

## Daewon Park

Associate Professor  
Department of Bioengineering  
University of Colorado Denver, Anschutz Medical Campus  
12800 E. 19th Avenue, Rm: 4118, Aurora, CO 80045  
Email: daewon.park@cuanschutz.edu, Office: 303-724-6947

### Education

08/2003 Ph.D. in Chemical Engineering  
Yonsei University, South Korea  
10/2004-10/2005 Postdoctoral Fellow in Chemistry  
Massachusetts Institute of Technology  
10/2005-03/2008 Postdoctoral Associate in Materials Science and Engineering  
Cornell University  
03/2008-06/2011 Postdoctoral Fellow in Biomedical & Bioengineering  
Georgia Institute of Technology, University of Pittsburgh

### Academic appointments

09/2003-09/2004 Research Professor  
Department of Chemical Engineering, Yonsei University, South Korea  
07/2011-08/2017 Assistant Professor  
Department of Bioengineering, University of Colorado Denver  
09/2017-present Associate Professor (Tenured)  
Department of Bioengineering, University of Colorado Denver

### Government positions

1997-1999 Military Service, Korean Defense Security Command

### Honors and awards

2004 Korean Science and Engineering Foundation Postdoctoral Fellowship  
2010 Ocular Tissue Engineering and Regenerative Ophthalmology Postdoctoral Fellowship  
funded by Louis J. Fox Center for Vision Restoration  
2021 Mentor of the Year, University of Colorado School of Medicine Mentored Scholarly  
Activity Program

### Membership in professional organizations

2006-2007 American Chemical Society (ACS)  
2008-present Biomedical Engineering Society (BMES)  
2013-present American Heart Association (AHA)  
2014-present Editorial Board Member, Austin Journal of Biomedical Engineering  
2015-present Editorial Board Member, Journal of Biomedical Engineering and Research  
2015-present The Association for Research in Vision and Ophthalmology (ARVO)  
2018-present Academic Editor, Advances in Polymer Technology

## **Major Committee and Service**

### ***School of Medicine***

2011-present Interviewer for incoming Faculty and MSTP students

2015-2017 Anschutz Graduate Council Member

### ***College of Engineering and Applied Sciences (Currently College of Engineering, Design and Computing)***

2011-present Bioengineering Graduate Affairs Committee Member

2013-2017 Bioengineering Graduate Affairs Committee Chair

2013-2015 Bioengineering Curriculum Committee Member

2015 Bioengineering Search Committee Member

2017-present CEAS Scholarship Selection Committee Member

2017-present Undergraduate Research Opportunity Program (UROP) Reviewer

2018-present Bioengineering Undergraduate Affairs Committee Member

## **Licensure and board certification**

1995 Level 2 Professional License of Teacher Certified by Korean Ministry of Education and Science Technology

## **Inventions, intellectual property and patents held or pending**

US 7887926 Triblock polymers and polymer coatings

US 20120244369 Coatings to prevent biofouling of surfaces

US2011/027233 Reverse thermal gels and uses therefor

WO 2013/165835 A1 Antiproliferative surface modifications and methods of use

WO 2013/166198 A1 Antimicrobial polyurethane materials and methods of forming and using same

US20160051469 A1 Biodegradable copolymers, systems including the copolymers, and methods of forming and using same

US20160366890 A1 Antimicrobial reverse thermal gel and methods of forming and using same

US9700628 B1 Heparin-mimicking sulfonated reverse thermal gel for the delivery of heparin-binding therapeutic proteins

US20200246502A1 Reverse thermal gels and their use as vascular embolic repair agents

## **Journal Reviewer in:**

ACS Applied Materials and Interfaces; ACS Biomaterials Science & Engineering; Acta Biomaterialia; Advanced Functional Materials; Advanced Healthcare Materials; American Journal of Physiology; Biomacromolecules; Biomaterials; Biomaterials Science; Biomedical Materials; Biotechnology and Bioengineering; Brain Research; Chemical Communications; Colloids and Surfaces B: Biointerfaces; Drug Discovery Today; International Journal of Nanomedicine; International Journal of Pharmaceutics; Journal of Biological Engineering; Journal of Biomaterials Science; Journal of Biomedical Materials Research, Part A and Part B; Journal of Industrial and Engineering Chemistry; Journal of Nanoscience and Nanotechnology; Langmuir; Macromolecular Bioscience; Macromolecular Materials Engineering; Macromolecular Rapid Communications; Materials Science & Engineering; Nano Research; Nanoscale Research Letters; Pharmaceutical Research; PLOS One; Polymer Advanced Technologies; Scientific Report

