

MUHAMMAD JAWAD KHAN
(HEC approved supervisor)

COMSATS University Islamabad, Pakistan 45550 (+923214887323)
jawadkhan@comsats.edu.pk

RESEARCH EXPERIENCE

Tenured Associate Professor

Department of Biosciences, COMSATS University Islamabad, Pakistan (April 2022 – Present)

- Computational analysis of differentially expressed genes and non-coding RNAs in metabolic diseases.
- Investigating the change in gene expression of biological markers in obesity, diabetes, chronic kidney disease, metabolic syndrome, polycystic ovary syndrome and related metabolic diseases.
- Use of green nanoparticles against multiple drug resistant bacteria.

Assistant Professor

Department of Biosciences, COMSATS University Islamabad, Pakistan (August 2013 – March 2022)

- Working on computational biology to uncover the role of non-coding RNAs in several metabolic diseases and oral cancer.
- Investigating the change in gene expression of biological markers in obesity, diabetes, chronic kidney disease and related metabolic diseases.
- Prevalence and risk factors of obesity in adult population of Pakistan.
- Use of green nanoparticles in the treatment of obesity and blood clotting.

Graduate Research Assistant

Department of Animal Sciences, University of Illinois, Urbana, IL, USA (August 2011- August 2013)

- Worked on multi-disciplinary projects including animal trials at dairy farm and processing of biological samples in the lab.
- Established and conducted advanced protein and gene expression techniques.
- Interpreted and collaborated in data analysis of gene expression using Bioinformatics approaches.

Research Assistant

Department of Biosciences, COMSATS Institute of Information Technology, Islamabad, Pakistan (April 2009 – August 2009)

- Worked on data and sample collection of cerebrospinal fluid (CSF) from patients around the hospitals of Punjab in Pakistan.
- Preliminary sample analysis of several projects using PCR techniques.

Graduate Research Student

Center of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan (September 2008 – April 2009)

- Conducted gene expression work in Genetic Diseases Lab.

- Collected blood samples of patients with family history of deafness and mental retardation around the Punjab locality in Pakistan.
- Processed blood samples to extract DNA following application of molecular techniques to find unique locus associated with deafness and mental retardation.

Undergraduate Research Student

School of Biological Sciences, University of the Punjab, Lahore, Pakistan (September 2007 – June 2008)

- Collected blood, larynx, liver and lung tissue samples of respective cancer patients around the hospitals in Lahore.
- Extracted DNA from blood and paraffin embedded tissues of larynx, liver and lung carcinoma patients to analyze the mutation in interferon beta 1 (*IFN-β1*) gene using denaturing gradient gel electrophoresis (DGGE).
- Experienced 1 Month of Internship in Histopathology Department of Sheikh Zayed hospital, Lahore, Pakistan.

EDUCATION

University of Illinois at Urbana-Champaign, USA

Doctor of Philosophy in Animal Sciences, 2013

- Cumulative GPA = 3.89 (out of 4.00)
- Mammalian NutriPhysioGenomics Lab.

University of Illinois at Urbana-Champaign, USA

Master of Science in Animal Sciences, 2011

- Cumulative GPA = 3.84 (out of 4.00)
- Mammalian NutriPhysioGenomics Lab.

University of the Punjab Lahore, Pakistan

Bachelor of Science in Microbiology and Molecular Genetics, 2008

- Cumulative GPA = 3.90 (out of 4.00)

Ph.D RESEARCH PROJECT

Effects of prepartum dietary energy and lipid supplementation on hepatic transcriptome profiles in dairy cows during the transition period

M.S. RESEARCH PROJECT

Transition cows: hepatic endocannabinoid system gene expression in response to prepartal plane of nutrition and the effects of genetic merit on genes of lipid metabolism in adipose tissue

B.Sc. RESEARCH PROJECT

Sequence and Mutational Analysis of Interferon Beta 1 (*IFN-β1*) gene in paraffin embedded tissues of larynx, liver and lung carcinoma.

AWARDS AND RECOGNITIONS

- Awardee of scholarship under the program Research Stays for University Academics and Scientists, 2021 by DAAD German Academic Exchange Service.
- Recipient of Global Scholar in Training Award from American Association of Cancer Research (AACR) to attend and present research work in Annual Meeting of AACR, April 24-29, 2020, in San Diego, CA, USA.
- Recipient of Keystone Symposia travel award funded by the University of Hong Kong and the Croucher Foundation for up to \$2000 to attend the meeting on Cancer Stem Cells: Advances in Biology and Clinical Translation, Oct 13 - Oct 17, 2019, in Lee Shau Kee Lecture Centre, Centennial Campus, The University of Hong Kong in Pok Fu Lam, Hong Kong.
- Recipient of HEC travel award to attend Annual Meeting of American Society of Cell Biology, December 8-12, 2018, San Diego CA, USA.
- Recipient of Global Health Award by Bill and Melinda Gates Foundation to attend and present research work in J4; Obesity and Adipose meeting conducted by Keystone Symposia on Molecular and Cellular Biology in Keystone, CO USA 2017.
- Recipient of International travel award to attend annual meeting of American Society of Cell Biology in San Francisco, CA USA 2016.
- Recipient of Research Productivity Award 2015 by COMSATS Institute of Information Technology.
- Selected for faculty exchange summer research program 2015 by Koc University, Istanbul, Turkey.
- Recipient of International travel award to attend annual meeting of American Society of Cell Biology in Philadelphia, PA USA 2014.
- Recipient of Animal Sciences Graduate Student Fellowship Award 2013.
- Recipient of ACES UIUC travel grant for conference presentations 2013.
- Recipient of a New Biology Graduate Fellow award for oral presentations at the ASAS/ADSA meeting July 2013, in Indianapolis, IN.
- Recognized and recipient of scholarship for "Two week short course on Metabolic Syndrome" by Vanderbilt University School of Medicine, Nashville TN funded by National Institute of Health and Vanderbilt University TN USA, 2012.
- Recognized for high scholarship, outstanding achievement or service by Gamma Sigma Delta "The Honor Society of Agriculture" University of Illinois chapter USA, 2012.
- Awardee of International Career Certificate by International Student Career Certification Program, University of Illinois at Urbana-Champaign USA, 2012
- Recipient of faculty development program (FDP) scholarship by COMSATS institute of information technology, Pakistan for University of Illinois at Urbana-Champaign, USA, 2009.
- Over all third but first position in boys in University of the Punjab session 2004-2008.

