

ALYSSA PANITCH  
University of California, Davis  
Biomedical Engineering  
Davis, CA 95616  
Tel: 530-754-3222

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Professional Preparation

Smith College, Northampton Massachusetts, Biochemistry, B.A. 1990  
University of Massachusetts, Amherst Massachusetts, Chemical Engineering, B.S. 1990  
University of Massachusetts, Amherst Massachusetts, Polymer Science and Engineering, Ph.D. 1997

Positions

1997-1999 Postdoctoral Research Associate, Materials and Biomedical Engineering, University of Zurich and Swiss Federal Institute of Technology  
1999-2005 Assistant Professor, Bioengineering, College of Engineering and Applied Science, Arizona State University  
2000-2006 Core Faculty, Molecular and Cellular Biology, College of Engineering and Applied Science, Arizona State University  
2002-2005 Assistant Professor Protein and Peptide Therapeutics – The Arizona Biodesign Institute  
2005-2006 Associate Professor, Bioengineering, Ira A. Fulton School of Engineering, Arizona State University  
2003-2006 CSO and COO of AzERx, Inc (acquired by Capstone Therapeutics)  
2006-2011 Associate Professor, Weldon School of Biomedical Engineering, Purdue University  
2007- 2017 CSO of Moerae Matrix, Inc.  
2009-2013 Associate Head, Weldon School of Biomedical Engineering, Purdue University  
2009-2011 Entrepreneur-in-Residence Burton D. Morgan center for Entrepreneurship  
2011-2013 Professor of Biomedical Engineering, Purdue University  
2013-2017 Leslie A. Geddes Professor in Biomedical Engineering, Purdue University  
2013-2019 Founder and Scientific Advisory Board Chair of Symic Bio  
2013-2016 Director in Deliberate Innovation for Life Science, Burton D. Morgan Center for Entrepreneurship, Purdue University.  
2015-2016 Vice Provost for Faculty Affairs, Purdue University (Jan. 2015 – June 2016)  
2016-2019 Professor and Chair, Department of Biomedical Engineering, University of California Davis  
2016-Present Edward Teller Professor, Department of Biomedical Engineering, University of California Davis  
2018-Present Editor, Colloids and Surfaces B: Biointerfaces  
2019-Present Executive Associate Dean and Associate Dean for Academic Personnel and Planning, College of Engineering, University of California Davis

## Honors

1997	Advisory Panel at NIH on Biomaterials and Tissue Engineering
2002	BMES student chapter Advisor of the year award at Arizona State University
2003	NSF CAREER award “Biomimetic Self-Assembling Hydrogels for Delivery of Bioactive Molecules”
2004	Invitation and Participation in Whitaker Leadership Development workshop
2005	ASU Exemplar for Promotion to Associate Professor with Tenure
2007	Faculty Service Award, Weldon School of Biomedical Engineering, Purdue
2007	Selected as a Member of Entrepreneurial Leadership Academy – Burton D. Morgan Center for Entrepreneurship
2008	Invitation to participate in National Academy of Engineering Frontiers in Education Meeting (Unable to participate)
2009	Purdue University Faculty Scholar
2011	Invitation to participation in Austen Bioinnovation Institute “Value Driven Engineering and US Global Competitiveness” Safe Haven Summit, Washington, D.C.
2011	Elected to the College of Fellow, American Institute for Medical and Biological Engineers
2012	Invitation to and participation in the NSF Biomaterials Workshop “Important Areas for Future Investment”
2012	Selected for the inaugural Drexel ELATE women in engineering leadership development program
2013	Invitation to and participation in the National Academy of Engineering: Educate to Innovation Workshop, Washington D.C. Oct. 2013
2014	Women in High Tech, Leading Lights Risk Taker Award
2014, 2015	Invitation and participation in Renaissance Weekend
2015	Fellow, Biomedical Engineering Society
2015	Fellow, National Academy of Inventors

## Professional Service outside of the University

2004	American Chemical Society Publication – Biomacromolecules – Editorial Advisory Board Member
2008	Member of the Biomaterials and Biointerfaces Study Section, NIH
2009	Chair of the MRS student awards committee
2010	Editorial Board for Biomatter
2013	Associate Editor, Cellular and Molecular Bioengineering, 2013
2013	Member, Membership Committee, Biomedical Engineering Society, 2013
2013	Biomaterials Track Chair, Biomedical Engineering Society Annual Meeting, 2014
2015	Member of the Awards Committee: AIMBE
2014-17	Chair of the Molecular and Cellular Engineering Fellows Selection Committee: AIMBE

- 2016-18 Vice President at Large, Board of Directors, American Institute of Medical and Biological Engineers
- 2017 Member of the Nominations Committee: AIMBE
- 2017-Present Advisory Board Member, Department of Biomedical Engineering, Vanderbilt University
- 2018-Present Secretary and Treasurer, Executive Committee, American Institute of Medical and Biological Engineers
- 2017-Present Editorial Advisory Board, Cellular and Molecular Bioengineering
- 2018-Present Editor, Journal of Colloids and Surfaces B: Biointerfaces
- 2019 TERMIS Panel on Negotiation tactics for Women

#### Scientific and Professional Societies

Biomedical Engineering Society

American Institute of Medical and Biological Engineers

National Academy of Inventors

#### Peer-reviewed publications.

1. A. Panitch, M.J. Fournier, T.L. Mason and D.A. Tirrell. Design and Assembly of Artificial Protein-Based Materials. *Journal of Biological Chemistry*. **18**, 1994: 283.
2. A. Panitch, K. Matsuki, E. Cantor, S.J. Cooper, E.D.T. Atkins, M.J. Fournier, T.L. Mason and D.A. Tirrell. Poly(L-alanyl-glycine): 'Multigram-Scale Biosynthesis, Crystallization, and Structural Analysis of Chain-Folded Lamella'. *Macromolecules*. **30**, 1997: 42-49.
3. A. Panitch, T. Yamaoka, M.J. Fournier, T.L. Mason, D.A. Tirrell. Design and Biosynthesis of Elastin-Like Artificial Extracellular Matrix Proteins Containing Periodically Spaced Fibronectin CS5 Domains. *Macromolecules*. **32**, 1999: 1701-1704.
4. T. Tamura, T. Yamaoka, S. Kunki, A. Panitch and D.A. Tirrell. Effects of Temperature and Pressure on the Aggregational Properties of an Engineered Elastin Model Peptide in Aqueous Solution. *Biomacromolecules*. **1**(4) 2000: 552-5.
5. S. Sakiyama-Elbert, A. Panitch and J.A. Hubbell. Development of Growth Factor Fusion Proteins for Cell-Triggered Drug Delivery. *FASEB J*. **15**(7), 2001: 1300-1302.
6. B.L. Seal\*, T. Otero\*, and A. Panitch. Polymeric Biomaterials for Tissue and Organ Regeneration. *Materials Science and Engineering R: Reports*. **43**(4-5), 2001: 147-230.
7. S. Halstenberg, A. Panitch, S. Rizzi, H. Hall, and J.A. Hubbell. Biologically Engineered Protein-graft-Poly(Ethylene Glycol) Hydrogels: A Cell-Adhesive and Plasmin-Degradable Biosynthetic Material for Tissue Repair, *Biomacromolecules*. **3**(4), 2002: 710-723.
8. C.R. Flynn, P. Komalavilas, D. Tessier, J. Thresher, E. Niederkofler, R.W. Nelson, A. Panitch, L. Joshi, C.M. Brophy. Transduction of Biologically Active Motifs of the Small Heat Shock Related Protein, HSP20, Leads to Relaxation of Vascular Smooth Muscle. *FASEB J*. **17**(10), 2003: 1358-60.
9. D. Tessier, P. Komalavilas, A. Panitch, L. Joshi, C.M. Brophy. The Small Heat Shock Protein, HSP20, is Dynamically Associated with the Actin Cross-linking Protein, Actinin. *Journal of Surgical Research*. **111**(1), 2003: 152-157.

10. B. Seal\*, A. Panitch. Physical Polymer Matrices Based on Affinity Interactions Between Peptides and Polysaccharides. *Biomacromolecules*. **4**(6), 2003: 1572-1582
11. B.A. Koeneman\*, K. Lee, A. Singh, J. He, G.B. Raupp, A. Panitch, D.G. Capco. An Ex Vivo Method for Evaluating the Biocompatibility of Neural Electrodes in Rat Brain Slice Cultures. *Journal of Neuroscience Methods*. **137**(2) 2004: 257-263.
12. D.J. Tessier, P. Komalavilas, B. Liu, C.K. Kent, J.S. Thresher, C.M. Dreiza\*, A. Panitch, L. Joshi, E. Furnish, W. Stone, R. Fowl, C.M. Brophy. Transduction of Peptide Analogs of the Small Heat Shock-related Protein HSP20 Inhibits Intimal Hyperplasia. *Journal of Vascular Surgery*. **40**(1), 2004: 206-214.
13. C. Dreiza\*, C. Brophy, P. Komalavilas, M. Pallero, J. Murphy-Ullrich, E. Furnish, L. Joshi, M. von Rechenberg, J. Ho, B. Richardson, N. Xu, Y. Zhen, J.M. Peltier, A. Panitch. Transducible Heat Shock Protein 20 (HSP20) Phosphopeptide Alters Cytoskeletal Dynamics. *FASEB J*. **19**(2) 2005: 261-3.
14. L.B. Lopes, C.M. Brophy, E. Furnish, C.R. Flynn, O. Sparks, P. Komalavilas, L. Joshi, A. Panitch, V.L.B. Bentley. Comparative Study of the Skin Penetration of Protein Transduction Domains and a Conjugated Protein. *Pharmaceutical Research*. **22**(5) 2005: 750-7.
15. B. Seal\* and A. Panitch, Physical Matrices Stabilized by Enzymatically Sensitive Covalent Crosslinks. *Acta Biomaterialia*. **2**(3) 2006: 241-251.
16. B. Seal\* and A. Panitch, Viscoelastic Behavior of Environmentally Sensitive Biomimetic Polymer Matrices. *Macromolecules*. **39**(6), 2006: 2268-2274.
17. E. Horn, M. Beaumont\*, A. Harvey\*, M. Preul and A. Panitch. Influence of Cross-Linked Hyaluronan Hydrogels on Neurite Outgrowth and Recovery from Spinal Cord Injury. *Journal of Neurosurgery-Spine*. **6**(2), 2007: 133-40
18. P. Stice, A. Gilletti, A. Panitch, J. Muthuswamy, Thin Microelectrodes Reduce GFAP Expression in the Implant Site in Rodent Somatosensory Cortex. *Journal of Neuroscience Methods*. *Journal of Neurological Engineering*. **4**, 2007: 42-53.
19. S. Padalkar, Y. Zhao, K. Stuart\*, A. Panitch, J. Rickus, L. Stanciu. Preparation of Biomolecule Gel Matrices for Electron Microscopy. *Ultramicroscopy*. **108**(4), 2007: 309-313.
20. L.B. Lopes, E. Furnish, P. Komalavilas, B.L. Seal\*, A. Panitch, M.V.L.B. Bentley, C.M. Brophy, Enhanced Skin Penetration of P20 Phosphopeptide using Protein Transduction Domains. *European Journal of Pharmaceutics and Biopharmaceutics*. **68**(2), 2008: 441-445.
21. K. Stuart\*, A. Panitch. Influence of Chondroitin Sulfate on Collagen Gel Structure and Mechanical Properties at Physiologically Relevant Levels. *Biopolymers*. **89**(10), 2008: 841-851.
22. K.J. Jeong\*, K. Butterfield\*, A. Panitch. A Novel Assay to Probe Heparin-peptide Interactions using Peptide Stabilized Gold Nanoparticles. *Langmuir*. **24**(16), 2008: 8794-8800.
23. J.E. Paderi\*, A. Panitch. Design of a Synthetic Collagen-Binding Peptidoglycan that Modulates Collagen Fibrillogenesis. *Biomacromolecules*. **9**(9), 2008: 2562-2566.
24. L.B. Lopes, E.J. Furnish, P. Komalavilas, C.R. Flynn, P. Ashby, A. Hansen, D.P. Ly, G.P. Yang, M.T. Longaker, A. Panitch, C.M. Brophy. Cell Permeant Peptide Analogues of the Small Heat Shock Protein, HSP20, Reduce TGF- $\beta$ 1-Induced CTGF

