CURRICULUM VITAE

The Johns Hopkins University School of Medicine

(Typed Name) Petros C. Karakousis, M.D.

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

Associate Professor
Department of Medicine, Johns Hopkins University School of Medicine
Department of International Health, Johns Hopkins Bloomberg School of Public Health

Personal Data

Center for Tuberculosis Research
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EDUCATION AND TRAINING (in chronological order)

	Year, Degree/Certificate, Institution, Discipline
• Undergraduate:	1994, B.A., Johns Hopkins University, Natural Sciences, *summa cum laude*
• Doctoral/graduate:	1998, M.D., Washington University School of Medicine, Medicine
• Postdoctoral:	1999, Internship, Hosp. of the Univ. of PA, Internal Medicine 2001, Residency, Hosp. of the Univ. of PA, Internal Medicine 2005, Fellowship, Johns Hopkins Univ. School of Medicine, Infectious Diseases

PROFESSIONAL EXPERIENCE (in chronological order, earliest first, including academic appointments)

Dates	Positions	Institutions
Jan-Jun/1994	Research Assistant	Dept. of Medicine, Johns Hopkins
Jul-Dec/2000	Research Assistant	Dept. of Ophthalmology, Univ. of Pennsylvania
Jan-Jun/2002	Clinical Instructor	Dept. of Medicine, Univ. of Pennsylvania
06/05-01/12	Assistant Professor	Dept. of Medicine, JHUSOM
01/07-02/12	Assistant Professor (2° appointment)	Dept. of International Health, Johns Hopkins Bloomberg School of Public Health
01/12-	Associate Professor	Dept. of Medicine, JHUSOM
01/12-	Associate Professor (2° appointment)	Dept. of International Health, Johns Hopkins Bloomberg School of Public Health

RESEARCH ACTIVITIES

Publications:

1. Canning BJ, Undem BJ, **Karakousis PC**, Dey RD. Effects of organotypic culture on parasympathetic innervation of guinea pig trachealis. *Am J Physiol.* 1996; 271:L698-L706.
2. **Karakousis PC**, John SK, Behling KC , Surace EM, Smith JE, Hendrickson A, Tang W-X, Bennett J, Milam AH. Localization of pigment epithelium derived factor (PEDF) in developing and adult human ocular tissues. *Mol Vis*. 2001; 7:154-163.
3. **Karakousis PC**, Page KR, Varello MA, Howlett PJ, Stieritz DD. Waterhouse-Friderichsen syndrome after infection with Group A streptococcus. *Mayo Clin Proc*. 2001;76:1167-1170.
4. Page KR, **Karakousis PC**, Maslow J. Postoperative pneumococcal cellulitis in systemic lupus erythematosus. *Scand J Infect. Dis*. 2003;35:141-3.
5. Coppola AG, **Karakousis PC**, Metz DC, Go MF, Mhokashi M, Howden CW, Raufman JP, Sharma VK. Hepatitis C knowledge among primary care residents: is our teaching adequate for the times? *Am J Gastroenterol*. 2004; 99:1720-5.
6. **Karakousis PC**, Moore RD, Chaisson RE. Mycobacterium avium complex in patients with HIV infection in the era of highly active antiretroviral therapy. *Lancet Infect Dis.* 2004;4:557-65.
7. **Karakousis PC**, Bishai WR, Dorman SE. *Mycobacterium tuberculosis* cell envelope lipids and the host immune response. *Cell Microbiol.* 2004;6:105-116.
8. **Karakousis PC**, Yoshimatsu T, Lamichhane L, Woolwine SC, Nuermberger EL, Grosset J, Bishai WR. Dormancy phenotype displayed by extracellular Mycobacterium tuberculosis within artificial granulomas in mice. *J Exp Med.* 2004; 200:647-57.
9. **Karakousis PC**, Trucksis M, Dumler JS. Chronic Q fever in the United States. *J Clin Microbiol*. 2006;44:2283-7.
10. Brastianos PK, Swanson J, Torbenson M, Sperati J, **Karakousis PC**. Tuberculosis-associated hemophagocytic syndrome. *Lancet Infect. Dis*. 2006;6:447-54.
11. **Karakousis PC**, Sifakis FG, Montes de Oca R, Amorosa VC, Page, KR, Manabe YC, Campbell J. Medical resident familiarity with national tuberculosis guidelines. *BMC Infect Dis*. 2007;7:89.
12. Riddell J 4th, Kaul DR, **Karakousis PC**, Gallant JE, Mitty J, Kazanjian PH. Mycobacterium avium complex immune reconstitution inflammatory syndrome: Long term outcomes. *J Transl Med.* 2007;5:50.
13. Jain SK, Hernandez-Abanto, Cheng Q-J, Singh P, Ly LH, Klinkenberg LG, Morrison NE, Converse PJ, Nuermberger EL, Grosset J, McMurray DN, **Karakousis PC**, Lamichhane G, Bishai WR. Accelerated detection of *Mycobacterium tuberculosis* genes essential for bacterial survival in guinea pigs compared with mice. *J Infect Dis.* 2007;195:1634-42.
14. Williams EP, Lee JH, Bishai WR, Colantuoni C, **Karakousis PC**. *Mycobacterium tuberculosis* SigF regulates genes encoding cell wall-associated proteins and directly regulates the transcriptional regulatory gene phoY1. *J Bacteriol*. 2007;189:4234-42.
15. Lee, J-H, **Karakousis PC**, Bishai WR. Characterization of sigma factor regulation in *Mycobacterium tuberculosis* by SigB and SigF. *J Bacteriol*. 2008;190:699-707.

