

CURRICULUM VITAE

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PROFESSIONAL EXPERIENCE

Assistant Professor, Chemical and Biological Engineering, University of Colorado, 8/2005-present.

Assistant Professor, Craniofacial Biology, University of Colorado, Heath Sciences Center, 8/2005-present.

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

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 Travel Award, The Fourth Scientific Meeting of The TMJ Association

2006-2007 University of Colorado, Junior Faculty Development Award.

2005-2009 National Institutes of Health, NIDCR, K22 Career Transition 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.

2002 Abstract selected as a finalist for Orthopaedics at the IV World Congress of Biomechanics.

2002 Tissue Engineering SIG. Graduate Student Recognition, Annual Meeting of the Society for Biomaterials.

2001 Orthopaedic SIG. Graduate Student Recognition, Annual Meeting of the Society for Biomaterials.

2001 Student Travel and Professional Development Award. Annual Meeting of the Society for Biomaterials.

1999 BMES Student Travel Award for BMES/IEEE Conference.

1999 Second Place Presentation Award at The 36th Annual Rocky Mountain Bioengineering Symposium.

1999 Beverly Sears Dean's Small Grant Award.

PUBLICATIONS

1. I. Villanueva, B. Klement, D. von Deutsch, D.M. Klaus and S.J. Bryant. Crosslinking density alters early metabolic activities in chondrocytes encapsulated in poly(ethylene glycol) hydrogels and cultured in the rotating wall vessel. In preparation for submission to *Biotechnology and Bioengineering*.
2. 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. In Preparation for Submission to *Biomaterials*.
3. X.Liang, A.D. Lynn, D.M. King, A.S. Cavanagh, S.J. Bryant, P. Li, S.M. George, and A.W. Weimer. Porous polymer/ceramic composite material produced by atomic layer deposition for tissue engineering applications. Submitted to *Biomaterials*.
4. G.D. Nicodemus, K.A. Shipler, S. Kaltz, S.J. Bryant. Dynamic compressive loading influences degradation of PEG-PLA hydrogels. Submitted to *Biotechnology and Bioengineering*.
5. S.J. Bryant, G.D. Nicodemus, I. Villanueva. Designing 3D photopolymer hydrogels to regulate biomechanical cues and tissue growth for cartilage tissue engineering. *Pharmaceutical Research*. (Invited Original Research Article). *In Press*.
6. K.M. Jeerage, S.M. LaNasa, H.A. Hughes, S.J. Bryant, D.S. Lauria, A.J. Slifka. Electrochemical Measurement of Diffusion in Photopolymerized Poly(ethylene glycol) Hydrogels. Submitted to *Journal of Physical Chemistry B*.
7. G.D. Nicodemus and S.J. Bryant, Review: Cell encapsulation in biodegradable hydrogels for tissue engineering applications. *Tissue Engineering*. (Invited to submit by the editors). *In Press*
8. G.D. Nicodemus, S.J. Bryant, The role of hydrogel structure and dynamic loading on chondrocyte gene expression and matrix formation. *Journal of Biomechanics*, 41(7): 1528-1536 (2008).
9. I. Villanueva, D.S. Hauschulz, D. Mejjic and S.J. Bryant, "Static and dynamic compressive strains influence nitric oxide production and chondrocyte bioactivity when encapsulated in PEG hydrogels of different crosslinking densities. *Osteoarthritis and Cartilage* (2008), doi:10.1016/j.joca.2007.12.003.
10. 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. *Gravitational and Space Biology Bulletin*, 20(1): (2006).
11. G.N. Nicodemus, I. Villanueva and S.J. Bryant. Mechanical Stimulation of TMJ Condylar Chondrocytes encapsulated in PEG Hydrogels." *Journal of Biomedical Materials Research*, 83A (2):323-331 (2007).
12. S.J. Bryant, J.L. Cuy, K.D. Hauch and B.D. Ratner. Photo-patterning of porous hydrogels for tissue engineering. *Biomaterials*, 28: 2978-2986 (2007).
13. S.J. Bryant, K.D. Hauch and B.D. Ratner. Spatial Patterning of Thick Poly(2-Hydroxyethyl Methacrylate) Hydrogels. *Macromolecules*, 39 (13): 4395-4399 (2006).
14. S.J. Bryant, J.A. Arthur and K.S. Anseth. Incorporation of tissue-specific molecules alters chondrocyte metabolism and gene expression in photocrosslinked hydrogels. *Acta Biomaterialia*. 1(2): 243-252 (2005).
15. B.D. Ratner and S.J. Bryant. Biomaterials: Where we've been and where we are going. *Annual Review of Biomedical Engineering*. Vol. 6: 41-75 (2004).

