

Dr. Mariam Shahid

Ph.D. in Molecular Biology (Human Genetics)

Assistant Professor & In-Charge, Genetic Screening Laboratory

Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan

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Professional Summary

Molecular Geneticist and Assistant Professor with over 20 years of experience in molecular biology, human genetics, and translational biomedical research. Proven expertise in long read sequencing, Sanger Sequencing, respiratory genetics, rare diseases genetics and genetic diagnostics for Cancers. Recognized for leading funded research projects, publishing in high-impact journals, mentoring graduate students, and establishing cost-effective molecular diagnostic protocols. HEC-approved Ph.D. supervisor and active collaborator in international research initiatives.

Research Focus

Genetics and Epigenetics of Complex and rare Diseases | Respiratory Genetics | Next-Generation Sequencing | Long-Read Sequencing | Cancer Genomics

Education

Ph.D. in Molecular Biology (Human Genetics), Centre of Excellence in Molecular Biology, University of the Punjab, Lahore (2010–2015) – CGPA 3.93

M.Phil. in Chemistry, University of Engineering & Technology, Lahore (2005–2007)

M.Sc. in Chemistry (Biochemistry), University of the Punjab, Lahore (2001–2003)

B.Sc. (Zoology, Botany, Chemistry), University of the Punjab (1999–2001)

F.Sc. (Pre-Medical), Queen Mary College, Lahore (1997–1999)

Professional Experience

- Assistant Professor (BPS-19) / In-Charge, Genetic Screening Lab
Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan (2019–Present)
- Lead multidisciplinary research projects in molecular genetics, focusing on genetic and epigenetic mechanisms of disease.
- Principal Investigator for HEC and Pakistan Academy of Sciences grants (total funding exceeding PKR 16 million).
- Established Oxford Nanopore-based Genetic Screening Facility for cost-effective diagnostics.
- Authored over 25 peer-reviewed publications in journals including CHEST, BMC Genomics, and

Clinical and Experimental Allergy.

- Supervise and mentor Ph.D. and M.Phil. scholars in genetics, genomics and molecular diagnostics.
- Teach post graduate-level courses on Medical Genetics, Molecular Biology, High throughput techniques and Biotechnology.
- Serve on committees including Faculty Board of Life Sciences University of the Punjab, Procurement Committee (Co-Chairperson), and Doctoral Program Coordination Committee.

- **Research Officer cum Lecturer (BPS-18)**

Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan (2010–2019)

- Taught Molecular biology Techniques and genetics in M.Phil. course work.
- Worked on projects on Genetic basis of Asthma, Allergic rhinitis, Cystic Fibrosis and Chronic obstructive pulmonary disease (COPD).
- Supervised M.Phil. and Ph.D. research students on genetic aspects of Asthma, COPD, Cystic Fibrosis.

- **Research Officer (BPS-17)**

Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan (2005–2009)

- Teaching and performing/troubleshooting Genotyping and DNA Sequencing analyses
- Research on Genetics of hearing and vision impairment

Research Grants & Funded Projects

- **Cost-Effective BRCA1/2 Screening for Early Cancer Detection** – PKR 8.63 Million (PI, HEC-PAS)
- **Genotypic Categorization of COPD based on VDR SNP Variants** – PKR 7.8 Million (PI, HEC-NRPU)
- **Genetic Basis of Congenital Pituitary Disorders in Pakistan: A Study on PROP1 Variants and Population Risk**-0.3 million (PI, University of the Punjab)
- **Study of association of potential candidate SNPs residing on chromosome 14 with inherited Emphysema in local population** – PKR 2.59Million (Co-PI, HEC NRPU 8460)
- **Characterizing EGFR Polymorphisms in Lung Cancer** – PKR 0.2 Million (PI, ORIC-PU)
- **Genetic Variants Associated with Congenital Hypogonadotropic Hypogonadism** – Swiss National Science Foundation SPIRIT Grant (Collaborating Partner;
<https://data.snf.ch/grants/grant/202612>)
- **Expression Analysis of VDR and VDB Genes in COPD & Asthma** – PKR 0.2 Million (PI, PU)

Selected Publications (Q1/Q2 Journals)

1. Zouaghi Y. et al., Shahid M., et al. Genome sequencing reveals novel causative variants in Pakistani families with congenital hypogonadotropic hypogonadism. BMC Genomics, 2024.

