

# DEPARTMENT OF BIOLOGICAL AND BIOMEDICAL SCIENCES

*Believe*

*Become*

*Succeed*

## *Message from the Chair*

As we approach the halfway point of 2023, it's hard to believe all that has transpired since the launch of the BBS newsletter in 2020. At that time, we were initiating several departmental activities; little did we know that Covid-19 was about to hit. Some good news: Covid-19 is no longer considered a public health emergency of international concern, although safe practices are always advisable.

The past three years have seen all of us face different health, climate, and political crises. Our lives have been significantly impacted by several technological

changes as well, with the rapid advancement and widespread adoption of Artificial Intelligence (AI) being the most influential and perhaps the most daunting one to grapple with. As always, while these challenges persist, one thing remains constant: it is through the search for, and dissemination of research and education that we continue to move forwards, to find solutions to problems, and to do our best to continuously improve and strive for better while adapting to an ever-changing world.

Our newsletter this month features a very special event among many notable achievements: the graduation of another cohort of our flagship MPhil in Biological and Biomedical Sciences program, launched in 2019. With that, I invite you to go through this newsletter for a glimpse into our department's activities and the achievements of our hardworking faculty and staff.

Warm regards,  
Kulsoom

MAY  
2023



# FROM THE HUB

Dr Sadia Fatima was invited as an expert panelist in the POWWOW panel discussion on Metabolomics at the 12<sup>th</sup> Annual Conference of Pakistan Society of Chemical Pathology, ChemCon combined with Pakistan Association of Pathologists Conference in Karachi on November 26, 2022.



Dr Sadia Fatima also gave an invited talk titled 'Epigenetic signature of high susceptibility obesity genes on fetal and adult metabolic programming' at the DOHaD International Webinar on December 7, 2022.

Dr Rehana Rehman and Dr Sadia Fatima were invited as panel members at the AKU Authors day.

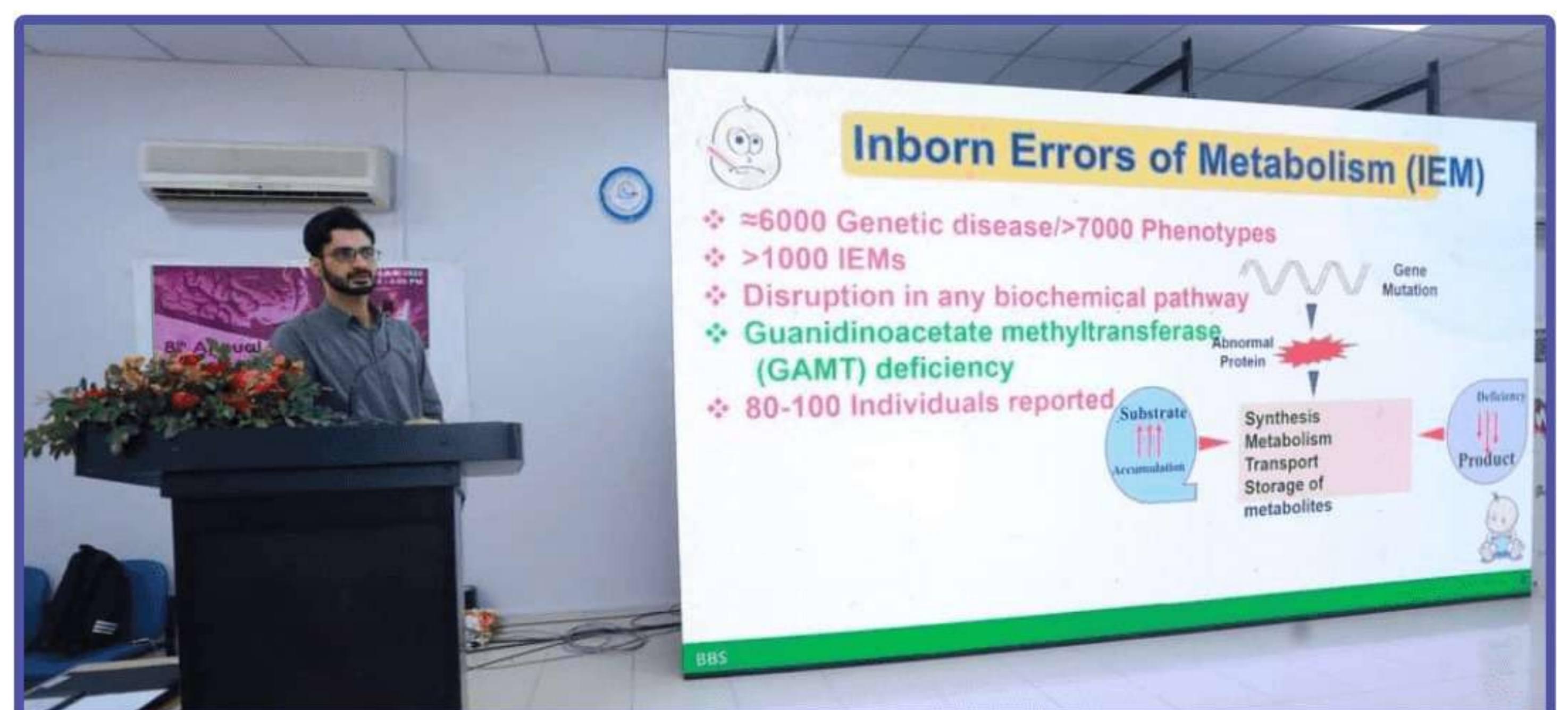
A poster for 'AKU Author's Day: Conversation with Authors'. The event is held on Monday, October 31, 2022, at the AKU Auditorium. The poster lists two sessions:  
**Chair/Session 1**  
**Dr Anjum Halal**, Vice Provost & Founding Dean, Faculty of Arts and Sciences (3:00-4:00pm)  
**My AKU-IED journey & A personal journey at Aga Khan Education Services Pakistan**  
Discussed by: Dr Sadrudin Pardhan, Professor Emeritus; Dr Anjum Halal, Vice Provost & Founding Dean, Faculty of Arts and Sciences; Dr Sajid Ali, Associate Professor & Director Research, Institute for Educational Development; Mr. Aam Shah, Head of Education, Aga Khan Education Services Pakistan.  
**Chair/Session 2**  
**Dr Adil Haider**, Dean, Medical College (4:30-5:00pm)  
**Establishment of High Quality Tumor Boards- How Heavy Do I Journey On The Way!**  
Dr Ahmed Nadeem Abbas, Clinical Professor, Oncology  
**Clinical Case Orientation with Basic Concepts of Endocrine and Reproductive Physiology**  
Dr Rehana Rehman, Associate Professor, Biological & Biomedical Sciences; Dr Syeda Sadia Fatima, Assistant Professor, Biological & Biomedical Sciences.  
The poster includes a 'REGISTER NOW!' call to action and contact information: For any queries: librarian@aku.edu | Refreshments will be served. The Aga Khan University logo is also present.

# FROM THE HUB

Dr Rehana Rehman gave a talk on 'Roadmap of curricular reforms in Physiology' at the Regional Scientific Seminar Pakistan Physiological Society held on February 22, 2023.



Dr Haq Nawaz delivered a talk on the topic of 'Guanidinoacetate methyltransferase deficiency: A report of two siblings' at the 8<sup>th</sup> Annual Neuroscience Conference at DOW University Karachi, organized by the Pakistan Society of Basic & Applied Neuroscience (PASBAN) on October 5-6, 2022.



# FROM THE HUB

Dr Sadia Fatima was invited to conduct virtual workshops:

- ‘Student engagement through technology enhanced learning’ at the International Conference on Health Professions Education, held at University of Lahore on October 29, 2022.
- ‘Engage your audience using easy-to-build presentations and interactive quizzes’ at the Jouf University, Saudi Arabia, from December 20-27, 2022.



Dr Rehana Rehman conducted the following workshops:

- ‘Mentorship: experiences and challenges’, flagship event organized by Faculty Mentorship Committee on August 29, 2022.
- ‘Faculty Mentoring: A way towards synergistic mentoring’ held on October 3, 2022.
- ‘Critical appraisal of literature’ conducted in collaboration with the Department for Educational Development on January 31, 2023.



## FROM THE HUB

Dr Rehana Rehman and Dr Salman Siddiqui conducted a session in the workshop 'Engage, Enrich, Empower' on December 8, 2022 in collaboration with the Registrar's Office and the Department for Educational Development.



Dr Satwat Hashmi and Dr Kulsoom Ghias organized a face-to-face workshop on research ethics for the NIH D43 Department of Medicine Training Grant for research in NCDs titled 'Ethics of Research in LMICs – Pakistani context' which took place from March 9-10, 2023.

