

CURRICULUM VITAE

DR. RASHMI BHARDWAJ

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Education:

- Ph.D.** : Department of Medical Oncology, Dr. B. R. Ambedkar Institute Rotary Cancer Hospital (IRCH), All India Institute of Medical Sciences (AIIMS), Delhi, India
- Thesis Title** : To elucidate the cytokine profile and feasibility of immortalization of human fetal liver hematopoietic stem cells”.
- Supervisors** : Prof. Lalit Kumar and Prof. Vinod Kochupillai
- M.Sc. (Biotechnology)** : Department of Bioscience, Maharshi Dayanand University, Rohtak, Haryana
- B.Sc.** : Govt. College, Sector 14, Gurgaon, Maharshi Dayanand University Rohtak
- Postdoctoral Research Fellow** : Memorial Sloan Kettering Cancer Centre, New York, USA (2010-2013), (Principal Investigator of Project funded by Department of Defense, USA)

Work Experience:

- Assistant Professor** at Centre for Medical Biotechnology, Maharshi Dayanand University, Rohtak from November 2013 till date.
- Postdoctoral Research Fellow (Principal Investigator of Project)** funded by Department of Defense, USA) at Memorial Sloan Kettering Cancer Center, New York, USA from May 2012 to November 2013
- Postdoctoral Research Fellow** at Memorial Sloan Kettering Cancer Center, New York, USA from November 2010 to May 2012
- Graduate Research Assistant** at Memorial Sloan Kettering Cancer Center, New York, USA from February 2010 to October 2010
- Research Officer** in Department of Biotechnology project at Medical Oncology, AIIMS, Delhi, from October 2006 to January 2009.

6. **Senior Research Fellow**, ICMR at Medical Oncology, AIIMS, Delhi, from October 2005 to October 2006.
7. **Junior Research Fellow**, ICMR at Medical Oncology, AIIMS, Delhi, from October 2003 to October 2005.

Awards and Fellowships:

S.No.	Name of the Award	Funding Agency	Year
1	Award of National Eligibility (NET)	Council of Scientific and Industrial Research (CSIR), Govt. of India	2002
2	Graduate Aptitude Talent Examination Score 95.27 Percentile	Indian Institute of Technology, Madras, India	2003
3	Award of Junior Research Fellow (JRF)	Indian Council of Medical Research (ICMR), Govt.of India	2003
4	Travel Award from New York Society of Stem cell Foundation (NYSCF) to attend 5 th Annual Meeting at Cairns, Australia	International Society of Stem Cell Research	2007
5	Postdoctoral Fellowship Award to conduct Research on Bone marrow failure pathogenesis. (selected 1 among 3 across USA)	Department of Defense, USA	2012
6	Best Oral Presentation Award	International Conference on Integrative Chemistry, Biology & Translational Medicine (ICBTM), February 25-26, 2019, Delhi, India	2019
7	Research Publication Promotion Incentives award for year 2022 and Appreciation Award for fetching extramural R&D project(s)- for year 2022	Maharshi Dayanand University	2022
8	Appreciation Award for fetching extramural R&D project(s)- for year 2023	Maharshi Dayanand University	2023
9	Best Oral Presentation Award	65th Annual International Conference of the Association of Microbiologists of India (AMI), 14th to 17th November 2024 at Guru Jambheshwar University of Science & Technology, Hisar, Haryana, India.	2024

Teaching Experience : 11 years

Research Experience : 15 years.

Research Interest : Stem Cell Biology, Cancer Biology and Non-Invasive Diagnostics, Exosomes

Research Guidance:

- Ph.D.** : Awarded:2, Submitted:2 and Ongoing:1
(First Ph.D. student is joining University of Florida as postdoctoral fellow, second one is joining M.D. Anderson Cancer Centre, USA)
- MDS** : Thesis (Dental from PGIDS Rohtak): 3(Completed), 1(Ongoing),
- M.Sc.** : Dissertation: 50 (Completed)

Research Projects/Grants:

