Ge Zhang, M.D., Ph.D.
Associate Professor
Department of Biomedical Engineering
University of Akron
Phone: (330) 972-5237
Email: gezhang@uakron.edu

RESEARCH INTERESTS
Cardiac Tissue engineering, Natural Biomaterials, Stem Cells

EDUCATION

09/2002 ~ 05/2006	**University of Minnesota, Department of Biomedical Engineering** Ph.D. in Biomedical Engineering
09/1994 ~ 07/2002	**Capital Medical University, School of Medicine, P.R.China** M.D. with specialty in Neurosurgery B.S. in Biomedical Engineering

PROFESSIONAL EXPERIENCE

2016 ~ present	Associate Professor, Department of Biomedical Engineering, The University of Akron, Akron, OH
2009 ~ 2016	Assistant Professor, Department of Biomedical Engineering, The University of Akron, Akron, OH
2006 ~ 2009	Postdoctoral Researcher, Cardiovascular Tissue Engineering lab, Department of Biomedical Engineering, The University of Texas at Austin, TX

RELEVANT PUBLICATIONS
Peer-reviewed Articles

1. F. Liu, P. KC**,** Ni, L., **G. Zhang***, J. Zhe*****. "Microfluidic Competitive Immuno-aggregation Assay for High Sensitivity Cell Secretome Detection", ***Organogenesis***. 2018; 8:1-15 (* corresponding author)

2. P. KC**,** F Liu, J. Zhe, **G. Zhang**. "Development and Comparison of Two Immuno-disaggregation Based Bioassays for Cell Secretome Analysis", ***Theranostics***. 2018; 8(2): 328-340.

3. P. KC**,** M. Shah, J. Liao, **G Zhang**. "Prevascularization of Decellularized Porcine Myocardium Slice for Cardaic Tissue Engineering", ***ACS Applied Materials and Interfaces***. 2017; 9 (3): 2196-2204.

4. F. Liu, P KC**, G. Zhang***, J Zhe*****, "*In Situ* Single Cell Detection Via Microfluidic Magnetic Bead Assay. ***PLOS One***. 2017; 12: e0172697. (* corresponding author)

5. F. Liu, P. KC**, G. Zhang***, J. Zhe*****, "Microfluidic Magnetic Bead Assay for Cell Detection", ***Analytical Chemistry***. 2016; 88: 711-717. (* corresponding author)

6. M. Shah, R. George, M. Chapman, **G. Zhang**. Current Challenges in Dedifferentiated Fat Cells Research. ***Organogenesis***. 2016; 12(3); 119-127

7. B. Wang, S. Patnaik, B. Brazil, J. Butler, A Claude, **G.Zhang,** J. Guan, Y. Hong, J. Liao. "Establish Early Functional Perfusion and Structure in Tissue Engineered Cardiac Constructs", ***Crit Rev. Biomed Eng.*** 2015; 43(5-6): 455-471

8. M.E. Jeffords, J. Wu, M. Shah, Y. Hong and **G. Zhang**. "Tailoring Material Properties of Cardiac Matrix Hydrogels To Induce Endothelial Differentiation of Human Mesenchymal Stem Cells*". **ACS Applied Materials & Interfaces***. 2015, 7 (20): 11053–11061.

9. N. Patel and **G. Zhang ***, "Stacked stem cell sheets enhance cell-matrix interactions", ***Organogenesis***; 10 (2), 1-7, 2014 (* corresponding author)

10. B. Liu, M. Shah, **G. Zhang**, Q. Liu and Y. Pang, "Biocompatible Flavone-based Flurogenic Probes for Quick Wash-Free Mitochondrial Imaging in Living Cells." ***ACS Applied Materials & Interfaces;*** 10, 6(23), 21638-44, 2014

11. J. Wang, Y Li, N. Patel, **G. Zhang**, D. Zhou and Y. Pang "A single molecular probe for multi-analyte (Cr^{3+}, Al^{3+} and Fe^{3+}) detection in aqueous medium and its biological application" ***Chem. Commun.***,50, 12258-12261, 2014

12. B. Liu, Q. Liu, M. Shah, J. Wang, **G. Zhang** and Y. Pang "Fluorescence monitor of hydrazine *in vivo* by selective deprotection of flavonoid" ***Sensors and Actuators B;*** 202, 194-200, 2014

