

## CURRICULUM VITAE

The Johns Hopkins University School of Medicine

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Petros C. Karakousis, M.D.

### DEMOGRAPHIC AND PERSONAL INFORMATION

#### Current Appointments

##### University

2018-present Professor, Department of Medicine, Johns Hopkins University School of Medicine

2018-present Professor (secondary), Department of International Health, Johns Hopkins Bloomberg School of Public Health

##### Hospital

2005-present Attending Physician, Johns Hopkins Hospital

#### Personal Data

Department of Medicine

Division of Infectious Diseases

Center for Tuberculosis Research

1551 E. Jefferson Street, Rm 110

Baltimore, MD 21287-0014

Tel: (410) 502-8233

Fax: (410) 614-8173

E-mail: petros@jhmi.edu

#### Education and Training

##### Undergraduate

1994 B.A., Johns Hopkins University, Baltimore, MD; *summa cum laude*

##### Doctoral/graduate

1998 M.D., Washington University School of Medicine, St. Louis, MO

##### Postdoctoral

1998-1999 Intern, Medicine, Hosp. of the Univ. of PA, Philadelphia, PA

1999-2001 Resident, Medicine, Hosp. of the Univ. of PA, Philadelphia, PA

2002-2005 Fellowship, Infectious Diseases, Dr. John Bartlett, Johns Hopkins Univ. School of Medicine, Baltimore, MD

#### Professional Experience

1/02-6/02 Clinical Instructor, Medicine, Univ. of Pennsylvania, Philadelphia

6/05-1/12 Assistant Professor, Medicine, Johns Hopkins Univ. School of Medicine

1/07-2/12 Assistant Professor, International Health, Johns Hopkins Bloomberg School of Public Health

1/12-6/18 Associate Professor, Medicine, Johns Hopkins Univ. School of Medicine

1/12-6/18 Associate Professor, International Health, Johns Hopkins Bloomberg School of Public Health

6/18-present Professor, Medicine, Johns Hopkins Univ. School of Medicine

6/18-present Professor, International Health, Johns Hopkins Bloomberg School of Public Health

#### PUBLICATIONS

##### Original Research [OR]

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. 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.
4. **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.
5. **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.
6. 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.
7. 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.
8. 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. PMID: PMC1913405.
9. 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.
10. **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.
11. **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.
12. 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.
13. Rifat D, Bishai WR, **Karakousis PC**. Phosphate depletion: A novel trigger for *Mycobacterium tuberculosis* persistence. *J Infect Dis*. 2009;200:1126-35.
14. 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 (Cover image, 1 October 2009 issue).
15. Rao NA, Albin TA, Kumaradas M, Pinn ML, Fraig MM, **Karakousis PC**. Experimental ocular tuberculosis in guinea pigs. *Arch. Ophthalmol*. 2009;127:1162-6. PMID: PMC3062475.
16. 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. PMID: PMC2837551.
17. 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.
18. 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. PMID: PMC2941674.
19. **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. PMID: PMC2949470.
20. 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.
21. 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. PMID: PMC3067197.

22. 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.
23. 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.
24. 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. PMID: PMC3133320.
25. 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.
26. 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.
27. 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. PMID: PMC3230586.
28. 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.
29. 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.
30. Singh PP, Smith VL, **Karakousis PC**, Schorey JS. Exosomes isolated from M. tuberculosis infected cells can induce migration and recruitment of host immunecells in vivo. *J Immunol*. 2012;189:777-85. PMID: PMC3685416.
31. 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. PMID: PMC3421552.
32. Chia B-S, Lanzas E, 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. PMID: PMC3391257.
33. 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. PMID: PMC3402510.
34. 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. PMID: PMC3497527.
35. Klinkenberg LG, **Karakousis PC**. Rv1894c is a novel hypoxia-induced nitronate monooxygenase required for Mycobacterium tuberculosis virulence. *J Infect Dis*. 2013;207:1525-34. PMID: PMC3627198.
36. 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. PMID: PMC3591898.
37. 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. PMID: PMC3654222.
38. 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. PMID: PMC3598925.
39. Chuang Y-M, Belchis DA, **Karakousis PC**. The polyphosphate kinase gene ppk2 is required for Mycobacterium tuberculosis inorganic polyphosphate regulation and virulence. *MBio*. 2013; 4:e00039-13. PMID: PMC3663568.

40. 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.
41. Dutta NK, Alsultan A, Gniadek TJ, Belchis DA, Pinn ML, Mdluli KE, Nuermberger EL, Peloquin CA, **Karakousis PC**. Potent rifamycin-sparing regimen cures guinea pig tuberculosis as rapidly as the standard regimen. *Antimicrob Agents Chemother*. 2013;57:3910-6. PMCID: PMC3719725
42. Lanzas E, **Karakousis PC**, Sacchetti 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. *J Clin Microbiol*. 2013;51:3277-85. PMCID: PMC3811646.
43. 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. PMCID: PMC3765177.
44. 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. *J Proteome Res*. 2013;12:4642-9. PMCID: PMC3838786.
45. Nazari H, **Karakousis PC**, Rao NA. Replication of Mycobacterium tuberculosis in Retinal Pigment Epithelium. *JAMA Ophthalmol*. 2014;132:724-9.
46. Dutta NK, Bandyopadhyay N, Veeramani B, Lamichhane G, **Karakousis PC\***, Bader J. Systems biology-based identification of Mycobacterium tuberculosis persistence genes in mouse lungs. *MBio* 2014;5:e01066-13. PMCID: PMC3944818. \*Co-Corresponding author.
47. Dutta NK, Illei P, Jain S, **Karakousis PC**. Characterization of a novel necrotic granuloma model of latent tuberculosis infection and reactivation in mice. *Am J Pathol*. 2014;184:2045-55. PMCID: PMC4076462.
48. Rifat D, **Karakousis PC**. Differential regulation of the two-component regulatory system senX3-regX3 in Mycobacterium tuberculosis. *Microbiology*. 2014;160:1125-33. PMCID: PMC4039243.
49. Dutta NK, Pinn ML, **Karakousis PC**. Reduced emergence of isoniazid resistance with concurrent use of thioridazine against acute murine tuberculosis. *Antimicrob Agents Chemother*. 2014;58:4048-53. PMCID: PMC4068531.
50. Heaton B, Barkan D, Bongiorno P, **Karakousis PC**, Glickman MS. Deficiency of double strand DNA break repair does not impair M. tuberculosis virulence in multiple animal models of infection. *Infect Immun*. 2014;82:3177-85.
51. Skerry C, Pinn ML, Bruiners N, Pine R, Gennaro ML, **Karakousis PC**. Simvastatin increases the in vivo activity of the first-line TB regimen. *J Antimicrob Chemother*. 2014;69:2453-7.
52. Dutta NK, Pinn ML, **Karakousis PC**. Sterilizing activity of thioridazine in combination with the first-line regimen against acute murine TB. *Antimicrob Agents Chemother*. 2014;58:5567-9.
53. Dutta NK, **Karakousis PC**. PA-824 is as effective as isoniazid against latent TB infection in C3HeB/FeJ mice. *Int J Antimicrob Agents*. 2014;44:564-6.
54. Rifat D, Belchis DA, **Karakousis PC**. senX3-independent contribution of regX3 to Mycobacterium tuberculosis virulence. *BMC Microbiol*. 2014;14:265.
55. Chuang Y-M, Bandyopadhyay N, Rifat D, Rubin H, Bader JS, **Karakousis PC**. Deficiency of the novel exopolyphosphatase Rv1026/PPX2 leads to metabolic downshift and altered cell wall permeability in Mycobacterium tuberculosis. *MBio*. 2015;6:e02428.
56. Zhou A, Ni J, Xu Z, Wang Y, Zhang H, Wu W, Lu S, **Karakousis PC**, Yao Y-F. Metabolomics specificity of tuberculosis plasma revealed by (1)H NMR spectroscopy. *Tuberculosis (Edinb)*. 2015;95:294-302. PMCID: PMC4428961.
57. Xu Z, Zhou A, Ni J, Wang Y, Lu J, **Karakousis PC**, Lu S, Yao Y. Differential expression of miRNAs and their relation to active tuberculosis. *Tuberculosis (Edinb)*. 2015;95:395-403.
58. Via L, Savic R, Weiner D, Zimmerman M, Prideaux B, Irwin S, O'Brien P, Gopal P, Eum S, Lee M, Lanoix J-P, Lyon E, Dutta NK, Shim T, Cho JS, Kim W, **Karakousis PC**, Lenaerts A, Nuermberger E, Barry C, Dartois V. Host-mediated bioactivation of pyrazinamide: implications for efficacy, resistance and therapeutic alternatives. *ACS Infect Dis*. 2015;1:203-214. PMCID: PMC4467917.

