

# JOSHUA D. HUTCHESON

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*Assistant Professor  
Biomedical Engineering  
Florida International University*

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Engineering Center 2600  
Miami, Florida 33174  
Email: [joshua.hutcheson@fiu.edu](mailto:joshua.hutcheson@fiu.edu)*

## GENERAL RESEARCH INTERESTS

*Cardiovascular disease and mechanobiology – Cellular mechanisms of disease  
Cell-cell and cell-matrix interactions – Cellular interactions in tissue homeostasis  
Tissue engineering – Development of engineered tissue substitutes  
Molecular imaging – Imaging of cardiovascular tissue remodeling and disease*

## PROFESSIONAL EXPERIENCE

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### **Assistant Professor, Florida International University**

(August 2016 – Present)

*Biomedical Engineering*

### **Postdoctoral Research Fellow, Harvard University Medical School**

(September 2012 – August 2016)

Mentor: Dr. Elena Aikawa

*Center for Interdisciplinary Cardiovascular Sciences*

*Cardiovascular Division*

*Department of Medicine*

*Brigham and Women's Hospital*

## EDUCATION

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**Doctor of Philosophy**, Biomedical Engineering, Vanderbilt University, 2012

Dissertation Title: *TGF- $\beta$ 1 –Induced Calcification of Valvular Myofibroblasts:*

*Mechanisms and Therapeutic Strategies*

Mentor: Dr. W. David Merryman

**Master of Science**, Chemical Engineering, Georgia Institute of Technology, 2008

Thesis Title: *Quantification and control of ultrasound-mediated cell death modes*

Mentor: Dr. Mark R. Prausnitz

**Bachelor of Science**, Chemical and Biomolecular Engineering, Georgia Institute of Technology, 2005

## HONORS AND AWARDS

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- 2018, Florida Heart Research Foundation Researcher of the Year; \$25,000 research award given at the annual meeting of the American College of Cardiology, Florida Chapter; researchers are nominated by colleagues and selected by an award panel
- 2014, Center for Interdisciplinary Cardiovascular Sciences Innovation Award
- 2013, Atherosclerosis, Thrombosis and Vascular Biology (ATVB) Young Investigator Travel Award; \$500 travel stipend given to outstanding abstracts presented at the American Heart Association national scientific sessions
- 2013, North American Vascular Biology Organization (NAVBO) Outstanding Poster Award; \$250 award given based upon judged scoring of poster presentations at the annual NAVBO meeting
- 2010, Pre-doctoral Fellowship, American Heart Association
- 2008, Engineering Scholars Award, University of Alabama at Birmingham
- 2006, GAAN Fellowship, Department of Education
- 2005, President's Undergraduate Research Award, Georgia Institute of Technology

## RESEARCH SUPPORT

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American Heart Association      **Hutcheson J.D. (PI)**      07/01/2017-06/30/2020  
Scientist Development Grant: "Tracing the Therapeutic Efficacy of Bisphosphonates in Bone and Vascular Mineralization"

To study the similarities and differences between bone and vascular mineralization and the use of bisphosphonates as a treatment strategy for each.

NSF PATHS-UP      **Hutcheson J.D. (PI)**      09/01/2019-08/31/2020  
Seed Grant: "Development of a Biosensing Platform for Vascular Calcification"

To study the extracellular vesicle-mediated mechanisms of vascular calcification and develop a platform that can diagnose the presence of these vesicles in blood serum

## JOURNAL PUBLICATIONS

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37. Jiang Z, Lai Y, Beaver JM, Tsegay PS, Zhao ML, Horton JK, Zamora M, Rein HL, Miralles F, Shaver M, **Hutcheson JD**, Agoulnik I, Wilson SH, Liu Y. Oxidative DNA Damage Modulates DNA Methylation Pattern in Human Breast Cancer 1 (BRCA1) Gene via the Crosstalk between DNA Polymerase  $\beta$  and a de novo DNA Methyltransferase. *Cells*, 9(1), 2020.
36. Bhushan P, Umasankar Y, **Hutcheson JD**, Bhansali S. Toxicity assessment of wearable wound sensor constituents on keratinocytes. 58: 170-177, 2019.