16. **Karakousis PC,** Williams EP, Bishai WR. Altered expression of isoniazid-regulated genes in drug-treated dormant *Mycobacterium tuberculosis*. *J Antimicrob Chemother*. 2008;61:323-31.
17. Klinkenberg L, Sutherland L, Bishai WR, **Karakousis PC**. Metronidazole lacks activity against *Mycobacterium tuberculosis* in an *in vivo* hypoxic granuloma model of latency. *J Infect Dis.* 2008;198:275-83.
18. Albini TA, **Karakousis PC**, Rao NA. Interferon-gamma release assays in the diagnosis of tuberculous uveitis. *Am J Ophthalmol*. 2008;146:486-8.
19. Converse PJ, **Karakousis PC**, Klinkenberg LG, Kesavan AK, Ly LH, Allen SS, Grosset JH, Jain SK, Lamichhane G, Manabe YC, McMurray DN, Nuermberger EL, Bishai WR. The role of the DosR/DosS two-component regulatory system in *Mycobacterium tuberculosis* virulence in three animal models. *Infect. Immun.* 2009;77:1230-37.
20. Rifat D, Bishai WR, **Karakousis PC**. Phosphate depletion: A novel trigger for *Mycobacterium tuberculosis* persistence. *J Infect Dis.* 2009;200:1126-35.
21. Ahmad Z, Klinkenberg LG, Pinn ML , Fraig MM, Peloquin CA, Bishai WR, Nuermberger EL, Grosset J**, Karakousis PC**. Biphasic kill curve of isoniazid reveals the presence of drug-tolerant, not drug-resistant, *Mycobacterium tuberculosis* in the guinea pig. *J Infect Dis.* 2009;200:1136-43.
22. Rao NA, Albini TA, Kumaradas M, Pinn ML, Fraig MM, **Karakousis PC**. Experimental ocular tuberculosis in guinea pigs. *Arch. Ophthalmol.* 2009;127:1162-6.
23. Ahmad Z, Nuermberger EL, Tasneen R, Pinn ML, Williams KN, Peloquin CA, Grosset J, **Karakousis PC**. Comparison of the 'Denver regimen' against acute tuberculosis in the mouse and guinea pig. *J Antimicrob Chemother*. 2010;65:729-34.
24. Converse PJ, Eisenach KD, Theus SA, Nuermberger EL, Tyagi S, Ly LH, Geiman DE, Guo H, Nolan ST, Akar NC, Klinkenberg LG, Gupta R, Lun S, **Karakousis PC**, Lamichhane G, McMurray DN, Grosset JH, Bishai WR. The impact of mouse passaging of *Mycobacterium tuberculosis* strains prior to virulence testing in the mouse and guinea pig aerosol models. *PLoS One*. 2010;5:e10289.
25. Cutrufello NJ, **Karakousis PC**, Fishler J, Albini TA. Intraocular tuberculosis. *Ocul Immunol Inflamm.* 2010;18:281-91.
26. Ahmad Z, Pinn ML, Nuermberger EL, Peloquin CA, Grosset J, **Karakousis PC**. The potent bactericidal activity of streptomycin in the guinea pig model of tuberculosis ceases due to the presence of persisters. *J Antimicrob Chemother.*2010;65:2172-5.
27. Klinkenberg LG, Lee J-H, Bishai WR, **Karakousis PC.** The stringent response is required for full virulence of *Mycobacterium tuberculosis* in guinea pigs. *J Infect Dis.* 2010;202:1397-1404.
28. Piggott D, **Karakousis PC.** Timing of antiretroviral therapy for HIV in the setting of TB treatment. *Clin Dev Immunol*. 2011;2011:103917.
29. Zhou A, Nawaz M, Xue X, **Karakousis PC**, Yao Y, Xu J. Molecular genotyping of Mycobacterium tuberculosis in Xi'an, China using MIRU-VNTR typing system. *Int J Tuberc Lung Dis.* 2011;15:517-22.
30. Ahmad Z, Fraig MM, Bisson GP, Nuermberger EL, Grosset JH, **Karakousis PC**. Dose-dependent activity of pyrazinamide in animal models of intracellular and extracellular tuberculosis. *Antimicrob Agents Chemother*. 2011;55:1527-32.

31. Ahmad Z, Fraig MM, Pinn ML, Tyagi S, Nuermberger EL, Grosset JH, **Karakousis PC**. Effectiveness of tuberculosis chemotherapy correlates with resistance to *Mycobacterium tuberculosis* infection in animal models. *J Antimicrob Chemother*. 2011;66:1560-6.
32. Dutta NK, Mazumdar K, Dastidar SG, **Karakousis PC**, Amaral L. New Patentable Use of an Old Neuroleptic Compound Thioridazine to Combat Tuberculosis: A Gene Regulation Perspective. *Recent Pat Antiinfect Drug Discov*. 2011;6:128-38.
33. Abomoelak B, Ward SK, Marcus S, **Karakousis PC**, Steinberg H, Talaat AM. Characterization of a novel heat shock protein (Hsp22.5) involved in the pathogenesis of *Mycobacterium tuberculosis*. *J Bacteriol.* 2011;193:3497-505.
34. Be NA, Klinkenberg LG, Bishai WR, **Karakousis PC**, Jain SK. Strain-dependent CNS dissemination in guinea pigs after *Mycobacterium tuberculosis* aerosol challenge. *Tuberculosis (Edinb).* 2011;91:386-9.
35. Thayil SM, Morrison N, Schechter N, Rubin H, **Karakousis PC**. The role of the novel exopolyphosphatase MT0516 in *Mycobacterium tuberculosis* drug tolerance and persistence. *PLoS One.* 2011;6:e28076.
36. Thayil SM, Albini TA, Nazari H, Moshfeghi AA, Parel J-MA, Rao NA, **Karakousis PC**. Local Ischemia and Increased Expression of Vascular Endothelial Growth Factor Following Ocular Dissemination of *Mycobacterium tuberculosis*. *PLoS One.* 2011;6:e28383.
37. Dutta NK, Illei PB, Peloquin CA, Pinn ML, Mdluli KE, Nuermberger EL, Grosset JH, **Karakousis PC**. Rifapentine is not more active than rifampin against chronic tuberculosis in guinea pigs. *Antimicrob Agents Chemother*. 2012;56:3726-31.
38. Dutta NK, **Karakousis PC**. Tuberculosis (TB) Chemotherapy: Present Situation, Possible Solutions, and Progress towards a TB-free world. *Indian J Med Microbiol*. 2012;30:261-3.
39. Singh PP, Smith VL, **Karakousis PC**, Schorey JS. Exosomes isolated from *M. tuberculosis* infected cells can induce migration and recruitment of host immune cells *in vivo*. *J Immunol.* 2012;189:777-85.
40. Rosenthal IM, Tasneen R, Peloquin CA, Zhang M, Almeida D, Mdluli KE, **Karakousis PC**, Grosset JH, Nuermberger EL. Dose-ranging comparison of rifampin and rifapentine in two pathologically distinct murine models of tuberculosis. *Antimicrob Agents Chemother*. 2012;56:4331-40.
41. Chia B-S, Lanzas F, Rifat D, Herrera A, Kim EY, Sailer C, Torres-Chavolla E, Narayanaswamy P, Einarsson V, Bravo J, Pascale JM, Ioerger TR, Sacchettini JC, **Karakousis PC**. Use of Multiplex Allele-Specific Polymerase Chain Reaction (MAS-PCR) to Detect Multidrug-Resistant Tuberculosis in Panama. *PLoS One*. 2012;7:e40456.
42. Thayil SM, Ho Y-C, Bollinger RC, Blankson JN, Siliciano RF, **Karakousis PC***, Page KR. Mycobacterium tuberculosis complex enhances HIV infection susceptibility of CD4 T cells to HIV through a TLR2-mediated pathway. *PLoS One*. 2012;7:e41093. *Corresponding author.
43. Bisson GP, Mehaffy C, Broeckling C, Prenni J, Rifat D, Lun D, Burgos M, Weissman D, **Karakousis PC**, Dobos KM. Upregulation of the phthiocerol dimycocerosate biosynthetic pathway by rifampicin-resistant, rpoB-mutant *Mycobacterium tuberculosis*. *J Bacteriol.* 2012;194:6441-52.

