



آغا خان یونیورسٹی
THE AGA KHAN UNIVERSITY

DEPARTMENT OF BIOLOGICAL AND BIOMEDICAL SCIENCES

Believe

Become

Succeed

Message from the Chair

In the blink of an eye, we are in April. Ramzan mubarak– may the month bring blessings to all. Indeed, BBS has seen many blessings in the past few months. This iteration of the departmental newsletter highlights the accomplishments of faculty and staff in research and education. In December 2021, BBS successfully hosted its first ever Biological Sciences Research Symposium

with distinguished speakers, oral and poster presentations and AACME-accredited workshops. The event received global participation and is expected to become a flagship event for the department. At convocation in February, several faculty members were recognized with teaching awards and the first cohort of MPhil in Biological and Biomedical Sciences graduated. As ever, the output of department-wide efforts to enhance research and scholarship are reflected in the grants received and publications in print, the presentations given, and educational innovations developed, among other initiatives. This is a credit to the hard work of BBS faculty and staff and productive collaborations across the institution. As the year progresses, look forward to all of us continuing to make a difference together.

Warm regards,
Kulsoom

April
2022



AWARDS & RECOGNITION

Class of 2021 Convocation Award Recipients



Dr Kulsoom Ghias
University Award of Excellence in Teaching
and Teaching Leadership



Dr Rehana Rehman
Award of Excellence in Mentorship



Dr Sadia Fatima
Award of Excellence in Teaching

AWARDS & RECOGNITION



Dr Hassan Salman Siddiqi
Team-Based Collaborative Award for Teaching for UGME
Year 3 Bench to Bedside Module
(along with other colleagues listed above)



Dr Kulsoom Ghias, Dr Fareena Bilwani,
Dr Hasan Salman Siddiqi and Dr Sadia Fatima
Team-Based Collaborative Award for Teaching for UGME
Year 1 Foundation Module
(along with other colleagues listed above)

AWARDS & RECOGNITION



Dr Sadia Fatima was appointed as the Inaugural Chair Membership Committee of the Haile T Debas Teachers Academy.



Dr Rehana Rehman was granted the Membership of the Haile T Debas Teachers Academy.

She also received the Excellence in Research Award at the 13th Health Sciences Research Assembly.



Dr Syed Hani Abidi received the Excellence in Research Award at the 13th Health Sciences Research Assembly.

MPhil IN BBS



Dr Sahar Zuberi, Dr Faiq Amin and Ali Salman Sheikh received their MPhil degrees at the Global AKU convocation 2021. All three are graduates of the inaugural batch of MPhil in BBS program.



Twelve students joined the third batch of MPhil in BBS Class of 2023. A university-wide orientation was scheduled on February 28, 2022 followed by departmental orientation on March 1, 2022. During this session, students were given information about the graduate program, schedule and available resources. They interacted with BBS faculty members and were provided with information about their research interests.

FROM THE HUB



Successful first ever Biological Sciences Research Symposium on the theme of 'Linking bench to bedside' was conducted on December 15, 2021. Professor Shahid Mahmood Baig, Professor Rashida Ferrand and Professor Simon Davis gave keynote lectures. Four invited speakers covered genetic, epigenetic and molecular studies in neurosciences etc and pedagogies for enhancing learning in graduate programs. Eighteen oral presentations were delivered under the themes of genetics and human disorders, pharmacology, infection, immunity & inflammation, and stem cell and regenerative medicine. Forty posters were presented via a virtual platform and participants had a chance to interact with the presenters. A special lecture by Professor Arfa Sayeda Zehra on the higher education in Pakistan concluded the symposium.

Post symposium workshops on immunohistochemistry, manuscript writing, literature search, endnote library, and drug docking were offered by BBS faculty. The event received global participation from over 20 institutions.