59. Subbian S, Tsenova L, Kim M-J, Wainwright HC, Visser A, Bandyopadhyay N, Bader JS, **Karakousis PC**, Murrmann GB, Bekker L-G, Russell DG, Kaplan G. Lesion-specific immune response in granulomas of patients with pulmonary tuberculosis: A pilot study. *PLoS One*. 2015;10:e0132249. PMID: PMC4489805.
60. Dutta NK, **Karakousis PC**. Can the duration of tuberculosis treatment be shortened with higher dosages of rifampicin? *Front Microbiol*. 2015;6:1117. PMID: PMC4604300.
61. Skerry C, Klinkenberg LG, Page KR, **Karakousis PC**. TLR2-Modulating Lipoproteins of the *Mycobacterium tuberculosis* Complex Enhance the HIV Infectivity of CD4+ T Cells. *PLoS One*. 2016;11:e0147192. PMID: PMC4725761.
62. Dutta NK, Bruiners N, Pinn ML, Zimmerman MD, Prideaux B, Dartois V, Gennaro ML, **Karakousis PC**. Statin adjunctive therapy shortens the duration of TB treatment in mice. *J Antimicrob Chemother*. 2016;71:1570-7.
63. Srinivasan L, Gurses SA, Hurley BE, Miller JL, **Karakousis PC**, Briken V. Identification of a transcription factor that regulates host cell exit and virulence of *Mycobacterium tuberculosis*. *PLoS Pathog*. 2016;12:e1005652. PMID: PMC4871555.
64. Lanzas E, Ioerger TR, Shah H, Acosta W, **Karakousis PC**. First evaluation of GenoType MTBDRPlus 2.0 performed directly on respiratory specimens in Central America. *J Clin Microbiol*. 2016; 54:2498-502. PMID: PMC5035431.
65. Dutta NK, He R, Pinn ML, He Y, Burrows F, Zhang Z-Y, **Karakousis PC**. Mycobacterial protein tyrosine phosphatases A and B inhibitors augment the bactericidal activity of standard anti-TB regimen. *ACS Infect Dis*. 2016;2:231-239.
66. Chuang Y-M, Dutta NK, Hung CF, Wu TC, Rubin H, **Karakousis PC**. The stringent response factors PPX1 and PPK2 play an important role in *Mycobacterium tuberculosis* metabolism, biofilm formation, and sensitivity to isoniazid in vivo. *Antimicrob Agents Chemother*. 2016; 60:6460-6470. PMID: PMC5075050.
67. Rifat D, Campodónico VL, Tao J, Miller JA, Alp A, Yao Y, **Karakousis PC**. In vitro and in vivo fitness costs associated with *Mycobacterium tuberculosis* RpoB mutation H526D. *Future Microbiol*. 2017;12:753-765.
68. Dutta NK, Pinn ML, **Karakousis PC**. Metformin adjunctive therapy does not improve the sterilizing activity of the first-line antitubercular regimen in mice. *Antimicrob Agents Chemother*. 2017;61:e00652-17. PMID: PMC5527622.
69. Aggarwal A, Parai MK, Shetty N, Wallis D, Woolhiser L, Hastings C, Dutta NK, Galaviz S, Dhakal RC, Shrestha, R, Wakabayashi S, Walpole C, Matthews D, Floyd D, Scullion P, Riley J, Epemolu O, Norval S, Snavely T, Robertson GT, Rubin EJ, Ioerger TR, Sirgel EA, van der Merwe R, van Helden PD, Keller P, Böttger EC, **Karakousis PC**, Lenaerts A.J, Sacchetti JC. Development of a novel lead that targets *M. tuberculosis* polyketide synthase 13. *Cell*. 2017;170:249-259. PMID: PMC5509550.
70. Degner NR, Wang J-Y, Golub JE, **Karakousis PC**. Metformin use reverses the increased mortality associated with diabetes mellitus during tuberculosis treatment. *Clin Infect Dis*. 2018;66:198-205. PMID: PMC5848303.
71. Chuang Y-M, Pinn ML, **Karakousis PC**, Hung C-F. Intranasal immunization with DnaK protein induces protective mucosal immunity against tuberculosis in CD4-depleted mice. *Front Cell Infect Microbiol*. 2018;8:31.
72. Campodónico VL, Rifat D, Chuang Y-M, Ioerger TR, **Karakousis PC**. Altered *Mycobacterium tuberculosis* cell wall metabolism and physiology associated with RpoB mutation H526D. *Front Microbiol*. 2018;9:494. PMID: PMC5867343.
73. Matern WM, Rifat D, Bader J, **Karakousis PC**. Gene enrichment analysis reveals major regulators of *Mycobacterium tuberculosis* gene expression in two models of antibiotic tolerance. *Front Microbiol*. 2018;9:610. PMID: PMC5893760.
74. McCarron P, McCann M, Devereux M, Kavanagh K, Skerry C, **Karakousis PC**, Aor AC, Mello TP, Santos ALS, Campos DL, Pavan FR. Unprecedented in Vitro Antitubercular Activity of Manganese(II) Complexes Containing 1,10-Phenanthroline and Dicarboxylate Ligands: Increased Activity, Superior Selectivity, and Lower Toxicity in Comparison to Their Copper(II) Analogs. *Front Microbiol*. 2018;9:1432. PMID: PMC6036174.
75. Matern WM, Bader JS, **Karakousis PC**. Genome analysis of *Mycobacterium avium* subspecies hominissuis strain 109. *Sci Data*. 2018;5:180277. PMID: PMC6278689.

76. Dutta NK, Klinkenberg LG, Vazquez MJ, Segura D, Colmenarejo G, Ramon F, Rodriguez B, Mata LC, Porras ED, Chuang Y-C, Rubin H, Lee J-J, Eoh H, Bader J, Perez E, Mendoza A, **Karakousis PC**. Inhibiting the stringent response blocks *Mycobacterium tuberculosis* entry into quiescence and reduces persistence. *Sci Adv*. 2019;5:eaav2104. PMID: PMC6426458.
77. Dutta NK, Bruiners N, Zimmerman MD, Tan S, Dartois V, Gennaro ML, **Karakousis PC**. Adjunctive host-directed therapy with statins improves tuberculosis-related outcomes in mice. *J Infect Dis*. 2020;221:1079-1087 (cover image, 1 April, 2020 issue).
78. Matern WM, Jenquin RL, Bader JS, **Karakousis PC**. Identifying the essential genes of *Mycobacterium avium* subsp. hominissuis with Tn-Seq using a rank-based filter procedure. *Sci Rep*. 2020;10:1095. PMID: PMC6978383.
79. Gordy JT, Luo K, Kapoor A, Kim ES, Ayeh SK, **Karakousis PC**, Markham RB. Treatment with an immature dendritic cell-targeting vaccine supplemented with IFN- $\alpha$  and an inhibitor of DNA methylation markedly enhances survival in a murine melanoma model. *Cancer Immunol Immunother*. 2020.
80. Chuang Y-M, Dutta NK, Gordy JT, Pinn ML, Markham RB, Hung C-F, **Karakousis PC**. Antibiotic treatment shapes the antigenic environment during chronic TB infection, offering novel targets for therapeutic vaccination. *Front Immunol* (In press).
81. Chuang Y-M, He L, Pinn ML, Tsai Y-C, Cheng MA, Farmer E, **Karakousis PC**, Hung C-F. Albumin fusion with granulocyte-macrophage colony-stimulating factor acts as an immunotherapy against chronic tuberculosis. *Cell Mol Immunol* (In press).

#### Review Articles [RA]

1. **Karakousis PC**, Bishai WR, Dorman SE. *Mycobacterium tuberculosis* cell envelope lipids and the host immune response. *Cell Microbiol*. 2004;6:105-116.
2. **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.
3. **Karakousis PC**, Trucksis M, Dumler JS. Chronic Q fever in the United States. *J Clin Microbiol*. 2006;44:2283-7.
4. Brastianos PK, Swanson J, Torbenson M, Sperati J, **Karakousis PC**. Tuberculosis-associated hemophagocytic syndrome. *Lancet Infect Dis*. 2006;6:447-54.
5. Albin TA, **Karakousis PC**, Rao NA. Interferon-gamma release assays in the diagnosis of tuberculous uveitis. *Am J Ophthalmol*. 2008;146:486-8.
6. Cutrufello NJ, **Karakousis PC**, Fishler J, Albin TA. Intraocular tuberculosis. *Ocul Immunol Inflamm*. 2010;18:281-91.
7. Piggott D, **Karakousis PC**. Timing of antiretroviral therapy for HIV in the setting of TB treatment. *Clin Dev Immunol*. 2011;2011:103917.
8. Dutta NK, **Karakousis PC**. Latent tuberculosis infection: Myths, models, and molecular mechanisms. *Microbiol Mol Biol Rev*. 2014;78:343-371.
9. Kana BD, **Karakousis PC**, Parish T, Dick T. Future target-based drug discovery for tuberculosis? *Tuberculosis (Edinb)*. 2014;94:551-556.
10. Frank DJ, Horne DJ, Dutta NK, Shaku MT, Madensein R, Hawn TR, Steyn AJC, **Karakousis PC**, Kana BD, Meintjes G, Laughon B, Tanvir Z. Remembering the Host in Tuberculosis Drug Development. *J Infect Dis*. 2019;219:1518-1524.

