



## **Dr. Aftab Ali Shah**

### **Professor**

Department of Biotechnology

University of Malakand

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### **ACADEMIC CREDENTIALS**

**Ph.D. in Human Genetics** (Magna cum laude)

Eberhard Karls University, Tuebingen, Germany

**Bachelor of Science in Biotechnology**

University of Malakand, Pakistan

### **AWARDS**

Awarded fully funded scholarship for Ph.D studies abroad under the “Faculty Development Programme” of the Higher Education Commission (HEC) of Pakistan.

Winner of the prize for the best short talk and poster presentation at the “6<sup>th</sup> International Conference on Trefoil Family Factors (18.-20.11.2009)” at Queen Mary, University of London, UK.

Research Productivity Award for the year 2015 by Office of Research, Innovation and Commercialization (ORIC), University of Malakand.

Associate Fellow of the Higher Education Academy, UK (AdvanceHE) for teaching and learning support in Higher Education.

Research performance award for the year 2022 by Office of Research, Innovation and Commercialization (ORIC), University of Malakand

### **RESEARCH GRANTS**

**Principal Investigator:** "Investigating the genetic basis of familial infertility in Pakistani families," HEC NRPU (2022).

**Principal Investigator:** "Investigation of male infertility using semen analysis and hormonal profile," DoST Pakistan (2014).

**Co-Principal Investigator:** "Epidemiology of Bluetongue in ruminants," HEC NRPU (2017).

### **PROFESSIONAL EXPERIENCE**

**Professor (Tenured)**

University of Malakand, Department of Biotechnology (Nov 2024 – Present)

**Associate Professor (Tenured)**

University of Malakand, Department of Biotechnology (July 2018 – Nov 2024)

**Assistant Professor (TTS)**

University of Malakand, Department of Biotechnology (July 2012 – July 2018)

**Research Associate**

COMSATS Islamabad, Department of Biosciences (May 2007 – Feb 2008)

Project: "Mapping the genes responsible for autosomal recessive retinitis pigmentosa."

### M.Phil/Ph.D SCHOLARS SUPERVISION

S. No.	Name of the Scholar	Program	Session	Thesis title
1	Mushtaq Ahmad	<b>Ph.D</b>	2014-2017	Genetic Polymorphism of MicroRNAs and <i>BRCA</i> Genes in Breast Cancer
2	Muhammad Riaz Khan	<b>Ph.D</b>	2018-2021	Investigation of the Genetic Causes of Familial Infertility
3	Hazir Muhammad	M.Phil.	2013-2015	Diagnostic evaluation of male infertility using hormonal and seminal analyses
4	Muhammad Ajmal	M.Phil.		PCR based detection of Y chromosome microdeletion in infertile male
5	Asaf Khan	M.Phil.	2014-2016	Molecular characterization in new combination of <i>Pisum Sativum</i> (L). through EST-SSR markers and seed protein profile
6	Anila Rehman	M.Phil.	2015-2017	Association of genetic variants in ONCOMIR sequences with increased risk of breast cancer
7	Sadia Ahmad	M.Phil.		Investigation of functional polymorphism in microRNA genes and their association with breast cancer risk
8	Sumayya	M.Phil.		Flanking sequences variation of oncogenic microRNAs in breast cancer patients
9	Bashir Rahman	M.Phil.	2017-2019	Association of MIR146A rs2910164 (A>G) variations with susceptibility to Type 2 diabetes mellitus
10	Muhammad Sohail	M.Phil.	2018-2020	Influence of microRNA-related polymorphisms on clinical outcomes in Type 2 diabetes mellitus
11	Noor Ali Khan	M.Phil.		The role of functional miR-17-92 cluster variants in Type 2 diabetes mellitus
12	Abdul Zahoor	M.Phil.		Genetic analysis of microRNAs-related polymorphism in arterial thrombosis
13	Irfan Ullah	M.Phil.	2019-2021	Investigation of association between microRNA variants and risk of Rheumatoid Arthritis
14	Muhammad Uzair	M.Phil.		Association of single nucleotide polymorphism in MIR196A2 and MIR-423 with myocardial infraction
15	Mutasim Billah	M.Phil.		Association of Single nucleotide polymorphism in MIR4513 seed region with Type 2 diabetes mellitus
16	Zeeshan Abid	M.Phil.	2022-2024	Whole genome sequencing for the determination of variation associated with male infertility
17	Sana Jamshed	M.Phil.		Investigating mutation in glucokinase ( <i>GCK</i> ) gene in familial type-1 diabetes mellitus.
18	Sadia Alam	M.Phil.		Detection of <i>FSHR</i> gene variants in female familial infertility using sanger sequencing

