Qatar University Research Magazine

Issue no 5 - April 2015

ON YOUR MARKS CHILDREN, IT'S TIME TO SHAPE UP

Can the future leaders of the region be developed with 'borrowed' knowledge?

QU students make waves with frontier technology

جامعة قطر
QATAR UNIVERSITY

BRC
BIOMEDICAL RESEARCH CENTER
مركز البحوث الحيوية الطبية

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QATAR UNIVERSITY

Biomedical Research Center

Exploring new frontiers for medical research in Qatar

Message from the VP

Dr. Hassan Al-Derham

Vice President for Research
Qatar University

Always at the forefront

Qatar University has continuously been demonstrating excellence in the field of research in the region. As an indication of this, Times Higher Education recently ranked Qatar University fourth among Middle East and North Africa universities in research. This confirms and enhances the steps Qatar University has taken during the last five years to support research, attract the best researchers and provide the most advanced technology in a conducive environment in seven colleges and fifteen research centers. This achievement was made in cooperation with local, regional and international partners from prestigious research institutions.

On May 4, Qatar University will celebrate the opening of the Research Complex and at the same time hold the Qatar University Annual Research Forum 2015. As a commitment to improve the research environment, the university has greatly invested in establishing an advanced and unified research complex that meets the teaching and research needs of faculty members and researchers.

The complex has been equipped based on the best environmental standards and the most advanced engineering technologies. It includes six major research centers focusing on multiple disciplines with high international standards, and 47 specialized laboratories. All these are in line with the university's culture and commitment to preserve the environment through research that addresses the challenges facing the community; and support the Qatar National Vision 2030 and all its pillars.

For this year's edition, the forum will be held under the theme: "Empowering Research for a Brighter National Future". During the event, researchers and faculty members will discuss the implementation of Qatar University's research road map for 2014-2019 which has four main themes: Energy, Environment and Resource Sustainability, Social Change and Identity, Population, Health and Wellness, and Information and Communication Technologies. These themes are based on Qatar's future developmental needs.

This issue of Qatar University Research Magazine contains a variety of topics and articles that review the work of our researchers and students. Our cover story is on Qatar University's first National Priorities Research Program – Exceptional Proposal (NPRP-EP) is a study on the cognitive-behavioral approach for combatting childhood obesity in Qatar.

In the "Interview with Researcher" section, Dr. Abdullah Baabood talks about the need and rationale for setting up the Gulf Studies Center at Qatar University, laying emphasis on the value that could be created when people study the Gulf from within.

In 'Our Partners' section, leading heart surgeon Professor Magdi Yacoub talks about the promising symbiotic relationship between Qatar University and Qatar Cardiovascular Research Center, and the resultant benefits of their cooperation and efforts to improve global health.

The 'Students in the Limelight' is on three female Qatari students who developed an interactive driving simulator and a haptic seat using the latest virtual technology. The 'Profile' section focuses on the Dean of the Faculty of Law Dr. Mohammed Al Khulaifi who talks about his passion for law, his leadership approach and the steps being taken by the Faculty of Law to fulfill and realize its set goals and objectives.

This issue includes other sections like 'Our News', 'Research Success Story', 'Research Issues' and others that you will be able to discover for yourself.

Finally, we wish you an enjoyable reading.

The Grand Opening of the Research Complex and the Qatar University Annual Research Forum 2015

May 4, 2015
Research Complex
Qatar University

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جامعة قطر
QATAR UNIVERSITY

Qatar University Research Magazine is a publication issued by the Research Office at Qatar University – Issue no 5, April 2015

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The Research Office acknowledges the contributions made in support of publishing this issue. Editorial contributions are also welcomed on the following email: **symaa@qu.edu.qa**

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Our Exclusive

QU Prof achieves milestone of 100 published articles

Dr. Samir Jaoua, Professor of Molecular and Microbial Biotechnology in the College of Arts and Sciences, Qatar University, has achieved the milestone of having 100 articles published in peer-reviewed indexed journals with impact factor, with H-Index 22.

With his graduate students and collaborators, Dr Samir Jaoua has been carrying out research activities using beneficial soil microorganisms of biotechnological interest.

Prof. Jaoua's research interest covers microbial and other bioactive molecules and compounds that do not pollute the environment such as antibiotics, bacteriocins, bio-fungicides, bio-insecticides, anti-oxidants, bio-degrade polluting molecules and compounds, and the control of mycotoxin-producing fungi.

He has published results and findings covering the area of molecular biology, microbiology, with particular respect to mycology, bacteriology, biotechnology, functional genomics, secondary metabolites and microbial ecology.

His research on myxobacteria, the source of secondary metabolites, has led to the realization that myxococcus xanthus and Sorangium cellulosum are two bacteria producing several antibiotics and anti-fungal compounds. The mode of gene transfer to these two bacteria has been developed and allowed to explore the metabolic pathways of these molecules of pharmaceutical interest, he said.

His exploration of Bacillus thuringiensis strains, the source of biological insecticides, allowed the setup of a bank of Bacillus thuringiensis insecticidal strains isolated from different countries mainly from Tunisia and Qatar, leading to the unveiling of genes novel encoding and different insecticidal crystalliferous proteins, considered as very safe bio-insecticides acting specifically against insects and being very safe for men and animals and the environment.


Dr. Samir Jaoua in the lab

The different investigations using modern molecular techniques by Prof. Jaoua and his teams have facilitated the exploration of the coding genes and their expression, the biotechnological improvement of bio-insecticides, the heterologous expression of toxins and enzymes relevant in pest control and the optimization of large-scale biomolecule production by fermentation technology.

The research according to him has witnessed the participation of many students and collaborators from Tunisia, Europe, USA, and Qatar. Among the most interesting bioproducts one can cite the biological insecticides active particularly against disease vectors and therefore having a great impact on public health, biosafety and sustainable biodiversity.

With respect to fungicides and monitoring and control of mycotoxin-producing fungi, Prof. Jaoua and his collaborators have isolated and used different bacteria of Bacillus thuringiensis, Bacillus subtilis, and Burkholderia, for the evidence of different anti-fungal compounds including enzymes. Many bacterial strains have been used to conduct extensive studies on the identification and characterization of these biological control agents, he said.

A wide array of molecular and bio-censoring techniques was developed to achieve precise identification of filamentous fungi, with emphasis on mycotoxigenic relevant ones. Prof. Jaoua's present research interests are focusing on the monitoring and control of mycotoxin-producing fungi.

In the case of Qatari hydrocarbon degrading bacteria, he said that their isolation has allowed the investigation of their growth conditions and the evaluation of their hydrocarbon degradation potentialities.

The publications can be accessed through: http://www.experts.scival.com/oar/expertPubs.asp?n=Prof%2E+Samir+Jaoua&u_id=298&oe_id=1&o_id=6

News

QMIC tests Connected Vehicles platform in The Netherlands

The Qatar Mobility Innovations Center (QMIC) at the Qatar Science & Technology Park (QSTP) recently for the fourth consecutive year participated in this year's Cooperative Mobility Services (CMS) Interoperability Testing (Plugtest™) event.

It was organized by the European Telecommunications Standards Institute (ETSI), in partnership with ERTICO-ITS Europe and hosted by TASS International in Helmond, Netherlands.

Nearly 100 experts, from over 40 organizations gathered to test the interoperability of the Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) systems known also as Connected Vehicles.

To demonstrate its progress in developing connected vehicles platforms and applications, in April 2014, QMIC held the first Connected Vehicles field demo in the Middle East and North Africa region at the campus of the Qatar Science and Technology Park.

