



Associate Professor & Head
Department of Life Sciences
Central University of Tamil Nadu
Neelakudi, Thiruvarur 610 005, India.
e-Mail: shankarem@cutn.ac.in

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE/PROFESSION (if applicable)	YEAR(s)	FIELD OF STUDY
University of Madras, Chennai, INDIA.	BSc	1995 – 1998	Microbiology
PG Institute of Basic Medical Sciences, University of Madras, Chennai, INDIA.	MSc	1999 – 2002	Medical Microbiology (3 Years)
PG Institute of Basic Medical Sciences, University of Madras, Chennai, INDIA.	PhD	2003 – 2007	Medical Microbiology
Institutionen för Klinisk och Experimentell Medicin, Linköpings Universitet, SWEDEN.	Post-doctoral	2009 – 2011	Cellular Immunology

A. ACADEMIC | RESEARCH POSITIONS

- 2017-Current, Coordinator, Department of Microbiology, Central University of Tamil Nadu (CUTN), Thiruvarur, India.
- 2016– Current, Head, Department of Life Sciences, Central University of Tamil Nadu (CUTN), Thiruvarur, India.
- 2016– Current, Associate Professor, Department of Life Sciences, Central University of Tamil Nadu, Thiruvarur, India.
- 2011– 2016, Associate Professor, Department of Medical Microbiology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.
- 2009–11, Postdoctoral fellow, Molekylär Virologi, Institutionen för Klinisk och Experimentell Medicin, Hälsouniversitet, 58 185 Linköpings, Sweden.
- 2007, Visiting Scholar, Department of Surgery, Duke University Medical Center, Durham, NC, USA.
- 2006–08, Assistant Professor, YRG Centre for AIDS Research and Education, Chennai, India.
- 2006, ICMR-Senior Research Fellow, Department of Microbiology, Faculty of Medicine, PG IBMS, University of Madras, Chennai.
- 2004–06, ICMR-Junior Research Fellow, Department of Microbiology, Faculty of Medicine, PG IBMS, University of Madras, Chennai.
- 2002–03, UGC-SAP Project Fellow, Department of Microbiology, Faculty of Medicine, PG IBMS, University of Madras, Chennai.

B. AWARDS & HONOURS

- March 2017 – Current, District Level Expert Appraisal Committee (DEAC) & District Level Environmental Impact Assessment Authority (DEIAA) Committee Member, Thiruvarur District, Thiruvarur, Tamilnadu (C.No. 771/2017/D, Dated 21.03.2017).
- February 2017 – Current, Associate Editor, *BMC Infectious Diseases*, BioMed Central, Springer, USA.
- October 2015 – October 2018, Academic Editor, *Medicine®*, Wolters Kluwer Health, USA.
- July 2015 – Current, Academic Editor, *PLoS One*, Public Library of Sciences, USA.
- November 2013 - Current, Associate Editor, *BMC Immunology*, BioMed Central, Springer, USA.
- January 2016 – December 2019, Editorial Board Member, *World Journal of Immunology*, Baishideng Publishers, USA.
- October 2013 - Current, Editorial Board Member, *Microbiology Discovery*, Herbert Publishers, USA.
- 2007, Young Investigator Award: 14th Conference on Retroviruses & Opportunistic Infections, Los Angeles, USA.

- 2006, IOM Travel Award: 16th International Organization of Mycoplasma Congress, St. Johns College, University of Cambridge, United Kingdom.
- 2004, ICMR-JRF (National Eligibility Test), Government of India, New Delhi (Award No. 3/1/3(54)/JRF/2003 – MPD, 10/02/04).
- 1999 - First Rank, Entrance Examinations for MSc (Medical Microbiology, 3 Years Program), University of Madras, Chennai.

C. PROFESSIONAL MEMBERSHIPS

- 2015 – 2016, Malaysian Biosafety & Biosecurity Association (MBBA)
- 2013 – Current, Centre of Excellence for Research in AIDS (CERiA)
- 2012 – 2016, Tropical Infectious Diseases Research and Education Center (TIDREC)
- 2013 – 2015, International AIDS Society (IAS)
- 2010 – 2011, Swedish Society for Virology (SSV)
- 2007 – 2014, American Society of Microbiology (ASM)
- 2011 – 2012, International Society for Infectious Diseases (ISID)
- 2006 – 2007, International Organization for Mycoplasma (IOM)
- 2005 – 2006, Indian Association of Mycoplasma (IAM)
- 2002 – 2004, Indian Association of Medical Microbiologists (IAMM)

D. PUBLICATIONS

Google Scholar h-index: 23; Source: <https://scholar.google.com.my/citations?user=eEOGooMAAAAJ&hl=en>

Scopus h-index: 17; Source: <https://www.scopus.com/authid/detail.uri?authorId=9738051300>

1. See J-X, Chandramathi S, Abdulla MA, Vadivelu J, Shankar EM. Persistent infections due to a small-colony variant of *Burkholderia pseudomallei* leads to PD-I upregulation on circulating immune cells and mononuclear infiltration in viscera of experimental BALB/c mice. *PLoS Neglected Tropical Diseases* 2017, xx-xxx.
2. Yong YK, Tan HY, Saeidi A, Rosmawati M, Atiya N, Ansari AW, Rajarajeswaran J, Vadivelu J, Velu V, Larsson M, Shankar EM. Decrease of CD69 levels on TCR V α 7.2+CD4⁺ innate-like lymphocytes is associated with impaired cytotoxic functions in chronic hepatitis B virus-infected patients. *Innate Immunity* 1753425917714854. doi: 10.1177/1753425917714854.
3. Yong YK, Tan HY, Jen SH, Shankar EM, Natkunam SK, Sathar J, Manikam R, Sekaran SD. Aberrant monocyte responses predict and characterize dengue virus infection in individuals with severe disease. *Journal of Translational Medicine* 2017, 15(1):121.
4. Ahmad F, Shankar EM, Kong YY, Tan HY, Ahrenstorf G, Jacobs R, Larsson M, Schmidt RE, Kamarulzaman A and Ansari AW. Negative checkpoint regulatory molecule 2B4 (CD244) upregulation is associated with invariant natural killer T cell alterations and human immunodeficiency virus disease progression. *Frontiers in Immunology* 2017, 8; 338.
5. Vignesh R, Swathirajan CR, Solomon SS, Shankar EM, Murugavel KG. Risk factors and frequency of tuberculosis-associated immune reconstitution inflammatory syndrome among HIV/tuberculosis co-infected patients in Southern India. *Indian Journal of Medical Microbiology* 2017; Epub ahead of print
6. Barathan M, Mohamed R, Vadivelu R, Chang LY, Vignesh R, Jayalakshmi K, Sigamani P, Saeidi A, Ravishankar Ram M, Velu V, Larsson M, Shankar EM. HCV-specific CD8⁺ T cells of chronic HCV-infected patients express multiple negative immune checkpoints. *Cellular Immunology* 2017, 313; 1-9.
7. Vadivelu J, Vellasamy K, Thimma J, Mariappan V, Kang WT, Choh LC, Shankar EM, Wong KT. Survival and intra-nuclear trafficking of *Burkholderia pseudomallei*: Strategies of evasion from immune surveillance? *PLoS Neglected Tropical Diseases* 2017, 11(1):e0005241. DOI: 10.1371/journal.pntd.0005241
8. Saeidi A, Ellegård R, Yong YK, Tan HY, Velu V, Ussher JE, Larsson M, Shankar EM. Functional role of MAIT cells in HIV infection. *Journal of Leukocyte Biology* 2016, 100(2):305-314.
9. Tan HY, Yong YK, Shankar EM, Paukovics G, Ellegård R, Larsson M, Kamarulzaman A, French MA, Crowe SM. Aberrant inflammasome activation characterises tuberculosis-associated immune reconstitution inflammatory syndrome. *Journal of Immunology* 2016, 196(10); 4052-4063.
10. Yong YK, Shankar EM, Solomon A, Spelman T, Fairley CK, Elliott J, Hoy J, Cameron P, Kamarulzaman A, Lewin SR. Polymorphisms in the CD14 and TLR4 genes independently predict CD4⁺ T-cell recovery in HIV-infected individuals on antiretroviral therapy. *AIDS*, 2016, 30(14):2159-2168.

