CURRICULUM VITAE

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Professor

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PROFESSIONAL EXPERIENCE

Thomas F. Austin Faculty Fellow, University of Colorado, 7/2021-
Director, Material Science and Engineering Program, 7/2021-
Professor, Chemical and Biological Engineering, University of Colorado, 7/2017-
Affiliate Professor, National Jewish Health, 10/2018-
Associate Director, Material Science and Engineering Program, 1/2017-6/2021
Associate Professor, Chemical and Biological Engineering, University of Colorado, 8/2011-6/2017
Council Member, BioFrontiers Institute (Formerly CIMB), 8/2005-
Faculty, Material Science and Engineering Program, 2011-
Patten Assistant Professor, Chemical and Biological Engineering, University of Colorado, 7/2009-7/2011
Assistant Professor, Chemical and Biological Engineering, University of Colorado, 8/2005-6/2009.
Assistant Professor, Craniofacial Biology, University of Colorado Denver Health Sciences, 8/2005-7/2011.
Postdoctoral Senior Fellow, Bioengineering, University of Washington, 2/2003-8/2005.
Postdoctoral Fellow, Chemical Engineering, University of Colorado, 9/2002-12/2002.
Visiting Graduate Researcher, Medical Engineering, Queen Mary College, 9/2001-12-2001.

EDUCATION

Ph.D. in Chemical Engineering, August 2002, University of Colorado at Boulder.
B.S. in Chemical Engineering (with Honors), December 1995, University of Texas at Austin.

HONORS AND AWARDS

2018 Faculty Performance Award in Research, Department of Chemical and Biological Engineering
2018 Fellow, American Institute of Medical and Biological Engineering
2016 Provost's Faculty Achievement Award
2012 Burroughs Welcome Fund: Collaborative Research Travel Grant
2012 Leverhulme Visiting Professor
2011 Biotechnology and Bioengineering Daniel I.C. Wang Award
2010 Provost Faculty Achievement Award, CU Boulder.
2010-2011 Society for Biomaterials Membership Committee, *Elected*.
2009-2014 NSF Faculty Early CAREER Award.
2009 Dean's Faculty Fellowship, College of Engineering and Applied Science, CU (Spring 2009).
2007 CU Boulder Technology Transfer New Inventor of the Year.
2007 Dean's Award for Professional Progress, College of Engineering and Applied Science, CU.
2006-2007 University of Colorado, Junior Faculty Development Award.
2005-2009 National Institutes of Health K-Award (K22) Career Grant.
2003-2005 National Institutes of Health Individual Postdoctoral Fellow, Ruth L. Kirschstein NRSA.
2003 American Heart Association Postdoctoral Fellowship, declined to accept NIH fellowship.
1999-2002 National Science Foundation Graduate Fellow.
1998-2002 Department of Education's Graduate Assistantships in Areas of National Need Fellow.

ASSOCIATE EDITOR AND EDITORIAL BOARDS

2019- *Current Osteoporosis Reports*, Associate Editor
2019- *ACS Applied Bio Materials*, Editorial Review Board
2018- *Biotechnology and Bioengineering,* Associate Editor
2015- *Journal of Orthopedic Research*, Editorial Review Board.
2010-2013 *Tissue Engineering*, Editorial Review Board.

PUBLICATIONS

1. E.A. Aisenbrey, F. Rodriguez-Fontan, L. Stefani, S.A. Schoonraad, C.B. Erickson, Y. Yu, S.M. Thomas, K.M. Fischenich, S.J. Bryant, K.A. Payne. An injectable cartilage-mimetic hydrogel with tethered TGFβ3 improves chondrogenesis in a rat growth plate injury model. *In preparation.*
2. K.N. Eckstein, J.E. Hergert, A.C. Uzcategui, S.A. Schoonraad, S.J. Bryant, R.R. McLeod, V.L. Ferguson. Controlled mechanical property gradients within a projection micro-stereolithography printed hydrogel-composite osteochondral scaffold. *Annals of Biomedical Engineering. Submitted.*
3. X. Zhang, Q. Xu, Z. Liu, J.B. Ball, B. Black, S.Ganguly, M.E. Harland, S. Blackman, S. Bryant, K. Anseth, L. Watkins, X. Liu. Chandipura Viral Glycoprotein (CNV-G) Promotes Gectosome Generation and Enables Delivery of Intracellular Therapeutics. *Submitted.*
4. S.A. Schoonraad, L. Stefani, S.M. Thomas, K.A. Payne, S.J. Bryant. The Effects of a Cartilage-Mimetic Hydrogel with Tethered TGF-β3 and IGF-1 on Long-term Chondrogenesis *In Vitro* and Repair of Physeal Injuries *In Vivo*. *ACS Biomaterials Science and Engineering. Under Revision.*
5. R.L. Wilmoth, V.L. Ferguson, S.J. Bryant. The Effects of Physical and Biochemical Cues on OCY454 Osteocyte Differentiation, Maturation, and Dendrite Formation in Poly(ethylene glycol) Hydrogels. *Under revision.*
6. M.M. Maples, N.B. Day, S.J. Bryant. Antioxidant ascorbic acid influences cell-mediated alterations in localized hydrogel crosslinking and affects neo-cartilage connectivity in hydrolytically degradable hydrogels. *Under revision.*
7. S.A. Blackman, D. Miles, J. Suresh, S. Calve, S.J. Bryant. Cell- and serum-derived proteins act as DAMPs to activate RAW 264.7 macrophage-like cells on silicone implants. *ACS Biomaterials Science and Engineering. Accepted*.
8. S.A. Schoonraad, A.A. Jaimes, A.J.X. Singh, K.J. Croland, S.J. Bryant. Osteogenic Effects of Covalently Tethered rhBMP-2 and rhBMP-9 in an MMP-sensitive PEG Hydrogel Nanocomposite. *Acta Biomaterialia*. 170: 53-67 (2023).
9. E. Grey, J. McClendon, J. Suresh, S. Alper, W.J. Janssen, S.J. Bryant. Thiol-Ene Microparticles: Their Synthesis, Characterization, and Uptake by Macrophages. *ACS Biomaterials Science & Engineering.* 9(7): 4223-4240 (2023).
10. M.M. Maples, M.C. Schneider, S.J. Bryant. The impact of inter- and intra-donor variability by age on the gel-to-tissue transition in MMP-sensitive PEG hydrogels for cartilage regeneration. *ACS Applied Bio Materials*. 6(7): 2677-2689 (2023).
11. Y. Yu, K.M. Fischenich, S.A. Schoonraad, S. Weatherford, A.C. Uzcategui, K. Eckstein, A. Muralidharan, V. Crespo-Cueas, F. Rogriguez-Fontan, J.P. Killgore, G. Li, R.R. McLeod, N. Hadley-Miller, V.L. Ferguson, S.J. Bryant, K.A. Payne. A 3D printed mimetic composite for the treatment of growth plate injuries in a rabbit model. *Npj Regenerative Medicine*, 7, Article number:60 (2022).
12. R.L. Wilmoth, S. Sharma, V.L. Ferguson, S.J. Bryant. The effects of prostaglandin E2 on gene expression of IDG-SW3-derived osteocytes in 2D and 3D culture. *Biochemical and Biophysical Research Communications*. 630: 8-15 (2022).

13. A. Muralidharan, V. Crespo-Cuevas, V.L. Ferguson, R.R. McLeod, and S.J. Bryant. Effects of kinetic chain length on degradation of poly(β-amino ester)-based networks and use in 3D printing by projection micro-stereolithography. *Biomacromolecules*. 23(8): 3272-3285 (2022).
14. J.E. Barthold, K. McCreery, J. Martinez, C. Bellerjeau, Y.Ding, S.J. Bryant, G. Whiting, C. Neu. Particulate ECM Biomaterial Ink is 3D Printed and Naturally Crosslinked to Form Structurally Layered and Lubricated Cartilage Tissue Mimics. *Biofabrication*. 14(2): 025021(2022).
15. L.S. Saleh, L.D. Amer, B.J. Thompson, T. Danhorn, J.R. Knapp, S.L. Gibbings, S. Thomas, L. Barthel, B.P. O'Connor, W. Janssen, S. Alper, S.J. Bryant. Mapping macrophage polarization and origin during the progression of the foreign body response to a poly(ethylene glycol) hydrogel implant. *Advanced Healthcare Materials*. 11(9): e2102209 (2022). DOI: 10.1002/adhm.202102209.
16. A. Muralidharan, R.R. McLeod, S.J. Bryant. Hydrolytically degradable Poly(β-amino ester) resins with tunable degradation for 3D printing by projection micro-stereolithography. *Advanced Functional Materials*. 32(6): 2106509 (2021). doi.org/10.1002/adfm.202106509.
17. S.A. Schoonraad, K.M. Fischenich, K.N. Eckstein, V. Crespo-Cuevas, L.M. Savard, A. Muralidharan, A.C. Uzcategui, M.A. Randolph, R.R. McLeod, V.L. Ferguson, S.J. Bryant. Biomimetic and Mechanically Supportive 3D Printed Scaffolds for Cartilage and Osteochondral Tissue Engineering using Photopolymers and Digital Light Processing. *Biofabrication*. 13(4): 044106 (2021).
18. F.J. Vernerey. S. Lalitha-Srhidar, A. Muralidharan, S.J. Bryant. Mechanics of 3D Cell-Hydrogel Interactions: Experiments, Models, and Mechanisms. *Chemical Reviews.* 121(18): 11085-11148 (2021).
19. S. Sharma, N. Monteleone, I. Kopyeva, S.J. Bryant. The Effects of Processing Variables on Electrospun Poly(ethylene glycol) Fibrous Hydrogels Formed from the Thiol-Norbornene Click Reaction. *Journal of Applied Polymer Science.* 138(32): e50786 (2021).
20. B.M. Richardson, C.J. Walker, M.M. Maples, M.A. Randolph, S.J. Bryant, K.S. Anseth. Mechanobiological Interactions between Dynamic Compressive Loading and Viscoelasticity on Chondrocytes in Hydrazone Covalent Adaptable Networks for Cartilage Tissue Engineering. *Advanced Healthcare Materials*. 10(9): e2002030 (2021).
21. A. Anderson, E. Grey, N. Bongiardina, C.N. Bowman, and S.J. Bryant. Synthesis and Characterization of Click Nucleic Acid Conjugated Polymeric Microparticles for DNA Delivery Applications. *Biomacromolecules.* 22(3): 1127-1136 (2021).
22. S. Schoonraad, M.L. Trombold, S.J. Bryant. The effects of stably tethered BMP-2 on MC3T3-E1 pre-osteoblasts encapsulated in a PEG hydrogel. *Biomacromolecules.* 22(3): 1065-1079 (2021).
23. A.C. Uzcategui, C.I. Higgins, J.E. Hergert, A.E. Tomaschke, V. Crespo-Cuevas, V.L. Ferguson, S.J. Bryant, R.R. McLoed, J.P. Killgore. Microscale Photopatterning of Through-thickness Modulus in a Monolithic and Functionally Graded 3D Printed Part. *Small Science.* 1: 2000017 (2021).
24. H.R. Culver, A. Anderson, T.R. Prieto, P.J. Martinez, J. Sinha, S.J. Bryant, C.N. Bowman. Messenger RNA Enrichment Using Synthetic Oligo(T) Click Nucleic Acids. *Chemical Communications.* 56: 13987-13990 (2020).
25. R.L. Wilmoth, V.L. Ferguson, S.J. Bryant. A 3D, Dynamically Loaded Hydrogel Model of the Osteochondral Unit to Study Osteocyte Mechanobiology. *Advanced Healthcare Materials.* 9(22): 2001226 (2020).
26. S. Chu, M.M. Maples, and S.J. Bryant. Cell encapsulation spatially alters crosslink density of poly(ethylene glycol) hydrogels formed from free-radical polymerizations. *Acta Biomaterialia.* 109: 37-50 (2020).
27. C.I. Fiedler-Higgins, J.P. Killgore, F.W. DelRio, S.J. Bryant and R.R. McLeod. Photo-tunable hydrogel mechanical heterogeneity informed by predictive transport kinetics model. *Soft Materials.* 16: 4131-4141 (2020).
28. A.J. Anderson, H.R. Culver, S.J. Bryant and C.N. Bowman. Viscoelastic and Thermoreversible Networks Crosslinked by Non-covalent Interactions Between "Clickable" Nucleic Acids Oligomers and DNA. *Polymer Chemistry.* 11: 2959-2968 (2020).

