Dr. MALLIKA LAVANIA

Present address: Enteric Virus Group, ICMR-National Institute of Virology, Pune, India
Alternative address: Dr. Mallika Lavania, C 1 201, ORBIS, Aurasolis Society,
Wanowrie, Pune - 400 040,
Phone: 09717739608, mallikalavania@gmail.com; mallika.lavania@icmr.gov.in

PROFILE

Molecular Biologist with >18 years of laboratory experience on advanced genomics with 62 published papers in reputed international and national journals and 3 chapters in university level text books.

CURRENT POSITION

Scientist D & Group Leader
Enteric Virus Group
National Institute of Virology
Pune-411001

ACADEMIC BACKGROUND

PhD in Life Sciences (Biotechnology) **Awarded Feb 2009**
ICMR Senior Research Fellowship
National JALMA Institute for Leprosy & Other Mycobacterial Diseases (ICMR), Agra, India

Broad Research Area: **Microbial Genomics, Microarrays and Molecular Epidemiology**

Thesis Title: **Genomic Diversity in Leprosy Bacillus**
Thesis Guide: **Dr. Vishwa Mohan Katoch**, MD, FNASc, FNAMS, FIAS
Director & Scientist 'G', National JALMA Institute for Leprosy, Agra
Now: Secretary, Deptt. of Health Research, Ministry of Health & Family Welfare, Govt. of India &
Director-General, Indian Council of Medical Research, New Delhi

Master of Science in Biotechnology **2002**
School of Life Sciences, Dr. BR Ambedkar University (Formerly Agra Univ), Agra
77.5 %. With all relevant subjects **(1st Rank in University)**

Bachelor of Science **2000**
Agra College, Agra, Dr. BR Ambedkar University (Formerly Agra Univ), Agra
65.14 %. With Zoology, Botany & Chemistry

RESEARCH EXPERIENCE

Scientist-In-Charge **May 2010 – Jan 2020**
Stanley Browne Lab The Leprosy Mission Trust India, New Delhi New Delhi- 110029

Senior Research Officer **May 09 – July 09**
Department of Microbiology (Virology), All India Institute of Medical Sciences (AIIMS)
New Delhi- 110029

Senior Microbiologist **Sept 08 – May 09**
Stanley Browne Laboratory, TLM Community Hospital, Delhi- 110093

Senior Research Fellow- Deptt of Microbiology & Molecular Biology **Apr 05 – Sept 08**
National JALMA Instt for Leprosy & Other Mycobacterial Diseases (ICMR), Agra, India

Research Assistant- Deptt of Microbiology & Molecular Biology **Apr 2003 – Apr 05**
National JALMA Instt for Leprosy & Other Mycobacterial Diseases (ICMR), Agra, India

Supervising National as well as International Projects as PI and Co-PI: 12 .projects

Achievements

- **Reported for the first time the occurrence of both primary and secondary rifampicin drug resistance in leprosy cases.**
- **Research on efficacy of alternative regimen for resistant cases.**
- **Established molecular epidemiological profile of Indian isolates of *Mycobacterium leprae*.**
- **Standardized protocols for the viability of *Mycobacterium leprae* from environmental samples by Real Time PCR.**
- Designed methodology for molecular typing of the leprosy bacillus by new molecular markers / DNA repeats.
- Identification of novel genomic markers by Microarrays.
- Improved the protocols for the rapid detection of *Mycobacterium leprae*.

PUBLICATIONS

Publications (Numbers only)
Publications in Journals : 62
Book chapters : 3

Publications in Journals:

International (45)

1. HB Singh, VM Katoch, M Natrajan, VD Sharma, DS Chauhan, **Mallika Lavania,** et al (2004). Improved protocol for PCR detection of *Mycobacterium leprae* in buffered formalin fixed skin biopsies. ***Int J Lepr***; 72; 175-178.
2. **Mallika Lavania,** K Katoch, HB Singh, R Das, Anuj Kumar Gupta, R Sharma, et al (2007). Predominance of three copies of *rpoT* gene repeats in *Mycobacterium leprae* from Northern India. ***Infect Genet Evol,*** 7**:** 627-631.
3. VM Katoch, **Mallika Lavania**, DS Chauhan and UD Gupta (2007). Environmental Mycobacteria: Friends and Foes. ***Environ Biol Conserv*** 12: 87-100.
4. Kiran Katoch, Padam Singh, T Adhikari, SK Benara, HB Singh, DS Chauhan VD Sharma, **Mallika**

Lavania, et al (2007). Potential Mw as a prophylactic vaccine against pulmonary tuberculosis. ***Vaccine*** 26: 1228-1234.