11. Yong YK, Shankar EM, Westhorpe CLV, Maisa A, Spelman T, Kamarulzaman A, Crowe SM, Lewin SR. Single-nucleotide polymorphisms in CD14 are associated with monocyte activation and thickening of carotid tunica intima-media in HIV-infected patients on antiretroviral therapy. *Medicine*, 95:31:e4477.
12. See JX, Samudi C, Saeidi A, Menon N, Choh LC, Vadivelu J, Shankar EM. Experimental persistent infection of BALB/c mice with small-colony variants of *Burkholderia pseudomallei* leads to concurrent upregulation of PD-I on T cells and skewed Th1 and Th17 responses. *PLoS Neglected Tropical Diseases* 2016, 10(3):e0004503.
13. Vellasamy K, Mariappan V, Shankar EM, Vadivelu J. *Burkholderia pseudomallei* differentially regulates host innate immune response genes for intracellular survival in lung epithelial cells. *PLoS Neglected Tropical Diseases* 2016, 10(7):e0004730.
14. Yeow TC, Wong WF, Sabet NS, Sulaiman S, Shahhosseini F, Tan GM, Movahed E, Looi CY, Shankar EM, Gupta R, Arulanandam BP, Hassan J, Abu Bakar S. Prevalence of plasmid-bearing and plasmid-free *Chlamydia trachomatis* infection among women who visited obstetrics and gynecology clinics in Malaysia. *BMC Microbiology* 2016, 16(1):45.
15. Seyed SS, Shukri M, Hassandarvish P, Oo A, Muthu SE, Abubakar S, Zandi K. Computational approach towards exploring potential anti-chikungunya activity of selected flavonoids. *Scientific Reports* 2016;6:24027.
16. Ellegård R, Crisci E, Andersson J, Shankar EM, Hinkula J, Lifson JD, Larsson M. Impaired natural killer cell activation and chemotaxis towards dendritic cells exposed to complement opsonized HIV-1. *Journal of Immunology* 2015, 195(4):1698-1704.
17. Tan HY, Yong YK, Andrade BB, Shankar EM, Ponnampalavanar S, Omar SF, Narendran G, Kamarulzaman A, Swaminathan S, Sereti I, Crowe SM, French MA. Plasma interleukin-18 levels are a biomarker of innate immune responses that predict and characterize tuberculosis-associated immune reconstitution inflammatory syndrome. *AIDS* 2015, 29(4):421-31.
18. Saeidi A, Chong YK, Kong YK, Tan HY, Barathan M, Rajarajeswaran J, Sabet NS, Sekaran SD, Ponnampalavanar S, Che KF, Velu V, Kamarulzaman A, Larsson M, Shankar EM. Concurrent loss of co-stimulatory molecules and functional cytokine secretion attributes leads to proliferative senescence of CD8+ T cells in HIV/TB co-infection. *Cellular Immunology* 2015, 297:19-32.
19. Saeidi A, Lau V, Al-Batran R, Al-Darraj HA, Tan HY, Kong YY, Ponnampalavanar S, Barathan M, Rukumani VD, Ansari AW, Velu V, Kamarulzaman A, Larsson M, Shankar EM. Attrition of TCR V α 7.2+ CD161++ MAIT cells in HIV-tuberculosis co-infection is associated with elevated levels of PD-I expression. *PLoS ONE* 2015, 10(4); e0124659.
20. Barathan M, Mohamed R, Vadivelu J, Chang LY, Saeidi A, Yong YK, Gopal K, Ravishankar Ram M, Velu V, Larsson M, Shankar EM. Peripheral loss of CD8+CD161++TCR V α 7.2+ mucosal-associated invariant T cells in chronic HCV-infected patients. *European Journal of Clinical Investigation* 2016, 46(2):170-80.
21. Velu V, Shetty RD, Larsson M, Shankar EM. Role of PD-I co-inhibitory pathway in HIV infection and potential therapeutic options. *Retrovirology* 2015, 12:14.
22. Saeidi A, Buggert M, Yong YK, Velu V, Larsson M, Shankar EM. Regulation of CD8+ T-cell cytotoxicity in HIV disease. *Cellular Immunology* 2015, 298; 126 – 133.
23. Barathan M, Gopal K, Mohamed R, Ellegård R, Saeidi A, Vadivelu J, Ansari AW, Rothan HA, Ravishankar Ram M, Zandi K, Chang LY, Vignesh R, Che KF, Kamarulzaman A, Velu V, Larsson M, Kamarul T, Shankar EM. Chronic hepatitis C virus infection triggers spontaneous differential expression of biosignatures associated with T cell exhaustion and apoptosis signaling in peripheral blood mononucleocytes. *Apoptosis* 2015, 20:466-480.
24. Barathan M, Mohamed R, Saeidi A, Vadivelu J, Chang LY, Gopal K, Ram MR, Ansari AW, Kamarulzaman A, Velu V, Larsson M, Shankar EM. Increased frequency of late-senescent T cells lacking CD127 in chronic hepatitis C disease. *European Journal of Clinical Investigation* 2015, 45(5); 466-474.
25. Gopal K, Gowtham M, Sachin S, Ravishankar Ram M, Shankar EM, Kamarul T. Attrition of hepatic damage inflicted by angiotensin II with α -tocopherol and β -carotene in experimental apolipoprotein E knock-out mice. *Scientific Reports* 2015, 5:18300.
26. Ravishankar Ram M, Goh KL, Leow AH, Poh BH, Loke MF, Harrison R, Shankar EM, Vadivelu J. Polymorphisms at locus 4p14 of Toll-like receptors TLR-1 and TLR-10 confer susceptibility to gastric carcinoma in *Helicobacter pylori* infection. *PLoS One* 2015, 10(11):e0141865.
27. Shankar EM, Saeidi A, Kamarulzaman A, Yong YK, Hong YT, Rothan HA, Velu V, Larsson M. Mechanistic insights on immunosenescence and chronic immune activation in HIV-TB co-infection. *World Journal of Virology* 2015, 4(1): 17-24.
28. Rothan HA, Bahrani H, Mohamed Z, Teoh TC, Shankar EM, Rahman NA, Yusof R. A combination of doxycycline and ribavirin alleviated chikungunya infection. *PLoS ONE* 2015, 10(5):e0126360.
29. Ansari AW, Schmidt RE, Shankar EM, Kamarulzaman A. Immuno-pathomechanism of liver fibrosis: targeting chemokine CCL2-mediated HIV:HCV nexus. *Journal of Translational Medicine* 2014, 12:341.

30. Gopal K, Nagarajan P, Shankar EM, Kamarul T, Kumar JM. High-fat diet- and angiotensin II-induced aneurysm concurrently elicits splenic hypertrophy. *European Journal of Clinical Investigation* 2014, 44(12):1169-76.
31. Theoga Raj CJ, Shankar EM, Rothan HA, Rao UA. Molecular characterization of clinical isolates of *Moraxella catarrhalis* by randomly amplified polymorphic DNA fingerprinting. *Journal of Molecular Microbiology & Biotechnology* 2014, 24(4):270-8.
32. Rothan HA, Bahrani H, Shankar EM, Rahman NA, Yusof R. Inhibitory effects of a peptide-fusion protein (Latarcin-PAPI-Thanatin) against chikungunya virus. *Antiviral Research* 2014, 108:173-80.
33. Yeo AS, Azhar NA, Yeow W, Talbot CC Jr, Khan MA, Shankar EM, Rathakrishnan A, Azizan A, Wang SM, Lee SK, Fong MY, Manikam R, Devi Sekaran S. Lack of clinical manifestations in asymptomatic dengue infection is attributed to broad down-regulation and selective up-regulation of host defence response genes. *PLoS ONE* 2014, 9(4):e92240.
34. Boppana NB, Devarajan A, Gopal K, Barathan M, Bakar SA, Shankar EM, Ebrahim AS, Farooq SM. Blockade of CXCR2 signalling: a potential therapeutic target for preventing neutrophil-mediated inflammatory diseases. *Experimental Biology & Medicine* 2014, 239(5):509-18.
35. Shankar EM, Vignesh R, Ellegård R, Barathan M, Chong YK, Bador MK, Rukumani DV, Sabet NS, Kamarulzaman A, Velu V, Larsson M. HIV-*Mycobacterium tuberculosis* co-infection: a 'danger-couple model' of disease pathogenesis. *Pathogens & Disease* 2014, 70(2):110-8.
36. Al-Maleki AR, Mariappan V, Vellasamy KM, Shankar EM, Tee TS, Vadivelu J. Enhanced intracellular survival and epithelial cell adherence abilities of *Burkholderia pseudomallei* morphotypes are dependent on differential expression of virulence-associated proteins during mid-logarithmic growth phase. *Journal of Proteomics* 2014, 106:205-20.
37. Farooq SM, Boppana NB, Asokan D, Sekaran SD, Shankar EM, Li C, Gopal K, Bakar SA, Karthik HS, Ebrahim AS. Phycocyanin ameliorates oxalate-mediated oxidative stress and mitochondrial dysfunctions in MDCK cells. *PLoS ONE* 2014, 9(4):e93056.
38. Larsson M, Shankar EM, Che KF, Saeidi A, Ellegard R, Velu V, Kamarulzaman A. Molecular signatures of T-cell inhibition in HIV infection. *Retrovirology* 2013, 10:31.
39. Gopal K, Nagarajan P, Jedy J, Raj AT, Gnanaselvi KV, Jahan P, Sharma Y, Shankar EM, Kumar JM. β -carotene attenuates angiotensin II-induced aortic aneurysm by alleviating inflammatory macrophage recruitment in *ApoE*^{-/-} mice. *PLoS ONE* 2013, 8:e67098.
40. Barathan M, Vanitha M, Shankar EM, Abdullah BJJ, Goh KL, Vadivelu J. Hypericin-photodynamic therapy leads to interleukin-6 secretion by HepG2 cells and their apoptosis via recruitment of BH3 interacting- domain death agonist and caspases. *Cell Death & Disease* 2013, 4:e697.
41. Vignesh R, Swathirajan CR, Solomon S, Shankar EM, Murugavel KG, Paul I, Waldrop G, Solomon SS, Balakrishnan P. Iodine-glycerol as an alternative to LPCB for identification of fungal elements in clinical laboratory. *Indian Journal of Medical Microbiology* 2013, 31(1):93-94.
42. Che KF, Shankar EM, Sundaram M, Zandi S, Sigvardsson M, Hinkula J, Messmer D, Larsson M. p38 Mitogen-activated protein kinase/Signal transducer and activator of transcription-3 pathway signaling regulates expression of inhibitory molecules in T cells activated by HIV-I exposed dendritic cells. *Molecular Medicine* 2012, 18; 1169 - 1182.
43. Shankar EM, Velu V, Vignesh R, Sivakumar V, Rukumani DV, Sabet NS. Recent advancements targeting innate immunity-mediated therapeutics against HIV-I infection. *Microbiology & Immunology* 2012, 56; 497-505.
44. Shankar EM, Che KF, Messmer D, Lifson JD, Larsson M. Expression of a broad array of negative costimulatory molecules and *Blimp-1* by T-cells following priming by HIV-I pulsed dendritic cells. *Molecular Medicine* 2011, 17(3-4):229-240.
45. Che KF, Sabado RL, Shankar EM, Tjomsland V, Messmer D, Bhardwaj N, Lifson JD, Larsson M. HIV-I impairs *in vitro* priming of naive T cells and gives rise to contact-dependent suppressor T cells. *European Journal of Immunology* 2010, 40: 2248 -2258.
46. Ellegård R, Shankar EM, Larsson M. Targeting HIV-I innate immune responses therapeutically. *Current Opinion in HIV & AIDS* 2011,6:435-43.
47. Sundaram M, Shankar EM, Srinivas CN, Solomon S, Balakrishnan P, Kumarasamy N. Can ionic imbalance in HIV disease be attributed to certain underlying opportunistic infections? *Indian Journal of Clinical Biochemistry* 2010;25(1):105-7.
48. Jayakumar P, Shankar EM, Karthikeyan M, Ravikannan P. Lipodystrophy and adrenal insufficiency: Potential mediators of peripheral neuropathy in HIV disease? *Medical Hypotheses* 2012, 78(3):373-376.
49. Shankar EM, Balakrishnan P, Vignesh R, Velu V, Jayakumar P, Solomon S. Current views on the pathophysiology of GB virus C coinfection with HIV-I infection. *Current Infectious Disease Report* 2011, 13(1): 47-52.