#### Case Reports [CR]

1. **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.
2. **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.
3. **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.
4. Page KR, **Karakousis PC**, Maslow J. Postoperative pneumococcal cellulitis in systemic lupus erythematosus. *Scand J Infect Dis*. 2003;35:141-3.

5. **Karakousis PC**, Magill SS, Gupta A. Paraplegia caused by invasive spinal aspergillosis. *Neurology*. 2007;68:158.
6. Suresh K, Semaan R, Arias S, **Karakousis P**, Lee H. Pleuropulmonary Kaposi Sarcoma in the Setting of Immune Reactivation. *J Pulm Respir Med*. 2016;6:352. PMID: PMC4943458.

#### Book Chapters, Monographs [BC]

1. **Karakousis PC**, Chaisson RE. Mycobacterial infections and HIV infection. In: Fishman's Pulmonary Diseases and Disorders, 4<sup>th</sup> edition, Fishman AP, Elias JA, Fishman JA, Grippi MA, Senior RM, Pack AI, ed. New York: McGraw Hill, 2008:2487-2497.
2. **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.
3. **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.
4. Subbian S, **Karakousis PC**, Kaplan G. Rabbit Model of Mycobacterial Diseases. In: Tuberculosis, Leprosy and Mycobacterial Diseases of Man and Animals: The Many Hosts of Mycobacteria, Mukundan H et al, ed. CAB International 2015: 402-418.
5. **Karakousis PC**, Dutta NK, Manabe YC. Clinical Features and Diagnosis of Tuberculosis: Primary Infection and Progressive Pulmonary Tuberculosis In: Handbook of Tuberculosis, Grosset JH, Chaisson RE, ed. Switzerland: Springer International Publishing; 2017: 17-34.
6. Dutta NK, **Karakousis PC**. Mechanisms of Action and Resistance of the Antimycobacterial Agents in: Antimicrobial Drug Resistance, Mayers DL, Sobel JD, Ouellette M, Kaye KS, Marchaim D, editors. Switzerland: Springer International, 2017:359-383.

#### Other Publications:

##### Proceedings Reports [PR]

1. **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.
2. Akkina R, Barber DL, Bility MT, Bissig KD, Burwitz BJ, Eichelberg K, Endsley JJ, Garcia JV, Hafner R, **Karakousis PC**, Korba BE, Koshy R, Lambros C, Menne S, Nuermberger EL, Ploss A, Podell BK, Poluektova LY, Sanders-Beer BE, Subbian S, Wahl A. Small Animal Models for Human Immunodeficiency Virus (HIV), Hepatitis B, and Tuberculosis: Proceedings of an NIAID Workshop. *Curr HIV Res*. 2020; 18:19-28.

#### Guidelines/Protocols, Consensus Statement, Expert Opinion, Consortium Articles [GL]

1. Levine DM, Dutta NK, Eckels J, Scanga C, Stein C, Mehra S, Kaushal D, **Karakousis PC**, Salamon H. A Tuberculosis Ontology for Host Systems Biology. *Tuberculosis (Edinb)*. 2015;95:570-4. PMID: PMC4554888.

#### Editorials [ED]

1. 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.
2. Dutta NK, **Karakousis PC**. Thioridazine for treatment of tuberculosis: Promises and pitfalls. *Tuberculosis (Edinb)*. 2014;94:708-11.
3. Siddharthan T, **Karakousis PC**, Checkley W. Empirical Antifungal Therapy in Critically Ill Patients With Sepsis: Another Case of Less Is More in the ICU. *JAMA*. 2016;316:1549-1550.
4. **Karakousis PC**. Follow your gut: The illustrious career of John G. Bartlett, M.D. *The Pharos*. Spring 2019;17-23.

#### Letters, Correspondence [LT]

1. **Karakousis PC**, Moore RD, Chaisson RE. Non-tuberculous mycobacteria in HIV-infected patients: geographic, behavioural, and immunological factors - Authors' reply. *Lancet Infect Dis*. 2005; 5:396.
2. **Karakousis PC**, Magill SS, Gupta A. Paraplegia due to invasive spinal aspergillosis- Reply from the authors. *Neurology*. 2007;69:222-23.

3. 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.
4. **Dutta NK, Karakousis PC**. Reply to Hu et al: Could there be detrimental effects of statin adjunctive TB therapy on immune responses? *J Infect Dis* (In press).
5. Rubens JH, **Karakousis PC**, Jain SK. Transmission of SARS-CoV-2. *New Engl J Med* (In press).

#### Media Releases or Interviews [MR]

1. "XDR-TB Scare", Fox National News, 11:00 AM, Thursday, May 31, 2007.
2. "Was Jeanne Calment the Oldest Person Who Ever Lived—or a Fraud?", by Lauren Collins. *The New Yorker*. February 17 & 24, 2020 issue.
3. **Karakousis PC**. Πορτρέτο: Πέτρος Καρακούσης. Portrait: Petros Karakousis. <https://goodnews.gr/stories/65-petros-karakousis/>
4. **Karakousis PC**. "Αποκλειστικό: Εμβόλιο κατά του SARS-CoV-2 αναπτύσσει η ομάδα του Δρ Πέτρου Καρακούση στο Johns Hopkins" ("Exclusive: The team of Dr. Petros Karakousis at Johns Hopkins is developing a vaccine against SARS-CoV-2"). <https://goodnews.gr/stories/64-petros-karakousis-to-emvolio-mas-estiazei-sti/>
5. **Karakousis PC**. "Πέτρος Καρακούσης: Ο Μεσσήνιος καθηγητής με την ομάδα του στο Johns Hopkins αναπτύσσουν εμβόλιο για τον κορονοϊό. "Petros Karakousis: The Messinian Professor with his team at Johns Hopkins is developing a vaccine against the coronavirus. <https://eleftheriaonline.gr/coronavirus/itemlist/tag/Καρακούσης>

#### Other Media [OM] (Videos, Websites, Blogs, Social Media, etc.)

1. **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.
2. **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.
3. **Karakousis PC**. "Πιθανότητα μετάδοσης του ιού και μέσω αερολυμάτων" ("Possible transmission of SARS-CoV-2 via aerosols." <https://medicalnews.gr/kathigitis-tou-john-hopkins-sto-medicalnews/>. Posted May 7, 2020.

## FUNDING

### EXTRAMURAL Funding

#### Research Extramural Funding - Current

10/1/17-9/30/20	Statins as Adjunctive, Host-Directed Therapy for TB UH3 AI122309 NIH/NIAID Role: PI
7/1/2018-6/30/2020	Immunotherapy Targeting MTB Persists in the DC-impaired Setting of HIV and TB R21AI140860 NIH/NIAID Role: PI
7/1/19-6/30/23	Foam cells as drug targets in tuberculosis R01 HL149450 NIH/NHLBI Role: Co-PI
7/10/19-6/30/24	Mentoring in Immunometabolic Dysregulation in TB and TB/HIV K24AI143447 NIH/NIAID



Role: PI

8/1/19-7/31/21      Blood-based biomarkers for predicting TB treatment failure  
CRDF Global  
CFAR/REPORT  
Role: Co-PI

3/1/20-2/28/25      Therapeutic vaccination to augment stringent response-specific T-cell immunity to MTB  
persisters  
R01AI148710  
NIH/NIAID  
Role: PI

Research Extramural Funding – Pending

Research Extramural Funding – Previous

8/22/03 - 8/21/10      TB gene function in animal models  
N01 AI 30036  
NIH-NIAID-DMID  
PI: Bishai WR  
Role: Co-Investigator

8/31/03-8/30/04      The hollow fiber encapsulation/implantation technique as a model for latent TB infection  
Potts Memorial Foundation  
Role: PI

2/31/05-12/30/06      Pathogen and host factors involved in latent TB infection  
Potts Memorial Foundation  
Role: PI

3/15/05-2/28/11      Modeling latent TB infection  
K08 AI64229-01  
NIH/NIAID  
Role: PI

11/1/07-10/31/10      Pharmacokinetics and pharmacodynamics of sterilizing activity across experimental models  
TB Drug Accelerator  
Bill and Melinda Gates Foundation  
PI: Grosset JH  
Role: Co-PI

7/1/09-6/30/14      Regulatory networks involved in *M. tuberculosis* persistence  
R01AI083125-01  
NIH/NIAID  
Role: PI

9/1/10-8/31/14      A Multidisciplinary Approach to Understanding TB Latency and Reactivation  
R01HL106786-01  
NIH/NHLBI  
Role: PI

9/1/10-8/29/15      Animal Models of Infectious Diseases  
AMoID Contract No. HHSN272201000015I