35. Creager MD, Hohl T, **Hutcheson JD**, Moss AJ, Schlotter F, Blaser MC, Park MA, Lee LH, Singh SA, Alcaide-Corral CJ, Tavares AAS, Newby DE, Kijewski MF, Aikawa M, Di Carli M, Dweck MR, Aikawa E. 18F-Fluoride Signal Amplification Identifies Microcalcifications Associated With Atherosclerotic Plaque Instability in Positron Emission Tomography/Computed Tomography Images. *Circulation: Cardiovascular Imaging*, 2019 Jan;12(1):e007835.
34. RoyChoudhury S, Umasankar Y, **Hutcheson JD**, Lev-Tov HA, Kirsner RS, Bhansali S, “Uricase Based Enzymatic Biosensor for Non-Invasive Detection of Uric Acid by Entrapment in PVA-SbQ Polymer Matrix”, *Electroanalysis*, 30(10):2374-2385, 2018.
33. **Hutcheson JD**, Aikawa E, “Extracellular vesicles in cardiovascular homeostasis and disease”, *Current opinion in cardiology*, 33(3): 290-297, 2018.
32. Pokhrel R, Gerstman BS, **Hutcheson JD**, Chapagain PP, “In Silico Investigations of Calcium Phosphate Mineralization in Extracellular Vesicles”, *The journal of physical chemistry. B.*, 122(14): 3782-3789, 2018.
31. Schlotter F, Halu A, Goto S, Blaser MC, Body SC, Lee LH, Higashi H, DeLaughter DM, **Hutcheson JD**, Vyas P, Pham T, Rogers MA, Sharma A, Seidman CE, Loscalzo J, Seidman JG, Aikawa M, Singh SA, Aikawa E, “Spatiotemporal Multi-omics Mapping Generates a Molecular Atlas of the Aortic Valve and Reveals Networks Driving Disease”, *Circulation*, 2018 Jul 24;138(4):377-393.
30. Rogers MA, Maldonado N, **Hutcheson JD**, Goettsch C, Goto S, Yamada I, Faits T, Sesaki H, Aikawa M, Aikawa E, “Dynamin-Related Protein 1 Inhibition Attenuates Cardiovascular Calcification in the Presence of Oxidative Stress”, *Circulation Research*, 121(3): 220-233, 2017.
29. C Goettsch, H Iwata, **JD Hutcheson**, CJ O'Donnell, R Chapurlat, NR Cook, M Aikawa, P Szulc, E Aikawa, “Serum Sortilin Associates With Aortic Calcification and Cardiovascular Risk in Men”, *Arteriosclerosis, Thrombosis, and Vascular Biology*, 37(5): 1005-1011, 2017.
28. **JD Hutcheson**, MC Blaser, E Aikawa, “Giving Calcification Its Due: Recognition of a Diverse Disease A First Attempt to Standardize the Field”, *Circulation Research*, 120(2):270-273, 2017.
27. K Yabusaki, **JD Hutcheson**, P Vyas, S Bertazzo, SC Body, M Aikawa, E Aikawa, “Quantification of Calcified Particles in Human Valve Tissue Reveals Asymmetry of Calcific Aortic Valve Disease Development”, *Frontiers in Cardiovascular Medicine*, Nov 4; 3:44, 2017.
26. R Krammann, C Goettsch, J Wongboonsin, H Iwata, RK Schneider, C Kuppe, N Kaesler, M Chang-Panesso, F Machado, S Gratwohl, C Vemuri, K

