



ANNUAL REPORT

2022

Department of Biological and
Biomedical Sciences
Aga Khan University



آغا خان یونیورسٹی

THE AGA KHAN UNIVERSITY

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Message from the Dean



Dr Adil Haider

The Department of Biological and Biomedical Sciences at the Medical College is growing in impact and scope with a strong focus on research and teaching. As you'll see in this report, their work is meaningful and substantial, not just at a local level, but nationally and internationally. They have responded to challenges presented over the years with determination, adaptation and innovation. And I must acknowledge and applaud the commitment, work ethic and dynamism of the entire BBS team.

The five-year strategic plan outlined in 2019 is progressing well with activities and outcomes aligned with the expectations highlighted in the plan. 2022 saw the continued success of initiatives put in place, including hosting the Biological Sciences Conference, a flagship event for the department, strengthening teaching structures, and continuing research efforts and collaborations.

The biological and biomedical research enterprise is critical to understanding fundamental biological processes and mechanisms of human health and disease pathogenesis, and it is critical to

developing solutions that prevent, diagnose, and treat diseases and conditions that afflict millions of people.

The work being undertaken everyday furthers our mission of knowledge-sharing and increasing access to that science to those outside the walls of our great institution. The department's solid publication record and impressive grant work are some of the ways in which scientific discovery is being propelled forward slowly but surely.

We continue to make contributions to medical education by consistently producing innovations in our curriculum, pedagogy and assessment, and growing our MPhil programme. Our faculty of superstars, enabled by a dedicated support staff, continue to impress with their long list of awards, fellowships and promotions. This commitment to bettering ourselves at every level of the organization is what sets us up for greater success.

I wish the team the best of luck. As you move towards higher levels of excellence, I along with the senior leadership of AKU are behind you every step of the way.

Chair's message



Dr Kulsoom Ghias

Three years ago, the department created its first Annual Report as a means of communication with colleagues within and outside the Aga Khan University. Along with a monthly newsletter, the Annual Report serves as a summary of department activities and achievements. That was also the year the first phase of the department's strategic plan wrapped up and ideas were put into place to enhance the promotion of research and educational activities within and outside BBS.

The following year, the department ticked a number of "firsts" off its list, including hosting its first-ever Biological Sciences Conference, witnessing the graduation of the first cohort of its in-house MPhil program, and as always, remaining dedicated to providing quality research. Those "firsts" from the past two years have now become well-established events, and BBS looks forward to expanding its offerings in the years to come.

While there is a strong sense of accomplishment for the journey BBS has undergone this past year, there is also gratitude for all the key players who have given the department immense support: the leadership of the Aga Khan University and the BBS department members. Your constant efforts and dedication have helped bring about the department's successes and are truly valued.

The past three years have also undoubtedly brought to light the importance of scientific research as a means to combat illnesses, slow down climate change, and overall, enable us to do our part to make our country and world a better place to live. Each of us have the ability to examine our own skill sets and see where they can be applicable in today's world.

This year's Annual Report shows an overview of the activities that department has undertaken this year, the result of efforts built upon steadily over the years. On that note, I invite our readers to obtain a glimpse into the BBS department through this report and reach out to us with any questions or suggestions.

Year in review



65

Publications



35

Ongoing grants



10

Book chapters



15

Appointments



4

Promotions



1

Endowed professor



7

Higher education degrees
obtained



8

Awards



18

Events

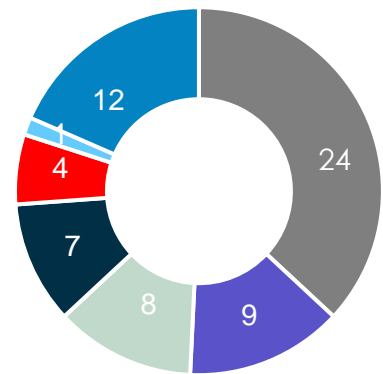
Research updates

As part of a prestigious research-led university, the Department of Biological and Biomedical Sciences strives to provide enhanced scholarship and research responsive to the needs of the country.

In 2022, the department's research-specific strategic goals focused on enhancing and sharing research skills and streamlining research processes. The hiring of research-intensive staff continued. An informal mentorship program was initiated for faculty. The department's grants administration office expanded to add more team members and continued to provide departmental support for the grant application process.

