# **Curriculum Vitae**

## Dr. Rikeshwer Prasad Dewangan

Assistant Professor, Department of Pharmaceutical Chemistry, School of Pharmaceutical Education and Research (NIRF Rank No. 1 in Year 2019-22 and Rank -02 in Year 2023), Jamia Hamdard (Deemed to be University) NAAC Accredited A<sup>+</sup> Grade, New Delhi-110062, India Mobile: +91-8368703715 Skype ID- rikesh191 E-mail: <u>rpdewangan@jamiahamdard.ac.in</u>, <u>rickydewangan@gmail.com</u> Webpage: <u>http://jamiahamdard.edu/Department/SPER/Pharmaceutical%20Chemistry/Dr. Rikeshwer.pd</u> <u>f</u>

## **Specialization: Peptide Based Medicinal Chemistry**

Rikeshwer Prasad Dewangan is a pharmaceutical chemist who received his Ph. D. in Pharmaceutical chemistry February 2017 on topic entitled 'Design, synthesis, mode of actions of novel antimicrobial peptide and peptidomimetics' from Jamia Hamdard (Hamdard University) and CSIR- Institute of Genomics & Integrative Biology (CSIR-IGIB), Delhi as MOU candidate. Rikeshwer availed 2.5 year of Postdoctoral research experience as National Postdoctoral Fellow from CSIR- CDRI, Lucknow, India and Postdoctoral Fellow in Binational project of ISRAEL-USA in Ben-Gurion University of Israel. Presently, he is working as Assistant Professor, in School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi since Jan 2019. His research laboratory exploring the potential of peptides for design of novel therapeutics against infectious and life style diseases. He is an expert of solid /solution phase peptide synthesis and analytical tools (e.g., HPLC, UPLC and LC-MS/MS). His lab is equipped the facilities of antimicrobial research for chemistry and biological activities funded from SERB, UGC and ICMR. He has published more than 40 research papers in international journals with an average impact factor of 5.04. He has accounted 2 patents in US and Indian patent offices of his research outcomes. Dr. Dewangan presented his research work in many national and international conferences organized in India and abroad. He has recipient of many travel awards from various funding agencies ICMR, DST, CSIR, American Society of Microbiology, USA and Gordon Research Conference. At present he is supervising PhD students and B. Pharm and M. Pharm. students for dissertation work.

### **Educational Qualifications**

◆ Ph.D in Pharmaceutical Chemistry / Senior Project Fellow (Jan 2013 – Feb 2017)

Under supervision of **Dr. Santosh Pasha**, Chief Scientist (Ret.), Peptide Research Laboratory, CSIR-IGIB, Mall Road, Delhi, India.

Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Jamia Hamdard, New Delhi, India. **Thesis Title** – "Design, synthesis and mode of actions of novel antimicrobial peptidomimetics"

- ★ <u>M.Pharm. (Pharmaceutical Chemistry)</u> (2009-2011)
- \* **<u>B. Pharm. (Pharmacy)</u>** (2006-2009)
- Certificate Course on Laboratory Animal Science 2015, based on FELASA Cat. C conducted by CSIR- IGIB, Delhi, India & Utrecht University, The Netherlands.

#### **Research Interest and Future Goals:**

Peptide holds a great potential as active drugs and diagnostics and as functional excipients in drug delivery systems to improve the pharmaceutical properties of drugs. According to his previous exposure and keeping in mind potential of peptides he would like to implement the following objectives in the departments

- > Antimicrobial peptide and peptidomimetics against MDR ESKAPE pathogens
- Fragment identification of proteins directly or indirectly, play important roles in combating various metabolic disorders e.g., diabetes
- Peptide based prodrug approach of hydrophobic anticancer drugs for the effective and targeted drug delivery
- Immobilization of antimicrobial peptide and peptidomimetics on surface of the biomedical devices to prevent infections caused by the biofilms

### **Ongoing Research Projects:**

#### 1. Name of Project: ICMR- Extramural adhoc project

**Title of Project:** Design and synthesis of intracellular targeting novel antimicrobial peptides against multidrug resistant ESKAPE pathogens and their mode of action studies **Role**: Principal investigator, Funding agency-ICMR New Delhi, Duration: 3 years, funding amount: 46.5 lac.

