

# Rabaab Zahra, Ph.D.

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## Education:

- Ph.D.** Institute of Cell Biology, University of Edinburgh, UK (2007)  
Thesis: *CAG.CTG trinucleotide repeat instability in the E. coli chromosome*
- M.Sc.** Department of Biotechnology, University of Karachi, Pakistan (2002)  
Thesis: *Isolation and Purification of Deoxyribonuclease from Staphylococcus aureus*

## Research and Teaching Experience:

- March 2021 – Present Professor, Department of Microbiology, Quaid-i-Azam University, Islamabad, Pakistan
- Aug 2015 – March 2021 Associate Professor, Department of Microbiology, Quaid-i-Azam University, Islamabad, Pakistan
- Jan 2011-Aug 2015 Assistant Professor, Department of Microbiology, Quaid-i-Azam University, Islamabad, Pakistan
- July 2009-Dec 2010 Postdoctoral scholar, Department of Pediatrics, University of California, San Diego, CA, USA
- July 2007-June 2009 Postdoctoral scholar, Department of Laboratory Medicine, University of Washington, Seattle, WA, USA
- Feb-June 2007 Project Manager, 3-A Diagnostics Co., Pakistan
- Sep 2003-Dec 2006 Graduate Research, University of Edinburgh, UK
- Sep 2002-Feb 2003 Medical Technologist, Canal View Diagnostics Center, Pakistan

## Research Grants:

- |           |  |
|-----------|--|
| 2011-2012 | “Role of <i>agr</i> system and autophagy in development of methicillin resistance of methicillin resistant <i>Staphylococcus aureus</i> (MRSA)” Higher Education Commission, Pakistan (principal investigator)     |
| 2014-2017 | “Autophagy mediated cytotoxicity and antibiotic resistance of <i>Staphylococcus aureus</i> , role of <i>accessory gene regulatory (agr)</i> system” Higher Education Commission, Pakistan (principal investigator) |
| 2014-2015 | PANORAMA, Site investigator-Pakistan   |
| 2015-2018 | Burden of Antibiotic Resistance in Neonates from Developing Societies (BARNARDS)” As part of the BARNARDS Network. Bill and Melinda Gates Foundation (principal investigator-Pakistan)                             |
| 2015      | Genetics of Gram Negative Bacteria Causing Infection in Neonates. UK-Researcher Links Travel Grant Program, Cardiff University, United Kingdom   |
| 2016-2018 | BARNARDS – Community Project. As part of the BARNARDS Network. Bill and Melinda Gates Foundation (principal investigator-Pakistan)   |

2016-2017	Sequence Types of <i>E. coli</i> in Environment. Commonwealth Academic Staff Fellowship, Cardiff University, United Kingdom
2017-2020	Genomic Comparison of community and hospital acquired carbapenemase-producing Enterobacteriaceae (CPE) in Pakistan, and influence of the intestinal microbiota. Pak-France Joint HEC PERIDOT Research Program 2017 (principal investigator – Pakistan)
2020 – 2023	Establishing a Monitoring Baseline for Antibiotic Resistance in Key Environments – EMBARK ( <a href="https://antimicrobialresistance.eu/">https://antimicrobialresistance.eu/</a> ), a joint Project under JPI-AMR (PI-Pakistan)
2020 – 2023	Genomic Comparison of community and Hospital Acquired Carbapenemase Producing Enterobacteriaceae and Influence of the Intestinal Microbiota (PI)
2023 – 2026	The Burden of Antimicrobial Resistance and Antibiotic Treatment Failure in Low-, Middle- and High-Income Countries (BALANCE), IOI Oxford University (Country lead-Pakistan) <a href="https://www.ineosoxford.ox.ac.uk/balance">https://www.ineosoxford.ox.ac.uk/balance</a>
2023 – 2026	Burden of antibiotic resistance in neonates from developing societies (BARNARDS) - Phase II, IOI Oxford University (Country lead-Pakistan) <a href="https://www.ineosoxford.ox.ac.uk/barnards">https://www.ineosoxford.ox.ac.uk/barnards</a>
2024 – 2027	Surveillance for Emerging Antimicrobial Resistance through Characterization of the uncharted Environmental Resistome – SEARCHER ( <a href="https://antimicrobialresistance.eu/">https://antimicrobialresistance.eu/</a> ) a joint Project under JPI-AMR (PI-Pakistan)

## Teaching

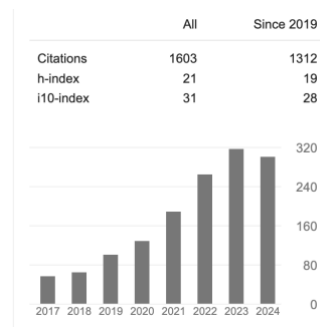
I teach MSc, BS, MPhil and PhD students. The courses I teach/have taught are following:

BS/MSc courses: General Virology, Clinical Microbiology, Medical Microbiology, Bacteriophages and their Applications, Medical Mycology, Diagnostic Chemistry for Microbial Diseases, Lab courses

MPhil/PhD courses: Antibiotic Resistance, Molecular Mechanisms of Pathogenesis, Recombinant DNA Technology, Advances in Microbiology, Techniques in Microbiology Research and Diagnosis

## Publications:

(Google Scholar Profile)



- Nieto-Rosado M, Sands K, Portal EAR, Thomson KM, Carvalho MJ, Mathias J, Milton R, Dyer C, Akpulu C, Boostrom I, Hogan P, Saif H, Ferreira ADS, Hender T, Portal B, Andrews R, Watkins WJ, **Zahra R**, Shirazi H, Muhammad A, Ullah SN, Jan MH, Akif S, Iregbu KC, Modibbo F, Uwaezuoke S, Audu L, Edwin CP, Yusuf AH, Adeleye A, Mukkadas AS, Mazarati JB, Rucogoza A, Gaju L, Mehtar S, Bulabula ANH, Whitelaw A, Roberts L, Chan G, Bekele D, Solomon S, Abayneh M, Metaferia G, Walsh TR. (2024) Colonisation of hospital surfaces from low- and middle-income countries by extended spectrum  $\beta$ -lactamase- and carbapenemase-producing bacteria. *Nature Communications* 15(1) DOI: [10.1038/s41467-024-46684-z](https://doi.org/10.1038/s41467-024-46684-z)
- Shoukat AB, Khalil B, Khan RA, Kiyani A, Malik SZ, Muhammad M, **Zahra R**. (2024) Comparative Efficacy of Moringa Oleifera and Coconut Oil- based Mouthwashes versus Chlorhexidine in Reducing Human Oral Microbial Populations in Healthy Adults; A Single Blind Clinical Trial. *Journal of Herbal Medicine* 44(8): 100855 DOI: [10.1016/j.hermed.2024.100855](https://doi.org/10.1016/j.hermed.2024.100855)

