

Dr. Vipan Kumar Parihar, M. Pharm., Ph. D.

Associate Professor

National Institute of Pharmaceutical Education and Research, Hajipur – 844101

Head of Dept: Pharmacology and Toxicology

Head of Dept: Regulatory Toxicology

Member, Board of Governors: National Institute of Pharmaceutical Education and Research, Hajipur – 844101

Chief Vigilance Officer: National Institute of Pharmaceutical Education and Research, Hajipur – 844101

BRIEF SUMMARY: Over the last 20 years, I have built an arsenal of skills in characterizing neurodegenerative and neoplastic disorders of the central nervous system. I focus on the role of mitochondrial energetics, genomic instability, synaptic plasticity and various transcriptions impacting cellular senescence and neurodegeneration. The long-term goal of my research is to develop clinically applicable strategies that are efficient for enhancing brain function after injury, disease, or aging. In my major roles at NASA, University of California Irvine and NIPER Hajipur, I have established state-of-the-art analyses laboratories for 3D organoid culture, stem cells and regenerative medicine, confocal microscopy and immunohistochemistry to strengthen the empirical knowledge about brain and behavior. At NIPER Hajipur I have established Biosafety levels 2 (BSL-2) laboratories providing a safe working environment for high risk and high-security microbial pathogens, where trained users handle various pathogenic microbes. **My research is highly collaborative in nature, from last 10 years, I am collaborating with the top scientific minds of the USA, Europe, and India.** Also, I have played an important role in NASA MARS mission in predicting the health risk following space irradiation, hypoxia, and microgravity. Moreover, I am happy to share that my research work has been published in top-class scientific journals like **Science Advances, Molecular Psychiatry, PNAS, Clinical Cancer Research, Cancer Research, and Neuropsychopharmacology (impact factor 10-15).** My publications have been frequently cited by other research scientists worldwide, and some of the citations are from very prestigious research institutes such as Harvard, Stanford, MD Anderson Cancer Center, and NASA Space Radiation Laboratory.

STATEMENT OF RESEARCH: My current research aims to explore the sex differences brain function, and eventually aimed at developing more targeted therapy, especially for those diseases where sex differences are most prominent. Much of my work is centered on defining the consequences of diabetes, stress or irradiation-induced changes in CNS functionality and in developing pharmacologic, genetic and stem cell-based interventions for resolving these cognitive deficits.

The second part of my research focuses on the study of bacterial pathogens and microorganisms that contribute to significant health problems in humans. Additionally, I research bacteria that exhibit antibiotic resistance and are recognized as critical or urgent threats in combating antibiotic resistance. The primary objective of this research is to identify new or improved strategies for the management of bacterial diseases, encompassing diagnostics, vaccinations, and treatments.

EDUCATION QUALIFICATIONS

2008 Ph. D. (Pharmacology)
Manipal University, Manipal - 567104, INDIA.
(Dissertation work: Irradiation-induced genomic instability and DNA double strand breaks)
Thesis Advisor: Dr. C. Mallikarjuna Rao
Professor and Principal, MCOPS, Manipal University, Manipal – 576104, INDIA

2003 M. Pharm. (Pharmacology), Manipal University, Manipal - 567104, Karnataka, INDIA.
2000 B. Pharm., Maharshi Dayanand University, Rohtak - 124001, Haryana, INDIA.

NATIONAL LEVEL SCHOLARSHIP

2004-06 JRF - Dept. of Atomic Energy, Govt. of INDIA
2006-08 SRF - Indian Council of Medical Research (Individual Fellowship), INDIA

HONOURS and AWARD

1. Early career investigator award, Radiation Research Society, USA (**2019, 2018, 2017**)
2. Young investigator award, International Congress of Radiation Research, Kyoto, Japan (**2015**)
3. Scholars in Training travel award, Radiation Research Society, United States of America (**2015**)
4. Stem cell travel award and invited speaker, International Society for Neural Therapy & Repair, and American Society for Neural Therapy & Repair (**2010 and 2009**)
5. Mrs. Krishna Gulati Bursary Award, Indian Pharmacological Society (**2006**)
6. Best Research Scholar Award, Manipal University, Manipal (**2005**)
7. Best poster award, Society for Free Radical Research, India (**2005**)

RESEARCH GRANT AWARD (Total \$ 20 million)