- Recipient of Merit Scholarship awarded by University of the Punjab during four years of studies 2004-2008.
- Recipient of Merit Scholarship awarded by Board of Intermediate & Secondary Education Faisalabad 2001-2003.

TEACHING COURSES

Graduate courses (MS/PhD)	Essentials of Virology Gene Regulation and Expression
Undergraduate courses (BS)	Introduction to Molecular Biology Principles of Biochemistry Introduction to Bioinformatics Essentials of Genetics Biotechnology I Biochemistry I Introduction to Genomics and Proteomics

ADMINISTRATIVE RESPONSIBILITIES

- Member of Departmental Core Lab Committee (2019)
- Member of Exam Committee of PhD Comprehensive Exams (Fall 2016 - present)
- Member of Department Graduate Admission Committee (Fall 2018)
- Member of Departmental Inquiry Committee (Fall 2018)
- Lab in-charge of Functional Genomics Lab. (Spring 2016 - Fall 2016)
- Member of Departmental Academic Regulatory Committee (DARC), CUI (2013 – 2018)
- Member of Departmental Emergency Coordination Committee, CUI (2016 – 2018)
- Students Class Counselor (2013 – present)
- Organizer of Pak-China Business Forum, Biomedical Materials Thematic Group (2014, 2015)
- Organizer of Seminar on *Campylobacter jejuni* in Sahiwal Campus, CIIT (2014)
- Member of Departmental Review Committee (2013)
- Organizer of 1st Symposium on Genomics, Proteomics, Metabolomics: Recent Trends in Biotechnology, 22nd, 23rd October 2007 at Department of Microbiology and Molecular Genetics, University of the Punjab

COMMUNITY SERVICES

- Career Counselor of The Citizen Foundation (TCF) school students
- Active member of Street-store and Chadar charity organization
- Reviewer of International Scientific Journals
- Member of American Society of Cell Biology
- Member of American Association for Cancer Research

- Two days workshop on Research priority setting and capacity strengthening” by Pakistan Health Research Council, Ministry of National Health Services, Regulation and Coordination. February 27-28, 2018, Islamabad, Pakistan.
- Three days’ workshop on “Reviewer’s Capacity building program” by Higher Education Commission, Pakistan in the collaboration with the British Council Pakistan. August 10-12, 2022, Islamabad, Pakistan.

STEDENTS SUPERVISION

Graduate

1. **Hafiz Muhammad Umar**
PhD (Biochemistry and Molecular Biology) – Thesis Submitted
2. **Muhammad Rafiq**
PhD (Biochemistry and Molecular Biology) – Thesis Submitted
3. **Zaheer Ahmad**
PhD (Biochemistry and Molecular Biology) – In progress
4. **Arham Javed**
PhD (Biochemistry and Molecular Biology) – In progress
5. **Abdullahi Dandare**
PhD (Biochemistry and Molecular Biology) – Fall 2022
Thesis Title: Role of Circulating RNAs in Individuals with Metabolic Syndrome: Emphasis on Obesity and Cardiovascular Diseases
6. **Khalid Khan (Co-supervision)**
PhD (Animal Breeding and Genetics) – 2023
Thesis Title: Genetic Characterization and Polymorphism in Beta Casein Gene in Azi-Kheli Buffaloes
7. **Asma Mehboob (Co-supervision)**
PhD (Biochemistry and Molecular Biology) – In progress
8. **Andleeb Zahra (Co-supervision)**
PhD (Bioinformatics) – 2021
Thesis Title: Investigating the Role of Salivary miRNA as Potential Diagnostic Biomarker for Oral Cancers
9. **Amina Khan (Co-supervision)**
MS (Bioinformatics) – 2015
Thesis Title: Bioinformatics Analysis of the MicroRNA Target Genes in Gene Expression Profile of Chronic Kidney Diseases
10. **Faryal Gohar Noshahi**
MS (Biochemistry and Molecular Biology) – 2016
Thesis Title: Expression of MicroRNA and its Target Genes in Chronic Kidney Disease Patients as a Diagnostic Tool
11. **Muhammad Aftab Malik (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2016
Thesis Title: Gene Expression Analysis of Pro-Inflammatory Cytokines and NF- κ B in Obese Individuals of Pakistan
12. **Huma Jehanzeb**
MS (Biochemistry and Molecular Biology) – 2016

- Thesis Title: Gene Expression of Inflammatory Pathway in Obese Type 2 Diabetic individuals in Pakistan
13. **Mahrugh (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2016
Thesis Title: Analysis of inflammatory genes in non-obese type 2 diabetes patients in Pakistan.
 14. **Khubaid ur Rehman (Co-supervision)**
MS (Molecular Genetics) – 2016
Thesis Title: Expression Analysis of Chloride Channels in Cancers.
 15. **Sana Mumtaz**
MS (Biochemistry and Molecular Biology) – 2017
Thesis Title: Evaluation of MicroRNA and their Target Genes in Obese Population of Pakistan
 16. **Aqsa Bibi**
MS (Biochemistry and Molecular Biology) – 2018
Thesis Title: Expression Analysis of mTOR Pathway in Obese Population of Pakistan
 17. **Mavra Zenab (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2018
Thesis Title: Expression Analysis of *miR-27a-3p* and its Target Genes in Obese Patients of Islamabad
 18. **Rabia Ahmad (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2018
Thesis Title: Expression Profiling of Wheat (*Triticum aestivum*) bZIP Transcription Factors Under Drought Stress
 19. **Zaheer Ahmad**
MS (Biochemistry and Molecular Biology) – 2018
Thesis Title: Green Synthesis and Analysis of Biological Efficacy of ZnO Nanoparticles by Using *Aleo vera* Plant.
 20. **Annaira Fatima (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2018
Thesis Title: Genome-Wide Identification and Expression Analysis of SnRK2 Gene Family in Mung Bean (*Vigna radiate*) in Response to Drought Stress
 21. **Syeda Aba Ali**
MS (Biosciences) – 2019
Thesis Title: Evaluation of microRNA 132-3p and its Target Genes in Obese Population of Pakistan
 22. **Muhammad Rafiq**
MS (Biochemistry and Molecular Biology) – 2019
Thesis Title: Role of Thrombomodulin in Cardiovascular Disease Patients of Pakistan
 23. **Warda Amjad**
MS (Biochemistry and Molecular Biology) – 2019
Thesis Title: Expression Analysis of microRNA143 and its Target Genes in Obese Diabetic Patients of Pakistan
 24. **Sheryar Khan (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2019
Thesis Title: Expression Analysis of TMEM16A in bladder cancer Population of Pakistan