The event was attended by dignitaries from government, industry, research and academic sectors in Qatar. Since then, the QMIC R&D team has added more features and capabilities to the platform that allowed it to successfully participate in this year's plugtests event.

Dr. Adnan Abu-Dayya, Executive Director (CEO) of QMIC said, "Connected Vehicle (V2X) Technologies represent a key element of QMIC's leading and integrated road safety innovations portfolio.

It nicely complements our leading Masarak traffic and telematics platform and our Salamtek distracted driving solutions. Our successful participation in the plugtests event solidifies our regional leadership position in this emerging area.

We look forward to working with leading national entities to support our vision of making Qatar one of the leading nations in deploying V2X systems in order to realize the significant road safety and driving convenience benefits".

The QMIC team was led by Dr. Hamid Menouar, Product Manager of the Connected Vehicle program. QMIC's Connected Vehicles platform was successfully tested against those of other organizations that participated in the event which helped put its platform at a competitive international position.

This intensive testing also provided an early chance to validate conformance against the first release of the ETSI TC ITS standards. Such testing events are necessary to enhance the quality of standards prior to deployment, reduce the time to market, and support the early deployment of the technology.

After three previous successful CMS Plugtests events, the ETSI TC ITS standards have matured significantly allowing more complex features to be tested this year. To demonstrate the level of progress and maturity of standards, the total number of planned test cases reached 340 compared to only 49 test cases last year.

Our Exclusive

Value of cytogenetics in marine research

A collaborative research project between the Environmental Studies Center (ESC) at Qatar University and Maersk Oil Research and Technology Centre is being undertaken to explore the value of cytogenetics in marine research and monitor and assess the impact of genotoxic components on Qatar's marine environment.

The study is hinged on the need to establish genotoxicological profiles of the ecosystems, with evaluation criteria such as cytogenetic endpoints and target study species, such as marine invertebrates.

Leading the project from the ESC is Dr. Alexandra Leitão-Ben Hamadou, an expert in the sciences of the aquatic environment. Other members of the team from Qatar University are Dr. Ebrahim Al-Ansari, Dr. Ibrahim Al-Maslamani and Mr. Ismail Al-Shaikh. Mr. S. Bach represents Maersk Oil Research and Technology Center in the project.

The project aims to establish a genotoxicological profile of the Qatar marine zone and contribute to the attainment of the strategic goals of Qatar's Ministry of Environment in the framework of the Qatar National Vision 2030 in respect of preserving the environment, including air, water and biodiversity, and contributing to the development of policies and legislations to protect the environment.

The one-year project will evaluate the performance of several and select the most adequate cytogenetic endpoints as biomarkers for the early detection of genotoxic agents and consequent identification of populations at higher risk.

It will also seek to integrate the environmental information with the data obtained by the cytogenetic endpoints.

Dr. Alexandra Leitao - Ben Hamadou

According to Dr. Leitão-Ben Hamadou, a large percentage of contaminants in the aquatic environment consist of potentially (directly or indirectly) genotoxic, carcinogenic and mutagenic substances.

She says a genotoxin can modify a genetic material at non-lethal and non-cytotoxic concentrations and has often belated effects which are significantly important at the population and community levels.

Speaking during an interview, she said genotoxins have particularly high ecotoxicological relevance in situations of chronic exposure to low doses and to multiple contaminants as in the case of Polycyclic Aromatic Hydrocarbons (PAH)-rich tar balls arriving in the shorelines.

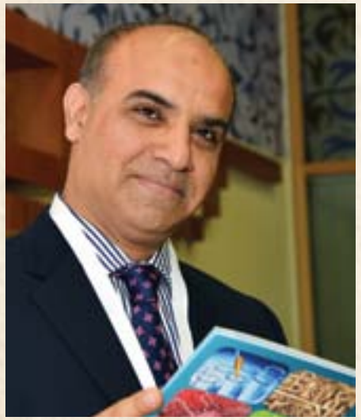
Dr. Leitão-Ben Hamadou recently gave a lecture on some of the main applications of cytogenetics in marine research today.

She has been developing research on marine molecular cytogenetics and fostering experience in science and executive management for the past 15 years, having one of her main research interests in eco-genotoxicology studies, through the application of the main molecular cytogenetic tools to environmental toxicology/risk assessment and mitigation research programs.

Research Issues

Research and Studies Centers in the Arab World:

Views on the current situation



Dr. Mahjoob Zweiri

Associate Professor of Contemporary Middle East History

Head, Humanities Department

Introduction

Centers of research and study take on certain tasks, regardless of the nature of the society or the environment in which they are located.

The purpose of collaborative thinking about the needs and challenges of society is to formulate visions of the future, offer appropriate strategies for realizing them, forecast opportunities and problems, and suggest solutions to the problems and means for taking advantage of the opportunities.

Selecting relevant focal points and areas of study is a vital step toward effective work within these centers, pursuant to which it is necessary to determine who is to benefit from their activities, and how the quality and reliability of their product is to be evaluated.

Centers of Research and Studies in the Arab World

The development of centers of research and study in the Arab world – like in other parts of the world – is affected by political, economic, and social circumstances.

This inspired the idea of inviting government representatives, known for their experience and intelligence, to consider specific cases, or "tasks" relating to political, economic and social developments about which they face important decisions; with the aim of receiving input from researchers that will help them formulate effective policies.

The process was developed following the expansion of the knowledge economy. Before that, the state generally considered itself as holding a monopoly on the competencies relevant to policy-making.

The growth of a technocratic class multiplied the number of persons with relevant skills and knowledge, many of whom may be more competent than members of government, due to the neutrality and objectivity afforded by their relative independence from the state machinery.

Diversity played an important role in the fields of scientific knowledge and in dealing with the problems that arose from modern urbanity, which enhanced the role of research centers.

As people became more convinced of their utility, they became viewed as institutions that can envision solutions for pressing social problems rather than simply ivory towers of intellectual leisure.

The activities of these centers began to reflect the nature of the challenges faced by the society.

For instance, when the Middle East was the center of attention for American policymakers, several research centers related to the Middle East were established in order to track and analyze the changes in this region of the world, and to foresee its future.

The USA was just an example, since the same trend was also noticed in Europe. The work of the centers was not limited to politics, as witnessed by the establishment of centers on climate change, smoking, disease control, etc.

The role that the centers of research and study are now assuming makes them important institutions in building states and societies working to stay on top of the rapid changes in this event-accelerated world of multiple crises and challenges.

The centers of research and study in the Arab world are characterized by the fact that they do not only attract people with academic backgrounds, but also people with scientific experience in their relevant field.

In the political field for example, the centers seek to attract former politicians and diplomats who can bring experience that cannot be offered by academics, helping them to move from the theoretical to the practical dimensions of problems. While their credibility or objectivity may be compromised by their previous political occupation, this does not diminish the importance of their presence in the centers.

Centers of research and study are notable for the fact that the diversity of the projects they undertake reflects that of the problems and issues that affect contemporary human life, and this indicates the important role they play in their respective contexts.

This also gives rise to a degree of competition between various centers in different parts of the world, leading to a network of fruitful and dynamic relationships.

In this context, we can discuss the following types of centers of research and studies:

1. Centers that are supported by the states, to help them make decisions or face challenges: The number of such centers is limited due to the numerous centers created within non-governmental institutions that can conduct research and get the necessary funding, given the availability of experienced and specialized people. Examples of these centers in the Arab world: Al-Ahram Center for Political and Strategic Studies in Egypt, and the Emirates Center for Strategic Research and Studies.