29. B.M. Richardson, C.J. Walker, L.J. Macdougall, J.W.Hoye, M.A. Randolph, S.J. Bryant, K.S. Anseth. Viscoelasticity of hydrazone crosslinked poly(ethylene glycol) hydrogels directs chondrocyte morphology during mechanical deformation. Biomaterials Science. 8: 3804-3811 (2020).
30. A.H. Aziz, R.L. Wilmoth, V.L. Ferguson, and S.J. Bryant. IDG-SW3 osteocyte differentiation and bone extracellular matrix deposition are enhanced in a 3D MMP-sensitive hydrogel. *ACS Applied Bio Materials*. 3(3): 1666-1680 (2020).
31. M.C. Schneider, S. Sridhar, F.J. Vernerey, and S.J. Bryant. Spatiotemporal Neocartilage Growth in Matrix-Metalloproteinase-Sensitive Poly(Ethylene Glycol) Hydrogels Under Dynamic Compressive Loading: An Experimental and Computational Approach. *Journal of Materials Chemistry B.* 8: 2775-2791 (2020).
32. L.S. Saleh, C. Vanderheyden, A. Frederickson, and S.J. Bryant. Prostaglandin E2 and its receptor EP2 modulate macrophage activation and fusion *in vitro*. *ACS Biomaterial Science and Engineering*. 6(5): 2668-2681 (2020).
33. F.J. Vernerey and S.J. Bryant. The role of percolation in hydrogel-based tissue engineering and bioprinting. *Current Opinion of Biomedical Engineering.* 15: 68-74 (2020).
34. Y. Ding, R. Johnson, S. Sharma, X. Ding, S.J. Bryant, and W. Tan. Tethering transforming growth factor β1 to soft hydrogels guides vascular smooth muscle commitment from human mesenchymal stem cells. *Acta Biomaterialia.* 105: 68-77 (2020).
35. D. Faulon Marruecos, L.S. Saleh, H.H. Kim, S.J. Bryant, D.K. Schwartz, J.L. Kaar. Stabilization of Fibronectin by Random Copolymer Brushes Inhibits Macrophage Activation. *ACS Applied Bio Materials.* 2(11):4698-4702 (2019).
36. L.D. Amer, L.S. Saleh, C. Walker, S. Thomas, W.J. Janssen, S. Alper, S.J. Bryant. Inflammation via myeloid differentiation primary response gene 88 (MyD88) signaling mediates the fibrotic response to implantable synthetic poly(ethylene glycol) hydrogels. *Acta Biomaterialia.* 100: 105-117 (2019).
37. E.A. Aisenbrey, G. Bilousova, K. Payne, S.J. Bryant. Dynamic mechanical loading and growth factors influence chondrogenesis of induced pluripotent mesenchymal progenitor cells in a cartilage-mimetic hydrogel. *Biomaterials Science*. 7(12): 5388-5403 (2019).
38. A. Muralidharan, A.C. Uzcategui, R.R. McLeod, and S.J. Bryant. Stereolithographic 3D printing for deterministic control over integration in dual-material composites. *Advanced Materials Technology.* 4, 1900592 (2019).
39. M.C. Schneider, S. Chu, M.A. Randolph, S.J. Bryant. An In Vitro and In Vivo Comparison of Cartilage Growth in Chondrocyte-Laden MMP-Sensitive Poly(Ethylene Glycol) Hydrogels with Localized TGFβ3. *Acta Biomaterialia.* 93:97-110 (2019).
40. E.A. Aisenbrey, A.A. Tomaschke, S.A. Schoonraad, K.M. Fischenich, J.A. d, M.A. Randolph, V.L. Ferguson, S.J. Bryant. Assessment and prevention of cartilage degeneration surrounding a focal chondral defect in the porcine model. *Biochemical and Biophysical Research Communications.* 514(3):940-945 (2019).
41. Y.Y. Yu, F. Rodriguez-Fontan, K. Eckstein, A. Muralidharan, A.C. Uzcategui, J.R. Fuchs, S. Weatherford, C.B. Erickson, S.J. Bryant, V.L. Ferguson, N.H. Miller, G.H. Li, Payne, K.A. *Tissue Engineering Part C*. 25(12): 701-710 (2019).
42. A.H. Aziz, K. Eckstein, V.L. Ferguson, S.J. Bryant. The effects of dynamic compressive loading on human mesenchymal stem cell osteogenesis in the stiff layer of a bilayer hydrogel. *Journal of Tissue Engineering and Regenerative Medicine.* 13(6):946-959 (2019).
43. A.H. Aziz and S.J. Bryant. A comparison of hMSC osteogenesis in PEG hydrogels as a function of MMP-sensitive crosslinker and crosslink density in chemically defined medium. *Biotechnology and Bioengineering.* 116:1523-1536 (2019).
44. E.A. Aisenbrey and S.J. Bryant. The role of chondroitin sulfate in regulating hypertrophy during MSC chondrogenesis in a cartilage mimetic hydrogel under dynamic loading. *Biomaterials.* 190-191:51-62 (2019).

45. C. Pascual-Garrido, E.A. Aisenbrey, F. Rodriguez-Fontan, K.A. Payne, S.J. Bryant, L.R. Goodrich. Photo-polymerizable Injectable Cartilage Mimetic Hydrogel for the Treatment of Focal Chondral Lesions: A proof of Concept in a Rabbit Animal Model. *The American Journal of Sports Medicine.* 47(1): 212-221 (2019).
46. A.C. Uzcategui, A. Muralidharan, V.L. Ferguson, S.J. Bryant, and R.R. McLeod. Understanding and Improving Mechanical Properties in 3D printed Parts using a Dual-Cure Acrylate-Based Resin for Stereolithography. *Advanced Engineering Materials.* 1800876 (2018).
47. Y. Ding, X. Xu, S. Sharma, M. Floren, K. Stenmark, S.J. Bryant, C.P. Neu, W. Tan. Biomimetic soft fibrous hydrogels for contractile and pharmacologically responsive smooth muscle. *Acta Biomaterialia.* 74:121-130 (2018).
48. L.E. Jansen, L.D. Amer, E. Y-T Chen, T.V. Nguyen, L.S. Saleh, W.F. Lui, S.J. Bryant, and S.R. Peyton. Zwitterionic hydrogels modulate the foreign body response in a stiffness-dependent manner. *Biomacromolecules.* 19(7):2880-2888 (2018).
49. A. Anderson, E.B. Peters, A. Neumann, S.J. Bryant, and C.N. Bowman. Cytocompatibility and cellular internalization of PEGylated "Clickable" Nucleic Acid Oligomers. *Biomacromolecules.* 19(7): 2535-2541 (2018).
50. E.A. Aisenbrey and S.J. Bryant. A MMP7-sensitive photoclickable biomimetic hydrogel for MSC encapsulation towards engineering human cartilage. *Journal of Biomedical Materials Research A*. 106(8):2344-2355 (2018).
51. M. Carles-Carner, L.S. Saleh and S.J. Bryant. The Effects of Hydroxyapatite Nanoparticles Embedded in a MMP-sensitive Photoclickable PEG Hydrogel on Encapsulated MC3T3-E1 Pre-Osteoblasts. *Biomedical Materials.* 13(4):045009 (2018).
52. L. Saleh and S.J. Bryant. The Host Response in Tissue Engineering : Crosstalk Between Immune cells and Cell-laden Scaffolds. *Current Opinion of Biomedical Engineering.* 6: 58-65 (2018).
53. D. Patel, S. Sharma, H.R.C Screen, and S.J. Bryant. Effects of cell adhesion motif, fiber stiffness, and cyclic strain on tenocyte gene expression in a tendon mimetic fiber composite hydrogel. *Biochemical and Biophysical Research Communications.* 499(3):642-647 (2018).
54. L. Saleh, M. Carner, and S.J. Bryant. The in vitro effects of macrophages on the osteogenic capabilities of MC3T3-E1 cells encapsulated in a biomimetic poly(ethylene glycol) hydrogel. *Acta Biomaterilia.* 71:37-48(2018).
55. E.A. Aisenbrey, A. Tomaschke, E. Kleinjan, A. Muralidhran, C. Pascual-Garrido, R.R. McLeod, V.L. Ferguson, and S.J. Bryant. *A Stereolithography-based 3D printed Hybrid Scaffold for In Situ Cartilage Defect Repair*. *Macromolecular Biosciences.* 18(2): (2018).
56. C. Pascual-Garrido, F. Rodriquez-Fontan, E.A. Aisenbrey, K.A. Payne, J. Chahla, L. Goodrich, and S.J. Bryant. Current and Novel Injectable Hydrogels to Treat Focal Chondral Lesions: Properties and Applicability. *Journal of Orthopaedic Research.* 36(1): 64-75 (2018).
57. N. Shaw, C. Erickson, S.J. Bryant, V.L. Ferguson, M.D. Krebs, N. Hadley-Miller, and K.A. Payne. Regenerative medicine approaches for the treatment of pediatric physeal injuries. *Tissue Engineering Part B Reviews.* 24(2): 85-97 (2018).
58. S.J. Bryant and F.J. Vernerey. Invited Progress Report: Programmable hydrogels for cell encapsulation and neo-tissue growth towards personalized tissue engineering. *Advanced Healthcare Materials.* 7(1): 1700605 (2018).
59. L. Saleh and S.J. Bryant. *In Vitro* and *In Vivo* Models for Assessing the Host Response to Biomaterials. *Drug Discovery Today: Disease Models*. 24: 12-21 (2017).
60. J. Wahlquist, F. DelRio, M. A. Randolph, A.H. Aziz, C.M. Heveran, S.J. Bryant, C.P. Neu, and V.L. Ferguson. Indentation Mapping Reveals Poroelastic, but not Viscoelastic, Properties Spanning Native Zonal Articular Cartilage. *Acta Biomaterialia.* 64: 41-49 (2017).
61. M.C. Schneider, S. Chu, S. Lalitha Sridhar, G. de Roucy, F.J. Vernerey, and S.J. Bryant. Local heterogeneities improve matrix connectivity in degradable and photoclickable PEG hydrogels for applications in tissue engineering. *ACS Biomaterial Science and Engineering.* 3 (10): 2480–2492 (2017).

62. U. Akalp, C. Schnatwinkel, M. Stoykovic, S. J. Bryant, F. Vernerey. Structural Modeling of Mechanosensitivity in Non-Muscle Cells: Multiscale approach to understand cell sensing. *ACS Biomaterials Science & Engineering*. 3(11):2934-2942 (2017).
63. S. Sharma, M. Floren, Y. Ding, K.R. Stenmark, W. Tan, and S.J. Bryant. A Photoclickable Peptide Microarray Platform for Facile and Rapid Screening of 3-D Tissue Microenvironments. *Biomaterials.* 143:17-28 (2017).
64. S. Lalitha Sridhar, G. De Roucy, M.C. Schneider, S. Chu, S.J. Bryant and F.J. Vernerey. Heterogeneity is key in hydrogels used for cell encapsulation and tissue regeneration. *Soft Matter.* 13: 4841-4855 (2017).
65. S. Chu, S.L. Sridhar, U. Akalp, S.C. Skaalure, F.J. Vernerey, S.J. Bryant. Understanding the spatiotemporal degradation behavior of aggrecanase-sensitive poly(ethylene glycol) hydrogels for use in cartilage tissue engineering. *Tissue Engineering Part A*. 23(15-16):795-810 (2017).
66. M.C. Schneider, C.A. Barnes, S.J. Bryant. A comparison of the chondrocyte secretome as a function of hydrogel structure and dynamic loading in photoclickable poly(ethylene glycol) hydrogels. *Biotechnology and Bioengineering.* 114(9):2096-2108 (2017).
67. D. Patel, S. Sharma, S.J. Bryant, and H.R.C. Screen. Recapitulating the Micromechanical Behavior of Tension and Shear in a Biomimetic Hydrogel for Controlling Tenocyte Response. *Advanced Healthcare Materials*. 6(4) (2017).
68. C.I. Fiedler, E.A. Aisenbrey, J.A. Wahlquist, V.L. Ferguson, S.J. Bryant, and R.R. McLeod. Enhanced mechanical properties of photo-clickable thiol-ene PEG hydrogels through repeated photopolymerization of in-swollen macromer. *Soft Matter.* 12(44):9095-9104 (2016).
69. A.H. Aziz, J. Wahlquist, A. Sollner, V.L. Ferguson, F.W. DelRio, and S.J. Bryant. Mechanical characterization of sequentially layered photoclickable thiol-ene hydrogels. *Journal of Mechanical Behavior of Biomedical Materials.* 8:65:454-465 (2016).
70. U. Akalp, S.J. Bryant, and F.J. Vernerey. Tuning tissue growth with scaffold degradation in enzyme-sensitive hydrogels: a Mathematical Model. *Soft Matter.* 12: 7505-7520 (2016).
71. L.D. Amer and S.J. Bryant. The *in vitro* and *in vivo* response to MMP-sensitive poly(ethylene glycol) hydrogels. *Annals of Biomedical Engineering.* 44(6): 1959-1969 (2016).
72. E.A. Aisenbrey and S.J. Bryant. Mechanical loading inhibits hypertrophy in chondrogenically differentiating hMSCs within a biomimetic hydrogel. *Journal of Materials Chemistry Part B.* 4: 3562-3574 (2016).
73. A. Neumann, T. Quinn, and S.J. Bryant. Nondestructive evaluation of a new hydrolytically degradable and photo-clickable PEG hydrogel for cartilage tissue engineering. *Acta Biomaterialia.* 39: 1-11 (2016).
74. S.C. Skaalure, U. Akalp, F. Vernerey, S.J. Bryant. Tuning Reaction and Diffusion Mediated Degradation of Enzyme-Sensitive Hydrogels. *Advanced Healthcare Materials.* 5(4): 432-438 (2016).
75. K.R.C. Kinneberg, M.E. Stender, A. Nelson, A.H. Aziz, L.C. Mozdzen, B.A.C. Harley, S.J. Bryant, and V.L. Ferguson. Reinforcement of mono- and bi-layer poly(ethylene glycol) hydrogels with a fibrous collagen scaffold. *Annals of Biomedical Engineering*. 43(11): 2618-2629 (2015).
76. L.D. Amer, A. Holtzinger, G. Keller, M.J. Mahoney, and S.J. Bryant. Enzymatically degradable poly(ethylene glycol) hydrogels for the 3D culture and release of human embryonic stem cell derived pancreatic precursor cell aggregate. *Acta Biomateralia.* 22: 103-110 (2015).
77. U. Akalp, S. Chu, S.C. Skaalure, S.J. Bryant, A. Doostan, and F.J. Vernerey. Determination of the Polymer-Solvent Interaction Parameter for PEG Hydrogels in Water: Application of a Self Learning Algorithm. *Polymer.* 1(66):135-147 (2015).
78. N.J. Steinmetz, E.A. Aisenbrey, K.K. Westbrook. H.J. Qi, and S.J. Bryant. Mechanical Loading Regulates Human MSC Differentiation in a Multi-layer Hydrogel for Osteochondral Tissue Engineering. *Acta Biomaterialia*. 21:142-53 (2015).
79. M.D. Swartzlander, C.A. Barnes, A.K. Blakney, J.L. Kaar, T.R. Kyriakides, and S.J. Bryant. Linking the foreign body response and protein adsorption to PEG-based hydrogels using proteomics. *Biomaterials.* 41: 26-36 (2015).

80. M.D. Swartzlander, A.K. Blakney, L.D. Amer, K.D. Hankenson, T.R. Kyriakides, and S.J. Bryant. Immunomodulation by mesenchymal stem cells combats the foreign body reaction to cell-laden synthetic hydrogels. *Biomaterials.* 41:79-88 (2015).

81. S.C. Skaalure, S. Radhakrishnan, and S.J. Bryant. Physiological osmolarities do not enhance long-term tissue synthesis in chondrocyte-laden degradable PEG hydrogels. *Journal of Biomedical Materials Research Part A.* 103(6):2186-92 (2015).

82. S.C. Skaalure, S. Chu, and S.J. Bryant. An Enzyme-sensitive PEG hydrogel based on aggrecan catabolism for cartilage tissue engineering. *Advanced Healthcare Materials.* 4(3): 420-31 (2015).

83. S. Sircar, E. Aisenbrey, S.J. Bryant, and D.M. Bortz. Determining equilibrium osmolarity in Poly(ethylene glycol)/Chondroitin sulfate gels mimicking articular cartilage. *Journal of Theoretical Biology.* 7:364:397-406 (2015).

84. N.L. Farnsworth, B.E. Mead, L.R. Antunez, A.E. Palmer, S.J Bryant. A biomimetic charged environment regulates tissue production in chondrocytes by ionic osmolytes and intracellular calcium. *Matrix Biology.* 40:17-26 (2014).

85. S.C. Skaalure, S.O. Dimson, A.M. Pennington, S.J. Bryant. Semi-interpenetrating networks of hyaluronic acid in degradable hydrogels for cartilage tissue engineering. *Acta Biomaterialia.* 10(8):3409-20 (2014).

86. J.J. Roberts, R.M. Elder, A.Neumann, A. Jayaraman, S.J. Bryant. Interaction of hyaluronan binding peptides with glycosaminoglycans in poly(ethylene glycol) hydrogels. *Biomacromolecules.* 15(4): 1132-41 (2014).

