




Title	Dr	First Name	Urmi	Last Name	Bajpai	Photograph
Designation	PROFESSOR					
Address	Department of Biomedical Science, Acharya Narendra Dev College (University of Delhi), Govindpuri, New Delhi-110019, India.					
Phone No Office	011-26412547					
Residence						
Mobile						
Email/ Web-Page	urmibajpai@andc.du.ac.in					
Educational Qualifications						
Degree	Institution				Year	
M.Sc. (Biosciences)	Jamia Millia Islamia University, Delhi.				1992	
Ph.D. (Microbiology)	University of Delhi, South Campus				1998	
Career profile						
<ul style="list-style-type: none">• Teaching at Acharya Narendra Dev College since July 1998• Associate Professor, since July 2010• Professor since July 2018						
Awards & Recognition						
<ul style="list-style-type: none">• Featured among 35 <i>Vigyan Vidushis</i> in the country as Future Hopes by Vigyan Prasar, Department of Science & Technology (DST), Government of India. 2023.• ‘SBRT Fellow’ Awardee by Indian Bacteriophage Society for Distinguished and Sustained contribution to Bacteriophage Science Communication. 2022.• Featured in the list of #365IndianWomxnInSTEM, curated by TheLifeofScience.com. 2021.• Indian National Science Academy (INSA) Teacher Award. 2018.• ‘Excellence Award for Teacher in Service in College’ for exemplary service to the University of Delhi. 2017.• Meritorious Teacher Award, Directorate of Higher Education (DHE), Govt of NCT of Delhi. 2014.						
Administrative assignments (Last seven years):						
<ul style="list-style-type: none">• Member, Core Committee, VAC course ‘Science & Society’, University of Delhi. 2022-to date. Constituent member, NEP Implementation Committee, University of Delhi 2020-2022.• Member Secretary, Institutional Biosafety Committee (IBSC), ANDC 2019-to date• Coordinator, Science <i>Setu</i> (between ANDC and THSTI) 2016-to date						

- Department Teacher-in-Charge 2000-2002, 2008-2010, 2019-2021.
- Teacher Representative, Governing Body, Acharya Narendra Dev College 2020-2021.
- Member, Board of Research Studies (BRS), University of Delhi 2021-2022
- Member, Department Research Committee, Dr B.R. Ambedkar Research Centre, University of Delhi 2008-2016; 2019-21
- Member, Curriculum Revision (FYUP, CBCS, LCOF) for B.Sc. (H) Biomedical Science.
- Founding Convener, *Anusandhan* Committee, ANDC. 2016-2018.
- Member, Board of Studies (BoS), meeting, Deen Dayal Upadhyay Kaushal Kendra, Central University of Haryana, Central University of Haryana 2015-2020.
- Observer, IQAC, Central University of Haryana. 2020.
- Convener, Admission Committee, Acharya Narendra Dev College 2019 and 2020.
- Deputy Dean, Research at the University of Delhi. July 2017-2018 (on additional basis).
- Member, Editorial Committee, 94th Annual Report, University of Delhi. 2017-2018.
- Member, Internal Quality Assurance Cell (IQAC, ANDC), Acharya Narendra Dev College. 2016-2018
- National Coordinator of TATA CSIR-OSDD Fellowship (TCOF & TCOWF, 2013-2016).
- Managing Editor, DU Journal of Undergraduate Research and Innovation, University of Delhi 2017-2018.
- Member, UGC Expert Committee, curriculum development for UG courses under the CBCS. 2015.

Subjects taught (in the last seven years)

- Biochemistry
- Medical Biotechnology
- Medical Biochemistry
- Concepts in Biotechnology & Microbiology (Lab classes)

Research area

Our laboratory (Anti Mycobacterial Drug Discovery) at ANDC is working towards finding solutions to antimicrobial resistance (AMR), which national and international health organizations have declared a significant threat to global health.

What do we do?

- **Study bacteriophages and the encoded lytic enzymes as alternatives/adjuncts to antibiotics.**

In collaboration with TB labs, we discover, characterize, and explore the antimycobacterial potential of bacteriophages and the lytic proteins (Endolysins). We are developing a bank of mycobacteriophages and lysin enzymes to develop suitable candidates as potential therapeutic candidates against Tuberculosis and Non-tuberculous Mycobacterial (NTM) infections.

- **Discovery of small molecule inhibitors as drug candidates that target Mur enzymes in *M.tuberculosis***

We have developed a biochemical assay called 'One-Pot' with six enzymes (Mur enzymes of the cell wall biosynthesis pathway of *Mycobacterium tuberculosis*) as the target proteins for TB Drug Discovery & Drug Repurposing. This assay can identify potential molecule(s) that could be developed for multi-target therapy. The probability of developing resistance to a molecule that targets multiple essential proteins in a pathogenic bacterium is very low. Similarly, bacterial resistance to the lysin enzymes is also remote. Hence, both approaches are highly promising and have the scope for translational research.