44. Albini TA, **Karakousis PC**, Abbey AM, Bartlett JG, Flynn HW Jr. Association between oral fluoroquinolones and retinal detachment. *Am J Ophthalmol*. 2012;154:919-921.
45. Klinkenberg LG, **Karakousis PC**. Rv1894c is a novel hypoxia-induced nitronate monooxygenase required for *Mycobacterium tuberculosis* virulence. *J Infect Dis.* 2013;207:1525-34.
46. Dutta NK, Sultan A, Peloquin CA, **Karakousis PC**. Preliminary Pharmacokinetic Study of Repeated Doses of Rifampin and Rifapentine in Guinea pigs. *Antimicrob Agents Chemother*. 2013;57:1535-7.
47. Dutta NK, Pinn ML, Zhao M, Rudek MA, **Karakousis PC**. Thioridazine lacks bactericidal activity in an animal model of extracellular tuberculosis. *J Antimicrob Chemother*. 2013;68:1327-30.
48. Subbian S, O'Brien P, Kushner NL, Yang G, Tsenova L, Peixoto B, Bandyopadhyay N, Bader JS, **Karakousis PC**, Fallows D, Kaplan G. Molecular immunologic correlates of spontaneous latency in a rabbit model of pulmonary tuberculosis**.** *Cell Commun Signal*. 2013;11:16.
49. Chuang, Y-M, Belchis DA, **Karakousis PC**. The polyphosphate kinase gene *ppk2* is required for *Mycobacterium tuberculosis* inorganic polyphosphate regulation and virulence. *MBio.* 2013;e00039-13. PMCID: PMC3663568.
50. Skerry C, Pokkali S, Pinn ML, Be NA, Harper J, **Karakousis PC**, Jain SK. Vaccination with recombinant *Mycobacterium tuberculosis* PknD attenuates bacterial dissemination to the brain in guinea pigs. *PLoS One*. 2013; 8:e66310. PMCID: PMC3679071.
51. Dutta NK, Alsultan A, Gniadek TJ, Belchis DA, Pinn ML, Mdluli KE, Nuermberger EL, Peloquin CA, **Karakousis PC**. Potent rifamycin-sparingregimen cures guinea pig tuberculosis as rapidly as the standard regimen. *Antimicrob Agents Chemother*. 2013; 57:3910-6.
52. Lanzas F, **Karakousis PC**, Sacchettini JC, Ioerger TR. Multidrug-resistant tuberculosis in Panama is driven by clonal expansion of an MDR-TB strain related to the KZN XDR-TB strain from South Africa (In press, *J Clin Microbiol*).
53. Subbian S, Bandyopadhyay N, Tsenova L, O Brien P, Khetani V, Kushner NL, Peixoto B, Soteropoulos P, Bader JS, **Karakousis PC**, Fallows D, Kaplan G. Early innate immunity determines outcome of Mycobacterium tuberculosis pulmonary infection in rabbits. Cell Commun Signal. 2013;11:60.
54. Zhou A, Ni J, Xu Z, Wang Y, Lu S, Sha W, **Karakousis PC**, Yao Y-F. Application of 1H-NMR spectroscopy-based metabolomics to sera of tuberculosis patients (In press, *J Proteome Res*).

Inventions, Patents, Copyrights (pending, awarded)

Date	Title
09/06/2005	Hollow fiber technique for in vivo study of cell populations (pending)
06/02/2008	A novel, hollow-fiber-based technique for vaccination (pending)
06/02/2008	Genes involved in *Mycobacterium tuberculosis* dormancy (pending).

02/10/2011	Nitronate monooxygenases of *Mycobacterium tuberculosis* (pending)
02/10/2011	Exopolyphosphatases of *Mycobacterium tuberculosis* (pending)
08/17/2012	*Mycobacterium tuberculosis* detection using transrenal DNA (pending)

Extramural Funding (current, pending, previous)

Current Grants:
08/19/13-07/31/16, The role of cell wall lipids in pathogenesis of rifampin-resistant TB
R01AI106613
NIH/NIAID
This study will use a combination of transcriptional, lipidomic, genetic, and imaging techniques to investigate whether phthiocerol dimycocerosate (PDIM) accumulation compensates for the fitness cost associated with *M. tuberculosis rpoB* mutation during host infection.
Total direct cost, $370,368
Role: Principal Investigator, 20% effort

07/01/09-06/30/14, Regulatory networks involved in *Mycobacterium tuberculosis* persistence
R01AI083125-01
NIH/NIAID
The major goals of this study are to investigate regulatory pathways involved in *Mycobacterium tuberculosis* persistence, including the roles of (p)ppGpp and inorganic polyphosphate.
Total direct cost, $1,919,058
Role: Principal Investigator, 20% effort

09/01/10-08/31/2014, A Multidisciplinary Approach to Understanding TB Latency and Reactivation
R01HL106786-01
NIH/NHLBI
This study will use a systems biology-based approach to identify host cytokine networks and *M. tuberculosis* molecular pathways required for bacillary growth restriction and reactivation.
Total direct cost: $2,135,443
Role: Principal Investigator, 20% effort

09/01/10-08/29/15, Animal Models of Infectious Diseases
AMoID Contract No. HHSN272201000015I
NIH/NIAID
This contract will use well-characterized and novel animal models of tuberculosis infection to evaluate new drug/drug combinations and recombinant strains to identify novel drug targets of *M. tuberculosis*.