50. Christol TJ, Shankar EM, Rao UA. Antibiogram pattern of *Moraxella catarrhalis* isolates in acute exacerbation chronic obstructive pulmonary disease. *Chemotherapy* 2010, 57(1): 94-96.
51. Shankar EM, Vignesh R, Murugavel KG, Balakrishnan P, Ponmalar E, Rao UA, Velu V, Solomon S. Common protozoans as an uncommon cause of respiratory ailments in HIV-associated immunodeficiency. *FEMS Immunology & Medical Microbiology* 2009, 57: 93-103.
52. Shankar EM, Vignesh R, Balakrishnan P, Velu V, Ponmalar E, Murugavel KG, Saravanan S, Nandagopal P, Hayath K, Solomon S, Vengatesan A, Rao UA. Cold agglutinins in HIV-seropositive participants and diagnosis of respiratory disease due to *Mycoplasma pneumoniae*. *Journal of International Association of Physicians in AIDS Care* 2009, 8(4): 229-34.
53. Sundaram M, Srinivas CN, Shankar EM, Balakrishnan P, Solomon S, Kumarasamy N. Cofactors for low serum albumin levels among HIV-infected individuals in south India. *Journal of International Association of Physicians in AIDS Care* 2009, 8: 161-64.
54. Sundaram M, Srinivas CN, Shankar EM, Balakrishnan P, Solomon S, Kumarasamy N. Alterations in acute-phase proteins among HIV-I infected persons receiving generic HAART in southern India. *Journal of Infection* 2009, 58(6): 461-3.
55. Vignesh R, Shankar EM, Kumarasamy N, Irene P, Murugavel KG, Mayer KH, Solomon S, Balakrishnan P. Predominance of methicillin-resistant *Staphylococcus aureus* among HIV positive subjects with pyrexia of unknown origin in Chennai, Southern India. *Journal of Infection* 2009, 58(4): 313-4.
56. Sundaram M, Srinivas CN, Solomon S, Shankar EM, Balakrishnan P, Kumarasamy N. Does gender and nevirapine (NVP) influence abnormal liver functions in HIV disease? *Journal of Infection* 2009, 58(3): 255-7.
57. Murugavel KG, Balakrishnan P, Mohanakrishnan J, Solomon SS, Shankar EM, Pulimi S, Sundaram M, Kumarasamy N, Piwowar-Manning E, Livant E, Mayer KH, Thyagarajan SP, Solomon S. Establishment of T-lymphocyte subset reference intervals in a healthy adult population in Chennai, India. *Indian Journal of Medical Research* 2009, 129: 59-63.
58. Shankar EM, Solomon SS, Murugavel KG, Balakrishnan P, Vignesh R, Sundaram M, Kumarasamy N, Solomon S. GB virus infection: a silent anti-HIV panacea within? *Transactions of the Royal Society of Tropical Medicine & Hygiene* 2008, 102: 1176-80; & Shankar EM. Reply to comment on: GB virus infection: a silent anti-HIV panacea within? *Transactions of the Royal Society of Tropical Medicine & Hygiene* 2009, 103(12): 1292.
59. Shanmugam S, Velu V, Nandakumar S, Vidya M, Uma S, Shankar EM, Murugavel KG, Balakrishnan P, Kumarasamy N, Solomon S, Thyagarajan SP. Low frequency of precore mutants in anti-hepatitis B e antigen positive subjects with chronic hepatitis B virus infection in Chennai, Southern India. *Journal of Microbiology & Biotechnology* 2008, 18(10): 1722-8.
60. Murugavel KG, Mathews S, Jayanthi V, Shankar EM, Hari R, Surendran R, Vengatesan A, Raghuram K, Rajasambandam P, Murali A, Srinivas U, Palaniswamy UR, Pugazhendhi T, Thyagarajan SP. Alpha-fetoprotein as a tumour marker in hepatocellular carcinoma: Investigations among south Indian subjects with hepatotropic virus and aflatoxin aetiologies. *International Journal of Infectious Diseases* 2008, 12: e71-6.
61. Sundaram M, Saghayam S, Venkatesh KK, Balakrishnan P, Shankar EM, Murugavel KG, Solomon S, Kumarasamy S. Changes in antioxidant profile among HIV- infected individuals on generic HAART in Southern India. *International Journal of Infectious Diseases* 2008, 12: e61-6.
62. Vignesh R, Kumarasamy N, Shankar EM, Sekar R, Murugavel KG, Irene P, Solomon S, Balakrishnan P. Urinary infections due to multi-drug resistant *Escherichia coli* among persons with HIV disease at a tertiary AIDS care centre in South India. *Nephron Clinical Practice* 2008, 110: 55-7.
63. Saravanan S, Velu V, Kumarasamy N, Shankar EM, Nandakumar S, Murugavel KG, Balakrishnan P, Solomon SS, Solomon S, Thyagarajan SP. The prevalence of hepatitis B virus and hepatitis C virus infection among patients with chronic liver disease in south India. *International Journal of Infectious Diseases* 2008, 12(5):513-8.
64. Vignesh R, Shankar EM, Balakrishnan P, Solomon S, Kumarasamy N. *Isospora belli*, *Strongyloides stercoralis* and hookworm coinfection in a HIV positive individual with normal CD4 lymphocyte count. *Indian Journal of Medical Research* 2008, 127(4): 403-5.
65. Shankar EM, Vignesh R, Velu V, Murugavel KG, Sekar R, Balakrishnan P, Lloyd CAC, Saravanan S, Solomon S, Kumarasamy N. Does CD4+CD25+FoxP3+ cell (Treg) and IL-10 profile determine the susceptibility of certain individuals to immune reconstitution inflammatory syndrome (IRIS) in HIV disease? *Journal of Inflammation* 2008, 5: 2.
66. Kownhar H, Shankar EM, Vignesh R, Velu V, Sekar R, Rao UA. High isolation rate of *Staphylococcus aureus* from surgical site infections in an Indian hospital. *Journal of Antimicrobial Chemotherapy* 2008, 61:758-60.
67. Shanmugasundaram U, Murugavel KG, Shankar EM, Balakrishnan P, Cecelia AJ, Solomon S, Kumarasamy N. Laboratory characteristics of subtype C HIV infected long term non-progressors at a tertiary HIV care centre in South India. *Journal of Medical Microbiology* 2008, 57: 913-5.