- Madhurima, **JD Hutcheson**, S Jain, E Aikawa, BD Humphreys, “Adventitial MSC-like cells are progenitors of vascular smooth muscle cells and drive vascular calcification in chronic kidney disease”, *Cell Stem Cell*, 19(5):628-642, 2016.
25. C Goettsch\*, **JD Hutcheson\***, S Hagita\*, M Rogers, MD Creager, T Pham, J Choi, AK Mlynarchik, MF Kjolby, M Aikawa, E Aikawa, “A single injection of gain-of-function mutant PCSK9 adeno-associated virus vector induces cardiovascular calcification in mice with no genetic modification”, *Atherosclerosis*, 251:109-18, 2016. **\*Equal Contribution**
  24. C O’Rourke, G Shelton, **JD Hutcheson**, MF Burke, T Martyn, HR Shakartz, MD Buswell, RE Tainsh, B Yu, DK Rhee, C Wu, M Derwall, ES Buys, PB Yu, KD Bloch, E Aikawa, DB Bloch, R Malhotra, “Calcification of Vascular Smooth Muscle Cells and Imaging of Aortic Calcification and Inflammation”, *Journal of Visualized Experiments*, May 31;(111), 2016.
  23. JD West, EJ Carrier, NC Bloodworth, AK Schroer, P Chen, LM Ryzhova, S Gladson, S Shay, **JD Hutcheson**, WD Merryman, “Serotonin 2B Receptor Antagonism Prevents Heritable Pulmonary Arterial Hypertension”, *PLoS One*, 11(2):e0148657, 2016.
  22. J Krohn, **JD Hutcheson\***, E Martinez-Martinez, WS Irvin, S Bertazzo, CVC Bouten, MP Bendeck, E Aikawa\*, “Discoidin Domain Receptor-1 Regulates Calcific Extracellular Vesicle Release in Vascular Smooth Muscle Cell Fibrocalcific Response via TGF- $\beta$  Signaling”, *Arteriosclerosis, Thrombosis, and Vascular Biology*, 36(3):525-33, 2016. **\*Co-corresponding authors**
  21. JL Ruiz, Weinbaum S, Aikawa, E, **JD Hutcheson**, “Zooming in on the genesis of atherosclerotic plaque microcalcifications”, *Journal of Physiology*, 594(11):2915-27, 2016.
  20. **JD Hutcheson**, C Goettsch, S Bertazzo, N Maldonado, JL Ruiz, W Goh, K Yabusaki, T Faits, C Bouten, P Libby, M Aikawa, S Weinbaum, E Aikawa, “High-resolution microscopic visualization of vascular calcification genesis, growth, and association with collagen in atherosclerotic plaques”, *Nature Materials*, 15(3):335-43, 2016.
  19. C Goettsch, **JD Hutcheson**, M Aikawa, A Nykjaer, M Kjolby, M Rogers, T Michel, M Shibasaki, DJ Rader, P Libby, SA Singh, E Aikawa, “Sortilin mediates vascular calcification via its recruitment into extracellular vesicles”, *Journal of Clinical Investigation*, 126(4):1323-36, 2016.
  18. J Hjortnaes, C Goettsch, **JD Hutcheson**, G Camci-Unal, L Lax, K Scherer, FJ Schoen, J Kluin, A Khademhosseini, E Aikawa, “Simulating Early Calcific Aortic Valve Disease within a 3D Heart Valve-like Construct: A Role for Myofibroblast Differentiation”, *Journal of Molecular and Cellular Cardiology*, 94:13-20, 2016.