3. Idrees M, Atiq N, **Zahra R**, Imran M, Ghazanfar S. (2023) Draft genome sequence of *Lactiplantibacillus plantarum* subsp. *plantarum* strain HF43, a human gut-associated potential probiotic. *Microbiology Resource Announcements*. 12(9): 1-3, DOI: [10.1128/MRA.00945-22](https://doi.org/10.1128/MRA.00945-22)
4. Bengtsson-Palme J, Abramova A, Berendonk TU, Coelho LP, Forslund SK, Gschwind R, Heikinheimo A, Jarquín-Díaz VH, Khan AA, Klümper U, L'ober U, Nekoro M, Osínska AD, Perovic SU, Pitk'änen T, Rødland EK, Ruppé E, Wasteson Y, Wester AL, **Zahra R**. (2023) Towards Monitoring of Antimicrobial Resistance in the Environment: For what Reasons, How to Implement It, and What Are the Data Needs? *Environment International* 178. DOI: <https://doi.org/10.1016/j.envint.2023.108089>
5. Aziz S, König S, Umer M, Akhter TS, Iqbal S, Ibrar M, Tofeeq Ur-Rehman, Ahmad T, Hanafiah A, **Zahra R**, Rasheed F. (2023) Risk factor profiles for gastric cancer prediction with respect to *Helicobacter pylori*: A study of a tertiary care hospital in Pakistan. *Artificial Intelligence in Gastroenterology* 4(1):10-27 DOI: [10.35712/aig.v4.i1.10](https://doi.org/10.35712/aig.v4.i1.10)
6. Tareen AR, **Zahra R**. (2023) Community Acquired Methicillin Resistant Staphylococci (CA-MRS) in fecal matter of Wild Birds – A 'One Health' Point of Concern. *Journal of Infection and Public Health*. 16 (S1) 877-883. DOI: [10.1016/j.jiph.2023.04.002](https://doi.org/10.1016/j.jiph.2023.04.002)
7. Aziz S, Rasheed F, **Zahra R**, König S. (2023) Mass Spectrometry-Based Proteomics of Minor Species in the Bulk: Questions to Raise with Respect to the Untargeted Analysis of Viral Proteins in Human Tissue. *Life* 13(2):544 DOI: [10.3390/life13020544](https://doi.org/10.3390/life13020544)
8. Walsh TR, **Zahra R**, Iregbu K, Peacock SJ, Stewardson A. (2022) Global Burden of Antimicrobial resistance: essential pieces of a global puzzle. *The Lancet*, 399(10344): 2347-2348 DOI: [10.1016/S0140-6736\(22\)00939-4](https://doi.org/10.1016/S0140-6736(22)00939-4)
9. Idrees M, Imran M, Atiq N, **Zahra R**, Abid R, Alreshidi MM, Roberts M, Abdelgadir A, Tipu MK, Farid A, Olawale OA, Ghazanfar S. (2022) Probiotics, their action modality and the use of multi-omics in metamorphosis of commensal microbiota into target-based probiotics. *Frontiers in Nutrition*, DOI: [10.3389/fnut.2022.959941](https://doi.org/10.3389/fnut.2022.959941)
10. Aziz S, Rasheed F, Akhter S, **Zahra R**, König S. (2022) Microbial Proteins in Stomach Biopsies Associated with Gastritis, Ulcer, and Gastric Cancer. *Molecules*, 27(17): 5410 DOI: [10.3390/molecules27175410](https://doi.org/10.3390/molecules27175410)
11. Carvalho MJ, Sands K, Thomson K, Portal E, Mathias J, Milton R, Gillespie D, Dyer C, Akpulu C, Boostrom I, Hogan P, Saif H, Ferreira A, Nieto M, Hender T, Hood K, Andrews R, Watkins WJ, Hassan B, Chan G, Bekele D, Solomon S, Metaferia G, Basu S, Naha S, Sinha A, Chakravorty P, Mukherjee S, Iregbu K, Modibbo F, Uwaezuoke S, Audu L, Edwin CP, Yusuf AH, Adeleye A, Mukkadas AS, **Zahra R**, Shirazi H, Muhammad A, Ullah SN, Jan MH, Akif S, Mazarati JB, Rucogoza A, Gaju L, Mehtar S, Bulabula ANH, Whitelaw A, Roberts L, BARNARDS Group\* and Walsh TR. (2022) Antibiotic resistance genes in the gut microbiota of mothers and linked neonates with or without sepsis from low- and middle-income countries. *Nature Microbiology* 7:1337-1347. DOI: [10.1038/s41564-022-01184-y](https://doi.org/10.1038/s41564-022-01184-y)
12. Habib A, Stéphane Lo, Khanh Villageois-Tran, Petitjean M, Malik SA, Laurence Armand-Lefèvre, Etienne Ruppé, **Zahra R**. (2022) Dissemination of carbapenemase-producing Enterobacterales in the community of Rawalpindi, Pakistan. *Plos ONE* 17(7):e0270707 DOI: [10.1371/journal.pone.0270707](https://doi.org/10.1371/journal.pone.0270707)
13. Yasmin S, Karim A-M, Lee S-H, **Zahra R**. (2022) Temporal Variation of Meropenem Resistance in *E. coli* Isolated from Sewage Water in Islamabad, Pakistan. *Antibiotics*. 11(5):635. <https://doi.org/10.3390/antibiotics11050635>
14. Aziz S, Rasheed F, **Zahra R**, König S. (2022) Gastric Cancer Pre-Stage Detection and Early Diagnosis of Gastritis Using Serum Protein Signatures. *Molecules*. 27(9):2857. <https://doi.org/10.3390/molecules27092857>
15. Milton R, Gillespie D, Dyer C, Taiyari K, Carvalho MJ, Thomson K, Sands K, Portal EAR, Hood K, Ferreira A, Hender T, Kirby N, Mathias J, Nieto M, Watkins WJ, Bekele D, Abayneh M, Solomon S, Basu S, Nandy

