

Professor Sadhna Sharma
Miranda House

Name : Dr. Sadhna Sharma
Designation : Professor
Department : Zoology
Email : sadhna.sharma@mirandahouse.ac.in



College website Profile: https://www.mirandahouse.ac.in/academe/file_uploads/for-websites/139/cv-website-139.pdf

EDUCATION

- Ph.D. (Immunology), VP Chest Institute, University of Delhi, 1996.
- M.Sc. (Specialization: Endocrinology), Dept. of Zoology, University of Delhi, 1985.
- B.Sc. (Honours) Zoology, Daulat Ram College, University of Delhi, 1983.

CAREER PROFILE

- Professor at Dept. of Zoology, Miranda House, University of Delhi, - 2020 to date.
- Associate Professor at Dept. of Zoology, Miranda House, University of Delhi, - 2017 to 2020.
- Assistant Professor at Dept. of Zoology, Miranda House, University of Delhi, - 2006 to 2017.
- Lecturer (Guest/Ad-Hoc) at Daulat Ram College, University of Delhi, 2005-2006.
- Visiting Fellow at School of Biochemistry and Molecular Biology And John Curtin School Of Medical Research, Australian National University, Canberra, Australia, April-Sep, 2004.
- DST Young Scientist at Dept. of Microbiology, V. P. Chest Institute, University of Delhi, 2002-2004.
- Guest Lecturer At B. R. Ambedkar Centre For Biomedical Research, University of Delhi, 2000-2004.
- Research Associate at Dept. of Microbiology, V. P. Chest Institute, University of Delhi, 1998-2002.
- Lecturer (Ad-Hoc) at ANDC, University of Delhi, 1996-1997.

Teaching and Research Excellence

Teaching:

- Teaching Immunology for last 26 years to UG/PG/PhD level students
- PG: 200 (60-70 students of M.Sc. Biomedical Sciences Immunobiology paper from 2000-2003 at ACBR, DU)
- UG: 1500 (35 students of B.Sc. (H) Zoology and 40 students of B.Sc. Life Sciences each year since 2006 till date- Discipline Specific Elective/Core Paper-Immunology)

Research and Research Guidance:

- Have established since 2008 a 'Immunology and Biotechnology' laboratory, now named DSKC Bio Discovery laboratory with 'State of the Art' equipment as part of Life Science Division of D S Kothari Centre for Research and Innovation in Science Education (DSKC), Miranda House.
- The research activities are focused towards finding new Vaccine and Drug targets for tuberculosis and include:
 - Cloning, expression, purification and validation of new subunit vaccine candidates and drug targets for tuberculosis
 - Study of immunomodulatory and cytotoxic activity of medicinal plants.
 - Development of Non-Sputum Based (Blood/Urine) Diagnosis of tuberculosis
- Recognized by the Faculty of Science, University of Delhi as independent supervisor for guiding students for Ph.D. Seven students have been awarded Ph. D degree and 4 are currently registered and pursuing their Ph.D under my supervision.
- (https://www.mirandahouse.ac.in/academe/file_uploads/for-websites/139/arrg-website-139.pdf)
- Coordinator of the Open-Source Drug Discovery (OSDD) Centre established by Council of Scientific and Industrial Research (CSIR) at Miranda House from 2010-2016 where about 100 undergraduate students performed cloning and expression of specific M.tb genes and bioinformatic approaches to drug discovery. Seven of these undergraduate students were also awarded TATA-CSIR- OSDD fellowships.
- My laboratory is also providing a flavor of research to many undergraduates, postgraduates and Ph.Ds.
- Chairperson of IBSC, Miranda House recognized by DBT, 2022-till date
- Patent Filed- synthetic fusion protein construct of Rv2627c with immunogenic epitopes, compositions Thereof, and methods of preparation (TEMP/E-1/111097/2025-DEL dated 15.10.2025)

Sponsored Research Projects (Annexure I):

Have got Research Grants of about 7.36 Crores in Miranda House with major projects granted from Department of Science and Technology (2006-2009); Council of Scientific and Industrial Research (2010-2016); Department of Biotechnology (2013-2017) and DU Star Innovation Project (2016-2019); ICMR (2023-2024) and DST-SERB (2022-2025) carried out as Principal Investigator (PI); and Department of Science and Technology (2018-2021) and ICMR as PI (2023-2024) (2025-2028) or as Co-PI (2024-2028). - (Annexure I)

Besides this, I was the overall coordinator of DBT Star College project with a grant amount of Rs. 79 lakhs (2016-20) for enhancing the research and teaching of undergraduate science laboratories with coordinators from four science departments of the college.

