

News

QU establishes Biomedical Research Center



Qatar University recently established a dedicated center of excellence for biomedical research – QU Biomedical Research Center (QURBC) - and announced the appointment of its director.

The work of the new center will be overseen by Dr. Asmaa Al Thani and will be aligned with the organization's research priorities on energy, environment and resource sustainability; social change and identity; population, health and wellness; and information, communication & technologies. Its establishment is in keeping with Qatar University's efforts towards the expansion of cutting-edge research in various areas of national priority with national, regional and international significance.

QURBC will leverage QU's interdisciplinary capacity, incorporating key players in the field of biomedical, health and medical research at QU -the Biomedical Sciences Program and Biological Sciences Program in the College of Arts and Sciences (CAS), and the College of Pharmacy.

The Center will also seek collaboration with national partners and stakeholders such as

Supreme Council of Health (SCH), Hamad Medical Corporation (HMC), Weill Cornell Medical College in Qatar (WCMC-Q), Sidra Medical and Research Center, Qatar Biomedical Research Institute (QBRI), Qatar Cardiovascular Research Center (QCRC) and Anti-Doping Lab Qatar (ADL-Q).

Dr. Al-Thani will lead the Center's focus on research, training, and services in applied and basic biomedical research in three major areas: metabolic diseases (chronic non-communicable diseases), namely cardiovascular diseases, type 2 diabetes, obesity and cancer; epidemiology and infectious diseases; and drug discovery, development and analysis.

QU VP for Research Dr. Hassan Al-Derham said: "The Center is evidence of Qatar University's alignment with the Qatar National Vision 2030 and Qatar's national research priorities which include public health and biomedical sciences-related research."

He noted that the Center will be hosted in QU's New Research Complex which is home to a number of the organization's specialized

research centers. "QU has invested in research infrastructure with a large biomedical wing comprising a Biosafety Level 3 facility and an animal facility", he said, adding, "Dr. Al-Thani's knowledge and experience will be an asset to leading the Center on strategies and initiatives that will serve the needs and expectations of the society and improve the human condition in Qatar and beyond".

Along with her position as QURBC Director, Dr. Al-Thani will continue as Head and Associate Professor of Virology at the Biomedical Sciences Program in the College of Arts and Sciences. "QURBC will serve to enhance and advance the work on biomedical research at QU started by the Program which celebrated 30 years of excellence in 2013", she said, adding, that expertise from the CAS programs and from CPH will be of immense value to the Center's work.

Dr. Al-Thani noted that in 2009, the undergraduate program was the first outside of the US to successfully fulfill all the standards required by the US-based National Accrediting Agency for Clinical Laboratory Science (NAACLS).

News

QU, HMC, Egyptian university collaborate on detection of high burden infections

Ongoing research collaboration between Qatar University, American University in Cairo, Egypt and Hamad Medical Corporation (HMC) is looking into the possibility of developing a cost effective, inexpensive and reliable means of detecting tuberculosis (TB) and hepatitis C virus (HCV) in clinical specimens.

The research project is being funded by the Qatar National Research Fund (QNRF's) National Priorities Research Program (NPRP).

The Lead Principal Investigator is Prof. Hassan M.E. Azzazy of School of Sciences and Engineering of the American University in Cairo, while Prof. Asmaa A. Althani of the College of Arts and Sciences, Health Sciences Department of Qatar University is the Co-Lead Principal Investigator.

According to Dr. Wedad Saleem, post-doctoral fellow on the project, "we are working on developing and optimizing advanced versions of nanogold diagnostic assays for detection of hepatitis C virus and tuberculosis, a project that has recently received significant funding from the Qatar National Research Fund (QNRF).

"The first developed assays are qualitative colorimetric assays where a change in the color of the assayed sample from red to blue signals the presence of the disease. In the second and third phases of the project, work will be on developing prototypes for colorimetric and fluorimetric quantitative assays. Gold nanoparticle-based assays are simple, accurate, inexpensive, and generate results much faster than comparable technologies."

Dr. Saleem said the project will eliminate the need for thermal-cycling and other detection instruments.

She said it was incubated by QSTP as a potential NPRP item for commercialization. QSTP has also selected it for presentation in



Dr. Wedad Saleem

the Technology Innovation and Entrepreneurship Program.

Mycobacterium tuberculosis and hepatitis C virus (HCV) are two major pathogens which cause global health problems. Both TB and HCV infections share the challenges of reliable affordable diagnosis. The current TB diagnostic strategies have a global detection rate of 62%, falling short of the 2005 goal of 70% set by the World Health Organization. Additionally, reliable HCV diagnosis requires detection using molecular techniques which are expensive and require specialized equipment with high setup cost. The diagnosis of both infections is time consuming and labor intensive.

The project employed gold nanoparticles (AuNPs) to develop simple and rapid colorimetric assays for simpler, rapid, inexpensive and reliable detection of TB and HCV in clinical specimens. AuNPs-based colorimetric as well as fluorimetric assays will be developed for qualitative detection of nucleic acids of HCV and TB. Quantitative versions of the colorimetric

and fluorimetric AuNPs-based assays will also be developed. Hundreds of HCV serum samples and TB clinical specimens will be collected from Egypt and Qatar and tested using the new assays.

Initial results for HCV and TB detection using AuNPs-based assays have already been achieved and indicate the feasibility of the research. Preliminary data of the HCV AuNP assay was presented in two international conferences: the 3rd Hepatitis C International Conference, in Dublin, Ireland in 2009; and the annual meeting of the American Association for Clinical Chemistry, Anaheim, California in 2010. A paper on the project has also been published in the Canadian Clinical Biochemistry Journal (August 2010). Preliminary data on the developed TB nanogold assay was presented during the International Conference of Nanomaterials for Biomedical Technologies 2012 in Frankfurt, Germany and published in Clinical Biochemistry in May 2013. It was also a poster presentation at the 2013 Annual Research Conference organized by Qatar Foundation.