

1. General Information

Full Name: Muhammad Abu Bakr Shabbir

Designation/Position: Assistant Professor

Department/Section: Microbiology

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Phone (Official): 0333427824

Date of Birth: 31-05-1986

2. Academic Qualifications

Degree	Field	University/Institute	Year	Country
PhD	Molecular Biology	Huazhong Agricultural University	2018	China
M.Phil	Microbiology	University of Agriculture Faisalabad	2012	Pakistan
DVM	Veterinary Sciences	University of Agriculture Faisalabad	2010	Pakistan

3. Professional Experience

Position	Institute	Duration (Years)	From – To
Assistant Professor	University of Veterinary and Animal Sciences, Lahore	Working	August 2019 (continue)
Lab Manager	K & N's poultry diagnostic and research institute at Abbottabad	1 year and 8 months	January 2013- August 2024
Research Assistant	University Diagnostic Laboratory, University of Veterinary and	1 year and 1 month	November 2011- December 2012

	Animal Sciences, Lahore		
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4. Research Contributions

Research Papers (APA style):

1. Huda, M. N. U., Shabbir, M. Z., Tahir, A. H., Ahmad, A. A., Zahoor, U. B., Ahmad, W., Raza, A., Afzal, F., Khalid, A. R., & **Shabbir, M. A. B.** (2025). Molecular detection and prevalence of colistin-resistant *Escherichia coli* in poultry and humans: A one health perspective. *Brazilian Journal of Microbiology*. <https://doi.org/10.1007/s42770-025-01780-0>
2. Ahmad, M., Omer, M. O., Iqbal, Z., Sattar, A., & **Shabbir, M. A. B.** (2025). Targeting antimicrobial resistance in *Salmonella* Enteritidis: Synergistic action of N-acetyl cysteine with florfenicol and CRISPR-Cas system involvement. *Pakistan Veterinary Journal*, *212*. <https://doi.org/10.29261/pakvetj/2025.212>
3. Anwar, U., Sattar, A., Rasheed, M. A., **Shabbir, M. A. B.**, & Abbas, M. (2025). Preparation, characterization and toxicological evaluation of azithromycin-loaded chitosan nanoparticles alone and in combination with cetirizine dihydrochloride. *Asian Journal of Agriculture and Biology*, *2025*, 2024178.
4. **Shabbir, M. A. B.**, Shamim, M., Tahir, A. H., Sattar, A., Qin, W., Ahmad, W., Ahmad, W., Khan, F. A., & Ashraf, M. A. (2024). Potential of ZnO nanoparticles for multi-drug resistant *Escherichia coli* having CRISPR-Cas from poultry market in Lahore. *BMC Microbiology*, *24*(1), 355.
5. Beig, M. M., Ali, M. A., Javed, H., Yaqub, T., Mehmood, A. K., Nawaz, M., Raza, S., Ashraf, M. A., **Shabbir, M. A. B.**, Mukhtar, N., & Najeeb, M. I. (2024). Geospatial dynamics of SARS-CoV-2 variants during the Fifth Wave of COVID-19 in Punjab, Pakistan. *Advancements in Life Sciences*, *11*(2), 493–499.
6. Rafiq, M. S., **Shabbir, M. A. B.**, Raza, A., Irshad, S., Asghar, A., Maan, M. K., Gondal, M. A., & Hao, H. (2024). CRISPR-Cas system: A new dawn to combat antibiotic resistance. *BioDrugs*, *38*, 387–404.
7. Zahid, A., Eiza, N. U., Khalid, M., Irshad, H. U., **Shabbir, M. A. B.**, Ali, A., Chaudhry, T. H., Ahmed, S., Maan, M. K., & Huang, L. (2024). Targeting inflammation for the treatment of endometritis in bovines. *Microbial Pathogenesis*, *188*, 106536.
8. **Shabbir, M. A. B.**, Ul-Rahman, A., Iftikhar, M. R., Rasheed, M., Maan, M. K., Sattar, A., Aslam, H. B., Ahmad, M., Khan, F. A., Ahmad, W., & Riaz, M. I. (2024). Exploring the interplay of the CRISPR-CAS system with antibiotic resistance in *Staphylococcus aureus*: A poultry meat study from Lahore, Pakistan. *Medicina*, *60*(1), 130.