Research Publications (Annexure II):

- Publications: **46 publications** in Refereed Journals and 3 Preprints (Scopus indexed) of which 30 publications are published in Miranda House in last 10 years
- **Cumulative Impact Factor : >70; Average Impact factor >2.8,**
- As per Google scholar on 19 April,2026 - **h-index = 17, i10 index = 25, Citations ~ 1117**
(<https://scholar.google.co.in/citations?hl=en&user=08G3328AAAAJ>)
- **Scopus Author Identifier -55598146100**
- **Web of Science Researcher ID-ABA-9532-2020**
- 25 publications are in International and 12 in National Conference proceedings.
- Invited Talks: 05 (International); 08 (National)
- **ORCID -0000-0002-2851-4770**

Outreach Activities

- Since 2014 DST-Inspire Internship program every year where 10-15 top ranking school students were mentored for understanding the concepts of Immunology and
- Co-coordinated two Inspire Science Conclaves at Miranda House
- Summer training of 10-15 students of B.Sc./M.Sc. entitled, “Flavor of Research” where they were taught hands on research projects for a period of 6 weeks since 2015
- Add on Course on “Medical Biotechnology” every year for 25-30 students from 2007-2014 and “Cell Culture Techniques and Application” in 2019-2020 to understand immunology application in Medical Field.
- Organized Faculty Development Programs in Genome Editing tools, Bioinformatics and Grant Writing, and domain specific workshops for students as well as open ended investigative projects in interdisciplinary themes for students.
- Have successfully conducted two National level ‘Continuing Medical Education’(CME) programme for college teachers at DSKC, MH under the aegis of Indian Immunology Society in 2014 and 2023.
- Member of organizing committee of Immunocon50 at AIIMS, New Delhi in 2023

Collaboration

Scientists from VP Chest Institute, University of Delhi; Department of Environmental Studies, DU and School of Biotechnology, GGSIP University are collaborating with her. She is closely collaborating with Indian Immunology Society (IIS) in organizing Continuing Medical Education (CME) programmes, celebrating International Immunology Day, organizing

Immunocons, the annual conference of IIS. She has been invited as speaker and chairing sessions in various International and National Conferences.

Administrative Contribution

Other than teaching and research, Sadhna has contributed significantly in the following activities:

- Member, Departmental Research Committee (DRC), Department of Zoology, University of Delhi (2014-2016)
- Member, DU LOCF Team (2019), Department of Zoology, University of Delhi.
- Deputy Coordinator, Central Evaluation Centre, MH, 2019
- Deputy Coordinator, Examination Centre, MH, 2022
- Chairperson – Institutional Bio-Safety Committee (IBSC), constituted by DBT at MH since 2022
- Coordinator –Science Setu Programme with NII (2022-2026)
- Member, Research Monitoring Committee of College since 2008
- Coordinator, Department of Life Sciences (2009-11)
- Teacher-in Charge, Department of Zoology (2011-13)
- College Academic Committee and Admission committees (2009-2013)
- Member, College Staff Council Committees – Research Initiative and International Collaboration since 2010; Placement Cell (2014-17) and Workload Committee (2022-24).
- Coordinator, Zoology component of DBT Star College Project since 2011
- Member, Internal Quality Assurance Cell (IQAC) of College, 2015-2018
- Provided faculty support in compilation of NAAC Self Study Report and NAAC review team visit
- Overall Coordinator, DBT Star College Project November, 2016 –March 2020.

