

CURRICULUM VITAE

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Professor

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PROFESSIONAL EXPERIENCE

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-
Associate Professor, Chemical and Biological Engineering, University of Colorado, 8/2011-6/2017
Task Force Member, BioFrontiers Institute (Formerly CIMB), 8/2005-
Fellow, 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
2018- *Biotechnology and Bioengineering*, Associate Editor
2015- *Journal of Orthopedic Research*, Editorial Review Board.
2010-2013 *Tissue Engineering*, Editorial Review Board.

PUBLICATIONS

1. 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. *Submitted*.
2. A.C. Uzcategui, C.I. Higgins, J.E. Hergert, A.E. Tomaschke, V. Crespo-Cuevas, V.L. Ferguson, S.J. Bryant, R.R. McLeod, J.P. Killgore. Microscale Photopatterning of Through-thickness Modulus in a Monolithic and Functionally Graded 3D Printed Part. *Submitted*.
3. 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. *Submitted*.
4. 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*. *Accepted*.
5. 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).
6. 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).
7. 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).
8. 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).
9. 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).
10. 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).
11. 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).
12. Y. Ding, R. Johnson, S. Sharma, X. Ding, S.J. Bryant, and W. Tan. Tethering transforming growth factor β 1 to soft hydrogels guides vascular smooth muscle commitment from human mesenchymal stem cells. *Acta Biomaterialia*. 105: 68-77 (2020).
13. 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).
14. 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).
15. 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).
16. 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).
 17. 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 TGF β 3. *Acta Biomaterialia*. 93:97-110 (2019).
 18. E.A. Aisenbrey, A.A. Tomaschke, S.A. Schoonraad, K.M. Fischenich, J.A. Wahlquist, 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).
 19. 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).
 20. 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).
 21. 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).
 22. C. Pascual-Garrido, E.A. Aisenbrey, F. Rodriguez-Fontan, K.A. Payne, S.J. Bryant, L.R. Goodrich. Photopolymerizable 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).
 23. 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).
 24. 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).
 25. 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).
 26. 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).
 27. 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).
 28. 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).
 29. 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).
 30. 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).
 31. 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 Biomaterialia*. 71:37-48(2018).

32. 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).
33. C. Pascual-Garrido, F. Rodriguez-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).
34. 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).
35. 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).
36. 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).
37. 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).
38. 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).
39. 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).
40. 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).
41. 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).
42. 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).
43. 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).
44. 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).
45. 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).
46. 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).
47. 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).
48. 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).
49. 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).

50. 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).
51. 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).
52. 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).
53. 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 Biomaterialia*. 22: 103-110 (2015).
54. 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).
55. 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).
56. 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).
57. 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).
58. 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).
59. 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).
60. 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).
61. 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).
62. 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).
63. 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).
64. 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).
65. 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).
66. 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).
67. N. Farnsworth, L. Antunez, and S.J. Bryant. Dynamic Compressive Loading Differentially Regulates Chondrocyte Anabolic and Catabolic Activity with Age. *Biotechnology and Bioengineering*. 110(7):2046-57 (2013).

