Symposium, Institute for Medicine and Engineering, University of Pennsylvania, Philadelphia, PA, December 2005.
7. Synthesis and Characterization of Biodegradable Polymers, Advanced Materials Lecture Series, Laboratory for Research on the Structure of Matter, University of Pennsylvania, Philadelphia, PA, April 2006.
8. Photocrosslinkable Polymers for Tissue Engineering, Tissue Engineering and Cell Based Therapies Conference, The Academy of Pharmaceutical Sciences, London, UK, May 2006.
9. Photocrosslinkable Biomaterials for Tissue Engineering, 1<sup>st</sup> Annual Methods in Bioengineering Conference, Massachusetts Institute of Technology, Cambridge, MA, July 2006.
10. Controlling Cells Through Hydrogel Structure and Chemistry, 8<sup>th</sup> New Jersey Symposium on Biomaterials Science, New Brunswick, NJ, November 2006.
11. Photocrosslinkable Hydrogels with Tailored Degradation for Growth Factor Delivery, Drug Delivery Technology, GTCbio's 2<sup>nd</sup> Modern Drug Discovery and Development Summit, Philadelphia, PA, December 2006.
12. Growth Factor Delivery for CNS Applications, CNS Injury Conference, University of Pennsylvania, Philadelphia, PA, December 2006.
13. Photocrosslinkable Polymers for Tissue Engineering and Growth Factor Delivery Applications, IUMACRO - 2<sup>nd</sup> Strategic Polymer Symposium, Polytechnic University, New York, NY, June 2007.

14. Synthetic Hydrogels to Control Cellular Behavior, 1<sup>st</sup> Annual Engineering Cell Biology Meeting, Massachusetts Institute of Technology, Cambridge, MA, August 2007.
15. Controlling Novel Photocrosslinked Biomaterial Properties through Macromer Structure, American Chemical Society Fall Meeting – PMSE Division, Boston, MA, August 2007.
16. Designing Radically Polymerizable and Degradable Biomaterials to Control Cellular Interactions, Department of Chemical and Biomolecular Engineering, University of Pennsylvania, Philadelphia, PA, November 2007.
17. Chemical and Physical Cues in Hydrogels to Control Cell Differentiation and Tissue Production, Society for Physical Regulation in Biology and Medicine 26<sup>th</sup> Annual Conference, Miami Beach, FL, January 2008.
18. Radically-Polymerized Hydrogels with Controlled Temporal Properties to Dictate Encapsulated Cellular Behavior, Materials Research Society Spring Meeting, San Francisco, CA, March 2008.
19. Biodegradable Polymers to Control Cellular Behavior for Musculoskeletal Tissue Engineering, Department of Biological Engineering, University of Missouri, Columbia, MO, April 2008.
20. Hyaluronan Hydrogels with Controlled Degradation and Cellular Interactions for Tissue Regeneration, American Chemical Society Fall Meeting – POLY Division, Philadelphia, PA, August 2008.
21. Spatially and Temporally Controlled Dynamic Hydrogels to Control Stem Cell Differentiation for Tissue Regeneration, David and Lucille Packard Foundation Fellows Meeting, Park City, UT, September 2008.
22. Engineered Biomaterials to Control Cellular Microenvironments towards Cartilage Regeneration, Penn Center for Musculoskeletal Disorders Annual Symposium, University of Pennsylvania, Philadelphia, PA, November 2008.
23. Manipulating Cell Behavior through Polymer Structure and Architecture, Department of Biomedical Engineering, Columbia University, New York City, NY, November 2008.
24. Dictating Cellular Interactions with Polymer Network Structure and Degradation, Department of Materials Science and Engineering, University of Delaware, Wilmington, DE, March 2009.
25. Designing Biomaterials for Musculoskeletal Tissue Engineering Applications, Department of Orthopaedic Surgery, Stanford University, Palo Alto, CA, April 2009.
26. Engineering Biomaterials to Control Stem Cell Microenvironments, Department of Bioengineering, Stanford University, Palo Alto, CA, April 2009.
27. Electrospun Elastomers for Tissue Reconstruction, 35<sup>th</sup> Annual Northeast Bioengineering Conference, Boston, MA, April 2009.
28. Biomaterial Cues in Stem Cell Microenvironments for Tissue Regeneration Applications, Department of Biomedical Engineering, Tufts University, Somerville, MA, April 2009.
29. Manipulating Biomaterial Properties to Control Cellular Interactions and Molecule Delivery, Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD, April 2009.
30. Engineering Hydrogels to Control Stem Cell Interactions for Regenerative Medicine, 65<sup>th</sup> International ACS Workshop on Polymers in Medicine and Biology, Santa Rosa, CA, June 2009.
31. Designing Hydrogels to Control Cellular Behavior, American Chemical Society Fall Meeting – POLY Division, Washington, DC, August 2009.
32. Tuning Hydrogel Properties for Applications in Tissue Engineering, International Conference of IEEE Engineering in Medicine and Biology Society, Minneapolis, MN, September 2009.
33. Novel Nano-composite Biomaterials that Respond to Light, International Conference of IEEE Engineering in Medicine and Biology Society, Minneapolis, MN, September 2009.

34. Dynamic Hyaluronic Acid Hydrogels for Controlled Stem Cell Behavior, Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, October 2009.
35. High-throughput and Combinatorial Technologies in Biomaterial Development and Characterization, American Institute of Chemical Engineers Annual Meeting, Nashville, TN, November 2009.
36. Engineering the Chemistry and Structure of Hydrogels to Control Cellular Interactions, Department of Biomedical and Chemical Engineering, Syracuse University, Syracuse, NY, November 2009.
37. Engineering Biomaterials to Control Stem Cell Interactions for Regenerative Medicine, Department of Mechanical Engineering, Villanova University, Villanova, PA, November, 2009.
38. Biomaterials: Physicochemical Interactions, Surface Modifications, Biomaterials: Perspectives and Possibilities Workshop, University of Mauritius, Mauritius, Africa, December 2009.
39. Regenerative Medicine: Future Directions, Biomaterials: Perspectives and Possibilities Workshop, University of Mauritius, Mauritius, Africa, December 2009.
40. Biomaterials to Control Stem Cell Fate, Northeast Bioengineering Conference, Columbia University, New York, NY, April 2010.
41. High-throughput and Combinatorial Technologies in Musculoskeletal Tissue Engineering, Gordon Research Conference on Musculoskeletal Biology and Bioengineering, Andover, NH, August 2010.
42. Engineering Stem Cell Microenvironments, Materials Week, Ohio State University, Columbus, OH, September 2010.
43. Engineering Biomaterials to Control Cellular Interactions and Tissue Response, Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA, October 2010.
44. Engineering HA Hydrogel Chemistry and Structure to Modulate Cellular Interactions, TERMIS NA Annual Meeting, Orlando, FL, December 2010.
45. Hyaluronic Acid Hydrogels for Modulating Stem Cell Behavior and Tissue Interactions, Department of Bioengineering, University of Utah, January 2011.
46. Engineering Biomaterials to Control Stem Cell and Tissue Interactions, World Premier Institute – Advanced Institute for Materials Research Annual Workshop, Tokyo, Japan, February 2011.
47. Hydrogels with Spatially and Temporally Controlled Properties to Control Cellular Interactions, American Physical Society (APS) meeting, Dallas, TX, March 2011.
48. Dynamic Biomaterials to Modulate Stem Cell Behavior and Tissue Interactions, Department of Biomedical Engineering, Georgia Tech, Atlanta, GA, March 2011.
49. Heterogeneous and Dynamic Biomaterials to Control Stem Cell Interactions, Experimental Biology 2010, Washington, DC, April 2011.
50. Engineering Temporal Hydrogel Properties to Control Stem Cell Behavior and Tissue Formation, NIBIB Edward Nagy New Investigator Symposium, Bethesda, MD, April 2011.
51. Engineering Biomaterials to Control Local Cellular Microenvironments toward Therapy Development, Experimental Biology 2010, Washington, DC, April 2011.
52. Hyaluronic Acid Hydrogels to Modulate Cardiac Function after Myocardial Infarction, Aegean Conference on Tissue Engineering, Crete, Greece, June 2011.
53. Engineering Hydrogel Structure and Chemistry to Control Cellular Behavior, 4<sup>th</sup> Annual Conference of the UK Bioengineering Society, London, UK, September 2011.