16. S.J. Bryant, K.A. Davis-Arehart, N. Luo, R.K. Shoemaker and K.S. Anseth. Synthesis and characterization of photopolymerized multifunctional hydrogels: water-soluble poly(vinyl alcohol) and chondroitin sulfate macromers for chondrocyte encapsulation. *Macromolecules* 37(18): 6726-6733 (2004).
17. S.J. Bryant, K.S. Anseth, T.T. Chowdhury, D.A. Lee, and D.L. Bader. Crosslinking density influences chondrocyte metabolism in dynamically loaded photocrosslinked poly(ethylene glycol) hydrogels. *Annals of Biomedical Engineering*. 32(3):1-12(2004).
18. S.J. Bryant, K.S. Anseth, D.A. Lee, and D.L. Bader. Crosslinking density influences the morphology of chondrocytes photoencapsulated in PEG hydrogels during the application of compressive strain. *Journal of Orthopaedic Research*. 22(5): 1143-1149 (2004).
19. S.J. Bryant, R.J. Bender, K.L. Durand, and K.S. Anseth. Encapsulating chondrocytes in degrading PEG hydrogels with high modulus: engineering gel structural changes to facilitate cartilaginous tissue production. *Biotechnology and Bioengineering*. 86(7): 747-755 (2004).
20. S.J. Bryant, K.L. Durand, and K.S. Anseth. Manipulations in hydrogel chemistry control photoencapsulated chondrocyte behavior and their extracellular matrix production. *Journal of Biomedical Materials Research*. 67A: 1430-1436 (2003).
21. P.J. Martens, S.J. Bryant, and K.S. Anseth. Tailoring the degradation of hydrogels formed from multivinyl poly(ethylene glycol) and poly(vinyl alcohol) macromers for cartilage tissue engineering. *Biomacromolecules*. 4(2): 283-292 (2003).
22. S.J. Bryant and K.S. Anseth. Controlling the spatial distribution of ECM components in degradable PEG hydrogels for tissue engineering cartilage. *Journal of Biomedical Materials Research*. 64A(1):70-79(2003) .
23. K.S. Anseth, A.T. Metters, S.J. Bryant, P.J. Martens, J.H. Elisseeff, C.N. Bowman. *In situ* forming degradable networks and their application in tissue engineering and drug delivery. *Journal of Controlled Release*. 78:199-209 (2001).
24. S.J. Bryant and K.S. Anseth. Hydrogel properties influence ECM production by chondrocytes photoencapsulated in poly(ethylene glycol) hydrogels. *Journal of Biomedical Materials Research*. 59: 63-72 (2001).
25. S.J. Bryant and K.S. Anseth. The effects of scaffold thickness on tissue engineered cartilage in photocrosslinked poly(ethylene oxide) hydrogels. *Biomaterials*. 22: 619-626 (2001).
26. S.J. Bryant, C.R. Nuttelman and K.S. Anseth. Cytocompatibility of Ultraviolet and Visible Light Photoinitiating Systems on Cultured NIH/3T3 Fibroblasts *In Vitro*. *Journal of Biomaterials Science. Polymer Edition*. 11(5): 439-457 (2000).