Research guidance					
<ul style="list-style-type: none"> • Ph.D. Students: 05 • Research Fellows, M.Sc. & B.Tech. Dissertation: 25+ • Undergraduate students: 175+ 					
Other research assignments					
<ul style="list-style-type: none"> • Co-founder: ‘International Bacteriophage Research Consortium (IBRC) in collaboration with Open Health System Laboratories (OHSL), USA. 2018-till date • Project Advisor, Open Source Pharma Foundation (OSPF), a Global Non-Profit Organization for Drug Discovery. 2019-to date. • Advisory, TechInvention Lifecare Pvt. Ltd., Mumbai. Projects: <ul style="list-style-type: none"> i) Mentor: “<i>In-silico</i> analysis of Lysin genes against ESKAPE pathogens”. <i>Ex Gratia</i> Basis July-September, 2021 ii) Advisor, “Design & Development of Recombinant Lysins against ESKAPE Pathogens and <i>E.coli</i>. September 2021 to date with an annual amount of INR 10 Lakhs. iii) Honorary Advisor, “Development of recombinant lysins against drug-resistant <i>Escherichia coli</i> causing urinary tract infections appropriate expression system”. Approved for funding under BIRAC’s BIG scheme, Department of Biotechnology, Govt of India. May 2022-November 2023 					
Research projects (Major Grants/Research Collaboration)					
S.No	Title	Funding agency	Amount sanctioned in Rs. (Lakhs)	Period	
1	A Multi-Institution Project: An investigational study on Mycobacteriophages and their enzymes as new drug (IND) for treating tuberculosis	ICMR	22,16,000	2019-2023	Completed
2.	Recombinant endolysins from mycobacteriophages: exploring their anti-mycobacterial potential	DST-SERB	46,70,200	2018-2022	Completed
3.	Development of alternative anti-bacterials through Bacteriophage-derived proteins, isolated from India (<i>For undergraduates</i>)	DST-IEDC	01	2015-2016	Completed

	<p>TATA CSIR OSDD FELLOWSHIP (TCOF) Projects:</p> <p>TCOF 13 Virtual Screening and in-vitro assays for inhibitors of Mur Enzymes.</p> <p>TCOWF Investigating the diversity of Mycobacteriophages in India- A Pilot study.</p> <p>TCOF 21 Computational identification, purification and functional analysis of proteins from Mycobacteriophages and to explore their anti-mycobacterial potential.</p>	TATA CSIR-OSDD Fellowships - 6	4.71 (Total Fellowship amount)	2014 – 2016	Completed
4	Mtb Mur pathway enzymes: Potential targets for Multi-targeted therapy” (Screening of chemical libraries using one-pot assay developed for Mur enzymes of <i>Mycobacterium tuberculosis</i>)	CSIR-OSDD	7.184	October 2015-March 2016	Completed
5	Mtb Mur pathway enzymes: Potential targets for Multi-targeted therapy	CSIR-OSDD	30.38	2013-2015	Completed
6	Mobile healthcare: The future of health management in India- A Feasibility Study (<i>For undergraduates</i>)	DU – innovation project	5	2013-2014	Completed
7	Cloning and Expression of <i>Mycobacterium tuberculosis</i> genes (<i>For undergraduates</i>)	CSIR-OSDD	16.85	2010-2012	Completed

8	A Virtual Centre of Excellence in coordinated research on tuberculosis: Development of alternate strategies (For undergraduates)	DBT	24.85	2006 -2009	Completed
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Publications

1. Das, R., Arora, R., Nadar, K., Saroj, S., Singh, A. K., Patil, S. A., ... & **Bajpai, U.** (2023). Insights into the genomic features, lifestyle and therapeutic potential of B1 sub-cluster mycobacteriophages. *BioRxiv*, 2023-05.
2. Hanif, S., Das, R., Chavan, B., Shah, S., **Bajpai, U.**, & Ahmed, S. (2023). Phage-encoded lysins as promising antibacterials against uropathogenic *Escherichia coli*. *JAC-Antimicrobial Resistance*, 5, dlac133-014. *Conference proceeding*.
3. Das, R., & Bajpai, U. (2022). Functional characterization of a DNA-dependent AAA ATPase in SimranZ1, an F cluster mycobacteriophage. **Virus Research** Doi: 10.1016/j.virusres.2022.198957.
4. Jyoti Rani, Anasuya Bhargav, Malabika Datta, **Urmi Bajpai** and Srinivasan Ramachandran (2022). Identification of Perturbed Pathways Rendering Susceptibility to Tuberculosis in Type 2 Diabetes Mellitus Patients Using BioNSi Simulation of Integrated Network of Implicated Human Genes. **Journal of Biosciences**. 47-69. DOI: 10.1007/s12038-022-00309-z
5. Das. R., Kotra, K., Singh, P., Belinda Loh, Sebastian Lepthin and **Urmi Bajpai*** (2022). Alternative Treatment of Secondary Bacterial and Fungal Infections Associated with Covid-19. **Infectious Disease Therapy**; 11, 53-78.
6. Jyoti Rani, Anasuya Bhargav, Faez Iqbal Khan, Srinivasan Ramachandran*, Dakun Lai*, Urmi Bajpai* (2021). *In silico* prediction of natural compounds as potential multi-target inhibitors of structural proteins of SARS-CoV-2. **Journal of Biomolecular Structure and Dynamics**. 1–17. **PMCID**: PMC8425474
7. Diksha Raina, Harshita Tiwari, Smriti Sharma, Deepika Kashyap, Amit Nargotra, Kandasamy Eniyan, **Urmi Bajpai**, Ram A Vishwakarma, Farrah Gul Khan, Saurabh Saran, Inshad Ali Khan (2021) Screening of compound library identifies novel inhibitors against the MurA enzyme of *Escherichia coli*. **Applied Microbiology and Biotechnology**.
8. Das, R., Eniyan, K. & **Bajpai, U*** (2021). Computational identification and characterization of antigenic properties of Rv3899c of *Mycobacterium tuberculosis* and its interaction with human leukocyte antigen (HLA). **Immunogenetics**, 73, 357–368 (2021).
9. *Vincent Hervin, Ritu Arora, Jyoti Rani, Srinivasan Ramchandra, Urmi Bajpai, Luigo Agrofoglio, Vincent Roy (2020) "Design and Synthesis of Various 5'-Deoxy-5'-(4-Substituted-1,2,3-Triazol-1-yl)-Uridine*