# FROM THE HUB



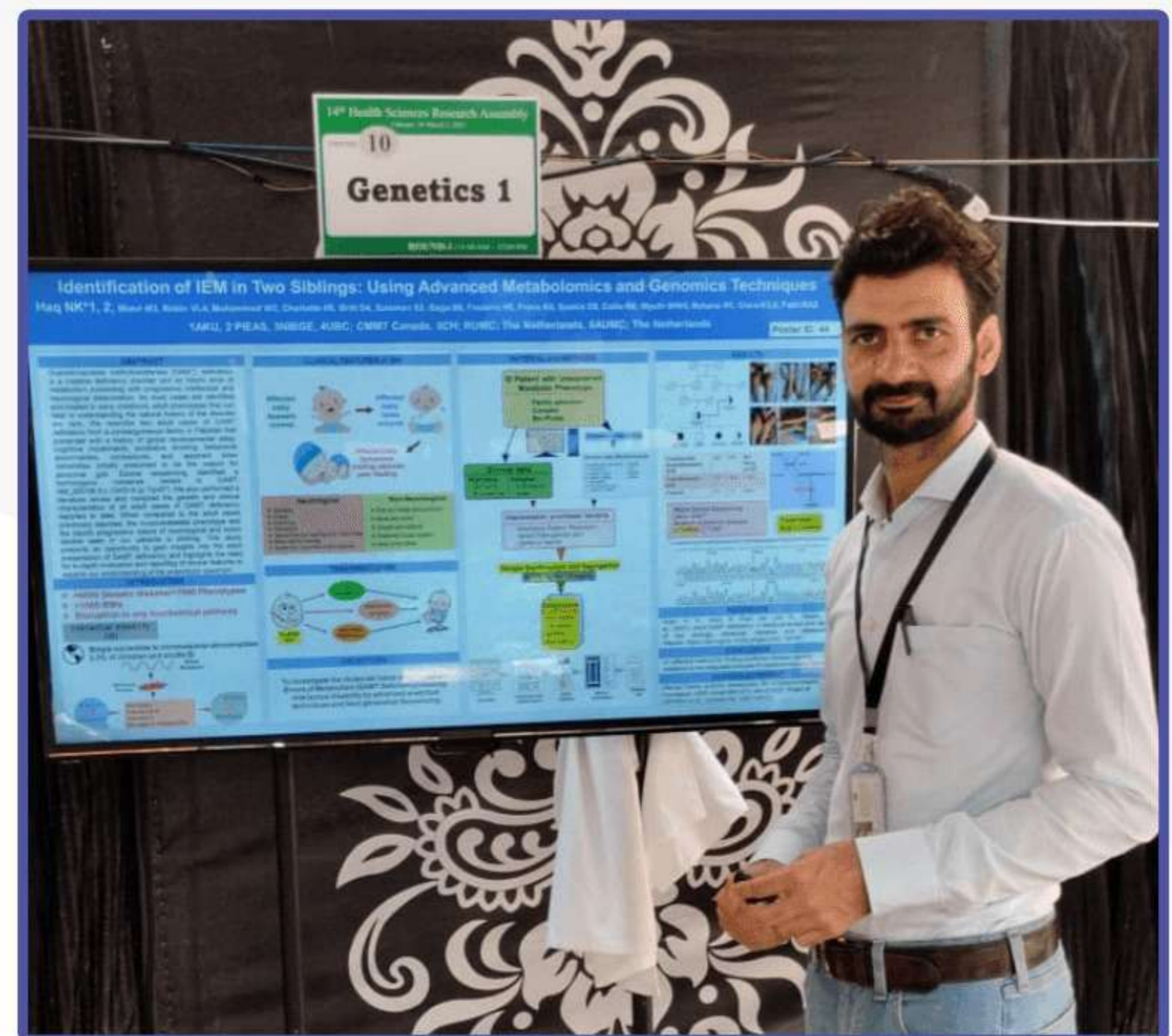
Dr Sadia Fatima was nominated to attend the Higher Education Commission and British Council (HEC-BC) Research Capacity Building Program, held in Karachi, Pakistan from November 21-24, 2022.



Dr Rehana Rehman participated in the Dean's Leadership Course at Aga Khan University held from December 12-14, 2022.

# FROM THE HUB

Dr Haq Nawaz presented posters on 'Identification of inborn error of metabolism in two siblings: using advanced metabolomics and genomics techniques' at the 14<sup>th</sup> Health Sciences Research Assembly held from February 28 - March 2, 2023 and at the 24<sup>th</sup> National Health Sciences Research Symposium held from November 11-12, 2022, where he was awarded Best E-Poster Oral Presentation.

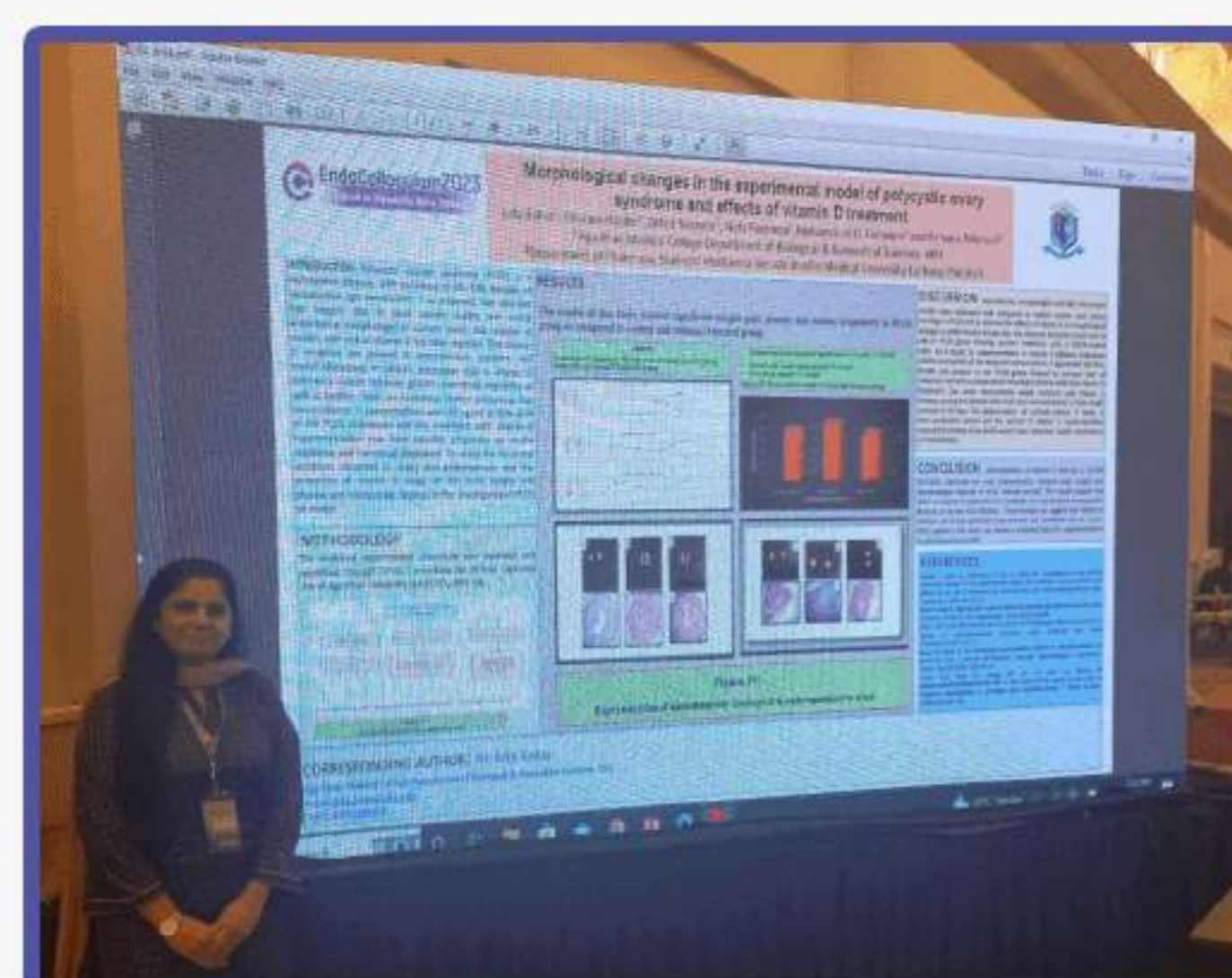
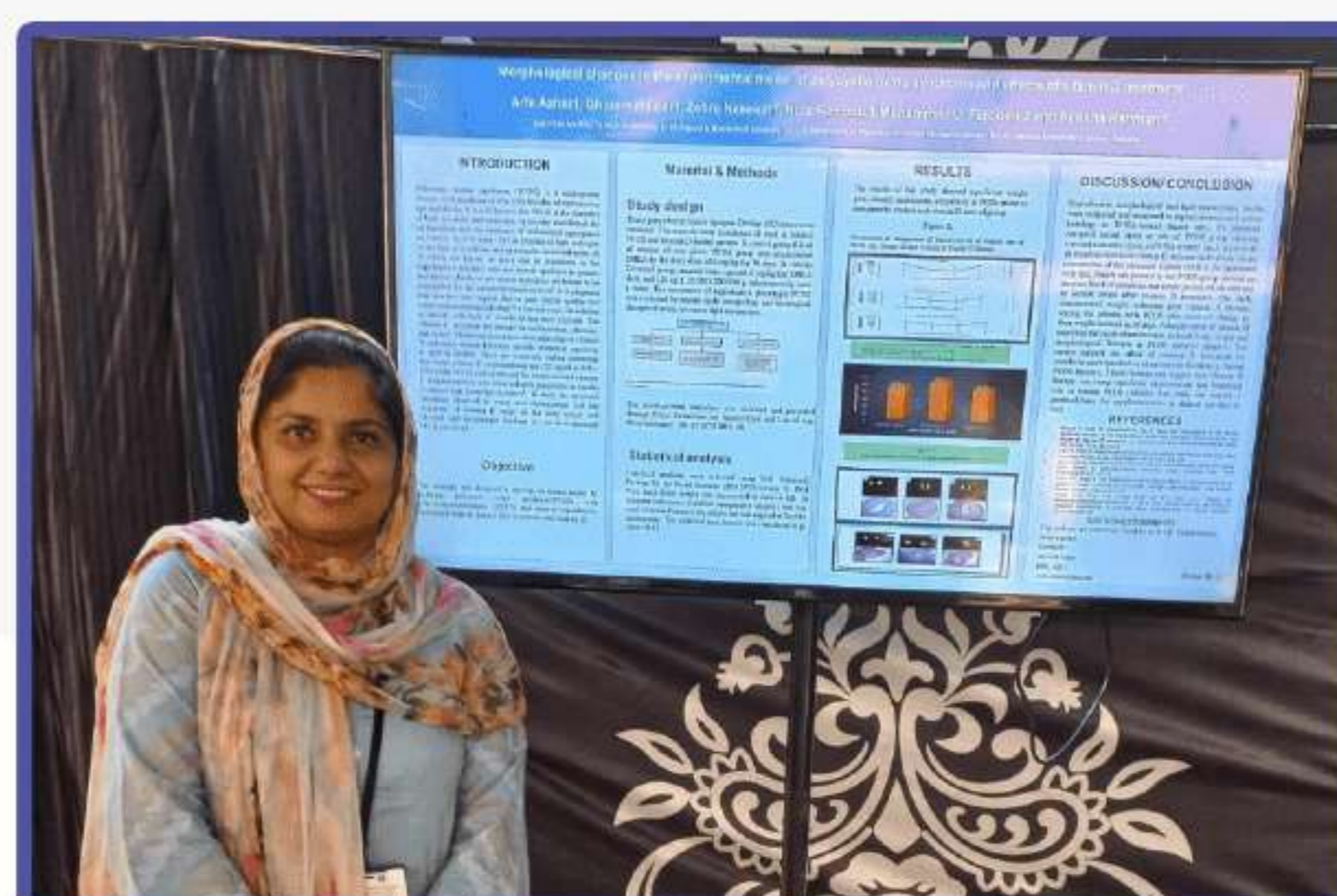