5. Pragya Sharma, DS Chauhan, P Upadhyay, J Faujdar, **Mallika Lavania**, Shailendra Sachan, et al (2008). Molecular typing of *M.tuberculosis* isolates from rural area of Kanpur by spoligotyping and mycobacterial interspersed repetitive units (MIRUs) typing. ***Infect Genet Evol*** 8: 621-626.
6. **Mallika Lavania** , K Katoch, VM Katoch, Anuj Kumar Gupta, DS Chauhan, R Gandhi, et al (2008). Detection of viable *Mycobacterium leprae* from environmental soil samples: insights into possible sources for transmission of leprosy. ***Infect Genet Evol*** 8: 627-631.
7. Rahul Narang, Pratibha Narang, A Jain, D Mendiratta, R Joshi, **Mallika Lavania**, et al (2010). Disseminated disease due to *Mycobacterium simiae* in AIDS patients – a report of three cases. ***Cin Microbiol Infect*** 16: 912-14.
8. R Turankar, **Mallika Lavania**, M Singh, SS KSR, RS Jadhav (2012). Dynamics of *M. leprae* transmission in environmental context: deciphering the role of environment as a potential reservoir. **Infect Genet Evol** 12: 121-126
9. Anuj Kumar Gupta, VM Katoch, DS Chauhan, **Mallika Lavania** (2012). Potential of *Mycobacterium vanbaalenii* as a model organism to study drug transporters of *Mycobacterium tuberculosis*, *Mycobacterium marinum* and *Mycobacterium ulcerans*: Homology analysis of M. tuberculosis drug transporters among mycobacterial species. **Infect Genet Evol** 12: 853-856.
10. VS Chaitanya, **Mallika Lavania**, RP Turankar, Samuel Raj Karri and U Sengupta (2012). Increased serum circulatory levels of Interleukin 17F in type 1 reactions of leprosy. **J Clin Immunol** 32: 1415-1420.
11. **Mallika Lavania**, RS Jadhav, RP Turankar, VS Chaitanya, Mradula Singh, U Sengupta (2013). Single nucleotide polymorphisms typing of Mycobacterium leprae reveals focal transmission ofleprosy in high endemic regions of India. **Clin Microbiol Infect** 19: 1058-1062.
12. **Mallika Lavania,** RP Turankar, Samuel Karri, VS Chaitanya, U Sengupta and RS Jadhav. (2013). Cohort study of the seasonal effect on nasal carriage and the presence of Mycobacterium leprae in an endemic area in the general population. **Clin Microbiol Infect**. 19: 970-974.
13. VS Chaitanya, RS Jadhav, **Mallika Lavania**, M Singh, V Valluri, U Sengupta (2013). Interleukin- 17F single-nucleotide polymorphism (7488T>C) and its association with susceptibility to leprosy.
14. VS Chaitanya, **Mallika Lavania**, Astha Nigam, RP Turankar, Itu Singh, I Horo, et al (2013). Cortisol and proinflammatory cytokine profiles in type 1 (reversal) reactions of leprosy. **Immunol Lett** 156: 159-167.
15. R. P. Turankar , **Mallika Lavania**, VS Chaitanya, U.Sengupta, J.Darlong , F. Darlong et al (2014). Single nucleotide polymorphism-based molecular typing of *M. leprae* from multicase families of leprosy patients and their surroundings to understand the transmission of leprosy. **Clin Microbiol Infect**; 20: O142–O149.
16. VS Chaitanya, RS Jadhav, **Mallika Lavania**, M Singh, V Valluri, U Sengupta (2014). Interleukin- 17F single-nucleotide polymorphism (7488T> C) and its association with susceptibility to leprosy. **IntJ immunogenetics** 41 (2), 131-137.
17. **Mallika Lavania**, RP Turankar, I Singh, A Nigam, U Sengupta. (2014). Detection of Mycobacterium gilvum first time from the bathing water of leprosy patient from Purulia, West Bengal. Int J Mycobacteriol. ;3(4):286-9.
18. **Mallika Lavania**, Rupendra S. Jadhav, VS Chaitanya, R Turankar, A Selvasekhar, Loretta Das, et al (2014). Drug resistance patterns in *Mycobacterium leprae* isolates from relapsed leprosy patients attending The Leprosy Mission (TLM) Hospitals in India. **Lepr Rev** ;85: 177–185
19. RP Turankar, S Pandey, **Mallika Lavania**, I Singh, A Nigam, J Darlong, et al (2015). Comparative evaluation of PCR amplification of RLEP, 16S rRNA, rpoT and Sod A gene targets for detection of *M. leprae* DNA from clinical and environmental samples. **Int J Mycobacteriol**.;4(1):54-9.
20. SC Vedithi, **Mallika Lavania**, Manoj Kumar, Punit Kaur, Ravindra P. Turankar, Itu Singh, et al (2015). A report of rifampin-resistant leprosy from northern and eastern India: identification and in silico analysis of molecular interactions. **Med Microbiol Immuno** 204 (2):193–203.
21. **Mallika Lavania**, R Jadhav, RP Turankar, I Singh, A Nigam, U Sengupta (2015). Genotyping of *Mycobacterium leprae* strains from a region of high endemic leprosy prevalence in India. **Infect Genet Evol**.;36:256-261.