9. Majeed, A., Mahmood, S., Tahir, A. H., Ahmad, M., **Shabbir, M. A. B.**, Ahmad, W., & Iqbal, A. (2023). Patterns of common dermatological conditions among children and adolescents in Pakistan. *Medicina*, *59*(11), 1905.
10. Wu, Q., Wei, H., Lei, C., Wu, R., **Shabbir, M. A. B.**, Peng, D., Chen, D., Liu, Z., & Wang, Y. (2023). ATP bioluminescence-based method for screening of multiclass antibiotic residues in animal derived foods. *Microchemical Journal*, *193*, 108981.
11. Ashraf, M. A., Nawaz, M., Asif, A., Ali, M. A., Mehmood, A., Aziz, M. W., Shabbir, M. Z., Mukhtar, N., **Shabbir, M. A. B.**, Raza, S., & Yaqub, T. (2023). Temporal study of wastewater surveillance from September 2020 to March 2021: An estimation of COVID-19 patients in Lahore, Pakistan. *Environmental Science and Pollution Research*, *30*(33), 80855–80862.
12. Lail, N., Sattar, A., Omer, M. O., Hafeez, M. A., Khalid, A. R., Mahmood, S., **Shabbir, M. A. B.**, et al. (2023). Biosynthesis and characterization of zinc oxide nanoparticles using *Nigella sativa* against coccidiosis in commercial poultry. *Scientific Reports*, *13*(1), 6568.
13. Aziz, M. W., Mukhtar, N., Anjum, A. A., Mushtaq, M. H., Shahid, M. F., Ali, M., **Shabbir, M. A. B.**, Ali, M. A., Nawaz, M., & Yaqub, T. (2023). Molecular characterization and selection of indigenous SARS-CoV-2 Delta variant for the development of the first inactivated SARS-CoV-2 vaccine of Pakistan. *Vaccines*, *11*(3), 607.
14. Ahmad, W., **Shabbir, M. A. B.**, Ahmad, M., Omer, M. O., Mushtaq, R. M. Z., Aroosa, S., Iqbal, A., & Majeed, A. (2023). Insights into the prognostic role of serum interleukin-6 and hematobiochemical alterations in cattle during recent outbreaks of lumpy skin disease in Lodhran District, Pakistan. *Vaccines*, *11*(1), 113.
15. Ul-Rahman, A., **Shabbir, M. A. B.**, Rehman, A., Iqbal, M. Z., Yasin, R., Ishaq, H. M., & Raza, M. A. (2023). Seroprevalence of Newcastle disease virus and avian influenza virus in poultry and captive wild birds in poultry-dense regions of Pakistan. *Veterinaria Italiana*, *59*(1).
16. Nawaz, M., Ashraf, M. A., Ali, M. A., Shabbir, M. Z., **Shabbir, M. A. B.**, Altaf, I., Raza, S., Rafique, S., Hassan, S., Sardar, N., & Mehmood, A. (2022). Renaissance helps in early clearance of SARS-CoV-2: In-vivo activity of the iodine complex in Rhesus macaque. *Life*, *12*(9), 1424.
17. Wu, X., Liu, J., Feng, J., **Shabbir, M. A. B.**, Feng, Y., Guo, R., Zhou, M., et al. (2022). Epidemiology, environmental risks, virulence, and resistance determinants of *Klebsiella pneumoniae* from dairy cows in Hubei, China. *Frontiers in Microbiology*, *13*, 858799.
18. Abdul Hafeez, M., Mehdi, M., Aslam, F., Ashraf, K., Aleem, M. T., Khalid, A. R., Sattar, A., Waheed, S. F., Alouffi, A., Alharbi, O. O., & **Shabbir, M. A. B.** (2022). Molecular characterization of *Toxoplasma gondii* in cats and its zoonotic potential for public health significance. *Pathogens*, *11*(4), 437.