	NIH/NIAID PI: Bishai WR Role: Co-PI
9/17/10 -9/16/13	Qualifying New Pre-Clinical Models for the Development of Tuberculosis Drugs U18FD004004-01 FDA PI: Mdluli K Role: Co-Investigator
8/2/13-7/31/15	Testing the Anti-TB Activity of PTP Inhibitors in Guinea Pigs Aarden Pharmaceuticals Inc. Role: PI
8/19/13-7/31/17	The role of cell wall lipids in pathogenesis of rifampin-resistant TB R01AI106613 NIH/NIAID Role: PI
12/1/14-11/30/17	Quantitative assessment of the tipping point in <i>M. tuberculosis</i> transmission and infection OPP1116944 Bill and Melinda Gates Foundation PI: Sigal A Role: Co-Investigator
12/1/14-11/30/15	Lipid-modulating agents as HDT for tuberculosis UM1AI068636 Brigham and Women's Hospital/NIAID AIDS Clinical Trial Group Network PI: Flexner C Role: Co-Investigator
6/30/15-6/29/17	Defining core signaling pathways regulating <i>M. tuberculosis</i> dormancy and resuscitation Willowcroft Foundation Role: PI
9/14/15-9/13/16	Testing the anti-TB activity of COMPOUND X in mice BMGF/Texas A&M University \$17,544 PI: Sacchettini J Role: Co-Investigator, 0% effort
9/25/15-8/31/17	Statins as Adjunctive, Host-Directed Therapy for TB UH2 AI122309 NIH/NIAID Role: PI
2/1/16-1/31/18 (NCE)	A novel "shock and kill" strategy for eliminating Mtb persisters in the CD4 T-cell-deficient host R21AI122922 NIH/NIAID Role: PI

6/15/15-5/31/18 (NCE)	Validation of RelA as a Target for <i>M. tuberculosis</i> Persisters R21AI114507 NIH/NIAID Role: PI
6/30/17-6/29/19 (NCE)	Evaluation of a novel serum biosignature for detecting TB in HIV-infected individuals Willowcroft Foundation Role: PI

INTRAMURAL Funding  
Research Intramural Funding  
Current                      None

Previous  
1/1/10-12/31/11              Multiplex Allele-Specific PCR for the Detection of MDR-TB in Panama  
JHU Center for Global Health  
Role: PI

12/1/15-11/30/17              Identifying molecular targets for preventing multidrug tolerance in *Mycobacterium avium*  
infection  
Johns Hopkins University Fisher Center  
Role: PI

## CLINICAL ACTIVITIES

### Clinical Focus

My clinical expertise is in the care of patients with HIV infection and other infectious diseases.

### Certification

Medical, other state/government licensure

1998-2002      State of Pennsylvania,

2002- present      State of Maryland, D0063686

### Boards, other specialty certification

2002-2012      Board Certified, American Board of Internal Medicine

2005- present      Board Certified, Infectious Diseases, American Board of Internal Medicine

### Clinical (Service) Responsibilities

2006              Attending Physician, Infectious Diseases Inpatient Consult Service, Johns Hopkins Hospital, 5%

2006- present      Attending Physician, Polk Inpatient HIV Service, Division of Infectious Diseases, Johns Hopkins Hospital, 5%

2012- present      Attending Physician, Moore/Bartlett Clinic, Outpatient HIV Service, Division of Infectious Diseases, Johns Hopkins Hospital, 10%

## EDUCATIONAL ACTIVITIES

### Educational Focus

My educational focus is on the diagnosis and treatment of tuberculosis and other infectious diseases.

### Teaching

#### Classroom Instruction

#### *JHMI/Regional*

2007              Lecturer, “*Mycobacterium tuberculosis*: The persistent pathogen”, Dept of International Health graduate student seminar, Johns Hopkins Bloomberg School of Public Health

2009- present	Lecturer, “Overview of Tuberculosis” and “Animal models of TB infection”, JHU Pathobiology Graduate Program Infections and Immunology Course
2009-2014	Lecturer, “The Molecular Epidemiology of Infectious Disease”, Epidemiology of Infectious Diseases course, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health
2010	Lecturer, “Global Health Intersession Course” for First Year Medical Students, JHUSOM
2010	Lecturer, “ <i>Mycobacterium tuberculosis</i> latency and persistence”, JHU Pathobiology Program graduate student seminar series
2012-2014	Lecturer, Small Group Leader, “Tuberculosis”, Lecturer; JHUSOM Medical Student Intersession on Infectious Disease, Armstrong Building
2012-present	Lecturer, “Tuberculosis and Antimicrobials”, Topics in Interdisciplinary Medicine for Medical Students, JHUSOM
2012- present	Course Director, “Infections and Immunology Course”, JHU Pathobiology Graduate Program.
2012- present	Discussion Facilitator, “Classic Papers on Tuberculosis”, Pathobiology and Disease Mechanisms Course, JHU Pathobiology Graduate Program
2013	Lecturer, “TB Diagnosis”, Infections and Immunology Course, JHU Pathobiology Graduate Program
2015	Lecturer, “Clinical Mycology”, Infections and Immunology Course, JHU Pathobiology Graduate Program
2016- present	Lecturer, “Tuberculosis”, JHU Pathobiology Graduate Program

#### *International*

3/15/16	Speaker, 2nd Annual Conference on Selected Hot Topics of the Conference on retroviruses and Opportunistic Infections, “Updates on Tuberculosis from CROI 2016”, Florence, Italy
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#### *Mentoring*

##### *Pre-doctoral Advisees/Mentees*

6/05-8/05	Tonya Jackson, Minority high school student, B.A., UMBC Baltimore
6/05-8/05	Omar Contreras, Intern in JHU Summer Minority Internship Program, currently Program Director of Policy and Translational Research at University of Arizona Cancer Center
6/05-6/06	Priscilla Brastianos, medical student, current Assistant Professor, Harvard Medical School; Co-authored article RA4
5/07-8/08	Lesley Sutherland, Undergraduate at Connecticut College, Dermatologist, Annapolis, MD; Co-authored article OR12
4/08-6/08	Julia Drewes, Cellular and Molecular Medicine Graduate Program rotation student, currently Instructor of Medicine, JHUSOM
5/09-8/09	Jennifer Lun, High school summer student, currently medical student, St. Louis University School of Medicine
7/09-9/13	Yu-Min Chuang, M.D., Pathobiology Graduate Program student, currently Associate Research Scientist, Yale University School of Medicine; Co-authored articles OR 39, 55, 66, 71, 72, 76, 80, 81
6/10-7/10	Alexander Thomopoulos, High school summer student, currently Medical student, University of Maryland School of Medicine
8/10-10/10	Michael Ayars, Pathobiology Graduate Program rotation student, currently Postdoctoral Fellow, JHUSOM
11/10-06/11	Elizabeth Kim, MPH student, Johns Hopkins Bloomberg School of Public Health, currently Epidemiologist, Arizona Dept. of Health Services; Co-authored article OR33
5/11-8/11	Aubrey Herrera, Intern in Diversity Summer Internship Program, JHSPH, Product Management Associate at Athena Health
6/11-8/11	Christine Sailer, Medical student, JHUSOM, currently Internal Medicine resident, Johns Hopkins Hospital; Co-authored article OR33
6/11-8/11	Samrie Beshah, Undergraduate at Johns Hopkins University
6/11-8/13	Ben Roytenberg, High school summer student, currently Senior at Case Western University
6/11-7/11	Maria Dagalakis, High school summer student, currently Senior at The Catholic University of America

6/11-8/11	Cong Fan, High school summer student, currently Senior at University of Maryland
9/10-5/12	Bing Shao Chia, Masters student in Biology, currently medical student at Harvard University; 2012 Danny Lee Award for Outstanding Undergraduate Research in Biomedical Sciences, JHU; Co-authored article OR32
9/11-12/11	Wan Yee, Pathobiology Graduate Program rotation student, currently Graduate student, JHUSOM
5/12-8/12	David Garcia, Undergraduate in Diversity Summer Internship Program, JHSPH, currently student at Kean University
6/12-8/13	Harita Shah, medical student, currently Resident in Pediatrics, Johns Hopkins Hospital; Co-authored article OR64
6/12-8/12	William Acosta, medical student, currently Resident in Psychiatry, Yale University School of Medicine; Co-authored article OR64
7/12-9/12	Devin Sabin, Pathobiology Graduate Program rotation student, currently Graduate student, JHUSOM
1/13-7/14	Clinton Ogega, Undergraduate student, JHU, currently Graduate student in Pathobiology Graduate Program, JHUSOM
9/13-11/13	Hee Sun Choi, Pathobiology Graduate Program rotation student, currently Graduate student, JHUSOM
2/14-8/19	William Matern, Biomedical Engineering Graduate Program student; Co-authored article OR 73, 75, 78
7/14-1/19	Nicholas Degner, MPH student, Johns Hopkins Bloomberg School of Public Health, currently Internal Medicine Resident, Stanford University School of Medicine, Co-authored article OR 70
9/14-12/14	Eva Shrestha, Pathobiology Graduate Program rotation student, currently Graduate student, JHUSOM
6/15-5/18	Sameer Thakker, Undergraduate student, currently, Senior, JHU; Recipient of the 2015 JHU Provost's Undergraduate Research Award (PURA)
6/15-6/16	Jennifer Mendez, Intern in Centro Sol Minority Student Program, Currently Sophomore at Goucher College
9/15-12/15	Lionel Chia, Pathobiology Graduate Program rotation student, currently Graduate student, JHUSOM
5/16-7/16	Christina Blonski, Intern in Diversity Summer Internship Program, JHSPH, currently Senior, Caldwell University
5/16-8/16	Shreya Rangarajan, Undergraduate summer student, currently Senior, Olin College of Engineering
6/16-8/16	Keyane Haile, Minority medical student, currently medical student at Meharry Medical College
9/16- present	Monika Looney, Pathobiology Graduate Program student, JHUSOM
9/16-8/18	Alysha Ellison, Masters student, Molecular Microbiology and Immunology, Johns Hopkins Bloomberg School of Public Health; Recipient of the 2017 MMI Emergent BioSolutions Fellowship
9/16-9/18	Grace Ren, Undergraduate student, currently Junior, JHU
1/17-3/17	Daymond Parrilla, Cellular and Molecular Medicine Graduate Program rotation student, currently Graduate student, JHUSOM
1/17-5/19	Leah Hoover, Undergraduate student, currently Senior, JHU Current position: Sophomore, Johns Hopkins University
1/17- present	Rachel Lorenc, Undergraduate student, currently Senior, JHU
8/17- present	Sarah Kohl, Undergraduate student, currently Senior, JHU
9/17-5/18	Isaiah Yim, Undergraduate student, Boston College
9/17-12/17	Stephanie Myers, Cellular and Molecular Medicine Graduate Program rotation student, currently Graduate student, JHUSOM
9/17-6/19	Robert Jenquin, Undergraduate student, University of Maryland, currently Post-Baccalaureate, Bryn Mawr College, Co-authored article OR 78