25. **Sania Raees**
MS (Biochemistry and Molecular Biology) – 2019
Thesis Title: Role of mTOR Pathway in Hypertensive Obese Individuals of Pakistan
26. **Roheena Ismael**
MS (Biochemistry and Molecular Biology) – 2019
Thesis Title: Expression Analysis of Fibroblast Growth Factors in Cardiovascular Disease Patients of Pakistan
27. **Zuneera Marium**
MS (Molecular Genetics) – 2019
Thesis Title: Expression Analysis of miRNA-340 and its Target Genes in Obese Population of Pakistan
28. **Nida Satti (Co-supervision)**
MS (Molecular Genetics) – 2019
Thesis Title: Expression of Long Non-Coding RNA and Investigation of Cholinergic Enzymes in Depressive Patients
29. **Ummara Javed**
MS (Molecular Genetics) – 2020
Thesis Title: Expression Analysis of *miR-182* and its Target Genes in Obese Diabetic Individuals of Pakistan
30. **Aleena Khan**
MS (Molecular Genetics) – 2020
Thesis Title: Expression Analysis of mToR pathway in Polycystic Ovary Syndrome Patients
31. **Muhammad Asif**
MS (Biochemistry and Molecular Biology) – 2020
Thesis Title: Effects of Rivaroxabon on Expression of *ABCBI* Gene for Treatment of Thromboembolism
32. **Ghulam Rabia (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2020
Thesis Title: Identification and Expression Analysis of Non-coding Circular RNA in Oral Squamous Cell Carcinoma
33. **Shanza Sahar (Co-supervision)**
MS (Molecular Genetics) – 2020
Thesis Title: Screening of Circular RNA (*hsa_circ_0001879*) Sponging Activity with miR-548c-3p in Oral Squamous Cell Carcinoma
34. **Farah Saboor Khan (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2020
Thesis Title: Expression Analysis of mir-143 and its target genes in Bladder Cancer of Pakistani population
35. **Sadia Rauf (Co-supervision)**
MS (Molecular Genetics) – 2020
Thesis Title: Expression Analysis of miRNA-205 and its Target Genes in Obese Population of Pakistan
36. **Minahil Javaid**
MS (Biochemistry and Molecular Biology) – 2020

- Thesis Title: Role of MicroRNA-145 and its Target Genes in Metabolic Syndrome Patients of Pakistan.
37. **Sana Javed**
MS (Biochemistry and Molecular Biology) – 2020
Thesis Title: Expression Analysis of miRNA-21 and its Target Genes in Metabolic Syndrome
 38. **Yumna**
MS (Biochemistry and Molecular Biology) – 2020
Thesis Title: Expression Analysis of miRNA-340 and its Target Gene in Metabolic Syndrome
 39. **Kamran Asif**
MS (Molecular Genetics) – 2021
Thesis Title: Expression Analysis of Thrombospondin-1 in Metabolic Syndrome
 40. **Shifa Shah**
MS (Biosciences) – 2021
Thesis Title: Expression Analysis of miRNA-143 and its Target Genes in Poly Cystic Ovary Syndrome
 41. **Swaiba Baber**
MS (Biochemistry and Molecular Biology) – 2021
Thesis Title: Expression analysis of mTOR pathway in oral cancer
 42. **Narmeen Adnan Rana (Co-supervision)**
MS (Microbiology and Immunology) – 2021
Thesis Title: Exploring the Effect of Non-coding RNAs Perturbation on IL-17 Pathway in Oral Cancer
 43. **Muhammad Raza Ullah Tariq (Co-supervision)**
MS (Molecular Genetics) – 2021
Thesis Title: Expression Analysis of miRNA-145 and its Target Genes in Bladder Cancer of Pakistani Population
 44. **Rashid Hussain**
MS (Molecular Genetics) – 2021
Thesis Title: Association of Telomere Length in Metabolic Syndrome
 45. **Afshan Gohar**
MS (Biosciences) – 2021
Thesis Title: Association of Telomere Length with Diabetes Mellitus in Pakistani Individuals
 46. **Rukia Wario Boru**
MS (Biochemistry and Molecular Biology) – 2021
Thesis Title: Expression Analysis of miR-143-3p and its Target Genes in Breast Cancer Patients of Pakistan
 47. **Maryam Akmal**
MS (Molecular Genetics) – 2022
Thesis Title: Expression Analysis of miRNA 145-5p and its Target Genes in Polycystic Ovary Syndrome
 48. **Sundas Azad**
MS (Biochemistry and Molecular Biology) – 2022
Thesis Title: Expression Analysis of miRNA-548c and its Target Genes in Polycystic