13. B. Liu, J. Wang, **G. Zhang**, R. Bai and Y. Pang. "Flavone-based ESIPT ratiometric chemodosimeter for detection of cysteine in living cells." ***ACS Appl Mater Interfaces***. 26; 6(6): 4402-7, 2014

14. Q. Wang, G. Liang, M. Zhang, J. Zhao, K. Patel, X. Yu, C. Zhao, B. Ding, **G. Zhang**, F. Zhou and J. Zheng "De novo design of self-assembled hexapeptides as beta-amyloid (Abeta) peptide inhibitors" ***ACS Chemical Neuroscience***, 5: 972-981, 2014

15. Y. Xu, S. Patnaik, X. Guo, Z. Li, W. Lo, Z. Liu, **G. Zhang**, J. Liao, P. Anderson, and J. Guan, " Cardiac Differentiation of Cardiosphere-Derived Cells in Scaffolds Mimicking Morphology of the Cardiac Extracellular Matrix", ***Acta Biomaterialia.*** 10(8): 3449-62, 2014

16. R. Hu, M. Zhang, K. Patel, Q. Wang, Y. Chang, X. Gong, **G. Zhang**, and J. Zheng, "Cross-sequence interactions between human and rat islet amyloid polypeptides." ***Langmuir***, 30, 5193-5201, 2014

17. C. Zhao, K. Patel, L.M. Aichinger, Z. Liu, R. Hu, H. Chen, X. Li, L. Li, **G. Zhang**, Y. Chang, and J. Zheng, "Antifouling and biodegradable poly(N-hydroxyethyl acrylamide) (polyHEAA)-based nanogels", ***RSC Advances***,3**,**19991-20000, 2013

18. N.G. Patel and **G. Zhang*** "Responsive Systems for Cell Sheet Detachment" ***Organogenesis***; 9 (2), 93-100, 2013 (* corresponding author)

19. Q. Wang, X. Yu, K. Patel, R. Hu, S. Chuang, **G. Zhang***, and J. Zheng*, "Tanshinones inhibit amyloid aggregation by amyloid-β peptide, disaggregate amyloid fibrils, and protect cultured cells", ***ACS Chemical Neuroscience***, 4: 1004-1015, 2013 (* corresponding author)

20. C. Zhao, Q. Chen, K.Patel, L. Li, X Li,Q. Wang, **G. Zhang** and J. Zheng "Synthesis and characterization of pH-sensitive poly(N-2-hydroxyethyl acrylamide)–acrylic acid (poly(HEAA/AA)) nanogels with antifouling protection for controlled release" ***Soft Matter***, 8, 3848-3857, 2012

21. N. Patel, J Cacicchia, **G. Zhang*** and B.Z. Newby * "Rapid Cell Detachment using spin-Coated pNIPAAm Films Retained on Surfaces by an Aminopropyltriethoxysilane Network" ***Acta Biomaterialia***, 8, 2559-2567, 2012 (*Corresponding author)
22. S. Natesan, **G. Zhang**, D.G. Baer, T.J. Walters, R.J. Christy, and L.J. Suggs, "A Bilayer Construct Controls Adipose Derived Stem Cell Differentiation into Endothelial Cells and Pericytes without Growth Factor Stimulation," ***Tissue Engineering***, 17(7-8): 941-53, 2011.
23. **G. Zhang**, C.T. Drinnan , L.R. Geuss, and L.J. Suggs "Vascular differentiation of bone marrow stem cells is directed by a tunable 3D matrix," ***Acta Biomaterialia***, 2010, 6(9): p. 3395-3403; 2010.
24. C.T. Drinnan, **G. Zhang**, M.A. Alexander, A.S. Pulido and L.J. Suggs, "Multimodal Release of Transforming Growth Factor-β1 and the BB Isoform of Platelet Derived Growth Factor from PEGylated Fibrin Gels," ***Journal of Controlled Release***, 147(2): p. 180-185; 2010.
25. **G. Zhang**, Q. Hu, E. Braunlin, L.J. Suggs, J. Zhang, "Enhancing Efficacy of Cell Transplantation in Hearts with Post-infarction LV Remodeling by an Injectable Biomatrix." **Tissue Engineering Part A.** June 1, 14(6): 1025-1036, 2008
26. **G. Zhang** and L.J. Suggs, "Matrices and Scaffolds for Drug Delivery in Vascular Tissue Engineering." **Advanced Drug Delivery Reviews**; 59(4-5), 360-73, 2007.
27. L Zeng, Q. Hu, X. Wang, A. Mansoor, J. Lee, J, Feygin**, G. Zhang**, Suntharalingam P, Boozer S, Mhashilkar A, Panetta CJ, Swingen C, Deans R, From AH, Bache RJ, Verfaillie CM, Zhang J. "Bioenergetic and functional consequences of bone marrow-derived multipotent progenitor cell transplantation in hearts with postinfarction left ventricular remodeling." **Circulation**; 115(14): 1866-75, 2007
28. **G. Zhang**, Y. Nakamura, X. Wang, Q. Hu, L.J. Suggs L, J. Zhang . "Controlled Release of Stromal Cell Derived Factor-1α in situ Increases Stem Cell Homing to the Infarcted Heart." **Tissue Engineering;** 13(8), 2063-71, 2007.
29. Q. Hu, X. Wang, J Lee, A Mansoor, J Liu, L. Zeng, C Swingen, **G. Zhang**, J. Feygin, K Ochiai, K.Bransford, R. Bache, and J. Zhang, J. "Profound bioenergetic abnormalities in peri-infarct myocardial regions." **Am J Physiol Heart Circ Physiol**; 291: H648-57, 2006.
30. X. Wang, Q. Hu, Y. Nakamura, J. Lee, **G. Zhang,** A.H. Form and J. Zhang. "The Role of Sca-1+/CD31- Cardiac Progenitor Cell Population in Postinfarction LV Remodeling." **Stem Cell**; 24:1779-1788, 2006.
31. **G. Zhang,** Z Wang , X.Wang, J. Zhang and L.J. Suggs "A PEGylated Fibrin Patch for Mesenchymal Stem Cell Delivery." **Tissue Engineering**; 12(1): 9-19, 2006.