7/18-10/18	Ana Jenike, Pathobiology Graduate Program rotation student, currently Graduate student, JHUSOMn
9/18-present	Harley Parker, Pathobiology Graduate Program student, JHUSOM
2/19-8/19	Khushpreet Kaur, NYU Langone Medical Center NIH/Fogarty International Center HIV International Training Program, currently graduate student, Dept. of Biochemistry, Post Graduate Institute of Medical Education & Research, Chandigarh, India
6/19-9/19	Emily Kim, Undergraduate student, Northwestern University, Co-authored article OR 79
6/19- present	Aakanksha Rajiv Kapoor, Master student in Biotechnology education, JHU, Co-authored article OR 79
7/19-8/19	Arveen Zarrabi, High school summer student, Dulaney Valley high school, Cockeysville, MD
8/19- present	Olivia Wang, Undergraduate student, currently Junior, JHU
12/19- present	Nathan Crilly, Pathobiology Graduate Program rotation student, currently Graduate student, JHUSOM
1/20- present	Jennie Ruelas-Castillo, Cellular and Molecular Medicine Graduate Program rotation student, currently Graduate student, JHUSOM
2/20- present	Lucas Zhou, Undergraduate student, currently Freshman, JHU
Post-doctoral Advisees/Mentees	
9/05-5/11	Lee G. Klinkenberg, PhD, Postdoctoral research fellow, currently Scientific Review Officer, NIH/NIAID 2006-2008 Potts Memorial Foundation Postdoctoral Fellowship recipient; 2009, Arthur M. Dannenberg, Jr. Award for Postdoctoral Research, JHUSOM; 2013, Basic Research Junior Faculty Award, Dept. of Medicine, JHUSOM; Co-authored articles OR 7, 11, 12, 14, 17, 19, 25, 35, 61, 76
1/08-10/10	Zahoor Ahmad, PhD, Postdoctoral research fellow, currently Scientist E1, Indian Institute of Integrative Medicine, Srinagar, India; Co-authored articles OR 14, 16, 18, 21, 22
5/08-11/11	Seema Thayil, PhD, Postdoctoral research fellow, currently Scientist at Guru Nanak Dev University, Amritsar, India; Co-authored articles OR 26, 27, 33
7/09-5/15	Fedora Lanzas, MSc, Postdoctoral research fellow, currently Scientist at Instituto Conmemorativo Gorgas de Estudios de la Salud, Panama; Co-authored articles OR 32, 42, 64
3/10-6/10	Cliff Magwira, Ph.D., Postdoctoral fellow, currently Research Scientist, Centre for Tuberculosis, National Institute for Communicable Diseases, Johannesburg, South Africa
1/11-08/15	Noton Dutta, PhD, postdoctoral research fellow, currently Research Associate, Dept. of Medicine, JHUSOM; 2013 Annual Postdoc Symposium Poster Award; 2014 Arthur M. Dannenberg, Jr. Award for Postdoctoral Research, JHUSOM; 2016 CFAR Scholar Grant for Faculty Development; 2017 ICTR Nexus Biomarkers and Diagnostic award; Co-authored articles OR 23, 28, 29, 36, 37, 41, 46, 47, 49, 52, 53, 58, 60, 62, 65, 66, 68, 69, 76, 77, 80; RA 8, 10; BC 5, 6; GL 1; ED 2; LT4
1/11-6/11	Anastasia Kolyva, MD, Medical resident/research fellow, currently Infectious Disease Physician, Addenbrooke's Hospital, Cambridge, UK; Co-authored article BC3
9/11-3/14	Edith Torres-Chavolla, PhD, postdoctoral research fellow, currently Clinical Project Specialist at BD Diagnostics; Co-authored article OR32
5/12-5/14	Ciaran Skerry, PhD, postdoctoral research fellow, currently Research Associate, Department of Microbiology and Immunology, University of Maryland School of Medicine; Co-authored articles OR 40, 51, 61, 74
10/13-8/17	Yu-Min Chuang, MD, PhD, postdoctoral research fellow, currently Associate Research Scientist, Yale University School of Medicine; Co-authored articles OR 39, 55, 66, 71, 72, 76, 80, 81
9/14- 2/19	Victoria Campodónico, MD, PhD, postdoctoral research fellow; currently Research Associate of Medicine, JHUSOM; Recipient of 2014 NIH Research Supplement to Promote Diversity in Health-Related Research NIH; Recipient of 2016 Potts Memorial Foundation Postdoctoral Award; Recipient of 2017 Arthur M. Dannenberg, Jr. Award for Postdoctoral Research, JHUSOM; Co-authored articles OR 67, 72

09/16- present	Jeffrey Tornheim, MD, Clinical fellow in Infectious Diseases; currently Assistant Professor of Medicine, JHUSOM; Recipient of 2017 Clinician Scientist Award; Recipient of K23 award
7/19- present	Samuel Ayeh, MD, MPH, postdoctoral research fellow, JHUSOM, Co-authored article OR 79
9/19- present	Vignesh Chidambaram, MD, MPH student, Johns Hopkins Bloomberg School of Public Health

#### Visiting Scientists/Professors

6/12-10/12	Julià Gonzalez-Martin, M.D., Ph.D., Current Position: Associate Professor, Dept. Pathology, Pharmacology and Microbiology, Faculty of Medicine, University of Barcelona, Spain
4/13-4/14	Alpaslan Alp, M.D., Fulbright Scholar; Current position: Associate Professor of Microbiology, Hacettepe University Faculty of Medicine, Ankara, Turkey; Co-authored article OR72
9/15-9/16	Jing Tao, Ph.D., Current position: Lecturer, Shanghai Jiao Tong University School of Medicine, Shanghai, China; Co-authored article OR 67

#### Thesis Committees

2007	Maia Schoonmaker, Cellular and Molecular Medicine (JHUSOM), Oral Examination Committee Member
2009	Brian Luna, Cellular and Molecular Medicine (JHUSOM), Oral Examination Committee Member
2010	Kathryn Winglee, Cellular and Molecular Medicine (JHUSOM), Oral Examination Committee Member
2010	Balaji Veeramani, Dept. of Biomedical Engineering (JHUSOM), Thesis Committee Member
2012-2014	Benjamin Blumberg, Dept. of Molecular Microbiology and Immunology (JHSPH), Thesis Committee Member
2012	Amanda McGillivray, Dept. of Microbiology and Immunology, Tulane University School of Medicine, Thesis Committee Member
2013	Amanda McGillivray, Dept. of Microbiology and Immunology, Tulane University School of Medicine, Prospectus Committee Member
2013	Emma Rey Jurado, Department of Anatomic Pathology, Pharmacology, and Microbiology, Universitat de Barcelona, Thesis Committee Member
2013	Katie Bruner, Cellular and Molecular Medicine (JHUSOM), Oral Examination Committee Member
2015	Mary Soliman, Cellular and Molecular Medicine (JHUSOM), Oral Examination Committee Member
2016- 2019	Stefanie Krug, Cellular and Molecular Medicine (JHUSOM), Thesis Committee Member
2016	Abena Kwaa, Cellular and Molecular Medicine (JHUSOM), Oral Examination Committee Member
2016-present	Christos Galanis, Cellular and Molecular Medicine (JHUSOM), Oral Examination Committee Member
2016- present	Will Matern, Dept. of Biomedical Engineering (JHUSOM), Thesis Committee Member
2017-2019	Laurene Cheung, Cellular and Molecular Medicine (JHUSOM), Thesis Committee Member, Reader
2017	Katherine Cascino, Cellular and Molecular Medicine (JHUSOM), Oral Examination Committee Member
2018-present	Kristina Bigelow, Pharmacology and Molecular Sciences (JHUSOM), Thesis Committee Member
2018-present	Allison Daitch, Biochemistry, Cellular, and Molecular Biology Program (JHUSOM), Thesis Committee Member
2019-present	John Fissel, Pathobiology Graduate Program (JHUSOM), Thesis Committee Member
2019-present	Victoria Balta, Dept. of Molecular Microbiology and Immunology (JHSPH), Thesis Committee Member
2020-present	Olumide Martins, Pharmacology and Molecular Sciences (JHUSOM), Thesis Committee Member

#### RESEARCH ACTIVITIES

##### Research Focus

My research focus is on the molecular mechanisms underlying *M. tuberculosis* persistence and antibiotic tolerance. We have used systems biology-based approaches to study these phenomena.