68. 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. *Biomaterials*. 34(4):952-64 (2013).
69. V. Dhote, S. Skaalure, U. Akalp, J. Roberts, S. J. Bryant and F.J. Vernerey. On the role of hydrogel structure and degradation in controlling the transport of cell-secreted matrix molecules for engineered cartilage. *Journal of the Mechanical Behavior of Biomedical Materials*. 19:61-74 (2013).
70. N. Farnsworth, L. Antunez, and S.J. Bryant. Influence of Chondrocyte Maturation on Acute Response to Impact Injury in PEG Hydrogels. *Journal of Biomechanics*. 45(15): 2556-2563 (2012).
71. N. Farnsworth, C. Bensard, and S.J. Bryant. The Role of the PCM in Reducing Oxidative Stress Induced by Radical Initiated Photoencapsulation of Chondrocytes in Poly(ethylene glycol) Hydrogels. *Osteoarthritis and Cartilage*. 20(11): 1326-1335 (2012).
72. N.J. Steinmetz and S.J. Bryant. Chondroitin sulfate and dynamic loading alter chondrogenesis of human MSCs in PEG hydrogels. *Biotechnology and Bioengineering*. 109(10): 2671-2682 (2012).
73. J.R. Popp, J.J. Roberts, D.V. Gallagher, K.S. Anseth, S.J. Bryant, T.P. Quinn. An instrumented bioreactor for mechanical stimulation and real-time, nondestructive evaluation of engineered cartilage tissue. *Journal of Medical Devices*. 6(2): 021006 (7 pages) (2012).
74. S.L. Hume, S.M. Hoyt, J.S. Walker, B. Sridhar, J.F. Ashley, C.N. Bowman, and S.J. Bryant. Alignment of Multi-Layered Muscle Cells within Three-Dimensional Hydrogel Macrochannels. *Acta Biomaterialia*. 8(6): 2193-2202 (2012).
75. S.C. Skaalure, I. L. Milligan, S.J. Bryant. Age impacts extracellular matrix metabolism in chondrocytes encapsulated in degradable hydrogels. *Biomedical Materials*: 7(2): (2012). *Special Issue on Injectable gels for tissue/organ repair. Invited.*
76. 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. *J Biomed Mater Res Part A*: 100A: 1375–1386, (2012). *Winner of the Society for Biomaterials Outstanding Student Award: Undergraduate Category.*
77. K. Wingate, W. Bonani, Y. Tan, S.J. Bryant, W. Tan. Elasticity of Three-Dimensional Nanofiber Matrix Directs Mesenchymal Stem Cell Differentiation to Vascular Cells with Endothelial or Smooth Muscle Cell Markers. *Acta Biomaterialia*. 8(4): 1440-1449 (2012).
78. F.J. Vernerey, E.C. Greenwald, S.J. Bryant. Triphasic mixture model of cell-mediated enzymatic degradation of hydrogels. *Computer Methods in Biomechanics and Biomechanical Engineering*. 15(11) 1197-1210 (2012).
79. N.J. Steinmetz, 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. *Acta Biomaterialia*. 7: 3829–3840 (2011).
80. Roberts JJ, Earnshaw A, Ferguson VR, and Bryant SJ. A comparative study of the viscoelastic mechanical behavior of agarose and poly(ethylene glycol) hydrogels. *Journal of Biomedical Materials Research – Part B*. 99B: 158–169 (2011).
81. J.J. Roberts, G.D. Nicodemus, S. Giunta, S.J. Bryant. Incorporation of biomimetic matrix molecules into PEG hydrogels enhances matrix deposition and reduces load-induced loss of chondrocyte-secreted matrix. *Journal of Biomedical Materials Research Part A*. 1;97(3):281-91 (2011).
82. J.J. Roberts, G.D. Nicodemus, E.C. Greenwald, S.J. Bryant. Degradation Improves Tissue Formation in (Un)Loaded Chondrocyte-laden Hydrogels. *Clinical Orthopaedics and Related Research*. 469(10): 2725-2734 (2011) (invited contribution as part of the special issue on Cartilage Resurfacing).
83. A.D. Lynn, A.K. Blakney, T.R. Kyriakides, and S.J. Bryant. Temporal progression of the host response to implanted poly(ethylene glycol)-based hydrogels. *Journal of Biomedical Materials Research Part A*. 96(4):621-31 (2011).
84. G.D. Nicodemus, S.C. Skaalure, and S.J. Bryant. Gel structure has an impact on pericellular and extracellular matrix deposition, which subsequently alters metabolic activities in chondrocyte-laden PEG hydrogels. *Acta Biomaterialia*. 7(2): 492-504 (2011).

