

## Ayesha Ishtiaq (PhD)

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### Qualifications

#### Ph.D. Biochemistry/Molecular Biology

Dept. of Biochemistry

Quaid-i-Azam University, Islamabad Pakistan

Thesis Title: Elucidation of Underlying

Molecular Mechanisms Involved in Bisphenol A

Induced Cardiotoxicity and Neurotoxicity

2024

#### M.Phil. Biochemistry/Molecular Biology

Dept. of Biochemistry

Quaid-i-Azam University, Islamabad Pakistan

2016

#### M.Sc. Biochemistry/Molecular Biology

Dept. of Biochemistry

Quaid-i-Azam University, Islamabad Pakistan

2014

#### B.Sc.

The University of Punjab, Lahore Pakistan

2012

### Employment History/Academic Experience

#### Visiting Faculty, Department of Biochemistry

Quaid-i-Azam University

Courses: Biomembranes and Cell Signalling, Nucleic Acids,  
Research Planning and Report Writing

2022-present

#### Visiting Faculty, Department of Bioinformatics

Quaid-i-Azam University

Course: Molecular Biology

2023-present

#### Visiting Faculty, Department of Zoology

Quaid-i-Azam University

Courses: Biochemistry I, Biochemistry II

2023-present

#### Visiting Faculty, Department of Biotechnology

Quaid-i-Azam University

Course: Molecular Biology

2024

## Employment History/Research Experience

### Research Associate, Department of Biochemistry

Quaid-i-Azam University

2019-2023

PSF CRP Project:

HEC NRPU Project

### Research Interest

My research investigates the molecular mechanisms and miRNA targets implicated in brain and cardiovascular signalling. Additionally, it aims to develop miRNA based therapeutic and diagnostic strategies with a primary focus on advancing the Sustainable Development Goal-3 (Good Health and Well-being).

### Patents

1. **Ishtiaq, A.**, Naeem, A., Karim, S., Rasheed, M., Mushtaq, I., Hussain, K., Jan MI., Tabassum, S., Ahmed I., Murtaza, I\*. miRNA-\*\*\* as a diagnostic biomarker for early detection of myocardial infarction (Filed)
2. **Ishtiaq, A.**, Naeem, A., Karim, S., Mushtaq, I., Murtaza, I Development of miRNA-\*\*\*\* complex (Filed)
3. Murtaza, I., Mushtaq, I., Nawza, J., **Ishtiaq, I.**, Hussain, K., Jan MI., Tabassum, S., Ahmed I. Development of cardiac-specific neurohormonal based diagnostic marker for cardiac failure detection at early stage (Filed)

### Indicators of Esteem

1. Member of Global STEM Alliance at New York Academy of Sciences, USA.
2. Merit scholarship at Quaid-i-Azam University Islamabad.
3. Scholarship of Prime Minister's Laptop scheme.
4. First Position in Poster Competition in 1st Annual Conference "The Current Usage of Nanotherapeutics and Biodrugs" held on 13th-14th Dec, 2018.
5. Early Scientist travel grant award from International Society of Endocrinology for 18th International Congress of Endocrinology, held on 1st-4th Dec, 2018 at Cape Town, South Africa.
6. Best Poster Presentation Award in National Graduate Conference held on 15-16 March 2017 at Allama Iqbal Open University, Islamabad Pakistan.

### Research Skills

- |  |                                       |
|--|---------------------------------------|
| • Animal Study and Downstream Analysis | • Gene/Protein Expression Analysis    |
| • Cell Culture and Cytotoxicity        | • Flow Cytometry                      |
| • Histology and Immunohistochemistry   | • RNA Extraction                      |
| • MicroRNA Expression Profiling        | • Scientific and Statistical Analysis |
| • Reporter Assays Knockdown Analysis   | of Experimental Data                  |