## Research Program Building/Leadership

2017- present      Director, Center for Systems Approaches to Infectious Diseases (C-SAID), Division of Infectious Diseases, JHUSOM

## Research Demonstration Activities

10/27/09      Hollow fiber-encapsulation technique for generating model of latent TB infection in SKH1 mice, Dr. Prachi Singh (postdoctoral fellow in the Lab of Dr. Jeffrey Schorey, University of Notre Dame), Johns Hopkins Center for TB Research (ABSL-3)

3/16/11      Collection of alveolar and peritoneal macrophages from guinea pigs for *M. tuberculosis* mutant testing, Ben Hurley (graduate student in the lab of Dr. Volker Briken, University of Maryland School of Medicine), Johns Hopkins Center for TB Research (ABSL-3)

## ORGANIZATIONAL ACTIVITIES

### Institutional Administrative Appointments

2007-2008      Member, Work Life Advisory Group, Department of Medicine, JHUSOM

2007- present      Board Member, Hopkins Hellenic Initiative, JHU-University of Patras, Greece

2009- present      Faculty, Graduate Program in Pathobiology, JHUSOM

2009-2011      Member, Annual Research Retreat Organizing Committee, Department of Medicine, JHUSOM

2014-2017      Member, Senior Advisory Council, Office of Faculty Devt., JHUSOM

2014- present      Instructor/Assistant Professor Reappointment Review Committee, JHUSOM

### Editorial Activities

#### Editorial Board appointments

2011- present      Academic Editor, *PLoS One*

2013- present      Member, Editorial Advisory Board, *Journal of Infectious Diseases*

2017- present      Associate Editor, *Frontiers in Microbiology*

2020- present      Editorial Board Member, *Journal of Thoracic Medicine*

### Journal peer review activities

2005- present      *Journal of Clinical Investigation*

2006- present      *Infection and Immunity*

2006- present      *Antimicrobial Agents and Chemotherapy*

2006- present      *Microbiology*

2007- present      *Journal of Experimental Medicine*

2007- present      *Lancet Infectious Diseases*

2007- present      *PLoS Pathogens*

2007- present      *American Journal of Respiratory and Critical Care Medicine*

2007- present      *Journal of Bacteriology*

2007- present      *Journal of Antimicrobial Chemotherapy*

2007- present      *Tuberculosis*

2007- present      *Transplant Infectious Disease*

2008- present      *Molecular Microbiology*

2008- present      *Journal of Clinical Microbiology*

2009- present      *Journal of Infectious Diseases*

2009- present      *Applied Environmental Microbiology*

2009- present      *PLoS One*

2009- present      *International Journal of Infectious Diseases*

2009- present      *Infections in Medicine*

2009- present      *Indian Journal of Medical Sciences*

2010- present      *Lancet*

2010- present      *Clinical Microbiology Reviews*

2010- present      *Microbial Drug Resistance*



2010- present *Future Medicinal Chemistry*  
 2011- present *Emerging Infectious Diseases*  
 2011- present *FEMS Microbiology Letters*  
 2011- present *Scandinavian Journal of Infectious Diseases*  
 2011- present *British Journal of Ophthalmology*  
 2011- present *Scandinavian Journal of Infectious Diseases*  
 2011- present *Journal of Pharmacology and Pharmacotherapeutics*  
 2012- present *Journal of Proteome Research*  
 2012- present *Journal of Infection*  
 2012- present *Tuberculosis Research and Treatment*  
 2014- present *Clinical Infectious Diseases*  
 2014- present *BMC Infectious Diseases*  
 2014- present *International Journal of Antimicrobial Agents*  
 2015- present *Nature Communications*  
 2015- present *Science Translational Medicine*  
 2015- present *Scientific Reports*  
 2015- present *mBio*  
 2015- present *Thorax*  
 2015- present *BMC Systems Biology*  
 2015- present *Ocular Immunology and Inflammation*  
 2016- present *Cellular Microbiology*  
 2016- present *BMJ Open*  
 2016- present *Immunotherapy*  
 2017- present *Proceedings of the National Academy of Sciences*  
 2018- present *Current Opinion in Pharmacology*  
 2018- present *Journal of Medicinal Chemistry*  
 2018- present *Clinical Microbiology and Infection*  
 2019- present *New England Journal of Medicine*  
 2020- present *Journal of Pathology*  
 2020- present *mSphere*

#### Advisory Committees, Review Groups/Study Sections

2005 Expert Reviewer, U.K. Medical Research Council Health Clinician Scientist Award  
 2009 Temporary Voting Member, FDA Anti-Infective Drugs Advisory Committee (AIDAC) Meeting on Development of Drugs to Treat Multi-Drug Resistant Tuberculosis (MDR-TB), Silver Spring, MD  
 2009 Reviewer, South Africa National Research Foundation (NRF)  
 2009 Group Leader, Molecular Pathogenesis, Inter-CFAR HIV-TB Working Group National Meeting, Houston, TX  
 2010 Expert Reviewer, U.K. Medical Research Council; Council's Triage: Infections and Immunity Board (t-IIB) G1001087  
 2010-2011 Review panel member, KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH) Collaborative Grants Program  
 2011 Reviewer, Defense Threat Reduction Agency (DTRA) Basic Research Program, CBS-IS1 - Quantitative Modeling of Metabolic Networks of Intracellular Pathogens  
 2011 External Reviewer, Canadian Institutes of Health Research (CIHR), Canada-UK Joint Health Research Program on Antibiotic Resistance grant program  
 2011 Expert Reviewer, Centres of Excellence and Innovation in Biotechnology (CEIB), Government of India, Ministry of Science and Biotechnology, Department of Biotechnology  
 2011-2014 Committee Member, IDSA/NFID Joint Research Awards Committee  
 2012- present Member, Stop TB Partnership, Working Group on New Drugs  
 2012- present Co-Leader, Biology/Targets Subgroup, Stop TB Partnership, Working Group on New Drugs  
 2012-2013 Expert Review Panel, Aristeia Programme, National Council for Research and Technology, Hellenic Ministry of Education, Lifelong Learning, and Religious Affairs, Greece