54. Hydrogels: From Stem Cell Culture Substrates to Tissue Engineering, Wellcome Trust Centre for Stem Cell Research, University of Cambridge, Cambridge, UK, September 2011.
55. Dynamic Hydrogel Design to Modulate Stem Cell and Tissue Interactions, Ecole Polytechnique Federale De Lausanne (EPFL), Lausanne, Switzerland, September 2011.
56. Hyaluronic Acid Based Hydrogels for Stem Cell Culture and Tissue Engineering, Grenoble-Institute of Technology, Grenoble, France, October 2011.
57. Engineering Biomaterial Design to Control Stem Cell Interactions, World Conference of Regenerative Medicine, Leipzig, Germany, November 2011.
58. Hydrogels with Controlled Mechanical Properties and Degradation for Cardiac Repair, Ben-Gurion University, Israel, November 2011.
59. Modular Hydrogel Design to Control and Understand Adult Stem Cell Behavior, Department of Biomedical Engineering, Technion-Israel Institute of Technology, Israel, November 2011.
60. Polymer and Nanorod Composites for Light-Activated Material Function, Russell Berrie Nanotechnology Institute, Technion-Israel Institute of Technology, Israel, November 2011.
61. Light-Responsive Polymers and Composites for Biomedical Applications, Department of Chemistry, University of Cambridge, Cambridge, UK, December 2011.
62. Hydrogel Microenvironments that Modulate Stem Cell Behavior, Department of Bioengineering, Imperial College, London, UK, December 2011.
63. Engineering Hydrogels to Control Stem Cell Behavior, School of Pharmacy, University of Nottingham, Nottingham, UK, December 2011.
64. Engineered Hydrogels with Controlled Physical Properties for Biomedical Applications, Department of Materials Science and Engineering, University of Cambridge, Cambridge, UK, December 2011.
65. Controlling the Hydrogel and Stem Cell Interface for Tissue Engineering Applications, Center for Bioengineering, Trinity College, Dublin, Ireland, December 2011.
66. Engineering Gels and Assemblies with Controlled Properties for Biomedical Applications, RainDance Technology, Lexington, MA, February 2012.
67. Engineering the Stem Cell and Hydrogel Interface to Control Differentiation, Department of Biomedical Engineering, Brown University, Providence, RI, February 2012.
68. Dynamic and Patterned Hydrogels to Control Stem Cell Behavior, 16<sup>th</sup> Annual Hilton Head Workshop – Harnessing Biology for Regenerative Medicine, Hilton Head Island, SC, March 2012.
69. Engineering Hydrogel Structure and Degradation to Modulate Stem Cell Behavior, Department of Biomedical Engineering, Texas A&M University, College Station, TX, April 2012.
70. Tailoring Biomaterials to Modulate Cellular Interactions and Tissue Regeneration, Society of Gene and Cell Therapy Annual Meeting, Philadelphia, PA, May 2012.
71. Stem Cells and Tissue Engineering, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana, June 2012.
72. Engineering Hydrogel Structure and Degradation for Cardiac Repair, Society for Biological Engineering 6<sup>th</sup> International Conference on Bioengineering and Nanotechnology, Berkeley, CA, June 2012.
73. Hyaluronic Acid Hydrogels to Alter Left Ventricular Remodeling, Amgen, San Francisco, CA, June 2012.



74. Sequential Crosslinking – A Route to Dynamically alter Network Properties and Cellular Interactions, Polymer Networks 2012 Meeting, Jackson Hole, WY, August 2012.
75. Dynamic Hydrogels to Modulate Stem Cell Interactions and Fate Decisions, American Chemical Society Annual Fall Meeting, Philadelphia, PA, August 2012.
76. Spatially and Temporally Controlled Dynamic Hydrogels to Control Stem Cell Differentiation for Tissue Regeneration, David and Lucile Packard Foundation Fellows Meeting, Monterey, CA, September 2012.
77. Engineering Hyaluronic Acid Hydrogels for Cartilage Repair, Hospital for Special Surgery, New York, NY, October 2012.
78. Engineering Synthetic Hydrogels to Introduce Biomimetic Cues to Stem Cells, Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN, December 2012.
79. Spatiotemporal Control of Hydrogel Degradation Modulates Stem Cell Fate, Cellular and Molecular Bioengineering Conference, Hawaii, January 2013.
80. Hydrogel Microenvironments to Guide Stem Cell Behavior and Fate, Tissue Engineering Program, School of Dentistry, University of Michigan, Ann Arbor, MI, January 2013.
81. Engineered Fibrous Scaffolds that Mimic Natural Extracellular Matrix, ASME Global Congress on NanoEngineering for Medicine and Biology, Boston, MA, February 2013.
82. Injectable Hydrogels with Engineered Properties and Molecule Release for Cardiac Repair, Department of Chemical and Biomolecular Engineering, Ohio State University, Columbus, OH, February 2013.
83. Engineering Hyaluronic Acid Scaffolds to Modulate Stem Cell Interactions, School of Biomedical Engineering, Drexel University, Philadelphia, PA, February 2013.
84. Injectable Hydrogels that Provide both Mechanical and Biological Signals in Cardiac Repair, Department of Chemical and Biological Engineering, University of Colorado, Boulder, CO, March 2013.
85. Advances in Hydrogel Design: Systems to Probe Cellular Microenvironments, Biomaterials Day, Vanderbilt University, Nashville, TN, March 2013.
86. Enhancing Hydrogel Functionality through the Combination of Physical and Covalent Crosslinks, American Chemical Society Annual Spring Meeting, New Orleans, LA, April 2013.
87. Engineering Hydrogels with Diverse Properties from Multifunctional Macromers, Dow Chemical, May 2013.
88. Hydrogel Interfaces to Control Stem Cell Interactions, Biological Surfaces and Interfaces Meeting, Costa Brava, Spain, July 2013.
89. Directing MSC Fate with Mechanical and Chemical Signals in 3D Hydrogels, Transformative Technology - New Directions for Tissue Engineering and Regenerative Medicine, NSF Symposium, Sonoma, CA, July 2013.
90. Engineering Developmental Signals into Hydrogels for Cartilage Repair, International Cartilage Repair Society, Izmir, Turkey, September 2013.
91. Engineering Injectable Hydrogels to Influence Left Ventricular Remodeling, Department of Biomedical Engineering, University of South Carolina, Columbia, SC, October 2013.
92. Engineering Nanofibrous Hydrogels to Control Cell Behavior, 11<sup>th</sup> International Nanomedicine and Drug Delivery Symposium (NanoDDS), San Diego, CA, October 2013.
93. Biodegradable Hydrogels for Cardiac Repair, 25<sup>th</sup> Annual Kavli Frontiers of Science Symposium, Irvine, CA, November 2013.

94. Injectable Hydrogels that Provide both Mechanical and Biological Signals in Cardiac Repair, Department of Biomedical Engineering, Temple University, Philadelphia, PA, November 2013.
95. Engineering Injectable Hydrogels for Cardiac Repair, Department of Bioengineering, Rice University, Houston, TX, March 2014.
96. Engineering Injectable Hydrogels to Provide Mechanical and Biological Signals to Infarcted Myocardium, Department of Polymer Science and Engineering, University of Massachusetts, Amherst, MA, March 2014.
97. Engineering In Vivo Cellular Responses through Biomaterial Design, Engineering Cell Fate and Function Keystone Symposium, Squaw Creek, Olympic Valley, CA, April 2014.
98. Dynamic Biomaterials to Control Cell Behavior and Tissue Repair, Society for Biomaterials Annual Meeting, Denver, CO, April 2014.
99. Engineering 3D Hydrogels to Control Stem Cell Shape and Fate, Society for Biomaterials Annual Meeting, Denver, CO, April 2014.
100. Engineering Functional Hydrogels for Repair of Cardiac Tissue, Materials Research Society Annual Meeting, San Francisco, CA, April 2014.
101. Engineering Biochemical and Biomechanical Signals in Hydrogels to Modulate Stem Cell-Niche Interactions, Materials Research Society Annual Meeting, San Francisco, CA, April 2014.
102. Instructive Hydrogels to Control Adult Stem Cell Fate, TERMIS-European Union Annual Meeting, Genova, Italy, June 2014.
103. Engineering Synthetic Environments to Guide Stem Cell Behavior, International Society for Stem Cell Research Annual Meeting, Vancouver, CA, June 2014.
104. Engineering Injectable Hydrogels to Influence Cardiac Repair, ADATE 5<sup>th</sup> Tissue Engineering Symposium, Sydney, Australia, August 2014.
105. Engineering Fibrous Hydrogels for Cartilage Repair, ADATE 5<sup>th</sup> Tissue Engineering Symposium, Sydney, Australia, August 2014.
106. Biomaterials for Treating Myocardial Infarctions, US Frontiers of Engineering Symposium, Irvine, CA, September 2014.
107. Engineering Cardiac Tissue Response Post-Infarction through Biomaterial Design, Department of Biomedical Engineering, Cornell University, Ithaca, NY, September 2014.
108. Shear-thinning and Self-healing Hydrogels as Injectable Biomaterials and for 3D-printing Applications, Biofabrication, Pohang, South Korea, September 2014.
109. Injectable Hydrogels with Engineered Properties for Biomedical Applications, Institute of Biomedical Engineering, National Taiwan University, Taiwan, October 2014.
110. Engineering Injectable Hydrogels to Alter Biological and Mechanical Signals after Infarction, Chemistry-Biology Interface Training Program, University of Illinois, Urbana-Champaign, IL, November 2014.
111. Engineering Injectable Hydrogels to Alter Biological and Mechanical Signals after Infarction, Department of Chemical and Materials Engineering, University of Kentucky, Lexington, KY, November 2014.
112. Engineering Injectable Hydrogels to Influence Cardiac Repair, Department of Bioengineering, University of Washington, Seattle, WA, February 2015.
113. Hydrogels for Cardiac Repair, Cardiovascular Institute, University of Pennsylvania, Philadelphia, PA, February 2015.
114. Engineering Injectable Hydrogels to Alter Left Ventricular Remodeling after Infarction, College Park, MD, March 2015.

