Janelle Davy

15 Owl Street, Merrick NY, 61616 • (516) 555-1234 • janelle.davy@stonybrook.edu

EDUCATION

Stony Brook University, Stony Brook, NY
Doctor of Philosophy Candidate in Biochemistry and Structural Biology Anticipated December 2013
Dissertation: Engineering of Blood and Lymphatic Networks
Advisor: Professor Roderick Johnson, Ph.D.

Northwestern University, Evanston, Illinois
Master of Science in Biochemical Engineering December 2008

University of Chicago, Chicago, Illinois
Bachelor of Science in Chemistry May 2006
Magna cum Laude

ACADEMIC RESEARCH EXPERIENCE

Graduate Research Assistant, Stony Brook University, Stony Brook, NY August 2009-Present

- Develop an original method to engineer functional capillary networks in vitro
- Characterize key differences between blood and lymphatic capillary morphogenesis
- Propose a novel hypothesis for mechanochemical signaling in capillary morphogenesis
- Expand capacity and quality of experimental trials by integrating a new pumping system
- Optimize naturally derived biopolymers for the sustained support of capillary organization
- Produce and purify novel fusion protein in Escherichia coli, capable of covalent linkage to fibrin
- Supervise and direct an undergraduate student through data analysis project
- Develop quantification scheme for analysis of three-dimensional structures

INDUSTRIAL RESEARCH EXPERIENCE

Research and Development Intern, Dow Chemical Company, Chicago, Illinois May 2006-August 2006

- Built a semi-batch pilot plant scale emulsification process line
- Integrated a computer controlled system for temperature regulation in process line
- Validated pump output and efficiency for pilot plant systems
- Participated in sector-wide symposium to present findings about developed hand wash formulations

Research and Development Intern, Procter and Gamble Company, Chicago, Illinois May 2005-August 2005

- Developed multi-step coating methodology to produce moistened cleansing cloths
- Eliminated need for emulsifying ingredients in wetting solution formulation
- Produced cleansing cloths with new procedure for consumer panel
- Presented results of laboratory and consumer tests to project team

Research and Development Intern, Procter and Gamble Company, Chicago, Illinois May 2004-August 2004

- Developed several hand wash formulation variants to explore the efficacy of emollient blends
- Designed on-site consumer test, in conjunction with consumer panel experts, to assess consumer opinion on newly developed formulations and general preferences
- Conducted analysis to align technical attributes of formulation variants to consumer preferences
- Participated in pilot study of a successful formulation product for an external consumer panel

TEACHING EXPERIENCE

Teaching Assistant, Stony Brook University, Stony Brook, NY September 2012-June 2013

- Taught an introductory chemistry course section for undergraduate students
- Supervised undergraduate lab section and facilitated group discussions
- Provided students feedback regarding class assignments and course progress

Teaching Assistant, Stony Brook University, Stony Brook, NY January 2012-May 2012

- Supported professor with teaching an advanced engineering section for graduate students
- Revised teaching materials and updated information for student course packets
- Offered students recommendations to improve performance in course

Teaching Assistant, Northwestern University, Evanston, Illinois September 2008- December 2008

- Provided technical assistance for undergraduate students in a chemical engineering laboratory course
- Graded students weekly laboratory reports and monitored individual student progress
- Assisted students with planning and designing new experiments

PROFICIENCY AND SKILLS

Microscopy: phase contrast, epifluorescence, confocal
Molecular Biology: PCR, cloning, western blot, immunoprecipitation, ELISA, SDS-PAGE
Cell Biology: mammalian cell culture, immunohistochemistry, cryosectioning
Protein Expression Systems: bacterial (Escherichia.coli)
Analytical and Purification Systems: rheometer, fast performance liquid chromatography
Engineering Tools: computer-controlled milling
Software: Adobe Photoshop, Microsoft Office Suite, SigmaPlot, Prism, ImageJ, Volocity
Language: French (proficient)

COMMUNITY SERVICE

Tutor, Engineering Undergraduates, Stony Brook University, Stony Brook, NY September 2009-Present

Leader, Math Club for Girls, Dawes Elementary School, Evanston, IL December 2007-December 2008

Presenter, Science Saturday, Dawes Elementary School, Evanston, IL January 2006-December 2007

Volunteer, Boys & Girls Club, Chicago, IL June 2005-June 2006

Student Coordinator, Recruitment Weekend, University of Chicago, Chicago, IL August 2004-May 2006

HONORS AND AWARDS

Outstanding Poster Presentation Award, Annual Hilton Head Workshop in Engineering 2011

Outstanding Poster Presentation Award, Annual Meeting of Biomedical Engineers 2009

National Institutes of Health Predoctoral Biotechnology Training Grant Recipient 2007-2009

National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. 2005-2006

(GEM) Fellowship

PROFESSIONAL AFFILIATIONS

Biomedical Engineering Society

American Institute of Chemical Engineers

Alpha Kappa Alpha Sorority, Inc.

PUBLICATIONS

J. Davy, A.H. Zach, and M.A. Schwartz. "Engineered Blood and Lymphatic Capillaries in 3D VEGF-Fibrin-Collagen Matrices with Interstitial Flow." Biotechnology and Bioengineering (in revision)

J. Davy, M.E. Flays, A.H. Zach, F. Burchett, and M.A. Schwartz. "Synergy Between Interstitial Flow and VEGF Directs Capillary Morphogenesis In Vitro Through a Gradient Amplification Mechanism." Proceedings of the National Academy Sciences USA. 102(44): 779-784, 2005.

C.P. Sing, **J. Davy**, and M.A. Schwartz. "Interstitial Flow Differentially Stimulates Blood and Lymphatic Endothelial Cell Morphogenesis In Vitro." Microvascular Research. 68(3): 58-64, 2004.

CONFERENCE PRESENTATIONS

J. Davy, A.H. Zach, and M.A. Schwartz. "In vitro Capillary Morphogenesis: Effects of Matrix, VEGF, and Interstitial Flow." Annual Meeting of the Biomedical Engineering Society, Baltimore, MD, 2008.

J. Davy, C.P. Sign, C. West, A.H. Zach, and M.A. Schwartz. "Modulation of Endothelial Cell Organization by Cooperative Mechanical and Biochemical Cues." Annual Meeting of the Biomedical Engineering Society, Nashville, TN, 2007.

K.C. Bergmann, C.P. Sing, **J. Davy**, J. Goldstein, and M.A. Schwartz. "Regulation of Lymphatic Vessel Formation by Interstitial Fluid Forces." Joint Meetings of the Biomedical Engineering Society and the Engineering in Medicine and Biology Society, Durham, NC, 2006.

M.A. Swartz, **J. Davy**, C.P. Sing, and K.C. Bergmann. "The Biochemical and Biomechanical Environments in Lymphangiogenesis." Annual Meeting of the European Society for Microcirculation, Exeter, U.K, 2005.

REFERENCES

Kelly C. Bergmann, Ph.D.
Chairperson and Professor
Department of Engineering
Northwestern University
5555 Sheridan Road
Evanston, IL 60208
(847) 555-1235
kcboardman@northwestern.edu

Jason P. Cordon, Ph.D.
Assistant Professor
Department of Chemical Engineering
University of Chicago
1234 Clark Street
Chicago, IL 60615
(773) 555-5252
j-gordon@chicago.edu

Michael A. Schwartz, Ph.D.
Associate Professor
Department of Engineering
Northwestern University
5555 Sheridan Road
Evanston, IL 60208
(847) 555-1236
michaelswartz@northwestern.edu