- RK, Saha B, Iregbu K, Modibbo FZ, Uwaezuoke S, **Zahra R**, Shirazi H, Najeeb SU, Mazarati JB, Rucogoza A, Gaju L, Mehtar S, Bulabula ANH, Whitelaw AC, Walsh TR, BARNARDS Group, Grace JC. (2022) Neonatal sepsis and mortality in low-income and middle-income countries from a facility-based birth cohort: an international multisite prospective observational study. *The Lancet Global Health* 10(5), DOI: [10.1016/S2214-109X\(22\)00043-2](https://doi.org/10.1016/S2214-109X(22)00043-2)
16. Aziz S, König S, Noor S, Nadeem M, **Zahra R**, Rasheed F. (2022) Isolated dextrogastria with eventration of right hemidiaphragm and hiatal hernia in an adult male. *BMC Gastroenterology*, 22(1) DOI: [10.1186/s12876-022-02127-x](https://doi.org/10.1186/s12876-022-02127-x)
  17. Sadek M, Ruppé E, Habib A, **Zahra R**, Poirel L, Nordmann P. (2021) International circulation of aztreonam/avibactam-resistant NDM-5-producing *Escherichia coli* isolates: successful epidemic clones. *Journal of Global Antimicrobial Resistance* 27, DOI: [10.1016/j.jgar.2021.09.016](https://doi.org/10.1016/j.jgar.2021.09.016)
  18. Sands K., Carvalho MJ., Thomson K., Portal E., Taiyari K., Akpulu C., Andrews R., Dyer C., Ferreira A., Gillespie D., Hender T., Hood K., Mathias J., Milton R., Nieto, M., Chan G., Bekele D., Gizaw M., Basu S., Nandy R., Saha, B., Iregbu K., Modibbo F., Uwaezuoke, S., **Zahra R.**, Shirazi H., Muhammad A., Mazarati JB., Rucogoza A., Gaju, L., Mehtar S., Bulabula ANH., Whitelaw A., BARNARDS Group., Walsh TR. (2021) Characterization of antimicrobial resistant Gram-negative bacteria that cause neonatal sepsis in seven low and middle-income countries. *Nature microbiology*, 6(4), 512-523 DOI: [10.1038/s41564-021-00870-7](https://doi.org/10.1038/s41564-021-00870-7)
  19. Thomson KM, Dyer C, Liu F, Sands K, Portal E, Carvalho MJ, Barrell M, Boostrom I, Dunachie S, Farzana R, Ferreira A, Frayne F, Hassan B, Jones E, Jones L, Mathias J. Milton R, Rees J, Cha GJ, Bekele D, Mahlet A, Basu S, Nandy RK, Shaha B, Iregbu K, Modibbo F, Uwaezuoke S, **Zahra R**, Shirazi H, Syed NU, Mazarati JB, Rucogoza A, Gaju L, Mehtar S, Bulabula AN, Whitelaw A, Hasselt JGC, Walsh TR. (2021). Effects of antibiotic resistance, drug target attainment, bacterial pathogenicity and virulence, and antibiotic access and affordability on outcomes in neonatal sepsis: an international microbiology and drug evaluation prospective substudy (BARNARDS). *The Lancet Infectious Diseases*, 21(12), 1677-1688 DOI: [10.1016/S1473-3099\(21\)00050-5](https://doi.org/10.1016/S1473-3099(21)00050-5)
  20. Khan, AA., Ali, A., Tharmalingam, M., Mylonakis, E., **Zahra, R.** (2020) First report of *mecC* gene in clinical methicillin resistant *S. aureus* (MRSA) from tertiary care hospital Islamabad, Pakistan. *Journal of Infection and Public Health* 13(10): 1501-1507 DOI: [10.1016/j.jiph.2020.05.017](https://doi.org/10.1016/j.jiph.2020.05.017)
  21. Ahmed, Y., **Zahra, R.**, Ali, M.I., Riaz, M.H., Khan, R., Khan, K., Khan, M., Khan, M.F., Ullah, F., Hassan, F., Ali, A., Zeb, M.T. (2020) Molecular Screening of Resistant and Virulent Genes in *Salmonella Enteritidis* and *Salmonella Typhimurium* from Poultry in Khyber Pakhtunkhwa. *Pakistan Veterinary Journal* 40(3): 343-349 DOI: [10.29261/pakvetj/2020.044](https://doi.org/10.29261/pakvetj/2020.044)
  22. Khan, AA., Farooq J., Abid M., **Zahra R.** (2020) Assessment of inducible Clindamycin Resistance and Hyper Variable Region (HVR) of *mecA* gene in clinical staphylococci. *Pakistan Journal of Medical Sciences* Jan-Feb; 36(2):136-140. DOI: [10.12669/pjms.36.2.665](https://doi.org/10.12669/pjms.36.2.665) <https://www.ncbi.nlm.nih.gov/pubmed/32063947>
  23. Stewardson, A., Marimuthu, K., Sengupta, S., Allignol, A., Elbouseary, M., Carvalho, M. J., Hassan, B., Delgado-Ramirez, M. A., Arora, A., Bagga, R., Owusu-Ofori, A., Ovosi, J. O., Aliyu, S., Saad, H., Kanj, S. S., Khanal, B., Bhattarai, B., Saha, S. K., Uddin, J., Barman, P., Sharma, L., Elbanna, T., **Zahra, R.**, Saleemi, M.A., Kaur, A., Iregbu, K., Uwaezuoke, N.S., Hanna, P. A., Feghali, R., Correa, A., Munera, M., Thu, L. T., Thanh Nga, T. T., Phukan, C., Valderrama, S., Alvarez-Moreno, C., Walsh, T.R., Harbarth, S. (2019) Impact of carbapenem resistance on bloodstream infection outcomes in low-income and middle-income countries: a multinational prospective cohort study. *Lancet Infectious Diseases* 19(6):601-610. doi: [10.1016/S1473-3099\(18\)30792-8](https://doi.org/10.1016/S1473-3099(18)30792-8)
  24. Samad, A., Khan, A.A., Sajid, M., **Zahra, R.** (2018) Assessment of Biofilm formation by *Pseudomonas aeruginosa* and Hydrodynamic Evaluation of Microtiter Plate Assay. *Journal of the Pakistan Medical Association*

25. **Zahra, R.**, Javeed, S., Bibi, M., Babenko, D., Toleman, M. (2018) Analysis of *Escherichia coli* STs and resistance mechanisms in sewage from Islamabad, Pakistan indicates a difference in *E. coli* carriage types between South Asia and Europe. *Journal of Antimicrobial Chemotherapy* doi: 10.1093/jac/dky109
26. Gilmore-Hall, S., Kuo, J., Ward, J., **Zahra, R.**, Morrison, R., Perkins, G., La Spada, A. (2018) CCP1 promotes mitochondrial fusion and motility to prevent Purkinje cell neuron loss in pcd mice. *Journal of Cell Biology* doi: 10.1083/jcb.201709028
27. Latif, A., Zahur, A.B., Libeau, G., **Zahra, R.**, Ullah, A., Ahmed, A., Afzal, M., Rahman, S.U. (2018) Comparative Analysis of BTS-34 and Vero-76 Cell lines for Isolation of Peste des Petits Ruminants (PPR) Virus. *Pakistan Veterinary Journal* 38(3): 237-242. doi: 10.29261/pakvetj/2018.050
28. Saba, T., Sajid, M., Khan, A. A., **Zahra, R.** (2018) Role of Intracellular Adhesion icaAD and agr genes in Biofilm Formation in Clinical *S. aureus* Isolates and Assessment of Two Phenotypic Methods. *Pakistan Journal of Medical Sciences* 34(3): 633-637. doi: 10.12669/pjms.343.14530
29. Nahid, F., **Zahra, R.**, Sandergrén, L. (2017) A bla<sub>OXA-181</sub>-harbouring multi-resistant ST147 *Klebsiella pneumoniae* isolate from Pakistan that represent an intermediate stage towards pan-drug resistance. *PLoS One* 12(12), doi: 10.1371/journal.pone.0189438
30. Kumar, N., Nahid, F., **Zahra, R.** (2017) Association of virulence factors, phylogenetic groups and antimicrobial resistance markers in *Escherichia coli* from Badin City, Pakistan. *Journal of Chemotherapy* 29(1): 8-13
31. Maryam, S., Rasheed, S., Latif, A., **Zahra, R.**, Zahur, A. B., Ahsan, A., Afzal, M., Farooq, U. (2017) One-Step Real-Time Loop-Mediated Isothermal Amplification (RT-LAMP): Evaluation and its Applications for the detection of Foot and Mouth Disease Virus and its serotypes. *Turkish Journal of Veterinary and Animal Sciences* 41(3):435-443. doi: 10.3906/vet-1611-10
32. Ahmed, A., Latif, A., **Zahra, R.**, Zahur, A. B., Farooq, U., Ullah, A., Abubakar, M., Jamil, A., Afzal, M. (2017) Current Appraisal of the suitability of foot-and-mouth disease strains in two commonly used Commercial Vaccines for Control of FMD in Pakistan. *Journal of Animal and Plant Sciences* 27(2):446-450
33. Angez, M., Shaukat, S., **Zahra, R.**, Alam, M. M., Sharif, S., Khurshid, A., Arshad, Y., Rana, M. S., Mujtaba, G., Zaidi, S. Z. Z. (2017) Characterization of group B Coxsackieviruses isolates from non-polio acute flaccid paralysis patients in Pakistan: vital assessment before polio eradication. *Epidemiology and Infection* 145(12): 2473-2481
34. Sattar, H., Toleman, F., Nahid, F., **Zahra, R.** (2016) Co-existence of bla<sub>NDM-1</sub> and bla<sub>KPC-2</sub> in clinical isolates of *Klebsiella pneumoniae* from Pakistan. *Journal of Chemotherapy* 28(4): 346-9
35. Angez, M., Shaukat, S., **Zahra, R.**, Sharif, S., Alam, M. M., Khurshid, A., Rana, M. S., Zaidi, S. Z. Z. (2015) Identification of new genotype of Echovirus 19 from children with Acute Flaccid Paralysis in Pakistan. *Scientific Reports* doi: 10.1038/srep17456
36. Jamil, A., Zahra, R., Abubakar, M., Arshad, M. J., Ehtisham-ul-Haq, L., Akhter, T., Afzal, M. (2015) Study of Humoral Immune Response in Buffalo Calves Following Various Foot and Mouth Disease Vaccines. *Pakistan Veterinary Journal* 35(3):289-292
37. Qamar, M. U., Nahid, F., Walsh, T. R., Kamran, R., Zahra, R. (2015) Prevalence and clinical burden of NDM-1 positive infections in pediatric and neonatal patients in Pakistan. *The Pediatric Infectious Disease Journal* 34(4): 452-4