Total direct cost, $2,719,377
Principal Investigator: William R. Bishai
Role: Co-Principal Investigator, 25% effort

09/17/2010 - 09/16/2013, Qualifying New Pre-Clinical Models for the Development of Tuberculosis Drugs
U18FD004004-01
FDA
This study will address the hypothesis that that tissue necrosis is a critical determinant of *M. tuberculosis* persistence by comparing outcomes of experimental chemotherapy in animal models with and without necrotic granulomas.
Principal Investigator: Khisi Mdluli
Total direct cost, $1,028,057
Role: Co-Investigator, 20% effort

01/01/10-12/31/11, Multiplex Allele-Specific PCR for the Detection of MDR-TB in Panama
JHU Center for Global Health
This study will investigate the sensitivity and specificity of MAS-PCR in the detection of isoniazid and rifampin resistance among archived MDR-TB isolates at Gorgas Memorial Institute, Panama.
Total direct cost, $50,000
Role: Principal Investigator, 5% effort

Previous funding:

3/15/05-02/28/11 (1-yr no-cost extension), Modeling latent TB infection
K08 AI64229-01
NIH/NIAID
This study investigated the genetic requirements of *Mycobacterium tuberculosis* survival in a novel in vivo granuloma model of latent TB infection.
Total direct cost, $679,488
Role: Principal Investigator, 75% effort

11/01/07-10/31/10, Pharmacokinetics and pharmacodynamics of sterilizing activity across experimental models
TB Drug Accelerator
Bill and Melinda Gates Foundation
This study will evaluate the sterilizing activity of standard and novel anti-TB agents in the guinea pig aerosol and mouse hollow fiber models of TB infection.
Total direct cost, $1,799,257
Principal Investigator: Jacques H. Grosset
Role: Co-Principal Investigator, 5% effort

8/22/03 - 8/21/10, TB gene function in animal models
N01 AI 30036

NIH-NIAID-DMID
This study investigated the role of specific genes in *Mycobacterium tuberculosis* virulence in mice, guinea pigs, and rabbits.
Total direct cost, $6,871,912
Principal Investigator: William R. Bishai
Role: Co-Investigator, 10% effort

2/31/05-12/30/06, Pathogen and host factors involved in latent TB infection
Potts Memorial Foundation
This study investigated the role of host microenvironmental conditions on *Mycobacterium tuberculosis* dormancy in a novel in vivo granuloma model of latent TB infection.
Total direct cost, $6050

8/31/03-08/30/04, The hollow fiber encapsulation/implantation technique as a model for latent TB infection
Potts Memorial Foundation
This study helped establish a dormancy model of *Mycobacterium tuberculosis* using semi-diffusible hollow fibers in vivo.
Total direct cost, $72,000
Role: Principal Investigator, 100% effort

EDUCATIONAL ACTIVITIES
Educational Publications
1. **Karakousis PC**, Tomaszewski JE. Ulcerating subcutaneous nodules and advanced renal failure: is it time for a new liver? *Nephrol Dial Transplant*. 2001;16: 2095-2096.
2. **Karakousis PC**, Lee MS, Grostern RJ, Nichols CW. The role of conjunctival biopsy in the diagnosis of Wegener's granulomatosis: a case report. *Can J Ophthalmol.* 2002;37:179-181.
3. **Karakousis PC**, Page KR, Bishai WR. From the IDSA meeting—Important new findings in HIV treatment and pathogenesis, 2003. *Hopkins HIV Rep*. 2004;16:2-3.
4. **Karakousis P**, Moore RD, Chaisson RE. Non-tuberculous mycobacteria in HIV-infected patients: geographic, behavioural, and immunological factors - Authors' reply. *Lancet Infect Dis*. 2005; 5:396.
5. **Karakousis PC**, Magill SS, Gupta A. Paraplegia due to invasive spinal aspergillosis. *Neurology*. 2007;68:158.
6. **Karakousis PC**, Magill SS, Gupta A. Paraplegia due to invasive spinal aspergillosis- Reply from the authors. *Neurology*. 2007;69:222-23.
7. Nuermberger EL, Rosenthal IM, Tasneen R, Peloquin CA, Mdluli KE, **Karakousis PC**, Grosset JH. Reply to "contradictory results with high-dosage rifamycin in mice and humans". *Antimicrob Agents Chemother*. 2013;57:1104-5.
8. **Karakousis PC**, Chaisson RE. Mycobacterial infections and HIV infection. In: Fishman's Pulmonary Diseases and Disorders, 4th edition, Fishman AP, Elias JA, Fishman JA, Grippi MA, Senior RM, Pack AI, ed. New York: McGraw Hill, 2008:2487-2497.

9. **Karakousis PC**. Mechanisms of Action and Resistance of the Antimycobacterial Agents. In: Antimicrobial Drug Resistance, Mayers D, ed. New York: Humana Press, 2009:271-291.
10. Kolyva A, **Karakousis PC**. Old and New TB Drugs: Mechanisms of Action and Resistance. In: Mycobacterium tuberculosis/Book 2, Cardona P-J, ed. InTech, 2011.
11. **Karakousis PC**, Bishai WR, Chaisson RE. Management of community-acquired pneumonia: Improving patient outcomes; a satellite symposium preceding the 40th IDSA Annual Meeting. JHU antibiotic guide website (http://hopkins-abxguide.org). Posted December 2002.
12. **Karakousis PC,** Bishai WR. Synopsis of key presentations at the 40th annual meeting of IDSA (October 24-27, 2002, Chicago). JHU antibiotic guide website (http://hopkins-abxguide.org). Posted November 2002.
13. **Karakousis PC**, Page KR, Bishai WR. Greetings from sunny (most of the time) San Diego: Highlights from the 41st annual meeting of the Infectious Diseases Society of America. JHU antibiotic guide website (http://hopkins-abxguide.org). Posted November 2003.
14. **Karakousis PC**. "XDR-TB Scare", Fox National News, 11:00 AM, Thursday, May 31, 2007.