22. Astha Nigam, Itu Singh, Ravindra P Turankar, **Mallika Lavania** and Utpal Sengupta (2015). Alpha 1 Acid Glycoprotein: Increased Serum and Localized mRNA Expression as a Monitor for Reactions in Leprosy. **SOJ Microbiol Infect Dis**; 3(3):1-4.
23. **Mallika Lavania**, A. Nigam, RP Turankar, I. Singh, P. Gupta, S. Kumar, et al (2015). Emergence of primary drug resistance to rifampicin in *Mycobacterium leprae* strains from leprosy patients in India. **Clin Microbiol Infect** 21 (12), e85-e86.
24. **Mallika Lavania**, Abu Hena, Hasanoor Reja, Astha Nigam, Nibir Kumar Biswas, Itu Singh, et al (2016). Mutation at codon 442 in the rpoB gene of *Mycobacterium leprae* does not confer resistance to rifampicin. **Lepr Rev**; 87: 93–100.
25. I Singh, **Mallika Lavania**, A Nigam, RP Turankar, M Ahuja, AS John, et al (2016). Symposium on emerging needs in leprosy research in the post elimination era: The Leprosy Mission Trust India. **Lepr Rev**.; 87(1):132-43.
26. **Mallika Lavania,** Itu Singh, Ravindra P Turankar, Utpal Sengupta (2017**).** Virtual Screening of Interaction of rpoB gene to Secondary-Line Anti- Leprosy Drugs for Rifampicin Resistant *M. leprae* using In-Silico Approach. **Helix** 7(6): 2174-2179.
27. **Mallika Lavania**, I Singh, RP Turankar, M Ahuja, V Pathak, U Sengupta, et al. (2018). Molecular detection of multidrug-resistant *Mycobacterium leprae* from Indian leprosy patients. **J Glob Antimicrob Resist**. ;12:214-219
28. **Mallika Lavania**, I Singh, RP Turankar, AK Gupta, M Ahuja, V Pathak, et al. (2018). Enriched whole genome sequencing identified compensatory mutations in the RNA polymerase gene of rifampicin-resistant *Mycobacterium leprae* strains**. Infect Drug Resist**. 25;11:169-175
29. Ravindra P. Turankar, **Mallika Lavania**, Itu Singh, Vikram Singh, Madhvi Ahuja, Vinay Kumar Pathak, et al. (2018). Paucibacillary Leprosy: Reappraisal using Ziehl-Neelsen staining of slit skin smears and 16S rRNA Real Time Polymerase Chain Reaction of nasal swabs. **Leprosy Review.** 89: 272-279
30. E. Cambau, P. Saunderson, M. Matsuoka, S.T. Cole, M. Kai, P. Suffys, P.S. Rosa, D. Williams, U.D. Gupta, **Mallika Lavania**, et al on behalf of the WHO surveillance network of antimicrobial resistance in leprosy (2018). Antimicrobial resistance in leprosy: results of the first prospective open survey conducted by a WHO surveillance network for the period 2009-15. **Clin Microbio Infect** 24 (12), 1305-1310.
31. I Singh, **Mallika Lavania**, VK Pathak, M Ahuja, RP Turankar, V Singh, et al. (2018) VDR polymorphism, gene expression and vitamin D levels in leprosy patients from North Indian population. **PLoS Negl Trop Dis**. 27;12(11):e0006823.
32. RP Turankar, V Singh, H Gupta, VK Pathak, M Ahuja, I Singh, **Mallika Lavania**, et al (2019). Association of non-tuberculous mycobacteria with *Mycobacterium leprae* in environment of leprosy endemic regions in India. **Infect Genet Evol**. 13. pii: S1567-1348(18)30883- 9.
33. RP Turankar, **Mallika Lavania**, Joydeepa Darlong, Siva Sai KSR, U Sengupta, RS Jadhav. (2019) Survival of *Mycobacterium leprae* and association with Acanthamoeba from environmental samples in the inhabitant areas of active leprosy cases: A cross sectional study from endemic pockets of Purulia, West Bengal. Infect Genet Evol. 2019 Jan 15. pii: S1567-1348(19)30001-2. doi: 10.1016/j.meegid.2019.01.014
34. K Polavarapu, V Preethish-Kumar, S Vengalil, S Nashi, **Mallika Lavania**, K Bhattacharya, et al. (2019). Brain and Spinal Cord Lesions in Leprosy: A Magnetic Resonance Imaging-Based Study. Am J Trop Med Hyg. Apr;100(4):921-931.
35. Sinha S, Sardana K, Agrawal D, Malhotra P, **Mallika Lavania**, Ahuja M. (2019). Multidrug resistance as a cause of steroid-nonresponsive downgrading type I reaction in Hansen's disease. Int J Mycobacteriol. 2019 Jul-Sep;8(3):305-308.
36. **Mallika Lavania** , J Darlong, A Reddy, Madhvi Ahuja , Itu Singh, RP Turankar et al. (2019). Successful treatment of rifampicin resistant case of leprosy by WHO recommended ofloxacin and minocycline regimen. Lepr Rev 90, 456–459.
37. Pathak VK, Singh I, Turankar RP, **Mallika Lavania** , Ahuja M, Singh V, Sengupta U. (2019) Utility of multiplex PCR for early diagnosis and household contact surveillance for leprosy. Diagn Microbiol Infect Dis. 95(3):114855.
38. Kamat D, Narang T, Ahuja M, **Mallika Lavania**, Dogra S. (2020). Case Report: Multidrug- Resistant