17. **JD Hutcheson**, C Goettsch, MA Rogers, E Aikawa, “Revisiting Cardiovascular Calcification: A Multifaceted Disease Requiring a Multidisciplinary Approach”, Invited Review, *Seminars in Cell and Developmental Biology*, 46:68-77, 2015.
16. J Hjortnaes, K Shapero, C Goettsch, **JD Hutcheson**, J Keegan, J Kluin, JE Mayer, J Bischoff, E Aikawa, “Valvular Interstitial Cells Suppress Calcification of Valvular Endothelial Cells”, *Atherosclerosis*, 242(1): 251-260, 2015.
15. J Ruiz, **JD Hutcheson**, E Aikawa, “Cardiovascular Calcification: Current Controversies and Novel Concepts”, Invited Review, *Cardiovascular Pathology*, 10(7), 2015.
14. **JD Hutcheson**, C Goettsch, T Pham, M Aikawa, SA Singh, E Aikawa, “Enrichment of calcifying extracellular vesicles using density-based ultracentrifugation protocol”, *Journal of Extracellular Vesicles*, Dec 5;3:25129, 2014.
13. **JD Hutcheson**, N Maldonado, E Aikawa, “Small entities with large impact: microcalcifications and atherosclerotic plaque vulnerability”, *Current Opinion in Lipidology*, 25(5):327-32, 2014.
12. J Hjortnaes, G Camci-Unal, **JD Hutcheson**, SM Jung, FJ Schoen, J Kluin, E Aikawa, A Khademhosseini, “Directing Valvular Interstitial Cell Myofibroblast-Like Differentiation in a Hybrid Hydrogel Platform”, *Advanced Healthcare Materials*, 4(1): 121-130, 2015.
11. **JD Hutcheson**, E Aikawa, WD Merryman, “Potential drug targets for calcific aortic valve disease”, *Nature Reviews Cardiology*, 11(4): 218-31, 2014.
10. E Aikawa, C Gardiner, **JD Hutcheson**, T Ochiya, X Osteikoetxea, M Pegtel, M Piper, P Quesenberry, RM Schiffelers, TG SZABo, and EI Buzas, “International Society for Extracellular Vesicles: Second Annual Meeting, 12-20 April 2013, Boston, MA (ISEV 2013)”, *Journal of Extracellular Vesicles* 2: 23070-23089, 2013.
9. C Goettsch, **JD Hutcheson**, and E Aikawa, “MicroRNA in cardiovascular calcification: Focus on targets and extracellular vesicle delivery mechanisms”, *Circulation Research* 112(7): 1073-84, 2013.
8. **JD Hutcheson**, J Chen, MK Sewell-Loftin, LM Ryzhova, CI Fisher, YR Su, WD Merryman, “Cadherin-11 regulates cell-cell tension necessary for calcific nodule formation by valvular myofibroblasts”, *Arteriosclerosis, Thrombosis, and Vascular Biology*, Vol. 33(1): 114-20, 2013.
7. **JD Hutcheson**, L Ryzhova, V Setola, and WD Merryman, “5-HT<sub>2B</sub> antagonism arrests non-canonical TGF- $\beta$ 1-induced myofibroblast differentiation”, *Journal of Molecular and Cellular Cardiology* 53(5): 707-714, 2012.

6. **JD Hutcheson**, R Venkataraman, FJ Baudenbacher, and WD Merryman, "Intracellular Ca<sup>2+</sup> accumulation is strain-dependent and correlates with apoptosis in aortic valve fibroblasts", *Journal of Biomechanics* 45(5): 888-894, 2012.
5. **JD Hutcheson**, V Setola, BL Roth, and WD Merryman, "Serotonin Receptors and Heart Valve Disease—It Was Meant 2B", *Pharmacology & Therapeutics* 132(2): 146-157, 2011.
4. SO Choi, YC Kim, JH Park, **JD Hutcheson**, HS Gill, YK Yoon, MR Prausnitz, MG Allen, "An electrically active microneedle array for electroporation", *Biomedical Microdevices* 12(2): 263-273, 2010.
3. **JD Hutcheson**, RK Schlicher, HK Hicks, and MR Prausnitz, "Saving cells from ultrasound-induced apoptosis: quantification of cell death and uptake following sonication and effects of targeted calcium chelation", *Ultrasound in Medicine and Biology* 36(6): 1008-1021, 2010.
2. RK Schlicher, **JD Hutcheson**, RP Apkarian and MR Prausnitz, "Changes in cell morphology due to plasma membrane wounding", *Ultrasound in Medicine and Biology* 36(4): 677-692, 2010.
1. PP Kamaev, **JD Hutcheson**, M Wilson, and MR Prausnitz, "Quantification of optison bubble size and lifetime during sonication dominant role of secondary cavitation bubbles causing acoustic bioeffects", *Journal of the Acoustical Society of America*. 115: 1818-1825, 2004.