38. Angez, M., Shaukat, S., **Zahra, R.**, Khurshid, A., Sharif, S., Alam, M. M., Zaidi, S. Z. Z. (2015) Molecular epidemiology of enterovirus B77 isolated from non polio acute flaccid paralytic patients in Pakistan during 2013. *Infection, Genetics and Evolution* **29**: 189-195
39. Wasee Ullah, R., Zahur Bin A., Latif, A., Dasti, J. I., **Zahra, R.**, Khan, S. (2015) Mild Form of Peste des Petits Ruminants Virus (PPRV) in Pakistan. *Pakistan Journal of Zoology* **47(1)**: 276-279
40. Dubinsky, A. N., Dastidar, S. G., Hsu, C. L., **Zahra, R.**, Djakovic, S. N., Durate, S., Esau, C. C., Spencer, B., Ashe, T. D., Fischer, K. M., MacKenna, D. A., Sopher, B. L., Masliah, E., Gaasterland, T., Chau, B. N., Pereira de Almeida, L., Morrison, B. E., La Spada, A. R. (2014) *Let-7* Coordinately suppresses Components of the Amino Acid Sensing Pathway to Repress mTORC1 and Induce Autophagy. *Cell Metabolism* **20 (4)**: 626-638
41. Shah, T. A., **Zahra, R.** (2014) Screening of Environment water for the presence of *bla*<sub>NDM-1</sub> containing Microorganisms. *Journal of the College of Physicians and Surgeons Pakistan* **24 (9)**: 695-697
42. Rasheed, F., Campbell, B. J., Alfizah, H., Varro, A., **Zahra, R.**, Yamaoka, Y., Pritchard, D. M. (2014) Analysis of Clinical Isolates of *Helicobacter pylori* in Pakistan Reveals High Degrees of Pathogenicity, High Frequencies of Antibiotic Resistance and Identifies a Novel Mutation which Confers Resistance to Clarithromycin. *Helicobacter* **19**:387-399
43. Hasan, B., Perveen, K., Olsen, B. and **Zahra, R.** (2014) Emergence of carbapenem-resistant *Acinetobacter baumannii* in hospitals in Pakistan. *Journal of Medical Microbiology* **63**: 50-55
44. Khan, S., Rasheed, F., **Zahra, R.** (2014) Genetic polymorphism of *agr* Locus and antibiotic resistance of *Staphylococcus aureus* at two hospitals in Pakistan. *Pakistan Journal of Medical Sciences* **30(1)**: 172-6
45. Rasheed, F., Khalid, A., Saadia, A., Habib, S., Khan, S. M., Saeed, F., Ahmed, T., Usman, J., and **Zahra, R.** (2014) Correlation of 13C Urea Breath Test Values with *Helicobacter pylori* Load among Positive Patients. *Hepato Gastroenterology* **61 (129)**: 125-8
46. Nahid, F., Khan, A. A., Rehman S., **Zahra, R.** (2013) Prevalence of metallo-beta-lactamase NDM-1-producing multi-drug resistant bacteria at two Pakistani hospitals and implications for public health. *J Infect Public Health* **6**, 487-493
47. Blackwood, J., Okely, E., **Zahra, R.**, Eykelenboom, J., and Leach, D.R.F. (2010) DNA tandem repeat instability in the *Escherichia coli* chromosome is stimulated by mismatch repair at an adjacent CAG.CTG trinucleotide repeat. *PNAS* **107(52)**: 22582-22586
48. Chakrabarti, L., **Zahra, R.**, Jackson, S.M., Kazemi-Esfarjani, P., Sopher, B. L., Mason, A. G., Toneff, T., Ryu, S., Shaffer, S. Kansy, J. W., Eng, J., Merrihew, G., Maccoss, M., Murphy, A., Goodlett, D. R., Hook, V., Bennett, C. L., Pallanck, L. J., and La Spada, A. R. (2010) Mitochondrial dysfunction in *NnaD* mutant flies and *Purkinje cell degeneration* mice reveals a role for *Nna* proteins in neuronal bioenergetics. *Neuron* **66**: 835-847
49. **Zahra, R.**, Blackwood, J. K., Sales, J. and Leach D. R. F. (2007) Proofreading and secondary structure processing determine the orientation dependence of CAG.CTG trinucleotide repeat instability in *Escherichia coli*. *Genetics* **176(1)**:27-41 (*Issue Highlight*)

### **Book Chapters:**

1. **Zahra, R.**, and La Spada, A. R. (2011) Cellular and Molecular basis of Neurodegeneration in the CAG-Polyglutamine repeat diseases. **Basic Neurochemistry**, 8<sup>th</sup> Edition, Elsevier Inc.

## **Research Supervision**

PhD Supervised = 11 MPhil supervised = 74 BS supervised = 22

Currently under supervision: PhD students = 7 (6 at QAU while 1 is international student at University of Oxford); MPhil students = 6

## **Doctorates Supervised**

S.No	Student's Name	Thesis title	Year
1	Saba Yasmin	Isolation and Genetic Characterization of Antibiotic Resistant <i>E. coli</i> from Sewage Water, Islamabad, Pakistan	2024
2	Abdul Rauf Tareen	Molecular epidemiology of Multi-Drug resistant bacteria isolated from the fecal matter of wild birds in the Islamabad region	2024
3	Maryam Idrees	Characterization of Probiotic Lactic acid Bacteria isolated from the Human Gut with Therapeutic Potential for Inflammatory Bowel Disease	2024
4	Shahid Aziz	Identification and Characterization of Gastric Cancer Biomarkers in Helicobacter pylori Infected Patients	2023
5	Amina Habib	Genomic characterisation of community and hospital acquired carbapenem Resistant enterobacteriaceae	2023
6	Amir Afzal Khan	Molecular Typing, Characterization and Pathogenicity of Clinical Multi-Drug Resistant <i>Staphylococcus aureus</i> isolates	2021
7	Shahzeera Begum	Molecular Epidemiology and Genetic characterization of Multi-drug resistant <i>Acinetobacter baumannii</i>	2021
8	Asma Latif	Development of thermostable vaccine for control of Peste des Petits Ruminants (PPR)	2020
9	Fouzia Nahid	Molecular Epidemiology and Genetic Characterization of Multi-drug Resistant <i>Klebsiella pneumoniae</i>	2019
10	Mehar Angez	Genetic Diversity of Non-Polio Enteroviruses Circulating in Pakistan	2018
11	Faisal Rasheed	Molecular Basis of Antibiotic Resistance and Pathogenicity in <i>Helicobacter pylori</i> Clinical Isolates	2015