1. The Role of Ribosomal Protein Deficiency in Pathogenesis of Bone Marrow, grant from **Department of Defense (DoD), USA**, 2012-2013, Sanctioned grant \$ 250000. (Completed)
2. Elucidation of KIT signalling pathway alterations by membrane bound and soluble isoform variants of stem cell factor. Start-up Grant funded by **University Grant Commission, India** between July 2015 - Dec 2017. Sanctioned grant - Rs. 6 lakhs (Completed)
3. Non-invasive identification of early predictive lung cancer biomarkers through exosomes. **Indian Council of Medical Research (ICMR), India**. Project December 2020-December 2024. Sanctioned grant - Rs. 62 lakhs (Ongoing)
4. A non-invasive salivary microbiota approach for identification of oral cancer biomarkers. Radha Krishnan fund, MDU 2013-2014 (completed)
5. Secretoglobulin and Lipopolysaccharide Immunotherapy on Lung Cancer: A preclinical investigation to evaluate adequacy and assurance on Haryana population. Funding Agency: **Department of Science and Technology, Haryana** November 2022-November 2025. Sanctioned Amount- Rs 45 lakhs. (Ongoing)

E-content Development

Content Writer for two **modules of Indian MHRD-UGC ePathshala program** for paper titled "Animal Cell Biotechnology".

1. Stem Cell Technology and therapeutics
2. Introduction and history of cell culture, Primary Culture, Secondary Cell Culture and cell lines

Content Reviewer for eight modules of Indian MHRD-UGC ePathshala program for paper titled "Animal Cell Biotechnology".

<https://epgp.inflibnet.ac.in/ahl.php?csrno=3>

Academic Responsibilities:

- ❖ IQAC Officer, Centre for Medical Biotechnology, MDU, Rohtak
- ❖ Member, P.G. Board of Studies, Centre for Medical Biotechnology, MDU, Rohtak
- ❖ Member, Departmental Research Committee, Centre for Medical Biotechnology, MDU, Rohtak
Departmental Coordinator, Centre for Medical Biotechnology, MDU, Rohtak
- ❖ B.Ed. College Inspection Committee member, MDU, Rohtak

Professional Association:

- ❖ International Society for Stem Cell Research
- ❖ International Society for Extracellular Vesicles
- ❖ The Indian Science Congress Association
- ❖ National Academy of Biological Sciences
- ❖ Ethics Committee Member, Post Graduate Institute of Dental Sciences, Pt. BD Sharma UHSR
- ❖ Biotechnology expert for Biotechnology syllabus XI-XII classes for Council for the Indian School Certificate Examinations (ISCE Board).

Major Studies/Grant in my laboratory:

- 1. Generation and Characterization of Enamel Producing Ameloblast Through Differentiation of Stem Cells from Human Exfoliated Deciduous Teeth (SHED):** My group has focused on advancing biotooth engineering through stem cell technology, specifically investigating the odontogenic potential of stem cells from human exfoliated deciduous teeth (SHEDs). Enamel, the mineralized layer protecting teeth, is synthesized by ameloblasts; however, limited availability of ameloblast-generating dental epithelial stem cells poses a challenge. In our research, we explored the ability of SHED to differentiate into ameloblast-like cells when co-cultured with human gingival keratinocytes (GKCs). Employing two co-culture setups—direct cell contact and transwell insert for enhanced growth factor exchange—we analyzed cellular morphology, gene expression, and mineralization. Our findings indicated that co-culturing SHED with GKCs led to significant morphological changes, with SHED displaying characteristics of ameloblast-like and odontoblast-like cells, alongside upregulation of ameloblast-related genes and enamel matrix proteins by day 12. Additionally, we established an immortalized SHED cell line through transduction with the pBabe-puro-hTERT retrovirus, which extended their lifespan, improved proliferation, and migration potential while preserving their stemness and multilineage differentiation capabilities. These results underscore the enhanced odontogenic potential of SHEDs for biotooth engineering and establish a robust foundation for future regenerative dental applications.
- 2. Non-invasive identification of early predictive biomarkers of Oral Squamous Cell Carcinoma (OSCC) through salivary exosomes:** This study explored salivary exosomes, natural nanoparticles secreted by all cell types, as non-invasive biomarkers for early oral cancer detection, particularly in high-risk tobacco consumers. We found significant differences in exosomal size, concentration, and molecular composition among healthy controls, tobacco users, and oral cancer patients, with the latter two groups showing increased exosomal features. Notably, oncogenic miRNAs (miR-21-5p, miR-31-5p, miR-155-5p) were upregulated, while tumor suppressor miRNAs (miR-125a-3p, miR-133a-3p) were downregulated, emphasizing their potential as diagnostic indicators. Our analysis also revealed elevated IL-6 and IL-8 cytokines linked to chronic inflammation and oral cancer progression, alongside altered amino acid metabolism and distinct biochemical changes measured by FTIR spectroscopy. These findings highlight salivary exosomes as promising tools for early oral cancer diagnosis and underscore the need for targeted therapeutic approaches in high-risk populations.