**BS Supervision:** Supervised more than 30 students.

## **ORGANIZATIONAL EXPERIENCE**

- Member of the National Curriculum Revision Committee (NCRC-HEC) for Biotechnology
- Member of the National Curriculum Revision Committee (NCRC-HEC) for Bioinformatics
- Member of the Academic Council, University of Malakand
- Member of the Advanced Studies Research Board (ASRB), University of Malakand
- Member of the Board of Faculty, Faculty of Biological Sciences, University of Malakand
- Member of the Board of Faculty, Faculty of Computing Science & Engineering, University of Malakand
- M.Phil/Ph.D Program Coordinator, Department of Biotechnology, University of Malakand
- Focal Person, Quality Enhancement Cell (QEC), Department of Biotechnology, University of Malakand
- Additional Director QEC, from October 10, 2023, till October 25, 2023
- Director QEC, Since August 1, 2023, till January 05, 2024
- Focal Person for Pakistan Qualification Register (PQR) of the Higher Education Commission of Pakistan (since December 28, 2023, till May 05, 2024)
- Deputy Registrar (Academics), Since January 04, 2024, till January 04, 2025)

## **COUNTRIES VISITED**

Germany, Switzerland, UK, France, Austria, Poland, Croatia, Slovenia, Liechtenstein

## **INTERNATIONAL CONFERENCES ATTENDED/ORGANIZED**

- Symposium of the German Academy of Sciences Leopoldina (18.-20.05.2008): “Molecular medicine of sensory systems” Eberhard Karls University, Tuebingen, Germany.
- Poster presentation (24.-27.03.2009): Novel interacting partners of the TFF3 (intestinal trefoil factor) connect it with apoptosis in the inner ear (Europ. J. Cell Biol.88:45-46) at the “1<sup>st</sup> Joint Congress of the Swiss and German Societies of Cell Biology”, University of Konstanz, Germany.
- Oral and poster presentation (18.-20.11.2009): Challenging of immune-compromised *Tff2* knock-out mice with *Yersinia enterocolitica* infection at the “6<sup>th</sup> International Conference on the Trefoil Factor Family” at the Octagon, Queen Mary, University of London, UK.
- Poster presentation (13.-16.10.2010): The intestinal factor Tff3 and a miRNA network regulate murine caloric metabolism at the symposium “The Non-Coding Genome” at EMBL (European Molecular Biology Laboratory) Advanced Training Center, Heidelberg, Germany.
- Poster presentation (30.03.-02.04.2011): Differential miRNA expression pattern in *Tff2*-impaired mice is connected with neoplastic development, carbohydrate metabolism and adipocytokine pathway at the “34<sup>th</sup> Annual Meeting of the German Society of Cell Research (DGZ)” Bonn, Germany.
- Poster presentations (24-26.07.2011):  
Altered expression of securin (Pttg1) and serpin3n in the auditory system of hearing-impaired Tff3-deficient mice.  
Regulatory miRNAs target genes for cytoprotective peptides of the digestive tract at the Leopoldina Symposium “Regenerative Medicine”, Tuebingen, Germany.
- 27<sup>th</sup> National and 15<sup>th</sup> International chemistry Conference’ (22-25.08.2016) at the University of Malakand, Pakistan.
- International conference on ‘Research and Enterprise on Food Safety in Developing World’ (05-08.12.16) organized by the Department of Biosciences, COMSATS Islamabad.
- 4<sup>th</sup> International Conference on Biological and Computer Sciences (C-BICS 2016) (December; 17<sup>th</sup>, 2016) at the Capital University Science and Technology (CUST), Islamabad.
- International Symposium on ‘Human Population and Disease Genomics’ (April; 10-12, 2017) at COMSTECH Secretariat, Islamabad.
- 1st International Conference on “Strategies for Therapeutics, Control and Prevention of Dengue and