Teaching

January 22, 2007, "*Mycobacterium tuberculosis*: The persistent pathogen", Lecturer, Dept of International Health graduate student seminar, Johns Hopkins Bloomberg School of Public Health, W2017.

April 17, 2009, "Animal models of TB infection", Lecturer, JHU Pathobiology Graduate Program Infections and Immunology Course, Carnegie 489, Johns Hopkins Hospital.

June 15, 2009: "The Molecular Epidemiology of Infectious Disease", Lecturer, Infectious Disease Epidemiology summer course, Johns Hopkins Bloomberg School of Public Health, W2015.

February 25-March 2, 2010, "Global Health Intersession Course" for First Year Medical Students, Lecturer, Armstrong Medical Education Building, Johns Hopkins University School of Medicine.

April 12, 2010, "Animal models of TB infection", Lecturer, JHU Pathobiology Graduate Program Infections and Immunology Course, Carnegie 489, Johns Hopkins Hospital.

October 6, 2010, "*Mycobacterium tuberculosis* latency and persistence", Lecturer, JHU Pathobiology Program graduate student seminar series, Ross 503, Johns Hopkins School of Medicine.

April 13, 2011, "TB infection", Lecturer, JHU Pathobiology Program Infections and Immunology Course, Carnegie 489, Johns Hopkins Hospital.

December 14, 2011: "The Molecular Epidemiology of Infectious Disease", Lecturer, Epidemiology of Infectious Diseases course, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Becton-Dickinson Lecture Hall.

March 7-8, 2012: "Tuberculosis", Lecturer; Small group Leader, Medical Student Intersession on Infectious Disease, Armstrong Building.

April 9-April 27, 2012: "Infections and Immunology Course", Course Director, JHU Pathobiology Graduate Program, Carnegie 489, Johns Hopkins Hospital.

April 11, 2012: "Overview of Tuberculosis", Lecturer, JHU Pathobiology Graduate Program Infections and Immunology Course, Carnegie 489, Johns Hopkins Hospital.

June 19, 2012: "The Molecular Epidemiology of Infectious Disease", Lecturer, Infectious Disease Epidemiology summer course, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, W2009.

November 14, 2012: "The Molecular Epidemiology of Infectious Disease", Lecturer, Infectious Diseases Epidemiology course, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Becton-Dickinson Lecture Hall.

March 5-7, 2013: "Tuberculosis", Lecturer; Small group Leader, Medical Student Intersession on Infectious Disease, Armstrong Building.

April 10, 2013, "TB pathogenesis and Animal Models", Lecturer, JHU Pathobiology Program, Infectious Diseases and Immunological Disorders Course, Carnegie 489, Johns Hopkins Hospital.

June 14, 2013: "The Molecular Epidemiology of Infectious Disease", Lecturer, Infectious Disease Epidemiology summer course, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, W2009.

September 9, 2013: "TB Diagnosis", Lecturer, JHU Pathobiology Graduate Program, Carnegie 489, Johns Hopkins Hospital.

September 10, 2013: "The Molecular Epidemiology of Infectious Disease", video recording of lecture for online Epidemiology course, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, WB509.

Mentoring (pre- and post-doctoral)
Visiting scientists/professors

06/12-10/12	Julià Gonzalez-Martin, M.D., Ph.D. Current Position: Associate Professor, Dept. Pathology, Pharmacology and Microbiology, Faculty of Medicine, University of Barcelona, Spain
04/13-04/14	Alpaslan Alp, M.D., Fulbright Scholar Current position: Associate Professor of Microbiology,

Hacettepe University Faculty of Medicine, Ankara, Turkey

Post-doctoral Trainees

09/05-present	Lee G. Klinkenberg, PhD, Postdoctoral fellow Potts Memorial Foundation Postdoctoral Fellowship recipient, Sept 2006-Sept 2008 Arthur M. Dannenberg, Jr. Award for Postdoctoral Research, 2009 Basic Research Junior Faculty Award, Dept. of Medicine, 2013 Current position: Research Associate, DOM, JHUSOM
01/08-10/10	Zahoor Parry, PhD, Postdoctoral fellow Current position: Scientist E1, Indian Institute of Integrative Medicine, Srinagar, India
05/08-11/11	Seema Thayil, PhD, Postdoctoral fellow
01/11-present	Noton Dutta, PhD, Postdoctoral fellow Annual Postdoc Symposium Poster Award, 2013
09/11-present	Edith Torres-Chavolla, PhD, Postdoctoral fellow
05/12-present	Ciaran Skerry, PhD, Postdoctoral fellow
10/13-present	Yu-Min Chuang, MD, PhD, Postdoctoral fellow

Medical residents

01/11-06/11	Anastasia Kolyva, MD Current position: Medical resident, University of Patras School of Medicine, Patras, Greece

Medical Students

06/11-08/11	Christine Sailer Current position: Medical student, Johns Hopkins School of Medicine
06/12-08/12, 06/13-08-13	Harita Shah Current position: Medical student, JHU School of Medicine
06/12-08/12, 06/13-08-13	William Acosta Current position: Medical student, JHU School of Medicine

Graduate Students

07/09-09/13	Yu-Min Chuang, M.D., Graduate student, Pathobiology Graduate Program, JHUSOM
04/08-06/08	Julia Drewes, Graduate rotation student, Cellular and Molecular Medicine Lab Rotation, JHUSOM
08/10-10/10	Michael Ayars, Graduate rotation student, Pathobiology Graduate Program Lab Rotation, JHUSOM
09/11-12/11	Wan Yee, Graduate rotation student, Pathobiology Graduate Program Lab Rotation, JHUSOM
07/12-09/12	Devin Sabin, Graduate rotation student, Pathobiology Graduate Program Lab Rotation, JHUSOM
09-13-11/13	Hee Sun Choi, Graduate rotation student, Pathobiology Graduate Program Lab Rotation, JHUSOM

