List of Publication

Publications from thesis:

1. **Akhilesh**, Ankit Uniyal Vinod Tiwari*. Combined Chemotherapy in Rodent: A Model for Chemotherapy-Induced Neuropathic Pain and Pharmacological Screening. ***Metabolic brain disease (2023). Impact factor: 3.66***
2. **Akhilesh**, Deepak Chouhan, Obulapathi Ummadisetty, Nivedita Verma, Vinod Tiwari*. Bergenin Ameliorates Chemotherapy-Induced Neuropathic Pain in Rats by Modulating TRPA1/TRPV1/NR2B Signalling. ***International Immunopharmacology.*** *106, May 2022,* **Impact factor: 5.6**
3. **Akhilesh**, Ankit Uniyal, Anagha Gadepalli, Vinod Tiwari, Meghna Allani, Deepak Chouhan, Obulapathi Ummadisetty, Verma, N. and Vinod Tiwari, 2021. Unlocking the potential of TRPV1 based siRNA therapeutics for the treatment of chemotherapy-induced neuropathic pain. ***Life Sciences,*** p.120187. **Impact factor: 6.7**

Other publications:

1. **Akhilesh,** Arjun Menon, Deepak Chouhan, Bhanuranjan Das, Rajnish Kumar and Vinod Tiwari. Targeting Autotaxin with Natural Product Inhibitors: Virtual Screening and Molecular Dynamics Investigations for Management of Chronic Pain. ***Journal of Biomolecular Structure and Dynamics*** (2024). **Impact factor: 5.56.**
2. Meghana Allani, **Akhilesh,** Vinod Tiwari. Caspase-Driven Cancer Therapies: Navigating the Bridge Between Lab Discoveries and Clinical Applications. ***Cell Biochemistry & Function*** (2024). **Impact factor: 4.36.**
3. Obulapathi Ummadisetty, **Akhilesh**, Anagha Gadepalli, Deepak Chouhan, Vinod Tiwari*. Dermorphin [D-Arg2, Lys4] (1-4) amide Ameliorates Frostbite-Induced Pain by Regulating Microglial Activation and Neuroinflammation, ***Molecular Neurobiology*** (2024) **Impact factor: 4.7.**
4. Obulapathi Ummadisetty, **Akhilesh**, Anagha Gadepalli, Deepak Chouhan, Vinod Tiwari*. Development of Novel Preclinical Model of Frostbite Injury-Induced Chronic Pain Using Deep Frozen Magnets, ***Cellular Signalling*** (2023) **Impact**

factor: 4.5

5. Anagha Gadepalli, Obulapathi Ummadisetty, **Akhilesh**, Deepak Chouhan, Anmol, Vinod Tiwari*. Loperamide, A Peripheral Mu-Opioid Receptor Agonist Attenuates Chemotherapy-induced Neuropathic Pain in Rats. ***International Immunopharmacology.*** *2023,* **Impact factor: 5.6**

6. Anagha Gadepalli, Obulapathi Ummadisetty, **Akhilesh**, Deepak Chouhan, Anmol, Vinod Tiwari*. Peripheral Mu-Opioid Receptor Activation by Dermorphin [D-Arg2, Lys4] (1-4) Amide Alleviates Behavioral and Neurobiological Aberrations in Rat Model of Chemotherapy-Induced Neuropathic Pain. ***Neurotherapeutics.*** *2023,* **Impact factor: 7.6.**

7. Bharti, Kanchan, Deepika Deepika, Manish Kumar, Abhishek Jha, Manjit, **Akhilesh**, Vinod Tiwari, Vikas Kumar, and Brahmeshwar Mishra. "Development and Evaluation of Amorphous Solid Dispersion of Riluzole with PBPK Model to Simulate the Pharmacokinetic Profile." **AAPS PharmSciTech** 24, no. 8 (2023): 219. **Impact factor: 3.7.**

