Prof. Rana Pratap Singh (Brief CV)

Former Rector /Pro-Vice Chancellor, JNU, New Delhi

Academics, Teaching and Research Experience

Prof. R. P. Singh completed his B.Sc. from Ewing Christian College, Allahabad, and then earned his M.Sc. degree (1993) in Life Sciences and PhD (2000) in Cancer Biology from Jawaharlal Nehru University (JNU), New Delhi. He got his post-doctoral training from AMC Cancer Research Centre, Lakewood, Colorado, USA; and School of Pharmacy, University of Colorado Health Sciences Centre, Denver, USA. He worked as an Assistant Professor at the Dept. of Pharmaceutical Sciences, University of Colorado Denver, USA (2003). Thereafter, he joined as School of Life Sciences Faculty at JNU as an Associate Professor (2006), at Central University Gujarat as a Professor on Deputation (2010) and thereafter as an Adjunct Professor, and back to JNU as a Professor (2012). Currently, he has more than 24 years of teaching and 31 years of research experience. He has been a Visiting Fellow to University of California, Riverside, CA, USA (2014) and will be visiting Johns Hopkins University, USA (2024). Currently, he is an Adjunct Professor at the University of Colorado Denver, CO, USA (2023). Moreover, he has visited 8 countries for academic pursuits. He has supervised 22 Ph.D., 13 M.Phil. and several M.Sc. students.

Publication, Research Grant, and Patent

Prof. Singh has published 190 peer-reviewed articles and 150 conference publications/ presentations. He has >15,800 citations with a H-index of 78. He has also written one book on Breast Cancer and delivered >100 invited lectures including 18 lectures abroad in-person. He has organized 22 International Cancer Conferences and 10 Workshops. He has worked as the Editorial Board Member of 15 International Journals and served as a reviewer for over 30 International peer-reviewed journals. He has worked for may research projects, including 13 projects as PI, multi-investigator collaborative national and international projects, and filed 3 patents to his credit.

Academic Leadership

Prof. Singh is well known for his teaching and research contributions in the area of cancer prevention and therapeutics. His work areas include tumor heterogeneity, cancer stem cells, radiotherapy and chemotherapy resistance, tumor angiogenesis, cell cycle and cell signaling, microgravity and cancer. He also played a key role in the conceptualization and establishment of the Patanjali Research Institute at Haridwar. Further, he has a vital role in initiating the Ayurveda Biology program (BSc-MSc) at JNU, and also conceptualized the Medical School and Hospital on the JNU campus. Recently, he played key role to conceptualize and establish a Special Centre for Systems Medicine at JNU (2020-21) and worked as its founder Chairperson.

Awards and Honors

He is awarded with DHR-ICMR International Fellowship for Senior Biomedical Scientists to Johns Hopkins University, USA (2024); He has received an award from the Indo-US Science Technology Forum (IUSSTF) for establishing the "Centre for Integrative Cancer Biology and Therapeutics" (VNC) between JNU and Stanford University, USA (2019). He has been a recipient of the ICMR International Fellowship for Young Biomedical Scientists to University of California Irvine, USA (2014); a Post-doctoral Trainee Award for Prostate Cancer Research, U.S. Army Medical Research and Materiel Command, Department of Defense, USA, and Scholar-in-Training Award, AACR, Philadelphia, PA, USA.

Professional Activities

Prof. Singh has been Member/Chair of several administrative and academic committees and professional bodies, including DBT, DST, ICMR, UGC, Tribal Ministry, National Institute of Immunology, International Centre for Genetic Engineering and Biotechnology (ICGEB), Translational Health Science and Technology Institute (THSTI), Central Drug Research Institute (CDRI), Central Institute of Medicinal and Aromatic Plants (CIMAP), etc. He has served as a Board Member of the Science & Engineering Research Board (SERB), DST.

Administrative Experience

He has served as Pro-Vice-Chancellor at JNU (2017-22). He also has a vast administrative experience through serving as Dean of Students (2016-17), President of the Institutional Innovation Council, and In-charge of Recruitments, Estate, Infrastructure and Research & Development, etc at JNU. He played a key role in various capacities for the establishment of Central University of Gujarat (CUG), Gandhinagar (2010-12). He was the Founder Dean of School of Life Sciences, Founder Dean of Students and Provost at CUG; and also conducted the All India Entrance Examination for CUG.

Curriculum Vitae

Rana P. Singh, Ph.D.
Professor of Cancer Biology
104, School of Life Sciences
Jawaharlal Nehru University
New Delhi-110067, INDIA
E-mail: rana_singh@mail.jnu.ac.in
ranaps@hotmail.com
Phone: 91-11-26704503
Fax: 91-11-26742558

Nationality: Indian

Education

Degree	Institution	Field of Study
Ph.D.(2000)	Jawaharlal Nehru University, New Delhi, India	Life Sciences/Cancer Biology
M.Sc.(1993)	Jawaharlal Nehru University, New Delhi, India	Life Sciences
B.Sc.(1990)	Ewing Christian College, University of Allahabad, U.P., India	Zoology, Botany, Chemistry

Ph.D. Thesis: Ethnomedicinal Survey of Madhya Pradesh and Pharmacological Studies of Certain Selected Plants on Murine Model System

Academic Career

2023- present: **Adjunct Professor**, Skaggs School of Pharmacy and Pharmaceutical Sciences, AMC Campus, University of Colorado, Aurora, CO, USA.

2021- present: **Concurrent Professor,** Special Centre for Systems Medicine, Jawaharlal Nehru University, New Delhi, India.

2014-(Feb-Jun): **Visiting Scientist,** University of California Riverside, CA, USA.

2012-present: **Professor** of Cancer Biology, School of Life Sciences, Jawaharlal Nehru University, New Delhi, India.

2012-2016: **Professor-Adjunct**, School of Life Sciences, Central University of Gujarat, Gandhinagar, Gujarat, India.

2010-2012: **Professor**, School of Life Sciences, Central University of Gujarat, Gandhinagar, Gujarat, India. (Dept)

2006-2010: **Associate Professor,** Molecular Cancer Biology, School of Life Sciences, Jawaharlal Nehru University, New Delhi, India.

2003-2006: **Assistant Professor** - Research, Department of Pharmaceutical Sciences, School of Pharmacy, University of Colorado Denver, CO, USA.

2001-2003: **Research Associate,** Department of Pharmaceutical Sciences, School of Pharmacy, University of Colorado and Health Sciences Center, Denver, CO, USA.

2000-2001: **Post-doctoral Research Fellow**, Center for Cancer Causation and Prevention, AMC Cancer Research Center, Lakewood, CO, USA.

- *Visited Canada, USA, China, Turkey, Poland, Singapore, South Africa and Austria for academic pursuits.*

Administrative Positions/Activities

- **Rector /Pro-Vice Chancellor**, Jawaharlal Nehru University, New Delhi. (May 2017-Feb 2022)
- **Chairperson,** Special Centre for Systems Medicine, JNU, New Delhi. (Jan 2021- May 2022)
- **President,** Institutional Innovation Council-JNU, New Delhi. (2019 - 2022)
- **Dean of Students,** Jawaharlal Nehru University, New Delhi. (April 2016- May 2017)
- **Court Member**, Jawaharlal Nehru University, New Delhi. (2016-2021)
- **Executive Council Member**, Jawaharlal Nehru University, New Delhi. (2016-2017)
- **Dean of Students' Welfare,** Central University of Gujarat, Gandhinagar, Gujarat, India. (2011-2012)
- **Chairman, Admission Committee,** Central University of Gujarat, Gandhinagar, India. (2011) – conducted All India Entrance Examination for CUG
- **Dean, School of Life Sciences,** Central University of Gujarat, Gandhinagar, Gujarat, India. (2010-2012)
- **Dean, School of Environmental Sciences,** Central University of Gujarat, Gandhinagar, Gujarat, India. (2011)
- **Provost,** Central University of Gujarat (CUG), Gandhinagar, Gujarat, India. (2010-2011)
- **Warden,** (Senior/Mess/Health/Recreation), Sabarmati Hostel, JNU, New Delhi. (2007-2010)