2. The centers that are supported by the parties – especially in the democratic states – to help them stay up-to-date with all developments in the country and therefore take over power. These centers track the cases that impact on public opinion, the weak points of the government, and others.

3. The centers that were established thanks to the support of a given institution seeking to strengthen its policy, for example, when the ministry of foreign affairs of a certain country founds a center in order to get studies or reports on specific issues that affect the foreign political performance of the state; or when an institution dealing in youth matters establishes a unit for studies to follow up all such issues related to young people and provide the decision maker therewith. Centers like these may not be declared. This category includes as well the centers that are created by institutions like Al Jazeera Center for Studies in Qatar.

4. The centers that are established within universities. The activities of these centers are affected by the experienced and specialized persons working therein. These centers may focus on scientific, medical, economic, or social cases, depending on the research agenda of the university. And since most of these centers are under the roof of the university, they have more freedom in conducting studies.

Most centers of research and studies of this type rely, in part of their resources, on the research projects made in favor of internal and abroad institutions to share the introduction of their research projects.

We can find in the world sources for the financing of unconditional scientific research, which means that these institutions introduce general ideas, and candidates present their projects, which are then evaluated scientifically before the financial support is offered.

Subjects may be social, political, and economic. For example, the Economic and Social Research Center (ESRC) in the UK granted the sum of 180 million pounds to support research projects in the years 2007/2008, and it is known as well that these institutions support the research projects of 2,000 master and PhD students.

Moreover, we can find in most European countries and in the USA funds that are dedicated to the support of scientific research, that benefit as well the centers of research and studies.

In this context, it is worth mentioning that the centers of research and studies in the Arab universities suffer from low budgets due to the unavailability of sufficient funding sources.

During the few last years, Qatar Research Priorities Fund helped in financing scientific research at world level, provided that such research should be related to higher education institutions in Qatar.

Such initiative has considerably increased the number of research activities in Qatar, and contributed to building a network of research relations through the projects made in cooperation with research institutions and universities in Qatar, Arab and international world.

Centers of Research and Studies and Classification

In the first years of the 21st century, more interest was given to the role of the centers of research and studies, both at the international and Arab levels, and same was reflected worldwide through classifying these centers in order to know their activities and their impact on the society.

It is worth referring in this context to the international relations program in the University of Pennsylvania in the USA, which has been issuing since 2007, on annual basis, a classification showing the order of the existing centers of research and studies, while relying on about 28 criteria which are related to the research subjects they tackle, and the size of the financial budgets and the researchers working therein, along with their fame and the impact of their research on the society to which they belong.

These criteria include as well the ability of the research centers to strengthen the relation between academics and decision makers in different institutions, not to forget their impact in the media and their fame, whether locally or internationally.

In this classification, we can note the existence of more than 380 Arab centers, distributed among countries as shown in Table 1

STATISTICS ABOUT THE CENTERS OF RESEARCH AND STUDIES IN THE ARAB WORLD

Arab Country	No. of Centers of Research and Studies
Algeria	12
Bahrain	7
Egypt	55
Iraq	43
Jordan	40
Kuwait	11
Lebanon	27
Libya	4
Mauritania	2
Morocco	30
Oman	3
Palestine	43
Qatar	10
KSA	7
Sudan	4
Syria	6
Tunisia	39
UAE	14
Yemen	30
Total	**387**

In addition to the foregoing, the classification gives us the order of the centers at the level of MENA region, and it usually considers the best 500 centers of research and studies. Table 2 shows the Arab centers and relevant classification in 2014.

Country	Name of the Center	Classification at the level of MENA Region
Egypt	Al-Ahram Center for Political and Strategic Studies	1
Qatar	Brookings Doha Center	2
Lebanon	Carnegie Middle East Center	4
Qatar	Al Jazeera Center for Studies	6
KSA	Gulf Research Center	8
Jordan	Arab Thought Forum	9
Egypt	Economic Research Forum	11
Morocco	Amadeus Center	13
Jordan	Center of Strategic Studies	15
Qatar	RAND-Qatar Policy Institute	16
Morocco	Center of Research and Social Science Studies	18
Egypt	Center of Information and Decision Making Support	19
Egypt	Center of Arab Woman for Training and Research	21
Egypt	Regional Center for Strategic Studies in Cairo	22
Bahrain	Bahrain Center for Studies and Research	23
Lebanon	Center of Arab Unity for Studies	24
Kuwait	Arab Planning Institute	25
Egypt	Egyptian Institute for Economic Studies	26
Palestine	Center of Contemporary Studies and Analysis of Policies	28
Egypt	Egyptian Council for Foreign Affairs	29
UAE	Emirates Center for Research and Studies	30
Tunisia	Tunisian Center for Strategic Studies	32
UAE	Institute of Economic Policies and Research	33
UAE	Dubai Institute for Government Administration	34
Egypt	Ibn Khaldoun Institute for Developmental Studies	36
Kuwait	Kuwait Center for Strategic Studies	38
Lebanon	Issam Fares Institute for Public Policy and International Affairs	39
Egypt	Institute of Future Studies	42
Kuwait	Kuwait Institute for Scientific Research	44
Yemen	Sheba Center for Strategic Studies	45
UAE	Sheikh Saoud Bin Sakr Al Qasimi Foundation for Political Studies	46
Libya	Sadek Foundation	47
Jordan	Al Quds Center for Political Studies	48

Conclusion

The centers of research and studies are considered a real factor in the Arab world, just like the universities and institutions. The centers are characterized by the big diversity of their activities. However, political issues and pertinent democratic, human rights and economic development issues are the most prominent among the activities of such centers. We may understand this fact better in the context of the wide discussion witnessed in the Arab societies and their need for knowledge and awareness, since those two are the main factors underlying any change process in the society. In the same context, it is worth confirming that those centers and relevant outcomes are affected by the political and security atmosphere, the degree of freedom available, and the ability to provide financial resources which enable such centers to conduct their research activities free from any influence on their findings.

Our Exclusive

QU sets up first zebrafish facility in Qatar


Dr. Gheyath Nasrallah leads the zebrafish facility team

Qatar University (QU) in collaboration with Qatar Cardiovascular Research Center (QCRC), led by heart surgeon Prof Magdi Ycoub, has set up the first zebrafish animal facility in Qatar. It is located in the QU Biomedical Research Center (BRC) headed by Dr. Asmaa Al-Thani, Head and Associate Professor of Virology, Health Sciences Department, College of Arts and Sciences.

The project is being supervised by Dr. Gheyath Nasrallah, an Assistant Professor in the Biomedical Science Program of the Department of Health Sciences, College of Arts and Sciences at Qatar University. Dr. Nasrallah obtained his PhD in Microbiology & Immunology from Dalhousie University Halifax, Canada. His PhD project elucidated the roles of the two bacterial genes, htpB and potD, in the pathogenesis of the fresh water pathogen Legionella pneumophila. He received his postdoctoral fellowship training in Dr. Jason Berman's zebrafish lab at the IWK Health Center, Canada. Dr. Nasrallah's postdoctoral work was part of a Genome Canada funded project that aimed to identify novel genes and therapeutic interventions for a number of orphan diseases using the zebrafish animal model. Danio rerio, better known as zebrafish, has been extensively used as a model system for studying developmental processes. In the last 10 years, it has also emerged as an attractive and favorite tool for modeling many human diseases. It shares a large genetic resemblance to humans, and nearly 85% of human disease genes have functional homologs in zebrafish. According to Dr. Nasrallah, the biology of zebrafish has many advantages which make them a valuable tool for scientists. They are easy and inexpensive to grow and maintain in the lab environment, making it easy to raise thousands of fish at a reasonable price. Each fish can lay more than 200 transparent eggs per week which are fertilized and developed externally outside the fish body. The developmental process of the zebrafish is quick and most of the fish organs are formed in less than 24 hours post fertilization.