2012-2013	Expert Reviewer, SystemsX.ch Research Initiative for Transition Post-doctoral Fellowships, Swiss National Science Foundation
2012	Peer Reviewer, Congressionally Directed Medical Research Program, US Department of Defense, Peer Reviewed Medical Research Program (PRMRP) FY12, Tuberculosis Panel
2012-2017	Reviewer, Immunology, Virology, Molecular Biology Study Section, Center for AIDS Research, Johns Hopkins University
2012-2015	Review panel member, Special Emphasis Panel/Scientific Review Group, NIH/NIA Program Project Review (ZAG1 ZIJ-8 (M1/O1))
2013	Expert Reviewer, National Centre for the Replacement, Refinement, and Reduction of Animals in Research/UK, David Sainsbury Fellowships
2013-2014	Expert Reviewer, National Centre for the Replacement, Refinement, and Reduction of Animals in Research/UK, grants on tuberculosis
2013	Peer reviewer, Special Emphasis Panel, “‘Omics’ Technologies for Predictive Modeling of Infectious Diseases” (ZAI1 EC-M-M1), NIH/NIAID, Bethesda, MD
2013	Peer reviewer, Special Emphasis Panel, Centers for Excellence in Translational Research (CETR) (ZAI1 LR-M(J1)), NIH/NIAID
2013	Peer reviewer, Special Emphasis Panel, “Research in latent tuberculosis infection (LTBI) in the setting of HIV Co-Infection (R01)” (ZRG1 AARR-D (59) R), NIH/NIAID, Bethesda, MD
2014	Peer reviewer, Johns Hopkins University School of Medicine Visiting Scientist LIBRA Initiative
2014	Global panelist/peer reviewer, CRDF Global RFA for applications on “Bactericidal Activity of Anti-TB Drugs in the face of Ambiguous Drug Susceptibility Test Results”
2014	Temporary member, AIDS-Associated Opportunistic Infections and Cancer Study Section [AOIC], NIH/NIAID, San Francisco, CA
2015	Peer Reviewer, MID 1 Microbiology and Infectious Diseases Research Committee, NIH/NIAID, Bethesda, MD
2015	Peer Reviewer, Health Research Board of Ireland, Tuberculosis Research Awards (POR-2015)
2015	Peer Reviewer, «Swiss Programme for Research on Global Issues for Development (r4d.ch)», Swiss National Science Foundation (SNSF)
2015	External peer reviewer: Convocatoria: CIBERES. Nuevas líneas de investigación sobre Enfermedades Respiratorias (Respiratory Infections) 2015, Section of Clinical Medicine and Epidemiology, Ministry of Economy and Competitiveness, National Government of Spain
2015	Internal Reviewer for R21 grant application, Center for AIDS Research, Johns Hopkins University
2015	Peer Reviewer, Special Emphasis Panel/Scientific Review Group (ZAI1 RCU-A), NIH/NIAID
2016	Peer Reviewer, Special Emphasis Panel/Scientific Review Group: “FOA: PAR15-360 “Characterization of mycobacterial induced immunity in HIV-infected and uninfected individuals (R21)” ZRG1 AARR M 57, NIH/NIAID, Rockville, MD
2016-present	Peer Reviewer, U.K. Medical Research Council grants on tuberculosis
2016	Peer Reviewer, ZAI1 PA-I (S1), Human Immunology Project Consortium, NIH/NIAID, Bethesda, MD
2016	Peer Reviewer, 2016 Peer Reviewed Medical Research Program, USAMRMC/CDMRP
2016-2017	Ad Hoc Reviewer, Bacterial Pathogenesis (BACP) Study Section, NIH/NIAID
2017	Peer Reviewer, Leibniz Collaborative Excellence Funding Programme
2017	Peer Reviewer, Microbiology and Infectious Diseases Research Committee (MID1), NIH/NIAID, Bethesda, MD
2017	Co-Panel Chair, Peer Reviewer, 2017 Peer Reviewed Medical Research Program, CDMRP
2018	Peer Reviewer, "Supporting Talents in ReSearch@University of Padova" (STARS Grants)
2018-present	Member, Inter-CFAR HIV/TB working group
2018	Ad Hoc Reviewer, MID 1, Microbiology and Infectious Diseases Research Committee, NIH/NIAID
2018	Peer Reviewer, Vidi Programme, Netherlands Organisation for Scientific Research (NWO)
2018	Ad Hoc Reviewer, DMID Committee career development applications (K awards), NIH/NIAID
2019	Ad Hoc Reviewer, Special Emphasis Panel, ZRG1 AARR-M (57), NIH/NIAID, Bethesda, MD
2018-2022	Standing member, Bacterial Pathogenesis (BACP) Study Section, NIH/NIAID

## Professional Societies

1998-present	Alpha Omega Alpha Honor Society
2000-present	American College of Physicians
2002-present	Infectious Disease Society of America
2002-present	American Society for Microbiology
2004-present	American Thoracic Society

## Session Chair

### *JHMI/Regional*

6/3/14	Session Chair, Annual TB Center Symposium, Johns Hopkins Center for TB research, Baltimore, MD
6/9/15	Session Chair, Annual TB Center Symposium, Johns Hopkins Center for TB research, Baltimore, MD
6/7/16	Session Chair, Annual TB Center Symposium, Johns Hopkins Center for TB research, Baltimore, MD
6/6/17	Session Chair, Annual TB Center Symposium, Johns Hopkins Center for TB research, Baltimore, MD

### *National*

5/15/16	Session Chair, 112 <sup>th</sup> Annual American Thoracic Society International Conference, Mini-Symposium on “Lessons Learned from the NHLBI-Sponsored Tuberculosis Systems Biology Program”, San Francisco, CA
5/16/16	Session Chair, 112 <sup>th</sup> Annual American Thoracic Society International Conference, Mini-Symposium on “Tuberculosis: Susceptibility and Immune Response”, San Francisco, CA
5/21/17	Discussion Facilitator, 113 <sup>th</sup> Annual American Thoracic Society International Conference, “Tuberculosis Disease: Host Response and Diagnostics”, Washington, DC

### *International*

6/27/17	Session Chair/Conference Organizer, Working Group on New TB Drugs, “Strategic Discussion on Repurposing Drugs for TB”, Gordon Research Conference on Tuberculosis Drug Discovery and Development, Lucca, Italy
10/25/18	Session Chair, “Advancing Host-Directed Therapies for Tuberculosis”, 49 <sup>th</sup> Union World Conference on Lung Health, The Hague, Netherlands.

## RECOGNITION

### Awards Honors

1992	Ford Foundation Scholarship
1993	National Science Foundation Scholarship
1994	Phi Beta Kappa, Johns Hopkins University
1990-1994	Dean's List, <i>summa cum laude</i> , Johns Hopkins University
1994-8	Distinguished Alumni Scholarship (full-tuition academic scholarship at Washington University School of Medicine)
1995	Antoinette Frances Dames Prize in Cell Biology and Physiology, Washington University School of Medicine, St. Louis
1997	Hellenic Medical Student Scholarship, Hellenic Medical Society of New York
1998	Missouri State Medical Association Award
1998	Alpha Omega Alpha, Washington University School of Medicine
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)
2001	Edward W. Holmes Resident Research Award, Univ. of Pennsylvania, Dept. of Medicine (awarded to 1 resident by the faculty for excellence in research)
2003	Basic Research Postdoctoral Fellow Award Nominee, JHU Dept. of Medicine
2003	Special citation, Infectious Diseases Society of America Annual Meeting

2004 Basic Research Postdoctoral Fellow Award Nominee, JHU Dept. of Medicine  
 2004 ATS Travel Grant to ATS annual meeting  
 2004 Best abstract, Assembly of Microbiology, Tuberculosis, and Pulmonary Infections, American Thoracic Society (ATS) annual meeting  
 2005 Arthur M. Dannenberg, Jr. Award for Postdoctoral Research, Johns Hopkins University School of Medicine  
 2008 JHUSOM Dept. of Medicine Basic Research Junior Faculty Award Finalist  
 2009 Basic Research Junior Faculty Award, JHUSOM Dept. of Medicine  
 2010 Fellow, Infectious Diseases Society of America

#### Invited Talks

##### *JHMI/Regional*

9/24/04 Speaker, JHU Microbial Pathogenesis Interest Group Seminar Series, “Dormancy phenotype displayed by extracellular *Mycobacterium tuberculosis* within artificial granulomas in mice”, Baltimore, MD  
 2/12/07 Speaker, JHU Division of Infectious Diseases Fellows Conference, “*Mycobacterium tuberculosis*: The patiently persistent pathogen”, Baltimore  
 7/14/08 Speaker, Grand Rounds, JHU Department of Pathology, “*Mycobacterium tuberculosis* dormancy: Tracking TB ‘sleepers’”, Baltimore, MD  
 9/11/08 Speaker, Johns Hopkins Bloomberg School of Public Health, Department of Molecular Microbiology and Immunology Seminar series, “*Mycobacterium tuberculosis*: The persistent questions”, Baltimore, MD  
 10/23/09 Speaker, Grand Rounds, JHU Department of Medicine, “*Mycobacterium tuberculosis*: Lessons on Latency”, Baltimore, MD  
 12/7/09 Speaker, JHU Division of Infectious Diseases Didactic Conference, “Modeling *Mycobacterium tuberculosis* persistence”, Baltimore, MD  
 10/17/11 Speaker, JHU Division of Infectious Diseases Didactic Conference, “TB or not TB and make it snapper: Novel rapid molecular diagnostic assays for the detection of *Mycobacterium tuberculosis* and drug resistance”, Baltimore  
 4/16/12 Speaker, Aeras Meeting on ‘Toward an improved natural transmission model in TB’, “Guinea pigs and C3HeB/FeJ mice as models of TB chemotherapy”, Rockville, MD  
 11/15/13 Speaker, Grand Rounds, Division of Allergy & Clinical Immunology, Johns Hopkins Bayview, “Reactivation of Latent TB Infection by TNF Blockade: The Colchian Dragon Rears its Ugly Head”, Baltimore, MD  
 11/18/13 Speaker, AIDS Clinical Trials Group Host-Directed Therapy Working Group, “Statins as adjunctive host-directed therapy for TB”, Washington, DC  
 3/31/14 Speaker, JHU Division of Infectious Diseases Didactic Conference, “Latent TB Infection: Myths, Models, and Molecular Mechanisms”, Baltimore, MD  
 4/15/14 Speaker, Advancing Host Directed Therapy (HDT) for Tuberculosis Workshop, sponsored by National Institute of Allergy and Infectious Diseases, Bill and Melinda Gates Foundation, and Stop TB Partnership Working Group on New Drugs, “Statins as adjunctive host-directed therapy for TB”, Rockville, MD  
 4/25/14 Speaker, JHU Pediatric Infectious Disease Conference, “Latent tuberculosis infection: Lessons from the laboratory”, Baltimore, MD  
 11/20/14 Speaker, Good Samaritan/Union Memorial Lecture Series, Good Samaritan Hospital, “Mycobacterial infections”, Baltimore, MD  
 10/10/16 Speaker, JHU Division of Infectious Diseases Didactic Conference, “Novel Paradigms to Treat TB”, Baltimore, MD  
 11/15/18 Speaker, Johns Hopkins Bloomberg School of Public Health, Department of Molecular Microbiology and Immunology Seminar series, “Inhibiting the Mtb Stringent Response: The Krotalon for Rousing Persisters?”, Baltimore, MD