FROM THE HUB

3rd PROBE Conference- University of Karachi February 21-23, 2022



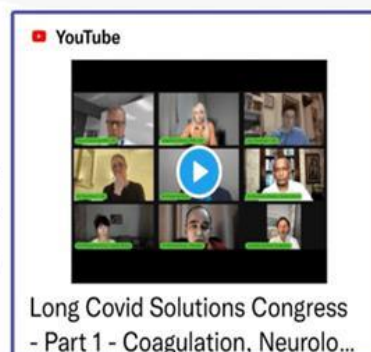
1. Dr Fareena Bilwani presented her work on 'Plausible Role of CCAAT/Enhancer Binding Protein-Alpha (C/EBP α) in the Development of Acute Myeloid Leukemia'. She was also awarded as the Best Oral Presenter.
2. Dr H.R. Ahmed gave the plenary lecture on 'Means and Culture of Critique in Science'.
3. Dr Rehana Rehman presented her work on 'Developing Research Culture and Leadership through Mentoring: Lets Move Forward'.
4. Dr Mati-ur-Rehman presented his work on 'Cancer Cell Death Induced by Physical and Chemical Stressors: Role of Reactive Oxygen Species'.
5. Dr Sadia Fatima presented her work on 'Dietary and Lifestyle Modification can Reduce Gene Methylation Status in Unhealthy Adults: A Pilot Study'.
6. Dr Satwat Hashmi presented her work on 'Wnt Pathway and Cardioprotection'.
7. Ms Sabah Farhat presented her work on 'Neurodevelopmental Changes in Offspring of Rats with Induced Subclinical Hypothyroidism'.

FROM THE HUB

Dr Shakil Ahmed Saghir, visiting faculty in BBS was invited to serve as a Judge at the National Idea Bank of Pakistan, an initiative of the President of Pakistan to collaborate between academia, government, industry and society to identify and showcase innovative ideas to solve indigenous problems. (<https://nibpk.org/>). He is also a recipient of NIH funded mentoring program, administered by the University of California, Davis, to mentor a minority toxicology student for one year and Society of Toxicology funded mentoring program to mentor one undergraduate student.



Dr Abdul Mannan was invited to deliver a talk on “Neurology in Long-COVID” at the virtual Long COVID Solutions Congress, March 2022.



Dr Sadia Fatima was invited to deliver a talk on “Molecular Techniques used in Medical Research; Importance & Benefits” at the Seminar on Molecular Techniques in Research organized by United Medical and Dental College (UMDC) on March 16, 2022.



FROM THE HUB

Group Based Learning (GBL)



An innovative method of learning was introduced in the Foundation module Pharmacology Course to guide students how to procure and interpret essential information printed on pharmaceutical labels. A GBL session was designed to provide a hands-on opportunity and putting the concept into practice. The session started with a faculty briefing providing activity guidelines and handouts. Students were divided into groups of five and common pharmaceutical preparations were provided to each group. The groups had to study the information printed on the label of each medicine and summarize it on the handout. Students discussed and tried to interpret this information in terms of practical use of medicine such as appropriate routes of drug administration. Dr Hasan Salman Siddiqi, Dr Amber Palla, Ms Mahwish Fatima and Ms Shazveen Saleem constantly helped the students in the session and answered their questions. In the end the key of the handout was shared with the students and they marked their own responses as part of formative assessment. Students feedback was very encouraging. Students stated that *“It was fun exploring and inquiring different medicines”* and *“I got to learn what the information on a box of medicine actually meant”*.

FROM THE HUB

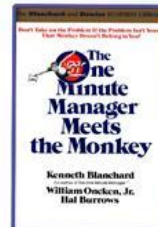
Hand Grip Strength Measurement using PowerLab February 24, 2022



A Hands-on Workshop on Hand Grip Strength Measurement using PowerLab was organized by the Physiology group. This workshop was conducted as a means of capacity building of BBS lab staff and faculty for using PowerLab and related software. This one-day workshop was comprised of creation of lab lessons, generation and analysis of data and the tools and tactics needed to design a new lab. Along with insightful views on the software's technical aspects, a hands-on experience was also given to better understand and retain the concept. This initiative was greatly appreciated by the participants.