19. Raza, S., Mukhtar, N., Nawaz, M., Ali, M. A., **Shabbir, M. A. B.**, Ashraf, M. A., Ali, Z., Saleem, M. R., Latif, R., & Yaqub, T. (2021). A cross-sectional survey of knowledge, attitude, and practices of university students in Pakistan regarding COVID-19. *Frontiers in Public Health*, *9*, 697686.
20. Maan, M. K., Chaudhry, T. H., Sattar, A., **Shabbir, M. A. B.**, Ahmed, S., Mi, K., & Huang, L. (2021). Dose optimization of aditoprim-sulfamethoxazole combinations against *Trueperella pyogenes* from patients with clinical endometritis by using semi-mechanistic PK/PD model. *Frontiers in Pharmacology*, *12*, 753359.
21. Yaqub, T., Nawaz, M., Shabbir, M. Z., Ali, M. A., Altaf, I., Raza, S., **Shabbir, M. A. B.**, & Ashraf, M. A. (2021). A longitudinal survey for genome-based identification of SARS-CoV-2 in sewage water in selected lockdown areas of Lahore City, Pakistan: A potential approach for future smart lockdown strategy. *Biomedical and Environmental Sciences*, *34*(9), 729–733.
22. Iqbal, Z., Hussain, H. I., Seleem, M. N., **Shabbir, M. A. B.**, Sattar, A., Aqib, A. I., Kuang, X., Ihsan, A., & Hao, H. (2021). RNA-seq-based transcriptome analysis of a cefquinome-treated, highly resistant, and virulent MRSA strain. *Microbial Pathogenesis*, *160*, 105201.
23. Altaf, I., Nadeem, M. F., Hussain, N., Nawaz, M., Raza, S., **Shabbir, M. A. B.**, & Ashraf, M. A. (2021). An in vitro antiviral activity of iodine complexes against SARS-CoV-2. *Archives of Microbiology*, *203*, 4743–4749.
24. Hussain, H. I., Aqib, A. I., Seleem, M. N., **Shabbir, M. A. B.**, Iqbal, Z., Kulyar, M. F. E. A., Zaheer, T., & Li, K. (2021). Genetic basis of molecular mechanisms in β -lactam resistant gram-negative bacteria. *Microbial Pathogenesis*, *158*, 105040.
25. Wu, Q., **Shabbir, M. A. B.**, Peng, D., Yuan, Z., & Wang, Y. (2021). Microbiological inhibition-based method for screening and identifying of antibiotic residues in milk, chicken egg and honey. *Food Chemistry*, *363*, 130074.
26. Wu, Q., Liu, X., Dun, X., **Shabbir, M. A. B.**, Peng, D., Yuan, Z., & Wang, Y. (2021). The screening and identification of six commonly used antibiotics in swine kidney by a microbiological inhibition method. *Microchemical Journal*, *161*, 105796.
27. Ul-Rahman, A., **Shabbir, M. A. B.**, Mehmood, A., & Shabbir, M. Z. (2021). Genotypic and sub-genotypic diversity of avian paramyxoviruses 2, 4 and 6. *Pakistan Veterinary Journal*, 156–159.
28. Ul-Rahman, A., **Shabbir, M. A. B.**, Aziz, M. W., Yaqub, S., Mehmood, A., Raza, M. A., & Shabbir, M. Z. (2020). A comparative phylogenomic analysis of SARS-CoV-2 strains reported from non-human mammalian species and environmental samples. *Molecular Biology Reports*, *47*(11), 9207–9217.
29. Wu, Q., Zhu, Q., **Shabbir, M. A. B.**, Sattar, A., Peng, D., Tao, Y., Chen, D., Yuan, Z., & Wang, Y. (2021). The search for a microbiological inhibition method for the

