

# SANJAY JAIN, M.D.

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## PERSONAL DATA

Birth: November 26 1975, Halifax, Canada                      Sex: Male

## MEDICAL EDUCATION

Aug 1993 – Jan 1999    Medical School, All India Institute of Medical Sciences, New Delhi, India

## POST GRADUATE TRAINING & APPOINTMENTS

Jan 1999 – Jun 1999    House Officer in Neuro-Radiology, All India Institute of Medical Sciences, New Delhi, India

Jul 1999 – Jun 2000    Pediatric Internship, PennState Children's Hospital, Milton S Hershey Medical Center, Hershey, PA

Jul 2000 – Jun 2002    Clinical Associate, Tufts University School of Medicine, Floating Hospital for Children, New England Medical Center, Boston, MA

Jul 2000 – Jun 2002    Pediatric Resident, Tufts University School of Medicine, Floating Hospital for Children, New England Medical Center, Boston, MA

Jul 2002 – Jun 2005    Clinical Fellow, Pediatric Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, MD

Jul 2005 – Jun 2006    Instructor of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD

Jul 2006 – Mar 2011    Assistant Professor of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD

Feb 2010 – Mar 2011    Assistant Professor of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

Jul 2005 – present      Faculty, Center for TB Research, Johns Hopkins University School of Medicine, Baltimore, MD

Feb 2008 – present      Faculty, Johns Hopkins Center for Global Health  
Johns Hopkins University, Baltimore, MD

Jul 2009 – present      Director, Center for Infection and Inflammation Imaging Research, Johns Hopkins University School of Medicine, Baltimore, MD

Sep 2009 – present      Member, Sidney Kimmel Comprehensive Cancer Center Cores, Johns Hopkins University School of Medicine, Baltimore, MD

Oct 2010 – present      Faculty, Pathobiology Graduate Program, Johns Hopkins University School of Medicine, Baltimore, MD

Mar 2011 – present      Associate Professor of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD







Mar 2011 – present      Associate Professor of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

## CERTIFICATION / LICENSURE

M.B;B.S (Bachelor of Medicine, Bachelor of Surgery)	Jan 1999
Medical Council of India	Jan 1999

ECFMG Certificate	Jun 1999
American Board of Pediatrics	Jan 2003
American Board of Pediatric Infectious Diseases	Aug 2005
Maryland State License	Current

#### AWARDS AND RECOGNITION

Panelist: “Addressing Critical Research Needs in TB Diagnostics in HIV-infected and uninfected Children” session: Workshop on TB and HIV Diagnostics in Adult and Pediatric Populations, NIH	2011
 NIH Director’s New Innovator Award	2009
Chair: Tools session, TB Drug Accelerator Meeting, Gates Foundation	2009
Organizing member, TB Drug Accelerator Meeting, Gates Foundation	2009
 Named Maryland’s Innovator of the Year, The Daily Record	2008
 Named amongst <i>America’s Best and the Brightest in the Arts, Sciences and Social change</i> , The Genius Issue & Innovators of 2007, Esquire Magazine	2007
 Program Choice Award at the IDSA	2005
 Bill and Melinda Gates' Foundation Education scholarship Tuberculosis: Integrating Host and Pathogen Biology	2005
Pediatric Infectious Diseases Society Award at the IDSA	2005
 IDSA Special citation for fellow-in-training	2005
Fellows Travel Award at the IDSA	2005
American Pediatric Society & Society for Pediatric Research Young Investigator’s Travel Award	2005
Clinician Scientist Award, Johns Hopkins University	2005-07
Baurenschmidt Postdoctoral Research Fellowship	2003-04
Adarsh A Kumar Award for best oral presentation	2001
Sir Dorabji Tata Prize for the <i>best student in Biochemistry</i>	1994

#### PATENTS

1. Lead Inventor for Jul 24, 2008: US patent **WO 2008/089394**, ‘*Mycobacterium tuberculosis* persistence genes’.
2. Lead Inventor for Jan 19, 2007: International provisional patent **PCT/US2008/51413**, ‘*Mycobacterium tuberculosis* persistence genes’.
3. Lead Inventor for June 2, 2008: US provisional patent **USPA # 61/359,970**, ‘Real-time evaluation of *Mycobacterium tuberculosis* bacterial burden in animal models of TB’.
4. Lead Inventor for June 16, 2009: US provisional patent **USPA # 61/187,461**, ‘Biosafety Level (BSL)-3 Life-support Cell for Studying Live Animals’.
5. Lead Inventor for Jan 1, 2008: Report of invention, **D10139**, ‘Metal ion labeled mycobactin for diagnosis and monitoring of mycobacterial disease and infection’.
6. Inventor for Report of Invention, **C10864**, ‘Web-Based System for Hospital Antimicrobial Stewardship Programs’.