Other Professional Activities

- **Member/Chair,** in many Committees constituted by **UGC, ICMR, AICTE** and **ICSSR,** New Delhi, India (2022-)
- **Member, UGC Expert Committee** to look into the existing processes, policies, practices and procedures in UGC Regulations-2018 for appointment and promotion of teachers. (07 March 2023)
- **Academic Council Member**, Jawaharlal Nehru University, New Delhi, India. (2023-)
- **Member, Lab Research Council,** Defence Institute of Physiology & Allied Sciences (DIPAS), Defence R&D Organization, MoD, GOI, Delhi, India (Oct 2022)
- **Co-Chair, DBT Technical Expert Committee for Cancer Disease Biology,** Department of Biotechnology, Govt of India (2022 - 2025)

- **Member, ICMR Committee,** for establishing Biomedical Image Banking, ICMR, New Delhi (2022)
- **Member, ICMR Project Review Committee,** Biomedical Informatics, ICMR, New Delhi (2022 -)
- **Member, UGC Committee,** to review the functioning of UGC Regional Offices for effective implementation of NEP-2020. (17 May 2022)
- **Co-Chairman,** of panel on Physiology of Extreme Environment and Behavioural Sciences (PEE&BS) of Life Science Research Board (LSRB), DRDO. New Delhi, India. (2021- present)
- **Member/Nodal Person-JNU,** Scientific Support Group for hand holding in analysis and conducting research for National Tobacco Testing Laboratories (NTTLs), MoH&FW, GoI, New Delhi, India. (2020- 2021)
- **Academic Committee Member,** CIMAP, Lucknow, India. (2019-21)
- **Academic Committee Member,** NII, New Delhi, India. (2019-2021)
- **Board Member SERB**, Department of Science and Technology, Govt. of India. (2018-21)
- **Academic Committee Member,** ICGEB, New Delhi, India. (2019-2021)
- **Leadership for Academicians Program (LEAP),** Program participant at JNU, New Delhi and National University Singapore at Singapore (Feb 2019)
- **Chairman of Program Review Committee**, Programs and Schemes of National Council for Science and Technology Communication, DST, Govt. of India. (2018)
- **Council's Nominee** for Committee in Biological/Life Sciences, IISER Kolkata, India. (2018-2020)
- **Academic Committee Member,** Translational Health Science and Technology Institute (THSTI), Faridabad, Haryana, India. (2017-2019)
- **Council's Nominee** for Committee in Biological/Life Sciences, IISER Bhopal, India. (2017-2020)
- **Academic Committee Member,** Raman Research Institute, Bangalore, India. (2017-2019)
- **Chairman, Selection Committee,** National Overseas Scholarship, Ministry of Tribal Affairs, Govt. of India (2017)
- **Member-Expert,** Faculty Selection Committee, J&K Public Service Commission, Jammu, India (2017)
- **Academic Committee Member, Army Cadet College,** IMA, Dehradun, UK, India. (2016)
- **Academic Committee Member, CSIR– CDRI,** Lucknow, UP, India. (2016-2018)
- **Member-Expert, Selection Committee, Chinese Government Scholarship,** MHRD, New Delhi (2016)
- **School Board Member,** Manglayatan University, UP. (2016-2017)

- **Member, Joint-Coordination Committee,** National Institute of Animal Welfare, Faridabad, Haryana. (2016-17)
- **School Board Member,** Central University of Punjab, Bhatinda (2016-18)
- **Advisory Committee Member,** UGC-HRD Centre, DDU Gorakhpur University, UP, India (2015-2017)
- **Member,** Indo-Overseas Fellowship Committee, DST, India. (2015)
- **Academic Council Member**, JNU, New Delhi. (2015-)
- **School Board Member,** Dept. of Biotechnology, DDU Gorakhpur University, UP, India. (2014-2017)
- **Scientific Advisory Committee Member,** Institute of Cytology and Preventive Oncology, ICMR Institute, Noida, UP, India. (2013-)
- **Faculty-in Charge,** Central Laboratory Animal Resources, Jawaharlal Nehru University, New Delhi, India. (2012-)
- **Academic Council Member,** Chhatrapati Shahu Ji Maharaj University, Kanpur, UP, India (2012-2015)
- **Moderation Committee Member**, Gujarat State Eligibility Test, Gujarat, India. (2011, 2012)
- **Chair, Search Committees**, Project Research Assistant/Post-doctoral Fellows /Project Research Associate – Bio-fractionation, isolation, purification and characterization of active components having anticancer activity in natural extracts, and Cancer Intervention Research at DOPS/SOP/University of Colorado. (September 2005, and March 2006)
- **Invited Judge** for 17th and 18th Annual Student Research Forum, University Colorado Health Sciences Center, Denver, CO, USA. (2002 and 2003)
- **Invited Judge** for Denver Metropolitan Regional Science Fair, Denver, CO, USA. (2003)

Workshops Organized

1. **Organized,** Workshop on *Handling and Care of Laboratory Animals* at the School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. (28 November- 02 December, **2023**).
2. **Organized,** Hands-on Workshop on *3D Spheroid and Organoid Culture – Tools for Human Health Research* at Jawaharlal Nehru University, New Delhi, India. (23-25 November, **2023**). Participants were from 15 different institutions from India.
3. **Organized,** Hands-on Workshop on *Handling and Care of Laboratory Animals* at the School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. (20-24 February, **2023**).
4. **Organized,** Workshop on *Handling and Care of Laboratory Animals* at School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. (14-17 November, **2022**).

5. **Organized,** Workshop on *Handling and Care of Laboratory Animals* at School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. (15-19 February, **2020**).
6. **Organized,** Workshop on *Handling and Care of Laboratory Animals* at School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. (04-07 February, **2019**).
7. **Organized,** Hands-on Workshop on *Handling and Care of Laboratory Animals* at School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. (28 May- 02 June **2018**)
8. **Organized,** Hands-on Workshop on *Handling and Care of Laboratory Animals* at Jawaharlal Nehru University, New Delhi, India. (11-14 February **2016**)
9. **Conducted** one-day workshop on "Cancer Biology and Basics of Genetic Engineering" at Gujarat Science City, Ahmedabad, India at the meeting of German Foundation "DWIH New Delhi - Excellence on Tour-2013". (15-22 November **2013**)

In the laboratory animal workshop, the major topics covered including Hands-on are:

- **Introduction to animal world - Laboratory animals**
- **Biology of mice, rat and rabbit – Anatomy**
- **Ethical Committee - Ethics for using animals in research**
- **Administrative requirements for animal experiments**
- **Perioperative care, anaesthesia, surgical techniques and analgesia**
- **Pain: causes, category monitoring and distress in laboratory animals**
- **Euthanasia in laboratory animals**
- **Disease-specific animal models – Cancer**
- **Animal models in immunology research – Alternatives**
- **Animal models in toxicology research**
- **Animal models in n neurology research, learning and memory**
- **Power of statistics in data analysis for animal experiments**
- **Genetics of laboratory animals - transgenics and knockouts Preparation of experimental protocols; critical analysis of scientific**

Organization of International Conferences/Symposium

1. **Organized,** Symposium-cum-workshop on 3D-Bioprinting and its Biomedical Applications, Jawaharlal Nehru University, New Delhi, India. (15 March, **2024**).
2. **Organized**, International Symposium on Mitochondria, Cell Death and Human Diseases, Jawaharlal Nehru University, New Delhi, India. (18-19 February, **2023**).
3. **Organized**, 16th International Cancer Symposium on Translational Chemoprevention & Brain Storming, Jawaharlal Nehru University, New Delhi, India. (18-19 November, **2022**).
4. **Organized**, 15th International Symposium on Cancer Prevention and Interception - Bench to Bedside, Jawaharlal Nehru University, New Delhi, India. (Feb 22-23, **2022**).
5. **Organized**, 14th International Symposium on Cancer Prevention and Therapeutics, Jawaharlal Nehru University, New Delhi, India. (March 16-17, **2021**).