3. **Non-invasive identification of early predictive lung cancer biomarkers through exosomes:** The project focused on the challenging collection of exhaled breath samples and isolation of exosomes. We successfully standardized this technique, revealing that exosomes from lung cancer exhaled breath condensate (EBC) samples were larger than those from healthy and tobacco-exposed controls, indicating increased cellular activity associated with cancer progression. Nanoparticle Tracking Analysis showed higher concentrations of exosomes in lung cancer samples, while Transmission Electron Microscopy confirmed their spherical morphology. Western blotting affirmed exosome purity, and FTIR spectroscopy revealed distinctive cancer-related cargo. miR-21 successfully distinguished between healthy and cancerous states in EBC microarray analysis, showcasing EBC as a reliable source for non-invasive lung cancer biomarker assessment.
4. **Evaluation of potential biomarkers through non-invasive methods for early identification of Oral Squamous Cell Carcinoma (OSCC) in tobacco consumers:** This study underscores the potential of non-invasive biomarkers for early oral cancer detection in high-risk populations, paving the way for improved screening and intervention strategies. This study highlights that salivary microRNAs and biochemical profiles could serve as valuable non-invasive biomarkers for early detection of oral cancer, particularly in high-risk populations like tobacco users. Key findings include the upregulation of oncogenic miRNAs and the downregulation of tumor suppressor miRNAs in cancer patients, as well as increased levels of salivary protein and inflammatory markers. These results suggest that integrating these non-invasive indicators into screening strategies could enhance early diagnosis and intervention for oral cancer.

Publications:

Research/Review Articles

1. Vinod Kochupillai, Lalit Kumar, Rashmi **Bhardwaj**, Sujata Mohanty, Manju Sengar. Stem Cell: Its evolving role in cancer management and research. *Annals of National Academy of Medical Sciences (India)* 42(2006) 235-243.
2. Vinod Kochupillai, **Rashmi Bhardwaj**, Lalit Kumar. Fetal liver cytokines: potential therapeutic value. *Annals of National Academy of Medical Sciences (India)* 44(2008) 177-183.
3. A Czechowicz, **R Bhardwaj**, CY Park, IL Weissman. Targeted clearance of human hematopoietic stem cell niches via inhibition of SCF signaling using monoclonal antibody SR-1. *Blood* 116(2010);74 <https://doi.org/10.1182/blood.V116.21.74.74> [I.F.- 20.3]
4. Kelly A. McGowan, Wendy W. Pang, **Rashmi Bhardwaj**, Marcelina G. Perez, John V. Pluvinae, Bertil E. Glader, Reem Malek, Susan M. Mendrysa, Irving L. Weissman, Christopher Y. Park and Gregory S. Barsh. Reduced ribosomal protein gene dosage and p53 activation in low-risk myelodysplastic syndrome. *Blood*. 118(2011) 3622-3633. DOI: [10.1182/blood-2010-11-318584](https://doi.org/10.1182/blood-2010-11-318584) [I.F.- 20.3]
5. WendyW. Pang, Agnieszka Czechowicz, AaronC. Logan, **Rashmi Bhardwaj**, JessicaPoyser, Christopher Y. Park, Irving L. Weissman and Judith A. Shizuru Anti-CD117 antibodydepletesnormal and myelody splastic syndrome human hematopoietic stem cells in xenografted mice. *Blood* 133(2019):2069- 2078. (DOI: [10.1182/blood-2018-06-858159](https://doi.org/10.1182/blood-2018-06-858159)) [I.F.- 20.3]