## Conferences and Workshops

### ***Presentations at National Conferences:***

1. Presented "Analysis of the Therapeutic role Pistacia integerrima against the BPA Induced Toxicity" in 1st Annual Conference "The Current Usage of Nanotherapeutics and Biodrugs" held on 13th-14th Dec, 2018.
2. Presented "The Antioxidative Potential of Plant Extract Against the Toxic Effects of Environmental Toxicants" in 1st International Conference on Medicinal Chemistry and Drug Discovery held on 18th-19th Oct, 2018 at COMSTECH, Islamabad.
3. Presented "Elucidation of the link between over expression of insulin and cardiac hypertrophy through ROS regulation" in two days National Graduate Conference on 15-16 March 2017 held at Allama Iqbal Open University, Islamabad.
4. Presented "Bridging role of Serotonin Between Hyperglycemia and Cardiac Pathologies through ROS Regulation" in National Conference 'IESCO women in science chair', Contribution of Pakistani women in Scientific and Social Development at Quaid-i-Azam University Islamabad, Organized by Biochemist Association QAU Islamabad (BAQI) Pakistan.

### ***Presentations at International Conferences:***

1. Identifying potential mirnas and hub genes for coronary artery disease prognosis using integrative approaches at Heart Failure 2024, held on May 11-14, 2024 at Lisbon, Portugal
2. Abstract Presentation "MiRNAs as Potential Diagnostic Tool for Diabetes-linked Myocardial Infarction" at The 6th Annual Heart in Diabetes Conference held on 24th -26th June 2022 at Philadelphia, USA.
3. Presented "miRNAs and Endothelin: A potential nexus in the roadmap for diabetes linked cardiac complications therapeutic strategy" at 19th World Congress Insulin Resistance Diabetes and Cardiovascular Disease" held on 2nd-4th Dec 2021 at Hilton, USA.
4. Presented "MicroRNAs in molecular technology to address global disease bench to bedside research" at 1st International Conference on Applied Engineering and Natural Sciences" held on 1st-3rd Nov 2021 at Turkey.
5. Presented "MIRNAS as the key regulator of galectins in acute lymphoblastic leukemia" at SOHO 3rd Italian Conference held on 27th-30th Sept 2021 at Rome Italy.
6. Presented "BPA a Threat to Mankind as an Endocrine Disruptor; Investigating the Role of Melatonin in BPA Induced Toxicity" in 18th International Congress of Endocrinology held on 1st-4th Dec, 2018 at Cape Town, South Africa.

### ***Organizer at International Level:***

1. Convenor at Science Summit, United Nations General Assembly 79, September 10-24, 2024.
2. Convenor at Science Summit, United Nations General Assembly 78, September 12-29, 2023.

### ***Evaluator at National Level:***

1. Evaluator at Annual Research Day held on 28<sup>th</sup> April, 2025 at Quaid-i-Azam University Islamabad, Organized by Biochemist association QAU Islamabad (BAQI) Pakistan.

### ***Workshops:***

1. 3- Days Hands-on Training Workshop on q-PCR held on 3rd-5th Aug 2021 at Quaid-i-Azam University Islamabad, Organized by Biochemist association QAU Islamabad (BAQI) Pakistan.

2. 1st Annual Health Research Conference “Health Research-A step towards attaining SDGs 2030’ held on 24th and 25th September 2018 (Moderator).
3. 3- Days Hands-on Training Workshop on q-PCR held on 4th-6th Sept 2018 at Quaid-i-Azam University Islamabad, Organized by Biochemist association QAU Islamabad (BAQI) Pakistan (*Trainer*).
4. Hands-on Training workshop on Cryopreservation held on 18th Jan 2018 at Quaid-i-Azam University Islamabad, Organized by Biochemist association QAU Islamabad (BAQI) Pakistan.
5. Workshop on Data wrangling and visualizations on RStudio held in Dec, 2018 at Quaid-i-Azam University Islamabad, Organized by Biochemist association QAU Islamabad (BAQI) Pakistan.
6. Training workshop on Applications of MultiSkan GO spectrophotometer held on 2nd Aug 2017 at Quaid-i-Azam University Islamabad, Organized by Biochemist association QAU Islamabad (BAQI) Pakistan.
7. Two days Training workshop of Biosafety and Biosecurity held on 20th-21st Feb, 2019 at National Institute of Health Islamabad, Pakistan.
8. Two days workshop on ‘Next Generation Sequencing’ held on 11th and 12th April 2017, at PASTIC Islamabad.
9. One Days Training Workshop on Mendeley, End Note, Adobe illustrator, MS publisher on 20 November 2014, at Quaid-i-Azam University Islamabad, Organized by Biochemist Association QAU Islamabad (BAQI) Pakistan.
10. 15 Days Workshop on Biosecurity/Biosafety – Food Safety Enhancement Program Hazard Analysis and Critical Control Point (HACCP) on 17\_ 31st May 2012, at Quaid-i-Azam University Islamabad, Organized by Faculty of Biochemistry and Biochemist association QAU Islamabad (BAQI) Pakistan.