- Ovary Syndrome
49. **Himayatullah Chishti**
MS (Biosciences) – 2022
Thesis Title: Association of Telomere Length in Hypertensive Patients of Pakistan
 50. **Tasbiha Gul**
MS (Molecular Genetics) – 2022
Thesis Title: Antibacterial Activity of Zinc Oxide Green Nanoparticles Against MDR *Salmonella typhi*: *In Vitro* and *In Vivo* Studies
 51. **Abroo Basharat**
MS (Molecular Genetics) – 2022
Thesis Title: Antibacterial Activity of Copper Oxide and Graphene Oxide Composite Nanoparticles Against MDR *Salmonella typhi*
 52. **Muhammad Arsalan Ayub**
MS (Molecular Genetics) – 2022
Thesis Title: Expression Analysis of Circulating miRNA132-3p and its Target Gene in Cardiovascular Disease
 53. **Fayaz Ud Din (Co-supervision)**
MS (Molecular Genetics) – 2022
Thesis Title: Expression Analysis of Circulating miRNA-132-3p and its Target Genes in Chronic Kidney Disease Patients of Pakistan
 54. **Sarah Ilyas (Co-supervision)**
MS (Molecular Genetics) – 2022
Thesis Title: Expression of miRNA 145-5p in Chronic Kidney Disease Patients of Pakistan
 55. **Maheen Ejaz**
MS (Molecular Genetics) – 2023
Thesis Title: Expression Analysis of Circulating miR-17-5p and its Target Genes in Chronic Kidney Disease
 56. **Wafa Khizer**
MS (Biochemistry and Molecular Biology) – 2023
Thesis Title: Expression Analysis of Circulating miRNA 21 and its Target Genes in Polycystic Ovary Syndrome
 57. **Sarshar Sannam**
MS (Biochemistry and Molecular Biology) – 2023
Thesis Title: Expression Analysis of Circulating miRNA 340 and its Target Gene *BCL-2* in Cardiovascular Diseases
 58. **Hussain Ahmed**
MS (Biochemistry and Molecular Biology) – 2023
Thesis Title: Association of Telomere Length with Cannabis Addiction
 59. **Sara Waheed (Co-supervision)**
MS (Biochemistry and Molecular Biology) – 2023
Thesis Title: Identification of miRNA Targeted Genes Involved in Type 2 Diabetes and their Implications in Drug Discovery
 60. **Asad Abbas (Co-supervision)**
MS (Molecular Genetics) – 2023

Thesis Title: Effects of Occupational Exposure of Petroleum on the Leukocytes Telomere Length

61. **Alishba Tariq**

MS (Molecular Genetics) – 2023

Thesis Title: Expression Analysis of Circulating miR-143-3p and its Target Genes in Chronic Kidney Disease

62. **Minahil**

MS (Molecular Genetics) – 2023

Thesis Title: Impact of Telomere Length Alteration in Chronic Kidney Disease Patients of Pakistan

63. **Zuha Tariq**

MS (Molecular Genetics) – 2023

Thesis Title: Impact of Leukocyte Telomere Length Alteration in Pakistani Patients of Polycystic Ovary Syndrome

Undergraduate

1. **Warda Majid Khan**

BS (Bioinformatics) – 2014

Thesis Title: Bioinformatics Analysis of the miRNA Target Genes in Gene Expression Profile of Child Obesity

2. **Anum Khan**

BS (Bioinformatics) – 2014

Thesis Title: NPY1 and CB1 as Target of Endocannabinoids for the treatment of obesity

3. **Rumza Mehr un Nisa Nomani**

BS (Biosciences) – 2014

Thesis Title: Prevalence and Risk Factors of Obesity in Adult Population of Pakistan

4. **Sana Mumtaz**

BS (Biosciences) – 2015

Thesis Title: Role of *TNF- α* gene expression in obesity related metabolic diseases

5. **Ghulam Rabia**

BS (Biosciences) – 2016

Thesis Title: Role of miR-300 and their targeted genes in oral cancer

6. **Syeda Aba Ali**

BS (Biosciences) – 2016

Thesis Title: Role of miR-340-5p and their targeted genes in oral cancer

7. **Shanza Sahar**

BS (Biosciences) – 2017

Thesis Title: Expression of miR-27a-3p and its target genes in oral carcinoma

8. **Sobia Bibi (Co-supervision)**

BS (Biosciences) – 2017

Thesis Title: Expression of miR-205-3p and its target genes in oral carcinoma

9. **Roheena Ismail**

BS (Biosciences) – 2017

Thesis Title: Expression analysis of miRNAs in type II diabetes associated obesity

10. **Hira Mustafa**

BS (Biosciences) – 2017

- Thesis Title: Expression analysis of TNF-alpha and cytokines in oral cancer
11. **Farah Saboor Khan (Co-supervision)**
BS (Biosciences) – 2017
Thesis Title: Expression of oxidative stress regulating gene in chronic kidney disease
 12. **Javeria Kamran (Co-supervision)**
BS (Biosciences) – 2017
Thesis Title: Expression of antioxidant regulating gene in chronic kidney disease.
 13. **Aleena Khan**
BS (Biosciences) – 2018
Thesis Title: Expression analysis of miRNA143 and its target genes in obese population of Pakistan
 14. **Sidra Saeed**
BS (Biosciences) – 2018
Thesis Title: Expression of *TMEM16F* in bladder cancer
 15. **Hira Islam**
BS (Biosciences) – 2018
Thesis Title: Green Synthesis of Nanoparticles using Different Methods
 16. **Salma Aslam**
BS (Biosciences) – 2018
Thesis Title: Expression Analysis of miR-143 in Patients of Chronic Kidney Diseases
 17. **Abdul Haris (Co-supervision)**
BS (Physics) – 2018
Thesis Title: Synthesis of Green nanoparticles and their Biological Applications
 18. **Hareem Rauf**
BS (Biosciences) – 2019
Thesis Title: Expression analysis of miRNA145-5p in oral cancer patients of Pakistan
 19. **Wajeaha Sajjad**
BS (Biosciences) – 2019
Thesis Title: Expression analysis of miRNA143-3p in oral cancer patients of Pakistan
 20. **Ayesha Suhail**
BS (Bioinformatics) – 2019
Thesis Title: Bioinformatics analysis of miRNAs and their target genes in gene expression profile of oral cancer
 21. **Aleena Ashraf**
BS (Biosciences) – 2021
Thesis Title: Effects of COVID-19 in local population of Pakistan
 22. **Aqsa Bint E Ali**
BS (Biosciences) – 2021
Thesis Title: Expression analysis of *FGF2I* in obese individuals of Pakistan
 23. **Armaghan Ali Saad**
BS (Biosciences) – 2022
Thesis Title: Synthesis of Silicon Dioxide and Graphene Oxide Nanocomposite and its Effectiveness on Multiple Antibiotic-Resistant Bacteria
 24. **Attiah Abid**
BS (Biosciences) – 2022