68. Velu V, Saravanan S, Nandakumar S, Shankar EM, Vengatesan A, Jadhav SS, Kulkarni PS, Thyagarajan SP. Relationship between T-lymphocyte cytokine levels and sero-response to hepatitis B vaccines. *World Journal of Gastroenterology* 2008, 14(22): 3534-40.
69. Vignesh R, Sekar R, Shankar EM, Balakrishnan P, Murugavel KG, Irene P, Solomon S, Kumarasamy N. Wet mounting using iodine-glycerol provides a semi-permanent preparation for microscopic observation of faecal parasites. *Journal of Medical Microbiology* 2008, 57: 679-80.
70. Saravanan P, Velu V, Kumarasamy N, Shankar EM, Nandakumar S, Murugavel KG, Balakrishnan P, Solomon S, Thyagarajan SP. Seroprevalence of hepatitis delta virus infection among subjects with underlying hepatic diseases in Chennai, Southern India. *Transactions of the Royal Society of Tropical Medicine & Hygiene* 2008, 102(8): 793-6.
71. Sekar R, Devarajan M, Ramesh S, Shankar EM, Vignesh R. High rate of detection of high-level aminoglycoside resistant enterococci from urinary tract specimens in South India. *International Journal of Antimicrobial Agents* 2008, 31(4): 283-5.
72. Vignesh R, Shankar EM, Balakrishnan P, Devaleen B, Thousen T, Sekar R, Solomon S, Kumarasamy N. Atypical distribution of cutaneous lesions due to crusted Norwegian scabies in a HIV infected patient. *Journal of Medical Case Reports* 2008, 2: 82.
73. Sundaram M, Srinivas CN, Shankar EM, Deepak M, Murugavel KG, Balakrishnan P, Solomon S, Kumarasamy N. Co-factors for abnormal lactate levels among persons with HIV disease at a tertiary HIV care setting in South India. *Food & Chemical Toxicology* 2008, 46: 2823-5.
74. Sekar R, Ramesh S, Vignesh R, Kownhar H, Shankar EM. Low recovery rates of high-level aminoglycoside-resistant enterococci could be attributable to restricted usage of aminoglycosides in Indian settings. *Journal of Medical Microbiology* 2008, 57(3): 397-8.
75. Velu V, Saravanan S, Nandakumar S, Dhevahi E, Shankar EM, Murugavel KG, Kumarasamy T, Thyagarajan SP. Transmission of "a" determinant variants of hepatitis B virus in immunized babies born to HBsAg carrier mothers. *Japanese Journal of Infectious Diseases* 2008, 61(1): 73-6.
76. Shankar EM, Vignesh R, Murugavel KG, Balakrishnan P, Sekar R, Lloyd CAC, Solomon S, Kumarasamy N. Immune reconstitution inflammatory syndrome in association with HIV/AIDS and tuberculosis: Views over hidden possibilities. *AIDS Research & Therapy* 2007, 4:29.
77. Sundaram M, Balakrishnan P, Piwowar-Manning E, Dawson SS, Pulimi S, Mohanakrishnan J, Shankar EM, Murugavel KG, Kumarasamy N, Solomon SS, Solomon S. Ethnic variation in certain hematological and biochemical reference intervals in the South Indian healthy adult population. *European Journal of Internal Medicine* 2008, 19: 46-50.
78. Vignesh R, Shankar EM, Balakrishnan P, Mayer KH, Solomon S, Kumarasamy N. High rate of acquired resistance in tuberculosis among HIV infected subjects of Chennai. *Journal of Infection* 2007, 55(6): e141-2.
79. Vignesh R, Balakrishnan P, Shankar EM, Hanas S, Cecelia AJ, Solomon S, Kumarasamy N. Value of single acid-fast bacilli sputum smears in the diagnosis of tuberculosis in HIV-positive subjects. *Journal of Medical Microbiology* 2007, 56: 1709-10.
80. Shankar EM, Vignesh R, Barton RC, Kumarasamy N, Balakrishnan P, Lloyd CAC, Solomon S, Rao UA. Hydrothorax in association with *Scopulariopsis brumptii* in an AIDS patient in Chennai, India. *Transactions of the Royal Society of Tropical Medicine & Hygiene* 2007, 101(12): 1270-2.
81. Vignesh R, Balakrishnan P, Shankar EM, Murugavel KG, Hanas S, Cecelia AJ, Thyagarajan SP, Solomon S, Kumarasamy N. High proportion of Isosporiasis among HIV-infected patients with diarrhea in Southern India. *American Journal of Tropical Medicine & Hygiene* 2007, 77: 823-4.
82. Murugavel KG, Naranatt PP, Shankar EM, Mathews S, Jayanthi V, Surendran R, Raghuram K, Rajasambandam P, Murali A, Srinivas U, Palaniswamy KR, Srikumari D, Thyagarajan SP. Prevalence of aflatoxin BI in liver biopsies of proven hepatocellular carcinoma cases in India determined by an in-house immunoperoxidase test. *Journal of Medical Microbiology* 2007, 56: 1455-9.
83. Kownhar H, Shankar EM, Rajan R, Vengatesan A, Rao UA. Prevalence of *Campylobacter jejuni* and enteric bacterial pathogens among hospitalized HIV infected versus non-HIV infected patients with diarrhea in Southern India. *Scandinavian Journal of Infectious Diseases* 2007, 39(10): 862-6.
84. Velu V, Nandakumar S, Shanmugam S, Shankar EM, Thangavel S, Kulkarni PS, Thyagarajan SP. Comparative efficacy of two dosages of recombinant hepatitis B vaccine in healthy adolescents in India. *Pediatric Infectious Disease Journal* 2007, 26: 1038-41.
85. Shankar EM, Kumarasamy N, Vignesh R, Balakrishnan P, Murugavel KG, Solomon SS, Saravanan S, Velu V, Farooq SM, Solomon S, Rao UA. Epidemiological studies on pulmonary pathogens in HIV positive and negative subjects with or without community-acquired pneumonia (CAP) with special reference to *Mycoplasma pneumoniae*. *Japanese Journal of Infectious Diseases* 2007, 60: 337-41.

86. Shankar EM, Kumarasamy N, Balakrishnan P, Saravanan S, Solomon S, Vengatesan A, Murugavel KG, Rao UA. Detection of pulmonary *Mycoplasma pneumoniae* infections in HIV infected subjects using culture and serology. *International Journal of Infectious Diseases* 2007, 11(3): 232-8.
87. Srikumar R, Jeya Parthasarathy N, Shankar EM, Manikandan S, Vijayakumar R, Vijayananth K, Sheeladevi R, Rao UA. Evaluation of the growth inhibitory activities of Triphala against common bacterial isolates from HIV infected patients. *Phytotherapy Research* 2007, 21(5): 476-80.
88. Kownhar H, Shankar EM, Rajan R, Rao UA. Emergence of nalidixic acid-resistant *Salmonella enterica* serovar *typhi* resistant to ciprofloxacin in India. *Journal of Medical Microbiology* 2006, 56(1): 136-7.
89. Shankar EM, Kumarasamy N, Balakrishnan P, Solomon S, Lejith R, Vengatesan A, Rao UA. Serosurveillance of acute *Mycoplasma pneumoniae* infections in HIV infected patients in the Chennai, Southern India. *Journal of Infection* 2006, 53(5): 325-30.
90. Shankar EM, Kumarasamy N, Bella D, Renuka S, Kownhar H, Suniti S, Rajan R, Rao UA. Pneumonia and pleural effusion due to *Cryptococcus laurentii* in a proven case of AIDS. *Canadian Respiratory Journal* 2006,13:275-8.
91. Shankar EM, Kumarasamy N, Balakrishnan P, Kownhar H, Solomon S, Rao UA. Seroprevalence of *Mycoplasma pneumoniae* in HIV infected patients using a microparticle agglutination test. *Journal of Medical Microbiology* 2006, 55(6):759-63.
92. Shankar EM, Kumarasamy N, Rajan R, Bella D, Balakrishnan P, Solomon S, Rao UA. *Aspergillus fumigatus*, *Pneumocystis carinii*, *Klebsiella pneumoniae* and *Mycoplasma fermentans* co-infection in a HIV infected patient with respiratory conditions from southern India. *Indian Journal of Medical Research* 2006,123:181-4.
93. Muthu SE, Aberna RA, Mohan V, Premalatha G, Srinivasan RS, Thyagarajan SP, Rao UA. Phenotypes of isolates of *Pseudomonas aeruginosa* in a tertiary diabetes care centre. *Archives of Medical Research* 2006,37:95-101.
94. Shankar EM, Mohan V, Premalatha G, Srinivasan RS, Usha AR. Bacterial etiology of diabetic foot infections in South India. *European Journal of Internal Medicine* 2005, 16: 567-70.
95. Muthu SE, Nandakumar S, Rao UA. The effect of methanolic extract of *Tamarindus indica* Linn. on the growth of clinical isolates of *Burkholderia pseudomallei*. *Indian Journal of Medical Research* 2005, 122: 525-8.
96. Shankar EM, Rajasekaran S, Rao UA, Paramesh P, Krishnakumar R, Rajan R, Kownhar H. Colonization of mycoplasma in the upper respiratory tract of AIDS patients with pulmonary symptoms in Chennai, India. *Indian Journal of Medical Research* 2005, 122: 506-10.

