LaDeidra Monét Roberts
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EDUCATION

Cornell University, Ithaca, New York — 8/2019
Ph.D., Biomedical Engineering
M.S., Biomedical Engineering — 3/2017

Georgia Institute of Technology, Atlanta, Georgia — 5/2014
B.S. Biomedical Engineering

Georgia Tech Lorraine, Study Abroad — 8/2012 - 12/2012
Metz, France

Publications and Presentations:

Noble JM*, Vidavsky NA*, Roberts LM*, Chiou AE, Fischbach C, Paszek MJ, Estroff LA, Kourkoutis LF. A Bird's Eye View: a holistic approach of combining visual and analytical techniques to characterize extracellular vesicles. *J Struct Biol* (in review).

Shurer CR*, Kuo JC*, Roberts, LM*, Gandhi JG, Colville MJ, Enoki TA, Pan H, Su J, Noble JM, O'Donnell JP, R.Y, Yin, M.J. Hollander, Kourkoutis LF, Feigenson GW, Reesink HL, and Paszek MJ. Physical Principles of Membrane Shape Regulation by the Glycocalyx. *Cell*. May 2019

Christy B., Pomeranz; Katherin Simon, M.D.; Lily Y. Zou, M.D.; Paul Barone, B.A.; LaDeidra Monet Roberts, M.S.; Gulce Askin, M.P.H.; Michele B. Drotman, M.D.. Predictors of clip migration during stereotactic-guided core biopsy: a retrospective review. AJR (in submission).

Roberts LM,"How Microvesicles Are Budding into the Cancer Conversation," Edward A. Bouchet Annual Conference (Oral), Yale University, April 2019.

Roberts LM, Yin RY, Kuo JC, Noble JM, Su J, Gandhi JG, Shurer CR, Reesink HL, Kourkoutis LF, and Paszek MJ. "Microvesicle Shedding Regulated by the Glycocalyx," Cornell Center on the Physics of Cancer Metabolism, Physical Sciences in Oncology Retreat (Poster), Cornell University, January 2018.

Vidavsky NA, Noble JM, Roberts LM, Chiou AE, Paszek MJ, Fischbach-Teschl CF, Kourkoutis LF, and Estroff LA. "Revealing Mechanisms of Microvesicle Biogenesis in Breast Cancer via in situ Microscopy," Cornell Center on the Physics of Cancer Metabolism, Physical Sciences in Oncology Retreat (Poster), Cornell University, January 2018

Roberts LM, Yin RY, Noble JM, Shurer CR, Kuo JC, Gandhi JG, Su J, Reesink HL, Kourkoutis LF, and Paszek MJ. "Glycocalyx-Induced Membrane Shapes and Microvesicle Biogenesis and Shedding," Biomedical Engineering Society (BMES) Annual Meeting (Poster), Atlanta, GA, October 2018.

Roberts LM, Shurer CR, Hollander M, Enoki, T, and Paszek MJ. "Microvesicle Induction by the Metabolically-Regulated Glycocalyx", Biomedical Engineering Society (BMES) Annual Meeting (Oral), Phoenix, AZ, October 2017

Roberts LM, Shurer CR, Kuo JC, Gandhi JG, Colville MJ, Enoki T, and Paszek MJ. "Membrane Bending & Shape Changes by the Cancer Cell Glycocalyx", Biomedical Engineering Society (BMES) Annual Meeting (Poster), Phoenix, AZ, October 2017

Roberts LM, Shurer CR, Hollander M, Enoki, T, and Paszek MJ. "Entropic Control of Microvesicle Shedding in Breast Cancer," Cornell Center on the Physics of Cancer Metabolism, Physical Sciences in Oncology Retreat (Poster), Cornell University, January 2017.

Roberts LM, Shurer CR, Hollander M, Paszek MJ. "Muc1-induced Microvesicle Shedding in Breast Cancer: A Biophysical Phenomenon," Biomedical Engineering Society (BMES) Annual Meeting (Poster), Minneapolis, October 2016.