Thesis Title: Synthesis of TiO₂-GO Nano-Composite and its Antimicrobial Effectiveness against Antibiotic Resistant Bacteria

25. **Abdul Muqet and Irtaza Hassan Khan**

BS (Biosciences) – 2023

Thesis Title: Expression of miR-21-5p and miR-548-3p in Patients of Chronic Kidney Disease

26. **Fatima Nadeem**

BS (Biosciences) – 2023

Thesis Title: Expression Analysis of miR-579-3p in Cardiovascular Disease

27. **Arsalan Saleem and Umer Malik**

BS (Biosciences) – 2023

Thesis Title: *In silico* Analysis of CB Receptors with THC: Implication of Pharmacodynamics and Expression Analysis of hsa-miR-146a-3p in Cannabis Addicted Individuals

PUBLICATIONS

- 1) Naeem, A., Noureen, N., Al-Naemi, S. K., Al-Emadi, J. A., **Khan, M. J.** (2024). Computational design of anti-cancer peptides tailored to target specific tumor markers. *BMC chemistry*, 18(1), 39. <https://doi.org/10.1186/s13065-024-01143-0>
- 2) Zafar A, **Khan MJ**, Abu J, Naeem A. (2024). Revolutionizing cancer care strategies: immunotherapy, gene therapy, and molecular targeted therapy. *Molecular biology reports*, 28;51(1):219. doi: 10.1007/s11033-023-09096-8.
- 3) Nomani, R. M. N., A. Khan, S. T. A. Shah, A. Naeem, A. Liaquat, **M. J. Khan** (2023). Risk Factors of Obesity in the Adult Population of Pakistan. *Life & Science*, 4(4):379-386.
- 4) Shahid, A., F. Nazir, **M. J. Khan**, S. Sabahat, A. Naeem (2023). A concise overview of advancements in ultrasensitive biosensor development. *Frontiers in bioengineering and biotechnology*, 11, 1288049. <https://doi.org/10.3389/fbioe.2023.1288049>
- 5) Sabir, S., N. Sabir, A. Mushtaq, M. Gul, **M. J. Khan** (2023). A retrospective study on epidemiological and clinical characteristics of COVID-19 in Baluchistan (Pakistan) and its future perspectives. *Journal of Shifa Tameer-e-Millat University*, 6(1):38-44. <https://doi.org/10.32593/jstmu/Vol6.Iss1.226>
- 6) Ejaz, M., Usman, S. M., Amir, S., **M. J. Khan** (2023). Holistic expression of miR-17-92 cluster in obesity, kidney diseases, cardiovascular diseases, and diabetes. *Molecular biology reports*, 10.1007/s11033-023-08549-4.
- 7) Zafar, A., **Khan, M. J.**, and Naeem, A. (2023). MDM2- an indispensable player in tumorigenesis. *Molecular biology reports*, 10.1007/s11033-023-08512-3. Advance online publication. <https://doi.org/10.1007/s11033-023-08512-3>
- 8) Rafiq, M., Liaquat, A., Javed, A., Ullah Shah, S., Hussain, R., Akram, Z., **M. J. Khan** (2023). Association of leukocyte telomere attrition in coronary artery disease in Pakistani population: A case-control study with meta-analysis. *Clinica chimica acta; international*

- journal of clinical chemistry*, 547, 117416. Advance online publication.
<https://doi.org/10.1016/j.cca.2023.117416>
- 9) Sabir, S. N. Sabir, N. Banaras, A. Liaquat, **M. J. Khan** (2023). Demographic and clinical characteristics of COVID-19 patients in the least developed province Balochistan of Pakistan – an observational descriptive study. *J Public Hlth Dev*, 21(2):102-11. Available from: <https://he01.tci-thaijo.org/index.php/AIHD-MU/article/view/263190>.
<https://doi.org/10.55131/jphd/2023/210209>.
 - 10) Salim, H. M. U., Dandare, A., Khalil, F., Liaquat, A., **Khan, M. J.**, Naeem, A. (2023). Computational Analysis Reveals Distinctive Interaction of miRNAs with Target Genes in the Pathogenesis of Chronic Kidney Disease. *Genes*, 14(4), 898.
<https://doi.org/10.3390/genes14040898>
 - 11) Rafiq, M., Dandare, A., Javed, A., Liaquat, A., Raja, A. A., Awan, H. M., **Khan, M. J.**, Naeem, A. (2023). Competing Endogenous RNA Regulatory Networks of hsa_circ_0126672 in Pathophysiology of Coronary Heart Disease. *Genes*, 14(3), 550.
<https://doi.org/10.3390/genes14030550>
 - 12) Khan, K., Suhail, S. M., Khan, R., Ahmed, I., Khan, F. A., **M. J. Khan** (2023). Genetic polymorphism of B-casein gene and its association with milk production and composition in Azi-Kheli buffalo. *Tropical animal health and production*, 55(2), 94.
<https://doi.org/10.1007/s11250-023-03511-9>
 - 13) Rafeeq, M. M., Murad, H. A. S., Najumuddin, Ullah, S., Ahmed, Z., Alam, Q., Bilal, M., Habib, A. H., Sain, Z. M., **M. J. Khan**, M. Umair (2023). Case report: A novel *de novo* loss of function variant in the DNA-binding domain of TBX2 causes severe osteochondrodysplasia. *Frontiers in genetics*, 13, 1117500.
<https://doi.org/10.3389/fgene.2022.1117500>
 - 14) Ahmad, Z., Liaquat, R., Palander, O., Bilal, M., Zeb, S., Ahmad, F., **Khan, M. J.**, Umair, M. (2023). Genetic overview of postaxial polydactyly: Updated classification. *Clinical genetics*, 103(1), 3–15. <https://doi.org/10.1111/cge.14224>
 - 15) Dandare, A., Rafiq, M., Liaquat, A., Raja, A. A., **M. J. Khan** (2022). Identification of hsa_circ_0092576 regulatory network in the pathogenesis of coronary heart disease. *Genes & diseases*, 10(1), 26–28. <https://doi.org/10.1016/j.gendis.2021.12.027>
 - 16) Raja, A. A., A. Dandare, **M. J. Khan**, M. J. Khan, (2022). Free Fatty Acid Overload Targets Mitochondria: Gene Expression Analysis of Palmitic Acid Treated Endothelial Cells. *Genes* 2022, 13(10), 1704; <https://doi.org/10.3390/genes13101704>
 - 17) Dandare, A., M. Rafiq, A. Liaquat, **M. J. Khan**, (2022). Two Hours Method for RNA and DNA Co-Extraction from Blood of Coronary Artery Disease Patients: Fast, Simple and Economical Technique. *Pakistan J Med Sci.*, 38(7).
<https://doi.org/10.12669/pjms.38.7.5509>.
 - 18) Dandare, A., A. Liaquat, M. Rafiq, M. N. L. Javeres, S. Younis, **M. J. Khan**, 2022. Circulating miR-548c-3p possesses good diagnostic potential for metabolic syndrome. (in press) *Genes Dis.*, 2022, doi: <https://doi.org/10.1016/j.gendis.2022.06.008>

