

Stanford



Renu Verma

Postdoctoral Research Fellow, Infectious Diseases

 Curriculum Vitae available Online

Bio

BIO

One of the key challenges in infectious diseases control is unavailability of rapid and low-cost diagnostics with high specificities and sensitivities. I am a Molecular-microbiologist currently working with Dr. Jason Andrews at the Division of Infectious Diseases. My research primarily focuses on applying novel strategies to detect Mycobacterium tuberculosis and SARS-CoV-2 in various sample types and environments for treatment and control of TB and COVID-19.

Key Research:

- i) Development and validation of molecular viability assays for detection and quantification of novel SARS-CoV-2 virus in COVID-19 patients
- ii) Development and validation of a novel aerosol capture tool for the detection of SARS-CoV-2 in exhaled breath from COVID-19 patients with mild and severe symptoms
- iii) Development of a rapid pharmacogenomic assay to detect NAT2 polymorphisms and predict INH acetylation to guide dosing for tuberculosis treatment
- iv) Detection of M. tuberculosis in the environment as a novel tool for identifying high-risk locations for tuberculosis transmission
- v) Analyzing host serum biomarkers in latent and active Tuberculosis using ELISA assays in patients as a measure of disease severity.

HONORS AND AWARDS

- Life Science National eligibility test (NET) award, Council of Scientific and Industrial Research (CSIR) Govt. of India (Jun 2011)
- National Senior Research PhD Fellowship, Council of Scientific and Industrial Research (CSIR)- University grants commission (UGC) (Jan 2015-Dec 2016)
- National Junior Research PhD fellowship, Council of Scientific and Industrial Research (CSIR)- University grants commission (UGC) (Jan 2012-Dec 2014)
- All-India Graduate Aptitude Test in Engineering -GATE Fellowship in Biotechnology, Indian Institute of Science (IISc) (April 2011)
- BCIL (Biotech Consortium India Limited) Industrial training Fellowship, Department of Biotechnology (DBT), Govt. of India (2010)
- Contingency grant for MSc. dissertation at HCG Hospitals Bangalore, Department of Biotechnology, Govt. of India (2010)
- DBT Fellowship for MSc Biotechnology, Department of Biotechnology (DBT), Govt. of India (2008-2010)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Institute of Bioinformatics, Bangalore, India (2017)
- Master of Science, University Of Mysore (2011)
- Bachelor of Science, Bangalore University (2008)

STANFORD ADVISORS

- Jason Andrews, Postdoctoral Faculty Sponsor
- Jason Andrews, Postdoctoral Research Mentor