### **Peer Reviewing**

#### **Journals**

BMC Cardiovascular Disorders, Cardiovascular Toxicology, Clinical and Experimental Pharmacology and Physiology, Heliyon, Dermatologic Therapy

#### **Books**

Elsevier (Biomedical and Translational Medicine)

### **List of Publications**

Google Scholar	H-Index	i10-index	Citations
Overall	8	6	156
Last 5 years	8	6	156

*\*source Goggle Scholar metrics, June 2025*

Publications	Original Articles	Total Impact Factor
25	18	59.4

### **Published Articles**

1. **Ishtiaq, A.**, Mushtaq, I., Rehman, H., Mushtaq, I., Mushtaq, I., Abbasi, S. W., ... & Murtaza, I. (2024). Tetra aniline-based polymers ameliorate BPA-induced cardiotoxicity in Sprague Dawley rats, in silico and in vivo analysis. *Life Sciences*, 123104. (5.2)

2. **Ishtiaq, A.**, Nasrullah, M. A., Khan, J. S., Malik, S., Tareen, U., Anees, M., ... & Murtaza, I. (2023). A cohort study investigating the role of Bisphenol A in the molecular pathogenesis of breast cancer. *Journal of Cancer Research and Clinical Oncology*, 1-11. (IF: 2.7)
3. Sharif, N., Murtaza, I., Shahnaz, G., Saeed, A., **Ishtiaq, A.**, Tabassum, S., ... & Pandey, S. (2025). Precision nanophytomedicine: Alginate-chitosan nanogels encapsulating *Olea ferruginea* ethyl acetate fraction for enhanced cardiovascular protection. *International Journal of Biological Macromolecules*, 144656. (IF: 7.7)
4. Hussain, K., Khurram, S., Yousaf, M., **Ishtiaq, A.**, Mushtaq, I., Ali, T., & Murtaza, I. (2025). Investigating the Therapeutic Potential of miRNA-137-3p/383-5p/PGC-1 $\alpha$  Signalling Nexus Against Cardiac Hypertrophy. *Journal of Cardiovascular Translational Research*, 1-13. (IF: 2.4)
5. Mushtaq, I., Mushtaq, I., Akhlaq, A., Usman, S., **Ishtiaq, A.**, Khan, M., ... & Murtaza, I. (2023). Cardioprotective effect of tetra (aniline) containing terpolymers through miR-15a-5p and MFN-2 regulation against hypertrophic responses. *Archives of Biochemistry and Biophysics*, 747, 109763. (IF: 3.8)
6. Shaheen, S., Liaqat, F., Qamar, S., Murtaza, I., Rasheed, A., **Ishtiaq, A.**, & Akhter, Z. (2023). Single crystal structure of nitro terminated Azo Schiff base: DNA binding, antioxidant, enzyme inhibitory and photo-isomerization investigation. *Journal of Molecular Structure*, 1284, 135376. (IF: 4.0)
7. Hussain, K., **Ishtiaq, A.**, Mushtaq, I., & Murtaza, I. (2023). Profiling of Targeted miRNAs (8-nt) for the Genes Involved in Type 2 Diabetes Mellitus and Cardiac Hypertrophy. *Molecular Biology*, 57(2), 338-345. (IF: 1.5)
8. Moin, H., Shafi, R., **Ishtiaq, A.**, Liaquat, A., Majeed, S., & Zaidi, N. N. (2023). Effectiveness of analog of Humanin in ameliorating streptozotocin-induced diabetic nephropathy in Sprague Dawley rats. *Peptides*, 165, 171014. (IF: 2.8)
9. Jan, M.I., Khan, R.A., Ahmad, I., Khan, N., Urooj, K., Shah, A.U.H.A., Khan, A.U., Ali, T., **Ishtiaq, A.**, Shah, M. and Ullah, A. (2022). C-reactive protein and high-sensitive cardiac troponins correlate with oxidative stress in valvular heart disease patients. *Oxidative Medicine and Cellular Longevity*, 2022. (IF: 7.3)
10. Khan, M., Patujo, J., Mushtaq, I., **Ishtiaq, A.**, Tahir, M.N., Bibi, S., Khan, M.S., Mustafa, G., Mirza, B., Badshah, A. and Murtaza, I. (2022). Anti-diabetic potential, crystal structure, molecular docking, DFT, and optical-electrochemical studies of new dimethyl and diethyl carbamoyl-N, N'-disubstituted based thioureas. *Journal of Molecular Structure*, 1253, p.132207. (IF: 4.0)
11. **Ishtiaq, A.**, Ali, T., Bakhtiar, A., Bibi, R., Bibi, K., Mushtaq, I., ... & Murtaza, I. (2021). Melatonin abated Bisphenol A-induced neurotoxicity via p53/PUMA/Drp-1 signaling. *Environmental Science and Pollution Research*, 28(14), 17789-17801. (IF: 5.8)
12. Ali, T., **Ishtiaq, A.**, Mushtaq, I., Ayaz, N., Jan, M. I., Khan, W., ... & Murtaza, I. (2021). *Mentha longifolia* Alleviates Exogenous Serotonin-Induced Diabetic Hypoglycemia and Relieves Renal Toxicity via ROS Regulation. *Plant Foods for Human Nutrition*, 76(4), 501-506. (IF: 3.1)
13. Mushtaq, I., Bashir, Z., Sarwar, M., Arshad, M., **Ishtiaq, A.**, Khan, W., Khan, U., Tabassum, S., Ali, T., Fatima, T. and Valadi, H. (2021). N-Acetyl Cysteine, Selenium, and Ascorbic Acid Rescue Diabetic Cardiac Hypertrophy via Mitochondrial-Associated Redox Regulators. *Molecules*, 26(23), p.7285. (IF: 4.2)
14. Akram, N., Shahzor, Z., Mushtaq, I., **Ishtiaq, A.**, Hussain, K., & Murtaza, I. (2021). MicroRNAs in molecular technology to address global diseases bench to bedside research. *Avrupa Bilim ve Teknoloji Dergisi*, (28), 1492-1500.