#### 2. Name of Project: SERB-Core Research Grant

**Title of Project:** Synthesis and evaluation of novel amphiphilic conjugates of FDA approved non-steroidal anti-inflammatory drugs as potential antimicrobial against drug resistant pathogens.

**Role**: Principal investigator, Funding agency-SERB, Duration: 3 years, funding amount: 40.0 lac.

### **Project completed:**

### 1) Project code: GAP0249 (SERB-NPDF),

**Title of Project:** "Rationale design of polyamine-conjugated new antimicrobial peptidomimetics and studies on their mode of action against different microorganisms including multidrug resistant bacteria".

**Role**: Principal Investigator, **Funding Agency**: SERB-DST, Duration: April 2017 to June 2018 (14 months), funded amount- 19.2 Lac.

#### 2) Name of Project: UGC-startup grant

**Title of Project:** Design and synthesis of proline-arginine rich peptides and peptidomimetics against multidrug resistant bacteria and their mode of action studies. **Role**: Principal investigator, Funding agency, Duration: 2 years, funding amount: 10 lac.

### **List of Publications**

#### i) Research Papers as First and Corresponding Author

- Neeraj Kumar Verma, Rikeshwer Prasad Dewangan\*, Munesh Kumar Harioudh, Jimut Kanti Ghosh Introduction of a β-leucine residue instead of leucine9 and glycine10 residues in Temporin L for improved cell selectivity, stability and activity against planktonic and biofilm of methicillin resistant *S. aureus*. Bioorganic Chemistry, 2023, <a href="http://dx.doi.org/10.1016/j.bioorg.2023.106440">http://dx.doi.org/10.1016/j.bioorg.2023.106440</a> (Impact Factor- 5.307) \*Corresponding author
- 2)Shweta Paroha, Juhi Verma, Arvind K Singh Chandel, Shalini Kumari, Laxmi Rani, Ravindra Dhar Dubey, Aman Kumar Mahto, Amulya K Panda, Pravat Kumar Sahoo, Rikeshwer Prasad Dewangan\* Augmented therapeutic efficacy of Gemcitabine conjugated self-assembled nanoparticles for cancer chemotherapy. *Journal of Drug Delivery Science and Technology*, 2022, 76, 103796 (Impact Factor- 5.062) \*Corresponding author.
- 3)Rikeshwer Prasad Dewangan, Devesh Pratap Verma, Neeraj Kumar Verma, Garima Pant, Kalyan Mitra, Ankit Gupta, Saman Habib, Jimut Kanti Ghosh Spermine-Conjugated Short Proline-Rich Lipopeptides as Broad-Spectrum Intracellular Targeting Antibacterial Agents. *Journal of Medicinal Chemistry*, 2022 65:5433–5448. (Impact Factor- 8.04)
- 4)Rikeshwer P. Dewangan, Meenakshi Singh, Stefen Ilic, Benjamin Tam, Barak Akabayov. Cell-penetrating peptide conjugates of indole-3-acetic acid based DNA primase/Gyrase inhibitors as potent antitubercular agents against planktonic and biofilm culture of Mycobacterium smegmatis. *Chemical Biology Drug Design*, 2021. (Impact Factor- 2.873)
- 5)Rikeshwer P. Dewangan\*, Shalini Kumari, Aman Kumar Mahto Aditi Jain Santosh Pasha. Self-assembly and hydrogelation of N-terminal modified tetrapeptide for sustained release and synergistic action of antibacterial drugs against methicillin resistant S. aureus. *Bioorganic Chemistry*, 2020, 102, 104052. (\*Corresponding author). (Impact factor- 5.275)
- 6)**Rikeshwer P. Dewangan,** Gopal Singh Bisht, Vijay Pal Singh, M. Shahar Yar, Santosh Pasha. Design and synthesis of cell selective  $\alpha/\beta$ -diastereomeric peptidomimetic with potent *in vivo* antibacterial activity against methicillin resistant *S. aureus. Bioorganic*