BOOK CHAPTERS

1. S.J. Bryant and K.S. Anseth. Photopolymerization of hydrogel scaffolds. In *Scaffolding in Tissue Engineering*, Marcel Dekker, Inc. P.X. Ma and J.Elisseeff (eds.) 2005.
2. S. Bryant, P. Martens, J. Elisseeff, M. Randolph, R. Langar and K. Anseth. Transtissue photopolymerization of poly(Vinyl Alcohol) hydrogels. In *Chemical and Physical Networks Formation and Control of Properties*, The Wiley Polymer Networks Group Review Series, Volume 2, B.T. Stokke and A. Elgsaeter (eds.), pp. 395-403.

PATENTS

1. X. Liang, A.W. Weimer and S.J. Bryant. Biocompatible Coatings by Atomic Layer Deposition. Patent Application filed May 14, 2008, University of Colorado.
2. D. Hauschultz, D. Mejjic, S.J. Bryant, I. Villanueva, G.D. Nicodemus. Apparatus to mechanically load soft matter. Invention disclosure filed April 2, 2007, University of Colorado.
3. S. Atzet, S.A. Curtin, B.D. Ratner, S.J. Bryant. Degradable Poly(hydroxyethyl methacrylate) Hydrogels. Invention disclosure filed December 4, 2006, University of Washington.
4. S.J. Bryant, K.D. Hauch, and B.D. Ratner. Methods for Photopatterning Hydrogels. U.S. Patent No. 7,192,693 Issued: March 20, 2007 to University of Washington.

PROCEEDINGS

1. S.J. Bryant, G.D. Nicodemus. "Mechanically Stimulated PEG Hydrogels for Cartilage Tissue Engineering." Proceedings of the 53rd Annual Meeting of the Orthopaedic Research Society.
2. I. Villanueva, H.E. Davis, and S.J. Bryant. "Crosslinking Density Influences NO Production in Chondrocytes Seeded in PEG Hydrogels under Dynamic Loading," CD-Rom, Proceedings of the Regenerate World Congress on Tissue Engineering and Regenerative Medicine, p444, 2006.
3. 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." CD-Rom, Proceedings of the Regenerate World Congress on Tissue Engineering and Regenerative Medicine, p515, 2006.
4. S.J. Bryant, A.J. Marshall, K.D. Hauch, B.D. Ratner. Tailoring the Architecture of Photopolymerized Porous pHEMA Scaffolds for Cardiac Tissue Engineering. CD-Rom, Proceedings of the 7th World Biomaterials Congress, 1pp, May 17-21, 2004.
5. M.A. Rice, P.J. 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. *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* (2004), 45(2), p11-12.
6. 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, C3/3, 2003.
7. K.S. Anseth, S.J. Bryant, P.J. Martens. In situ forming cell gel constructs: Monitoring gel degradation to control extracellular matrix evolution. *Polymeric Materials Science and Engineering*. 88: 245-246 (2003).
8. 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. *CD-Rom Proceedings of the IV World Congress on Biomechanics*, 1 pp, August 4-9, 2002.
9. 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. *CD-Rom 28th Annual Meeting Transactions of the Society for Biomaterial*, 1pp, April 2002.
10. S.J. Bryant, K.L. Durand, and K.S. Anseth. Degradation kinetics influence ECM production of photoencapsulated chondrocytes in PEG-based hydrogels. *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)*. 42(2):86-87 (2001).

11. S. Bryant and K. Anseth. Tailoring the Architecture of Degradable Photocrosslinkable Poly(ethylene oxide) hydrogels for tissue engineering cartilage. *27th Annual Meeting Transactions of the Society for Biomaterials*, p. 77, April 2001.
12. N. Luo, S. Bryant, and K. Anseth. Photopolymerizable PVA and chondroitin sulfate hydrogels for cartilage tissue engineering. *27th Annual Meeting Transactions of the Society for Biomaterials*, p. 327, April 2001.
13. S. Bryant and K. Anseth. *In vitro* formation of neocartilage in photocrosslinked poly(ethylene oxide) hydrogels. *CD-Rom Proceedings of the World Congress on Medical Physics and Biomedical Engineering*, 4 pp, July 23-28, 2000.
14. S. Bryant, C. Nuttelman, and K. Anseth. The effects of crosslinking density on cartilage formation in photocrosslinkable hydrogels. *Biomedical Sciences Instrumentation*. Instrument Society of America, Volume 35, P. Patterson (ed.), April 1999, pp. 309-14.
15. K. Anseth, J. Elisseeff, S. Bryant, R. Langer, M. Randolph, and M. Yaremchuk. *In situ* transdermal photopolymerization of hydrogels, *25th Annual Meeting Transactions of the Society for Biomaterials*, p. 249, April 1999.
16. F.W.F. Lee, S. Bryant, P. Todd and D. Kompala. Maximizing protein synthesis in high cell density perfusion bioreactors. *Proceedings of the 27th Annual Biochemical Engineering Symposium*. V. G. Murphy (ed.), September 1997, pp. 25-31.

