Dr. Vipin Ranga

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A creative and problem-solving scientist with experience of more than 11 years in Bioinformatics. Skilled in NGS data analysis (genomics, transcriptomics, metagenomics) and structural bioinformatics. Experienced in hypothesis generation, data processing, visualization, and error correction in results generated from computational tools through careful human intervention. Passionate about staying updated with the latest research and data analysis trends.

Education

09/2014-01/2023, Turku, Finland
Ph.D. in Biochemistry
Åbo Akademi University
• Thesis: Specificity Determining Features at the Interface of Biomolecular Complexes as Regulators of Biological Functions
• Grade: Pass with Honours (the highest grade awarded for a PhD degree in Finland)

07/2012-07/2014, New Delhi, India
M.Tech. in Computational and Systems Biology
Jawaharlal Nehru University
• Thesis: Microarray Meta-analysis Workflow Development and Application in Identification of Important Marker Genes in Primary Sjögren's Syndrome

07/2006-05/2010, Guwahati, India
B.Tech. in Biotechnology
Indian Institute of Technology (IIT) Guwahati
• Thesis: Biochemical and Molecular Characterization of Wild-type and Fused Protoplasts of *Beauveria bassiana* and *Metarhizium anisopliae*

Certificate

01/2020
CSIR-UGC test
University Grants Commission
Cleared the Joint CSIR-UGC test for eligibility for Assistant Professor (LS) held on 16-06-2019 in the subject Life Sciences

Biological Area Explored

• Human diseases and developmental biology
• Computer-aided drug discovery
• Microbial genomics

Skills

– LANGUAGES

Hindi	English
Native	**Professional**

– COMPUTATIONAL BIOLOGY AND BIOINFORMATICS

NGS data analysis ●●●●●	Biological databases ●●●●●	Structural Bioinformatics ●●●●●	Cancer Bioinformatics ●●●●●
Microbial Bioinformatics ●●●●●	Clinical data analysis ●●●●●	Variant discovery ●●●●●	Drug discovery ●●●●●
R and Python ●●●●○	HPC knowledge ●●●●○		
Scientific writing **Professional**			

Work Experience

09/2025-Present, Delhi-NCR, Modinagar, Uttar Pradesh, India
Assistant Professor in the Department of Biology
SRM Institute of Science & Technology

06/2023-09/2025, Jorhat, Assam, India
Project Scientist in Bioinformatics (DBT-funded project of 16 crore rupees)
DBT-NECAB Centre, Assam Agricultural University
• Conducted research in omics data analysis and structural bioinformatics
• Provided bioinformatics support to faculty members and students
• Taught "Introduction to Bioinformatics" course to M.Sc. students

05/2013-07/2013, Turku, Finland
Visiting Researcher
Åbo Akademi University
Project: Functional annotation of bacterial proteins using Hidden Markov Model

Invited lectures

• Invited lecture on NGS in Drug Discovery at the Birla Institute of Scientific Research, Rajasthan
• Invited lecture on Microbial data analysis for identification of bacterial community in a soil sample using Bioinformatics at Assam Agricultural University, Jorhat, Assam

Patent

• International publication number WO/2021/205079
Title: Novel vaccine compositions.
Authors: Erik Niemelä, **Vipin Ranga**, Mahlet Z. Tamirat, John E. Eriksson, Tomi T. Airenne, Mark S. Johnson.
Published by the World Intellectual Property Organization on 14.10.2021

Conferences

• Molecular Machines: Integrative Structural and Molecular Biology by EMBO, Heidelberg, Germany (2016)
• Chemistry and Biochemistry in Drug Discovery. Organized by the Royal Society of Chemistry, Finland (2018). Awarded for the 2nd-best poster award
• Applied Bioinformatics in Life Sciences by the Leuven Institute for Ireland in Europe, Belgium (2018)

Training

• Six-day online faculty development program on "Hands-on Training in Machine Learning and Artificial Intelligence for Biomedical Applications" from 10 to 15 November 2025, organised by the Department of Electronics and Communication Engineering, SRM Institute of Science and Technology, Vadapalani, Chennai.
• One-month program on "Artificial Intelligence in Agriculture" from 1 to 28 Feb 2025, organized by ICAR-NAARM, Hyderabad.

