Christopher J. Pappas, Ph.D.

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Qualifications Overview

- Eleven years experience in the field of molecular biology and microbiology
- Six years experience in graduate and undergraduate education in the field of biology for majors and non-majors
- Molecular biology techniques; genetic disruption & complementation, Western blot, qRT-PCR, etc.
- In vitro protein expression, purification, and analysis
- Maintenance and manipulation of vectors and pathogens/ saprophytes for Lyme disease and leptospirosis
- Small mammal handling, dissection, data analysis and interpretation
- Trained in OSHA, DOT-HAZMAT, EPA laboratory specific regulations, and 24 hour HAZWOPER
- Trained in administering OSHA/ EPA required laboratory personnel training
- Experienced in development of Chemical Hygiene Plan, Emergency Response Guidelines, Incident Command System

Education and Training

Ph.D., Microbiology & Immunology, New York Medical College, Valhalla, NY — May, 2011
"Glycerol utilization and carbohydrate regulation by *Borrelia burgdorferi* is essential for spirochete fitness during the enzootic cycle" *thesis approved with distinction

M.S., Microbiology & Immunology, New York Medical College, Valhalla, NY — May, 2006
"H5N1 Influenza: Background, Significance, and Emergency Preparedness"

B.S., College of Arts and Sciences, Syracuse University, Syracuse, NY — May, 2002
Major: Psychology, Minors: Biology and Neuroscience

Professional Experience

Assistant Professor and Director of Laboratory Safety, Manhattanville College — Aug. 2011-present

- Design and teach courses in biology, health, and human disease: parasitology, molecular biology, biochemistry, genetics, and nutrition
- Mentor undergraduates in laboratory techniques and research design, including *Leptospira* research, arthropod repellency studies and methods design, compost soil microbial diversity and composition
- Write recommendation letters for undergraduates for studies in various disciplines
- Integrate extracurricular activities in student development, such as planning of a community garden
- Serve on multiple institutional committees
- Ensure laboratory personnel conduct experiments using safe and responsible laboratory techniques
- Implement and train personnel in OSHA and EPA compliant laboratory safety training
- Inspect and update laboratories for compliance with OSHA, EPA, NYSDEC, NYSDOH regulations Coordinate the waste stream for hazardous materials within multiple academic departments
- Review and update Manhattanville's Chemical Hygiene Plan and student safety contracts

Visiting Researcher, Institut Pasteur, Paris, France — June 2013-June 2015

- Fellowship in the laboratory of Dr. Mathieu Picardeau in the Biology of Spirochetes Unit completed in collaboration with Manhattanville College under NSF grant IIA-1159099
- Identified virulence factors within pathogenic *Leptospira* spp., as well as development of novel genetic manipulation tools
- Managed and studied comparative medicine models for leptospirosis
- Coordinated multi-team projects with international collaborators
- Assisted in the training of laboratory personnel and helped facilitate a collegiate working environment
- Assisted in the management of hazardous materials, waste, and emergency response
- Reviewed scholarly work prior to its presentation at conferences or for publication
- Presented research at international conferences and prepared manuscripts for publication

Graduate Research Associate, New York Medical College, Valhalla, NY Sept. 2006-June 2011

- Determined effects of carbohydrate utilization on the fitness of *Borrelia burgdorferi*, the etiologic agent of Lyme disease, throughout the enzootic cycle
- Utilized numerous molecular biology techniques, such as genetic disruption, complementation, recombinant protein expression, and qRT-PCR
- Oversaw maintenance and manipulation of the tick vector *Ixodes scapularis*
- Assistance in training and management of laboratory personnel
- Development of safe and responsible laboratory techniques among laboratory personnel
- Participation in the ordering, management, storage, and disposal of chemicals and reagents
- Developed collaborations with colleagues from other academic institutions
- Wrote abstracts, posters, and manuscripts

Adjunct Professor, Manhattanville College, Purchase, NY Aug. 2010-June 2011

- Taught lectures and laboratories in the fields of general biology and parasitology

Medical Microbiology Laboratory Preceptor, New York Medical College, Valhalla, NY Oct. 2006- Nov. 2008

- Preceptor of laboratories for medical students
- Taught course work including subjects such as the identification and typing of Gram positive and negative bacteria, antibiotic sensitivity plating, and differential diagnosis
- Taught students responsible laboratory techniques

