Emily Grace Pendleton

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LEADERSHIP EXPERIENCE

University of Georgia

Cell Manufacturing Technologies Industry Chair, August 2018 – August 2019

- Plan and foster professional development and workforce readiness events
- Identify internship and employment opportunities for fellow graduate students

Undergraduate and NSF Research Experience Mentor, January 2016 - present

- Developed and managed individual projects of 9 students with 7 students receiving independent research grants and/or presented at national conferences

High School Student and High School Teacher Mentor, 2015, 2018-2019

Bowling Green State University

Graduate Teaching Assistant, August 2013 – August 2015

- Developed lesson plans for and lead human anatomy lecture and laboratory of 60 students

Science Peer Tutor, January, 2010 – May 2012

- Tutored undergraduates in sciences individually and in a small group setting on a weekly basis

Warm Up! BG President, August 2011 – May 2012

- Organized events with the community for this charitable organization and arranged for donation of supplies and finished blankets to shelters

FELLOWSHIPS

Chateaubriand STEM Fellow, 2020; $8,000

- Wrote, developed a grant for peer review and scoring; 1 of 39 national recipients
- Will execute proposed project with Dr. Sophie Brasselet's laboratory at the Institut Fresnel to recover polarized light in scattering bone tissue

Cell Manufacturing Technologies International Research Fellow, 2019; $18,000

- Wrote and developed a grant for peer review and scoring
- Executed project with Dr. Frank Barry's laboratory at the National University of Ireland Galway to evaluate the impact of cell expansion methods on osteogenic potency

University of Liverpool Partnership, 2019; $2,000

- Developed and executed project with Dr. James Henstock's laboratory at the University of Liverpool to evaluate osteogenic response to hydrostatic and shear force

The OSA Foundation Siegman International School on Lasers Student, 2017; $1,500

- Discussed and networked with leaders in optics and physics
- Learned about the variety of laser applications to physical and biological sciences

GRANTS & SCHOLARSHIPS,

- University of Georgia Dissertation Completion Award; $18,871
- Mary Erlanger Graduate Fellowship, 2019-2020; $2,000
- SPIE Student Travel Grant recipient, Photonics West, 2019; $500
- University of Georgia Department of Neuroscience Travel Award, 2017-2019; $1,000
- University of Georgia Graduate College Travel Award, 2017-2019; $2,000
- Academic Investment in Math and Science Scholarship, 2008-2012; $10,000
- Bowling Green State University's Academic Scholarship, 2008-2012; $32,000

HONORS & AWARDS

- Cell Manufacturing Technologies Perfect Pitch finalist, 2019

- P.E.O. International Scholar Award nominee, 2019 and 2020
- NSF Research Experience for Undergraduates Excellence in Mentorship Award, 2018
- Phi Beta Kappa, member since 2012
- Dean's List, Bowling Green State University, 2008-2012

RESEARCH EXPERIENCE

University of Georgia, Athens, GA
PhD Researcher, 2015 – present
- Dissertation: Improvement of Bone Imaging Techniques to Evaluate Bone Health and Investigate Therapeutic Application of Stem Cell Therapy; Advisor: Dr. Luke Mortensen

Bowling Green State University, Bowling Green, OH
MS Researcher, August 2013 – August 2015
- Thesis: The Effect of Curcumin and Tetrahydrocurcumin in Combination with 5-Fluorouracil on Esophageal Cancer Cell Lines; Advisor: Dr. Roudebeh Jamasbi

BS Researcher, August 2010 – May 2012
- Honors Thesis: Understanding the Role of Serotonin in the Behavioral Repertoire of Crayfish; Advisor: Dr. Paul Moore

Cleveland Clinic, Cleveland, OH
Science Intern Researcher, June 2007 – August 2007
- Collected and analyzed behavioral data of diabetic patients in the Congestive Heart Failure Clinic

WORK EXPERIENCE

Cleveland Clinic, Cleveland, OH, June 2012- August 2013
- Lab Assistant in Pathology and Laboratory Medicine Institute: Cytogenetics Laboratory
- Lab Technician in Pathology and Laboratory Medicine Institute: Molecular Microbiology Laboratory

EDUCATION

University of Georgia, Athens, GA — Expected Graduation
Doctor of Philosophy, Neuroscience — December 2020
Bowling Green State University, Bowling Green, OH — August 2015
Master of Science, Biology
Bowling Green State University, Bowling Green, OH — May 2012
Bachelor of Science, Biology; Cum Laude

PUBLICATIONS

E. G. Pendleton, K. F. Tehrani, R. P. Barrow, L. J. Mortensen. *Second Harmonic Generation of Collagen in Whole Bone.* Biomedical Optics Express, Accepted May, 2020.

K. F. Tehrani, C. F. Latchoumane, W. M. Southern, **E. G. Pendleton**, A. D. Maslesa, L. Karumbaiah, J. A. Call, L. J. Mortensen. *5D Multi-Photon Volumetric Microscopy of In-Vivo Dynamic Activates Using Liquid Lens Remote Focusing.* Biomedical Optics Express. 10, 3591-3604 (2019).