- rapid, broad-spectrum and high-throughput screening of six kinds of antibiotic residues in swine urine. *Food Chemistry*, *339*, 127580.
30. Maan, M. K., Sattar, A., Mi, K., **Shabbir, M. A. B.**, Xie, S., Xin, L., Ahmed, S., Algharib, S. A., Huang, L., & Yuan, Z. (2020). Integration of PK/PD for dose optimization of aditoprim against *Trueperella pyogenes* causing endometritis in bovines. *Microbial Pathogenesis*, *142*, 104097.
 31. Ul-Rahman, A., **Shabbir, M. A. B.**, Ahmed, M., & Shabbir, M. Z. (2020). A comparative evaluation of serum biochemistry profile and antigenic relatedness among velogenic and mesogenic Avian avulavirus 1 infection in chickens and pigeons. *Tropical Animal Health and Production*, *52*(4), 1977–1984.
 32. Sattar, A., Hafeez, M. A., Wu, Q., Tahir, A. H., **Shabbir, M. A. B.**, Chen, D., & Yuan, Z. (2020). Disposition of cyadox in domesticated cats following oral, intramuscular, and intravenous administration. *Journal of Veterinary Pharmacology and Therapeutics*, *43*(2), 97–107.
 33. Ahmed, S., Ning, J., Peng, D., Chen, T., Ahmad, I., Ali, A., Lei, Z., **Shabbir, M. A. B.**, Cheng, G., & Yuan, Z. (2020). Current advances in immunoassays for the detection of antibiotics residues: A review. *Food and Agricultural Immunology*, *31*(1), 268–290.
 34. Wu, Q., Gao, X., **Shabbir, M. A. B.**, Peng, D., Tao, Y., Chen, D., Hao, H., & Wang, Y. (2020). Rapid multi-residue screening of antibiotics in muscle from different animal species by microbiological inhibition method. *Microchemical Journal*, *152*, 104417.
 35. Wu, Q., Zhu, Q., Liu, Y., **Shabbir, M. A. B.**, Sattar, A., Peng, D., & Yuan, Z. (2019). A microbiological inhibition method for the rapid, broad-spectrum, and high-throughput screening of 34 antibiotic residues in milk. *Journal of Dairy Science*, *102*(12), 10825–10837.
 36. Ul-Rahman, A., & **Shabbir, M. A. B.** (2020). In silico analysis for development of epitopes-based peptide vaccine against Alkhurma hemorrhagic fever virus. *Journal of Biomolecular Structure and Dynamics*, *38*(10), 3110–3122.
 37. Huang, L., Maan, M. K., Xu, D., **Shabbir, M. A. B.**, Dai, M., & Yuan, Z. (2019). Pharmacokinetic-pharmacodynamic modeling of cyadox against *Escherichia coli* in swine. *Microbial Pathogenesis*, *135*, 103650.
 38. **Shabbir, M. A. B.**, Shabbir, M. Z., Wu, Q., Mahmood, S., Sajid, A., Maan, M. K., Ahmed, S., Naveed, U., Hao, H., & Yuan, Z. (2019). CRISPR-cas system: Biological function in microbes and its use to treat antimicrobial resistant pathogens. *Annals of Clinical Microbiology and Antimicrobials*, *18*(1), 21.
 39. Ahmad, A. A., **Shabbir, M. A. B.**, Xin, Y., Ikram, M., Hafeez, M. A., Wang, C., Zhang, T., et al. (2019). Characterization of the complete mitochondrial genome of a whipworm *Trichuris skrjabini* (Nematoda: Trichuridae). *Genes*, *10*(6), 438.