Analogues as Inhibitors of Mycobacterium tuberculosis Mur Ligases”. *Molecules*, 25(21), 4953; <https://doi.org/10.3390/molecules25214953>

10. Eniyan, K., Sinha A., Ahmad, S & Bajpai, U. (2020). “Functional characterization of the endolysins derived from mycobacteriophage PDRPxv”. *World Journal of Microbiology and Biotechnology*. **36, 83**.
11. Sinha, A., Eniyan, K., Manohar, P., Ramesh, N., & **Bajpai, U.** (2020). “Characterization and genome analysis of B1 sub-cluster mycobacteriophage PDRPxv”. *Virus Research*, 279, 197884.
12. Kandasamy Eniyan, Jyoti Rani, Srinivasan Ramachandran, Rahul Bhat, Inshad Ali Khan and **Urmi Bajpai** (2019). “Screening of Antitubercular Compound Library Identifies Inhibitors of Mur Enzymes in *Mycobacterium tuberculosis*” *SLAS Discovery*; Page no. 1-9
DOI: <https://doi.org/10.1177/2472555219881148>
13. Jyoti Rani, Yumnam Silla, Kasmika Borah, Srinivasan Ramachandran, **Urmi Bajpai** (2019). “Repurposing of the FDA-approved drugs to target MurB and MurE enzymes in *Mycobacterium tuberculosis*”. *Journal of Biomolecular Structure and Dynamics*. PP 1-12.
14. **Urmi Bajpai**, Abhishek Kumar Mehta, Kandasamy Eniyan, Avni Sinha, Ankita Ray, Simran Virdi, Shazeb Ahmad, Aridni Shah, Deepanksha Arora, Devyani Marwaha, Gunjan Chauhan, Prarthna Saraswat, Punita Bathla, Ruchi Singh (2018) Isolation and characterization of bacteriophages from India, with lytic activity against *Mycobacterium tuberculosis*. *Can J Microbiol*. 2018:64:1-9
15. Kandasamy Eniyan, Sudhaker Dharavath, Ramachandran Vijayan, **Urmi Bajpai***, Samudrala Gourinath*(2018). Structure of UDP-N-acetylglucosamine-enolpyruvate reductase (MurB) from *Mycobacterium tuberculosis*: *Biochemica et Biophysica Acta (BBA)- Protein and Proteomics*, 1866 (3), 397-406.
16. Kandasamy Eniyan* and **Urmi Bajpai**. “Mur Ligases as Potential Drug Targets in *Mycobacterium tuberculosis*. A review” (2017). *DU Journal of Undergraduate Research and Innovation* Volume 3, Issue 1, pp 97-115 http://journals.du.ac.in/ugresearch/pdf-vol-3_June-17/7.pdf
17. Kandasamy Eniyan, Anuradha Kumar, Geetha Vani Rayasam, Andrej Perdih and **Urmi Bajpai** (2016). Development of a one-pot assay for screening and identification of Mur pathway inhibitors in *Mycobacterium tuberculosis*. *Scientific Reports*. 6: 35134.
18. Shahzaib Ahamad, Faez Iqbal Khan, **Urmi Bajpai**, Shahnawaz Ali, Neerja Dwivedi and Md. Imtaiyaz Hassan (2015). A comparative molecular dynamics study of MurA enzymes from *E. coli* and *M. tuberculosis*. *Innovation in Pharmaceuticals and Pharmacotherapy*. Vol 03, Issue 03, Pages:673-682.
19. Avni Sinha, Kandasamy Eniyan, Swati Sinha, Andrew M Lynn, **Urmi Bajpai** (2015). Functional analysis of TPM domain containing Rv2345 of *M.tuberculosis* identifies its phosphatase activity. *Protein Expression and Purification* Issue.111 pages 23-27.
20. Aamod Utpal, Abhinav Tyagi, Akhilesh Kumar, Amit Gaurav, Amrita Singh, Atul Kumar Tiwari, Avantika Singh, Beneeta Kalha, Bharat Bhatt, Bimlesh Yadav, Deepika Kumari, Harsha Rohira,

Himanshu Bhatt, Kamlesh Kumari, Kartika Vashistha, Karuna Singh, Khairun Nisaa, Mohit Kumar, Navbhar Sharma, Preeti Yadav, Rajat Sharma, Ritu Arora, Ruchika Pokhriyal, Shahbaz Siddiqui, Sneha Mishra, Sonal Kapur, Srishti Nanda, Sumit Kinger, Sweetey Raj, Vartika Channa, Vivek Bhardwaj, Kandasamy Eniyan and **Urmi Bajpai (2015)**. Building a repository of potential drug targets in *Mycobacterium tuberculosis* by crowdsourcing. *DU Journal of Undergraduate Research and Innovation Vol 1. Issue 1: 1-13*. <http://journals.du.ac.in/ugresearch/pdf/J1.pdf>