#### PEER REVIEWED PUBLICATIONS

1. **Jain SK**, Deepak KK. Cost Effective Computerized Analysis of Biological Signals. *Indian J Physiol Pharmacol* 1995; 39(4): 389-394.

2. **Jain SK**. Index of suspicion. Case 3. Diagnosis: Jaundice. *Pediatr Rev*. 2001 Aug;22(8):271-6.
3. **Jain SK**, Gupta A, Glanz B, Dick J, Siberry GK. Antimicrobial-resistant *Shigella sonnei*: Limited antimicrobial treatment options for children and challenges of interpreting *in vitro* azithromycin susceptibility. *Pediatr Infect Dis J*. 2005 Jun;24(6):494-497.
4. **Jain SK**, Persaud D, Perl TM, Pass MA, Murphy KM, Pisciotto JM, Scholl PF, Casella JF, Sullivan DJ. Nosocomial Malaria and Saline Flush. *Emerg Infect Dis*. 2005 July;11(7):1097-99.
5. **Jain SK**, Kwon P, Moss WJ. Management and outcomes of intracranial tuberculomas developing during antituberculous therapy: case report and review. *Clin Pediatr (Phila)*. 2005 Jun;44(5):443-50.
6. **Jain SK**, Tunkel DE, Bishai WR. Management of Acute Rhinosinusitis, Bronchitis Syndromes, and Acute Otitis Media. *Adv Stud Med*. 2005; 5(7):344-350.
7. Bhally HS, **Jain S**, Shields C, Halsey N, Cristofalo E, Merz WG. Infection in a neonate caused by *Pichia fabianii*: importance of molecular identification. *Med Mycol*. 2006 Mar;44(2):185-7.
8. **Jain SK**, Paul-Satyaseela M, Lamichhane G, Kim KS, Bishai WR. *Mycobacterium tuberculosis* Invasion and Traversal across an In Vitro Human Blood-Brain Barrier as a Pathogenic Mechanism for Central Nervous System Tuberculosis. *J Infect Dis*. 2006 May 1;193(9):1287-95.
9. **Jain SK**, Bishai WR. Adherence, treatment success, and resistance. *Infect Dis Clin Pract*. 2006 July 14(4) Supplement 4:S15-S18.
10. Hernandez-Abanto S, Woolwine SC, **Jain SK**, Bishai WR. Tetracycline-inducible gene expression in mycobacteria within an animal host using *Streptomyces*-derived tetO and tetR regulatory elements. *Arch Microbiol*. 2006 Dec;186(6):459-64.
11. **Jain SK**, Hernandez-Abanto S, Cheng Q, Singh P, Ly LH, Klinkenberg G, Morrison NE, Converse PJ, Nuermberger E, 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 Jun 1;195(11):1634-42.
12. **Jain SK**, Lamichhane G, Nimmagadda S, Pomper M, Bishai WR. Antibiotic Treatment of Tuberculosis: Old Problems, New Solutions. *Microbe* 2008 Jun; 3(6): 285-92.
13. Be N, Lamichhane G, Grosset J, Tyagi S, Cheng Q, Kim KS, Bishai WR, **Jain SK**. Murine model to study Invasion and Survival of *Mycobacterium tuberculosis* in the Central Nervous System. *J Infect Dis*. 2008 Nov 15;198(10):1520-8.
14. Be N, Lamichhane G, Grosset J, Tyagi S, Cheng Q, Kim KS, Bishai WR, **Jain SK**. Cover Page picture. *J Infect Dis*. 2008 Nov 15;198(10).
15. Agwu AL, Lee CK, **Jain SK**, Murray KL, Topolski J, Miller, RE, Townsend T, Lehmann CU. A World Wide Web-based antimicrobial stewardship program improves efficiency, communication, and user satisfaction and reduces cost in a tertiary care pediatric medical center. *Clin Infect Dis*. 2008 Sep 15;47(6):747-53.
16. Converse PJ, Karakousis PC, Klinkenberg KC, 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 Mar;77(3):1230-7.
17. Be N, Kim KS, Bishai WR, **Jain SK**. Pathogenesis of Central Nervous System Tuberculosis. *Curr Mol Med*. 2009 Mar;9(2):94-9.
18. Vidal C, Hewitt J, Davis S, Younes L, **Jain S**, Jedynek B. Template Registration with missing parts: Application to the Segmentation of Tuberculosis infected lungs. *Proceedings of the IEEE International Symposium on Biomedical Images* 2009:718-721.
19. Davis SL, Be NA, Lamichhane G, Nimmagadda S, Pomper MG, Bishai WR, **Jain SK**. Bacterial Thymidine Kinase as a Non-Invasive Imaging Reporter for *Mycobacterium tuberculosis* in Live Animals. *PLoS ONE* 2009 4(7): e6297. doi:10.1371/journal.pone.0006297.