Any other significant achievement

- Got ‘Young Investigator Award’ twice in 2002 by Federation of Immunological Societies of Asia-Oceania (FIMSA).
- Recipient of Department of Science and Technology ‘Young Scientist in 2002 and ‘Women Scientist’ projects in 2006 and Australia –India Council (AIC) fellowship in 2004.
- Member of the Pedagogical Research team of the college and was awarded Australian Leadership Award Fellowship (ALAF) by AusAID in April 2013 to visit University of Sydney for a period of 3 weeks to enhance learning in labs.
- Recognition by The Immune Epitope Database and Analysis Resource (IEDB) that is sponsored by the National Institute of Allergy and Infectious Disease (NIAID). IEDB Reference ID 1035611 (<http://www.iedb.org/refId/1035611>)
- I, myself and 4 members of my team (Two PhD students, my collaborating faculty Dr. Monika Sharma and an undergraduate Summer Trainee) have got prestigious Melinda and Bill Gates Travel Award to present their work on tuberculosis in USA, London, Canada and India respectively in different years.
- One of my Ph D student Dr. Swati Singh is appointed as Permanent Faculty in Department of Zoology, University of Delhi and others are having overseas post-doctoral positions.

- General Assembly Delegate for a period of three years (2025-2028), International Union of Immunological Societies (IUIS) and represented Indian delegation at IUIS 2025, Vienna, Austria.

Annexure I

Sponsored Research Projects at Miranda House

Ongoing EMR Project:

1. **ICMR – IIRP Small Grant. 2025-2028.** Diagnostic potential of early and late stage expressing Mycobacterium tuberculosis antigens as exosomal biomarkers to discriminate the clinical disease from latent infection.
Grant Amount **Rs. 1.64 Crores (PI)**
2. **ICMR – IIRP Intermediate Grant. 2024-2028.** Evaluation of immunogenicity and protective efficacy of an epitope-based vaccine designed from late-stage-specific, antigenic PE/PPE proteins of Mycobacterium tuberculosis in human PBMC and mouse model. Grant amount **Rs. 2.39 Crores (Co-PI)**

Completed Projects at Miranda House:

1. **DST-SERB-ANRF. 2022-2025.** Immunological validation and protective efficacy of multi-epitope vaccine constructs designed from Mycobacterium tuberculosis dormancy

associated proteins Rv2627c and Rv2628 in mouse model of tuberculosis. Grant Amount **Rs.27.87873 Lakhs. (PI)**

2. **ICMR. 2023-2024.**Rapid diagnosis of pulmonary tuberculosis based on detection of mycobacterial antigens within serum/urine samples by immuno-PCR assays. Grant Amount Rs. **39.87514 Lakhs. (PI)**
3. **DST. 2018-2021** Study of macrophage apoptosis and mitochondrial integrity in response to PE/PE-PGRS family proteins of *Mycobacterium tuberculosis*. Grant Amount Rs.68.378 Lakhs; () (Co-PI)
4. **DU Star Innovation Project. 2016-2019.** Therapeutic Potential of Medicinal Plants: Culture, Extraction, Physicochemical Characterization and Testing Their Cytotoxic or Immune-Stimulatory Properties. Grant Amount **Rs 26.67 Lakhs. (PI)**
5. **DBT. 2013-2017.** Molecular Cloning and Immunological Validation of Three Hypothetical Proteins of *M. Tuberculosis* with Strong T-Cell Epitopes. Women Scientist Project. Grant Amount **Rs. 66.48 Lakhs. (PI)**
6. **CSIR-OSDD. 2012-2016.** Expression, Purification and Characterization of MymA Operon Protein Products of *Mycobacterium Tuberculosis*. Grant Amount Rs. 21.79 Lakhs. (PI)
7. **TATA-OSDD-CSIR. 2014-15.** Predicting Potential Inhibitors for Mtb Targets. Grant Amount **Rs. 2.4 Lakhs. (PI)**
8. **CSIR-OSDD. 2010-2012.** Cloning And Expression of Selected Intraphagosomal Expressed Genes of *Mycobacterium tuberculosis*. Grant Amount **Rs. 5.85 Lakhs (PI)**
9. **DST. 2006-2009.** Modulation of Toll Like Receptor (TLR) Signaling by *Mycobacterium Tuberculosis*: An Evasive Survival Strategy, DST Women Scientist Project, Grant Amount **Rs 11.05 Lakhs (PI).**