21. Shilipi Singh, **Urmi Bajpai**, and Andrew Michael Lynn (2015). Structure-based virtual screening to identify inhibitors against MurE Enzyme of *Mycobacterium tuberculosis* using AutoDock Vina. *Bioinformation. Vol 10 issue 11. Pages 697-702*
22. Kandasamy Eniyan and **Urmi Bajpai (2015)**. Cloning, Expression, Purification and Bioinformatic analysis of 2-Methylcitrate Synthase from *Mycobacterium tuberculosis*. *Asian Pacific Journal of Tropical Medicine. Vol. 8 issue.1:19-23*.
23. **Urmi Bajpai**, Rinu Sharma, Siddharth Dutta Gupta, Ranju Ralhan (2008). Clinical significance of 14-3-3 zeta in human esophageal cancer. *International Journal of Biological Markers* 23(4):231-7.
24. **Bajpai, U.**, Kuhad, R. C. and Khanna, S. (1998). Mineralization of (C¹⁴) octadecane by *Acinetobacter calcoaceticus* S19. *Canadian Journal of Microbiology. 44:681-686*.

Book Chapters:

- Saroj and **Urmi Bajpai** (2022). “Bacteriophages in the Treatment of Biofilms” in Book in Book (ISBN 978-1-68507-860-7) entitled: Bacteriophages: Interaction, Diversity and Applications, Nova Science Publishers, Inc. 415 Oser Avenue, Suite N Hauppauge, NY 11788 USA.
- Jyoti Rani, **Urmi Bajpai**, Srinivasan Ramachandran. Chapter 6: “Translational Bioinformatics Methods for Drug Repurposing”. Translational Bioinformatics Applications In Healthcare. 2021. CRC Press, Boca Raton, First Edition.

Other research output

- Phage Bank: **200+** Mycobacteriophages
- Whole-genome sequences of mycobacteriophage: **15**
- Recombinant proteins (including endolysins) from *Mycobacterium tuberculosis* and mycobacteriophages: **40**
- Crystal Structure of UDP-N-acetyl enol pyruvate glucosamine reductase (MurB) from *Mycobacterium tuberculosis*. PDB ID: 5JZX www.rcsb.org/structure/5jzx

Conference/ Invited Talks/Presentations/Workshops/ (Last seven years)

Invited talks

- “Bacteriophages: the dark matter of the biospheres” in a symposium on “Data Driven Approaches to Understand Biological Systems. At the CSIR-IGIB, Mathura Road. April 29, 2023.
- “Unleashing Potential, Breaking Boundaries” on the International Day for Women & Girls in Science at the CSIR, HRDG, Pusa. February 10, 2023.
- “Bacteriophages and Lysin Banks to Combat Antibacterial Drug Resistance”. At the 63rd annual international conference of Association of Microbiologists (AMI) of India. At the MDU, Rohtak. February 4, 2023.
- “Computational Mining of Bacteriophage Genomes for Antibacterial Agents. At the Department of Computational Biology, Indraprastha Institute of Information Technology (IIIT), Okhla Phase III, Delhi. July 1 2022.
- Webinar on “Bacterial infections, antibiotic resistance and prospects of phage lysins as a new class of antimicrobials” in the *Biotechnology Lecture Series*, organized by Department of Biotechnology, Cochin University of Science & Technology, Kochi, Kerala-682022.
- Webinar on “Bacteriophages and Antimicrobial Resistance”. Weekend chat with researchers #2.2. A science outreach initiative by Aswin Lab at National Centre for Biological Science (NCBS), Bangalore. March 21, 2021
- Webinar on “How good viruses kill bad bacteria” in a series of online talks ‘Let’s Talk Science’, organized by Joy of Learning Foundation, sponsored by NCSTC project of the Department of Science and technology. September 29, 2020.
- “Igniting Passion for Science Early On: A narrative”. Science Popularization Online Talks-organized by CSIR-NIEST, Summer Research Training Program 2020.
- “Emerging role of bacteriophages and their enzymes in managing antimicrobial resistance” Online Faculty Development Program on Research Advances in Plant and Microbial Biotechnology organized by Biotechnology Department, Jaypee Institute of Information Technology, Noida. July 13 2020.
- “Phage Therapy for drug-resistant infections” on the occasion of World Immunology Day at University College of Medical Sciences (UCMS), University of Delhi and GTB hospital, on May 2, 2018

- “Bacteriophages as credible alternative to antibiotics: the prospects and challenges” at Institute of Microbial Technology (IMTECH), Chandigarh on December 5, 2018
- 20th Annual fest of Department of Biosciences and Bioengineering, IIT Bombay on January 12-13, 2019
- “Antimicrobial Resistance & the Prospects and Challenges of Bacteriophage Therapy” Department of Biochemistry, South Campus, Delhi University. January 16, 2019.
- Delegate in the Women Scientists and Entrepreneurs Conclave (WSE) on October 7-8, 2018 as part of India International Science Festival (IISF) 2018 held in Lucknow.
- “Phages in medicine: Future is here”, Medizone Aesthetics Company. March 3, 2019, Hyatt Regency Mumbai.
- Chaired a session on Phage Therapy at the International Conference on Bacteriophages in River Ganga, organized by the Institute of Medical Science, BHU and ICMR at BHU, Varanasi. 22-23 August 2017.