8. Ajay Modi, Priyanka Pandey, **Akhilesh**, Ankit Uniyal, Deepak Chouhan, Somesh Agrawal, Meghana Allani, Anurag Kumar Singh, Sonu Kumar, Vinod Tiwari. Disentangling the enigmatic role of ephrin signaling in chronic pain: Moving towards future anti-pain therapeutics. Life Sciences, 1 August 2023, 121796, **Impact factor: 6.7**

9. Digambar Kumar Waiker, Akash Verma, **Akhilesh,** Gajendra T. A, Namrata Singh, Anima Roy, Hagera Dilnashin, Vinod Tiwari, Surendra Kumar Trigun, Surya P. Singh, Sairam Krishnamurthy, Prem Lama, Vincent Jo Davisson, and Sushant Kumar Shrivastava*. Design, Synthesis, and Biological Evaluation of Piperazine and N-Benzylpiperidine Hybrids of 5-Phenyl-1,3,4-oxadiazol-2-thiol as Potential Multitargeted Ligands for Alzheimer's Disease Therapy. ***ACS chemical neuroscience***. 2023 14, 11, 2217–2242. **Impact factor: 5.16**

10. Namrata Prajapati, Dilip Sharma, Pankaj Ashok Bidve, **Akhilesh,** Deepak Chouhan, Meghana Allani, Sagar kumar Patel, Moumita Ghosh Chowdhury, Amit Shard, Vinod Tiwari*. Glucose regulation by newly synthesized boronic acid functionalized molecules as dipeptidyl peptidase IV inhibitor: a potential compound for therapeutic intervention in hyperglycaemia. ***Journal of Biomolecular Structure and Dynamics.***

2023/5/21, **Impact factor: 5.36**

11. Shivani, Jaiswal, **Akhilesh,** Tiwari V, Ayyannan SR. Anti-nociceptive potential of an isatin-derived dual fatty acid amide hydrolase-monoacylglycerol lipase inhibitor. Pharmacological Reports 2023 Mar 13:1-9. **Impact factor: 4**

12. Tapas Kumar Roy, Ankit Uniyal, **Akhilesh**, Vinod Tiwari*. Multifactorial Pathways in Burn Injury-induced Chronic Pain: Novel Targets and their Pharmacological Modulation. ***Molecular biology reports.*** (2022) **Impact factor: 2.6**.

13. Mosumi Rani, Ankit Uniyal, **Akhilesh**, Vinod Tiwari*. Decrypting the Cellular and Molecular Intricacies Associated with COVID-19-induced Chronic Pain. ***Metabolic brain disease.*** (2022) **Impact factor: 2.8.** Just accepted.

14. Shivani, Jaiswal, **Akhilesh,** Ankit Uniyal, Vinod Tiwari, and Senthil Raja Ayyannan. "Synthesis and evaluation of dual fatty acid amide hydrolase-monoacylglycerol lipase inhibition and antinociceptive activities of 4-methylsulfonylaniline-derived semicarbazones. ***Bioorganic & Medicinal Chemistry.*** 60 (2022): 116698. **Impact factor: 3.6**

15. Ankit Uniyal, **Akhilesh**, Aaina Singh Rathore, Sanjay Singh, Vinod Tiwari*. Inhibition of Pan- Aurora Kinase Attenuates Evoked and Ongoing Pain in Nerve Injured Rats Via Regulating Kif17-Nr2b Mediated Signaling. ***International Immunopharmacology.*** *106, May 2022,* **Impact factor: 4.96**

16. Shivangi Patel, Dilip Sharma, Ankit Uniyal, **Akhilesh**, Anagha Gadepalli, Vinod Tiwari. Recent Advancements in Biomarker Research in Schizophrenia: Mapping the Road from Bench to Bedside. ***Metabolic brain disease*** (2022). **Impact factor: 3.26**

17. Gadepalli A, **Akhilesh,** Uniyal A, Modi A, Chouhan D, Ummadisetty O, Khanna S, Solanki S, Allani M, Tiwari V. Multifarious Targets and Recent Developments in the Therapeutics for the Management of Bone Cancer Pain. ***ACS chemical neuroscience***. 2021 Nov 1. **Impact factor: 4.56**

