DR. PRATIBHA SHARMA

Biomedical Scientist | Translational Neuroscience & Clinical Biomarkers | Exosome biology | Cardiovascular biomarkers|

Profile in brief

Translational biomedical scientist with more than 1.5 decades of experience spanning neuroscience, clinical biomarker discovery, proteomics, and exosome biology. Proven leadership in government-funded, multi-institutional research projects at premier institutes, including **All India Institute of Medical Sciences (AIIMS), New Delhi, and Institute of Human Behaviour and Allied Sciences (IHBAS), Delhi**. Recognized internationally for impactful research in Parkinson's disease, Alzheimer's disease, stroke, and cardiovascular disorders, with strong expertise in multi-omics integration, mass spectrometry, and clinical sample analytics, and known for bridging bench-to-bedside research. Demonstrated excellence in teaching, curriculum development, and mentoring postgraduate and doctoral trainees. *I am committed to excellence in teaching and mentoring, with a focus on preparing students to address complex biological challenges. By integrating teaching with research, I aim to create a dynamic learning environment that nurtures the next generation of scientists and innovators.*

~ Featured in Hindustan, on World Heart Day (on Front Page) for a Clinical Proteomics and J of Proteomics, emphasizing how saliva and urine tests may soon help in early detection of heart disease – a simpler, faster, and patient-friendly approach. ~

~ Featured in News Express and Dainik Bhaskar for a Nature-published study addressing ethical concerns and integrity gaps in biomedical research publications, amplifying national discourse on accountability. ~

Area of expertise

- Neurodegenerative Disease Biology
- Mass Spectrometry (LC–MS/MS, iTRAQ)
- Multi-Omics Data Integration
- Research Mentorship & Supervision
- Translational Biomarker Discovery
- Clinical Sample Processing
- Grant Writing & Project Leadership
- Scientific Writing & Peer Review
- Exosome Isolation & Characterization
- Molecular Diagnostics Development
- Academic Teaching & Curriculum Design
- Regulatory & Ethics Compliance

Professional Experience

Research Officer & Teaching Assistant **Duration: Aug 2026- Present**
South Asian University, Delhi

Senior Scientist & Principal Investigator **Duration: Oct 2022 – July 2026**
Institute of Human Behaviour and Allied Sciences (IHBAS), Delhi
Funded by DHR
Driving translational neuroscience research focused on early diagnosis and molecular mechanisms of neurodegenerative disorders.

- Lead multidisciplinary research programs on Parkinson's disease, Alzheimer's disease, and stroke-related cognitive decline.
- Principal investigator for high-value, government-funded projects involving RT-QuIC diagnostics and biomarker validation.
- Designed and optimized proteomics and exosome-based workflows using CSF, blood, urine, and saliva samples.
- Manage end-to-end project execution including grant acquisition, ethics approvals, budgeting, timelines, and reporting.
- Supervise doctoral scholars, postgraduates, interns, and technical staff, fostering a high-performing research environment.
- Coordinate cross-functional collaborations with clinicians, biophysicists, and bioinformaticians for translational impact.

Key Projects:
- Alpha-Synuclein RT-QuIC Diagnostics in Parkinson's Disease (PI) | DHR funded |
- ICMR Multistate Study on Student Mental Well-being | PS-II, ICMR funded |
- Neurodegenerative Biomarker Discovery Programs | IHBAS |

Principal Investigator & Women Scientist **Duration: May 2019 – Oct 2022**
All India Institute of Medical Sciences (AIIMS), New Delhi
Funded by DHR
Led nationally funded translational research in cardiovascular and metabolic disorders.

- Secured and managed DHR–MoHFW and DST-funded projects focused on biofluid-derived biomarkers.
- Established iTRAQ-based quantitative proteomics pipelines for early CAD detection.
- Published high-impact findings in peer-reviewed international journals.
- Coordinated interdisciplinary research with cardiology and biophysics departments.
- Mentored postgraduate students and research fellows in experimental design and data analysis.

Key Projects:
- Early Biomarker Discovery in Coronary Artery Disease (CAD)(PI) | DHR-Funded
- Exosomal miRNA Profiling in Coronary Artery Disease (Co-PI) | AIIMS Intramural Grant
- Exosome Proteomics in Rheumatic Heart Disease–Associated Atrial Fibrillation | ICMR PDF |

Ph.D. Research – Neurosciences **Duration: Jul 2011 – Nov 2016**
All India Institute of Medical Sciences (AIIMS), New Delhi
From molecular mechanisms to translational Alzheimer's biomarkers
ICMR funded