E. G. Pendleton, K. F. Tehrani, R. P. Barrow, L. J. Mortensen. *Characterization of Collagen Formation Surrounding Osteocytes using Second and Third Harmonic Generation.* SPIE Photonics West Bios. 2019.

Y. Yoshida, Z. Wang, K. F. Tehrani, **E. G. Pendleton**, R. Tanaka, L. J. Mortensen, S. Nishimura, S. Tabata, H. X. Liu, F. Kawabata. *Bitter taste receptor T2R7 and umami taste receptor subunit T1R1 are expressed highly in Vimentin-negative taste bud cells in chickens.* Biochemical and Biophysical Research Communications. February, 2019. doi: 10.1016/j.bbrc.2019.02.021

K. F. Tehrani, **E. G. Pendleton**, W. M. Southern, J. A. Call, L. J. Mortensen. *Spatial Frequency Metrics for Analysis of Musculoskeletal Tissues Using Multi-Photon Microscopy*. Tissue Engineering Part C: Methods, Submitted December, 2018.

E. G. Pendleton, R. J. Jamasbi, M. E. Geusz. *Tetrahydrocurcumin, Curcumin, and 5-Fluorouracil Effects on Human Esophageal Carcinoma Cells.* Anti-Cancer Agents in Medicinal Chemistry. January, 2019. doi: 10.2174/1871520619666190116141448

J. M. Selma, A. Das, A. O. Awojoodu, T. Wang, A. P. Kaushik, Q. Cui, H. Song, M. E. Ogle, C. E. Olingy, **E. G. Pendleton**, K. F. Tehrani, L. J. Mortensen, E. A. Botchwey. *Novel Lipid Signaling Mediators for Mesenchymal Stem Cell Mobilization During Bone Repair*. Cellular and Molecular Bioengineering, 2018. https://doi.org/10.1007/s12195-018-0532-0

K. F. Tehrani, **E. G. Pendleton**, W. M. Southern, J. A. Call, L. J. Mortensen. *Two-Photon Deep-Tissue Spatially Resolved Mitochondrial Imaging Using Membrane Potential Fluorescence Fluctuations*. Biomedical Optics Express. December, 2017. 19;9(1): p.254-259. doi: 10.1364/BOE.9.000254

K. F. Tehrani, **E. G. Pendleton**, L. J. Mortensen. *Spatially Resolved Mitochondrial 2-Photon Imaging Using Flickering Membrane Potential Fluorescence*. In *Optics in the Life Sciences*, OSA Technical Digest (Optical Society of America). 2017.

K. F. Tehrani, **E. G. Pendleton**, C. P. Lin, and L. J. Mortensen. *Deep tissue single cell MSC ablation using a fiber laser source to evaluate therapeutic potential in osteogenesis imperfecta*. In *SPIE BiOS,* 2016. SPIE.

POSTERS AND PRESENTATIONS (presenter)

E. G. Pendleton, Anna S. Nichenko, Ruth P. Barrow, Jarrod A. Call, Luke J. Mortensen. *Mitochondrial dysfunction May Contribute to Muscle Weakness in Hypophosphatasia*. Bone and Muscle Interactions: The Mechanical and Beyond, 2019.

M. C. Schwab, **E. G. Pendleton**, R.P. Barrow, A.D. Maslesa, L. J. Mortensen. *Mitochondrial Network Disruption in Hypophosphatasia Muscle*. Biomedical Engineering Society Annual Meeting, 2019.

M. C. Schwab, **E. G. Pendleton**, R.P. Barrow, A.D. Maslesa, L. J. Mortensen. *Multichannel Multiphoton Imaging of Hypophosphatasia Mitochondria in Muscle*. Research Experiences for Undergraduates: Nanotechnology and Biomedicine at UGA, 2019.

T. M. Pigg, **E. G. Pendleton**, A. D. Maslesa, L. J. Mortensen. *Discrimination of High and Low Osteo-Potent MSCs*. University of Georgia's Center for Undergraduate Research Opportunities Symposium, 2019.

R. P. Barrow, **E. G. Pendleton**, L. J. Mortensen. *Ex Vivo Characterization and Quantification of Collagen Fibers Using Second Harmonic Generation Microscopy*. University of Georgia's Center for Undergraduate Research Opportunities Symposium, 2019.

T. M. Pigg, **E. G. Pendleton**, A. D. Maslesa, L. J. Mortensen. *Discrimination of High and Low Osteo-Potent MSCs*. University of Georgia's Regenerative Bioscience Center Symposium, 2019.

R. P. Barrow, **E. G. Pendleton**, L. J. Mortensen. *Ex Vivo Characterization and Quantification of Collagen Fibers Using Second Harmonic Generation Microscopy*. University of Georgia's Regenerative Bioscience Center Symposium, 2019.

T. M. Pigg, **E. G. Pendleton**, A. D. Maslesa, L. J. Mortensen. *Discrimination of High and Low Osteo-Potent MSCs*. Cell Manufacturing Technologies Retreat, 2019.

