

Sarah Marie Anderson
Department of Biomedical Engineering
University of Minnesota Twin Cities
PhD Candidate
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EDUCATION

University of Minnesota Twin Cities, Minneapolis, MN
Department of Biomedical Engineering
Doctor of Philosophy, Expected 2023
GPA: 3.7

Harvey Mudd College, Claremont, CA
Department of Engineering
Bachelor of Science, May 2017

RESEARCH EXPERIENCE

Fall 2017 to present: Professor David Odde, University of Minnesota, Biomedical Engineering
Glioblastoma cell migration

Spring 2016 to Summer 2017: Professor Elizabeth Orwin, Harvey Mudd College, Biomedical Engineering
Tissue-engineered brain patch for traumatic brain injury

Summer 2015: Professor Muhammad Zaman, Boston University, Biomedical Engineering
Mechanical properties of cancer cells through micro-rheology

Summer 2012: Professor Ed Damiano, Boston University, Biomedical Engineering
Bionic Pancreas as a treatment for Type 1 Diabetes

PUBLICATIONS

S.J. Tan, A.C. Chang, C.M. Miller, **S.M. Anderson**, L.S. Prah, D.J. Odde, A.R. Dunn, *Regulation and dynamics of force transmission at individual cell-matrix adhesion bonds*, Science Advances, 2020.

J.C. Hou, G.A. Shamsan, **S.M. Anderson**, M.M. McMahon, L.P. Tyler, B.T. Castle, R.K. Heussner, P.P. Provenzano, D.F. Keefe, V.H. Barocas, D.J. Odde, *Modeling distributed forces within cell adhesions of varying size on continuous substrates*, Cytoskeleton, 2019.

W.C. Zúñiga, V. Jones, **S.M. Anderson**, A. Echevarria, N.L. Miller, C. Stashko, D. Schmolze, P.D. Cha, R. Kothari, Y. Fong, M.C. Storrioni, Lombardi, *Raman Spectroscopy for Rapid Evaluation of Surgical Margins during Breast Cancer Lumpectomy*, Scientific Reports, 2019.

M. Mak, **S. Anderson**, M. McDonough, F. Spill, J. Kim, A. Boussommier-Calleja, M. H. Zaman and R. D. Kamm, *Integrated Analysis of Intracellular Dynamics of MenaINV Cancer Cells in a 3D Matrix*, Biophysical Journal, 2017.

POSTER PRESENTATIONS

S.M. Anderson, D.J. Odde, *The Role of Motor-Clutch Mediated Migration in Glioblastoma*, NCI Physical Sciences-Oncology Network Annual Investigators Meeting, September 2019 in Minneapolis, MN.

S.M. Anderson, D.J. Odde, *The Role of Motor-Clutch Mediated Migration in Glioblastoma*, Institute for Engineering in Medicine Annual Conference, September 2019 in Minneapolis, MN.

S.M. Anderson, L.S. Prah, S.J. Tan, A.C. Chang, C.M. Miller, A.R. Dunn, D.J. Odde, *Motor-Clutch Modeling of the Dynamics of FRET-based Single-Molecule Integrin Tension Sensors*, Biophysical Society Annual Meeting, March 2019 in Baltimore, MD.

S.M. Anderson, S.J. Tan, A.R. Dunn, D.J. Odde, *Updated Motor Clutch Model Illustrates Dynamics Observed in Single-Molecule FRET-based Molecular Tension Sensors*. CSBC & PS-ON Annual Investigators Meeting, September 25-28, 2018 in Bethesda, MD.

S.M. Anderson, S.J. Tan, A.R. Dunn, D.J. Odde, *Updated Motor Clutch Model Illustrates Dynamics Observed in Single-Molecule FRET-based Molecular Tension Sensors*, Institute for Engineering in Medicine Annual Conference, September 24, 2018 in Minneapolis, MN.

S.M. Anderson, S. Shah, Z. Shattler and E. Orwin, *Chitosan Nanoparticle-Loaded Collagen Gels For A Tissue-Engineered Brain Patch*. Biomedical Engineering Society (BMES) Annual Meeting, October 5-8, 2016 in Minneapolis, MN.

S.M. Anderson, M. Kager, R. Bhatia, R. Kondepudi, *Collagen Gel as a Scaffold for Mesenchymal Stem Cells and Chitosan Nanoparticles for a Tissue-Engineered Brain Patch to Promote Neural Regeneration*. Tissue Engineering and Regenerative Medicine International Society (TERMIS) EU Annual Meeting, June 26-30, 2017 in Davos, Switzerland.

FELLOWSHIPS

Engineering in Oncology Fellowship	Physical Sciences in Oncology Center, University of Minnesota
Engman Fellowship	Undergraduate Research, Harvey Mudd College

CLINIC PROJECTS

Portable Surgical Retractor Attachments	City of Hope, Spring 2016
A Raman Spectrometer for in vivo Diagnosis of Cancer	City of Hope, Fall 2016 - Spring 2017

HONORS

Best Poster Award	Institute for Engineering in Medicine Annual Conference, September 2019
Poster Award	NCI Physical Sciences-Oncology Network Annual Investigators Meeting, September 2019
Engineering Departmental Honors	Harvey Mudd College, May 2017
Dean's List	Harvey Mudd College, Spring 2014 - Spring 2017

LEADERSHIP EXPERIENCE

Vice President of Community Outreach	Graduate Women in Biomedical Engineering, University of Minnesota, Fall 2019-Spring 2020
Vice President of Professional Development	Graduate Women in Biomedical Engineering, Fall 2020-present
Dorm President	Harvey Mudd College, Fall 2015 - Spring 2016
Running Club Founder/President	Harvey Mudd College, Fall 2016 - Spring 2017
Freshman Orientation Adventure Leader	Harvey Mudd College, Fall 2015 - Fall 2016

TEACHING EXPERIENCE

Course Leader	Osher Lifelong Learning Institute, Research Topics in Biomedical Engineering
Teaching Assistant	University of Minnesota, Biomedical Transport Processes Lab, Spring 2020
Machine Shop Proctor	Harvey Mudd College, Fall 2014 - Spring 2017
Computer Science Grader/Tutor	Harvey Mudd College, Fall 2014 - Spring 2015
Experimental Engineering Proctor	Harvey Mudd College, Spring 2016 - Spring 2017
Systems Engineering Proctor	Harvey Mudd College, Fall 2016