FROM THE HUB

Leadership Skills Development Course for Early and Mid-Career Faculty March 28-April 1, 2022



Dr Nadeem Abbasi, Dr Fazal H Khan, Dr Qamar Riaz and Dr Sadia Fatima co-directed and offered a second iteration of the Leadership Skills Development Course for Early and Mid-Career Faculty. This capacity building activity was co-facilitated by Dr Robyna Khan, Dr Arsalan Ahmed, Dr Asad Mian, Dr Mahreen Sulaiman, Dr Hasan Nawaz Tahir, Nida Saeed, Hussain Mumammad Abbas, Mohammad Ahsan Arshad, Dr Syed Nazim, Dr Khadija Humayun and Dr Naila Nadeem. Twenty-four highly enthusiastic participants attended this course. Dr Faiq Amin and Dr Saara Muddassir from BBS were among the 24 participants. Dr Kulsoom Ghias, Chair BBS was invited to the closing ceremony to award certificates to both participants and facilitators. Participants appreciated the course environment, the content, teaching-learning strategies and wished to have an extended version of the course in future.

REFLECTION

Brewing Your Stains: A Hands-on Experience with the Application of Immunohistochemistry in Biomedical Research

The reflection of the workshop presented below is by Yasir Hussain from SZABIST, Karachi Campus (Department of Life Sciences) and Roha Khan from DOW, OJHA Campus (Department of Biotechnology) for a workshop conducted by Dr Muhammad Zuhair Yusuf, Dr Bushra Amin, Dr Sabeeh Siddiqui, Dr Azhar Hussain, Ghulam Hussain, Asra Khan, Tahira Ghulam and Fizza Nazim.



Amid the COVID crisis, virtual learning has become a norm. This is when we saw the advertisement of a hands-on immunohistochemistry workshop. So let us start by commending the individuals in charge for the induction and conduction of this hands-on experience. The highlight of the workshop was the hands-on experience and the in-depth discussions with the faculty. When we walked into the labs, we had no prerequisite knowledge for the technique but when we walked out, the story had changed as we were overhauled for the basics of the procedure, its application in both research and diagnostics, along with short appended practical engagement. We would urge the faculty to conduct more workshops like these in near future.

GRANTS

1. Exploring novel genes and mechanism behind neurodevelopmental disorders for implementation in the Pakistani health care system. Ambrin Fatima (PI), Salman Kirmani(Co-PI). AKU-Seed Grant; PKR 1,497,670.
2. The Genetics of Congenital Hypogonadotropic Hypogonadism in Pakistan. Ambrin Fatima (PI), Nanik Ram, Nida Najmi, Saba Irshad, Marriam Shahid, Uzma Abdullah (Co-PIs). Swiss National Science Foundation; CHF 158,600.
3. Role of Prostacyclin Analogue in Curbing type2 Diabetes mellitus Pathogenesis. Muhammad Zuhair Yusuf (PI), Hasan Salman Siddiqi (Co-PI). Pakistan Science Foundation; PKR 1,987,234.
4. HAND-AID: A novel artificial intelligence-based algorithm for effective differential diagnosis of HIV-associated neurological disorders. Syed Hani Abidi (PI), Syed Faisal Mahmood, Fatima Mubarak, Muhammad Nouman Mughal, Quart-ul-Ain Khan, Naweed Imam Syed (Co-PI). AKU-URC; PKR 3,821,000.
5. Frequency of ten clinically significant genomic alterations, demographics, clinicopathological features and outcomes, in endocrine resistant hormone receptor-positive, HER2-negative metastatic breast cancer in Pakistan. Shagufta Khan (PI), Imrana Masroor, Yasmin Abdul Rashid, Adnan Abdul Jabbar, Abida Sattar, Romana Idrees, Gauhar Afshan, Iqbal Azam (Co-PI). Higher Education Commission; PKR 6,447,600.