20. Davis SL, Nuermberger EL, Um P, Vidal C, Jedynek B, Pomper MG, Bishai WR, **Jain SK**. Monitoring response to TB drug treatment using [<sup>18</sup>F]-2-fluoro-deoxy-D-glucose positron emission tomography. *Antimicrob Agents Chemother*. 2009 Nov;53(11):4879-84.
21. Dutta NK, Mehra S, Didier PJ, Roy CJ, Doyle LA, Alvarez X, Ratterree M, Be NA, Lamichhane G, **Jain SK**, Lacey MR, Lackner AA, Kaushal D. Genetic requirements for the survival of tubercle bacilli in primates. *J Infect Dis*. 2010 Jun 1;201(11):1743-52.
22. Vidal C, Beggs D, Younes L, **Jain SK**, Jedynek B. Incorporating user input in template-based segmentation. *Proceedings of the IEEE International Symposium on Biomedical Images 2011*.
23. Be NA, Klinkenberg LG, Bishai WR, Karakousis PK, **Jain SK**. Strain-dependent CNS dissemination in guinea pigs after *Mycobacterium tuberculosis* aerosol challenge. *Tuberculosis (Edinb)*. 2011 Sep;91(5):386-9.
24. Harper J, Skerry C, Davis SL, Tasneen R, Weir W, Kramnik I, Bishai WR, Pomper MG, Nuermberger EL, **Jain SK**. Mouse model of necrotic TB granulomas develops hypoxic lesions. *J Infect Dis*. 2011 Dec 23. [Epub ahead of print].
25. Be NA, Bishai WR, **Jain SK**. Role of *Mycobacterium tuberculosis pknD* in the Pathogenesis of Central Nervous System Tuberculosis. *BMC Microbiol*. 2012, 12:7 doi:10.1186/1471-2180-12-7.
26. Everton KL, Mazal J, Mollura DJ, for **RAD-AID Conference Writing Group\***. White Paper Report of the 2011 RAD-AID Conference on International Radiology for Developing Countries: Integrating Multidisciplinary Strategies for Imaging Services in the Developing World. *J Am Coll Radiol*. 2012 (in press)

#### CONFERENCE ABSTRACTS

1. Siberry KG, Glanz B, **Jain SK**, Gupta A. Antibiotic-Resistant Shigella Outbreak –Baltimore 2002. Abstract #875, Poster Presentation at the 41st Annual Meeting of the Infectious Diseases Society of America (IDSA), Oct 2003
2. **Jain SK**, Moss W. Intracranial tuberculoma during effective anti-TB therapy. Abstract #9, Poster Presentation at the St. Jude / PIDS Pediatric Microbial Research Conference, Feb 2004
3. Pass MA, **Jain SK**, Sullivan DJ, Mackie K, Winkler A, Perl TM. Nosocomial Transmission of Malaria. Patient Safety Session at The Society for Healthcare Epidemiology of America (SHEA), Apr 2004
4. Siberry KG, **Jain SK**, Glanz B. Azithromycin Susceptibility Testing for *Shigella sonnei*. Abstract #558, Poster presentation at the 42nd Annual Meeting of the Infectious Diseases Society of America (IDSA), Sep-Oct 2004
5. **Jain SK**, Paul-Satyaseela M, Lamichhane G, Kim KS, Bishai WR. *Mycobacterium tuberculosis* invade and traverse an *in vitro* human blood brain barrier. Abstract #2030, Poster presentation at the Tuberculosis: Integrating Host and Pathogen Biology (D1), Keystone Symposia, April 2005.
6. **Jain SK**, Paul-Satyaseela M, Lamichhane G, Bishai WR, Kim KS. *Mycobacterium tuberculosis* invasion and traversal across an *in vitro* human blood brain barrier as a pathogenic mechanism for CNS tuberculosis. Abstract #1391, Poster presentation at the Pediatric Academic Societies' Annual Meeting, May 2005.
7. **Jain SK**, Paul-Satyaseela M, Lamichhane G, Kim KS, Bishai WR. An *in vitro* human blood brain barrier model to study CNS tuberculosis. Presentation number #21, Oral presentation at the 43rd Annual Meeting of the Infectious Diseases Society of America (IDSA), Oct 2005
8. Lee C, Agwu A, **Jain SK**, Murray K, Topolski J, Miller R, Townsend T, Kim KS, Lehmann C. Web-based system Improves a Restricted Antibiotic Approval Program. Poster presentation at the Partners in Paediatric Patient Safety, Toronto, ON, Canada. June 2006.
9. Agwu A, Lee C, **Jain SK**, Murray K, Topolski J, Miller R, Townsend T, Kim KS, Lehmann C. A Novel Web-Based Antimicrobial Approval Program Improves Efficiency, Communication, User

