

ZHONGKUI HONG, PhD

Associate Professor (tenured)

Mechanical Engineering Department
Texas Tech University

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EDUCATION & TRAINING

- Postdoctoral** (2007 - 2012) **Research project:** *Biomechanics-from cell to organ; mechanics of biomaterials*
University of Missouri, Columbia, MO
- Postdoctoral** (2006 - 2007) **Research project:** *Biomaterials and tissue engineering,*
3B's Research Group, University of Minho, Braga, Portugal
- Ph.D.** (2005) **Polymer chemistry and physics,**
Research project: *Mechanics of biomaterials and tissue engineering*
Changchun Institute of Applied Chemistry, Chinese Academy of Sciences Changchun, China.
- M.S.** (2001) **Materials sciences,**
Research project: Mechanics of materials
Beijing University of Chemical Technology, Beijing, China.
- B.E.** (1991) **Chemical engineering,**
Jilin institute of Chemical Technology, Jilin, China.

PROFESSIONAL POSITION AND RESEARCH EXPERIENCE

- 2022- **Associate Professor (Tenured)**
The Department of Mechanical Engineering, Texas Tech University
- *Biomechanics in cardiovascular disease.*
 - *Cytoskeleton dynamics.*
 - *Biomaterials.*
 - *Stem cell derived vascular tissue engineering.*
 - *Dynamics in cell migration.*
 - *Biomedical signal and image processing.*
 - *Biomechanics/dynamics in tumor growth and cancer metastasis.*
- 2021-2022 **Associate professor (Tenured)**
The Department of Biomedical Engineering, University of South Dakota
- 2015 - 2021 **Assistant professor (tenure track)**
The Department of Biomedical Engineering, University of South Dakota

- *Cell mechanics in cardiovascular disease.*
- *Cytoskeleton dynamics.*
- *Biomaterials.*
- *Stem cell derived vascular tissue engineering.*
- *Dynamics in cell migration.*
- *Biomedical signal and image processing.*
- *Cell mechanics/dynamics in tumor growth and cancer metastasis.*

2014 - 2015, **Assistant research professor**

The Department of Medical Pharmacology and Physiology, School of Medicine, University of Missouri - Columbia

- *Cell and vessel mechanics in cardiovascular disease.*
- *Cytoskeleton dynamics.*
- *Biomedical signal and image processing.*

2012 - 2014, **Research scientist**

Dalton Cardiovascular Research Center, University of Missouri - Columbia

- *Cell and vessel mechanics in cardiovascular disease.*
- *Cytoskeleton dynamics.*
- *Biomedical signal and image processing.*

2010 - 2012, **Postdoctoral research associate**

Dalton Cardiovascular Research Center, University of Missouri - Columbia

- *Cell and vessel mechanics in cardiovascular disease.*
- *Cytoskeleton dynamics.*

2007 - 2010, **Postdoctoral research associate**

Department of Physics and Astronomy, University of Missouri - Columbia

- *Interaction between cells and biomaterials by studying the cell spreading kinetics and cell mechanics.*
- *Effects of membrane cholesterol on cell mechanics.*

2006 - 2007, **Postdoctoral research fellow**

University of Minho (Portugal)

- *Injectable thermo-sensitive polymeric hydrogel composite containing bioactive ceramic nanoparticles.*
- *Bioactive ceramic nanoparticles with different constituents and morphologies.*
- *3D bioactive scaffolds with biodegradable organic/inorganic nano-composite.*

2005 - 2006, **Research associate**

Changchun Institute of Applied Chemistry, Chinese Academy of Sciences

- *Synthesis of biodegradable polymers by ring opening polymerization.*

- *Preparation of bioactive ceramic nanoparticles by the combination of Sol-gel and coprecipitation methods.*
- *Surface grafting of bioactive ceramic nano-particles by ring opening polymerization of glycolide, L-lactide, or caprolactone.*
- *Organic/inorganic nano-composite for tissue engineering.*

2001 - 2002, **Engineering scientist**

Research Institute of Jilin Petrochemical Company, PetroChina Company Ltd.

- *Acrylonitrile-butadiene-styrene/Poly(methyl methacrylate) alloy with high mechanical properties. (PI)*
- *Acrylonitrile-butadiene-styrene/Silicon oil alloy for car door inner board. (Co-PI)*

1991 - 1999, **Engineering scientist**

Research Institute of Jilin Petrochemical Company

- *Acrylonitrile-butadiene-styrene/Poly(vinyl chloride)/Acrylonitrile-butadiene rubber ternary blend for the covering material of car dashboard. (PI)*
- *Rapid setting epoxy adhesive and cement. (Co-PI)*

EXPERIENCE IN INSTRUMENT AND LAB SKILL

IR, XRD, DSC, TEM, SEM, ESEM, EDS, POM, AFM, Confocal Microscopy, PCR, Western blot.

COMPUTER PROFICIENCY

- Proficient in Matlab programming for image processing, biomedical signal processing, and data analysis.
- Proficient in image and statistical analysis software, e.g., Image Pro, Image J, Photoshop, Autosignal, OriginPro, IgorPro, etc.

SCHOLARSHIP & AWARD

- Richard and Sharon Cutler Outstanding Faculty Award, College of Arts and Science, The University of South Dakota, 2022.
- President's Award for Research Excellence, University of South Dakota, 2021.
- Faculty Travel Grant Award for attending the Society for Biomaterials Annual Conference, College of Arts & Sciences, University of South Dakota, 2021.
- Faculty Travel Grant Award for attending the World Congress of Biomaterials, College of Arts & Sciences, University of South Dakota, 2020.
- Faculty Travel Grant Award for attending the BMES Annual Conference (Philadelphia), College of Arts & Sciences, University of South Dakota, 2019.
- Faculty Travel Grant Award for attending the ATVB Scientific Session (San Francisco), College of Arts & Sciences, University of South Dakota, 2018.

- Scholarship Award, Vasculata Workshops (San Diego), North American Vascular Biology Organization, 2013.
- FCT Postdoc Fellowship Award, Portugal, 2006 - 2007.
- Research Assistant Scholarship, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China, 2002 - 2005.

