

Jefferson Smith

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*Expert chemist with over 5 years' experience in biochemical research:
Excellent work ethic, communication, and teamwork skills*

EDUCATION

Ph.D., Chemistry	<i>The University of Virginia</i>	2014
B.A., Chemistry	<i>The University of Virginia</i>	2009

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow	2014 – Present
Graduate Research Assistant	2009 – 2014

University of Virginia, Charlottesville, VA

Laboratory Research

- Determined structure and dynamics of several protein systems, primarily through multidimensional NMR spectroscopic techniques
- Studied enzymatic kinetics and mechanisms of biomolecules with a wide variety of targets
- Expressed protein using a diverse range of bacterial cell lines and vectors
- Amplified DNA segments via polymerase chain reaction to incorporate into bacterial colonies for specific genetic manipulation necessary for multiple experiments
- Isolated and purified many different protein systems via multiple chromatographic techniques
- Identified and quantified unknown reagents and products in biochemical reactions with various spectroscopic and scattering techniques
- Maintained upkeep and calibration of many laboratory instruments
- Developed SOPs for many instruments and techniques used in laboratory
- Tracked use and supply of various materials for laboratory
- Fostered ongoing collaborations with researchers at UVa in the Microbiology, Pharmacology, Molecular Physiology and Biological Physics departments to advance multiple projects
- Presented research at a variety of national and regional scientific conferences as both platform talks and poster presentations

Research Project Mentor

- Defined research goals, engaged in troubleshooting, and designed experimental approaches towards the purification and biophysical characterization of the thrombospondin repeat domains of the brain angiogenesis-1 protein for an undergraduate student
- Instructed and supervised undergraduate students in both organization and progress of research
- Oversaw training of new researchers for a variety of laboratory techniques
- Developed formal presentations aimed at both experts and novices in the field, detailing theory and application of relevant techniques
- Developed clear and concise protocols and trained other researchers in proper use of several laboratory instruments

Biochemistry and From Your Lab Bench to Your Medicine Cabinet Intern Instructor

- Presented 50-minute lectures to 90 undergraduates in the senior level Biochemistry 4411/4421 lab sections
- Led and facilitated discussion and analysis of contemporary primary literature articles in the senior level chemistry of pharmaceuticals CHEM4430 course

Biochemistry and General Chemistry Laboratory Teaching Assistant

- Instructed undergraduate students in on theory and proper techniques for a variety of biochemical assays
- Developed new course material and instruction in collaboration with faculty and graduate students

Tomorrow's Professors Today Fellow

- Selected to participate in program that fostered graduate student improvement in three key areas – student preparedness in teaching, professional development, and adjustment to a university career

TECHNICAL SKILLS

Microbiology Techniques

- Bacterial transformation
- Bacterial cloning
- Bacterial culturing
- Aseptic technique
- Maintaining bacterial strain stocks
- PCR amplification
- Site directed mutagenesis

General Software

- MatLab
- Origin
- MS Office Suite
- Adobe Creative Suite
- Bash Scripts
- Python
- Java
- C++
- HTML

Biochemistry Techniques

- NMR and EPR spectroscopy
- UV/vis spectroscopy
- Isothermal titration calorimetry
- Crystallography
- Gel electrophoresis
- Western blotting
- ELISA
- Circular dichroism spectroscopy
- Small angle X-ray scattering
- MALDI-TOF mass spectrometry
- Dynamic light scattering
- FPLC and HPLC
- Ion exchange, size exclusion, and immobilized metal affinity chromatography

Operating Systems

- Windows variants
- Mac OS variants
- Linux and Linux-based derivatives

SELECTED PUBLICATIONS AND PRESENTATIONS

Publications

- X, BM Kroncke, TS Solomon, and L Columbus. (2014). Mapping membrane protein backbone dynamics: a comparison of site-directed spin labeling to NMR ¹⁵N relaxation measurements. (Under review).
- DA Fox, P Larsson, X, BM Kroncke, P Kasson, and L Columbus (2014). The structure of the Neisserial outer membrane protein Opa₆₀: Loop flexibility essential to receptor recognition and bacterial engulfment. (Accepted, *Journal of the American Chemical Society*).
- RC Oliver, J Lipfert, DA Fox, X, S Doniach, L Columbus (2013). Dependence of micelle size and shape on detergent alkyl chain length and head group. *PLOS ONE*. 8 (5).
- BM Kenwood, JL Weaver, A Bajwa, FL Byrne, BA Murrow, JA Calderone, L Huang, AS Diyakaruni, JL Tomsig, K Okabe, X, GC Coleman, L Columbus, z Yan, JJ Saucerman, JS Smith, JW Holmes, KR Lynch, KS Ravichandran, S Uchiyama, WL Santos, GW Rogers, MD Okusa, DA Bayliss, and KL Hoehn. Identification of a novel mitochondrial uncoupler that does not depolarize the plasma membrane. *Molecular Metabolism*. 2 (5).

Invited Platform Presentations

- X, DA Fox and L Columbus. Ionic strength modulates β -barrel membrane protein loop dynamics and interactions and dramatically affect NMR spectral quality, *Southeastern Regional Meeting of the American Chemical Society, Inc.* 2012. Raleigh, NC.