6. **Organized**, 13th International Symposium on Cancer Prevention and Treatment, Jawaharlal Nehru University, New Delhi, India. (February 20-21, **2020**).
7. **Organized**, International Symposium on Tumor Microenvironment and Cancer Prevention & Therapeutic, Jawaharlal Nehru University, New Delhi, India. (February 08-09, **2019**).
8. **Co-organizer,** International Conference on Cell Death in Cancer and Toxicology. IITR, Lucknow, India. (February 20-22, **2018**)
9. **Organized**, International Symposium on Cell Death Resistance in Cancer: Perspective on Cancer Stem Cells at Jawaharlal Nehru University, New Delhi, India. (19 February **2018**)
10. **Organized,** International Symposium on Cancer Prevention and Treatment at Jawaharlal Nehru University, New Delhi, India. (09-10 February **2018**)
11. **Organized,** 6th Annual Conference of Society for Mitochondrial Research and Medicine-India & International Conference on *Role of Mitochondria in Health & Disease* at Jawaharlal Nehru University, New Delhi, India. (10-11 February **2017**)
12. **Organized,** 8th International Conference of LASA India, Jawaharlal Nehru University, CSIR- Institute of Genomics and Intergrative Biology (IGIB), New Delhi and National Institute of Biologicals (NIB), Noida, India. (26-26 November, **2017**).
13. **Organized,** International Symposium on *Role of Herbals in Cancer Prevention and Treatment* at Jawaharlal Nehru University, New Delhi, India. (9-10 February **2016**)
14. **Organized,** International Symposium on *Current Advances in Radiobiology, Stem Cells and Cancer Research* at Jawaharlal Nehru University, New Delhi, India. (19-21 February **2015**)
15. **Co-organizer,** 5th International Conference on *Stem Cells and Cancer: Proliferation, Differentiation & Apoptosis* at Jawaharlal Nehru University, New Delhi, India. (8-11 November **2014**).
16. **Organized,** International Conference on *Recent Advances in Cancer Prevention and Therapeutics* at Central University of Gujarat, Gandhinagar, India. (19-20 November **2013**)
17. **Organized,** International Conference and Second Annual Meeting of Society of Mitochondria Research and Medicine-India on "Mitochondria in Health and Disease" at Central University of Gujarat, Gandhinagar, India. (2-3 November **2012**)
18. **Organized,** International Conference on *Recent Advances in Cancer Research: Therapeutics to Chemoprevention* at Central University of Gujarat, Gandhinagar, India. (8-9 February **2012**)
19. **Organized,** International Conference on *Recent Advances in Cancer Research: Bench to Bedside* at Central University of Gujarat, Gandhinagar, India. (19-20 February **2011**)
20. **Joint Organizer,** International *Cancer Research Symposium-2010* on *Defining and Translating Science behind the Disease* at Rajiv Gandhi Centre for Biotechnology, Trivandrum, Kerala, India. (20-22 December **2010**)
21. **Organized,** International Symposium on *Cancer Chemoprevention and Translational Research* at Jawaharlal Nehru University, New Delhi, India. (21 December **2009**)

22. **Joint Coordinator,** International Conference on *Frontiers in Diagnosis, Prevention and Therapy of Cancer*, Motilal Nehru Medical College, Allahabad, U.P., India. (21-22 November **2009**)
23. **Organized,** International Symposium on *Novel Strategies for Targeted Prevention and Treatment of Cancer* at Jawaharlal Nehru University, New Delhi, India. (19-20 December **2008**)

Awards/Honors

- DHR-ICMR International Fellowship for Senior Indian Biomedical Scientists-2023-24. (Johns Hopkins University, Baltimore, USA)
- Indo-US Science Technology Forum (IUSSTF)- 2019 Award for establishing "Centre for Integrative Cancer Biology and Therapeutics" (Virtual Networked Centre - JNU and Stanford University, San Francisco, CA/OHSU, Portland, USA)
- ICMR International Fellowship for Young Biomedical Scientists-2013-14. (University of California Riverside, USA)
- Post-doctoral Trainee Award (2003-05) for Prostate Cancer Research, U.S. Army Medical Research and Materiel Command, Department of Defense, USA.
- Scholar-in-Training Award, American Association for Cancer Research, Philadelphia, PA, USA. (2002)
- JRF and SRF, University Grant Commission/School of Life Sciences, JNU, New Delhi, India. (1993-95-98)
- National Eligibilty Test for Junior Research Fellowship and Lecturership, UGC/CSIR, New Delhi, India. (1993)
- All India JNU Entrance examination for M.Phil/Ph.D. admission in Life Sciences, JNU, New Delhi, India. (First Rank, 1993).
- Merit-cum-Means Scholarship for Masters, School of Life Sciences, JNU, New Delhi, India. (1991-93)

Invited Talks/ Chairing of Scientific Sessions

(Lectures delivered abroad in-person: 18)

1. Invited talk at 6th International Conference on Nutraceuticals and Chronic Diseases: Nutraceuticals – Basic Science to Clinical Applications at Punjab University, Chandigarh, India. (February 22 -24, 2024)
2. Invited talk and chaired a technical session at the International Conference on Biology Beyond Boundaries- Mitochondrial Insights, Computational Breakthroughs, and Clinical Transformations, Savitribai Phule Pune University (SPPU), Pune, India, in association with Rutgers School of Biomedical and Health Sciences, USA, and Roswell Park Comprehensive Cancer Center, USA. (January 29-31, 2024)

3. Invited Prof. PN Srivastava Memorial Oration in the XIV Annual Meeting of the International Society for Life Sciences (ISLS) and the International Conference on the Impact of Environment, Food & Nutrition on Human Health, at the University of Rajasthan, Jaipur, India. (December 22-23, 2023)
4. Invited Special Talk at "53rd Annual Conference of Indian Pharmacological Society"- IPSCON 2023, "NextGen Pharmacology and Therapeutics Conclave: 2023, Transforming healthcare through innovation and enterprises" at SRMIST, Kattankulathur, Chennai, Tamilnadu, India. (December 14-16, 2023)
5. Invited distinguished talk at the International Conference on "Genetics and Epigenetics of Cancer", at JSS Academy of Higher Education and Research, Mysore, Karnataka, India. (October 30-31,2023)
6. Invited Distinguished speaker at GLA University, Mathura, UP, India (August 26, 2023)
7. Invited Talk on "Recent advances in cancer chemoprevention and therapeutics" at Refresher course in 'Recent Trends in Life Sciences UGC-HRDC, KET's V.G. Vaze College, University of Mumbai, Mumbai, India. (June 8, 2023)
8. Invited Talk, G20 University Connect - Engaging Young Minds, at Shree dev Suman Uttarakhand University, Rishikesh, New Tehri, Uttarakhand, India. (May 3, 2023)
9. Keynote Address at National Conference organized by the National Environmental Science Academy, New Delhi and Department of Dravyaguna, Faculty of Ayurveda, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh, India. (April 22-23, 2023)
10. Invited talk on Single cell-derived spheroids capture functional and genetic heterogeneity of head and neck cancer. American Association for Cancer Research, Annual Meeting 2023. Orlando, Florida, **USA.** (14-19 April, 2023)
11. Invited talk on Preclinical development of flavonoids for cancer control at Stephenson Cancer Centre, Oklahoma University Health Sciences Centre, Oklahoma, **USA**. (13 April 2023)
12. Invited Talk, 10th Indian Science Congress, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, and Maharashtra, India. (January 3-7, 2023).
13. Keynote Address at the XIII Annual Meeting of the International Society or Life Sciences (ISLS) and International Conferences on "Impacts of Environment, Food & Nutrition on Human Health" (ISLS-2022), University of Rajasthan, Jaipur, India. (December 22-24, 2022)
14. Invited Talk, International Conference series on 'VAYU- The Vital Life Force' to be held during at Siksha 'O' Anusandhan University, Campus, Bhubaneswar, Odisha, India. (December 3-4, 2022)