- Conducted doctoral research on Alzheimer's disease protein interactions and neurodegeneration pathways.
- Applied advanced biophysical and proteomics techniques to study protein aggregation and toxicity.
- Contributed to teaching and academic assessments for MSc and MD Biophysics programs.
- Guest faculty during PhD at Jamia Hamdard University for teaching M.TECH Computational Biology & Bioinformatics.
- Individual Senior Research Fellow from ICMR awarded in support

Key Projects:
- Alzheimer's Disease Protein Interactions and Biomarker Discovery | ICMR funded |

Project Assistant – Drug Discovery **Duration: Sept 2010 – Apr 2011**

CSIR–Institute of Genomics and Integrative Biology (IGIB), Delhi

Accelerating tuberculosis drug-target discovery through systems biology

- Worked on Indo–Japan Open Source Drug Discovery initiative targeting Mycobacterium tuberculosis.
- Performed pathway modeling, data visualization, and systems biology analysis.
- Integrated computational modeling and biological data visualization to map pathogen metabolic networks, supporting hypothesis-driven prioritization of therapeutic candidates.
- Enabled collaborative, open-science–driven drug discovery by generating reproducible models that informed downstream experimental validation efforts.

- Mass Spectrometry-Based Profiling of Neurodegenerative Biomarkers (Clinical CSF Proteomics Project) | ICMR funded |

Education

Education	Institute	University	Location	Passing Year
Doctor of Philosophy (Ph.D.) – Neurosciences	All India Institute of Medical Sciences (AIIMS)	All India Institute of Medical Sciences (AIIMS)	New Delhi	2016
Master of Science (M.Sc.) – Bioinformatics	Jamia Millia Islamia University	Jamia Millia Islamia University	New Delhi	2010
Bachelor of Science (B.Sc.) – Biotechnology	Jaipuria Institute, Vasundhara	Chaudhary Charan Singh University	Meerut	2007
Postgraduate Diploma – Chemo-informatics	Jamia Hamdard University	Jamia Hamdard University	New Delhi	2009

AWARDS & RECOGNITIONS

- Secured 1st Young Investigator in Clinical Research at the ISAR Annual Conference (2022)
- Secured 1st Poster presentation award at 9th International Conference on Proteomics (Paris, 2017)
- Secured 3rd Oral presentation award at the ISAR Annual Conference (2024)
- CSIR Travel Grant – World Congress of Neurology, Seoul, South Korea (2025)
- DST-SERB / ANRF International Travel Grant – EAS Congress, France (2024)
- ICMR & CSIR Travel Grants – AD/PD Congress, Portugal (2024)
- GP Talwar Award & Bursary – Paris & Luxembourg
- Woman Scientist Fellowship – Dept. of Health Research, MoHFW
- Woman Scientist Fellowship – Dept. of Science & Technology
- ICMR Centenary Postdoctoral Fellowship

ACADEMIC & PROFESSIONAL ENGAGEMENT

- Organizer– One-day Workshop | Institute of Human Behaviour and Allied Sciences (IHBAS), Delhi | 2025
  One-Day Workshop on Systematic Reviews using Rayyan and Covidence on 25th September 2025, from 9:00 AM to 4:00 PM
  SYSCON 2014 Conference on Recent Advances in Biological Sciences, at AIIMS, New Delhi

- Editorial Board – *Journ. of CNS Diseases, Frontiers in Genomics, Frontiers in Medicine*
- Recent Invited Speaker – IIT Bombay, APT 2026 Conference, Mumbai, June 2026
  EMBM 2026 Conference, AIIMS, Delhi, May 2026
  SRM Medical College & King's College London, 3rd Intl. Neurology Symposium, Chennai, Jan 2025
  Mahindra University, VESICON 2025, Hyderabad, Mar 2025
  IIT Bombay, APT 2024 Conference, Mumbai, Feb 2024
  Indian Society for Atherosclerosis Research, 6th Annual Conf., New Delhi, Oct 2022
  Oxford University Press Webinar, Jun 2023
  9th Intl. Conf. on Proteomics & Molecular Medicine, Paris, France, Nov 2017
  All India Institute of Medical Sciences, New Delhi, Nov 2015
- Instructor – IIT Bombay (Advances in Proteomics Technologies)
- Peer Reviewer – *Scientific Reports, Briefings in Bioinformatics, Biochemistry and Biophysics Reports, Cell Biochemistry and Function, Frontiers in Medicine Current Pharmaceutical Design, Journal of Microscopy, Heliyon, Peer J, Bentham Science, Neuroscience Letters, Medicine*
- Member – Electron Microscope Society of India |2026- Present
  Movement Disorder Society | 2025 – Present
  Delhi Neurological Association | 2023 – Present
  International Parkinson and Movement Disorder Society (MDS) | 2025 – Present
  European Atherosclerosis Society | 2023 – Present
  Indian Society of Atherosclerosis Research (ISAR), IAS (International Atherosclerosis Society) & Delhi Chapter (Lifetime) | 2020 – Present
  American heart association and Stroke society (Lifetime) | 2020 – Present
  Society of Young Scientists, AIIMS | 2013
  The Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment (ISTAART; Lifetime) | 2024 -Present