Masters Students

09/11-05/12	Bing Shao Chia

Danny Lee Award for Outstanding Undergraduate Research in Biomedical Sciences, Johns Hopkins University, 2012
Current position: Ph.D. program, Harvard Virology Program

11/10-06/11 Elizabeth Kim
MPH student, Johns Hopkins Bloomberg School of Public Health

Undergraduate Students

05/07-08/08 Lesley Sutherland
Current position: Medical student, University of Maryland School of Medicine

09/10-05/11 Bing Shao Chia
Current position: Graduate student, Harvard Virology Program

06/11-08/11 Samrie Beshah
Current position: Senior, Johns Hopkins University

05/12-08/12 David Garcia, Diversity Summer Internship Program, JHSPH
Current position: Kean University

05/11-08/11 Aubrey Herrera, Diversity Summer Internship Program, JHSPH
Current position: University of Texas

01/13- Clinton Ogega
Current position: Senior, Johns Hopkins University

Short-Term Trainees

06/05-08/05 Tonya Jackson, Minority student
Current position: B.A., UMBC Baltimore

06/05-08/05 Omar A. Contreras, JHU Summer Minority Internship Program
Current position: Master of Public Health Student, University of Arizona

05/09-08/09 Jennifer Lun
Current position: Senior, University of Maryland

03/10-06/10 Cliff Magwira, Ph.D., Postdoctoral fellow
Current position: Research scientist, Centre for Tuberculosis, National Institute for Communicable Diseases, Johannesburg, South Africa

06/10-07/10 Alexander Thomopulos
Current position: University of Maryland

06/11-08/11, Ben Roytenberg
05/13-08/13 Current position: Case Western Reserve University

06/11-07-11 Maria Dagalakis
Current position: The Catholic University of America

06/11-08/11 Cong Fan
Current position: University of Maryland

Thesis Committees

10/9/07 Oral Examination Committee Member for Maia Schoonmaker, graduate student in Cellular and Molecular Medicine, JHUSOM

10/27/09 Oral Examination Committee Member for Brian Luna, graduate student in Cellular and Molecular Medicine, JHUSOM

10/19/10 Oral Examination Committee Member for Kathryn Winglee, graduate student in Cellular and Molecular Medicine, JHUSOM

10/28/10 Final Thesis Committee Meeting member for Balaji Veeramani, graduate student in Dept. of Biomedical Engineering, JHU

08/17/12 First Thesis Committee meeting member for Benjamin Blumberg, graduate student in Dept. of Molecular Microbiology and Immunology, JHSPH

09/26/12 First Thesis Committee meeting member for Amanda McGillivray, graduate student in Dept. of Microbiology and Immunology, Tulane University School of Medicine

12/07/12 Oral Examination Committee Member for Amanda McGillivray, graduate student in Dept. of Microbiology and Immunology, Tulane University School of Medicine

09/11/13 Prospectus Committee Member for Amanda McGillivray, graduate student in Dept. of Microbiology and Immunology, Tulane University School of Medicine

10/11/13 Second Thesis Committee meeting member for Benjamin Blumberg, graduate student in Dept. of Molecular Microbiology and Immunology, JHSPH

CLINICAL ACTIVITIES

Certification

Medical Licensure: State of Pennsylvania, 2000, expired
State of Maryland, 2005, D0063686

Diplomate Internal Medicine 2002, American Board of Internal Medicine
Diplomate Infectious Diseases 2005, American Board of Internal Medicine

Clinical (Service) Responsibilities (dates, specialty, role, time commitment):
Jul–Aug 2006, Infectious Diseases Inpatient Consult Service, Johns Hopkins Hospital, Attending Physician, (50 hr/wk x 2 wks)
Dec 2006-Jan 2007, Polk Inpatient HIV service, Johns Hopkins Hospital, Attending Physician (60 hr/wk x 3 wks)
Oct-Nov 2007, Polk Inpatient HIV service, Johns Hopkins Hospital, Attending Physician (60 hr/wk x 3 wks)
Sept-Oct 2008, Polk Inpatient HIV service, Johns Hopkins Hospital, Attending Physician (60 hr/wk x 2 wks)
Apr-May 2010, Polk Inpatient HIV service, Johns Hopkins Hospital, Attending Physician (60 hr/wk x 2 wks)
Feb 2011, Polk Inpatient HIV service, Johns Hopkins Hospital, Attending Physician (60 hr/wk x 2 wks)
Feb 2012, Polk Inpatient HIV service, Johns Hopkins Hospital, Attending Physician (60 hr/wk x 2 wks)
Feb 2013, Polk Inpatient HIV service, Johns Hopkins Hospital, Attending Physician (60 hr/wk x 2 wks)

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

None

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments (date, committees)

2007-2008, WorkLife Committee, Department of Medicine, Johns Hopkins University School of Medicine
05/2007-present, Hopkins Hellenic Initiative Board Member, Johns Hopkins University-University of Patras, Greece
06/2009-present, Graduate Program in Pathobiology, Faculty
09/2009-08/2011: Annual Research Retreat Organizing Committee, Department of Medicine, Johns Hopkins University School of Medicine

Editorial Activities

Academic Editor, *PLoS One* (09/2011-)
Editorial Advisory Board, *Journal of Infectious Diseases* (05/2013-)

Journal peer review activities (dates):