SERVICE

State Level Service

- Science Communication Fellow, South Dakota Discovery Center, SD EPSCoR, 2018 – 2022

University Level Service

- Intellectual Property Committee, University of South Dakota, 2019 – 2022

College Level Service

- Biomedical Engineering Teaching Faculty Search Committee (TTU), 2022- present
- Materials Characterization Center (MCC) Review Committee (TTU), 2022- present
- Biomedical Engineering Program Committee (TTU), 2022- present
- Student Scholarship Committee, College of Arts and Sciences (USD), 2020 – 2022
- Tenure and Promotion Committee, College of Arts and Sciences (USD), 2021 – 2022

Department Level Service

- Graduate Program Committee (BME, USD), 2015 – 2022
- Faculty and Staff Search Committee (BME, USD), 2017, 2018

Service on Graduate Student Committee (University of South Dakota)

- Mariah Hoffman (PhD, Committee member, Major advisor: Etienne Gnimpieba, BME, 2022)
- Kirby Fuglsby (PhD, Committee member, Major advisor: Daniel Engebretson, BME, 2022)
- Elie Tabet (PhD, Committee member, Major advisor: Daniel Engebretson, BME, 2021)
- Kirby Fuglsby (Master, Committee member, Major advisor: Daniel Engebretson, BME, 2019)
- Jacob Miszuk (PhD, Committee member, Major advisor: Hongli Sun, BME, 2019)
- Bing Gao (Master, Committee member, Major advisor: Zhenqiang Wang, Chemistry, 2019)
- Gregory G Bertsch (PhD, Committee member, Major advisor: Daniel Engebretson, BME, 2018)
- Jordan Anderson (PhD, Committee member, Major advisor: Daniel Engebretson, BME, 2017)
- Thomas Vierhout (Master, Committee member, Major advisor: Daniel Engebretson, BME, 2017)
- Austin Letcher, (Master, Committee member, Major advisor: Ying Deng, BME, 2017)

- Eric Steven Sandhurst (Master, Committee member, Major advisor: Hongli Sun, BME, 2016)
- Jacob Miszuk (Master, Committee member, Major advisor: Hongli Sun, BME, 2016)
- Yangxi Liu (Master, Committee member, Major advisor: Hongli Sun, BME, 2016)
- Niranjana Ghimire (PhD, Committee member, Major advisor: Ying Deng, BME, 2016)

Professional Service

Editorial board

- Journal of Nanomaterials (2011 - 2014)
- Frontiers in Physiology: Vascular Physiology (Associate editor, 2017 - Present)
- PLOS ONE (2018-Present)
- Frontiers in Aging: Aging, Metabolism and Redox Biology (2020 - Present)
- Guest editor: Bioactive materials, Special issue for Polymeric Bone Biomaterials (2020)

Conference/symposia organization

- Chair of the session on the Cell Mechanobiology, Biomedical engineering society (BMES) annual conference, Philadelphia (2019)
- Chair of the session on the Mechanobiology of Cell-Cell Adhesion, Biomedical engineering society (BMES) annual conference, Philadelphia (2019)
- Chair of the session on the Engineering the Stem Cell Microenvironment, Biomedical engineering society (BMES) annual conference, Philadelphia (2019)

Grant reviewer

- American heart association (AHA):
BRAIN and Vascular Sciences: Ad Hoc Reviewer, 2016
Vascular Wall Biology BSc2 Peer Review Study Group: Ad Hoc Reviewer, 2017
Transformational Project Award (TPA) Vascular Sciences 2: Ad Hoc Reviewer, 2019, 2020
- National science foundation (NSF):
Biomechanics and Mechanobiology (BMMB) Program: Panel, 2017, 2019
- European Science Foundation (ESF) College of Expert Reviewers:
Excellent Initiative (IdEx) Senior Chair Program: Ad Hoc Reviewer, 2018
Research Foundation Flanders' (FWO): Ad Hoc Reviewer, 2019, 2020, 2022
- National Institutes of Health (NIH):
The Atherosclerosis and Inflammation of the Cardiovascular System (AICS) Study Section: Ad Hoc Reviewer, 2020
- Austrian Science Fund (FWF):
Stand-alone Projects: Ad Hoc Reviewer, 2021

Reviewer for scientific journal

- ACS Applied Materials and Interface
- ACS Applied Nanomaterials

- ACS Nano
- ACS Biomaterials Science and Engineering
- Acta Biomaterialia
- Acta Pharmaceutica Sinica B
- Advanced Biology
- Advanced Engineering Materials
- Applied Surface Science
- BBA – Biomembranes
- Bioactive Materials
- Bioengineering
- Composites Science and Technology
- European Polymer Journal
- Experimental and Molecular Pathology
- Frontiers in Cardiovascular Medicine
- Frontiers in Cell and Developmental Biology
- Frontiers in Physiology: Vascular Physiology
- Journal of Applied Polymer Sciences
- Journal of Biomaterials Applications
- Journal of Biomedical Materials Research B
- Journal of Cellular Physiology
- Journal of Colloid and Interface Science
- Journal of Drug Delivery Science and Technology
- Journal of Industrial and Engineering Chemistry
- Journal of Materials Research
- Journal of Materials Science
- Journal of Nanomaterials
- Journal of Nanoparticle Research
- Journal of Non-Crystalline Solids
- Journal of Physiology-London
- Journal of the Royal Society Interface
- Journal of Vascular Research
- Materials & Design
- Materials Science and Engineering C: Materials for Biological Applications
- Materials Letter
- Molecular Immunology

- Nanomedicine: Nanotechnology, Biology, and Medicine
- PLoS ONE
- Polymer
- Polymer Composites
- Polymer International
- Regenerative Biomaterials.
- Scientific Reports
- Cell and Tissue
- Tissue Engineering A, C
- Vascular Pharmacology

PROFESSIONAL MEMBERSHIP

- American Nano Society (2010 -)
- American Heart Association (2014 -)
- International Society of Biomechanics (2017)
- Biomedical Engineering Society (2017 -)
- Society for Biomaterials (2018 -)
- Biophysical society (2008 – 2010, 2020-)
- American Society of Biomechanics (2021)

TEACHING EXPERIENCE

Mentored/Trained Student

Undergraduate

Changyou Ren,	Jilin University, China (2004)
Jun Gao,	Jilin University, China (2005)
Paul Hampel,	University of Missouri (2009 - 2010)
Miranda Holtquist (Miranda Miles),	South Dakota State University, BioSNTR Summer Research Scholarship (2016)
Jonathon Dambrauskas	Peru State College, NE (2017)
Chase Wallace,	Arizona State University, BioSNTR Summer Research Scholarship (2018)
Neil Leyda,	South Dakota School of Mines & Technology, BME Department Summer Research Scholarship (2018)
Betty Fanta	University of South Dakota, BioSNTR Summer Research Scholarship (2019)

Graduate

Josh Childs,	Master, University of South Dakota (2015 - 2017)
Courtney Kinser,	Master, University of South Dakota (2017 - 2019)
Hanna Sanyour,	PhD, University of South Dakota (2015 - 2019)
Alex Rickel,	PhD, University of South Dakota (2016 - 2022)
Xiajun Deng,	Master, University of South Dakota (2020 - 2022)

Postdoc

Na Li,	University of South Dakota (2017 - 2019)
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Current student

Nisha Khatiwada	PhD candidate, Texas Tech University (2021 -)
Hashem Saker	PhD candidate, Texas Tech University (2023 -)
Rakibul Islam	PhD candidate, Texas Tech University (2023 -)