Dr Sadia Fatima presented posters at the DOHaD 2022 World Congress held in Vancouver, Canada from August 27-31, 2022 and the International Diabetes Federation Congress held in Lisbon, Portugal from December 5-8, 2022, on the concepts of epigenetics, fetal programming and metabolic syndrome.

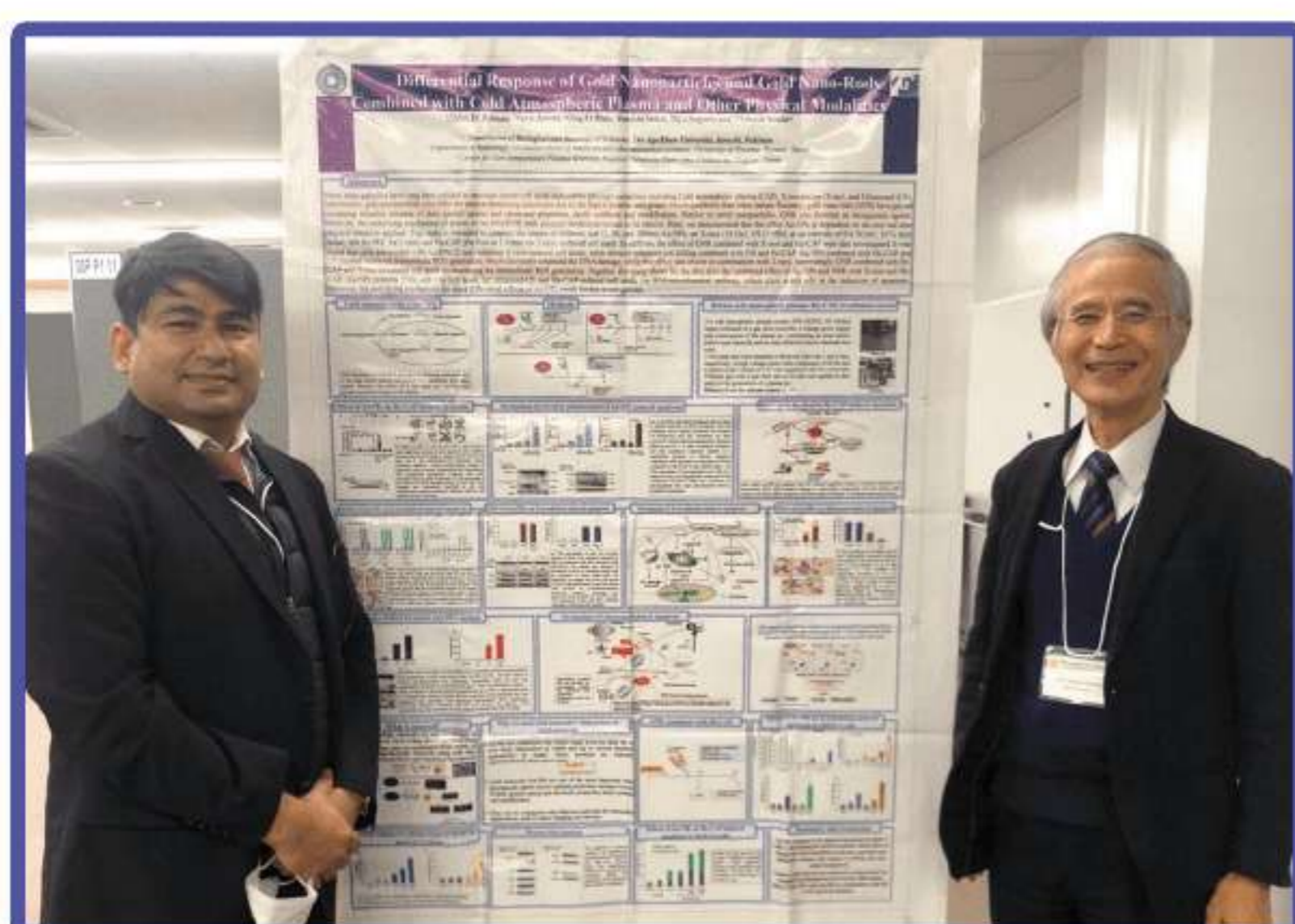


# FROM THE HUB

Dr Arfa Azhar presented research posters on ‘Morphological changes in the experimental model of polycystic ovary syndrome and effects of Vitamin D treatment’ at the Endo-colloquium Lahore held on February 4, 2023 as well as the 14<sup>th</sup> Health Sciences Research Assembly held on February 28 - March 2, 2023.



Dr Rehana Rehman presented a poster on ‘Exploration of faculty mentorship: a qualitative study’ at the Health Sciences Research Assembly held on March 1, 2023.



Dr Mati Ur Rehman presented a poster and won the Best Poster Presentation Award for ‘Differential response of gold nano-particles and gold nano-rods combined with cold atmospheric plasma and other physical modalities’ at the 15<sup>th</sup> International Symposium on Advanced Plasma Science and its Applications for Nitrides and Nanomaterials and the 16<sup>th</sup> International Conference on Plasma-Nano Technology and Science held from March 5 - 9, 2023, in Gifu, Japan.



