BIOGRAPHICAL SKETCH

NAME **Dr. LUKE ELIZABETH HANNA**	POSITION TITLE **Scientist 'D'**
eRA COMMONS USER NAME **HANNALE**	

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	MM/YY	FIELD OF STUDY
Stella Maris College (Autonomous), Madras University, Chennai	Bachelor of Science	1988-1991	Zoology
Dr. ALM Post-graduate Institute of Basic Medical Sciences, Madras University, Chennai	Master of Science	1991-1993	Bio-medical Genetics
National Institute for Research in Tuberculosis, The Tamilnadu Dr. MGR Medical University, Chennai	Doctor of Philosophy	1994-2000	Basic Medical Sciences
Department of Microbiology and Immunology, Albert Einstein College of Medicine, Bronx, New York	Post-doctoral Research Fellowship	2004-2007	Molecular Virology

Current and Previous Institutional Affiliations

1994-2003 - Research Assistant, National Institute for Research in Tuberculosis, Chennai
2003-2008 - Scientist 'B', National Institute for Research in Tuberculosis, Chennai
2008-2012 - Scientist 'C', National Institute for Research in Tuberculosis, Chennai
2012-Till date - Scientist 'D', National Institute for Research in Tuberculosis, Chennai

Areas of expertise

HIV Immunology
Molecular virology
Bioinformatics

Personal statement

I have a background in Immunology with more than 20 years of working experience in the broad area of immunology of infectious diseases including tuberculosis, HIV and lymphatic filariasis. I have been trained in molecular virology and have been involved in basic research on HIV virology and molecular biology for the past 10 years. I have gained expertise in several immunological, molecular and virological techniques including flow cytometry, neutralization antibody assays, virus culture, real-

time PCR, multiplex PCR, molecular cloning, sequencing, drug resistance genotyping, etc. I have undertaken a number of research studies on HIV pathogenesis and immune response to HIV/TB co infection and published in peer reviewed journals. I am the Chief Laboratory Liaison for WHO HIV Drug Resistance Network activities at NIRT, Supervisor and Co ordinator for activities relating to the Virology Quality Assurance Program (NIH) at NIRT, and Laboratory Resource Person for the second line ART and Early Infant Diagnosis programs of NACO. I am the Principal Investigator for the ICMR Biomedical Informatics Project at NIRT and supervise and co ordinate the activities of the staff working in this unit. I have conducted several training workshops in Bioinformatics. I am a recognized guide for Ph.D. students registered with the Madras University.

Publications during the last 5 years:

1. Ashokkumar M, Tripathy SP, **Hanna LE.** Variability in V1V2 and PNGs in pediatric HIV-1 viral variants transmitted through vertical route. AIDS Res Hum Retroviruses. 2016 Jun 16. [Epub ahead of print].
2. Nusrath Unissa A, Hassan S, Indira Kumari V, Revathy R, **Hanna LE**. Insights into RpoB clinical mutants in mediating rifampicin resistance in Mycobacterium tuberculosis. J Mol Graph Model. 2016 Jun;67:20-32.
3. Gupte A, Padmapriyadarsini C, Mave V, Kadam D, Suryavanshi N, Shivakumar SV, Kohli R, Gupte N, Thiruvengadam K, Kagal A, Meshram S, Bharadwaj R, Khadse S, Ramachandran G, **Hanna LE**, Pradhan N, Gomathy NS, DeLuca A, Gupta A, Swaminathan S; CTRIUMPH Study Team. Cohort for Tuberculosis Research by the Indo-US Medical Partnership (CTRIUMPH): protocol for a multicentric prospective observational study. BMJ Open. 2016 Feb 25;6(2):e010542.
4. Nusrath Unissa A, **Hanna LE**, Swaminathan S. A Note on Derivatives of Isoniazid, Rifampicin, and Pyrazinamide Showing Activity Against Resistant Mycobacterium tuberculosis. Chem Biol Drug Des. 2016 Apr;87(4):537-50.
5. Dinesh S, Menon T, **Hanna LE**, Suresh V, Sathuvan M, Manikannan M. In vitro anti-HIV-1 activity of fucoidan from Sargassum swartzii. Int J Biol Macromol. 2016 Jan;82:83-8.
6. Hassan S, Thangam M, Vasudevan P, Kumar GR, Unni R, Devi PK, **Hanna LE**. A user-friendly web portal for analyzing conformational changes in structures of Mycobacterium tuberculosis. J Mol Model. 2015 Oct;21(10):252.
7. Prabu A, Hassan S, Prabuseenivasan, Shainaba AS, **Hanna LE**, Kumar V. Andrographolide: A potent antituberculosis compound that targets Aminoglycoside 2'-N-acetyltransferase in Mycobacterium tuberculosis. J Mol Graph Model. 2015 Sep;61:133-40.
8. **Hanna LE**, Siromany VA, Annamalai M, Karunaianantham R, Swaminathan S. Challenges in the Early Diagnosis of HIV Infection in Infants: Experience from Tamil Nadu, India. Indian Pediatr. 2015 Apr;52(4):30.
9. Unissa AN, Selvakumar N, Narayanan S, Suganthi C, **Hanna LE**. Investigation of Ser315 Substitutions within katG Gene in Isoniazid-Resistant Clinical Isolates of Mycobacterium tuberculosis from South India. Biomed Res Int. 2015;2015:257983.
10. George PJ, Kumar NP, Sridhar R, **Hanna LE**, Nair D, Banurekha VV, Nutman TB, Babu S. Coincident helminth infection modulates systemic inflammation and immune activation in active pulmonary tuberculosis. PLoS Negl Trop Dis. 2014 Nov 6;8(11):e3289.
11. Kumar NP, Sridhar R, **Hanna LE**, Banurekha VV, Nutman TB, Babu S. Decreased frequencies of circulating $CD4^+$ T follicular helper cells associated with diminished plasma IL-21 in active pulmonary tuberculosis. PLoS One. 2014 Oct 24;9(10):e111098.

12. Ameeruddin NU, Luke Elizabeth H. Impact of isoniazid resistance on virulence of global and south Indian clinical isolates of Mycobacterium tuberculosis. Tuberculosis (Edinb). 2014 Dec;94(6):557-63.
13. Kumar NP, Sridhar R, **Hanna LE,** Banurekha VV, Jawahar MS, NutmanTB, Babu S. Altered CD8+ T cell frequency and function in tuberculous lymphadenitis. Tuberculosis 2014 Jul 1, pii: S1472-9792(14)20373-8.
14. Anuradha R, George PJ, **Hanna LE** and Kumaran P. Expansion of parasite-specific CD4+ and CD8+ T cells expressing IL-10 superfamily cytokine members and their regulation in human lymphatic filariasis. Chandrasekaran V, Nutman TB, Babu S. PLoS Negl Trop Dis. 2014 Apr 3;8(4):e2762.
15. Anuradha R, George PJ, **Hanna LE**, Chandrasekaran V, Kumaran PP, Nutman TB, Babu S. Parasite-antigen driven expansion of IL-5(-) and IL-5(+) Th2 human subpopulations in lymphatic filariasis and their differential dependence on IL-10 and TGFβ. PLoS Negl Trop Dis. 2014 Jan 30;8(1):e2658.
16. Parandhaman DK, **Hanna LE**, Narayanan S. PknE, a serine/threonine protein kinase of Mycobacterium tuberculosis initiates survival crosstalk that also impacts HIV coinfection. PLoS One. 2014 Jan 8;9(1):e83541.
17. **Hanna LE**, Neogi U, Ranga U, Swaminathan S, Prasad VR. Phylogenetic Characterization of Six Full-Length HIV-1 Subtype C Molecular Clones from Three Patients: Identification of Rare Subtype C Strains Containing Two NF-κB Motifs in the Long Terminal Repeat. AIDS Res Hum Retroviruses. 2014 Jun;30(6):586-91.
18. Anuradha R, George PJ, **Hanna LE**, Chandrasekaran V, Kumaran P, Nutman TB, Babu S. IL-4-, TGF-β-, and IL-1-dependent expansion of parasite antigen-specific Th9 cells is associated with clinical pathology in human lymphatic filariasis. J Immunol. 2013 Sep 1;191(5):2466-73.
19. Selvaraj A, Pilakka-Kanthikeel S, Bhavani PK, **Hanna LE**, Pahwa S, Swaminathan S. Defective dendritic cell response to Toll-like receptor 7/8 agonists in perinatally HIV-infected children. Pathog Dis. 2013 Dec;69(3):184-93.
20. Damodharan S, Gujar R, Pattabiraman S, Nesakumar M, **Hanna LE**, Vadakkuppattu RD, Usha R. Expression and immunological characterization of cardamom mosaic virus coat protein displaying HIV gp41 epitopes. Microbiol Immunol. 2013 May;57(5):374-85.
21. Kumar NP, Gopinath V, Sridhar R, **Hanna LE**, Banurekha VV, Jawahar MS, Nutman TB, Babu S. IL-10 dependent suppression of type 1, type 2 and type 17 cytokines in active pulmonary tuberculosis. PLoS One. 2013;8(3):e59572.
22. Sundaramurthi JC, Ramanathan VD, **Hanna LE**. HLA-B*27:05-specific cytotoxic T lymphocyte epitopes in Indian HIV type 1C. AIDS Res Hum Retroviruses. 2013 Jan;29(1):47-53.
23. Sundaramurthi JC, Swaminathan S and **Hanna LE**. Resistance-associated epitopes of HIV-1C – highly probable candidates for a multi-epitope vaccine. Immunogenetics 2012 Oct; 64(10):767-772.
24. Hassan S, Debnath A, Mahalingam V and **Hanna LE.** Computational structural analysis of proteins of *Mycobacterium tuberculosis* and a resource for identifying off-targets. **Journal of Molecular Modeling** 2012 Aug; 18(8):3993-4004.
25. Sundaramurthi JC, Brindha S, Shobitha SR, Swathi A, Ramanandan P and **Hanna LE**. *In silico* identification of potential antigenic proteins and promiscuous CTL epitopes in *Mycobacterium tuberculosis.* **Infection, Genetics and Evolution** 2012, 12(6):1312-1318.
26. Jagadish C Sundaramurthi1 and **Luke Elizabeth Hanna**. HLA-A*0201-specific epitopes of Indian HIV-1C as candidates for vaccine design. *BMC Infectious Diseases* (2012) 12(Suppl 1):O15.