4/3/19 Speaker, NIH/NIAID-sponsored meeting on “Host-Directed Therapy for TB”, “Animal models and their role in HDT development”, Rockville, MD

4/3/19 Speaker, NIH/NIAID-sponsored meeting on “Host-Directed Therapy for TB”, “Statins as adjunctive, host-directed therapy for TB”, Rockville, MD

4/16/20 Speaker, Johns Hopkins Bloomberg School of Public Health, Department of Molecular Microbiology and Immunology Seminar series, “TB: Novel strategies for tipping the scales in favor of the host”, Baltimore, MD

*National*

12/8/06 Speaker, Washington University School of Medicine, Infectious Diseases Seminar, Depts. of Molecular Microbiology and Medicine, “*Mycobacterium tuberculosis*: The persistent pathogen”, St. Louis, MO

9/26/07 Speaker, Meeting on Many Hosts of Mycobacteria, “*Mycobacterium tuberculosis* pathology in the mouse model”, Ames, IA

7/8/08 Speaker, U.S.-Japan Tuberculosis and Leprosy Annual Meeting, “A guinea pig model of TB chemotherapy?”, Baltimore, MD

3/20/09 Speaker, Grand Rounds, Department of Ophthalmology, Doheny Eye Institute, University of Southern California School of Medicine “*Mycobacterium tuberculosis*: More than meets the eye”, Los Angeles, CA

9/25/09 Speaker, Prokaryotic Seminar Series, University of Pennsylvania School of Medicine, “The stringent response and *Mycobacterium tuberculosis* persistence”, Philadelphia, PA

10/9/09 Speaker, Department of Cell Biology and Molecular Genetics Seminar Series, University of Maryland, “*Mycobacterium tuberculosis*: It pays to be persistent”, College Park, MD

5/14/10 Speaker, Division of Microbiology Seminar series, Tulane National Primate Research Center, Tulane University/Louisiana State University School of Medicine, “*Mycobacterium tuberculosis* dormancy: A tale of two global regulatory molecules”, Covington, LA

9/ 27/11 Speaker, Department of Microbiology and Molecular Genetics Seminar Series, University of Medicine & Dentistry of New Jersey, “Drug tolerance and persistence mediated by inorganic polyphosphate in *Mycobacterium tuberculosis*”, Newark, NJ

9/5/12 Speaker, NIH workshop on ‘Demystifying Pyrazinamide – Challenges and Opportunities’, “*pncA* mutations in MDR-TB strains from Panama”, Baltimore, MD

5/19/13 Speaker, 109<sup>th</sup> Annual American Thoracic Society International conference, “A Multidisciplinary Approach to Understanding TB Latency and Reactivation”, Philadelphia, PA

8/22/13 Speaker, Bacterial Persistence Workshop, Los Alamos National Laboratory, “Awakening persisters to shorten TB treatment”, Los Alamos, NM

12/12/13 Speaker, Department of Microbiology & Immunology Seminar Series, University of Michigan Medical School “Targeting *Mycobacterium tuberculosis* Persisters: In Search of the Right Rattle to Rouse the Stymphalian Birds”, Ann Arbor, MI

6/16/15 Speaker, Workshop on Developing Novel Strategies to Optimize Design of TB Drug Combinations, NIAID/NIH, “A Novel ‘Shock and Kill’ Strategy for Targeting Mtb Persisters”, Rockville, MD

9/28/15 Speaker, TB Alliance seminar series, “Genetic and chemical validation of Rel<sub>Mtb</sub> as a target for *M. tuberculosis* persisters”, New York, NY

10/16/15 Speaker, Division of AIDS Seminar Series, NIH/NIAID, “Novel approaches to target *Mycobacterium tuberculosis* persisters”, Rockville, MD

5/15/16 Speaker, 112<sup>th</sup> Annual American Thoracic Society International Conference, “Novel Approaches to Understanding and Combating Latent TB Infection”, San Francisco, CA

10/28/17 Speaker, NIH/FDA TB Research Initiative World TB Day Mini-Symposium, US Food and Drug Administration, “Novel strategies to detect and target Mtb persisters”, Silver Spring, MD

3/20/18 Speaker, Department of Microbiology and Molecular Genetics Seminar Series, Rutgers New Jersey Medical School, “Statins for TB: Can we harness the host?”, Newark, NJ

7/2/18 Speaker, NIH/NIAID-sponsored meeting on Understanding the Resources and Gaps in DAIDS funded TB Research, “What can ‘omics tell us about TB reactivation risk in HIV-infected and uninfected adults and children?”, Rockville, MD

- 5/23/19 Speaker, 115<sup>th</sup> Annual American Thoracic Society International Conference, Scientific Symposium on Host-Directed Therapy for Tuberculosis: Theory and Current Evidence, “Statins: Good for the Heart and Good for TB?”, Dallas, TX
- International*
- 5/15/08 Speaker, First International Workshop on Clinical Pharmacology of Tuberculosis Drugs, “Towards establishing a high-burden guinea pig model for TB chemotherapy”, Toronto, Canada
- 11/11/08 Speaker, Jiao Tong University School of Medicine, Department of Medical Microbiology and Parasitology, “Modeling *Mycobacterium tuberculosis* latency and persistence”, Shanghai, China
- 11/12/08 Speaker, Fudan University School of Medicine, Department of Microbiology, Public Health Clinical Center “Regulatory pathways in *Mycobacterium tuberculosis* dormancy”, Shanghai, China
- 3/30/09 Speaker, Faculty of Sciences, Universidad de la República, “Mecanismos de regulación involucrados en la persistencia de *Mycobacterium tuberculosis*”, Montevideo, Uruguay.
- 7/2/09 Speaker, Department of Microbiology, Instituto Conmemorativo Gorgas de Estudios de la Salud, “Pruebas de diagnóstico de *Mycobacterium tuberculosis*”, Panama City, Panama.
- 12/5/09 Speaker, 40<sup>th</sup> Union World Conference on Lung Health, Symposium on ‘From Animal Models to Humans: New Developments and Perspectives in Experimental Chemotherapy for Tuberculosis’, “Unanticipated responses of guinea pigs to TB chemotherapy”, Cancún, Mexico
- 11/16/11 Speaker, 11<sup>th</sup> International Ocular Inflammation Society Congress and International Assembly of Ocular Inflammation Societies, “Current understanding of latent, manifest, extrapulmonary, and disseminated tuberculosis”, Goa, India
- 11/16/11 Speaker, 11<sup>th</sup> International Ocular Inflammation Society Congress and International Assembly of Ocular Inflammation Societies, “Experimental disseminated TB in guinea pigs: What the future holds in addressing latency and dissemination of *Mycobacterium tuberculosis*”, Goa, India
- 11/30/12 Speaker, Departments of Pulmonology and Infectious Disease, Hospital General de Agudos Dr. Juan A. Fernández, “Pruebas diagnósticas de TB: El presente y el futuro”, Buenos Aires, Argentina
- 7/22/13 Speaker, Targets for Tomorrow session, Gordon Research Conference on TB Drug Development, “Needs and Directions in TB Drug Discovery: A Clinical/Academic Perspective”, Barga, Italy
- 3/5/14 Speaker, 21<sup>st</sup> Annual International Conference on Retroviruses and Opportunistic Infections, Symposium on ‘Tuberculosis: Looking to the Future - Resistance, Persistence, Monitoring, and Control’, “Is Latent TB Infection Really Latent?”, Boston, MA
- 3/5/15 Speaker, Regional Prospective Observational Research in Tuberculosis (RePORT) –India Meeting, BJ Medical College, “Host directed therapies and biomarkers for TB”, Pune, India
- 3/23/15 Speaker, Tuberculosis Day Symposium: ‘Mapping Missing Millions’, All India Institute of Medical Sciences (AIIMS), “*Mycobacterium tuberculosis*: Molecular Basis of Persistence”, New Delhi, India
- 6/21/16 Speaker, 2<sup>nd</sup> Annual Athens Institute for Education and Research International Conference on Biology, “Statins as Adjunctive, Host-Directed Therapy for Tuberculosis”, Athens, Greece
- 6/27/17 Speaker, Working Group on New Drugs Workshop: Strategic Discussion on Repurposing Drugs for TB, Gordon Research Conference on Tuberculosis Drug Discovery and Development, Lucca, Italy.
- 10/25/18 Speaker, “Statins as Adjunctive, Host-Directed Therapy for Tuberculosis”, session on “Advancing Host-Directed Therapies for Tuberculosis”, 49<sup>th</sup> Union World Conference on Lung Health, The Hague, Netherlands.