Submitted

97. Vemuri R, Kalpurath K, Ball M, Tristram S, Shankar EM, Gundamaraju R, Ahuja K, Eri R. Gut microbial changes, interactions and implication in human life cycle: A focus on ageing perspective. (*Nature Reviews in Microbiology*)
98. Mariappan V, Thimma J, Vellasamy K, Shankar EM, Vadivelu J. Adhesion and invasion attributes of *Burkholderia pseudomallei* are dependent on airway surface liquid and glucose concentrations in lung epithelial cells (*Frontiers in Microbiology*)
99. Sharon Tai M-L, Tan HY, Yong YK, Yap JF, Nor HM, Shankar EM, Ng B-S, Viswanathan S. Role of cytokines in the assessment of clinical outcome and neuroimaging findings in patients with tuberculous meningitis. (*BMC Infectious Diseases*).
100. Yong YK, Saeidi A, Enström PF, Rosmawati M, Tan HY, Al Batran R, Ravishankar Ram M, Vignesh R, Rajarajeswaran J, Velu V, Ussher JE, Larsson M, Shankar EM. Peripheral CD161⁺⁺TCR iV α 7.2⁺ MAIT cells are exhausted and dysfunctional in chronic hepatitis B virus infection. (*PLoS One*)
101. Murugesan A, Ibegbu C, Styles T, Hicks S, Sabula M, Babu P, Reddy J, Jones A, Shankar EM, Amara RR, Velu V. MAIT cells (CD8⁺CD161⁺⁺TCR7.2⁺⁺) are functionally impaired during chronic sHIV infection. (*Journal of Immunology*)

Books/Book Chapters/Book Credits/Book Evaluation Panel

1. Shankar EM, Saeidi A, Velu V, Larsson M. *Mechanistic insights on immune senescence, exhaustion and immune activation in HIV-tuberculosis co-infection*. In: *Handbook of Immunosenescence* (Eds. T. Fulop, C. Franceschi, K. Hirokawa, G. Pawelec) 2nd Edition, 2017. Springer Science+Business Media B.V. ISBN-xxxx. (In Press)
2. *Vector & Vector-Borne Diseases: Pathobiological Insights, Public Health Challenges & Management Strategies* (Eds. Dash AP, Krishnan J, Sigamani P, Shankar EM, Chattopadhyay I. 1st Edition, 2017 Bloomsbury Publishers ISBN-9789386432360.

3. Kumar RK, Shankar EM, Ganapathy E, Raj SS, Ebrahim AS, Farooq SM. *Gastric Carcinoma. A review on epidemiology, current surgical & chemotherapeutic options. In: Gastric Carcinoma- New Insights into Current Management*, Edited by Daniela Lazar, 2013, pp. 271 - 293. In Tech Publishers ISBN- 978-953-51-0914-3.
4. Shankar EM, Vignesh R, Rao UA. *Illustration No. 24.13, In: Part 4; Chapter 24, Microbial diseases of the respiratory system. pp. 680-710. Microbiology: An Introduction, 11th Edition* by Gerard J Tortora, Berdell R Funke & Christine L Case, Pearson Education, Inc. 2012 ISBN-13: 978-0-321-79310-2.
5. Textbook Review Panel Member - *Microbiology: A Clinical Approach*. Second Edition. Edited by Edwards, Fahnert, Pryor & Strelkauskas, 2015. Garland Science publishers. ISBN-13: 9780815345138

E. EVALUATION ACTIVITIES AS JOURNAL REFEREE

- 2017 *Emerging Infectious Diseases*
- 2016 *Immunobiology*
- 2016 *Open Forum Infectious Diseases*
- 2016 *European Journal of Immunology*
- 2016 *Journal of Molecular Medicine*
- 2015 *Journal of Infectious Diseases*
- 2015 *Archives of Virology*
- 2015 - Present *BMC Immunology*
- 2015, 2016 *Scientific Reports*
- 2015 - Present *Medicine[®]*
- 2015 *Journal of International Medical Research*
- 2015 *Tumor Biology*
- 2015 *World Journal of Gastroenterology*
- 2015 *Apoptosis*
- 2014 - Present *Journal of Leukocyte Biology*
- 2014 *Acta Pharmacologica Sinica*
- 2014 *Cellular Physiology & Biochemistry*
- 2012 - Present *PLoS ONE*
- 2013 *Medical Microbiology & Immunology*
- 2013 *International Journal of Biological Sciences*
- 2012, 2013 *Journal of Infectious Diseases & Therapy*
- 2012, 2013 *Transactions of the Royal Society of Tropical Medicine & Hygiene*
- 2012, 2013 *Colloids and Surfaces B: Biointerfaces*
- 2012, 2013 *Integrative Cancer Therapies*
- 2012, 2013 *Medical Hypotheses*
- 2013 *Evidence-Based Complementary and Alternative Medicine*
- 2013 *Pharmaceutical Biology*
- 2012 *Clinical & Developmental Immunology*
- 2011- Present *Vaccine*
- 2011 *Expert Review of Vaccines*
- 2011 *Expert Review of Anti-infective Therapy*
- 2011 *Genetics, Infection & Evolution*
- 2010 *Journal of Medical Microbiology*
- 2010 *BMC Pulmonary Medicine*
- 2010 *AIDS Research & Therapy*
- 2010 *Scandinavian Journal of Infectious Diseases*
- 2010 *Journal of AIDS & HIV Research (Member, Editorial Board)*
- 2010 *African Journal of Microbiology Research*
- 2009, 2011 *Canadian Medical Association Journal*
- 2008 *American Journal of Tropical Medicine & Hygiene*
- 2008, 2010 *Chemotherapy*

- 2008, 2009 *Indian Journal of Medical Sciences*
- 2008 *Food & Chemical Toxicology*
- 2007 - Present *Indian Journal of Medical Research*
- 2007 *American Journal of Respiratory & Critical Care Medicine*

a) EDITORIAL BOARD

- 2017 – 2020, Associate Editor, *BMC Infectious Diseases*, BioMed Central, Springer, USA.
- 2016 – 2019, Editorial Board Member, *World Journal of Immunology*, Baishideng Publishers, USA.
- October 2015 – October 2018, Academic Editor, *Medicine®*, Wolters Kluwer Health, USA.
- 2015-Current, Academic Editor, *PLoS One*, Public Library of Sciences, USA.
- 2013-Current, Associate Editor, *BMC Immunology*, BioMed Central, Springer, UK.
- 2013-2016, Editorial Board Member, *Microbiology Discovery* (Herbert Open Access Journals)
- 2013-Current, Editorial Board Member, *Indian Journal of Applied Microbiology* (Wisdom Academic Publishers)
- 2007-2011, *The HIV/AIDS Newsletter* (Edited & Published by Prof. Suniti Solomon on behalf of YRG CARE, Chennai, India).

b) THESIS EVALUATION | EXTERNAL | INTERNAL EXAMINER

- 2017 February – External Examiner – *The role of sirt4 in regulation of leydig cell function in inflammation* by R. Balamurugan, Department of Biochemistry, Bharathidasan University, Tiruchirappalli, India (Ref. No. PhD/CE/07473/ Biochemistry/2015, dated 01/2017).
- 2016 November – External Examiner – *Study of sensor protein expression in nasopharyngeal carcinoma* by Kaliswaran A/L Pannirselvam - Master of Medical Sciences (Hons), Universiti Tunku Abdul Rahman, Kanjang, Malaysia.
- 2016 January – 2017 December – External Examiner, Bachelor of Science (Hons), Biomedical Science Programme, International Medical University (IMU), Kuala Lumpur, Malaysia.
- 2015 – Grant Application Review Panel Member – Wellcome Trust-DBT India Alliance, Biomedical Research Fellowship Programme for India, Ref: IA/E/15/1/502345
- 2015 – Research External Examiner – *Diagnosis of extrapulmonary tuberculosis employing conventional and some new diagnostic tools on microbiological samples in a tertiary care hospital* by G. Kandha Kumari (SBD10971) (SBV/PhD/2015), Sri Balaji Vidyapeeth, Pondicherry, India, Thesis
- 2015 – Research External Examiner – *Studies on the cardioprotective role of Desmodium gangeticum root extract against isoproterenol-induced cardiac hypertrophy and fibrosis in experimental rats* by H. Divya, Department of Biochemistry, University of Madras, Chennai 600 025, India, Thesis
- 2015 – Research External Examiner – *Study on glucose dependent expression of Pax6 and HDAC7 in regulation of pancreatic beta cell function* by B. Sivasangari, Department of Biochemistry, Bharathidasan University, Tiruchirappalli 620 024, India, Thesis
- 2015 – Research Internal Examiner – *Antiviral activity and bioavailability of the metabolites of baicalein and quercetin as anti-dengue virus agents* by Mr. Ehsan Moghaddam (MGN I20020), Department of Medical Microbiology, University of Malaya, Dissertation
- 2015 - Research External Examiner - *CRS-induced behavioural and biological variations in rats challenged by a flavanol* by V.C. Nathiya (PhD. Eval/225/2014/444), University of Madras, Chennai, India, Thesis
- 2014 - Research External Examiner - *Chemopreventive potential of essential oil compounds citral, limonene, menthone and thymol on colorectal cancer* by M Vimal (R-PhD-E-2009-I365), Bharathiar University, Coimbatore, India, Thesis
- 2014 - Research Internal Examiner - *Dengue Pathogenesis: Endothelial dysfunctions* by Ms. Anusyah Rathakrishnan (MHA I20021), Department of Medical Microbiology, University of Malaya, Thesis
- 2013 - Research External Examiner - *Extraction, identification and characterization of two anticancer compounds of Alangium salivifolium* by P Bama, Department of Industrial Biotechnology, Dr. MGR Educational & Research Institute University, Chennai 600095, India, Thesis
- 2013 - Research Internal Examiner - *Phyllanthus inhibits proliferation, metastasis, angiogenesis and induced apoptosis of human melanoma (MEWO) and prostate adenocarcinoma (PC-3) cells through modulation of multiple cell signaling pathways* by Tang Yin Quan (MHA100038), Department of Medical Microbiology, University of Malaya, Thesis