1. Endocannabinoids for cognitive aging and neurodegeneration, SERB Start-up Research Grant. Funded by Dept. of Science and Technology. Total amount: **Rs 32 Lakhs**. Duration Dec 2023- Nov 2025. **Principal Investigator, Dr. Vipin Parihar**
2. Potency optimization of 4-oxoazetidine scaffolds as dual specific polyphosphate kinase inhibitors for Multi-drug resistant tuberculosis (ICMR Project ID: IIRP-2023-5331/F1). Total amount: **Rs 59 Lakhs**. Duration March 2024- Feb 2027. **Co-I, Dr. Vipin Parihar**
3. Efficient process development strategies for prevalent “Rare disease” drugs. This is rare disease multicentric program grant, funded by Dept of Science and Technology, and Dept. of Pharmaceutical Govt. of India. Total amount: Duration Sept 2023- Aust. 2026. **Rs 70 Lakh (Principal Investigator, Dr. Vipin Parihar:**
4. Impact of endocannabinoid modulation on the microglial transcriptome in a mouse model of Gulf war illness. Funded by NIH-SOM University of California. Seed money grant. Total amount \$ 10,000. Duration July 2019 - June 2022. **Principal Investigator, Dr. Vipin Parihar**
5. Mechanisms underlying radiation-and chemotherapy induced cognitive impairment. Funded by NINDS NIH (R01 NS089575). Total amount \$3,536,040 Duration, January 2016 to Dec 2022. **Co-Investigator, Dr. Vipin Parihar, PI Dr. Charles Limoli.**
6. Mechanisms underlying charged particle-induced disruption of CNS function. This is a multicenter, multidisciplinary specialized research program sponsored by NASA, to investigate the effects of charged particle irradiation on the CNS. Total amount \$8,999,971, amount funded to Dr. Parihar **\$980,983. Principal Investigator, Dr. Vipin Parihar.** Project Director Dr. Charles Limoli.
7. Biophysical description of age and dose dependent changes to dendritic morphology that impact cognition following radiation cancer therapy (**5R01CA208526**). Funded by **NIH/NINDS**, total amount \$3,023,740. Duration January 2016 to DE 2021. **Co-Investigator, Dr. Vipin Parihar, PI: Dr. Francis Cucinotta.**
8. **Charged particle effects on neuronal injury, plasticity and neurodegeneration.** Sponsored by NASA, to investigate the effects of cosmic rays on brain structure and function(**NNX13AD59G**). Total amount \$1,280,271 Duration May 2012 –March 2015. **Co-Investigator, Dr. Vipin Parihar, PI Dr. Charles Limoli.**
9. Memory and mood enhancing therapies for Gulf war illness(**101 BX000883-01**). Aim of this grant was to determine the mechanisms of brain dysfunction in Gulf War Illness. Funded by Department of Veterans Affairs, Federal Govt. USA. Amount \$ 879,000. Duration May 2010 –March 2013. **Co-Investigator, Dr. Vipin Parihar, PI Dr. Ashok Shetty**
10. Anticlastogenic activity of selected natural antioxidant compounds: In-vitro and In-vivo studies. Funded by Indian Council of Medical Research. Total amount Rs 380,000. Duration August 2005- July 2008. **Principal Investigator, Dr. Vipin Parihar.**

PROFESSIONAL EXPERIENCES

Oct 2021 – Present

Associate Professor

Dept. of Pharmacology and Toxicology

National Institute of Pharmaceutical Education and Research, Hajipur-844101

March 2016 – July 2021

Assistant Professor

School of Medicine, University of California, Irvine-92604, USA

Funding resource: National Institutes of Health (R01)

Conducting research on chemotherapy-induced cognitive and mood disorders. Developing clinically feasible strategies for improving hippocampus neurogenesis, and memory and mood functions in chemotherapy via stimulation of endogenous neural stem/progenitor cells.

Funding resource: National Institutes of Health (R01)

The aims of this grant are to analyze the functional consequences of irradiation and chemotherapy regimens on cognition, and to develop pharmacologic strategies to ameliorate treatment-associated neurocognitive sequelae.

May 2015 – June 2021

Senior Scientist

NASA Specialized Centre for Research (CNS Division)

University of California, Irvine, CA 92697, USA

Funding resource: National Aeronautics and Space Administration (NASA)

This is a multicenter, multidisciplinary specialized research program sponsored by NASA, to investigate the effects of charged particle irradiation on the CNS. To determine the mechanisms underlying charged particle-induced disruption of CNS function.

July 2013 – March 2016:

Project Scientist

Dept. of Radiation Oncology, University of California, Irvine-92697, USA

Funding resource: National Institutes of Health

Understanding the mechanisms by which administered exosomes (extracellular vesicles) derived from human neural stem cells promote neuroprotection, neuroregeneration, neural plasticity and alleviate neuroinflammation following chemotherapy

January 2011 – June 2013:

Postdoctoral Fellow

Dept. of Radiation Oncology, University of California, Irvine-92697, USA

Funding resource: National Institutes of Health

Funding resource: National Aeronautics and Space Administration (NASA)

Studied the effects of charged particles irradiation on rodent brain. Determined the dose, dose-rate and radiation quality dependencies of CNS effects and extrapolation to human risk assessments from space radiation exposure.

Nov. 2008 – Dec. 2010:

Postdoctoral Fellow

Dept. of Neurosurgery

DUKE University Medical Center, Durham, USA

Funding resource: Dept of Veterans Affaire

Elucidating mechanisms of brain dysfunction in prototypes of Gulf War Illness. Developing therapeutic strategies to alleviate neuroinflammation, increased oxidative stress, systemic inflammation, and learning, memory and mood impairments in models of Gulf War Illness.

