

MUHAMMAD ZAIN UL ABIDEEN

Medical Laboratory Scientist | Computational Biomedical Researcher

Rajanpur, Pakistan | +92 330 2361100 | zkchantagga@gmail.com

ORCID: 0009-0004-1508-3088

PROFESSIONAL PROFILE

Medical Laboratory Science graduate (BMLS, University of Lahore, 2026) with hands-on diagnostic experience in hematology, clinical chemistry, microbiology and urinalysis, combined with research training in computational structural biology. Completed a final-year thesis applying molecular docking, density functional theory and molecular dynamics to the human neurokinin-1 receptor (NK1R) for anxiety and stress disorders, and co-authored a peer-reviewed review article. Seeking a fully funded Master's programme or research placement in neuroscience, neuropharmacology, molecular medicine or biomedical sciences, where laboratory diagnostics, computational modelling and experimental validation can be brought together.

EDUCATION

Bachelor of Medical Laboratory Science (BMLS) 2021 to June 2026

University Institute of Medical Laboratory Technology, The University of Lahore, Lahore, Pakistan

- Final-year thesis (2025 to 2026): In Silico Molecular Docking and Dynamics Simulation of Gut-Derived Postbiotic Metabolites Against Human Neurokinin-1 Receptor (NK1R) for Potential Therapeutic Modulation of Anxiety and Stress Disorders.
- Coursework includes Advances in Molecular Biology and Bioinformatics, Molecular Biology and Genetics, Advances in Immunology, Advances in Chemical Pathology, Research Methodology, Biostatistics, Scientific Writing and Epidemiology and Public Health.
- Ten semesters of clinical laboratory rotations and research (Clinical Microbiology, Hematology and Blood Banking, Clinical Chemistry and Histopathology, Molecular Biology).
- Programme duration: five years, 173 credit hours.

Diploma in Business Administration

February 2022

National Institute of Management Sciences (NIMS), Lahore, Pakistan

Intermediate (Pre-Medical)

2020

Board of Intermediate and Secondary Education, Larkana, Pakistan

RESEARCH EXPERIENCE

Final-Year Thesis Researcher, Computational Pharmacology

2025 to 2026

University Institute of Medical Laboratory Technology, The University of Lahore

- Designed and carried out an in silico study of gut microbial (postbiotic) metabolites as potential modulators of the human neurokinin-1 receptor, a target in stress and anxiety biology.
- Docked 52 gut-derived metabolites and four approved NK1R antagonists (aprepitant, fosaprepitant, rolapitant, netupitant) into the orthosteric pocket of the receptor (PDB 6HLO) using AutoDock Vina.
- Identified urolithin B and a benzofuran-2-one derivative as lead computational candidates with favourable docking scores, reference-like hydrophobic contacts, predicted blood-brain barrier permeability and low predicted toxicity.
- Screened drug-likeness and toxicity with SwissADME and ProTox. Applied density functional theory to the reference antagonists and ran 100 ns molecular dynamics simulations of three antagonist-receptor complexes with MM-PBSA and MM-GBSA free-energy estimation.
- Prepared the results as a full research manuscript with structured figures and tables, formatted for journal submission.

PUBLICATIONS

Zain ul Abideen, M., Shoaib, M., Ali, S., and Ishfaq, M. (2026). Gene therapy approaches for treating childhood leukemia: current progress and future directions. *Pakistan Journal of Biochemistry and Biotechnology*, 7(1), 65 to 79. <https://pjb.bwum.edu.pk/index.php/ojs/article/view/314>

PROFESSIONAL EXPERIENCE

Medical Laboratory Technologist

May to July 2026

Al Rehman Clinical Laboratory, Rajanpur, Pakistan

- Performed routine hematology, clinical biochemistry, microbiology, blood grouping, urinalysis and specimen processing.
- Operated semi-automated and automated clinical chemistry analysers while maintaining accurate records and quality standards.

HIMS and LIMS Systems Intern

December 2024

Saleem Memorial Hospital, Lahore, Pakistan

- Supported patient registration, laboratory data entry and report documentation in hospital and laboratory information systems.
- Maintained specimen records and laboratory workflow documentation.

SKILLS

Computational and bioinformatics: Molecular docking (AutoDock Vina), molecular dynamics (GROMACS), density functional theory, MM-PBSA and MM-GBSA, ADMET prediction (SwissADME, ProTox, pkCSM), structural bioinformatics, network pharmacology (STRING, Cytoscape).

Clinical laboratory: Complete blood count, clinical chemistry and biochemistry testing, microbiology, blood grouping, urinalysis and complete urine examination, blood glucose testing, specimen collection and handling, semi-automated and automated analysers.

Data and systems: SPSS, biostatistics, HIMS, LIMS, Microsoft Office Suite.

Research and writing: Scientific literature review, manuscript preparation, research methodology, scientific documentation.

Certification: Adult, Child and Infant CPR and AED, Basic Life Support (American Health Care Academy, valid through July 2027).

TRAINING AND PROFESSIONAL CERTIFICATES

- Techniques in Biochemistry, Molecular Biology and Genetics, Professional Certificate Program, European Open University (November 2025).
- Molecular Techniques, Micro Credential, Centre for Micro Credential-Based Skill Development, University of Lahore (November 2025).
- COMSTECH Certificate Course on NMR Spectroscopy, OIC-COMSTECH (March 2026).
- Foundations of SPSS for Master's Students and Early Career Researchers, OIC-COMSTECH (January 2026).
- GLQI Workshop: Advancing Quality and Innovation in Laboratory Diagnostics, 6 CE credits, ADLM (February 2026).
- Advancements in Sepsis Management: Biomarker-Guided Antibiotic Therapy, 1 ECMEC credit, Xpeer Medical Education, EACCME (December 2025).
- Innovation and Entrepreneurship Virtual Internship Program, Excelerate, Saint Louis University (June 2025).

CONFERENCES, SEMINARS AND LEADERSHIP

- Organizer, International Conference on Advances in Allied Health Sciences (ICAAHS 2022), University of Lahore (October 2022).
- Participant, ICAAHS 2024, University of Lahore (October 2024).
- Pakistan-China International Academic Conference on Food-Medicine Homology, Nutrition and Health, OIC-COMSTECH (April 2026).
- 11th Annual BSI International Remote Conference: Science and Society, Beyond Sciences Initiative, University of Toronto (February to March 2026).
- Rare Genetic Diseases in Pakistan, seminar, Shifa Bio Health Society, Shifa Tameer-e-Millat University (February 2026).
- Artificial Intelligence and the Future of Academic Writing, webinar, Global Heritage Research Center for Languages and Literature (April 2026).
- 4th International Virtual Mental Health Conference, Fatima Hope and Psychological Centre (November 2025).

LANGUAGES

English: professional working proficiency, used for academic writing, peer review and research communication.
Urdu: native.

RESEARCH INTERESTS

Computational and structural biology, neuropharmacology and the gut-brain axis, neuroimmune and metabolic disorders, clinical microbiology and immunology, human genetics and genomics, and translational research linking laboratory diagnostics to disease mechanisms.

REFERENCES

Academic references from the University Institute of Medical Laboratory Technology, The University of Lahore, are available on request.