- 2013 - Scientific Committee (Internal Examiner) - *Molecular characterization of multi-drug resistant Klebsiella pneumoniae isolated from Malaysian patients* by Farah Ibrahim Khalil, Department of Medical Microbiology, University of Malaya, Thesis
- 2012 - Research Internal Examiner - *Cytokine correlates of hepatitis B infection* by Teo Ching Yee (MGNI00024), Department of Medical Microbiology, University of Malaya, Thesis
- 2012 - Scientific Committee (Internal Examiner) - *A molecular epidemiology and evolutionary study of HIV-1 among a sample of people who inject drugs in Kuala Lumpur, Malaysia* by Ms. Chow Wei Zhen, Department of Medicine, University of Malaya, Thesis
- 2012 - Scientific Committee (Internal Examiner) - *Characterization of Burkholderia pseudomallei colony morphology variants by proteomics and microarray* by Anis Rageh Al-Maleki (MHA 100045), Department of Medical Microbiology, University of Malaya, Thesis
- 2011 - Research Internal Examiner - *Effect of dendritic cells on the mesenchymal stem cells cultured on electrospun polycaprolactone in vitro* by Sandeep Koppal, Department of Medical Biosciences & Medical Biology, Linkoping University, Sweden, Thesis

F. TEACHING EXPERIENCE†

- 2012-15 – Lectures in Immunology for MD, MS & PG Clinical Disciplines, Faculty of Medicine, Universiti Malaya
- 2011-15 – Department Coordinator, Biomedical Sciences (MFEB 4401), Faculty of Medicine, Universiti Malaya
- 2011-14 – Department Coordinator, Biomedical Sciences (MFEB 3402), Faculty of Medicine, Universiti Malaya
- 2011-13 – Department Coordinator, Pharmaceutical Microbiology (MWEF 2111), Faculty of Medicine, UM
- 2011-15 – Lectures in Immunology & Medical Microbiology for MBBS II (PENGM006), Faculty of Medicine, UM
- 2011-15 – Lectures in Immunology & Medical Microbiology for BDS (DJED2101), Faculty of Medicine, UM
- 2011-14 – Co-instructor, Parasitology & Microbiology (MTEJ 1120), Faculty of Medicine, UM
- 2011-16 – Associate Professor, Department of Medical Microbiology, Faculty of Medicine, UM.
- August 2006 – October 2008, Assistant Professor, Department of Infectious Diseases Lab, YRG CARE, Chennai.

†Teaching Methods:

2012- Current: PBL Case writer for MBBS, Phase II Program, Medical Microbiology University of Malaya

2012- Current: PBL Resource Person, BDS II Program, Department of Dentistry, University of Malaya

Tutorials, Problem-based learning (PBL), Lectures, Scientific talks, Tutorials, Case-studies & Practicals

Teaching Subjects: Human Immunology, & Medical Microbiology (Medical Virology, Medical Parasitology, Medical Mycology, Medical Bacteriology)

G. SUPERVISION EXPERIENCE

N ^o	Name & Degree	Title of Thesis	Duration	Status
1	Tan Hong Yien, PhD MHA090029	Immunological determinants of tuberculosis-associated immune reconstitution inflammatory syndrome (TB-IRIS) in HIV-infected patients on antiretroviral therapy	2012 – 2016	Awarded
2	Yong Yien Kong, PhD MHA090003	The role of CD14 and TLR4 single nucleotide polymorphisms in CD4 T-cell recovery and cardiovascular disease in HIV-infected patients following cART	2012 – 2016	Awarded
3	Alireza Saeidi, PhD MHA120008	Studies on immune exhaustion and senescence of certain CD8 ⁺ T-cell phenotypes in HIV-TB co-infected	2012 – 2017	Awarded

individuals				
4	Barathan Muttiah, MBMedSc MGNI30035	Studies on immune impairment in chronic hepatitis C virus infection	2012 – 2016	Awarded
5	Aw Yong Kam Leng, MBMedSc MGNI20036	Characterization of the adaptive immune responses in enterovirus A71 infection	2012 – 2016	Awarded
6	Jia-Xiang See (MBMedSc) MGNI40045	Studies on T-cell exhaustion in BALB/c experimental mice with persistent <i>Burkholderia pseudomallei</i> infection	2014 – 2017	Awarded
7	Chong Yee Kien (BBMedSc) MEB900401	Comparative investigations on immunosenescence of T lymphocyte phenotypes in HIV-1/tuberculosis co-infection	2013 – 2014	Awarded
8	Vicky Lau Tien Tien (BBMedSc) MEB110038	Molecular alterations on MRI-restricted mucosal-associated invariant T (MAIT) cells in HIV-1/tuberculosis co-infection	2014 – 2015	Awarded
9	Philip Olof Fredrik Enström (MBChB) PIN910623-1195 Linköping University, Sweden	Peripheral CD8+ CD161++ TCR V α 7.2+ MAIT cells in chronic hepatitis B virus infection	Feb'2015–Aug'15	Awarded

G. ADMINISTRATIVE DUTIES

- DBT Representative in the IBSC of M/s. Virtis Biolabs Pvt. Ltd. (VIRTIS), Salem, Tamilnadu (BT/BS/17/682/2016-PID, Dated 11.04.2017)
- Moderator CUCET Entrance Examinations 2017, Central University of Tamil Nadu, Thiruvarur.
- External Examination Committee Member, JSS University, Mysuru, Karnataka.
- Member, Committee for Clean & Green CUTN Campus, Central University of Tamil Nadu, Thiruvarur
- Chairperson, Board of Studies for Life Sciences, Central University of Tamil Nadu, Thiruvarur, CUTN-13(81)/2016-AC/1017.
- Educationist Member (2016-17), Vidyalaya Management Committee, Kendriya Vidyalaya, Thiruvarur, CUTN-29(9)/2014-Reg. Sec/193, dated 29th August, 2016.
- Committee Member, Feasibility of collaboration with Indian Institute of Crop Processing Technology (IICPT), Tanjavur, with CUTN, 10th August, 2016 9CUTN-13(87)/2016-AC/619, dated 26th July, 2016.
- 13th January, 2016, Audit Committee Member, ISO 15189 Diagnostic Microbiology Internal Audit, University of Malaya Medical Center
- 23-27 July 2013, Organizing Committee Secretary, Basic & Clinical Immunology by Abul K Abbas, Andrew H Lichtman & Shiv S Pillai, University of Malaya
- 2013-14, Department Coordinator, Introductory Diagnostic Microbiology (MFEB2402) Course Biomedical Sciences Program, University Malaya
- 2012-16, Department Coordinator, Advanced Medical Microbiology (MFEB4401) Course Biomedical Sciences Program, University Malaya
- 2012, MBBS Phase II PBL Case-Writer : George, University Malaya
- 2011 – 2012, Department Coordinator, Advanced Medical Microbiology (MFEB3402) Course Biomedical Sciences Program, University Malaya
- 2011 – 2012, Department Coordinator, Pharmaceutical Microbiology (MWEF2111) Program, University Malaya
- 2004 – 06, General Secretary, Post Graduate Hostel for Men, PGIBMS, University of Madras, Taramani, Chennai 600 113, India.

H. SHORT COURSES | TRAINING

- *Two-days Research Methodology Workshop Series-I*, Central University of Tamil Nadu, 1st – 2nd November, 2016
- *Interactive Learning*, Academic Development Centre, University of Malaya, May 19, 2016.
- *Student-Centred Learning, Workshop on Cooperative Learning*, Academic Development Centre, University of Malaya April 18, 2016.
- *Scholarship of Teaching & Learning Workshop*, Academic Development Centre, University of Malaya, Dec 22-23, 2015.
- *Basic & Clinical Immunology Course* by Abul K Abbas, Andrew H Lichtman & Shiv S Pillai, Faculty of Medicine, University of Malaya, July 23-27, 2013.
- *Confocal Laser Scanning Microscopy Hands-on Workshop*, Electron Microscopy Unit, UM, Malaysia, Sept 5-6, 2012.
- *FACSCantoII® Flow Cytometry Hands-on Workshop*, Medical Microbiology, UM, Malaysia, July 3-5, 2012.
- *Quantitative Research Workshop* at Academic Development Centre, University of Malaya, June 26-27, 2012.
- *How to supervise worthy research? Hands-on Workshop* at Academic Development Centre, UM, May 23, 2012.
- *Multiplex Proteomics Analysis Hands-on Workshop*, Medical Biotechnology, UM, Malaysia, May 16-17, 2012.
- *Designing Triggers for Problem Based Learning (PBL) Workshop*, Academic Development Centre, UM, March 1, 2012.
- *Assessing Problem Based Learning (PBL) Workshop*, Academic Development Centre, UM, February 21, 2012.
- *Facilitating Problem Based Learning (PBL) Workshop*, Academic Development Centre, UM, February 8, 2012.
- *Introducing Problem Based Learning (PBL) Workshop*, Academic Development Centre, UM, January 18, 2012.
- *Hands-on Course on Flow Cytometry*, Flow Cytometry Core, Linköping University, Sweden, November 30-Dec 2, 2010.
- *ICI/FOCIS, Molecular Immunology*, by Abul K Abbas & Andrew H Lichtman, Kansai, Japan, August, 2010.
- *Genome Analysis Hands-on Course*, SBRI, Chennai, India, 3rd Oct-3rd November, 2008.
- *Neutralizing antibody Assay Training*, Duke University Medical Center, Durham, NC, USA, Sep-Oct, 2007.
- *Good Clinical Practice & Source Documentation Hands-on Workshop*, 16th September, 2006, YRG CARE, Chennai.
- *Health Data Management & Statistical Software Hands-on Workshop*, 27th Feb-4th March, 2006, CMC & Hospital, Vellore.
- *Human Subjects Research Education*, Johns Hopkins Bloomberg School of Public Health, 8th July, 2004, YRG CARE, Chennai.