NATIONAL PRESENTATIONS

Oral

- Pulkit Singh, Ritu Arora, Amit Singh, S. Patil, **Urmi Bajpai** (2022). “Isolation, Purification & Characterisation of Bacteriophages Specific to Mycobacterial Spp.” National conference of Virology (virtual mode) on “Emerging and re-emerging viral diseases- climate change impacts and mitigation” (VIROCON 2021). March 26-28, 2022. **Oral presentation by the first author, received III prize.**
- Kanika Nadar, Ritu Arora, **Urmi Bajpai** (2022). “Screening, identification and characterization of biofilm-inhibiting mycobacteriophages”. International e-conference on ‘Mitigating environmental issues by sustainable approaches (ICMCESA-2022)’, organized by Acharya Narendra Dev College. February 22-28, 2022.

Posters

- Mehak Sharma, Shrishti Singh, Anirudh Kumar, Kanika Nadar, Ritu Arora and **Urmi Bajpai***. Isolation and characterization of novel mycobacteriophages against *Mycobacterium smegmatis* Mc² 155. 23rd Annual Convention on Translating human evolutionary history to precision medicine by Banaras Hindu University, Varanasi, India. March 10-12, 2023.
- Ritu Arora and **Urmi Bajpai***. Mycobacteriophage RitSun Endolysins with intrinsic antimycobacterial activity. 13th National Symposium on 'Frontiers in Biomedical Research' (FBR 2022) organized by Dr BR Centre for Biomedical Research (ACBR), University of Delhi. November 2-4, 2022.
- Kanika Nadar, Ritu Arora and **Urmi Bajpai***. Inhibitory and Disruptive effects of Novel Mycobacteriophages on *Mycobacterium smegmatis* biofilm. 13th National Symposium on 'Frontiers in

Biomedical Research' (FBR 2022) organized by Dr BR Centre for Biomedical Research (ACBR), University of Delhi. November 2-4, 2022.

- Kanika Nadar, Ritu Arora and **Urmi Bajpai***. Isolation and characterization of novel mycobacteriophages and their ability to inhibit or disrupt *M. smegmatis* biofilm mycobacteriophages. National conference of Virology (virtual mode) on “Emerging and re-emerging viral diseases- climate change impacts and mitigation” (VIROCON 2021)’ by Department of Microbiology, AIIMS, Bibinagar. March 26-28, 2022.
- Ritam Das, Ritu Arora and **Urmi Bajpai***. Bacteriophages to the rescue! A renewed hope for antimicrobial resistance (AMR). DBT- Biotechnology Popularization Programme, Miranda House, University of Delhi, August 2 2019. **First Prize**
- Ritam Das, Ritu Arora and **Urmi Bajpai***. Isolation and characterization of bacteriophages and encoded endolysins as promising alternatives to antibiotics. New Frontiers in science, under the aegis of DBT Star College Scheme, Acharya Narendra Dev College, University of Delhi, New Delhi, India. October 22 2019. **Consolation Prize**
- Garima, Saroj and **Urmi Bajpai***. Isolation and characterization of novel mycobacteriophages from the collected soil samples. New Frontiers in science, under the aegis of DBT Star College Scheme, Acharya Narendra Dev College, University of Delhi, New Delhi, India. October 22 2019. **Consolation Prize**
- Ritam Das and **Urmi Bajpai***. Isolation and Characterization of Bacteriophages and encoded endolysins as promising alternatives to antibiotics. Assessment of best practices in higher education institution under NAAC framework, Maitryei College, University of Delhi, New Delhi, India. November 6 2019.
- Ritu Arora, Saroj and **Urmi Bajpai***. Morphological and genomic characterization of mycobacteriophages isolated from Delhi-NCR. 60th Annual Conference of The Association of Microbiologists of India (AMI-2019), Central University of Haryana, Mahendragarh, Haryana, India. 15-18 November 2019.
- Eniyan K, S Dharavath, J Rani, S Ramachandran, S Gourinath and **U Bajpai** (2017) Crystal structure of MurB enzyme (UDP-N-acetylenolpyruvylglucosamine reductase) from *Mycobacterium tuberculosis*. Presented at Jawaharlal Nehru University, New Delhi.
- Kandasamy, E; Rani, J; Ramachandran, S; Khan, I. A; and **Bajpai, U.** (2018) Screening of antitubercular compound library identifies Mur enzyme inhibitors of *Mycobacterium tuberculosis*. 59th Association of Microbiologists of India (AMI) conference, at University of Hyderabad.
- F Ahmad, Eniyan K, A Sinha and **U Bajpai** (2017) Purification and structural characterization of Lysin A from EniyanLRS mycobacteriophage isolated from New Delhi. Presented at Jamia Millia Islamia University, New Delhi, India.

- Eniyan Kand **Bajpai U** (2014). Mur enzymes of *Mycobacterium tuberculosis* as potential drug targets. Presented at the 10th Annual Symposium on Frontiers in Biomedical Research. Dr. Ambedkar center for Biomedical Research, University of Delhi North campus, New Delhi, India.
- Shah A, Arora D, Marwaha D, Chauhan G, Singh H, Bhaskar M, Singh M, Saraswat P, Bathla P, Singh R, Ray A, Eniyan K, Mehta A K and **Bajpai U** (2014). Crowdsourcing undergraduates in investigating the diversity of Mycobacteriophages in India and exploring their potential as source for antimycobacterial active biomolecules. Presented in National conference on understanding the mechanism and challenges of complex diseases (UMCCD-2014) at Shaheed Rajguru College of Applied Sciences for Women, New Delhi, India.
- Eniyan K and **Bajpai U** (2014). Molecular Biology techniques used in cloning, expression and purification of recombinant proteins. Presented at National tuberculosis day, JNU Convention Centre, Jawaharlal Nehru University, New Delhi, India.