85. A.D. Lynn and S.J. Bryant. Phenotypic changes in bone marrow-derived murine macrophages cultured on PEG-based hydrogels activated or not by lipopolysaccharide. *Acta Biomaterialia*. 7(1): 123–132 (2011).
86. S.M. LaNasa, I. Hoffecker, and S.J. Bryant. Presence of Pores and Hydrogel Composition Influence Tensile Properties of Scaffolds Fabricated from Well-Defined Sphere Templates. *Journal of Biomedical Materials Part B*. 96B: 294–302 (2011).
87. Klouda L., Perkins K.R., Watson B.M., Hacker M.C., Bryant S.J., Raphael R.M., Kasper F.K., Mikos A.G. *Acta Biomaterialia*. 7(4): 1460-1467 (2011).
88. K.M. Jeerage, S.M. LaNasa, H.A. Hughes, S.J. Bryant, D.S. Lauria, A.J. Slifka. Scanning Electrochemical Measurement of Photopolymerized Poly(ethylene glycol) Hydrogels. *Polymer*. 51(23): 5456-5461 (2010).
89. H.R.C. Screen, S.R. Byers, A.D. Lynn, V. Nguyen, D. Patel, S.J. Bryant. Characterization of a Novel Fiber Composite Material for Mechanotransduction Research of Fibrous Connective Tissues. *Advanced Functional Materials*. 20(5): 738-747 (2010).
90. I. Villanueva, S.K. Gladem, Jeff Kessler, and S.J. Bryant. Dynamic loading stimulates chondrocyte biosynthesis when encapsulated in charged hydrogels prepared from poly(ethylene glycol) and chondroitin sulfate. *Matrix Biology* 29(1):51-62 (2010).
91. A.D. Lynn, T.R. Kyriakides, and S.J. Bryant. Characterization of the *In Vivo* Host Response and the *In Vitro* Macrophage Response to Poly(ethylene glycol)-based Hydrogels. *Journal of Biomedical Materials Research Part A*. 93A(3): 941-953 (2010).
92. G.D. Nicodemus and S.J. Bryant. Mechanical loading regimes affect the anabolic and catabolic activities of chondrocytes encapsulated in PEG hydrogels. *Osteoarthritis and Cartilage*. 18(1): 126-137 (2010).
93. X.Liang, A.D. Lynn, D.M. King, A.S. Cavanagh, S.J. Bryant, P. Li, S.M. George, and A.W. Weimer. Biocompatible Interface Films Deposited within Porous Polymers by Atomic Layer Deposition. *Journal of Applied Materials & Interfaces*. 1(9): 1988-1995 (2009).
94. I. Villanueva, C.A. Weigel, and S.J. Bryant. Cell-matrix interactions and mechanical loading influence chondrocyte response and gene expression in PEG-RGD hydrogels. *Acta Biomaterialia*. 5: 2832-2846 (2009).
95. S.M. LaNasa and S.J. Bryant. Influence of ECM proteins and their analogs on skeletal and cardiac muscle cell response when cultured on 2D hydrogels. *Acta Biomaterialia*. 5: 2929-2938 (2009).
96. I. Villanueva, N.L. Bishop, and S.J. Bryant. Medium osmolarity and PCM development improves chondrocyte survival when photoencapsulated in PEG hydrogels at low densities. *Tissue Engineering Part A*. 15(10): 3037-3048 (2009).
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80. 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.
81. 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.
82. 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.
83. 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.
84. J.J. Roberts and S.J. Bryant. Network structure impacts chondrocyte tissue deposition in mechanically-stimulated peg hydrogels. 2012 BMES Fall Meeting, Atlanta, GA, October 24-27, 2012.
85. 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.
86. 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.
87. 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.
88. 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.
89. J.J. Roberts, G.D. Nicodemus, E.C. Greenwald, S.J. Bryant. Degradation impacts chondrocyte matrix production in dynamically loaded poly(ethylene glycol)-based hydrogels. 2011 Annual meeting of the Society for Biomaterials. Orlando, FL, April 13-16, 2011.
90. 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.
91. H.R.C. 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.

92. 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.
93. 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.
94. 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.
95. 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.
96. 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.
97. 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.
98. 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.
99. 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.
100. 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.
101. 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.
102. 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.
103. 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.
104. 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.
105. 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.
106. 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.
107. 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.

108. 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.
109. 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.
110. 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.
111. A.L. Ernschaw, 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.
112. 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.
113. I. Villanueva, N.L. Bishop, J.L. Christensen, S.J. Bryant. Effects of IL-1 β 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.
114. 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.
115. 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.
116. 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.
117. 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.
118. 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.
119. 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.
120. 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.
121. 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.
122. 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.
123. 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.
124. 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.
125. 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.

126. 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.
127. 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.
128. 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
129. 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.
130. 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.
131. I. Villanueva, C.A. Weigel, and S.J. 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.
132. 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.
133. 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.
134. 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.
135. 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.
136. 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.
137. S.J. Bryant. "Teaching Biomaterials." ASEE Summer School for Chemical Engineering Faculty. Pullman, WA. July 27-August 3, 2007.
138. 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.
139. 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.
140. 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.
141. 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.
142. 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.