- 19) Behrendsen, L. S., Menon, P. R., **Khan, M. J.**, Gregus, A., Wirths, O., Meyer, T., Staab, J. (2022). Evaluation of the putative lymphoma-associated point mutation D427H in the STAT3 transcription factor. *BMC molecular and cell biology*, 23(1), 23. <https://doi.org/10.1186/s12860-022-00422-9>
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- 23) Ashraf, A., Liaquat, A., Shabbir, S., Bokhari, S. A., Tariq, Z., Furrakh, Z., Raja, A. A., & **Khan, M. J.** (2022). High level of lactate dehydrogenase and ischaemia-reperfusion injury regulate the multiple organ dysfunction in patients with COVID-19. *Postgraduate Medical Journal*, 99 (1172), 576–581. [postgradmedj-2022-141573. https://doi.org/10.1136/postgradmedj-2022-141573](https://doi.org/10.1136/postgradmedj-2022-141573)
- 24) Tabassam, L., **Khan, M. J.**, Hussain, S. Khattak, S. A. Shah S. K., A. S. Bhatti, 2022. Structural, optical and antimicrobial characteristics of ZnO green nanoparticles. *J Sol-Gel Sci Technol* (2022). <https://doi.org/10.1007/s10971-022-05726-y>
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 - 46) **Khan, M. J.**, A. Hosseini, S. Burrell, S. M. Rocco, J. P. McNamara, and J. J. Loor. 2013. Change in subcutaneous adipose tissue metabolism and gene network expression during the transition period in dairy cows, including differences due to sire genetic merit. *Journal of dairy science*, 96 (4): 2171-2182.
 - 47) Graugnard, D. E., K. M. Moyes, E. Trevisi, **M. J. Khan**, D. Keisler, J. K. Drackley, G. Bertoni, and J. J. Loor. 2013. Liver lipid content and inflammometabolic indices in periparturient dairy cows are altered in response to prepartal energy intake and postpartal intramammary inflammatory challenge¹. *Journal of dairy science*, 96:918-935.
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 - 50) **Khan, M. J.**, D. E. Graugnard, and J. J. Loor. 2012. Endocannabinoid system and proopiomelanocortin gene expression in periparturient bovine liver in response to prepartal plane of nutrition. *Journal of Animal Physiology and Animal Nutrition*. 96(5):907-19.

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CONFERENCE PRESENTATIONS AND WORKSHOPS ATTENDED

1. M. Sheryar, A. Amjad, Rouhullah and **M. J. Khan**, 2023. Differential gene expression analysis of chloride ion channels in bladder cancer patients of Pakistan. International Conference on Food & Applied Sciences (ICFAS-23) in collaboration with PASTIC, IFANCA Pakistan & Applied Zoological Society of Pakistan, August 3-5, Dir-Kumrat, Pakistan.
2. **M. J. Khan**, A. Dandare, Afrose Liaquat and M. Rafiq, 2022. Diagnostic potential of circulating miRNAs in metabolic syndrome. *Annual meeting of American Society for Cell Biology*, December 3-7, Washington DC, USA. *Journal of Cell Biology*, Abstract # P1278.
3. Three days' workshop on "Reviewer's Capacity building program" by Higher Education Commission, Pakistan in the collaboration with the British Council Pakistan. August 10-12, 2022, Islamabad, Pakistan.
4. **M. J. Khan**, A. Dandare, M. Rafiq, A. Liaquat. 2022. Identification of endogenous circular RNAs in the pathogenesis of coronary heart disease. *Regulatory and Non-Coding RNAs held by Cold Spring Harbor Laboratory USA. Abstract 122*. May 17-21.
5. **M. J. Khan**, G. Rabia, A. Dandare, H. M. Awan, A. A. Raja. 2022. Functional analysis of human circular RNA_0001587 and its target miRNAs in oral cancer. *American Association for Cancer Research Annual Meeting 2022. Abstract 1554*. April 8-13.
6. **M. J. Khan**, U. Javed, G. Rabia, A. Liaquat, A. Khan, 2021. Identification of miRNAs and their target genes in obese diabetic individuals- an *in-silico* study. *Virtual live Keystone Symposia eSymposia meeting Diabetes: Many faces of the disease EK18*, February 1-3.
7. **M. J. Khan**, A. Zahra, G. Rabia, S. A. Ali, S. Sahar, S. Bibi, M. Q. Fatmi. 2020. Role of salivary miRNAs and their target genes in oral cancer patients as a potential diagnostic tool. *American Association for Cancer Research Annual Meeting 2022. Cancer Res (2020) 80 (16_Supplement): 3700*. <https://doi.org/10.1158/1538-7445.AM2020-3700>
8. **Invited Lecture: M. J. Khan**. 2020. Scientific Research Writing, October 3-5, 2020, Codon Corps, Pakistan
9. **Invited Lecture: M. J. Khan**. 2020. Webinar on Navigating A Pathway Towards Effective Scientific Research, December 30, 2020, International Islamic University Islamabad, Pakistan
10. **M. J. Khan**, S. M. Sheikh, 2018. Evaluation of microRNAs and their target genes in obese population of Pakistan. *Annual meeting of American Society of Cell Biology*, December 8-12, San Diego CA, USA. *Journal of Cell Biology*, Abstract # P1354.