TEACHING EXPERIENCE

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|----------------|--|
| 2021 – Present | Associate Professor, NIPER Hajipur - 844101 (Teaching M.S. and Ph. D. Scholars in Pharmacology and Toxicology) Course: CNS and ANS Pharmacology, Cancer and chemotherapy, Neurodegenerative disorders and aging |
| 2016 – 2021 | Assistant Professor, Dept. of Radiation Oncology, University of California (Teaching Medical Oncologist, Resident Doctors, and Ph. D. Scholars) Course: Stem cell, Regenerative medicine, Chemotherapy for brain tumors, Radiation biology, and Basic Neurosciences, and Brain Disorders |
| 2005-2008 | Ph. D. Scholar, Manipal University, Manipal - 567104, INDIA. (Teaching Undergraduate and PG students) Course: Physiology, Pharmacology and Toxicology |
| 2003-2004 | Lecturer, SD College of Pharmacy & Vocational Studies, Muzaffarnagar, INDIA. (Teaching Undergraduate Pharmacy Students) <i>Course:</i> Physiology (Central nervous system, Cardiovascular system, Immune System, Autoimmune disorders, and Endocrine), Pharmacology (Adrenergic and Anti-adrenergic agents, Autacoids, Prostaglandins, Eicosanoids, Chemotherapy and Immunosuppressives, and organophosphate toxicities). |

POTENTIAL ON GOING PROJECTS: My current research focused on developing new, simple and cost-effective technology and bioassay for the diagnosis and treatment of neurological disorders and cancers. Much of my work centered on defining the diabetes-induced neuronal toxicity, and developing pharmacologic, genetic and stem cell-based interventions for resolving mood and memory problems in diabetic patients. Further, my research focuses on determining the role of endocannabinoids in tumor growth, and a possible role of endocannabinoids in enhancing mood and memory in cancer survivors. Further, I aim to explore the sex differences in brain-disorders, and eventually aimed at developing more targeted therapy, especially for those diseases where sex differences are most prominent.

1. **Organoid cultures from normal and cancer-prone human tissues:** This project focus on patient-derived cancer organoids as predictors of treatment response. Further, this project focuses on understanding the mechanisms behind chemo-/radioresistant tumors, and to develop the product to reverse tumor resistance n cancer treatment.
2. **Infectious diseases:** This project focuses on the investigation on bacterial infections that cause serious health issues in humans. This research aims to identify novel or enhanced strategies for managing bacterial diseases, including diagnostics, vaccinations, and treatments. I also study the receptors and pathways used by dengue to infect human cells. We are especially interested in how antibodies block or promote dengue viral entry. This project emphasis on immunopathology of dengue disease and molecular virology of the dengue virus, and other related viral diseases. Our advanced core technologies and collaborative research network allow multidisciplinary approaches and facilitates excellence that should translate into improved dengue diagnostics, treatments for patients, as well as new vaccines and therapeutics in the foreseeable future.
3. **Stem cells and regenerative medicine:** In collaboration with biotechnology my research team aims developing stem cell-based interventions for reversing mood and cognitive deficits in aging and Alzheimer’s disease. This project focuses primarily on the functional and mechanistic aspects of stem cell biology and the potential of different types of stem cells for therapeutic applications.
4. **Biological profile of astrocytoma:** This project will be commonly executed by NIPER Hajipur, NIPER Kolkata, and Mahavir Cancer Sansthan, Patna. The central aim of this project focused on biological profiling the astrocytoma using liquid biopsy, exploring the epigenetic alterations transforming chemo

and/or radio-resistance tumours, and developing translational strategies for reversing cognitive deficit in cancer survivor.

5. **Mitigating mood, memory and Alzheimer's like symptoms in diabetes:** This project focus to uncover sex-specific CNS dysfunction in the diabetic brain and test the hypothesis that selective loss of endocannabinoids makes the female more sensitive to diabetes-associated CNS complications.
6. **Developing biomarkers for diagnosis and prognosis of disease:** Aims to identify the simple, cost-effective, and easy-to-use biomarkers for detection, prognosis, and therapeutic assessment of neurological disorders and cancer.

RESEARCH EXPERTISE

Independently performs or directed the performance of highly specialized and complex research where original scientific contributions are expected as a result of acquired experience as a seasoned professional.

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| Confocal microscopy | Expert in 3D imaging and confocal microscope, single and multi-channels image acquisition, processing and convolution. World expert in IMARIS image progressing software and confocal microscopy data collection (Please <i>see Parihar and Limoli et al, PNAS 2013; Parihar et.al, Science Advances 2015</i>) |
| Stereotaxic neurosurgery: | Micro-dissection of discrete brain regions, chemical lesioning of discrete brain regions, Electrode implantation, EEG monitoring, Stem cell grafting surgery and neuronal transplantation. |
| <i>Neurons Structure Analysis:</i> | Demonstrated skill in operating scanning and transmission electron microscopes, confocal microscopes, light neuroimaging, neurolucida and stereo Investigator cell quantification. |
| <i>Immunohistochemistry:</i> | Cryostat/vibratome/microtome sectioning of the rat brain. Immunostaining of rat brain sections for different stem cell and neural markers. |
| <i>Molecular Biology:</i> | Real time PCR, Immunoblottings, Electrophoresis. Mouse bone marrow micronuclei & chromosomal aberration analysis. <i>In vitro</i> and <i>in vivo</i> tumor studies. |
| <i>Behavior Neuroscience:</i> | Testing hippocampus and/or prefrontal cortex-dependent mood and memory functions (Fear and memory extinction, cognitive flexibility, object-and-place recognition memory, PTSD, depression, and stress disorders). |