15. Invited Talk on Targeting DNA repair for radiosensitization of cancer cell, at Chittaranjan National Cancer Institute, Hazra Campus, Kolkata, India. (November 25, 2022)
16. Invited Talk, UGC–Human Resource Development Centre Sant Gadge Baba Amravati University, Amravati, India. Refresher Course – Life Sciences. (October 12, 2022)
17. Invited Talk and Member Scientific Advisory Committee, 5th International Conference on Nutraceuticals and Chronic Diseases, Department of Zoology, University of Delhi, New Delhi, India. (October 7-9, 2022)
18. Invited Talk, 27th Refresher Course in Life Sciences & Biotechnology, HRDC-JNU, New Delhi, India. (September 29, 2022)
19. Invited Talk, International Conference on Recent Trends in Animal Sciences., organized by the Department of Zoology, Institute of Science, Banaras Hindu University, Uttar Pradesh, India. (March 25-27, 2022)
20. Keynote Talk for Seminar on Medical and Pharmaceutical Biotechnology - on Cancer Prevention- An Effective Strategy for Cancer Management. Amity University, Jaipur, India. (March 24, 2022)
21. 41st International Annual Conference of the Indian Association for Cancer Research (IACR-2022) on "Combating Cancer: Biology to Therapy to Drug Resistance" along with an International Symposium on "Stem Cell and Cancer" organized by Amity Institute of Molecular Medicine & Stem Cell Research, Amity University, Uttar Pradesh, Noida, Uttar Pradesh, India. (March 2-5, 2022)
22. 2nd Translational Oncology Conference on "Emerging Trends in Translational Oncology (ETTO- 2022)" organized by Department of Medical Oncology, AIIMS, New Delhi & Research and Educational Society of Medical Oncology (RESMO) at AIIMS, New Delhi & NCI-AIIMS, Jhajjar, Hariyana. (February 18-19, 2022)
23. Seminar on "Education in Uttar Pradesh- Present & Future", organised by Deen Dayal Upadhyaya University, Gorakhpur, UP (November 23, 2021).
24. Health 2021 E-International Conference Cancer Biology: Advances & Challenges, organized by Deshbandhu College, University of Delhi, India. (November 12-13, 2021)
25. 27th International Conference (CONIAPS XXVII) on "Interdisciplinary Research in Biomedical Sciences", organized by Amity University Uttar Pradesh, Noida in association with International Academy of physical Sciences, Prayagraj, India. (October 26-28, 2021)
26. Invited talk on 'Small molecule enhances radiotherapeutic efficacy in prostate cancer' at Advances in Cancer Research – Global Cancer Summit-2020, organized by Arjyopa Healthcare, India. (December 19, 2020)

27. Invited talk on ‘Mitochondrial exchange induces chemotherapy resistance in head and neck cancer and suppressed by a flavonoid’ at Conference on “Advances in Mitochondrial Medicine and Translational Research” organized by Manipal Academy of Higher Education, and Society for Mitochondria Research and Medicine-India, India. (November 6-7, 2020)
28. Invited talk on ‘Health and Cancer’ at Pt. LMS Government PG College Rishikesh, Uttarakhand, India. (August 04, 2020)
29. Invited distinguished lecture on ‘India’s aspirations in Post-Covid-Era’ at Yugdrashta Lecture Series, Organised by Bhavya Bharat Foundation, Gujarat, India. (May 27, 2020)
30. Invited plenary lecture on 'Management of Cancer through Chemoprevention' at the XLIII Indian Social Science Congress at Bengaluru Central University, Bengaluru, India. (January 17-21, 2020)
31. Invited talk at National Seminar on “Ayurveda and Integrative Medicine and its Contemporary Relevance” at Regional Ayurveda Research Institute of Urinary Disorder, Jammu, India. (January 11-12, 2020)
32. Invited talk at an International Conference on “Emerging Horizons in Oncology: Molecules to Therapeutics” at Gujarat University, Ahmedabad, India. (September 27-29, 2019).
33. Invited talk at Sci-ROI (Science and Research Opportunities in India) at University of Chicago, IL, **USA.** (September 7, 2019).
34. Delivered talk at ACS National Meeting, Fall 2019 (American Chemical Society) at San Diego, CA, **USA.** (August 29, 2019).
35. Delivered invited lecture on “small molecules suppressing chemo- and radiation resistance via targeting mitochondrial exchange and DNA repair in cancer” at School of Medicine, Radiation Oncology, Stanford University, CA, **USA.** (August 27, 2019)
36. Invited talk at International Conference of Integrative Chemistry, Biology and Translational Medicine. University of Delhi, Delhi, India. (February 25-26, 2019).
37. Invited talk at Mitochondria in Health and Disease, CDRI, Lucknow, India. (November 29-30, 2018).
38. Invited talk at International 87th Conference of Society of Biological Chemists, School of Life Sciences, Manipal Academy of Higher Education, Manipal, India. (November 25-27, 2018).
39. Invited talk, Animal Models in Cancer Research, at Institute of Liver and Biliary Sciences, New Delhi, India. (October 2018)
40. Invited talk at 7th International Symposium on Global Challenges for today’s Research Universities: Health, Energy and Environment, and Agriculture, McDonnell International Scholars Academy, Beijing, **China.** (October 11-14, 2018).

41. International Conference on Bioinformatics, JNU, New Delhi, India. (September 26-28, 2018).
42. National Conference on Recent Advances in Environmental Sciences, School of Environmental Sciences, JNU, New Delhi, India. (March 22, 2018).
43. Invited talk on Fisetin Causes DNA Damage and Apoptosis through ROS in Human Gastric Cancer Cells. International Conference on Cell Death in Cancer and Toxicology, CSIR-IITR, India. (February 20-22, 2018)
44. Invited talk on Chemoprevention of Colon Cancer: Role of Mitochondrial Dynamics. Second International Conference on Nutraceuticals and Chronic Diseases (2nd INCD-2017), Goa, India (September 1-3, 2017)
45. 15th Annual Meeting and a conference on "Basic and Applied Aspects of Health Management Using Radiation, Antioxidants and Nutraceuticals" at BARC, Mumbai, India. (January 9-12, 2017)
46. Invited talk on 'Animal models in prostate cancer research' at International Conference on "Advances in Laboratory Animal Science for Modeling Human Diseases" organized by Laboratory Animal Scientists' Association (LASA), Bangalore, India. (October 14-15, 2016)
47. Invited talk on 'Enhancing radiotherapy of prostate cancer with phytochemicals' at National Symposium on Current Research in Cancer Biology & Therapy organized by School of Biological Science & Biotechnology, University & Institute of Advanced Research, Gandhinagar, India. (October 7-8, 2016)
48. Invited talk on 'Where to focus while writing a scientific paper?' at Workshop on Scientific Paper Writing and Effective Communications, DDU, Gorakhpur University, UP, India. (September 17-18, 2016)
49. Invited talk at Symposium on Recent Trends in Biological Sciences, Central University of Punjab, Bhatinda, Punjab, India. (March 29, 2016)
50. Indo-US Workshop on Cancer at NASI, Pusa, New Delhi, India, organized by CCRU, AYUSH, Govt of India. (March 3-4, 2016)
51. Invited talk and chair of a scientific session. National Conference on Herbal Medicine, Current Strategies & Future prospects, University of Rajasthan, Jaipur, India (December 22-24, 2015)
52. Invited talk and chair of a scientific session. Sixth International Conference on Stem Cells and Cancer: Proliferation, Differentiation & Apoptosis". Pune, India. (October 2015)
53. International Conference on Cancer Prevention. Invited talk. University of Gdnask, **Poland.** (June 2015)
54. Academic Staff College, Invited talk for orientation program. DDU Gorakhpur, UP, India. (June 2015)