27. Sundaramurthi JC, Brindha S, Reddy TB, **Hanna LE**. Informatics resources for tuberculosis--towards drug discovery. *Tuberculosis* (Edinb) 2012 Mar;92(2):133-8.
28. Sundaramurthi JC, Kumar S, Silambuchelvi K and **Hanna LE**. Molecular docking of azole drugs and their analogs on CYP21 of *Mycobacterium tuberculosis*. **Bioinformation** 2011, 7(3):130-3.
29. Sundaramurthi JC, Brindha S, Reddy TB and **Hanna LE.** Informatics Resources for Tuberculosis – towards drug discovery. **Tuberculosis** (2011), 92(2):133-8.
30. Sundaramurthi JC, Ramanandan P, Brindha S, Subashree CR, Prasad A, Kumaraswami V and **Hanna LE.** DDTRP – Database of Drug Targets for Resistant Pathogens. **Bioinformation,** 2011, 7(2):98-101.
31. Hassan S, Logambiga P, Raman AM, Subazini TK, Kumaraswami V and **Hanna LE**. MtbSD – A comprehensive structural database for *Mycobacterium tuberculosis.* **Tuberculosis** (2011), 91(6):556-562.

Research Support

Ongoing Research Projects:

1. Early diagnosis of HIV infection in children. 2009 onwards. Funded by NACO.

2. TB-Net project. 2012-2016. Funded by DBT-ICMR.

3. Second Phase of the ICMR-Biomedical Informatics Centres. 2013-2018. Funded through ICMR Task Force.

4. Analysis of protective humoral and cell mediated immunity in HIV vaccinated individuals. 2015- 2016. IAVI.

5. Establishment of Biorepository for TB specimens. 2016-2017. Funded by DBT.

Completed Research Projects *(major projects of last 3 years):*

1. Attenuated HIV/TB Vaccine for India. Funded by NIH.

2. First Phase of the ICMR-Biomedical Informatics Centers. Funded through ICMR Task Force.

3. Structure-based rational design and synthesis of inhibitors for various enzymes of HIV. 2012 – 2015. Funded by DBT-ICMR.

Place: Chennai Luke Elizabeth Hanna
Date: 23rd June 2016