## Teaching record

### Teaching Assistant

- 1996 Myongji University, South Korea
- Assisted in lectures in undergraduate Chemical Reaction Engineering
  - Provided quiz solutions
- 2001 Yonsei University, South Korea
- Supervised undergraduate laboratory sections for Unit Operation Experiments

### Instructor

- 03-08/2004 Yonsei University, South Korea
- Instructor of Advanced Biocatalyst (graduate level)
  - Evaluated students by quizzes and examinations
- 2012-present University of Colorado Denver
- Graduate Courses
- BIOE 5420 special topic (3 credits); transformed to BIOE 5083 (3 credits) in 2014 Polymers in Biomedical Applications; Co-listed for both graduate and undergraduate students with a modified course number (BIOE 5083/4083) in 2017 (taught in Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016, and Spring 2017)
  - BIOE 5030 Technology for Bioengineers I (taught in Fall 2012 and Fall 2013)
- Undergraduate Courses
- BIOE 3030 Introduction to Biomaterials (3 credits, taught in Fall 2015, Fall 2016, Fall 2017, Fall 2018 and Fall 2019)
  - BIOE 3070 Bioengineering Lab I (3 credits, Co-instructor, taught in Fall 2016 and Fall 2019)

### Mentoring

- 2011-2012 Andrew Milgroom (MS), currently Consultant at Trinity Partners
- 2011-2013 Amin Famili (PhD), currently Scientist at Genentech
- 2012-2013 Timothy Snyder (MS), currently cell biologist at Regenerative Sciences  
Brisa Pena Castellanos (Postdoc), currently postdoc at Dr. Mestroni's Lab at Anschutz School of Medicine
- 2012-2014 Donghwa Yun (Postdoc), currently CVD quality engineer at Rocky Mountain Instrumen  
Phillip Jenkins (MS), currently medical student at William Carey University College of Osteopathic Medicine  
Lindsay Hockensmith (MS), currently medical student at University of Kentucky  
Matthew Taylor (MS), currently Associate Scientist at Semprus BioSciences  
Maria Bortot (MS), currently professional research assistant at Anschutz Medical CU Denver Anschutz Campus  
Krishna Madhavan (Postdoc), currently professional research assistant at CU Denver and Health Science Center
- 2012-2015 Miranda Intrator (MS), currently technical project manager at Los Alamos National Lab

2012-2017 Melissa Laughter (PhD), currently medical student at University of Colorado Anschutz Medical campus

2013-2015 Anna Laura Nelson (MS), currently professional research assistant at Anschutz Medical Campus Cardiology

2013-2017 David Lee (PhD), currently associate consultant at Eli Lilly & Company

2013-2019 James Bardill, PhD, currently Postdoctoral Associate at AMC

2014-2016 Madia Stein (MS), currently scientific lab technician at Terumo BCT

2014-present Adam Rocker, PhD

2019-present Mary Bevilacqua, MS

2020-present Elizabeth Schiesser, PhD; Ashley Turcott, PhD; Kendra Jones, MS

2022-present Luke Duncan, PhD; Samuel Hurst, MS

2023-present Conlan Reardon, MS

### ***Research Advisor/Thesis Committee***

2011-2012 Roopali Shah, MS, Thesis committee

2012-2013 Michael Zimkowski, PhD, Thesis/Comprehensive Exam committee

2012-2014 Kiran Dyamenahalli, PhD, Thesis/Comprehensive Exam committee

2012 Robert Delapp, MS, Thesis committee

2012-present Tina Govindarajan, PhD, Thesis/Preliminary Exam committee

2013 Harshita Kothari, MS, Thesis committee

2013 Ryan Delaney, MS, Thesis committee

2013 Melanie Dufva, PhD, Thesis/Preliminary Exam committee

2015 Karl Treadwell, MS, Thesis committee

2015-present Chris Erickson, PhD, Thesis/Preliminary Exam committee

2016-2017 Steven Lewis, MS, Thesis committee

2016-2017 Lyna Nguyen, MS, Thesis committee

2016-2017 Megan Summers, MS, Thesis committee

2017-present Ethan Vanderslice, PhD, Thesis/Preliminary Exam committee

2018-present Rachel Reeser, PhD, Thesis/Preliminary Exam committee

### ***Student Awards***

#### **Graduate Students**

2013 Amin Famili, American Association of Pharmaceutical Scientists Travel Award

2014 Melissa Laughter, CU Denver Graduate School Travel Award for Society for Biomaterials Annual Meeting; Miranda Intrator, CU Denver Graduate School Travel Award for Society for Biomaterials Annual Meeting

