

DR. MUHAMMAD ASIF (PhD)

Assistant Professor Microbiology
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PERSONAL INFORMATION

Father Name: Riaz Ahmad
Date of Birth: 01-01-1991
Nationality: Pakistani
CNIC #: 35101-4498387-3
Languages: English, Urdu, Punjabi.

QUALIFICATION

- **Ph.D.** Microbiology and Molecular Genetics, *University of the Punjab, Lahore* (2016 to 2023). **(A) (3.3 CGPA)** PhD Country Directory # 31523
- **M.S** Microbiology and Molecular Genetics, *University of the Punjab, Lahore* (2014-2016). **(A) (3.3 CGPA)**
- **Post Graduate Diploma** in **Medical Lab Technology**, *Shoukat Khanum Memorial Cancer Hospital and Research Center, Lahore*, (2013-2014). **(A⁺) (4.0 CGPA)**
- **BSc (Hons.) Medical Lab Technology** *University of health Science, Lahore* (2008-2012). **(A⁺) (85%) Gold Medalist)**
- **F.sc Medical Lab Technology**, *Institute of Public health, Lahore* 2006-2008. **(A) (73%)**

PhD Thesis Title: Assessment of Lytic Bacteriophages and Recombinant Phage Proteins against Multi-Drug Resistant Bacteria

MS Thesis Title: Isolation and Characterization of Lytic Bacteriophages against Multi Drug Resistant *Acinetobacter baumannii*

PROJECT FUNDINGS

- Enhancing competency of biosecurity and Dual Use Research of Concern (DURC) awarded by Health Security Partners, USA (2000\$) **(Completed)**
- Development of bacteriophage cocktails against mastitis causing *Escherichia coli* by *ORIC, GCU, Lahore* (0.3 MILLION PKR). **(In-Progress)**

TEACHING EXPERIENCE

Assistant Professor Microbiology (Regular), Department of Microbiology, Institute of Industrial Biotechnology, Govt. College University, Lahore.

17th November 2023 to Present

Responsibilities

- Lectures and demonstrations to undergraduate and post graduate students of MLT and Microbiology
- Demonstration of lab work to students
- Supervision of undergraduate and post graduate research students
- Maintenance of record for curricular activities
- Paper setting and examination

Courses Taught:

- Clinical Bacteriology
- Clinical Virology
- General Microbiology
- Molecular Biology
- Bacterial Genetics
- Molecular Mechanism of Antimicrobial Drugs
- Microbial Enzymes Technology

Ongoing Research Projects

- Preparation of phage based ointment to treat wound infections caused by *Staphylococcus aureus* in animal model of infection
- Longitudinal genomic insights into resistance and virulence dynamics of *Klebsiella pneumoniae* clinical isolates

Assistant Professor MLT (Regular), Department of MLT, National Skills University, Islamabad.

September 2023 to November 2023

Responsibilities

- Lectures and demonstrations to undergraduate students of MLT.
- Demonstration of lab work to students
- Maintenance of record for curricular activities
- Paper setting and examination

Courses Taught:

- Hematology and Blood Banking
- Lab Innovation and entrepreneurship

Lecturer for MLT (Regular), Department of Pathology, King Edward Medical University, Lahore, Pakistan.

June 2017 to Present

Responsibilities

- Lectures and demonstrations to undergraduate students of Allied Health Sciences.
- Coordinator for influenza PCR Project NIH-Pakistan
- Supervision of Laboratory
- Coordination of undergraduate students for lecture, rotations and research activities
- Demonstration of lab work to students and lab personnels
- Supervision of undergraduate research students
- Planning for student rotations
- Maintenance of record for curricular activities
- Paper setting and examination
- Member curriculum development committee

Courses Taught:

- Molecular Biology
- Human Genetics
- Basic Bioinformatics
- Bacteriology
- Parasitology
- Virology
- Mycology
- Immunology and Serology
- Basic Pathology
- Hematology and Blood Banking
- Chemical Pathology
- Lab Instrumentation
- Laboratory Safety

Research Projects

- Assessment of bacteriophages as the sanitary agents on hospital hard surfaces
- Isolation and characterization of phages against hypervirulent *Klebsiella pneumoniae* and carbapenem-resistant *Acinetobacter baumannii*
- Host range of various isolated bacteriophages
- Impact of antibiotic withdrawal and starvation conditions on plasmid elimination and consequent loss of resistance.
- Effect of nasal washing on MRSA nasal colonization

Visiting Lecturer Biology, Department of The Northern Consortium of UK (NCUK), Riphah International University, Lahore, Pakistan.