PRESENTATIONS AT NATIONAL AND INTERNATIONAL CONFERENCES

1. 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. *Submitted*.
2. 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. *Submitted*.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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
9. 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.
 10. 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.
 11. 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.
 12. 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.
 13. 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.
 14. 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.
 15. 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.
 16. 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.
 17. S.J. Bryant. "Teaching Biomaterials." ASEE Summer School for Chemical Engineering Faculty. Pullman, WA. July 27-August 3, 2007.
 18. 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.
 19. 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.
 20. 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.
 21. 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.

22. 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.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. 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.
32. 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.
33. 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.
34. 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.
35. 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.
36. 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.

37. 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.
38. 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.
39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. 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.
47. 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.
48. 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.
49. 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.

50. 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.
51. 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.
52. 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.
53. 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.
54. 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.
55. 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.
56. 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.
57. 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.
58. 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.
59. C. Nuttelman, S. Bryant, K. Anseth," Poly(vinyl alcohol) hydrogels for the tissue engineering of cartilage," AIChE Meeting, Miami Beach, Florida, November 1998.
60. 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.
61. 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.
62. 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. "Biomechanical Regulation in Photopolymer Cell-Scaffolds for Cartilage Tissue Engineering," 24th Annual Research Day, Colorado Section: American Association for Dental Research, University of

Stephanie J. Bryant, Ph.D.

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

2. "Designer 3D Photopolymer Hydrogels for Tissue Engineering Application," Midwest Connective Tissue Workshop, Rush University Medical School, Chicago, IL December 14-15, 2007.
3. "Using Engineering Principles to Grow Living Tissues," Invited Seminar at Adams State College, Alamosa, CO.
4. "Cell encapsulation in biodegradable hydrogels," Advanced in Tissue Engineering 2007 15th Annual Short Course, Rice University, Houston, TX, August 15-18, 2007.
5. "Manipulations in photopolymerization kinetics to achieve patterned structures: Applications for tissue engineering." Photopolymerization Fundamentals 2007. Breckenridge, CO. June 24-27, 2007.
6. "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*).
7. "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.
8. "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.
9. "Mechanically loaded photopolymerized hydrogels for tissue engineering." National Institutes of Standards and Technology, Bethesda, MD September 13, 2006.
10. "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

Bioreactor to Mechanically Load Soft Material under Tension. University of Colorado Technology Transfer Office, Proof of Concept Grant, 5/1/08-1/1/09, \$25,000 (PI).

New Tools to Elucidate the Role of Intracellular Ca²⁺ in Mechanically Stimulated Cartilage Cells. CU Innovative Seed Grant Program, 7/1/08-6/30/09, \$43,500 (PI).

Mechanical Stimulation of Cells in Photopolymerized Gels. National Institutes of Health, K22 Career Transition Award, 9/05-8/09, \$500,000 (PI).

Novel Polymeric Supports for Cardiac Muscle Regeneration, American Health Assistance Foundation, National Heart Foundation, 4/06-3/07, \$25,000 (PI).

Electrochemical Measurement of Oxygen Consumption by Cardiomyocytes adhered to Tissue Engineering Scaffolds, CU-NIST Seed Grant, 6/06-5/07, \$50,000. (PI with NIST PI: Jeerage).

Tissue Engineering in the Classroom, University of Colorado Outreach Council, 9/06-8/07, \$5,000 (PI).