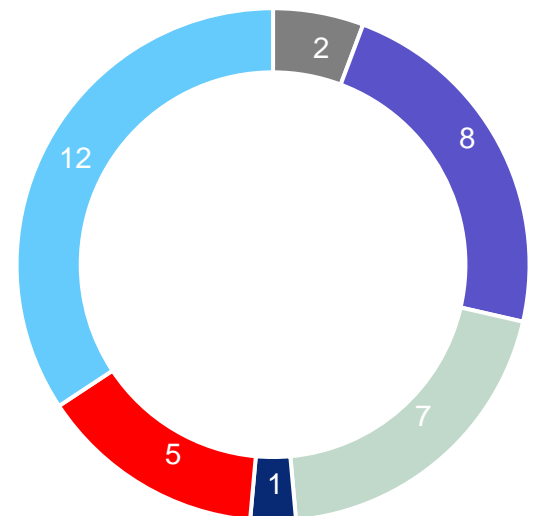
Over the past three years, department members have published over 200 research papers. In 2022, 65 papers were published according to departmental research themes. The department has doubled the number of ongoing grants from a few years back, ending 2022 with 35 ongoing grants.

2022 Publications



- Immunology and Infectious Diseases
- Endocrinology and Metabolic Disorders
- Brain and Mind Sciences
- Medical Education
- Cardiovascular and Respiratory Diseases
- Cancer
- Others

2022 Grants



- Immunology and Infectious Diseases
- Endocrinology and Metabolic Disorders
- Brain and Mind Sciences
- Medical Education
- Cardiovascular and Respiratory Diseases
- Cancer

Teaching highlights

Every education activity the department undertakes is with the goal to ensure the enhanced success of its students through transformative learning experiences.

2022 saw the department's teaching aims focus strongly on continuing to provide contributions to the planning and implementation of the UGME curriculum. Faculty were trained to deliver concepts across fields/ disciplines and held training programs as well. Discipline coordinators for Anatomy, Physiology, Pharmacology and Biochemistry assisted with streamlining course information and processes. Department members participated in events within and outside AKU, promoting collaboration and community engagement.

One of the most notable contributions was the addition of the Anatomy Practical Exam (APEX), that was introduced in the R&C module and then conducted in the GIT and Renal Module for Year 1 UGME students. Dr Kanza Muzaffar, Dr Sadia Cassim and Dr Rozmeen Akbar were responsible for leading this initiative. The exam was created to address the gap between students learning about 3-D anatomy structures and their correct usage. The course received extremely positive feedback and has been approved for future use.



MPhil thesis defense 2022



Visit to Beaconhouse School



BBS conference workshop




BBS conference workshop

Biological Sciences Conference

The second-ever Biological Sciences Conference, BBS's flagship event, was held on November 29, 2022. The theme of the conference was "From Molecules to Network" and it encapsulated the journey BBS has undertaken to evolve into the thriving research and education center it is today.

The event consisted of excellent and insightful keynote speeches and guest lectures, scientific sessions, and oral and poster presentations. Workshops related to the research themes of the conference were held prior to and afterwards. The event itself and the accompanying workshops were well-attended by colleagues within and outside of AKU.



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THE AGA KHAN UNIVERSITY


2nd Annual Biological Sciences Conference

From Molecules to Networks

#Research4Health
#BBS

Keynote Speakers

 **DR HARVEY F LODISH**
Founding Member, Whitehead Institute for Biomedical Research, Professor of Biology and Biological Engineering, Massachusetts Institute of Technology

 **DR S ATHER ENAM**
Professor Neurosurgery and Scientific Director of Juma Research Laboratory, Aga Khan University

**TUESDAY,
NOVEMBER 29,
2022**

9.00am to 5.00pm
Auditorium,
Aga Khan University,
Stadium Road Campus

Organized by
The Department of Biological and Biomedical Sciences



Poster presentations



Conference participants



Scientific talks

Awards and distinctions

Faculty promotions



Dr Rehana Rehman
Professor



Dr Fazal Arain
Associate Professor



Dr Sadia Fatima
Associate Professor



Dr Faiq Amin
Senior Instructor

Educational achievements by faculty



Dr Rehana Rehman
Masters in Health Professions
Education, Aga Khan University



Dr Sadia Fatima
Fellowship in Health
Professions Education and
Leadership, FAIMER
Institute