2015 David Lee, CU Denver Graduate School Travel Award for Society for Biomaterials Annual Meeting; David Lee, CU Denver Graduate School Travel Award for Biomedical Engineering Society Annual Meeting; Melissa Laughter, CU Denver Graduate School Travel Award for Society for Biomaterials Annual Meeting

2017 David Lee, CU Denver Graduate School Travel Award for Society for Biomaterials Annual Meeting; Adam Rocker, CU Denver Graduate School Travel Award for Society for Biomaterials Annual Meeting

### Undergraduate Students

2015 Ryan Brody, Undergraduate Research Opportunity Program Grant  
2017 Cameron Mattson, Undergraduate Research Opportunity Program Grant

### **Grant support**

#### **Active Support**

1 R01 EY031461-01 Role: PI (40%) 04/2020-03/2024  
Engineered multi-therapeutic agents delivery system towards retinal ganglion cell axon regeneration  
The goal of this fund is to regenerate retinal ganglion cell axons after optic nerve injuries using a biomimetic multi-therapeutic agent delivery system

1 R21 AG080257-01 Role: PI (12.6%) 01/01/2023 - 12/31/2024  
Determining the role of tissue stiffness in the development of Alzheimer's disease pathology

NSF I-Corps Program Role: PI, TL 2023-2024  
Customer discoveries for antimicrobial surgical coating

SPARK | REACH Award Role: PI 2023-2025  
Developing and commercializing microbicidal surgical incision coating

#### **Completed Support**

Dose Medical Role: Co-PI (8.3%) 10/2012-04/2013  
Ocular drug delivery using reverse thermal gel  
The goal of this fund is to develop drug delivery system suited for optic disease treatment

Startup Funding Role: PI 07/01/2011-07/31/2016  
The goal of this fund is to set up my lab and earn preliminary data in Polymeric Biomaterials; Drug Delivery; Tissue Engineering and Regenerative Medicine, and apply for the second stage funding.

NIH 1R01DE022348-01A1 Role: Co-I (10%) 07/01/2012-06/30/2017  
Application of nanogel-modified resins for improved polymeric dental materials  
The goal of this fund is to develop polymeric dental materials using nanogel system. My role in this project is to incorporate antibacterial property to nanogel system.

Bioscience Discovery Evaluation Grant (UCD53252) Role: PI (16.7%) 07/01/2014-06/30/2017  
Antimicrobial reverse thermal gel for surgical coating  
The goal of this grant is to develop temperature sensitive anti-microbial surgical coating, aiming replacement of current surgical incision drapes. My role in this project is to provide guidance on the synthesis of materials, characterization, and antimicrobial testes.

NIH 1R21HL124100-01 Role: PI (16.7%) 07/22/2014-06/30/2017  
A biomimetic reverse thermal gel for the treatment of myocardial infarction

The goal of this grant is to develop sulfonated reverse thermal gel that mimics intrinsic negative charge of natural heparin for effective delivery of angiogenic growth factors to myocardial infarction site and treat the disease by neovascularization.

NIH 1R21EY023711-01A1      Role: PI (16.7%)      09/01/2014-08/31/2017

A biomimetic reverse thermal gel for optic nerve regeneration

The goal of this grant is to develop an extracellular matrix-mimicking polymeric injectable system for the regeneration of injured retinal ganglion cell axons (RGC).

R21 EY025333-01      Role: PI (16.7%)      07/01/2015-06/30/2018

A functional reverse thermal gel for retinal ganglion cell axon regeneration

The goal of this grant is to develop new treatment modality of optic neuropathies by localized and controlled delivery of therapeutic agents.

AHA 17GRNT33661024      Role: PI (8.3%)      07/01/2017-06/30/2019

Engineered biomimetic injectable system towards cardiac repair

The goal of this grant is to develop multiple therapeutic agent delivery system for the treatment of myocardial infarction.