RESEARCH CONTRIBUTION TO SCIENCE

- **Contributed in NASA MARS mission in predicting the space radiation-induced health risk to CNS**
- I have made original research contributions to elucidating mechanisms of brain dysfunction in prototypes of Gulfwar Illness (GWI) and finding countermeasures to reverse this condition.
- I have contributed significantly in determining the sex differences in microglia and their relevance in neurological disorders. Moreover, I demined that cranial transplantation of female microglia ameliorates the irradiation-induced mood and memory deficits in male mice.
- Developed the methods for isolation and characterization of stem cell/microglia derived extracellular vesicles for diagnosis and treatment of brain diseases and cancer.
- Pitching the proposals and grant wringing for NIH, DOD, DTRA, NASA, SOM-UCI, and DST (\$ 20 million PI, Co-I, Institutional PI)

LIST OF PEER REVIEWED PUBLICATIONS

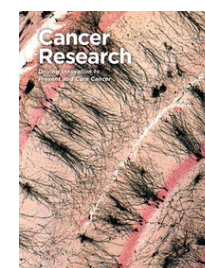
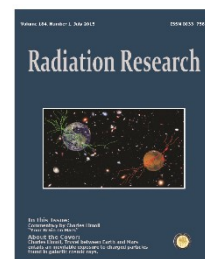
Please see the complete list of publication at Google scholar

<https://scholar.google.com/citations?user=KzCQV0cAAAAJ&hl=en>

1. **Parihar VK**, Angulo MC, Allen BD, Amin NA Syage A, Flores L, Angulo MC, Giedzinski E, Limoli CL. Mood and memory deficits following pediatric chemotherapy are linked with reduced endocannabinoids and mild inflammation in the hippocampus. *Biological Psychiatry* (under review) (IF 12.23)
2. Squire E, Lee HL, Jeong W, Lee S, Ravichandiran V, Limoli CL, Piomelli D, Parihar VK, Jung KM Targeting dysfunctional endocannabinoid signaling in a mouse model of Gulf War illness. *Neuropharmacology*, 2024, 2024 Sep 4;261:
3. Akhlada, Siddiqui N, Anurag, Saifi A, Kesharwani A, Parihar VK, Sharma A. Neuroprotective Action of Selected Natural Drugs Against Neurological Diseases and Mental Disorders: Potential Use Against Radiation Damage. *Neurochem Res*. 2024 Sep;49(9).
4. Siddiqui N, Sharma A, Kesharwani A, Anurag, Parihar VK. Exploring role of natural compounds in molecular alterations associated with brain ageing: A perspective towards nutrition for ageing brain. *Ageing Res Rev*. 2024 Jun;97:102282.
5. Shabil M, Murti K, Kumar VU, Kumar R, Kumar N, Dhingra S, Parihar VK, Ravichandiran V, Pandey K. Older PLHIV are at Higher Cardiovascular Risk with Poor Quality of Life. *Curr HIV Res*. 2023;21(6):354-360.
6. Bhattacharya S, Parihar VK, Singh N, Hatware K, Page A, Sharma M, Prajapati MK, Kanugo A, Pawde D, Maru S, Gupta GL, Kanvinde S. Targeted delivery of panitumumab-scaffold bosutinib-encapsulated polycaprolactone nanoparticles for EGFR-overexpressed colorectal cancer. *Nanomedicine (Lond)*. 2023 Apr;18(9):713-741.
7. Sharma R, Kumarasamy M, Parihar VK, Ravichandiran V, Kumar N. Monoamine Oxidase: A Potential Link in Papez Circuit to Generalized Anxiety Disorders. *CNS Neurol Disord Drug Targets*. 2024;23(5):638-655.
8. Bhattacharya S, Parihar VK, Prajapati BG. Unveiling the therapeutic potential of cabozantinib-loaded poly D,L-lactic-co-glycolic acid and polysarcosine nanoparticles in inducing apoptosis and cytotoxicity in human HepG2 hepatocellular carcinoma cell lines and in vivo anti-tumor activity in SCID female mice. *Front Oncol*. 2023 Feb 15;13:1125857.
9. Mounika VL, Kumar VU, Dhingra S, Ravichandiran V, Pandey K, Parihar VK, Murti K. CD4 + Count: a Variable to Be Considered to Prioritize COVID-19 Vaccination in PLHIV. *Curr Pharmacol Rep*. 2023;9(2):90-97.
10. Sahyadri M, Nadiga APR, Mehdi S, Mruthunjaya K, Nayak PG, Parihar VK, Manjula SN. Mitochondria-lysosome crosstalk in GBA1-associated Parkinson's disease. *3 Biotech*. 2022 Sep;12(9):230.
11. Mehta M, Paudel KR, Shukla SD, Allam VSRR, Kannaujiya VK, Panth N, Das A, **Parihar VK**, Chakraborty A, Ali MK, Jha NK, Xenaki D, Su QP, Wich PR, Adams J, Hansbro PM, Chellappan DK, Oliver BGG, Dua K. Recent trends of NFkB decoy oligodeoxynucleotide-based nanotherapeutics in lung diseases. *J Control Release*. 2021; 337:629-644 (IF 9.66).
12. **Parihar VK**, Syage A, Flores L, Lilagan L, Allen BD, Angulo MC, Song J, Smith SM, Arechavala RJ, Giedzinski E, Limoli CL. The cannabinoid receptor 1 reverse agonist AM251 ameliorates radiation-induced cognitive decrements. *Frontiers in Cellular Neuroscience* (Jun 28, 2021). DOI:10.3389/fncel.2021.668286 (IF 4.5)
13. Klein PK, **Parihar VK**, Szabo GG, Zöldi M, Angulo MC, Allen BD, Amin NA, Nguyen QA, Katona I, Baulch JE, Limoli CL, Soltesz I. Detrimental impacts of mixed-ion radiation on nervous system function. *Neurobiology of Disease* (accepted on January 2, 2021). <https://doi.org/10.1016/j.nbd.2021.105252> (IF: 5.30)
14. Ali M, Manjula SN, Wani, SUD, Pariahr VK, Mruthunjaya KM, Madhunapantula SRV. Protective role of herbal formulation-divine noni against cisplatin-induced cytotoxicity in healthy cells by activating Nrf2