October 2018 to September 2020

Responsibilities

- Lectures and demonstrations to International foundation year I students.
- Demonstration of lab work to students and Paper setting and examination

Course Taught: Biology

TECHNICAL EXPERIENCE

Medical Technologist Microbiology, Department of Pathology, Shaukat Khanum Memorial Cancer Hospital, Lahore, Pakistan.

August 2013 to September 2017.

Responsibilities

- Acceptance/rejection and performance of pathological tests on various specimens
- Reporting and interpretation of performed tests
- Participation in EQC and Proficiency Testing by CAP
- Supervision of junior staff at evening and night duties
- Performance and quality control for all parameters
- Inventory control
- Maintenance of logs like critical alert log, sample rejection log etc.
- Training of junior staff

Medical Lab Technician, Govt. Lady Atchison Hospital, Lahore, Pakistan

June 2009 to June 2012.

Responsibilities

- Specimen collection and transportation to various sections
- Acceptance/rejection various specimens
- performance of hematological and biochemistry related test
- Setting up IQC
- Maintenance of lab equipment
- Maintenance of logs like critical alert log, sample rejection log etc.

LAB MANAGEMENT EXPERIENCE

- Worked as shift in-charge and quality assurance representative at Shoukat Khanum hospital Lahore
- Worked as lab manager for three years in a medium sector lab
- Has experience to establish a new lab (Set up two labs).
- Has expertise in SOP writing and drafting lab documents
- Has expertise of inventory management
- Has expertise of personnel management

RESEARCH/TECHNICAL SKILLS

- Excellent skills in managing and supervising centralized medical laboratory with practical experience of more than 7 years including microbiology lab.
 - Proficient in quality assurance, continuous quality improvement, external/internal quality control and proficiency testing by CAP, RANDOX, NIQAS, NEQAP and REQAS.
 - Excellent skill in performing routine and special tests by manual and automated techniques related to hematology, chemical pathology, microbiology and molecular biology.
 - Has worked on different instruments in diagnostic labs like Total Lab automation, automated and semi-automated instruments like Sysmex KX-21, Pouch 100, XN10, XN 1000 series, Mindray BC10, flow cytometry, EVO modular system for biochemistry, Architect, Advia and Immulite immune assay system, Maglomi CLIA, Gama counter for RIA, HPLC, ELISA, BACTEC/Bact Alert, Vitek compact, Vitek MS, Gene Xpert, Automated media perpetrator, Beckman Coulter AU 480/680, Microlab 300, Cobas Urine analyzer .etc.
 - A fully trained Microbiologist in all aspects of field including Routine aerobic and anaerobic culture, Solid (LJ) and liquid (MGIT 960) Mycobacterial culture and fungal culture for microbiological and molecular characterization of bacteria and their genome analysis
 - Expert in DNA isolation, conventional and Real Time PCR, Agarose and SDS-Gel Electrophoresis, cloning and Expression of genes, Gibson assembly, CRISPR-Cas based genome editing.
 - NGS data handling, genome assembly, and annotation
 - Expert in routine and special biochemical and clinical tests of specimen by manual and automated techniques.
 - Proficient in conducting all hematological and immunohematological tests.
 - Capable of implementing standards of quality assurance and continuous quality improvements (CQI).
 - Phage isolation, purification, characterization, and genome analysis
 - Capable of handling animal model of infections
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PUBLICATIONS

Cumulative Impact Factor: 38.12, Total Citations: 668, I10-index: 9, H-index: 9

Google Scholar Profile at : <https://scholar.google.com.pk/citations?user=Ac8B86sAAAAJ&hl=en>.

