

Sumaira Gulzar (MS, Ph.D.)

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Professional Experience

➤ Visiting Researcher

*UCL Queen Square Institute of Neurology, University College London — United Kingdom
March 1, 2025 – August 20, 2025*

Key Responsibilities

- Conducted advanced molecular and genomic research, including primer design, PCR optimization, gel electrophoresis, Sanger sequencing, and exome sequencing analysis.
- Performed genotyping array analysis using GenomeStudio and applying bioinformatics tools such as PolyPhen-2, SNPs&GO, PHD-SNP, P-Mut, MutationTaster, I- Mutant 3.0, MUpro, DynaMut2, HOPE server, and Franklin.
- Developed protein structural models using Swiss-Model and carried out molecular docking for structural and functional variant analysis.
- Produced scientific research outputs, including variant interpretation, data management, and manuscript writing.

Seminars Attended:

- Multiple System Atrophy and Neurodegeneration
- Phenome-wide Association Studies (PheWAS) and Tandem Repeats in Human Disease
- Gene & Cell Therapy Innovations
- Mitochondrial Phenotypes Across Neurodegenerative Diseases
- Creating the Right Mindset for Your Team (Professional Development)

Research & Training Completed:

- Introduction to EndNote
- Introduction to PubMed
- Literature Searching Strategies
- Writing Data Management Plans

➤ Senior Data Abstractor

*Shifa Clinical Research Center, Shifa International Hospital — Islamabad, Pakistan
February 2021 – Present*

Key Responsibilities

- Extract, validate, and analyze clinical data from electronic health records to ensure accuracy and completeness.
- Communicate effectively with internal and external stakeholders regarding data requests and updates.
- Collaborate with the IT team to implement cancer registry software modifications.

- Participate in Multidisciplinary Tumor Board (MDT) meetings.
- Contribute to research projects utilizing cancer registry data.
- Compile and prepare statistical reports and summaries of cancer data.

➤ **Study Coordinator**

Population Health Research Institute, Hamilton General Hospital — Canada

Projects:

- COP-AF (Colchicine for the Prevention of Perioperative Atrial Fibrillation in Patients Undergoing Thoracic Surgery)
- POISE-3 (Perioperative Ischemic Evaluation 3 Trial)

Key Responsibilities

- Identified and screened eligible patients based on inclusion/exclusion criteria.
- Obtained informed consent from study participants while ensuring ethical compliance.
- Maintained regular communication with participants to ensure adherence to study visits and procedures.
- Assisted in query resolution and maintained study logs for adverse events (AEs), serious adverse events (SAEs), and protocol deviations.
- Managed study documentation, regulatory submissions, and ethics approvals.

➤ **Senior Biology and Chemistry Teacher**

Allied School — Islamabad

February 2020 – January 2021

Key Responsibilities

- Taught Biology and Chemistry to high school students in alignment with national education standards.
- Developed lesson plans, lab experiments, and assessment materials.
- Conducted interactive sessions, practical demonstrations, and group activities.
- Evaluated student progress and provided constructive feedback.
- Mentored students for science fairs and external examinations.

➤ **Visiting Faculty – Biology**

International Islamic University Islamabad (IIUI)

September 2020 – February 2021

Key Responsibilities

- Delivered lectures, presentations, and laboratory sessions.
- Designed course outlines, assignments, and assessments.
- Conducted research discussions and provided academic advising.
- Evaluated student performance through exams, projects, and presentations.
- Engaged in curriculum development and faculty meetings.

➤ **Invigilator**

British Council — Islamabad

January 2018 – June 2019

Key Responsibilities

- Supervised IELTS, Cambridge, and other international examinations.
- Ensured compliance with British Council regulations.

- Monitored exam venues, candidates, and test materials.
- Verified candidate identities prior to examinations.
- Reported irregularities or breaches of exam policies.

➤ **Internship Experience**

National Forensic Science Agency (NFSA) — Islamabad

July 2017 – June 2018

Key Responsibilities

- Assisted forensic experts in crime scene analysis and evidence collection.
- Gained experience in DNA fingerprinting techniques.
- Conducted laboratory tests and forensic examinations.
- Contributed to case report preparation.

Institute of Biomedical and Genetic Engineering (IBGE) — Islamabad

October 25, 2018 – December 6, 2018

Key Responsibilities

- Assisted in molecular biology and genetic research projects.
- Conducted cell culture experiments, gene expression analysis, and biomedical testing.
- Analyzed and documented research findings for scientific presentations.

Education

- **Ph.D. in Biotechnology** — International Islamic University Islamabad (IIUI), 2025
- **MS in Biotechnology** — International Islamic University Islamabad (IIUI), 2019
- **BS in Bioinformatics** — International Islamic University Islamabad (IIUI), 2016

Courses & Certifications

- **Good Clinical Practice (GCP) Certification** — 2024
- **Introduction to the Principles and Practice of Clinical Research (IPPCR) Certification** — 2021
- **English Language Course, National University of Modern Languages (NUML)** — 2012

Awards & Achievements

- Award for Poster Presentation at the National Forensic Science Conference — Islamabad, 2018

Publications

- Bioinformatics Study on Structural Protein of SARS-CoV-2 for Better Understanding of Vaccine Development. Published in International Journal of Advancement in Life Sciences Research, 2020. DOI:10.31632/ijalsr.20. v03i04.003
- Iron Deficiency Anemia Post-Roux-en-Y Gastric Bypass in the Pakistani Population: A Single-Center Cohort Study, 2022. Published in Advances in Surgical Sciences (Volume 10, Issue 2) DOI: 10.11648/j.ass.20221002.12

- Emerging Trends in Lung Cancer Presentation at a Leading Tertiary Oncology Center and the Need for Lung Cancer Screening in Pakistan, 2024. Published in Cureus DOI:10.7759/cureus.70381
- Gender-Based Differences in Stroke Types and Risk Factors Among Young Adults: A Comparative Retrospective Analysis, 2025. Published in the Journal of Clinical Medicine DOI: 10.3390/jcm14030663

Editorial and Peer Review Activities

- *Peer Reviewer, Frontiers in Pediatrics — 2025*
Analysis of Deafness Gene Screening Results in 15,771 Newborn Cases in Anyang City of Henan” by Huiping An et al..DOI: 10.3389/fped.2025.1645070

Skills

Clinical Research & Trial Management

- Good Clinical Practice (GCP) & Ethical Compliance
- Clinical Trial Coordination & Site Management
- Electronic Data Capture (EDC) & Data Management

Laboratory & Research Skills

- Molecular Biology Techniques (PCR, Gel Electrophoresis, DNA Extraction)
- Bioinformatics & Computational Biology Analysis
- Cell Culture & Genetic Engineering
- Forensic Science Techniques (DNA Fingerprinting)

Academic & Scientific Writing

- Research Proposals
- Manuscripts & Scientific Publications
- Posters & Conference Presentations

Teaching & Training

- University & High School Biology/Biotechnology Teaching
- Curriculum Development & Lesson Planning
- Student Mentorship & Research Supervision