## BOOK CHAPTERS

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4. **JD Hutcheson** and E Aikawa, *Pathobiology and optical imaging of calcific aortic valve disease*, *Cardiovascular Imaging - Arterial and Aortic Valve Inflammation and Calcification* ed. by Elena Aikawa, Springer, 2015.
3. **JD Hutcheson** and E Aikawa, *Optical Molecular Imaging of Inflammation and Calcification in Atherosclerosis*, *Cardiovascular Imaging - Arterial and Aortic Valve Inflammation and Calcification* ed. by Elena Aikawa, Springer, 2015.
2. **JD Hutcheson** and E Aikawa, *Valvular Heart Disease*, *Pathobiology of Human Disease* ed. by Linda M. McManus and Richard N. Mitchell, Elsevier, 2014.
1. **JD Hutcheson**, MP Nilo, and WD Merryman, *Mechanobiology of Heart Valves*, *Mechanobiology Handbook* ed. by Jiro Nagatomi, CRC Press, 2011.

## CONFERENCE PODIUM PRESENTATIONS

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\* indicates presenter

13. J Krohn, **JD Hutcheson\***, E Martinez-Martinez, CVC Bouten, MP Bendeck, E Aikawa. "Discoidin Domain Receptor-1: A Novel Molecular Switch Regulating Fibrocalcific Response in Vascular Smooth Muscle Cells." **Russell Ross Memorial Lecture**, AHA Scientific Sessions, Orlando, Florida, 2015
12. **JD Hutcheson\***, C Goettsch, S Bertazzo, N Maldonado, P Ricchiuto, R Driessen, C Bouten, M Aikawa, and E Aikawa. "Plaque-destabilizing microcalcifications: Novel insights into atherosclerotic plaque vulnerability." Podium presentation, ISACB Conference, Cleveland, Ohio, 2014
11. **JD Hutcheson\*** and WD Merryman. "Calcium Accumulation in Strained Aortic Valve Interstitial Cells." Podium presentation, BMES Conference 2010
10. **JD Hutcheson\*** and WD Merryman. "Serotonin antagonists prevent cytokine and mechanical activation of aortic valve interstitial cells." Podium presentation, Proceeding in Bioengineering (ASME), Naples, FL (6/2010)
9. WD Merryman\* and **JD Hutcheson**. "Controlling the mechanical myofibroblast via Src: A potential drug discovery platform." Podium presentation, Proceeding in Bioengineering (ASME), Naples, FL (6/2010)
8. WD Merryman\* and **JD Hutcheson**. "5-HT<sub>2b</sub> antagonist prevents TGF- $\beta$ <sub>1</sub>-mediated activation of AVICs, potentially via Src tyrosine kinase." Podium presentation, Biennial Heart Valve Meeting, Hilton Head Island, South Carolina. March 7-10, 2010.
7. **JD Hutcheson\*** and WD Merryman. "5-HT<sub>2B</sub> Antagonist Prevents TGF- $\beta$ <sub>1</sub>-mediated Myofibroblast Activation." Podium presentation, BMES Conference 2009
6. WD Merryman\* and **JD Hutcheson**. "Preventing Transforming Growth Factor -  $\beta$ <sub>1</sub> Signaling In Aortic Valve Interstitial Cells With Serotonin Antagonists." Podium presentation, Biennial Meeting of the Society of Heart Valve Disease, Berlin, Germany. June 27-30, 2009.
5. RK Schlicher\*, **JD Hutcheson**, DM Hallow, RP Apkarian and MR Prausnitz. "Identifying and controlling acoustic bioeffects," Podium presentation, 157th Meeting of the Acoustical Society of America, Portland, OR (5/09)
4. RK Schlicher\*, **JD Hutcheson**, DM Hallow, MR Prausnitz. "Identifying and Controlling Acoustic Bioeffects," Podium presentation, Acoustical Society of America Meeting (April 2009)
3. YC Kim\*, SO Choi, **JD Hutcheson**, MG Allen, MR Prausnitz. "A Polymeric Electroporation Microneedle Array for Minimally Invasive and Highly