Mycobacterium leprae in a Case of Smear-Negative Relapse. Am J Trop Med Hyg. Feb 10. doi: 10.4269/ajtmh.19-0905.

39. Mahajan NP, **Mallika Lavania**, Singh I, Nashi S, Preethish-Kumar V, Vengalil S, et al(2020).Evidence for *Mycobacterium leprae* Drug Resistance inlarge Cohort of Leprous Neuropathy P atients from India. Am J Trop Med Hyg. 102(3):547-552
40. Jabeen, Shumyla; Saini, Jitender; Vengalil, Seena; **Lavania, Mallika**; Singh, Itu; Nashi, Saraswati; et al (2020). Neuroimaging in Leprosy: the nerves and beyond. Radiology of Infectious Diseases 7(1):12-21.
41. Sardana K, Mathachan SR, Agrawal D, **Lavania M**, Ahuja M (2020). Late reversal reaction with resistant Mycobacterium leprae: an emerging paradigm. Trop Doct. 2020; 50(1):77-81.
42. **Lavania M**, Darlong J, Singh I, Ahuja M, Turankar RP, Pathak VK, et al (2020). Analysis of bacteriological Index between fixed multidrug therapy and new WHO recommended alternative regimen with ofloxacin, minocycline and clofazimine of rifampicin resistantcases from the hospitals of The Leprosy Mission, India. J Glob Antimicrob Resist.;23:275-277.
43. Mathachan SR, Sardana K, Ahuja A, **Lavania M**, Agrawal D. Zosteriform multidermatomal nodules and plaques in a case of lepromatous leprosy: an uncommon presentation. Trop Doct. 2020 Oct;50(4):378-380.
44. Vengalil S, **Lavania M**, Singh I, Nashi S, Preethish-Kumar V, Polavarapu K, et al A. Appropriately Selected Nerve in Suspected Leprous Neuropathy Yields High Positive Results for Mycobacterium leprae DNA by Polymerase Chain Reaction Method.Am J Trop Med Hyg. 2020 Jul;103(1):209-213.
45. Sardana K, Kulhari A, Mathachan SR, Khurana A, Bansal P, Ahuja A, **Lavania M,** Ahuja M. Late leprosy reaction presenting as erythema multiforme-like erythema nodosum leprosum with underlying rifampicin resistance and its potential implications. Int J Mycobacteriol. 2020 Apr-Jun;9(2):226-228.