Fellowship of the Higher Education Academy, UK



Dr Syed Hani Abidi



Dr Zehra Jamil

Medical college awards for excellence in teaching – 2021



Dr Kulsoom Ghias
University's Award of Excellence in Teaching and Teaching Leadership & Team-Based Collaborative Award for Teaching for UGME Year 1 Foundation Module



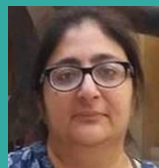
Dr Rehana Rehman
Mentorship Award



Dr Sadia Fatima
Excellence in Teaching Award & Team-Based Collaborative Award for Teaching for UGME Year 1 Foundation Module



Dr Hasan Salman Siddiqi
Team-Based Collaborative Award for Teaching for UGME Year 1 Foundation Module & Team-Based Collaborative Award for Teaching for UGME Year 3 Bench-to-Bedside Module Sciences



Dr Fareena Bilwani
Team-Based Collaborative Award for Teaching for UGME Year 1 Foundation Module

Notable achievements - 2022



Dr Shahid Baig
Fellow, Pakistan Academy of Sciences



Dr Satwat Hashmi
The Noor Mohamed Shamji Endowed Professor



Dr Fazal Arain
Treasurer, Pakistan Society of Basic and Applied Neuroscience



Dr Sadia Fatima
Invited Speaker, DoHaD Worldwide Webinar Series



Dr Sadia Fatima
Inaugural Chair, Haile T Debas Teacher Academy

Professional development activities

Workshops

1	How to prepare NIH Bio sketch	Dr Najeeha Iqbal
2	Qualitative research: explore for impact in medical education	Dr Rehana Rehman, Dr Tazeen Saeed Ali and Dr Arfa Azhar
3	A success story of the grand challenge fund	Dr Afsar Mian and Dr Najeeha Iqbal
4	Engage your audience using easy-to-build presentations and interactive quizzes	Dr Sadia Fatima
5	Western blotting - introduction and optimization	Dr Azhar Hussain and Dr Satwat Hashmi
6	First aid training	Dr Amber Palla
7	Basics of molecular biology: hands-on preparatory course for MPhil-BBS students	Dr Rehana Rehman
8	From tissue to target: a complete immunohistochemistry (IHC) hands-on training	Dr Bushra Amin

Online Course

1	Fundamentals of cell and molecular biology: an online course	Dr Syed Hani Abidi and Dr Kulsoom Ghias
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Guest Lecture

1	Congenital GnRH deficiency helps decipher the neuroendocrine control of reproduction	Professor Nelly Pitteloud, Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland
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Community Outreach

1	Awareness session for students on hazards of tobacco and alcohol (talk given at Karachi Grammar School)	Dr Kulsoom Ghias
2	Developing a Healthy Lifestyle (talk given at Beaconhouse School, PECHS campus)	Dr Salman Siddiqui
3	Making Mind Maps for Better Decision-making, (AKU outreach program E3 Series (Enrich, Engage, Empower))	Dr Rehana Rehman and Dr Salman Siddiqui

BBS Conference 2022 Workshops

1	Training workshop for animal-based research in biomedical sciences: models and technique	Dr Satwat Hashmi
2	Capacity building for strengthening medical education	Dr Sadia Fatima
3	Qualitative data analysis: codes, categories & themes	Dr Rehana Rehman
4	Understanding EndNote for reference citation	Dr Saara Muddasir
5	Genome editing by CRISPR Cas9	Dr Ambrin Fatima
6	2D electrophoresis: isoelectric focusing & 2D gel separation	Dr Bushra Amin
7	Structural bioinformatics	Dr Arooj Shafiq