11. Two days workshop on Research priority setting and capacity strengthening” by Pakistan Health Research Council, Ministry of National Health Services, Regulation and Coordination. February 27-28, 2018 Islamabad
12. **Invited Lecture: M. J. Khan.** 2018. Potential role of microRNAs and their target genes in metabolic diseases and oral cancer. February 7-9, 2018. *A conference on Microbiology and Molecular Genetics*, University of the Punjab.
13. S. Mumtaz, **M. J. Khan** and A. Naeem. 2017. Role of TNF-alpha gene expression in obesity related metabolic diseases. *International Conference on Trends & Prospects in Molecular Biosciences*, University of the Punjab.
14. **M. J. Khan**, S. Mumtaz, M. A. Malik, A. Naeem, 2017. Gene expression analysis of pro-inflammatory cytokines in obese individuals of Pakistan. *J4; Obesity and Adipose Tissue meeting by Keystone Symposia on Molecular and Cellular Biology*, Abstract # P2082.
15. **M. J. Khan**, A. Khan, F. G. Noshahi, A. Naeem, 2016. Role of microRNA and its target genes in chronic kidney disease patients as diagnostic tool. *Annual meeting of American Society of Cell Biology*, December 3-7, San Francisco CA, USA. *Journal of Cell Biology*, Abstract # P816.
16. **M. J. Khan**, W. Khan, A. A. Raja, A. Naeem, 2014. Analysis of miRNA target genes; a new approach to understand the cause of obesity. *Annual meeting of American Society of Cell Biology*, December 6-10, Philadelphia, PA, USA. *Journal of Cell Biology*, Abstract # P784.
17. A. Naeem, **M. J. Khan**, A. Khan, 2014. Y1: a potential target of endocannabinoids. *Annual meeting of American Society of Cell Biology*, December 6-10, Philadelphia, PA, USA. *Journal of Cell Biology*, Abstract # P462.
18. **M. J. Khan**, D. E. Graugnard, J. J. Loor, 2013. Inflammation and endoplasmic reticulum (ER) stress gene network expression in liver of periparturient cows fed two levels of dietary energy prepartum. *Joint Annual Meeting of American Dairy Science Association*, July 8-12, Indianapolis, IN, USA, *Journal of Dairy Science*, 96(E-Suppl. 1), Abstract # 234.
19. **M. J. Khan**, D. E. Graugnard, S. L. Rodriguez-Zas, J. J. Loor, 2013. Polymorphonuclear leukocyte (PMN) transcriptomics in transition Holstein cows fed two levels of dietary energy prepartum. *Joint Annual Meeting of American Dairy Science Association*, July 8-12, Indianapolis, IN, USA, *Journal of Dairy Science*, 96(E-Suppl. 1), Abstract # 374.
20. **M. J. Khan**, M. Welge, C. Bushell, M. Berry, L. Gatzke, J. J. Loor, 2013. Visual analytics of bovine nutrigenomics datasets. *Joint Annual Meeting of American Dairy Science Association*, July 8-12, Indianapolis, IN, USA, *Journal of Dairy Science*, 96(E-Suppl. 1), Abstract # T352.
21. K. M. Moyes, D. E. Graugnard, J. K. Drackley, **M. J. Khan**, M. Bionaz, and J. J. Loor, 2013. Neutrophil (PMN) expression of extracellular trap formation and immunometabolic genes in response to prepartal energy intake and postpartal intramammary lipopolysaccharide challenge in postpartal dairy cows. *Joint Annual Meeting of American Dairy Science Association*, July 8-12, Indianapolis, IN, USA, *Journal of Dairy Science*, 96(E-Suppl. 1), Abstract # W139.
22. S. M. Suhail, M. S. Qureshi, I. Ahmed, H. Akbar, **M. J. Khan**, and J. J. Loor. 2013. Evaluation of sources of variation and estimation of productive parameters using