143. 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.
144. 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.
145. 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.
146. 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.
147. 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.
148. 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.
149. 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.
150. 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.
151. 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.
152. 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.
153. 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.
154. 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.
155. 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.
156. 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.
157. 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.
158. 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.
159. 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.

160. 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.
161. 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.
162. 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.
163. 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.
164. 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.
165. 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.
166. 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.
167. 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.
168. 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.
169. 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.
170. 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.
171. 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.
172. 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.
173. 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.
174. 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.
175. 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.
176. 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.

177. 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.
178. K. Anseth, J. Elisseeff, S. Bryant, R. Langer, M. Randolph, and M. Yaremchuk. *In situ* transdermal photopolymerization of hydrogels, Annual Meeting of the Society for Biomaterial, Providence, Rhode Island, April 22-May 2, 1999.
179. C. Nuttelman, S. Bryant, K. Anseth," Poly(vinyl alcohol) hydrogels for the tissue engineering of cartilage," AIChE Meeting, Miami Beach, Florida, November 1998.
180. 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.
181. K. Anseth, S. Bryant, P. Martens, J. Elisseeff, R. Langar, and M. Randolph, "Transdermal photopolymerizations for biomedical applications," IUPAC Polymer Networks 98, Trondheim, Norway, June 1998.
182. 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. "Tissue-Mimetic Hydrogels for Musculoskeletal Tissue Engineering and the Role of the Foreign Body Response" Department of Orthopedic Surgery. Columbia University, February 4, 2020.
2. S.J. Bryant. "Tunable Synthetic Hydrogels for Musculoskeletal Tissue Engineering Applications." Center for Musculoskeletal Research. University Rochester, December 3, 2019.
3. 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.
4. 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.
5. S.J. Bryant "Leveraging Photopolymerizations to Improve Outcomes in Tissue Engineering," Photopolymerization Fundamentals 2019, September 14-18, 2019, Monterey, CA.
6. 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.
7. 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.
8. S.J. Bryant "Designing Hydrogels to enhance Biomedical Implant Performance," 45th International Conference on Metallurgical Coatings and Thin Films, San Diego, CA April 2018.
9. S.J. Bryant. "Designing Tissue-Mimetic Niches for Stem Cell Mediated Cartilage & Bone Regeneration." 6th Annual Musculoskeletal Repair and Regeneration Symposium. Albert Einstein Medical College, Bronx, New York. October 19, 2017.
10. S.J. Bryant. "In Situ Forming Photopolymerizable Hydrogels for Musculoskeletal Tissue Engineering," 2017 Photopolymerization Fundamentals Meeting, Boulder, CO, September 17-20, 2017.
11. 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.
12. 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.
13. S.J. Bryant. "A Chemical Engineer's Approach to Regenerating Living Tissue," AIChE Student Chapter, University of Colorado, March 13, 2017.

14. 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.
15. S.J. Bryant. "Designing Biomimetic Hydrogels for Musculoskeletal Tissue Engineering." Department of Chemical and Biological Engineering. Colorado School of Mines, September 9, 2016.
16. 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.
17. S.J. Bryant. "Hydrogels for Osteoarthritis Treatment," European Annual European Congress of Rheumatology, London, UK, June 8-11, 2016.
18. "*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.
19. 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.
20. S.J. Bryant. "Photopolymerized Biomaterials," Photopolymerization Fundamentals Meeting Short Course 2015, Boulder, Co, September 13-16, 2015.
21. "Injectable Cellular Constructs in Biodegradable Hydrogels," Advanced in Tissue Engineering 2013 23rd Annual Short Course, Rice University, Houston, TX, August 12-16, 2015.
22. S. J. Bryant. Tuning Synthetic Hydrogel Platforms for Cartilage Tissue Engineering. International Cartilage Repair Society. Chicago, IL, May 7-11, 2015.
23. "Synthetic Hydrogel Niches for Musculoskeletal Tissue Engineering," University of Pennsylvania, Department of Orthopedics Seminar, January 20, 2015.
24. "Designing Synthetic Hydrogels for Musculoskeletal Tissue Engineering and *In Vivo* Performance," University of Iowa, Chemical Engineering & Biomedical Engineering Seminar, October 17, 2014.
25. "Understanding and Manipulating the Foreign Body Reaction to Synthetic Hydrogels: Implications in Tissue Engineering," University of Massachusetts Amherst, Chemical Engineering Seminar, September 30, 2014.
26. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2013 22nd Annual Short Course, Rice University, Houston, TX, August 13-16, 2014.
27. 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.
28. 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.
29. "The Foreign Body Reaction in Tissue Engineering: Is it Important?" Lehigh University, Bethlehem, PA, March 11, 2014.
30. S.J. Bryant. "Photopolymerized Biomaterials," Photopolymerization Fundamentals Meeting Short Course 2013, September 22-25, 2013.
31. S.J. Bryant. "Cell-laden photopolymerized hydrogels for tissue engineering: from encapsulation to *in vivo* performance." Photopolymerization Fundamentals Meeting 2013, September 22-25, 2013.
32. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2013 21th Annual Short Course, Rice University, Houston, TX, August 13-17, 2013.
33. "The Foreign Body Reaction in Tissue Engineering: Is it Important?" JSCBB Mini Symposium, July 30, 2013.
34. "Understanding Biochemical and Biomechanical Cues for Functional Tissue Regeneration," University of Akron, Akron, OH, February 14, 2013.
35. "Mechanical Stimulation of Synthetic Hydrogel Niches for Musculoskeletal Regeneration," University of Oklahoma, Norman, OK, December 6, 2012.