Chemistry, 2017, 76, 538-547. (Impact factor- 5.275)

- 7)Rikeshwer P. Dewangan, Aditi Jain, Swati Tanwar, M. Shahar Yar, Santosh Pasha. Self-assembly and hydrogelation of spermine functionalized antimicrobial peptides against planktonic and biofilm methicillin resistant *S. aureus*. *RSC Advances*, 2016, 6, 112656–112666. (Impact factor- 3.361)
- 8)Rikeshwer P. Dewangan, Seema Joshi, Shalini Kumari, Hemlata Gautam, Mohammed Shahar Yar, Santosh Pasha. N-terminally modified linear and branched spermine backbone di-peptidomimetics against planktonic and sessile methiciliin-resistant *Staphylococcus aureus*. *Antimicrobial Agents and Chemotherapy*, 2014, 58, 5435-5447. (Impact factor- 5.191)
- 9)Seema Joshi<sup>1</sup>, Rikeshwer P. Dewangan<sup>1</sup>, Shruti Yadav, Diwan S. Rawat and Santosh Pasha. Synthesis, antibacterial activity and mode of action of novel linoleic aciddipeptide-spermidine conjugates. *Org. Biomol. Chem.*, **2012**, 10, 8326- 8335 (<sup>1</sup>Equal first author). (Impact factor- **3.876**)

### ii) Selected Publications as Co-authors

- Kanchan Birat, Reem Binsuwaidan, Tariq Omar Siddiqi, Showkat Rasool Mir, Nawaf Alshammari, Mohd Adnan, Rahila Nazir, Bushra Ejaz, Moien Qadir Malik, Rikeshwer Prasad Dewangan, Syed Amir Ashraf, Bibhu Prasad Panda Report on Vincristine producing endophytic fungus Nigrospora zimmermanii from leaves of Catharanthus roseus. Metabolites, 2022 (Accepted Manuscript) (Impact Factor 5.58)
- Nikita Kundu, Taniya Sharma, Sarvpreet Kaur, Aman Kumar Mahto, Rikeshwer Prasad Dewangan, J Shankaraswamy, Sarika Saxena Significant destabilization of human telomeric G-quadruplex upon peptide binding: dramatic effect of flanking bases. Journal of Biomolecular Structure and Dynamics, 2022, 1-9. https://doi.org/10.1080/07391102.2022.2116602 (Impact Factor- 5.6)
- Taniya Sharma, Nikita Kundu, Sarvpreet Kaur, Amlan Chakraborty, Aman Kumar Mahto, Rikeshwer Prasad Dewangan, Jadala Shankaraswamy and Sarika Saxena Recognition and unfolding of human telomeric G-quadruplex by short peptide binding identified from the HRDC domain of BLM helicase. *RSC Advances*, 2022, 12, 21760. (Impact Factor- 4.03)
- 4. Nupur Shrivastava, Ankit Parikh, **Rikeshwer Prasad Dewangan**, Largee Biswas, Anita Kamra Verma, Saurabh Mittal, Javed Ali, Sanjay Garg, Sanjula Baboota Solid Self-Nano Emulsifying Nanoplatform Loaded with Tamoxifen and Resveratrol for Treatment of Breast Cancer. *Pharmaceutics*, **2022**, 14, 1486. (**Impact factor 6.51**)
- 5. Kanchan Birat, Tariq Omar Siddiqi, Showkat Rasool Mir, Junaid Aslan, Rakhi Bansal, Washim Khan, Rikeshwer Prasad Dewangan, Bibhu Prasad Panda Enhancement of vincristine under in vitro culture of Catharanthus roseus supplemented with Alternaria sesami endophytic fungal extract as a biotic elicitor. *International Microbiology*, 2022, 25, 275-284. (Impact factor 3.05)
- 6. Kashif Haider, Neelima Shrivastava, Ankita Pathak, Rikeshwer Prasad Dewangan,

Shaikh Yahya, M Shahar Yar Recent advances and SAR study of 2-substituted benzothiazole scaffold based potent chemotherapeutic agents, *Results in Chemistry*, **2021**, 100258.