BBS personnel

Faculty

Dr Kulsoom Ghias	Associate Professor and Chair
Dr Satwat Hashmi	Associate Professor & Vice Chair, Education
Dr Najeeha Iqbal	Associate Professor & Vice Chair, Research (Joint appointee)
Dr Perwaiz Iqbal	Professor Emeritus
Dr Shahid Mahmood Baig	Professor
Dr HR Ahmad	Professor
Dr Khalid M Khan	Professor
Dr Ather Enam	Professor (Joint appointee)
Dr Rehana Rehman	Professor & Director, MPhil in Biological and Biomedical Sciences Programme
Dr Syeda Sadia Fatima	Associate Professor
Dr Fazal Arain	Associate Professor
Dr Shagufta Khan	Assistant Professor
Dr Hasan Salman Siddiqi	Assistant Professor
Dr Fareena Bilwani	Assistant Professor
Dr Junaid Iqbal	Assistant Professor (Joint appointee)
Dr Saara Muddasir	Assistant Professor
Dr Mati Ur Rehman	Assistant Professor
Dr Muhammad Zuhair Yusuf	Assistant Professor
Dr Zehra Jamil	Assistant Professor
Dr Muhammad Nouman Mughal	Assistant Professor (Joint appointee)
Dr Bushra Amin	Assistant Professor
Dr Ambrin Fatima	Assistant Professor
Dr Abdul Mannan Baig	Assistant Professor
Dr Amber Palla	Assistant Professor
Dr Sayed Ali Raza Shah Bukhari	Assistant Professor (Joint appointee)
Dr Khalid Ahmed	Assistant Professor
Dr Arooj Shafiq	Assistant Professor
Dr Tashfeen Ahmad	Assistant Professor (Joint appointee)
Dr Afsar Mian	Assistant Professor, Centre for Regenerative Medicine and Stem Cell Research
Dr Hammad Hussain	Assistant Professor, Centre for Regenerative Medicine and Stem Cell Research
Dr Salma Jahan	Assistant Professor, Centre for Regenerative Medicine and Stem Cell Research
Dr Sheerien Rajput	Assistant Professor, Centre for Regenerative Medicine and Stem Cell Research
Dr Kamran Afzal	Senior Instructor
Dr Arfa Azhar	Senior Instructor
Dr Kanza Muzaffar	Senior Instructor
Dr Faiq Amin	Senior Instructor
Dr Rozmeen Akbar	Instructor & Coordinator, ASLS
Dr Sadia Cassim	Instructor
Dr Syed Hani Abidi	Visiting Associate Professor
Dr Shakil Ahmed Saghir	Visiting Faculty

Postdoctoral fellows

Dr Sobia Naz Shaukat
Dr Haq Nawaz Khan
Dr Muhammad Wasim
Dr Shafaq Ramzan

Teaching Associates

Dr Hasan Kamal
Dr Maheen Shahid
Dr Muhammad Qaiser
Dr Nabeel Ashfaque Sheikh
Dr Qurat Ul Ain Virani
Dr Salman Qamar Ul Haq
Dr Shahzaib Zindani
Dr Shirin Jalaluddin
Dr Syed Zaid Bin Waqar
Dr Syeda Saman Gillani

Administrative Staff

Gulafroze Jessa	Manager
Irfanullah Baig	Assistant Manager
Noorulain Salim	Associate
Bilal Effendi	Associate
Ali Moosa	Coordinator
Imran Hajani	Coordinator
Ramzan Samnani	Senior Assistant
Shermeen Rattani	Senior Assistant
Sadia Doulat Aman	Senior Assistant

Laboratory Staff

Dr Azhar R Hussain	Director Labs
Farzana Abubakar	Research Specialist
Zeeshan Haider	Specialist, ASLS
Ghulam Haider	Research Coordinator
Asra Khan	Research Coordinator
Shazveen Saleem	Research Coordinator
Mussarat Ashraf	Research Associate
Masnoon Akhter	Research Associate
Sabah Farhat	Research Associate
Mahwish Fatima	Research Associate
Hira Rafi	Research Associate
Alisalman Sheikh	Research Associate
Rena Zaman	Research Associate
Hina Shakil	Research Associate
Bilal Ahmad Mian	Research Associate
Tahira Ghulam	Senior Research Assistant
Sher Khan	Senior Research Assistant
Fizza Nazim	Senior Research Assistant
Adil Jamal	Senior Research Assistant
Ghazala Zafar	Senior Research Assistant
Nida Farooqui	Senior Research Assistant
Rabab Hamid Ibrahim	Senior Research Assistant
Samra Khan	Senior Research Assistant
Maria Masood	Senior Research Assistant
Zarina Batool	Senior Research Assistant
Lubaba Binte Khalid	Trainee
Rekha Kumari	Trainee
Zahid Hussain	Senior Technologist
Pirbux Memon	Technologist
Ghulam Abbas	Laboratory Aide