- Expression in Keloid Fibroblasts. *Investigative Dermatology*. **129**(3), 2009: 590-598. doi: 10.1038/jid.2008.264
25. R. Sistiabudi, J. Paderi\*, A. Panitch, A. Ivanisevic. Modification of Native Collagen with Cell-Adhesive Peptide to Promote RPE Cell Attachment on Bruch's Membrane. *Biotechnology and Bioengineering*. **102**(6), 2008: 1723-1729.
  26. K. Stuart\*, A. Panitch, Characterization of Gels Composed of Blends of Collagen I, Collagen III, and Chondroitin Sulfate. *Biomacromolecules*. **10**(1), 2009: 25-31.
  27. K.J. Jeong\*, A. Panitch. The Interplay between Covalent and Physical Interactions within Environment Sensitive Hydrogel. *Biomacromolecules*. **10**(5), 2009: 1090-1099.
  28. L. Lopes, C. Flynn, P. Komalavilas, A. Panitch, C.M. Brophy, B.L. Seal\*. Inhibition of HSP27 Phosphorylation by a Novel Cell-permeant MAPKAP Kinase 2 Inhibitor. *Biochemical and Biophysical Research Communications*. **382**(3), 2009: 535-539
  29. A. Ishwar\*, K.J. Jeong\*, A. Panitch, O. Akkus. Raman Spectroscopic Investigation of GAG-Peptide Interactions. *Applied Spectroscopy*. **63**(6), 2009: 636-641.
  30. J. Paderi\*, R. Sistiabudi, A. Ivanisevic, A. Panitch. Collagen-Binding Peptidoglycans: A Biomimetic Approach to Modulate Collagen Fibrillogenesis for Tissue Engineering Applications. *Tissue Engineering*. **15**(10), 2009: 2991-2999.
  31. B.C. Ward\*, B.L. Seal, C.M. Brophy, A. Panitch. Design of a Bioactive Cell-Penetrating, Peptide: When a Transduction Domain Does More Than Transduce. *J. Peptide Science*. **15**(10), 2009: 668-674 (NIHMSID 212825).
  32. A. Conovaloff\*, H-W. Wang, J. Cheng, A. Panitch. Imaging Growth of Neurites in Conditioned Hydrogel by Coherent Anti-Stokes Raman Scattering Microscopy. *Organogenesis*. **5**(4) 2009: 149-155.
  33. B.C. Ward\*, A. Panitch. Abdominal Adhesions: Current and Novel Therapies. *Journal of Surgical Research*. **165**(1), 2011: 91-111. DOI: 10.1016/j.jss.2009.09.015
  34. D.H. Eng\*, M. Caplan, M. Preul, A. Panitch. Hyaluronan Scaffolds - A Balance between Backbone Functionalization and Bioactivity. *Acta Biomaterialia*. **6**(7), 2010: 2407-2414.
  35. K.C. Butterfield\*, M. Caplan, A. Panitch. Identification and Sequence Composition Characterization of Chondroitin Sulfate-Binding Peptides through Peptide Array Screening. *Biochemistry*. **49**(7), 2010 1549-1555
  36. S. Chaterji\*, K. Park, A. Panitch. Scaffold-free In Vitro Arterial Mimetics: The Importance of Smooth Muscle-endothelium Contact. *Tissue Engineering*. **16**(6), 2010: 1901-1912.
  37. K.C. Butterfield\*, A. Conovaloff\*, A. Panitch. Chondroitin Sulfate-binding Peptides Block Chondroitin 6-sulfate Inhibition of Cortical Neurite Growth. *Neuroscience Letters*. **478**(2), 2010: 82-87.
  38. J. Brugnano\*, B.C. Ward\*, A. Panitch. Cell Penetrating Peptides Can Exert Biological Activity: A Review. *BioMolecular Concepts*. **1**(2), 2010: 109-116.
  39. L.B. Lopes, C. M. Brophy, C.R. Flynn, Z. Yi, B.P. Bowen, C. Smoke, B. Seal\*, A. Panitch, P. Komalavilas. A Novel Cell Permeant Peptide Inhibitor of MAPKAP Kinase II Inhibits Intimal Hyperplasia in a Human Saphenous Vein Organ Culture Model. *Journal of Vascular Surgery*. **52**(6), 2010: 1596-1607.
  40. B. Beier, K. Musick, A. Matsumoto, A. Panitch, E. Nauman, P. Irazoqui. Toward a Continuous Intravascular Glucose Monitoring System. *Sensors*. **11**(1), 2011: 409-424.

41. J.E. Paderi\*, K. Stuart\*, K. Park, M. Sturek, A. Panitch. The Inhibition of Platelet Adhesion and Activation on Collagen During Balloon Angioplasty by Collagen-binding Peptidoglycans. *Biomaterials*. **32**(10), 2011: 2516-2523.
42. B.C. Ward\*, S. Kavalukas, J. Brugnano\*, A. Barbul, A. Panitch. Peptide Inhibitors of MK2 Show Promise for Inhibition of Abdominal Adhesions. *J. Surg. Res.* **169**(1), 2011: e27-e36.
43. V. Kishore, J.E. Paderi\*, S. Beaudoin, A. Panitch, O. Akkus, Incorporation of a Decorin Biomimetic Enhances the Mechanical Properties of Electrochemically Aligned Collagen Threads. *Acta Biomaterialia*. **7**(6), 2011: 2428-2436.
44. J. Brugnano\*, B.L. Seal, A. Panitch, Cell-penetrating Peptides Can Confer Biological Function Regulation of Inflammatory Cytokines in Human Monocytes by MK2 Inhibitor Peptides. *Journal of Controlled Release*. **155**(2), 2011: 128-133.
45. K. O'Shaughnessey\*, A. Panitch, J. Woodell-May. Blood-derived Anti-inflammatory Protein Solution Blocks the Effect of IL-1 $\beta$  on Human Macrophages *in vitro*. *Inflammation Research*. **60**(10), 2011: 929-936. doi:10.1007/s00011-011-0353-2
46. K. Stuart\*, J.E. Paderi\*, P. Snyder, L. Freeman, A. Panitch. Collagen-Binding Peptidoglycans Inhibit MMP Mediated Collagen Degradation and Reduce Dermal Scarring. *PLoS ONE*. **6**(7), 2011: 10.1371/journal.pone.0022139.
47. A. Conovaloff\*, A. Panitch. Characterization of a Chondroitin Sulfate Hydrogel for Nerve Root Regeneration. *Journal of Neural Engineering*. **8**, 2011: 056003.
48. C.M. Rupert Perez\*, A. Panitch, J. Chmielewski. A Collagen Peptide-based Physical Hydrogel for Cell Encapsulation. *Macromolecular Biosciences*. **11**(10), 2011: 1426-1431.
49. A. Conovaloff\*, A. Panitch. Effects of a Synthetic Bioactive Peptide on Neurite Growth and Nerve Growth Factor Release in Chondroitin Sulfate Hydrogels. *Biomatter*. **1**(2), 2011: 165-173.
50. A. Muto, A. Panitch, N. Kim\*, K. Park, P. Komalavilas, C.M. Brophy, A. Dardik. Inhibition of Mitogen Activated Protein Kinase Activated Protein Kinase II with MMI-0100 Reduces Intimal Hyperplasia *ex vivo* and *in vivo*. *Vascular Pharmacology*. **56**(1-2), 2011: 47-55.
51. K. Butterfield\*, A. Conovaloff\*, A. Panitch. Development of Affinity-based Delivery of NGF from a Chondroitin Sulfate Biomaterial. *Biomatter*. **1**(2), 2011: 174-181.
52. J.C. Bernhard\*, A. Panitch. Synthesis and Characterization of an Aggrecan Mimic. *Acta Biomaterialia*. **8**(4), 2012:1543-1550.
53. R.L. Bartlett II\*, M.R. Medow\*, A. Panitch, B. Seal. Hemocompatible Poly(NIPam-MBA-AMPS) Colloidal Nanoparticles as Carriers of Anti-inflammatory Cell Penetrating Peptides. *Biomacromolecules*. **13**(4), 2012:1204-1211.
54. A. Hicks\*, M. Caplan, A. Panitch, J. Sweeney. An Incubatable Direct Current Stimulation System for In Vitro Studies of Mammalian Cells. *BioResearch Open Access*. **1**(4), 2012:199-203.
55. R. Bartlett\*, A. Panitch. Thermosensitive Nanoparticles with pH Triggered Degradation and Release of Anti-inflammatory Cell Penetrating-peptides. *Biomacromolecules*. **13**(8), 2012: 2578-2584.
56. S. Sharma\*, A. Panitch, C.P. Neu. Incorporation of an Aggrecan Mimic Prevents Proteolytic Degradation of Anisotropic Cartilage Analogs. *Acta Biomaterialia*. **9**(1), 2013: 4618-4625.

57. R. Bartlett\*, S. Sharma\*, A. Panitch. Cell Penetrating Peptides Released from Thermosensitive Nanoparticles Suppress Pro-inflammatory Cytokine Response by Specifically Targeting Inflamed Cartilage Explants. *Nanomedicine: Nanotechnology, Biology, and Medicine*, 9(3), 2012: 419-427.
58. A. Kosinski\*, J. Brugnano\*, F. Knight\*, B. Seal, A. Panitch. Synthesis and Characterization of a Poly(lactic-co-glycolic acid) Core + Poly(N-isopropylacrylamide) Shell Nanoparticle System. *Biomatter*, 2(4), 2012: 195-201.
59. R.A. Scott\*, K. Park, A. Panitch. Water Soluble Polymer Films for Intravascular Drug Delivery of Antithrombotic Biomolecules. *European Journal of Pharmaceutics and Biopharmaceutics*, 84(1), 2013: 125-131.
60. R. Vittal, A. Fisher, H. Gu, E.A. Mickler, A. Panitch, C. Lander, O.W. Cummings, D.S. Wilkes, MAPKAPK2 inhibition with MMI-0100 protects against established bleomycin-induced pulmonary fibrosis in mice, *American Journal of Respiratory Cell and Molecular Biology*, 48(1), 2013: 47-57.
61. R.A. Scott and A. Panitch, Glycosaminoglycans in Biomedicine, *WIREs Nanomedicine & Nanobiotechnology*, 5(1) 2013: 388-398.
62. S. Sharma, A. Lee, K. Choi, K. Kim, I. Youn, and A. Panitch, Biomimetic aggrecan reduces cartilage extracellular matrix from degradation and lowers catabolic activity in ex vivo and in vivo models *Macromolecular Bioscience*, 13(9) 2013: 1228-1237.
63. J.L. Brugnano\*, J. McMasters\*, and A. Panitch, Characterization of Endocytic uptake of MK2-Inhibitor Peptides, *Journal of Peptide Science*, 19(10), 2013:629-638.
64. R.A. Scott\*, J.E. Paderi\*, M. Sturek, and A. Panitch, Decorin mimic inhibits vascular smooth muscle proliferation and migration, *PLoS One*, 8(11), 2013:e82456.
65. J. Brugnano\* and A. Panitch, Matrix Stiffness affects endocytic uptake of MK2-inhibitor peptides, *PLoS One*, 9(1), 2014:e84821.
66. M. Mohamed, M Hamed, A Panitch, and M Seleem, Targeting methicillin-resistant *Staphylococcus aureus* with short salt-resistant synthetic peptides, *Antimicrobial Agents & Chemotherapy*, 58(7), 2014:4113-4122.
67. R. Scott and A. Panitch Decorin Mimic Regulates Platelet-Derived Growth Factor and Interferon- $\gamma$  Stimulation of Vascular Smooth Muscle Cells, *Biomacromolecules*, 15(6), 2014:2090-2103.
68. R. Scott and A. Panitch, Macromolecular Approaches to Prevent Thrombosis and Intimal Hyperplasia Following Percutaneous Coronary Intervention, *Biomacromolecules*, 15(8), 2014:2825-2832.
69. Q. Zhang, B. Filas, R. Roth, J. Heuser, N. Ma, S. Sharma, A. Panitch, D.C. Beebe, Y. Shui, Preservation of the structure of enzymatically-degraded bovine vitreous using synthetic proteoglycan mimics, *Investigative Ophthalmology & visual science*, 55(12), 2014:8153-8162.
70. A. Kosinski, J. Pothen, A. Panitch and P. Sivsankar, Dexamethasone Controlled Release on TGF- $\beta$ 1 Treated Vocal Fold Fibroblasts, *Annals of Otology, Rhinology & Laryngology*, 124(7), 2015:572-578.
71. S. Poh, J.B. Lin, and A. Panitch, Release of Anti-inflammatory peptides from thermosensitive nanoparticles with degradable cross-links suppresses pro-inflammatory cytokine production, *Biomacromolecules*, 16(4), 2015:1191-1200.