## **MPhil Supervised**

No.	Student's Name	Thesis title	Year
1	Sara Jahangir	Characterization of antibiotic-resistant Staphylococci in two non-integrated fish farming sites	2024
2	Saba Baloch	Characterization and antibiotic susceptibility profiling of Staphylococci from Pakistani currency notes in circulation	2024
3	Farheen Zahid	Evaluation of Growth Characteristics of a Local Vaccine Strain of Peste des Petits Ruminants (PPR) Virus on Vero Cells	2024

4	Muhammad Ismail Shah	Prevalence of Antibiotic Resistant Bacteria and Resistance Genes in Waste Samples of Pharmaceutical Industries	2023
5	Javeria Zafar	Prevalence of Antibiotic Resistant Bacteria and Resistance Genes in Human Oral Cavity	2023
6	Farwa Gohar	Phylogrouping and Enterobacterial Repetitive Intergenic Consensus Sequences (ERIC) PCR based Genetic Diversity of <i>E. coli</i> isolated from Chicken Cloacal Swabs	2023
7	Alizay	Phenotypic and Genotypic Antibiotic Resistance Profile of Resistant Bacteria Isolated from Surfaces of Public Transport	2023
8	Eman Rashid	Characterization and antibiotic susceptibility profiling of bacterial isolates from Pakistani currency notes in circulation	2023
9	Muhammad Hamza	Characterization of antibiotic-resistant bacteria in two non-integrated fish farming sites	2023
10	Fizza Raza	Antibiotic Resistance Profile and Biofilm Formation in Staphylococci Isolated from Surfaces of Public Transport	
11	Muhammad Usman	Screening of Antibiotic Resistance Genes in <i>E. coli</i> from Top Soil	2022
12	Ayesha Mazhar	Comparison of Antibiotic Resistance of <i>E. coli</i> from Clinical and Non-clinical Settings	2022
13	Rida Toufiq	Assessment of Antibiotic Resistance and Biofilm Formation of Staphylococcus isolated from Environment	2022
14	Menahil Mubashar	Screening of Antibiotic Resistant Bacteria and Genes in Kitchen Sponges and Drinking Water Samples from Rawalpindi and Islamabad	2022
15	Hadeeqa Hamid Bhatti	Prevalence of Antibiotic Resistant Bacteria in Dairy and Non-dairy Food Samples	2022
16	Muhammad Nauman Kabir	Detection of Antibiotic Resistance and Virulence Genes in Enterobacteriaceae isolated from Human Fecal Samples	2022
17	Muryyum Dilshad	<i>In vitro</i> Infectivity and Cytotoxicity Analysis of <i>Brucella abortus</i> in Vero Cells	2021
18	Sumbal Zaheen	Investigation of Antibiotic Resistance Markers from Clinical and Non-Clinical Isolates	2021
19	Muhammad Haseeb Ali Tariq	Capsular Serotyping and Detection of <i>Omp</i> Genes in <i>Pasteurella multocida</i> Isolated from Dairy Animals of Different Regions of Punjab, Pakistan	2021
20	Anam Shanal Atta	Antibiograms and Molecular Characterization of Enterobacteriaceae Isolated from gut microbiota of mothers and neonates	2019
21	Meh Rokhshan	Isolation and Characterization of Methicillin Resistant <i>Staphylococcus aureus</i> (MRSA) circulating in peri urban dairy farms in Islamabad Region	2019
22	Yasin Ahmed	Isolation, Antimicrobial Susceptibility Profiling and Molecular Characterization of Salmonella spp. Isolated from Poultry in Peshawar Region	2019
23	Summayya Kanwal	PCR Based Screening of Periodontal Pathogens in Fasting	2019



		and Non-fasting Oral Health Care Providers	
24	Adil Muhammad	Staphylococcal Cassette Chromosome-mec (SCC-mec) Typing, Antibigrams and virulence factors of <i>Staphylococcus aureus</i> causing neonatal sepsis	2018
25	Mati Ullah	Study of <i>bla</i> <sub>AmpC</sub> and Aminoglycosides Resistance Genes in <i>Enterobacteriaceae</i> isolated from Fecal Matter of Local Birds in Islamabad	2018
26	Sumair Khan	Association of Quinolones and Fluoroquinolone resistance genes with ESBLs producing <i>Enterobacteriaceae</i> isolated from fecal matter of local birds in Islamabad	2018
27	Madiha Imtiaz	Prevalence of <i>bla</i> <sub>CTX-M</sub> and <i>qnr</i> genes in Multi-Drug Resistant <i>E. coli</i> isolated from sewage water	2018
28	Muhammad Adeel Husnain	Investigations of Culturable Bacterial Isolates from Antral Gastric Biopsies and Endoscopic Equipment	2018
29	Syed Najeeb Ullah	Assessment of Resistance Profiles of Bacteria causing Neonatal Sepsis and Association with Maternal and Neonatal Risk Factors in Patients from Bhara Kahu region	2018
30	Attiquallah	Molecular Analysis and Efficacy of Current Antiviral Regimens of Hepatitis C Virus	2017
31	Hira Iqbal	Analysis of Antibiotic Resistance and Virulence Factors in Coagulase Negative Staphylococci from a Tertiary Care Hospital, Islamabad	2017
32	Asad Ali	Staphylococcal Cassette Chromosome-mec (SCC-mec) Typing and Antibiotic Resistance Profiles of Methicillin Resistant <i>Staphylococcus aureus</i> from a Tertiary Care Hospital, Islamabad	2017
33	Shermeen Akif	Prevalence, Antibiotic Resistance Profiles and Virulence Factors of <i>Staphylococci</i> isolated from Neonates	2017
34	Muhammad Hilal Jan	Assessment of maternal and neonatal risk factors associated with Neonatal Sepsis: a Case Control Study	2017
35	Hamna Sadaf	Prevalence of hemolysins and Panton-Valentine Leukocidin encoding genes in clinical <i>Staphylococcus</i> isolates collected from a tertiary care hospital, Islamabad	2017
36	Muhammad Faraz	Analysis of Risk Factors, Histopathological Grades and Eradication Therapies against <i>Helicobacter pylori</i> among Symptomatic Patients	2017
37	Tahira Yasmeen	Assessment of Burden of Antimicrobial Resistance in Early and Late Neonatal Septic Cases at Pakistan Institute of Medical Sciences (PIMS), Islamabad	2016
38	Shahid Aziz	Investigation of Eradication Therapies against Hepatitis C Virus, their Side Effects and Possible Routes of Transmission	2016
39	Sidra Riaz	Antibacterial Activity of Zinc and Chromium Nanoparticles against Multi-Drug Resistant Bacteria	2016
40	Madeeha Gohar	Prevalence and Characterization of Livestock Associated-Methicillin-Resistant <i>Staphylococcus aureus</i> (LA-MRSA) Isolated from Retail Meat in District Haripur	2016