- Satisfaction, and Results in Significant Cost-savings. Poster presentation at the American Academy of Pediatrics 2006 National Conference and Exhibition, Atlanta, GA. October 2006.
10. Agwu A, Lee C, **Jain SK**, Murray K, Topolski J, Miller R, Townsend T, Kim KS, Lehmann C. Development of a Web-Based System Improves a Restricted Antibiotic Approval Program. Presentation at the 44th Annual Meeting of the Infectious Diseases Society of America (IDSA), Oct 2006.
  11. **Jain SK**, Grosset J, Tyagi S, Kim KS, Bishai WR. Animal model to study CNS invasion by *Mycobacterium tuberculosis*. Presentation at the 44th Annual Meeting of the Infectious Diseases Society of America (IDSA), Oct 2006.
  12. **Jain SK**, Hernandez-Abanto S, Cheng Q, Singh P, Ly LH, Klinkenberg G, Morrison NE, Converse PJ, Nuermberger E, 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 Abstract #256, Poster presentation at the Tuberculosis: Integrating Host and Pathogen Biology (C6), Keystone Symposia, March 2007.
  13. Converse PJ, Karakousis PC, Allen SS, Grosset JH, Klinkenberg LG, Ly LH, **Jain SK**, Lamichhane G, Manabe YC, McMurray DN, Nuermberger EL, Sherman DR, Bishai WR. Comparative Animal Model Testing in Three Species Reveals that the of *Mycobacterium tuberculosis dosR* Gene is Required for Virulence Poster presentation at the Tuberculosis: Integrating Host and Pathogen Biology (C6), Keystone Symposia, March 2007.
  14. Be N, Grosset J, Tyagi S, Kim KS, Bishai WR, **Jain SK**. Animal model to study CNS invasion by *Mycobacterium tuberculosis*. Abstract #125, Poster presentation at the Tuberculosis: Integrating Host and Pathogen Biology (C6), Keystone Symposia, March 2007.
  15. **Jain SK**, Nimmagadda S, Be N, Pomper MG, Bishai WR. Real time *in vivo* imaging of mycobacterial infection. Abstract #1743, Poster presentation at the 45th Annual Meeting of the Infectious Diseases Society of America (IDSA), Oct 2007
  16. Davis S, Um P, Lamichhane G, Nimmagadda S, Pomper MG, Bishai WR, **Jain SK**. Real time imaging of live TB-infected animals. Poster presentation at the US-Japan TB/Leprosy Conference, July 2008
  17. Be NA, Klinkenberg LG, Karakousis PC, Bishai WR, **Jain SK**. Dissemination of *M. tuberculosis* to the guinea pig central nervous system. Poster presentation at the US-Japan TB/Leprosy Conference, July 2008
  18. Davis S, Um P, Lamichhane G, Nimmagadda S, Pomper MG, Bishai WR, **Jain SK**. Real time non-invasive assessment of inflammation and bacterial load in live TB-infected animals. Abstract #294, Oral presentation at the 2008 World Molecular Imaging Congress, September 2008
  19. Be NA, Klinkenberg LG, Karakousis PC, Bishai WR, **Jain SK**. Disseminated Central Nervous System Tuberculosis Following Aerosol Infection in the Guinea Pig. Abstract #B-879, Oral presentation at the 48th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) / 46th Infectious Diseases Society of America (IDSA) Annual Meeting, October 2008
  20. Davis S, Um P, Lamichhane G, Nimmagadda S, Pomper MG, Bishai WR, **Jain SK**. Monitoring Disease in Animal Models of TB - The 21st Century: Non-invasive, Real-time, in Live Animals. Abstract #B-874, Oral presentation at the 48th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) / 46th Infectious Diseases Society of America (IDSA) Annual Meeting, October 2008
  21. Be NA, Klinkenberg LG, Karakousis PC, Bishai WR, **Jain SK**. Strain-dependent CNS invasion in Guinea Pig after aerosol challenge with *Mycobacterium tuberculosis*. #126, Poster presentation at the Tuberculosis: Tuberculosis: Biology, Pathology and Therapy (B3), Keystone Symposia, January 2009.

