

**Ahmed Fathy Hikal, PhD**  
501 D. W. Brooks Drive, 235 College of Veterinary Medicine,  
Athens, GA 30602  
[afhikal@gmail.com](mailto:afhikal@gmail.com)  
706-351-2840

---

## **EDUCATION**

<b>Doctor of Philosophy in Infectious Diseases</b> University of Georgia, Athens, GA	<b>07/2022</b>
<b>Master of Bacteriology, Immunology, and Mycology</b> Benha University, Toukh, Egypt	<b>10/2009</b>
<b>Bachelor of Veterinary Science</b> University of Sadat City, Sadat, Egypt	<b>06/2003</b>

## **RESEARCH EXPERIENCE**

**Research Assistant (Ph.D. Program) 2014- 2022**

Department of Infectious Diseases, College of Veterinary Medicine, University of Georgia, Athens, GA, USA. Advisor: Dr. Russell Karls

Focused on pathogenic *Mycobacterium* species

Dissertation project: “Copper scavenging by pathogenic intracellular mycobacteria”

- Employed molecular genetics and bacteriological methods to manipulate genes and identify those that function in copper acquisition by *Mycobacterium tuberculosis* and *Mycobacterium marinum*
- Utilized tissue culture models to examine potential roles of *M. tuberculosis* nonribosomal peptide synthase (NRPS) operon genes in trace element uptake
- Used a murine model of tuberculosis to assess the impact of NRPS operon disruption on *M. tuberculosis* survival and virulence
- Implemented bacteriological and biochemical approaches to examine secreted factors in intracellular *Mycobacterium* species that may function as chalkophores to aid copper acquisition/utilization

**Visiting Scholar 11/2011- 02/2012**

Center for Food Animal Health, Ohio Agricultural Research and Development Center  
College of Food, Agriculture and Environmental Sciences, The Ohio State University, Wooster, Ohio, USA. Advisor: Dr. Gireesh Rajashekara. Project title: The role of TARPs (Tat-associated respiratory proteins) in *Campylobacter jejuni* resistance to hydrogen peroxide

**Graduate Researcher (M.S. Program) 2009**

Department of Bacteriology, Immunology, and Mycology, College of Veterinary Medicine, Benha University, Egypt. Advisors: Dr. Ali Al-Ged and Dr. Adel Khalid. Dissertation project: “Bacteriological and immunological studies on *Pasteurella* infection in poultry”

## **PUBLICATIONS**

### Published

Oliver Shey-Njila, **Ahmed F. Hikal**, Tuhina Gupta, Kaori Sakamoto, Hind Yahyaoui Azami, Wendy T. Watford, Frederick D. Quinn and Russell K. Karls. CtpB Facilitates *Mycobacterium tuberculosis* growth in copper-limited niches. 2022 Int. J. Mol. Sci. 2022, 23, 5713. <https://doi.org/10.3390/ijms23105713>.

John P. Bannantine, Tuhina Gupta, Denise K. Zinniel, **Ahmed Hikal**, Frederick D. Quinn and Raul G. Barletta. Use of a ferret model to test efficacy and immunogenicity of live attenuated *Mycobacterium avium* subspecies *paratuberculosis* vaccines. Methods Mol Biol. 2022; 2411:95-104. PMID: 34816400.

Gamal Wareth , **Ahmed Hikal**, Mohamed Refai, Falk Melzer, Uwe Roesler, Heinrich Neubauer. Animal brucellosis in Egypt. Review Article. J Infect Dev Ctries. 2014 13;8 (11):1365-73. PMID: 25390047.

### In preparation

**Ahmed F. Hikal**, Oliver Shey-Njila, Tuhina Gupta, Asif Shajahan, Parastoo Azadi, Kaori Sakamoto, Hind Yahyaoui Azami, Wendy T. Watford, Frederick D. Quinn and Russell K. Karls. Copper scavenging by pathogenic intracellular mycobacteria. (Anticipated submission: 09/22)

Megan Prescott, Kari Fine-Coulson, Maureen Metcalfe, Tuhina Gupta, Michelle Dookwah, Rebecca Pavlicek, Barbara Reaves, **Ahmed F. Hikal**, Russell Karls, and Frederick Quinn Role of Rv3351c in trafficking *Mycobacterium tuberculosis* bacilli in alveolar epithelial cells and its contribution to disease. (Anticipated submission: 10/22)

## **PRESENTATIONS**

**“The nonribosomal peptide synthase operon functions in copper acquisition by *Mycobacterium tuberculosis*”** **2019**  
Department of Infectious Diseases Symposium, College of Veterinary Medicine, University of Georgia, Athens, GA, USA (oral presentation)

**“Examination of the nonribosomal peptide synthase operon for function in copper acquisition by pathogenic mycobacteria”** **2018**  
Department of Infectious Diseases Symposium, Special Collection Library, University of Georgia, Athens, GA, USA (poster presentation)

**“Nutrient uptake by *Mycobacterium tuberculosis* inside human cells”** **2016**  
Three-minutes thesis competition, State Botanical Garden of Georgia, Athens, GA, USA (oral presentation)

## **TEACHING EXPERIENCE**

**Teaching Assistant, Basic Skills in the Lab (BIOL 3110L)** **2020-2022**  
Division of Biological Sciences, Franklin College of Arts and Sciences, University of Georgia,  
Athens, GA, USA

**Teaching Assistant, Principles of Biology I and** **2018 - 2019**  
**Principles of Biology I - Honors (BIOL 1107, BIOL 2107H)**  
Division of Biological Sciences, Franklin College of Arts and Sciences, The University of  
Georgia, Athens, GA, USA

**Teaching Assistant, Microbiology** **2005 - 2013**  
College of Veterinary Medicine, Benha University, Egypt

## **AWARDS**

**Outstanding Teaching Assistant Award** **2020**  
Division of Biological Sciences, Franklin College of Arts and Sciences, The University of  
Georgia, Athens, GA, USA

**Egyptian Ph.D. Dissertation Research Fellowship** **05/2014 – 05/2018**  
Ministry of Higher Education and Scientific Research, Egypt.

**Partnership-Ownership Initiative (ParOwn) Grant** **11/2011- 02/2012**  
Ministry of Higher Education and Scientific Research, Egypt.

## **TECHNICAL SKILLS**

- working in BSL3 lab
- PCR
- RT-qPCR
- ELISA
- cloning
- protein expression and purification
- confocal microscopy
- murine cell line infection
- Western Blot
- RNA and DNA isolation

## **REFERENCES**

**Dr. Russell Karls, Ph.D.** (Ph.D. Research Advisor)  
Senior Research Scientist, Dept. of Infectious Diseases  
College of Veterinary Medicine, Athens, GA  
Email: [rkarls@uga.edu](mailto:rkarls@uga.edu)  
Office Phone: 706-542-4784

**Dr. Fredrick Quinn, Ph.D.** (Ph.D. Committee Member)  
Professor and Head, Dept. of Infectious Diseases  
College of Veterinary Medicine, Athens, GA  
Email: [fquinn@uga.edu](mailto:fquinn@uga.edu)  
Office Phone: 706-542-5790

**Dr. David Peterson, Ph.D.** (Ph.D. Committee Member)  
Professor, Department of Infectious Diseases  
College of Veterinary Medicine, Athens, GA  
Email: [dspete@uga.edu](mailto:dspete@uga.edu)  
Office Phone: 706-542-5242