Course

- **ME4330:** Biomaterials (Undergraduate, TTU)
- **ME 5358:** Biomaterials (Graduate, TTU)
- **BME 408/508:** Introduction to Bioengineering: Introduction to Biomedical Image and Signal Processing (Undergraduate/Graduate, Co-taught, USD)
- **BME 408/508:** Introduction to Bioengineering: Introduction to Biomechanics (Undergraduate/Graduate, Co-taught, USD)
- **BME 408/508:** Introduction to Bioengineering: Introduction to Mechanics of Biomaterials (Undergraduate/Graduate, Co-taught, USD)
- **BME 792:** Biomechanics: From Cells to Organisms (Graduate/Undergraduate, USD)
- **ISCI 225:** Integrated Science: Chemical and Physical Processes in Biological System (Undergraduate, USD)
- **BME 302:** Quantitative System Physiology (Undergraduate, USD)

SELECTED PUBLICATIONS

Book Chapter

1. N. Li, A.P. Rickel, and **Z. Hong***. On-site Differentiation of Human Mesenchymal Stem Cells into Vascular Cells on Extracellular Matrix Scaffold under Mechanical Stimulations for Vascular Tissue Engineering. *Methods in Molecular Biology*, Springer Nature. 2022;2375:35-46.
2. H.J. Sanyour, A.P. Rickel, and **Z. Hong***. The Interplay of Membrane Cholesterol and Substrate on Vascular Smooth Muscle Biomechanics. *Current Topics in Membranes*, Elsevier. 2020, 86: 279-299.

Pear Reviewed Journal (*Corresponding author)

1. H.J. Sanyour, A.P. Rickel, and **Z. Hong***. The Nature of Biomechanical Oscillations in Vascular Smooth Muscle Cells. 2023, in preparation.
2. A.P. Rickel, **Z. Hong***. Molecularly crosslinked electrospun nanofibrous membrane consisting of gelatin methacryloyl and polycaprolactone for tissue engineering. 2023, in preparation.

3. J. Liu, A.P. Rickel, S. Smith, Z. Hong*, C. Wang*. Non-cytotoxic” doses of metal-organic framework nanoparticles increase endothelial permeability by inducing actin reorganization. Journal of Colloid and Interface Science, 2022, 634(15): 323-335.
4. A.P. Rickel, H.J. Sanyour, C.N. Kinser, N. Khatiwada, H. Vogel. **Z. Hong***. Exploring the difference in the mechanics of vascular smooth muscle cells from wild type and apolipoprotein-E knockout mice. American Journal of Physiology-Cell Physiology, 2022, 323 (5): C1393-C1401
5. A.P. Rickel, X. Deng, Daniel Engebretson, and **Z. Hong***. Electrospun Nanofiber Scaffold for Vascular Tissue Engineering. Materials Science and Engineering: C, 2021, 112373.
6. J.M. Miszuk, Z. Liang, J. Hu, H.J. Sanyour, **Z. Hong**, H. Fong, H. Sun. Elastic Mineralized 3D Electrospun PCL Nanofibrous Scaffold for Drug Release and Bone Tissue Engineering. ACS Applied Bio Materials, 2021, 4(4): 3639–3648.
7. D. Kota; L. Kang; A.P. Rickel, J. Liu S. Smith; **Z. Hong***, C. Wang*. Low doses of metal-organic framework nanoparticles alter the actin organization and contractility of vascular smooth muscle cells. Journal of Hazardous Materials, 2021, 414:125514.
8. A.P. Rickel, H.J. Sanyour, N.A. Leyda, and **Z. Hong***. Substrate Stiffness and Extracellular Matrix Proteins Synergistically Regulate Vascular Smooth Muscle Cell Migration and Cytoskeleton Orientation. ACS Applied Bio Materials, 2020, 3(4): 2360–2369.
9. H.J. Sanyour, N. Li, A.P. Rickel, H.M. Torres, R.H. Anderson, M. R. Miles, J.D. Childs, K.R. Francis, J. Tao and **Z. Hong***. Statin-mediated cholesterol depletion exerts coordinated effects on the alterations in rat vascular smooth muscle cell biomechanics and migration. The Journal of Physiology-London, 2020, 598(8): 1505-1522.
★ Highlighted by a Journal Club.
10. X. Shi, S. Cui, X. Song, A.P. Rickel, H.J. Sanyour, J. Zheng, J. Hu, **Z. Hong***, Y. Zhou, Yichun Liu. Gelatin-crosslinked pectin nanofiber mats allowing cell infiltration. Materials Science and Engineering: C, 2020, 112: 110941.
11. N. Li, F. Xue, H. Zhang, H.J. Sanyour, A.P. Rickel, A. Uttecht, B. Fanta, J. Hu, **Z. Hong***. Fabrication and Characterization of Pectin Hydrogel Nanofiber Scaffolds for Differentiation of Mesenchymal Stem Cells into Vascular Cells. ACS Biomaterials Science & Engineering, 2019, 5(12): 6511-6519.
12. N. Li, P.A. Rickel, H.J. Sanyour, and **Z. Hong***. Vessel Graft Fabricated by the On-site Differentiation of Human Mesenchymal Stem Cells Toward Vascular Cells on Vascular Extracellular Matrix Scaffold under Mechanical Stimulations in Bioreactor. Journal of Materials Chemistry B, 2019; 7: 2703-2713.
13. H.J. Sanyour, N. Li, A. Rickel, J.D. Childs, C. Kinser, **Z. Hong***, Membrane Cholesterol and Substrate Stiffness Coordinate to Induce the Remodeling of the Cytoskeleton and the Alteration in the Biomechanics of Vascular Smooth Muscle Cells. Cardiovascular Research, 2019; 115: 1369-1380.
★ Highlighted by an editorial commentary.
14. M. Madeo, P. Colbert, D. Vermeer, C. Lucido, J. Cain, E. Vichaya, A. Grossberg, D. Muirhead, A. Rickel, **Z. Hong**, J. Zhao, J. Weimer, W. Spanos, J. Lee, R. Dantzer, P. Vermeer. Cancer Exosomes Induce Tumor Innervation. Nature Communications, 2018; 9: 4284.
15. L. Xie, Z. Sun, **Z. Hong**, N. Brown, O. Glinskii, K. Rittenhouse-Olson, G.A. Meininger, V. Glinsky. Temporal and Molecular Dynamics of Human Metastatic Breast Carcinoma