## Bibliography

### **Peer-Reviewed Journal Articles** ( \*= corresponding author )

1. **Park D**, Kim HS, Jung JK, Haam S & Kim WS. Enzymatic synthesis of alkylglucosides by amphiphilic phase enzyme reaction. *Biotechnology Letters*, 22:951-956, 2000.
2. **Park D**, Kim JS, Haam S, Kim HS & Kim WS. Lipase-catalyzed synthesis of methylglucoside esters containing a hydroxy acid. *Biotechnology Letters*, 23:1947-1952, 2001.
3. Kim SS, **Park D**, Kim SY, Kim JH, Haam S, Kim EB and Kim WS. VOC treatment characteristics using biofilter and its performance enhancement with the addition of microorganisms. *HWAHAK KONGHAK*, 39:340-345, 2001.
4. **Park D**, Kim SS, Haam S, Ahn IS, Kim EB & Kim WS. Biodegradation of toluene by a lab-scale biofilter inoculated with pseudomonas putida DK-1. *Environmental Technology*, 23:309-318, 2002.
5. **Park D**, Haam S, Ahn IS, Lee TG & Kim WS. Enzymatic esterification of methylglucoside with acrylic/methacrylic acid in organic solvents. *Journal of Biotechnology*, 107:151-160, 2004.
6. Kim JS, Haam S, **Park D**, Ahn IS and Kim WS. Biocatalytic esterification of methylglucoside for synthesis of biocompatible sugar- containing vinyl esters. *Chemical Engineering Journal*, 99:15-22, 2004.
7. **Park D**, Haam S, Kim WS. Chemoenzymatic synthesis of sugar-containing biocompatible hydrogels: poly( methylglucoside acrylate) and poly(methylglucoside methacrylate). *Journal of Biomedical Materials Research Part A*, 71A:497-507, 2004.
8. **Park D**, Jang K, Ahn IS, Haam S & Kim WS. Immobilization of starch-converting enzymes on surface modified carriers using single and co-immobilized systems: properties and application to starch hydrolysis. *Process Biochemistry*, 40:53-61, 2005.
9. **Park D**, Wang J, and Klibanov AM. One-step, painting-like coating procedures to make surface highly and permanently bactericidal. *Biotechnology Progress*. 22:584-589, 2006. (It is featured on the ACS publications website as a 2006 Most-Cited Article based on citation data obtained from

Thomson ISI ([http://pubs.acs.org/journals/bipret/promo/most/most\\_cited/2006.html](http://pubs.acs.org/journals/bipret/promo/most/most_cited/2006.html)).