expression: An in-vivo and in-vitro approach Author links open overlay panel. *Phytomedicine Plus*, 2021(in press) <https://doi.org/10.1016/j.phyplu.2020.100009>.

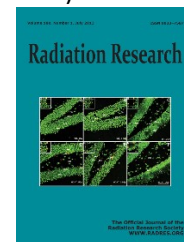
15. **Parihar VK**, Angulo CA, Allen BA, Syage A, Usmani MT, Chapelle EPD, Amin AN, Flores L, Lin X, Giedzinski E, Limoli, CL. Sex-Specific Cognitive Deficits Following Space Radiation Exposure. *Front. Behav. Neurosci.* 14, 167-179, 2020. (IF: 2.5)
16. Dey D, **Parihar VK**, Szabo GG, Klein PM, Tran J, Moayyad J, Ahmed F, Nguyen QA, Murry A, Merriott D, Nguyen B, Goldman J, Angulo MC, Piomelli D, Soltesz I, Baulch JE, Limoli CL. Neurological Impairments in Mice Subjected to Irradiation and Chemotherapy. *Radiat Res.* 407-424, 2020. (IF 2.60)
17. B Bosebabu, SP Cheruku, MR Chamallamudi, M Nampoothiri, RR Shenoy, K Nandakumar, **VK Parihar**, N Kumar. An appraisal of current pharmacological perspectives of sesamol: A review. *Mini Reviews in Medicinal Chemistry*, 988-1000, 2020. (2.90)
18. **Parihar VK**, Maroso M, Syage A, Allen BD, Angulo MC, Soltesz I, Limoli CL. Persistent nature of alterations in cognition and neuronal circuit excitability after exposure to simulated cosmic radiation in mice. *Exp Neurol.* 2018 Mar 11; 305:44-55. (4.56)
19. Kumar G, Dutta P, **Parihar VK**, Chamallamudi MR, Kumar N. Radiotherapy and its impact on the nervous system of cancer survivors. *CNS Neurol Disord Drug Targets.* 2020 Jul 8. doi: 10.2174/1871527319666200708125741. (IF: 2.60)
20. Dickstein DL, Talty R, Bresnahan E, Varghese M, Perry B, Janssen WGM, Sowa A, Giedzinski E, Apodaca L, Baulch J, Acharya MM, **Parihar VK**, Limoli CL. Alterations in synaptic density and myelination in response to exposure to high-energy charged particles. *J Comp Neurol.* 2018 Sep 10. doi: 10.1002/cne.24530.(IF: 2.00)
21. Cacao E, Parihar VK, Limoli CL, Cucinotta FA. Stochastic Modeling of Radiation-induced Dendritic Damage on in silico Mouse Hippocampal Neurons. *Sci Rep.* 2018; 8(1):5494. (IF: 4.3)
22. Acharya MM, Baddour AA, Kawashita T, Allen BD, Syage AR, Nguyen TH, Yoon N, Giedzinski E, Yu L, Parihar VK, Baulch JE. Epigenetic determinants of space radiation-induced cognitive dysfunction. *Sci Rep.* 2017: 42885.(IF: 4.3)
23. Lee SH, Dudok B, **Parihar VK**, Jung KM, Zöldi M, Kang YJ, Maroso M, Alexander AL, Nelson GA, Piomelli D, Katona I, Limoli CL, Soltesz I. Neurophysiology of space travel: energetic solar particles cause cell type-specific plasticity of neurotransmission. *Brain Struct Funct.* 2016 Nov 30. (IF: 3.6)
24. **Parihar VK**, Allen BD, Caressi C, Kwok S, Chu E, Tran KK, Chmielewski NN, Giedzinski E, Acharya MM, Britten RA, Baulch JE and Limoli CL(2016). Cosmic radiation and persistent cognitive dysfunctions. *Sci Rep.* 6: 34774. (Among the top 100 most-discussed journal articles of 2016 in Sci. Rep). (IF: 4.3)
25. Kodali M, **Parihar VK (Co-first author)**, Hattiangady B, Mishra V, Shuai B, Shetty AK. Resveratrol prevents age-related memory and mood dysfunction with increased hippocampal neurogenesis and microvasculature, and reduced glial activation. *Sci Rep.* 2015 doi: 10.1038/srep08075. (IF: 4.3)
26. Acharya MM, Green KN, Allen BD, Najafi AR, Syage A, Minasyan H, Le MT, Kawashita T, Giedzinski E, **Parihar VK**, West BL, Baulch JE, Limoli CL. Elimination of microglia improves cognitive function following cranial irradiation. *Sci Rep.* 2016 Aug 12;6:31545. (IF: 4.3)
27. Baulch JE, Acharya MM, Allen BD, Ru N, Chmielewski NN, Martirosian V, Giedzinski E, Syage A, Park AL, Benke SN, **Parihar VK**, Limoli CL. Cranial grafting of stem cell-derived microvesicles improves cognition and reduces neuropathology in the irradiated brain. *Proc Natl Acad Sci U S A.* 2016 Apr 26;113:4836-41. (IF: 10.20)
28. Chmielewski NN, Caressi C, Giedzinski E, **Parihar VK**, Limoli CL. Contrasting the effects of proton