Annexure II

Last 10 years Publications (2014-2025)

As per Google scholar on 19 April 2026 - **h-index = 17, i10 index = 25, Citations ~ 1117**

1. Ayushi Kaur Bedi, Monika Sharma, Sadhna Sharma. (2025) Immuno-PCR: Advancements, and applications for infectious diseases diagnosis. *Clinica Chimica Acta* 576 (2025) 120409. (Impact Factor 3.2)
2. Namitha, Priyanka, Sharma, M., Sharma, S. (2025) Association of vitamin D deficiency with active and latent tuberculosis: A meta-analysis and trial sequential analysis. *Indian Journal of Tuberculosis*. <https://doi.org/10.1016/j.ijtb.2025.08.003>.
3. Priyanka, Bhatt P, Bedi AK, Basil MV, Sharma M, Sharma S. (2025) Association of Latent Tuberculosis and Vitamin D Levels in Young Individuals: An Exploratory Study. *Int J Mycobacteriol* 14. 66-72.
4. Priyanka, Sadhna Sharma, Monika Sharma. (2024) Role of PE/PPE proteins of *Mycobacterium tuberculosis* in triad of host mitochondria, oxidative stress and cell death. *Microbial Pathogenesis* :193, 106757 (Impact Factor 3.3)

5. Priyanka, Sharma, S., Varma-Basil, M., Sharma M. (2024). C-terminal region of Rv1039c (PPE15) protein of *Mycobacterium tuberculosis* targets host mitochondria to induce macrophage apoptosis. *Apoptosis* (<https://doi.org/10.1007/s10495-024-01965-2>) (Impact Factor 7.2)
6. Priyanka, Sharma, S., Joshi, H., Kumar, C., Waseem, R., Sharma, M. (2024). *Mycobacterium tuberculosis* protein PPE15 (Rv1039c) possesses eukaryote-like SH3 domain that interferes with NADPH Oxidase assembly and Reactive Oxygen Species production. *BBA-Molecular Cell Research*, 1871 (4), art. no. 119702. (Impact Factor 5.1)
7. Shah, S., Priyanka, Sharma, S. (2024). An Updated Trial Sequential Meta-analysis of Vitamin D Receptor Gene Polymorphism (Fok1, Bsm1, Taq1 and Apa1) and Risk to Tuberculosis. *Indian Journal of Clinical Biochemistry*, 39 (1), pp. 60-72. Cited 1 time. (Impact Factor 2.1)
8. Kumar, C., Shrivastava, K., Singh, A., Chauhan, V., Giri, A., Gupta, S., Sharma, N.K., Bose, M., Sharma, S., Varma-Basil, M. (2023) Expression of mammalian cell entry genes in clinical isolates of *M. tuberculosis* and the cell entry potential and immunological reactivity of the Rv0590A protein. *Medical Microbiology and Immunology*, 212 (6), pp. 407-419. (Impact Factor 5.4)
9. Medha, Priyanka, Sharma, S., Sharma, M. (2023) PE_PGRS45 (Rv2615c) protein of *Mycobacterium tuberculosis* perturbs mitochondria of macrophages. *Immunology and Cell Biology*, 101 (9), pp. 829-846. Cited 2 times. (Impact Factor 4.4)
10. Priyanka, Medha, Bhatt, P., Joshi, H., Sharma, S., Sharma, M. (2023) Late stage specific Rv0109 (PE_PGRS1) protein of *Mycobacterium tuberculosis* induces mitochondria mediated macrophage apoptosis. *Microbial Pathogenesis*, 176, art. no. 106021. Cited 2 times. (Impact Factor 3.8)
11. Medha, Priyanka, Bhatt, P., Sharma, S., Sharma, M. (2023) Role of C-terminal domain of *Mycobacterium tuberculosis* PE6 (Rv0335c) protein in host mitochondrial stress and macrophage apoptosis. *Apoptosis*, 28 (1-2), pp. 136-165. Cited 7 times. (Impact Factor 7.2)
12. Medha, M., Joshi, H., Sharma, S., Sharma, M. (2023) Elucidating the function of hypothetical PE_PGRS45 protein of *Mycobacterium tuberculosis* as an oxido-reductase: a potential target for drug repurposing for the treatment of tuberculosis. *Journal of*