115. Engineering Injectable Hydrogels to Alter Biological and Mechanical Signals after Infarction, Department of Materials Science and Engineering, University of Michigan, Ann Arbor, MI, April 2015.
116. Injectable Hydrogels in Translational Cardiac Applications, Engineering Complex Tissues Symposium, Drexel University, Philadelphia, PA, April 2015.
117. Biomaterials for Cartilage Repair, 4<sup>th</sup> Annual Penn Cartilage Repair Symposium, University of Pennsylvania, Philadelphia, PA, April 2015.
118. Engineering Biomaterials as In Vitro Models and for Biomedical Therapies, Centre for Stem Cells & Regenerative Medicine, King's College London, London, UK, May 2015.
119. Engineered Fibrous Hydrogels for Applications in Regenerative Medicine, 5<sup>th</sup> Symposium on Interface Biology of Implants, Rostock, Germany, May 2015.
120. Supramolecular Hydrogels from Natural Polymers, Biomaterials and Tissue Engineering Gordon Research Conference, Girona, Spain, July 2015.
121. Photocrosslinked Electrospun Fibrous Hydrogels, Photopolymerization Fundamentals 2015, Boulder, CO, September 2015.
122. Engineering Adult Stem Cell Microenvironments for Tissue Repair, Oklahoma Center for Adult Stem Cell Research, Oklahoma City, OK, September 2015.
123. Biomaterial-based Therapies to Treat Myocardial Infarction, University of Illinois at Chicago, Chicago, IL, September 2015.
124. Engineered Hydrogel Design for Controlled Molecule Delivery, Drug Delivery Conference, Tucson, AZ, September 2015.
125. Engineering Hydrogels for Cardiac Repair, Department of Bioengineering, Arizona State University, Phoenix, AZ, October 2015.
126. Engineering Hydrogels for Cardiac Repair, Department of Bioengineering, Duke University, Durham, NC, October 2015.
127. Engineering Hydrogels for Tissue Repair, Department of Chemical Engineering, University of Virginia, Charlottesville, VA, October 2015.
128. Biodegradable Hydrogels for Cardiac Repair, University City Science Center, Philadelphia, PA, October 2015.
129. Engineered Hydrogel Design for Controlled Molecule Delivery to the Heart, CT3N Symposium, University of Pennsylvania, Philadelphia, PA, November 2015.
130. Engineering Hydrogels for Cartilage Tissue Engineering, Glasgow Orthopaedic Research Initiative – University of Glasgow, Glasgow, Scotland, December 2015.
131. Engineering Hydrogels for Tissue Repair, Department of Biomedical Engineering, University of Delaware, Newark, DE, March 2016.
132. Injectable Biomaterials for Biomedical Applications of Tissue Repair, Department of Materials Science and Engineering, Johns Hopkins University, Baltimore, MD, March 2016.
133. Extrusion-Based 3D Printing of Biodegradable Polymer Networks for Biomedical Applications, Materials Research Society, Phoenix, AZ, March 2016.

134. Engineered Biopolymer Hydrogels for Biomedical Applications, 9<sup>th</sup> Annual Symposium on the Structure and Properties of Biopolymers, Universidad de Puerto Rico en Humacao, San Juan, Puerto Rico, May 2016.
135. Hydrogels to Deliver, Recruit, and Control Stem Cell Behavior In Vivo, Emerging Cell-Instructive Biomaterials, World Biomaterials Congress, Montreal, Canada, May 2016.
136. Engineering Shear-thinning Supramolecular Hydrogels for Biomedical Applications, ACS Middle Atlantic Regional Meeting, Bronx, NY, June 2016.
137. Hydrogels to Control and Recruit Stem Cells, eCM XXVII: Stem Cells, Bone Fixation, Repair & Regeneration, Davos, Switzerland, June 2016.
138. Engineering Hydrogels to Control and Recruit Stem Cells, 2<sup>nd</sup> International Symposium on Frontiers in Biomaterial Science, Leipzig, Germany, June 2016.
139. Multiscale Engineering of Hydrogels for Controlling Cell Behavior, Signal Transduction by Engineered Extracellular Matrices Gordon Research Conference, Biddeford, ME, June 2016.
140. Extrusion-based 3D Printing of Biodegradable Hydrogels for Biomedical Applications, American Chemical Society Annual Meeting, Philadelphia, PA, August 2016.
141. Engineered Injectable Supramolecular Hydrogels for Myocardial Applications, American Chemical Society Annual Meeting, Philadelphia, PA, August 2016.
142. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair and Biofabrication Applications, Department of Materials Science and Engineering, University of Florida, Gainesville, FL, September 2016.
143. Engineered Hydrogels for Applications in Tissue Repair, Zhejiang University, Hangzhou, China, October 2016.
144. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair and Biofabrication Applications, International Conference of Molecular Engineering of Polymers, Shanghai, China, October 2016.
145. Injectable Shear-Thinning Hydrogels for Biomedical Applications, Symposium on Biomaterials Science, Woodbridge, NJ, October 2016.
146. Extrusion-based 3D Printing of Biodegradable Hydrogels, International Society for Biofabrication, Winston-Salem, NC, October 2016.
147. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair and Biofabrication Applications, Department of Materials Science & Engineering, University of Pennsylvania, Philadelphia, PA, November 2016.
148. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair and Biofabrication Applications, Department of Chemical and Biomolecular University, Lehigh University, Bethlehem, PA, November 2016.
149. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair and Biofabrication Applications, Department of Chemistry, Old Dominion University, Norfolk, VA, November 2016.
150. Hierarchical Hydrogels to Recruit and Control Cell Behavior In Vivo, Materials Research Society Fall Meeting, Boston, MA, November 2016.
151. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair and Biofabrication Applications, Department of Biomedical Engineering, University at Buffalo, Buffalo, NY, December 2016.
152. Engineering Supramolecular Assemblies as Injectable Biomaterials, Society for Biomaterials Annual Meeting, Minneapolis, MN, April 2017.
153. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair and Biofabrication Applications, Materials Science & Engineering Department, Drexel University, Philadelphia, PA, May 2017.

154. Extrusion-based Printing of Hydrogel Bioinks, 2<sup>nd</sup> International Conference on 3D Printing in Medicine, Mainz, Germany, May 2017.
155. Functional Hydrogels for Biomedical Applications, Canadian Society for Biomaterials, Winnipeg, Canada, May 2017.
156. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair and Biofabrication Applications, Materials Science & Engineering, Stanford University, Palo Alto, CA, June 2017.
157. Guest-host Interactions for the Assembly of Injectable Hydrogels, American Chemical Society Annual Meeting, Washington DC, August 2017.
158. Engineered Hydrogels for Musculoskeletal Tissue Repair, American Chemical Society Annual Meeting, Washington DC, August 2017.
159. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair, Department of Biomedical Engineering, Penn State University, University Park, PA, October 2017.
160. Extrusion-based 3D Printing of Biodegradable Polymers, International Society for Biofabrication, Beijing, China, October 2017.
161. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair, Department of Biomedical Engineering, Peking University, Beijing, China, October 2017.
162. Engineered Hydrogels for Musculoskeletal Tissue Repair, Materials Research Society Fall Meeting, Boston, MA, November 2017.
163. Engineered Nanofibrous Materials for Biomedical Applications, Materials Research Society Fall Meeting, Boston, MA, November 2017.
164. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair, Department of Biomedical Engineering, University of Toronto, Canada, January 2018.
165. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair, Royal College of Surgeons in Ireland, Dublin, Ireland, February 2018.
166. Shear-thinning and Self-healing Hydrogels for Therapeutic Delivery, American Chemical Society, New Orleans, LA, March 2018.
167. Engineered Hydrogels to Enable Tissue Regeneration, Regenerative Medicine Workshop, Charleston, SC, March 2018.
168. Engineering Hydrogel Properties through Macromer Design, Society for Biomaterials, Atlanta, GA, April 2018.
169. Engineering Functionality into Smart Injectable Hydrogels, Society for Biomaterials, Atlanta, GA, April 2018.
170. Injectable Shear-thinning and Self-Healing Hydrogels for Tissue Repair, Topics in Bioengineering, Harvard University, Cambridge, MA April 2018.
171. Scaffold Fabrication for Musculoskeletal Tissue Repair: From Fibers to 3D Printing, Department of Aerospace and Mechanical Engineering, Notre Dame, South Bend, IN, May 2018.
172. Scaffold Fabrication for Musculoskeletal Tissue Repair: From Fibers to 3D Printing, School of Dentistry, Oregon Health and Science University, Portland, OR, May 2018.
173. Extrusion-based 3D Printing of Biodegradable Hydrogels, World Congress of Biomechanics, Dublin, Ireland, July 2018.
174. Shear-thinning and Self-healing Hydrogels for Applications in Tissue Repair and Biofabrication, Berlin-Brandenburg Center for Regenerative Therapies, Charite, Berlin, Germany, August 2018.