Teaching Engagements

- Research supervisor | Institute of Human Behaviour and Allied Sciences (IHBAS), New Delhi
  Handled and evaluated eight student internships and supervised two Master's thesis; presently supervising three Master's thesis and two interns focused on molecular biology and neurobiological studies.
  Mentored undergraduate and postgraduate trainees in experimental design, data analysis, and lab safety compliance during internship.
  Lectures to M.Sc. Psychiatry Nursing (1st & 2nd Year): Research Methodology and Basics of Neurology
- Research supervisor | All India Institute of Medical Sciences (AIIMS), New Delhi
  Taught and assisted in core subjects like Biophysics and Biochemistry to MSc and MD Biophysics students.
  Trained undergraduate & postgraduate students during summer internships, enhancing practical exposure in molecular biology & bioinformatics.
  Supported PhD and postdoctoral researchers at AIIMS in advancing research in neurobiology and clinical biomarker discovery.
  Supervised six postgraduate dissertation projects, guiding research methodology, experimental design, and scientific writing best practices.
  Co-supervised doctoral research, facilitating hypothesis development, project execution, and laboratory experiments.
- Lecturer |Jamia Hamdard University, New Delhi | Jan. 2013 – Dec. 2013
  Delivered M.Tech lectures and practical sessions on Structural and Systems Biology, fostering advanced biological systems understanding.

Designed and delivered multidisciplinary coursework across molecular biology, cell biology, immunology, and bioinformatics domains.
Contributed to academic development through structured lesson planning, assessment frameworks, and student engagement strategies.
Established and refined academic curriculum components across basic and advanced life science domains.
Fostered a research-oriented culture by integrating experimental design and scientific writing modules into student training.

Selected Publications Scopus & PubMed Indexed — H-index- 8 (Google Scholar)

2026

- **Sharma P**, Malhotra M, Dhamija RK, Srinivasan A. Sharma P, Malhotra L, Dhamija RK, Srinivasan A. The multifaceted nature of mollusk shell proteins: a complex interplay of protein sequence, function, and biomineralization. ***Journal of Biomolecular Structure and Dynamics***. 2026 Jun 23:1-22. (**First and corresponding autho**r) ISSN: 1538-0254.

2025

- **Sharma P**, Dhamija RK. A streamlined method for isolating and characterizing small extracellular vesicles from various human biofluids for high-throughput downstream applications**.** ***BMC Methods***. 2025 Sep 1;2(1):18. (**First and corresponding autho**r) ISSN: 3004-8729
- **Sharma P**, Dhamija RK. A comprehensive method of isolating proteins from serum, cerebrospinal fluid, and hippocampal neurons in rats for proteomic profiling using the LC-MS/MS platform. ***Biochemistry and Biophysics Reports***. 2025 Sep 1;43:102113. (**First and corresponding author**) ISSN: 2405-5808
- **Sharma P**, Sancheti M, Inampudi KK, Roy A, Dhamija R. Salivary small extracellular vesicles reveal protein signatures in young patients with coronary artery disease. ***BMC Clinical Proteomics***. 2025. DOI: 10.1186/s12014-025-09541-9 (Accepted for publication) (**First and corresponding author**).
- Sharma P, Dhamija RK. The quest for Parkinson's disease biomarkers: traditional and emerging multi-omics approaches. ***Molecular Biology Reports***. 2025 Dec;52(1):831. (**First and corresponding author**).
- Manav N, **Sharma P**, Mochan S, Malhotra L. Unraveling the unique amyloid-like aggregation behavior of the tumor suppressor p53 mutants in human cancers**.** ***International Journal of Biological Macromolecules***. 2025 May 2:143883. (Co-author)

2024

- **Sharma P,** Malhotra L, Dhamija RK. Comprehensive amino acid composition analysis of seed storage proteins of cereals and legumes: identification and understanding of intrinsically disordered and allergenic peptides. ***J Biomol Struct Dyn***. 2024 Jan 4:1-13. doi: 10.1080/07391102.2023.2300126. PMID: 38178552. (IF-5.24; **First and corresponding author**)
- **Sharma, P**., Dhamija, R., Inampudi, K., & Roy, A. (2024). Proteomic profiling of saliva exosomes for the identification of non-invasive early biomarker in patients with coronary artery disease. ***Atherosclerosis,*** 395. DOI: 10.1016/j.atherosclerosis.2024.117762. (**First and corresponding author**).