6. Pooja Yadav, Ravina Vats, Afsareen Bano, **Rashmi Bhardwaj**. Hematopoietic Stem Cells Culture, Expansion and Differentiation: An Insight into Variable and Available Media. *International journal of stem cells* 2020; 13:326-334. Published online on November 30, 2020; (DOI: [10.15283/ijsc19157](https://doi.org/10.15283/ijsc19157)) [**Impact Factor-2.3**]
7. Pooja Yadav, Ravina Vats, Afsareen Bano, **Rashmi Bhardwaj**. Mesenchymal Stem cell immunomodulation and regeneration therapeutics as an ameliorative approach for COVID-19 pandemic. *Life Sciences*; Volume 263, 15 December 2020, 118588 (<https://doi.org/10.1016/j.lfs.2020.118588>) [**Impact Factor-6.1**]
8. Gitika Sharma, Mala Kamboj Anjali Narwal, **Rashmi Bhardwaj** and Pooja Yadav. Cytotoxic role of chlorogenic acid on oral squamous cell carcinoma cell line. *Indian Journal of Otolaryngology and Head & Neck Surgery*, 2021, DOI: (<https://doi.org/10.1007/s12070-021-02395-1>).
9. Sivakumar N, Narwal A, Kamboj M, Devi A, Kumar S, **Bhardwaj R**. Molecular and Immunohistochemical Cognizance of HPV16 in Oral Leukoplakia, Oral Squamous Cell Carcinoma and Oropharyngeal Squamous Cell Carcinoma. *Head and Neck Pathology*. 2021 Feb 28:1-1. (<https://doi.org/10.1007/s12105-021-01309-5>) [**Impact Factor-2.1**]
10. Chahal R, Nanda A, Akkol EK, Sobarzo-Sánchez E, Arya A, Kaushik D, Dutt R, **Bhardwaj R**, Rahman MH, Mittal V. Ageratum conyzoides L. and Its Secondary Metabolites in the Management of Different Fungal Pathogens. *Molecules*. 2021; 26(10):2933. <https://doi.org/10.3390/molecules26102933> [**Impact Factor-4.6**]
11. **Rashmi Bhardwaj**, Lalit Kumar, Deepika Chhabra et al. In Vitro Expansion of Fetal Liver Hematopoietic Stem Cells, *Scientific Report* 11(1) June 2021. <https://doi.org/10.1038/s41598-021-91272-6> [**Impact Factor-4.99**]
12. N. Sivakumar, Anjali Narwal, Sanjay Kumar, Mala Kamboj, Anju Devi, Deepak Pandiar, **Rashmi Bhardwaj**. Application of the Bethesda system of reporting for cervical cytology to evaluate human papilloma virus induced changes in oral leukoplakia, oral squamous cell carcinoma, and oropharyngeal squamous cell carcinoma: A cytomorphological and genetic study. June 2021 *Diagnostic Cytopathology* <https://doi.org/10.1002/dc.24813> [**Impact Factor-1.39**]
13. Henry A. Adeola, Afsareen Bano, Ravina Vats, Amit Vashishtha, Deepika Verma, Deepak Kaushik, Vineet Mittal, Md. Habibur Rahman, Agnieszka Najda, Ghadeer M. Albadrani, Amany A. Sayed, Sameh M. Farouk, Emad H.M. Hassanein, Muhammad Furqan Akhtar, Ammara Saleem, Mohamed M. Abdel-Daim, **Rashmi Bhardwaj**, Bioactive compounds and their libraries: An insight into prospective phytotherapeutics approach for oral mucocutaneous cancers. *Biomedicine & Pharmacotherapy*, Volume 141, 2021, 111809, <https://doi.org/10.1016/j.biopha.2021.111809> [**Impact Factor-7.5**]
14. Pooja Yadav, Ravina Vats, Afsareen Bano, Amit Vashishtha, **Rashmi Bhardwaj**. A Phytochemical approach towards the treatment of Cervical Cancer using Polyphenols and Flavonoids. *Asian Pac J Cancer Prev*. 2022 Jan 1;23(1):261-270. <https://doi.org/10.31557/APJCP.2022.23.1.261>.
15. **Rashmi Bhardwaj**; Lalit Kumar; Deepika Chhabra; Sujata Mohanty; Atul Sharma; N K Mehra; Vinod Kochupillai. Effect of fetal liver condition media derived cytokines (IL-6 and Flt-3) on human bone marrow stem cells colony formation. *Cytokine*. 2022 May; 153:155863. <https://doi.org/10.1016/j.cyto.2022.155863> [**Impact Factor-3.86**]