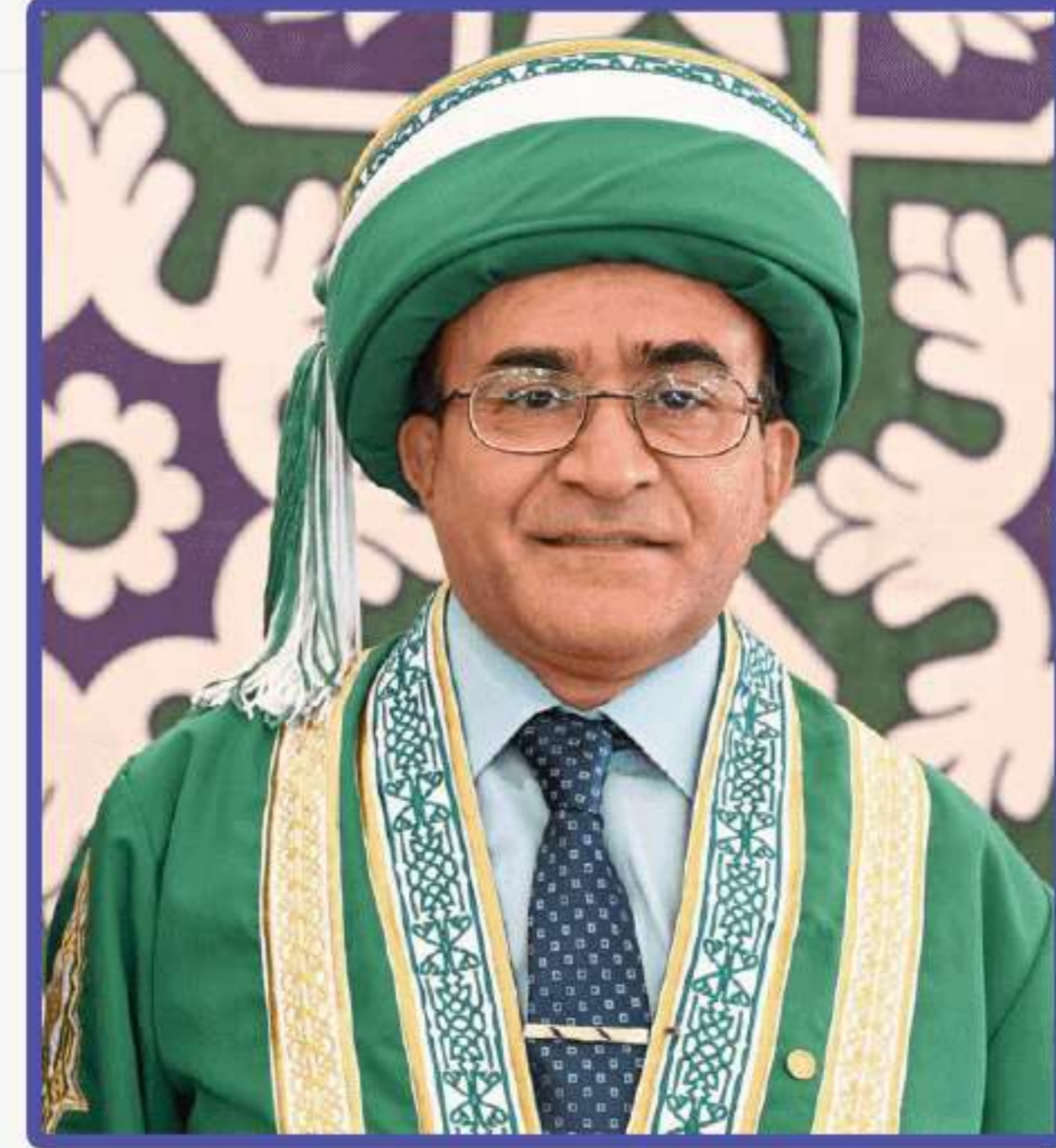


# FACULTY AWARDS

## Annual Night Awards 2023



**Dr Kulsoom Ghias**  
**Mentorship Award**



**Dr Hasan Salman Siddiqi**  
**Excellence in Teaching Award**



**Dr Amber Palla**  
**Early Career Teaching Award**



**Dr Mati Ur Rehman**  
**Early Career Teaching Award**



**Dr Najeeha Talat Iqbal**  
**Fellowship of Advance**  
**HE, UK**



**Dr Zuhair Yusuf**  
**Fellowship of Advance**  
**HE, UK**



**Dr Rehana Rehman**  
**Great Distinction, MHPE**

# ACHIEVEMENTS

## 14<sup>th</sup> Health Sciences Research Assembly



### Mid career researcher award

Syeda Sadia Fatima  
Associate Professor  
Department of Biological and Biomedical Sciences

HSRA Committee Member: Nasir Uddin



### Outstanding research staff award

Mussarat Ashraf  
Research Associate  
Department of Biological & Biomedical Sciences

HSRA Committee Member: Nida Zahid

# ACHIEVEMENTS

## 14<sup>th</sup> Health Sciences Research Assembly Best Rapid Oral Presentation Awards



**Dr Hasan Salman Siddiqi**

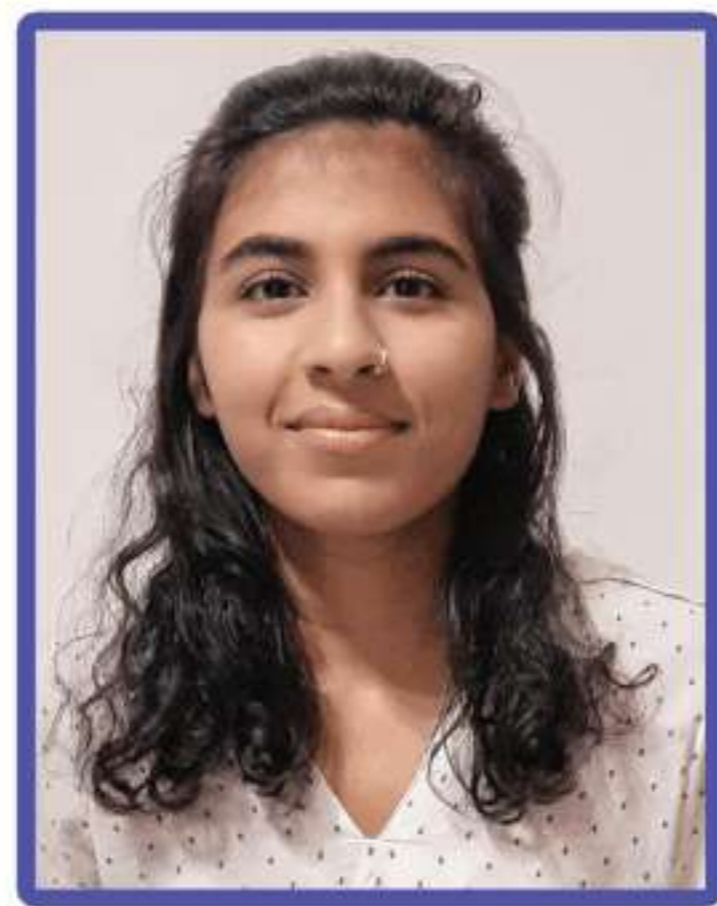
Role of button mangroves as a probable blood pressure lowering agent.

Potentially cardio-protective needles of aleppopine (Pinus Halepensis mill)



**Dr Haq Nawaz Khan**

Identification of IEM in two siblings: using advanced metabolomics and genomics techniques



**Rabab Ibrahim**

A novel homozygous variant in ZNF142 causes a complex neurodevelopmental disorder with intellectual disability, dystonia and seizures in consanguineous Pakistani family



**Zainab Hanif Samma**

Identification of risk alleles in infertile females with polycystic ovary syndrome: validation of genome wide association studies in Pakistani population

## Award for 10 years service at AKU



**Sher Khan**

# APPOINTMENTS & PROMOTIONS



**Dr Azhar Hussain**  
Assistant Professor



**Dr Rozmeen Akbar**  
Senior Instructor

# THE GRADUATE STATION

Meet the graduates: MPhil in BBS Class of 2022



Javeria Samad



Lubaba Binte Khalid



Dr Mehr Murad Musani  
**Great Distinction**



Dr Rabia Aiman



Rena Zaman



Dr Rozmeen Badruddin  
Husein

# THE GRADUATE STATION

Meet the graduates: MPhil in BBS Class of 2022



Shabina Jabeen



Dr Shehla Rabia



Dr Sohana Nadeem



Wardah Mujahid



Zainab Hanif Samma



Wajiha Amin

# THE GRADUATE STATION

## Annual Night 2023



An annual night was organized by the MPhil in BBS Class of 2023 in collaboration with the Student Experience Office on February 24, 2023, to bid farewell to the Class of 2022 and formally welcome the Class of 2024.

# THE GRADUATE STATION

## Orientation of MPhil in BBS Class of 2024



The department hosted an orientation session for the MPhil in Biological and Biomedical Sciences Class of 2024. Scholars were given an outline of the program, research perspectives from current students and faculty, and were given an opportunity to meet and interact with faculty.