PROFESSIONAL SOCIETIES

American Institute of Chemical Engineers (AIChE)

Materials Research Society (MRS)

Society for Biomaterials (SFB)

Biomedical Engineering Society (BMES)

Stephanie J. Bryant, Ph.D.

CHAIR OF MEETINGS AND SYMPOSIA

1. Co-Chairperson of Session, "Cellular Functions in Tissue Engineering," Society for Biomaterials World Congress, Amsterdam, the Netherlands, May 28- June 1, 2008.
2. 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 Science Foundation. Served on 3 review panels (February 2007, January 2008, February 2008).
2. National Institutes of Health, National Heart Lung Blood Institute. Enabling Technologies for Regenerative Medicine, July 2007.

REVIEWER OF JOURNALS

Biomacromolecules

Journal of Biomechanics

Langmuir

Acta Biomaterialia

Annals of Biomedical Engineering

Tissue Engineering

Journal of Biomedical Materials Research

European Polymer Journal

COURSES TAUGHT

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

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

Fall 2006: CHEN 3210, *Chemical Engineering Heat Transfer*. 59 undergraduate students. (Instructor Rating: 5.4/6.0, Department Average Instructor Rating: 4.3/6.0)

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, Department Average Instructor Rating: 2.82/4.0).

Fall 2005: CHEN 3210, *Chemical Engineering Heat Transfer*. 52 undergraduate students. (Instructor Rating: 2.2/4.0, Department Average Instructor Rating: 2.86/4.0)

PAST AND PRESENT ADVISEES

Graduate Students Supervised:

Idalis Villanueva, January 2005-present, doctoral student (NASA Harriet Jenkins Graduate Fellow), "Tissue-engineering articular cartilage zones: Effect of cell signaling pathways in response to mechanical loading."

Garret Nicodemus, January 2005-present, doctoral student, "Mechanical conditioning of photopolymerized cell scaffolds for cartilage tissue engineering."

Stephanie LaNasa, January 2006-present, doctoral student (NSF Graduate Fellow), "Novel tissue engineering scaffolds for cardiac muscle tissue engineering."

Stephanie J. Bryant, Ph.D.

Aaron Lynn, August 2006-present, MD/PhD student, “Novel tissue engineering scaffolds: Enhancing integration through normal wound healing.”

Neven Steinmetz, January 2007-present, PhD student, “Mechanical conditioning of mesenchymal stem cells in tailored composite hydrogel scaffolds for treating osteochondral defects.”

Emily Hiers, May 2007-May 2008, M.S. (co-advised with Chris Bowman). “Modeling polymerization kinetics in the presence of cells.”

Nikki Bishop, January 2008-present, PhD student. “Development of an *In Vitro* Osteoarthritis from Synthetic Hydrogels.”

Graduate and MD Students Supervised (Independent Study, MD Research Rotation):

Aaron Lynn (UCHSC, Sum06), Steve Gingrich (MD Student, Penn State, Summer2007), Maliheh Shomali (ChemEng. F07).

Undergraduate Students Supervised (Independent Study, Senior Thesis, and Research) (23 total):

Hillary E. Davis (Sum05, REU student from Georgia Tech), Johnross Ford (Sept 2005-present, NIH/HHMI Scholar), Clark Bergnard (Jan 2006-May 2007), Kimberly Shiptet (Jan 2006-May 2007), Jenny Yang (Jan 2006-May 2006, May 2007-December 2007), 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-present), Holly Hughes (Jan 2007-present), Ke Liu (Summer 2007, Cornell University), Joy Dickensheets (Sum07, REU program), Andrea Cascio (Sum07, REU program), Rasheed Lawal (Sept 2007-May 2008, NIH/HHMI Scholar), Sara Gladen (Sept 2007-present, DLC Apprentice), Michael Holmberg (Sept 2007-May 2008), Jennifer Christensen (Sept 2007-May 2008), Kristen Potter (Oct 2007-May 2008, BURST fellow). Vien Nguyen (Jan 2008-present), Scott Byers (Jan 2008-present), James Prager (Jan 2008-present), Richard Fisher (Jan 2008-May 2008), Suzanne Giunta (Sum08, REU program).