87. L.D. Amer, M.J. Mahoney, and S.J. Bryant. Tissue Engineering Approaches to Cell Based Diabetes Therapy. *Tissue Eng Part B Rev.* 20(5):455-67 (2014).

88. J.J. Roberts and S.J. Bryant. Comparison of Photopolymerizable Thiol-ene PEG and Acrylate-Based PEG Hydrogels for Cartilage Development. *Biomaterials.* 34(38): 9969-9979 (2013).

89. A. Linnenberger, M.I. Bodine, C. Fiedler, J.J. Roberts, S.C. Skaalure, J.P. Quinn, S.J. Bryant, M. Cole, and R.R. McLeod. Three Dimensional Live Cell Lithography. *Optics Express.* 21(8) 10269-10277 (2013).

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PRESENTATIONS AT NATIONAL AND INTERNATIONAL CONFERENCES

1. L. Stefani, S.A. Schoonraad, A.F. Ruble, V.L. Ferguson, K. Payne, S. Bryant. Characterizing Immune Cell Infiltration During Osteochondral Defect Injury and Biomaterial Implantation. Annual Meeting of the Orthopedic Research Society, Long Beach, CA, February 2-6, 2024.
2. K.M. Fischenich, F. Rodriguez-Fontan, S. Thomas, S. Schoonraad, L.Stefani, V.L. Ferguson, N. Hadley-Miller, S. Bryant, K. Payne. 3D Printed Cartilage Mimetic Composite Postpones Onset of Skeletal Deformities in a Rabbit Model of Growth Plate Injury. Annual Meeting of the Orthopedic Research Society, Long Beach, CA, February 2-6, 2024.
3. B. Liu, R.R. McLeod, S.J. Bryant, and V.L. Ferguson. Degradation Characteristics of Digital Light Processing-Printed, Load-Bearing, Unit-Cell Tissue Engineering Scaffolds. Biomedical Engineering Society Annual Meeting. Seattle, WA, October 11-14, 2023.
4. K.J. Croland, J.W. Tay, A.N. Sias, R.R. McLeod, S.J. Bryant. Characterization of the interface between photopolymerized soft hydrogels and stiff 3D printed materials for osteochondral tissue engineering. Photopolymerization Fundamentals. Boulder, CO, September 19-22, 2023.
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17. K. Eckstein, S. Schoonraad, F.P.M. Guastaldi, M.A. Randolph, A.C. Uzcategui, R.R. McLeod, S.J. Bryant, V.L. Ferguson, S.J. Bryant. 3D Printed Osteochondral Implants Designed to Support and Preserve Native Tissue: A Preliminary Study in Porcine. Annual Meeting of the Orthopedic Research Society, Tampa, FL, February 4-8, 2022.
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45. A.C. Uzcategui, Y. Yu, A. Muralidharan, K.A. Payne, R.R. McLeod, and S.J. Bryant. Assessment of Integration Between 3D Printed Stiff Hydrogels via Stereolithography and Infilled Soft Hydrogels. 2018 Society for Biomaterials, Atlanta, GA, April 11-14, 2018.
46. A. Muralidharan, R.R. McLeod, and S.J. Bryant. Stereolithographic 3D Printing of Mechanically Enhanced Constructs for the Treatment of Pediatric Physeal Injuries. 2018 Society for Biomaterials, Atlanta, GA, April 11-14, 2018.
47. A. Muralidharan, A. Camila Uzcategui, R.R. McLeod, and S.J. Bryant. Characterization of 3D Printed Scaffolds Using Stereolithography for Cartilage Tissue Regeneration. 2017 Photopolymerization Fundamentals Meeting, Boulder, CO, September 17-20, 2017.

48. A. Camila Uzcategui, A. Muralidharan, A. Tomaschke, V.L. Ferguson, S.J. Bryant, and R.R. McLeod. Characterization and Optimization of a Stereolithography-Based Hydrogel for Improved Mechanical Properties. 2017 Photopolymerization Fundamentals Meeting, Boulder, CO, September 17-20, 2017.
49. A. Aziz and S.J. Bryant. Dynamic interstitial fluid flow and matrix stiffness influence osteogenesis of human MSCs in a bilayer hydrogel. 2017 Society for Biomaterials, Minneapolis, MN, April 5-8, 2017.
50. S. Sharma, M. Floren, W. Tan, and S.J. Bryant. A High Throughput Peptide Microarray Platform for Probing Cellular Behavior in 3-D. 2017 Society for Biomaterials, Minneapolis, MN, April 5-8, 2017.
51. E. Aisenbrey, A. Tomaschke, C. Fiedler, C. Pascual-Garrido, R. McLeod, V. Ferguson, S.J. Bryant. A mechanically stiff 3D printed structure combined with a chondrogenic hydrogel for cartilage defect repair 2017 Society for Biomaterials, Minneapolis, MN, April 5-8, 2017.
52. M. Schneider, S. Chu, S.L. Sridhar, F. Vernerey, and S.J. Bryant. Tuning Heterogeneities into Photoclickable Synthetic Hydrogels for Improved Cartilage Tissue Engineering. 2017 Society for Biomaterials, Minneapolis, MN, April 5-8, 2017.
53. C. Pascual-Garrido, F.R. Fontan, J. Chahla, K. Payne, E. Aisenbrey, S. Bryant, R.F. LaPrade, J.C. Chlohisy, L. Goodrich. Cartilage Repair with Mesenchymal Stem Cells (MSCs) Delivered in a Novel Chondroitin Sulfate / Polyethylene Glycol Hydrogel in a Rabbit Animal Model. 2017 Annual Meeting of the The American Orthopaedic Society for Sports Medicine. Toronto, Canada, July 20-23, 2017.
54. E. Aisenbrey and S.J. Bryant. Mechanically stiff 3D printed biomimetic hydrogel for chondrogenesis and cartilage tissue production. 2017 American Chemical Society Meeting. San Francisco, CA, April 2-6, 2017.
55. E.A. Aisenbrey, K. Payne, G. Bilosouva, S.J. Bryant. Loading inhibits hypertrophy of encapsulated IPSCs in a photoclickable cartilage biomimetic hydrogel through Smad 1/5/8 signaling. 2017 Annual Meeting of the Orthopedic Research Society, San Diego, CA, March 19-22, 2017.
56. A. Tomaschke, C. Fiedler, E. Aisenbrey, J. A. Wahlquist, E. Kleinjan, A. Aziz, M.A. Randolph, R.R. McLeod, S.J. Bryant, V.L. Ferguson. A Biocompatible, 3D Printed Stiff Hydrogel for Osteochondral Tissue Engineering. 2017 Annual Meeting of the Orthopedic Research Society, San Diego, CA, March 19-22, 2017.
57. C. Pascual-Garrido, F. Rodriguez-Fontan, S.J. Bryant, E.A. Aisenbrey, J. Chahla, K.A. Payne, L.R. Goodrich. Mesenchymal Stem Cells (MSCs) Delivered in a Novel Hydrogel for the Treatment of Chondral Defects in a Rabbit Animal Model. 2017 Annual Meeting of the Orthopedic Research Society, San Diego, CA, March 19-22, 2017.
58. L. Saleh, L.D. Amer, S.J. Bryant. The foreign body response to cell-laden MMP-sensitive poly(ethylene glycol) hydrogels for bone tissue engineering. 2017 Annual Meeting of the Orthopedic Research Society, San Diego, CA, March 19-22, 2017.
59. J. Wahlquist, A. Aziz, M. Randolph, S. Bryant, C. Neu, and V. Ferguson. Zonal Articular Cartilage Exhibits Poroelastic Behavior. 2016 Biomedical Engineering Society Annual Meeting. Minneapolis, MN, October 5-8, 2016.
60. L.E. Jansen, L.D. Amer, T.V. Nguyen, R. Thyagarajan, D. Ford, S.J. Bryant, and S.R. Peyton. Zwitterionic hydrogels resist foreign-body response in a stiffness dependent manner. 2016 Biomedical Engineering Society Annual Meeting. Minneapolis, MN, October 5-8, 2016.
61. E.A. Aisenbrey, K. Payne, G. Bilousova, S.J. Bryant. Chondrogenic differentiation of human induced pluripotent stem cells in a photoclickable biomimetic PEG hydrogel. 2016 World Congress Biomaterials. Montreal, Canada, May 17-22, 2016.
62. C.I. Fiedler, E.A. Aisenbrey, S.J. Bryant and R.R. McLeod. Increased modulus and toughness of biocompatible thiol-ene hydrogel using novel fabrication technique. 2016 World Congress Biomaterials. Montreal, Canada, May 17-22, 2016.
63. L.D. Amer. S. Alper, W. Janssen, S.J. Bryant. Understanding the role of the adaptor protein Myd88 in the innate immune response to implanted poly(ethylene glycol) hydrogels. 2016 World Congress Biomaterials. Montreal, Canada, May 17-22, 2016.

64. D. Patel, S. Sharma, S.J. Bryant, H.R.C. Screen. 3D *in vitro* system to generate cellular shear and tension, mechanical cues which are interpreted through integrins and regulate cell behaviour. 2016 World Congress Biomaterials. Montreal, Canada, May 17-22, 2016.
65. M.C. Schneider, C.A. Barnes, S.J. Bryant. Photoclickable Poly(Ethylene Glycol) Hydrogels and Mechanical Loading for Cartilage Tissue Engineering. 2016 World Congress Biomaterials. Montreal, Canada, May 17-22, 2016.
66. S. Sharma, M. Floren, W. Tan, and S.J. Bryant. Combinatorial Photoclickable Peptide Microarrays for High Throughput Screening of 3-D Cellular Microenvironments. 2016 World Congress Biomaterials. Montreal, Canada, May 17-22, 2016.
67. S. Chu, U. Akalp, F. Vernerey, S.Bryant. Understanding spatio-temporal degradation of enzyme-sensitive hydrogels for cartilage tissue engineering. 2016 World Congress Biomaterials. Montreal, Canada, May 17-22, 2016.
68. A.H. Aziz, J. Wahlquist, A. Sollner, F. DelRio, V.L. Ferguson, S.J. Bryant. Sequentially layered photo-clickable thiol-ene hydrogels for creating complex three-dimensional (3D) scaffolds. 2016 World Congress Biomaterials. Montreal, Canada, May 17-22, 2016.
69. L.D. Amer, L. Jansen, T. Nguyen, S. Peyton, S.J. Bryant. Linking Protein Adsorption on Zwitterionic Poly(ethylene glycol) Phosphorylcholine Hydrogels to the Foreign Body Reaction *In Vivo*. Photopolymerization Fundamentals 2015. Boulder, CO, September 13-16, 2015.
70. S. Sharma, M. Floren, W. Tan, and S.J. Bryant. Nanofibrous Photoclickble Hydrogel Microarrays for High-Throughput Screening of Cellular Microenvironments. Photopolymerization Fundamentals 2015. Boulder, CO, September 13-16, 2015.
71. S. Chu, U. Akalp, F.J. Vernerey, and S. J. Bryant. Aggrecanase-Degradable Hydrogels For Cartilage Tissue Engineering. Photopolymerization Fundamentals 2015. Boulder, CO, September 13-16, 2015.
72. E.A. Aisenbrey and S.J. Bryant. Directing the Chondrogenic Differentiation of hMSCS in a degradable biomimetic hydrogel. Photopolymerization Fundamentals 2015. Boulder, CO, September 13-16, 2015.
73. S.J. Bryant. Photopolymerizable Hydrogels: Applications For In Vitro And In Vivo Tissue Engineering. Photopolymerization Fundamentals 2015. Boulder, CO, September 13-16, 2015.
74. D. Patel, S. Sharma, S.J. Bryant, H.R.C. Screen. Tenocyte attachment to collagen mimietc peptides increase mechanosensitive to shear and tension. Advances in tendon research – from bench to bedside. Queen Mary University of London, London, September 7-8, 2015.
75. U. Akalp, S.C. Skaalure, S.J. Bryant, and F.J. Vernerey. Characterization of degradation front in enzymatically degradable PEG hydrogels. ASME Summer Biomechanics, Bioengineering, and Biotransport Conference, Park City, Utah, June 17-20, 2015.
76. E. Aisenbrey and S.J. Bryant. Directing Chondrogenesis of hMSCs in a Biomimetic Hydrogel Under Loading. International Cartilage Repair Society. Chicago, IL, May 7-11, 2015.
77. S. Sharma, M. Floren, W. Tan, and S.J. Bryant. Electrospun Photoclickble Thio-ene Poly(ethylene glycol) Hydrogel Microarrays for Stem Cell Fate Optimization. 2015 Society for Biomaterials Annual Meeting. Charlotte, NC, April 15-18, 2015.
78. L. Amer, M.D. Swartzlander, A. Blakney, K.D. Hankenson, T.R. Kyriakides, S.J. Bryant. Immunomodulation of encapsulated MSCs and osteogenically differentiating MSCs in synthetic hydrogels for bone tissue engineering. 2015 Orthopedic Research Society Annual Meeting. Las Vegas, NV, March, 28-31, 2015.
79. A.J. Neumann, T.Quinn, and S.J. Bryant. Real time assessment of a new hydrolytically degradable and photo-clickable hydrogel for cartilage tissue engineering. 2015 Orthopedic Research Society Annual Meeting. Las Vegas, NV, March, 28-31, 2015.
80. D. Patel, S. Bryant, G. Riley, E. Jones, and H. Screen. Shear-tension ratio effect on healthy and tendinopathic human tenocyte metabolism. International Symposium on Ligaments and Tendons. Las Vegas, NV, March 27, 2015.

