

KRISTIN M. SLADE

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PROFESSIONAL EXPERIENCE

- Assistant Professor of Chemistry, Hobart and William Smith Colleges **2011-Present**
- Teaching/Research Postdoctoral Fellow in Molecular Biology **2009-2011**
Claremont Colleges (Claremont McKenna, Pitzer and Scripps Colleges)
Advisor: Dr. Emily Wiley
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EDUCATION

- Doctorate of Philosophy in Analytical Chemistry **2004-2009**
University of North Carolina- Chapel Hill, NC
Advisor: Dr. Gary Pielak
Co-advisor: Dr. Nancy Thompson
- Bachelor of Science in Chemistry and Biology **2000-2004**
University of Richmond, Richmond VA
Graduated *Summa Cum Laude*
Advisor: Dr. Raymond Dominey
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HONORS AND AWARDS

- Future Faculty Fellowship, UNC (2008)
 - National Science Foundation Graduate Research Fellowship, UNC (2005-2008)
 - Venable Graduate Chemistry Award, UNC (2004)
 - Garnett Ryland Award: most outstanding U of R Chemistry graduate (2004)
 - Phi Beta Kappa: junior at U of R (2003)
 - Barry Goldwater Scholarship, U of R (2003-2004)
 - Summer Research Fellowship, U of R (2003)
 - Gamma Sigma Epsilon: Chemistry Honors Society, U of R (2002)
 - Ethyl and Albemarle Science Scholarship: full tuition, room and board, U of R (2000-2004)
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COURSES TAUGHT

- CHEM 190 Accelerated General Chemistry
- CHEM 280 Intermediate General Chemistry
- CHEM 448 Biochemistry I
- CHEM 449 Biochemistry II

EXTERNAL FUNDING

Cottrell College Science Award, \$35,000. Awarded July 2012

RESEARCH EXPERIENCE

Hobart & William Smith Colleges, July 2011 – present

- Currently investigating macromolecular crowding and its implication on enzyme kinetics, especially as it pertains to:
 - Alcohol Dehydrogenase
 - Alkaline Phosphatase
 - Citrate Synthase
 - Malate Dehydrogenase
- Exploring novel histone deacetylases (HDACs) in *Tetrahymena thermophila*

Current research students: Melissa Mahajan ('15), Anola Stage ('15), Maria Mangine ('14), Alyssa Sullivan ('14), Bridget Logan ('15), Chris Poggi ('16)

Previous students: Samuel Schnider ('13), Erxin Du ('14), Deepak Vallabhaneni ('13)

Claremont Colleges, June 2009 – June 2011, advisor: **Emily Wiley**

- Developed a ubiquitin binding assay for assessment of a novel HDACs
- Analyzed the effects of sirtuin-inhibition by nicotinamide treatment on *Tetrahymena* cell-cycle through the use of fluorescence microscopy and immunofluorescence
- Mentored 12 students in intensive research involving PCR, western blots, cell culture, DNA/RNA isolation, co-immunoprecipitation, molecular cloning and fluorescence microscopy

University of North Carolina, August 2004 – May 2009, advisor: **Gary Pielak**

- Developed and published a novel fluorescence technique for assessing protein diffusion in small, enclosed spaces (such as cells or organelles) by combining total internal reflection and continuous photobleaching
- Measured the diffusion coefficients of GFP in *E. coli* in the presence or absence of four co-expressed proteins using fluorescence recovery after photobleaching (FRAP)
- Expressed and purified proteins by column chromatography for the analysis of intracellular protein concentration by gel electrophoresis
- Created and optimized a two-protein expression system in *E. coli* for independently controlling the level of each protein expressed. This entailed designing a plasmid that contained the two genes of interests under separate promoters using standard molecular biology techniques (included in *Biochemistry* paper)
- Incorporated fluorinated unnatural amino acids into specific proteins of interest in *E. coli* for analysis by ^{19}F in-cell NMR, leading to two publications

Biotage, May 2004 – August 2004

- Synthesized over 10 unsymmetric sulfamides using microwave assisted Mitsunobu reactions

University of Richmond, August 2002 – May 2004, advisor: **Raymond Dominey**

- Synthesized hairpin-shaped peptides for DNA binding analysis by NMR

GlaxoSmithKline, May 2003 – August 2003

- Synthesized 16 pyrazolopyrimidines with different head groups to be tested for kinase-inhibition activity as diabetes drug candidates and contributed to writing the resulting patent
- Developed the scaled-up synthesis of pyrazolopyrimidine intermediates

PUBLICATIONS

Slade KM, Freggiaro S, Smith J, Wiley EA. 2011. Sirtuin-mediated nuclear differentiation and programmed degradation in *Tetrahymena*. *BMC Cell Biol.* 12(1):40.