72. A.M. Kosinski, M.P. Sivasankar, and A. Panitch, Varying RGD concentration and cell phenotype alters the expression of extracellular matrix genes in vocal fold fibrosis, *Journal of Biomedical Materials Research part A*, 103(9), 2015:3094-3100.
73. N. Vazquez-Portalatin, GJ Breur, A Panitch and CJ Goergen, Accuracy of ultrasound-guided intra-articular injections in guinea pig knees, *Bone and Joint Research*, 4(1), 2015:1-5.
74. R.S. Scott, A. Ramaswamy, K. Park and A. Panitch, Decorin mimic promotes endothelial cell health in endothelial monolayers and endothelial-smooth muscle co-cultures, *Journal of Tissue Engineering and Regenerative Medicine*, 11(5), 2017:1365-76.
75. J.R. Wodicka, N.I. Onunkwo, A.J. Wooley, A. Panitch and K.J. Otto, A cell penetrating peptide for inhibition of MAPKAP kinase 2-mediated inflammatory cytokine release following glial cell activation. *World Journal of Neuroscience*, 5(02), 2015:115.
76. J. McMasters and A. Panitch, Prevention of collagen induced platelet binding and activation by thermosensitive nanoparticles. *The American Association of Pharmaceutical Scientists Journal*, 17(5), 2015:1117-1125.
77. A. Lawrence, X. Xu, M.D. Bible, S. Calve, C.P. Neu, and A. Panitch, Synthesis and characterization of a lubricin mimic (9mLub) to reduce friction and adhesion on the articular cartilage surface, *Biomaterials*, 73, 2015:42-50.
78. M. Preul, S. Kushchaye, M.B. Giers, D. Eng, N.L. Martirosyan, J.M. Eschbacher, M.M. Mortazavi, N. Theodore, and Panitch A. Hyaluronic acid scaffold has neuroprotective effect in hemisection spinal cord injury. *Journal of Neurosurgery: Spine*, 2016:1-11.
79. JB Lin, S. Poh and A. Panitch, Controlled Release of Anti-Inflammatory Peptides from Reducible Thermosensitive Nanoparticles Suppresses Cartilage Inflammation *Nanomedicine: Nanotechnology, Biology, and Medicine*, 12(7), 2016:2095-2100.
80. S. Sharma, N. Vazquez-Portalatin, S. Calve, and A. Panitch, 2016. Biomimetic molecules lower catabolic expression and prevent chondroitin sulfate degradation in an osteoarthritic ex vivo model. *ACS biomaterials science & engineering*, 2(2), 2016:241-250.
81. N. Vazquez-Portalatin, CE Kilmer, A Panitch, and JC Liu, Characterization of collagen type I and II blended hydrogels for articular cartilage tissue engineering, *Biomacromolecules*, 17(10), 2016:3145-3152.
82. T. Walimbe, A Panitch, and SM Sivasankar, An in vitro scaffold-free epithelial-fibroblast coculture model for the larynx. *Laryngoscope*, 127(6), 2017:E185-E192.
83. T. Walimbe, A Panitch, and SM Sivasankar, A review of Hyaluronic Acid and Hyaluronic Acid Based Hydrogels for Vocal Fold Tissue Engineering, *Journal of Voice*, 31(4), 2017:416-423
84. J. McMasters and A. Panitch, Collagen-Binding Nanoparticles for Extracellular Anti-Inflammatory Peptide Delivery Decrease Platelet Activation, Promote Endothelial Migration, and Suppress Inflammation, 2016 *Acta Biomaterialia*, 49, 2017:78-88.
85. J. McMasters Poh S, Lin JB, Panitch A. Delivery of anti-inflammatory peptides from hollow PEGylated poly(NIPAM) nanoparticles reduces inflammation in an ex vivo osteoarthritis model. *J Control Release*. 258, 2017:161-170.

86. JR. Wodicka, Chambers AM, Sangha GS, Goergen CJ, Panitch A. Development of a Glycosaminoglycan Derived, Selectin Targeting Anti-Adhesive Coating to Treat Endothelial Cell Dysfunction. *Pharmaceuticals (Basel)*;10(2), 2017:E36.
87. A. Alfonso-Garcia, Shklover, J. Sherlock, B. Panitch, A. Griffiths, L.G. and Marcu, L. Fiber-based fluorescence lifetime imaging of recellularization processes on vascular tissue constructs. *J. Biophotonics*, 11(9), 2018
88. J. Paderi, G.D. Prestwich, A. Panitch, T. Boone, K. Stuart, Glycan Therapeutics: Resurrecting an Almost Pharma-Forgotten Drug Class, *Advanced Therapeutics*, 1(8), 2018:1870024
89. J.R. Wodicka, V.A. Morikis, T. Dehghani, S.I. Simon, A. Panitch, Selectin-targeting peptide-glycosaminoglycan conjugates modulate neutrophil-endothelial interactions, *Journal of Cellular and Molecule Engineering*, 12(1), 2019:121-130.
90. J.M. Silva, A. Panitch, S. Calve, Functionalization of hyaluronic acid hydrogels with ECM-derived peptides to control myoblast behavior, *Acta Biomaterialia*, 84, 2019:169-179
91. PA Williams, Braine, CE. Kizhatil, K. Foxworth, NE. Tolman, NG. Harder, JM. Scott, RA. Sousa, GL. Panitch, A. Howell, GR. and John, SWM. Inhibition of monocyte-like cell extravasation protects from neurodegeneration in DBA/2J glaucoma, *Molecular Neurodegeneration*, 14(1), 2019
92. T. Walimbe, S. Calve, M.P. Sivasankar, and A. Panitch, Incorporation of Types I and III Collagen in Tunable Hyaluronan Hydrogels for Vocal Fold Tissue Engineering, *Acta Biomaterialia*, 87, 2019:97-107
93. J. Shklover, J. McMasters, A. Alfonso-Garcia, M.L. Higuaita, A. Panitch, L. Marcu, L. Griffiths, Bovine Pericardial Extracellular Matrix Niche Modulates Human Aortic Endothelial Cell Phenotype and Function, *Scientific Reports* 9(1), 2019:1-12
94. C. Li, A. Alfonso-Garcia, J. McMasters, J. Bec, B. Weyers, L. Uyesaka, L. Griffiths, A. Panitch, L. Marcu, Simultaneous Intralimbal Imaging of Tissue Autofluorescence and eGFP-labeled Cells in Engineering Vascular Grafts Inside a Bioreactor, *Methods and Applications in Fluorescence* 7(4), 2019:044003
95. T. Walimbe and A. Panitch, Proteoglycans in Biomedicine: Resurgence of an Underexploited Class of ECM Molecules, *Frontiers in Pharmacology*, 2019 In Press.
96. C. Twitchell, T. Walimbe, J.C. Liu, and A. Panitch, Peptide-Modified Chondroitin Sulfate Reduces Coefficient of Friction at Articular Cartilage Surfaces. *Current Research In Biotechnology*, In Press

#### National Conference Proceedings Reviewed Papers

1. B.L. Seal\* and A. Panitch *Mat. Res. Soc. Symp. Proc.* 2002. Biologically-Based Self-Assembling Hydrogels, 274:N.3.2.1
2. J. Sweeney, A. Panitch and H. Cullen\* *ASEE*, 2004. Design and Implementation of an Introductory Bioengineering Course, in press

#### National Conference Proceedings Reviewed Abstracts and Presentations

1. Design and Assembly of Artificial Protein-Based Materials, (with M.J. Fournier, T.L. Mason and D.A. Tirrell), *J. Cell Biochem*, 18C, 283, 1994.
2. New Macromolecular Architectures for Control of Cell and Tissue Behavior (Alyssa Panitch), *Abstr. Pap. Am. Chem. Soc.*, 217, U490, 1999.
3. Design and Assembly of Artificial Protein-Based Materials (Alyssa Panitch), *Keystone Conference on Tissue Engineering*, Taos, NM, Feb. 1994.
4. Elastomeric Proteins for Use in Vascular Reconstruction (Alyssa Panitch), *Keystone Conference on Tissue Engineering*, Taos, NM, Feb. 1996.

5. Artificial Extracellular Matrix Proteins for Vascular Reconstruction (Alyssa Panitch), Gordon Conference on Biomaterials, Plymouth, NH, July 1997.
6. Artificial Extracellular Matrix Proteins for Vascular Reconstruction, Department Werkstof (Alyssa Panitch), ETHZ, Zurich, Switzerland, Jan. 1998.
7. Artificial Protein-co-Polyethylene Glycol Scaffolds for Tissue Regeneration (Alyssa Panitch), Materials Day, ETHZ, Zurich, Switzerland, Sept. 1998.
8. Artificial Protein-co-Polyethylene Glycol Scaffolds for Tissue Regeneration (Alyssa Panitch), European Biomaterials Society Annual Meeting, Den Haag, The Netherlands, Oct. 1998.
9. Development of Growth Factor Fusion Proteins for Cell-Triggered Drug Delivery (Sven Halstenberg), Biomaterials World Congress, Waikoloa, HI, May 2000.
10. Polyethylene Glycol-co-Artificial Fibrin Mimic Hydrogels for Nerve Regeneration (Shelly Sakiyama-Elbert), Biomaterials World Congress, Waikoloa, HI, May 2000.
11. Development of Growth Factor Fusion Proteins for Cell-Triggered Drug Delivery (Shelly Sakiyama-Elbert), American Institute for Chemical Engineers, Los Angeles, CA, Nov. 2000.
12. Artificial Extracellular Matrices with Controlled Mechanical Properties and Degradation Rates (Tinna Otero), Biomedical Engineering Society Annual Meeting, Durham, NC, Oct. 2001.
13. Engineering the Properties of Fibrinogen (Brandon Seal), Biomedical Engineering Society Annual Meeting, Durham, NC, Oct. 2001.
14. Improving the Interface between Electrodes and the Brain (Michael Beaumont), Biomedical Engineering Society Annual Meeting, Durham, NC, Oct. 2001.
15. Artificial Extracellular Matrices with Controlled Mechanical Properties and Degradation Rates (Tinna Otero), Society for Biomaterial Annual Meeting, Tampa, FL, Apr. 2001.
16. Engineering the Properties of Fibrinogen (Brandon Seal), Society for Biomaterial Annual Meeting, Tampa, FL, Apr. 2001.
17. Improving the Interface between Electrodes and the Brain (Michael Beaumont), Society for Biomaterial Annual Meeting, Tampa, FL, Apr. 2001.
18. Improving the Interface between Electrodes and the Brain (Michael Beaumont), Gordon Research Conference on Biomaterials and Tissue Engineering, Holderness, NH, July 2001.
19. Improving the Interface between Electrodes and the Brain (Michael Beaumont), DARPA, PI meeting, San Francisco, CA, Oct. 2001.
20. Biologically-Based Self-Assembling Hydrogels (Brandon Seal), Materials Research Society Spring Meeting, San Francisco, CA, May 2002.
21. Biologically-Based Self-Assembling Hydrogels for Drug Delivery (Brandon Seal), Gordon Research Conference on Signaling by Engineered Extracellular Matrices, New London, CT, 2002.
22. Artificial Extracellular Matrices with Controlled Mechanical Properties and Degradation Rates (Tinna Otero), American Institute for Chemical Engineers, Indianapolis, IN, 2002.
23. Tissue Engineering Tutorial (Alyssa Panitch), Materials Research Society, San Francisco, CA, 2003.