I. ABSTRACTS | CONFERENCES | SYMPOSIA | MEETINGS**International**

- Hong TC, Bee J, Kong YY, Shankar EM, Keng TT, Mohamed R. Circulating cytokines and their association with HBsAg and HBV DNAemia levels in chronic hepatitis B infection, 26th APASL Annual Meeting, 15-19 February 2017, Shanghai, China.
- Saeidi A, Ussher JE, Yong YK, Enström PF, Rosmawati M, Rajarajeswaran J, Larsson M, Shankar EM. Peripheral CD161++TCR iV α 7.2+ MAIT cells are exhausted and dysfunctional in chronic hepatitis B virus infection. Poster Presentation at 46th Annual Meeting of German Society for Immunology (DGfI), September 27 - 30, 2016, Hamburg, Germany.
- Shankar EM. Biosignatures of negative costimulation in HIV-1 *in vitro*. Molecular Virology 'kick-start' Annual Meeting, Soderköping, Sweden, *May 31-June 1, 2010*.
- Shankar EM, et al., Challenging T cells with HIV pulsed dendritic cells hampers T cell expansion with a broad array of inhibitory genes. *International Immunology*. 2010, 22 (Suppl. 1 Pt 4): 63 -69. 14th International Congress of Immunology, Kobe, Japan. August 22-28th 2010.
- 5th Summer Symposium on Virology, Smögen Havsbad, Smögen, Sweden, *Aug 20 – 22, 2009*.
- Performance of the TZM-bl pseudovirus NAb assay in a GCLP environment & GCLP principles, USAMC-AFRIMS, Bangkok, Thailand, *Mar 18-21, 2008*.
- Indo – US DBT Meeting on HIV/AIDS: Biology, Immunology & Vaccinology, Hotel Ashok, New Delhi, India, *Mar 13-14th, 2007*.
- Shankar EM, et al., Seroevidence & immune correlates of *Mycoplasma pneumoniae* infection among subjects with pulmonary symptoms determined by a particle agglutination test. In: *Proceedings: 34th Annual Conference of the Indian Immunology Society, NARI, Pune, Dec 16-18th, 2007*.

- Shankar EM, et al., Etiology of *Mycoplasma pneumoniae* in HIV infected & HIV uninfected patients with & without community-acquired pneumonia in Chennai, India. In: *Proceedings: 1st CROI 2007, Los Angeles, USA, Feb 25 -28th*.
- Shankar EM, et al., Detection of *Mycoplasma pneumoniae* in HIV infected patients using culture & serology. In: *Proceedings: 16th Congress of the IOM, P 110. Nominated for Harry-Mortan Award, St. Johns College, University of Cambridge, UK, Jul 9-15th, 2006*.
- Indo-UK Workshop on Designing of Doctoral Research for PhD Scholars, 23rd Mar, 2005, Department of Microbiology, Dr. ALM PG IBMS, University of Madras, Chennai.
- Shankar EM, et al., Detection of *Mycoplasma pneumoniae* in induced sputum & throat swab specimens from HIV infected patients with upper & lower respiratory complaints in Chennai. In: *Proceedings: Indo-Australian Conference on Biotechnology in Infectious Diseases. KMC & Hospital, Manipal, 1-3rd Mar, 2005; P3*.
- Shankar EM, et al., Electrophoretic resolution of the outer membrane proteins of *Burkholderia pseudomallei* by sodium dodecyl sulphate-polyacrylamide gel electrophoresis method. In: *Proceedings: Indo-Australian Conference on Biotechnology in Medicine. IISc, Bangalore, 9-11th Feb, 2004; P56*.
- Muthu SE, et al., Colonization of *Mycoplasma* in the upper respiratory tract of HIV/AIDS seropositive patients with pulmonary complications in Chennai. In: *Proceedings: 4th International Conference on AIDS INDIA, The Tamilnadu Dr. MGR Medical University, Chennai, 9-12th Nov, 2003; P 19.4*.
- First CMC Winter Symposium on Cell Biology & Molecular Medicine, 30-31st Jan, 2003, CMC & Hospital, Vellore.
- Muthu SE, et al., *Mycoplasma* in sputum of HIV positive patients in Chennai – A preliminary study. In: *Proceedings: 3rd International Conference on AIDS INDIA, The Tamilnadu Dr. MGR Medical University, Chennai, 1-5th Dec, 2001; TB8*.

National

- Two-days Research Methodology Workshop Series-I, Central University of Tamil Nadu, 1st – 2nd November, 2016.
- HIV SCIENCE 2008, 1st Annual Science Symposium on HIV/AIDS, VIGYAN Auditorium, CSIR Campus, Taramani, Sep 22 – 23rd, 2008.
- Seminar on Introduction to GCLP Principles organized by the Central Quality Assurance Unit of the Comprehensive Antibody-Vaccine Immune Monitoring Consortium, YRG CARE, Chennai, Aug 22, 2008.
- 34th Annual Conference of the Indian Immunology Society, NARI, Pune, Dec 16 – 18, 2007.
- Symposium on Emerging and Re-emerging Pathogens & Alternative Approach to Treatment, Dept. Microbiology, Dr. ALM PG IBMS, University of Madras, Chennai, Feb 11, 2006.
- IAMM, Tamilnadu – Pondicherry Chapter, CME on 'Neurocysticercosis – A Modern Plague', Madras Medical College, Chennai, Nov 11, 2005.
- Rao UA, Shankar EM, Kumarasamy N, et al., Serosurveillance of acute *Mycoplasma pneumoniae* infection among different categories of HIV infected patients with pulmonary complaints in the Chennai conurbation of Southern India. In: *Proceedings: XXIXth Annual Conference of IAMM, SRMC & RI, Chennai, 19 - 23rd Oct, 2005; IP 7*.
- Shankar EM, et al., A comparative analysis on the recovery rates of *Mycoplasma pneumoniae* in induced sputum & throat swab specimens of HIV infected patients with upper & lower respiratory complaints in Chennai. In: *Proceedings: VIIth Annual Conference-cum-Workshop, VP Chest Institute, University of Delhi, Delhi, 28 –29th Apr, 2005; A 4. Nominated for Snehlata Memorial Oration Award*.
- Shankar EM, et al., Incidence of *Mycoplasma pneumoniae* infection in HIV infected patients with underlying upper & lower respiratory complaints and correlation with various immunological & haematological findings. In: *Proceedings: 1st National Conference of AIDS Society of India, ASICON, New Delhi, 2 – 4th Apr, 2005; O 82*.
- Shankar EM, et al., Aerobic bacteriology of the infected foot of diabetic patients in Chennai, India: Gram negative bacteria exceed gram positives in isolation rate. In: *Proceedings: XXVIIIth Annual Conference of IAMM, SGP GIMS, Lucknow, 25 – 28th Nov, 2004; BP 72*.
- Seminar on 'Recent Advancements in Physiology', 20th Feb, 2004, Department of Physiology, Dr. ALM PGIBMS, Chennai.
- IAMM, Tamilnadu – Pondicherry Chapter, 'Challenging Frontiers in Infectious Disease Surveillance', 14th Feb, 2004, Pondicherry Institute of Medical Sciences, Pondicherry.
- IAMM, Tamilnadu – Pondicherry Chapter, 'Infectious Diseases', 22nd Dec, 2003, King Institute of Preventive Medicine, Chennai.
- Muthu SE, et al., Studies on the phenotypic characteristics & outer membrane protein analysis of *Burkholderia pseudomallei* by SDS-PAGE method. In: *Proceedings: XXVII National Conference of IAMM, MICROCON Mumbai-2003, 5 – 9th Nov, P 86*.

- Vision Research Foundation, Sankara Nethralaya & Indian Association of Medical Microbiologists, Tamilnadu – Pondicherry Chapter, ‘Application of RT-PCR & Microarray in Microbiology’, 23rd Aug 2003, L & T Microbiology Research Centre, Sankara Nethralaya, Chennai.
- Kownhar H, et al., Isolation & identification of aerobic bacteria from trauma & post-operative surgical wounds & their antibiotic susceptibility pattern. In: *Proceedings: VIth Annual Conference of Indian Society of Wound Management, “Woundcon 2003” CLRI, Chennai, 22 – 23rd Feb, O 5. Nominated for Best paper Award.*
- Muthu SE, et al., Isolation of *Mycoplasma* sp. from HIV patients in Chennai: A preliminary study. In: *Proceedings: XXVth National IAMM Congress, Department of Microbiology, AIIMS, New Delhi, 21 – 25th Nov, 2001. OB – 49.*
- Tamilnadu & Pondicherry IAMM Chapter Meeting IAMM Silver Jubilee 2001, 8th Sep, Dept. Microbiology, CMC & Hospital, Vellore.
- IAMM, Tamilnadu – Pondicherry Chapter, ‘Overview of Microbial Infections in India’ 26th Aug, 2000, Dept. Microbiology, SRMC & RI, Chennai.
- Satellite Symposium on ‘Free-radicals in Health & Diseases’, 20 – 22nd Dec, 1999, Dept. Medical Biochemistry, Dr. ALM PG IBMS, Chennai.
- XXII Annual Conference of the Association of Anatomists – Tamilnadu, *ANACON’ 99*, 25 -26th Sep, Dept. Anatomy, SRMC & RI, Chennai.