55. Keynote Talk, at National Seminar on Medicinal Plants: Markets to Produce, at INSA New Delhi, India. Title: “Role of phytochemicals in chemoprevention of cancer”. (April 29, 2015)
56. Keynote Talk, at KIIT Group of College, Gurgaon, Haryana, India, on National Science Day. Title: “How to control cancer?” (February 28, 2015)
57. Fourth Annual Conference of the Society for Mitochondrial Research and Medicine (SMRM) at the School of Life Sciences, Manipal University, Manipal, Karnataka, India. (December 8-9, 2014)
58. International Conference on Emerging Trends in Biotechnology and 11th Convention of the Biotech Research Society, India, Jawaharlal Nehru University, New Delhi, India. Title: “Cyclin-dependent kinase inhibitor in chemoprevention of prostate cancer”. (November 6-9, 2014)
59. Chaired a Scientific Session in 5th International Conference on Stem Cells and Cancer: Proliferation, Differentiation & Apoptosis, Jawaharlal Nehru University, New Delhi, India. (November 8-11, 2014).
60. Department of Pharmaceutical Sciences, University of Colorado Denver, CO, **USA**. Title: “A novel role of silibinin in enhancing radiotherapeutic response in prostate cancer” (May 12, 2014).
61. University of California Riverside, Department of Chemistry, CA, **USA.** Title: “Chemoprevention of photocarcinogenesis by small molecules from plants”. (March 12, 2014).
62. International Conference on ‘Vistas of Life Sciences- Now and Beyond’ at Jawaharlal Nehru University, New Delhi, India. Title: “Angioprevention of cancer”. (February 13-15, 2014).
63. South Asian University, New Delhi, India. Title: “Starvation of tumor - chemopreventive intervention of angiogenic switch to control cancer”. (Jan 24, 2014)
64. Fourth International Conference on Stem “Cells and Cancer: Proliferation, Differentiation & Apoptosis” at Haffkine Institute, Parel, Mumbai, India. Chaired a scientific session on ‘Molecular regulation in cancer therapeutics’. Title: Chemopreventive agents target tumor angiogenesis. (October 19-22, 2013)
65. DBT-Brain Storming Session on Nutriepigenomics at CFTRI Mysore, India. Title: “Modulation of tumor suppressors by IP6 in prostate cancer”. (June 7, 2013)
66. A National Seminar on “Role of Ayurveda in Rheumatoid Arthritis & Cancer” Organized by GR Ayurved University, Hoshiarpur, Punjab, India. Title: “Cancer chemoprevention by phytochemicals”. (April 20-21, 2013)
67. A Conference on "Emerging Trends and Challenges in Basic and Translational Research in Biochemistry" by Centre of Advanced Study in Zoology, Banaras Hindu University, Varanasi, India. Title: “Vascular targeting of cancer growth by phytochemicals”. (February 4-5, 2013)
68. A Conference on "Applications of Natural Products for Human Health and Bioremediation of Pollutants" organized by Centre for Advanced Studies, Department of Zoology, University of Rajasthan, Jaipur, India. Title: “Role of naturally occurring compounds in angioprevention of cancer”. (March 22-23, 2013)

69. Thirty second Convention of Indian Association for Cancer Research on "Emerging Trends in Cancer research: Road to prevention & cure & International Symposium on: Infection and Cancer" Title: "Tumor Angiogenesis – a potential target in chemoprevention of cancer". (February 13-16, 2013).

70. International Congress on Ayurvedic Concepts and Treatment of Malignant Disorders at Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Udupi, Karnataka. Topic: Role of Phytochemicals in Chemoprevention of Cancer. (December 15-16, 2012)

71. XXXII Annual Conference of Society of Toxicology (India): New Paradigms in Toxicology (NPT-2012) at CSIR-Indian Institute of Toxicology Research, Lucknow, UP, India. Title: "Phytochemicals in angioprevention of cancer" (December 5-7, 2012).

72. Third International Conference on Stem Cells and Cancer (ICSCC-2012): Proliferation, Differentiation and Apoptosis at Ram Manohar Lohia Hospital, New Delhi, India. Topic: "Apoptotic mechanisms of silibinin in neoplastic cells". (October 27-30, 2012).

73. Fifth International Congress on Nutrition and Cancer at Elazig, **Turkey**. Topic: Decursin, a novel coumarin with anticancer activity in prostate cancer (September 09 - 11, 2012)

74. Indo-US collaborative Workshop focused on "Accelerating Botanicals Agent Development Research for Cancer Chemoprevention & Treatment", at Moffitt Cancer Center in Tampa, Florida, **USA**. Topic: "Multiple targets of phytochemicals in cancer chemoprevention – cell cycle, apoptosis and angiogenesis". (May 29-31, 2012).

75. International Conference on Mitochondria Research and Medicine and First Annual Meeting of the Society for Mitochondria Research and Medicine (SMRM-India), at Centre for Cellular and Biology (CCMB), Hyderabad, India. Topic: "Apoptotic mechanisms of silibinin in neoplastic cells". (December 9-10, 2011)

76. Inter-University Accelerator Centre, New Delhi. Ultraviolet radiation-induced molecular alterations and apoptotic signaling. (November 21-22, 2011)

77. International Conference on Natural Products and Cancer Targets: Progress and Promise, Zhengzhou University, Zhengzhou Province, **China.** Topic: "Decursin, a naturally occurring coumarin, suppresses various aspects of prostate cancer growth". (August 24-25, 2011)

78. International meeting and round table discussion involving American and Chinese Scientists on Translational Research for Cancer Control, at Institute of Medicinal Biotechnology,
Chinese Academy of Medical Science, and Pekin Union Medical College, Beijing, **China.** Topic: "Translational research with phytochemicals for cancer control". (August 26-28, 2011)

79. International Conference on Carcinogenesis and Cancer Prevention organized by Carcinogenesis Foundation, USA, at DSI, Bangalore. Title: "Cancer chemopreventive activity of a naturally occurring novel coumarin compound". (February 16-18, 2011)

80. Three lectures on various principles and techniques on topics related to radiation, Central University of Bihar, Patna. (December, 2010)