24. Transduction of Biomimetic Peptides Leads to Changes in the Actin Cytoskeleton of 3T3 Cells (Catherine Parmiter), FASEB Meeting, 2003.
25. Polysaccharide-Based Self-Assembling Hydrogels for Drug Delivery (Brandon Seal), Controlled Release Society, Salt Lake City, UT, 2003.
26. Polysaccharide-based Self-assembling Hydrogels (Brandon Seal), Materials Research Society, San Francisco, CA, 2003.
27. Polysaccharide-based Self-assembling Hydrogels (Brandon Seal), Society for Biomaterials, Reno, NV, 2003.
28. Self-assembling Physical Polymer Matrices based on Affinity Interactions between Peptides and Polysaccharides (Brandon Seal), Gordon Research Conference on Biomaterials, Plymouth, NH, 2003.
29. A Biomimetic Peptide-based Anticoagulant (Aaron Conovaloff). Biomedical Engineering Society, Nashville, TN, 2003.
30. Self-assembling Physical Polymer Matrices based on Affinity Interactions between Peptides and Polysaccharides (Brandon Seal), Materials Research Society, Boston, MA, 2003.
31. A Bioactive, Hyaluronic Acid-Based Biomaterial System for Neural Tissue Engineering (Michael Beaumont), Biomedical Engineering Society, Nashville, TN, 2003.
32. A Bioactive, Hyaluronic Acid-Based Biomaterial System for Neural Tissue Engineering (Michael Beaumont), Gordon Research Conference on Biomaterials, Plymouth, NH, 2003.
33. A Bioactive, Hyaluronic Acid-Based Biomaterial System for Neural Tissue Engineering (Michael Beaumont), DARPA: Bio:Micro:Info PI meeting, San Francisco, CA, 2003.
34. A Bioactive, Hyaluronic Acid-Based Biomaterial System for Neural Tissue Engineering (Michael Beaumont), Society for Neuroscience, New Orleans, LA, 2003.
35. A Bioactive, Hyaluronic Acid-Based Biomaterial System for Neural Tissue Engineering (Michael Beaumont), Materials Research Society, Boston, MA, 2003.
36. Improved Viability of Chronic Neural Implants Using Thin Microelectrodes (Paula Stice), 25th Annual International Conference of IEEE in Medicine and Biology Society, Cancun, Mexico, 2003.
37. Physical Polymer Matrices Based on Biological Affinity Interactions (Brandon Seal), Gordon Research Conference on Signal Transduction in Engineered Extracellular Matrices, Lewiston, ME, 2004.
38. A Hyaluronic Acid-Based Biomaterial System for the Enhancement of Neurite Outgrowth (Michael Beaumont), Gordon Research Conference on Signal Transduction in Engineered Extracellular Matrices, Lewiston, ME, 2004.
39. Design and Implementation of an Introductory Bioengineering Course (James Sweeney), ASEE Annual Conference, Salt Lake City, UT, 2004.
40. Skin Penetration of a FITC Labeled Protein Transduction Domain (F-PTD) with Monoolein as a Chemical Penetration Enhancer (Luciana Lopes), Controlled Release Society Annual Meeting, Hawaii, 2004.
41. Biomimetic Self-assembling Hydrogels for Tissue Engineering Applications (Alyssa Panitch), THERMEC, Madrid, Spain, 2004.

42. A Novel PEG Hydrogel for Spinal Nerve Guidance and Regeneration (Conovaloff), Biomedical Engineering Society Annual Meeting, Los Angeles, CA, 2007.
43. Use of a Novel MAPKAP-K2 Inhibitor Peptide In Abdominal Adhesion Prevention (Ward), Biomedical Engineering Society Annual Meeting, Los Angeles, CA, 2007.
44. The Effect of a Novel MK2 Inhibitor Peptide on Human Fibroblast Cell Proliferation and Migration (Datta), Biomedical Engineering Society Annual Meeting, Los Angeles, CA, 2007.
45. A Novel Colorimetric Assay for Probing Heparin-Peptide Interactions Using Gold Nanoparticles (Jeong), Biomedical Engineering Society Annual Meeting, Los Angeles, CA, 2007.
46. Polymer Synthesis Based on Chondroitin Sulfate Peptide Interactions for Vascular Tissue Engineering: The Effect of a Novel MK2 Inhibitor Peptide on Human Fibroblast Cell Proliferation and Migration (Chao-Butterfield), Biomedical Engineering Society Annual Meeting, Los Angeles, CA, 2007.
47. Extracellular Matrix Materials to Control SMC Phenotype (Stuart), Biomedical Engineering Society Annual Meeting, Los Angeles, CA, 2007.
48. Hyaluronic Acid Scaffolds for Spinal Cord Repair (Hom), Biomedical Engineering Society Annual Meeting, Los Angeles, CA, 2007.
49. Reduction of Heat Shock Protein 27 Phosphorylation Inhibits the Development of Intimal Hyperplasia (Komalavilas), Experimental Biology, San Diego, CA, Apr. 2008.
50. Use of a Synthetic Peptide-Based Inhibitor of MK2 to Prevent Abdominal Adhesions (Ward), Biomedical Engineering Society Annual Meeting, St. Louis, MO, 2008.
51. Identification and Compositional Characterization of Chondroitin Sulfate-Binding Peptides through Peptide Array Screening (K. Butterfield), Biomedical Engineering Society Annual Meeting, St. Louis, MO, 2008.
52. Interactions of Types I and III Collagen with CS Affect Material Properties and SMC Phenotype (Stuart), Biomedical Engineering Society Annual Meeting, St. Louis, MO, 2008.
53. Design of Synthetic Proteoglycan Mimics (J. Paderi), Biomedical Engineering Society Annual Meeting, St. Louis, MO, 2008.
54. A Novel PEG Hydrogel for Spinal Nerve Regeneration and Guidance (Conovaloff) Biomedical Engineering Society Annual Meeting, St. Louis, MO, 2008.
55. Design of a Hyaluronan-Based Scaffold for Spinal Cord Regeneration (Hom), Biomedical Engineering Society Annual Meeting, St. Louis, MO, 2008.
56. Effects of Electrical Stimulation on Mammalian Cortical Neurons in Vitro (Hicks), Biomedical Engineering Society Annual Meeting, St. Louis, MO, 2008.
57. Proteoglycan Mimics Influence Collagen Assembly and Smooth Muscle Cell Function (S. Higbee), Society for Biomaterials, San Antonio, TX, 2009.
58. Smooth Muscle Cell Phenotypic Modulation and Higher Endothelial Cell Adhesion in a Direct Co-Culture Model (Chaterji), Society for Biomaterials, San Antonio, TX, 2009.
59. Effect of a MK2 Inhibitor Peptide on Adhesion Formation and Colonic Anastomotic Healing (Kavalukas), American College of Surgeons, Chicago, IL, 2009.
60. Chondroitin Sulfate-binding Peptides for Treatment of Spinal Cord Injury (Butterfield), Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, 2009.

61. Collagen-Binding Synthetic Peptidoglycans: A New Therapeutic to Prevent Early Stage Thrombosis (Stuart), Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, 2009.
62. A Novel Chondroitin Sulfate Hydrogel for Nerve Repair (Conovaloff), Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, 2009.
63. Collagen-Binding Synthetic Peptidoglycans: A New Therapeutic to Prevent Dermal Scarring (Paderi), Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, 2009.
64. Bioinspired Collagen-Binding Peptidoglycans – Designing Key Tissue Ingredients for Tissue Engineering (Paderi, Stuart), Biomedical Engineering Society, Austin, TX, 2010.
65. Collagen-Binding Peptidoglycan's Influence on Fibrillogenesis and Mechanics (Ramaswamy), Biomedical Engineering Society, Austin, TX, 2010.
66. Improved Safety and Efficacy of Balloon Angioplasty Procedures Using Collagen-Binding Peptidoglycans (Paderi, Stuart), Biomedical Engineering Society, Austin, TX, 2010.
67. Preventing Inflammation and Thrombosis Following Angioplasty by Transient Vessel Masking (Paderi, Stuart), Zing Cardiovascular Conference, Puerto Morelos, Mexico, 2010.
68. Novel Collagen-Binding Peptidoglycan for Transient Vessel Masking After Angioplasty. (Paderi, Stuart), Academic Surgical Congress, Huntington Beach, CA, 2011.
69. Using Problem-Based Learning to Enhance Experimental Design Skills in a Biotransport Laboratory. (Poole), Biomedical Engineering Society, Hartford, CT, 2011.
70. Characterizing Intracellular Delivery of an MK2 Inhibitor Using Cell Penetrating Peptides (Brugnano), Biomedical Engineering Society, Hartford, CT, 2011.
71. Development of a Thermoresponsive Core-Shell Nanoparticle System for Targeted Drug Delivery (Knight), Biomedical Engineering Society, Hartford, CT, 2011.
72. Using Peptides to Engineer Bioactive Implants that Facilitate Vocal Fold Regeneration (Kosinski), Biomaterials Day, Sponsored by the Society for Biomaterials, West Lafayette, IN, 2011.
73. Development of Fast-Dissolving Polymer Films for Drug Release from Balloon Catheters (Scott), Biomaterials Day, Sponsored by the Society for Biomaterials, West Lafayette, IN, 2011.
74. Influence of Collagen-Binding Peptidoglycans on Fibrillogenesis and Mechanics (Ramaswamy), Biomaterials Day, Sponsored by the Society for Biomaterials, West Lafayette, IN, 2011.
75. Development of Core-Shell Nanoparticle System for Targeted Drug Delivery (Knight), Biomaterials Day, Sponsored by the Society for Biomaterials, West Lafayette, IN, 2011.
76. Intracellular Drug Delivery of an NK2 Inhibitor Using Cell-Penetrating Peptides (Brugnano), Biomaterials Day, Sponsored by the Society for Biomaterials, West Lafayette, IN, 2011.