- Localized Electrogenetherapy and Electrochemotherapy.” Podium presentation, AIChE Conference 2008.
2. **JD Hutcheson\***, RK Schlicher, MR Prausnitz. “Ultrasound-Mediated Cell Death,” Podium presentation, American Institute of Chemical Engineers Southern Regional Conference (Spring 2005)
  1. PP Kamaev\*, **JD Hutcheson**, ML Wilson, and MR Prausnitz. “Acoustic cavitation activity and bubble lifetime as markers for ultrasound’s bioeffects”. Podium presentation, Biomedical Engineering Society Meeting, Nashville, TN, USA. October 1-4, 2003.

## INVITED TALKS

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\* indicates presenter

9. **JD Hutcheson\***. “Cardiovascular mechanics and extracellular vesicles” Invited talk, North American Vascular Biology Organization Meeting, Newport, Rhode Island, October 2018.
8. **JD Hutcheson\***. “Detecting the Undetectable: Mechanisms and Clinical Implications of Microcalcification” Invited talk, European Union INTRICARE Meeting, Aachen, Germany, March 2018.
7. **JD Hutcheson\***. “Aortic Valve Melanocytic Cells Control Valvular Elastogenesis” Invited talk, The 50<sup>th</sup> Anniversary Celebration of the First Heart Transplant, Cape Town, South Africa, December 2017.
6. **JD Hutcheson\***, C Goettsch, and E Aikawa. “A High Resolution Analysis of Matrix Vesicle-Derived Destabilizing Microcalcifications in Thinning Atherosclerotic Caps” Invited talk, The Physiological Society: Physiology 2015, Cardiff, Wales, July 2015
5. **JD Hutcheson\***, C Goettsch, and E Aikawa. “Collagen density regulates matrix vesicle-induced nucleation of microcalcifications: insights into atherosclerotic plaque vulnerability” Invited talk, Microvesicles and Exosomes Seminar Series, Boston, MA, September 2014
4. **JD Hutcheson\***, C Goettsch, and E Aikawa. “The role of inflammation on the formation of microcalcifications in the vessel wall” Invited talk, World Congress of Biomechanics, Boston, MA, July 2014
3. **JD Hutcheson\*** and E Aikawa. “The role of matrix vesicle-derived microcalcification in plaque rupture” Invited talk, Brigham Research Institute, Cardiovascular disease, diabetes and metabolic disorders seminar, Brigham and Women’s Hospital, Boston, MA, September 25, 2013
2. **JD Hutcheson\***, L Ryzhova, V Setola and WD Merryman. “5-HT<sub>2B</sub> antagonism arrests non-canonical TGF- $\beta$ 1-induced myofibroblast



differentiation” Invited talk, Center for Interdisciplinary Cardiovascular Sciences, Brigham and Women’s Hospital, Boston, MA, May 4, 2012

1. **JD Hutcheson\***, V Setola, BL Roth, and WD Merryman. “Antagonism of the 5-HT<sub>2B</sub> receptor prevents TGF-beta1 effects in aortic valve fibroblasts.” Invited Presentation. Presenter, Cardiovascular Biology Session, Experimental Biology Conference. April 2011.

## Conference Sessions Chaired

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Session on Cell Mechanics, PhD Student Paper Competition, World Congress of Biomechanics, July 7, 2014.

Session on Aortic Valve Physiology and Disease, Biennial Meeting of International Society of Applied Cardiovascular Biology, August 8, 2016.