Biomolecular Structure and Dynamics, 41 (19), pp. 10009-10025. Cited 1 time.(Impact Factor 5.235)

13. P. Bhatt, M. Sharma, P.P. Sharma, B. Rathi, S. Sharma. (2022) Mycobacterium tuberculosis dormancy regulon proteins Rv2627c and Rv2628 as Toll like receptor agonist and as potential adjuvant. International Immunopharmacology, 112 109238. (Impact Factor 5.6)
14. Medha., Priyanka., Sharma, S. & Sharma, M. 2022. Design of a peptide-based vaccine from late stage specific immunogenic cross-reactive antigens of PE/PPE proteins of *Mycobacterium tuberculosis*. European Journal of Pharmaceutical Sciences 168: 106051(Impact Factor 4.384)
15. Medha., Bhatt, P., Priyanka., Sharma, M. & Sharma, S. 2021. Prediction and identification of T cell epitopes of COVID-19 with balanced cytokine response for the development of peptide based vaccines. In Silico Pharmacology9 (1):40 (Impact Factor 3.112)
16. Medha., Sharma, S. & Sharma, M. 2021. Proline Glutamate/ Proline-Proline-Glutamate (PE/PPE) proteins of Mycobacterium tuberculosis: The multifaceted immune-modulators. Acta Tropica 222: 106035. (Impact Factor 2.7)
17. Priyanka., Sharma, M. & Sharma, S. 2021. Ethnicity Based Comprehensive Evaluation of Polymorphism in Interferon Gamma gene and its association with Pulmonary and Extra-Pulmonary Tuberculosis Risk An updated Trial Sequential Meta-Ananlysis. International Journal of Mycobacteriology 10(3): 243-254.
18. Medha Singh, Parul Bhatt, Monika Sharma, Mandira Varma-Basil, Anil Chaudhry, Sadhna Sharma. 2019. Immunogenicity of late stage specific peptide antigens of Mycobacterium tuberculosis. Infect Genet Evol. 2019 Jun 19;74:103930. doi: 10.1016/j.meegid.2019.103930. (Impact Factor: 4.4) (Cited by 4)
19. Swati Singh, Monika Sharma, Anil Chaudhry, Sadhna Sharma. 2019. Rv2626c and Rv2032 activate TH1 response and downregulate regulatory T cells in peripheral blood mononuclear cells of tuberculosis patients. Comparative Immunology, Microbiology and Infectious Diseases 62: 46-53. Elsevier (Impact Factor: 2) (Cited by 6)
20. Kirti Pandey, Swati Singh, Parul Bhatt, Medha, Monika Sharma, Anil Chaudhry , Sadhna Sharma. 2019. DosR proteins of Mycobacterium tuberculosis upregulate effector T cells

and down regulate T regulatory cells in TB patients and their healthy contacts. *Microbial Pathogenesis* 126: 399-406. Elsevier (Impact Factor: 3.8) (Cited by 3)