22. Davis S, Um P, Lamichhane G, Nimmagadda S, Pomper MG, Bishai WR, **Jain SK**. Real-time Non-invasive Assessment of TB disease in Live Animals. #178, Poster presentation at the Tuberculosis: Tuberculosis: Biology, Pathology and Therapy (B3), Keystone Symposia, January 2009.
23. Dutta NK, Mehra S, LeBreton SL, Lamichhane G, **Jain SK**, Bishai WR, Didier P, Lackner AA, Kaushal D. Discovery of genes essential for survival and persistence of Mycobacterium tuberculosis in a Nonhuman Primate model of TB. #189, Poster presentation at the Tuberculosis: Tuberculosis: Biology, Pathology and Therapy (B3), Keystone Symposia, January 2009.
24. Davis S, Vidal C, Jedynek B, Bishai WR, Pomper MG, **Jain SK**. Non-invasive imaging correlates with bactericidal activity of anti-TB regimens. Oral presentation at the US-Japan TB/Leprosy Panel Meeting, Fukuoka, Japan, July 2009.
25. Davis S, Vidal C, Jedynek B, Hewitt J, Pomper MG, Bishai WR, **Jain SK**. Non-invasive imaging correlates with bactericidal activity of anti-TB regimens in a caseous mouse model of TB. Abstract #1750, Oral presentation at the 47th Annual Meeting of the Infectious Diseases Society of America (IDSA), Philadelphia, PA, Oct 29 – Nov 1, 2009.
26. Be N, Iqbal M, Bishai WR, **Jain SK**. *M. tuberculosis* Genes Required for Central Nervous System Disease in the Guinea Pig. Abstract #1710, Poster presentation at the 47th Annual Meeting of the Infectious Diseases Society of America (IDSA), Philadelphia, PA, Oct 29 – Nov 1, 2009.
27. Be NA, Iqbal M, Bishai WR, **Jain SK**. Interaction of *M. tuberculosis* Gene *pknD* with the Host Extracellular Matrix as a Mechanism for Central Nervous System Tuberculosis. Abstract #1749, Poster presentation at the ASM 110th General Meeting; San Diego, CA. May 23-27, 2010.
28. Be N, Bishai WR, **Jain SK**. *M. tuberculosis* gene *pknD* interaction with the host extracellular matrix facilitates bacterial invasion into the central nervous system. Abstract # 1504, Oral presentation at the 48th Annual Meeting of the Infectious Diseases Society of America (IDSA), Vancouver, PA, Oct 21 – Oct 24, 2010.
29. Davis SL, Kramnik I, Bishai WR, **Jain SK**. Novel Mouse Model of Necrotic TB Granulomas Develops Hypoxic Lesions. #4033, Poster presentation at the 48th Annual Meeting of the Infectious Diseases Society of America (IDSA), Vancouver, BC, Oct 21 – Oct 24, 2010.
30. Harper J, Davis SL, Skerry C, Weir M, Nimmagadda S, Kramnik I, Pomper, MG, Bishai WR, **Jain, SK**. [<sup>64</sup>Cu]ATSM-PET imaging reveals hypoxic lesions in a novel mouse model of necrotic TB granulomas. #214, Poster presentation at the J3, J4, Keystone Symposia, January 15-20, 2011.
31. Be N, Bishai WR, **Jain, SK**. *Mycobacterium tuberculosis pknD* interaction with host extracellular matrix as a pathogenic mechanism for Central Nervous System Tuberculosis. Poster presentation at the J3, J4, Keystone Symposia, January 15-20, 2011.
32. **Jain SK**, Thakar M, Shaikh N, Gupte N, Mave V, Jubulis J, Upadhyay V, Hatolkar S, Pawar D, Kinikar A, Kagal A, Bharadwaj R, Gupta A, Lalvani A. Diagnosis of active TB in HIV infected and uninfected young children in India. Poster presentation at the Workshop on TB and HIV Diagnostics in Adult and Pediatric Populations, NIH, Silver Spring, MD, June 28-30, 2011

#### BOOK CHAPTERS

1. George AL, **Jain SK**. Infectious Diseases. In “First Aid for the Pediatric Boards”, T. Le, W. Lam, S. Rabizadeh, A. Schroeder, K. Vera (eds). 2006. McGraw-Hill.
2. Akar N, Bishai WR, **Jain SK**. *Streptococcus pneumoniae*: Resistance Update and Treatment Options. In Antimicrobial Resistance: Modern Principles and Management Strategies. R Owens, E Lautenbach (eds). 2007. Marcel Dekker, Inc., N.Y., Publisher.
3. **Jain SK**, Bishai W and Nightingale C. Macrolide, Azalide and Ketolides. In Antimicrobial Pharmacodynamics in Theory and Clinical Practice: Second Edition, Revised and Expanded. C.H. Nightingale, G. Drusano, P.G. Ambrose and T. Murakawa (eds). 2007. Marcel Dekker, Inc., N.Y., Publisher.