1. Abdullah WM, Alvi IA, Sana S, Shafiq-ur-Rehman S, Asif M. Longitudinal genomic insights into resistance and virulence dynamics of *Klebsiella pneumoniae* clinical isolates from Pakistan. *Braz J Microbiol.* [under review, October 2025].
2. Khan, F., Naseem, F., **Asif, M.**, Alvi, I.A., Rehman, S.U., and Rehman, Abdul. 2025. Bacteriophages RCF and 1-6bf can control the growth of avian pathogenic *Escherichia coli*. *Poultry Science*. 10 (2):104790. **(Impact Factor 3.8)**.
3. Imdad, S., Dar, R., Akhtar, R., Shakoor, M., Ali, M., **Asif, M.**, & Ashraf, S. (2024). Knowledge, Attitude and Practice (KAP) of Laboratory Safety among Laboratory Workers. *Pakistan Journal of Health Sciences*, 5(12), 114–118. <https://doi.org/10.54393/pjhs.v5i12.2390>.
4. **Asif, M.**, Alvi, IA, Basit, A, Waqas, M, Raza, F.A, Rehman, S-U. 2023. A K-17 serotype specific *Klebsiella* phage JKP2 with mature biofilm reduction potential. *Virus Research*. 329: 199107. **(Impact Factor 6.28)**.
5. Khan, M.F., Khattak, A.A., Saleem, A., Rizwan, M., **Asif, M.** and Alvi, I.A., 2023. Efficient Reduction of *Pseudomonas aeruginosa* Biofilms Using the Myoviridae Lytic Bacteriophage vBPaeM MLG. *Lahore Garrison University Journal of Life Sciences*, 7(03), pp.262-279.
6. Tabassum, R., Basit, A., Alvi, I.A. and **Asif, M.**, 2022. TSP, a virulent Podovirus, can control the growth of *Staphylococcus aureus* for 12 h. *Scientific Reports*, 12(1), pp.1-12. **(Impact Factor 4.38)**
7. Akram, H., Shahid, S., Bukhari, H., Iqbal, K. and **Asif, M.**, 2022. Impact of antibiotic withdrawal and starvation conditions on plasmid elimination and consequent loss of resistance. *Journal of the Pakistan Medical Association*. 72 (6). 1053-1056. **(Impact Factor 1.002)**.
8. Basit, A., Karim, A.M., **Asif, M.**, Ali, T., Lee, J.H., Jeon, J.H., Ur Rehman, S. and Lee, S.H., Designing Short Peptides to Block the Interaction of SARS-CoV-2 and Human ACE2 for COVID-19 Therapeutics (2021). *Frontiers in Pharmacology*, 12: p.2310. **(Impact Factor 5.8)**.
9. **Asif, M.**, Naseem, H, Alvi, IA, Basit, A, Rehman, S-U. Characterization of a lytic EBP bacteriophage with large size genome against *Enterobacter cloacae*. *APMIS*. 2021; 129: 461– 469 **(Impact Factor 3.2)**.
10. Alvi, I.A., **Asif, M.** and Ur Rehman, S., 2021. A single dose of a virulent bacteriophage vB PaeP-SaPL, rescues bacteremic mice infected with multi drug resistant *Pseudomonas aeruginosa*. *Virus Research*, 292, p.198250. DOI: [10.1016/j.virusres.2020.198250](https://doi.org/10.1016/j.virusres.2020.198250) **(Impact Factor 3.3)**.
11. Shoaib, N.F., ul Ain, Q., Iqbal, K. and **Asif, M.**, 2021. Effect of ablution on Methicillin-resistant *Staphylococcus aureus* (MRSA) nasal colonisation in healthcare workers. *JPM. The Journal of the Pakistan Medical Association*, 71(5), pp.1472-1475.. **(Impact Factor 0.57)**.
12. Asif, M., Sarfraz, R. and Ahmed, S., (2021). Detection of severe acute respiratory syndrome coronavirus 2 specific IgG antibody in staff of King Edward Medical University Lahore. *Journal of Akhtar Saeed Medical & Dental College. JAMDC*. 2021;3 (2): 68-73.
13. Baig M., Javed A., Asif, N.M., Nawab, K., Alam, S.A. and **Asif, M.**, 2020. Wastage of blood units at tertiary care hospitals of Lahore. *Cureus* 12(5): e8040. doi:10.7759/cureus.8040.
14. Alvi, IA., **Asif, M.**, Tabassum, R., Aslam, R., Abbas, Z. and Rehman, SU., 2020. RLP, a Podoviridae Bacteriophage Rescued Mice from Multi-drug Resistant *Pseudomonas aeruginosa* Bacteremia. *Archives of Virology*. 165(6). 1289-97. **(Impact Factor 2.57)**