175. Designing Inks for Extrusion-based 3D Printing, Advances in Tissue Engineering, Rice University, August 2018.
176. Biomaterials in the Repair and Regeneration of Cardiac Tissue after Infarction, Biofrontiers Symposium, Boulder, CO, August 2018.
177. Designing and Processing Hydrogel Bioinks for 3D Printing Applications, European Society for Biomaterials, Maastricht, Netherlands, September 2018.
178. Injectable Hydrogels in Tissue Repair and Biofabrication, University Medical Center - Utrecht, Utrecht, Netherlands, September 2018.
179. Designing Bioinks for 3D Printing, International Society for Biofabrication, Wurzburg, Germany, October 2018.
180. Engineering Hydrogels for Mechanobiology and Therapeutic Applications, Mechanobiology in Biomimetics - LaNSBioDyT, Mexico City, Mexico, November 2018.
182. Hydrogel Bioinks for 3D Printing Applications, Materials Research Society Fall Meeting, Boston, MA, November 2018.
183. Designing Bioinks for 3D Printing, 3D Printing in Medicine Summer School, University of Otago, Christchurch, New Zealand, February 2019.
184. Bioinks and Fibers for Biomedical Applications, University of Otago, Dunedin, New Zealand, February 2019.
185. Engineering Injectable HA Hydrogels for Therapeutic Applications, *Acta Biomaterialia* Award Lecture, Society for Biomaterials, Seattle, WA, April 2019.
186. Engineering and Understanding the 3-Dimensional Cell-Hydrogel Interface, Engineering Biology for Medicine, Duke University, Durham, NC, May 2019.
187. Engineering Hydrogels for Applications in Biofabrication and Tissue Repair, 4<sup>th</sup> Annual Penn Polymer Symposium, Philadelphia, PA, May 2019.
188. Engineering Hyaluronic Acid Hydrogels for Biomedical Applications, Department of Bioengineering, Imperial College, London, England, June 2019.
189. Engineered Hydrogels for 3D Printing Applications, Biofabrication & Biomanufacturing Europe 2019, Rotterdam, Netherlands, June 2019.
190. Engineering Hyaluronic Acid Hydrogels for Biomedical Applications, Institute of Materials Science and Technology, TU Wien, Vienna, Austria, July 2019.
191. Engineered Hydrogels for 3D Printing Applications, Utrecht University, Utrecht, Netherlands, July 2019.
192. Designing and Processing Hydrogel Bioinks for 3D Printing Applications, 3D-Printing 2019 Conference, Dartmouth College, NH, August 2019.
193. Designing Inks for Extrusion-based 3D Printing, Advances in Tissue Engineering, Rice University, August 2019.
194. Granular Hydrogels for Biomedical Applications, Chinese Biomaterials Congress & International Symposium on Advanced Biomaterials, Dalian, China, August 2019.
195. Engineering Hyaluronic Acid Hydrogels for Biomedical Applications, Institute of Polymer Science and Engineering, National Taiwan University, Taipei, Taiwan, August 2019.
196. Engineering Hyaluronic Acid Hydrogels for Biomedical Applications, University of Oregon, Eugene, OR, September 2019.

197. Advances in the Processing of Photocurable Hydrogels for 3D Printing, Photopolymerization Fundamentals 2019, Monterey, CA, September 2019.
198. Engineering Injectable Hydrogels for Therapeutic Applications, 7<sup>th</sup> US-Korea Joint Biomedical Engineering Workshop, Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 2019.
199. Engineering Hyaluronic Acid Hydrogels for Biomedical Applications, Department of Biomedical Engineering, Washington University, St. Louis, MO, November 2019.
200. Granular Hydrogels for Biomedical Applications, Materials Research Society, Boston, MA, December 2019.
201. Engineering and Understanding the Cell/Hydrogel Interface in Tissue Repair, Virtual Tissue Talks, Columbia University (virtual), May 2020.
202. Engineering Hydrogel Properties for Cartilage Repair, Penn Cartilage Repair Symposium, University of Pennsylvania (virtual), September 2020.
203. Biofabrication Approaches to Organize Engineered Tissues, CELL-MET, Boston University (virtual), November 2020.
204. Biomaterial Approaches to Endogenous Tissue Repair in the Heart, Materials Research Society (virtual), December 2020.
205. Designing Hydrogel Inks for Extrusion Printing, World Biomaterials Congress (virtual), December 2020.
206. Advances in Shear-thinning Hydrogels for Biofabrication and Tissue Repair, Biofrontiers Institute and Department of Chemical and Biological Engineering, University of Colorado Boulder (virtual), February 2021.
207. Designing and Implementing Shear-thinning Hydrogels in Biofabrication, ISBF Virtual Seminar Series (virtual), February 2021.
208. Advances in Shear-thinning Hydrogels for Biofabrication and Tissue Repair, Department of Chemical Engineering, Pennsylvania State University (virtual), April 2021.
209. Advances in Shear-thinning Hydrogels for Biofabrication and Tissue Repair, Terasaki Institute (virtual), April 2021.
210. Advances in Shear-thinning Hydrogels for Biofabrication and Tissue Repair, Department of Chemistry, University of Aveiro, Portugal (virtual), May 2021.
211. Advances in Shear-thinning Hydrogels for Biofabrication and Tissue Repair, Departments of Chemistry and Biomedical Engineering, University of California Irvine (virtual), May 2021.
212. Embedded 3D Bioprinting within Hydrogel Suspension Media, Canadian Biomaterials Society, University of Waterloo, Canada (virtual), May 2021.
213. Advances in Shear-thinning Hydrogels for Biofabrication and Tissue Repair, TERM STEM 2021, University of Minho, Portugal (virtual), June 2021.
214. Designing Inks for Extrusion-based 3D Printing, Advances in Tissue Engineering, Rice University (virtual), August 2021.
215. Embedded 3D Bioprinting within Hydrogel Suspension Media, 3<sup>rd</sup> Biointerfaces International Conference, University of Zurich (virtual), August 2021.
216. Advances in Shear-thinning Hydrogels for Biofabrication and Tissue Repair, Health Sciences District Research Seminar Series, University of Missouri – Kansas City (virtual), August 2021.
217. Microfluidics-generated Microgels for the Fabrication of Biomedical Granular Hydrogels, Centre for Research and Applications in Fluidic Technologies, University of Toronto, Canada (virtual), August 2021.

218. Engineering Granular Hydrogels towards Tissue Repair, Virtual Seminars in Biomedical Science, September 2021.
219. Engineering Granular Hydrogels for Biomedical Applications, Next Generation Tissue Engineering Symposium, Tissue Engineering Resource Center (virtual), September 2021.
220. Embedded 3D Bioprinting within Hydrogel Suspension Media, 3D Bioprinting Conference (virtual), AIChE, September 2021.
221. Engineering Granular Hydrogels for Biomedical Applications, Korean Society for Biomaterials Annual Meeting, Jeju Island, South Korea (virtual), September 2021.
222. Engineering Granular Hydrogels for Biomedical Applications, Harvard Topics in Bioengineering, Harvard University (virtual), October 2021.
223. Engineering Granular Hydrogels for Biomedical Applications, Materials Science and Engineering Seminar Series, Ecole Polytechnique Fédérale de Lausanne (EPFL) (virtual), October 2021.
224. Engineering Granular Hydrogels for Biomedical Applications, Department of Materials Science and Engineering Colloquia, University of Illinois at Urbana-Champaign (virtual), October 2021.
225. Biofabrication Approaches for Cartilage Repair, Symposium on Cartilage Repair Strategies to Alleviate Arthritis Pain, Department of Veterans Affairs (virtual), February 2022.
226. Engineering Granular Hydrogels for Biomedical Applications, Department of Biomedical Engineering, University of South Dakota (virtual), April 2022.
227. Microfluidic-generated Microgels for the Assembly of Biomedical Granular Hydrogels, ACS Colloid and Surface Science Symposium, Golden, CO, July 2022.
228. Biofabrication Approaches to Engineer 3D ECM Structure and Organization, Signal Transduction by Engineered Extracellular Matrices Gordon Research Conference, Manchester, NH, July 2022.
229. Advances in the Additive Manufacturing of Hydrogels for Biomedical Applications, Additive Manufacturing of Soft Materials Gordon Research Conference, Ventura, CA, August 2022.
230. Designing Inks for Extrusion-based 3D Printing, Advances in Tissue Engineering, Rice University (virtual), August 2022.
231. Leveraging Biomaterials Design to Improve Engineered Cartilage Properties, 7<sup>th</sup> Annual Vail Scientific Summit, Vail, CO, August 2022.
232. Engineering Granular Hydrogels for Biomedical Applications, Department of Pharmacology & Regenerative Medicine, University of Illinois at Chicago (virtual), October 2022.
233. Engineering Granular Hydrogels for Biomedical Applications, Webinar on *Biomaterials Science* 10<sup>th</sup> Anniversary, November 2022.
234. Guiding Musculoskeletal Tissue Formation with Engineered Hydrogels, ETH Zurich Materials & Processes Distinguished Lecture Series on "Engineering with Living Materials), ETH (virtual), February 2023.
235. Engineering Granular Hydrogels for Biomedical Applications, Biomaterials Day - University of Colorado Anschutz, March 2023.
236. Engineering Granular Hydrogels for Biomedical Applications, Scandanavian Society for Biomaterials, Roros, Norway, March 2023.
237. Engineering Hydrogels for 3D Biofabrication, Department of Biotechnology and Food Science, Norwegian University of Science and Technology, Trondheim, Norway, March 2023.