81. S. Skaalure, S. Chu, U. Akalp, F. Vernerey, A. Doostan, and S. Bryant. A combined experimental and theoretical approach to designing enzyme degradable hydrogels for cartilage tissue engineering. 2014 Biomedical Engineering Society Annual Meeting. San Antonio, TX, October 22-25, 2014.
82. V. Ferguson, B. Harley, S. Bryant. Reverse Engineering of the Osteochondral Interface. 2014 Biomedical Engineering Society Annual Meeting. San Antonio, TX, October 22-25, 2014.
83. M. Floren, S. Bryant and W. Tan. Protein Laden Soft Matrices as High-Throughput Platforms to Engineer Stem Cell Microenvironments. 2014 Biomedical Engineering Society Annual Meeting. San Antonio, TX, October 22-25, 2014.
84. H.R.C. Screen, C. Thorpe, J. Shepherd, P. Clegg, Birch, S.J. Bryant, G.C. Riley, and K. Legerlotz. Micromechanics in functionally distinct tendons, tendon injury and repair. World Congress on Biomechanics. Boston, MA, USA, July 6-12, 2014.
85. J.J. Roberts, R.M. Elder, A. Jayaraman, and S.J. Bryant. Hyaluronan binding peptides aid in hyaluronan retention for tissue engineering applications. 23rd Annual Conference of the Australasian Society for Biomaterials and Tissue Engineering, April 22-24, 2014.
86. A. Aziz and S.J. Bryant. Identifying targets for peptide-based osteogenic induction for osteochondral tissue engineering. 2014 Society for Biomaterials, Denver, CO, April 16-19, 2014.
87. C. Schnatwinkel and S.J. Bryant. The Application of a Decellularized Tendon Biomaterial and RNAi to Study Integrin-mediated Mechanotransduction in Tenocytes. 2014 Society for Biomaterials, Denver, CO, April 16-19, 2014.
88. E. Aisenbrey, S.J. Bryant. A Cartilage-Like PEG Hydrogel Directs Chondrogenesis of hMSCs Under Mechanical Stimulation. 2014 Society for Biomaterials, Denver, CO, April 16-19, 2014.
89. A.J. Neumann, S.C. Skaalure, S.J. Bryant. Designing exogenously degradable poly(ethylene glycol) hydrogels for cartilage tissue engineering applications. 2014 Society for Biomaterials, Denver, CO, April 16-19, 2014.
90. M.D. Swartzlander, A.K. Blakney, L.D. Amer, K.D. Hankenson, T.R. Kyriakides, and S.J. Bryant. Understanding the Immunomodulatory Effects of MSCs in Hydrogels on Macrophages and the Foreign Body Reaction. 2014 Society for Biomaterials, Denver, CO, April 16-19, 2014.
91. S.C. Skaalure and S.J. Bryant. Designing Cell-Mediated Degrading PEG Hydrogels for Personalizing Cartilage Tissue Engineering. 2014 Society for Biomaterials, Denver, CO, April 16-19, 2014.
92. L.Amer, M.J. Mahoney, and S.J. Bryant. Enzymatically degradable poly(ethylene glycol) hydrogels for long term maintenance and differentiation of human embryonic stem cell derived pancreatic precursor cells. 2014 Society for Biomaterials, Denver, CO, April 16-19, 2014.
93. C. Schnatwinkel and S.J. Bryant. The Role of Integrin-alpha2 Signaling during Mechanotransduction in Tenocytes and in Tendon Tissue Homeostasis. Orthopedic Research Society Annual Meeting. New Orleans, LA, March 15-18, 2014.
94. S.C. Skaalure, U. Akalp, F.J. Vernerey, S.J. Bryant. Computational Modeling-directed Design of Enzyme-degradable Hydrogels for Cartilage Tissue Engineering. Orthopedic Research Society Annual Meeting. New Orleans, LA, March 15-18, 2014.
95. J.J. Roberts and S.J. Bryant, "Thiol-ene versus acrylate: how does photopolymerization mechanism impact encapsulated cells for tissue engineering applications?" Photopolymerization Fundamentals Meeting 2013, September 22-25, 2013.
96. J.J. Roberts, M.D. Swartzlander, S.J. Bryant. Hydrogels to Enhance New Matrix Assembly. 2013 Biomedical Engineering Society Annual Meeting. Seattle, WA, September 25-28, 2013.
97. J.J. Roberts and S.J. Bryant. Photopolymerization Mechanism Impacts Cartilage Development in Poly(ethylene glycol) Hydrogels. 2013 Biomedical Engineering Society Annual Meeting. Seattle, WA, September 25-28, 2013.
98. M.D. Swartzlander, A.K. Blakney, K.D. Hankenson, T.R. Kyriakides, and S.J. Bryant. Immunomodulation of the Foreign Body Reaction by MSCs Declines with Differentiation. 2013 Biomedical Engineering Society Annual Meeting. Seattle, WA, September 25-28, 2013.

99. A. Linnenberger, C. Fiedler, J.J. Roberts, S.C. Skaalure, S.J. Bryant, M.C. Cole, R.R. McLeod. Optical Trapping for Tissue Scaffold Fabrication. 2013 SPIE Optics+Photonics Meeting. San Diego, CA, August 25-29, 2013.
100. K.R.C. Kinneberg, A. Nelson, R.C. Paietta, J.J. Roberts, B. Harley, S.J. Bryant, V. Ferguson. Inclusion of a COLLAGEN-GAG sponge core improves tangent modulus of multi-phase PEGDM hydrogel constructs. 20130 ASME Summer Bioengineering Conference. Sunriver, OR, June 26-29, 2013.
101. S.C. Skaalure and S.J. Bryant. Cell-mediated degradable hydrogels tailored to adult cells for cartilage tissue engineering. 2013 Society for Biomaterials Annual Meeting. Boston, MA. April 10-13, 2013.
102. A.K. Blakney, M.D. Swartzlander, S.J. Bryant. The effects of substrate stiffness on the in vitro activation of macrophages and in vivo host response to poly(ethylene glycol)-based hydrogels, New Orleans, October 4-6, 2012.
103. M.D. Swartzlander, A.D. Lynn, A.K. Blakney, T.R. Kyriakides, S.J. Bryant. Understanding the Host Response to Cell-Laden Poly(ethylene glycol)-based Hydrogels. 2012 Society for Biomaterials, New Orleans, October 4-6, 2012.
104. J.J. Roberts and S.J. Bryant. Network structure impacts chondrocyte tissue deposition in mechanicaly-stimuatled peg hydrogels. 2012 BMES Fall Meeting, Atlanta, GA, October 24-27, 2012.
105. S. Skaalure, S.J. Bryant. Age impacts extracellular matrix production by chondrocytes in a degradable hydrogel system. 2011 Annual meeting of the Biomedical Engineering Society. Hartford, Conn, October 12-15, 2011.
106. S.L. Hume, S.J. Bryant. Cardiomyocyte response to ultra stiff hydrogel substrates. 2011 Annual meeting of the Society for Biomaterials. Orlando, FL, April 13-16, 2011.
107. R. Lawal, A.K. Blakney, M.D. Swartzlander, S.J. Bryant. Understanding macrophage activation in response to LPS-stimulation when cultured on PEG-RGD hydrogels. 2011 Annual meeting of the Society for Biomaterials. Orlando, FL, April 13-16, 2011.
108. J.R. Popp, J.J. Roberts, S.J. Bryant, and T.P. Quinn. Online monitoring of tissue-engineered cartilage development in a dynamic compression bioreactor. 2011 Annual meeting of the Society for Biomaterials. Orlando, FL, April 13-16, 2011.
109. J.J. Roberts, G.D. Nicodemus, E.C. Greenwald, S.J. Bryant. Degradation impacts chondrocyte matrix production in dynamically loaded poly(ethylene glycol)-based hydrogels2011 Annual meeting of the Society for Biomaterials. Orlando, FL, April 13-16, 2011.
110. M.D. Swartzlander, A.K. Blakney, A.D. Lynn, T.R. Kyriakides, S.J. Bryant. Incorporation of RGD attenuates the foreign body reaction to PEG hydrogels. 2011 Annual meeting of the Society for Biomaterials. Orlando, FL, April 13-16, 2011.
111. H.RC. Screen, T. Demirci, A.D. Lynn, A.K. Blakney, D. Patel, S.J. Bryant, Spring Meeting of the British Society for Matrix Biology, Bristol, UK, April 11-12, 2011.
112. J.R. Popp, J.J. Roberts, S.J. Bryant, and T.P. Quinn. Nondestructive, real-time evaluation of tissue engineered cartilage development in a dynamic compression bioreactor. 2011 Annual meeting of the Orthopaedic Research Society. Long Beach, CA, January 13-16, 2011.
113. Steinmetz N.J., Walline K., and S.J. Bryant. Characterizing the Osteogenic Properties of hMSCs-laden PEG Hydrogels Modified with a P-15 Peptide Motif. 2011 Annual meeting of the Orthopaedic Research Society. Long Beach, CA, January 13-16, 2011.
114. A.K. Blakney, A.D. Lynn, S.J. Bryant. Characterizing the Mutual Effects of Activated Macrophages on Fibroblasts Encapsulated in Poly(ethylene glycol) Hydrogels. 2010 AIChE Annual Meeting, Salt Lake City, UT. Nov 7-12, 2010.
115. Lynn A.D., A.K. Blakney, M.D. Swartzlander, and S.J. Bryant. Macrophage affect and are affected by cells encapsulated in PEG-based hydrogels: An in vitro co-culture study. 2010 AIChE Annual Meeting, Salt Lake City, UT. Nov 7-12, 2010.

116. Steinmetz N.J., K. Walline, and S.J. Bryant. Development and Characterization of Composite PEG Hydrogels for Osteochondral Tissue Engineering. 2010 Annual Meeting for the Society of Biomaterials. Seattle, WA, April 21-24, 2010.

117. S.M. LaNasa and S.J. Bryant. Muscle Cells Align in 3D when Seeded in Channels Patterned into Porous Hydrogels. 2010 Annual Meeting for the Society of Biomaterials. Seattle, WA, April 21-24, 2010.

118. S.J. Bryant, G.D. Nicodemus, J.J. Roberts, and S. Guinta. Extracellular matrix molecules incorporated into bioinert hydrogels enhance matrix deposition and retention. 2010 Annual Meeting for the Society of Biomaterials. Seattle, WA, April 21-24, 2010.

119. A.D. Lynn, T.R. Kyriakides. J. Johnson, C.N. Bowman, S.J. Bryant. Modifying Macrophage Activation and the Foreign Body Response to PEG-based Hydrogels. 2010 Annual Meeting for the Society of Biomaterials. Seattle, WA, April 21-24, 2010.

120. S.J. Bryant, A.D. Lynn, H.R.S.Screen. Fiber composite scaffolds uniquely regulate fibroblast response to cyclic tensile strain. 2010 Annual meeting of the Orthopaedic Research Society. New Orleans, LA, March 5-9, 2010.

121. G.D. Nicodemus and S.J. Bryant. Mechanical Loading Stimulates a Catabolic Response in Chondrocyte-Laden PEG Hydrogels. 2010 Annual meeting of the Orthopaedic Research Society. New Orleans, LA, March 5-9, 2010.

122. J.J. Roberts, G.D. Nicodemus, A. Gonzales, and S.J. Bryant. Degradation Mechanisms Impact Neocartilage Deposition in Mechanically Stimulated Poly(ethylene glycol) Gels. 2010 Annual meeting of the Orthopaedic Research Society. New Orleans, LA, March 5-9, 2010.

123. H.R.C. Screen, D. Patel, V. Nguyen, S.R. Byers, and S.J. Bryant. Characterizing a Novel Hydrogel Fiber Composite Material for the Tissue Engineering of Fibrous Tissues. Third International Conference on Mechanics of Biomaterials & Tissues. Clearwater Beach, Fl, December 13-17, 2009.

124. I. Villanueva, S. Gladem, J. Kessler, and S.J. Bryant. Charge Enhances Matrix Synthesis by Chondrocytes in Dynamically Stimulated Hydrogel Constructs. Third International Conference on Mechanics of Biomaterials & Tissues. Clearwater Beach, Fl, December 13-17, 2009.

125. J.J. Roberts, G.D. Nicodemus, A. Earnshaw, V.L. Ferguson, and S.J. Bryant. The Mechanical Properties of Poly(ethylene glycol) Hydrogels for TMJ Tissue Regeneration Applications. TMJ Bioengineering Conference: A Ground-Breaking Forum for Scientists, Surgeons and Bioengineers to Address Temporomandibular Joint Disorders. Boulder, CO, November 4-7, 2009.

126. N.J. Steinmetz and S.J. Bryant. The Effects of Intermittent Dynamic Loading on Chondrogenic and Osteogenic Differentiation of Human Marrow Stromal Cells Encapsulated in RGD Modified PEG Hydrogels. TMJ Bioengineering Conference: A Ground-Breaking Forum for Scientists, Surgeons and Bioengineers to Address Temporomandibular Joint Disorders. Boulder, CO, November 4-7, 2009.

127. N.L. Bishop, I. Villanueva, and S.J. Bryant. Development of an In Vitro Model to Study Cytokine Stimulated Response in Chondrocytes Utilizing Poly(ethylene glycol) (PEG) Hydrogels. TMJ Bioengineering Conference: A Ground-Breaking Forum for Scientists, Surgeons and Bioengineers to Address Temporomandibular Joint Disorders. Boulder, CO, November 4-7, 2009.

128. A.D. Lynn, A.K. Blakney, T.R. Kyriakides and S.J. Bryant. Macrophage Interrogation of PEG-Based Hydrogels Used in Tissue Engineering Applications. 2009 AIChE Annual Meeting. Nashville, TN, November 8-9, 2009.

129. N.L. Bishop, M.Kissler, M. Husa, R.Terkeltaub, and S.J. Bryant. Effects of Inorganic Pyrophosphate on Chondrocyte Response When Encapsulated in 3D Synthetic Hydrogels. 2009 World Congress on Osteoarthritis, Montreal, Canada, September 9-13, 2009.

130. N.L. Bishop, I. Villanueva, and S.J. Bryant. Interleukin-1 Treatment of Chondrocytes Encapsulated in 3D Synthetic Hydrogels. 2009 World Congress on Osteoarthritis, Montreal, Canada, September 9-13, 2009.

131. A.L. Ernshaw, J.J. Roberts, G.D. Nicodemus, S.J. Bryant, V. Ferguson. The Mechanical Behavior of Engineered Hydrogels. 2009 Summer Bioengineering Conference. Lake Tahoe, CA, June 17-21, 2009.

132. H.R.C. Screen, S.R. Byers, V. Nguyen, S.J. Bryant. Developing a Novel Fibre Composite Material for Tendon Tissue Engineering. 2009 Annual meeting of the Orthopaedic Research Society. Las Vegas, NV, February 22-55, 2009.

133. I. Villanueva, N.L. Bishop, J.L. Christensen, S.J. Bryant. Effects of IL-1β and Medium Osmolarity on Cell Viability and Nitrite Production in Chondrocyte-Seeded Poly(ethylene glycol) Hydrogels. 2009 Annual meeting of the Orthopaedic Research Society. Las Vegas, NV, February 22-55, 2009.

134. I. Villanueva, S.K. Gladem, S.J. Bryant. Effects of chondroitin sulfate incorporation on chondrocyte morphology and metabolism in mechanically stimulated poly(ethylene glycol) hydrogels. 2009 Annual meeting of the Orthopaedic Research Society. Las Vegas, NV, February 22-55, 2009.

135. G.D. Nicodemus, S.M. Giunta, and S.J Bryant. Rational design of 3D hydrogels to capture and retain ECM molecules within mechanically stimulated PEG gels. 2009 Annual meeting of the Orthopaedic Research Society. Las Vegas, NV, February 22-55, 2009.

136. N. Bishop, I. Villanueva, S. Gladem, S.J. Bryant. Medium Osmolarity Influences Chondrocyte Survival During Photoencapsulation in Poly(ethylene glycol) Hydrogels. 2009 Annual meeting of the Orthopaedic Research Society. Las Vegas, NV, February 22-55, 2009.