36. "Polymer Networks as Biomaterials," 2012 Polymer Networks Group Meeting. Jackson Hole, WY, August 10-12, 2012.
37. "Synthetic Hydrogel Niches for Musculoskeletal Research and Tissue Engineering," Institute of Medical Engineering and Medical Physics, Cardiff University, Cardiff, UK, March 28, 2012.
38. "Biomimetic Hydrogel Niches: Understanding Biophysical 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.
39. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2011 19th Annual Short Course, Rice University, Houston, TX, August 13-16, 2011.
40. "Synthetic Hydrogel Niches as a Platform for Musculoskeletal Research and Regeneration." AO Foundation, Davos Switzerland, December 1, 2010.
41. "Mimicking the complexity of tissues through engineered biomaterials." CIMBPosium, University of Colorado, Boulder, November 18, 2010.
42. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2010 18th Annual Short Course, Rice University, Houston, TX, August 12-15, 2010.
43. "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.
44. "Three-dimensional synthetic niches for regenerating living tissues," Lunchtime Talks in Science & Mathematics, Adams State College, Alamosa, CO, November 5, 2009.
45. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2009 17th Annual Short Course, Rice University, Houston, TX, August 12-15, 2009.
46. "Synthetic Photopolymer Hydrogels for Functional Tissue Engineering," Department of Chemical and Nuclear Engineering, University of New Mexico, Albuquerque, NM, April 7, 2009.
47. "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.
48. "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.
49. "Hydrogel Structure and Dynamic Loading effects on Chondrocytes," 5th International Meeting on "Cell Therapy, Bioengineering, and Regenerative Medicine" Nancy, France, September 11-12, 2008.
50. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2008 16th Annual Short Course, Rice University, Houston, TX, August 13-16, 2008.
51. "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.
52. "Designer 3D Photopolymer Hydrogels for Tissue Engineering Application," Midwest Connective Tissue Workshop, Rush University Medical School, Chicago, IL December 14-15, 2007.
53. "Using Engineering Principles to Grow Living Tissues," Lunchtime Talks in Science & Mathematics, Adams State College, Alamosa, CO, November 29, 2007.
54. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2007 15th Annual Short Course, Rice University, Houston, TX, August 15-18, 2007.
55. "Manipulations in photopolymerization kinetics to achieve patterned structures: Applications for tissue engineering." Photopolymerization Fundamentals 2007. Breckenridge, CO. June 24-27, 2007.
56. "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

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(NIST) Research Symposium, March 22, 2007. (*Invited as a recipient of the CU/NIST seed grant program for 06-07*).

57. "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.
58. "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.
59. "Mechanically loaded photopolymerized hydrogels for tissue engineering." National Institutes of Standards and Technology, Bethesda, MD September 13, 2006.
60. "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 R21: "*The Role of C-Flip in Mediating Pro-Survival Macrophages in the Foreign Body Response*," 7/1/2020-3/31/2022.

NIH R21: "*Prostaglandin E2 receptor 2 (EP2) as a Target for Prevention of the Foreign Body Response*," 4/1/2020-3/31/2022.