Patents

1. B.Z. Newby, N Patel, J. Cavicchia, **G. Zhang** "Thermoresponsive Cell Culture Supports" (United States Patent US 9,701,939,B2, issued in 2017)

2. S. Natesan, **G. Zhang**, R.J. Christy, L.J. Suggs, "Laminar Construct for Tissue-Engineered Dermal Equivalent," (United States Patent 8,921,103B2, issued in 2014)

3. **G Zhang,** ZLWang, L Suggs, JY Zhang "PEGylated fibrinogen-based biomatrix" (United States Patent 7442397, issued in 2008)

Book Chapters

1. C.T. Drinnan, L.R. Geuss, **G. Zhang** and L.J. Suggs, "Tissue Engineering in Drug Delivery," in Fundamentals of Drug Delivery, CRS Books, 2011.

2. **G. Zhang** and L.J. Suggs, "Cardiovascular Stem Cells," in Biomaterials as Stem Cell Niche, Amit Gefen, Ed., Springer-Verlag, 2010.

Peer-reviewed Proceedings

1. F. Liu, P. KC**, G. Zhang**, J. Zhe. "Target Cell Detection via Microfluidic Magnetic Beads Assay". *ASME 2016 International Mechanical Engineering Congress and Exposition.* 2016; V010T13A037. DOI:10.1115/IMECE2016-65088
2. F. Liu, P. KC**, G. Zhang**, J. Zhe. " A Microfluidic Sensor for Single Cell Detection in a Continuous Flow". *19th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS).* 2017; 978-1-5386-2732-7/17. DOI: 10.1109/TRANSDUCERS.2017.7994021
3. S.Y. Nam, S Mallidi, **G. Zhang**, L J Suggs, and S. Emelianov "Ultrasound and photoacoustic imaging to monitor vascular growth in tissue engineered constructs". Proceedings of the 2009 SPIE Photonics West Symposium: **Optics in Tissue Engineering and Regenerative Medicine III**, 2009

News and Views (Invited Commentary)

1. **G. Zhang** "Biomimicry in biomedical research" Organogenesis 8:4, 101–102,2012

