

# AIMEN SHAHID

Rawalpindi, Pakistan

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## PROFESSIONAL SUMMARY

I hold a First Class B.S. in Biology and an M.S. in Molecular Genetics, and I am currently working as a Research Assistant at the Multidisciplinary Laboratory, Shifa Tameer-e-Millat University, a research-driven facility supporting biomedical and clinical studies. I have hands-on expertise in molecular biology techniques, including DNA/RNA extraction, qPCR, and ELISA, with a strong focus on accuracy, reproducibility, and adherence to biosafety and ethical standards. In addition, I have teaching experience in Human Genetics, Molecular Biology, Biochemistry, and Physiology at O/A Level and undergraduate levels, with strong skills in simplifying complex concepts, delivering student-centered instruction, and effectively linking theoretical knowledge with practical applications.

## EDUCATION

- 2024 – 2025

M.S. Molecular Genetics

COMSATS University Islamabad

Advisor: Dr. Muhammad Jawad Khan

Thesis Title: Expression Analysis of miRNAs in Autism Spectrum Disorder Patients of Pakistan
- 2019 – 2023

B.S. Biology, First Class Honors

International Islamic University Islamabad

Advisor: Dr. Nyla Jabeen

Thesis Title: Antimicrobial Activity of Ethanolic Extracts of Lemon Peel, Clove and Cinnamon against *Pseudomonas Aeruginosa*

## RESEARCH EXPERIENCE

- 2025

**Research Student**

Principal Investigator: Dr. Muhammad Jawad Khan, COMSATS University

Summary: Although numerous studies have explored the genetic basis of autism spectrum disorder (ASD), few have integrated oxidative stress markers and microRNA profiling in South Asian populations. In this project, I combined bioinformatics prediction (miRDB), microarray-based DEG analysis, and laboratory validation (RT-PCR, ELISA) to investigate miRNA and glutathione-related oxidative stress in Pakistani children with ASD.

Duties: As an individual researcher, I assisted in collecting blood samples from ASD patients and processed samples, performed RNA extraction, and conducted gene expression analysis using real- time PCR. I performed bioinformatics analysis with miRDB to predict miRNA targets from microarray-derived DEGs and performed ELISA assays to assess glutathione-related oxidative stress. Throughout my research, I ensured proper disposal of biological waste in accordance with environmental safety guidelines and institutional biosafety regulations
- 2023

**Research Student**

Principal Investigator: Dr. Nyla Jabeen, International Islamic University

Summary: Although natural products are known for their medicinal properties, their potential to combat antibiotic-resistant pathogens remains

underexplored. In this project, I prepared ethanolic extracts and conducted phytochemical screening to identify bioactive compounds, followed by antimicrobial assays to evaluate activity against resistant strains using standardized bacterial suspensions and inhibition zone measurements.

Duties: As a research student, I prepared ethanolic extracts of natural products, conducted phytochemical screening to identify bioactive compounds, and created bacterial suspensions following the 0.5 McFarland standard. I evaluated antimicrobial activity through inhibition zone measurements using standard antimicrobial assay techniques to address antibiotic resistance. Throughout my research, I followed laboratory protocols consistent with environmental protection and biohazard safety measures, supporting clean laboratory practices and sustainable experimentation.

CONFERENCE PRESENTATIONS

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| 2025 | <b>Oral Presenter</b><br>Anti-Microbial Resistance Awareness Session, Shifa Tameer-e-Millat University<br><u>Title:</u> Case-Based Learning: Understanding Antimicrobial Resistance (AMR) Through a Real Patient Scenario              |
| 2023 | <b>Oral Presenter</b><br>Research & Development in Biology, International Islamic University<br><u>Title:</u> Genetically Modified Thermogenic Plants to serve as Domestic Bio-Heaters                                                 |
| 2023 | <b>Poster Presenter</b><br>Functional Genomics Society, COMSATS University<br><u>Title:</u> Complete Mechanism of Gene Regulation & Expression in Animal Sciences<br><u>Title:</u> Computational Approaches to Analyze Gene Expression |

PUBLICATIONS

Shahid, A., Ahmad, U. *Molecular Mechanisms of FDA-Approved Drugs for the Treatment of Alzheimer’s Disease: A Comprehensive Review*. Molecular Medicine Communications. 2025.  
<https://doi.org/10.55627/mmc.005.01.01795>

Shahid, A., Amin, M. *Contemporary Cardiac Rehabilitation: Evolution of Approaches and Remaining Challenges*. Rehabilitation Communications. 2025. <https://doi.org/10.55627/rehab.004.002.1881>

