

## 1st International Conference on Biomedical Sciences, Dow University of Health Sciences, Karachi Pakistan

Zeba Haque,<sup>1,2</sup> Farina Hanif,<sup>1</sup> Muhammad Owais,<sup>2</sup> Sonia Siddiqui<sup>1</sup>

### Abstract

Institute of Biomedical Sciences (IBMS) at Dow University of Health Sciences (DUHS), organised a two day's conference on Biomedical Sciences. IBMS being the part of one of the largest public sector health universities of Pakistan, is now transforming the research trends to be effectively translated at the community level. Currently with a strong PhD faculty line in basic and clinical sciences, DUHS has a significant contribution in research output of the country. The scientific data however represents a small population per scientific study and the generalization of results may not be inferred. It must be extended through translational research for effectiveness. The conference was planned with a theme to bridge the gap between basic and translational research. The two day's conference conducted in second week of March 2023 at Dow International Medical College Ojha Campus DUHS was able to attract more than 300 participants. The scientific sessions encompassed a vast variety of health issues and their proposed solutions including neurosciences, virtual biopsies, metabolomics, medical writings and incorporation of engineering and artificial intelligence to facilitate detection and prognosis of disease. The conference was able to conclude that the multidisciplinary research studies with collaboration of two or more institutes/organizations are the need of time. Young researchers need an effective platform to showcase their research and make collaborations. Moreover, the incorporation of artificial intelligence would enhance patient care within health systems.

**Keywords:** Biomedical Sciences, basic research, Translational research, IBMS, DUHS..

**DOI:** 10.47391/JPMA.23-47

### Introduction

Research grabs a crucial role in developing and sustaining any system of a country, directly affecting the construction/revision of the policies of the governmental

.....  
<sup>1</sup>Dept. of Biochemistry Dow International Medical College, Dow University of Health Sciences, Ojha Campus, Karachi, Pakistan, <sup>2</sup>Institute of Biomedical Sciences, Dow University of Health Sciences, Ojha Campus, Karachi, Pakistan

**Correspondence:** Zeba Haque. Email:

framework. Research in health sector particularly becomes more significant since it is closely connected to a large population hence able to modify health economy<sup>1</sup>. While digging the types of research, Basic sciences research involves studying the fundamental mechanisms of biological systems, including the structure and function of cells, tissues, and organs, as well as the underlying biochemical and physiological processes that regulate their function. This type of research is often conducted in laboratory settings and aims to advance our understanding of health and disease. However, basic sciences research alone may have minimal impact on the health of the community because it does not necessarily translate into practical applications that benefit patients directly<sup>2</sup>.

Translational research, on the other hand, focuses on the application of basic health sciences research to improve human health. It aims to bridge the gap between laboratory discoveries and their application in clinical settings. This type of research involves collaboration between researchers, clinicians, patients, and other stakeholders to develop new therapies, diagnostic tools, and prevention strategies<sup>3</sup>. The effects of translational health research can be significant, as it can lead to the development of new treatments and interventions that can improve patient outcomes and quality of life. It can also lead to the identification of new risk factors for diseases and inform public health policies aimed at reducing the burden of disease.

The impact of biomedical sciences conferences on the development of multidisciplinary research can be significant<sup>4</sup>. These conferences bring together researchers from different fields and provide opportunities for collaboration and the exchange of ideas. Moreover, conferences can help disseminate the latest research findings and promote the translation of basic research into clinical practice. Present conference was thus organized by the IBMS at DUHS Ojha campus with a theme of "Bridging Basic and Translational Research". The objectives were to (1) provide a multidisciplinary global platform to researchers and healthcare professionals from the national and international universities (2) critically examine the pivotal

role of emerging technology in tackling the health challenges (3) provide exposure to the local students and researchers from Pakistan to the cutting-edge research and development in the field. (4) provide the platform to our researchers to interact and develop research collaborations with the leading research universities in the world. (5) To significantly extend the knowledge of all delegates – from those who are in the early stages of their career to globally renowned scientist. Dow Universities are one of the largest public sector health universities in Pakistan. Having a mission of providing outstanding patient centred education, training and clinical care informed by cutting edge research and innovation generating and disseminating new knowledge, it is an obligation of the university to provide best forum to the young researchers to facilitate quality research in the country.