CONFERENCE PRESENTATIONS

1. R. Amini, N. Rashidi, S. Dorairaj, AD Pant, M Shah, **G Zhang**, V Thomas, "Iris Stromal Cell Nuclear Aspect Ratio Alters After Pharmacologically-induced Miosis and Mydriasis", 2018 Association for Research in Vision and Ophthalmology Annual Meeting, Honolulu, HI, 2018
2. N. Rashidi, S. Dorairaj, AD Pant, M Shah, **G Zhang**, V Thomas, R Amini, "Iris Stromal Cell Nuclear Aspect Ratio Alters During Pupil Dilation**",** 8th World Congress in Biomechanics, Dublin, Ireland. 2018
3. S. Salem, E. Mulvany, J. Wu, V. Messerschmidt, Y. Hong, **G Zhang**, "Investigation of Regional Cardiac ECM Derived Hydrogels for Myocardial Infarction Treatment", 2017 Annual Meeting of Biomedical Engineering Society, Pheonix, Arizona, 2017
4. E. Petek, M. Shah**, G. Zhang**, "The Effect of Decellularized Cardiac Slices' after Myocardial Infarction in a Rat Model", 2017 Annual Meeting of Biomedical Engineering Society, Pheonix, Arizona, 2017
5. F. Liu, P. KC, **G. Zhang**, J. Zhe, "A Microfluidic Sensor for Single Cell Detection in a Continuous Flow." in Transducer 2017, Kaosiung, Taiwan, 2017.
6. F. Liu, P. KC, **G. Zhang**, J. Zhe. "An Integrated Microfluidics Device for Magnetic Activated Cell Analysis." in 14th International Conference on Nanochannels, Minichannels, and Microchannels,Washington, DC, 2016.
7. F. Liu, P. KC, **G. Zhang**, J. Zhe. "Target Cell Detection via Microfluidic Magnetic Beads Assay." in International Mechanical Engineering Congress & Exposition 2016, Phoenix, AZ, 2016.
8. F. Liu, P. KC, **G. Zhang**, J. Zhe "An Integrated Assay for Magnetic Activated Cell Analysis." in 2016 International Conference of Microfluidics, Nanofluidics and Lab-on-a-chip, Dalian, China, 2016.

9. P. KC, M. Shah, **G. Zhang**, "Recellularization strategies to promote pre-vascularization of decellularized cardiac tissue." in 2016 Annual Meeting of the Biomedical Engineering Society, Minneapolis, Minnesota, 2016.
10. Shah, M., KC, P., Khoiy K., Amini, R., **G. Zhang**, "Vascular Differentiation of Adipose Derived Stem Cells on Porcine Decellularized Cardiac Slices in vitro." in 2016 Annual Meeting of the Biomedical Engineering Society, Minneapolis, Minnesota, 2016.
11. Liu, F., KC, P., **G.Zhang**, Zhe, J. "Single Cell Analysis Based on Magnetic Beads Assay." in 2016 Annual Meeting of the Biomedical Engineering Society, Minneapolis, Minnesota, 2016.
12. Liu, F., KC, P., **G.Zhang**,, Zhe, J. "Target Cell Detection via Microfluidic Magnetic Beads Assay." in The 11th Annual University of Akron Student Innovation Symposium, Akron, OH, 2015.
13. Liu, F., KC, P., **G.Zhang**, Zhe, J. "A Microfluidics Based Magnetic Beads Assay for Label Free Cell Analysis." in 2015 Annual Meeting of the Biomedical Engineering Society, Tampa, Florida, 2015.
14. KC, P., Shah, M., Brazile, B., Liao, J., **G.Zhang**, "Developing Efficient Recellularization Strategies for Decellularized Porcine Myocardial Scaffold." in 2015 Annual Meeting of the Biomedical Engineering Society, Tampa, Florida, 2015.
15. Mulvany, E., Cebull, H., KC, P., Willits, R., **G.Zhang**, "Mechanical Characterization of Decellularized Cardiac Slices for Myocardial Infarction Treatment." in 2015 Annual Meeting of the Biomedical Engineering Society, Tampa, Florida, 2015
16. K Pawan, L. Fan, J. Zhe and **G. Zhang**. "Efficient Detecting of Magnetic Beads Binding to Cells for High Throughput Cell Analysis" National Center for Regenerative Medicine (NCRM) Annual Scientific Retreat. Cleveland, OH November 2014.
17. L. Fan, K Pawan, **G. Zhang** and J Zhe. "A Novel Microfluidic Device for label free Cell Analysis Based on Magnetic Bead Assay" National Center for Regenerative Medicine (NCRM) Annual Scientific Retreat. Cleveland, OH November 2014.
18. G. Swaminathan, B. Sivaraman, I. Stoilov, M. Shah, **G. Zhang**, R.P. mecham and A. Ramamurthi. " Magnetic Labeling of BM-MSC-Derived SMCs maintains their pro-Elastogenic Trophic Effects on Aneurysmal SMCs", Tissue Engineering and Regenerative Medicine International Society (TERMIS) Annual Conferences, December 2014
19. M. Jeffords, J. Wu, Q. Ding, Y. Hong and **G. Zhang**. "Tuning Material Properties of Caediac Extracellular Matrix for Cardiac Tissue Engineering", Society for Biomaterials Annual Meeting, San Antonio, TX, October 2014
20. T. Grubb and **G. Zhang**. " *In vitro* Bioactivity Testing of Cardiac Derived Extracellular Matrix Using Stem Cells", Society for Biomaterials Annual Meeting, San Antonio, TX, October 2014
21. M. Shah, M. Chapman, R. George, V. Narayan and **G. Zhang**. " Exploiting Angiogenic Properties of Dedifferentiated Fat Cells", Society for Biomaterials Annual Meeting, San Antonio, TX, October 2014
22. B. Brazile, J. Butler, S. Patnaik, Y. Xu, A. Claude, R. Prabhu, L. Williams, **G. Zhang**, J. Guan and J. Liao. "Biomechanical Characterizations of Scar ECM During the Acute to Chronic Stages of Myocardial Infarction", Society for Biomaterials Annual Meeting, San Antonio, TX, October 2014
23. M. Jeffords, N. Patel and **G. Zhang**. "Multilayer Mesenchymal Stem Cell Sheets for Cardiac Tissue Engineering", 14th Biennial Meeting of International Society For Applied Cardiovascular Biology (ISACB), Cleveland, OH. April 2014
24. N. Patel and **G. Zhang.** "Multilayer Mesenchymal Stem Cell Sheets for Tissue Engineering ", 28th Meeting of the Ohio Physiological Society Northeastern Ohio Medical University, Rootstown, OH. October 2013. **(Received Poster Award)**