10. Weinman CJ, Finlay JA, **Park D**, Paik MY, Krishnan S, Sundaram HS, Dimitriou M, Sohn KE, Callow ME, Callow JA, Handlin DL, Willis CL, Kramer EJ, and Ober CK. ABC triblock surface active block copolymer with grafted ethoxylated fluoroalkyl amphiphilic side chains for marine antifouling/fouling-release applications. *Langmuir*, 25:12266-12274, 2009.
11. **Park D**, Finlay JA, Ward RJ, Weinman CJ, Krishnan S, Paik M, Sohn KE, Callow ME, Callow JA, Handlin DL, Willis CL, Fischer DA, Angert ER, Kramer EJ, Ober CK. Antimicrobial behavior of semifluorinated-quaternized triblock copolymers against airborne and marine microorganisms. *ACS Applied Materials & Interfaces*, 2:703-711, 2010.
12. **Park D**, Weinman CJ, Finlay JA, Fletcher BR, Paik MY, Sundaram HS, Dimitriou MD, Sohn KE, Callow ME, Callow JA, Handlin DL, Willis CL, Fischer DA, Kramer EJ and Ober CK. Amphiphilic surface active triblock copolymers with mixed hydrophobic and hydrophilic side chains for tuned marine fouling-release properties. *Langmuir*, 26:9772-9781, 2010.
13. **Park D**, Wu W, Wang Y. A functionalizable reverse thermal gel based on a polyurethane / PEG block copolymer. *Biomaterials*, 32:777-786, 2011.
14. \***Park D**, Larson AM, Klivanov AM, Wang Y. Antiviral and antibacterial polyurethanes of various modalities. *Applied Biochemistry and Biotechnology*, 169(4):1134-1146, 2013
15. **Park D**, Shah V, Rauck BM, Friberg TR, Wang Y. An anti-angiogenic reverse thermal gel as a drug delivery system for age-related wet macular degeneration. *Macromolecular Bioscience*, 13:464-469, 2013.
16. Milgroom A, Intrator M, Madhavan K, Mazzaro L, Shandas R, Liu B and **Park D\***. Mesoporous silica nanoparticles as a breast-cancer targeting ultrasound contrast agent. *Colloids and Surfaces B: Biointerfaces*, 116:652-657, 2014.
17. Yun D, Famili A, Lee YM, Jenkins PM, Freed CR and **Park D\***. Biomimetic poly(serinol hexamethylene urea) for promotion of neurite outgrowth and guidance. *Journal of Biomaterials Science, Polymer Edition*, 25:354-369, 2014.
18. Rittfeld G, Rauck B, Novosat TL, **Park D**, Patel P, Roos R, Wang Y, Oudega M. The effect of a polyurethane-based reverse thermal gel on bone marrow stromal cell transplant survival and spinal cord repair. *Biomaterials*, 35:1924-1934, 2014.
19. Rauck BM, Friberg M, Medina CA, **Park D**, Shah V, Bilonick R and Wang Y. Biocompatible reverse thermal gel sustains the release of intravitreal bevacizumab. *Investigative Ophthalmology & Visual Science*. 55:469-476, 2014.
20. Snyder TN, Madhavan K, Intrator M, Dregalla RC, **Park D\***. A fibrin/hyaluronic acid hydrogel for the delivery of mesenchymal stem cells and potential for articular cartilage repair. *Journal of Biological Engineering*, 8:10, 2014.
21. Tan W, Madhavan K, Hunter KS, **Park D**, Stenmark KR. Vascular stiffening in pulmonary hypertension: cause or consequence? *Pulmonary Circulation*, 4(4):560, 2014
22. Yun D, Laughter R, **Park D\***. A biomimetic reverse thermal gel for 3-dimensional neural tissue engineering. *Austin Journal of Biomedical Engineering*, 1(4):1019, 2014.
23. Famili A, Kahook MY, **Park D\***. A combined micelle and poly(serinol hexamethylene urea)-copoly(N-isopropylacrylamide) reverse thermal gel as an injectable ocular drug delivery system. *Macromolecular Bioscience*, 14:1719-1729, 2014.
24. Castellanos BP, Shandas R, **Park D\***. A heparin-mimicking reverse thermal gel for controlled protein delivery. *Journal of Biomedical Materials Research Part A*, 103A:2102-2108, 2015.