238. Engineering Hydrogel Structure through Lithography-based Biofabrication Approaches, TERMIS-European Union Annual Meeting, Manchester, UK, March 2023.
239. Granular Hydrogels for Biomedical Applications, Australasian Society of Biomaterials and Tissue Engineering, Christchurch, New Zealand, April 2023.
240. Advances in Suspension Bath Printing to Process Biomedical Hydrogels, 3<sup>rd</sup> Advanced Materials and 3D Printing in Regenerative Medicine Workshop, Christchurch, New Zealand, April 2023.
241. Engineering Granular Hydrogels for Tissue Repair, Virtual Tissue Talks, Columbia University (virtual), June 2023.
242. Engineering Granular Hydrogels for Biomedical Applications, MSE Symposium, Boulder, CO, August 2023.
243. Advances in Suspension Bath Printing to Process Biomedical Materials, 33<sup>rd</sup> Annual Conference of the European Society for Biomaterials, Davos, Switzerland, September 2023.
244. Advances in Lithography-based 3D Printing of Hydrogels, Advances in 3D Bioprinting Conference, Israel, September 2023.
245. Advances in Lithography-based 3D Printing of Hydrogels, Photopolymerization Fundamentals, Boulder, CO, September 2023.
246. Advances in Biofabrication Methods to Process Biomedical Hydrogels, Oregon Bioengineering Symposium, Eugene, OR, November 2023.
247. Advances in Biofabrication Methods to Process Biomedical Hydrogels, 5<sup>th</sup> Australian Bioprinting Workshop, Sydney, Australia, November 2023.
248. Advances in Biofabrication Methods to Process Biomedical Hydrogels, University of Sydney, Sydney, Australia, November 2023.
249. 3D Printing with Living and Synthetic Granular Media – From Inks to Suspension Baths, Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte Solutions, Ventura, CA, February 2024.
250. Engineering Hydrogel Microstructure for Biomedical Applications, Terasaki Innovation Summit, Los Angeles, CA, March 2024.
251. 3D Biomaterials Processing to Guide Cell Migration and Organization, Future 3D Additive Manufacturing Conference, Schontal Monastery, Germany, April 2024.
252. Bringing Biofabrication into Biology and Medicine, European Molecular Biology Laboratory (EMBL), Heidelberg, Germany, April 2024.
253. Advances in Lithography-based 3D Printing of Hydrogels, Department of Chemical Engineering, University of Texas Austin, April 2024.
254. Advances in Suspension Bath Printing to Control the Organization of Cells and Materials, Biofabrication in Suspension Media, World Biomaterials Congress, Daegu, South Korea, May 2024.
255. International Award Lecture – European Society for Biomaterials, World Biomaterials Congress, Daegu, South Korea, May 2024.
256. Hydrogels to Guide Spheroid Fusion and Tissue Formation, MechBio Symposium, University of Colorado Boulder, Boulder, CO, August 2024.
257. Engineering Hyaluronic Acid Hydrogel Structure and Properties, American Chemical Society Fall Meeting, Denver, CO, August 2024.

258. Granular Hydrogels to Support and Promote Tissue Repair, American Chemical Society Fall Meeting, Denver, CO, August 2024.

259. Engineering Hydrogel Microstructures for Use in Biomedical Applications, Center for Biomolecular and Tissue Engineering, Duke University, October 2024.

260. Engineering Hydrogel Microstructures for Use in Biomedical Applications, UNC/NCSU Joint Bioengineering Program, Chapel Hill, NC, October 2024.

261. Advanced Methods to 3D Print Hydrogels for Biomedical Applications, University of Tokyo, Tokyo, Japan, October 2024.

262. Advances in DLP-printing of Engineered Hydrogels, International Society for Biofabrication, Fukuoka, Japan, November 2024.

263. Advanced Methods to 3D Print Hydrogels for Biomedical Applications, VA Biofabrication Community of Science, Virtual, December 2024.

264. Engineering Tough and Dynamic Hydrogels through DLP Printing, Alpine Winter School for Biofabrication, Radstadt, Austria, January 2025.

265. Additive Manufacturing of Hydrogels for Biomedical Applications, Department of Chemistry and Biochemistry, University of Colorado Denver, Denver, CO, February 2025.

266. Additive Manufacturing of Hydrogels for Biomedical Applications, Colgate-Palmolive Company, Virtual, March 2025.

267. Additive Manufacturing of Hydrogels for Biomedical Applications, Workshop in 3D-Printing & Microfluidics for Bioengineering, McGill University, Montreal, Canada, May 2025.

268. Engineering Biomedical Hydrogels from Hyaluronic Acid, International Society for Hyaluronan Sciences (ISHAS), St. Charles, IL, June 2025.

269. Light-based Printing of Complex Hydrogels for Biomedical Applications, Bio-Inspired Materials: From Fundamentals to Applications, Emmetten, Switzerland, August 2025.

270. Additive Manufacturing of Hydrogels for Biomedical Applications, Department of Mechanical and Process Engineering, ETH, Zurich, Switzerland, August 2025.

## PATENTS

1. D.G. Anderson, **J.A. Burdick**, R. Langer, Crosslinked, Degradable Polymers and Uses Thereof (US8808681).

2. C.J. Bettinger, J.M. Karp, S.J. Kim, R.S. Langer, A. Zumbuehl, J.P. Bruggeman, L. Silva-Ferreira, C. Nijst, **J. Burdick**, Biodegradable Elastomers (US8143042, CA2636817).

3. **J. Burdick**, C.J. Bettinger, J.P. Bruggeman, L. Silva-Ferreira, J.M. Karp, R.S. Langer, C. Nijst, A. Zumbuehl, S.J. Kim, Method Comprising contacting Tissue with a Cross-linkable Polyester Prepolymer (US8691203).

4. **J.A. Burdick**, R.C. Gorman, J.H. Gorman, B.P. Purcell, Protease Triggered Release of Molecules from Hydrogels (US9694081)

5. B.P. Purcell, **J.A. Burdick**, R.C. Gorman, J.H. Gorman, Protease Triggered Release of Molecules from Hydrogels (US9919054)

6. B.P. Purcell, **J.A. Burdick**, Protease Triggered Release of Molecules from Hydrogels (US10046053).

7. **J.A. Burdick**, J.L. Ifkovits, R.C. Gorman, J.H. Gorman, Infarction Treatment Compositions and Methods (US9486404).

8. C.B. Rodell, **J.A. Burdick**, Stabilizing Shear-Thinning Hydrogels (US9827321).
9. C. Highley, **J.A. Burdick**, 3-Dimensional Printing of Supramolecular Hydrogels (US10828399).
10. **J.A. Burdick**, S. Sahoo, C. Chung, Hydrolytically Degradable Polysaccharide Hydrogels (US11090387).
11. L. Wang, **J.A. Burdick**, E. Morrissey, Compositions and Methods for Cardiac Regeneration (US12128136).
12. K.G. Abdullah, L.L. Wang, **J.A. Burdick**, Hydrogel Compositions (US20190290769), pending.
13. J.M. Patel, C. Loebel, A.R. Martin, R.L. Mauck, **J.A. Burdick**, Systems for Targeted Tissue Biosealing or Repair (US20210338887), pending.
14. B.P. Purcell, L. Wang, **J.A. Burdick**, Injectable Hydrogels for Local Delivery to the Heart (US20210322652), pending.
15. M. Davidson, **J.A. Burdick**, Self-Adhesive Multi-Fiber Materials (US20210308320), pending.
16. D.K. Cullen, W.J. Gordian-Velez, H.I. Chen, **J.A. Burdick**, Tissue Engineered Neural Networks in Tailored Hydrogel Sheaths and Methods for Manufacturing the same, Provisional Patent filed.
17. M.D. Davidson, A. Dhand, **J.A. Burdick**, Additive Manufacturing of Tough Gels and Elastomers and Applications Thereof, Provisional Patent filed.
18. S. Little, H. Turnquist, M. Borrelli, **J.A. Burdick**, Regulatory T Cell Therapy for Reperfusion Injury Treatment Following Myocardial Infarction, Provisional Patent filed.
19. R.L. Mauck, S.E. Gullbrand, E. Sharp, K. Xu, **J.A. Burdick**, Z. Cheng, Functionalized Hydrogels for Tissue Repair, Provisional Patent filed.
20. C. Maduka and **J.A. Burdick**, Fibroblast Activation Protein Targeting Nanoparticles and Uses Thereof, Provisional Patent filed.
21. M.D. Davidson, A. Mandal, **J.A. Burdick**, Block Copolymer Gels with Mechanically Responsive Nanodomains, Provisional Patent filed.