41	Tahir Rasheed	Standardization of qRT-PCR for detection and quantification of Peste Des Petitis Ruminant virus (PPRV) from 2013-2015 outbreaks in Pakistan	2016
42	Sidra Maryam	Standardization of Loop Mediated Isothermal Amplification Process (LAMP) for serotyping of Foot and Mouth Disease Virus	2016
43	Saba Javeed	A study of the variation of <i>E. coli</i> sequence types moderated by bacteriophages in environmental sewage samples from city of Islamabad	2016
44	Bibi Malala	A study of association of antibiotic resistance genes with successful sequence types of <i>E. coli</i> in environment	2016
45	Afaq Mahmood	Isolation and Characterization of Bacteriophages against Multi-drug Resistant <i>Acinetobacter baumannii</i> Clinical Isolates	2015
46	Madiha Abid	Assessment of Hypervariable Region (HVR) of <i>mecA</i> Gene of Clinical <i>Staphylococcus aureus</i> Isolates	2015
47	Mansab Ali Saleemi	Impact of Carbapenem Resistance on Outcomes of Carbapenem Resistant <i>Enterobacteriaceae</i> (CRE) Bloodstream Infections	2015
48	Hameed-ur-Rehman	Detection of carbapenem resistance genes in Gram negative bacteria disseminated through wild birds in environment	2015
49	Zeeshan Umar	Analysis of phase variable genes <i>pldA</i> and <i>lex2B</i> in clinical <i>Helicobacter pylori</i> isolates	2015
50	Shahid Ali	Molecular Investigation of Simple Sequence Repeats in phase variable genes of clinical <i>Helicobacter pylori</i> isolates	2015
51	Afshan Ahmed	Comparison of field and vaccinal Foot and Mouth Disease Virus strains using Serum Neutralization assay	2015
52	Jahanzaib Farooq	Prevalence of Vancomycin and Inducible Clindamycin resistance in Staphylococci spp. isolates	2014
53	Neeraj Kumar	Association of Virulence factors with Phylogenetic groups of <i>E. coli</i> isolated from urinary tract infections in a tertiary care hospital, Badin	2014
54	Flora Farrukh	Prevalence of acquired carbapenamases among Gram negative bacteria causing neonatal sepsis	2014
55	Zahra Jabeen	Distribution of Phylogenetic groups of <i>Escherichia coli</i> causing symptomatic and asymptomatic Urinary tract infections	2014
56	Hafsa Khalil	Determination of biogenic amines in <i>Geotrichum candidum</i> and <i>Enterococcus spp.</i>	2014
57	Nafisa Bint Farid	Dissemination of antibiotic resistant bacteria in the environment	2014
58	Haseeb Sattar	Multi-drug resistant phenotypes of Gram negative bacteria in two Tertiary care hospitals	2014
59	Abdus Samad	Biofilm formation in Clinical and Environmental Isolates of <i>Pseudomonas aeruginosa</i>	2013

60	Ribqa Akhtar	A retrospective study of prevalence of Dengue Virus genotypes in different cities of Pakistan	2013
61	Nayab Mehmood	Molecular detection of Influenza B lineages in respiratory samples from different hospitals of Pakistan	2013
62	Aatka Jamil	A study of humoral immune response in buffalo calves following various Foot and Mouth disease vaccines	2013
63	Saqib-ud-Din	Isolation and molecular characterization of tetracycline resistant organisms associated with dental caries	2013
64	Naila Altaf	Staphylococcal Interspersed Repeat Unit (SIRU) typing of <i>Staphylococcus aureus</i> isolates	2013
65	Adam Sher Khan	Evaluation of antimicrobial activity of natural products against <i>bla</i> <sub>NDM-1</sub> carrying clinical isolates	2013
66	Amir Afzal Khan	Plasmid profile analysis of NDM-1 positive isolates from clinical and environmental settings	2013
67	Sana Rehman	Molecular detection of <i>bla</i> <sub>NDM-1</sub> gene in bacteria causing urinary tract infections	2012
68	Tayyeba Saba	Biofilm formation and quorum sensing in <i>Staphylococcus aureus</i>	2012
69	Muhammad Usman Qamar	Assessment and molecular identification of NDM-1 positive microorganisms causing infection in children	2012
70	Mehnaz Akram	Genetic analysis of <i>Helicobacter pylori</i> genes in dental plaques of symptomatic patients	2012
71	Khalida Perveen	Analysis of Carbapenem resistance genes in Multidrug-Resistant <i>Acinetobacter</i> from a tertiary care hospital	2012
72	Sadia Khan	Prevalence of <i>agr</i> specific groups of methicillin resistant <i>Staphylococcus aureus</i> (MRSA) in a tertiary care hospital	2012
73	Tawaf Ali Shah	Molecular analysis of water for the presence of metallo- $\beta$ -lactamase <i>bla</i> <sub>NDM-1</sub> gene containing microorganisms	2012
74	Fouzia Nahid	A Molecular Study for the identification of metallo- $\beta$ -lactamase <i>bla</i> <sub>NDM-1</sub> gene in Gram negative clinical isolates	2012

### BS research students supervised

S. No.	Student's Name	Report title	Year
1	Sameen Fatima	Biochemical Profiling and Antibiotic Susceptibility of Bacteria Isolates from Labor Room Surfaces of Hospital, Insights into Antibiotic Resistance	2024
2	Iqra Zeb Syed	Identification of Gram-Negative Urinary Pathogens via biochemical tests & Analysis of Relative Biofilm Formation Index of Klebsiella spp. and Pseudomonas spp.	2024
3	Nimra Mohsin	Biochemical Characterization and Antibiotic Resistance Profiling of Bacterial Isolates from Maternity Unit Environmental Surfaces	2024
4	Ayra Adeel Sair	Identification of Gram-negative Bacteria Isolated from Patients of Blood Sepsis	2024

5	Kashifa Akbar	Biochemical Identification and Characterization of Gram-Negative Isolates from Lower Respiratory Tract	2024
6	Aneeza Waheed	Biochemical Identification of Antibiotic Resistant Gram Negative Bacteria Isolated form Neonatal Fecal Samples	2024
7	Saman Naeem	Characterization of Gram-Positive Isolates from Neonatal Fecal Samples: Antibiotic Susceptibility Profiling and Biochemical Identification	2024
8	Ali Riazzudin	Identification and Antimicrobial Susceptibility Testing of Colistin-Resistant Bacteria Isolated from Fish Seed Hatcheries	2023
9	Syeda Ayesha Mubashar	Identification and Antimicrobial Sensitivity Testing of Oxytetracycline Resistant Isolates from Fish Seed Hatcheries	2023
10	Duaa Batool	Identification and Antimicrobial Sensitivity Testing of Meropenem Resistant Isolates from Fish Seed Hatcheries	2023
11	Faria Batool Jafari	Biochemical characterization of ciprofloxacin resistant isolates and resistance patterns of Colistin-resistant bacteria from currency notes	2023
12	Ayesha Asif	Identification and Antibiotic Susceptibility Testing of Colistin Resistant Bacteria Isolated from Currency Notes	2023
13	Kashif Nawaz	Identification of Meropenem Resistant Isolates and Antibiotic Susceptibility Testing of Colistin Resistant Bacteria Isolated from Currency Notes	2023
14	Iqra Javed	Prevalence of antibiotic resistance and biofilm formation capacity of Staphylococcus spp. isolated from raw and processed dairy samples	2022
15	Ayesha Shoaib	Prevalence of Antibiotic Resistance and Biofilm Formation Potential of Staphylococci spp. from Kitchen Sponges and Drinking Water	2022
16	Muhammad Mubashar Noor	Determining the Prevalence of Antibiotic Resistance and Biofilm Forming Potential of Staphylococci spp. from Wastewater and Freshwater Sources	2022
17	Aimen Taj	Prevalence of Antibiotic Resistance and Biofilm formation capacity of Staphylococci spp. isolated from Raw and Processed Meat Samples	2022
18	Eman Rashid	Molecular Screening of Extended Spectrum Beta-lactamases in Gram-negative Rods	2021
19	Umme Habiba Saeeda	Molecular Screening of Metallo-Beta-lactamase Genes Conferring Resistance against Carbapenems in Gram-negative Rods	2021
20	Muhammad Ismail Shah	Association of virulence factors with phylogenetic groups of E. coli isolated from the sewage water samples	2020
21	Zainab Raheem		2020
22	Hadeeqa Hamid Bhatti		2020