77. Optimization of the Mechanical and Cellular Properties of Electrochemically Aligned Collagen Threads (Uquillas), Biomaterials Day, Sponsored by the Society for Biomaterials, West Lafayette, IN, 2011.
78. Thermoresponsive Collagen Peptide-Based Hydrogel for Three-Dimensional Cell Culture (Perez), Biomaterials Day, Sponsored by the Society for Biomaterials, West Lafayette, IN, 2011.
79. Aggrecan Mimic Incorporation in an Aligned Collagen Gel Resists Proteolysis (Sharma), Society of Biomaterials Symposium, New Orleans, LA, Oct. 2012.
80. Biomimetic Aggrecan Prevent Cartilage Matrix Degradation in Early Stage Osteoarthritic Models (Sharma), Gordon Research Conference, Andover, NH, Aug. 2012.
81. Characterization of Fast-Dissolving Polymer Films for Therapeutic Release (Scott), Society of Biomaterials Symposium, New Orleans, LA, Oct. 2012.
82. Utilization of a Scaffold-Free In Vitro Smooth Muscle-Endothelial Coculture to Evaluate Cardiovascular Therapeutics (Ramaswamy), Society of Biomaterials Symposium, New Orleans, LA, Oct. 2012.
83. Targeted Thermoresponsive Nanoparticles for Treatment of Atherosclerotic Vascular Disease (McMasters), Society of Biomaterials Symposium, New Orleans, LA, Oct. 2012.
84. Characterization of a Dynamic Poly(lactic-co-glycolic acid) Core + Poly (N-isopropylacrylamide) Shell Nanoparticle System for Targeted Drug Delivery Applications (Kosinski), Society of Biomaterials Symposium, New Orleans, LA, Oct. 2012.
85. Poster: Targeted Thermoresponsive Nanoparticles for Treatment of Atherosclerotic Vascular Disease (J. McMasters), Biomaterials Day, Sponsored by the Society for Biomaterials, Cleveland, OH, 2013.
86. Poster: Characterization of a Dynamic PLGA Core + pNIPAM Shell Nanoparticle System for Targeted Drug Delivery Applications. (Kosinski), Case Western Reserve University 5th Annual Society for Biomaterials Day, Cleveland, OH, October 2013.
87. Poster: Design of a Drug Delivery System to Treat Cardiovascular Disease (J. McMasters), Next Generation Scholars Research Fair, Sponsored by Purdue Graduate Student Government, West Lafayette, IN 2013.
88. Poster: Biomimetic Peptidoglycan Lowers Friction Levels in Osteoarthritic Articular Cartilage (Vázquez-Portalatín), BMES Annual Meeting, Seattle, WA, 2013.
89. Poster: Biomimetic Peptidoglycan Lowers Friction Levels in Osteoarthritic Articular Cartilage (Vázquez-Portalatín), Biomaterials Day, Sponsored by the Society for Biomaterials, Cleveland, OH, 2013.
90. Oral Presentation: Development of Localized Antithrombotics for the Treatment of Restenosis (R. Scott), Biomaterials Day, Sponsored by the Society for Biomaterials, Cleveland, OH, 2013.
91. Poster: Impact of Pheonotype & RGD on the Expression of Critical Extracellular Matrix Genes in Vacal Fold Fibroblasts (A. Kosinski, A. Panitch, M.P. Sivasankar), Orlando, FL. April 14, 2013.
92. Poster: Characterization of a Dynamic PLGA Core + pNIPAM Shell Nanoparticle System for Targeted Drug Delivery Applications. (Kosinski), 2013 Spring Reception

for the Office of Interdisciplinary Graduate Programs, West Lafayette, IN, April 2013.

93. Poster: Decorin Mimic Modulates Vascular Smooth Muscle Cell Proliferation and Migration (R. Scott), BMES, Seattle, WA, 2013.
94. Poster: Characterization and Delivery of Antithrombotics for the Treatment of Restenosis (R. Scott), Gordon Research Conference: Biomaterials and Tissue Engineering, Holderness, NH, 2013.
95. Oral: Development of an Aggrecan Mimic to Suppress Disease Progression in Osteoarthritis (A. Panitch), BMJD, Brussels, Belgium, 2013
96. Poster: Development of an Aggrecan Mimic to Suppress Disease Progression in Osteoarthritis (K. Stuart), Osteoarthritis Research Society, International, Paris, France, 2014.
97. Poster: Decorin Mimic Inhibits PDGF-Stimulated Smooth Muscle Cell Proliferation and Migration (R. Scott), Society for Biomaterials, Denver, CO, 2014
98. Poster: Development of a Compliant Cell Culture System for Improved Correlation Between *in vivo* and *in vitro* Testing (J. McMasters), Society for Biomaterials, Denver, CO, 2014
99. Suppression of Osteoarthritis via Molecular Engineering of an Aggrecan Mimetic (A. Panitch), Biomedical Engineering Society Annual Meeting, San Antonio, TX, 2014.
100. (Oral) A Mechanistic Investigation of How a Decorin Mimic Controls Intimal Hyperplasia (R. Scott), Biomedical Engineering Society Annual Meeting, San Antonio, TX, 2014.
101. (Poster) PDGF-stimulated smooth muscle cell behavior inhibited by decorin mimic (R. Scott) 40th Annual Northeast Bioengineering Conference (NEBEC), Boston, MA 2014
102. Oral: Suppression of Osteoarthritis via Molecular Engineering of an Aggrecan Mimetic (A. Panitch), BMES Annual Meeting, San Antonio, TX, 2014.
103. Oral: A mechanistic investigation of how a decorin mimic controls intimal hyperplasia (R. Scott), BMES Annual Meeting, San Antonio, TX, 2014.
104. (Poster) Biomimetic Cardiovascular Therapeutics for the Treatment of Endothelial Cell Dysfunction and Restenosis (J. Wodicka), Bioinspired Materials Gordon Research Seminar, 2014
105. (Poster) Biomimetic Cardiovascular Therapeutics for the Treatment of Restenosis and Endothelial Cell Dysfunction (J. Wodicka), Indiana University School of Medicine – Purdue University MSTP Student Seminar, 2014
106. Poster: Use of a Decorin Mimic for Diabetic Wound Healing, (J. Lin) Gordon Conference: Tissue Repair and Regeneration, New Hampshire, 2015.
107. Poster: Nanoparticles with Reducible Crosslinks for Anti-Inflammatory Drug Delivery in Osteoarthritis (J. Lin) Biomedical Engineering Society Meeting, Tampa, FL, 2015
108. Poster: Prevention of Collagen Induced Platelet Binding and Activation by Thermosensitive Nanoparticles (J. McMasters) Biomedical Engineering Society Meeting, Tampa, FL, 2015
109. Poster: RGD Concentration Alters Vocal Fold Fibroblast Gene Expression in 2D and 3D Systems. (T. Wilimbe) Biomedical Engineering Society Meeting, Tampa, FL, 2015

110. Poster: Hyaluronic Acid Hydrogel is Neuroprotective in Spinal Cord Injury (N. Theodore) Biomedical Engineering Society Meeting, Tampa, FL, 2015
111. Poster: Characterization of Collagen Type I and II Gels for Articular Cartilage Tissue Engineering (N. Vazquez-Portalatin) Biomedical Engineering Society Meeting, Tampa, FL, 2015
112. Poster: Lubricin Mimic Reduces Friction on the Articular Cartilage Surface (X. Xu) Biomedical Engineering Society Meeting, Tampa, FL, 2015
113. Poster: Biomimetic Cardiovascular Therapeutics for the Treatment of Endothelial Cell Dysfunction and Restenosis. (J. Wodicka) Purdue University PULSe-BME Graduate Research Symposium, West Lafayette, IN, Feb. 2016
114. Poster: Development of a Glycocalyx Mimic to Treat Endothelial Cell Dysfunction. (J. Wodicka) Signal Transduction by Engineered Extracellular Matrices Gordon Research Seminar, Biddeford, ME, June 2016
115. Poster: Developing an Angiogenic Proteoglycan Mimic for Ischemic Diabetic Foot Ulcer Repair. (J. Lin) Signal Transduction by Engineering Extracellular Matrices, New Biddeford, ME; June 2016
116. Oral: Development of a Glycocalyx Mimic to Treat Endothelial Cell Dysfunction. (J. Wodicka), Biomedical Engineering Society Annual Meeting, Minneapolis, MN, Oct. 2016
117. Poster: Development of a Glycocalyx Mimic to Treat Endothelial Cell Dysfunction. (A. Chambers), Biomedical Engineering Society Annual Meeting, Minneapolis, MN, Oct. 2016
118. Oral: Prevention of Deep Vein Thrombosis Through the Development of a Peptide Conjugate Molecule. (A. Chambers) University of Toledo Fall Bioengineering Seminar Series. Toledo, Nov. 2016
119. Oral: Development of a Glycocalyx Mimetic to Treat Endothelial Cell Dysfunction. (J. Wodicka), NextGen San Diego Glycobiology Symposium, San Diego, CA Feb. 2017
120. Poster: Development of a Glycocalyx Mimetic to Treat Endothelial Cell Dysfunction. (J. Wodicka) San Diego Glycobiology Symposium, San Diego, CA Feb. 2017
121. Poster: Developing an Angiogenic Proteoglycan Mimic for Ischemic Diabetic Foot Ulcer Repair. (J. Lin) San Diego Glycobiology Symposium, San Diego, CA; Feb 2017
122. Poster: Selectin-Binding Peptide Conjugate Molecule Decreases Murine Deep Vein Thrombosis. (A. Chambers) Purdue Biomedical Engineering Research Symposium, West Lafayette, March 2017
123. Poster: Selectin-Binding Peptide Conjugate Molecule Decreases Murine Deep Vein Thrombosis. (A. Chambers) Arteriosclerosis, Thrombosis, and Vascular Biology Scientific Sessions, Minneapolis, May 2017
124. Poster: Developing an Angiogenic Proteoglycan Mimic for Ischemic Diabetic Foot Ulcer Repair. (J. Lin) Translational Sciences, Washington DC, Apr 2017
125. Poster: Targeting the vessel wall during vascular intervention with SB-030 prevents platelet activation and subsequent neointimal hyperplasia (Paderi) European Society of Cardiology, Barcelona Spain, 2017

126. Poster: Extended Pharmacodynamic and Immunomodulatory Activity of the MAPKAP Kinase II (MK2) Inhibitor MMI-0100 Demonstrated in a Phase 1 Lipopolysaccharide (LPS) Challenge Study Conducted in Subjects Who Smoke (Lander) American Thoracic Society Conference, San Diego, CA May, 2018
127. Poster: Core-Removal of Hollow Thermoresponsive Sub-Micron Particles for Cell Penetrating Peptide Delivery (Deloney) Biomedical Engineering Society Annual Meeting, Atlanta, GA. Oct. 2018
128. Poster: Antiplatelet Peptide-Conjugated Glycosaminoglycan Recruits Endothelial Cells for Vascular Regeneration (Misnik) Biomedical Engineering Society Annual Meeting, Atlanta, GA. Oct. 2018
129. Poster: Combinatorial peptide-mediated instruction for concomitant vascularization and osteogenesis (Hung) Biomedical Engineering Society Annual Meeting, Atlanta, GA. Oct. 2018
130. Poster: MMI-0100, a Novel MAPKAP Kinase II (Mk2) Inhibitor, Delivered Via Inhalation, Displays an Excellent Safety and Tolerability Profile in Three Phase 1 Clinical Trials (Lander) American Thoracic Society Conference, San Diego, CA May, 2018
131. Poster: Tracking recellularization processes in vascular tissues with fiber-based autofluorescence lifetime imaging (Garcia) SPIE BioS, San Francisco, CA, 2018
132. Oral: Selectin-targeting molecule abates neutrophil adhesion during inflammation. (T. Dehghani T and H. Sodhi) Biomedical Engineering Society Annual Meeting, Philadelphia, PA, Oct 2019.
133. Oral: Selectin-targeting molecule abates neutrophil adhesion during inflammation. (Dehghani T) University of California Systemwide Bioengineering Symposium, Merced, CA, June, 2019.
134. Oral: Selectin-targeting molecule abates neutrophil adhesion during inflammation (Dehghani T) UC Davis Biomedical Engineering Graduate Group Student Research Symposium, Davis, CA, April 2019.
135. Poster: Glycocalyx mimetic abates neutrophil and platelet engagement, improves outcomes of ischemia/reperfusion injury (Dehghani T) Gordon Biomaterials Research Conference and Symposium, Barcelona, Spain, July 2019.
136. Poster: Core-Removal of Hollow Thermoresponsive Sub-Micron Particles for Cell Penetrating Peptide Delivery (Deloney) Northern California Biomaterials Day - Poster; best poster winner Davis, CA. Jan. 2019.
137. Poster: Decreasing Crosslink Density in Nanoparticles Increases, Sustained and Site-Specific Drug Release (Deloney) Biomedical Engineering Graduate Group Student Research Symposium, Davis, CA, April 2019.
138. Poster: Thermoresponsive, Degradable, Core-Shell Nanoparticles for Intra-Articular Delivery of Anti Inflammatory Peptides (Deloney) UC Drug Delivery Symposium, Davis, CA, Sept. 2019.
139. Poster: Intra-Articular Injected Hollow, Degradable, Thermoresponsive Nanoparticles Remain in Rat Joint for Increased Drug Loading and Sustained Cell-Penetrating Peptide Release (Deloney) Biomedical Engineering Society Annual Meeting, Philadelphia, PA. Oct. 2019
140. Oral: Intra-Articular Injected Hollow, Degradable, Thermoresponsive Nanoparticles Remain in Rat Joint for Increased Drug Loading and Sustained Cell-