4. George-Agwu A, Milstone A, **Jain SK**. Recommended Empiric Antimicrobial Therapy for Selected Clinical Syndromes. In “The Harriet Lane Handbook of Pediatric Antimicrobial Therapy”, J.A. McMillan, C.K. Lee, G.K. Siberry, and J.D. Dick and (eds). 2008. Mosby-Elsevier.
5. Be NA, Bishai WR, **Jain SK**. Pathogenesis of Tuberculosis: New Insights. In: Raviglione, MC, ed. Tuberculosis: The Essentials. Informa Healthcare, 2009.
6. Agwu AG, **Jain SK**. Infectious Diseases. In “First Aid for the Pediatric Boards: Second Edition”, T. Le, W. Lam, S. Rabizadeh, A. Schroeder, K. Vera (eds). 2009. McGraw-Hill.
7. Hiruy H and **Jain SK**. Extra-Pulmonary Tuberculosis. In “Clinical Decision Support in Infectious Diseases”, A. Karchmer, F. Southwick, R. Wenzel and I. Frank (eds). 2011. Decision Support in Medicine, LLC. (in press)
8. Jubulis J and **Jain SK**. Tuberculous meningitis. In “Clinical Decision Support in Pediatrics”, J. McMillan, D. Barrett, C. Boney, and D. Jones (eds). 2011. Decision Support in Medicine, LLC. (in press)

## RESEARCH FUNDING

### *Current*

#### **1. Novel imaging biomarkers to address fundamental controversies in TB pathogenesis**

**OD006492-01**

*National Institute of Health Director’s New Innovator Award*

The major goal of this project is to develop novel imaging biomarkers to address fundamental controversies in TB pathogenesis.

PI: Sanjay K Jain

Role: PI

#### **2. Diagnosis of active TB in HIV infected and uninfected young children in India HD061059-01**

*NIH/NICHD Indo-US Program R03*

The major goal of this project is to evaluate a novel ELISPOT assay for the diagnosis of active TB in HIV infected and uninfected young children in India.

PI: Sanjay K Jain

Role: PI

#### **3. PK/PD Eval. of Resistance Dev. in Caseating Granuloma AI079590 01-04**

*NIH/NIAID*

The major goal of this project is to study the PK/PD of anti-TB drugs in rabbit TB cavities.

PI: William Bishai

Role: Co-I

#### **4. A Multidisciplinary Approach to Understanding TB Latency and Reactivation HL106786-01**

*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.

PI: Petros Karakousis

Role: Co-I

## REVIEW WORK

USDA's National Research Initiative Competitive Grants Program

NIAID Special Emphasis Panel ZAI1 TS-M (M2)  
Welcome Trust, UK  
Defense Threat Reduction Agency (DTRA), U.S. Army Research Office  
Howard Hughes Medical Institute K-RITH Collaborative Grants Program  
Journals:

American Journal of Respiratory Cell and Molecular Biology  
BMC Infectious Diseases  
BMC Microbiology  
Cellular Microbiology  
Clinical Infectious Diseases  
European Respiratory Journal, Infection and Immunity  
ILAR Journal  
Infection, Genetics and Evolution  
International Journal of Tuberculosis and Lung Diseases  
Journal of Bacteriology  
Journal of Clinical Microbiology  
Journal of Infectious Diseases  
Journal of Neuroinflammation  
Medicine  
Microbiology  
Molecular Imaging  
Molecular Microbiology  
Neuroscience  
Pediatrics  
Pediatric Blood & Cancer  
Pediatric Infectious Diseases Journal  
PLoS ONE  
PLoS Pathogens  
Tuberculosis

#### CURRENT AND PAST MENTEES

- 2010-12: Edward Weinstein, MD, PhD – Adult ID fellow at Johns Hopkins University (JHU)
- 2009-12: Jennifer Jubilus, MD – Pediatric ID fellow at JHU
- 2010-: Ciaran Skerry, PhD – Postdoc fellow (Immunology), JHU
- 2012-: Alvaro Ordonez, MD – Postdoc fellow, JHU
- 2011-: Heidi Hempel – PhD candidate in Pathobiology program at JHU
- 2006-11: Nick Be, BS – PhD candidate in Molecular and Cell Biology Program at JHU; awards while in my laboratory:
  - Keystone Symposia Scholarship (J4 TB pathogenesis), NIH/NIAID (2010)
  - American Society of Microbiology Outstanding Student Poster Presentation (2010)
  - American Society of Microbiology Student Travel Grant (2010)
  - Arthur M. Dannenberg Jr. Outstanding Trainee Award, JHU School of Medicine (2010)
  - Graduate Student Assoc. Student Travel Award, JHU School of Medicine (2010)
  - Publication Selected for Cover Feature, Journal of Infectious Diseases (2008)