137. S.M. LaNasa, H.A. Hughes, S.J. Bryant. Patterned Channels in PEG Hydrogels for Cardiac Muscle Tissue Engineering. TERMIS-NA 2008 Annual Conference, San Diego, CA, December 7-10, 2008.

138. A.D. Lynn, T.R. Kyriakides, S.J. Bryant. *In Vitro and In Vivo* Characterization of the Foreign Body Response to Poly(Ethylene Glycol) Based Hydrogels. TERMIS-NA 2008 Annual Conference, San Diego, CA, December 7-10, 2008.

139. G.D. Nicodemus, S.J. Bryant. Controlling Anabolic and Catabolic Processes through Mechanical Stimulation of Chondrocytes TERMIS-NA 2008 Annual Conference, San Diego, CA, December 7-10, 2008.

140. G.D Nicodemus, I. Villanueva, S.J. Bryant. Designing 3D Photopolymer Gels to Regulate Biomechanical Cues. 2008 AIChE Annual Meeting. Philadelphia, PA, November 16-21, 2008.

141. S.M. Giunta, G.D. Nicodemus, and S.J. Bryant. We Knee'D to Look at What We're Losing, Too! – The Effect of Mechanical Loading and Hydrogel Structure on the Release of Extracellular Matrix Components. 2008 AIChE Annual Meeting. Philadelphia, PA, November 16-21, 2008.

142. X. Liang, A.D. Lynn, D.M. King, S.J. Bryant and A.W. Weimer. Atomic Layer Deposition Surface Modified Porous Polymer for Tissue Engineering Application. 2008 AIChE Annual Meeting. Philadelphia, PA, November 16-21, 2008.

143. S.J. Bryant, G.D. Nicodemus, K.A. Shiplet, S. Kaltz. Chondrocyte Function and Gel Degradation of Dynamically Loaded Gels. 2008 World Biomaterials Congress, Society of Biomaterials, Amsterdam, The Netherlands, May 28-June 1, 2008.

144. I. Villanueva, C.A. Weigel, S.J. Bryant, Using 3D PEG Hydrogel Models to Elucidate the Role of RGD as a Mechanoreceptor in Chondrocytes. 2008 World Biomaterials Congress, Society of Biomaterials, Amsterdam, The Netherlands, May 28-June 1, 2008.

145. S.J. Bryant, S.M. LaNasa, H.A. Hughes, K. Liu. Designing the Chemistry and Architecture of PEG Scaffolds for Cardiac Muscle Tissue Engineering. 2008 World Biomaterials Congress, Society of Biomaterials, Amsterdam, The Netherlands, May 28-June 1, 2008.

146. S.J. Bryant and G.D. Nicodemus. Anabolic and Catabolic Responses of Chondrocytes in Mechanically Stimulated PEG Hydrogels. Hilton Head Workshop, Hilton Head Island, South Carolina, March 12-16, 2008.

147. S.J. Bryant, I. Villanueva, C.A. Weigel. "Cell-matrix interactions influence chondrocyte response in mechanically loaded PEG-RGD hydrogels." 2008 Annual meeting of the Orthopaedic Research Society. San Francisco, CA, March 2-5, 2008.

148. X. Liang, A.D. Lynn, D.M. King, A.S. Cavanagh, S.J. Bryant, S.M. George, and A.W. Weimer, Ceramic Coated Porous Polymer for Tissue Engineering Applications, the 32nd International Conference & Exposition on Advanced Ceramics and Composites, Daytona Beach, Florida, January 27-February 1, 2008

149. N. Bishop, I. Villanueva, J. Christensen, S.J. Bryant. "Developing *In Vitro* Osteoarthritis Models Using Poly(ethylene glycol) (PEG) Hydrogels," Midwest Connective Tissue Workshop, Rush University Medical School, Chicago, IL December 14-15, 2007.

150. I. Villanueva, C.Weigel, S.J. Bryant. "Using Poly(ethylene glycol) (PEG) Hydrogels Containing RGD-peptides as Models to Understand Chondrocyte-Matrix Interactions Under Mechanical Loading," Midwest Connective Tissue Workshop, Rush University Medical School, Chicago, IL December 14-15, 2007.

151. I.Villanueva, CA Weigel, and SJ Bryant. "Elucidating chondrocyte-matrix interactions using 3D hydrogel models subjected to mechanical loading." 2007 World Congress on Osteoarthritis. December 6-9, 2007, Ft. Lauderdale, Florida.

152. S.K. Atzet, B. Ratner, S.A. Curtin, and S.J. Bryant. "Degradable Poly(Hydroxyethyl Methacrylate) Hydrogels For Tissue Engineered Scaffolds: Controlled Molecular Weight Degradation Products." 2007 AIChE Annual Meeting. Salt Lake, UT, November 5-9, 2007.

153. Xinhua Liang, David M. King, Aaron D. Lynn, Andrew S. Cavanagh, Stephanie J. Bryant, John H. Blackson, Joseph D. Harris, Steven M. George, and Alan W. Weimer, "Novel Porous Polymer/ceramic Composite Material for Tissue Engineering Applications," 2007 AIChE Annual Meeting. Salt Lake, UT, November 5-9, 2007.

154. K.M. Jeerage, S.M. LaNasa, D.S. Lauria, S.J. Bryant, A.J. Slifka. Electrochemical Measurements of Diffusion through Cardiac Muscle Tissue Engineering Scaffolds. 212th Electrochemical Society Meeting, Chicago, CO, October 7-12, 2007.

155. S.M. LaNasa, H.A. Hughes and S.J. Bryant. Patterned and porous poly(ethylene glycol) scaffolds for cardiac muscle tissue engineering. 2007 Biomedical Engineering Society Annual Fall Meeting, Los Angeles, CA, September 26-29, 2007.

156. K.M. Jeerage, S.M. LaNasa, D.S. Lauria, S.J. Bryant, A.J. Slifka. "Electrochemical Measurements of Diffusion through Cardiac Muscle Tissue Engineering Scaffolds." 2007 Biomedical Engineering Society Annual Fall Meeting, Los Angeles, CA, September 26-29, 2007.

157. S.J. Bryant. "Teaching Biomaterials." ASEE Summer School for Chemical Engineering Faculty. Pullman, WA. July 27-August 3, 2007.

158. G. Nicodemus and S.J. Bryant. "Influence of dynamic loading regimes and scaffold degradation on chondrocyte response in PEG hydrogels." Annual Meeting of the Tissue Engineering and Regenerative Medicine International Society, Toronto, Ontario, Canada, June 13-16, 2007.

159. S.J. Bryant, D.J. Mortisen, S.M. LaNasa, K.D. Hauch, B.D. Ratner. "Controlling the 3D architecture of hydrogel scaffolds for tissue engineering." 2007 Annual Meeting of the Society for Biomaterial, Chicago, IL, April 18-21, 2007.

160. S.J. Bryant and G. Nicodemus. "Mechanically stimulated PEG hydrogels for cartilage tissue engineering." 2007 Annual meeting of the Orthopaedic Research Society. San Diego, CA, February 11-14, 2007.

161. I. Villanueva, B. Klement, D. von Deutsch, and S.J. Bryant. "Effects of simulated microgravity on nitric oxide production and proteoglycan synthesis by chondrocytes encapsulated in 3D PEG hydrogels." American Society for Gravitational and Space Biology Annual Meeting. Arlington, VA, November 2-5, 2006.

162. S.J. Bryant, I. Villanueva, and G. Nicodemus. "Mechanically stimulated photopolymerized hydrogels for cartilage tissue engineering." 2006 AIChE Annual Meeting. San Francisco, CA, November 12-17, 2006.

163. S. Kaltz, G. Nicodemus, and S.J. Bryant. "Mechanical Loading Effects on Degradation Profiles of Peg-Pla Hydrogel Scaffolds for Cartilage Regeneration." 2006 AIChE Annual Meeting. San Francisco, CA, November 12-17, 2006.

164. S.J. Bryant, I. Villanueva, and G. Nicodemus. "Mechanical stimulation of photopolymerized hydrogel scaffolds for TMJ articular cartilage regeneration." The Fourth Scientific Meeting of The TMJ Association. Bethesda, MD, September 11-12, 2006.

165. I. Villanueva and S.J. Bryant. "Chondrocyte Metabolism and Nitric Oxide Production in Mechanically Stimulated PEG Hydrogel Constructs." SBE's 2nd International Conference on Bioengineering and Nanotechnology. Santa Barbara, CA, September 5-6, 2006.

166. I. Villanueva and S.J. Bryant. “Mechanically loaded photopolymerized hydrogels as 3D models to probe mechanotransduction pathways in chondrocytes.” World Congress on Biomechanics, Munich, Germany, June 29-August 4, 2006.

167. G. Nicodemus, S.J. Bryant. “Effects of mechanical loading and crosslinking density on gene expression of chondrocytes encapsulated in hydrogels.” World Congress on Biomechanics, Munich, Germany, June 29-August 4, 2006.

168. I. Villanueva, H.E. Davis, and S.J. Bryant. “Crosslinking Density Influences NO Production in Chondrocytes Seeded in PEG Hydrogels under Dynamic Loading,” Regenerate World Congress on Tissue Engineering and Regenerative Medicine, Pittsburgh, PA, April 24-27, 2006.

169. D.J. Mortisen, S.J. Bryant, J.L. Cuy, C.E. Murry, K.D. Hauch, B.D. Ratner, “Photopatterned poly(hydroxyethyl methacrylate) hydrogels for cardiac tissue engineering.” Regenerate World Congress on Tissue Engineering and Regenerative Medicine, Pittsburgh, PA, April 24-27, 2006.

170. B.D. Ratner, S.J. Bryant, S. Curtin, S. Desai, E. Johnson, A.Marshall, D. Mortisen, and F. Simonovsky. “Novel Polymers for Tissue Engineering Applications.” Pacific Polymer Conference IX, American Chemical Society, Maui, Hawaii, December 11-24, 2005.

171. D.J. Mortisen, S.J. Bryant, J.L. Cuy, K.D. Hauch, and B.D. Ratner. “Photopatterned poly(hydroxyethyl methacrylate) hydrogels for cardiac tissue engineering,” Pacific Polymer Conference IX, American Chemical Society, Maui, Hawaii, December 11-24, 2005.

172. B.D. Ratner, C. Giachelli, C. Murry, E. Donaldson, A. Marshall, B. Beckstead, M. Linnes, D. Mortisen, K. Hauch, S. Bryant and S.K.S. Chian. “Novel Polymeric Scaffolds: Platforms for Tissue Engineering,” 3rd International Conference on Materials for Advanced Technologies. Singapore, July 3-8, 2005.

173. S.J. Bryant, K.D. Hauch, and B.D. Ratner. “A novel patterning method for thick PHEMA hydrogels,” Materials Research Society, San Francisco, CA, March 28-April 1, 2005.

174. M.A. Rice, P. Martens, S.J. Bryant, M.J. Mahoney, C.N. Bowman, K.S. Anseth. “Photopolymerization of synthetic hydrogel niches for 3D cell culture and tissue regeneration,” American Chemical Society, Anaheim, CA, March 28-April 1, 2004.

175. S.J. Bryant, J.L. Cuy, K.D. Hauch, and B.D. Ratner. “PHEMA gels with controlled architectures for cardiac tissue engineering,” Regenerate 2004, Seattle, WA, June 9-12, 2004.

176. P. Martens, M. Mahoney, S. Bryant, M. Rice, K. Anseth. “Synthetic Hydrogel Niches for 3D Cell Culture and Tissue Regeneration: The Role of Gel Architecture and Degradation,” 40th IUPAC World Polymer Congress, Paris, France, July 4-9, 2004.

177. S.J. Bryant, A.J. Marshall, K.D. Hauch and B.D. Ratner. “Tailoring the architecture of photopolymerized porous pHEMA scaffolds for cardiac tissue engineering,” 7th World Biomaterials Congress, Sidney, Australia, May 17-21, 2004.

178. S.J. Bryant, J.A. Arthur, M.A. Rice, K.A. Davis, and K.S. Anseth. “Manipulations in hydrogel chemistry control photoencapsulated chondrocyte behavior and extracellular matrix production.” 26th Australasian Polymer Symposium, Shearton, Noosa, July 13-17,2003.

179. K.S. Anseth, S.J. Bryant, and P.J. Martens. “In situ forming cell gel constructs: Monitoring gel degradation to control extracellular matrix evolution,” 225th American Chemical Society National Meeting, New Orleans, LA, March 23-27 2003.

180. D.J. Quick, S.J. Bryant, and K.S. Anseth, “Altering gene expression of chondrocytes photoencapsulated in hydrogels by local DNA delivery,” 2003 Annual Meeting of the Society for Biomaterial, Reno, Nevada.

181. S.J. Bryant, R.J. Bender, K.L. Durand, and K.S. Anseth, “Controlling the architecture of degradable, photocrosslinked hydrogels for cartilage tissue engineering,” 2002 Annual AIChE Meeting, Indianapolis, Indiana, November, 3-8, 2002.

182. P. Martens, S. Bryant, and K. Anseth. “Photopolymerization of poly(Vinyl Alcohol) and poly (ethylene glycol) based macromers to produce crosslinked, degradable hydrogels with controlled transport properties”, American Chemical Society National Meeting, Boston, MA, August 2002.

183. S.J. Bryant, K.S. Anseth, T.T. Chowdhury, D.A. Lee, and D.L. Bader, "Crosslinking density influences chondrocyte morphology and metabolism in mechanically loaded PEG hydrogels," World Congress on Biomechanics, Calgary, Alberta, Canada, August 4-9, 2002.

184. S.J. Bryant, R.J. Bender, K.L. Durand, and K.S. Anseth, "Developing cell scaffolds for tissue engineering cartilage using degradable photocrosslinked PEG hydrogels," 2002 Annual Meeting of the Society for Biomaterial, Tampa, Florida, April 24-27, 2002.

185. P. Martens, S. Bryant, T. Holland, C. Bowman, and K. Anseth. "Modeling and experimental characterization of degradable poly (vinyl alcohol) tissue scaffolds", Material Research Society Meeting, Boston, MA, November 2001.

186. S. Bryant, C. Shields, and K. Anseth, "Guided ECM evolution and integration of engineered cartilage using photocrosslinked PEG-hydrogels," 2001 Annual Fall Meeting of the Biomedical Engineering Society, Durham, NC, October 2001.

187. K. Durand, S. Bryant, and K. Anseth, "An *in vivo* investigation of chondrocyte ECM production in photocrosslinked, degradable PEG hydrogels," 2001 Annual Fall Meeting of the Biomedical Engineering Society, Durham, NC, October 2001.

188. S. Bryant, K. Durand, and K. Anseth, "Degradation kinetics influence ECM production of photoencapsulated chondrocytes in PEG-based hydrogels," Division of Polymer Chemistry for the 222nd ACS National Meeting, Chicago, Illinois, August 26-30, 2001.