40. Li, J., Hao, H., Dai, M., Zhang, H., Ning, J., Cheng, G., **Shabbir, M. A. B.**, Sajid, A., & Yuan, Z. (2019). Resistance and virulence mechanisms of *Escherichia coli* selected by enrofloxacin in chicken. *Antimicrobial Agents and Chemotherapy*, *63*(5), e01011-18.
41. Li, C., Zhou, K., Chen, D., Xu, W., Tao, Y., Pan, Y., Meng, K., **Shabbir, M. A. B.**, Liu, Q., Huang, L., & Xie, S. (2019). Solid lipid nanoparticles with enteric coating for improving stability, palatability, and oral bioavailability of enrofloxacin. *International Journal of Nanomedicine*, *14*, 1619–1631.
42. Wu, Q., Peng, D., Liu, Q., **Shabbir, M. A. B.**, Sajid, A., Liu, Z., Wang, Y., & Yuan, Z. (2019). A novel microbiological method in microtiter plates for screening seven kinds of widely used antibiotics residues in milk, chicken egg and honey. *Frontiers in Microbiology*, *10*, 436.
43. **Shabbir, M. A. B.**, Wu, Q., Shabbir, M. Z., Sajid, A., Ahmed, S., Sattar, A., Tang, Y., et al. (2018). The CRISPR-cas system promotes antimicrobial resistance in *Campylobacter jejuni*. *Future Microbiology*, *13*(16), 1757–1774.
44. **Shabbir, M. A. B.**, Tang, Y., Xu, Z., Lin, M., Cheng, G., Dai, M., Wang, X., Liu, Z., Yuan, Z., & Hao, H. (2018). The involvement of the Cas9 gene in virulence of *Campylobacter jejuni*. *Frontiers in Cellular and Infection Microbiology*, *8*, 285.
45. Liu, Q., Lei, Z., Wu, Q., Awais, I., **Shabbir, M. A. B.**, Ahmed, S., & Yuan, Z. (2018). The reproductive toxicity of mequindox in a two-generation study in Wistar rats. *Frontiers in Pharmacology*, *9*, 870.
46. Liu, Q., Lei, Z., Guo, J., Liu, A., Lu, Q., Fatima, Z., Khaliq, H., **Shabbir, M. A. B.**, Maan, M. K., Wu, Q., & Dai, M. (2018). Mequindox-induced kidney toxicity is associated with oxidative stress and apoptosis in the mouse. *Frontiers in Pharmacology*, *9*, 436.
47. **Shabbir, M. A. B.**, Hao, H., Shabbir, M. Z., Hussain, H. I., Iqbal, Z., Ahmed, S., Sattar, A., Iqbal, M., Li, J., & Yuan, Z. (2016). Survival and evolution of CRISPR-Cas system in prokaryotes and its applications. *Frontiers in Immunology*, *7*, 375.
48. Li, J., Hao, H., Cheng, G., Wang, X., Ahmed, S., **Shabbir, M. A. B.**, Hussain, H. I., Sattar, A., & Yuan, Z. (2017). The effects of different enrofloxacin dosages on clinical efficacy and resistance development in chickens experimentally infected with *Salmonella* Typhimurium. *Scientific Reports*, *7*(1), 11676.
49. Li, J., Hao, H., Cheng, G., Liu, C., Ahmed, S., **Shabbir, M. A. B.**, Hussain, H. I., Dai, M., & Yuan, Z. (2017). Microbial shifts in the intestinal microbiota of *Salmonella* infected chickens in response to enrofloxacin. *Frontiers in Microbiology*, *8*, 1711.
50. Ahmed, S., Ning, J., Cheng, G., Ahmad, I., Li, J., Mingyue, L., Qu, W., Iqbal, M., **Shabbir, M. A. B.**, & Yuan, Z. (2017). Receptor based screening assays for the detection of antibiotic residues-A review. *Talanta*, *166*, 176–186.