Publications

- **Pappas CJ**, Picardeau M., "Control of Gene Expression in Leptospira spp. by Transcription Activator-Like Effectors Demonstrates a Potential Role for LigA and LigB in *Leptospira interrogans* virulence" Applied and Environmental Microbiology. 2015 Nov; Vol 81 (22). **Selected as article of significant interest from this issue*
- **Pappas CJ,** Benaroudj N, Picardeau M., "A replicative plasmid vector Allows efficient complementation of pathogenic *Leptospira* strains" Applied and Environmental Microbiology. 2015 May; Vol 81 (9).
- Bugrysheva JV*, **Pappas CJ***, Terekhova D., Iyer R, Godfrey HP, Schwartz I, Cabello FC. "Characterization of the RelBbuRegulaon in *Borrelia burgdorferi* Reveals Modulation of Glycerol Metabolism by (p)ppGpp.." PLoS One, Feb 2015. ****co-first author***
- **Pappas CJ**, Iyer R, Liveris D, Petzke M, Caimano MJ, Radolf JD, Schwartz I. "*Borrelia burgdorferi* requires glycerol for maximum fitness during the tick phase of the enzootic cycle" PLoS Pathogens 2011 Jul;7(7):e1002102. Epub 2011 Jul 7
- Banik S, Terekhova D, Iyer R, **Pappas CJ**, Caimano MJ, Radolf JD, Schwartz I. "BB0844, an RpoS-regulated protein, is dispensable for *Borrelia burgdorferi* infectivity and maintenance in the mouse-tick infectious cycle." Infection and Immunity. 2011 Mar;79(3):1208-17
- Hanincova K, Ogden NH, Diuk-Wasser M, **Pappas CJ**, Iyer R, Fish D, Schwartz I, Kurtenbach K. "Fitness variation of *Borrelia burgdorferi* sensu stricto strains in mice" Applied Environmental Microbiology. 2008 Jan, 74 (1): 153-7
- Foels R, **Pappas CJ**. "Learning and Unlearning the Myths We are Taught: Gender and Social Dominance Orientation" Sex Roles. Vol. 50, Nos. 11/12, June 2004

National and International Conferences

- Invited Participant, Gordon Research Seminar and Conference: Biology of Spirochetes. Ventura, CA, Jan. 2016
- **Pappas CJ**, Benaroudj N, Picardeau M. "Development of Genetic Manipulation Tools for Use in *Leptospira* spp. has Provided Insight into the Biology of Pathogenic Leptospires." 6th Annual Young Researchers in Life Sciences Conference. May 2015. Paris, France. Abstract No. 18
- **Pappas CJ**, Hu W, Zhang J, Yang Y, Yan J, Picardeau M, Yang F. " Formate Hydrogenlyase Activator (FhlA) Enhances RpoN Regulated Gene Expression in Leptospira interrogans" 7th International Conference on Emerging Zoonosis. Berlin, Germany. October 16-17 2014. Abstract No. 69
- **Pappas CJ**, Picardeau M. "Transcription Activator-Like Effectors (TALEs) Are Effective Modulators of Transcription in Leptospira spp." Federation of European Biochemical Societies-European Molecular Biology Organization Joint Conference. Paris, France. August 30th-September 4th 2014. Abstract No. WED-446
- **Pappas CJ**, Picardeau M. "*Leptospira interrogans* encodes a PP2C-like *rpoB* regulator essential for virulence." 9th Conference Louis Pasteur on Emerging Infectious Diseases. Paris, France. 9-11 April 2014. Abstract No. 48P.

- **Pappas CJ**, Bugrysheva JV, Iyer R, Godfrey HP, Schwartz I, Cabello FC. "Glycerol Utilization by *Borrelia burgdorferi* is Regulated by Rel_{Bbu} When in a Nutrient Limited Environment." American Society of Microbiology 111th General Meeting. New Orleans, LA, May 21-24, 2011. Abstract No. D-196
- **Pappas CJ**, Iyer R, Liveris D, Hanincova K, Caimano MJ, Radolf JD, Schwartz I., "*Borrelia burgdorferi* Glycerol-3-Phosphate Dehydrogenase (GlpA) is Important for Spirochete Maintenance in the Tick" American Society of Microbiology 110th General Meeting. San Diego, CA, May 23-27, 2010. Abstract No. D-658.
- Banik S, Terekhova D, Iyer, R, **Pappas CJ**, Schwartz I., "*Bb0844*, an RpoS Regulated Gene, is Dispensable for *Borrelia burgdorferi* Pathogenicity and Maintenance in the Mouse-Tick Infectious Cycle" American Society of Microbiology 110th General Meeting. San Diego, CA, May 23-27, 2010. Abstract No. D-664
- Invited Participant, Gordon Research Conference: Biology of Spirochetes. Ventura, CA, January 31-February 5, 2010

Invited Academic Talks and Discussions

- "A Moveable Feast: Translating Techniques and Tools Developed at the Institut Pasteur in Paris into Student Incorporated Research at Manhattanville." Manhattanville College Library Faculty Lecture Series. Feb. 2016.
- Discussion leader, Frontiers of Spirochete Research. Gordon Research Seminar: Biology of Spirochetes. Ventura, CA. Jan. 2015
- "A Croissant for My Pillow: The Life of an American Scientist in Paris." Manhattanville College Library Faculty Lecture Series. January 2014.
- "Good Nutrition as a Human Right: Manhattanville's Organic Community Garden as a Case Study." Human Rights Awareness Day, Manhattanville College, November, 2012
- "HIV, Malaria, and Other Globally Emerging Infectious Diseases: Lessons Learned towards Completion of the UNAIDS Millennium Development Goals." Senior Castle Scholars Honors Retreat, Manhattanville College, Feb. 2012
- "Ticks, Antifreeze, and Lyme Disease: The Role of Glycerol in the *B. burgdorferi* Enzootic Cycle." Keynote Address. Manhattanville College's 21st Annual High School Science Fair Competition (MASC). April 2011.