18. Akhilesh, Anurag T. K Baidya, Ankit Uniyal, Bhanuranjan Das, Rajnish Kumar and Vinod Tiwari. "Structure-based virtual screening and molecular dynamics simulation for the identification of sphingosine kinase-2 inhibitors as potential analgesics" ***Journal of Biomolecular Structure and Dynamics*** (2021). **Impact factor: 5.56**

19. Uniyal A, Thakur V, Rani M, Tiwari V, **Akhilesh,** Gadepalli A, Ummadisetty O,

ModiA, Tiwari V. Kinesin Nanomotors Mediated Trafficking of NMDA-Loaded Cargo as A Novel Target in Chronic Pain. ***ACS Chemical Neuroscience.*** 2021 Jul 29. **Impact factor: 4.56**

20. Uniyal, Ankit, **Akhilesh,** Anagha Gadepalli, Obulapathi Ummadisetty, and Vinod Tiwari. Epigallocatechin-3-gallate Improves Chronic Alcohol-Induced Cognitive Dysfunction in Rats by Interfering with the Neuro-inflammatory, Cell Death and Oxido-nitrosative Stress Pathways. ***Metabolic brain disease*** (2021). **Impact factor: 3.26**

21. Uniyal A, Gadepalli A, **Akhilesh,** Tiwari V*. Underpinning the Neurobiological Intricacies Associated with Opioid Tolerance. ***ACS Chemical Neuroscience*** **2020**, Mar 18;11(6):830-839. **Impact Factor- 4.56.**

22. V Tiwari, A Uniyal, A Gadepalli, **Akhilesh,** V Tiwari, S Agrawal. Sodium Channels: As an Eye of the Storm in Various Clinical Pathologies. ***Frontiers in Pharmacologyof Neurotransmitters****,* 619-634.

23. Tiwari V, Uniyal A, Tiwari V, Thakur V, Rani M, **Akhilesh.** Delineating the Neuroinflammatory Crosstalk in Neurodegeneration and Probing the Near Future, ***Bentham Science, 2021.***

National/International Conference Presentations/Participation:

1) **Akhilesh,** Ankit Uniyal, Vinod Tiwari. Development of Novel Clinically Mimickable Animal Model for Chemotherapy-induced Neuropathic Pain: SfN neuroscience meeting at San Diego, CA, USA, November 12-16, 2022.
2) Deepak Chouhan, Ankit Uniyal, **Akhilesh,** Vinod Tiwari. Development of Dendrimer Stabilized Albumin Nanoparticles of Asiatic Acid (AA-DSANPs) Attenuates the Chronic Alcohol Consumption in IA2BC Paradigm SfN neuroscience meeting at San Diego, CA, USA, November 12-16, 2022.
3) Vinod Tiwari*, Ankit Uniyal, **Akhilesh,** Anagha Gadepalli. Tozasertib Attenuates Evoked and Ongoing Pain in Nerve-inured rats by Inhibiting KIF Mediated Inflammatory Signaling. (International Neuroscience Conference, FENS Forum, Paris, 09-13 July, 2022).
4) **Akhilesh** and Vinod Tiwari. Behavioural and Pharmacological Validation of Novel Animal Model for Chemotherpy Induced Neuropathic Pain. (IBRO-APRC

sponsored Neuroscience School on "Neuroprotective Potential on Medicinal Plants and Phytochemicals in Neurodegenerative Disorders" Organized by Department of Biochemistry, Institute of Science, Banaras Hindu University on September 12-18, 2022.