- Other Emerging Viral Infection in Pakistan” (March 1-2, 2018) at the University of Swabi, Pakistan.
- 6th International Conference on Biological and Computational Sciences (C-BICS 2018) (December 13th, 2018) at the Capital University of Science & Technology, Islamabad, Pakistan.
- 1st International Conference on “Recent Updates in Biotechnology (ICRUB-2019) Islamabad” (October 16-18, 2019), Organized by the Department of Biotechnology, Abdul Wali Khan University Mardan, Pakistan.
- Organized one-day international training workshop on “Building Tomorrow’s global Genomic Workforce in collaboration with ICESCO-The Islamic World Educational, Scientific and Cultural Organization on 28<sup>th</sup> September 2023.
- Organized one-day international training workshop on “Rare Diseases for Healthcare in collaboration with ICESCO-The Islamic World Educational, Scientific and Cultural Organization on October 23, 2024.

### **NATIONAL CONFERENCES/WORKSHOP ATTENDED/ORGANIZED**

- DoST Biotechnology EXPO2015 and presented Research Project (poster) (March 10, 2015) held at Directorate of Archives, Peshawar, organized by the Directorate of Science and Technology (DoST), Government of Khyber Pakhtunkhwa, Pakistan.
- Invention to Innovation summit (November 16-17, 2016) organized by the University of Engineering and Technology, Peshawar, Pakistan.
- National Conference on Computational Biology and Genomics (September 27-29, 2017) at Hazara University Mansehra, Pakistan, and presented the poster.
- “5th Conference on Biological and Computational Sciences (C-BICS)” (December; 14<sup>th</sup>, 2017) at the Capital University Science and Technology (CUST), Islamabad.
- 1<sup>st</sup> National Conference on Phytomedicines: Current & Future Perspectives (October 9 – 11, 2018) at Shaheed Benazir Bhutto University Sheringal, Dir Upper, Khyber Pakhtunkhwa, Pakistan.
- Organized four-days training workshop on “Capacity building program for faculty members (October 9-12, 2023).
- Participated in two-day training workshop on Teaching and Talking in Peace in the Vulnerable Region of Pakistan (October 13-14, 2023).
- Participated in a One-day training workshop on “HEC Research Publication Policy 2024” organized by Quality Enhancement Cell, the University of Malakand (January 29, 2025).\_

### **PUBLICATIONS**

- Lubka M, **Shah AA**, Blin N, Baus-Loncar M (2009). Intestinal trefoil factor (Tff3), also expressed in the inner ear, interacts with peptides contributing to apoptosis. **J. Appl. Genet.**, 50: 167-171.
- Žak M, **Shah AA**, Blin N (2009). The trefoil peptide family: small but versatile—from anti-apoptosis to neoplasia in the digestive tract. **Pol. J. Sur.**, 81: 486–490.
- Azam M, Collin RW, Shah ST, **Shah AA**, Khan MI, Hussain A, Sadeque A, Strom TM, Thiadens AAHJ, Roosing S, den Hollander AI, Cremers FP, Qamar R (2010). Novel *CNGA3* and *CNGB3* mutations in two Pakistani families with achromatopsia. **Mol. Vis.**, 16:774-781.
- **Shah AA**, Leidinger P, Blin N, Meese E (2010). miRNA: Small molecules as potential novel biomarkers in cancer. **Curr. Med. Chem.**, 17:4427-4432.
- **Shah AA**, Meese E, Blin N (2010). Profiling regulatory microRNA transcriptomes in animal kingdom. **J. Appl. Genet.**, 51:501-507.