Successful Grant Submissions

- Federal Award ID IIA-1159099: "Characterizing the Function of Leptospiral Proteins in the Biology of Genus *Leptospira.*" Office of International Science and Engineering, National Science Foundation. Award total: $159,222. June 2013-May 2015.

Selected Awards & Honors

- Faculty Member of the Year Award. Awarded by the Student Government Association, Manhattanville College. April 2013.
- Martha Lucas Pate, Ph.D. Memorial Award. For demonstration of academic excellence and leadership in social and humane concerns in medicine, science, and health.
- 1st Place, Poster Presentation. "*Borrelia burgdorferi* Glycerol-3-Phosphate Dehydrogenase (GlpD) is Important for Spirochete Maintenance in the Tick.", New York Medical College 22nd Annual Graduate Student Research Forum, Valhalla, NY, April 2010
- 1st Place, Oral Presentation. "*Borrelia burgdorferi* Glycerol-3-Phosphate Dehydrogenase (GlpD) Is Important for Spirochete Maintenance in the Tick.", New York Medical College 21st Annual Graduate Student Research Forum, Valhalla, NY, March 2009
- 2nd Place, Poster Presentation. "*Borrelia burgdorferi* Glycerol-3-Phosphate Dehydrogenase (GlpD) is Involved in Temperature-Dependent Stationary Phase Adaptation." New York Medical College 20th Annual Graduate Student Research Forum, Valhalla, NY, March 2008

Professional Organizations

- Full Member, Sigma Xi Scientific Research Society — Sept. 2011-present
- Member, American Society for Microbiology, New York City Branch — June 2010-present
- Member, American Society for Microbiology — Sept. 2006-present
- Member, New York Academy of Sciences — Sept. 2006-present

Academic Committee Positions Held

- Member, Board on Academic Standards, Manhattanville College — Aug. 2015-present
- Founder and Chair, Laboratory Safety Committee, Manhattanville College — Aug. 2012-present
- Member, Institutional Review Board, Manhattanville College — Aug. 2012-June 2013
- Co-Chair, Sustainability Committee, Manhattanville College — Jan. 2012-June 2013
- Committee Member, Graduate School of Basic Medical Sciences Curriculum Committee — Sept. 2008-May 2011
  New York Medical College
- Task Force Member, Middle States Accreditation Committee, New York Medical College — Dec. 2008-Dec. 2009
- Student Advisor, Graduate Student Association, New York Medical College — Sept. 2007-Nov. 2009
- Student Liaison for New York Medical College to New York Academy of Sciences — Sept. 2007-Sept. 2009
- President, Graduate Student Association, New York Medical College — Sept. 2006-Sept. 2007

Chemical Hygiene Officer Training

- OSHA 511: Occupational Safety and Health Standards for the General Industry. Rutgers University. ID 00657. Dec. 2015
- 24 Hour HAZWOPER Training. Miller Environment Group. Certificate Number: 20130036-14720. Feb. 2013.
- "Hazardous Materials Transportation Training Modules, V5.1" 8 hour online training course. U.S. Department of Transportation. January 2013 (*initial training 2013, refreshed annually*)
- "Lab Waste Management." 8 hour training course. Laboratory Safety Institute in Natick, MA. December 2012
- "How to Be a More Effective Chemical Hygiene Officer." 8 hour training course. Laboratory Safety Institute in Natick, MA. July 2012

Skills

Languages: English (Native) · Spanish (Fluent) · French (Level A2 certified) · Greek (Proficient)

Bioinformatics: GRAPHPAD PRISM/ NCSS 2007 (statistical analysis software), DNAstar/ ClustalW/ SWISS-MODEL/ 4Peaks/ SDS 2.1 (DNA/Protein sequence analysis), Axiovision 4, OlyVIA, ImageJ (microscopic image capture and image analysis), Reference Manager 11, Refworks (citation management), Mayakind v2.2.4 (animal management)

Safety training received: Animal safety and care, Asbestos awareness, Bloodborne pathogens safety, Electrical safety, Hazard communication standards, Fire safety, Emergency evacuation planning, Emergency response planning, Chemical awareness, Identification of reactive chemicals and other chemical hazards, Chemical safety, General laboratory safety, Hazardous materials transport, Resource Conservation and Recovery Act laboratory compliance, Chemical spill emergency response, Chemical exposure emergency response, Federal and institutional incident report completion, Personal protective equipment, Mercury spill clean-up, International safety and animal training, HAZWOPER

Other: CPR/ AED certified

Community Involvement

- Founder and Member, Manhattanville College Organic Community Garden — March 2012-present
- Faculty Advisor, Campus Billiards Club, Manhattanville College — Nov. 2012-present
- Beta Beta Beta, National Biology Honor Society — Dec. 2012-present
- Contributing Member, New York Philharmonic — Jan. 2011-present
- Science Fair Judge, High School Division; Intel WESEF; NYCSEF; TriCounty, MASC — Jan. 2005-present
- Member and Master Composter, Ossining Organic Community Garden — Apr. 2010-Oct. 2012