15. **Ishtiaq, A.**, Bakhtiar, A., Silas, E., Saeed, J., Ajmal, S., Mushtaq, I., ... & Murtaza, I. (2020). Pistacia integerrima alleviated Bisphenol A induced toxicity through Ubc13/p53 signalling. *Molecular Biology Reports*, 47(9), 6545-6559. (IF: 2.6)
16. Naeem, T., Ali, T., Mushtaq, I., **Ishtiaq, A.**, & Murtaza, I. (2020). Cross talk of serum elements, cardiac and liver enzymes in patients with HCV chronic hepatitis and hepatocellular carcinoma in Pakistani population. *NUST Journal of Natural Sciences*, 5(1), 16-24.
17. Jan, M. I., Khan, R. A., Sultan, A., Ullah, A., **Ishtiaq, A.**, & Murtaza, I. (2019). Analysis of NT-proBNP and uric acid due to left ventricle hypertrophy in the patients of aortic valve disease. *Pakistan Journal of Medical Sciences*, 35(1), 183. (IF: 1.2)
18. Thahiem, S., Iftkhar, M. F., Faheem, M., **Ishtiaq, A.**, Jan, M. I., Khan, R. A., & Murtaza, I. (2025). Elucidation of potential miRNAs as prognostic biomarkers for coronary artery disease. *Human Gene*, 201385. (IF: 0.5)