Wiley, EA, Chakravarti, DN, **Slade KM**. 2010. "Measurement of pH". *Current Protocols Essential Laboratory Techniques*. UNIT 3.2, Wiley & Sons Inc., Hoboken, NJ.

Li C, Wang GF, Wang Y, Creager-Allen R, Lutz EA, Scronce H, **Slade KM**, Ruf RA, Mehl RA, Pielak GJ. 2010. Protein ¹⁹F NMR in *Escherichia coli*. *JACS*,132(1):321-7.

Li C, Lutz EA, **Slade KM**, Ruf RA, Wang GF, Pielak GJ. 2009. ¹⁹F NMR studies of alpha-synuclein conformation and fibrillation. *Biochemistry*,48(36):8578-84.

Slade, KM, Baker, R, Chua, M, Thompson, NL, Pielak, GJ. 2009. Effects of recombinant protein expression on green fluorescent protein diffusion in *Escherichia coli*. *Biochemistry*,48(23):5083-9.

Slade, KM, Steele, BL, Pielak, GJ, Thompson, NL. 2009. Quantifying GFP diffusion in *Escherichia coli* by using continuous photobleaching with evanescent illumination. *Journal of Physical Chemistry B*, 113(14):4837-45.

Pielak, GJ, Li, C, Miklos, AC, Schlesinger, AP, **Slade, KM**, Wang, G, Zigoneanu, IG. 2009. Protein NMR under physiological conditions. *Biochemistry*, 48(38): 226-234.

Barrett, DG, Minder, CM, Mian, MU, Whittington, SJ, Cooper, J, **Fuchs, KM**, Tripathy, A, Waters, ML, Creamer, TP, Pielak, GJ. 2006. Pressure perturbation calorimetry of helical peptides. *Proteins: Structure Function and Bioinformatics*. 63: 322-326.

Ghassemi S, and **Fuchs K**. 2005. Alternative method of Boc-removal from sulfamide using silica-phenyl sulfonic acid in conjunction with microwave heating. *Molecular Diversity*. 9: 295-299.

PRESENTATIONS

Slade, K. The kinetics of alcohol dehydrogenase in crowding solutions. University of Vermont. Burlington, VT, March 23, 2013. (Invited talk).

Schneider, S. and **Slade, K**. *Effects of macromolecular crowding on the kinetics of yeast alcohol dehydrogenase*. Annual meeting of the Biophysical Society, Philadelphia, PA. January 2013. (Poster)

Slade, K. *A zinc-finger domain is important for accumulation of a sirtuin in the degrading Tetrahymena macronucleus*. Midwest Protozoology Meeting, Peoria, IL, April 2010.

Slade, K. *Quantifying protein diffusion in E. coli*. University of Richmond, September, 2009 (Invited seminar speaker).

Slade, K. *Studying Proteins as they Should be Studied*. NIH Pioneer Symposium, Bethesda, MD, September, 2008. (Poster)

Fuchs, K. *Quantifying GFP diffusion using continuous photobleaching with evanescent illumination.* Coherent Lasers & Microscopy Users' Meeting, Chapel Hill, NC, July 2008 (Invited speaker).

Fuchs, K. *Protein Diffusion in Living Cells.* Analytical Chemistry Seminar, University of North Carolina at CH, September 2007.

Fuchs, K., and Ruf, R. *Alpha-Synuclein: Oxidative Aggregation and Diffusion,* Proteins. Gordon Research Conference, Plymouth NH, June 2007. (Poster)

Fuchs, K. *Protein Diffusion in Living Cells,* Biochemistry & Biophysics, University of North Carolina at CH, October 2006.

Fuchs, K. *Measuring Protein Stability Inside Living E. coli.* FASEB Meeting: Protein Folding in the Cell, Saxtons River, VT, July 2006. (Poster)