189. S. Bryant and K. Anseth, "Tailoring the architecture of degradable photocrosslinkable poly(ethylene oxide) hydrogels for tissue engineering cartilage," 2001 Annual Meeting of the Society for Biomaterials, Saint Paul, Minnesota, April 24-29, 2001.

190. N. Luo, S. Bryant, and K. Anseth, "Photopolymerizable PVA and chondroitin sulfate hydrogels for cartilage tissue engineering," 2001 Annual Meeting of the Society for Biomaterials, Saint Paul, Minnesota, April 24-29, 2001.

191. S. Bryant and K. Anseth, "Gel properties influence extracellular matrix formation in chondrocytes photoencapsulated in poly(ethylene oxide) and poly(vinyl alcohol) hydrogels," 2000 Annual Fall Meeting of the Biomedical Engineering Society, Seattle, Washington, October 2000.

192. K.S. Anseth, A.K. Burkoth, J. Burdick, S.J. Bryant, "*In situ* forming polymeric biomaterials," 219th ACS National Meeting in San Francisco, March 26-30, 2000.

193. N. Luo, S. Bryant, A. Crapisi, C. Bowman, and K. Anseth, "Preparation of photo-polymerizable hydrogels for cartilage tissue engineering: PVA and chondroitin sulfate as raw materials," Colorado Biotechnology Symposium, Fort Collins, Colorado, September 2000.

194. S. Bryant and K. Anseth, "*In situ* forming poly(ethylene oxide) and poly(vinyl alcohol) hydrogels for cartilage tissue engineering," World Polymer Congress, 38th Macromolecular IUPAC Symposium, Warsaw, Poland, July 2000.

195. S. Bryant and K. Anseth, "*In vitro* formation of neocartilage in photocrosslinked poly(ethylene oxide) hydrogels," Chicago 2000 World Congress on Medical Physics and Biomedical Engineering Conference, Chicago, IL, July 2000.

196. S. Bryant and K. Anseth, "Photocrosslinkable poly(ethylene oxide) and poly(vinyl alcohol) hydrogels for tissue engineering cartilage," 1999 Annual Fall Meeting of the Biomedical Engineering Symposium, Atlanta, GA, October 1999.

197. S. Bryant, C. Nuttelman, and K. Anseth, "The effects of crosslinking density on cartilage formation in photocrosslinkable hydrogels," Rocky Mountain Bioengineering Symposium, Copper Mountain, April 1999.

198. K. Anseth, J. Elisseeff, S. Bryant, R. Langer, M. Randolf, and M. Yaremchuk. *In situ* transdermal photopolymerization of hydrogels, Annual Meeting of the Society for Biomaterial, Providence, Rhode Island, April 22-May 2, 1999.

199. C. Nuttelman, S. Bryant, K. Anseth," Poly(vinyl alcohol) hydrogels for the tissue engineering of cartilage," AIChE Meeting, Miami Beach, Florida, November 1998.

200. S. Bryant, C. Nuttelman, K. Anseth, “A novel technique using photopolymerization for cell encapsulation as a method for cartilage regeneration,” The 28th Annual Biochemical Engineering Symposium, Ames, Iowa, October 1998.
201. K. Anseth, S. Bryant, P. Martens, J. Elisseeff, R. Langar, and M. Randolf, “Transdermal photopolymerizations for biomedical applications,” IUPAC Polymer Networks 98, Trondheim, Norway, June 1998.
202. F.W.F. Lee, S. Bryant, P. Todd and D. Kompala, “Maximizing protein synthesis in high cell density perfusion bioreactors,” 27th Annual Biochemical Engineering Symposium, Fort Collins, Colorado, September 13, 1997.

INVITED TALKS

1. S.J. Bryant. “Hybrid Photopolymer Scaffolds using Projection Microstereolithography for Musculoskeletal Tissue Engineering.” Photopolymerization Fundamentals Meeting, Boulder, CO, September 19-22, 2023.
2. S.J. Bryant. “Designing Materials to Improve Life.” Department of Chemistry, Prairie View A&M University, Prairie View, TX, January 27, 2023.
3. S.J. Bryant. “Designing Biomaterials to Meet Form and Function for Regenerative Medicine Applications.” CU’s Innovation in Materials Science Symposium, August 11-12, 2022.
4. S.J. Bryant. “Tissue-Mimetic Composites for Musculoskeletal Tissue Engineering.” 2022 Musculoskeletal Biology and Regeneration Meeting. Washington University, St. Louis, MO, May 5-6, 2022.
5. S.J. Bryant. “Designing Hydrogels to Regenerate Cartilage” 2021 Virtual Nature Conference on “Innovative Tissue Therapies from Bench to Beside.” Virtual, November 16-18, 2021.
6. S.J. Bryant. “Designing Form and Function into Tissue-Mimetic Hydrogel Composites for Musculoskeletal Tissue Engineering.” Materials Science and Engineering, Boston University, November 12, 2021.
7. S.J. Bryant. “Biomimetic hydrogels for treatment of growth plate injuries.” 2020 Regenerative Engineering Society Symposium, AIChE, December 1-3, 2020.
8. S.J. Bryant. “Controlling spatiotemporal properties of hydrogels to improve tissue engineering.” 2020 Virtual AIChE Annual Meeting, November 16-20, 2020.
9. S.J. Bryant. “Tissue-Mimetic Hydrogels for Musculoskeletal Tissue Engineering and the Role of the Foreign Body Response” Department of Orthopedic Surgery. Columbia University, February 4, 2020.
10. S.J. Bryant. “Tunable Synthetic Hydrogels for Musculoskeletal Tissue Engineering Applications.” Center for Musculoskeletal Research. University Rochester, December 3, 2019.
11. S.J. Bryant. “Synthetic Hydrogels and Implications of Immune Responses in the Context of Tissue Engineering,” Leaders in Biomaterials Symposium. AIChE Annual Meeting, November 10-15, 2019, Orlando, FL.
12. S.J. Bryant. “Synthetic Hydrogels for Tissue Engineering and Implications of the Foreign Body Response,” Department of Bioengineering, University of Colorado Denver, November 1, 2019.
13. S.J. Bryant “Leveraging Photopolymerizations to Improve Outcomes in Tissue Engineering,” Photopolymerization Fundamentals 2019, September 14-18, 2019, Monterey, CA.
14. S.J. Bryant. “Synthetic Hydrogels that Guide Tissue Regeneration and Implications of Immune Responses.” Spanish National Center for Cardiovascular Research, May 27, 2019, Madrid, Spain.
15. S.J. Bryant "Designing Tissue-Mimetic Niches for Stem Cell Mediated Cartilage and Bone Regeneration,” International Conference of Molecular Engineering of Polymers, Shanghai, China, September 2018.
16. S.J. Bryant "Designing Hydrogels to enhance Biomedical Implant Performance,"45th International Conference on Metallurigical Coatings and Thin Films, San Diego, CA April 2018.

17. S.J. Bryant. “Designing Tissue-Mimetic Niches for Stem Cell Mediated Cartilage & Bone Regeneration.” 6th Annual Muscoloskeletal Repair and Regeneration Symposium. Albert Einstein Medical College, Bronx, New York. October 19, 2017.
18. S.J. Bryant. “In Situ Forming Photopolymerizable Hydrogels for Musculoskeletal Tissue Engineering,” 2017 Photopolymerization Fundamentals Meeting, Boulder, CO, September 17-20, 2017.
19. S.J. Bryant. “Designing Biomimetic Hydrogels For In Vivo Tissue Engineering: Implications of the Innate Immune System,” Biomaterials Days, University of South Dakota, May 11, 2017.
20. S.J. Bryant. “Designing biomimetic and degradable hydrogels for musculoskeletal tissue engineering: an approach towards personalization.” Department of Bioengineering, University of California San Diego, March 17, 2017.
21. S.J. Bryant. “A Chemical Engineer’s Approach to Regenerating Living Tissue,” AIChE Student Chapter, University of Colorado, March 13, 2017.
22. S.J. Bryant. “The Foreign Body Response to Synthetic Hydrogels: Implications for *In Vivo* Tissue Engineering,” Department of Biomedical Engineering, University of Michigan, October 13, 2016.
23. S.J. Bryant. “Designing Biomimetic Hydrogels for Musculoskeletal Tissue Engineering.” Department of Chemical and Biological Engineering. Colorado School of Mines, September 9, 2016.
24. S.J. Bryant. “A Combined Experimental and Computational Approach to Designing Personalized Hydrogels,” Gordon Research Conference on Musculoskeletal Biology and Bioengineering, Andover, NH, August 11-12, 2016.
25. S.J. Bryant. “Hydrogels for Osteoarthritis Treatment,” European Annual European Congress of Rheumatology, London, UK, June 8-11, 2016.
26. “*In Vitro* to *In Vivo* Considerations in the Design of Synthetic-based Hydrogels for Tissue Engineering” Department of Biomedical Engineering, Georgia Institute of Technology, April 15, 2016.
27. S.J. Bryant. The Foreign Body Response to Cell-Laden Biomaterials: Implications for Tissue Engineering. Annual Meeting of the International Federation for Adipose Therapeutics and Science. New Orleans, LA, November 5-8, 2015.
28. S.J. Bryant. “Photopolymerized Biomaterials,” Photopolymerization Fundamentals Meeting Short Course 2015, Boulder, Co, September 13-16, 2015.
29. “Injectable Cellular Constructs in Biodegradable Hydrogels,” Advanced in Tissue Engineering 2013 23rd Annual Short Course, Rice University, Houston, TX, August 12-16, 2015.
30. S. J. Bryant. Tuning Synthetic Hydrogel Platforms for Cartilage Tissue Engineering. International Cartilage Repair Society. Chicago, IL, May 7-11, 2015.
31. “Synthetic Hydrogel Niches for Musculoskeletal Tissue Engineering,” University of Pennsylvania, Department of Orthopedics Seminar, January 20, 2015.
32. “Designing Synthetic Hydrogels for Musculoskeletal Tissue Engineering and In Vivo Performance,” University of Iowa, Chemical Engineering & Biomedical Engineering Seminar, October 17, 2014.
33. “Understanding and Manipulating the Foreign Body Reaction to Synthetic Hydrogels: Implications in Tissue Engineering,” University of Massachusetts Amherst, Chemical Engineering Seminar, September 30, 2014.
34. “Cell encapsulation in biodegradable hydrogels,” Advanced in Tissue Engineering 2013 22nd Annual Short Course, Rice University, Houston, TX, August 13-16, 2014.
35. C. Schnatwinkel, D. Patel, H.R.C. Screen, and S.J. Bryant. Understanding the tenocyte microenvironmental niche. World Congress on Biomechanics. Boston, MA, USA, July 6-12, 2014.
36. S.J. Bryant, M.D. Swartzlander, L.D. Amer, A.K. Blakney, T.R. Kyriakides, “Understanding the Foreign Body Reaction in Tissue Engineering”. 2014 MRS Spring Meeting, April 21-25, 2014.
37. “The Foreign Body Reaction in Tissue Engineering: Is it Important?” Lehigh University, Bethlehem, PA, March 11,2014.

38. S.J. Bryant. “Photopolymerized Biomaterials,” Photopolymerization Fundamentals Meeting Short Course 2013, September 22-25, 2013.
39. S.J. Bryant. “Cell-laden photopolymerized hydrogels for tissue engineering: from encapsulation to in vivo performance.” Photopolymerization Fundamentals Meeting 2013, September 22-25, 2013.
40. “Cell encapsulation in biodegradable hydrogels,” Advanced in Tissue Engineering 2013 21th Annual Short Course, Rice University, Houston, TX, August 13-17, 2013.
41. “The Foreign Body Reaction in Tissue Engineering: Is it Important?” JSCBB Mini Symposium, July 30, 2013.
42. “Understanding Biochemical and Biomechanical Cues for Functional Tissue Regeneration,” University of Akron, Akron, OH, February 14, 2013.
43. “Mechanical Stimulation of Synthetic Hydrogel Niches for Musculoskeletal Regeneration,” University of Oklahoma, Norman, OK, December 6, 2012.
44. “Polymer Networks as Biomaterials,” 2012 Polymer Networks Group Meeting. Jackson Hole, WY, August 10-12, 2012.
45. “Synthetic Hydrogel Niches for Musculoskeletal Research and Tissue Engineering,” Institute of Medical Engineering and Medical Physics, Cardiff University, Cardiff, UK, March 28, 2012.
46. “Biomimetic Hydrogel Niches: Understanding Biophyisical and Biochemical Cues to Promote Integration and Functional Tissue Regeneration,” School of Engineering and Material Science, Queen Mary University of London, London, UK, January 23, 2012.
47. “Cell encapsulation in biodegradable hydrogels,” Advanced in Tissue Engineering 2011 19th Annual Short Course, Rice University, Houston, TX, August 13-16, 2011.
48. “Synthetic Hydrogel Niches as a Platform for Musculoskeletal Research and Regeneration.” AO Foundation, Davos Switzerland, December 1, 2010.
49. “Mimicking the complexity of tissues through engineered biomaterials.” CIMBPosium, University of Colorado, Boulder, November 18, 2010.
50. “Cell encapsulation in biodegradable hydrogels,” Advanced in Tissue Engineering 2010 18th Annual Short Course, Rice University, Houston, TX, August 12-15, 2010.
51. “Synthetic Niches for Functional Tissue Engineering,” The Charles C. Gates Regenerative Medicine & Stem Cell Biology Program Seminar Series, , University of Colorado Denver, March 17, 2010.
52. “Three-dimensional synthetic niches for regenerating living tissues,” Lunchtime Talks in Science & Mathematics, Adams State College, Alamosa, CO, November 5, 2009.
53. “Cell encapsulation in biodegradable hydrogels,” Advanced in Tissue Engineering 2009 17th Annual Short Course, Rice University, Houston, TX, August 12-15, 2009.
54. “Synthetic Photopolymer Hydrogels for Functional Tissue Engineering,” Department of Chemical and Nuclear Engineering, University of New Mexico, Albuquerque, NM, April 7, 2009.
55. “Designing Synthetic Niches for 3D Cell Culture and Tissue Regeneration of Cartilage,” Rheumatology Allergy and Immunology Seminar Series, University of California, San Diego, December 9, 2008.
56. “Mechanical Stimulation of 3D Photopolymer Gel Constructs for Orthopedic Tissue Engineering,” Keynote speaker for Orthopedic Biomaterials Session, 2008 BMES Annual Fall Meeting, St. Louis, MO, October 2-4, 2008.
57. “Hydrogel Structure and Dynamic Loading effects on Chondrocytes,” 5th International Meeting on “Cell Therapy, Bioengineering, and Regenerative Medicine” Nancy, France, September 11-12, 2008.
58. “Cell encapsulation in biodegradable hydrogels,” Advanced in Tissue Engineering 2008 16th Annual Short Course, Rice University, Houston, TX, August 13-16, 2008.
59. “Biomechanical Regulation in Photopolymer Cell-Scaffolds for Cartilage Tissue Engineering,” Keynote speaker, 24th Annual Research Day, Colorado Section: American Association for Dental Research,

University of Colorado Denver School of Dental Medicine, Anschutz Medical Campus, Aurora, CO, February 20, 2008.