25. N. Patel, J. Cavicchia, B.M. Newby and **G. Zhang**. " A simple Thermoresponsive Substrate for Rapid Cell Sheet Detachment", Biomedical Engineering Society annual meeting, Atlanta, GA. October 2012.
26. K. Patel, P. Patterson, T. Grubb and **G. Zhang. "**A Stiffness Gradient Scaffold for Stem Cell Based Cardiac Cell Therapy" Biomedical Engineering Society annual meeting, Atlanta, GA. October 2012.
27. P. Patterson, R. Willits and **G. Zhang**. "A novel PEG-fibrin composite scaffold to direct stem cell differentiation." Biomedical Engineering Society annual meeting, Hartford, CT. October 2011.
28. N. Patel, J Cavicchia, B.Z.Newby and **G. Zhang**. "*In vitro* Assembly of Micropatterned Cell Sheets for Vascular Tissue Engineering" Society for Biomaterials Annual Meeting, Orlando, FL, April 2011.
29. L. Geuss, **G. Zhang,** and L.J. Suggs. "Guided Differentiation of Mouse Embryonic Stem Cells with Protein-Immobilized Beads." Society for Biomaterials, Seattle, WA, April 2010.
30. L. Geuss**, G. Zhang** and L.J. Suggs. "Immobilized Sonic Hedgehog Guides Mouse Embryonic Stem Cell Pre-Differentiation into Mesodermal Progenitors." TERMIS, Orlando, FL, December 2010.
31. L. Geuss, **G. Zhang**, and L.J. Suggs. "Sonic Hedgehog Presentation on Dynabeads Directs Mesodermal Commitment of Mouse Embryonic Stem Cells." Biomedical Engineering Society, Austin, TX, October 2010.
32. S Seetharaman**, G Zhang**, L.J. Suggs, and R.J. Christy,"A Bilayer Construct Controls Adipose Derived Stem Cell Differentiation" Society for Biomaterials Annual Meeting, Seattle, WA. April 2010.
33. **G. Zhang ,** S.Y. Nam, S. Mallidi, S. Emelianov and L. Suggs "Vascular growth is promoted by an ECM mimic and monitored by ultrasound and photoacoustic imaging technique". Society For Biomaterials (SFB) Annual Meeting, San Antonio, TX, 2009
34. L. Geuss , **G.Zhang,** C.T. Drinnan and L. Suggs. "Impact of Reaction Conditions on PEGylated Fibrin Gelation and Cell Behavior". Society For Biomaterials (SFB) Annual Meeting, San Antonio, TX, 2009
35. CT Drinnan, **G. Zhang** and L. Suggs, "Localization of TGF-β1 within PEGylated Fibrin Gels Affects Phenotype of Embedded MSCs". Society For Biomaterials (SFB) Annual Meeting, San Antonio, TX, 2009
36. S. Natesan, **G. Zhang**, R. Christy and L. Suggs, "Vascular differentiation of Adipose Derived Stem Cells is directed by a PEGylated fibrin biomatrix". Society For Biomaterials (SFB) Annual Meeting, San Antonio, TX, 2009
37. **G. Zhang**, S. Natesan, R. Christy and L.Suggs, "Human Adipocyte-derived Stem Cells Differentiate Towards Two Vascular Subpopulations in PEGylated Fibrin". The TERMIS North America 2008 Annual Conference & Exposition, in association with California Tissue Engineering Meeting, San Diego, CA, 2008
38. **G.Zhang** and L.Suggs, "Vascular differentiation of bone marrow stem cells is directed by a PEGylated fibrin biomatrix". 8th Biomaterials Congress, Amsterdam, 2008
39. **G. Zhang,** H. Liu, SF. Collins and L.Suggs, "Vascular Differentiation from Embryonic Stem Cells Using Insoluble Protein Presentation". Biomedical Engineering Society (BMES) Annual Fall Meeting, , Los Angeles, CA,2007
40. CT Drinnan, TC Lin, SF Collins, **G. Zhang**, and L. Suggs , "Controlled Release of VEGF from PEGylated Fibrin Gels". Houston Society for Engineering in Medicine and Biology, Houston, TX, 2007
41. CT Drinnan, **G. Zhang** , EL Mosier, and L. Suggs, "Temporal Control of TGF-β1 and VEGF Release from PEGylated Fibrin Gels". Biomedical Engineering Society (BMES) Annual Fall Meeting, Chicago, IL, 2006

