

Matthew Muller

Curriculum Vitae

Education

2014–2018 **Bachelor of Arts, Chemistry**, *Reed College*, Portland, .

Undergraduate Thesis

title *The Influence of Chemical Composition on Viscoelastic and Acoustic Properties of Microbubble Contrast Agents.*

supervisors Jonathan Lindner, MD; Daniel Gerrity, PhD

description Studied the influence of lipid shell and gas core composition of microbubble contrast agents on bulk modulus in a closed system.

Experience

- 2018–Present **Research Assistant 2**, *Oregon Health and Sciences University*, Portland.
- Studying the effects of ultrasound on blood flow augmentation as a therapy for peripheral artery disease, and pulmonary emboli in murine and non-human primate models.
 - Studying the molecular mechanisms involved in aortic stenosis in a murine model to develop potential therapeutics.
- 2018–Present **Advisory Board Member**, *International Partners*, Maryland.
- Facilitate strategic planning to optimize the efficiency of and track progress of programs run by International Partners.
 - Orchestrate and write grant proposals to fund various community driven programs and projects.
- 2019–2020 **Volunteer Researcher, Addiction Medicine Echo**, *Oregon Health and Sciences University*, Portland.
- Perform qualitative thematic analysis on responses regarding participation in the Echo.
 - Write clinical notes summarizing case presentations during Echo meetings.
- 2016–2018 **Clinical Research Investigative Studies Program (CRISP)**, *Oregon Health and Sciences University*, Portland.
- Manage and enroll patients in various studies within the emergency department at OHSU.
 - Coordinate Quickbrain MRI Study with Dr. David Sheridan as a Project Lead.
 - Training new volunteers for interacting with patients and becoming acclimated in medical settings.
- 2016–2016 **Volunteer Nurse**, *Casa Nica*, Managua, Nicaragua.
- Worked in a clinic suturing wounds, administering vaccines and shots, and cleaning wounds.

- 2012–2015 **Delegation Leader**, *International Partners*, Suchitoto, El Salvador.
- Constructed a library with other volunteers and locals in Palo Grande, Cabañas, El Salvador. (2012)
 - Taught children in subjects including statistics, algebra, english, and spanish writing in Hacienda Vieja, Cabañas, El Salvador. (2013, 2014)
 - Guided home visits to five people living with disabilities in Hacienda Vieja, Cabañas, El Salvador. Visits included working on arts and crafts projects, playing soccer or catch, and just talking. (2013, 2014)
 - Led a delegation to Cacahuatal focusing on special education. Was responsible for 20 people in terms of daily routine, translation from spanish to english. Helped supervise and support work of three special education teachers. (2015)

Skills and Techniques

Instruments Cryotome, GC-MS/MS, HPLC, NMR, Microscopy, and PCR.
Techniques Immunohistochemistry, Histology, Ultrasound, TLC
Software ImageJ, Halo, JMP, EPIC, REDCap
Languages Python, R, \LaTeX , Java

Interests

Volunteering Oregon Food Bank and Oregon Humane Society
Running Providence Marathon and Hyannis Half Marathon
Sports Ultimate frisbee, soccer, and table tennis

Presentations

- 2017 The Influence of Chemical Composition on Viscoelastic and Acoustic Properties of Microbubble Contrast Agents. *Thesis Seminar, Reed College, Portland, Oregon.*
- 2019 Augmentation of Blood Flow by a High-Power High-Frequency Ultrasound Catheter. *Knight Cardiovascular Institute Research Retreat, Knight Cardiovascular Institute, Oregon Health and Sciences University, Portland, Oregon.*
- 2020 Direct Vascular Effects of Catheter-based Ultrasound Devices Used For Facilitated Clot Lysis. *eAbstract Poster, American College of Cardiology.*
- 2021 Catheter-based Therapeutic Ultrasound. *TOFS Research Conference, Knight Cardiovascular Institute, Oregon Health and Sciences University, Portland, Oregon.*

Publications

- [1] Brian P. Davidson, James Hodovan, O'Neil R. Mason, Federico Moccetti, Avi Gupta, Matthew Muller, J. Todd Belcik, Brian H. Annex, and Jonathan R. Lindner. Limb Perfusion During Exercise Assessed by Contrast Ultrasound Varies According to Symptom Severity in Patients with Peripheral Artery Disease. *Journal of the American Society of Echocardiography*, 32(9):1086–1094.e3, 2019.
- [2] Honora Englander, Alisa Patten, Rachel Lockard, Matthew Muller, and Jessica Gregg. Spreading Addictions Care Across Oregon's Rural and Community Hospitals: Mixed-Methods Evaluation of an Interprofessional Telementoring ECHO Program. *Journal of General Internal Medicine*, September 2020.
- [3] O'Neil R. Mason, Brian P. Davidson, Paul Sheeran, Matthew Muller, James M. Hodovan, Jonathan Sutton, Jeffry Powers, and Jonathan R. Lindner. Augmentation of Tissue

Perfusion in Patients With Peripheral Artery Disease Using Microbubble Cavitation. *JACC: Cardiovascular Imaging*, 13(3):641–651, August 2020. Publisher: Elsevier BV.

- [4] Matthew A. Muller, Todd Belcik, James Hodovan, Koya Ozawa, Eran Brown, Jeffry Powers, Paul S. Sheeran, and Jonathan R. Lindner. Augmentation of Tissue Perfusion with Contrast Ultrasound: Influence of Three-Dimensional Beam Geometry and Conducted Vasodilation. *Journal of the American Society of Echocardiography: Official Publication of the American Society of Echocardiography*, pages S0894–7317(21)00125–5, March 2021.
- [5] Matthew A. Muller, Koya Ozawa, James Hodovan, Matthew W. Hagen, David S. H. Giraud, Yue Qi, Aris Xie, Theodore R. Hobbs, Paul S. Sheeran, and Jonathan R. Lindner. Treatment of Limb Ischemia with Conducted Effects of Catheter-Based Endovascular Ultrasound. *Ultrasound in Medicine & Biology*, April 2021.
- [6] Matthew A. Muller, Aris Xie, Yue Qi, Yan Zhao, Koya Ozawa, Misty Noble-Vranish, and Jonathan R. Lindner. Regional and Conducted Vascular Effects of Endovascular Ultrasound Catheters. *Ultrasound in Medicine and Biology*, 46(9):2361–2369, 2020.
- [7] Koya Ozawa, Matthew A. Muller, Oleg Varlamov, Hagai Tavori, William Packwood, Paul A. Mueller, Aris Xie, Zaverio Ruggeri, Dominic Chung, José A. López, and Jonathan R. Lindner. Proteolysis of Von Willebrand Factor Influences Inflammatory Endothelial Activation and Vascular Compliance in Atherosclerosis. *JACC: Basic to Translational Science*, 5(10):1017–1028, October 2020. Publisher: Elsevier Inc.
- [8] Weihui Shentu, Koya Ozawa, The Anh Nguyen, Melinda D. Wu, William Packwood, Aris Xie, Matthew A. Muller, Eran Brown, Matthew W. Hagen, José A. López, and Jonathan R. Lindner. Echocardiographic Molecular Imaging of the Effect of Anticytokine Therapy for Atherosclerosis. *Journal of the American Society of Echocardiography*, 34(4):433–442.e3, April 2021.