- Penetrating Peptide Release (Deloney) Translational Medical Sciences, Sacramento, CA, Sept. 2019
141. Oral: Collagen Binding Proangiogenic Proteoglycan Mimetics to Promote Ischemic Wound Healing (Walimbe) Biomedical Engineering Society Annual Meeting, Philadelphia, PA. Oct. 2019
  142. Poster: Incorporation of Types I and III Collagen in Tunable Hyaluronan Hydrogels for Vocal Fold Tissue Engineering (Walimbe) Biomedical Engineering Society Annual Meeting, Philadelphia, PA. Oct. 2019
  143. Poster: Angiogenic Therapeutics For The Treatment Of Peripheral Ischemia In Diabetic Foot Ulcers (Ramirez), Biomedical Engineering Society Annual Meeting, Philadelphia, PA. Oct. 2019
  144. Oral: In Situ Rapid Endothelialization of Small Diameter Vascular Grafts By a Novel Integrin-binding Peptide Ligand Specifically Targeting Endothelial Progenitor Cells and Endothelial Cells (Hao) Biomedical Engineering Society Annual Meeting, Philadelphia, PA. Oct. 2019
  145. Oral: Engineering Collagen Hydrogel With a Novel Ligand Against Integrin  $\alpha\beta3$  to Improve Endothelial Cell Survival After Transplantation (Hao) Biomedical Engineering Society Annual Meeting, Philadelphia, PA. Oct. 2019
  146. Oral: Lxw7 Functionalized Ecm Scaffolds Loaded with Endothelial Progenitor Cells Potentiate Neovascularization And Promote Diabetic Ischemic Wound Healing (He), Tissue Engineering and Regenerative Medicine International Society Annual Meeting, Orlando, FL, Dec. 2019.
  147. Poster: Study of vascular tissue grafts cellularization process in bioreactors using label-free fluorescence lifetime imaging (Li) SPIE BioS, San Francisco, CA, 2019.
  148. Poster: Fluorescence lifetime imaging and intravascular ultracound (FLIm/IVUS) platform for label-free intraluminal characterization of vascular biomaterials in vitro and in vivo (Garcia) SPIE BioS, San Francisco, CA, 2019.
  149. Poster: Thermoresponsive Hollow Nanoparticles as a New Strategy to Deliver the Chemotherapeutic Agent Piplartine and Anti-inflammatory MK2 Inhibiting Peptide in the Mammary Gland for Low-Grade DCIS Treatment (Dartora) American Association of Pharmaceutical Sciences, San Antonio, TX, 2019.

#### Book Chapter (Reviewed)

1. Panitch, A. and Tirrell; D.A. Artificial Extracellular Matrix Proteins for Graft Design, in *Tissue Engineering of Prosthetic Vascular Grafts*, H.P. Greisler, P. Zilla, Eds. (R.G. Landis, Houston, TX, 1999)
2. Pruden, K.G. and Panitch, A. Protein Patterning for Applications in Biomaterial and Biodevice Development in *Handbook of Nanostructured Biomaterials and Their Applications in Nanobiotechnology*, H.S. Nalwa, Ed. (American Scientific Publishers, Stevenson Ranch, CA, in press)
3. Joshi, L., Shah, M., Flynn, C.R., and Panitch, A. Post-Translational Modifications and Their Roles in Plant-produced Recombinant Therapeutics in *Transgenic Crops and Human Health, Encyclopedia of Plant & Crop Science*, L. Joshi, Ed. (Marcel Dekker, Inc., NY, 2003)

4. Joshi, L., Shah, M., Flynn, C.R., and Panitch, A. Plant Produced Recombinant Therapeutics in Transgenic Crops and *Human Health, Encyclopedia of Plant & Crop Science*, L. Joshi, Ed. (Marcel Dekker, Inc., NY, 2004)
5. Seal, B.L. and Panitch, A. Biomaterials: An Overview in *Encyclopedia of Medical Devices and Instrumentation*, John G. Webster, Ed. (John Wiley & Sons, Inc., Hoboken, 2006) dx.doi.org/10.1002/0471732877.emd022
6. Shin, C.S., Kwak, B., Han, B., Park, K., and Panitch, A. In vitro Three Dimensional Tumor Models for Evaluation of Chemotherapeutic Efficacy, *Biomaterials for Cancer Therapeutics*, (Woodhead Publishing, 2013)

### Patent Application

#### **U.S. and international patents awarded through 2016**

1. Reagents and methods for smooth muscle therapies, 7,135,453, C. Brophy, A. Panitch, P. Komalavilas, and B. Seal, November 14, 2006 (licensed to Capstone Therapeutics)
2. Reagents and methods for smooth muscle therapies, 7,381,699, C. Brophy, P. Komalavilas, A. Panitch, B. Seal, L. Joshi, June 3, 2008 (licensed to Capstone Therapeutics)
3. Reagents and methods for smooth muscle therapies, 8,044,018, C. Brophy, A. Panitch, P. Komalavilas, B. Seal, L. Joshi, October 25, 2011 (licensed to Capstone Therapeutics)
4. Methods for Promoting Wound Healing and/or Reducing Scar Formation, 8,101,572, C. Brophy, A. Panitch, C. Parmiter, D. Furnish, P. Komalavilas, January 24, 2012 (licensed to Capstone Therapeutics)
5. Heat Shock Protein 20-Related Polypeptides and Uses Therefor, 8,124,579, C. Brophy, E. Furnish, P. Komalavilas, CP. Dreiza, A. Panitch, February 28, 2012. (licensed to Capstone Therapeutics)
6. Reagents and Methods for Smooth Muscle Therapies, 8,129,332, C. Brophy, A. Panitch, P. Komalavilas, B. Seal, L. Joshi, March 6, 2012. (licensed to Capstone Therapeutics)
7. Polypeptide inhibitors of HSP27 kinase and uses therefor. 8,536,303, A. Panitch, B. Seal, and B. Ward, September 17<sup>th</sup>, 2013. (licensed to Moerae Matrix) –Issued in United States and Singapore
8. Kinase inhibitors and uses thereof. 8,741,849, A. Panitch, B. Seal, and B. Ward, June 3, 2014. (licensed to Moerae Matrix)
9. Methods for promoting wound healing and / or reducing scar formation. 8,765,673, C. Brophy, A. Panitch, C. Parmiter, E. Furnish, P. Komalavilas, July 1, 2014. (licensed to Capstone Therapeutics)
10. Collagen-Binding synthetic peptidoglycans, preparation, and methods of use, 8,846,003 A. Panitch, J. Paderi, K. Stuart, K. Park and S. Higbee, September 2014. (Acquired by Symbic Biomedical)
11. Polypeptides for treating or preventing adhesions, 9,034,815, A. Panitch (Moerae Matrix), May 2015.

12. Extracellular Matrix-Binding Synthetic Peptidoglycans, 9,200,039 A. Panitch, S. Sharma, N. Vazquez-Portalatin, J. Paderi, K. Stuart, December 1, 2015 (Licensed to Symic Biomedical)
13. Hyaluronic Acid-Binding Synthetic Peptidoglycans, Preparation, and Methods of Use, 9,217,016, A. Panitch, J. Bernhard, J. Paderi, December 22, 2015 (Licensed to Symic Biomedical)
14. Collagen-Targeted Nanoparticles, 9,173,919, A. Panitch and J. Paderi, November 3, 2016 (licensed to Symic Biomedical)
15. Cell-permeant Peptide Inhibitors of Kinases, 9,327,088 A. Panitch, B. Seal, May 3, 2016, (licensed to Moerae Matrix, Inc.)
16. Kinase inhibitors and uses thereof. 9,447,158, A. Panitch, B. Seal, and B. Ward, September 20, 2016. (licensed to Moerae Matrix)
17. Compositions and Methods for delivery of kinase inhibiting peptides, 9,452,218, A. Panitch, B. Seal, J. Brugnano, R.L. Bartlett, S. Sharma, and J. McMasters, September 27, 2016 (licensed to Moerae Matrix)
18. Polypeptide inhibitors of HSP27 kinase and uses therefor. 9,493,508, A. Panitch, B. Seal, and B. Ward, November 15, 2016. (licensed to Moerae Matrix)
19. Collagen-Binding synthetic peptidoglycans, preparation, and methods of use, 9,512,192 A. Panitch, J. Paderi, K. Stuart, K. Park and S. Higbee, December 6, 2016. (Licensed to Symic Biomedical)
20. Polypeptide inhibitors of HSP27 kinase and uses therefor. 9,649,354, A. Panitch, B. Seal, and B. Ward, November 15, 2016. (licensed to Moerae Matrix)

#### **Patents submitted/pending (US and PCT) Through 2016**

1. Polypeptide Inhibitors of HSP27 Kinase and Uses Therefor, A. Panitch, B. Seal, B. Ward. August 6th, 2009 (20090196927)
2. Kinase Inhibitors and Uses Thereof, A. Panitch, B. Seal, June 11, 2009, (licensed to Moerae Matrix, Inc.) (20090149389)
3. Reagents and Methods for Smooth Muscle Therapies, C. Brophy, P. Komalavilas, A. Panitch, B. Seal, J. Lokesh, July 9, 2009 (20090176694)
4. Reagents and Methods for Smooth Muscle Therapies, C. Brophy, P. Komalavilas, A. Panitch, B. Seal, J. Lokesh, July 9, 2009 (20090176695)
5. Reagents and Methods for Smooth Muscle Therapies, C. Brophy, P. Komalavilas, A. Panitch, B. Seal, J. Lokesh, October 15, 2009 (20090258819)
6. Novel Protein Transduction Domains and Uses Therefor, C. Brophy, A. Panitch, E. Furnish, B. Seal, January 7, 2010 (20100004165)
7. Methods for Promoting Wound Healing and/or Reducing Scar Formation, C. Brophy, A. Panitch, C. Parmiter, E. Furnish, January 14, 2010 (20100009903)
8. Polypeptides for Treating or Preventing Adhesions, A. Panitch, April 22, 2010, (licensed to Moerae Matrix, Inc.) (20100098760)
9. Aligned Collagen and Method Therefor, O. Akkus, A. Panitch, X. Cheng, December 9, 2010. (20100311949)
10. Collagen-Binding Synthetic Peptidoglycans, Preparation, and Methods of Use, A. Panitch, J. Paderi, K. Park, K. Stuart, S. Higbee, January 11, 2011. (licensed to AMIPurdue with intent to sublicense to Glytrix, Inc.). (20110020298)