15. **Asif, M.**, Alvi, I.A., Tabassum, R. and Rehman, S.U., 2020. TAC1, an unclassified bacteriophage of the family Myoviridae infecting *Acinetobacter baumannii* with a large burst size and a short latent period. *Archives of Virology*, 165(2), pp.419-424. **(Impact Factor 2.57)**
16. Alvi, I.A., **Asif, M.** and Rehman, S.U., 2018. Storage of bacteriophages at 4°C leads to no loss in their titer for one year. *Pakistan J. Zool.* 50(6): 2395-2398. **(Impact Factor 0.57)**
17. **Asif, M.**, Alvi, I.A. and Rehman, S.U., 2018. Insight into *Acinetobacter baumannii*: pathogenesis, global resistance, mechanisms of resistance, treatment options, and alternative modalities. *Infection and Drug Resistance*, 11, pp.1249-1260. doi: [10.2147/IDR.S166750](https://doi.org/10.2147/IDR.S166750). **(Impact Factor 3.4)**.
18. Tahir, A., **Asif, M.**, Abbas, Z. and Rehman, S., 2017. Three Bacteriophages SA, SA2 and SNAF can Control Growth of Milk Isolated Staphylococcal Species. *Pakistan J. Zool.*, 49: 529-533. **(Impact Factor 0.57)**
19. Kabeer, S., Zafar, Z., Mehdi, N., Zubair, M., Javed, H., **Asif, M.**, Abbas, S. and Ejaz, H., 2014. Isolation and Antimicrobial Susceptible Pattern of Bacterial Pathogens from Ear, Nose and Throat of Paediatric Patients. *Pakistan journal of Medical and Health Sciences*, 8(3): 644-647.
20. **Asif, M.**, Mehdi, N., Zafar, Z., Zubair, M., Javed, H., Zafar, Z., Abbas, S. and Ejaz, H., 2014. Emergence of Vancomycin Resistant *Enterococci* in Paediatric Patients. *Pakistan journal of Medical and Health Sciences*, 8(3): 572-575.

DIPLOMAS

1. 1-Year Post Graduate Diploma in Laboratory Sciences, by Shaukat Khanum Memorial Cancer Hospital, Lahore, Pakistan from August 2013 to August 2014.
2. Attended 8-months Responsible Research Fellowship by Health Security Partners, USA. (2023-2024)
3. Google Project Management diploma via **Coursera** (6 courses with 30 modules equivalent to 6 Months)

PROFESSIONAL TRAINING VIA WORKSHOPS

1. Attended workshop on Emerging antimicrobial resistance: the utility of MIC testing 29 January 2025 at Preconference workshop of MMIDSP at KEMU, Lahore
2. Attended workshop on Chemiluminescence: The Queen of Immunoassay on March 1st 2024 by Snibe Diagnostics at Nishat Hostel, Lahore
3. Attended workshop on Responsible Research Fellowship conducted at Responsible Research Fellowship Training Institute, **Kuala Lumpur, Malaysia** on 25-27 September, 2023 by Health Security Partners, USA.
4. Attended workshop on Laboratory Diagnosis and Infection Prevention & Control for *Candida auris* conducted at King Edward Medical University, Lahore on 30-31 August 2023 by Center for Environmental & Occupation Health, NIH, Pakistan.
5. Attended workshop on self-assessment report writing on 30th April 2019 at KEMU Lahore.
6. Training of trainers workshop organized by Pakistan Biological Safety Association, in collaboration with Fogarty International, NIH USA and Behavioral Solutions USA on 25-30 March 2018 at Margallah Hotel Islamabad, Pakistan.
7. Workshop on Teaching and Learning, AHS faculty Development Program 2017, held on 16 September 2017 at KEMU, Lahore.
8. Workshop on Hemoglobin electrophoresis organized by Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore. 1st March 2017.
9. Workshop on Infection control in Shaukat Khanum Hospital Lahore, 25th March 2016.
10. Workshop on Antimicrobial stewardship at Shaukat Khanum Hospital Lahore, 25th March 2016.
11. Workshop on interpretation of molecular tests (Xpert and LiPA) for TB diagnosis by Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore at occasion of 38th Annual conference of Pakistan Association of Pathologists at PC hotel Lahore in Nov 2015.
12. Training Workshop on Hemophilia, Pakistan Society of Hematology, The Children Hospital and Institute of Child Health, Lahore, March 2013.
13. 1st Hands on Hematology Workshop at Department of Pathology, Allama Iqbal Medical College, Lahore. 21st March 2011.
14. Workshop on Basics in Lab Practices. The Children Hospital and Institute of Child Health, 4-5th December, 2010.