## Peer Mentor Mentee: Meet and Greet

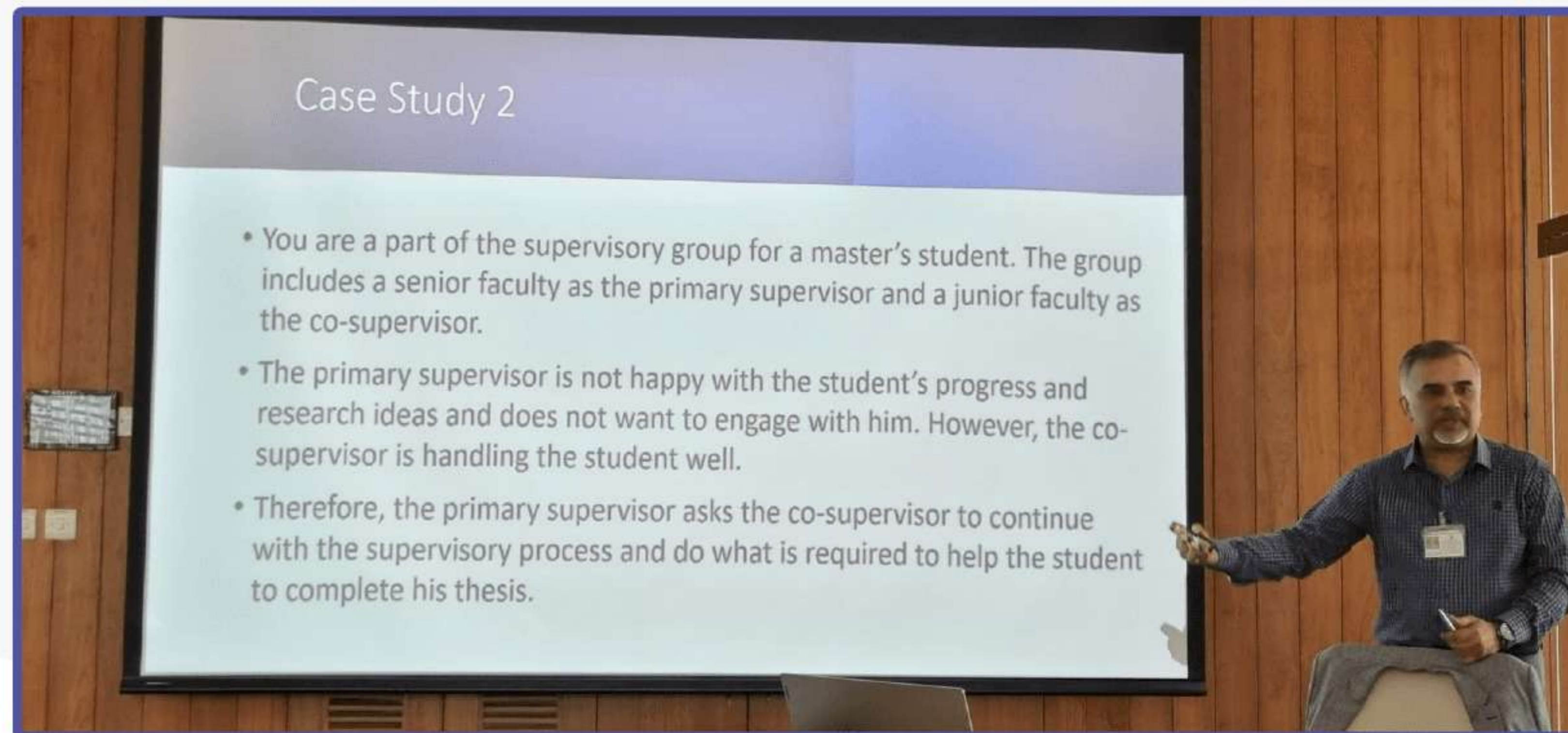


The tradition of peer mentoring in the MPhil in BBS program continued and a Peer Mentor Mentee: Meet and Greet Session was facilitated by Dr Rehana Rehman and Dr Satwat Hashmi.



# THE GRADUATE STATION

## Supervisory Skill Workshop: MPhil in BBS



This workshop was conducted on March 9, 2023, by Professor Muhammad Shahid Shamim and Dr Rehana Rehman. The facilitators discussed the key concepts as well as the principle role of supervisors with the help of case studies.

## MPhil in BBS Alumni Celebration



The MPhil in BBS alumni celebrated the 40<sup>th</sup> Anniversary of AKU.

# GRANTS

1. Satwat Hashmi (PI), Ambrin Fatima, Mati Ur Rehman, Camer Vellani, HR Ahmad. Mechanisms of the origin and development of atheroma induced by inhaled chemical toxins; PKR 2,700,000; University Research Council, AKU.
2. Ambrin Fatima (PI), Sohana Nadeem Hashmi, Ali Azan. Correlation of homozygous DCLRE1C novel variant with clinical phenotype of severe combined immunodeficiency; PKR 754,200; Dr Aleem Qureshi and Kulsum Aleem Fund, AKU.
3. Fareena Bilwani (PI), Nabeeha Saeed, Muhammad Ali Akbar Khan. CCAAT/enhancer binding protein alpha (CEBPA) mutation in cytogenetically normal acute myeloid leukemia and its impact on prognosis; PKR 350,600; Dr Aleem Qureshi and Kulsum Aleem Fund, AKU.
4. Amber Palla (PI), Sadia Fatima, Asad Fatimi, Saif ur Rehman. Validation of ASCVD and framingham risk scores in Pakistani population with carotid intima thickness, coronary calcium scores and its correlation with epigenetic variances of toll-like receptors and chemerin (CMKLR1) genes; PKR 997,700; Dr Aleem Qureshi and Kulsum Aleem Fund, AKU.
5. Mati Ur Rehman (PI), Laraib Khan. Hyperthermia to enhance chemo or radio sensitivity in cancer cells; PKR 300,000; Student Training Initiated Research Funds, AKU.

# GRANTS

6. Rehana Rehman (PI), Tayyab Ihsan, Ayesha Malick. Association of inhibin B, follicle stimulating hormone, testosterone and oxidative stress in male factor infertility; PKR 259,000; Student Training Initiated Funds, AKU.
7. Sadia Fatima (PI), Shireen Najam, Muhammad Uzair, Areesha Ahmer. Shared genetic links of familial schizophrenia and metabolic syndrome; PKR 252,500; Student Training Initiated Funds, AKU.
8. Kulsoom Ghias (PI), Syed Hani Abidi, Khalid Ahmed, Nouman Mughal, Sobia Naz Shaukat. Role of EBV-associated microRNAs in modulating inflammatory responses in prostate cancer cell lines; PKR 4,620,773; University Research Council, AKU.
9. Khalid Ahmed (PI), Syed Hani Hassan Abidi, Nouman Mughal, Kulsoom Ghias, Saira Fatima. Role of viral infection in the development and progression of prostate carcinoma: Assessing the role of EBV in prostate carcinoma; PKR 1,500,000; Seed Grant, AKU.
10. Mati Ur Rehman (PI), Qing-Li Zhao, Zheng-Guo Cui, Kulsoom Ghias, HR Ahmad. Anti-cancer drug discovery- based on oxidative stress-mediated mitochondria-targeted cell death; PKR 1,495,000; Seed Money Grant, AKU.
11. Fazal Arain (PI), Salman Siddiqi, Saara Muddasir. Treatment of epilepsy and associated memory loss with herbal extracts and their mechanisms of action; PKR 5,268,702; Pakistan Science Foundation.

# PUBLICATIONS

1. Bowen JE, Addetia A, Dang HV, Stewart C, Brown JT, Sharkey WK, Sprouse KR, Walls AC, Mazzitelli IG, Logue JK, Franko NM, Czudnochowski N, Powell AE, Dellota E Jr, Ahmed K, Ansari AS, Cameroni E, Gori A, Bandera A, Posavad CM, Dan JM, Zhang Z, Weiskopf D, Sette A, Crotty S, Iqbal NT, Corti D, Geffner J, Snell G, Grifantini R, Chu HY, Velesler D (2022). Omicron spike function and neutralizing activity elicited by a comprehensive panel of vaccines. *Science*, 377(6608): 890-894.  
<http://doi: 10.1126/science.abq0203>.
2. Ahmad S, Ahmed SB, Khan A, Wasim M, Tabassum S, Haider S, Ahmed F, Batool Z, Khaliq S, Rafiq H, Tikmani P, Gilani AU (2022). Natural remedies for Alzheimer's disease: A systematic review of randomized controlled trials. *Metab Brain Dis*. 38(1):17-44.  
<http://doi: 10.1007/s11011-022-01063-9>.
3. Hasan M, Moiz B, Qaiser S, Masood KI, Ghous Z, Hussain A, Ali N, Simas JP, Veldhoen M, Alves P, Abidi SH, Ghias K, Khan E, Hasan Z (2022). IgG antibodies to SARS-CoV-2 in asymptomatic blood donors at two time points in Karachi. *PLoS One*. 17(8):e0271259. <http://doi: 10.1371/journal.pone.0271259>.
4. Nazim F, Kayani HA, Ali Nathwani A, Mir F, Abidi SH (2022). CMV and EBV Co-infection in HIV-infected children: Infection rates and analysis of differential expression of cytokines in HIV nono- and HIV-CMV-EBV co-infected groups. *Viruses*. 14(8):1823.  
<http://doi: 10.3390/v14081823>.
5. Rehman R, Salahuddin H, Zafar A, Rehman R, Anjum N, Sami Z (2022). Follicular sensitivity index and insulin growth factor-1: Predictor of success after intracytoplasmic sperm injection. *Pak. J. Pharm. Sci.*1761-1765.  
<http://doi.org/10.36721/PJPS.2022.35.6.SP.1761-1765.1>.