GRANTS

6. Treatment of Epilepsy and associated memory loss with herbal extracts. Fazal Arain (PI), Salman Siddiqi, Saara Muddasir (Co-PI). AKU-URC;PKR 3,642,175.
7. Genetic Epilepsies: identification of novel genes and mechanisms for intervention, prevention and implementation in the Pakistani health care system. Ambrin Fatima (PI), Shahnaz Ibrahim, Salman Kirmani (Co-PI). Higher Education Commission; PKR 9,260,400.
8. Exploring novel genes and mechanism behind genetic epilepsies for implementation in the Pakistani health care system. Ambrin Fatima (PI), Salman Kirmani, Shahnaz Ibrahim, Rikke Steensbjerre Møller, Niklas Dahl (Co-PI). International Centre for Genetic Engineering and Biotechnology (ICGEB); EUR 45,000.
9. Association of catechol-o-methyltransferase gene polymorphism with preeclampsia and biomarkers of oxidative stress in Pakistani women. Shagufta Khan (PI), Faheem Yousuf, Rehana Rehman, Iqbal Azam (Co-PI). AKU-Seed Grant; PKR 1,498,098

PUBLICATIONS

1. Han H, Clithero-Eridon A, Costa MJ, Dennis CA, Dorsey JK, Ghias K, Hopkins A, Jabeen K, Klamen D, Matos S, Mellinger JD, Peters H, Pitama S, Smith CL, Smith SF, Suh B, Suh S and Zdravković M. On pandemics and pivots: a COVID-19 reflection on envisioning the future of medical education. *Korean Journal of Medical Education* 2021; 33(4): 393-404. DOI: <https://doi.org/10.3946/kjme.2021.207>
2. Abidi SH, Imtiaz K, Kanji A, Qaiser S, Khan E, Iqbal K, Veldhoen M, Ghias K, Simas JP, Hasan Z. A rapid real-time polymerase chain reaction-based live virus microneutralization assay for detection of neutralizing antibodies against SARS-CoV-2 in blood/serum. *PLoS One* 2021;16(12):e0259551. DOI:10.1371/journal.pone.0259551. eCollection 2021
3. Fatima SS, Rehman R, Muhammad JS, Martins R, Mohammed N, Khan U. Association of chemerin gene promoter methylation in maternal blood and breast milk during gestational diabetes. *Journal of Developmental Origins of Health and Disease*. 2022;13(1):108-114. doi: 10.1017/S2040174421000118.
4. Kumar W, Martins RS, Anjum N, Fatima, SS. Ischemia modified albumin as a useful marker for diagnosis and management of diabetic retinopathy. *Pakistan Journal of Medical Sciences*, 2022;38(4). <https://doi.org/10.12669/pjms.38.4.4813>
5. Baig AM. Counting the neurological cost of COVID-19. *Nat Rev Neurol*. 2022;18(1):5-6.

PUBLICATIONS

6. Rehman R, Tariq S, Tariq S. Emotional intelligence and academic performance of students. *Journal Of Pakistan Medical Association*. 2021; 71(12): 2777-81 DOI: <https://doi.org/10.47391/JPMA.1779>
7. Farooqui N, Maha QA, Ashraf M, Azhar A, Jehan F, Rehman R. Vitamin D and Vitamin D receptor in female infertility. *Aziz Fatima Medical and Dental College* 2021; 3 (2): 61-64
[/https://journal.afmdc.edu.pk/index.php/AFMDC/issue/current](https://journal.afmdc.edu.pk/index.php/AFMDC/issue/current)
8. Raja MHR, Ashraf M, Khan S, Farooqui, N, Azhar A, Rehman R. Kisspeptin and Spexin: lipid profile and sperm parameters in infertile and fertile male subjects. *Journal of University Medical & Dental College*, 2021; 12(4).
<https://doi.org/10.37723/jumdc.v12i3.577>
9. Amjad S, Mushtaq S, Rehman R, Zahid N, Munir A, Siddiqui PQR. Spermatozoa retrieval in azoospermia and expression profile of JMJD1A, TNP2, and PRM2 in a subset of the Karachi population. *Andrology*. 2021; 9(6). doi: 10.1111/andr.13076.
10. Rehman R, Alam F, Baig M, Khan AH, Ahmed N. Editorial: Vitamin D deficiency and sufficiency in reproduction and bone metabolism. *Frontiers in Endocrinology*. 2021; 12(1006). doi:10.3389/fendo.2021.740021

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