ACHIEVEMENTS/AWARDS/HONORS

- Certificate of Excellence in Teaching by King Edward Medical University, Lahore on 5th December 2023.
- Won Travel Grant from Health Security Partners, USA for Responsible Research Fellowship at Responsible Research Fellowship Training Institute, **Kuala Lumpur, Malaysia** in September 2023.
- Won Poster presentation award at 17th Annual Conference of Medical Microbiology and Infectious Disease Society of Pakistan Feb 2020.
- Best article presentation award received at 17th MMIDSP conference 29 Feb to March 1 2020 at PC Hotel Lahore.
- Got 4th position in short stories writing on HIV/AIDS awareness by Punjab AIDS control Program Lahore. (30th Mar, 2017)
- Best article presentation award received at 1st National conference on Recent Trends in Microbiology at AUST 19-21 December 2016 Abbottabad.
- Best article presentation award received at 10th MMIDSP conference March 2016 Lahore.
- Received Gold Medal in (BS Hons.) MLT from SAHS, Children Hospital Lahore convocation held on 28 November 2017 at PC hotel Lahore.
- Have won certificate in inter collegiate debate competition.
- Have participation certificate in Debates competition at District level.
- Have won First Prize in Urdu poetry competition in college.
- Have won prizes in athletics in school and college.
- Had remained class representative for 14 years of education.

NATIONAL AND INTERNATIONAL RESEARCH PAPER PRESENTATION/TRAININGS

1. Invited Speaker on Interdisciplinary research conference on One Health at University of Sarghoda, 9-10 April 2025. Phages and phage encoded lytic proteins in prevention, diagnosis and treatment of bacterial Infections
2. Key-note speaker on International Conference on Antimicrobial Resistance and Alternatives to Antibiotics October 28-29 2024 at Abbottabad University of Science and Technology. Bacteriophages as alternative to antibiotics.
3. Invited Speaker on 1st International Biennial Conference of Nursing, Allied Health Sciences and Physiotherapy on June 8th, 2024 at Gulab Devi Educational Complex, Lahore. Role of Bacteriophages in diagnostics.
4. Key-note speaker on 2nd International Rehabilitation and Allied Health Sciences Conference 2024 on 2nd and 3rd March 2024 by Superior University, Lahore at PC Hotel, Lahore. Phage-encoded lytic proteins: Their implications as Enzybiotics.
5. Key-note speaker on 1st UMT Conference of Life Sciences. December 13-14, 2023 at UMT Lahore. Phage-encoded lytic proteins: Their implications as enzybiotics.
6. Invited as Trainer in one-day international workshop on bacteriophage based therapies for one health approach to combat infectious diseases at The University of Haripur on 10 October, 2023.
7. Key-note speaker on 1st International Conference on Allied Health Sciences by Riphah International University, Lahore. October 6-8, 2023 at PC Hotel Lahore. Phages and phage-encoded lytic proteins in prevention, diagnosis and treatment of bacterial infections.
8. 10th Biennial International Conference of Pakistan Society of Microbiology, Exploring Microbes for Future Endeavors. March 25-28, 2015. Multi-drug resistance in VRE. At MMG, PU, Lahore.
9. 13th Annual Conference of Medical Microbiology and Infectious Disease Society of Pakistan March 25-26, 2016. A virulent phage JHP against Pseudomonas aeruginosa: An indigenous candidates for Phage Therapy. PC Hotel Lahore
10. 2nd International conference Shalimar Medical and Dental College Lahore on 3-5 Feb 2018. Recombinant phages for phage therapy
11. MMG 2018- A conference on Microbiology and Molecular Genetics, 7-9 Feb 2018. Isolation and Characterization of Bacteriophages against Acinetobacter baumannii
12. 17th Annual Conference of Medical Microbiology and Infectious Disease Society of Pakistan Feb 2020. Activity of Recombinant endolysins against Pseudomonas aeruginosa

