Daniel W. Shoup, Ph.D.

4175 Wagner St. #471 Eugene, OR 97402 – Phone:(979) 997-1360
Email: danielwshoup@gmail.com – Webpage: danielwshoup.github.io

Education

2009-2016	Ph.D. in Biochemistry and Biophysics, Texas A&M University Thesis Title: "The Influence of Substrate on the Chaperone Activity of DnaK"
2002-2006	B.S. in Biochemistry, Minors in Biology and Mathematics, University of North Texas

Research Experience

Postdoctoral Researcher Eugene, Oregon Lab of Dr. Tristan Ursell
2016-Present University of Oregon

- Investigated the mechanisms of collective behaviors in *E. coli* such as bioconvection and traveling waves
- Used fast Fourier transformations and autocorrelations to analyze images of complex bacterial patterns in order to discern behavioral variations in *E. coli* as a result of mutations and environmental factors

Graduate Research Assistant College Station, Texas Lab of Dr. Hays Rye
2009-2016 Texas A&M University

- Studied non-native protein aggregate disassembly and protein folding with *E. coli* chaperone systems
- Used restriction digests/ligations to engineer genes into bacterial plasmids for overexpression in *E. coli*
- Purified proteins with ion exchange, hydrophobic interaction, size exclusion, and affinity chromatography
- Analyzed protein activity and structure with enzymatic assays, ensemble and single particle fluorescence techniques, light scattering, and size exclusion chromatography
- Created programs for analyzing and fitting single particle fluorescence

Undergraduate Research Assistant Denton, Texas Lab of Dr. Stephen Cooke
2005-2006 University of North Texas

- Engineered Fabry-Perot resonators and used them to study radio frequency spectra from biomolecules

Skills and Qualifications

Protein Purification Experience

Proficient with Waters HPLC systems running Breeze/Empower and AKTA FPLC systems running Unicorn**;** Utilized GE ion exchange, HIC, size exclusion columns, Bio-Rad Ni-NTA affinity columns, and a Vydac C18 reverse phase column

Analysis Techniques

Adept at SDS-PAGE and native PAGE protein analysis**;** Familiar with Western Blotting**;** Competent in enzymatic assays (ATP hydrolysis and carbon fixation) reported via fluorescence, chromatography, absorbance, C-14 incorporation, and either incorporation or cleavage of P-32**;** Skilled with fluorescence anisotropy, FRET, fluorescence correlation spectroscopy, burst analysis spectroscopy, fluorescence co-localization, and light scattering**;** Qualified to perform fluorescence, bright field, and dark field microscopy; Capable of cell analysis by flow cytometry; Experienced in DNA techniques such as PCR, ligation, restriction mapping, sequencing

Software Proficiencies

Experienced in Windows, Mac, and Linux operating systems (Fedora and Ubuntu)**;** Competent in using Microsoft, Libre, and Google office suites**;** Able to use Adobe Creative Suite (Photoshop, Dreamweaver, and Illustrator) and Image J**;** Accomplished in using Matlab

Programming Languages

Capable of coding in Java, HTML, C++, and Python while being most experienced with coding in Matlab

Teaching Experience

2010-2015	***Teacher Assistant, Recitation Instructor***, undergraduate biochemistry lecture course, Texas A&M University

Academic Service Positions

2010-2011	Graduate Recruiting Officer for the Biochemistry Graduate Student Organization
2011-2012	Graduate Program Committee Officer for the Biochemistry Graduate Student Organization

Research Publications

Shoup, D., Dresser, M., Ursell, T. (2018) The role of metabolism in the behavior of traveling waves of *E. coli*, (Manuscript in Preparation).

Shoup, D., Ursell, T. (2018) Characterization of the bioconvection in *E. coli*, (Manuscript in Preparation).

Shoup, D., Jiang, M., Puchalla, J., and Rye, H., (2018) The influence of aggregate substrates on DnaK-ClpB mediated disaggregation, (Manuscript in Preparation).

Shoup, D., Puchalla, J., and Rye, H., (2018) Development of broad range multi-color burst analysis spectroscopy technique, (Manuscript in Preparation)

Shoup, D., Brooks, A., Kustigian, L., Puchalla, J., Carr, C., and Rye, H., (2015) Single particle fluorescence burst analysis of Epsin induced membrane fission, PLOS ONE, 10:e0119563.

Lin, Z., Puchalla, J., ***Shoup, D.***, and Rye, H., (2013) Repetitive unfolding by the trans ring of the GroEL/GroES complex stimulates folding, JBC, 288: 30944-30955.

Etchison, K., Dewberry, C., Kerr, K., ***Shoup, D.***, and Cooke, S., (2007) A Fabry-Perot type resonator tunable below 2GHz for use in time domain rotational spectroscopy: Application to the measurement of the radio frequency spectra of bromobenzene and iodobenzene, Journal of Molecular Spectroscopy, 242:39-45.

References

Dr. Tristan Ursell, Assistant Professor	Department of Physics	University of Oregon
Dr. Hays Rye, Professor	Biochemistry and Biophysics	Texas A&M University
Dr. Gregory Reinhart, Department Head	Department of Physics	Texas A&M University
Dr. Sarah Bondos, Professor	Molecular and Cellular Science	Texas A&M University
Dr. Jason Puchalla	Department of Physics	Princeton University