### Planning and Execution

The conference was planned as a two day in person activity with the plenary and invited sessions followed by two parallel sessions of free papers. A total of 263 researchers/students/faculty registered for the conference. Including international guests, speakers and the organizers marked a total participation of more than 300 individuals. All the sessions took place in two lecture halls of Dow International Medical College (DIMC) building at Ojha campus. Both the halls were connected electronically to simultaneously to engage all the participants regardless of the place of ongoing activity. Inaugural and concluding sessions marked opening and closing of the conference. Five plenary and nine invited talks were delivered in two days by international and national speakers. Twenty eight oral presentations were carried out in 2 parallel sessions/day having 07 oral presentations /session. A hundred and twenty-six posters were presented. A cash prize was announced for best oral presentation/session and three best posters. Oral presentations (10 minutes each) were judged by 01 international and one national (out of Karachi city) invited speaker/ session. The posters were evaluated by faculty members having PhD degree as the terminal qualification and who declared NO conflict of interest. Each set of evaluators were assigned maximum of 25 posters to judge. All the scoring was done using 5-point likert's scale on the structured proforma already posted on website before the conference for the participants. Average scores of three evaluators determined the best oral presentation/poster. A separate session was conducted by Chair International Brain Research Organization (IBRO-Asia Pacific region). A research consortium session was also organized to facilitate the meeting of researchers from a variety of disciplines having common interests to

collaborate and design multidisciplinary research projects. This was arranged in a room with multiple small meeting areas. A total of 31 universities across Pakistan and round the world participated in the conference along with 8 institutes of the DUHS. Out of these 39 institutes, eight participants were from the international research community. Two researchers from Universiti Putra Malaysia and one from University of Virginia USA attended the conference in person. A Gala dinner was thrown at the end of conference for the entire participants, to cheer them after a vigorous two days' scientific activity in one of the lawns of DIMC Building.

### Day-1: Monday March 21, 2023.

**Inaugural session** was opened with recitation of Holy Quran and National Anthem. The session was chaired by Professor Emeritus Dr. Attaur Rahman as Chief Guest. The audience was welcomed by Chair organizing committee Prof. Dr. Zeba Haque followed by an address by Pro-vice Chancellor DUHS Prof. Dr. Sara Kazi. Prof. Attaur Rahman then delivered a keynote inaugural session highlighting the importance of higher education, science and technology and their impact on socioeconomic development of a country.

**Session 2** chaired by Dr. Shabana Usman Simjee and Dr. Micheal Ling. It consisted of two plenary talks of 30 minutes each. Professor Dr. Roger Abounader from the University of Virginia (USA) explained that due to the multi-gene deregulation in glioblastoma, monotherapies have failed to achieve significant improvements in clinical outcomes. Therefore, the simultaneous targetting of several deregulated molecules is required to achieve better therapies. He identified novel experimental therapies that successfully inhibited GBM growth and prolonged the survival of tumour-bearing animals. Meritorious Professor Dr. Darakhshan Jabeen Haleem from the University of Karachi emphasized that current medications for treating obesity are not very effective, while the risks of many metabolic, hormonal, and psychiatric illnesses are also high in obese subjects. She suggested that research on specific amino acids or peptides/protein intake on energy balance can help in the prevention and treatment of obesity.