CONFERENCES AND WORKSHOPS ORGANIZED

1. Two-Day Training Workshop on Phage Therapy in 2025 on 13-14 November 2025 at Government College University, Lahore
2. Two-Day Hands-on Training Workshop: Phages in Focus: Isolation and computational Genome Analysis on 29-31 January 2025 at University of Haripur.
3. Two-Day Hands-on Training Workshop on Enhancing competency of biosecurity and Dual Use Research of Concern (DURC) on 27-28 November 2024 in collaboration with Health Security Partners, USA at Govt. College University, Lahore.

4. Two-Day Hands-on Training Workshop on Phage Isolation, Characterization and Genome analysis 15-16 November 2024 at Kinnaird College for Women University, Lahore.
5. Two-Day Hands-on Training Workshop on Isolation and Characterization of Bacteriophages for Phage Therapy 17-18 March 2023.
6. MMG 2018- A conference on Microbiology and Molecular Genetics, 7-9 Feb 2018
7. Two day workshop on Advances in Phage Therapy On 28-29 May 2017 at Department of Medical Lab Technology, University of Haripur.
8. Two day workshop on Advances in Phage Therapy On 4-5 April 2017 at Microbiology department Hazara University Mansehra.
9. One-day Workshop on Immunofluorescence at MMG PU 29 March 2017.
10. Preconference workshop on isolation, propagation and purification of phages on Recent Trends in Microbiology held on 19 December 2016 at Abbottabad Pakistan.
11. One-day Workshop on Immunofluorescence at MMG PU 17th November 2016.
12. 10th Biennial International Conference of Pakistan Society of Microbiology, Exploring Microbes for Future Endeavors. March 25-28, 2015. At MMG, PU, Lahore.

CONFERENCES PARTICIPATION

1. 46th Pakistan Association of Pathologist conference held on 11-13 October 2025 at PC hotel Lahore.
2. Silver Jubilee Heamcon 2023 international Conference. 16-18 Feb 2023.
3. 1st Allied Health Sciences Conference, University of Child Health Sciences, Lahore. 26-27 October, 2022.
4. 7th National Seminar of Medical Laboratory Technologist Association of Pakistan (MLTAP) on Role of Allied Health Professionals in Disease Diagnosis and Safety Health Safety organized by Pak Health International Expo on 11th January 2020 in Lahore.
5. 13th Annual Conference of Medical Microbiology and Infectious Disease Society of Pakistan 26th March 2016.
6. Attended Microbial biodiversity-cross talks at MMG department PU Lahore in DEC 2015.
7. 10th Annual Symposium 2013. The Children Hospital and Institute of Child Health, 27-28th December, 2013.
8. Pakistan Association of Medical Laboratory Sciences, Conference 27-28 Feb 2011 at Allama Iqbal Medical College, Lahore, Pakistan
9. 1st National Conference of Pakistan Association of Medical Laboratory Sciences, 16th May 2010 at Sarena Hotel, Faisalabad, Pakistan.

MEMBERSHIPS

- American Society for Microbiology (ASM). Membership Number : 57263220
- Pakistan Biological Safety Association (PBSA). Membership Number 860
- Pakistan Society for Bacteriophages. Executive member and Joint Secretary.

COMPUTER SKILLS

- Microsoft Office
- Hospital Information systems
- Research and statistical tools like Endnote, Prism, SPSS.
- Internet Information Services & Server Based Operations.

REFERENCE

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