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46. **Mallika Lavania,** VM Katoch, HB Singh, DS Chauhan, VD Sharma, M Natrajan and K Katoch (2005). Genetic polymorphism among *Mycobacterium leprae* strains from Northern India using TTC repeats. ***Indian J Lepr***; 77: 60-65.
47. **Mallika Lavania**, Kiran Katoch, Pawan Sachan, Anuraag Dubey, Shashi Kapoor, Meera Kashyap, et al (2006). Detection of *Mycobacterium leprae* DNA from soil samples by PCR targeting RLEP sequences. ***J Comm Dis*** 38**:**69-73.
48. Deepti Parashar, Ritesh Srivastava, DS Chauhan, VD Sharma, Mradula Singh, **Mallika Lavania**, et al (2006). Characterization of mycobacteria isolated from bovines by PRA-targetting hsp65gene region. ***J Comm Dis*** 38**:** 263-268.
49. VM Katoch, **Mallika Lavania**, DS Chauhan, Rahul Sharma, Hirawati and Kiran Katoch (2007).Recent advances in molecular biology of leprosy. ***Indian J Lepr*** 79: 151-166.
50. UD Gupta and **Mallika Lavania** (2008). Recent development in leprosy research. ***Indian J Med Biochem*** 12: 3-14.
51. **Mallika Lavania**, K Katoch, D Parashar, Pragya Sharma, R Das, DS Chauhan, et al (2008). Predominance of *Mycobacterium fortuitum-chelonae* complex in Ghatampur Field area, endemic for leprosy. ***Indian J Lepr*** 80: 323-330.
52. Rahul Sharma, **Mallika Lavania**, K Katoch, DS Chauhan, Anuj Kumar Gupta, UD Gupta, et al (2008). Development and evaluation of real time RT-PCR assay for quantitative estimation of viable *Mycobacterium leprae* in clinical samples. ***Indian J Lepr*** **80:** 315-321.
53. Deepti Parashar, Ram Das, DS Chauhan, VD Sharma, **Mallika Lavania**, VS Yadav, et al. Identification of environmental mycobacteria isolated from Agra, Northern India by conventional and molecular approaches. ***Indian J Medical Research*** 129: 424-431.
54. **Mallika Lavania**, Rebecca Lal, Gladwin Joseph, Joydeepa Darlong, S Abraham, NK Nanda et al (2009). Genotypic Analysis of *Mycobacterium leprae* Strains from Different Regions of India on the

Basis of rpoT. ***Indian J Lepr*** 81:119-24.