- multi-trait animal models in dairy buffaloes in Pakistan. *Joint Annual Meeting of American Dairy Science Association*, July 8-12, Indianapolis, IN, USA, Journal of Dairy Science, 96(E-Suppl. 1), Abstract # W192.
23. **M. J. Khan**, J. J. Loor, C. Bushell, M. Welge, M. Berry, L. Gatzke, 2013. Visual analytics of bovine nutrigenomics datasets. *Computational Science and Engineering 2013 Meeting*, April 24-25, NCSA, University of Illinois at Urbana-Champaign.
 24. H. Akbar, **M. J. Khan**, S. Meier, C. Burke, S. McDougall, M. Mitchell, S. L. Rodriguez-Zas, R. E. Everts, H. A. Lewin, J. R. Roche, and J. J. Loor. 2012. Differential expression of the hepatic and adipose transcriptome in periparturient Friesian cows with endometritis. *Joint Annual Meeting of American Dairy Science Association*, July 15-19, Phoenix, AZ, USA, Journal of Dairy Science, 95(E-Suppl. 1), Abstract # M3.
 25. H. Akbar, **M. J. Khan**, D. B. Carlson, J. K. Drackley, and J. J. Loor. 2012. Effects of nutrition, ketosis, and inflammation on hepatokine and nuclear receptor expression in liver of periparturient Holstein dairy cows. *Joint Annual Meeting of American Dairy Science Association*, July 15-19, Phoenix, AZ, USA, Journal of Dairy Science, 95(E-Suppl. 1), Abstract # 153.
 26. **M. J. Khan**, D. Graugnard, D. H. Keisler, B. J. Bradford, L. K. Mamedova, J. K. Drackley, J. J. Loor, 2011. Hepatokine, growth hormone, and PPAR α -regulated gene network expression in liver of periparturient cows fed two levels of dietary energy prepartum. *Joint Annual Meeting of American Dairy Science Association*, July 10-14, New Orleans, LA, USA. Abstract # 779.
 27. **M. J. Khan**, E. Schmitt, M. A. Ballou, E. J. DePeters, S. L. Rodriguez-Zas, R. E. Everts, H. A. Lewin, J. K. Drackley, and J. J. Loor, 2010. Liver transcriptomics in Holstein cows fed lipid supplements during the periparturient period *Joint Annual Meeting of American Dairy Science Association*, July 11-15, Denver, CO, USA, Abstract # 1060.
 28. **M. J. Khan**, D. E. Graugnard, and J. J. Loor, 2010. Endocannabinoid and PPAR α signaling gene network expression in liver of periparturient cows fed two levels of dietary energy prepartum. *Joint Annual Meeting of American Dairy Science Association*, July 11-15, Denver, CO, USA, Abstract # 1124.
 29. **M. J. Khan**, D. E. Graugnard, and J. J. Loor, 2010. Endoplasmic reticulum (ER) stress gene network expression in liver of periparturient cows fed two levels of dietary energy prepartum. *Joint Annual Meeting of American Dairy Science Association*, July 11-15, Denver, CO, USA, Abstract # 1125.
 30. **M. J. Khan**, N. Murtaza and A. R. Shakoori, 2008. Sequence and Mutational Analysis of Interferon Beta 1 (*IFN-B1*) gene in Paraffin embedded tissues of larynx, liver and lung carcinoma. *Pakistan International Congress of Zoology 28*, March 18-20, Faisalabad, Pakistan.
 31. Participated in the 3 part-day “Train the Trainers Workshop on Counseling skills” held from 05, 07 & 08 May 2009 at CIIT Islamabad.

32. Participated in Proteomics Workshop: From Sample Preparation to Data Analysis, 24th, 25th October 2007 at Department of Microbiology and Molecular Genetics, University of the Punjab.

RESEARCH GRANTS

28. Investigating the role of circRNAs in miRNA sponging to modulate IL-17 pathway in oral cancer by HEC – PKR 4.3 M
29. Role of non-coding RNAs in metabolic syndrome with emphasis on cardiovascular diseases by Research Stays for University Academics and Scientists, 2021 by DAAD - € 8000
30. The role of immune system in obesity associated metabolic diseases by HEC – PKR 0.5 M
31. Gene expression of Thrombomodulin in coronary artery disease in Pakistani Population - A pilot study by Shifa International Hospital – PKR 1 M.
32. Transcriptome RNA sequencing of Coronary Artery Diseases Patients of Pakistan by Pakistan Council of Scientific & Industrial Research (PCSIR) - PKR 0.5 M
33. Transcriptome RNA sequencing of Chronic Kidney Disease Patients of Pakistan by Pakistan Council of Scientific & Industrial Research (PCSIR) - PKR 0.5 M

RESEARCH COLLABORATIONS

- NutriPhysioGenomics Lab, Department of Animal Sciences, University of Illinois at Urbana-Champaign, USA
- Center for Computational Biology and Bioinformatics, Koc University Istanbul, Turkey
- Clinic for Psychosomatic Medicine and Psychotherapy, Laboratory for Molecular Psychocardiology, University of Goettingen, Germany
- Health Research Governance Department, Ministry of Public Health, Doha, Qatar
- Department of Oncology, Lombardi Comprehensive Cancer Center, Georgetown University Medical Center, Washington, DC USA
- Department of Biochemistry, Usmanu Danfodiyo University Sokoto, Sokoto Nigeria
- Medical Genomics Research Department, King Abdullah International Medical Research Center (KAIMRC), King Saud Bin Abdulaziz University for Health Sciences, Ministry of National Guard Health Affairs (MNGH), Riyadh, Saudi Arabia
- Department of Life Sciences, School of Science, University of Management and Technology (UMT), Lahore, Pakistan
- Nanotechnology Laboratory, Department of Physics, COMSATS University Islamabad Pakistan
- Department of Biochemistry, Shifa Tameer-e-Millat University, Islamabad Pakistan

- Department of Biological Sciences, National University of Medical Sciences, Rawalpindi, Pakistan

MAJOR SUBJECTS

Biochemical Nutrition, Protein and Energy Metabolism, Ruminant Nutrition, Techniques in Animal Nutrition, Nutritional Aspects of Metabolic Diseases, Animal Growth and Development, Bioinformatics and System Biology, Applied Statistics, Cell Biology, Molecular Biology, Biochemistry, Biotechnology Fundamentals of Microbiology, Medical Microbiology, Industrial Microbiology, Food Microbiology, Microbial metabolism, Microbial ecology, Microbial physiology, Virology, Immunology, Principles of Genetics, Molecular Genetics, Genetic Counseling, Human Genetics, Yeast Genetics, Gene Therapy.

TECHNICAL SKILLS

- Basic bioinformatics tools and approaches
- Advanced gene expression techniques including RT-PCR and Microarray.
- Cell and tissue culture techniques.
- Liver lipid and glycogen extraction technique.
- Basic Microbiological Techniques of Isolation, Purification, Characterization and Genetic Evaluation.
- Biodegradation & Bioremediation Techniques.
- DNA Isolation from Bacteria, Yeast, Pea Plant, Blood, Tissues and Paraffin embedded tissues.
- Agarose Gel Electrophoresis and Polyacrylamide Gel Electrophoresis.
- Single Stranded Conformational Polymorphism (SSCP) Analysis.
- Enzyme-Linked Immunosorbent Assay (ELISA).

COMPUTER SKILLS

- Basic computer and Internet, Microsoft office, SPSS data analysis, SAS 9.2, Ingenuity pathway analysis (IPA) and KEGG pathway.

LANGUAGES

- Urdu: native speaker
- Punjabi: native speaker
- English: fluent