81. International Cancer Research Symposium-2010 on Defining and Translating Science Behind the Disease at Rajiv Gandhi Centre for Biotechnology, Trivandrum, Kerala, India. Title: "A coumarin compound inhibits prostate cancer cells growth via modulation of cell cycle progression". (December 20-22, 2010)
82. Word Congress on Cancer-2010, Kottayam, Kerala, India. Title: "Targeting cell cycle regulation in prostate cancer." (September 3-5, 2010)
83. University of Pittsburgh Cancer Institute, Pittsburgh, PA, **USA.** Title: "Cyclin-dependent kinase inhibitors: role in chemoprevention of prostate cancer". (July 2, 2010)
84. Symposium on Natural Products in Health and Disease: Biochemical and Molecular Mechanisms. Punjab University Chandigarh, Punjab, India. Title: "Mechanisms of cancer chemoprevention by IP6". (March 5-6, 2010)
85. International Symposium on Current Status and Opportunities in Aromatic and Medicinal Plants. Central Institute for Medicinal and Aromatic Plants, Lucknow, UP, India. Title: "Role of phytochemicals in cancer control". (February 21-24, 2010)
86. International Symposium on Endocrinology and Reproduction: Molecular Mechanisms to Molecular Medicine and 28th Meeting of the Society for Reproductive Biology and Comparative Endocrinology. SCMM, JNU, New Delhi. Title: "Prostate tumor growth and progression and its chemoprevention". (February 4-6, 2010)
87. UGC Academic Staff College, Jawaharlal Nehru University, New Delhi, India. Title: "Chemoprevention of cancer". (January, 2010)
88. International Conference on Frontiers in Diagnosis, Prevention and Therapy of Cancer, Motilal Nehru Medical College, Allahabad, U.P., India. Title: Cell cycle regulation and carcinogenesis. (November 21, 2009)
89. Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, Kerala, India. Title: "Targeting angiogenesis by small molecules for cancer control". (October 30, 2009)
90. 13th ISCB International Conference on Interplay of Chemical and Biological Sciences: Impact on health and environment. University of Delhi, India. Title: Chemoprevention of prostate tumor growth and progression. (March 1, 2009)
91. Two lectures at UGC Academic Staff College, Jawaharlal Nehru University, New Delhi, India. Title: 'Cancer Chemoprevention' and 'Angioprevention of cancer'. (January 20 & 28, 2009)
92. Word Congress on Cancer-2009, Kottayam, Kerala, India. Title: "Antiangiogenic intervention of cancer by phytochemicals." (January 13, 2009)
93. Roswell Park Cancer Institute, Buffalo, New York, **USA.** Title: "Targeting tumor angiogenesis by phytochemicals for cancer control." (January 11, 2008)
94. Indo-US Symposium on Tobacco-related Diseases under 5th World Assembly on Tobacco Counter Health (WATCH) Conference, New Delhi, India. Title: "Chemoprevention of lung cancer by targeting tumor angiogenesis." (December 4, 2007)
95. Biospark-2007, SLS, Jawaharlal Nehru University, New Delhi, India. Title: "Vascular targeting for cancer control." (March 23, 2007)
96. Academic Staff College, Jawaharlal Nehru University, New Delhi, India. Title: "Anticancer drug development from phytochemicals." (February 21, 2007)

97. 75th Annual meeting of Society of Biological Chemists (India) at Jawaharlal Nehru University, New Delhi, India. Title: "Mitogenic and survival signaling - potential targets for non-toxic anticancer agents". (December 11, 2006)
98. International Conference on 'Molecular and Physiological Effect of Bioactive Food Components' organized by University of Vienna and Medical University of Vienna, at Vienna, **Austria.** Title: "Angioprevention – an upcoming approach in cancer intervention by bioactive flavonoids". (October 13, 2006)
99. Health Products and Food Branch, Office of Continuing Education, Health Canada, Ottawa, **Canada.** Title: "Bioactive phytochemicals in prevention of cancer". (September 6, 2006)
100. School of Medicine, University of Colorado, Prostate Conference Series. Title: "Signal transduction pathways: potential targets in prostate cancer prevention". (March 6, 2006)
101. National Institute of Immunology, New Delhi, India. Title: "A plant flavonoid silibinin targets cell cycle regulation, mitogenic and survival signaling in prostate cancer". (September 7, 2005)
102. School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. Title: "Mechanisms of skin cancer chemoprevention and therapy by silibinin". (September 6, 2005)
103. School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. Title: "Targeting cell cycle regulation, mitogenic and survival signaling in prostate cancer chemoprevention" (February 3, 2004)
104. Presentation and discussion in 93rd Annual meeting of American Association for Cancer Research, Philadelphia, PA, **USA**. "Prostate cancer, silibinin and IGFBP-3". (April, 2002)

Membership

1. Life member, Indian Association for Cancer Research.
2. Active member, American Association for Cancer Research.
3. Life member, Society for Reproductive Biology and Comparative Endocrinology.
4. Cancer Research and Care Academy, New Delhi.

Teaching

1. Course: Molecular Basis of Human Diseases for Ph.D. Students of Special Centre for Systems Medicine, JNU, New Delhi, India (2021-22)
2. Courses: (a) Molecular Cancer Biology and (b) Radiation Biology, and (c) Practical in Cancer Biology for M.Sc. at School of Life Sciences, Jawaharlal Nehru University (JNU), New Delhi, India (2006-)
3. Courses: (a) Topics in Radiation and Cancer Biology; and (b) Theoretical Foundation for Experiments, for M.Phil./Ph.D. at School of Life Sciences, JNU, New Delhi, India (2006-)

4. Three courses for M.Phil./Ph.D. at School of Life Sciences, CUG, Gandhinagar, Gujarat, India (2010-12)
5. Methods in Molecular Toxicology, including Carcinogenesis- Practical for Ph.D. Students, at the Department of Pharmaceutical Sciences, University of Colorado Denver, USA (2003-2006)

International Collaborations

1. Skaggs School of Pharmacy and Pharmaceutical Sciences, University of Colorado Aurora, CO, USA.
2. Knight Cancer Institute; School of Medicine, Oregon Health Science University, USA.
3. College of Pharmacy, Sahmyook University, Seoul, South Korea.
4. Department of Pharmacology and Chemical Biology, University of Pittsburgh, PA, USA
5. Department of Chemistry and Polymer Science, Stellenbosch University, South Africa

Personnel Trained (Cancer research)

Over 50, from 2001-onwards, including Graduate Students, Junior Research Fellows, Senior Research Fellows, Research Assistants, Research Associates, Post-doctoral Fellows and Visiting Scientists and faculty members

M.Sc. Dissertation: ~2 students/ year

M.Phil. Degree awarded: 13

Ph.D. Degree awarded: 22

Post-Doctoral Fellows/RA: 6

Research Group: 5 Ph.D. Students, 1 Research Scientist, 1 Project Assistant, 2 M.Sc. Dissertation Students

Editorial Board Member for Peer-reviewed Journals

1. Associate Editor – Molecular Carcinogenesis (2024 -)
2. Frontiers in Cell and Developmental Biology, Section- Cancer Cell Biology- Associate Editor (2022-)
3. Oncology Letters (2022-)
4. Journal of Cancer Prevention (2021-)
5. Scientific Reports (2018-22)
6. Frontiers in Cellular Biochemistry - Review Editor (2013-21)
7. BMC-Cancer – Associate Editor (2013-20)
8. PLoS One - Academic Editor (2011-18)
9. Molecular Cancer Biology (2012-14)
10. BMC Complementary and Alternative Medicine - Associate Editor - Basic Research (2011-14)
11. International Journal of BioSciences and Technology (2008-12)

12. International Journal of Medical Sciences and Technology (2008-12)
13. International Journal of Life Sciences and Technology (2008-11)
14. Oriental Pharmacy and Experimental Medicine – Guest Editor for one article (2008)
15. Journal of Cancer Research and Therapeutics (2006-08)

Guest Editor for Special Issues

1. Cell Communication and Signaling (2024) - *Biology Beyond Boundaries: Mitochondrial and Cell Death in Translational Research* **(Impact Factor = 8.4)**
2. Mitochondrion (2019) – *Mitochondria in Health and Disease* **(Impact Factor = 4.1)**
3. Mitochondrion (May, 2014) – *Role of Mitochondria in Health and Disease* **(Impact Factor = 4.1)**
4. Nutrition and Cancer (May, 2013) – *Mechanisms of Bioactive Phytochemicals in Cancer Chemoprevention* **(Impact Factor = 2.8)**
5. Indian Journal of Experimental Biology (Nov. 2011) - *Emerging Trends in Cancer: Prevention and Therapeutics* **(Impact Factor = 1.3)**

Reviewer for Edited Book

Molecular Techniques in Biochemistry and Biotechnology, McGraw-Hill, 2008

Reviewer for Peer-reviewed Journals

(1) Cancer Research, (2) Clinical Cancer Research, (3) Oncogene, (4) Molecular Carcinogenesis, (5) International Journal of Cancer, (6) Cancer Letters, (7) Nutrition and Cancer, (8) Indian Journal of Cancer, (9) International Journal of Gynecological Cancer, (10) Journal of Cell Physiology, (11) Archives of Biochemistry and Biophysics, (12) Drugs, (13) Evidenced-based Complementary and Alternative Medicine, (14) IUBMB Life, (15) Journal of Food Biochemistry, (16) Kidney International, (17) Toxicology Letters, (18) Food and Chemical Toxicology, (19) International Journal of Integrative Biology, (20) Cancer Immunology and Immunotherapy, (21) Journal of Neurosurgery, (22) Journal of Medicinal Food, (23) PLOS One, (24) BMC Cancer Biology, (25) International Journal of Radiation Biology, (26) Tumor Biology, (27) Molecular Cancer Therapeutics, (28) Cancer Discovery, (29) British Journal of Nutrition, (30) The Journal of Steroid Biochemistry and Molecular Biology; and few more.