Lancet (12/2010); *Journal of Experimental Medicine* (06/2007); *Journal of Clinical Investigation* (11/2005); *Lancet Infectious Diseases* (12/2007, 02/2010); *Clinical Microbiology Reviews* (09/2010); *PLoS Pathogens* (11/2007, 02/2009, 06/2009, 10/2009, 03/2010); *American Journal of Respiratory and Critical Care Medicine* (02/2007); *Molecular Microbiology* (06/2008; 08/2012); *Journal of Infectious Diseases* (11/2009, 02/2010, 04/2013; 06/2013*); Antimicrobial Agents and Chemotherapy* (10/2006; 08/2010; 09/2010; 02/2011; 04/2011; 02/2013); *Journal of Proteome Research* (05/2012); *Journal of Bacteriology* (05/2007, 09/2007, 02/2009, 07/2012, 02/2013); *Infection and Immunity* (06/2006, 04/2008, 02/2010, 05/2010); *PLoS One* (08/2009; 10/2009; 06/2010; 09/2010; 11/2010; 01/2011; 02/2011; 08/2011; 09/2011; 01/2012); *Journal of Clinical Microbiology* (04/2008; 05/2010; 08/2011); *Emerging Infectious Diseases* (08/2011; 12/2011); *FEMS Microbiology Letters* (02/2011); *Microbiology* (10/2006; 05/2012); *Journal of Antimicrobial Chemotherapy* (12/2007); *Journal of Infection* (02/2012); *Applied Environmental Microbiology* (06/2009); *Microbial Drug Resistance* (09/2010); *British Journal of Ophthalmology* (02/2011); *International Journal of Infectious Diseases* (06/2009); *Tuberculosis* (04/2007); *Tuberculosis Research and Treatment* (07/2012); *Scandinavian Journal of Infectious Diseases* (05/2011, 07/2011); *Future Medicinal Chemistry* (05/2010); *Journal of Pharmacology and Pharmacotherapeutics* (04/2011); *Transplant Infectious Disease* (07/2007); *Infections in Medicine* (05/2009); *Indian Journal of Medical Sciences* (11/2009)

Advisory committees, Review groups

Expert Reviewer, U.K. Medical Research Council Health Clinician Scientist Award applications, August 2005

Stop TB Partnership, Working Group on New Drugs; Member (Biology/Targets Subgroup), March 2009-present; co-Leader, 2012-present

FDA, Anti-Infective Drugs Advisory Committee (AIDAC) Meeting on Development of Drugs to Treat Multi-Drug Resistant Tuberculosis (MDR-TB); Temporary Voting Member, June 3, 2009, Silver Spring, MD

Reviewer, South Africa National Research Foundation (NRF), September 2009
Inter-CFAR HIV-TB Working Group National Meeting; Molecular Pathogenesis group leader, September 30, 2009, Houston, TX.

Expert Reviewer, U.K. Medical Research Council; Council's Triage: Infections and Immunity Board (t-IIB) G1001087, July 2010

Review panel member, KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH) Collaborative Grants Program, 2010-2011

Reviewer, Defense Threat Reduction Agency (DTRA) Basic Research Program, CBS-IS1 - Quantitative Modeling of Metabolic Networks of Intracellular Pathogens, January 2011.

External Reviewer, Canadian Institutes of Health Research (CIHR), Canada-UK Joint Health Research Program on Antibiotic Resistance grant program, March 2011.

Expert Reviewer, Centres of Excellence and Innovation in Biotechnology (CEIB), Government of India, Ministry of Science and Biotechnology, Department of Biotechnology, May 2011.

Committee Member, IDSA/NFID Joint Research Awards Committee, November 2011-present.

Expert Review Panel, Aristeia Programme, National Council for Research and Technology, Hellenic Ministry of Education, Lifelong Learning, and Religious Affairs, Greece, January 2012.

Expert Reviewer, SystemsX.ch Research Initiative for Transition Post-doctoral Fellowships, Swiss National Science Foundation, May 2012.

Peer Reviewer, Congressionally Directed Medical Research Program, US Department of Defense, Peer Reviewed Medical Research Program (PRMRP) FY12, Tuberculosis Panel, September 27, 2012

Reviewer, Immunology, Virology, Molecular Biology Study Section, Center for AIDS Research, Johns Hopkins University, November 16, 2012.

Review panel member, "Exploring the Impact of Inflammaging on Immune Function During M. Tb Infection", NIH/NIA Program Project Review, November 19, 2012.

Expert Review Panel, Aristeia Programme II, National Council for Research and Technology, Hellenic Ministry of Education, Lifelong Learning, and Religious Affairs, Greece, January 2013.

Expert Reviewer, National Centre for the Replacement, Refinement, and reduction of Animals in Research/UK, David Sainsbury Fellowships 2012, February 2013.

Peer reviewer, Special Emphasis Panel, "'Omics' Technologies for Predictive Modeling of Infectious Diseases" (ZAI1 EC-M-M1), NIH/NIAID, Bethesda, February 25-27, 2013.

Expert Review Panel, Aristeia Programme, National Council for Research and Technology, Hellenic Ministry of Education, Lifelong Learning, and Religious Affairs, Greece, January-July 2013.

Peer reviewer, Special Emphasis Panel, Centers for Excellence in Translational Research (CETR) (ZAI1 LR-M(J1)), NIH/NIAID, July 31, 2013.

Professional Societies
2000-present: American College of Physicians
2002-present: Infectious Disease Society of America
2002-present: American Society for Microbiology
2004-present: American Thoracic Society

RECOGNITION
Awards, Honors
2010 Fellow, Infectious Diseases Society of America
2009 Basic Research Junior Faculty Award, JHUSOM Dept. of Medicine
2008 JHUSOM Dept. of Medicine Basic Research Junior Faculty Award Finalist
2005 Arthur M. Dannenberg, Jr. Award for Postdoctoral Research
2004 Best abstract, Assembly of Microbiology, Tuberculosis, and Pulmonary Infections, American Thoracic Society (ATS) annual meeting
2004 ATS Travel Grant to ATS annual meeting
2004 Basic Research Postdoctoral Fellow Award Nominee, JHU Dept. of Medicine
2003 Special citation, Infectious Diseases Society of America Annual Meeting
2003 Basic Research Postdoctoral Fellow Award Nominee, JHU Dept. of Medicine
2001 Edward W. Holmes Resident Research Award, Univ. of Pennsylvania, Dept. of Medicine (awarded to 1 resident by the faculty for excellence in research)
2000 Maurice F. Attie Resident Teaching Award, Univ. of Pennsylvania, Dept. of Medicine (awarded to 1 resident, by the Intern Class for excellence in teaching)
1998 Alpha Omega Alpha, Washington University School of Medicine
1998 Missouri State Medical Association Award
1997 Hellenic Medical Student Scholarship, Hellenic Medical Society of New York
1995 Antoinette Frances Dames Prize in Cell Biology and Physiology, Washington University School of Medicine, St. Louis
1994-8 Distinguished Alumni Scholarship (full-tuition academic scholarship at Washington University School of Medicine)
1990-4 Dean's List, *summa cum laude*, Johns Hopkins University
1994 Phi Beta Kappa, Johns Hopkins University
1993 National Science Foundation Scholarship
1992 Ford Foundation Scholarship

Invited Talks

September 24, 2004, "Dormancy phenotype displayed by extracellular *Mycobacterium tuberculosis* within artificial granulomas in mice". Microbial Pathogenesis Interest Group Seminar Series, Johns Hopkins University School of Medicine, Baltimore.