**Session 3** chaired by Prof. Zeba Haque and Dr. Cheah Pike-See. It included four invited talks for 15 minutes each. Dr. Sheikh Kaiser Waheed CEO Medisure Laboratories emphasized on the importance of biomedical Sciences in pharmaceutical industries. Dr. Kulsoom Gias from Aga Khan University Hospital (AKUH) described the role of neutrophils in head and neck cancers. It was followed by a talk on an entirely different topic by Prof. Dr. Zakiuddin

Ahmed. He gave the overview of the digital health and how the whole paradigm of health care is now shifting to the patient centred digital health care using artificial intelligence. Next was the interesting talk by Dr. Farina Hanif, she explained that microRNA-3174 acts as a tumour suppressor in GBM via simultaneously targetting multiple oncogenes. The session was followed by poster evaluation for 30 minutes then a Lunch and Namaz break for another 30 minutes. 14 free paper presentation of 10 minutes each were then observed in two parallel sessions. The certificates to the oral presenters were distributed at the end of the session. The day ended at 4: 30 pm.

### **Day-2: Tuesday March 21, 2023.**

It started with the plenary session chaired by Prof. Dr. Roger Abounader and Dr. Farina Hanif. Two international and one national speaker delivered their talks. Dr. Cheah Pike-See from Universiti Putra Malaysia focussed her talk on translational research related to rare diseases, Tuberous Sclerosis Complex (TSC), which results from the loss of a tumour suppressor gene - TSC1 or TSC2, encoding hamartin and tuberlin, respectively. She described how they evaluated Gene therapy in a mouse model of TSC2 using an adeno-associated virus (AAV) vector carrying the complementary "condensed" form of human tuberlin (cTuberlin). She showed that to replace the lost gene, they performed a direct intratumoral injection of an AAV vector expressing merlin in a novel human schwannoma model in nude mice, which led to the regression of tumours. Professor Dr. Muhammad Aslam from Shifa Tameer-e-Millat University Islamabad, Pakistan, emphasized the importance of fostering linkages between biomedical science and biomedical engineering for better healthcare. He mentioned many interdisciplinary and transdisciplinary areas of health and engineering sciences, including biophysics, biomedical engineering, operation theatres designing, bio-material manufacturing, interventional radiology, cyber/gamma knife surgery, robotic surgeries, cardiac stents, urinary stents etc. He concluded that combining medicine with emerging sciences may facilitate precision in diagnostics and therapeutics to improve healthcare delivery for all. The last plenary talk was delivered by Dr. Michael (KH) Ling from Universiti Putra Malaysia. He mentioned that increased interferon and JAK-STAT signalling pathways activation have led to increased astrogenesis and subsequently, DS brain and neuroinflammation, a potential factor for early onset Alzheimer disease among DS individuals. He concluded that targetting the JAK-STAT signalling pathway in early neurodevelopment will allow neurogenesis to take place and potentially restore the neuron-to glia cell ratio among DS individuals.

**Session two** chaired by Dr. Sonia Siddiqui included 15-minute talks from five invited speakers. Prof. Dr. Ather Enam from AKUH discussed the role of virtual biopsy and microRNA in glioma. Prof. Saeed Khan from DUHS shared his experience on probing the Covid 19 Pandemic starting from in-house assays till using hi-tech NGS technology. Prof. Dr. Talat Mirza Dean research at Ziauddin University highlighted the importance of Molecular Medicine as a paradigm shift in clinical practice. Dr. Najia Ghanchi from AKUH discussed the progress and challenges in genomic surveillance of pathogens from Pakistan. Prof. Dr. Saba Sohail Principal Dow Medical College and associate editor of Journal of College of Physicians and Surgeons (JCPSP) then informed the audience about the requirements of the medical research journals. She discussed the tips required for the manuscripts to get published in an indexed journal from an editor's point of view.