## **Honors and awards:**

2022 – 2023	Best Performance Award, QAU
2016 – 2017	Commonwealth Academic Staff Fellowship, Commonwealth Scholarship Commission, UK
2015	Travel grant (5,595 GBP), UK-Researcher Links, British Council, UK
2012	Travel grant (PKR 205,045), Higher Education Commission, Pakistan
2010	Mentor, EYH conference, University of San Diego, California, USA
2009	Presider, Sumer research conference, University of California-San Diego, USA
2006	Honor Fell Travel Award (300£), British Society of Cell Biology, UK
2005	Finalist in Biotechnology YES competition, UK
2003	Commonwealth Scholarship for Ph.D., UK
2002	Gold Medal, First class first position, M.Sc. Biotechnology, Pakistan
2002	Certificate of Merit, University of Karachi, Pakistan
1999	Certificate of Merit, University of Punjab, Pakistan

## **Administrative /Community Work**

- Member Academic Council, QAU (2011-2014) and (2021 – present)
- Member Board of Studies, Department of Microbiology, QAU – 2015 to present
- Member Board of Faculty, Faculty of Biological Sciences, QAU – 2015 to present
- Member Board of Faculty, Faculty of Social Sciences, QAU – 2024 to present
- Member Departmental Tenure Review Committee (DTRC), QAU – 2020 to present
- Member Committee to evaluate equivalence of USEFP Global UGRAD Program, QAU – 2023 to present
- Secretary Board of Studies (BOS), Department of Microbiology, QAU – 2023
- Panelist for selection of IRSIP candidates, HEC – 2022 to 2023
- Expert, Consultative meeting for the Fleming Fund – 2023
- Executive Member Academic Staff Association, QAU (2012-2013 and 2020 – 2021)
- Incharge Non-teaching staff, Department of Microbiology, QAU (2012-2013)
- Member MPhil admission committee, Department of Microbiology, QAU – Fall 2012, Fall 2017, Fall 2024
- Member PhD admission committee, Department of Microbiology, QAU – Fall 2012, Fall 2016, Fall 2023
- Member MSc Admission Committee, Department of Microbiology, QAU – Spring 2016
- After getting Master-Trainer certification from Higher Education Commission in 2012, organized and participated in teachers' training workshops of Microteaching, Professional Competency Enhancement Program for Teachers, and Communication Skills.
- Organized a free Competent (English) Language Use Essentials (CLUE) course for MSc students (Spring semester 2012)
- Organized 30 hrs French language course in collaboration with Alliance Francaise, Islamabad for research students and teachers (Summer break 2012)
- Participated in National curriculum review committee of HEC for Microbiology curriculum for undergraduates (Fall 2012)
- Course coordinator, Department of Microbiology, QAU (Spring semester 2015)
- Member Biosafety Committee, Department of Microbiology, QAU - 2017
- Member Graduate Affairs Committee, Department of Microbiology, QAU
- Student Advisor, Department of Microbiology, QAU (Spring 2020)

- Reviewer of research projects for Higher Education Commission (HEC) and Pakistan Science Foundation (PSF)
- Served as Reviewer for scientific journals and PhD and MS theses of different universities

### Conferences/Workshops/Meetings

S. No.	Conference/Workshop Title	Organizer	Location	Date	Sponsoring Agency
1	Final meeting of EMBARK Project	EMBARK project	Paris, France	April 3 – 6, 2023	IDRC
2	Strengthening Cooperation in Traditional Medicine and Allied Biomedical Sciences in OIC Member States	COMSTECH Secretariat	Islamabad	April 27, 2023	COMSTECH
3	Speaker at International Seminar on Infection Related Features of Microorganisms	COMSTECH Secretariat	Islamabad	June 5, 2023	COMSTECH
4	Speaker at ANSO-PAS-MAAP Conference 2023	Pakistan Academy of Sciences	Islamabad	October 16 – 18, 2023	Pakistan Academy of Sciences
5	World Antimicrobial Awareness Week and World Fisheries Day 2023	QAU	Islamabad	November 2023	IDRC
6	Keynote talk at 14 <sup>th</sup> Biennial Conference of Pakistan Society for Microbiology (PSM)	Salim Habib University	Karachi	November 22 – 24, 2023	IDRC
7	Keynote talk at 1 <sup>st</sup> International Conference on Challenges and Innovations in Medical Laboratory Sciences	University of Haripur	Haripur	November 29 – December 1, 2023	IDRC
8	Speaker at International Workshop on Bridging the Gap: Enhancing Biosafety and Biosecurity Regimes for a Secure Future	COMSTECH Secretariat	Islamabad	December 3 – 4, 2023	COMSTECH
9	National Dialogue on AMR_A Global Challenge	NUST	Islamabad	December 16, 2023	FAO
10	Consultative Meeting for Deliberations on National Surveillance Strategy for Antimicrobial Resistance in Food Animal Environment	Ministry of National Food Security and research	Islamabad	19 May 2022	The Fleming Fund
11	Resource Person for STEM Teachers Capacity Building	ORIC, QAU	Islamabad	22 – 26 August	British Council

	Training Workshop			2022	
12	Awareness Symposium on World Sepsis Day	Quaid-i-Azam University	Islamabad	13 September 2022	Ineos Oxford Institute, Oxford University
13	Poster presenter at 6 <sup>th</sup> conference on the Environmental Dimension of Antibiotic Resistance – EDAR6	University of Gothenburg	Gothenburg, Sweden	22 – 27 September, 2022	IDRC
14	Autumn Meeting of EMBARK	Chalmers University of Technology	Gothenburg, Sweden	28 – 30 September 2022	IDRC
15	EMBARK webinar series	University of Gothenburg, Sweden	Online	June 9, 2021	Project EMBARK
16	3 <sup>rd</sup> International Conference on Environment & Sustainable Development	Sustainable Development Study Centre, GC University, Lahore	Hybrid Mode (Online)	September 13-15, 2021	Govt. College University, Lahore
17	World Antimicrobial Awareness Week (WAAW) 2022 Symposium and Poster Competition	Dept. of Microbiology, QAU	Dept. of Microbiology, QAU	November 22, 2021	Office of Research Innovation and Commercialization (ORIC) QAU
18	Organized workshop on 'Basic Bioinformatics Tools for Genomic Analysis'	Dept. of Microbiology, QAU	QAU, Islamabad	November 2019	Higher Education Commission
19	Participated in International Symposium on Global Biodiversity and Health Big Data	Dept. of Bioinformatics, QAU	COMSTECH	July 18, 2019	COMSTECH
20	Attended the Training Program about Molecular Diagnosis and Pathogen Determination Techniques for Emerging and Reemerging Infectious Disease by China CDC	China CDC ModPad	NIH, Islamabad	July, 2019	China CDC
21	Participated in Brainstorming Workshop for the Development of National Policy on Biotechnology	ASAB, NUST	NUST, Islamabad	October 18, 2018	National University of Science and Technology
22	Participated in BARNARDS Work related training	Cardiff University, UK	Cardiff, UK	August 6 – 31, 2018	Bill and Melinda Gates Foundation