### Book Chapters, Editorials and Review Articles

1. **Ishtiaq, A.**, Hussain, K., Mushtaq, I., & Murtaza, I. (2024). Stem Cells Signaling Modulators in Hematological Diseases.
2. Naeem, A., Abbas, S. H., Yousaf, M., **Ishtiaq, A.**, & Murtaza, I. (2024). Global Impact and Strategies to Reduce the Mortality from Cardiovascular Diseases. In *Integrated Science for Sustainable Development Goal 3: Empowering Global Wellness Initiatives* (pp. 283-306). Cham: Springer Nature Switzerland.
3. Mushtaq, I., Hussain, K., **Ishtiaq, A.**, & Murtaza, I. (2024). Redox Regulation in Hematology and Stem Cell Research.
4. Hussain, K., **Ishtiaq, A.**, Mushtaq, I., & Murtaza, I. (2024). Non-Coding RNAs in Hematology and Stem Cell Research.
5. Azhar, I., Karim, S., **Ishtiaq, I.**, (2024) Extracellular Vesicles for the Treatment of Cardiovascular Diseases, *Royal Society of Chemistry* (rsc.23617.009)
6. Mushtaq, I., **Ishtiaq, A.**, Ali, T., Jan, M. I., & Murtaza, I. (2020). An Overview of Non-coding RNAs and Cardiovascular System. *Non-coding RNAs in Cardiovascular Diseases*, 3-45.
7. Jan, M. I., Ali, T., **Ishtiaq, A.**, Mushtaq, I., & Murtaza, I. (2020). Prospective advances in non-coding RNAs investigation. *Non-coding RNAs in Cardiovascular Diseases*, 385-426.

### Conference Abstracts accepted and published

1. Hussain, K., **Ishtiaq, A.**, & Murtaza, I. (2024). Profiling of Putative miRNAs (8-mer) Against the T2DM and MI Associated Genes. *Metabolism-Clinical and Experimental*, 153.
2. Naeem, A., Saeed, A., Tayyab, S. L., **Ishtiaq, A.**, & Murtaza, I. (2024). Diagnostic Potential of miRNA-15a-5p for the Early Detection of Myocardial Infarction. *American Heart Journal*, 267, 123.
3. Hussain, K., Thahiem, S., **Ishtiaq, A.**, & Murtaza, I. (2024). Identification of miRNA Targeting Genes Involved in Hyperlipidemia as a Therapeutic Strategy for Cardiovascular Diseases. *American Heart Journal*, 267, 125.
4. Naeem, A., **Ishtiaq, A.**, & Murtaza, I. (2023). miRNAs as a Therapeutic Target for Vascular Dysfunction in Diabetes. *Metabolism-Clinical and Experimental*, 142.
5. **Ishtiaq, A.**, Mushtaq, I. and Murtaza, I. (2022). miRNAs and Endothelin: A potential nexus in the roadmap for diabetes linked cardiac complications therapeutic strategy. *Metabolism-Clinical and Experimental*, 128.

6. Murtaza, I., Mushtaq, I. and **Ishtiaq, A.** (2022). Development of Cardiac-specific Neurohormonal-based diagnostic marker for Diabetes linked cardiac failure. *Metabolism-Clinical and Experimental*, 128.
7. Azhar, I., **Ishtiaq, A.**, & Murtaza, I. (2022). Investigating the Micrnas as Key Regulator in Diabetic Cardiomyopathy. *American Heart Journal*, 254, 239.
8. Karim, S., **Ishtiaq, A.**, & Murtaza, I. (2022). Mirnas as Potential Diagnostic Tool for Diabetes-Linked Myocardial Infarction. *American Heart Journal*, 254, 239-240.
9. **Ishtiaq, A\***, Zafar. F., Karim, S., Mushtaq, I., Hussain, K., Murtaza, I.\* (2021). MiRNAs as the key regulator of galectins in acute lymphoblastic leukemia. *Hematology Reports*, 13:s3.

## References

1. Dr. Iram Murtaza, Professor, Chairperson Department of Biochemistry, Quaid-i-Azam University, Islamabad Pakistan (Ph.D. Supervisor)
2. Dr. Muhammad Ansar, Professor, Quaid-i-Azam University, Islamabad Pakistan
3. Dr. Asif Iqbal, Professor, Institute of Cardiovascular Sciences, University of Birmingham, United Kingdom