- Cell Adhesive Interactions with Human Bone Marrow Endothelium Analyzed by Single-cell Force Spectroscopy, *PLoS ONE*, 2018; 13(9): e0204418.
16. N. Li, H.J. Sanyour, T. Remund, P. Kelly, **Z. Hong***. Vascular Extracellular Matrix and Fibroblasts-coculture Directed Differentiation of Human Mesenchymal Stem Cells Toward Smooth Muscle-like Cells for Vascular Tissue Engineering. *Materials Science and Engineering: C*, 2018; 93: 61-69.
 17. T. Xu, Q. Yao, J.M. Miszuk, H.J. Sanyour, **Z. Hong**, H. Sun, H. Fong, Tailoring Weight Ratio of PCL/PLA in Electrospun Three-dimensional Nanofibrous Scaffolds and the Effect on Osteogenic Differentiation of Stem Cells, *Colloids and Surfaces B: Biointerfaces*, 2018, 171: 31-39.
 18. H.J. Sanyour, J.D. Childs, G.A. Meininger, **Z. Hong***, Spontaneous Oscillation in Cell Adhesion and Stiffness Measured Using Atomic Force Microscopy. *Scientific Reports*, 2018; 8(1): 2899.
 19. J.M. Miszuk, T. Xu, Q. Yao, F. Fang, J.D. Childs, **Z. Hong**, J. Tao, H. Fong, H. Sun. Functionalization of PCL-3D Electrospun Nanofibrous Scaffolds for Improved BMP2-induced Bone Formation, *Applied Materials Today*, 2017; 10: 194-202.
 20. K. Hong, G. Zhao, **Z. Hong**, Z. Sun, Y. Yang, P.S. Clifford, M.J Davis, G.A. Meininger, M.A. Hill, Mechanical Activation of Angiotensin II Type 1 Receptors Causes Actin Remodelling and Myogenic Responsiveness in Skeletal Muscle Arterioles. *The Journal of Physiology-London*, 2016; 594(23): 7027-7047.
 21. **Z. Hong**, K.J. Reeves, Z. Sun, Z. Li, N.J. Brown, and G.A. Meininger. Vascular Smooth Muscle Cell Stiffness and Adhesion to Collagen I Modified by Vasoactive Agonists. 2015 *PLoS ONE*, 2015; 10(3): e0119533.
 22. N.L. Sehgel, Z. Sun, **Z. Hong**, W.C. Hunter, M.A. Hill, D.E. Vatner, S.F. Vatner, G.A. Meininger. Augmented Vascular Smooth Muscle Cell Stiffness and Extracellular Matrix Adhesion When Hypertension is Superimposed on Aging. *Hypertension*, 2015; 65(2): 370-377.
 23. M.C. Staiculescu, F.I. Ramirez-Perez, J.A. Castorena-Gonzalez, **Z. Hong**, Z. Sun, G.A. Meininger, L.A. Martinez-Lemus. Lysophosphatidic Acid Induces Integrin Activation in Vascular Smooth Muscle and Alters Arteriolar Myogenic Vasoconstriction. *Frontiers in Physiology*, 2014; 5(413): 1-12.
 24. **Z. Hong**, Z. Sun, M. Li, Z. Li, F. Bunyak, I. Ersoy, J.P. Trzeciakowski, M.C. Staiculescu, M. Jin, L. Martinez-Lemus, M.A. Hill, K. Palaniappan, and G.A. Meininger. Vasoactive Agonists Exert Dynamic and Coordinated Effects on Vascular Smooth Muscle Cell Elasticity, Cytoskeletal Remodeling and Adhesion. *The Journal of Physiology-London*, 2014; 592(6): 1249-1266.
★ *Featured as journal cover and highlighted by an editorial commentary.*
 25. N.L. Sehgel, Y. Zhu, Z. Sun, J.P. Trzeciakowski, **Z. Hong**, W.C. Hunter, D.E. Vatner, G.A. Meininger, and S.F. Vatner. Increased Vascular Smooth Muscle Cell Stiffness: A Novel Mechanism for Aortic Stiffness in Hypertension. *American journal of physiology. Heart and circulatory physiology* 2013; 305: H1281-7.
 26. **Z. Hong**, I. Ersoy, M. Sun, F. Bunyak, P. Hampel, Z. Hong, Z. Sun, Z. Li, I. Levitan, G.A. Meininger, and **K. Palaniappan**. Influence of Membrane Cholesterol and Substrate Elasticity on Endothelial Cell Spreading Behavior. *Journal of Biomedical Materials Research A* 2013; 101A: 1994-2004.
 27. **Z. Hong**, Z. Sun, Z. Li, W.T. Mesquitta, J.P. Trzeciakowski, and G.A. Meininger. Coordination of Fibronectin Adhesion with Contraction and Relaxation in Microvascular Smooth Muscle. *Cardiovascular Research* 2012; 96(1): 73-80.

28. *Highlighted by an editorial commentary.*
29. **Z. Hong**, M.C. Staiculescu, P. Hampel, I. Levitan, G. Forgacs. How Cholesterol Regulates Endothelial Biomechanics. *Frontiers in Physiology* 2012; 3: 426.
★ *Highlighted by an editorial commentary.*
30. Y. Zhu, H. Qiu, J.P. Trzeciakowski, Z. Sun, Z. Li, **Z. Hong**, M.A. Hill, W.C. Hunter, D.E. Vatner, S. F. Vatner, G.A. Meininger. Temporal Analysis of Vascular Smooth Muscle Cell Elasticity and Adhesion Reveals Oscillation Waveforms That Differ with Aging. *Aging Cell* 2012;11(5): 741-750.
31. P. Zhang, H. Wu, H. Wu, Z. Lu, C. Deng, **Z. Hong**, X. Jing, and X. Chen. RGD-Conjugated Copolymer Incorporated into Composite of Poly(lactide-co-glycolide) and Poly(l-lactide)-Grafted Nanohydroxyapatite for Bone Tissue Engineering. *Biomacromolecules* 2011; 12(7): 2667-2680.
32. A.R. Boccaccini, M. Erol, W.J. Stark, D. Mohn, **Z. Hong**, and J.F. Mano. Polymer/Bioactive Glass Nanocomposites for Biomedical Applications. *Composites Science and Technology* 2010; 70(13):1764-1776.
33. **Z. Hong**, Luz Gisela, P. Hampel, M. Jin, A. Liu, X. Chen, and J.F. Mano. Monodispersed Bioactive Glass Nanosphere: Preparation and Its Effects on Biomechanical Property of Mammalian Cells. *Journal of Biomedical Materials Research A* 2010; 95(3): 747-54.
34. **Z. Hong**. Recent Developments in Bioactive Ceramic/Glass: Preparation and Application in Tissue Engineering and Drug Delivery. *Recent Patents on Materials Science* 2010; 3(3): 239-257
35. **Z. Hong**, M.G. Esther, R.L. Reis, and J.F. Mano. Novel Rice-shaped Bioactive Ceramic Nanoparticles. *Advanced Engineering Materials* 2009; 11: B25-B29.
★ *Featured as journal cover*
36. **Z. Hong**, A. Liu, L. Chen, X. Chen, and X. Jing. Preparation of Bioactive Glass Ceramic Nanoparticles by Combination of sol-gel and Coprecipitation Method. *Journal of Non-Crystalline Solids* 2009; 355: 368-372.
37. P. Zhang, **Z. Hong**, T. Yu, X. Chen, and X. Jing. *In vivo* Mineralization and Osteogenesis of Nano-composite Scaffold of Poly(lactide-co-glycolide) and Hydroxyapatite Surface-grafted with Poly(L-lactide). *Biomaterials* 2009; 30: 58-70.
38. **Z. Hong**, R.L Reis, and J.F. Mano. Preparation and *In vitro* Characterization of Novel Bioactive Glass Ceramic Nanoparticles. *Journal of Biomedical Materials Research A* 2009; 88: 304-313.
39. D.S. Couto, **Z. Hong**, and J.F. Mano. Development of Bioactive and Biodegradable Chitosan-based Injectable Systems Containing Bioactive Glass Nanoparticles. *Acta Biomaterialia* 2009; 5: 115-123.
40. **Z. Hong**, R.L Reis, and J.F. Mano. Preparation and *In vitro* Characterization of Scaffolds of Poly(L-lactic acid) Containing Bioactive Glass Ceramic Nanoparticles. *Acta Biomaterialia* 2008; 4: 1297-1306.
41. A. Liu, **Z. Hong**, X. Zhuang, X. Chen, Y. Cui, Y. Liu, and X. Jing. Surface Modification of Bioactive Glass Nanoparticles and the Mechanical and Biological Properties of Poly(L-lactide) Composites, *Acta Biomaterialia* 2008; 4: 1005-1015.
42. **Z. Hong**, P. Zhang, A. Liu, Chen Li, X. Chen, and X. Jing. Composites of poly(lactide-co-glycolide) and the Surface Modified Carbonated Hydroxyapatite Nanoparticles. *Journal of Biomedical Materials Research A* 2007; 81: 515-522.