2. Kousar S. & Shahid M. (2022) Single nucleotide polymorphism on chromosome 14 associated with emphysema in local Pakistani population. *Clinical and Experimental Allergy*, 52 (8), 1039; <https://doi.org/10.1111/cea.14204>
3. Shahid M, Tayyab U, Kousar S, Ghani MU, Sabar MF, Husnain T (2019). rs153109 as possible indicator of effectiveness of Vitamin D supplements for suppressing COPD symptoms, *CHEST*, Vol. 155, Issue 4, p219A; doi.org/10.1016/j.chest.2019.02.211
4. Ghani MU, Sabar MF, Bano I, Shahid M, Akram M, Khalid I, Maryam A, Khan MU (2019). Inheritance pattern of rs2280089, rs2280090, rs2280091 SNP variants in Punjabi population and association with Asthma disease, *CHEST*, Vol. 155, Issue 4, 168A.
5. Sabar MF, Ghani MU, Shahid M*, Sumrin A, Ali A, Akram M, Tariq MA, Iqbal M (September 2015). "Genetic association of ADAM 33's SNP variants with asthma in the population of Lahore region, Pakistan", *Asian Journal of Agriculture & Biology* (ISSN:2307-8553), p57
6. Naz S, Li L, Riazuddin SA, Lin Li, Shahid M, Kousar S, Sieving PA, Hejtmancik JF, Riazuddin S (2010). "A novel locus for autosomal recessive Retinitis Pigmentosa in consanguineous Pakistani family maps to chromosome 2p", *Am.J.Ophthalmol.*, 149(5): 861-6

Google Scholar link:

<https://scholar.google.com/citations?hl=en&authuser=1&user=1a64lzoAAAAJ>

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Teaching & Supervision

- **HEC-approved Ph.D. supervisor** (3 Ph.D., 20+ M.Phil. theses supervised)
- **Courses taught:** Medical Genetics (M.Phil.), Biotechnology (M.Phil.), High-Throughput Techniques for Gene Expression (Ph.D.), Molecular Biology (M.Phil.)
- **Mentor** research interns and students in Molecular Biology techniques, data analysis and manuscript preparation.

Technical & Research Skills

- Next-Generation Sequencing (Oxford Nanopore, Illumina platforms)
- Biostatistics and Data Analysis (R, SPSS, PLINK, GraphPad Prism)
- Bioinformatics tools: Haploview, SHEsis, Mutation Surveyor, Peak Scanner
- Molecular techniques: PCR, RT-PCR, Gel Electrophoresis, DNA Extraction, Sanger Sequencing/ Genotyping
- Grant writing, project management, and inter-institutional collaboration.

Honors & Awards

- HEC-Approved Ph.D. Supervisor (Pakistan)
- European Academy of Allergy & Clinical Immunology Travel Grant Awardee (EAACI Asthma Summer School Istanbul, Turkiye, April, 2015)
- Performance Evaluation Awards by University of the Punjab Pakistan (2018–2021)
- Research Incentive Awards by University of the Punjab Pakistan (2016, 2019)
- Organizer and Speaker at multiple International Symposia and Conferences

Professional Memberships

- Member, Organization for Women in Science for the Developing World (OWSD)
- Member, European Academy of Allergy & Clinical Immunology (EAACI)
- Member, World Allergy Organization (WAO)
- Member, Asthma Society of Ireland
- Member, Middle East Molecular Biology Sources (MEMBS)