Roberts LM, Shurer CR, Hollander MJ, Paszek MJ. "Muc1-induced Microvesicle Shedding in Breast Cancer: A Biophysical Phenomenon," National Academies of Science Ford Foundation Conference (Poster), Washington DC, September 2016.

Roberts LM, Shurer CR, Hollander MJ, Paszek MJ. "Muc1-induced Microvesicle Shedding in Breast Cancer: A Biophysical Phenomenon," Academic Research & Leadership Symposium at the National Society of Black Engineers Conference (Poster), Boston, MA, March 2016.

Platt, Manu; Evans, Denise; Keegan, Philip M; McNamara, Lynne; Parker, Ivana K.; Roberts, LaDeidra M; Caulk, Alexander W.; Gleason Jr., Rudolph L.; Seifu, Daniel; Amogne, Wondwossen; Penny, Clement. Low cost method to monitor patient adherence to HIV antiretroviral therapy using multiplex cathepsin zymography. *Molecular Biotechnology.* Jan 2016; 58(1):56-64

Parker, Ivana; Roberts, LaDeidra Monét; Hansen, Laura; Gleason Jr., Rudolph L; Sutliff, Roy L.; Platt, Manu O.; Pro-atherogenic shear stress and HIV proteins synergistically upregulate cathepsin K in endothelial cells. *Annals of Biomedical Engineering.* Jun 2014; 42(6):1185-1194.

Roberts, L.M. & Platt, M.O., Implications of Highly Active Antiretroviral Therapy in the Development of Cardiovascular Disease in HIV Patients. *The Tower Undergraduate Research Journal of the Georgia Institute of Technology*. Jan 2014; 6(1): 30-32

Hansen, Laura; Parker, Ivana; Roberts, LaDeidra Monét; Sutliff, Roy L.; Platt, Manu O.; and Gleason Jr., Rudolph L.; Azidothymidine (AZT) leads to arterial stiffening and intima-media thickening in mice. *Journal of Biomechanics.* April 2013. 46(9):1540-7.

"Effects of HAART Therapies on Arterial Remodeling in HIV+ Patients," *Peach State LSAMP Eighth Annual Fall Symposium & Research Conference* (Oral), Marietta, Georgia, October 2013

"Antiretroviral Drugs and Their Effects on Arterial Remodeling and Protease Activity," *Annual Biomedical Engineering Society Conference* (Poster), Seattle, Washington, September 2013

RESEARCH EXPERIENCE

Postdoctoral Research Associate, *Dr. Jennifer Munson, Virginia Tech* 08/2019

Graduate Research, *Dr. Matthew Paszek, Cornell University* 11/2014 – 08/2019

- Project: How Microvesicles Are "Budding" Into the Cancer Conversation: The Role of Glycocalyx-Induced Membrane Bending
  - Discovered the mechanism of microvesicles through coupling of protein-protein interactions within the glycocalyx and the actin cytoskeleton in regulation of membrane shapes
- Project: Comparative Analysis of Techniques to Characterize Extracellular Vesicles
  - Utilized skill sets with electron microscopy and nanoparticle tracking analysis for creating a holistic

approach for validation and characterization of extracellular vesicles

- Acquired technical skills: nanoparticle tracking analysis, scanning electron microscopy, fluorescence microscopy, flow cytometry, molecular biology, transfection, stable cell line production

Cornell Biomedical Engineering New York City Weill-Cornell Medical School 6/2015 - 8/2015
Immersion Program

- Intensive 10-week summer immersion program at Weill-Cornell Medical College in New York City mentored under radiologist, Dr. George Shih.
- Worked with radiologists on projects involving breast cancer and patient tablet companion app
  - Writing literature summaries from a literature search on a project regarding recall rate and lack of comparison prior images
  - Data analysis on a project regarding stereotactic biopsy metallic clip migration post-mammogram in patients
  - Framed pilot study for *Daisy Patient Companion App* for the hospital waiting room from observations and data mining
  - Data analysis from project regarding a radiology technician protocol chatting platform in the emergency department