11. Methods for Treating and Limiting Fibrotic Disorders and Keloids, L. Lopes; E. Furnish; C. Flynn; P. Komalavilas; A. Panitch, C. Brophy, February 3, 2011. (20110028398)
12. Collagen-Binding Synthetic Peptidoglycans for Wound Healing, April 26, 2012, A. Panitch, J. Paderi, (licensed to Symic Biomedical, Inc.) (20120100106)
13. Collagen-Binding Synthetic Peptidoglycans for Use in Vascular Intervention, July 25, 2013, J. Paderi, A. Panitch, K. Park, K. Stuart, (licensed to Symic Biomedical, Inc.) (20130190246)
14. Methods for Promoting Wound Healing and/or Reducing Scar Formation, C. Brophy, A. Panitch, C Parmiter, E. Furnish, P. Komalavillas, September 20, 2012 (20120238508)
15. Collagen-Targeted Nanoparticles, A. Panitch and J. Paderi, December 5<sup>th</sup>, 2013 (20130323311)
16. Methods for Treating of Preventing Vascular Graft Failure, C. Lander, A. Panitch, C. Brophy, B.L. Seal, January 23, 2013 (20130115256)
17. Collagen-Binding Synthetic Peptidoglycans, Preparation, and Methods of Use, A. Panitch, J.E. Paderi, K. Park, K. Stuart, S. Higbee, August 22, 2014 (20150031619)
18. Collagen-Binding Synthetic Peptidoglycans for use in Vascular Intervention, A. Panitch, J.E. Paderi, K. Park, K. Stuart, September 2, 2014 (20150038425)
19. Collagen-Binding Synthetic Peptidoglycans for Wound Healing, A. Panitch, J.E. Paderi, L.J. Freeman, September 25, 2014 (20150038427)
20. Collagen-Targeted Nanoparticles, A. Panitch and J. Paderi, December 5<sup>th</sup>, 2013 (20160166654)
21. Compositions and Methods for Delivery of Kinase Inhibiting Peptides, A. Panitch, B. Seal, J.L. Brugnano, R.L. Bartlett, S. Sharma, J. McMasters, August 10, 2016 (20150018279)
22. Kinase Inhibitors and uses thereof, A. Panitch, B. Seal, B. Ward April 22, 2014 (20140342993)
23. Extracellular Matrix-Binding Synthetic Peptidoglycans, A. Panitch, J.E. Paderi, S. Sharma, K. Stuart, N.M. Vazquez-Portalatin, November 13, 2015 (20160129076)
24. Hyaluronic Acid-Binding Synthetic Peptidoglycans, Preparation, and Methods of Use, A. Panitch, J.C. Bernhard, J.E. Paderi, S. Sharma, December 4, 2015 (20160222064)
25. Collagen-Binding Synthetic Peptidoglycans for use in Vascular Intervention, A. Panitch, J.E. Paderi, K. Park, K. Stuart, February 12, 2016, (20160229895)
26. VE-Cadherin Binding Bioconjugate, A. Panitch, J.E. Paderi, K.A. Stuart, S. Kantak, N. Bachtell, October 12, 2016 (20170112941)
27. Collagen-Binding Synthetic Peptidoglycans, Preparation, and Methods of Use, A. Panitch, J.E. Paderi, K. Park, K. Stuart, S. Higbee, December 5, 2016, (20170275345)
28. Polypeptide Inhibitors of HSP27 Kinase and Uses Therefor, A. Panitch, B. Seal, B.P. Ward, September 29, 2016 (20170072009)
29. Collagen-Binding Synthetic Peptidoglycans for Treatment of Endothelial Dysfunction, A. Panitch, B. Scott, October 25, 2016 (20170043023)
30. Compositions and Methods for Delivery of Kinase Inhibiting Peptides, A. Panitch, B. Seal, J.L. Brugnano, R.L. Bartlett, S. Sharma, J. McMasters, August 10, 2016 (20170035702)

### Invited Presentations

1. American Society for Artificial Internal Organs, 415<sup>th</sup> Annual Conference, Chicago, IL, May 1995
2. University of California, Santa Barbara, Chemical Engineering, Santa Barbara, CA, May 1998
3. Massachusetts Institute of Technology, Materials Science and Engineering, Boston, MA, May 1998
4. University of Rochester, Chemical Engineering, Rochester, NY, June 1998
5. Clemson University, Biomedical Engineering, Clemson, SC, July 1998
6. Arizona State University, Molecular and Cellular Biology Seminar Series, Tempe, AZ, Sept. 1999
7. University of Arizona, Bioengineering Program Seminar Series, Tucson, AZ, March 2000
8. Society for Biomaterials World Congress, Hawaii, May 2000
9. Rice University, Biomedical Engineering, Houston, TX, Oct. 2000
10. President's Community Enrichment Program, Scottsdale, AZ, Jan. 2002
11. American Chemical Society Meeting, Boston, MA, Aug. 2002
12. University of Massachusetts – Worcester, Department of Surgery, Worcester, MA, April 2003
13. THERMEC Society Annual Meeting, Madrid, Spain, July 2003
14. University of Pennsylvania, Department of Bioengineering, Philadelphia, PA, October 2003
15. Jefferson Medical College Annual Alumni Meeting - Cardiovascular, Park City, UT, February 2004
16. Jefferson Medical College Annual Alumni Meeting - Neural, Park City, UT, February 2004
17. President's Community Enrichment Program, Paradise Valley, AZ, March 2004
18. Materials Research Society, Spring Meeting, San Francisco, CA, April 2004
19. Boston University, Department of Bioengineering, Boston, MA, May 2004
20. Purdue University, Department of Biomedical Engineering, West Lafayette, IN, November 2004
21. University of Delaware, Department of Material Science and Engineering, Newark, DE, April 2005
22. Biomedical Engineering Society, Baltimore, MD, October 2005
23. University of Pittsburgh, McGowan Regenerative Medicine Institute, Pittsburgh, PA, December 2005
24. Pacifichem Conference, Honolulu, HI, December 2005
25. Gordon Research Conference, Signal Transduction in ECM, New London, CT, July 2006
26. University of Toronto, Chemical Engineering, Toronto, Canada, September 2006
27. Illinois Institute of Technology, Bioengineering, Chicago, IL, January 2007
28. American Chemical Society, Annual Spring Meeting, Chicago, IL, March 2007
29. University of Massachusetts, Polymer Science and Engineering, Amherst, MA, April 2007
30. Massachusetts Institute of Technology, Material Science and Engineering, Boston, MA, May 2007

31. Indiana University School of Medicine, Physiology, Indianapolis, IN, December 2007
32. Northwestern University, Biomedical Engineering, Evanston, IL, May 2008
33. Workshop on Biomacromolecules, Royal Institute of Technology, Stockholm, Sweden, June 2008
34. International Workshop on Tissue Engineering, India Institute of Technology, Kharagpur, India, Nov. 2008
35. Materials Research Society Fall Meeting, Boston, MA, Dec. 2008
36. Biomedical Engineering Society Fall Meeting, BME-IDEA Workshop, Pittsburgh, PA, Oct. 2009
37. Biomedical Engineering Society Fall Meeting, First Alpha Eta Mu Beta Biomedical Devices and Research Session, Pittsburgh, PA Oct. 2009
38. University of Strasbourg, School of Pharmacy, Strasbourg, France, Nov. 2009
39. Korean Institute of Science and Technology, Seoul, Korea, June 2010
40. Purdue University West Coast Kick-Off Event, San Jose, CA, November 2010
41. TERMIS Fall Meeting, Orlando, FL, December 2010
42. 15<sup>th</sup> International Symposium on Recent Advances in Drug Delivery Systems, Salt Lake City, UT, February 2011
43. American Chemical Society Annual Spring Meeting, Anaheim, CA, March 2011
44. Rice University, Houston, TX, April 2011
45. Korean Institute of Science and Technology – Purdue University Partnership Meeting, West Lafayette, IN, September 2011
46. Urology Group, Indiana University School of Medicine, Indianapolis, IN, October 2011
47. Purdue University, School of Chemical Engineering, Centennial Anniversary Graduate Student Invited Speaker, West Lafayette, IN, November 2011.
48. Louisiana Tech University, Biomedical Engineering, Ruston, LA, February 2012
49. Korean Controlled Release Society, 6<sup>th</sup> Intl. Symposium on Intelligent Drug Delivery Systems, Seoul, Korea, March 2012
50. Washington University, Biomedical Engineering, St. Louis, MO, April 2012
51. University of Louisville, Cardiovascular Innovation Institute, Louisville, KY, April 2012
52. International Conference on Materials, Energy and the Environment, Toledo, OH, May 2012
53. AIMBE-AEMB Student Public Policy Session, Biomedical Engineering Society National Meeting, Atlanta, GA, October 2012
54. Indiana University, Purdue University MSTP Program Seminar, November 2012
55. Indiana Physiology Society Annual Meeting, February, 2013.
56. Materials Research Society Spring Meeting, San Francisco, CA, April, 2013
57. National Organization of Black Chemists and Chemical Engineers, Indianapolis, IN, Oct. 2013.
58. Cornell University Department of Biomedical Engineering, Ithaca, NY, Feb. 2014
59. Indiana University School of Medicine, Center for Diabetes Research, Feb. 2014
60. Ohio State University Materials Week, Columbus, OH, May, 2014
61. World Congress for Biomechanics, Boston, MA July, 2014
62. University of California, Davis, Department of Biomedical Engineering, August, 2015

63. Drug Discovery Center Symposium, Purdue University, September, 2015
64. University of Massachusetts, Amherst, Polymer Science and Engineering, December 2015
65. Keynote Speaker, Southern Biomedical Engineering Conference, Shreveport, LA, March, 2016
66. Midwest Fibrosis Symposium: Molecular Mechanisms to Emerging Therapies, Chicago, IL April, 2016
67. Proteoglycan Gordon Conference, Andover, NH July 2016.
68. Orthopedic Grand Rounds, UC Davis Health Systems, Sacramento, CA Oct. 2016
69. Regenerative Medicine Institute, Sacramento, CA Nov. 2016
70. Relypsa, Inc. (A Vifor Pharma Company) Redwood City, CA Dec. 2016
71. San Diego Glycobiology Symposium (UCSD), San Diego, CA Feb. 2017.
72. University of California, San Diego Bioengineering, San Diego, CA June, 2017.
73. University of Minnesota, Biomedical Engineering Department, Minneapolis, MN, Sept. 2017.
74. University of Illinois, Biomedical Engineering Department, Champaign, IL Nov. 2017.
75. University of Utah, Biomedical Engineering Department student research symposium, Salt Lake City, Utah December, 2017.
76. University of California, San Diego, Glycobiology Meeting, March 2018
77. University of California, Irvine, Biomedical Engineering Department, Irvine, CA April, 2018.
78. University of California, Davis, Lung Day, June 1, 2018.
79. University of Maryland, College Park, September 7, 2018
80. Colorado State University, Fort Collins, September 17, 2018
81. 4th International Conference on Bioinspired and Biobased Chemistry & Materials in Nice, France Keynote Presentation, October 15, 2018