It was followed by Special session from Chair IBRO Asia pacific region Dr. Chea Pike-See. She introduced the organization and informed about the funding opportunities for researchers. The research consortium session for 30 minutes was concluded with two multidisciplinary research projects in collaboration with IBMS-DUHS<sup>1</sup> with Digital Health Care; "Dow e-tibb: Connected Health Care Model" with Remote patient monitoring and Patient education<sup>2</sup> with Sir Syed University "Computational Analysis of Tuberculosis for Drug Resistance and its Immune Responses for Better Treatment". Mr. Muhammad Owais deputy Director IBMS will facilitate and manage the research projects. After the lunch break one hour time was given for poster presentations and evaluation. Fourteen free oral presentation of 10 minutes each were then observed in two parallel sessions. Prof. Dr. Sumbul Shamim and Dr. Maqsood Chotani chaired these sessions. The certificate to the oral presenters were distributed at the end of the session.

**Concluding session** was commenced after the evening tea break with opening remarks by Dr. Sonia Siddiqui Co-Chair of the conference. The conference summary was presented by Prof. Dr. Zeba Haque. It was followed by prize distribution to the best oral and poster presenters. The souvenirs were presented to the honourable international and national speakers as a token of appreciation for taking their time out for this important event. The most difficult task of presenting Vote of Thanks was done by Dr. Farina Hanif, Secretary and Chair Scientific committee of the conference.

### **Conclusion**

The need for university translational research is crucial

because universities are uniquely positioned to bring together researchers from different disciplines and provide the resources and infrastructure necessary for collaborative research. Present conference provided a platform for healthcare professionals, students, and scientists from various disciplines to exchange their thoughts and findings in the field of biomedical science. The conference furnished an opportunity for local students and researchers from Pakistan to be exposed to the cutting-edge research and development in the field, while also facilitating research collaborations with leading research universities worldwide. It also facilitated interdisciplinary collaboration, leading to the development of novel solutions to complex health problems. Overall, the conference was a success and provided an avenue for disseminating the latest research findings and promoting translation of basic research into clinical practice.

**Acknowledgment:** The organizing committee would like to express sincerest gratitude for the trust shown by Worthy Vice Chancellor DUHS Prof. Mohammad Saeed Quraishy for organising this 1st international Conference on Biomedical Sciences.

We are highly in debt to Sindh Higher Education Committee (SHEC) for awarding us the conference fund vide letter no. AD(Acad-I)/SHEC/ 7-16 /2022. Prof. Dr. Tariq Rafi had been extremely helpful during the event. We are also thankful for generous financial support provided by

Medisure laboratories for funding audio visuals, tea and lunch breaks of the conference.

**Recommendations:** The overwhelming response and exceptional outcome of the conference highly recommend series of biennial conferences..

**Conflict of Interest:** None.

**Conflict of Interest:** None.

**Source of Funding:** SHEC (letter no. AD(Acad-I)/SHEC/ 7-16 /2022) Conference Promo link: <https://www.duhs.edu.pk/new/1st-international-conference-on-biomedical-sciences-2023/>

## References

1. Day E, Wadsworth SM, Bogenschneider K, Thomas-Miller J. When university researchers connect with policy: a framework for whether, when, and how to engage. *J. Fam. Theory Rev.* 2019;11:165-80.
2. Seyhan AA. Lost in translation: the valley of death across preclinical and clinical divide—identification of problems and overcoming obstacles. *Transl. Med. Commun.* 2019;4:1-9.
3. Holmes L, Cresswell K, Williams S, Parsons S, Keane A, Wilson C, Islam S, Joseph O, Miah J, Robinson E, Starling B. Innovating public engagement and patient involvement through strategic collaboration and practice. *Res. Involv. Engagem.* 2019;5:1-2.
4. Dergachev KV, Trifankov YT. Modern Philosophy in the Context of Interdisciplinary Studies of Human and Nature. In *Smart Technologies and Innovations in Design for Control of Technological Processes and Objects: Economy and Production: Proceeding of the International Science and Technology Conference" FarEastCon-2019;2:228-233..* Springer International Publishing.