5) **Akhilesh**, Ankit Uniyal, Vinod Tiwari. Cocktail Chemotherapy-induced Neuropathic Pain: A Novel and Clinically Mimickable Model of Chemotherapy-induced Peripheral Neuropathy. 8th International Symposium on Current Trends in Drug Discovery Research, CDRI-Lucknow, March 12-14, 2022.
6) **Akhilesh,** Ankit Uniyal, Vinod Tiwari. Development of Novel Clinically Mimickable Animal Model for Chemotherapy-induced Neuropathic Pain: SfN neuroscience meeting at San Diego, CA, USA, November 12-16, 2022
7) **Akhilesh,** Ankit Uniyal, Vinod Tiwari. Combination Chemotherapy-induced Neuropathic Pain: A Novel and Clinically Mimickable Model of Chemotherapy-induced Peripheral Neuropathy. 8th International Symposium on Current Trends in Drug Discovery Research, CDRI-Lucknow, March 12-14, 2022
8) **Akhilesh**, Ankit Uniyal, Vinod Tiwari. Protective role of epigallocatechin-3-gallate in chronic alcohol-induced cognitive dysfunction and neuronal apoptosis in rats. (IBRO-APRC School on Understanding of Neuroscience and Spectrum of Neurogenetic Disorders, Nepal, 20 to 25 August 2021.
9) **Akhilesh,** Vinod Tiwari. TRPV1 based siRNA Therapeutics: A Potential Approach for the Treatment of Chemotherapy-induced Peripheral Neuropathy. 3rd ISCRE and IBRO-ARC Neuroscience and Research Ethics Policy Workshop" which is held on IBN ZOHR University, Polydisciplinary Faculty of Taroudant, Morocco on dated 12-14 November 2021.
10) **Akhilesh,** Vinod Tiwari. TRPA1 based siRNA Therapeutics: A Potential Approach for the Treatment of Chemotherapy-induced Peripheral Neuropathy. IBRO-APRC Associate School on Neurobiology of Addiction, Chandigarh on dated August 23-28, 2021

RECOGNITION: Awards, Achievements and Honors:

1) Received travel award to attend the International Association for the Study of Pain (IASP) 2024 World Congress on Pain in Amsterdam, Netherlands, from August 5-9, 2024.

2) Awarded travel grants to participate in the 5th ISN-JNC Flagship School on "Neurochemistry of Mental Illness" in Naxos, Greece, from October 20-27, 2024.

3) Honored to received Professor Prasop Rattanakorn Award for Outstanding Research at Thailand, jointly by the Thai Neurosociety and IBRO Thailand 2023

4) Awarded Travel grant to attend ISN-Advanced School under theme on "New challenges and opportunities in neurochemical studies-novel tools and approaches" at Porta do Sol Hotel in Caminha, Portugal, 3-8 August 2023.

5) International Travel Award to attend ISN-ESN meeting at Porta do Sol Hotel in Caminha, Portugal, 8-11 August 2023.

6) Awarded IBRO-APRC sponsored Neuroscience School on "Neuroscience and Brain Disease: From Translation to Intervention" organized by Faculty of Medical Science, Naresuan University, Phitsanulok, Thailand, June 6-11, 2023.

7) Awarded travel grants by Science Engineering & Research Board -International travel support (SERB-ITS) for attending SfN Neuroscience Meeting 2022 at San Diego, CA, USA.

8) Awarded IBRO-APRC sponsored Neuroscience School on "Neuroprotective Potential on Medicinal Plants and Phytochemicals in Neurodegenerative Disorders" Organized by Department of Biochemistry, Institute of Science, Banaras Hindu University on September 12-18, 2022.

9) Awarded 3 years Senior Research Fellowship award from Indian Council of Medical Research- Senior Research for project title "Development of Transient Receptor Potential Ankyrin -1 (TRPA1) Nociceptor Based siRNA Nanotherapeutics for the Treatment of Chemotherapy-induced Neuropathic Pain"

10) Awarded Post Graduate Fellowship award after qualifying Graduate Pharmacy Aptitude test (GPAT) 2016, by All India Council for Technical Education Gov. of India New Delhi for a duration of 2 years (2014-2016)

11) IIT BHU (JEE-IIT) Qualified 2018

12) Secured first position in M. Pharm, (Gold Medallist), Uttarakhand Technical University Dehradun in 2016

13) Awarded with Best Poster Presentation Second Prize in International Seminar at G.I.P.E.R. Kashipur, India.