42. CT Drinnan, **G. Zhang** , SF Collins , J. Zhang and L. Suggs, "Sustained Release of Transforming Growth Factor-β1 from PEGylated Fibrin Gels". Society for Biomaterials, Pittsburgh, PA, 2006.
43. SF Collins, **G. Zhang**, Zhang J, Suggs L 'Simple de-novo Vasculature Formation without exogenous VEGF'. Regenerate 2006, Pittsburgh, PA, 2006
44. **G. Zhang**, Q. Hu, E. Braunlin,L. Suggs and J. Zhang. " Enhancing Efficacy of Cell Transplantation in Heart with Post-infarction LV remodeling by an Injectable Biomatrix", American Heart Association (AHA) Annual meeting, Chicago, IL, 2005
45. **G. Zhang**, Y. Nakamura and J. Zhang "Prolonged Release of Stromal Derived Factor-1 for Cardiac Recruitment of Stem Cell by a Novel PEGylated Fibrin Patch". American Heart Association (AHA) Annual meeting, Dallas,TX, 2005
46. **G. Zhang,** SF Collins, J. Zhang and L. Suggs, "3D Vasculogenesis". Biomedical Engineering Society (BMES) Annual Fall Meeting, Baltimore, MD, 2005
47. **G. Zhang**, J. Zhang and L Suggs, "A Vascular Microenvironment for MSCs". International Society for Stem Cell Research (ISSCR), San Francisco, CA**,** 2005
48. **G. Zhang,** J. Zhang and L. Suggs, "A PEGylated Fibrin Patch for Angiogenesis". American Institute of Chemical Engineers (AIChE), Austin, TX, 2004
49. **G. Zhang,** J. Zhang J and L. Suggs "A Novel PEGylated Fibrin Patch for Stem Cell Therapy". Biomaterials in Regenerative Medicine: The Advent of Combination Products, Philadelphia, PA, 2004

RESEARCH AWARDS/ GRANTS

Current

06/1/2019 – 05/31/2022 Total Amount: $ 373,373.00
NSF ECCS: "A High Throughput Platform for Rapid Single Cell Surface Mapping" co-PI (PI: Jiang Zhe)

1/1/2019 – 12/31/2020 Total Amount: $ 154,000.00
American Heart Association, "Development of a Vascularized Engineered Myocardial Tissue for Cardiac Repair" – PI

9/1/2018 – 8/31/2021 Total Amount: $ 460,049.00
National Institutes of Health, "Bioactive injectable blends for cardiac stem cell recruitment" – co-PI (PI: Yi Hong)