55. R Sharma, **M Lavania**, DS Chauhan, K Katoch , Amresh , Pramod , et al (2009). Potential of a metabolic gene (*accA3*) of *M.leprae* as a marker for leprosy reactions. ***Indian J Lepr***, 81: 141-148
56. Anuj Kumar Gupta, VP Reddy, **Mallika Lavania**, DS Chauhan, VD Sharma, K Venkatesan, et al (2010). Molecular cloning and characterization of jefA: A probable drug transporter protein of *Mycobacterium tuberculosis*. ***IJMR*** 132:176-88.
57. **Mallika Lavania**, K Katoch, R Sharma, P Sharma, R Das, Anuj Kumar Gupta, et al (2011). Molecular typing of *Mycobacterium leprae* strains from Northern India using short tandem repeats. ***Indian J Medical Research*** 133: 618-626.
58. **Mallika Lavania,** N Biswas, AHH Reja and UD Gupta (2011). Molecular Epidemiology of leprosy: Applications of current technologies**. Indian J Med Biochem** 15:3 - 9.
59. AH Hasanoor Reja, N Biswas, S Biswas, **Mallika Lavania,** VS Chaitanya, S Banerjee, et al (2015). Report of rpoB mutation in clinically suspected cases of drug resistant leprosy: a study from Eastern India. **Indian J Dermatol Venereol Leprol**.;81(2):155-61
60. RP Turankar, **Mallika Lavania**, M Singh, U Sengupta, KSR Siva Sai, RS Jadhav. (2016). Presence of viable Mycobacterium leprae in environmental specimens around houses of leprosy patients. **Ind J Med Micrbiol**; 34(3): 315-321.
61. Ravindra P. Turankar, **Mallika Lavania**, Itu Singh, Madhvi Ahuja,Vinay Kumar Pathak, et al (2018). Relapse and Drug Resistance in Leprosy: Present Scenario and Critical Issues. **Indian J Leprosy**. 90; 79-83
62. Ranshing S, Lavania M, Potdar V, Patwardhan S, Prayag PS, Jog S, et al. Transmission of COVID-19 infection within a family cluster in Pune, India. Indian J Med Res. 2021 Jun 19. doi: 10.4103/ijmr.IJMR_3378_20. Epub ahead of print.

Chapters in Books:

1. UD Gupta & **Mallika Lavania**. Non-tuberculous mycobacteria. **In: Medical Biotechnology**. PC Trivedi (ed.). Aavishkar Publishers and Distributors, Jaipur, India. Pp 51-61.
2. UD Gupta & **Mallika Lavania**. Use of Real Time PCR in clinical microbiology. **In: Medical Biotechnology**. PC Trivedi (ed.). Aavishkar Publishers and Distributors, Jaipur, India. Pp 109-118.
3. **Mallika Lavania**. Drug Resistance in Leprosy: Ridley Jopling Handbook on Leprosy (Submitted)

Publications in Conferences: More than 20 papers presentations in various national and international forum

SCHOLARSHIPS & AWARDS

1.	Graduate Aptitude Test for Engineering **(GATE)**	Feb 2003	Qualified (Percentile 94.74)
2.	ICMR-Senior Research Fellowship	July 2005	Qualified
3.	Best poster Award (Biennial Conference of Indian Association of Leprologists)	Nov 2006	
4.	**Young Scientist Award** (Biennial Conference of Indian Association of Leprologists)	Nov 2007	
5.	Best Oral Presentation Award (Biennial Conference of Indian Association of Leprologists)	Oct 2009	
6.	**Acworth Memorial Award for the best publication** (Biennial Conference of Indian Association of Leprologists)	Jan 2012	

OTHER NOTEWORTHY CONTRIBUTIONS

- **Editor of BMC Infectious Diseases**
- Scientific advisor committee member of **Clinical Microbiology and Infectious Diseases**
- Reviewer for manuscript's reviewing from National and International Journals

REFERENCES

1. **Dr. VM Katoch, MD, FNASc, FNAMS, FIAS; Former** Director General, Indian Council of Medical Research, New Delhi (DG-ICMR) & Secretary, Department of Health Research, Ministry of Health & Family Welfare, Govt. of India. Former Director & Scientist 'G', National JALMA Institute for Leprosy & Other Mycobacterial Diseases (Indian Council of Medical Research), Tajganj, Agra-282001, India. e-mail: vishwamohan_katoch@yahoo.co.in, mobile: +91-9412262721
2. **Dr. U Sengupta, PhD**; Consultant at Stanley Browne Laboratory The Leprosy Mission/Former Director, National JALMA Institute for Leprosy & Other Mycobacterial Diseases (Indian Council of Medical Research), Tajganj, Agra- 282001, India. email: usengupta2002@yahoo.com
3. **Dr. RS Jadhav**, **PhD**; Former Scientist In-Charge, Stanley Browne Laboratory, TLM Community Hospital, Nand Nagari, Delhi-110093, India.e-mail: rupenjadhav@yahoo.com, Mobile: 09953226726

DATE: **[MALLIKA LAVANIA]**