43. X. Xu, X. Chen, A. Liu, **Z. Hong** and X. Jing. Electrospun Poly(L-lactide)-grafted Hydroxyapatite/poly(L-lactide) Nanocomposite Fibers. *European Polymer Journal* 2007; 43: 3187-3196.
44. C. He, J. Sun, T. Zhao, **Z. Hong**, X. Zhuang, X. Chen, and X. Jing. Formation of a Unique Crystal Morphology for the Poly(ethylene glycol)-Poly(ϵ -caprolactone) Diblock Copolymer. *Biomacromolecules* 2006; 7(1): 252-258.
45. L. Chen, X. Qiu, Z. Xie, **Z. Hong**, J. Sun, X. Chen and X. Jing. Poly(l-lactide)/starch Blends Compatibilized with Poly(l-lactide)-g-starch Copolymer. *Carbohydrate Polymers* 2006; 65: 75-80.
46. **Z. Hong**, P. Zhang, C. He, X. Qiu, A. Liu, L. Chen, X. Chen, and X. Jing. Nano-composite of Poly(L-lactide) and Surface Grafted Hydroxyapatite: Mechanical Properties and Biocompatibility. *Biomaterials* 2005; 26: 6296-6304.
47. X. Qiu, **Z. Hong**, J Hu, L. Chen, X. Chen, and X. Jing. Hydroxyapatite Surface Modified by L-Lactic Acid and Its Subsequent Grafting Polymerization of L-Lactide. *Biomacromolecules* 2005; 6(3): 1193-1199.
48. L. Chen, X. Qiu, M. Deng, **Z. Hong**, R. Luo, X. Chen, and X. Jing. The Starch Grafted Poly(L-lactide) and the Physical Properties of its Blending Composites. *Polymer* 2005; 46: 5723-5729.
49. X. Qiu, L. Chen, J. Hu, J. Sun, **Z. Hong**, A. Liu, X. Chen, and X. Jing. Surface-modified Hydroxyapatite Linked by L-lactic Acid Oligomer in the Absence of Catalyst. *Journal of Polymer Science Part A* 2005; 43(21): 5177-5185.
50. **Z. Hong**, X. Qiu, J. Sun, M. Deng, X. Chen, and X. Jing. Grafting Polymerization of L-Lactide on the Surface of Hydroxyapatite Nanocrystals. *Polymer* 2004; 45: 6699-6706.
51. J. Sun, **Z. Hong**, L. Yang, Z. Tang, X. Chen, and X. Jing. Study on Crystalline Morphology of Poly(L-lactide)-poly(ethylene glycol) Diblock Copolymer. *Polymer* 2004; 45: 5969-5977.

Conference Proceeding (2009-)

1. N. Khatiwada, A.P. Rickel, **Z. Hong***, The Mechanical Contribution of Vascular Smooth Muscle Cells in Atherosclerosis. Biophysical Society Annual Meeting, February 18th – 22nd, 2023, San Diego, CA, USA. (Poster)
2. A.P. Rickel, **Z. Hong***, Electrospun Poly(ϵ -caprolactone)-Silk Fibroin Scaffold for Vascular Tissue Engineering, BMES Annual Meeting, October 12th - 15th, 2022, San Antonio, TX, USA. (Poster)
3. N. Khatiwada, A. P. Rickel, **Z. Hong***, Difference in the mechanics of vascular smooth muscle cells from wild type and apolipoprotein-E knockout mice, BMES Annual Meeting, October 12th - 15th, 2022, San Antonio, TX, USA. (Poster)
4. A.P. Rickel, **Z. Hong***, The Alteration in Cell Mechanics in Atherosclerosis, Vascular Discovery: From Genes to Medicine Scientific Sessions. May 11th -14th, 2022, Seattle, WA, USA. (Poster)
5. A.P. Rickel, **Z. Hong***, Electrospun Poly(ϵ -caprolactone)-Silk Fibroin Scaffold for Vascular Tissue Engineering, Society for Biomaterials Annual Meeting, April 27th - 30th, 2022, Baltimore, MD, USA. (Poster)
6. A.P. Rickel, H.J. Sanyour, **Z. Hong***, Pleiotropic Effect of Statin on Vascular Smooth Muscle Cell Mechanics and Migration, Biophysical Society Annual Meeting, February 19th - 23rd, 2022, San Francisco, CA, USA. (Poster)
7. A.P. Rickel, **Z. Hong***, Potential Application of Pectin Hydrogel Nanofiber in Tissue Engineering. BMES Annual Meeting, October 6th - 9th, 2021, Orlando, FL, USA.