## RESEARCH FUNDING

### *Current*

(PIs: <b>Burdick</b> and Mauck) NIH/NIAMS R01 Dynamic Fibrous Scaffolds for Engineering Dense Connective Tissues	2/20-11/24 \$3,558,876 total award
(PIs: <b>Burdick</b> and Mauck) NIH/NIAMS R01 Engineering Developmental Microenvironments: Cartilage Formation and Maturation	5/20-4/25 \$2,492,809 total award
(PI: Sinusas) NIH/NHLBI R01 Imaging and Targeting Lung Proteolysis in ARDS	8/21-7/25 \$278,220 (Burdick portion)
(PI: <b>Burdick</b> ) NIH/NHLBI R01 Engineered Granular Hydrogels for Endogenous Tissue Repair	5/22-4/26 \$2,301,197 total award
(PI: Shenoy) NSF Science and Technology Center (STC) Center for Engineering Mechanobiology	11/16-8/26 \$544,690 (Burdick portion)
(PI: Spinale) NIH/NHLBI R01 Fibroblast Targeting for Myocardial Repair	4/23-3/27 \$420,300 (Burdick portion)

(PI: Bryant) ARPA-H A Minimally Invasive Multimodal Biomaterial to Tissue Regeneration in OA	3/24-2/29 \$39,009,932 total award
(Pis: <b>Burdick</b> and Bryant) NIH/NIBIB T32 Biofabrication Training Program	6/24-5/29 \$1,005,696 total award
<b>Previous</b>	
(PI: <b>Burdick</b> ) Paralyzed Veterans of America Spinal Cord Research Foundation A Tissue Engineering Approach for the Treatment of Spinal Cord Injuries	1/03-12/04 \$50k/year direct costs (\$100k total costs)
(PI: <b>Burdick</b> ) UPenn University Research Foundation Electrospinning of Photopolymerizable Networks for Meniscal Tissue Regeneration	7/06-6/07 (\$46k total costs)
(PI: Chen, Co-PI: <b>Burdick</b> ) Penn Institute for Regenerative Medicine Program Mesenchymal Stem Cell Biology	2/08-1/09 \$20k total costs
(Pis: <b>Burdick</b> and Mauck) Penn Chemical Biology in Translation (CBIT) Program Identifying Novel Promoters of Human MSCs through Chemical Library Screening	2/08-1/09 \$15k total costs
(PI: <b>Burdick</b> ) NIH/NIDCR K22 Scholar Development and Career Transition Award Chondrogenesis in Enzymatically Degradable Hydrogels	3/04-2/09 \$125k/year direct costs (\$629k total costs)
(PI: <b>Burdick</b> ) The Center for Research in FOP and Related Disorders Non-viral Gene Therapy Approaches for Bone Growth	1/07-6/09 \$50k/year (\$100k total costs)
(PI: Mauck, Co-PI: <b>Burdick</b> ) Institute on Aging Age-Dependence of Functional ECM Formation by MSCs for Cartilage Regeneration	7/08-6/09 ~\$25k total costs
(PI: <b>Burdick</b> ) American Chemical Society Petroleum Research Fund Novel Degradable Polymer Synthesis to Investigate Network Formation and Structure	9/07-8/09 \$20k/year (\$40k total costs)
(PI: <b>Burdick</b> ) Coulter Foundation Early Career Award Injectable and Biodegradable Elastomers to Alter Early Infarct Expansion	8/08-7/10 \$120k/year (\$240k total costs)
(Pis: Hankenson and <b>Burdick</b> ) Penn Institute for Regenerative Medicine Enhancing Notch Signaling for Mesenchymal Progenitor Expansion and Bone Regeneration	10/09-9/10 \$50k total costs
(PI: Garino, Co-PI: <b>Burdick</b> ) Veterans Health Administration Injectable Synthetic Bone Grafts to Promote Bone Regeneration	1/09-12/10 ~\$150k total costs
(PI: <b>Burdick</b> ) UPenn LRSM MRSEC Pilot Grant Photopolymerized Hydrogels and Composites with Controlled Degradation and Mechanics	11/06-10/11 \$40k/year (\$200k total costs)
(PI: J. Gorman, Co-PI: <b>Burdick</b> ) Penn Institute for Translational Medicine and Therapeutics Minimally Invasive Off-Pump Mitral Valve Replacement	2/10-1/12 \$150k total costs
(PI: <b>Burdick</b> , Co-PI: Gerecht) NIH U54 JHU Cancer Center Pilot Grant Modulated 3-D Environments to Study Cancer-Endothelial Cell Interactions	6/11-5/12 \$50k total costs
(PI: <b>Burdick</b> ) Packard Foundation Fellowship for Science and Engineering Engineered Smart Materials to Define and Switch Cellular Phenotypes	1/08-12/12 \$175k/year (\$825k total costs)
(Pis: <b>Burdick</b> and Mauck) NIH/NIBIB R01 Engineering Developmental Microenvironments: Cartilage Formation and Maturation	4/09-2/13 \$113/year (\$690k total costs) *Supplement (9/10-12/12): \$150k total costs
(PI: <b>Burdick</b> ) Penn Institute for Regenerative Medicine Injectable Hydrogels to Deliver Biologics in Obstructive Nephropathy	4/12-3/13 \$50k total costs

(PI: <b>Burdick</b> ) Penn Center for Musculoskeletal Disorders Acellular Fibrous Scaffolds for Stem Cell Recruitment and Cartilage Repair	7/12-6/13 \$35k total costs
(PI: Hankenson, Co-PI: <b>Burdick</b> ) Department of Defense Notch Signaling in Bone Regeneration	10/10-9/13 \$50k/year (\$240k total costs)
(PIs: <b>Burdick</b> and Mauck) NIH/NIAMS R01 Dynamic Fibrous Scaffolds for Engineering Dense Connective Tissues *ARRA Supplement (Summer Research Experiences, Summers 2009/2010): \$39.5k total costs	6/09-5/14 \$113/year (\$860k total costs)
(PI: <b>Burdick</b> ) National Science Foundation CAREER Award CAREER: Spatially Controlled Cellular Behavior in 3D Hydrogels: An Integrated Research, Teaching, and Outreach Approach	7/09-6/14 \$80k/year (\$400k total costs)
(PI: Gerecht, Co-PI: <b>Burdick</b> ) NIH/NHLBI R01 Engineered Stem Cell Microenvironments for Controlled Vasculogenesis	7/11-5/16 \$80k/year (\$615k total costs)
(PI: Steinberg, Co-PI: <b>Burdick</b> ) Veterans Health Administration Cartilage Repair with Stem-Cell Laden Hyaluronic Acid Hydrogels	7/12-6/16 ~\$200k total costs to Burdick
(PIs: <b>Burdick</b> and Spinale) NIH/NHLBI R01 Localized Targeting of Matrix Proteases Following Myocardial Infarction	8/12-7/16 ~\$100k/year (\$630k total costs)
(PI: Yodh, Investigator: <b>Burdick</b> ) UPenn LRSM MRSEC IRG2: Biologically Inspired Assemblies	9/11-8/17 \$60k/year (\$360k total costs)
(PIs: <b>Burdick</b> , Mauck, Carey) American Orthopaedic Society for Sports Medicine Acellular Bioactive and Dynamic Nanofibrous Scaffolds to Promote Cartilage Repair	5/16-4/18 ~\$125/year (\$250k total costs)
(PIs: <b>Burdick</b> and Sinusas) CTSA SPIRiT Award Molecular Guided Delivery of Bioresponsive Hydrogels to the Heart	7/17-6/18 \$50k total costs
(PI: Gorman, Co-PI: <b>Burdick</b> ) NIH/NHLBI R01 Surgery to Prevent Post-Infarction Ventricular Remodeling	3/15-6/18 \$80k/year (\$615k total costs)
(PI: Esterhai/Mauck, Co-PI: <b>Burdick</b> ) Veterans Health Administration Engineered Multi-Functional Nanofibrous Meniscus Implants	12/14-11/18 ~\$200k total costs to Burdick
(PI: <b>Burdick</b> ) American Heart Association Engineered Hydrogels for Delivery to Infarcted Myocardium	1/14-12/18 ~\$80k/year (\$400k total costs)
(PIs: <b>Burdick</b> and Mauck) NIH/NIBIB R01 Engineering Developmental Microenvironments: Cartilage Formation and Maturation	5/14-4/19 ~\$115k/year (\$690k total costs)
(PIs: <b>Burdick</b> and Mauck) NIH/NIAMS R01 Dynamic Fibrous Scaffolds for Engineering Dense Connective Tissues	9/14-12/19 ~\$150k/year (\$1000k total costs)
(PI: <b>Burdick</b> ) NIH/NHLBI R41 Myocardial Delivery of MMP Inhibiting Hydrogels	8/18-12/19 ~\$110k (\$175k total costs)
(PI: <b>Burdick</b> ) NSF/BSF Ultra-Tough Double-Network Hydrogels for Cartilage Repair	9/16-8/20 ~\$150k/year (\$450k total costs)
(PI: Morrisey) NIH R01 Molecular Pathways Controlling Alveolar Epithelial Remodeling	9/16-6/20 ~\$30k/year (\$120k total costs)
(PI: Spinale) NIH R01 Therapeutic Targeting of TIMP-4 in Hypertrophy Failure	8/16-7/20 ~\$40k/year (\$160k total costs)

(PI: Mauck) Department of Veterans Affairs Hydrogel Delivery of Extracellular Vesicles to Treat Osteoarthritis	6/20-5/22 \$100k/year (\$200k total costs)
(PI: Atluri) NIH/NHLBI R01 A Novel Shear-Thinning Hydrogel System for Advanced Cellular Therapy	7/17-6/22 ~\$20k/year (\$140k total costs)
(PIs: <b>Burdick</b> and Mauck) AO Foundation Hydrogel Bioinks for Cell Encapsulation and 3D Printing	1/17-8/22 \$70k/year (\$350k total costs)
(PIs: <b>Burdick</b> , Sinusas, Duncan) NIH R01 Image-Guided Delivery of Bioresponsive Hydrogels	12/17-11/22 ~\$125k/year (\$500k total costs)
(PI: Stach, Investigator: <b>Burdick</b> ) UPenn LRSM MRSEC IRG2: Structural Chemo-Mechanics of Fibrous Networks	9/17-8/23 \$75k/year (\$450k total costs)

## PROFESSIONAL SERVICE

### Society Membership

Member, Biomedical Engineering Society (BMES)  
 Member, Society for Biomaterials (SFB)  
 Member, American Chemical Society (ACS)  
 Member, Materials Research Society (MRS)  
 Member, Society for Physical Regulation in Biology and Medicine (SPRBM)  
 Member, Tissue Engineering and Regenerative Medicine International Society (TERMIS)  
 Member, American Heart Association (AHA)  
 Member, International Society for Biofabrication (ISBF)