RELEVANT SKILLS

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| <u>Laboratory:</u>   | DNA and RNA extraction, PCR and RT-qPCR, Agarose gel electrophoresis, centrifugation, homogenization, cDNA synthesis, primer designing and optimization, ELISA, Phytochemical Screening                             |
| <u>Coordination:</u> | Accurate data recording and Institutional Review Board (IRB) documentation, sample tracking, protocol compliance, coordination of laboratory workflows, ensuring ethical standards and patient-data confidentiality |
| <u>Analysis:</u>     | Statistical analysis (SPSS, Excel, JAMOVl)                                                                                                                                                                          |
| <u>Writing:</u>      | Endnote and Mendeley                                                                                                                                                                                                |
| <u>Languages:</u>    | English                                                                                                                                                                                                             |

PROFESSIONAL EXPERIENCE

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| 2025 – Pres. | <p><b>Research Assistant</b></p> <p>Multidisciplinary Lab, Shifa Tameer-e-Millat University Islamabad</p> <p><u>Duties:</u> As a Research Assistant, I conduct laboratory experiments for basic medical sciences projects, including gene expression analysis, and perform in-silico auto-docking studies to evaluate drug-receptor compatibility. I guide undergraduate Pharm-D students, analyze and document results for ongoing projects, and review manuscripts submitted to the university journal while managing tasks related to my PI’s journal. My responsibilities include handling laboratory documentation, addressing queries and requisitions, and reporting data accurately to the PI. Additionally, I am an active member of the university’s ORIC team, where I am engaged in organizing and participating in faculty training sessions, seminars, and workshops such as ISO 9001:2015, Healthcare Technology, Patent Filing.</p> |
| 2025         | <p><b>Research Internee</b></p> <p>Biochemistry Lab, Shifa College of Medicine</p> <p><u>Duties:</u> As a Research Internee, I collaborated with laboratory and clinical teams to support the design and execution of research studies. I was actively involved in sample collection and processing, including coordinating and conducting visits to Shifa International Hospital for patient sampling. I assisted in handling and maintaining IRB documentation, ensuring compliance with ethical and regulatory requirements. My responsibilities also included accurate data recording, adherence to biosafety protocols, and maintaining organized research records. I contributed to data analysis and interpretation to support research outcomes and potential publications, while facilitating coordination among team members to ensure timely completion of study activities.</p>                                                         |

WORKSHOPS ATTENDED

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|------|-------------------------------------------------------------------------------------------------------------|
| 2025 | Challenges and Solutions in Genomic Practice in Low and Middle-Income Countries, Shifa College of Medicine. |
| 2024 | Applications of OMICS Technologies in Health and Disease, University of Glasgow.                            |
| 2022 | Bioethics and Biosafety, Pakistan Biological Safety Association.                                            |
| 2022 | Cell and Tissue Culture Techniques, Applied Biotechnology and Genetic Engineering Laboratory Islamabad.     |

TEACHING EXPERIENCE

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| 2025        | O/A level Biology & Undergraduate Biochemistry, Genetics, Physiology<br>Zohaib Asad Academies, Online / International, 20 students. |
| 2023 – 2024 | Science Lab Head and Teacher.<br>The Smart School, Rawalpindi, 45 students.                                                         |

LEADERSHIP SERVICE

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| 2025 | <p>Graduate Three Day Protein Function and Design Symposium, Organizer, COMSATS University</p> <p><u>Duties:</u> As organizer, I managed all aspects of coordination, including reviewing presentations, assisting the host, checking entries, and overseeing seating arrangements. I also handled sending invitations to external guests and ensured an inclusive and welcoming environment for all participants.</p> |
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CERTIFICATIONS

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|------|----------------------------------------------------|
| 2026 | One Day Hands-On Workshop on SPSS                  |
| 2026 | One Day Hands-On Workshop on Python                |
| 2025 | Antimicrobial Resistance Awareness Event Presenter |

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| 2025 | Clinical Biochemical Genetics                                     |
| 2025 | International Symposium on Advances in Protein Function Organizer |
| 2024 | English Reading and Listening Certificate                         |
| 2022 | One Day Hands-on Training on Bioethics and Biosafety              |
| 2021 | MS Office Advance                                                 |

**SCIENTIFIC SOCITIES**

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| 2025 | Member, STEM for Development, U.S. based non-profit organization<br><u>Advisor:</u> Dr. Daniel Schwab<br><u>Duties:</u> As a member, I engage in global scientific communication and academic networking. I attended workshops on graduate scholarships, admissions, and academic development, and I have voluntarily mentored undergraduate students in CV and SoP writing. |
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**PRIMARY CONTACT**

Master’s Research Supervisor  
Dr. Muhammad Jawad Khan  
jawadkhan@comsats.edu.pk  
Department of Biosciences, COMSATS University Islamabad.