(Poster)

8. A.P. Rickel, J. Hu, **Z. Hong***, Electrospun Hydrogel Nanofiber Scaffolds for The Differentiation of Mesenchymal Stem Cells into Vascular Cells. *Society for Biomaterials Annual Meeting*, April 20th - 23rd, 2021. (Virtual, Oral)
9. A.P. Rickel, **Z. Hong***, Substrate Stiffness and Extracellular Matrix Protein Coordinate Vascular Smooth Muscle Cell Migration Dynamics. *11TH World Biomaterials Conference (WBC2020)*, December 11th - 15th, 2020. (Virtual, Oral)
10. A.P. Rickel, N. Li, H.J. Sanyour, **Z. Hong***, Differentiation of Mesenchymal Stem Cells on Fibrous Scaffold under Mechanical Stimulations for Vascular Tissue Engineering. *BMES Annual Meeting*, October 16th - 17th, 2019, Philadelphia, PA, USA. (Poster)
11. A.P. Rickel, **Z. Hong***, Substrate Stiffness and Extracellular Matrix Protein Coordinate Vascular Smooth Muscle Cell Migration. *BMES Annual Meeting*, October 16th - 17th, 2019, Philadelphia, PA, USA. (Poster)
12. H.J. Sanyour, N. Li, J. Liu, **Z. Hong***, Vascular smooth muscle cell dynamics in atherosclerosis. *Vascular Discovery: From Genes to Medicine Scientific Sessions*. May 5th-7th, 2019, Boston, MA, USA. (Poster)
13. N. Li, A.P. Rickel, H.J. Sanyour, **Z. Hong***, Vessel Graft Fabricated by the Onsite Differentiation of Human Mesenchymal Stem Cells Toward Vascular Cells in Vascular Extracellular Matrix Scaffold under Mechanical Stimulations in Bioreactor. *Society for Biomaterials Annual Meeting*, April 3rd - 6th, 2019, Seattle, WA, USA. (Poster)
14. H.J. Sanyour, N. Li, A.P. Rickel, C.N. Kinser, **Z. Hong***. Cholesterol and Substrate Stiffness Coordinate to Regulate Mechanics of Vascular Smooth Muscle Cells. *BMES Annual Meeting*, Oct. 17th - 20th, 2018, Atlanta, GA, USA. (Poster)
15. N. Li, H.J. Sanyour, **Z. Hong***, Differentiation of Mesenchymal Stem Cells into Smooth Muscle Cells Directed by Extracellular Matrix. *BMES Annual Meeting*, Oct. 17th - 20th, 2018, Atlanta, GA, USA. (Poster)
16. H.J. Sanyour, J.D. Childs, N. Li, A. Rickel, **Z. Hong***. Does Membrane Cholesterol Regulate the Biomechanics and Migration of Vascular Smooth Muscle Cell Substrate Stiffness Dependently? *Cellular and Molecular Bioengineering Conference*, Jan. 2nd - 6th, 2018, Key Largo, FL, USA. (Poster)
17. **Z. Hong***. The Effects of Membrane Cholesterol and Extracellular Matrix Elasticity on Vascular Smooth Muscle Cell Mechanics and Migration. *North America Vascular Biology Organization Annual conference*, Oct. 15th -19th, 2017, Monterey, CA, USA. (Oral)
18. J.D. Childs, H. J. Sanyour, N. Li, A. Rickel, **Z. Hong***, Biomechanics of Vascular Smooth Muscle Cell in Atherosclerosis, *the XXVI Congress of the International Society of Biomechanics*, July 23rd - 27th, 2017, Brisbane, Australia. (Oral)
19. J.D. Childs, **Z. Hong***, The Effects of Membrane Cholesterol on Vascular Smooth Muscle Cell Stiffness and Adhesion to Fibronectin, *ATVB|PVD 2017 Scientific Sessions*, May 4 - 6, 2017 Minneapolis, MN, USA. (Oral)
20. H.J. Sanyour, **Z. Hong***, The Effects of Fluvastatin and Methyl- β -Cyclodextrin-Mediated Cholesterol Depletion on the Biomechanics of Vascular Smooth Muscle Cells in Atherosclerosis, *ATVB|PVD 2017 Scientific Sessions*, May 4 - 6, 2017 Minneapolis, MN, USA. (Poster)
21. J.D. Childs, H.J. Sanyour, **Z. Hong***, The Effects of Membrane Cholesterol on the Mechanics of Vascular Smooth Muscle Cell, *Experimental Biology Annual Meeting*. April 22nd - 26th, 2017, Chicago, IL, USA. (Poster)

22. H.J. Sanyour, M.M. Hoffman, D.S. Engebretson, **Z. Hong***, Effect of Membrane Cholesterol on Vascular Smooth Muscle Cell Stiffness and N-Cadherin Adhesion, *Biomedical Engineering Society Annual Meeting (BMES)*, Oct. 5th - 8th, 2016, Minneapolis, MN, USA. (Poster)
23. J.D. Childs, **Z. Hong***, The effects of Membrane Cholesterol on the Adhesion of Vascular Smooth Muscle Cells to Fibronectin, *Biomedical Engineering Society Annual Meeting (BMES)*, Oct. 5th - 8th, 2016, Minneapolis, MN, USA. (Poster)
24. G.A. Meininger, **Z. Hong**, M. Jin, Z. Li. The Effect of Substrate Stiffness on the Mechanical and Physiological Function of Vascular Smooth Muscle Cell, *XVII Annual Linz Winter Workshop*, Jan 30st - Feb. 2nd, 2015, Linz, Austria. (Poster)
25. **Z. Hong**, M. Jin, Z. Li, Z. Sun, and G.A. Meininger. Altering Extracellular Matrix Protein Substrates and Substrate Elasticity Has Variable Effects on Vascular Smooth Muscle Cell Stiffness and Adhesion to Fibronectin. *The 11th International Symposium on Resistance Arteries (ISRA)*, Sep. 7th - 11th, 2014, Banff, Canada. (Poster)
26. L.A. Martinez-Lemus, M.C. Staiculescu, J. Castorena-Gonzalez, **Z. Hong**, M.A. Hill, G.A. Meininger. Role of the Vascular Smooth Muscle Cytoskeleton on Vasoconstriction-induced Remodeling of Resistance Arteries. *The 11th International Symposium on Resistance Arteries (ISRA)*, Sep. 7th - 11th, 2014, Banff, Canada. (Poster)
27. **Z. Hong**, M. Jin, F. Bunyak, I. Ersoy, Z. Sun, M. Li, Z. Li, J.P. Trzeciakowski, M.A. Hill, K. Palaniappan, and G.A. Meininger. Vasoactive Agonists Effects on Vascular Smooth Muscle are Associated with Coordinated Changes in Cell Elasticity, Adhesion and Cytoskeletal Remodeling, *The 7th world congress of biomechanics*, July 6th - 11th, 2014, Boston, MA. (Oral)
28. **Z. Hong**, M. Jin, F. Bunyak, I. Ersoy, Z. Sun, Z. Li, K. Palaniappan, and G.A. Meininger. The Effect of Substrate Elasticity on the Mechanical and Physiological Function of Vascular Smooth Muscle Cell. *The FASEB Journal*, 2014; 28:1077.8. *Experimental Biology Annual Meeting*. April 26th - 30th, 2014, San Diego, CA, USA. (Poster)
29. L. Xie, Z. Sun, **Z. Hong**, N.J. Brown, O.V. Glinsky. V.V. Glinsky, and G.A. Meininger. Cell Confluency Modulates Cortical Stiffness of Human Bone Marrow Endothelial Cells. *The FASEB Journal*, 2014; 28:696.3. *Experimental Biology Annual Meeting*. April 26th - 30th, 2014, San Diego, CA, USA. (Poster)
30. **Z. Hong**, F. Bunyak, Z. Sun, Z. Li, M. Jin, I. Ersoy, J.P. Trzeciakowski, K. Palaniappan, and G.A. Meininger. Vasoactive Agonists Induce Oscillatory Changes in Cell Adhesion and Elasticity and Alter the Architecture of Actin Cytoskeleton in Vascular Smooth Muscle, *CV day*, Feb. 18th, 2014, Columbia, MO. (Poster)
31. G.A. Meininger, **Z. Hong**, Z. Sun, M. Li, Z. Li, F. Bunyak, I. Ersoy, J.P. Trzeciakowski, M.C. Staiculescu, L. Martinez-Lemus, M.A. Hill, K.J. Reeves, and K. Palaniappan. Dynamic Effects of Vasoactive Agonists on Vascular Smooth Muscle Cell Elasticity, Cytoskeletal Remodeling and Adhesion, *XVI. Annual Linz Winter Workshop*, Jan. 31st - Feb. 3rd, 2014, Linz, Austria. (Poster)
32. **Z. Hong**, Z. Sun, Z. Li, J.P. Trzeciakowski, F. Bunyak, I. Ersoy, K. Palaniappan, and G.A. Meininger. How Do Vasoactive Agonists Induce Oscillatory Changes in Stiffness and Cell Adhesion in Vascular Smooth Muscle Cell? *North America Vascular Biology Organization Annual conference (NAVBO 2013)*, Oct. 20th - 24th, 2013, Hyannis, MA, USA. (Poster)
33. **Z. Hong**, Z. Sun, Z. Li, J.P. Trzeciakowski, F. Bunyak, I. Ersoy, K. Palaniappan, and G.A. Meininger. Vasoactive Agonists Induce Oscillatory Changes in Biomechanics and