- irradiation on dendritic complexity of subiculum neurons in wild type and MCAT mice. *Environ Mol Mutagen*. 2016 Jun;5 7(5):364-71. (IF: 3.10)
29. Alp M, Parihar VK, Limoli CL, Cucinotta FA. Irradiation of Neurons with High-Energy Charged Particles: An In Silico Modeling Approach. *PLoS Comput Biol*. 2015 Aug 7;11(8):e1004428.(IF: 4.70)
 30. Acharya MM, Patel NH, Craver BM, Tran KK, Giedzinski E, Tseng BP, Parihar VK, Limoli CL. Consequences of low dose ionizing radiation exposure on the hippocampal microenvironment. *PLoS One*. 2015 Jun 4;10(6):e0128316. doi: 10.1371/ journal. (IF: 2.7)
 31. Acharya MM, Martirosian V, Christie LA, Riparip L, Strnadel J, **Parihar VK**, Limoli CL. Defining the optimal window for cranial transplantation of human induced pluripotent stem cell-derived cells to ameliorate radiation-induced cognitive impairment. *Stem Cells Transl Med*. 2015;4(1):74-83.(IF: 6.40)
 32. Acharya MM, Martirosian V, Chmielewski NN, Hanna N, Tran KK, Liao AC, Christie LA, **Parihar VK**, Limoli CL. Stem cell transplantation reverses chemotherapy-induced cognitive dysfunction. *Cancer Res*. 2015(75); 676-86 (IF: 12.53)
 33. **Parihar VK**, Allen B, Tran KK, Macaraeg TG, Chu EM, Kwok SF, Chmielewski NN, Craver BM, Baulch JE, Acharya MM, Cucinotta FA, Limoli CL. What happens to your brain on the way to Mars. *Sci. Adv*. 2015;1:e1400256 (IF: 14.23)
 34. **Parihar VK**, Allen BD, Tran KK, Chmielewski NN, Crave BM1, Martirosian V, Rosi S, Jopson T, Vlkolinsky R, Acharya1 MM, Nelson GA, Allen AR, Limoli CL. Targeted overexpression of mitochondrial catalase prevents radiation-induced cognitive dysfunction. *Antioxid Redox Signal*. 2015 Jan 1;22(1):78-91. (IF: 8.40).
 35. **Parihar VK**, Pasha J, Tran KK, Craver BM, Acharya MM, Limoli CL (2014). Persistent changes in neuronal structure caused by proton irradiation. *Brain Struct Funct*. 2015 Mar;220(2):1161-71. (IF: 3.62)
 36. Tseng BP, Giedzinski E, Izadi A, Suarez T, Lan ML, Tran KK, Acharya MM, Nelson G, Raber J, Parihar VK, Limoli CL (2014). Functional consequences of radiation-induced oxidative stress in cultured neural stem cells and the brain exposed to charged particle irradiation. *Antioxd Redox Signal*, 20(9) 1410-1422. (IF: 8.40).
 37. **Parihar VK**, Acharya MM, Roa DE, Bosch O, Christie LA, Limoli CL (2013). Defining functional changes in the brain caused by targeted stereotaxic radiosurgery. *Transl Cancer Res*. 2014; 3(2) :124-137
 38. Liao AC, Craver BM, Tseng BP, Tran KK, **Parihar VK**, Acharya MM, Limoli CL (2013). Mitochondrial-Targeted Human Catalase Affords Neuroprotection From Proton Irradiation. *Radiat Res*, 180(1) 1-6. (IF 2.60)
 39. **Parihar VK**, Hattiangady B, Shuai B, Shetty AK (2013). Mood and memory deficits in a model of Gulf War illness are linked with reduced neurogenesis, partial neuron loss, and mild inflammation in the hippocampus. *Neuropsychopharmacology*, 38(12):2348-62 (IF: 7.80)
 40. Dhamija I, Kumar N, Manjula SN, **Parihar VK**, Setty MM, Pai KS. Preliminary evaluation of in vitro cytotoxicity and in vivo antitumor activity of *Premna herbacea* Roxb. in Ehrlich ascites carcinoma model and Dalton's lymphoma ascites model. *Exp Toxicol Pathol*. 2013; 65(3):235-42. (IF: 1.40)
 41. Nitesh Kumar, Isha Dhamija, P. Vasanth Raj, B.S. Jayashree, **Parihar VK**, S.N. Manjula, Seeja Thomas, N. Gopalan Kutty, C. Mallikarjuna Rao. Preliminary investigation of cytotoxic potential of 2-quinolone derivatives using in vitro and in vivo (solid tumor and liquid tumor) models of cancer. *Arabian Journal of Chemistry* (2014) 7, 409–417. (IF: 0.79)
 42. **Parihar VK**, Limoli CL (2013). Cranial irradiation compromises neuronal architecture in the hippocampus. *Proc Natl Acad Sci U S A*, 110(31):12822-7. (IF: 10.66)
 43. Kuruba R, Hattiangady B, **Parihar VK**, Shuai B, Shetty AK(2013). Differential susceptibility of interneurons expressing neuropeptide γ or parvalbumin in the aged hippocampus to acute seizure activity. *PLoS One*, 6(9):e24493. (IF: 3.23)