- Ankita Pathak, Vivek Pandey, Yuba Raj Pokharel, Vinod Devaraji, Abuzer Ali, Kashif Haider, Suma Saad, **Rikeshwer Prasad Dewangan**, Nadeem Siddiqui, M Shahar Yar Pharmacophore based drug design and synthesis of oxindole bearing hybrid as anticancer agents, *Bioorganic Chemistry*, **2021**, 116, 105358. (**Impact factor 5.30**)
- Subham Das, Saleem Akbar, Bahar Ahmed, Rikeshwer Prasad Dewangan, Ashif Iqubal, Faheem Hyder Pottoo, Alex Joseph Structural Activity Relationship based Medicinal Perspectives of Pyrimidine Derivatives as Anti-Alzheimer's Agents: A Comprehensive Review, CNS & Neurological Disorders-Drug Targets (Formerly Current Drug Targets-CNS & Neurological Disorders) 2021. (Impact factor 2.824)
- Subham Das, Saleem Akbar, Bahar Ahmed, Rikeshwer Prasad Dewangan, Mohammad Kashif Iqubal, Ashif Iqubal, Pooja Chawla, Faheem Hyder Pottoo, Alex Joseph Recent Advancement of Pyrazole Scaffold Based Neuroprotective Agents: A Review, CNS Neurol Disord Drug Targets 2021. DOI: 10.2174/1871527320666210602152308 (Impact factor 2.824)
- Shweta Paroha, Ravindra Dhar Dubey, Rikeshwar Prasad Dewangan, Ranjeet A. Bapat, Pravat Kumar Sahoo, Prashant Kesharwani. Recent advances and prospects in Gemcitabine drug delivery systems. International Journal of Pharmaceutics (Accepted Manuscript). (Impact factor 5.875)
- 11. Prerna, Vidhu Aeri, Rikeshwer Prasad Dewangan, Rehan Abdur Rub. Biomarker Based Chemoprofiling of Polyherbal Ayurvedic Formulation Containing Vitis vinifera L. by Validated UPLC-MS/MS Method. Combinatorial Chemistry and High throughput Screening. (Accepted Manuscript) (Impact factor 1.77)
- 12. Shweta Paroha, Rikeshwer P. Dewangan, Ravindra Dubey, Parvat K. Sahoo. Conventional and nanomaterial-based techniques to increase the bioavailability of therapeutic natural products: a review. *Environmental Chemistry Letter* (2020) <u>https://doi.org/10.1007/s10311-020-01038-1</u> (Impact factor 13.615)
- 13. Durgawati Patel, Kuldeep Kumar Namdev, Kanika Verma, Ritika Gururani, Akansha Tiwari, Puspendra Kumar, Rikeshwer Prasad Dewangan, Saikh Mohammad Wabaidur, Swapnil Sharma, Jaya Dwivedi. HPLC-UV and spectrofluorimetric methods for simultaneous estimation of fluticasone furoate and vilanterol in rabbit plasma: A pharmacokinetic study. *Journal of Chromatography B*, 2019, 1132, 121842. (Impact factor 3.205)
- 14. Sheetal Sinha, Munesh Kumar Harioudh, Rikeshwer P. Dewangan, Wun Jern Ng, Jimut Kanti Ghosh, Surajit Bhattacharjya. Cell-selective pore forming antimicrobial peptides of the prodomain of human furin: a conserved aromatic/cationic sequence mapping, membrane disruption, and atomic-resolution structure and dynamics. ACS Omega 2018, 3, 14650-14664. (Impact factor 3.512)
- 15. Md. J. Akhtar, Md Haider, Zulphikar Ali, Ahsan Khan, Rikeshwer P. Dewangan, Md Hasan, Md. Sayeed Akhtar, Anees Siddiqui, Sangh Pratap, Santosh Pasha, M. Shahar Yar. Synthesis of stable benzimidazole derivatives bearing pyrazole as

anticancer and EGFR receptor inhibitors. *Bioorganic Chemistry* 2018. (Impact factor- 5.275)