Dr. Vinod Tiwari, working as Associate Professor at the Department of Pharmaceutical Engineering & Technology, Indian Institute of Technology (Banaras Hindu University), Varanasi, India. Currently heading the Neuroscience and Pain Research Lab at IIT (BHU), Varanasi. Dr. Tiwari holds a Ph.D. in neuropharmacology, and his groundbreaking research has identified key signaling pathways associated with alcoholic neuropathy, cognitive deficits, diabetic neuropathy, and musculoskeletal pain. His Ph.D. work, published in esteemed international journals such as the ***International Journal of Neuropsychopharmacology, Journal of Neurochemistry, Pharmacology, Biochemistry & Behavior, PAIN, and The Journal of Pain,*** has garnered significant citations. During his postdoctoral tenure at Johns Hopkins University, U.S.A., under the mentorship of Prof. Srinivasa N. Raja and Prof. Yun Guan, Dr. Tiwari explored various spinal and supraspinal mechanisms related to peripheral opioid-induced relief of spontaneous ongoing pain after spinal and sciatic nerve injury. His investigations included the study of MOR and DOR heterodimerization in peripheral opioid-induced tolerance and hyperalgesia, addressing a pertinent clinical challenge. These postdoctoral findings were published in renowned journals such as ***Nature Neuroscience, Proceedings of National Academy of Science (PNAS), PAIN, Anesthesiology, and The Journal of Clinical Investigation***. Before joining IIT (BHU), Varanasi, Dr. Tiwari served as Assistant Professor at the National Institute of Pharmaceutical Education and Research, Ahmedabad. His impactful contributions to the field of pain research have garnered worldwide recognition, with over 4943 citations, an h-index of 39, and an i10-index of 75. Mr. Akhilesh is submitting his PhD under the supervision of Dr. Tiwari. Currently, Dr. Tiwari's research focus centers on chemotherapy-induced neuropathic pain (CINP). His lab has successfully developed a pioneering animal model for CINP, addressing a critical gap in understanding and treating this specific type of pain. This achievement underscores the laboratory's commitment to advancing pain research and its significant contributions to the field. Moreover, the lab has developed a nanoformulation of TRPA1 siRNA for CINP treatment. Dr. Tiwari is also actively involved in studying TRP channels' mediated regulation of nociceptors and dissecting different neuronal circuitries involved in pain relief and drug addiction. The ultimate goal is to develop improved analgesic drugs devoid of addictive properties.

Mr. Akhilesh, is a Ph.D. scholar at the Department of Pharmaceutical Engineering & Technology, Indian Institute of Technology (Banaras Hindu University), Varanasi, India. He joined Dr. Tiwari's lab in May 2019 and, during his Ph.D., successfully developed and validated an innovative animal model of Chemotherapy-Induced Neuropathic Pain (CINP). His research focused on investigating the role of TRP channels in the regulation of chemotherapy-induced neuropathic pain. Akhilesh's noteworthy contributions have been published in reputable, high-impact peer-reviewed international journals, including ***International Immunopharmacology, Neuroatherapeutics, Life Sciences, and ACS Chemical Neuroscience***. In recognition of his research excellence, he was awarded a Senior Research Fellowship by the Indian Council of Medical Research, Government of India, in 2020. Beyond his academic achievements, Akhilesh has received various travel grants and awards from prestigious organizations such as the International Brain Research Organization (IBRO), the Society for Neuroscience, the International Society for Neurochemistry and International Travel Award from the Science and Engineering Research Board (SERB) of the Government of India. Looking ahead, Akhilesh's post-Ph.D. goals involve seeking advanced training in a highly competitive research environment to further hone his skills. He aspires to pursue a career in neuroscience with a specific focus on unraveling novel paradigms associated with chronic pain. His ultimate objective is to contribute to the development of innovative analgesics that are devoid of side effects.