44. Kumar N, Mudgal J, **Parihar VK**, Nayak PG, Kutty NG, Rao CM Sesamol treatment reduces plasma cholesterol and triacylglycerol levels in mouse models of acute and chronic hyperlipidemia. *Lipids*. 2013; 48(6):633-8 (IF: 1.80)
45. Christie LA, Acharya MM, **Parihar VK**, Nguyen A, Martirosian V, Limoli CL. Impaired cognitive function and hippocampal neurogenesis following cancer chemotherapy. *Clin Cancer Res*. 18[2012] 1954-65. (IF: 12.50).
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50. Manjula S N, Malleshappa N, **Parihar VK**, SAM Reddy, Suryakant Kumar, Gadad AK, Mallikarjuna Rao C. Synthesis and in vitro antitumor activity of novel optically active Thiourea and its derivative 2-Amino benzothiazoles. *Eur J Med Chem* 44 [2009] 2923-229. (IF : 6.50)
51. **Parihar VK**, Parihar VK , Prabhakar KR, Veerapur VP, Priyadarsini KI, Unnikrishnan MK, Rao CM. Anticlastogenic Activity of Morin Against Whole Body Gamma Irradiation in Swiss Albino Mice. *Eur J Pharmacol*. 557[2007] 58-65. (IF: 3.17)
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53. Veerapur VP, Prabhakar KR, **Parihar VK**, Beena Mishra, Ramakrishan P, Rao BSS, Priyadarshini KI and Unnikrishnan MK, Studies on *Ficus racemosa* stem bark extract: A potent antioxidant and a probable natural radioprotector. *Evid Based Complement Alternat Med*119[2007] 1-8 (IF: 1.91)
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59. Jaiswal A, **Parihar VK**, Sudheer KM, Manjula SD, Krishnanand BR, Shanbhag R, Unnikrishnan MK, 5-Amino salicylic acid reverses endosulfan-induced testicular toxicity in male rats. *Mutat Res*. 585[2004] 50-59. (IF: 3.60)



INVITED SPEAKER/SEMINARS:

1. Resource person (Webinar Series), "Designing of Research Proposal". Post graduate students of induction program, JSS Academy of Higher Education and Research, Mysore, 14th Sept 2021.
2. Guest of Honor and invited speaker (Webinar Series): "Brain dysfunction in chronic health illness. Institute of Pharmacy, Veer Bahadur Singh Purvanchal University, Jaunpur, Uttar Pradesh, June 26, 2021.
3. Invited speaker (Webinar Series): Brain dysfunction in chronic health illness, Gurugram Global College of Pharmacy, May 25th, 2021.
4. Invited speaker (Webinar Series): "Neurocognitive disorder in compromised health conditions. School of Pharmaceutical Sciences, IFTM University, Moradabad (UP), held on Jan 21, 2021.
5. Invited speaker (Webinar Series) Opportunities for Biological Research in NASA. AICTE sponsored Faculty Development Program, Manipal University, Manipal- 576104. Wednesday, Jan 13, 2021.
6. Invited speaker (Webinar Series): Sex differences in mood and memory following exposure to space radiation, Biology-Chemistry Joint Colloquium at Ashoka University, Sonipat, Nov 11, 2020
7. Invited speaker (Webinar Series): Sex Specific Cognitive Deficits following Space Irradiation, Amity University, Noida UP, Jun 18, 2020
8. Invited Speaker: Space: Sex specific cognitive deficits following space radiation exposure. We are Going 64th Radiation Research Society Annual Meeting, San Diego, Nov 4, 2019, (**Co-Sponsored by NASA, S16**).
9. Invited Speaker (**Special NASA session**): Neurocognitive complications associated with exposure to cosmic radiation. 14th Annual World Brain Mapping of the Society for Brain Mapping and Therapeutics SBMT in LA (April 18-20th). 2017
10. **Session Chair:** Topical Review: Infection and radiation injury forwards a system approach to drug repurposing 62nd Radiation Research Society Annual Meeting, Waikoloa Village, Hawaii 96738. Oct 2016
11. Invited Speaker: Topical Review: Morphometric analysis of neurons from mice expressing fluorescent proteins. 62th Radiation Research Society Annual Meeting, Waikoloa Village, Hawaii 96738. Oct 2016.
12. Invited speaker: Radiation-induced cognitive impairment is associated with reduced dendritic complexity and synaptic plasticity. 59th Radiation Research Society Annual Meeting, New Orleans, LA 70140. Nov 2013.
13. Invited speaker: Declined Hippocampal Neurogenesis is Associated with Learning & Memory Impairments and Depression in a Rat Model of Gulf War Illness. 17th Annual Conference of the American Society for Neural Therapy & Repair April 29-May 1, 2010, Clearwater, Florida, USA.
14. Invited speaker: Chronic stress induces persistent anxiety and depression. Janta College of Pharmacy, Sonipat, INDIA. 2009.
15. Invited speaker: Chemotherapy induced learning and memory impairments. College of Pharmacy, Kannur Medical College, Canner, Kerala INDIA, 2009

BOOK CHAPTER:

Parihar, VK. Nano-Pharmacokinetics and cancer Theranostics (Chapter #11): Publisher University of Oxford Begbroke Science Park. June 2021 (ISBN # 603784)

SELECTED MEDIA REPORTS

1. UCI study finds safer stem cell-derived therapy for brain radiation recovery
<https://news.uci.edu/2016/04/07/uci-study-finds-safer-stem-cell-derived-therapy-for-brain-radiation-recovery/>
2. **Mars-bound astronauts might fall victim to ‘space brain’**
<http://www.pbs.org/newshour/rundown/mars-bound-astronauts-might-fall-victim-space-brain/>
3. Mars-bound astronauts face chronic dementia risk from galactic cosmic ray exposure
<https://www.sciencedaily.com/releases/2016/10/161010052832.htm>
4. Mars Travelers Could Suffer Radiation Brain Damage.
<https://www.scientificamerican.com/podcast/episode/mars-travelers-could-suffer-radiation-brain-damage/>
5. Roadblock to Manned Mars Mission? Cosmic Rays May Damage Astronauts' Brains.
<https://www.ndtv.com/world-news/roadblock-to-manned-mars-mission-cosmic-rays-may-damage-astronauts-brains-759915>
6. A trip to Mars might incur permanent brain damage from cosmic rays
<http://www.zmescience.com/medicine/brain-damage-cosmic-ray-exposure-06454/>
7. **Cosmic rays will melt your brain.** <https://www.extremetech.com/extreme/204803-cosmic-rays-will-melt-your-brain>
8. Persistent changes in neuronal structure caused by proton irradiation.
https://globalmedicaldiscovery.com/key-scientific-articles/persistent-changes-neuronal-structure-synaptic-plasticity-caused-proton-irradiation/?doing_wp_cron=1506559167.3108439445495605468750
9. Radiation Therapy Damages Neurons <http://www.the-scientist.com/?articles.view/articleNo/36525/title/Radiation-Therapy-Damages-Neurons/>
10. The prestigious professional media Science Daily, on October 10, 2016, published an article entitled “*Mars-bound astronauts face chronic dementia risk from galactic cosmic ray exposure*” that reported (<https://www.sciencedaily.com/releases/2016/10/161010052832.htm>)
11. The Hindu, Prestigious professional media **reported our research as entitled** “Mars-bound astronauts face dementia risk from cosmic rays” <https://www.thehindu.com/sci-tech/science/marsbound-astronauts-face-dementia-risk-from-cosmic-rays/article7167112.ece>
12. The prestigious professional media **Science Daily**, on October 10, 2016, published an article entitled “***Mars-bound astronauts face chronic dementia risk from galactic cosmic ray exposure***” (<https://www.sciencedaily.com/releases/2016/10/161010052832.htm>)
13. Professional media **Science Daily** published an article entitled “***Mars-bound astronauts face chronic dementia risk from galactic cosmic ray exposure***” that reported about **Dr. Parihar’s** and his original major significant contributions to the research on impact of space radiation. October 10, 2016 (<https://www.sciencedaily.com/releases/2016/10/161010052832.htm>)
14. **Scientist Magazine**®, a prestigious professional magazine online (and in print), on December 2, 2016, in an article entitled “***From shrinking spines to space fungus: The top five dangers of space travel,***” reported on the research conducted in our lab.