### Society Leadership

National Meetings Committee, BMES, 2017-Present  
 Board of Directors, International Society for Biofabrication, 2014-2018

Member, Awards, Ceremonies, & Nominations Committee, Society for Biomaterials, 2010-2012, 2023-2024  
 Member, Membership Committee, TERMIS-AM, 2010-2012

International Advisory Board, TERMIS-EU 2010 Conference, Galway, Ireland, June 2010  
 International Advisory Board, TERMIS World Congress, Vienna, Austria, September 2012  
 Scientific Advisory Board, TERMIS-AM Meeting, Atlanta, GA, November 2013  
 Scientific Advisory Board, TERMIS-AM Meeting, Washington DC, December 2014  
 Scientific Advisory Board, EMN Meeting on Hydrogel Materials, Singapore, May 2016  
 Scientific Advisory Board, TERMIS-EU Meeting, Uppsala, Sweden, June 2016  
 Scientific Advisory Board, TERMIS-AM Meeting, San Diego, CA, December 2016  
 Scientific Advisory Board, TERMIS-EU Meeting, Krakow, Poland, June 2022

### Session/Meeting Organizing/Chairing

Vice-Chair, Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices, Biddeford, ME, June 2012  
 Track Chair (Biomaterials), Biomedical Engineering Society Annual Meeting, Seattle, WA, September 2013  
 Conference Chair, Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices, Waltham, MA, June 2014  
 Conference Chair, Materials Research Society Fall Meeting, Boston, MA, November 2017  
 Conference Chair, Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 2019

\*Organizer of over 50 symposia and sessions at conferences such as the Society for Biomaterials Annual Meeting, the American Chemical Society, the World Biomaterials Congress, the Materials Research Society, TERMIS, the Biomedical

Engineering Society, Regenerate, ASME Summer Bioengineering Conference, the Northeast Bioengineering Conference, Gordon Research Conferences (Signal Transduction by Engineered Extracellular Matrices, Musculoskeletal Biology and Bioengineering), Experimental Biology, Biological Surfaces and Interfaces Conferences, International Cartilage Repair Society, ADATE Tissue Engineering Symposium

#### Member of Review Panels

**Current:** National Institutes of Health, BMBI study section standing member, October 2022+ (meets 3x annually)

**Previous:** Member of over 70 review panels for the National Institutes of Health (BMBI, MTE, GDD, NHLBI PPG, NIAMS BIRT, NIBIB K99/R13, R15 AREA, NICHD, NIBIB T32), the National Science Foundation (CAREER, GRFP, BME program, DMR Biomaterials program), the Department of Veterans Affairs, the Department of Defense (DEPSCoR Program, Biological Regeneration/Counter-IED Program), Hong Kong Innovation and Technology Commission, Human Frontier Science Program, Technology Foundation STW, Center for Integration of Medicine and Innovative Technology, Maryland Industrial Partnerships Program, The Academy of Sciences for the Developing World, Ontario Centres of Excellence, Maryland Stem Cell Research Fund, Multiple Sclerosis Society, Ireland Health Research Board, The Nanotechnology Institute of Pennsylvania, American Chemical Society Petroleum Research Fund, DEBRA International, South Carolina EPSCoR, American Heart Association – Bioengineering/Clinical Panel, Royal College of Surgeons in Ireland, Science Foundation Ireland, California Institute for Regenerative Medicine, Connecticut Innovations, United States – Israel Binational Science Foundation

#### Journal Service and Reviewing

Editorial Board, *Journal of Biomedical Materials Research A*, 2007-2024

Editorial Board, *Tissue Engineering*, 2009-2011

Editorial Board, *Biomedical Materials*, 2010-2016

Editorial Board, *Biomacromolecules*, 2011-2016

Editorial Board, *ACS Applied Materials and Interfaces*, 2011-2014

Emerging Topics Editor, *Tissue Engineering*, 2012-2019

Special Issue Editor, *Injectable Gels for Organ/Tissue Repair*, *Biomedical Materials*, 2012

Associate Editor, *ACS Biomaterials Science and Engineering*, 2014-2023

Editorial Board, *Biofabrication*, 2017-2023

Executive Editorial Board, *Advanced Healthcare Materials*, 2019-

Editorial Board, *Bioengineering*, 2020-2023

Editorial Board, *Materials Futures*, 2021-

Editorial Advisory Board, *Chemical Reviews*, 2022-

Editorial Board, *International Journal of Bioprinting*, 2022-

Executive Advisory Board, *Advanced NanoBiomed Research*, 2023-

Executive Editorial Board, *Biofabrication*, 2024-

Editorial Board, *npj Biomedical Innovations*, 2024-

International Advisory Board, *Advanced Materials*, 2025-

**Journals:** *Accounts of Chemical Research*, *ACS Applied Materials and Interfaces*, *ACS Biomaterials Science & Engineering*, *ACS Nano*, *Acta Biomaterialia*, *Acta Materialia*, *Advanced Materials*, *Advanced Functional Materials*, *Advanced Healthcare Materials*, *AIChE Journal*, *Angewandte Chemie*, *Bioconjugate Chemistry*, *Biofabrication*, *Biomacromolecules*, *Biomaterials*, *Biomaterials Science*, *BioMed Central Biotechnology*, *Biomedical Materials*, *Biomedical Microdevices*, *Biotechnology and Bioengineering*, *Biotechnology Progress*, *Cell Transplantation*, *Cell Stem Cell*, *Chemical Communications*, *Clinical Orthopaedics and Related Research*, *Combinatorial Chemistry & High Throughput Screening*, *FASEB Journal*, *Journal of the American Chemical Society (JACS)*, *Journal of Biomedical Materials Research A*, *Journal of Biomedical Materials Research B: Applied Biomaterials*, *Journal of Applied Polymer Science*, *Journal of Biomaterials Science: Polymer Edition*, *Journal of Biomechanics*, *Journal of Cellular Biochemistry*, *Journal of Controlled Release*, *Journal of Drug Targeting*, *Journal of Experimental Nanoscience*, *Journal of Materials Chemistry*, *Journal of Orthopaedic Research*, *Integrative Biology*, *Lab on a Chip*, *Langmuir*, *Macromolecular Bioscience*, *Macromolecular Rapid Communications*, *MacroLetters*, *Macromolecules*, *Materials Today*, *Methods*, *Molecular Pharmaceutics*, *Nano Letters*, *Nature*, *Nature Biomedical Engineering*, *Nature Biotechnology*, *Nature Chemistry*, *Nature Communications*, *Nature Materials*, *Nature Medicine*, *Nature Reviews Materials*, *Nature Reviews Rheumatology*, *Pharmaceutical Research*, *Physical Review Letters*, *PLoS ONE*, *Polymer*, *Polymer International*, *Proceedings of the National Academy of Sciences (PNAS)*, *Progress in Polymer Science*, *Pure and Applied Chemistry*, *Science*, *Science Advances*, *Science Translational Medicine*, *Scientific Reports*, *Soft Matter*, *Tissue Engineering*, *Tissue Engineering: Part B – Reviews*, *Tissue Engineering: Part C – Methods*, *Trends in Biotechnology*, *Wiley Interdisciplinary Reviews*

## DEPARTMENTAL AND UNIVERSITY SERVICE

### Departmental and University Committees

#### *University of Pennsylvania*

Bioengineering, Graduate Student Recruiting Committee, Spring 2006, Spring 2007  
Bioengineering, Faculty Recruiting Committee, Fall 2007-Spring 2010  
Co-Director, Bioengineering Graduate Student Recruiting, Fall 2007-Spring 2008  
Bioengineering, Seminar Committee, Fall 2007-Spring 2008  
Bioengineering, Graduate Group Executive Committee, Spring 2007-Summer 2008  
Bioengineering, Undergraduate Curriculum Committee, Fall 2008-Summer 2011  
Bioengineering, Roster Planning/Curriculum Revising, Summer 2010-Summer 2011  
Financial Conflict of Interest Working Group, Fall 2011-Summer 2012  
Faculty Council, Fall 2011-Spring 2013  
Director, Bioengineering Graduate Student Recruiting, Fall 2011-Spring 2013  
Mentoring Committee for Arjun Raj (chair), Fall 2011-Spring 2016  
Mentoring Committee for Brian Chow, Fall 2012-Spring 2019  
Chair, Bioengineering Graduate Group, Summer 2013-Summer 2017  
Search Committee, Director of the Institute for Regenerative Medicine, Fall 2013  
Mentoring Committee for Walter Witschey, Fall 2014-2017  
Personnel Committee, Fall 2014-Summer 2017  
Mentoring Committee for Dan Huh (chair), Fall 2014-Spring 2019  
Chair, CBE Consultative Committee, Fall 2015, Fall 2020  
President's Engagement Prize Selection Committee, Spring 2019  
Mentoring Committee for Michael Mitchell (chair), Spring 2019-Fall 2021  
Mentoring Committee for Riccardo Gottardi, Fall 2019-Fall 2021  
Mentoring Committee for Sydney Shaffer (chair), Fall 2019-Fall 2021  
MSE Consultative Committee, Spring 2020