Dr. Nasrallah said the external fertilization provides simplicity in the observation and manipulation of genetic regulation and developmental processes that cannot be easily performed in mammals. In addition, the embryonic transparency provides a unique opportunity to easily observe genotype-phenotype functional relationships and evaluate cell-cell interactions in a whole animal multi-organ system environment. These advantages place the Zebrafish in an excellent evolutionary position whereby both tissue-specific and whole organism non-cell autonomous interactions can be simply investigated. Collectively, he added, the numerous advantages of the zebrafish model demonstrate that it would be a valuable tool for understanding the pathogenesis of common and uncommon human disorders and eventually the discovery of new therapeutic agents for treatment of these disorders. Dr. Nasrallah said with cardiac diseases a high risk among the Qatari population, using the zebrafish model for cardiovascular research promises an understanding of the disease mechanisms in vivo and to reveal potential novel drug discovery.

"Zebrafish model has been proved to be an excellent model for studying human cardiovascular disease. The zebrafish research team will establish a zebrafish model of human cardiac hypertrophy and heart failure by genetic knockdown of mybpc3. We will characterize the phenotype and expression pattern of mybpc3 gene in zebrafish. Once the mutant zebrafish is established, it will be used for revealing disease associated pathways and agents in targeting these correlated pathways as a potential therapeutics to improve the health and wellbeing of cardiac patients," he said.

In addition to the zebrafish facility, Dr. Nasrallah's lab also has an infectious diseases research section. Currently, Dr. Nasrallah and his team are investigating molecular and sero-epidemiology of blood-borne viruses among healthy blood donors in Qatar. "In this project, we utilize different detection methods including PCR, qRT-PCR, and ELISA for detection of these viruses. Further, we are also interested in phylogenetic analysis of the detected viruses in order to have a better understanding of the most predominant genotypes of the viruses in Qatar and in the Gulf region," he added. In Dr. Nasrallah's team are Lab Manager Ms. Enas S. Al-Absi, two research assisstants Ms. Nadima Haj, and Mr. Tameem Hadwan; and two masters' students Ms. Maria Smatti and Ms. Salama Al-Taweel. The functional genomic zebrafish lab has two research associates, Ms. Sahar Daas and Dr. Eman Mohamed.

News

QU professor snatches Best Poster Award at HMC event

Dr. Ahmed Malki

Dr. Ahmed Malki, associate professor and coordinator of Biomedical Science Graduate Program in the Department of Health Sciences of the College of Arts and Sciences, Qatar University, won the Best Poster Award during the Annual Research Day event organized by the Medical Research Center of Hamad Medical Corporation (HMC). Dr. Malki's research project, collaboration between the Biomedical Science Program of Qatar University and Ohio University in the US, focused on identifying novel derivatives for the treatment of lung cancer.

HMC provides support to more than 500 research projects each year. Abstracts were selected from researchers within HMC and outside institutions with a focus on improving outcomes for patients through the implementation of new practices and treatments. There were different tracks during the event highlighting the clinical and medical aspects and treatments of the common disorder in Qatar. Dr. Malki, coordinator of the Biomedical Science Graduate Program, has been working on the study of anticancer mechanisms since the beginning of his scientific career. He had previously received the Best Research Award at the Global Breast Cancer Conference in 2011.

His collaborator, Dr. Stephen Bergmeier, head of Department of Chemistry and Biochemistry in Ohio University, has experience in the discovery and development of novel anticancer agents. In earlier work they developed novel analogs of PRIMA1 a heterobicyclic molecule that was reported to induce apoptosis through the restoration of the active conformation of mutant p53 which is common mutation in 50% of all human cancer. Lung cancer, according to Dr. Malki, accounts for about 27% of all cancer deaths and is by far the leading cause of cancer death among both men and women. "Each year, more people die of lung cancer than of colon, breast, and prostate cancers combined. Consequently novel approaches are urgently required for further improvement in existing cancer therapies and for treating those cancers for which there are as yet no effective therapies", he said.Research has revealed that natural products have generated significant attention as potential chemotherapeutic agents. Diterpenes have shown great promise as leads for anticancer drug discovery and they have been a rich source of potential therapeutics. Paclitaxel or taxol is probably the most well-known diterpene anticancer agent.

Dr Malki previously reported novel isosteviol derivatives which induced cytotoxicity in lung cancer cells. The understanding of mechanisms which regulate lung cancer sensitivity to these novel isosteviol derivatives is necessary for development of novel set of anticancer derivatives. In this study, Dr Malki et al identified two novel isosteviol derivatives which decreased cell proliferation and induced apoptosis in human lung cancer cells with minimal toxicity to normal lung epithelial cells.Mechanistic studies revealed that they arrested cell cycle at G1 phase and modified apoptotic signaling favoring apoptosis of lung cancer cells. In mice, oral administration of isosteviol derivative 9d inhibited the growth of xenograft tumors, invasion, migration, and anchorage-independent growth in tumor tissues without affecting body weight. Based on previous results, Dr Malki's data support the development of isosteviol derivatives as potential agent for lung cancer treatment via targeting MEK/MAPK pathways.

Dr. Malki has authored or coauthored several articles which have been published in peer reviewed journals. Some of them are: Novel thiosemicarbazides induced apoptosis in human MCF-7 breast cancer cells via JNK signaling; In Vitro and In Vivo Efficacy of Novel Quinuclidinone Derivative Against Breast Cancer; Synthesis and cytotoxic activity of MOM-ether analogs of isosteviol; Biological and biomedical functions of Penta-O-galloyl-D-glucose and its derivatives; Novel Quinuclidinone derivatives induce apoptosis in lung cancer via sphingomyelinase pathways; Quinuclidinone derivative 6 induced apoptosis in Human breast cancer cells via sphingomyelinase and JNK signaling; Insulin receptor signaling activated by penta-O-galloyl-ά-D:-glucopyranose induces p53 and apoptosis in cancer cells; Synthesis and Anticancer Activity of Novel Benzimidazole and Benzothiazole Derivatives against HepG2 Liver Cancer Cells; and Design, synthesis and evaluation of novel benzimidazoles, benzothiazoles and benzofurans incorporating pyrazole moiety as antiangiogenic agents.

Others are: Herbal medicine: Is it really safe; Angiogenesis and antiangiogenic therapy; Differential Apoptotic Effects of Novel Quinuclidinone analogs 8a and 8b in Normal and Lung Cancer Cell Lines; Novel Quinuclidinone Derivative 8a Induced Apoptosis in Human MCF-7 Breast Cancer Cell Lines; Antidiabetic drug Metformin induces apoptosis in human MCF breast cancer via targeting ERK signaling; Protective Effect of Nigella Sativa on Lipid Peroxidation and Antioxidant Enzymes System; Garlic constituent diallyl trisulfide induced apoptosis in MCF7 human breast cancer cells; Structure activity studies of quinuclidinone analogs as anti-proliferative agents in lung cancer cell lines; Differential Effect of Selected Methylxanthine Derivatives On Radiosensitization and Cell Cycle of Normal and Lung Cancer Cell Lines; and Activity of some hepatic enzymes in schistosomiasis and concomitant alteration of arylsulfatase B.