9/1/2016 – 8/31/2019 Total Amount: $ 260,930.00
NSF ECCS: "MRI: Development of an Instrument for Single Cell Electrical Stimulation and Analysis " – co-PI (PI: Jiang Zhe)

Completed
12/12/2014-11/30/2018 Total Amount: $459,991.00
National Institutes of Health, "Reinforce Cell Sheets with Acellular Porcine Myocardial Scaffolds: Application in Cardiac Repair" – PI

05/15/2014-05/14/2018 Total Amount: $546,636.00
NSF IDBR: TYPE A: "An Integrated Microfluidic Platform for Parallel Analysis of Cell Secretome and Cell Responses in Real Time" – co-PI (PI: Jiang Zhe)

07/01/2013-07/01/2018 Total Amount: $100,525.00

SUMMA Health System: "Integrated Bioscience Fellowship in Biomedicine" –PI

10/31/2013-10/31/2014 Total Amount: $10,000.00
Austen BioInnovation Institute in Akron: "Dedifferentiated fat cells for wound healing treatment" –PI

06/01/2012-06/01/2013 Total Amount: $10,000.00
The University of Akron Faculty Research Fellowship: "Developing Stiffness Gradient Scaffolds for Cardiac Cell Therapy" –PI

05/15/2012-05/12/2013 Total Amount: $10,000.00
Firestone Research Initiation Award: "Smart Thermo-responsive Surface for Cell Sheet Engineering" –PI

TEACHING EXPERIENCE

University of Akron	Tissue Engineering (4800:485:001); Spring 2010, Fall 2010-2018
Akron, OH	Tissue Engineering (4800:697:001); Spring 2010, Fall 2010-11,2017,2018
	Biomaterials (4800:400:001); Spring 2011-2016
	Biomaterials &Laboratory (4800:660:001); Spring 2017,2018
	Tools for BME (Lab Skills); Fall 2013-2018
University of Texas	Cell Engineering, BME 385J; Spring 2009 (Invited Speaker)
Austin, TX	Cell and Tissue Engineering, BME 379; Spring 2007 (Co-Lecturer)

RESEARCH SUPERVISOR

PhD Graduates (1 total)

- Nikul Patel, 2009-2013, Biomedical Engineering, University of Akron
  Research Topic: *A Spin-Coated Thermoresponsive Substrate for Rapid Cell Sheet Detachment and Its Applications in Cardiac Tissue Engineering*

MS Graduates (3 total)

- Kunal Patel, 2010-2013, Biomedical Engineering, University of Akron
  Research Topic: *Stiffness Gradient Scaffolds as an in vitro Model for Stem Cell Based Cardiac Cell Therapy*
- Patrick Patterson, 2009-2012, Biomedical Engineering, University of Akron
  Research Topic: *Creation of Mechanical Gradient Scaffolds by Photomasking Techniques*
- Megan Jeffords, 2013-2015, Biomedical Engineering, University of Akron
  Research Topic: *Tailoring Material Properties of Cardiac Matrix Hydrogels for Cardiac Tissue Engineering*

Current Graduate Students (3 total)

- Mickey Shah, Integrated Bioscience, University of Akron
- Pawan KC, Biomedical Engineering, University of Akron
- Emily Mulvany, Biomedical Engineering, University of Akron

Current Undergraduate Students (2 total)

- Victor Collins, Biomedical Engineering, University of Akron
- Jalal Jwayyed, Biomedical Eng. Dept., University of Akron

Former Undergraduate Students (13 total)

- Samantha Ballash, Biomedical Engineering, University of Akron
- Tyler Grubb, Biomedical Engineering, University of Akron
- Sara Salem, Biomedical Engineering, University of Akron
- Elyse Petek, Biomedical Engineering, University of Akron
- Casey Crawford, Biomedical Engineering, University of Akron
- Bianca Danut, Biomedical Engineering, University of Akron
- Megan Lee, Biological Science, University of Akron
- Gabriel Nkemeh, Biological Science, University of Akron
- Todd Weinberg, Biomedical Engineering, University of Akron
- Jena Decker, Biomedical Engineering, University of Akron
- John Cavicchia, Biomedical Engineering, University of Akron
- Henrietta Deny, Biomedical Engineering, University of Akron
- Heather Smeltzer, Biomedical Engineering, University of Akron

Current Dissertation Committee (8 total)