#### *University of Colorado*

BioFrontiers Faculty Search Committee, Fall 2021-Spring 2022, Fall 2022-Spring 2023  
ChBE Graduate Committee, Fall 2022-Present  
Faculty Mentor, Laurel Hind, Fall 2023-Present  
Faculty Mentor, Wyatt Shields, Fall 2023-Present

### Dissertation Committees

#### *University of Pennsylvania*

Rachel Handwerger (Diamond Laboratory, BE PhD, Defended 5/07) - Chair  
Alice Chou (Nicoll Laboratory, BE PhD, Defended 2/08) - Chair  
Simone Stalling (Nicoll Laboratory, MD/PhD Candidate, Defended 9/08) - Chair  
Eric Simone (Muzykantov Laboratory, BE PhD Candidate, Defended 11/08) - Chair  
David Christian (Discher Laboratory, CBE PhD Candidate, Defended 2/09)  
Richard Tsai (Discher Laboratory, BE PhD Candidate, Defended 3/09) - Chair  
Sara Rothman (Winkelstein Laboratory, BE PhD Candidate, Defended 4/09) - Chair  
Renee Randazzo (Diamond Laboratory, CBE PhD Candidate, Defended 4/09)  
Dalia Levine (Hammer Laboratory, CBE PhD Candidate, Defended 11/09)  
Annie Reza (Nicoll Laboratory, BE PhD Candidate, Defended 12/09) - Chair  
Collette Shen (Chen Laboratory, MD/PhD Candidate, Defended 3/10) - Chair  
Alice Huang (Mauck Laboratory, BE PhD Candidate, Defended 5/10) - Chair  
Cathy Peltz (Soslowsky Laboratory, BE PhD Candidate, Defended 6/10) - Chair  
Brendon Baker (Mauck Laboratory, BE PhD Candidate, Defended 6/10) - Chair  
Julie Czupryna (Tsourkas Laboratory, BE PhD Candidate, Defended 8/10)  
Andrew Elias (Tsourkas Laboratory, BE PhD Candidate, Defended 6/11) - Chair



Isaac Erickson (Mauck Laboratory, BE PhD Candidate, Defended 7/11) - Chair  
 Samuel Crayton (Tsourkas Laboratory, MD/PhD Candidate, Defended 10/11) - Chair  
 Lara Ionescu (Mauck Laboratory, BE PhD Candidate, Defended 10/11) - Chair  
 Donny Hanjaya-Putra (Gerecht Laboratory, Johns Hopkins University, CBE PhD Candidate, Defended 3/12)  
 Katarzyna Mosiewicz (Lutolf Laboratory, EPFL, Switzerland, BE PhD Candidate, Defended 3/12)  
 Randi Saunders (Hammer Laboratory, BE PhD Candidate, Defended 8/12) – Chair  
 Jeremy Elser (K. Margulies Laboratory, BE PhD Candidate, Defended 8/12)  
 Michael Dishowitz (Hankenson Laboratory, BE PhD Candidate, Defended 10/12) – Chair  
 Ian Gaudet (Shreiber Laboratory, Rutgers University, BME PhD Candidate, Defended 12/12)  
 Salim Darwiche (Pioletti and Applegate Laboratories, EPFL, Switzerland, BE PhD Candidate, Defended 6/13)  
 Megan Farrell (Mauck Laboratory, BE PhD Candidate, Defended 9/13)  
 Brandon Blakely (Chen Laboratory, BE PhD Candidate, Defended 1/14)  
 George Dominguez (Hammer Laboratory, BE PhD Candidate, Defended 7/14)  
 Laurel Hind (Hammer Laboratory, BE PhD Candidate, Defended 2/15) – Chair  
 Spencer Szczesny (Elliot Laboratory, BE PhD Candidate, Defended 2/15)  
 Su Chin Heo (Mauck Laboratory, BE PhD Candidate, Defended 9/15) - Chair  
 Feini Sylvia Qu (Mauck Laboratory, BE PhD Candidate, Defended 10/15) – Chair  
 Minwook Kim (Mauck Laboratory, BE PhD Candidate, Defended 3/17) - Chair  
 Claire McLeod (Mauck Laboratory, BE PhD Candidate, Defended 4/17)  
 Bhavana Mohanraj (Mauck Laboratory, BE PhD Candidate, Defended 5/17) - Chair  
 Brian Cosgrove (Mauck Laboratory, BE PhD Candidate, Defended 6/17) - Chair  
 Cassidy Blundell (Huh Laboratory, BE PhD Candidate, Defended 7/18) - Chair  
 Chen Gao (Hammer Laboratory, CBE PhD Candidate, Defended 7/18)  
 Laura Struzyna (Cullen Laboratory, BE PhD Candidate, Defended 4/19) - Chair  
 Xuan Cao (Shenoy Laboratory, MSE PhD Candidate, Defended 4/19)  
 Jeongyun Seo (Huh Laboratory, BE PhD Candidate, Defended 10/19) – Chair  
 Devon Mason (Boerckel Laboratory, BE PhD Candidate, Notre Dame, Defended 1/20)  
 Alexander Kasznel (Chenoweth Laboratory, BE PhD Candidate, Defended 5/20) - Chair  
 Sohaib Hashmi (BE MD/PhD Candidate, Defended 9/20) – Chair  
 Andrei Georgescu (Huh Laboratory, BE PhD Candidate, Defended 4/21) - Chair  
 Dongning Chen (Wells Laboratory, BE PhD Candidate, Defended 11/21) – Chair  
 Yuxi (Clara) Dong (Cormode Laboratory, BE PhD Candidate, Defended 4/22)  
 Hannah Zlotnick (Mauck Laboratory, BE PhD Candidate, Defended 4/22)  
 Wisberty Gordian Velez (Cullen Laboratory, BE PhD Candidate, Defended 4/22)  
 Ana Peredo (Mauck Laboratory, BE PhD Candidate, Defended 5/22)  
 Jingyu (Alex) Wu (Issadore/Lee Laboratories, CBE PhD Candidate, Defended 11/22)  
 Grey Hallstrom (Mauck Laboratory, CAMB PhD Candidate, Defended 7/23)  
 Erin Purvis (Cullen Laboratory, Neuroscience PhD Candidate, Defended 6/24)  
 Austin Jenk (Mauck Laboratory, BE PhD Candidate)

#### *University of Colorado*

ChBE – Chemical & Biological Engineering; MSE – Materials Science & Engineering; ME – Mechanical Engineering

Victor Crespo-Cuevas (Ferguson/Vernerey Laboratories, PhD Candidate, ME, Defended 5/23)  
 Grant Bauman (White Laboratory, PhD Candidate, ChBE, Defended 10/23)  
 Alexandra Borelli (Anseth Laboratory, PhD Candidate, ChBE, Defended 12/23)  
 Brittany Thompson (Bryant Laboratory, PhD Candidate, MSE, Defended 5/24)  
 Chris Calo (Hind Laboratory, PhD Candidate, ChBE, Defended 5/25)  
 Bruce Kirkpatrick (Anseth Laboratory, MD/PhD Candidate, ChBE)  
 Amie Chang (Anseth Laboratory, PhD Candidate, ChBE)  
 Gabriel Seymour (McLeod Laboratory, PhD Candidate, EE)  
 Hannah Weppner (Hind Laboratory, PhD Candidate, ChBE)  
 Dalton Miles (Calve/Bryant Laboratories, PhD Candidate, ChBE)  
 Ella Hushka (Anseth Laboratory, PhD Candidate, ChBE)  
 Matthew Jaeschke (Anseth Laboratory, PhD Candidate, ChBE)  
 Faith Olulana (Neu Laboratory, PhD Candidate, ChBE)  
 Paula Pranda (Hayward/White Laboratories, PhD Candidate, ChBE)  
 Laurel Stefani (Bryant Laboratory, PhD Candidate, ChBE)  
 Sven Saemundsson (Cha/Goodwin Laboratories, PhD Candidate, ChBE)

Aitana Ighes-Romeu (Hind Laboratory, PhD Candidate, ChBE)  
Eric Ginter (Hind Laboratory, PhD Candidate, ChBE)  
Katie Trese (Shields Laboratory, PhD Candidate, ChBE)  
Matthew Kwan (Shields Laboratory, PhD Candidate, MSE)  
Ben Nelson (Anseth/Bowman Laboratories, PhD Candidate, ChBE)  
Hannah Larson (Calve Laboratory, PhD Candidate, ME)  
Lillian Mortensen (Goodwin/Cha Laboratories, PhD Candidate, MSE)  
Samson Adelani (Bay Laboratory, PhD Candidate, MSE)  
Olivia Irvin (Whitehead Laboratories, PhD Candidate, ChBE)

## **CONSULTING**

Apotex, 2004-2005  
Performance Indicator, 2004-2005  
Healionics, 2008-2010  
Akin Gump, 2012, 2014-2015  
Fish-Richardson, 2013-2015  
Gecko Biomedical, 2014, 2018  
Birch Stewart Kolasch Birch, 2015-2016  
Holistick Medical, 2018-2021  
Innervace, 2022-2023

## **FOUNDED START-UP COMPANIES**

Founder, Prohibix (Hydrogel therapeutic delivery, cardiovascular and musculoskeletal applications)  
Founder, Prolifagen (miRNA therapeutics for cardiac repair)  
Founder, Myostratum (Acellular hydrogels for cardiac repair)  
Founder, Forsagen (Hydrogels for cartilage stabilization and repair)  
Founder, Entangl3d (Additive manufacturing of adhesive hydrogels)