23	Seminar on Gaps and Challenges in Antimicrobial Resistance: A Pakistani Perspective	Paris 7 University	Paris, France	December 11-15, 2017	Campus France and Higher Education Commission
24	Invited seminar at Antibiotic Awareness Week Symposium	National University of Medical Sciences	Rawalpindi, Pakistan	November 17, 2017	National University of Medical Sciences
25	Organized the seminar on The Intestinal Microbiota and Antibiotic Resistance: Challenges and Opportunities	QAU, Islamabad	QAU, Islamabad	November 2, 2017	HEC and Campus France
26	Presented at final meeting of Burden of Antibiotic Resistance in Neonates (BARNARDS)	Bill & Melinda Gates Foundation	Seattle, USA	October 10, 2017	Bill and Melinda Gates Foundation
27	Presented at second workshop/meeting of Burden of Antibiotic Resistance in Neonates (BARNARDS)	Cardiff University and Bill & Melinda Gates Foundation	Kigali, Rwanda	May 8-12, 2017	Bill and Melinda Gates Foundation
28	Poster presentation at 2017 British Society of Antimicrobial and Chemotherapy Spring Conference	British Society of Antimicrobial and Chemotherapy	London, United Kingdom	March 41, 2017	British Society of Antimicrobial and Chemotherapy
29	Invited Seminar at BristolBridge Seminar Series	Bristol University	Bristol, United Kingdom	January 26, 2017	BristolBridge – Bristol University
30	Participated in Antibiotic Resistance and Mechanisms Workshop	British Society of Antimicrobial and Chemotherapy	Birmingham, UK	November 24-25, 2016	Commonwealth Scholarship Commission
31	Presented at first workshop/meeting of Burden of Antibiotic Resistance in Neonates (BARNARDS)	Cardiff University and Gates Foundation	Cape Town, South Africa	May 16-18, 2016	Bill and Melinda Gates Foundation
32	Participated in 2 <sup>nd</sup> Workshop on “National Policy for Antimicrobial Resistance Containment”	Ministry of National Health Services, Pakistan	Islamabad, Pakistan	April 28-29, 2016	Ministry of National Health Services, Pakistan
33	Participated in 13 <sup>th</sup> Medical Microbiology and Infectious Disease Society	Medical Microbiology and Infectious	Lahore, Pakistan	March 25-26, 2016	Medical Microbiology and Infectious Disease Society of Pakistan



	of Pakistan (MMIDSP) Conference	Disease Society of Pakistan			
34	Participated in Welsh Antimicrobial Resistance Symposium	Life Science Research Network	Cardiff University	July 16, 2015	British Council
35	Poster presentation at 15 <sup>th</sup> Asia-Pacific Congress of Clinical Microbiology and Infection (15 <sup>th</sup> APCCMI)	Malaysian Society of Infectious Diseases and Chemotherapy	Kuala Lumpur, Malaysia	Nov 26-29, 2014	APSIC, BD, Pfizer, Bruker, and many more
36	Participated in International Symposium on "Hepatitis B Virus: Emergence and Surveillance"	Atta-ur-Rehman School of Biosciences (ASAB), NUST	ASAB, NUST	April 2, 2013	Higher Education Commission (HEC)
37	Oral and poster presentations at 13 <sup>th</sup> Asia-Pacific Congress of Clinical Microbiology and Infection (13 <sup>th</sup> APCCMI)	Society of Infectious Diseases, Chinese Medical Association	Beijing, China	Oct 25-28, 2012	GSK, MSD, BD, Roche, Abbott, Pfizer and many more
38	Resource person for 4 sessions during 3 Days Training Workshop on Communication Skills	Dept. of Linguistics, QAU	QAU	Sep 19-21, 2012	QAU
39	Resource person for 1 session at Mini Symposium on Genetic polymorphisms, drug delivery systems and new therapeutic approaches for complex diseases	Dept. of Animal Sciences, QAU	QAU	July 19-20, 2012	HEC & QAU
40	Assistant coordinator of Professional Competency Enhancement Program for Teachers (PCEPT)	Dept. of Biochemistry, QAU	QAU	June 11- July 6, 2012	HEC
41	Organized the 3 Days Training Workshop on Microteaching under Faculty Professional Development Program of LID, HEC	Dept. of Microbiology, QAU	QAU	May 22-24, 2012	QAU
42	Participated in One Day International Seminar on Wastewater Treatment and its Reuse	Dept. of Microbiology, QAU	QAU	May 17, 2012	HEC
43	Participated in National	Pakistan	Arid Air	Jan 10-12,	Pakistan Science

	Science Conference – Roadmap of cutting Edge Technologies	Science Academy	Agriculture University	2012	Academy, HEC
44	Participated in 17 <sup>th</sup> Master-Trainers Faculty Professional Development Program	HEC	Learning Innovation Division (LID), HEC, Pakistan	Dec 28, 2011 – Feb 24, 2012	HEC
45	Participated in 1 <sup>st</sup> Annual HCV Management Symposium	National University of Science and Technology	NCVI, NUST	10 <sup>th</sup> -11 <sup>th</sup> Feb, 2011	National University of Science and Technology (NUST)
46	Participated in The annual meeting of The Society for Neuroscience	The Society for Neuroscience	San Diego, USA	Nov 13-17, 2010	The Society for Neuroscience
47	Mentor at Expand Your Horizon (EYH) 2010 Conference	Expand Your Horizon (EYH) Network	University of San Diego, USA	March 6, 2010	Expand Your Horizon (EYH) Network
48	Presider at UCSD Summer Research Conference	University of California-San Diego	University of California-San Diego	August 13, 2009	University of California-San Diego
49	Participated in Keystone Symposia on “Mitochondrial Dynamics and Physiology (X6)” and “Cell Death Pathways (X5)”	Janet M. Shaw and David C. Chan	Whistler, Canada	March 22-27, 2009	The Directors’ Fund
50	Platform talk at The annual meeting of The American Society of Human Genetics	The American Society of Human Genetics	Philadelphia, USA	Nov 11-15, 2008	The American Society of Human Genetics
51	Platform talk at 5 <sup>th</sup> International Conference on Unstable Microsatellites and Human Disease	Christopher E. Pearson, Laura Ranum, Albert R. La Spada,	Granada, Spain	Nov 11-16, 2006	NIH and National Institute of Neurological Disorders and Stroke
52	Participated in Edinburgh Local GRADschool	The University of Edinburgh	Edinburgh, UK	July 24-27, 2006	The University of Edinburgh
53	Oral presentation at Erling Seeberg Symposium on DNA repair	Centre for Molecular Biology and Neuroscience	Bodo and Henningsvaer, Lofoten, Norway	May 28 – June 2, 2006	Oslo University
54	Oral presentation at Genome Stability Network meeting	University of Cambridge, UK	Cambridge, UK	January 2006	Cancer Research UK, University of Cambridge
55	Poster presentation at Society for General Microbiology 159 <sup>th</sup> meeting	Society for General Microbiology	York, UK	Sep 11-14, 2006	Society for General Microbiology
56	Poster presentation at 12 <sup>th</sup> Tenovus - Scotland	University of Glasgow	Glasgow, UK	April 6-7, 2006	University of Glasgow

	Symposium – Stability and Regulation of Genes and Genomes				
57	Poster presentation at Genetics Society Annual Meeting	Genetics Society	Warwick, UK	2006	Genetics Society