# PUBLICATIONS

6. Iqbal N, Rafiq M, Masooma, Tareen S, Ahmad M, Nawaz F, Khan S, Riaz R, Yang T, Fatima A, Jamal M, Mansoor S, Liu X, Ahmed N (2022). The SARS-CoV-2 differential genomic adaptation in response to varying UV index reveals potential genomic resources for better COVID-19 diagnosis and prevention. *Front Microbiol.* 13:922393. <http://doi: 10.3389/fmicb.2022.922393>.
7. Ahmed MA, Nazim F, Ahmed K, Bari MF, Abdulwahed A, AlMokhatieb AA, Alalvi Y, Abduljabbar T, Mughal N, Abidi SH (2022). Association between the baseline gene expression profile in periapical granuloma and periapical wound healing after surgical endodontic treatment. *Sci Rep.* 12(1):13824. <http://doi: 10.1038/s41598-022-17774-z>.
8. Jabeen K, Ahmed I, Fatima SS, Ghias K (2022). Blended team based learning sessions to enhance medical students' engagement. *Med Educ.* 56(8):858. <http://doi: 10.1111/medu.14834>.
9. Ali HS, Martins RS, Maha Q, Fatima SS, Docherty C (2022). Availability and use of automated external defibrillators in karachi, Pakistan: A cross-sectional study. *J Pak Med Assoc.* 72(8):1581-1585. <http://doi: 10.47391/JPMA.4447>.
10. Arshad A, Riaz M, Naseem Z, Qadri F, Baqir SM, Ibrahim MT, Ayaz A (2022). Clinical spectrum of sarcoidosis in patients at a tertiary care hospital, Pakistan: Ten-year follow-up study. *J Pak Med Assoc.* 72(8):1491-1496. <http://doi: 10.47391/JPMA.2382>.

# PUBLICATIONS

11. Naseem A, Nizamuddin S, Ghias K (2022). The outcomes of a mobile just-in-time-learning intervention for teaching bioethics in Pakistan. *BMC Med Educ.* 22(1):674.

[http://doi: 10.1186/s12909-022-03698-9](http://doi:10.1186/s12909-022-03698-9).

12. Farooqui N, Mir F, Siddiqui D, Hotwani A, Nathwani AA, Mahmood SF, Sadiq K, Kayani HA, Sheikh SA, Shah SA, Ferrand RA, Abidi SH (2022). Phylogenetic and drug- and vaccine-resistance profiles of hepatitis B virus among children with HIV co-infection in Pakistan. *Infect Genet Evol.* 105:105371.

[http://doi: 10.1016/j.meegid.2022.105371](http://doi:10.1016/j.meegid.2022.105371).

13. Yousaf H, Fatima A, Ali Z, Baig SM, Toft M, Iqbal Z (2022). A novel nonsense variant in GRM1 causes autosomal recessive spinocerebellar ataxia 13 in a consanguineous Pakistani family. *Genes (Basel).* 13(9):1667.

[http://doi: 10.3390/genes13091667](http://doi:10.3390/genes13091667).

14. Hsueh SC, Scerba MT, Tweedie D, Lecca D, Kim DS, Baig AM, Kim YK, Hwang I, Kim S, Selman WR, Hoffer BJ, Greig NH (2022). Activity of a novel anti-inflammatory agent F-3,6'-dithiopomalidomide as a treatment for traumatic brain injury. *Biomedicines.* 10(10):2449.

[http://doi: 10.3390/biomedicines10102449](http://doi:10.3390/biomedicines10102449).

15. Ahmad S, Azhar A, Tikmani P, Rafique H, Khan A, Mesiya H, Saeed H (2022). A randomized clinical trial to test efficacy of chamomile and saffron for neuroprotective and anti-inflammatory responses in depressive patients. *Heliyon.* 8(10):e10774.

[http://doi: 10.1016/j.heliyon.2022.e10774](http://doi:10.1016/j.heliyon.2022.e10774).

# PUBLICATIONS

16. Mastoor S, Nazim F, Rizwan-Ul-Hasan S, Ahmed K, Khan S, Ali SN, Abidi SH (2022). Analysis of the antimicrobial and anti-biofilm activity of natural compounds and their analogues against staphylococcus aureus isolates. *Molecules*. 27(20):6874. [http://doi: 10.3390/molecules27206874](http://doi:10.3390/molecules27206874).
17. Tariq U, Nazziwa J, Sasinovich S, Shah SA, Naeem S, Abidi SH, Esbjörnsson J (2022). Phylogenetic characterization of HIV-1 sub-subtype A1 in Karachi, Pakistan. *Viruses*. 14(10):2307. [http://doi: 10.3390/v14102307](http://doi:10.3390/v14102307).
18. Ahmad S, Rafiq H, Khan A, Tikmani P, Batool Z, Tabassum S, Arain F, Siddiqi S, Khaliq S, Amin F, Wasim M, Haider S (2022). Ameliorative effects of half-dose saffron and chamomile combination on psycho-endocrinological changes in a diabetic murine model. *PLoS One*. 17(10):e0276236. [http://doi: 10.1371/journal.pone.0276236](http://doi:10.1371/journal.pone.0276236).
19. Baig AM, Greig NH, Gerlach J, Salunke P, Fabrowski M, Viduto V, Ali T (2022). Underlying causes and treatment modalities for neurological deficits in COVID-19 and long-COVID. *ACS Chem Neurosci*. 13(20):2934-2938. [http://doi: 10.1021/acchemneuro.2c00482](http://doi:10.1021/acchemneuro.2c00482).
20. Rehman J, Ali R, Afzal A, Shakil S, Sultan AS, Idrees R, Fatima SS (2022). Assessment during Covid-19: quality assurance of an online open book formative examination for undergraduate medical students. *BMC Med Educ*. 22(1):792. [http://doi: 10.1186/s12909-022-03849-y](http://doi:10.1186/s12909-022-03849-y).

# PUBLICATIONS

21. Bowen JE, Park YJ, Stewart C, Brown JT, Sharkey WK, Walls AC, Joshi A, Sprouse KR, McCallum M, Tortorici MA, Franko NM, Logue JK, Mazzitelli IG, Nguyen AW, Silva RP, Huang Y, Low JS, Jerak J, Tiles SW, Ahmed K, Shariq A, Dan JM, Zhang Z, Weiskopf D, Sette A, Snell G, Posavad CM, Iqbal NT, Geffner J, Bandera A, Gori A, Sallusto F, Maynard JA, Crotty S, Van Voorhis WC, Simmerling C, Grifantini R, Chu HY, Corti D, Velesler D (2022). SARS-CoV-2 spike conformation determines plasma neutralizing activity elicited by a wide panel of human vaccines. *Sci Immunol.* 7(78):eadf1421.

[http://doi: 10.1126/sciimmunol.adf1421](http://doi:10.1126/sciimmunol.adf1421).

22. Amin F, Ibrahim MAA, Rizwan-Ul-Hasan S, Khaliq S, Gabr GA, Muhammad, Khan A, Sidhom PA, Tikmani P, Shawky AM, Ahmad S, Abidi SH (2022). Interactions of apigenin and safranal with the 5HT1A and 5HT2A receptors and behavioral effects in depression and anxiety: A molecular docking, lipid-mediated molecular dynamics, and in vivo analysis. *Molecules.* 27(24):8658.

[http://doi: 10.3390/molecules27248658](http://doi:10.3390/molecules27248658).

23. Fiaz H, Khan AR, Abbas S, Bilal A, Khan HN, Hussain M, Awan FR (2022). Association of vitamin D receptor polymorphisms with cardiometabolic conditions in Pakistani population. *Int J Vitam Nutr Res.*

[http://doi: 10.1024/0300-9831/a000772](http://doi:10.1024/0300-9831/a000772).