- **Shah AA**, Blin N (2010). Target sequences for microRNAs within the Tff gene cluster. **BioChip J.**, 4:279-284.
- **Shah AA**, Leidinger P, Keller A, Wendschlag A, Backes C, Baus-Loncar M, Meese E, Blin N (2011). The intestinal factor Tff3 and a miRNA network regulate murine caloric metabolism. **RNA Biol.**, 8:77-81.
- Azam M, Collin RW, Malik A, Khan MI, Shah ST, **Shah AA**, Hussain A, Sadeque A, Arimadyo K, Ajmal M, Azam A, Qureshi N, Bokhari H, Strom TM, Cremers FP, Qamar R, den Hollander AI (2011). Identification of novel mutations in Pakistani families with autosomal recessive retinitis pigmentosa. **Arch. Ophthalmol.**, 129:1377-1378.
- Lubka-Pathak M, **Shah AA**, Gallozzi M, Müller M, Zimmermann U, Löwenheim H, Pfister M, Knipper M, Blin N, Schimmang T (2011). Altered expression of two regulatory proteins, securin (Pttg1) and serpin3n, in the auditory system of hearing-impaired mice caused by genetic loss of the protective peptide Tff3. **Cell. Mol. Life Sci.**, 86:2739-2749.
- **Shah AA**, Leidinger P, Keller A, Wendschlag A, Meese E, Blin N (2012). Altered miRNA expression patterns in Tff2 knock-out mice correlate with cellular pathways of neoplastic development and caloric metabolism. **Int. J. Mol. Med.**, 29: 637-643.
- **Shah AA**, Mihalj M, Ratkay I, Lubka-Pathak M, Balogh P, Klingel K, Bohn E, Blin N, Baus-Loncar M (2012). Increased Susceptibility to *Yersinia enterocolitica* Infection of Tff2 Deficient Mice. **Cell. Physiol. Biochem.**, 30:853-862.
- **Shah AA**, Leidinger P, Keller A, Backes C, Karpinski P, Sasiadek MM, Blin N, Meese E (2013). A set of specific miRNAs is connected with murine and human gastric cancer. **Genes Chrom, Cancer.**, 52:237-249.
- De Giorgio MR, Yoshioka M, Riedl I, Moreault O, Cherizol RG, **Shah AA**, Blin N, Richard D, St-Amand J (2013). Trefoil factor family member 2 (Tff2) KO mice are protected from high-fat diet-induced obesity. **Obesity.**, 21:1389-1395.
- Hassan MA, **Shah AA**, Szmida E, Smigiel R, Sasiadek MM, Pfister M, Blin N, Bress A (2015). A TMC1 (transmembrane channel-like1) Mutation (p.S320R) in a Polish Family with Hearing Impairment. **J. App. Genet.**, 56: 311-316.
- Nisar M, Khan A, Wadood SF, **Shah AA**, Hancı F (2017). Molecular characterization of edible pea through EST-SSR markers. **Turkish J. Bot.**, 41: 338-346.
- Imran M, Khan N, **Shah AA**, Ahmad I (2018), Overweight and Obesity Prevalence Pattern and Associated Risk Factors Among the People of Malakand Division, Khyber Pakhtunkhwa Pakistan. **Arab J. Sci. Eng.**, 44: 65-74.
- **Shah AA**, Haq TU, Ahmed M (2018). Deciphering Conserved Identical Sequences of Mature miRNAs Among Six Members of Great Apes. **Zoosyst. Evol.**, 94, 401-408.
- Ahmad M, **Shah AA** (2019). Functional polymorphism within miR-23a~27a~24-2 cluster confers

clinical outcome of breast cancer in Pakistani cohort. **Per. Med.**, 16,107-114.