51. **Shabbir, M. A. B.**, Hao, H., Shabbir, M. Z., Wu, Q., Sattar, A., & Yuan, Z. (2016). Bacteria vs. bacteriophages: Parallel evolution of immune arsenals. *Frontiers in Microbiology*, *7*, 1292.
52. Sattar, A., Xie, S., Huang, L., Iqbal, Z., Qu, W., **Shabbir, M. A. B.**, Pan, Y., Chen, D., Tao, Y., Liu, Z., Iqbal, M., & Yuan, Z. (2016). Pharmacokinetics and metabolism of cyadox and its main metabolites in beagle dogs following oral, intramuscular, and intravenous administration. *Frontiers in Pharmacology*, *7*, 236.
53. Sattar, A., Xie, S., Wang, X., Hussain, H. I., Iqbal, Z., Pan, Y., Iqbal, M., **Shabbir, M. A. B.**, & Yuan, Z. (2016). Metabolism and toxicity of arsenicals in mammals. *Environmental Toxicology and Pharmacology*, *48*, 214–224.
54. Shabbir, M. Z., Jamil, T., Ali, A. A., Ahmad, A., Naeem, M., Chaudhary, M. H., Bilal, M., Ali, M. A., Muhammad, K., Yaqub, T., Bano, A., Mirza, A. I., **Shabbir, M. A. B.**, McVey, W. R., Patel, K., Francesconi, S., Jayarao, B. M., & Rabbani, M. (2015). Prevalence and distribution of soil-borne zoonotic pathogens in Lahore district of Pakistan. *Frontiers in Microbiology*, *6*, 917.
55. Shabbir, M. Z., Malys, T., Ivanov, Y. V., Park, J., **Shabbir, M. A. B.**, Rabbani, M., Yaqub, T., & Harvill, E. T. (2015). Microbial communities present in the lower respiratory tract of clinically healthy birds in Pakistan. *Poultry Science*, *94*(4), 612–620.
56. Shabbir, M. Z., Park, J., Rabbani, M., Muhammad, K., Younus, M., Rehman, M., **Shabbir, M. A. B.**, Ahmad, A., & Harvill, E. T. (2013). Molecular identification of respiratory microbiota of a young ostrich (*Struthio camelus*) using tracheo broncho alveolar lavage. *The Journal of Animal and Plant Sciences*, *23*(5), 1276–1280.
57. Shabbir, M. Z., Zohari, S., Yaqub, T., Nazir, J., **Shabbir, M. A. B.**, & Mukhtar, N. (2013). Genetic diversity of Newcastle disease virus in Pakistan: A countrywide perspective. *Virology Journal*, *10*(1), 170.
58. Anees, M., Shabbir, M. Z., Muhammad, K., Nazir, J., **Shabbir, M. A. B.**, Wensman, J. J., & Munir, M. (2013). Genetic analysis of peste des petits ruminants virus from Pakistan. *BMC Veterinary Research*, *9*(1), 60.
59. Munir, M., Shabbir, M. Z., Yaqub, T., **Shabbir, M. A. B.**, Mukhtar, N., Khan, M. R., & Berg, M. (2012). Complete genome sequence of a velogenic neurotropic avian paramyxovirus 1 isolated from peacocks (*Pavo cristatus*) in a wildlife park, Pakistan. *Journal of Virology*, *86*(23), 13113–13114.
60. Shabbir, M. Z., Khalid, R. K., Freitas, D. M., Javed, M. T., Rabbani, M., Ahmad, A., Yaqub, T., **Shabbir, M. A. B.**, & Abbas, M. (2013). Serological evidence of selected abortifacients in a dairy herd with history of abortion. *Pakistan Veterinary Journal*, *33*(1), 19–22.
61. Ahmad, A., Rabbani, M., Shabbir, M. Z., Muhammad, K., Yaqub, T., Saleemi, M. K., Khalid, R. K., **Shabbir, M. A. B.**, & Alvi, S. Y. (2012). Comparative suitability of

- ear notch biopsy and serum pairs for detecting nature of bovine viral diarrhea virus infection in dairy herds. *Pakistan Veterinary Journal*, *32*(3), 451–455.
62. Shabbir, M. Z., Nazir, M. M., Maqbool, A., Lateef, M., **Shabbir, M. A. B.**, Ahmad, A., Rabbani, M., Yaqub, T., Sohail, M. U., & Ijaz, M. (2011). Seroprevalence of *Neospora caninum* and *Brucella abortus* in dairy cattle herds with high abortion rates. *Journal of Parasitology*, *97*(4), 740–742.

4.2 Books/Chapters:

1. Shabbir, M. A. B. (2018). Pk/PD for prediction and contain of antimicrobial resistance. IAPC Publishing.
2. Ul-Rahman, A., **Shabbir, M. A. B.**, & Raza, M. A. (2021). Newcastle disease in mammalian species: The propensity of cross-species transmission towards public health perspective. In *Veterinary Pathobiology and Public Health* (1st ed., pp. 451-461).
3. Ul-Rahman, A., Habib, M., **Shabbir, M. A. B.**, Shahid, M. F., Mehmood, A., & Raza, M. A. (2021). Peste des petits ruminants in a wide range of domestic, wild and unusual hosts: A potential constraint in disease control efforts. In *Animal Health Perspective* (Vol. 2, pp. 86-96).
4. Ul-Rahman, A., **Shabbir, M. A. B.**, Rajput, S. A., Habib, M., Bano, N., Anjum, A., Niaz, N., Shafi, N., & Raza, M. A. (2023). Covid-19 and Vaccine Hesitancy among Public Communities: A Global Health Perspective. In *One Health Triad* (Vol. 1, pp. 80-85). Unique Scientific Publishers.
5. Ul-Rahman, A., **Shabbir, M. A. B.**, & Raza, M. A. (2021). NEWCASTLE DISEASE IN MAMMALIAN SPECIES: THE PROPENSITY OF CROSS-SPECIES TRANSMISSION TOWARDS PUBLIC HEALTH PERSPECTIVE. In *VETERINARY PATHOBIOLOGY & PUBLIC HEALTH* (p. 451)