24. Ghulam U, Nazim F, Farooqui N, Rizwan-Ul-Hasan S, Anwar MF, Ahmed K, Jamal A, Kayani HA, Mughal N, Hussain A, Sarria-Santamera A, Abidi SH (2022). Analysis of differential gene expression of pro-inflammatory cytokines in the nasopharyngeal milieu of mild & severe COVID-19 cases. *PLoS One.* 17(12):e0279270.

[http://doi: 10.1371/journal.pone.0279270](http://doi:10.1371/journal.pone.0279270).



# PUBLICATIONS

25. Baig AM (2022). Differential diagnosis and pathogenesis of the neurological signs and symptoms in COVID-19 and long-COVID syndrome. *CNS Neurosci Ther.* 28(12):1905-1907. [http://doi: 10.1111/cns.13957](http://doi:10.1111/cns.13957).
26. Kabir F, Iqbal J, Jamil Z, Iqbal NT, Mallawaarachchi I, Aziz F, Kalam A, Muneer S, Hotwani A, Ahmed S, Umrani F, Syed S, Sadiq K, Ma JZ, Moore SR, Ali A (2023). Impact of enteropathogens on faltering growth in a resource-limited setting. *Front Nutr.* 9:1081833. [http://doi: 10.3389/fnut.2022.1081833](http://doi:10.3389/fnut.2022.1081833).
27. Saeed S, Kashif U, Zaki S, Samad K, Yousuf MZ, Raza M, Jabbar S, I Khan U (2023). Teaching clinical skills using online modality through modified peyton's framework: An experience from a medical university in Pakistan. *J Adv Med Educ Prof.* 11(1):15-23. [http://doi: 10.30476/JAMP.2022.95986.1669](http://doi:10.30476/JAMP.2022.95986.1669).
28. Pahore AK, Khan S, Karim N (2023). Anticancer effect of illicium verum (star anise fruit) against human breast cancer MCF-7 cell line. *Pak J Med Sci.* 39(1):70-74. [http://doi: 10.12669/pjms.39.1.6580](http://doi:10.12669/pjms.39.1.6580).
29. Yousuf FA, Azam I, Tareen AK, Kazmi KA, Muhammad JS, Iqbal MP (2023). Association of the BB genotype of the ABO gene with the risk of acute myocardial infarction in hospital-based study. *Pak J Med Sci.* 39(1):133-138. [http://doi: 10.12669/pjms.39.1.5905](http://doi:10.12669/pjms.39.1.5905).

# PUBLICATIONS

30. Ahmad S, Zeeshan S, Hussain A, Hasan R, Ghias K, Mian A, Enam SA (2023). The landscape of stem cell research in Pakistan. *J Pak Med Assoc.* 73(Suppl 1)(2):S19-S24.  
<http://doi: 10.47391/JPMA.AKUS-04>.
31. Gerlach, J, Baig, AM, Fabrowski, M, Viduto, V (2023). The immune paradox of SARS-CoV-2: lymphocytopenia and autoimmunity evoking features in COVID-19 and possible treatment modalities. *Rev Med Virol.* 33( 2):e2423.  
<https://doi.org/10.1002/rmv.2423>.
32. Baig AM (2023). Emerging evidence of neuronal cells-targeting SARS-CoV-2 causing anosmia associated with COVID-19. *Neural Regen Res.* 18(2):463-464.  
<http://doi: 10.4103/1673-5374.344843>.
33. Hussain M, Khan HN, Abbas S, Ali A, Aslam MN, Awan FR (2023). Tetra-ARMS-PCR assay development for genotyping of AGT rs699 T/C polymorphism, its comparison with PCR-RFLP and application in a case-control association study of cardiovascular disease patients. *Nucleosides Nucleotides Nucleic Acids.* 1-16.  
<http://doi: 10.1080/15257770.2023.2181972>.
34. Li P, Zhao QL, Rehman MU, Jawaid P, Cui ZG, Ahmed K, Kondo T, Saito JI, Noguchi K (2023). Isofraxidin enhances hyperthermia-induced apoptosis via redox modification in acute monocytic leukemia U937 cells. *Mol Med Rep.* 27(2):41.  
<http://doi: 10.3892/mmr.2023.12928>.

## PUBLICATIONS

35. Sultan AS, Ali R, Zahid N, Akbar R, Ali M, Fatima S, Ghias K, Martins R, Tariq M, Ajani K (2023). Experiences of undergraduate medical, nursing students and faculty regarding flipped classroom: A mixed method study at private medical university in Pakistan. *BMJ Open*. 13(4):e070276.

[http://doi: 10.1136/bmjopen-2022-070276](http://doi:10.1136/bmjopen-2022-070276).

36. Fatima SS, Zakaria M, Zakaria A, Tekian A (2023) Exploring knowledge, attitudes and perceived myths towards foetal programming and factors affecting it among the public and health professionals in Pakistan: a needs assessment study. *J Pak Med Asso* 73: 1054-1060.

<https://doi.org/10.47391/JPMA.739>.

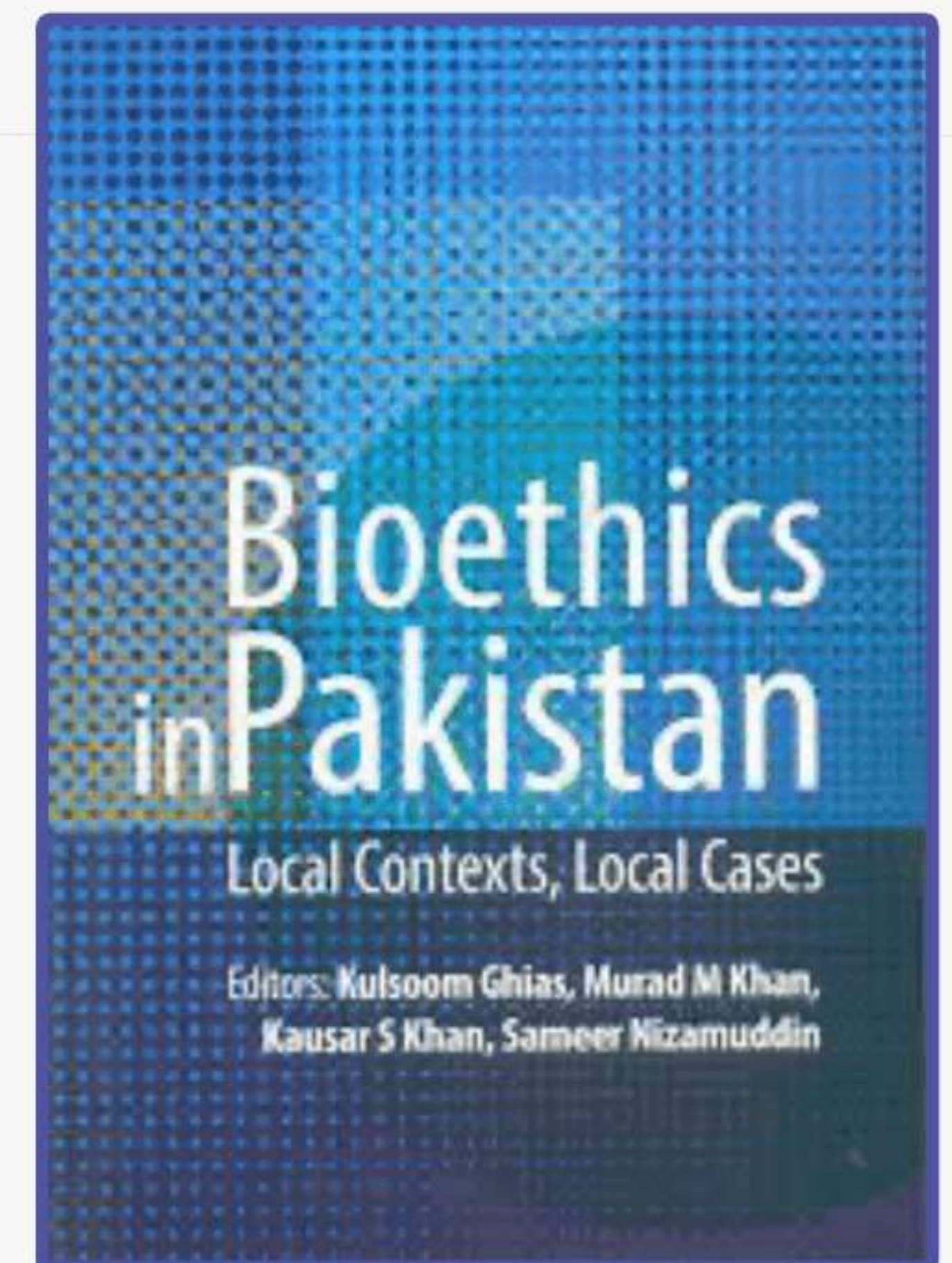
37. Fatima SS, Amin B, Yusuf MZ (2023). Pecha Kucha in medical education: Promoting self-directed learning. *Med Educ*.