Research Interests

Carcinogenesis, Cancer Chemoprevention, Tumor Angiogenesis, Radiation Therapy, Cell Signaling, Cell Cycle, Microgravity & Cancer, Cancer Stem Cells, Spheroids

Our major areas of research interest includes carcinogenesis, cell cycle progression, mitogenic and cell survival signaling, apoptosis, tumor angiogenesis, DNA damage/repair and organ specific carcinogenesis, including that of lung, prostate, oral cavity, stomach and

other organs. Discovering and evaluating anticancer activities of small molecules, both synthetic and natural/phytochemicals/plant extracts and providing scientific basis (mechanisms) for their effectiveness in controlling cancer growth and progression are priority areas of research. Of specific importance is the understanding of mechanisms at all levels *viz.*, molecular, cellular and organ levels in both *in vitro* as well as *in vivo* animal model systems by using latest techniques. The goal is to develop mechanism-based non-toxic anticancer agents for their potential use in cancer management.

Selected Research Contributions

- The contributions have been made in the area of cancer chemopreventive drug discovery. Studies have led to the discovery of many novel mechanisms of action of chemopreventive agents including flavonoids, coumarin and alkaloids including silibinin, fisetin and berberine against various cancers as evident from publications.
- We identified that insulin-like growth factor binding protein-3 **(IGFBP-3)** can serve as prognostic biomarker in prostate cancer intervention by chemopreventive agents.
- We identified that agents such as decursin, fisetin and acacetin interfere with the process of **angiogenesis** to inhibit tumor vascularization and its growth and progression. We postulated that dietary factors affect the equilibrium between antiangiogenic and proangiogenic environment in the body and thus determine the dormancy of a tumor waiting for angiogenesis to embark its growth.
- We identified that **sodium butyrate**, a short-chain fatty acid and fermentation product of gut microflora, blocks the DRP1 (dynamin-related protein) mediated mitochondrial fission, reduces the active mitochondrial mass and starves the cancer cells to death.
- We found that a flavonoid compound **silibinin** selectively radiosensitizes cancer cells by blocking the nuclear translocation of EGFR and DNA-PK in both cell culture and *in vivo* tumor growth conditions. Thus, a potential radiosensitizer or adjuvant in radiotherapy of prostate cancer was identified.
- We reported the role of **PARP-1**, a potential target in cancer control, in the EMT of lung cancer through transcription factors Smad4, p65 and ZEB1.
- We found that simulated **microgravity** causes mitochondria-mediated apoptosis through ROS generation in human leukemic cells. This finding is of relevance in the current scenario of the increase in space travel and space tourism. Our further studies indicate the profound effects of microgravity on cellular physiology including DNA repair pathways.
- Patented a methodology for **capturing the functional heterogeneity of cancer** through the development of single-cell spheroids from human head and neck cancer.
- We found that compared to the parent compound fisetin, **a synthetic 4-bromo analogue of fisetin** has three-fold more anticancer activity against lung cancer without any systemic toxicity in mice.

Patents

1. **Singh RP,** Nambiar D, Agarwal R. A novel and selective radiosensitizing agent for providing mechanism-based radiosensitizing effects in prostate cancer. Prov, 2889/Del/2015.

2. Kaschula, CH, **Singh RP,** Sabarwal A, Dheeraj A. 4'-substituted analogues of fisetin and their use in the treatment of cancer. 202021052123/IN/Nov2021.

3. **Singh RP,** Chaturvedi R, Tandon V, Bhattacharya J, Pandey J, Shyanti RK, Gandhi H, Kushwaha D. Single-cell spheroid development methods standardized for heterogeneity analysis in head and neck cancer. 202111037279/IN/Aug2021.

-*Two more patents are in process.*

Details of research projects implemented/ completed

Sl. No.	Project Title	Funding Agency	Duration	Role
1.	Exploring the role of Prakriti in host-pathogen interactions	CCRAS	July 2024 – May 2026	PI
2.	CoE on Ayurveda and Systems Medicine	AYUSH	May 2024 – April 2027	PI
3.	Study of the development of radioresistance mechanism in oral cancer *via* single-cell profiling of patient-derived tumor models	ICMR	March 2024 – February 2027	PI
4.	Study of effect of Covid-19 on cancer patients	ICMR, India	March 2022 - April 2024	PI
5.	Systems biology approach to delineate molecular signatures of *PRAKRITI* in healthy humans	CCRAS,	03 August 2020 - 02 August 2023	PI
6.	Development of single-cell derived clonal spheroids as a tool for drug discovery in cancer research	DPRP, DST	01 April 2018 - 31 March 2021	PI
7.	Study of formulations of Unani medicines for their anticancer efficacy and mechanisms	CCRUM, AYUSH	01 Nov 2017 - 31 Oct 2020	PI
8.	Investigations in to the cancer preventive activities of the dietary flavonol fisetin	DST (Indo-South Africa)	07 March 2017 -06 March 2020	PI
9.	miRNA combination therapy in *in vivo* and *in vitro* model systems	DBT, India	01 Jan 2016 – 30 June 2019	PI

10.	Study of antiangiogenic and anti-tumor effects of Fisetin in lung cancer: Implication for intervention of cancer	ICMR, India	2012-2015	PI
11.	To study the role of protein glycosylation in cell-extracellular matrix interaction and cancer progression	UGC, India	2012-2015	PI
12.	Antiangiogenic effects and mechanisms of Acacetin- a potential role in cancer control	CSIR, India	2009-2012	PI
13.	Targeting cell signaling and cell cycle progression for the intervention of prostate cancer by decursin	DST, India	2008–2011	PI

Summary of Research Publications (2000 – 2024)

Publications: **190** (Research Articles: **168**; Book Chapters: **15;** Proceedings/Reports: **7**)

Book: **1**

Abstract/Conference publications: > **145**

Selected Journal Publications in Impact Factor (IF) > 5.0

Sl. No.	Journals **(IF > 5.0 only)**	Number of Research Articles published	Impact factor (5-yr/ when published/present)	Citations Google Scholar **(Sept 2024)**
1.	Carcinogenesis	**14**	**5.7**	
2.	Clinical Cancer Research	**11**	**11.5**	
3.	Cancer Research	**10**	**11.2**	**Citations: >15,800**
4.	Oncogene	**4**	**8.6**	
5.	Molecular Cancer Therapeutics	**6**	**6.0**	**H-index: 78**
6.	Neoplasia	**3**	**5.9**	
7.	Current Cancer Drug Targets	**3**	**5.1**	**i10-index: 150**
8.	Cell Cycle	**2**	**5.4**	
9.	International Journal of Cancer	**3**	**7.3**	
10.	Oncotarget	**3**	**6.6**	
11.	Cancer Prevention Research	**3**	**5.2**	
12.	Cell Cycle	**1**	**5.3**	
13.	Journal of Biological Chemistry	**1**	**5.1**	
14.	Cancer Letters	**1**	**5.02**	
15.	European Journal of Cancer	**1**	**5.5**	