Our Exclusive

QU Research Club takes students on tour of Janan

Nine female students from the College of Engineering, College of Education and College of Arts and Sciences in March visited Qatar University's research vessel Janan at Doha Port on a study tour under the auspices of QU Research Club.

In the team were Charaf Fahd Al Wakil, Farah Maher Al-Khasib, and Arwa Mohamed Eltayeb from College of Engineering; Nour Husam Mistarihi, College of Education; and Areej Tareq Alnatsheh, Shahda Fahmy Ghandour, Shaima Anwar Elashi, Menatalla Khaled Zaky and Namaa Ziyad Marouf from College of Arts and Sciences.

The visit was organized by the QU Research Club management committee in coordination with Dr. Nabiha Youssef, Research Fellow, Vice President for Research Office, and the QU Research Club Supervisor; and Dr. Ibrahim Al-Maslamani, Internal Affairs Manager, Environmental Studies Center.

Dr. Ebrahim Al-Ansari, Applied Research Manager at Environmental Studies Center; the vessel's captain and Dr. Nabiha Youssef guided the students during the visit.

Dr. Al-Ansari and the captain explained to them Janan's specifications, main features, research labs, instrumentations and facilities.

The aim of the visit was to enrich the students' knowledge on the vessel's capabilities and capacity for research in general and marine studies in particular in the Qatari environment. Janan is equipped with cutting-edge technologies in the field of oceanography and is expected to advance marine environmental studies and research in the Gulf Region.

The vision of the Qatar University Research Club aims at enriching the culture of scientific research through students' projects and developing skills among the QU student community; for the sake of an effective contribution in all fields of sciences.

In alignment with this, the QU Research Club organizes events and activities to promote the culture of scientific research among the students for the development of added-value for scientific research in the university.

This is done through workshops, research competitions, and scientific visits and trips for upgrading QU students' scientific research skills. This is within the scope of the general framework of Qatar University's vision.

On your marks children, it's time to shape up

> "On behalf of Qatar University, the parents and project partners, I thank the QNRF for generously providing the needed funding that has made the project possible."
>
> Dr. Ahmedna

Qatar University's first National Priorities Research Program – Exceptional Proposal (NPRP-EP) is a study on the cognitive-behavioral approach for combatting childhood obesity in Qatar. The research and community outreach project with funding from the Qatar National Research Fund (QNRF) is being undertaken because overweight and obesity, especially among children, have become endemic problems in the society and their levels have reached alarming proportions in Qatar and other Gulf nations.

Feature Story

The project is a collaborative effort of Qatar University with Leads Metropolitan University, UK; Qatar's Supreme Education Council, Imperial College, London; Hamad Medical Corporation and Aspetar – Orthopaedic and Sports Medicine Hospital.

It is led by Dr. Mohamed Ahmedna, Associate Dean for Research in the College of Arts and Sciences, Qatar University. Other members of the team are Professor Ara Darzi, Imperial College, London; Professor Paul Gately from Leeds Metropolitan University; Dr. Ivo Vlaev, Imperial College, London; Dr. Aziza Alsaadi, Supreme Education Council; Dr. Abdelhamid Kerkadi, Qatar University; Dr. Hanan Al-Kuwari, Hamad Medical Corporation: Dr. Suhaila Gholoum, and Dr. Mohamed Al-Kuwari, Aspetar-Aspire.

In recent years, the rate of overweight and obesity has been on the rise in Qatar and other Gulf nations. For instance, a cross sectional survey of 1,213 Qatari children aged 9-11, conducted by Dr. A. Kerkadi and his team in 2009, estimated the overall prevalence of overweight and obesity at about 39%. Other studies have found similar prevalence rates while reporting that the prevalence of obesity increased with childhood age to reach the highest level at 12-13 years.

The outcome of these surveys raised the need for effective interventions targeting Qatari youth within the age range. It was based on this need that the Qatar National Health Strategy 2011-2016 stressed the need for national strategies for the prevention and treatment of obesity.

According to Dr. Ahmedna, the treatment and prevention of childhood obesity can be effectively achieved through lifestyle changes by encouraging healthy eating and physical activity among children within a supportive and enabling environment. That is exactly what the team has been doing.

But changing behaviors, especially lifestyle-related behaviors, is complex and requires a combination of approaches to tackle the hydra-headed problem. This complexity was demonstrated by dozens of studies showing that educationally-based interventions by themselves rarely promote substantial and lasting reductions in overweight in children.

What the team has done is to set out to implement and evaluate a novel multifaceted weight management program among Qatari children. It is an adaptation of the MoreLife approach, validated in the UK, using behavioral psychology tools, namely the MINDSPACE framework "Messenger, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitments, Ego," Dr. Ahmedna said.

This program was branded Ican/أقدر. It targets around 100 overweight or obese student aged 9-12 from four different schools every year. The program is divided into two phases. The first phase consists of an intensive two-week day-camp session at Aspire during the school mid-year break where the participants undergo an intensive lifestyle education and weight loss program. The second phase consists of after-school clubs for three months which reinforces the information acquired in camp. In the second phase, MINDSPACE is applied in which children can participate from their homes through their computers or smartphones. This will allow the team to follow up with them weekly and make sure they are on the right tract in achieving their goal.

Phases of "Ican/أقدر" program

The Camp

The Holiday camp that was organized at Aspire Academy in Doha (end of January-early February) was the first phase of the program and the place where the children first met each other. From the first day, the participants started to gain confidence as they realized that they are not alone with weight problems.

The children underwent an intensive lifestyle education and weight loss program which featured physical activities like swimming, football and volleyball, fun active games, indoor and outdoor. Lifestyle session included lessons on healthy food choices as well as eating healthy meals (breakfast, lunch, snack and dinner) at camp as a way of experiencing healthy eating and acquiring a taste for it.

The curriculum taught the participants all they need to know about healthy diet and lifestyle through fun and exciting games that help them shape up and build self-esteem. The children displayed a high show of enthusiasm and were willing to look fit not to forget the fact that with every day, friendships developed among them and they started to help and encourage each other to reach their healthy weight.

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> You'll soon see how moving more can have a big impact, not only on weight loss, but on improved confidence."

Essence of the Ican Club

The Ican clubs form the second phase of the program which not only involves the young camp participants but also their parents/guardians.

This is an important phase as it embeds the information learned in the camp, reinforces the goal of reaching a healthy weight and increases the knowledge and involvement of the parents who play an essential role in implementing the healthy guidelines in the home and therefore improving the health of the entire family.

"There are no gimmicks, no boot camp style workouts, just loads of people having a great time whilst getting fit and learning how to live healthily ever after," the parents' handbook says.

It involves a lot of moving about even as so many people, parents and children, find it difficult to get involved in physical activities. That will be a reason for them to love their Ican club. Every week, both trainers and young people will get to try new activities. "You'll soon see how moving more can have a big impact, not only on weight loss, but on improved confidence," a teaser in the handbook says.

The children get opportunity to learn about new things in 'lifestyle' sessions where they explore subjects such as: what healthy eating really looks like; how much sugar is in our drinks; how much fat is in unhealthy food; and how to make little changes that will make big differences.

Parents and children are encouraged to be confident that they can make it since so many others who were in the same situation were able to make it and pull through. Supporting family members to change their behaviors can be challenging at times but it pays off with hard work and commitment.