INTERNATIONAL PRESENTATION

Oral

- “Importance of Bacteriophage and Lysin Banks to Mitigate the Silent Pandemic”. At the 3rd International Conference on Bacteriophage Research and Antimicrobial Resistance (ICBRAR). November 27, 2022. **Offline.**
- Co-panelist with Prof Herman Barkema, University of Calgary, in an online panel discussion on “Antimicrobial Resistance & One Health: Stakes involved and the way forward”, organized by IBLOT, EBPMN and TechInvention Pvt Ltd. November 18, 2022. **Online.**
- Webinar on “Bacteriophages and encoded lysin enzymes as potential therapeutics” organized by Emerging Biopharmaceutical Manufacturers (EBPMN), and International Bacteriophage Research Consortium (IBRC). December 3, 2021.
- “Combatting Antimicrobial Resistance through Early career engagement in Bacteriophage Research” in a webinar series on World Phage Week, organized by Ibadan Bacteriophage Research Team (IBRT), University of Ibadan, Nigeria, under the Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science Program (SEA-PHAGES). October 26, 2020. **Online.**

- Open Source Pharma Meet, Paris, France, March, 2019. Anti-mycobacterial drug discovery” research at ANDC, in the 3rd Global Open Source Pharma Conference *Science, License, Community*, Paris March 21-23, 2019. Organized by Centre for Research and Interdisciplinarity (CRI), an affiliate of the Paris Descartes University.
- Department Biotechnology, Research Group Laboratory of Applied Biotechnology, Faculty of Bioscience Engineering, Ghent University Belgium March, 2019. “Finding Anti-mycobacterial Solutions in Repurposed Drugs, Bacteriophages and Endolysins”
- EMBO Workshop “Viruses of Microbes” 9-13 July, 2018 University of Wroclaw, Poland.
- ‘Open Source Pharma Meet, Rockefeller Foundation, Bellagio, Italy, July 2014. “Crowdsourcing in wet labs and with undergraduates”.

Posters

- Utkarsh Gaharwar, Sakshi Dhar, Sonia Nain, Vaishali Gupta, Sarmad Hanif, Bhakti Chavan, Safia Syeda, Aasiya Choudhary, Sanket Shah, Syed Ahmed, **Urmi Bajpai**, Ritam Das, Deepa Sikriwal. Anti-biofilm activity of endolysin against uropathogenic *Escherichia coli*. ESPID 2023, 8-12 May, Portugal. **E-poster**.
- Utkarsh Gaharwar, Sakshi Dhar, Sonia Nain, Vaishali Gupta, Sarmad Hanif, Bhakti Chavan, Safia Syeda, Aasiya Choudhary, Sanket Shah, Syed Ahmed, **Urmi Bajpai**, Ritam Das, Deepa Sikriwal. Phage-encoded lysins: A promising approach to treat urinary tract infections caused by uropathogenic *Escherichia coli*. Microbiology Society, 17–20 April 2023, England. **E-poster**.
- Posters presented at the international conference **Towards End TB: Achievements, Challenges and Future directions** at DBT-THSTI, Faridabad, March 23-25, 2023
 - Ritu Arora, Kanika Nadar, Pulkit Singh, Amit Singh, **Urmi Bajpai**. “Mycobacteriophages: Potential Therapeutic Agents against Drug-Resistant Tubercular and Non-Tubercular Mycobacterial (NTM) Infections”.
 - Mehak Sharma, Shrishti Singh, Anirudh Kumar, Kanika Nadar, Ritu Arora, **Urmi Bajpai**. “Cluster classification of novel Mycobacteriophages specific to *Mycobacterium smegmatis* Mc²155”.
 - **Urmi Bajpai**, Ritu Arora, Eniyan Kandasamy, Jyoti Rani, Srinivasan Ramachandran, Rahul Bhat, Inshad Khan Vincent Hervin, Vincent Roy, Luigi A. Agrofoglio. : *In silico* & *in vitro* screening of inhibitors of Mur enzymes in *Mycobacterium tuberculosis*”.
- Syed Ahmed, Sarmad Hanif, Sanket Shah, Bhakti Chavan, **Urmi Bajpai**, Ritam Das. Lysins as promising antibacterial agents against uropathogenic *Escherichia coli*. WRCB Summit on Next Generation Therapeutics, November 18 2022, India. E-poster.