- 16. Md. Jawaid Akhtar, Anees Ahmad Siddiqui, Ahsan Ahmed Khan, Zulphikar Ali, Rikeshwer P. Dewangan, Santosh Pasha, M. Shahar Yar. Design, synthesis, docking and QSAR study of substituted benzimidazole linked oxadiazole as cytotoxic agents, EGFR and erbB2 receptor inhibitors. *European Journal of Medicinal Chemistry*, 2017, 126, 853- 869. (Impact factor- 6.514)
- 17. Priyanka Shrivastava, Vikas Navratna, Yumnam Silla, Rikeshwer P. Dewangan, Geetha Vani Rayasam, Anuradha kumar, Sarika Chaudhary, Tanjore. S. Balganesh, Balasubramanian Gopal, Srinivasan Ramachandran. Identification of novel drug scaffolds for inhibition of Mycobacterium tuberculosis dihydrodipicolinate synthase. *Scientific Report* 6, 2016 Article number: 30827. (Impact factor- 4.379)
- Seema Joshi, Rikeshwer P. Dewangan, Mohammed Shahar Yar, Diwan S. Rawat, Santosh Pasha. N-Terminal aromatic tag induced self-assembly of tryptophan arginine rich ultrashort sequences and their potent antibacterial activity. *RSC Advances*, 2015, 5, 68610- 68620. (Impact factor- 3.361)
- Atul Kumar, Sanjiv Kumar, Dilip Kumar, Arpit Mishra, Rikeshwer P. Dewangan, Priyanka Shrivastava, Srinivasan Ramachandran, Bhupesh Taneja. The structure of Rv3717 reveals a novel amidase from *Mycobacterium tuberculosis*. *Acta Crystallogr D Biol Crystallogr*. 2013, 69, 2543-2554. (Impact factor- 7.652)

#### **Book Chapters:**

- Shweta Paroha, Rikeshwer P. Dewangan, Pravat K Sahoo, Pharmaceutical Technology for Improving the Bioavailability of Natural Products, Sustainable Agriculture Reviews 43, In: Saneja A., Panda A., Lichtfouse E. (eds) Sustainable Agriculture Reviews 43. Sustainable Agriculture Reviews, vol 43. Springer, Cham. <u>https://doi.org/10.1007/978-3-030-41838-0\_1</u>
- Ravi Bandaru, A. Swaroop Sanket, Smruti Rekha, Omkar Kamble, Rikeshwar Prasad Dewangan, Prashant Kesharwani, Sangram K. Samal, and Rambabu Dandela Biological interaction of dendrimers, Academic Press Elsevier 2021, Page No. 63-74. <u>https://www.sciencedirect.com/science/article/pii/B9780128212509000238</u>
- Khare, Shruti; Dewangan, Rikeshwer Prasad; Kumar, Ajay, Structure-Activity Relationship of Flavonoids: Recent Updates, The Chemistry inside Spices & Herbs: Research and Development, Bentham Science Publisher, Page No. 237-259 (23).
- Mahto, A.K. et al. (2023). Peptide-Based Therapeutics and Drug Delivery Systems. In: Rajput, V.S., Runthala, A. (eds) Drugs and a Methodological Compendium. Springer, Singapore. <u>https://doi.org/10.1007/978-981-19-7952-1\_7</u>

#### iii) Patents

1) Santosh Pasha, **Rikeshwer Prasad Dewangan**, Seema Joshi N-terminally modified Linear and branched polyamine conjugated peptidomimetics as antimicrobial agents.

Publication Grant No. US9738684 B2, Application file No 14/754,002, Dated 22/08/2017.

2) Rikeshwer Prasad Dewangan, Aman Kumar Mahto, Mohammad Shahar Yar Cationic conjugates of non-steroidal anti-inflammatory drugs with enhanced antibacterial efficacy. Application file No. 202111044966 Date 04-11-2021, Published on Date 07-04-2022.