At the club, the focus is on three areas that will help the children and family members to live more healthily. They are encouraged to be moving more, utilizing every opportunity to be active.

There is focus on eating better with balance, variety and moderation. To live healthily ever after they are advised to embrace small changes that will lead to long-term differences.

These are the golden rules that the Ican team will use to help the children and their family to live more healthily.

By joining the Ican club, the children are made to have the understanding that they have taken a step towards getting their family healthy for good. "This is a brilliant first step that will not only help you all feel better, but helps you live longer too. With your hard work, together with support from the Ican team, you and your family can become healthier, lose weight and feel great," they are told.

The outcome of the pilot study is now being used in the first year of a multi-cohort prevention - intervention study targeting at risk school children.

Project findings will then be packaged into a lifestyle change intervention for national implementation in collaboration with the Supreme Education Council (SEC) and assistance from Hamad Medical Corporation (HMC).

During the pilot year, pre-camp surveys showed that nearly two thirds of children did not meet their daily requirements of fruits and vegetables while consuming calorie-dense fast foods and over half of the participants did not engage in any physical activity. Out of the 1,108 children in intervention schools, 472 had body mass index (BMI) above the 91st percentile for age based on International Obesity Task Force (IOTF) standards or an estimated average rate of overweight and obesity of 42% which exceeds the 39% reported in earlier surveys. Girls had the highest rate of overweight with 45.1% versus 38% for boys. Similar trend was also observed in this year's group.

As observed last year, 100% of children who participated in the intensive day camp lost weight at an average of about 2kg resulting in a significant reduction of their Body Mass Index (BMI).

The overall percentage BMI reduction was significantly higher than the required reduction for health benefits in both adolescents and in adults. On average, girls lost more weight than boys due to their seriousness and engagement compared to boys.

The camp also led to a significant improvement in subjective wellbeing. Compared to the control group, the post-camp intervention group overall scores were higher, and they were significantly more likely to agree that 'My life is going well' and 'I have a good life'.

The afterschool clubs data from the pilot year (after school clubs for current year just started) showed a synergistic effect on children, particularly girls, who showed further weight loss in the after school club phase. Girls continued to outperform boys in terms of weight loss reduction and maintenance.

Happy Parents

Parents who came to witness the camp's graduation ceremony were happy with the outcome. For instance, Mr. Abd Al-Nasser said the impact of the camp was obvious on his daughter as her awareness, relations with others as well as participation in physical activities all increased positively and beneficially. "She used to be shy and never liked to stay with friends due to her weight but as soon as the camp started, she built up courage and started going out and having friends," Mr. Al-Nasser said.

He said that the activities were appropriate for the children's ages and wished that the camp had lasted longer. "It would be good if it were a continuous program that lasts until the child is 15 or 16 years so that it becomes a lifestyle rather than just a program."

A mother, Aisha wished that the program would be implemented in all schools in the country and made to last longer. She said she encouraged her son to participate in household chores and sporting activities. "Our home whole nutrition program has changed as we now only buy low fat items and prepare healthy meals," she added.

Two other mothers, Hanan and Um Mohammed, who also shared the views of Mr. Nasser and Aisha praised the efforts of the organizers in setting up the camp to be followed up with after school activities that would be organized for the children.

Testimonial

"Fatima has always been active but it was her diet that led to her weight gain about three years ago. We have tried in the past to make changes but it was always a battle. When we found out about the club's program from a leaflet at school, I sat down and talked to her about them," the mother said.

"During the program, the club has helped me change my mental approach to food and activity, making healthy lifestyles more fun. The club has helped Fatima change the way she thinks about eating and we have both reduced our portion sizes. Everything about Ican clubs is positive, fun and informative. It's the best thing Fatima and I have done together."

Why lose weight

Studies have shown that losing just 5% of the body weight can result in great benefits and make one a super role model in the family. 5% weight loss means: increase in energy levels; moving around and being active becomes more enjoyable and easier; sleeping becomes easier; confidence level will increase; being able to better manage and juggle things at work; and being able to feel a lot happier since exercise releases chemicals in the brain that are known to make us feel happy.

5% weight loss can also reduce cholesterol (the amount of fat in the blood), the need for regular medication, the risk of type 2 diabetes, risk of certain cancers and improve mental health and ability to deal with stress and manage depression and anxiety. As little as 3% weight loss may have positive effects on children health.

Role of parents/guardians

With the program, it has become evident that parents/guardians have a large degree of influence on food in the house since they do the shopping and therefore are responsible for what is available in the family home.

- Types of food young people can readily access. This may involve limiting certain foods to certain times and occasions while increasing the availability of healthy food items in the house such as fruits and vegetables,

- The portion size of meals. It is likely an adult does the cooking for the household. You are responsible for making sure healthy cooking methods are used, healthy food choices are served on the table and controlled food quantities are served in the plates.

- Be a healthy role model! Kids imitate their parents. Be a healthy role model and make sure to tell your kids how great you feel every time you eat healthy and exercise. Like magic and sooner than you expect, you will find them doing the same.

- Activity opportunities in the home/ garden – This isn't just access to a football to play with in the court. It includes spending time being active with the family at home. Choose whatever creates a fun environment and you'll find everyone in the house joining. It could be dancing, playing hide and seek, doing fitness DVDs together.

- Being the occasional taxi – if young people want to attend fitness or sports classes, they will need help getting to and from the venue. This may require parents to organize time around these practices, or organize lift-shares with other families, especially in traffic heavy Doha!

- Pocket money and what young people spend it on. On this, parents are to ensure that the children earn it. They should have responsibility over how much access children have to money and what they spend it on. They are to be encouraged to save pocket money or spend it on non-food related items.

Parents are also to ensure consistent behavior management which is key to young people's learning and making healthy lifestyle changes.

Success Story

From the testimonies of the parents and the physical outlook of the children, it is evident that the program has achieved a level of success. The interest from the community has been overwhelming. Some segments of the community would want it to be extended to all schools in the country. This is understandable. "Our success is not only shown by the children's weight loss, but more by the parents who are amazed at how their child's behavior has changed towards healthy and unhealthy food," said Sahar Jreige, the program coordinator.

"ICAN program targets not only the child participating but the whole family through continuous communication and workshops to the parents. Our target is to spread the healthy lifestyle throughout the whole home," she added.

For the Qatar National Research Fund (QNRF) which provided funding for the project, it is an investment that has yielded dividends that are well appreciated, Dr. Ahmedna said.

"For the outcome and success of the project so far, on behalf of Qatar University, the parents and project partners, I thank the QNRF for generously providing the needed funding that has made it possible," he added.

Speaking on the project's relevance, Dr. Suhaila Ghuloum, Senior Consultant Psychiatrist at Hamad Medical Corporation's Rumailah Hospital, said: "The research reflects the importance of multidisciplinary work to improve the health of the population, involving the academic sector through QU, the health sector through HMC, and collaboration with international experts such as King's College, UK. Furthermore, the multidisciplinary team included dieticians, psychiatrists, psychologists, occupational therapists, and academics."

Also commenting, Dr. Mohamed Ghaith Al-Kuwari, Director of Healthy Lifestyle Program at Aspetar, said: "The 'I can' project is one of a number of lifestyle interventions that we support. As a sport and exercise medicine hospital, we have provided the expertise in using physical activity interventions to tackle the risk factors of chronic diseases and show the psychosocial impact of physical activity on children's health. As this project is designed to match with the requirements of the Qatari population, we are looking forward to providing the evidence on the feasibility and effect of such interventions in the Middle East."