4.3 Conferences:

1. “Molecular characterization and potential transmission of colistin resistant genes in *Escherichia coli* from poultry to humans.” International Foundation for Sciences (IFS) Project Forum. (Project Presentation)
2. “Genomic analysis of Infectious Bronchitis virus and disease control interventions.” UVAS Symposium, 2024. (Symposium Presentation)
3. “Bovine brucellosis & control strategies.” National Symposium jointly organized by UDL, IoM UVAS & UM Enterprises, 2024. (Symposium Presentation)
4. “CRISPR-Cas9 genome modification technology.” Hands-on Training Workshop, UVAS, 2023. (Workshop Presentation)
5. “16S metagenomics: data analysis and applications.” Hands-on Training, UVAS, 2022. (Training Presentation)
6. “Diagnosis of COVID-19 using RT-PCR.” Workshop at BSL-3 Laboratory, UVAS, 2020-2021. (Technical Presentation)

7. “Working in BSL-3 laboratory for emerging pathogens.” Workshop at BSL-3 Laboratory, UVAS, 2020-2021. (Technical Presentation)
8. “Officers of diagnostic labs regarding advanced concepts of biorisk management.” Workshop for L&DD department Punjab, 2021. (Training Presentation)
9. “Laboratory Biosafety, equipment maintenance and microbiological testing.” Training Workshop, IOM, UVAS, 2021. (Training Presentation)
10. “Modern Diagnostic Techniques PCR and Ultrasonography.” GRASP Project Training, UVAS, 2021-2022. (Training Presentation)

5. Trainings

5.1 Trainings Received

Title	Institution	Year	Duration
Advanced analytical techniques for mycotoxin detection and biochemical detoxification strategies	Quality Operations Laboratory, IOM, UVAS	2025	2 days
Three-day complementary training on biorisk management	Association for Biorisk Management in collaboration with Health Security Partners	2024	3 days
Master trainers' program for M. Phil/Ph.D. supervisors	Not specified	2024	5 days
PHEC's three-day faculty development program (Batch-II)	Punjab Higher Education Commission (PHEC)	2023	3 days
Refresher course on Biorisk Management	Not specified	2021	2 days
Virtual Training on Biorisk Management	Virology Laboratory, Department of Microbiology, UVAS	2020	5 days
How to publish with Oxford Journals/Oxford Medicine Online	Oxford Journals	2020	1 day

Title	Institution	Year	Duration
Manuscript writing for researchers	Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering (KIBGE), University of Karachi	2020	3 days
2nd International Workshop on Basic Mechanisms of Disease and Poultry Pathology	Department of Pathology, UVAS Lahore	2020	3 days
Faculty Orientation Training for University of Sargodha and University of Veterinary and Animal Sciences, Lahore	UVAS Lahore		

Title	Institution	Year	Duration
Four days hands-on training on Techniques in Microbiology	UVAS Lahore	2024	4 days
Capacity building training of Lab attendants regarding biosecurity protocols in research institutes	UVAS Lahore	2024	1 day
CRISPR-Cas9 genome modification technology	UVAS Lahore	2023	1 day
16S metagenomics: data analysis and applications	UVAS Lahore	2022	2 days
Modern Diagnostic Techniques: PCR and Ultrasonography	UVAS in collaboration with GRASP project/International Trade Centre	2021-2022	2 weeks
Diagnosis of COVID-19 using RT-PCR	BSL-3 Laboratory for Emerging Pathogens, Department of Microbiology, UVAS	2021	2 days
Working in BSL-3 laboratory for emerging pathogens	BSL-3 Laboratory for Emerging Pathogens,	2021	3 days