Conferences | Meetings Organized

- Co-Director, National Seminar on Emerging & Re-emerging Infectious Diseases, Central University of Tamil Nadu, Thiruvavur, 21st April, 2017.
- Co-Organizing Secretary, 13th International Conference on Vector & Vector-Borne Diseases, Hotel Crowne Plaza, Chennai, 27th February – 1st March, 2017.
- Co-Director, Winter School Workshop on Dengue Awareness, Central University of Tamil Nadu, 11th November 2016.
- Organizing Advisor: Two-day Research Methodology Workshop Series I, Organized by Department of Life Sciences, Department of Social Work & Department of Epidemiology & Public Health, Central University of Tamil Nadu, 1st – 2nd November 2016.
- Organizing Committee Secretary cum Chair: Basic & Clinical Immunology Course by Abul K Abbas, Andrew H Lichtman & Shiv S Pillai, University of Malaya, July 23 – 27, 2013.
- Joint Organizing Secretary: HIV SCIENCE 2008, 1st Annual Science Symposium on HIV/AIDS, VIGYAN Auditorium, CSIR Campus, Taramani, Chennai, September 22 – 23, 2008.
- Organizing Committee Member: Symposium on Emerging and Re-emerging Pathogens & Alternative Approach to Treatment, Dept. Microbiology, Dr. ALM PG IBMS, University of Madras, Chennai, February 11, 2006.

Invited Guest Speaker at Conferences/Meetings

Title	Title of Conference/Seminar	Organized by
<i>Human papilloma virus and cancer: An immortal affair</i>	Special Seminar	Department of Biochemistry, Karpagam Academy of Higher Education (KAHE), Coimbatore, Tamil Nadu, India
<i>Immune exhaustion as an escape mechanism for HIV from host immune armory</i>	Refresher Course on Environmental Sciences, 1 st – 21 st December 2016.	Human Resource Development Center (HRDC), Pondicherry University, University Grants Commission, New Delhi.
<i>Burkholderia pseudomallei: From a soil saprophyte to a successful human pathogen</i>	Refresher Course on Environmental Sciences, 1 st – 21 st December 2016.	Human Resource Development Center (HRDC), Pondicherry University, University Grants Commission, New Delhi.
<i>Immune exhaustion: HIV’s escape mechanism from immune armory</i>	Indian Association of Medical Microbiologists (IAMM), Tamilnadu Chapter: CME on HIV/AIDS – An update, 1st December 2016	Department of Microbiology, Meenakshi Ammal Dental College & Hospital, Meenakshi Academy of Higher Education & Research, Meenakshi University, Madhuravoyal, Chennai

<i>Immunopathogenesis of clinical dengue infection & diagnostics</i>	Winter School Workshop on Dengue Awareness, 11 th November, 2016.	Department of Life Sciences, Department of Social Work & Department of Epidemiology & Public Health, Central University of Tamil Nadu.
<i>Essentials of academic writing</i>	Two-day Research Methodology Workshop Series-I, 1 st – 2 nd November, 2016.	Department of Life Sciences, Department of Social Work & Department of Epidemiology & Public Health, Central University of Tamil Nadu.
<i>Essentials of literature review</i>	Two-day Research Methodology Workshop Series-I, 1 st – 2 nd November, 2016.	Department of Life Sciences, Department of Social Work & Department of Epidemiology & Public Health, Central University of Tamil Nadu.
<i>Suppressor T cell expansion: Unveiling additional immune evasion strategies of HIV-1</i>	National Conference/ MIMLS 23 rd National Scientific Conference, Kuala Lumpur, Malaysia	Malaysian Institute of Medical Laboratory Sciences
<i>Biosignatures of negative T-cell costimulation: Unveiling additional preprints of T-cell dysfunctions in HIV infection</i>	National Symposium/ HIV SCIENCE 2010, 3 rd Annual Science Symposium on HIV/AIDS, 2010	YRG Center for AIDS Research & Education, VHS, Chennai
<i>Immunoregulatory roles of mesenchymal stem cells</i>	Stem cells on molecular perspective, National seminar and Workshop, 28 & 29 April, 2015	National Orthopaedic Centre of Excellence for Research & Learning, Department of Orthopaedic Surgery, University of Malaya
<i>Newer scientific approaches to prevent HIV transmission & disease progression</i>	First Annual Science Symposium on HIV/AIDS, HIV SCIENCE 2008	YRG Center for AIDS Research & Education, VHS, Chennai
<i>GB virus: An anti-HIV panacea from within?</i>	National Seminar-Biozephyr'08, Molecular Basis of Microbes, March 29 th , 2008	National Biological Association for Students, All India Biotech Association

Research Grants | Projects | International Collaborations

Ongoing: (Cumulative Total: RM 465,700.00)

- Research Title:** UM Research Grant - Investigations on inhibitory molecules in T cells of antiretroviral therapy naive and treated HIV-1 infected individuals (PG011-2014B); **Year:** 02/03/2015 - 02/03/2018; **Field of Research:** Medical and Health Sciences; **Source of Funding:** UMRG; **Total:** RM21,000.00
- Research Title:** Postgraduate Research Grant (PPP) - Association between Toll-like receptors expression and human hepatitis C virus persistence (PG118-2014A); **Year:** 29/01/2015 - 29/01/2016; **Field of Research:** Advanced Engineering & Technology; **Source of Funding:** IPPP; **Total:** RM5000.00
- Project Title:** UM Research Grant - Mechanism study of silymarin as a novel antiviral against chikungunya virus (Frontier Science Research Cluster Research Cluster) (RG356-15AFR); **Year:** 30/01/2015 - 30/01/2016; **Field of Research:** Medical and Health Sciences; **Source of Funding:** UMRG; **Total:** RM34,000.00
- Research Title:** UM Research Grant - Characterization of enterovirus 71-specific adaptive immune responses in patients with hand, foot and mouth disease (RG522-13HTM); **Role:** **Co-Investigator**; **Year:** 2012 – 2014 (Ongoing) (Principal Investigator: Chan Yoke Fun); **Field of Research:** Medical and Health Sciences; **Source of Funding:** UMRG; **Total:** RM93,000.00
- Research Title:** UM Research Grant – Immunology of persistent bacterial infections with *Burkholderia pseudomallei* as a model (RG505-13HTM); **Role:** **Co-Investigator**; **Year:** 2013 – 2015 (Principal Investigator: Jamuna Vadivelu); **Field of Research:** Medical and Health Sciences; **Source of Funding:** UMRG; **Total:** RM104,500.00 (Ongoing)
- Research Title:** UM Research Grant – Suppression of host cell-mediated immune responses by *Burkholderia pseudomallei* (RP013A-13HTM); **Role:** **Principal Investigator**; **Year:** 11/11/2013 - 31/12/2015; **Field of Research:** Medical and Health Sciences; **Source of Funding:** UMRG; **Total:** RM178,600.00 (Ongoing)

7. **Research Title:** UM Research Grant – RNA Interference mediated inhibition of chikungunya virus entry in target cells (RG309-I4AFR); **Role:** Co-Investigator; **Year:** 2014 – 2015 (Principal Investigator: Hussin A Rothan); **Field of Research:** Medical and Health Sciences; **Source of Funding:** UMRG; **Total:** RM29,600.00 (Ongoing)

Completed:

1. **Research Title:** High Impact Research Grant - Mechanisms of T cell dysfunctions in hepatitis C infection (UM.C/625/1/HIR/I39); **Role:** Principal Investigator; **Year:** 2012 – 2014; **Field of Research:** Medical and Health Sciences; **Source of Funding:** HIR; **Total:** RM180,000.00
2. **Research Title:** UM Research Grant - Investigations on regulatory molecules in T cells of antiretroviral therapy (ART) naive and treated HIV-I infected individuals (RG448-I2HTM); **Role:** Principal Investigator; **Year:** 2013 – 2014; **Field of Research:** Medical and Health Sciences; **Source of Funding:** UMRG; **Total:** RM110,000.00
3. **Research Title:** Indian Council of Medical Research, Junior & Senior Research Fellowship Grant – Pulmonary infections in HIV-I infected individuals with special reference to *Mycoplasma pneumoniae*; **Role:** Junior Research Fellow & Senior Research Fellow; **Year:** 2004 – 2006 (Supervisor: Usha Anand Rao); **Field of Research:** Health Sciences; **Source of Funding:** ICMR, Ministry of Human Resources, Government of India, New Delhi (Award No. 3/1/3(54)/JRF/2003 – MPD, 10/02/04).

Consultancy

- July 1, 2015 – 2016 - **Visiting Consultant Immunologist**, Geneflux Biosciences Sdn Bhd, Molecular Diagnostics Laboratory, Puchong, Malaysia.

PERSONAL INFORMATION

Surname (as in passport)	Esakimuthu
Given Names (in full)	Esaki Muthu SHANKAR
Title	Dr.
Date of Birth	31 st July, 1975, Age: 41 years
Country of Birth & Citizenship	India, INDIAN
Skype	Shivamsarvam
eMail	shivamsarvam@gmail.com

LANGUAGE PROFICIENCY

Read		Write		Speak	
Easily	Not easily	Easily	Not easily	Easily	Not easily
Tamil		Tamil		Tamil	
English		English		English	
Hindi		Hindi		Hindi	
Malayalam		Malayalam		Malayalam	
Kannada		Kannada	Kannada		
French		French			French (Alter Ego)

(EM SHANKAR)

Place: Thiruvarur