[http://doi: 10.1111/medu.15059](http://doi:10.1111/medu.15059).

# PUBLICATIONS

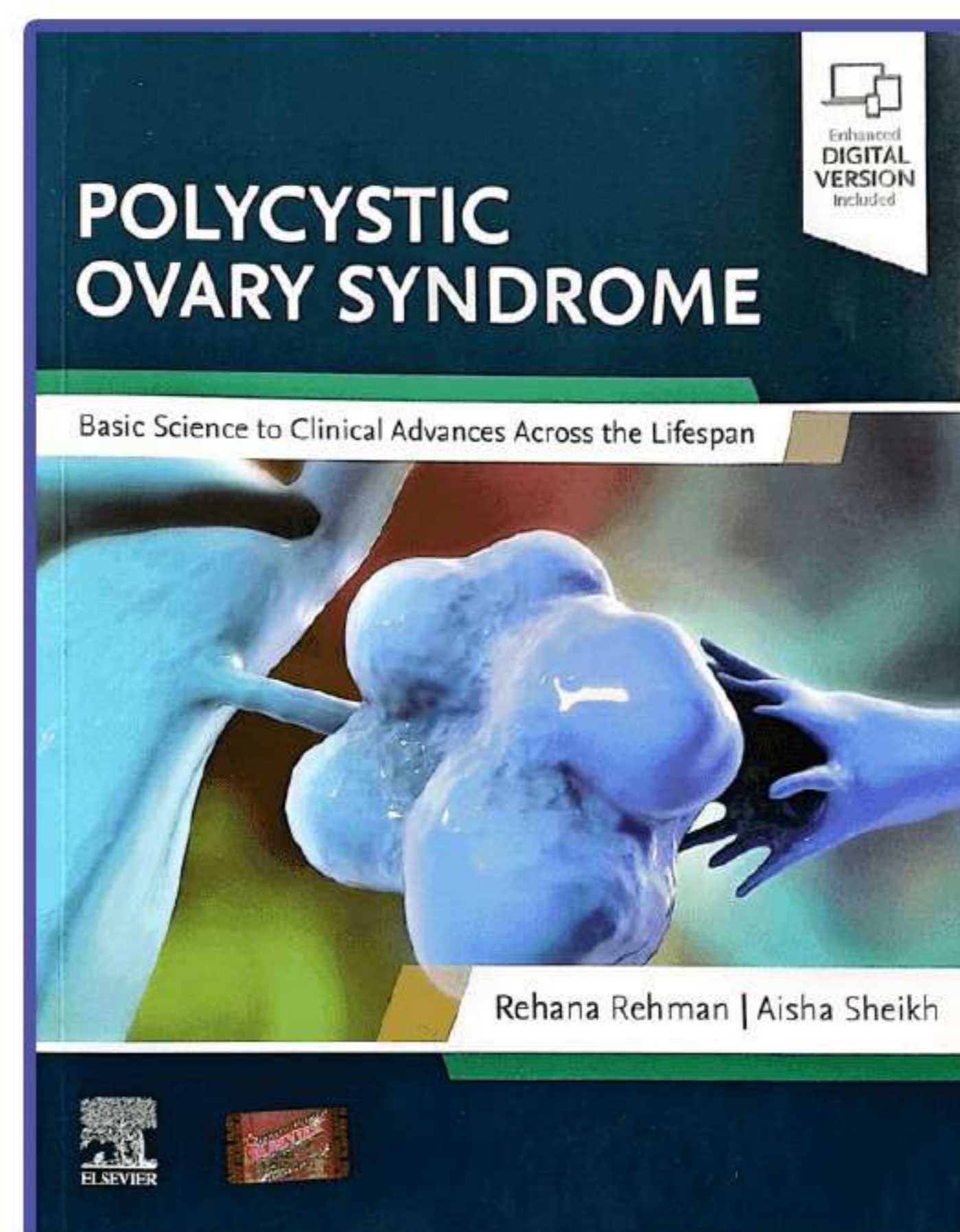
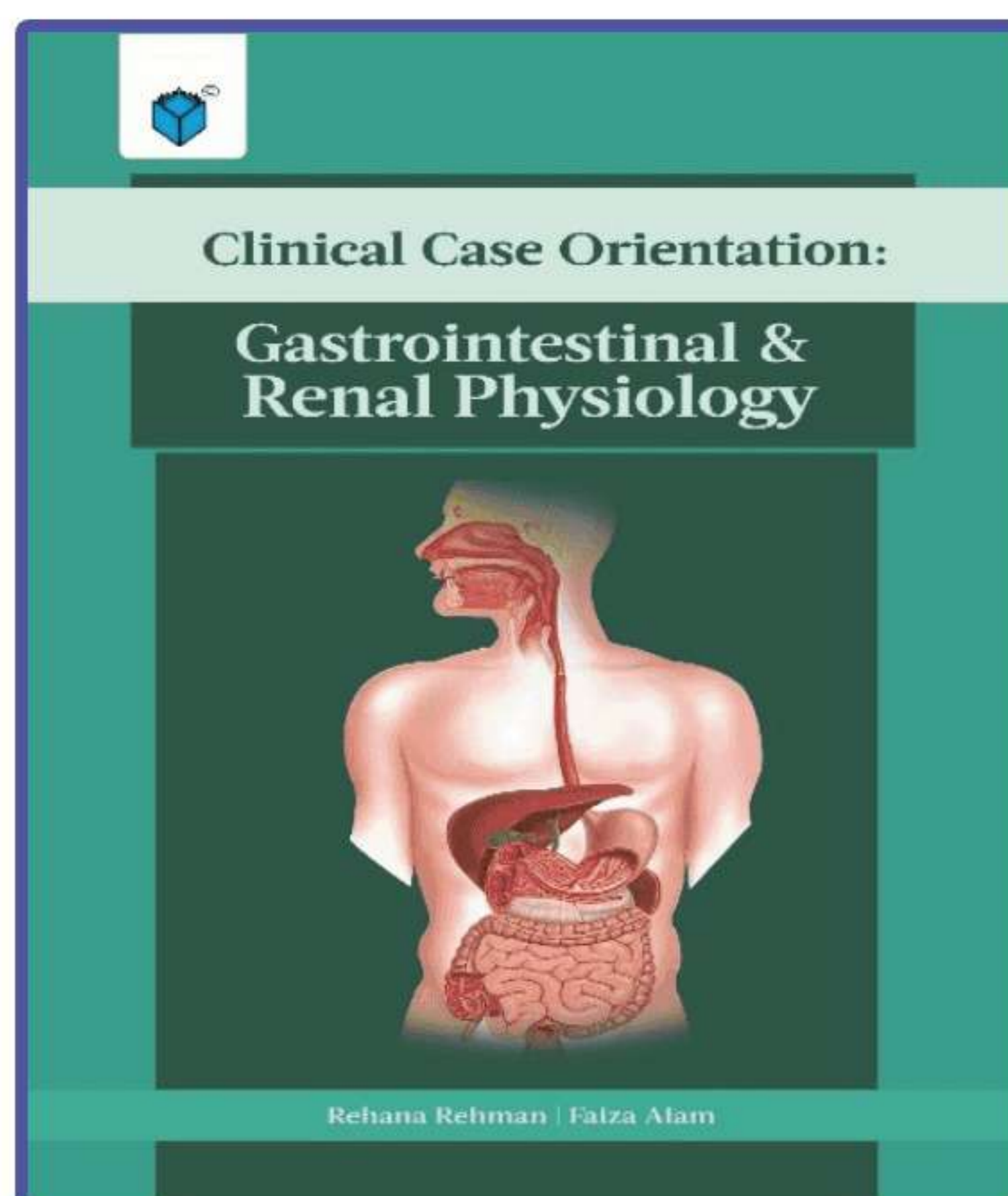
## Book Publications

Dr Kulsoom Ghias, Dr Murad M Khan, Dr Kausar S Khan and Sameer Nizamuddin co-edited a book titled 'Bioethics in Pakistan: Local Contexts, Local Cases'. ISBN: 9789697162062.



Dr Rehana Rehman co-authored:

- 'Clinical Case Orientation: Renal and Gastrointestinal Physiology', Paramount, ISBN: 978-969-210-000-0 and
- 'Polycystic Ovary Syndrome across Life Span from Basics to Advanced Clinical Science', Elsevier Publishers ISBN: 9780323879323.



For feedback contact Bilal Effendi  
[bilal.effendi@aku.edu](mailto:bilal.effendi@aku.edu)

Editorial Team: Dr Rozmeen Akbar, Dr Sadia Fatima, Ms Noorulain Salim  
and Mr Bilal Effendi