2023

- **Sharma P**, Roy A, Dhamija RK, Bhushan S, Baswal K, Kulandaisamy R, Yadav S, Kumar S, Inampudi KK. A comprehensive proteomic profiling of urinary exosomes and the identification of early non-invasive biomarker in patients with coronary artery disease**.** ***J Proteomics***. 2023 Dec 25; 293:105059. doi: 10.1016/j.jprot.2023.105059. PMID: 38151158. (IF-3.85; **First and corresponding author**)
- **Sharma, P.,** Dhamija, R. K., Nag, T. C., Roy, A., Inampudi, K. K. (2023) Different Biofluids, Small Extracellular Vesicles or Exosomes: Structural Analysis in Atherosclerotic Cardiovascular Disease Using Electron Microscopy Techniques, ***Microscopy and Microanalysis***, 29(3):1168-1177, https://doi.org/10.1093/micmic/ozad025. PMID: 37749667 (IF-4.09; **First and corresponding author**)
- **Sharma P.,** Sharma B, Reza A, Inampudi KK and Dhamija RK (2023). A systematic review of retractions in biomedical research publications, retraction reasons, and their citations in Indian affiliations. ***Humanities and Social Sciences Communications***, 10(1), 1-12. https://doi.org/10.1057/s41599-023-02095-x PMID: 37749667 (IF- 2.73; **First and corresponding author**)
- **Sharma P**, Srinivasan A, Dhamija R. Hippocampal protein interaction with Alzheimer's amyloid beta peptide: 14–3-3 zeta and Tubulin beta promote tau phosphorylation. ***Journal of the Neurological Sciences***. 2023 Dec 1;455.

2022

- Kulandaisamy, R., Kushwaha, T., Dalal, A., Kumar, V., Singh, D., Baswal, K., **Sharma, P.,** Praneeth, K., Jorwal, P., Kayampeta, S.R., Sharma, T., Maddur S., Kumar M., Kumar S., Polamarasetty A., Singh A., Sehgal D., Gholap S. L., Appaiahgari M. B., Katika M. R. and Inampudi, K. K. (2022). Repurposing of FDA Approved Drugs Against SARS-CoV-2 Papain-Like Protease: Computational, Biochemical, and in vitro Studies. ***Frontiers in microbiology***, 13. DOI: 10.3389/fmicb.2022.877813; PMID: 35620103 (IF-6.06; Co-author)
- **Sharma, P.***, Manral, P.*, Hariprasad, G., Tripathi, M., & Srinivasan, A. (2012). Can apolipoproteins and complement factors be biomarkers of Alzheimer's disease? ***Current Alzheimer Research***, 9(8), 935-943. DOI: 10.2174/156720512803251110; PMID: 22631439 (IF-4.95 in 2012; ***equally contributed first author**).
- Ghosh, S., Matsuoka, Y., Asai, Y., Kitano, H., Bhardwaj, A., Scaria, V., & **Sharma, P**. (2013). Software platform for metabolic network reconstruction of Mycobacterium tuberculosis. In **Systems Biology of Tuberculosis** (pp. 21-35). Springer New York. (Co-author)
- Singh, P., Mirdha, B. R., Srinivasan, A., Rukmangadachar, L. A., Singh, S., **Sharma, P**., Gururao, H., Luthra, K. (2015). Identification of invasion proteins of Cryptosporidium parvum. ***World J Microbiol Biotechnol***, 31, 1923-1934. DOI: 10.1007/s11274-015-1936-9; PMID: 26492887 (IF:4.0, Co-author)
- Vashisht, R., Mondal, A. K., Jain, A., Shah, A., Vishnoi, P.,. & **Sharma, P.** (2012). Crowd sourcing a new paradigm for interactome driven drug target identification in Mycobacterium tuberculosis. ***PloS one,*** 7(7), e3980 doi: 10.1371/journal.pone.0039808; PMID: 22808064 (IF-3.75; Co-author)

Under print manuscripts

- **Sharma P**, Chaturvedi M, Dhamija RK. Blood-based pTau217/Aβ1–42 ratio for Alzheimer's disease and dementia: a clinical utility and implementation perspective. *2026* (**First and corresponding author; Communicated**)

Future Vision

- Develop non-invasive biomarkers for early diagnosis of neurodegenerative diseases
- Integrate multi-omics with AI-driven diagnostics

Other links

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https://www.researchgate.net/profile/Pratibha-Sharma-7;
https://scholar.google.com/citations?user=miXq4aMAAAAJ&hl=en