- 2011: Shahzleen Rajan – Medical Student, University of Copenhagen Medical School
- 2011: Sadaf Kamil – Medical Student, University of Copenhagen Medical School
- 2011: Vikram Saini – Medical Student, Maulana Azad Medical College, New Delhi
- 2011: Surbhi Chauhan – Medical Student, Maulana Azad Medical College, New Delhi
- 2011: Kimberly Lane – Pre-bac, JHU
- 2010-11: Rishabh Khatri – High school student at Glenelg Country School
- 2009-10: Janine Knudsen – Undergraduate at JHU; currently a medical student at Harvard University Medical School, Boston, MA
- 2007-10: Stephanie Davis – Technician at JHU; currently a law student at Georgetown University, Washington, DC
- 2007-09: Peter Um – Technician at JHU; currently a graduate student at Baylor College of Medicine, Houston, TX
- 2009: Mohammed Iqbal, MD – MPH student, Johns Hopkins Bloomberg School of Public Health
- 2009: Sindu Ravi – Undergraduate at JHU
- 2008: Sohail Qayyum – Medical Student, Rawalpindi Medical College, Pakistan
- 2007-08: Michelle Jang – Undergraduate at Johns Hopkins University
- 2007: Barathi Sivasailam – High school student at Centennial High; currently an undergraduate student at Brown University
- 2007: Harkirat Singh – Medical Student, All India Institute of Medical Sciences, India
- 2006: Prabhpreet Singh – Medical Student, All India Institute of Medical Sciences, India
- 2005: Swaroop Samant – Medical Student, JHU School of Medicine

#### PRESS

Project Soon for Early Detection of TB in Children (Indian Express)	2009
Animal TB 'Tracker' Aims To Speed Drug And Vaccine Studies (Science Daily)	2009
NIH Names Recipients of Prestigious New Innovator Awards (IndiaWest)	2009
Featured as Pediatric TB Expert in Baltimore Examiner	2008
“Maryland TB cases draw attention to rare infection”	
Featured in ‘Two Indians among Esquire’s Best’, Hindustan Times (INDIA)	2007
Featured in ‘Names in News’, Baltimore Sun	2007
Featured in ‘On the trail of TB’, Baltimore Business Journal	2007
Featured as TB Expert in USDA DVD “The Soil Explorers”	2007

#### INVITED LECTURES AND TALKS

1. Aug 2001: **Pneumococcal Infections and the PCV7 vaccine.** AIIMSONIANS of America Annual meeting, Boston, MA
2. Jul 2003: **Clinical presentation.** Maryland State Health Department, Annapolis, MD
3. Aug 2003: **TB case presentation.** Maryland State Health Department, Annapolis, MD
4. Oct 2003: **Yearly TB update.** Maryland Department of Health and Mental Hygiene, Baltimore MD
5. Oct 2004: **Grand rounds ‘To Be or not To Be’.** Department of Pediatrics, University of Illinois, Peoria, IL
6. Apr 2005: **Pediatric Tuberculosis: *The common and the not so common*** . . . 33<sup>rd</sup> Annual Pediatric Trends, Johns Hopkins University, Baltimore, MD
7. Aug 2005: **Tuberculosis in children.** Summer Institute in Tropical Medicine and Public Health, Bloomberg School of Public Health, Baltimore, MD