- Keyvan Amini Khoiy, Biomedical Engineering, University of Akron
- Elham Malekzadeh, Biomedical Engineering, University of Akron
- Dustin Hayes, Biomedical Engineering, University of Akron
- Chathura Abeywickrama, Chemical and Biomolecular Engineering, University of Akron
- Gayatri Shrikhande, Chemical and Biomolecular Engineering, University of Akron
- Yaohua Gao, Department of Polymer Science, University of Akron
- Jacqueline Carpenter, Department of Biomedical Engineering, University of Akron
- Estee George, Department of Biomedical Engineering, University of Akron

Former Dissertation Committee (24 total)

- Wafaa Nasir, Biomedical Engineering, University of Akron
- Galina Pylypiv, Biomedical Engineering, University of Akron
- Fan Liu, Mechanical Engineering, University of Akron
- Xiaoman Bi, Chemical Engineering, University of Akron
- Pritam Patil, Integrated Bioscience, University of Akron
- Qing Yu, Department of Polymer Science, University of Akron
- Qiong Tang, Chemical and Biomolecular Engineering, University of Akron
- Ruandong Hu, Chemical and Biomolecular Engineering, University of Akron
- Mary Beth Wade, Integrated Bioscience, University of Akron
- Wenda Zhou, Biomedical Engineering, University of Akron
- Qian Li, Chemical Engineering, University of Akron
- Dimitria Kontoveros, Biomeical Engineering, University of Akron
- Jonathan King, Biomeical Engineering, University of Akron
- Maysam Sodagari, Chemical and Biomolecular engineering, University of Akron
- Majid Hosseini, Chemical and Biomolecular Engineering. University of Akron
- Andrew Ditto, Biomedical Engineering, University of Akron
- Justin Smolen, Biomedical Engineering, University of Akron
- Qiuming Wang,Chemical and Biomolecular Engineering, University of Akron
- Susan Thompson, Biomedical Engineering, University of Akron
- David Petrak, Biomedical Engineering, University of Akron
- Bin Cao, Chemical and Biomolecular Engineering, University of Akron
- Hang Li, Chemical and Biomolecular Engineering, University of Akron
- Qiong Tang, Chemical and Biomolecular Engineering, University of Akron

- Hokyung Song, Chemical and Biomolecular Engineering, University of Akron

ADMINISTRATIVE AND COMMITTEE SERVICE

National:
National Library of Medicine Literature Review Committee, 2009 to 2013

College:
University of Akron Biosafety Committee, 2009 to Present
University of Akron Faculty Research Committee, 2012 to 2015
University of Akron Animal Care and Use Committee, 2014 to Present

Department:
Faculty search committee for Dr. Rittgers's replacement, 2011
Department Chair search committee for Dr. Sheffer's replacement, 2012
Biomedical Engineering Undergraduate Student Advising Committee, 2012 to 2013
Biomedical Engineering Graduate Committee, 2012 to 2016
Integrated Bioscience (IB) Graduate Committee, 2014 to Present
Biomedical Engineering Undergraduate Curriculum Committee, 2017 to Present
Faculty search committee for biomechanical track faculty, 2018
Biomedical Engineering Scholarship Committee, 2018 to Present

PROFESSIONAL SERVICE

Proposal Reviewer
Proposal Review for National Science Foundation, Biomedical Engineering Program, 2010 to 2015
Proposal Review for National Science Foundation, Faculty Early Career Development Program (CAREER), 2012 to 2016
Proposal Review for American Heart Association, Bioeng BSc3, 2014 to Present
Proposal Review for Government of the Hong Kong, The Innovation and Technology Commission, 2014
Proposal Review for American Heart Association, Bioeng BSc4, 2015 to Present
Early Career Reviewer for National Institutes of Health, 2014 to Present

Journal Editor
Acquisitions editor, *Organogenesis*, appointed Jan. 2012

Journal Reviewer
Annals of Biomedical Engineering, Acta Biomaterialia, Journal of Biomechanical Engineering, Journal of Biomedical Materials Research - Part A, Journal of Tissue Engineering and Regenerative Medicine, Journal of Bioscience and Bioengineering, PLOS One, Stem Cells, Cell Stem Cell, Stem Cell Research, Tissue Engineering-Part A, Circulation, Biotechnology Progress, Journal of Controlled Release

Membership in Professional Societies
Society for Biomaterials
Biomedical Engineering Society
International Society for Stem Cell Research
American Heart Association