- Remodel Actin Cytoskeleton in Vascular Smooth Muscle. *J Muscle Res Cell Motil* (2014) 35:243. Regulatory Circuits in Cell Motility - a Symposium honoring David Hartshorne. Oct. 11th - 12th, 2013, Philadelphia, PA, USA. (Poster)
34. **Z. Hong**, Z. Sun, M. Li, Z. Li, F. Bunyak, I. Ersoy, J.P. Trzeciakowski, M.C. Staiculescu, M. Jin, Martinez-Lemus Luis, M.A. Hill, K. Palaniappan, and G.A. Meininger. Vasoactive Agonists Induce Oscillatory Changes in Vascular Smooth Muscle Cell Stiffness and Alter Cytoskeletal Architecture. *The FASEB Journal*, 2013; 27:921.4. Experimental Biology Annual Meeting. April 20th - 24th, 2013, Boston, MA, USA. (Oral)
 35. K.J. Reeves, **Z. Hong**, Z. Sun, Z. Li, and G.A. Meininger. Relationship Between Vascular Smooth Muscle Cell Stiffness and Integrin-mediated Collagen Adhesion in Response to Specific Vasoconstrictors and Vasodilators. *The FASEB Journal*, 2013; 27:679.7. Experimental Biology Annual Meeting. April 20th - 24th, 2013, Boston, MA, USA. (Poster)
 36. M.C. Staiculescu, **Z. Hong**, Z. Sun, F. Ramirez-Perez, G.A. **Meininger**, L.A. Martinez-Lemus. Lysophosphatidic Acid-induced Integrin Activation in Vascular Smooth Muscle Cells Requires Production of reactive oxygen species. *The FASEB Journal*, 2013; 27:678.6. Experimental Biology Annual Meeting. April 20th - 24th, 2013, Boston, MA, USA. (Poster)
 37. N.L. Sehgel, Y. Zhu, Z. Sun, **Z. Hong**, W.C. Hunter, D.E. Vatner, G.A. Meininger, and S.F. Vatner. Isolated Vascular Smooth Muscle Stiffness as a Common Mechanism to the Increased Aortic Stiffness of Aging and Hypertension. *The FASEB Journal*, 2013; 27:1b687. Experimental Biology Annual Meeting. April 20th - 24th, 2013, Boston, MA, USA. (Poster)
 38. Y. Zhu, M. Li, Z. Sun, Z. Li, **Z. Hong**, and G.A. Meininger. Calcium and Its Role in Vascular Smooth Muscle Cell Cortical Elasticity and Adhesion. *The FASEB Journal*, 2013; 27:1b700. Experimental Biology Annual Meeting. April 20th - 24th, 2013, Boston, MA, USA. (Poster)
 39. **Z. Hong**, Z. Sun, Z. Li, J.P. Trzeciakowski, and G.A. Meininger. Vasoactive Agonists Cause Changes in Vascular Smooth Muscle Cell Stiffness and Induce Stiffness Oscillations and Remodeling of Cytoskeletal Architecture. Joint meeting of the 27th European Society for Microcirculation (ESM) and the 7th European Vascular Biology Organisation. July 21st - 26th, 2013, Birmingham, UK. (Poster)
 40. **Z. Hong**, Z. Sun, Z. Li, J.P. Trzeciakowski, and G.A. Meininger. Vasoactive Agonists Induce the Changes in the Stiffness Oscillations and Cytoskeletal Architecture in Vascular Smooth Muscle Cell, XV. Annual Linz Winter Workshop, Feb. 15th - 18th, 2013, Linz, Austria. (Poster)
 41. G.A. Meininger, Y. Zhu, H. Qiu, J.P. Trzeciakowski, Z. Sun, Z. Li, **Z. Hong**, M.A. Hill, W.C. Hunter, D.E. Vatner, S.F. Vatner. Temporal Analysis of Vascular Smooth Muscle Cell Elasticity and Adhesion Reveals Oscillation Wave Forms That Differ with Aging. *Biophysical J* 2012; 102 (3): p359a. Biophysical Society 56th Annual Meeting, Feb. 25th - 29th, San Diego, California, USA. (Poster)
 42. **Z. Hong**, Z. Sun, Z. Li, and G.A. Meininger. Vasoactive Agents Result in Coordinated Changes in Vascular Smooth Muscle Cell Elasticity and Extracellular Matrix Adhesion. *The FASEB Journal*, 2012; 26: 859.6. Experimental Biology Annual Meeting. April 21st - 25th, 2012, San Diego, USA. (Poster)
 43. **Z. Hong**, Z. Sun, Z. Li, and G.A. Meininger. Effect of Angiotensin II on the Elasticity and Adhesion of Vascular Smooth Muscle Cells. Joint meeting of the European society

for microcirculation and the German society microcirculation and vascular biology, Oct. 13rd - 16th, 2011, Munich, Germany. (Poster)