Interview with Researcher

Dr. Abdullah Baabood:

“Future leaders are better grown with knowledge from within.”

Knowledge from within is more solid than knowledge from outside. This thinking perhaps underscored the need and rationale for setting up the Gulf Studies Center at Qatar University. What quality or value could be created when people study the Gulf from outside the Gulf? What impact will this have on the society? Can the future leaders of the region be developed with ‘borrowed’ knowledge? With the foundation laid, Dr. Abdullah Baabood was plucked from the Cambridge University in the UK to nurture and grow Qatar University’s Gulf Studies Center.

In this interview, Dr. Baabood speaks on the basis for the center and progress that been achieved in terms of scholarship, research and publications, touching on the quality of students and faculty the center has been able to attract within a short period.

Researcher Profile

Dr. Abdullah Baabood is an academic and a researcher specializing in Gulf Studies and international relations.

Dr. Baabood has a number of valuable research contributions in the fields of GCC integration, Gulf-European relations and Gulf States politics and regional political economy.

During the course of his career, Dr. Baabood has held a number of positions. Before becoming Director of the Gulf Studies Center at the College of Arts and Sciences at Qatar University, he was previously the Director of the Gulf Research Center at the University of Cambridge in the UK. He continues to be a Research Associate at the University of Cambridge.

Dr. Baabood holds a Ph.D. in International Relations, MA in International Relations and a Master in Business Administration (MBA). He has a general interest in international politics and economics, particularly in the area of regionalism and globalization. His research interest also focuses on the GCC states' economic, social and political development and GCC's external relations and foreign affairs. He has published, presented, and attended several international seminars and workshops on these topics.

Dr. Baabood is a member of several international research institutes and think tanks and his consultation is often sought by officials, academic organizations and the media.

You are heading a unique program, the world's first to focus on the Gulf from within the region. It's been over three years since the program was set up. What level of impact has it been able to make in the university and the region?

The program is in its fourth year. I joined within the second year. There are other programs on Gulf Studies being offered in other universities, so we cannot claim that we are the first. There are other ones in Exeter University in the UK, Kuwait and India. But currently we are certainly the only program offering graduate studies in Gulf Studies. Ours is the only full-fledged master In program in the world.

Qatar University had the vision to embark on this program which has been extremely successful judging from the number of applications and interest it has generated around the world. We have 35 students from about 20 different nationalities in the program from the US, Canada, Europe, Africa, Japan, Korea as well as from across all the region. Competition is very high and we have become picky in terms of choosing very high caliber students.

You say competition is very high for places. How do you manage this? Is it a crisis situation?

There is no crisis really. On the contrary we in a very good position. True when the program started we had low numbers because the program was new and there was low visibility. Not many people knew about it. So we used to have two intakes in the Spring and Fall semesters. Now that we have so many students, we don't need to have two intakes every year to increase the numbers. We have one intake only in September now.

We wanted to make the program popular so that we can attract the best students. We have a rubric and criteria for choosing the best candidates, some of whom already have master or very high grades from their various universities. Through interviews, their CVs, previous achievements and experiences, we assess them and offer admission to the most qualified. Unfortunately, they are many good candidates who applied and who had been disappointed. They are good students with good grades but since the competition is very high we cannot accept everyone. We don't want to go into expansion in numbers. We want a sustainable program, to keep the numbers measurable, manageable and small, and grow slowly. We aim for quality and not quantity. Our aim is to build a premier center in the world.

In terms of its impact, the program has been very active. From its inception as a small program, it has grown to be very vibrant in terms of the visibility it has created through quality education, research, conferences, workshops, seminars and talk series. The who's who in Gulf Studies have been here to attend our workshops and conferences to talk to our faculty and students. It has created a lot of vibe and vitality in the university and beyond.

The university sees this as part of its internationalization process. Of course Qatar University can compete in all the various disciplines but this is definitely an area where it can lead. That is what we are aiming to achieve. We want the center to be a reference point for everybody to know that Qatar University is a leading university in Gulf Studies.

How about the level of research that has been accomplished and in what fields? Are there any published works? Are students involved in these research efforts?

We started with a master program in Gulf Studies. Since then we have established a research center. So we have promoted the Gulf Studies Program to a much wider center with research component and have our teaching to be research-led. We have recruited some high caliber research coordinators and researchers and we are in the process of recruiting more. It is not yet a full-fledged center in that we have not got the entire required faculty in place. We are patiently and selectively recruiting the best in the filed

When the center becomes fully-fledged we have an ambitious plan to publish not only our research but also the work of others. One of our ideas is to publish occasional papers and monographs. We are thinking of establishing the leading journal in Gulf Studies. We are publishing the proceedings of all the conferences and workshops that we have held. We are also encouraging our faculty to publish in our publications and internationally indexed-journals. We are encouraging our students to publish as well. Within our small existing faculty, there have been a number of publications. Each of us is also working on publishing our research output in different chapters in books, journals, etc.

The papers of four or five of our students have been accepted for the Gulf Research Meeting in Cambridge. Our students have also been invited to a number of conferences around the world to present papers in Cambridge, Exeter, Ireland and Kyoto, Japan. The center through its students, faculty and visiting scholars is trying to establish its research capability and reach out to the outside world.

Recently, the Gulf Studies Center hosted a conference on 'Developing Future Leaders'. How do conferences like this contribute to the realization of the objectives of the Center?

Conferences are in the core of the activities of the center in terms of visibility, outreach and community relations. Because we deal with a very dynamic region, when we teach our students we don't just want them to know what happened, we also want them to know how and why it happened. We encourage academic curiosity and analytical learning. What goes on in the Gulf keeps changing rapidly. Our teaching concentrates on cutting-edge knowledge based on the most current research output. Our teaching seminars are very interactive and is research-led.

So just reading a book or article that has been published few years back, although useful, does not necessarily give them the best and the latest knowledge. We supplement their knowledge with the outcome of the latest research through these conferences and workshops. We want our teaching to be contemporary and based on what is going on. We want to bring the latest knowledge to our students as well as our faculty as they interact with top quality people who are doing research in their own respective universities and organizations so that they can build research collaborations and forge relationships with them. We also invite specialists to examine for students' thesis and review some of our research. As a result, our students and faculty feel they are part of this dynamic and growing community around the world that specializes on the Gulf.

For all these conferences we collaborate with internationally renowned research organizations and like-minded partners. For the one on 'Developing Future Leaders', we collaborated with one of the top German research institutes Konrad-Adenauer-Stiftung e.V. In fact, we had held at least two other events with them in the past. 'Developing Future Leaders' is a very important topic for the region and given the youthful population in the Gulf more research is needed to understand the youth and their aspirations and how to develop some of our youth as future leaders. It was attended by many students from across the university and we believe it has been very timely, useful and extremely successful.

There have also been conferences on 'Overcoming Sectarian Fault Lines after the Arab Revolutions', 'Prospects for an Empowered Youth in Europe & the Gulf', 'Demography in the Gulf', 'Sources of Tension in Afghanistan & Pakistan', and 'Islamism in the Gulf'. Why do you think so much interest and resources should be devoted to these conferences?

We are a research and teaching center and aim to increase output with publications. Through these conferences we as academic community learn and get exposed to cutting edge research in the topics that we are interested in and strengthen our knowledge and capacity. Among other things, these conferences guide us in terms of the research topics we should concentrate on and help in the visibility of the program and inter-connectedness with different research centers and think tanks.