25. Yun D, Lee YM, Laughter MR, Freed CR, **Park D\***. Substantial differentiation of human neural stem cells into motor neuron on a biomimetic polyurea. *Macromolecular Bioscience*, 15(9):1205-1211, 2015. **Highlighted as Frontispiece**
26. Jenkins PM, Laughter MR, Lee DJ, Lee YM, Freed CR, **Park D\***. A nerve guidance conduit with topographical and biochemical cues: potential application using human neural stem cells. *Nanoscale Research Letters*, 10(1):1-7, 2015
27. Taylor M, McCollister B, **Park D\***. Highly bactericidal polyurethane effective against both normal and drug-resistant bacteria for use as an air filter coating. *Applied Biochemistry and Biotechnology*, 178(5):1053-1067, 2016.
28. Pena B, Martinelli V, Jeong M, Bosi S, Lapasin R, Taylor MRG, Long CS, Shandas R, **Park D\***, **Mestroni L\***. Biomimetic polymers for cardiac tissue engineering. *Biomacromolecules*, 17(5):1593-1601, 2016. **Featured as Cover**
29. Lee DJ, Fontaine A, Meng X, **Park D\***. Biomimetic nerve guidance conduit containing intraluminal microchannels with aligned nanofibers markedly facilitates in nerve regeneration. *ACS Biomaterials Science & Engineering*, 2(8):1403-1410, 2016.
30. Laughter MR, Ammar DA, Bardill JR, Pena B, Kahook MY, Lee DJ, **Park D\***. A self-assembling injectable biomimetic microenvironment encourages retinal ganglion cell axon extension in vitro. *ACS Applied Materials & Interfaces*, 8(32):20540-20548, 2016.
31. Marwan AI\*, Williams S, Bardill JR, Gralla J, Abdul-Aziz NM, **Park D\***. Characterization of a reverse thermal gel for in-utero coverage of Spina Bifida defects: An innovative bioengineering alternative to open fetal repair. *Macromolecular Bioscience*, 17, 1600473, 2017.
32. Pena B, Bosi S, Aguado B, Borin D, Farnsworth N, Rowland TJ, Martinelli V, Jeong M, Taylor MRG, Long CS, Shandas R, Sbaizero O, Prato M, Anseth KS, **Park D\***, **Mestroni L\***. Injectable carbon nanotube-functionalized reverse thermal gel promotes cardiomyocytes survival and maturation, *ACS Applied Materials & Interfaces*, 9(37): 31645-31656, 2017.
33. Madhavan K, Frid MG, Hunter K, Shandas R, Stenmark KR, **Park D\***. Development of an electrospun biomimetic polyurea scaffold suitable for vascular grafting. *Journal of Biomedical Materials Research, Part B*, 106(1): 278-290, 2018.
34. Bortot M, Laughter MR, Stein M, Rocker A, Patel V, **Park D\***. Quaternized Q-PEIPAAm-based antimicrobial reverse thermal gel: A potential for surgical incision drapes. *ACS Applied Materials & Interfaces*, 10(21): 17662-17671, 2018.
35. Pena B, Laughter MR, Jeff S, Rowland TJ, Taylor MRG, Mestroni L\*, **Park D\***. Injectable hydrogels for cardiac tissue engineering. *Macromolecular Bioscience*, 18(6): 1800079, 2018. **Invited Review**
36. Laughter MR, Bardill JR, Ammar DA, Pena B, Calkins DJ, **Park D\***. Injectable neurotrophic factor delivery system supporting retinal ganglion cell survival and regeneration following optic nerve crush. *ACS Biomaterials Science & Engineering*, 4(9): 3374-3383, 2018.
37. Lee DJ, Rocker AJ, Bardill JR, Shandas R, **Park D\***. A sulfonated reversible thermal gel for the spatiotemporal control of VEGF delivery to promote therapeutic angiogenesis. *Journal of Biomedical Materials Research Part A*, 106(12): 3053-3064, 2018.
38. Bardill JR, Williams SM, Shabeka U, Niswander L, **Park D\***, Marwan AI\*. An injectable reverse thermal gel for minimally invasive coverage of mouse myelomeningocele. *Journal of Surgical Research*, 235: 227-236, 2019.
39. Pena B, Maldonado M, Bonham AJ, Laughter MR, Rowland TJ, Bardill JR, Ramon NA, Taylor MRG, Anseth KS, Shandas R, **Park D\***, **Mestroni L\***. A gold nanoparticle functionalized reverse



- thermal gel for tissue engineering applications. *ACS Applied Materials & Interfaces*, 11(20): 18671-18680, 2019.
40. Lee DJ, Cavašin MA, Rucker AJ, Soranno DE, Meng X, Shandas R, **Park D\***. An injectable sulfonated reversible thermal gel for therapeutic angiogenesis to protect cardiac function after a myocardial infarction. *Journal of Biological Engineering*, 13(1): 6, 2019
  41. Bardill JR, **Park D\***, Marwan AI\*. Improved coverage of mouse myelomeningocele with a mussel inspired reverse thermal gel. *Journal of Surgical Research*, 251: 262-274, 2020.
  42. Rucker AJ, Lee DJ, Shandas R, **Park D\***. Injectable polymeric delivery system for spatiotemporal and sequential release of therapeutic proteins to promote therapeutic angiogenesis and reduce inflammation. *ACS Biomaterials Science & Engineering*, 6(2): 1217-1227, 2020.
  43. Lim JW, Na W, Kim HO, Yeom M, Kang A, Park G, Park C, Ki J, Lee S, Jung B, Jeong HH, **Park D**, Song D, Haam S. Co-delivery of antigens and immunostimulants via a polyersome for improvement of antigen-specific immune response. *Journal of Materials Chemistry B*, 8(26): 5620-5626, 2020.
  44. Bardill JR, Williams SM, Laughter MR, **Park D\***, Marwan AI\*. Evaluation of scaffolding, inflammatory response, and wound healing support of a reverse thermal gel for myelomeningocele patching. *Journal of Applied Polymer Science*, 138(11): 50013, 2021
  45. Laughter MR, Nelson AL, Bortot M, Pena B, Liu B, **Park D**. Multifunctional fluorocarbon-conjugated nanoparticles of varied morphologies to enhance diagnostic effects in breast cancer. *Nano Biomed Eng*, 13(1): 52-61, 2021.
  46. Bardill J, Gilani A, Laughter MR, Mirsky D, O'Neill B, **Park D\***, Marwan AI\*. Preliminary results of a reverse thermal gel patch for fetal ovine myelomeningocele repair. *Journal of Surgical Research*, 270: 113-123, 2022
  47. Rucker AJ, Cavašin M, Johnson NR, Shandas R, **Park D\***. A Sulfonated Thermoresponsive Injectable Gel for Sequential Release of Therapeutic Proteins to Protect Cardiac Function After a Myocardial Infarction. *ACS Biomaterials Science & Engineering*, 8(9): 3883-3898, 2022.
  48. Gergen AK, Madsen HJ, Rucker AJ, White AM, Jones K, Merrick DT, **Park D\***, Rove JY\*. Making a painless drain: Proof of concept. *Seminars in Thoracic and Cardiovascular Surgery*, 2022.