44. **Z. Hong**, Z. Sun, Z. Li, and G.A. Meininger. Effects of Vasoconstrictors on the Biomechanical Properties of Single Vascular Smooth Muscle Cells. *The FASEB Journal*, 2011; 25: 1115.25. *Experimental Biology Annual Meeting*, April 9th - 13rd, 2011, Washington DC, USA. (Poster)
45. W.T. Mesquitta, Y. Zhu, **Z. Hong**, Z. Sun, S.F. Vatner and G.A. Meininger. Are Contraction and Adhesion Activated Simultaneously by Angiotensin II in Vascular Smooth Muscle? *The FASEB Journal*, 2011; 25: 1115.27. *Experimental Biology Annual Meeting*, April 9th - 13rd, 2011, Washington DC, USA. (Poster)
46. **Z. Hong**, Z. Sun, Z. Li, and G.A. Meininger. Vasoconstrictors Affect Both the Biomechanical and Adhesive Properties of Vascular Smooth Muscle Cells, *XIII. Annual Linz Winter Workshop*, Feb. 4th - 7th, 2011, Linz, Austria. (Poster)
47. **Z. Hong**, P. Hampel, M.C. Staiculescu, and G. Forgacs. Cholesterol and Phosphatidylinositol 4,5-bisphosphate Synergistically Affect Endothelial Biomechanics. *Biophysical J* 2010; 98 (3): p426a. *The 54th Biophysical Society Annual Meeting*, Feb. 20th - 25th 2010, San Francisco, USA. (Oral)
48. **Z. Hong**, M.C. Staiculescu, M. Sun, and G. Forgacs. How Phosphatidylinositol (4,5) Bisphosphate Regulates Membrane-cytoskeleton Interaction in Endothelial Cells? *Biophysical J* 2009; 96 (3): p395a. *The 53rd Biophysical Society Annual meeting*, Feb. 28th - March 4th, 2009, Boston, MA, USA. (Poster)

Invited Talk/Seminar

1. Mechanical Response Following Interrupted Cholesterol Metabolism in Vascular Smooth Muscle Cell, *Shanghai Jiao-Tong University Cardiology Forum & Translational Atherosclerosis Summit (TAS2020)*, October 30th - November 1st, 2020, Virtual.
2. Biomechanics in atherosclerosis and vascular tissue engineering. *Chemistry department, University of South Dakota*, October 28th, 2019, Vermillion, SD.
3. Role of membrane cholesterol in modulating vascular smooth muscle cell mechanics. *Northern Great Plains Lipids Conference*, July 25th-26th, 2019, Sioux Falls, SD.
4. Vascular Smooth Muscle Cell Mechanics in Atherosclerosis. *Center for Molecular and Translational Medicine, Georgia State University*, Oct. 17th, 2018, Atlanta, GA.
5. Vascular Smooth Muscle Cell Mechanics in Atherosclerosis. *Key Laboratory of UV-Emitting Materials and Technology, Northeast Normal University*, Aug. 10th, 2018, Changchun, China.
6. Vascular Smooth Muscle Cell Mechanics in Atherosclerosis. *Changchun Institute of Applied Chemistry, Chinese Academy of Sciences*, Aug. 9th, 2018, Changchun, China.
7. Vascular Smooth Muscle Cell Mechanics in Atherosclerosis. *Basic Biomedical Sciences, University of South Dakota*, Feb. 1st, 2018, Vermillion, SD.
8. The Effects of Membrane Cholesterol and Extracellular Matrix Elasticity on Vascular Smooth Muscle Cell Mechanics and Migration. *North America Vascular Biology Organization Annual conference (NAVBO 2017)*, Oct. 16th, 2017, Monterey, CA.
9. Biomechanics of Vascular Smooth Muscle Cell in Atherosclerosis. *Eastern South Dakota Research Symposium*, May 31st, 2017, Sioux Falls, SD.
10. Biomechanical and Physiological Responses of Vascular Smooth Muscle Cells to the Vasoactive Agonists. *Gear center, University of South Dakota*, May 21st, 2015, Sioux Falls, SD.
11. Vasoactive Agonists' Effects on Vascular Smooth Muscle are Associated with

Coordinated Changes in Cell Elasticity, Adhesion and Cytoskeletal Remodeling. *The 7th world congress of biomechanics*, July 6th, 2014, Boston, MA.

12. Coordinated Changes in Mechanical Properties and Cytoskeleton Architecture of Microvascular Smooth Muscle Cell. *Southwest National Primate Research Center, Texas Biomedical Research Institute*, Nov. 6th, 2013, San Antonio, TX.
13. Cell Adhesion and Cytoskeleton Remodeling in Microvascular Smooth Muscle Cell. *Department of Computer Science, University of Missouri*, Oct. 29th, 2012, Columbia, MO.

RESEARCH FUNDING/GRANT

Ongoing

1. Mechanical Response and Cytoskeletal Rearrangement Following Interrupted Cholesterol Metabolism in Vascular Smooth Muscle Cell, NIH 7 R15 HL147214-02 (\$428,542.00), 02/05/2020-01/31/2023, Role: PI.
2. The Role of Cellular Mechanical Oscillations in Triggering Cell Migration, NSF 2304667 (\$396,000.00), 10/01/2021 - 09/30/2024, Role: PI

Pending

1. None

Completed

1. Imaging, Materials & Genetic Engineering (IMAGEN): Biomaterials Research in South Dakota. R&D Collaboration Grant Program, South Dakota Board of Regents (\$179,580.00, subaward), 07/01/2019-06/30/2022, Role: Co-I.
2. Zeolitic Imidazolate Framework-8 for Therapeutic and Diagnostic Applications, South Dakota Board of Regents (\$25,000.00, subaward), 08/22/2021-08/21/2022, Role: Co-PI.
3. Novel Effects of Cholesterol on the Biophysical and Functional Properties of Vascular Smooth Muscle, Scientist Development Grant, American Heart Association (\$214,500.00), 07/01/2015-06/30/2019, Role: PI.
4. Biomechanics of Vascular Smooth Muscle Cell in Atherosclerosis. Competitive Research Grant Project, South Dakota Board of Regents (\$93,000.00), 08/22/2016-08/21/2018, Role: PI.
5. Stem Cell Differentiation on the Electrospun Nanofiber Scaffold for Vascular Tissue Engineering. BioSNTR Undergraduate Research Grant, South Dakota EPSCoR (\$5,500.00), 05/15/2019-07/31/2019, Role: Mentor.
6. Designing and Printing of 3D Models for Cell and Tissue Mechanics. BioSNTR Undergraduate Research Grant, South Dakota EPSCoR (\$5,000.00), 05/29/2018-08/03/2018, Role: Mentor.
7. The Effect of Statin on Vascular Smooth Muscle Cell Mechanics. BioSNTR Undergraduate Research Grant, South Dakota EPSCoR (\$5,000.00), 05/31/2016-08/05/2016, Role: Mentor.
8. Interaction of co-cultures of macrophages with platelets, endothelial cells, and smooth muscle cells on implantable polytetrafluoroethylene biomaterial. BioSNTR Seed Opportunity Program - Phase I, South Dakota EPSCoR (\$15,000.00), 01/01/2016-06/30/2016, Role: Co-I. (PI: Gopinath Mani)