8. Jan 2006: **CNS lesions in children in the Tropics.** Winter Institute in Tropical Medicine and Public Health, Bloomberg School of Public Health, Baltimore, MD
9. Mar 2006: **Pathogenesis of CNS tuberculosis: *M. tuberculosis* interaction with the Blood-brain barrier.** Lecture at the Department of Tuberculosis & Respiratory Diseases, Vallabhbai Patel Chest Institute, New Delhi, INDIA
10. May 2006: **Pathogenesis of CNS tuberculosis: *M. tuberculosis* and the blood-brain barrier.** Center for Tuberculosis Research Annual Scientific Meeting, Baltimore, MD
11. Jun 2006: **CNS tuberculosis: *M. tuberculosis* and the Blood-brain barrier.** Talk at the Department of Pediatric Infectious Diseases, Stony Brook University, Stony Brook, NY
12. Aug 2006: **Faculty Speaker.** 11<sup>th</sup> Annual Topics in Infectious Diseases for Primary Care, San Diego, CA
13. Jan 2007: **Faculty Speaker: Community-Acquired Methicillin-Resistant Staphylococcus aureus (CA-MRSA).** 4<sup>th</sup> Annual Anti-Infectives Partnering & Deal-Making Summit, San Francisco, CA
14. Feb 2007: **Faculty Speaker, Update: What is new in the treatment of tuberculosis?** American College of Physicians, Puerto Rico Chapter, San Juan, PR
15. Feb 2007: **Faculty Speaker, State of the art: The management of community acquired pneumonia.** American College of Physicians, Puerto Rico Chapter, San Juan, PR
16. May 2007: **Real-time *in vivo* imaging of *Mycobacterium tuberculosis* infection.** Center for Tuberculosis Research Annual Scientific Meeting, Baltimore, MD
17. Oct 2007: **TB diagnosis in young children and pregnant women in India.** Talk at the Department of Pediatrics, BJ Medical College, Pune, India
18. Feb 2008: **TB in children – the common and the not so common . . .** Talk at Sir Ganga Ram Hospital, New Delhi, India
19. Apr 2008: **Tuberculosis: What you need to know in 2008?** 36<sup>th</sup> Annual Pediatric Trends, Johns Hopkins University, Baltimore, MD
20. May 2008: **Monitoring disease in animal models of TB: The 21st Century: Non-invasive, Real-time, in Live Animals.** Center for Tuberculosis Research Annual Scientific Meeting, Baltimore, MD
21. May 2008: **Real time *in vivo* imaging of TB disease.** Talk at Aeras Global TB Vaccine Foundation, Rockville, MD
22. Jun 2008: **Faculty Speaker, Tuberculosis: A Global perspective** at the Children's Center Corporate Recognition Luncheon, Baltimore, MD
23. Aug 2008: **Faculty Speaker, Tuberculosis Update 2008** at the Infant Foundation, Buenos Aires, Argentina
24. Oct 2008: **Grand rounds, Tuberculosis: A Global perspective** at the Department of Pediatrics, Johns Hopkins University, Baltimore, MD
25. Oct 2008: **Grand Rounds, Tuberculosis: Why we need to care?** at the Department of Pediatrics, St Agnes Hospital, Baltimore, MD
26. Oct 2008: **Faculty Speaker, Laboratory Diagnosis of TB** at the ICAAC/IDSA TB Workshop, Washington, DC
27. Oct 2008: **Faculty Speaker, Tuberculosis Update 2008** at the Fall Symposium in Pediatric Infectious Disease at Union Memorial Hospital, Department of Pediatrics, Union Memorial Hospital, Baltimore, MD
28. Nov 2008: **Grand Rounds, Tuberculosis: A Global Problem** at Sanford Children's, Sioux Falls, SD

29. Oct 2008: **ID Grand rounds, Tuberculosis: A Global perspective** at the Department of Pediatrics, Vanderbilt University, Nashville, TN
30. Mar 2009: **Real-time *in vivo* imaging of *Mycobacterium tuberculosis* infection** at the TB Drug Accelerator Meeting, Gates Foundation, Seattle, WA
31. June 2009: **Monitoring tuberculosis treatment with [<sup>18</sup>F]FDG-PET**. Center for Tuberculosis Research Annual Scientific Meeting, Baltimore, MD
32. Sep 2009: **Grand Rounds, Molecular Imaging for Infection & Inflammation** at the Oncology Center, Johns Hopkins University, Baltimore, MD
33. Nov 2009: **Pneumonia** at the World PNA Day, Johns Hopkins University, Baltimore, MD
34. Nov 2009: **Non-invasive imaging to assess disease in a mouse model of tuberculosis (TB)** at the Fall Imaging Symposium, Johns Hopkins University, Baltimore, MD
35. Dec 2009: **Monitoring TB disease in live animals: The 21st Century**. Satellite Symposium on TB animal models, Union World Meeting Symposium, Cancun, Mexico
36. Apr 2010: **Tuberculosis Update**. 38<sup>th</sup> Annual Pediatric Trends, Johns Hopkins University, Baltimore, MD
37. May 2010: **Grand Rounds, What you need to know about TB?** Sinai Hospital of Baltimore, Baltimore, MD
38. Oct 2010: **TB in South East Asia. APAMSA National Conference**. Johns Hopkins University, Baltimore, MD
39. Jan 2011: ***M.tb.* PknD interaction with laminin: a trigger for host-cell invasion and bacterial dormancy in the CNS**. Translational Health Science and Technology Institute, Delhi, INDIA
40. Apr 2011: **Tuberculosis Update**. 39<sup>th</sup> Annual Pediatric Trends, Johns Hopkins University, Baltimore, MD
41. Apr 2011: **Non-invasive Imaging in Animal Models**. INDO-US NIAID Drug Discovery Forum: Exploring Opportunities for Research Collaboration, Joint Conference – DBT DHR ICMR and NIAID/NIH, New Delhi, INDIA
42. May 2011: **Non-invasive imaging as a tool for pre-clinical studies in animal models of tuberculosis**. Current and Future Role of Imaging in the Evaluation of Infectious Diseases. CIDI, NIH, Rockville, MD
43. Jun 2011: **Diagnosis of Pediatric TB: Is there a need for Newer Technologies?** Workshop on TB and HIV Diagnostics in Adult and Pediatric Populations, NIH, Silver Spring, MD
44. Oct 2011: **The Role of Imaging in Infectious Diseases**. RAD-AID Conference on International Radiology for Developing Countries, Johns Hopkins, Baltimore, MD