Publications: 19

1. Tikam Chand Dakal, Deepika Deepika, Bhanupriya Dhabhai, Ganesh S Kakde, Narendra Kumar Sharma, **Vipin Ranga**, Pawan Kumar Maurya (2026) Integrated Computational Biology Revealed Ellagic Acid Exerts Antioxidant and Anticancer Activities Through Inhibition of ROS-induced JNK/p38 MAPK Kinase Pathway. In Silico Research in Biomedicine Volume 2: 100159.
2. Tikam Chand Dakal, Anuja Pant, Somu Yadav, Abhishek Kumar, Narendra Kumar Sharma, **Vipin Ranga**, Pawan Kumar Maurya (2025) Comprehensive Insights into the Genomic and Mutational Landscape of Endometriosis: Translational Perspectives for Advanced Therapeutics. Ann Obstet Gynecol. 8(2): 1072.
3. Purna Bahadur Chetri, **Vipin Ranga**, Gunajit Goswami, Madhumita Barooah (2025) Integrated genomics, structural and functional analysis of the ABC transporter metN in *Priestia megaterium* under acid stress conditions. International Journal of Biological Macromolecules. Volume 334, Part 2, 149064.
4. Tikam Chand Dakal, **Vipin Ranga**, Ganesh S. Kakde, Mony Thakur, Vinod Yadav, Narendra Kumar Sharma, Pawan Kumar Maurya (2025) Systematic comprehension of genomics and mutational landscape of glioma: A goal towards advanced therapeutics. Neuroscience. Volume 573, 7 May 2025, Pages 491-504.
5. Anuja Pant, Kareena Moar, Taruna K. Arora, Tikam Chand Dakal, **Vipin Ranga**, Narendra Kumar Sharma, Pawan Kumar Maurya (2025) Deciphering the role of circulating miRNAs in the etiology and

pathophysiology of endometriosis: An updated compiled review. Experimental Cell Research. Volume 446, Issue 2, 15 March 2025, 114482