- Ahmad M, **Shah AA** (2019). *In-Silico* Target Prediction for hsa-mir-27a and Identification of Genes Involved in Breast Cancer. **Int. J. Hum. Genet.**, 19,12-21.
- Ahmad M, Ahmad S, Rahman B, Haq TU, Jalil F, **Shah AA** (2019). Association of MIR146A rs2910164 variation with a predisposition to sporadic breast cancer in a Pakistani cohort. **Ann. Hum. Genet.**, 83: 325-330.
- Ahmad M, Jalil F, Haq M, **Shah AA** (2019). Effect of variation in miRNA-Binding Site (rs8176318) of *BRCA1* Gene in Breast Cancer Patients. **Turk. J. Med. Sci.**, 49,1433-1438.
- Akhtar M, Jamal T, Din J, **Shah AA**, et al. (2019). An *in-silico* approach to characterize nonsynonymous SNPs and regulatory SNPs in human *TOX3* gene. **J. Genet.**, 98:104.
- Khan A, Khan S, Aman A, Ali Y, Jamal M, Rahman B, Ahmad M, Aasim M, Jalil F, **Shah AA** (2019). Association of *VDR* gene variant (rs1544410) with type 2 diabetes in a Pakistani cohort. **BJMG.**, 22, 59-64.
- Ahmad M, **Shah AA** (2020) Predictive role of single nucleotide polymorphism (rs11614913) in the development of breast cancer in Pakistani population. **Per. Med.**,17(3):213-227.
- Khan BM, Zheng LX, Khan W, **Shah AA**, Liu Y, Cheong KL (2021). Antioxidant Potential of Physicochemically Characterized Gracilaria blodgettii Sulfated Polysaccharides. **Polymers.** 13 (3), 442.
- Khan MS, Rahman B, Haq TU, Jalil F, Khan BM, Maooda SN, Al-Farraj SAA, El-Serehy HA, **Shah AA** (2021) Deciphering the variants located in the MIR196A2, MIR146A, and MIR423 with Type-2 Diabetes Mellitus in Pakistani Population. **Genes.** 12(5):664.
- Ali Y, Khan S, Chen Y, Farooqi N, Islam Z, Akhtar M, Aamir, Aman A, **Shah AA**, Jamal M, Jal F (2021). Association of *AFF3* Gene Polymorphism rs10865035 with Rheumatoid Arthritis: A Population-Based Case-Control Study on a Pakistani Cohort. **Genetic Res.**, 5544198.
- Haq TU, Zahoor A, Ali Y, Chen Y, Jalil F, **Shah AA** (2022). Genetic variants of MIR27A, MIR196A2 may impact the risk for the onset of coronary artery disease in the Pakistani population. **Genes.** 13(5), 747.
- Ali Y, Chen Y, Islam ZU, Aman A, Almutairi MM, Alouffi A, Mohammed A, **Shah AA**, Rhman ZU, Hussain I, Ali A, Jalil F (2023). MIR149 rs2292832 and MIR499 rs3746444 Genetic Variants Associated with the Risk of Rheumatoid Arthritis. **Genes.** 14 (2), 431.
- Ali Y, Khan A, Akhtar M, Khan S, UllIslam Z, Farooqi N, **Shah, AA**, Chen Y, Jalil F (2023). Exploring the Associations and Molecular Impacts of miR-146a/rs2910164 and miR-196a2/rs185070757 with Rheumatoid Arthritis in a Pakistani Population. **Lifestyle Genomics.**16:106-117.
- Tutar Y, Pirim, D, **Shah, AA**, Vallinoto, ACR (2023) Editorial: MicroRNA-related polymorphisms in infectious and inherited diseases. **Frontiers in Genetics** 14, 1192457.

- Uzair M, Haq TU, Ali S, Hussain M, Jalil F, Ali Y, **Shah, AA** (2023). The miRNA variants *MIR196A2* (rs11614913) and *MIR423* (rs6505162) contribute to an increase in the risk of myocardial infarction. **Molecular Genetics & Genomic Medicine** e2323.
- Khan MR, Akbari A, Nicholas TJ, Castillo-Madeen H, Ajmal, M, Haq TU, Laan M, Quinlan AR, Ahuja, JS, **Shah AA**, Donald F. Conrad (2023), Genome sequencing of Pakistani families with male infertility identifies deleterious genotypes in SPAG6, CCDC9, TKTL1, TUBA3C, and M1AP. **Andrology** (DOI: 10.1111/andr.13570)
- Ali S, Haq TU, Hussain M, Uzair Chen Y, Jalil F, **Shah AA** (2024). Genetic variants rs2910164, rs4636297, and rs895819 may contribute to the onset of acute myocardial infarction in Pakistani population. **PlosOne** 19 (1), e0296025.
- Haq TU, Khan MR, Ali S, Aziz T, Albekairi TH, **Shah AA** (2025). Association of functional variants in miRNA genes with the risk of coronary heart disease, **EJMHG** (doi: <https://doi.org/10.1186/s43042-025-00650-6>).