- Syed Ahmed, Sarmad Hanif, Sanket Shah, Bhakti Chavan, **Urmi Bajpai**, **Ritam Das**. Lysins as promising antibacterial therapeutics against uropathogenic *Escherichia coli*. ESCMID/ASM Conference on Drug Development to Meet the Challenge of Antimicrobial Resistance, 4 – 7 Oct 2022, Ireland.
- **Ritam Das**, Kanika Nadar, Ritu Arora and **Urmi Bajpai** (2022). Characterization of Interaction between soil-dwelling bacteria and bacteriophages. 7th Annual International Conference of Indian Network for Soil Contamination Research by University of Delhi and PhiXgen Pvt. Ltd., India. November 7-11, 2022.
- **Ritam Das**, Kanika Nadar, Ritu Arora and **Urmi Bajpai** (2022). A F4 cluster Mycobacteriophage Ritam007 with biofilm inhibitory activity and a unique lysis cassette. International conference 'Phages in Paris' by Institut Pasteur. October 11-13, 2022.
- **Kanika Nadar**, **Ritu Arora** and **Urmi Bajpai** (2022). Screening, identification and characterization of biofilm inhibiting mycobacteriophages. International e-conference on 'Mitigating environmental issues by sustainable approaches (ICMCESA-2022)' by Acharya Narendra Dev College, University of Delhi. February 22-28, 2022.
- **Kanika Nadar**, **Ritu Arora**, **Urmi Bajpai** (2022). Isolation and characterization of novel mycobacteriophages and their ability to inhibit or disrupt *M. smegmatis* biofilm mycobacteriophages. National conference of Virology (virtual mode) on "Emerging and re-emerging viral diseases- climate change impacts and mitigation" (VIROCON 2021). March 26-28, 2022.
- **Pulkit Singh**, Ritu Arora, **Urmi Bajpai** (2021). "Isolation, Purification and Characterization of Mycobacteriophages From Native Environment". Presented at 6th Annual International Conference of Indian Network for Soil Contamination Research (INSCR) in association with ANDC, DDU, Gargi College, Kirorimal College, Ramjas College, SV College, University of Delhi (DU), India.
- **Ritam Das** and **Urmi Bajpai*** (2020). Functional characterization of a DNA-dependent AAA ATPase from a F cluster mycobacteriophage. International e-Conference on Health and Research in Current Scenario: with Special Emphasis on COVID-19 'Virus Genomics and Pathogenicity' by Venkateshwara College, University of Delhi and PhiXgen Pvt. Ltd., India. July 17 2020. **Best Poster Award**.
- **Saroj**, **Ritu Arora** and **Urmi Bajpai***. Isolation & characterization of mycobacteriophages and assessment of their potential to inhibit/disrupt biofilm. International Conference on Bacteriophage Research and Antimicrobial Resistance Vellore Institute of Technology, Vellore, Tamil Nadu, India. December 12-13, 2019.
- Ritam Das and **Urmi Bajpai***. Experimental validation of a putative AAA⁺ ATPase encoded by a Mycobacteriophage belonging to F cluster. International Conference on Bacteriophage Research and Antimicrobial Resistance, Vellore Institute of Technology, Vellore, Tamil Nadu, India. December 12-13, 2019. **Second Prize**.

- Jyoti Rani, Kandasamy Eniyan, Srinivasan Ramachandran and **Urmi Bajpai***. Identification of inhibitors of Mycobacterium tuberculosis MurE enzyme by screening of a library of antitubercular compounds at the Second International Conference on Antimicrobial Resistance, Novel Drug Discovery and Development: Challenges and Opportunities, organized by SRM University Delhi-NCR, Sonapat, Haryana in association with Royal Society of Tropical Medicine and Hygiene. March 17 - 19, 2019, at IIT Delhi Campus, RGEC, Sonapat, Haryana.
- Jyoti Rani, Srinivasan Ramachandran, and **Urmi Bajpai*** Repurposing existing drugs for treating drug resistant tuberculosis with Mtb MurB & MurE as the target enzymes”., Pre-Conference Workshop & International Conference on Multi-scale Simulation & Mathematical Modelling of Biological Complex Systems. January 28 - February 1 2019, Jawaharlal Nehru University.
- Eniyan K, P Manohar, **U Bajpai** and N Ramesh (2019) Transcriptional Analysis of dcw Operon Genes of *Mycobacterium smegmatis*. Presented at ASM Microbe 2019 at San Francisco, USA.
- Ritu Arora, Eniyan Kandasamy and **Urmi Bajpai (2018)**. LysinB endolysin from mycobacteriophages as novel antimycobacterial agent” International Symposium on Infectious diseases, 12-14 November, 2018 at Regional Centre for Biotechnology and Jamia Hamdard (Delhi-NCR).
- Synthèsed’ inhibiteursde Mur-Ligases àvisée anti-bactérienne. V. Hervin,C. Hoarau, D. Warsycki, A. Bojarski, **U. Bajpai**, V. Roy, L. Agrofoglio. French symposium (Biotechnocentre, 11 and 12 October 2018, Seillac France.
- Eniyan K, Kumar A, Rayasam G V, Perdih A and Bajpai U (2016). Development of a one-pot assay for screening novel inhibitors targeting Mur enzymes of peptidoglycan biosynthesis. Presented at the 7th EMBO meeting 2016, at Mannheim, Germany.

Talks/Workshop/Seminars Organized/Moderated:

- In collaboration with CIIDRET, IoE DSEED, University of Delhi and in association with SBRT, organized (20-25 January 2023) a Hands-On workshop on “Phage Discovery and Genome Analysis” and Webinars by:
 - i) Dr T. S. Balganes, President and Member, Board of Directors, GangaGen Biotechnologies Pvt. Ltd. (GBPL).
 - ii) Dr Sabrina Green, Research Associate, KU, Leuven University, Belgium
- DBTSTAR-IQAC_ANDC Webinar on “Designing of a Novel Vector for One-Step Cloning & Expression in *E.coli*” by Mr Shinto James, IISER, Bhopal. January 28, 2022.
- DBTSTAR-IQAC_ANDC Webinar on “Introduction to BioNEST-UDSC & Bio entrepreneurship” by Mr Vijay Kantharia, CEO, BioNEST-UDSC. February 15, 2022

With an aim to develop a community of bacteriophage researchers, International Bacteriophage Research Consortium (IBRC) in collaboration with Open Source Health Laboratory (OHSL), USA is created. Public lectures/webinars organized are as follows:

- IBRC Online Symposium on “Phage Lysins: Promising alternatives to antibiotics” on **July 9, 2021**. The speakers were:

Dr T. S. Balganes, President and Member, Board of Directors, GangaGen Biotechnologies Pvt. Ltd. (GBPL).