Undergraduate Research, *Dr. Manu Platt, Georgia Tech* 8/2011- 5/2014

- Performed immunohistochemistry with HIV-transgenic mouse aortic tissue to observe any effects such as proteolytic activity on inducing atherosclerotic remodeling
- Studied the effect of atherosclerotic remodeling with cathepsins via HIV proteins and highly active antiretroviral therapy
- Served on panels for minority high school students about STEM fields and transition from high school to college
- Acquired technical skills: immunohistochemistry, cell culture, western blotting, cathepsin assay, cryo-sectioning, co-culture

AWARDS & RECOGNITIONS

Graduate Career at Cornell University

Zellman Warhaft Commitment to Diversity Award, Diversity Programs in Engineering, Spring 2019

Edward Alexander Bouchet Graduate Honor Society, Induced Spring 2019

Social Justice Award, Graduate & Professional Student Diversity Council, Spring 2018

Excellence in Leadership, Diversity Programs in Engineering, Spring 2016

National Science Foundation Graduate Program Fellowship Program, Spring 2016

Ford Foundation Pre-doctoral Fellowship, Spring 2015

Dean's Excellence Fellowship, Cornell University, Fall 2014

Undergraduate Career at Georgia Tech

President's Undergraduate Research Award (PURA), Spring 2014

Peach State LSAMP Oral Presentation in Life Sciences, Cellular and Molecular Biology, 2nd place, Fall 2013

Tower Award Recipient for Scholastic Achievement, Silver & Bronze Category (2009-2013)
(*Awarded by the Office of Minority Educational Development (OMED) for academic merit for GPA range 3.0-3.49 for bronze; silver for GPA range 3.5-3.99)*

Whitaker Undergraduate Program Award for Study Abroad, Fall 2012
(*Awarded by the Whitaker International Program and the Institute of International Education (IIE) for studying abroad at Georgia Tech Lorraine*

ACTIVITIES
Graduate Resident Fellow, Hans Bethe House, Cornell University, Fall 2016 – Spring 2019

Black Graduate & Professional Student Association (BGPSA), President, Cornell University, 2016

Black Graduate & Professional Student Association (BGPSA), Academic Chair, Cornell University, 2015

Graduate Student Ambassador, Office of Inclusion & Student Engagement, Cornell University, 2015
- Spoke on a panels, including at the GEM Annual Consortium, about funding for graduate school as well as helped with recruiting at the tabling orientation to provide students with information about graduate school at/for Cornell University
- Recruited at the Peach State LSAMP Symposium as well as Biomedical Engineering Annual Meetings

Biomedical Engineering Society (BMES), Cornell University, Outreach Committee, 2014
- Leading and planning annual outreach program in November called "Upward Bound," which invites first generation prospective college students to perform hands-on scientific activities

African American Recruitment Team, Vice President, Georgia Tech, 2013-2014
- Created "GT Pen Pals", which was a novel program in the organization that connected current students with prospective students through matching based off of hometown, major, and interests to facilitate recruitment and transition into Georgia Tech through email correspondence and other modes of communication

Peach State Louis Stokes Alliance for Minority Participation (LSAMP), Georgia Tech, 2011-2013
- Mentored 7 other undergraduate students in BME on academics as well as foster a community among mentees to endure challenges at Georgia Tech together

Gamma Beta Phi Honor Society, Vice President of Membership, Georgia Tech, 2011
- Performed community service such as assisting with activities with the Atlanta Boys' and Girls' Club
- Tutored high school students for end-of-course tests (EOCT) in Biology and American History

LEAD/ Summer Engineering Institute at Georgia Tech, Counselor/ Room Advisor, Georgia Tech, Summer(s) 2010, 2011
- Facilitated minority high school students development of skills in the STEM fields as well as presentation skills

PROFESSIONAL AFFILIATIONS
Biomedical Engineering Society (BMES), Member since 2013