21. R Mishra, S Sharma, RS Sharma, S Singh, MM Sardesai, S Sharma, V Mishra. 2018. *Viscum articulatum* Burm. f. aqueous extract exerts antiproliferative effect and induces cell cycle arrest and apoptosis in leukemia cells. *Journal of Ethnopharmacology* 219, 91-102. Elsevier (Impact Factor: 3.115) (Cited by 2)
22. Saraav, I., Pandey, K., Singh, S., Sharma, M & Sharma, S. 2017. *Mycobacterium tuberculosis* MymA is a TLR2 agonist that activates macrophages and a TH1 response. *Tuberculosis* 106: 16-24. Elsevier (Impact Factor: 3.2) (Cited by 5)
23. Saraav, I., Pandey, K., Misra, R., Singh, S., Sharma, M & Sharma, S. 2017. Characterization of MymA protein as a flavin-containing monooxygenase and as a target of isoniazid. *Chemical Biology & Drug Design*. 89(1):152–160. Wiley Online Library (Impact factor:2.328) (Cited by 3)
24. Mishra R, Das MK, Singh S, Sharma RS, Sharma S, Mishra V. 2017. Articulatin-D induces apoptosis via activation of caspase-8 in acute T-cell leukemia cell line. *Mol Cell Biochem*, 426(1), 87-99. Springer Link (Impact factor:2.561) (Cited by 8)
25. Saraav, I., Pandey, K., Sharma, M., Singh, S., Dutta, P., Bhardwaj, A. & Sharma, S. 2016. Predicting promiscuous antigenic T cell epitopes of *Mycobacterium tuberculosis* mymA operon proteins binding to MHC Class I and Class II molecules. *Infection, Genetics and Evolution*. 44: 182–189. Elsevier (Impact Factor: 2.611) (Cited by 6)
26. Pandey, K., Sharma, M., Saraav, I., Singh, S., Dutta, P., Bhardwaj, A. & Sharma, S. 2016. Analysis of the DosR regulon genes to select cytotoxic T lymphocyte epitope specific vaccine candidates using a reverse vaccinology approach. *International Journal of Mycobacteriology*. 5(1): 34-43. (Cited by 6)
27. Sharma, M. & Sharma, S. 2015. Toll like Receptor-2 signaling in *Mycobacterium tuberculosis* infection- A double edged sword. *Forum on Immunopathological Diseases and Therapeutics*. 6(3–4): 227–235.
28. Saraav Iti, Singh Swati, Pandey Kirti, Vishnoi Ekta, Sharma Monika & Sharma Sadhna. 2015. Cell Wall-Associated *Mycobacterium Tuberculosis* rRv3083 Protein Stimulates Macrophages Through Toll-Like Receptor-2 (TLR2). *International J. Mycobacteriol*. 4: 176. (Cited by 3)

29. Sharma Monika, Sharma Sadhna & Bose Mridula. 2015. *Mycobacterium Tuberculosis* Infected Macrophages Lead To Apoptosis Of Antigen Activated CD8 T Cells. International J. Mycobacteriol. 4: 174-5. (Cited by 1)
30. Roy, S., Sharma, S., Sharma, M. & Bose, M. 2014. Differential signaling of inducible nitric oxide synthase induction in *Mycobacterium tuberculosis* infected alveolar epithelial cell line A549 in response to cytokines IFN- γ , TNF- α and IL-1 β . International Journal of Mycobacteriology. 3: 17-24. (Cited by 9)
31. Saraav, I., Singh, S., Sharma S. 2014. Outcome of *Mycobacterium Tuberculosis* and Toll-Like Receptor Interaction: Immune Response or Immune Evasion? Immunol. Cell Biol. 92: 741-746. Nature Publishing Group (Impact factor:3.795) (Cited by 42)
32. Singh, S., Saraav, I., Sharma, S. 2014. Immunogenic Potential of Latency Associated Antigens against *Mycobacterium Tuberculosis*. Vaccine 32: 712-716. Elsevier (Impact Factor: 3.285) (Cited by 45)

In Press and Preprint (in review)

- Ayushi Kaur Bedi, Bhawna Dahiya, Monika Sharma et al. Detection of Mycobacterium tuberculosis Antigens in Urinary Extracellular Vesicles using Real-Time Immuno-PCR: A Non-Invasive Diagnostic Approach for Pulmonary Tuberculosis, 07 December 2025, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-8212724/v1>]

Research Square 2026 | ISSN 2693-5015 (online)

- Manika Sharma, Parul Bhatt, Medha Singh et al. Design and validation of multi-stage expressing mRNA vaccine for Mycobacterium tuberculosis through computational technology, 16 October 2025, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-6579802/v1>]

Research Square 2026 | ISSN 2693-5015 (online)

- Namitha, Priyanka, Monika Sharma, Sadhna Sharma (2025). Association of Vitamin D Deficiency with Active and Latent Tuberculosis: A Meta-Analysis and Trial Sequential Analysis. Indian Journal of Tuberculosis, <https://doi.org/10.1016/j.ijtb.2025.08.003>

Print ISSN: 0019-5707; Online ISSN: 2589-1278; Cite Score:2 (Elsevier)



Sadhna Sharma