Mr Sukumar Hariharan, Head of Development, GBPL, India.

Prof Vincent A. Fischetti, Professor & Head, Laboratory of Bacterial, Pathogenesis and Immunology, Rockefeller University, USA.

Dr Joseph Campbell, Program Officer and Leader, Bacteriophage Interest Group, National Institute of Allergy and Infectious Diseases (NIAID), NIH, USA.

Prof Urmi Bajpai: Moderator

- IBRC series on ‘Phage Bioinformatics Webinars’: Dr. Deborah Jacobs-Sera, Department of Biological Sciences, University of Pittsburgh, USA on “Genomic annotation and comparative bioinformatic analysis of actinobacteriophages”. February 16, 2021.
- IBRC series on ‘Phage Bioinformatics Webinars’: Ms Katelyn McNair, University of California Irvine & San Diego State University, USA on “Phage genome annotation: the right way and/or the easy way”. February 16, 2021
- IBRC Webinar by Prof Paul Turner, Rachel Carson Professor of Ecology & Evolutionary Biology & Microbiology, Yale University; Faculty member at Yale School of Medicine, USA on “Challenges in commercially developing phage therapy to target drug-resistant bacteria.” January 27, 2021.
- IBRC Webinar by Prof Yves Briers, Associate Professor at the Department of Biotechnology at Ghent University, Belgium on “From discovery to high-throughput engineering of phage lysins targeting Gram-negative bacteria”. July 9 2020.
- IBRC Webinar by Prof Graham Hatfull, Eberly Family Professor of Biotechnology and HHMI Professor in the Department of Biological Sciences at the University of Pittsburgh, USA on “Mycobacteriophages: Diversity, Dynamics and Therapy”. June 17, 2020
- OHSL-IBRC colloquium, a public lecture delivered by Prof. Steffanie Strathdee, Associate Dean of Global Health Sciences and Harold Simon Professor of Medicine at the University of California San Diego at the India International Centre, New Delhi, India. November 19, 2019.
- Moderated the Panel Discussion ‘Charting a Path Towards Bacteriophage Therapy’—reference for the first public lecture: Bajpai, U. (2019). A new phage consortium hosts its first public lecture. *Capsid & Tail*, (55). Retrieved from <https://phage.directory/capsid/first-ibrc-lecture>

- Society for Bacteriophage Research and Therapy (SBRT) Webinar by Dr. Tobi Nagel, Founder & President of Phages for Global Health, USA and Dr. Janet Nale, Research Associate, Department of Infection, Immunity and Inflammation, University of Leicester, UK on “Using phages to combat AMR: Scientific capacity building through laboratory training workshops”. August 14, 2020
- SBRT Webinar by Dr Jessica Sacher and Mr Jan Jhang, Co-Founders, Phage Directory USA on “Phage Directory: Making the world’s phages more accessible, manageable and shareable”. September 3, 2020.
- SBRT Webinar by Prof B.N.Tripathi, Deputy Director-General, Animal Science, ICAR HQ, New Delhi and Dr Juliannae H. Grose, Associate Professor, Brigham Young University, USA on “Knowing the unknown: Approaches to characterize the uncharacterized proteome of bacteriophages. October 1, 2020
- A session on bacteriophage therapy at the ViroCon 2020 (International conference by the Society of Virologists of India) on February 19 at the Indian National Science Academy (INSA), New Delhi. 18-20 February 2020.
- Organized and conducted workshop “Gene Editing and Phage Therapy” on Phage Discovery at the Department of Biochemistry, IARI on February 22, 2019.

Other Activities

Coordinator/Member

- Life member, Society for Bacteriophage Research and Therapy (SBRT), India
- Member, International Society for Virus Research (ISVR)
- Member, American Society for Microbiology 2018-2019

Online Articles

- “Bacteriophages as therapeutics for treating drug-resistant TB? *In* OSPF-NIAS Tuberculosis Newsletter from. August 2020. Volume 1, Issue 1. Page 4-6. DOI: [10.6084/m9.figshare.21938120](https://doi.org/10.6084/m9.figshare.21938120)
- Documentary-Drama Video Film on YouTube: <https://youtu.be/lhPPJJZ6SUG> made on “Bacteriophages as a credible option in treating drug-resistant infections” to create awareness on antimicrobial resistance (AMR) and Phage Therapy. May 2018. Dubbed in Hindi, Bangla and Marathi.
- <https://indiabioscience.org/columns/education/teachers-weigh-in-1>. 2017
- <https://indiabioscience.org/columns/education/bacteriophages-beacon-of-hope-amidst-the-sea-of-superbugs> 2017
- <https://indiabioscience.org/columns/education/a-practical-record-book-by-the-undergraduate-science-students> 2013.
- <https://indiabioscience.org/columns/education/research-experiences-for-college-students>. 2010