16. Afsareen Bano, Ravina Vats, Pooja Yadav, **Rashmi Bhardwaj**. Exosomics in Oral Cancer Diagnosis, Prognosis, and Therapeutics- An emergent and imperative non-invasive natural nanoparticle-based approach. *Crit Rev Oncol Hematol*. 2022 Oct; 178:103799. <https://doi.org/10.1016/j.critrevonc.2022.103799> [Impact Factor-6.2]
17. Chopra H, Verma R, Kaushik S, Parashar J, Madan K, Bano A, **Bhardwaj R**, Pandey P, Kumari B, Purohit D, Kumar M, Bhatia S, Rahman MH, Mittal V, Singh I, Kaushik D. Cyclodextrin-Based Arsenal for Anti-Cancer Treatments. *Crit Rev Ther Drug Carrier Syst*. 2023;40(2):1-41 <https://doi.org/10.1615/critrevtherdrugcarriersyst.2022038398> [Impact Factor-2.7]
18. Garima Sharma, Surbhi Agarwal, Kavita Verma, **Rashmi Bhardwaj**, Vartika Mathur. Therapeutic compounds from medicinal plant endophytes: molecular and metabolic adaptations. *Journal of Applied Microbiology*, Volume 134, Issue 4, April 2023, Ixad074, <https://doi.org/10.1093/jambio/ixad074> [Impact Factor-4.0]
19. Pooja Yadav, Ravina Vats, Afsareen Bano, Ritu Namdev, **Rashmi Bhardwaj**. Ameliorative potential of stem cells from human exfoliated deciduous teeth (SHED) in preclinical studies: A meta-analysis. *Regenerative Therapy*, Volume 24, 2023, Pages 117-134, <https://doi.org/10.1016/j.reth.2023.06.004> [Impact Factor-4.3]
20. Afsareen Bano, Ravina Vats, Deepika Verma, Pooja Yadav, Mala Kabmboj, **Rashmi Bhardwaj**. Exploring salivary exosomes as early predictors of oral cancer in susceptible tobacco consumers: noninvasive diagnostic and prognostic applications. *J Cancer Res Clin Oncol* Volume 149, pages 15781–15793, (2023). <https://doi.org/10.1007/s00432-023-05343-4> [Impact Factor-4.3]
21. Pooja Yadav, Ravina Vats, Sapna Wadhwa, Afsareen Bano, Ritu Namdev, Monika Gupta, **Rashmi Bhardwaj**. Enhancing Proliferation of Stem Cells from Human Exfoliated Deciduous Teeth (SHED) through hTERT Expression while Preserving Stemness and Multipotency. *Stem Cell Rev and Rep* (2024). <https://doi.org/10.1007/s12015-024-10746-y>[Impact Factor-4.5]
22. Garima Sharma, **Rashmi Bhardwaj**, Vitthal T Barvkar, Rucha C Godbole, Vinay Kumar, Vartika Mathur. Host-specific endophytes of *Momordica charantia*: A promising source for affordable lung cancer therapeutics. *South African Journal of Botany*, Volume 170, 2024, Pages 181-193, ISSN 0254-6299, <https://doi.org/10.1016/j.sajb.2024.05.030>[Impact Factor-2.7]
23. Afsareen Bano, Pooja Yadav, Megha Sharma, Deepika Verma, Ravina Vats, Dhruva Chaudhry, Pawan Kumar, **Rashmi Bhardwaj**. Extraction and characterization of exosomes from the exhaled breath condensate and sputum of lung cancer patients and vulnerable tobacco consumers-potential noninvasive diagnostic biomarker source. 2024 Jul 11;18(4). <https://doi.org/10.1088/1752-7163/ad5eae> [Impact Factor-3.7]
24. Ravina Vats, Pooja Yadav, Afsareen Bano, Sapna Wadhwa, **Rashmi Bhardwaj**. Salivary Biomarkers in Non-Invasive Oral Cancer Diagnostics: A Comprehensive Review. *J Appl Oral Sci*. 2024 Sep 9;32: e20240151 <https://doi.org/10.1590/1678-7757-2024-0151> [Impact Factor-2.2]
25. **Rashmi Bhardwaj**, Lalit Kumar, Deepika Chhabra, Atul Sharma, Sujata Mohanty, Narinder Mehra and Vinod Kochupillai. Transduction of Human Fetal Liver Hematopoietic CD34+ Stem and Progenitor Cells into a Cell Line by Enhancing Telomerase Activity. *Int J Hematol Oncol Stem Cell Res*. 2024;18(4):331-344.