6. **Vipin Ranga**, Tikam Chand Dakal, Pawan Kumar Maurya, Mark S Johnson, Narendra Kumar Sharma, Abhishek Kumar (2025) Role of RGD-binding Integrins in ovarian cancer progression, metastasis and response to therapy. Integrative Biology, Volume 17, zyaf003.
7. Narendra K. Sharma, Mansi Srivastava, Tikam C. Dakal, **Vipin Ranga**, Pawan K. Maurya (2024) Acute Hypobaric Hypoxia Causes Alterations in Acetylcholine-Mediated Signaling Through Varying Expression of Muscarinic Receptors in the PFC and Cerebellum of Rats' Brain. High Altitude Medicine and Biology, Volume 17, No. 2.
8. Parinda Barua, Munmi Phukan, Sunita Munda, **Vipin Ranga**, Sruthi R, Jyoti Lekha Borah, Janardan Das, Pompi Dutta, Ashok Bhattacharyya, Mahendra Kumar Modi, Sanjay K. Chetia (2024) Identification of significant SNP and candidate loci for blast disease resistance via GWAS and population structure analysis in ARC panel of *Oryza sativa*. Physiology and Molecular Biology of Plants, 30, 1673–1689.
9. Tikam Chand Dakal, Ramgopal Dhakar, Abhijit Beura, Kareena Moar, Pawan Kumar Maurya, Narendra Kumar Sharma, **Vipin Ranga**, Abhishek Kumar (2024) Emerging Methods and Techniques for Cancer Biomarker Discovery. Pathol Res Pract. 262:155567.
10. Darshna Sharma, Purna B. Chetri, **Vipin Ranga**, Subhajit Sen, Bidyut K. Sarmah, Madhumita Barooah (2024) Genomic analysis of acid tolerance genes and deciphering the function of *ydaG* gene in mitigating acid tolerance in *Priestia megaterium*. Frontiers in Microbiology 15:1414777.
11. Tikam C. Dakal, Bhanupriya Dhabhai, Anuja Pant, Kareena Moar, Kanika Chaudhary, Vikas Yadav, **Vipin Ranga**, Narendra K. Sharma, Abhishek Kumar, Pawan K. Maurya, Jarek Maciaczyk, Ingo G. H. Schmidt-Wolf, Amit Sharma (2024) Oncogenes and tumor suppressor genes: functions and roles in cancers. MedComm 5(6):e582.
12. Deepika, Tikam C. Dakal, Narendra K. Sharma, **Vipin Ranga**, Pawan K. Maurya (2024) Naringenin orchestrates and regulates the ROS-mediated pathways and proinflammatory signaling: targeting hallmarks of aging-associated disorders. Rejuvenation Research 27(1):3-16.
13. Bhanupriya Dhabhai, Ramgopal Dhakar, **Vipin Ranga**, Praveen Surolia, Athira M. Menon, Darshan Lohar, Narendra Kumar Sharma, Tikam Chand Dakal (2023) Integrated Bioinformatics Approach Showed Linagliptin as Potential Drug for Prevention of Cardiac Arrest and Cancer. Medinformatics 1:3.
14. Anuja Pant, Tikam C. Dakal, Kareena Moar, Bhanupriya Dhabhai, Taruna K. Arora, Narendra K. Sharma, **Vipin Ranga**, Pawan K. Maurya (2023) Assessment of MMP14, CAV2, CLU and SPARCL1 expression profiles in endometriosis. Pathol Research and Practice 251:154892.
15. Sanna Vuoristo, Shruti Bhagat, Christel Hydén-Granskog, Masahito Yoshihara, Lisa Gawriyski, Eeva-Mari Jouhilahti, **Vipin Ranga**, Mahlet Tamirat, Mikko Huhtala, *et al.* (2022) DUX4 is a multifunctional factor priming human embryonic genome activation. iScience 25(4):104137.
16. **Vipin Ranga**, Erik Niemelä, Mahlet Z. Tamirat, John E. Eriksson, Tomi T. Airenne, Mark S. Johnson (2020) Immunogenic SARS-CoV-2 epitopes: In silico study towards better understanding of COVID- 19 disease – paving the way for vaccine development. MDPI Vaccines 8(3):408.
17. Shintaro Katayama, **Vipin Ranga**, Eeva-Mari Jouhilahti, Tomi T. Airenne, Mark S. Johnson, Krishanu Mukherjee, Thomas R. Bürglin, Juha Kere (2018) Phylogenetic and mutational analyses of human LEUTX, a homeobox gene implicated in embryogenesis. Scientific Reports 8:17421.
18. Kalle H. Sipilä, **Vipin Ranga**, Pekka Rappu, Markku Mali, Laura Pirilä, Ilona Heino, Johanna Jokinen, Jarmo Käpylä, Mark S. Johnson, Jyrki Heino (2017) Joint inflammation related citrullination of functional arginines in extracellular proteins. Scientific Reports 7: 8246.
19. Kalle Sipilä, **Vipin Ranga**, Pekka Rappu, Annamari Torittu, Laura Pirilä, Jarmo Käpylä, Mark S. Johnson, Hannu Larjava, Jyrki Heino (2016) Extracellular citrullination inhibits the function of matrix associated TGF-β. Matrix Biology 55:77-89.

Book chapters: 2

1. **Vipin Ranga.** Chapter 9: Clinical trials on RNA-based therapeutics for treatment of infectious diseases and other pathologies. Book: RNA-based cancer therapeutics. Book editors: Narendra K. Sharma, Tikam C. Dakal, Pawan K. Maurya, Gulshan Wadhwa. Published date: 18 April 2025. Publisher: Springer Nature. ISBN No : Print: 978-981-96-3455-2, Online: 978-981-96-3456-9
2. Yogendra Bhaskar, Isha Goel, **Vipin Ranga**, Chandan K. Singh. Chapter 11: Challenges and fate of bio-nanomaterials in industrial applications. Book: Bio-nanomaterials in environmental remediation. Book editors: Narendra K. Sharma, Rekha Sharma, Tikam C. Dakal. Published date: 13 December 2024. Publisher: Wiley. ISBN No:978-3-527-84852-2.