### **Proceedings**

1. Weinman CJ, Krishnan S, **Park D**, Paik MY, Wong K, Fischer DA, Handlin DL, Kowalke GL, Wendt DE, Sohn KE, Kramer EJ, Ober CK. Antifouling block copolymer surfaces that resist settlement of barnacle larvae. *PMSE preprints*, 96:597-598, 2007.
2. Krishnan S, Finlay JA, **Park D**, Weinman CJ, Dong R, Wong K, Asgill N, Callow ME, Callow JA, Handlin DL, Willis CL, Brewer L, Wendt DE, Sohn KE, Kramer EJ, Ober CK. Ambiguous polymeric surfaces for marine antifouling applications. *PMSE Preprints*, 98: 83-84, 2008.
3. Weinman CJ, Finlay JA, **Park D**, Paik MY, Krishnan S, Fletcher BR, Callow ME, Callow JA, Handlin DL, Willis CL, Fischer DA, Sohn KE, Kramer EJ, Ober CK. Antifouling ABC triblock copolymers with grafted functionality. *PMSE preprints*, 98: 639-641, 2008.
4. Dong R, Rastogi A, Weinman CJ, Tanaka M, Hemmelmann M, Chiang E, **Park D**, Yi Y, Paik MY, Nad S, Smith N, Handlin DL, Willis CL, Kramer EJ, Baird BA, Abruna HD, and Ober CK. Polymer brushes as responsive materials for the biology- material interface. *PMSE Preprints*, 99:109-110,2008.
5. Pena B, Park D, Long CS, Martinelli V, Bosi S, Ballerini L, Prato M, Sucharov C, Jeong M, Taylor MR, Shandas R, Mestroni L. Injectable reverse thermal gel biopolymers may act as an extracellular

- matrix and cell vehicle for cardiac tissue engineering. *Biophysical Journal*, 108(2):486a, 2015.
6. Pena B, Park D, Long CS, Martinelli V, Bosi S, Ballerini L, Prato M, Sucharov C, Jeong M, Taylor MR, Shandas R, Mestroni L. Temperature-responsive materials may act as extracellular matrix and cell vehicle for cardiac tissue engineering. *Journal of the American College of Cardiology*, 65 (10\_S), 2015.
  7. Pena B, Martinelli V, Bosi S, Sucharov C, Jeong M, Taylor MR, Prato M, Long CS, Shandas R, Park D, Mestroni L. Temperature-responsive cell delivery biopolymers for cardiac tissue engineering. *Circulation Research*, 117(Suppl 1):A9, 2015.
  8. Pena B, Martinelli V, Bosi S, Jeong M, Taylor MR, Prato M, Long CS, Cavasin M, Shandas R, Park D, Mestroni L. Injectable hybrid nanoengineered polymer for cardiac tissue engineering. *Circulation*, 134(Suppl 1): A15218, 2016.
  9. Williams S, Bardill J, Abouchaar M, Aziz NA, Park D, Marwan AI. A polyurea-based reverse thermal gel supporting cellular functions: implications for a novel bioengineering alternative to open fetal repair of spina bifida defects. *Wound Repair And Regeneration*, 24(2):A17, 2016.
  10. Maldonado M, Pena B, Bonham AJ, Park D. Creation and characterization of gold-nanoparticle containing conductive scaffolds for culturing cardiomyocyte. *The FASEB journal*, 32: 801.5, 2018.
  11. Rocker AJ, Lee D, Cavasin M, Park D. An injectable sulfonated reversible thermal gel for controlled and localized delivery of vascular endothelial growth factor to promote cardiac protection after a myocardial infarction. *Journal of Clinical and Translational Science*, 3(S1): 2, 2019.
  12. Laughter M, Bardill J, Anderson J, Park D. Spray on skin: Engineering polymers for wound healing. *Journal of Investigative Dermatology*, 139(5): S164, 2019.