26. Ravina Vats, Pooja Yadav, Afsareen Bano, Sapna Wadhwa, Anjali Narwal, **Rashmi Bhardwaj**. Salivary cysteine levels as a potential biochemical indicator of oral cancer risk in tobacco consumers. *Biomarkers in Medicine*. Sep. 2024. <https://doi.org/10.1080/17520363.2024.2403327> [Impact Factor-1.9]
27. Garima Sharma, Surbhi Agarwal, **Rashmi Bhardwaj**, Vitthal T. Barvkar, Rucha C. Godbole, Vinay Kumar, Nandita Narayanasamy, Vartika Mathur. Pharmacological Potential of *Curcuma longa* Endophytes. *The Microbe*, 2024,100187, ISSN 2950-1946, <https://doi.org/10.1016/j.microb.2024.100187>.
28. Bano, A., Vats, R., Yadav, P., Kamboj, M., & **Bhardwaj, R.** (2024). Smoking-Induced Shifts in Salivary Exosomal Cytokines and Amino Acid Profiles as Potential Early Biomarkers for Oral Cancer - Manuscript accepted in journal *Cytokine* [Impact Factor-3.86]
29. Vats, R., Yadav, P., Bano, A., Wadhwa, S., & **Bhardwaj, R.** (2024). A Preliminary Study on Salivary miR-31-5p and EGFR as a Noninvasive Biomarker Panel for Early Detection of Oral Cancer in Tobacco Users- Manuscript under review in *Non-Coding RNA Research*.
30. Yadav, P., Vats, R., Wadhwa, S., Bano, A., Namdev, R., & Bhardwaj, R. (2024). Exploring Dental Regeneration: Investigation of Odontogenic Potential of Stem Cells from Human Exfoliated Deciduous Teeth (SHED) Co-Cultured with Gingival Keratinocytes- Manuscript under review in *Cytotherapy*

Book Chapters:

1. Bioactive Compounds as Therapeutic Intervention in Mucocutaneous Cancers. Adeniyi C. Adeola Henry A. Adeola*, Rashmi Bhardwaj, Aderonke F. Ajayi-Smith, Afsareen Bano, Tayo A. Adekiya, Michael C. Ojo, Raphael T. Aruleba. *Therapeutic Use of Plant Secondary Metabolites*, 28(111-138). Publisher: Bentham Sciences
2. Clinical limitations in stem cells therapy. Pooja Yadav, Ravina Vats, Afsareen Bano, Rashmi Bhardwaj. *Stem Cells*, Academic Press, 2024, Pages 355-362, ISBN 9780323955454, <https://doi.org/10.1016/B978-0-323-95545-4.00012-8>

Presentations in Seminars and Conferences/ Invited lectures:

1. Human fatal liver stem cells cytokine profile elucidation. International Society of Stem Cell Research 5th Annual meeting, Cairns, Australia, 2007
2. Phytochemical-Chlorogenic Acid: potent anti-cancerous and antiproliferative drug for leukemia and cervical cancer. International Conference on " Bio and Nanotechnologies for sustainable agriculture, food, health, energy and industry (ICBM -2018), organised by Department of Bio& Nanotechnology, GJU&ST, Hisar, India
3. Stem Cells and their applications in healthcare. IILM academy of Higher Learning, greater Noida, 2019.
4. Evaluation of anti-cancerous and anti-proliferative activity of phytochemicals from medicinal plants. International Conference on Sustainable Agriculture, Energy, Environment and technology (ICSAEET-2018) organized by Environment Sustainability Management Cell, Maharshi Dayanand University, Rohtak,

5. Microarray gene expression profile analysis of Erythropoiesis. International seminar on “sustainable environment & agriculture Under global climate change” organized by Environment Sustainability Management Cell, Maharshi Dayanand University, Rohtak,
6. Salivary microbiome evaluation: Diagnostic approach as a cancer biomarker. International Conference on Microbes for Biotechnological Innovations (MBI-2018) Department of Microbiology and AMI Rohtak organized by Centre for Biotechnology, MDU
7. Natural Bioactive compounds: A pharmaceutical perspective. National Seminar on Climate Change and Food Security organized by Centre for Biotechnology, MDU (2018)
8. Indian scenario and Ethical Guidelines for conducting human stem cell research and therapy. 2nd Capacity building National webinar cum Workshop on "Ethics in Biomedical Research and GCP guidelines" organised by Human Ethics committee and Department of Zoology, MDU, Rohtak (2022)
9. Salivary exosomal characterization for oral cancer diagnosis: Power of natural nanoparticles. M D University and AMI (2018)
10. Salivary Microbiome: A Non-Invasive Avenue for Detecting and Evaluating Oral Cancer. 65th Annual International Conference of the Association of Microbiologists of India (AMI), held on the theme “Perspective of Microbes for Human Welfare” from 14th to 17th November 2024 at Guru Jambheshwar University of Science & Technology, Hisar, Haryana, India.
11. Exploration Of the Ameloblastic potential Of Stem Cells from Human exfoliated Deciduous Teeth (SHED) Implications for Bio-Tooth engineering. International Society for Stem Cell Research, Hamburg, Germany (2024)

Expertise: I am currently engaged in research on biotooth engineering through dental pulp stem cells, Lung Cancer Immunotherapy, as well as the non-invasive diagnosis of oral cancer and lung cancer through salivary and exhaled breath exosomes, which are natural nanoparticles secreted by all cells. Before my current role, I completed my Ph.D. in Medical Oncology from the All India Institute of Medical Sciences (AIIMS), New Delhi, where I gained valuable experience working with fetal liver hematopoietic stem cells and cancer patient samples. Following that, I worked as a postdoctoral fellow at Memorial Sloan Kettering Cancer Center for nearly four years, focusing on the hematopoietic stem cells and pathogenesis of bone marrow failure syndromes.

I have expertise in biomedical engineering with a focus on stem cell technology and non-invasive cancer diagnostics. My research includes generating enamel-producing ameloblasts from human exfoliated deciduous teeth (SHED) to advance biotooth engineering, and identifying salivary exosomes and microRNAs as biomarkers for early detection of oral squamous cell carcinoma (OSCC) and lung cancer in high-risk populations. I established methods for standardizing exosome isolation and demonstrated their potential in revealing oncogenic signals and inflammatory markers. My work aims to enhance early diagnosis and therapeutic interventions, paving the way for improved patient outcomes in oncology.

Two of my Ph.D. students have been awarded their degrees, and my first Ph.D. student is joining as a postdoctoral fellow at the University of Florida and second one at M.D. Anderson Cancer Centre USA. Currently, Two Ph.D. students have submitted their thesis and are waiting for their final viva. Additionally, I have co-guided four MDS thesis in collaboration with Postgraduate Institute of Dental Sciences, Rohtak, and have supervised the completion of over 50 M.Sc. dissertation thesis.

I hereby declare that the information furnished above is accurate to the best of my knowledge.

DR. RASHMI BHARDWAJ