16.	Mutation Research Review	**1**	**7.9**	
17.	Antioxidant Redox Signaling	**1**	**8.4**	
18.	J. of National Cancer Institute	**1**	**12.5**	
19.	Altex	**1**	**5.2**	
20.	British Journal of Cancer	**1**	**7.6**	
21.	Life Sciences	**2**	**6.8**	
22.	Frontiers in Oncology	**1**	**6.2**	
23.	FASEB J	**1**	**5.8**	
24.	Oxidative Medicine and Cellular Longevity	**1**	**7.3**	
25.	BioFactors	**1**	**6.4**	
26.	Chemico-Biological Interactions	**3**	**5.2**	
27.	Cell Communication and Signaling	**2**	**8.2**	
28.	Cancers	**1**	**6.6**	
29.	BBA- Mol Cell Res	**1**	**5.1**	
30.	Frontiers in Microbiology	**1**	**6.1**	
32.	Molecular Carcinogenesis	**3**	**5.1**	
Total		**88**		

Publications

Book

1. *Breast Cancer – Biology, Prevention and Treatment.* A.R. Rao and **Rana P. Singh**. Red Flower Publication, New Delhi, **2015.**

Research Articles:

1. Jaiswal A, Shrivastav S, Kushwaha HR, Chaturvedi R, **Singh RP.** Oncogenic potential of SARS-CoV-2-targeting hallmarks of cancer pathways. *Cell Communication & Signaling.* 2024 Sep 26;22(1):447. doi: 10.1186/s12964-024-01818-0. PMID: 39327555. (IF: 8.2)
2. Yadav M, Kandhari K, Mathan SV, Ali M, **Singh RP.** Fisetin induces G2/M phase arrest and caspase-mediated cleavage of $p21^{Cip1}$ and $p27^{Kip1}$ leading to apoptosis and tumor growth inhibition in HNSCC. *Molecular Carcinogenesis.* **2024** May 27. doi: 10.1002/mc.23754. Epub ahead of print. PMID: 38801393. (IF: 5.14)
3. Dwivedi L, Jaiswal A, Punia R, Kumar RS, Yim DS, Rajamani P, **Singh RP**. Decursin inhibits expression and nuclear localization of DNMT and HDAC, and suppresses the growth and survival of prostate cancer cells. *Asian Pacific J Cancer Biology,* **2024** July, 9(3), 271-281. DOI:10.31557/APJCB.2024.9.3.271

4. Singh R, Jaiswal A, **Singh RP**. Simulated microgravity induces DNA damage concurrent with impairment of DNA repair and activation of cell-type specific DNA damage response in microglial and glioblastoma cells. *Biochim Biophys Acta Molecular Cell Research.* **2024** Jan 23;1871(3):119679. doi: 10.1016/j.bbamcr.2024.119679. (IF: 5.1)

5. Ali M, Mishra D, **Singh RP.** Cancer Pathways Targeted by Berberine: Role of microRNAs. *Current Medicinal Chemistry.* **2024** Jan 31. doi: 10.2174/ 0109298673275121231228124031. Epub ahead of print. (IF: 4.1)

6. Patel R, Kumar S, Varghese JF, Singh N, **Singh RP,** Yadav UCS. Silymarin prevents endothelial dysfunction by upregulating Erk-5 in oxidized LDL exposed endothelial cells. *Microvascular Research.* **2024** Jan 31:104667. doi: 10.1016/j.mvr.2024.104667. Epub ahead of print. (IF: 3.1)

7. Nath S, Shyanti RK, **Singh RP,** Mishra M, Pathak B. *Thespesialampas* mediated green synthesis of silver and gold nanoparticles for enhanced biological applications. *Frontiers in Microbiology.* **2024** Jan 5;14:1324111. doi: 10.3389/fmicb.2023.1324111. (IF: 6.1)

8. Mathan SV, Singh R, Kim SH, Singh SV, **Singh RP.** Diallyl Trisulfide Induces ROS-Mediated Mitotic Arrest and Apoptosis and Inhibits HNSCC Tumor Growth and Cancer Stemness. *Cancers*(Basel). **2024** Jan 16;16(2):378. doi: 10.3390/cancers16020378. (IF: 5.2)

9. Hahm ER, Kim SH, Pore SK, Mathan SV, **Singh RP**, Singh SV. Mechanism of synergistic inhibitory effect of benzyl isothiocyanate and zoledronic acid combination on breast cancer induction of osteoclast differentiation. *Molecular Carcinogenesis.* **2024** Feb;63(2):301-313. doi: 10.1002/mc.23653. Epub: **2023** Nov 3. (IF: 5.14)

10. Ali M, Bamezai RNK, **Singh RP.** Invasive Breast Cancer: miR-24-2 Targets Genes Associated with Survival and Sensitizes MDA-MB-231 Cells to Berberine. *OMICS.* **2023** Sep;27(9):409-420. doi: 10.1089/omi.2023.0092. Epub 2023 Sep 5. (IF: 3.3)

11. Punia R, Ali M, Shamsi Y, **Singh RP.** A Polyherbal Formulation Habb-e-Ustukhuddus Induces Apoptosis and Inhibits Cell Migration in Lung and Breast Cancer Cells without Any Toxicity in Mice. *Asian Pacific J Cancer Prevention.* **2023** Aug 1;24(8):2713-2727. doi: 10.31557/APJCP.2023.24.8.2713. (IF: 2.5)

12. Nambiar DK, Mishra D, **Singh RP.** Targeting DNA repair for cancer treatment: Lessons from PARP inhibitor trials. *Oncology Research.* **2023,** Jun 27; 31 (4), 405-421. doi: 10.32604/or.2023.028310. (IF: 3.1)

13. Kandhari K, Mishra JPN, Agarwal R, **Singh RP.** Acacetin induces sustained ERK1/2 activation and RIP1-dependent necroptotic death in breast cancer cells. *Toxicology and Applied Pharmacology.* **2023** Mar 1;462:116409. doi: 10.1016/j.taap.2023.116409. Epub 2023 Feb 3. PMID: 36740148. (IF: 4.2)

14. Bhat TA, Dheeraj A, Nambiar DK, Singh SP, Yim DS, **Singh RP.** Decursin inhibits EGFR-ERK1/2 signaling axis in advanced human prostate carcinoma cells. *Prostate.* **2023** Jan 3. 83(6):534-546. doi: 10.1002/pros.24482. (IF: 4.1)

15. Sabarwal A, Rooyen JC, Caburet J, vgenikos M, Dheeraj A, Ali M, Mishra D, Meester, JSB, Stander S, Otterlo WAL, Kaschula CH, **Singh RP.** Novel 4'-brominated derivative of fisetin induces cell cycle arrest and apoptosis and inhibits EGFR/ERK1/2/STAT3 pathways in non-small-cell lung cancer without any adverse effects in mice. *FASEB J.* **2022** Dec; 36(12):e22654. doi: 10.1096/fj.202200669RR. (IF: 5.83)

16. Rajput M*, Mishra D*, Kumar K, **Singh RP.** Silibinin radiosensitized EGF receptor-knockdown prostate cancer cells by attenuating DNA repair pathways. *Journal of Cancer Prevention.* **2022** Sept 30; 27(3):170-181. doi: 10.15430/JCP.2022.27.3.170.

17. Pungle R, Nile SH, Makwana N, Singh R, **Singh RP**, Kharat AS. Green synthesis of Silver nanoparticles using the *Tridax procumbens* plant extract and screening of its antimicrobial and anticancer activities. *Oxidative Medicine and Cellular Longevity.* **2022** Jun 25; 2022:9671594. doi: 10.1155/2022/9671594. (IF: 7.31)

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----------*Rana P. Singh*