### **Presentations**

1. Enzymatic glycosylation for the synthesis of biosurfactant. Fall Meeting of Korean Society for Biotechnology and Bioengineering, 1996.
2. Enzymatic synthesis of methylglucoside acrylate in organic media. Spring Meeting of Korean Institute of Chemical Engineers, 2002.
3. Lipase-catalyzed synthesis of a methylglucoside acrylate/methacrylate. Fall Meeting of Korean Institute of Chemical Engineers, 2002.
4. Permeate flux behavior during microfiltration of protein-adsorbed microspheres in stirred cell. Student and Young Scientists Forum on Green and Sustainable chemistry, Japan, 2003.
5. Multilayer polymer coatings with controlled surface properties for marine antifouling applications. Polymer Outreach Program Symposium, Cornell Center for Materials Research, NY, 2006.
6. Environmentally responsive block copolymers as anti-biofouling surfaces. Polymer Outreach Program Symposium, Cornell Center for Materials Research, NY, 2007.
7. Novel antimicrobial block copolymers: polymer synthesis and their antimicrobial activity against *Staphylococcus Aureus*. Polymer Outreach Program Symposium, Cornell Center for Materials Research, NY, 2007.
8. Functionalized injectable reverse thermal gelling triblock copolymers. Midwest Tissue Engineering Consortium, PA, 2009.
9. Functionalizable reverse thermal gel. Tissue Engineering and Regenerative Medicine International Society (TERMIS) 2nd World Congress, Seoul, South Korea, 2009.
10. Treating macular degeneration with antiangiogenic reverse thermal gel. McGowan Institute Scientific Retreat, PA, 2010.
11. Biomimetic polyurea for substantial nerve regeneration, Biomedical Engineering Society, Seattle, WA, 2013.
12. Mesoporous silica nanoparticles as an ultrasound contrast agent, Society for Biomaterials, Denver,

CO, 2014.

13. A combined reverse thermal gel/polymeric micelle system for the sustained ocular delivery of triamcinolone acetonide, American Association of Pharmaceutical Scientists, San Antonio, TX, 2013.
14. Mesoporous silica nanoparticles as an ultrasound contrast agent, Society for Biomaterials, Denver, CO, 2014.
15. Biomimetic polyurea for improved differentiation of human neural stem cells into mature motor neurons, Society for Biomaterials, Denver, CO, 2014.
16. Biomimetic polymer conduit for nerve guidance following peripheral nerve injury, BMES, Tampa, FL, 2015
17. Heparin-mimicking reverse thermal gel for the treatment of myocardial ischemia, Society for Biomaterials, Charlotte, NC, 2015.
18. A biomimetic polymer conduit for nerve guidance, Society for Biomaterials, Charlotte, NC, 2015.
19. An injectable sulfonated reversible thermal gel for therapeutic angiogenesis to promote the recovery of cardiac function after a myocardial infarction, Society for Biomaterials, Minneapolis, MN, 2017.
20. Evaluation of an injectable polymeric delivery system for controlled and localized release of biological factors to promote therapeutic angiogenesis, Society for Biomaterials, Minneapolis, MN, 2017.
21. Reverse thermal gel: a candidate for an early minimally invasive method to patch myelomeningoceles, Academic Surgical Congress, Las Vegas, NV, 2017.
22. A bioadhesive reverse thermal gel for minimally invasive In Utero patching of myelomeningocele, Academic Surgical Congress, Houston TX, 2019.
23. Reverse thermal gel: An in-situ forming patch for myelomeningocele in fetal sheep, Children's Hospital of Colorado Center for Children's Surgery Research Symposium, Aurora CO, 2019.