December 8, 2006, "*Mycobacterium tuberculosis*: The persistent pathogen". Depts. of Molecular Microbiology, and Medicine, Division of Infectious Diseases, Washington University School of Medicine, St. Louis.

February 12, 2007, "*Mycobacterium tuberculosis*: The patiently persistent pathogen", Division of Infectious Diseases Fellows Conference, Johns Hopkins University School of Medicine, Baltimore.

September 26, 2007, "*Mycobacterium tuberculosis* pathology in the mouse model". Many Hosts of Mycobacteria Meeting, Ames, Iowa.

May 15, 2008, "Towards establishing a high-burden guinea pig model for TB chemotherapy", First International Workshop on Clinical Pharmacology of Tuberculosis Drugs, Toronto.

July 8, 2008, "A guinea pig model of TB chemotherapy?", U.S.-Japan Tuberculosis and Leprosy Annual Meeting, Baltimore.

July 14, 2008, "*Mycobacterium tuberculosis* dormancy: Tracking TB 'sleeper cells'", Grand Rounds, Department of Pathology, Johns Hopkins University School of Medicine, Baltimore.

September 11, 2008, "*Mycobacterium tuberculosis*: The persistent questions". Molecular Microbiology and Immunology Seminar series, Department of Molecular Microbiology and Immunology, Johns Hopkins Bloomberg School of Public Health, Baltimore.

November 11, 2008, "Modeling *Mycobacterium tuberculosis* latency and persistence", Department of Medical Microbiology and Parasitology, Jiao Tong University School of Medicine, Shanghai, China.

November 12, 2008, "Regulatory pathways in *Mycobacterium tuberculosis* dormancy", Department of Microbiology, Public Health Clinical Center, Fudan University School of Medicine, Shanghai, China.

March 20, 2009, "*Mycobacterium tuberculosis*: More than meets the eye", Grand Rounds, Department of Ophthalmology, Doheny Eye Institute, University of Southern California School of Medicine, Los Angeles.

March 30, 2009, “Mecanismos de regulación involucrados en la persistencia de *Mycobacterium tuberculosis*”, Facultad de Sciencias, Universidad de la República, Montevideo, Uruguay.

July 2, 2009, “Pruebas de diagnóstico de *Mycobacterium tuberculosis*”, Departamento de Microbiología, Instituto Conmemorativo Gorgas de Estudios de la Salud, Panama City, Panama.

September 25, 2009, “The stringent response and *Mycobacterium tuberculosis* persistence”, Prokaryotic Seminar Series, University of Pennsylvania School of Medicine, Philadelphia.

October 9, 2009, “*Mycobacterium tuberculosis*: It pays to be persistent”, Department of Cell Biology and Molecular Genetics Seminar Series, University of Maryland, College Park.

October 23, 2009, “*Mycobacterium tuberculosis*: Lessons on Latency”, Grand Rounds, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore; October 23, 2009.

December 5, 2009, “Unanticipated responses of guinea pigs to TB chemotherapy”, Satellite Symposium: From Animal Models to Humans: New Developments and Perspectives in Experimental Chemotherapy for Tuberculosis, 40th Union World Conference on Lung Health, Cancún, Mexico.

December 7, 2009, “Modeling *Mycobacterium tuberculosis* persistence, Division of Infectious Diseases Didactic Conference, Johns Hopkins University School of Medicine, Baltimore.

May 14, 2010, “*Mycobacterium tuberculosis* dormancy: A tale of two global regulatory molecules”, Division of Microbiology Seminar series, Tulane National Primate Research Center, Tulane University, Covington, LA/Louisiana State University School of Medicine, New Orleans.

September 27, 2011, “Drug tolerance and persistence mediated by inorganic polyphosphate in *Mycobacterium tuberculosis*”, Department of Microbiology and Molecular Genetics Seminar Series, University of Medicine & Dentistry of New Jersey, Newark.

October 17, 2011, "TB or not TB and make it snapper: Novel rapid molecular diagnostic assays for the detection of *Mycobacterium tuberculosis* and drug resistance", Division of Infectious Diseases Fellows Conference, Johns Hopkins University School of Medicine, Baltimore.

November 16, 2011, "Current understanding of latent, manifest, extrapulmonary, and disseminated tuberculosis", 11th International Ocular Inflammation Society Congress and International Assembly of Ocular Inflammation Societies, Goa, India.

November 16, 2011, "Experimental disseminated TB in guinea pigs: What the future holds in addressing latency and dissemination of *Mycobacterium tuberculosis*", 11th International Ocular Inflammation Society Congress and International Assembly of Ocular Inflammation Societies, Goa, India.

March 30, 2012, "Pruebas diagnósticas de TB: El presente y el futuro", Departments of Pulmonology and Infectious Disease, Hospital General de Agudos Dr. Juan A. Fernández, Buenos Aires, Argentina.

April 16, 2012, "Guinea pigs and C3HeB/FeJ mice as models of TB chemotherapy", "Toward an improved natural transmission model in TB" Meeting, Aeras, Rockville, MD.

September 5, 2012, "*pncA* mutations in MDR-TB strains from Panama", Demystifying Pyrazinamide – Challenges and Opportunities Workshop, Baltimore, MD.

May 19, 2013, "A Multidisciplinary Approach to Understanding TB Latency and Reactivation", session on TB Systems Biology: Studying Mechanisms of Latency and Reactivation, American Thoracic Society International Conference, Philadelphia, PA.

July 22, 2013, "Needs and Directions in TB Drug Discovery: A Clinical/Academic Perspective", Targets for Tomorrow Satellite Workshop, Gordon Research Conference on TB Drug Development, Barga, Italy.

August 22, 2013, "Awakening persisters to shorten TB treatment", Bacterial Persistence Workshop, Los Alamos National Laboratory, Los Alamos, NM.