Dominic F. Qualley, Ph.D.

Berry College
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Education:
Ph.D., Chemistry, (2002-2007), University of Alabama
Research Advisor: Stephen A. Woski
Dissertation Title: Synthesis and Survey of Non-Natural Bases in Nucleic Acids

B.A., Psychology (1994-1998), University of Minnesota
Research Advisor: Bridgette A. Barry (2000-2002), Professor of Chemistry and Biochemistry, Molecular Biology, and Biophysics
Projects: Purification and Crystallization of Photosystem II Manganese Stabilizing Protein (MSP) and *E. coli* Lactose Permease

Professional Experience:
Associate Professor, Department of Chemistry, Berry College, 2016-present
Assistant Professor, Department of Chemistry, Berry College, 2010-2016

Postdoctoral Research Associate, Department of Chemistry, The Ohio State University, 2007-2010
Research Advisor: Karin Musier-Forsyth, Professor and Ohio Eminent Scholar
Projects: Characterization of Nucleic Acid Chaperone Activity of Retroviral Nucleocapsid Proteins; Mechanisms of Retrovirus Restriction by Human APOBEC3G Protein

Graduate Researcher, Department of Chemistry, University of Alabama, 2002-2007
Research Advisor: Stephen Woski, Associate Professor
Projects: 5-Substituted Indoles as Base Stacking Models, Nitrocarbazoles as Universal Bases in PNA and DNA, Universal Base Properties of Two Fluorescent Bases in Peptide Nucleic Acid, Anti-Oxidant Properties of the Heme Undecapeptide Microperoxidase-11

Courses:
CHM 102 (Intro to Chemistry for non-science majors)
CHM 341 (Biochemistry I)
CHM 342 (Biochemistry II)
CHM 343 (Biochemistry Laboratory)
CHM 443I (Advanced Biochemistry)
CHM 223L (Organic Chemistry laboratory)
BCC 100 (First-Year Seminar)

Professional Affiliations:
American Chemical Society, 2002-present
Golden Key National Honor Society, 1998-present
Phi Kappa Phi National Honor Society, 1998-present

Publications (Berry College undergraduate co-authors are underlined):

"Solution conformation of bovine leukemia virus Gag suggests an elongated structure", D.F. Qualley, S.E. Cooper, J.L. Ross, E.D. Olson, W.A. Cantara, and K. Musier-Forsyth. *J. Mol. Biol.*, **2019**, 431, 1203-1216.

"Bovine leukemia virus nucleocapsid protein is an efficient nucleic acid chaperone", D. F. Qualley, V. L. Sokolove, and J. L. Ross. *Biochem. Biophys. Res. Commun.*, **2015**, 458(3), 687-92.

"Single aromatic residue location alters nucleic acid binding and chaperone function of FIV nucleocapsid protein", H. Wu, W. Wang, N. Naiyer, E. Fichtenbaum, D. F. Qualley, M. J. McCauley, R. J. Gorelick, I. Rouzina, K. Musier-Forsyth, and M. C. Williams. *Virus Res.*, **2014**, 193, 39-51

"Oligomerization transforms human APOBEC3G from an efficient enzyme to a slowly dissociating nucleic acid-binding protein", K. R. Chaurasiya, M. J. McCauley, W. Wang, D. F. Qualley, T. Wu, S. Kitamura, H. Geertsema, D. S. Chan, A. Hertz, Y. Iwatani, J. G. Levin, K. Musier-Forsyth, I. Rouzina, and M. C. Williams. *Nat. Chem.*, **2014**, 6(1), 28-33

"Expression, purification, and characterization of full-length bovine leukemia virus Gag protein from bacterial culture", D. F. Qualley and B. L. Boleratz. *Protein Expr. Purif.* **2014**, 93, 32-37

"Inositol phosphates compete with nucleic acids for binding to bovine leukemia virus matrix protein: Implications for deltaretroviral assembly", D. F. Qualley, C. M. Lackey, and J. P. Paterson. *Proteins* **2013**, 81(8), 1377-1385

"C-terminal domain modulates the nucleic acid chaperone activity of human T-cell leukemia virus type 1 (HTLV-1) nucleocapsid protein (NC) via an electrostatic mechanism", D. F. Qualley, K. M. Stewart-Maynard, F. Wang, M. Mitra, R. J. Gorelick, I. Rouzina, M. C. Williams, and K. Musier-Forsyth. *J. Biol. Chem* **2010**, 285 (1), 295-307

"Aromatic hydrocarbons as universal bases in peptide nucleic acid", K. F. MacKinnon, D. F. Qualley, and S. A. Woski, *Tetrahedron Lett.* **2007**, *48*, 8074-8077

Externally Funded Proposals

Gary Breton, Kevin Hoke, Dominic Qualley, Theunis van Aardt (Shorter U.), "Acquisition of a 400 MHz Spectrometer to Facilitate Faculty Research and Improve Undergraduate Research Training." Award # 1125616, National Science Foundation, $258,871.00. (Funded September 2011)

Awards

McRae Award, Berry College, 2015.

Professional Service

Reviewer for the Czech Science Foundation, Proposal # 14-17160P, "Study of Mason-Pfizer Monkey Virus Matrix Protein Interaction with Plasma Membrane"

Reviewer for *Biochemistry: The Molecular Basis of Life* (three chapters), 6th Edition, McKee and McKee, Oxford University Press.

Reviewer for *Viruses*, journal published by MDPI