E. G. Pendleton, K. F. Tehrani, R. P. Barrow, L. J. Mortensen. *Characterization of Collagen Formation Surrounding Osteocytes using Second and Third Harmonic Generation*. SPIE: Photonics West, 2019.

S. Ciricillo, **E. G. Pendleton**, A. D. Maslesa, L. J. Mortensen. *Improvement of Mesenchymal Stem Cell Osteogenic Potency*. Biomedical Engineering Society Annual Meeting, 2018.

E. G. Pendleton, K. F. Tehrani, R. P. Barrow, L. J. Mortensen. *Characterization of the Anisotropy of Bone Collagen Fibers in Murine Hypophosphatasia Model Using Second Harmonic Generation Polarimetry*. Gordon Research Conference: Lasers in Medicine and Biology, 2018.

S. Ciricillo, **E. G. Pendleton**, A. D. Maslesa, L. J. Mortensen. *Improvement of Mesenchymal Stem Cell Osteogenic Potency*. Research Experiences for Undergraduates: Nanotechnology and Biomedicine at UGA, 2018.

A. D. Maslesa, **E. G. Pendleton**, L. J. Mortensen. *Collagen as a Method for Establishing Potential Therapeutics Under Osteogenic Conditions.* University of Georgia's Regenerative Bioscience Center Symposium, 2018.

A. D. Maslesa, **E. G. Pendleton**, L. J. Mortensen. *Collagen as a Method for Establishing Potential Therapeutics Under Osteogenic Conditions.* University of Georgia's Center for Undergraduate Research Opportunities Symposium, 2018.

E. G. Pendleton, R. P. Barrow, K. F. Tehrani, L. J. Mortensen. *Characterization of the Anisotropy of Bone Collagen Fibers in Murine Hypophosphatasia Model Using Second Harmonic Generation Polarimetry*. Regenerative Medicine Workshop, 2018.

A. D. Maslesa, **E. G. Pendleton**, L. J. Mortensen. *Collagen as a Method for Establishing Potential Therapeutics Under Osteogenic Conditions.* Regenerative Medicine Workshop, 2018.

E. G. Pendleton, R. P. Barrow, K. F. Tehrani, L. J. Mortensen. *Characterization of the Anisotropy of Bone Collagen Fibers in Murine Hypophosphatasia Model Using Second Harmonic Generation Polarimetry*. SPIE: Photonics West, 2018.

E. G. Pendleton, R. P. Barrow, K. F. Tehrani, L. J. Mortensen. *Characterization of Collagen Fibers using Polarization-Resolved Second Harmonic Generation.* The OSA Foundation Siegman International School on Lasers, 2017.

T. Powell, **E. G. Pendleton**, K. F. Tehrani, L. J. Mortensen. *Investigating the use of mRNA Transfection to treat Hypophosphatasia*. University of Georgia's Regenerative Bioscience Center Symposium, 2017.

E. G. Pendleton, R. P. Barrow, A. Maslesa, T. Powell, K. F. Tehrani, L. J. Mortensen. *Bone Characterization in the Treatment of Hypophosphatasia with Mesenchymal Stem Cells*. Regenerative Medicine Workshop, 2017.

T. Powell, **E. G. Pendleton**, K. F. Tehrani, L. J. Mortensen. *Investigating the use of mRNA Transfection to treat Hypophosphatasia*. Georgia Undergraduate Research Conference, 2016.

T. Powell, **E. G. Pendleton**, K. F. Tehrani, L. J. Mortensen. *Investigating the use of mRNA Transfection to treat Hypophosphatasia*. University of Georgia's Center for Undergraduate Research Opportunities Symposium, 2016.

J. Verplank, **E. G. Pendleton**, L. J. Mortensen. *Material Based Modulation of Cell Binding to Reduce MSC Adhesion*. Research Experiences for Undergraduates: Nanotechnology and Biomedicine at UGA, 2016.

E.G. Pendleton, K. F. Tehrani, B. W. Leitmann, L. J. Mortensen. *MSC Therapy for Hypophosphatasia*. Southern Translational Education and Research Conference, 2016.

E.G. Pendleton, K. F. Tehrani, B. W. Leitmann, L. J. Mortensen. *MSC Therapy for Hypophosphatasia.* University of Georgia Developmental Biology Retreat, 2016.

E.G. Pendleton, K. F. Tehrani, B. W. Leitmann, L. J. Mortensen. *MSC Therapy for Hypophosphatasia.* World Stem Cell Summit, 2015.

SKILLS

- Microscopy, sample preparation, imaging, and image processing: two-photon microscopy, scanning electron microscopy and transmission electron microscopy

• Lab: cell culture, DNA extraction and PCR, mRNA extraction and RT-qPCR, primary cell harvest and culture, animal husbandry, colony management, retro-orbital injections, in-vivo longitudinal imaging
• Computer: Proficient in Microsoft Office, EndNote, Matlab, JMP and ImageJ
• Language: Efficient in Spanish