60. "Designer 3D Photopolymer Hydrogels for Tissue Engineering Application," Midwest Connective Tissue Workshop, Rush University Medical School, Chicago, IL December 14-15, 2007.
61. "Using Engineering Principles to Grow Living Tissues," Lunchtime Talks in Science & Mathematics, Adams State College, Alamosa, CO, November 29, 2007.
62. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2007 15th Annual Short Course, Rice University, Houston, TX, August 15-18, 2007.
63. "Manipulations in photopolymerization kinetics to achieve patterned structures: Applications for tissue engineering." Photopolymerization Fundamentals 2007. Breckenridge, CO. June 24-27, 2007.
64. "Electrochemical Measurement of Oxygen Consumption by Cardiomyocytes adhered to Tissue Engineered Scaffolds." 2nd Annual University of Colorado, Boulder and National Institute of Standards and Technology (NIST) Research Symposium, March 22, 2007. (*Invited as a recipient of the CU/NIST seed grant program for 06-07).*
65. "Photopolymerized hydrogels for functional tissue engineering." Biomaterials from 2D to 3D to Larger than Life: A Symposium on the Future of Biomaterials to Celebrate Buddy Ratner's 60th Birthday, Kaanapali, Maui, Hawaii, December 14-17, 2006.
66. "Photopolymerized hydrogels: from 3D models to probe mechanotransduction to tissue engineering scaffolds." Midwest Connective Tissue Workshop, Rush University Medical School, Chicago, IL October 20-21, 2006.
67. "Mechanically loaded photopolymerized hydrogels for tissue engineering." National Institutes of Standards and Technology, Bethesda, MD September 13, 2006.
68. "Photopolymer gels to probe mechanical forces in cartilage". Medical scientist training program seminar series, University of Colorado Health Science Center, Denver, CO, March 1, 2006.

GRANTS RECEIVED

NIH R01: "Bioinspired Mechanically Stiff Hydrogels for Osteochondral Tissue Regeneration," 4/1/22-3/30/27.
NSF: Collaborative Research: RECODE: "Organoid model of growth plate development," 12/2021-11/30/2025.
NSF: "The Role of Percolation in the Hydrogel-to-Tissue Transition for Cartilage Growth," 4/2021-3/2024.
NIH R21: "Mapping protein dynamics and their origin at biomaterials surfaces in vivo," 4/2021-3/2024.
NIH R21: "The Role of C-Flip in Mediating Pro-Survival Macrophages in the Foreign Body Response," 7/1/2020-3/31/2024.
NIH R21: "Prostaglandin E2 receptor 2 (EP2) as a Target for Prevention of the Foreign Body Response," 4/1/2020-3/31/2023.
NIH R33: "Physeal cartilage tissue engineering using mesenchymal stem cells directed towards chondrogenesis," 4/2019-3/2024.

NIH R01: "Synthetic Mesenchymal Stem Cell Niches for Vascular Therapy," 9/12/13-7/31/24.

NIH R01: "Temporal Regulation of Pulmonary Inflammation by Myd88 Alternative Pre-mRNA Splicing," 6/1/19-5/31/23.

Department of Education Graduate Assistantships in Areas of National Need, Graduate Program in Soft Materials, 10/2018-10/2021.

NIH F33: "The Origin and Function of Macrophages in the Foreign Body Response," 8/2018-8/2019

NSF: "Tenocyte Mechanobiology in a Fiber Composite Mimetic," 8/2018-8/2021.

NSF: "GOALI: Projection Stereolithography of Gradient Viscoelastic Polymer Nanocomposites," 9/2018-9/2021.

NIH R21: "Single-molecule resolution of DAMPs and their impact on the FBR," 4/2018-4/2020.

NIH R21: "Physeal cartilage tissue engineering using mesenchymal stem cells directed towards chondrogenesis," 12/2017-11/2019.

NSF MRI: "MRI: Acquisition of a 4D High-Resolution X-Ray Micro-Computed Tomography System for the Rocky Mountain Region." 10/2017-9/2018.

NIH R21: “A Hydrogel Model for Interstitial Fluid Flow,” 4/2017-3/2019.

NIH R21: “Treatment of pediatric physeal injuries using a 3D printed biomimetic of growth plate cartilage,” 3/2017-2/2019.

NIH R01: “Mechanically Stiff 3D Hydrogels for Osteochondral Tissue Engineering,” 7/2016-6/2027.

Department of Education Graduate Assistantships in Areas of National Need, Graduate Program in Biomaterials, 9/1/15-8/30-19.

NSF MRSEC, The Click Nucleic Acids IRG of the Soft Materials Research MRSEC, 11/1/2014 – 10/31/2020.

NIH R21: “The Interplay between Macrophages and Differentiating MSCs in Cell-Laden Hydrogel," 4/1/2013-3/31/2015.

NIH R01, "Personalizing Matrix Assisted Autologous Chondrocyte Implantation," 9/12/13-9/11/18.

NIH R21: “Dynamically Responsive Bioreactors for Cartilage Regeneration,” 9/1/12-8/31/14.

NIH R21: “A Platform to Study Tenocyte Mechanotransduction,” 9/1/12-8/31/14.

NIH R21: “Engineering Bimodal Degrading Gels,” 4/1/11-3/31/13.

State Proof of Concept Grant (BDEG), “Mechanically Trained Engineered Cartilage for Craniofacial Reconstruction,” 6/1/10-1/31/12.

NIH R03: “Modulating the Host Response to Tissue Engineering Scaffolds,” 3/1/10-2/28/12.

NSF: 2009 MRS Symposium on Engineering for Regenerative Medicine; Boston, MA, 12/15/09-11/30/10.

American Federation for Aging Research: “Elucidating the role of biomechanical factors in age-related changes in cartilage: A possible risk factor for developing osteoarthritis,” 7/1/09-6/30/11.

NSF: CAREER: Multi-structured Hydrogels to Control Biochemical and Biomechanical Cues to MCSs: An Integrative Plan to Promote Diversity. 4/1/09-3/31/14, $500,000 (PI). REU Supplement.

CeraPedics (Industry): “The Role of Immobilized P-15 in Osteogenesis of human Mesenchymal Stem Cells Encapsulated in Photopolymerized Poly(Ethylene Glycol) Hydrogels for Bone Tissue Engineering.”

University of Colorado Technology Transfer Office: “Bioreactor to Mechanically Load Soft Material under Tension,” Proof of Concept Grant, 5/1/08-1/1/09.

CU Innovative Seed Grant Program: “New Tools to Elucidate the Role of Intracellular Ca2+ in Mechanically Stimulated Cartilage Cells,” 7/1/08-6/30/09.

Mechanical Stimulation of Cells in Photopolymerized Gels. National Institutes of Health, K22 Career Transition Award, 9/05-8/09.

Novel Polymeric Supports for Cardiac Muscle Regeneration, American Health Assistance Foundation, National Heart Foundation, 4/06-3/07.

Electrochemical Measurement of Oxygen Consumption by Cardiomyocytes adhered to Tissue Engineering Scaffolds, CU-NIST Seed Grant, 6/06-5/07.

Tissue Engineering in the Classroom, University of Colorado Outreach Council, 9/06-8/07.

PROFESSIONAL SOCIETIES

Society for Biomaterials (SFB)
Biomedical Engineering Society (BMES)
Orthopedic Research Society (ORS)
American Institute of Chemical Engineers (AIChE)
Materials Research Society (MRS)

CHAIR OF MEETINGS AND SYMPOSIA

1. Session Chair, “Regenerative Medicine 1”, 2018 Annual Meeting of the Orthopedic Research Society Meeting, New Orleans, LA, March 10-13, 2018.
2. Co-Chair of Session, “Biomaterials in microdevices and microarrays,” 2016 World Congress of Biomaterials, Montreal, Quebec, Canada, May 17-22, 2016.

3. Co-Chair and organizer of Session, “Mechanobiology for Biomaterials Design” 2014 Society for Biomaterials Annual Meeting, Denver, CO, April 16-19, 2014.
4. Co-Chair of Session, “Undergraduate Session”, 2013 BMES Annual Meeting, Seattle, WA, September 26-29, 2013.
5. Co-Chair of Session “Emerging Technologies," Annual Meeting of the ASC, New Orleans, LA April 7-11, 2013.
6. Co-Chair of Session, “Biomimetic Materials for Tissue Engineering” Annual Meeting of the Society for Biomaterials, Orlando, Fl, April 13-16, 2011.
7. Co-Chair of Session, “Novel Biomaterials and Scaffolds” Annual Meeting Biomedical Engineering Society, St. Louis, MO, October 6-9, 2010.
8. Co-Chair of Session, “Surface Modification and Characterization of Biomaterials.” Annual Fall Meeting of the AIChE, Nov 7-12, 2010.
9. Co-Chair of Session, “Biomimetic Materials for Tissue Engineering Rapid Fire“ Society for Biomaterials Annual Meeting, Seattle, WA, April 21-24, 2009.
10. Organized Symposium, “Engineered Biomaterials for Regenerative Medicine,” Material Research Society Fall Meeting, Boston, MA, Nov 30-Dec 4, 2009.
11. Panel member for Women's Initiative Committee’s Session on “Pathways to Success in Academia,” Annual Fall Meeting of the AIChE, Nov 1-6, 2009.
12. Session Chair, ‘"Biomaterial Scaffolds for Tissue Engineering," Annual Fall Meeting of the AIChE, Nov 1-6, 2009.
13. Co-Chair of Session, “Orthopedic Biomaterials II”, Annual Meeting Biomedical Engineering Society, St. Louis, MO, October 1-3, 2008.
14. Co-Chairperson of Session, “Cellular Functions in Tissue Engineering,” Society for Biomaterials World Congress, Amsterdam, the Netherlands, May 28- June 1, 2008.
15. Organized and Co-Chairperson of Symposium, “Developing Best Practices in Tissue Engineering Education,” Society for Biomaterials Annual Meeting, Chicago, IL, April 2007.

MEMBER OF FEDERAL REVIEW PANELS

1. National Institutes of Health, MTE, Standing Study Section Member, July 2016-July 2020.
2. National Institutes of Health, MTE, February 2014, BTSS, October 2015 Ad hoc reviewer.
3. National Institutes of Health, MOSS G 55R stage 1 reviewer, May 2010 Ad hoc reviewer.
4. National Institutes of Health, ZRG1 MOSS-P, Small Business: Orthopedic and Skeletal Biology, March 2010.
5. National Science Foundation Panel Member
6. National Institutes of Health, MOSS G 52 Review Panel, December 2009
7. National Institutes of Health, National Heart Lung Blood Institute. Enabling Technologies for Regenerative Medicine, July 2007.

REVIEWER OF JOURNALS

ACS Applied Materials & Interfaces
Acta Biomaterialia
Advanced Drug Delievery Reviews
Annals of Biomedical Engineering
Biorheology
Biomacromolecules
Biomaterials
Biomedical Science

Biotechnology and Bioengineering
Biotechnology Progress
BMC Biotechnology
Clinical Orthopaedics and Related Reserch
European Polymer Journal
European Journal of Cell Biology
ECM
Journal of Biomaterial Science Poymer Ed.
Journal of Biomechanics
Journal of Biomedical Materials Research, Part A
Journal of Biomedical Materials Research, Part B
Journal of Orthopedic Research
Journal of Physical Chemistry
Journal of the Royal Society Interface
Journal of the Taiwan Institute of Chemical Engineers
Langmuir
Organic & Biomolecular Chemistry
Osteoarthritis and Cartilage
Proceedings of the National Academy of Sciences
Scientific Reports
Soft Matter
Stem Cell
Tissue Engineering

COURSES TAUGHT

Spring 2023: CHEN 5160, *System Analysis of Cells & Tissues*, 22 graduate students.

Spring 2021: CHEN 5383, *System Analysis of Cells & Tissues*, 21 graduate students.

Fall 2020: CHEN 5805, *Biological Interactions to Biomaterials.* 21 graduate students.

Fall 2019: CHEN 3210, *Heat Transfer.* 72 undergraduate students (Instructor Rating: 3.9/5.0)

Fall 2017: CHEN 5805, *Biological Interactions to Biomaterials*. 11 graduate students (Instructor Rating: 5.9/6.0)

Spring 2017: CHEN 4805, *Biomaterials.* 95 undergraduate students. (Instructor Rating: 4.6/6.0)

Fall 2016: CHEN 3210-001, *Heat Transfer.* 98 undergraduate students. (Instructor Rating: 4.8/6.0)

Fall 2016: CHEN 3210-002, *Heat Transfer.* 95 undergraduate students. (Instructor Rating: 4.6/6.0)

Spring 2015: CHEN 5805, *Biomaterials.* 18 graduate students. (Instructor Rating: 5.8/6.0)

Spring 2015: CHEN 4805, *Biomaterials.* 58 undergraduate students. (Instructor Rating: 4.6/6.0)

Spring 2014: CHEN 4805, *Biomaterials.* 59 undergraduate students. (Instructor Rating: 5.5/6.0)

Fall 2013: CHEN 4810, *Senior Bio-Lab,* 21 undergraduate students. (Instructor Rating: 5.3/6.0)

Spring 2013: CHEN 4805, *Biomaterials.* 60 undergraduate students. (Instructor Rating: 5.5/6.0)

Fall 2012: CHEN 3210, *Chemical Engineering Heat Transfer.* 99 undergraduate students. (Instructor Rating: 4.9/6.0)

Spring 2011: CHEN 5210, *Transport Phenomenon.* 30 graduate students. (Instructor Rating: 3.8/6.0)

Spring 2010: CHEN 4805, *Biomaterials.* 77 undergraduate students. (Instructor Rating: 5.2/6.0)

Spring 2010: CHEN 5805, *Advanced Biomaterials.* 12 graduate students. (Instructor Rating: 5.0/6.0)

Fall 2009: CHEN 3210, *Chemical Engineering Heat Transfer.* 56 undergraduate students. (Instructor Rating: 4.3/6.0).

Fall 2008: CHEN 3210, *Chemical Engineering Heat Transfer.* 63 undergraduate students. (Instructor Rating: 4.1/6.0).

Spring 2008: CHEN 4805/5805, *Biomaterials*. 36 students (9 graduate students, 27 undergraduate students). (Instructor Rating: 5.5/6.0).

Fall 2007: CHEN 3210, *Chemical Engineering Heat Transfer.* 78 undergraduate students. (Instructor Rating: 4.3/6.0).