Publications

PUBLICATIONS

- **Blood-based host biomarker diagnostics in active case finding for pulmonary tuberculosis:** *EClinicalMedicine, published by The Lancet*
Martinez, F., Verma, R., Cesar, P., Leite, A., Santos, ., Rafaele, Bruna, Persing, D., Södersten, E., Gnanashanmugam, D., Khatri, P., Croda, J., Andrews, J., et al
2021
- **A Rapid Pharmacogenomic Assay to Detect NAT2 Polymorphisms and Guide Isoniazid Dosing for Tuberculosis Treatment.** *American journal of respiratory and critical care medicine*
Verma, R., Patil, S., Zhang, N., Moreira, F. M., Vitorio, M. T., Santos, A. d., Wallace, E., Gnanashanmugam, D., Persing, D., Savic, R., Croda, J., Andrews, J. R.
2021
- **SARS-CoV-2 subgenomic RNA kinetics in longitudinal clinical samples** *Open Forum Infectious Diseases*
Verma, R., Kim, E., Martinez, G., Jagannathan, ., Rustagi, A., Parsonnet, J., Bonilla, H., Khosla, C., Holubar, M., Subramanian, A., Singh, ., Maldonado, Y., Blish, et al
2021
- **Detection, survival and infectious potential of Mycobacterium tuberculosis in the environment: a review of the evidence and epidemiological implications** *EUROPEAN RESPIRATORY JOURNAL*
Martinez, L., Verma, R., Croda, J., Horsburgh, C., Walter, K. S., Degner, N., Middelkoop, K., Koch, A., Hermans, S., Warner, D. F., Wood, R., Cobelens, F., Andrews, et al
2019; 53 (6)
- **Whole Genome Sequencing of Mycobacterium tuberculosis Clinical Isolates From India Reveals Genetic Heterogeneity and Region-Specific Variations That Might Affect Drug Susceptibility** *FRONTIERS IN MICROBIOLOGY*
Advani, J., Verma (SHARED FIRST), R., Chatterjee, O., Pachouri, P., Panday, A., Chauhan, S., Tripathy, S., Prasad, T., et al
2019
- **Rise of Clinical Microbial Proteogenomics: A Multiomics Approach to Nontuberculous Mycobacterium-The Case of Mycobacterium abscessus UC22.** *OMICS, journal of Integrative biology*
Advani, J., Verma (SHARED FIRST), R., Chatterjee O, ., Gowda H, ., Prasad TSK, ., et al
2018
- **Integrated Multi-Omic Analysis of Mycobacterium tuberculosis H37Ra Redefines Virulence Attributes.** *Frontiers in microbiology*
Pinto, S., Verma (SHARED FIRST), R., Advani, J., O. C., et al
2018
- **Quantitative Proteomic and Phosphoproteomic Analysis of H37Ra and H37Rv Strains of Mycobacterium tuberculosis** *JOURNAL OF PROTEOME RESEARCH*
Verma, R., Pinto, S. M., Patil, A. H., Advani, J., Subba, P., Kumar, M., Sharma, J., Dey, G., Ravikumar, R., Buggi, S., Satishchandra, P., Sharma, K., Suar, et al
2017; 16 (4): 1632-1645
- **Whole Genome Sequencing of Mycobacterium tuberculosis Isolates From Extrapulmonary Sites.** *Omics : a journal of integrative biology*
Sharma, K., Verma (SHARED FIRST), R., Advani, J., Chatterjee, O., et al
2017
- **A network map of Interleukin-10 signaling pathway** *JOURNAL OF CELL COMMUNICATION AND SIGNALING*
Verma, R., Balakrishnan, L., Sharma, K., Khan, A. A., Advani, J., Gowda, H., Tripathy, S. P., Suar, M., Pandey, A., Gandotra, S., Prasad, T. S., Shankar, S.
2016; 10 (1): 61-67
- **Data on whole genome sequencing of extrapulmonary tuberculosis clinical isolates from India.** *Data on whole genome sequencing of extrapulmonary tuberculosis clinical isolates from India.*
Advani, J., Sharma, K., Verma, R., Chatterjee O, Solanki HS, Pandey, A., Gowda, H., Prasad, TSK
2018
- **Integrating transcriptomic and proteomic data for accurate assembly and annotation of genomes** *GENOME RESEARCH*
Prasad, T. S., Mohanty, A. K., Kumar, M., Sreenivasamurthy, S. K., Dey, G., Nirujogi, R. S., Pinto, S. M., Madugundu, A. K., Pati, A. H., Advani, J., Manda, S. S., Gupta, M. K., Dwivedi, et al
2017; 27 (1): 133-144

- **A network map of BDNF/TRKB and BDNF/p75NTR signaling system.** *Journal of cell communication and signaling*
Sandhya, V. K., Raju, R., Verma, R., Advani, J., Sharma, R., Radhakrishnan, A., Nanjappa, V., Narayana, J., Somani, B. L., Mukherjee, K. K., Pandey, A., Christopher, R., Prasad, et al
2013; 7 (4): 301-307
- **A multilectin affinity approach for comparative glycoprotein profiling of rheumatoid arthritis and spondyloarthropathy.** *Clinical proteomics*
Bhattacharjee, M., Sharma, R., Goel, R., Balakrishnan, L., Renuse, S., Advani, J., Gupta, S. T., Verma, R., Pinto, S. M., Sekhar, N. R., Nair, B., Prasad, T. S., Harsha, et al
2013; 10 (1): 11-?
- **Proteomic analysis of purified protein derivative of Mycobacterium tuberculosis.** *Clinical proteomics*
Prasad, T. S., Verma, R., Kumar, S., Nirujogi, R. S., Sathe, G. J., Madugundu, A. K., Sharma, J., Puttamalles, V. N., Ganjiwale, A., Myneedu, V. P., Chatterjee, A., Pandey, A., Harsha, et al
2013; 10 (1): 8-?