### iv) Manuscripts under preparations

- 1. Aman Kumar Mahto, **Rikeshwer Prasad Dewangan**\* Cationic conjugates of NSAIDS as potential antibacterial.
- 2. Kanupriya, Aman Kumar Mahto, **Rikeshwer Prasad Dewangan**\* Hydrocarbon stapled analogue of temporin-L peptide for enhanced selectivity and protease stability as antibacterial therapeutics.
- **3.** Rikeshwer Prasad Dewangan, Jimut Kanti Ghosh Role of cation-pi interaction in tryptophan conjugated spermine as potential in-vitro and in-vivo anti-MRSA agents.

### **Experiences after completion of PhD: (5 years)**

- Assistant Professor (Pharmaceutical chemistry), KIET School of Pharmacy, Krishna Institute of Engineering & Technology (Affiliated to A.K.T.U Lucknow, U.P.)
  - Duration Jan 2016 to Oct. 2016 (10 month)
- Biotechnologist Level III, Genpro Biotech, C-39, Sector 10, Gautam Buddha Nagar, Noida (U.P.), India.
  Duration - (Nov 2016- Mar 2017) (5 month)
- iii) SERB- National Postdoctoral Fellow, CSIR- Central Drug Research Institute (CSIR-CDRI) Lucknow, India (April 2017- June 2018) (14 month)
- iv) Postdoctoral Fellow, Laboratory of Protein and Nucleic Acid Chemistry Department of Chemistry, Ben-Gurion University of the Negev, Beer-Sheva-84105, Israel.

Duration- June 2018 to January 2019 (7 month)

v) Assistant Professor, Department of Pharmaceutical Chemistry, School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi, India Duration- January 2019 to present

### Number of B. Pharm. Students Guided: 12

#### Number of M. Pharm Students at present: 03

#### No. of Ph. D. Students under supervision: 03

- 1. Aman Kumar Mahto
- 2. Avantika Tyagi
- 3. Kanupriya

### No. of Ph. D. Students under Co-supervision: 03

- 1. Farha Bano
- 2. Saleem Akbar
- 3. Saumya Sharma

### Fellowship / Academic Awards

- ✓ Best Paper Award in International Conference on Current and Future Perspectives of Pharmaceuticals in Health Care held on 13th May, 2023 at Constitution Club of India, New Delhi.
- ✓ Awarded SERB- DST travel grant for Gordon Research Conference-Antimicrobial Peptide, 2023 Lucca (Barga) Italy (Not availed).
- ✓ Best Oral Presentation Award in 2<sup>nd</sup> International Conference on Innovations in Chemical, Biological and Pharmaceutical Sciences (ICBPS-2022), organized by Institute of Pharmaceutical Research, GLA University, Mathura (U.P.), India
- ✓ Awarded "Pharma Young Achiever Award" by National conference Pharma vision 20K5
- ✓ Awarded SERB- DST travel grant for Gordon Research Conference-Antimicrobial Peptide, 2015 Lucca (Barga) Italy.
- ✓ Awarded ICMR travel grant for Gordon Research Conference, 2015 Lucca (Barga) Italy (not availed).
- ✓ Awarded American Society of Microbiology student travel award (\$750 USD) to attend 'International conference on Antimicrobial Agents Chemotherapy (ICAAC)' 2015 San Diego, California.
- ✓ Participated as Discussion Leader in Gordon Research Seminar- Antimicrobial Peptides 2015 held at Italy and Chaired a session of the topic "Role of AMPs in hostpathogen Interactions"
- ✓ Topper of PhD course work examination
- ✓ GATE qualified with 99.70 percentile in 2009 conducted by IIT Roorke India and secured all India rank: 72
- ✓ Top five ranking in university exams throughout graduation and post-graduation studies
- ✓ 10<sup>th</sup> rank in Chhattisgarh State higher secondary school examination organized by Chhattisgarh Board of Secondary Education (Raipur), India.

### **Personal Details:**

Date of Birth: 05-06-1986 Gender: Male Religion: Hindu Marital status: Married **Residential Address**: 99c, Pocket A, DDA Flats, Sukhdev Vihar, New Delhi- 110025 **Permanent address**: Village- Odekera, Block- Jaijaipur, Dist.- Janjgir-Champa

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