Fall 2006: CHEN 3210, *Chemical Engineering Heat Transfer.* 59 undergraduate students. (Instructor Rating: 5.4/6.0)

Spring 2005: CHEN 4838/5838, *Special Topics: Biomaterials*. 28 students (14 graduate students, 14 undergraduate students). New course development. (Instructor Rating: 3.46/4.0).

Fall 2005: CHEN 3210, *Chemical Engineering Heat Transfer*. 52 undergraduate students. (Instructor Rating: 2.2/4.0)

PAST AND PRESENT ADVISEES

***Graduate Students Supervised*:**

Idalis Villanueva, PhD, 2005-2009, **Graduated with PhD** in Chemical Engineering. (NASA Harriet Jenkins Graduate Fellow), "The effects of Biochemical and Biomechanical Cues on Cartilage Cells Using Synthetic, Photopolymerizable Hydrogels." **Current Position:** Associate Professor, Department of Engineering Education, University of Florida.

Garret Nicodemus, PhD, 2005-2009, **Graduated with PhD**, in Chemical Engineering. "Mechanical conditioning of photopolymerized cell scaffolds for cartilage tissue engineering." **Current Position:** COO of Xabis.

Stephanie LaNasa (Hume), PhD, 2006- 2010, **Graduated with PhD** in Chemical Engineering. (NSF Graduate Fellow), "Development and Characterization of Porous and Patterned Hydrogel Scaffolds for Cardiac Muscle Tissue Engineering." **Current Position:** Associate Director, Clinical Science at Clovis Oncology.

Aaron Lynn, MD, PhD, 2006- 2010, **Graduated with PhD** in Chemical Engineering. "Characterization and Manipulation of the *in vivo* Host Response and *In Vitro* Macrophage Response to Synthetic Hydrogels." **Current Position:** General Surgery, Saint Joseph Hospital.

Neven Steinmetz, PhD 2007-2011, **Graduated with PhD** in Chemical Engineering. "Mechanical conditioning of mesenchymal stem cells in tailored composite hydrogel scaffolds for treating osteochondral defects." **Current Position:** Chief Scientific Officer of R&D, Regenexx.

Nikki Bishop, 2008- 2012, **Graduated with PhD** in Chemical Engineering. "The Role of Chondrocyte Age in Cellular Response to External Cues and Their Implications in Tissue Engineering." **Current Position:** Assistant Professor, Chemical and Biological Engineering, Colorado School of Mines

Emily Hiers, 2007- 2008, **Graduated with MS** in Chemical Engineering. (co-advised with Chris Bowman). "Modeling polymerization kinetics in the presence of cells."

Justine Roberts, 2009-2013, **Graduated with PhD** in Chemical Engineering.. "Hydrogels for cartilage tissue engineering in mechanically relevant environments." **Current Position:** Scientist, W.L. Gore, Flagstaff Arizona.

Eric Greenwald, 2009- 2010, **Graduated with MS** in Chemical Engineering.. "Numerical Model of Hydrogel Mechanics, Fluid Flow, and Enzyme Diffusion and Degradation."

Stacey Skaalure, 2010-2014, **Graduated with PhD** in Chemical Engineering. "Tunable Hydrogel Degradation for Cartilage Tissue Engineering." **Current Position:** Science & Technology Research Fellow at the Good Food Institute.

Mark Swartzlander, 2010-2014, **Graduated with PhD** in Chemical Engineering. "Studying and Manipulating the Host Reaction to Tissue Engineering Scaffolds.' **Current Position:** Scientist, BASF

Luke Amer, 2011-2016, **Graduate with PhD** in Chemical Engineering. "Enzyme-sensitive hydrogels hydrogels for *in vitro* and *in vitro* tissue engineering." **Current Position:** Antriabio.

Maria Carnes, 2016- 2017, **Graduated with MS** in Chemical Engineering., "A Biomimetic and Biodegradable Hydrogel and the Impact of Macrophages for Bone Tissue Engineering."

Elizabeth Aisenbrey, 2013-2017, **Graduated with PhD** in Chemical Engineering, “The role of physiochemical cues on MSC differentiation and tissue regeneration in a cartilage biomimetic hydrogel.” **Current Position:** NIH Post-Doc, in Bill Murphy’s lab, University of Wisconsin.

Aaron Aziz, May 2012-2018, **Graduated with PhD** in Chemical Engineering. “Biomimetic hydrogels to support bone development for osteochondral tissue engineering applications.” **Current Position:** Sangamo Therapeutics, Inc.

Stanley Chu, January 2014-2019, **Graduated with PhD** in Chemical Engineering. “Investigation of polymer network heterogeneities in tuning hydrogel degradation for cartilage tissue engineering.” **Current Position:** Reel Foods.

Margaret Schneider, 2015-2020, **Graduated with PhD** in Chemical Engineering. “Engineering Network Heterogeneities in Photoclickable Poly(Ethylene Glycol) Hydrogels for Applications in Cartilage Tissue Engineering.” **Current Position:** Beam Therapeutics.

Lelia Saleh, 2016-2020, **Graduated with PhD** in Chemical Engineering, “Understanding and regulating the foreign body response to poly(ethylene glycol) hydrogels for tissue engineering.” **Current Position:** Post-Doc in Farsh Guilak’s lab, Washington University.

Alex Anderson, 2016-2020, (co-advised with Chris Bowman), **Graduate with PhD** in Chemical Engineering, “Design, Synthesis, and Characterization of Functional Click Nucleic Acid Polymers and Conjugate for Biological Applications.” **Current Position:** Post-Doc in Chad Mirkin’s lab, Northwestern University.

Asais Uzcategui. January 2017-2021, MSE PhD Student (co-advised with Robert McLeod), **Graduate with PhD** in Materials Science and Engineering, “Characterization and Control of tthe Material Properties in DLP 3d Printed Parts For use in Tissue Engineering and Regeneration.” **Current Position:** Post-doc in Robert McLeod’s lab CU Boulder.

Rachel Wilmoth, January 2017-2021, Mechanical Engineering PhD Student (co-advised with Virginia Ferguson), **Graduated with PhD** in Mechanical Engineering, “Development of a 3D ex vivo Culture System to Study Osteocyte Mechanobiology.” **Current Position:** Associate Green Hydrogen & Industrial Decarbonatization.

Archish Muralidharan. January 2017-2021, MSE PhD Student, **Graduated with PhD** in Materials Science and Engineering, “Steriolighopgraphy for 3D hybrid scaffolds for MSC-mediated osteochondral tissue engineering.” **Current Position:** Scientist at FormLabs

Sarah Schoonraad, January 2018-2022, MSE PhD Student, **Graduated with PhD** in Materials Science and Engineering, “Bioactive Poly(ethylene glycol) hydrogel composites for recapitulating the form and function of engineered musculoskeletal tissues.” **Current Position:** CER Intern Medical Science Writer for Global RWC.

Mollie Maples, January 2018-present, ChBE PhD Student, “Harnessing the bi-directionality of cell-material interactions: Investigations into cartilage regeneration and vascular remodeling.”

Annalisa Ugarte, January 2019-present, Chemistry PhD Student, “Fibrous scaffolds for Tenocyte Mechanobiology.”

Emerson Grey, May 2019-present, ChBE PhD Student, “Microparticles for treatment of lung fibrosis.”

Brittany Thompson, January 2020-present, MSE PhD Student, “Mechanisms driving the FBR to implantable biomaterials.”

Elizabeth George, January 2021-present, MSE PhD Student, “Dynamic hydrogels to study growth plate mechanotranduction.”

Mia Keyser, January 2021-present, Biological Engineering PhD Student, “Improving Growth Factor Stability for Engineered Meat,”

Laurel Stefania, 2022-present, Biological Engineering PhD Student, “Mechanically Stiff 3D Printed Osteochondral Scaffolds.”

Kiera Croland, 2023-present, Chemical Engineering PhD Student, TBD.

Kayla Castillo-Aguilar, 2024-present, Materials Science and Engineering, PhD Student, TBD

Yashveer Soni, 2024-present, Materials Science and Engineering, PhD Student, "3D Printing for Osteochondral Tissue Engineering"

Daniel Estrin, 2024-present, Materials Science and Engineering, PhD Student, "Brush coatings to control protein adsorption and attenuate the Foreign Body Response"

Graduate and MD Students Supervised (Independent Study, MD Research Rotation):
Aaron Lynn (MD/PhD Student, UCDHSC, Sum06), Steve Gingrich (MD Student, Penn State, Sum2007), Maliheh Shomali (PhD Student ChemEng. F07), Nikki Bishop (PhD Student ChemEng F07), Justine Roberts (PhD Student, ChemEngF08), Devatha Nair (PhD Student Mechanical Engineering, F08), Audrey Earnshaw (MS Student Mechanical Engineering, 08/09), Balaji Sridhar (MD/PhD Student, UCDHSC, Sum10), Aaron Aziz (IQ Bio rotation student, F11), Chloe Pagoda (IQ Biology Rotation, F14), Maria Carner (Rotation F15), Ed Hongdusit (Rotaiton, F15), Cierra Walker (IQ Biology Rotation, F15) , Archish Muralidharan (MSE Independent Study F16), Kristin Callahan (IQ Biology Rotation, S17), Mollie Maples (ChBE Independent Study, F17), Sarah Schoonraad (MSE Independent Study, F17), Nicole Day (ChBE Independent Study, F19), Britany Thompson (MSE Independent Study F19), Elizabeth George (MSE Independent Study F20), Sam Blackman (ChE, Independent study F20), Joshita Suresh (BioE, Independent study F20), Mia Keyser (BioE, Independent Study F20), Holly Coleman (BioE, Independent Study F20), Laurel Stefani (BioE Independent Study F21), Kiera Croland (ChE, Independent Study F22), Kayla Castillo-Aguilar (MSE, Independent Study F23), Yasveer Soni (MSE Independent Study F23).

Undergraduate Students Supervised (Independent Study, Senior Thesis, and Research) (84: total):
Hillary E. Davis (Sum05, REU student from Georgia Tech), Johnross Ford (Sept 2005-2007, NIH/HHMI Scholar), Clark Bergnard (Senior Thesis, Jan 2006-May 2007), Kimberly Shiplet (Senior Thesis, Jan 2006-May 2007), Jenny Yang (Jan 2006-May 2006, Senior Thesis, Sept 2007-May2008), Angela Hellstern (Jan 2006-May 2007). Stuart Kaltz (Sum06, REU student from Michigan State: Received 2nd place in ChBE REU poster presentation competition), Courtney Weigel (Sept 2006-Dec 2006), Naseem Ammari (Sept 2006-Dec 2006), Jeffrey Kessler (Jan 2007-Dec 2007), Holly Hughes (Jan 2007-August 2007, UROP Fellow), Ke Liu (Summer 2007, Cornell University), Joy Dickensheets (Sum07, REU program), Andrea Cascio (Sum07, REU program), Rasheed Lawal (Sept 2007-2011, NIH/HHMI Scholar), Sara Gladem (Sept 2007-2008, DLA Apprentice), Michael Holmberg (Senior Thesis, Sept 2007-May 2008), Jennifer Christensen (Senior Thesis, Sept 2007-May 2008), Kristen Potter (Oct 2007-May 2008, BURST fellow). Vien Nguyen (Independent Study,Jan 2008-May 2008, Senior Thesis, Sept 2008-May 2009), Scott Byers (Independent Study, Jan 2008-May2008, Senior Thesis, Sept 2008-May 2009), James Prager (Independent Study, Jan 2008-May 2008), Richard Fisher (Independent Study, Jan 2008-May 2008), Suzanne Giunta (Sum08, REU program, 3rd place Food, Pharmaceutical & Biotechnology at 2008 AiChE), Anna Blakney (Sum 2008-May 2012, SURE Program, AY08/09, BURST Fellow, AY09/10 HHMI/UROP Fellow, Senior Thesis, NSF GRFP fellow), Ian Hoffecker (Senior Thesis, Sept 2008-May 2009), Eric Greenwald (Senior Thesis, Sept 2008-May 2009), Louisa Eberle (Independent Study, Spr09), Amanda Gonzales (Sum09, REU), Sarah Hoyt (Senior Thesis, Sept 2009-May 2010), Claire Bensard (Sept 2009-May2010, HHMI Fellow), Robert Dong (Sept 2009-May 2010, BURST Fellow), Nikki Look (Jan 2010-May 2010, UROP Fellow), Andrew Maier (Jan 2010), Krista Donahue (DLA, 2009-2010, Senior Thesis 2010-2011), Lorena Antunez (May 2010-June2011). Saikripa M. Radhakrishnan (Jan 2011-2013, Goldwater Scholar), Tu Phan (Jan 2011-December 2011), Ben Mead (June 2011-May2013, Senior Thesis), Ian Milligan (REU 2011, Senior Thesis 2011-2012), Elizabeth Aisenbrey (REU 2011), Kirsten Fitch (REU, 2011), Erica Duffy (Independent Study, August2011-May2012), Joe Quinn (May 2012-August 2012), Ashley Pennington (September 2012-, BURST Fellow), Joe Villanueva (SMART fellow, Summer 2013), Brook McMillan (2013-2014 HHMI Fellow), Andrea Nelson (2013-2014), Assem Ayaganova (International student, Summer 2014), Aaron Sollner (2015), Nikki Machalek (2014-2015), Cassidy Sansbury (2014-2015), Andrea Marks (2014-), Conor Messer (REU 2015), Anna Iisa (2015), Luke Boustred (2015, BURST Fellow), Zachary Reinking (UROP, 2015-2016), Isaac Dillon (2015-2016), Gregory Pendrys (2015-2016), Eric Kleinjan (2016-2017, UROP Fellow), Marlen Rodriguez (SMART, 2016), Chelsea Mink (Independent Study, 2016), Nicholas Monteleone (BSI Fellow 2016-2017, Senior Thesis, 2017-2018), Andrew Frederickson (Senior Thesis 2016-2017), Pallavi Bhusal (SMART 2017, BSI Scholar 2017-2018), Irina Kopyeva (REU 2017), Simon Kalmus (2017), Casey Vanderheyden (Independent study Summer 2017, Senior Thesis 2017-2018), Kianna Nguyen (Senior Thesis 2017-2018), Connor Gerace (Senior Thesis 2017-2018), Jean Hernandez (2017), Alan Jaimes (2018-2021 BSI Scholar), Elizabeth Voke (REU 2018),

Arjun Singh (2019-2020 Senior Thesis), Olivia Prado (2019 Soft Materials REU), Albert Jiménez Castaño (Balsells Mobility fellow, 2020), Emma Carillion (BSI Scholar 2021, DLA 2022-2023), Kelsey Crawford (REU 2022), Zion Glover (REU 2022), Arjun Kotapalli (REU 2022), Sarah Shariff (REU 2022), Bridget Linders (DLA 2022-2023), Lauren Jingles (2022-2023, REU), Deja Livingston (REU 2023), Viviana Salazar (REU 2023), Zin Lin (REU 2023)