NIH R33: "*Physeal cartilage tissue engineering using mesenchymal stem cells directed towards chondrogenesis*," 4/2019-3/2022.

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*," 7/2016-6/2020.

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.

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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.

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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 Delivery Reviews

Annals of Biomedical Engineering

Biorheology

Biomacromolecules

Biomaterials

Biomedical Science

Biotechnology and Bioengineering

Biotechnology Progress

BMC Biotechnology

Clinical Orthopaedics and Related Research

European Polymer Journal

European Journal of Cell Biology

ECM

Journal of Biomaterial Science Polymer 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

Stephanie J. Bryant, Ph.D.

Soft Matter
Stem Cell
Tissue Engineering

COURSES TAUGHT

Fall 2019: CHEN 3210, *Heat Transfer*. 72 undergraduate students (Instructor Rating: 3.9/6.0)

Fall 2017: CHEN 5805, *Biological Interactions to Biomaterials*. 11 graduate students (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, January 2005-2009, **Graduated with PhD** (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, January 2005-2009, **Graduated with PhD**, "Mechanical conditioning of photopolymerized cell scaffolds for cartilage tissue engineering." **Current Position:** COO of Xabis.

Stephanie LaNasa (Hume), PhD, January 2006-December 2010, **Graduated with PhD** (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.

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Aaron Lynn, MD, PhD, August 2006-June 2010, **Graduated with PhD**, “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 January 2007-2011, **Graduated with PhD**, “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, January 2008-May 2012, **Graduated with PhD**, “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, May 2007-May 2008, Non-thesis M.S. (co-advised with Chris Bowman). “Modeling polymerization kinetics in the presence of cells.”

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

Eric Greenwald, August 2009-May 2010, **Graduated with MS**. “Numerical Model of Hydrogel Mechanics, Fluid Flow, and Enzyme Diffusion and Degradation.”

Stacey Skaalure, January 2010-2014, **Graduated with PhD** “Tunable Hydrogel Degradation for Cartilage Tissue Engineering.” **Current Position:** Marie Curie Post-doc fellow at Imperial College, London, UK.

Mark Swartzlander, January 2010-2014, **Graduated with PhD** “Studying and Manipulating the Host Reaction to Tissue Engineering Scaffolds.” **Current Position:** Scientist, BASF

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

Maria Carnes, January 2016-August 2017, **Graduated with MS**, “A Biomimetic and Biodegradable Hydrogel and the Impact of Macrophages for Bone Tissue Engineering.”

Elizabeth Aisenbrey, January 2013-2017, **Graduated with PhD**, “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** “Biomimetic hydrogels to support bone development for osteochondral tissue engineering applications.” **Current Position:** Medimmune

Stanley Chu, January 2014-2019, PhD student, “Investigation of polymer network heterogeneities in tuning hydrogel degradation for cartilage tissue engineering.” **Current Position:** Post-Doc in Jin Kim Montclare’s lab, NYU

Margaret Schneider, January 2015-November 2019, “Designing novel enzyme degradation hydrogels for personalized cartilage tissue engineering.”

Lelia Saleh, January 2016-present, ChBE PhD student, “Understanding the foreign body response in tissue engineering.”

Alex Anderson, January 2016-present, ChBE PhD Student (co-advised with Chris Bowman), “Click nucleic acids for biological applications”

Archish Muralidharan. January 2017-present, MSE PhD Student “Sterioligography for 3D hybrid scaffolds for MSC-mediated osteochondral tissue engineering.

Asais Uzcategui. January 2017-present, MSE PhD Student (co-advised with Robert McLeod) “Sterioligography for 3D printed biocompatible structures for osteochondral tissue engineering.

Sarah Schoonraad, January 2018-present, MSE PhD Student, “Cartilage Mimetic Hydrogels for Growth Plate Regeneration.”

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Mollie Maples, January 2018-present, ChBE PhD Student, "Degradable Hydrogels for Personalized Cartilage Tissue Engineering."

Annalisa Ugarte, January 2019-present, Chemisry 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, TBD.

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).

Undergraduate Students Supervised (Independent Study, Senior Thesis, and Research) (72: 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 Shiple (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 lisa (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- BSI Scholar), Elizabeth Voke (REU 2018), Arjun Singh (2019-2020 Senior Thesis), Olivia Prado (2019 Summer REU).