	Department of Microbiology, UVAS		
Officers of diagnostic labs regarding advanced concepts of biorisk management	Directorate of Animal Disease Diagnostic, Reporting & Surveillance, L&DD Department Punjab in collaboration with IOM, UVAS	2021	3 days
Laboratory Biosafety, equipment maintenance and microbiological testing	Institute of Microbiology (IOM), UVAS	2021	2 weeks
Laboratory biosafety, equipment maintenance and waste disposal	Institute of Microbiology (IOM), UVAS	2020	3 days
Diagnosis of COVID-19 using RT-PCR	BSL-3 Laboratory for Emerging Pathogens, Department of Microbiology, UVAS	2020	2 days
Working in a BSL-3 Laboratory	BSL-3 Laboratory for Emerging Pathogens, Department of Microbiology, UVAS	2020	3 days

6. Memberships & Accreditations

- Member, American Society for Microbiology (ASM), since 2015
- Life Member, Pakistan Society for Microbiology (PSM)
- ISO 17025 Internal Auditor (Certified, 2021)

7. Services & Contributions

Category	Description
Public Sector	• Assistant Professor (TTS) at the Department of Microbiology, University of Veterinary and Animal Sciences (UVAS), Lahore (Aug 2019 - Present). • HEC Approved PhD Supervisor. • Academic Editor for the Canadian Journal of Infectious Diseases and Medical Microbiology. • Served as a Resource Person for numerous government-organized training workshops for laboratory officers and assistants (L&DD

Category	Description
	Department Punjab). • Contributed to COVID-19 diagnosis and biosafety protocols at the BSL-3 Laboratory for Emerging Pathogens, UVAS, during the pandemic.
Private Sector	• Lab Manager at K & N's poultry diagnostic and research institute, Abbottabad (Jan 2013 -- Aug 2014).
Community Services	• Reviewer for numerous international scientific journals (e.g., Infection and Drug Resistance, Frontiers in Public Health, Food Chemistry, Vaccines, etc.), contributing to the advancement of scientific knowledge. • Active Participant and Organizer of national symposia, conferences, and public awareness events (e.g., World Veterinary Day, Poultry Science Conference) to disseminate knowledge. • Conducted hands-on training workshops for students and professionals (e.g., on CRISPR-Cas9, metagenomics, microbiological techniques) to build capacity in the scientific community.

8. Awards & Recognitions

- Best Researcher Award, UVAS (2021)
- Gold Medal in Microbiology, HEC (2019)

9. Administrative Roles

Role	Institute/Committee	Period
Member of Disciplinary Committee	Poultry Science Conference (PSC@IPEX 2024), jointly organized by UVAS & Pakistan Poultry Association	September 2024
Organizer / Coordinator	Multiple national symposia, workshops, and training events at the Institute of Microbiology (IOM), UVAS	2020 - Present
Academic Editor	Canadian Journal of Infectious Diseases and Medical Microbiology	Present

Reviewer	Numerous International Scientific Journals (e.g., Infection and Drug Resistance, Frontiers in Public Health, Food Chemistry, Vaccines)	Present
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10. Research Interests & Future Plans

Current Research Interests:

- Veterinary bacteriology
- CRISPR-Cas system usage to express protein in bacteria
- Molecular characterization of antibiotic-resistant genes
- One Health approach to combat antimicrobial resistance

Future Research Plans

- Continue research on CRISPR-Cas systems and their applications in combating antimicrobial resistance
- Expand work on zoonotic disease transmission and public health significance

11. Additional Information

Reviewer for International Journals:

- Infection and Drug Resistance
- Genetic Research
- Frontiers in Public Health
- BioMed Research International
- Food Chemistry
- Antibiotics
- Pharmaceuticals
- Vaccines
- Critical Reviews in Microbiology
- Journal of Infection and Public Health
- International Journal of Microbiology
- Current Microbiology
- Gene Reports
- Microchemical Journal
- Biochemistry and Biophysics Reports
- Chemical Engineering Journal

Editorial Roles:

- Academic Editor: Canadian Journal of Infectious Diseases and Medical Microbiology