### Research Support

1. “Artificial Protein-co-Polyethylene Glycol Gels with Controlled Heparin-Binding Growth Factor Release for Angiogenesis Stimulation.” Alyssa Panitch, PI. Sponsor: Charles E. Culpepper Foundation. May 15, 1999-May 14, 2000. (\$25,000)
2. “Advanced Neural Implants and Controls.” Alyssa Panitch, co-PI overseeing the synthesis and implantation of biologically active fibrin glue to improve electrical recording in deep-brain implants. I am developing fibrin-based release systems for NGF and neurotrophic peptides to improve recording potential from polymer electrodes. Sponsor: DARPA. July 12, 2000-May 15, 2004. (\$6,000,000)
3. “Recombinant Protein Therapeutics.” Alyssa Panitch, co-investigator. I am developing a dextran-based gel as a carrier for vasoactive therapeutics. Sponsor: Arizona Disease Control Research Commission. July, 2002-June 2005. (\$450,000)
4. “Development of a Vasoactive Biogel.” Alyssa Panitch, subcontract – PI. I am developing a poly(ethylene glycol)-based gel as a carrier for vasoactive therapeutics. Sponsor: National Institutes of Health, STTR. Oct. 2002-Sept. 2003. (\$53,000)
5. “Hydrogels with Engineered Mechanical Properties and Degradation Rates.” Alyssa Panitch, PI. These are recombinant proteins produced in bacteria. These proteins are

- targeted for cardiovascular applications. Sponsor: American Heart Association (AHA). July 1, 2001-June 30, 2003. (\$60,000)
6. "Bioresponsive Self-Assembling Dextran-Based Blood Substitutes for Trauma Care." Alyssa Panitch, PI. Sponsor: Arizona Disease Control Research Commission. Oct. 1, 2001-June 30, 2004. (\$150,000)
  7. "Acquisition of Electron Microscope Upgrade to Implement Environmental Capability for Materials Research and Education." Alyssa Panitch, Co-investigator. Sponsor: National Science Foundation. July 2002-September 2004. (\$90,000)
  8. "Bioactive Protein Therapeutics for Vasospasm." Alyssa Panitch, co-PI overseeing the purification of recombinant proteins that are active in inhibiting vasospasm. Sponsor: American Heart Association (AHA). July 1, 2002-June 30, 2004. (\$66,000)
  9. "Prevention of Vein Graft Spasm." Alyssa Panitch, co-PI overseeing the delivery and optimization of therapeutics. Sponsor: National Institutes of Health-NHLBI. April 2003-March 2008. (\$1,250,000)
  10. "Biomimetic Self-assembling Hydrogels for Delivery of Bioactive Molecules." Alyssa Panitch, PI. Sponsor: National Science Foundation CAREER. July 2003-June 2008. (\$400,000)
  11. "Peptide-Based Therapeutics for Vascular Disease." Alyssa Panitch, PI. Sponsor: National Institutes of Health – National Heart Lung and Blood Institute. January 2004-December 2008. (\$700,000)
  12. "Development of Vasoactive Therapeutic." Alyssa Panitch, PI. Sponsor: National Institutes of Health – NHLBI (subcontract through AzERx, Inc.) June 2005-May 2007. (\$219,000)
  13. "Hyaluronic Acid Scaffolds for Spinal Cord Regeneration." Alyssa Panitch, PI. Sponsor: Arizona Disease Control Research Commission. July 2005-June 2008. (\$1,500,000)
  14. "MAPKAP Kinase II Inhibitors for Abdominal Adhesions." Alyssa Panitch, PI. Sponsor: Trask Fund. 2007. (\$45,000)
  15. "MAPKAP Kinase II Inhibition as a Therapeutic Strategy for Abdominal Adhesion Prevention." Alyssa Panitch, PI. Sponsor Moerae Matrix, Inc. (NIH SBIR Subcontract). Nov. 2007-July 2008. (\$45,000)
  16. "Peptide Therapeutics for Inhibiting Abdominal Adhesions." Alyssa Panitch, PI. Sponsor: Moerae Matrix, Inc. (subcontract from Phase I NIH SBIR). Feb. 1, 2008-July 31, 2008. (\$32,000)
  17. "Bridging the Gap between Nano and Macroscale in Collagen Assembly." Alyssa Panitch, Co-PI. Sponsor: National Science Foundation. June 1, 2008-May 31, 2010. (\$120,000)
  18. "Electrochemically Guided Collagen Synthesis for Functional Tissue Repair." Alyssa Panitch, Co-PI with Ozan Akkus. Sponsor: NIH-NIAMSD. Oct. 1, 2008-Sept. 30, 2010. (\$220,000)
  19. "Enhanced Recovery After Spinal Cord Injury." Alyssa Panitch, PI. Sponsor: Indiana Dept. of Health. Jan. 1, 2009-Dec. 31, 2010. (\$120,000)
  20. "Peptidoglycan Inhibition of Vascular Thrombosis and Dermal Scarring." Alyssa Panitch, PI. Sponsor: AMIPurdue. Sept. 15, 2008-March 14, 2009. (\$100,000)
  21. "Synthetic Barriers for Abdominal Adhesions." Alyssa Panitch, PI. Sponsor: Moerae Matrix, Inc. Apr. 30, 2008-May 31, 2008. (\$65,000)

22. "Synthetic Proteoglycans: Wound Healing Application." Alyssa Panitch, PI. Sponsor: AMIPurdue. Sept. 15, 2008-May 14, 2010. (\$459,959)
23. "In Vitro Activity of Biomet Device." Alyssa Panitch, PI. Sponsor: Biomet. May 15, 2009-May 14, 2010. (\$25,000)
24. "Improved Therapies for Drug Eluting Stents." Alyssa Panitch, PI. Sponsor: NIH-NHLBI. May 1, 2011-April 30, 2015. \$1,520,000
25. "Normal and Accelerated Failure Assessment of New Quantitative In Vitro and In Vivo Neural Interfaces." Alyssa Panitch, co-PI. Sponsor: DARPA. Jan. 1, 2011-Dec. 31, 2013. (\$1,000,000)
26. "A Multidisciplinary and Needs-Driven Approach to Translational Team-Based Biomedical Design." Alyssa Panitch, co-PI. Sponsor: NIH. June 1, 2011-May 31, 2016. (\$216,000)
27. "MSP Targeted Partnership of Science Learning through Engineering Design (SLED)." Alyssa Panitch, PI. Sponsor: NSF. Sept. 16, 2011-Sept. 15, 2014, (\$6,793,800)
28. "Development of Proteoglycans for Treatment of Osteoarthritis: A Pivotal Animal Trail." Alyssa Panitch, PI. Sponsor: Trask. February 1, 2013-August 31, 2013. (\$45,203).
29. "Bioengineering Interdisciplinary Training for Diabetes Research" Alyssa Panitch, PI. Sponsor: NIH. September 4, 2013-August 15, 2018. (\$181,642.00)
30. "Evaluation of DS-SILY for Wound Healing" Alyssa Panitch, PI, Sponsor: NIH/Symic Biomedical, Inc. September 15, 2013-March 14, 2014. (\$12,355.00)
31. "Investigation of proteoglycan mimetics as treatments for osteoarthritis" Alyssa, PI, Sponsor: NIH/NIAMS. April 1, 2014-March 30, 2018. (\$1,310,099)
32. "Biomimetic Scaffolds to Promote Stem Cell Differentiation for Cartilage Engineering" Alyssa Panitch, PI, Sponsor: NIH/NIAMS. April 7, 2014-April 6, 2016. (\$362,037)
33. "Targeted delivery of antimicrobial peptides to intracellular bacterial pathogens" Yoon Yeo, PI (Panitch, coPI) Sponsor, NSF DMR 1410987. June 2014-May 2017. (\$450,000)
34. Indiana University School of Medicine: Catheter-based Photoacoustic Imaging Platform for Real-Time Assessment of Atherosclerosis, Co-PI 06/01/14-05/31/16 (\$56,000)
35. "I-Corps Sites: Purdue's Innovation Pipeline" Matthew Lynall, PI (Panitch, CoPI), Sponsor, NSF. 03/01/2015-02/28/2018. (\$98,202)
36. "Bimodal platform for nondestructive analysis of engineered vascular biomaterials" Laura Marcu, PI (Panitch coPI), Sponsor: NIH/NHLBI R01 HL121068 09/01/2015-05/31/2019 (\$1,250,000)
37. "Multimodal platform combining optical and ultrasonic technologies for in vivo nondestructive evaluation of engineered vascular tissue constructs." Laura Marcu, PI, (Panitch, coPI), Sponsor: California Institute for Regenerative Medicine (CIRM) 06/01/2015-05/31/2018 (\$1,545,720)
38. "Development of Treatments to Improve Healing of Ischemic Wounds" PI: Panitch, Sponsor: California Institute for Regenerative Medicine (CIRM) 04/01/2018-03/31/2019 (\$235,800)

39. “Development of Biomimetic luminal coating to capture endothelial progenitor cells to improve outcomes following balloon angioplasty” PI: Panitch, Sponsor: National Institutes of Health, CAI 08/01/2018-07/3102020 (\$200,000)

#### Graduate Courses Taught (Purdue)

BME 583 Biomaterials (Fall 2006)  
BME 695 Critical Literature Analysis (Spring 2007)  
BME 695T Advanced Tissue Engineering (Fall 2007)  
BME 695 Critical Literature Analysis (Spring 2008)  
BME 695 Advanced Tissue Engineering (Spring 2009)  
BME 590/MGMT 590 Biomedship (Spring 2009 with Tim Folta, George Wodicka and Keith March)  
BME 695 Critical Literature Analysis (Fall 2010)  
BME 590/MGMT 590 Biomedship (Spring 2010 with Tim Folta, George Wodicka and Keith March)  
BME 590/MGMT 590 Biomedship (Fall 2011 with Tim Folta, George Wodicka and Keith March)  
BME 590/MGMT 590 Biomedship (Fall 2014 with Matthew Lynall)  
BME 695 Critical Literature Analysis (Fall 2014)

#### Undergraduate Courses Taught (Purdue)

BME 304 Transport Fundamentals (Fall 2010, Fall 2011)  
BME 306 Biotransport Lab (Spring 2011, Spring 2012)

#### Undergraduate Courses Taught (UC Davis)

BIM 109 Biomaterials (Spring 2017, 2018, 2019)

#### Students Graduated

Tinna Otero, PhD (2003)  
Brandon Seal, PhD (2004)  
Catherine Drieza, PhD (2005)  
Kyung Jae Jeong, PhD (2008)  
John Paderi, PhD (2008)  
Kate A. Stuart, PhD (2009)  
Brian C. Ward, PhD (2009)  
Karen Chao Butterfield, PhD (2009)  
Doris Hom Eng, PhD (2009)  
Addie Hicks, PhD (2009)  
Aaron Conovaloff, PhD (2011)  
Rush Bartlett, PhD (2012)  
Jamie Brugnano, PhD (2012)  
Shaili Sharma, PhD (2012)  
Aaron Kosinski, PhD (2013)  
Rebecca Scott, PhD (2014)  
James McMasters, PhD (2016)  
James R. Wodicka, MD, PhD (2017)  
Jenny Lin, MD, PhD (2018)  
Tanaya Walimbe, PhD (2018)  
Claire Kilmer, PhD (2019)  
Nelda Vazquez, PhD (2019)

Teresa Scobee, MS (2000)  
Steve Bellinger, MS (2005)  
Wei Wang, MS (2005)  
Nick Geirut, MS (2007)  
Steve Higbee, MS (2009)  
Arjun Ishwar, MS (2009)  
Jon Bernhard, MS (2011)  
Aneesh Ramaswamy, MS (2013)  
Elizabeth Mercer, MS (2014)  
Ally Lawarance, MS (2015)  
Emily Misnick, MS (2019)