Session on Biomechanics of Vascular Tissue Engineering, World Congress of Biomechanics, July 9, 2018.

Session on Cardiovascular Omics, North American Vascular Biology Organization Meeting, October 17, 2018.

## PATENTS

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U.S. Patent, PCT/US2015/061008, filed September, 23, 2014, entitled “Mitochondrial Phosphate Carrier Targets for Calcification Therapy”.

U.S. Patent Application Pending, US15035901, filed November, 15, 2013, entitled “System and method for imaging of matrix vesicle calcification”.

U.S. Provisional Patent Application Serial No. 61/640,240, filed April 30, 2012, entitled “Compositions and methods for treating or preventing fibrosis”.

## PROFESSIONAL MEMBERSHIPS

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International Society of Applied Cardiovascular Biology (**Executive Council**, Spring 2014 – Present); American Heart Association (Member, Summer 2013 – Present); North American Vascular Biology Organization (Member, Fall 2013 – Present); Biomedical Engineering Society (Member, Fall 2010 – Fall 2012); American Association for the Advancement of Science (Member, Fall 2008 – Fall 2010); Association of Chemical Engineering Graduate Students (GT Chapter) (Member, Fall 2006 – Summer 2008, **Vice President**, Summer 2007 – Spring 2008); American Institute of Chemical Engineers (Member, Spring 2003 – Fall 2005)

## STUDENTS MENTORED

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Valentina Dargam, FIU PhD Student 2018-Present  
Daniel Chaparro, FIU PhD Student 2018-Present  
Mohammad Shaver, FIU PhD Student 2018-Present  
Denise Hsu, co-mentor, FIU PhD Student 2017-Present  
Amirala Bakhshiannik, MS, FIU PhD Student 2017-Present  
Rachel Montalvan, FIU MS Student 2016-Present  
Walter Heatherly, FIU Undergraduate Student 2016-Present  
Jessica Molina, FIU Undergraduate Student 2016-Present  
Daniela Medina, FIU Undergraduate Student 2016-2018  
Jumana Afaghani, FIU Undergraduate Student 2016 - 2017  
Holly K. Hicks, BS, Georgia Tech undergraduate in Prausnitz Lab 2006-2007  
Phillip H. Yun, BS, High school summer student in Prausnitz Lab 2006  
Aria Behrouzi, BS, N.C. State undergraduate visiting Prausnitz Lab 2007  
Boris Simmons, BS, UAB undergraduate in Merryman Lab 2008-2009  
Travis Meyer, BS, Vanderbilt Undergraduate in Merryman Lab 2010  
Corey Peak, BS, Vanderbilt Undergraduate in Merryman Lab 2010  
Chelsea Stowell, BS, Vanderbilt Undergraduate in Merryman Lab 2010-2011  
Stephanie C. Preston, BS, Vanderbilt Undergraduate in Merryman Lab 2011-2012  
Michael J. Duplessis, M.S., High school teacher visiting Merryman Lab 2010, 2011, 2012

## TEACHING EXPERIENCE

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- Cardiovascular Biomechanics (Spring 2018-Present)
- Engineering Undergraduate Mass Transport (Spring 2017-Present)
- Biomedical Engineering Graduate Mass Transport  
Guest Lecturer for W. David Merryman, PhD (Spring 2012)
- Biomedical Engineering Graduate Mass Transport  
Guest Lecturer for W. David Merryman, PhD (Spring 2011)
- Biomedical Engineering Undergraduate Mass Transport  
Guest Lecturer for W. David Merryman, PhD (Fall 2008)
- Chemical Engineering Undergraduate Process Control Laboratory  
Teaching Assistant for Larry J. Forney, PhD (Spring 2008)
- Chemical Engineering Undergraduate Senior Design  
Teaching Assistant for Jim Frederick, PhD (Summer 2007)
- Chemical Engineering Undergraduate Chemical Reactor Design  
Guest Lecturer for Pradeep K. Agrawal, PhD (Summer 2007)