We work with some of the top research centers in the world. Apart from Konrad-Adenauer in Germany, we held joint research events with the Barcelona Center for international Affairs (CIDOB), a top Spanish research center which has done two events with us and we are planning more. For 'Demography in the Gulf', we worked with the London School of Economics (LSE), one of the top leading universities in the UK. Recently we did 'Islamism in the Gulf' with the Royal Institute of International Affairs, Chatham House, London. We also did another one on 'Overcoming Sectarian Fault Lines after the Arab Revolutions' with Georgetown University and with the Geneva-based Gulf Research Center on Foreign Policy of the Gulf States among others.

Why do you think relations between Iran and the GCC and the Arab world should be an area of interest?

The Gulf region is one of the most dynamic regions in the world with a lot of changes taking place; some very positive in terms of the economic, social, economic and political developments which we are witnessing; infrastructure and the human development taking place at a very fast pace. It is also one of the most strategic regions in the world because of international interest and competition as a result of its wealth and vast energy resources and strategic location. Since the British withdrew from the region in the 1970s, the region has witnessed three major wars with devastating effects in terms of human and capital costs. There are also many other conflicts lingering threatening Gulf countries and their societies.

Understanding the regional dynamics and relations is one of the core areas of the center, to help understand relations between the GCC states themselves and their neighbors, Iran, Iraq and Yemen. Our teaching and research considers the Gulf within its wider regional and international context and Iran is an important regional actor. Geography, history, culture and interaction between Iran and the rest of the Gulf and the wider Arab world is of significant importance to the understanding the dynamics of the region.

Iran's role and policies represent a challenge and an opportunity to the GCC states and the Arab world and understanding this important regional actor and its conflictual/cooperative relations with its Arab neighbors is one of the most important academic undertaking of our center to help avoid current misgivings and any future conflicts and to help the peaceful development of the region.

What necessitated the revamping of the master's program? Since your appointment as director what steps have you taken to make it fit the billing?

I came with the view to help the university to develop a leading center. To do that, we are basing our strategic plan on three pillars. The first is the master program which started in 2010. Since then, we have established a research center. Now, we are in the final stages of establishing a PhD program. So, we will have a graduate program consisting of a master a PhD degree supplemented and complemented by a research center. With the high quality of students and the level of

faculty we are attracting, our aim is to be the reference point in Gulf Studies. There are many research centers around the world and some specializing in the Gulf. But hardly are any of them linked to a university or have an organic link to graduate programs. Ours is an academic center that is part of a growing university and links interdisciplinary graduate teaching and research which gives it a unique niche and academic credibility. Not only that our teaching will be research-led but our graduate students will also be plugged into the research. This exceptional combination of the graduate programs with the research center is going to make the Gulf Studies Center in Qatar University one of the very few in the world that actually specialize on the region and based in it.

Do you have a diversified student body that expresses the unique and divergent nature of the Gulf Studies Program? What about the faculty?

We have a much diversified student body. About 60% of our students are from Qatar. We are also attracting a lot of international students. At least 20 nationalities are represented in the program. Our teaching philosophy is that the students don't just come here for lectures. Besides learning from the specialized faculty, they have an opportunity to learn from each other, from their different experiences and backgrounds, from seminars and conference and class visits, from the open and free learning environment provided by Qatar University.

Our moto is to get our students to discuss, debate, dialogue, engage and disagree in an open and free academic environment. Our faculty treat our students as colleagues in training and we offer them all the support, encouragement and help we can and together our students and faculty create a mutually beneficial learning environment.

Our faculty is also diverse. Gulf Studies is an interesting niche area. We try to have within our faculty diversity with some concentration on local talent from Qatar and the region. We have Qatari, Omani, Saudi, Bahraini, Emirati and Kuwaiti professors as well as others from the region and beyond. The fact that we are based in Qatar and our teaching is only once a week, some of our professors don't have to relocate to Qatar, they can afford to fly in for the day to teach.

Currently we have some of our faculty who do that. We use our location as a competitive advantage to attract professors from different universities in the region. We also have regional faculty from Jordan and other international specialists who are based in Doha. Currently, some of our international faculty are also from the US, UK, Argentina, France, etc. We also have visiting scholars from Japan, Poland and Yemen. Our visiting professors join us for a semester or so, to publish and to help in teaching and research and we receive a number of post docs. Currently we have a post doc from Spain and are expecting others to join from Turkey and japan.

Are any of your graduates holding important positions in the public and private sectors?

Since we are still a very new program not many of our students have graduated. Only one or two batches have just graduated. Some of them are already working in a number of important jobs.

For example, some of our graduates are working in SESRI (Qatar University), Qatar Foundation, Brookings Doha and Al Jazeera. Some have gone into public service like government and so on. Many of them have expressed interest to come back as soon as we launch the PhD. We are looking at a two-track PhD. One will be Qatar University-only PhD. The other will be a joint PhD with Durham University in the UK which is one of the top 10 universities in the UK and one of the top 100 universities in the world with very high concentration on Gulf and Middle East Studies. Our students can choose either of these two tracks. The joint PhD is as a result of a Memorandum of Understanding (MOU) we signed with Durham University. We have in fact signed a number of MOUs with other top universities in the world to help our academic collaborations and international linkages.

You transited successfully from the UK to the Gulf, from Cambridge University to Qatar University. What can you say about research on Gulf issues in these two institutions?

When I decided to join Qatar University, I recognized that with the vision from the university President and Vice presidents and the enormous support from the College of Arts and Sciences and the university at large that the Gulf Studies Center would be a leading global center. To be part of this growing center and to have an opportunity to help build it is what attracted me first. There was another personal reason. I had an opportunity to study my secondary level in Qatar through a scholarship offered to me along with many others from Oman. I thought this would be a great opportunity to pay back for some of the generosity that Qatar offered us and to partake in its development.

I was in fact initially a little apprehensive leaving Cambridge after living and working there for 20 years. Cambridge is a global leading university and a great learning place with a lot going on in terms of the different specialties, the quality of researchers and academics and the learning environment in terms of conferences, events, talks etc. Cambridge is also close to London and I used to go to London and other universities in the UK to interact and learn at different events and conferences and to meet and interact with top specialists.

I thought I was going to be losing such privilege. However, when I came to Qatar I was pleasantly surprised and soon realized that my worries were misplaced as Qatar has become a learning and knowledge center. With the policy of its government to make it a leading country in education, research and knowledge Qatar can now rival many countries and is aspiring to lead in many areas. Qatar University, the national university, is playing a major role in advancing knowledge and research and although starting from a low-base it is quickly and soundly building high quality research capacity to help achieve its own and the country national vision.

Is there a project on documenting and preserving the oral history of the Gulf as a pointer to upcoming generations on how life was in this area ages back?

As a small and budding research center, we don't yet have a documentation center that cater for that. We are still emerging. But we are considering building our own specialists library and archives. Preserving the oral history of the Gulf is important and requires much attention. Gulf history is mainly written by outsiders and we need to supplement with our own indigenous oral history and narratives. I believe there are some institutions in Qatar that are looking at this and we aim as we grow to connect with them and contribute to but not duplicate what is being done.

Our Exclusive

Housemaids, food handlers arrive with intestinal infections

Dr. Aarti Sharma

A study conducted by researchers in Qatar University in collaboration with Hamad Medical Corporation (HMC) has indicated that a significant number of workers coming to Qatar as housemaids or to serve in the food industry on arrival have some intestinal infections, a finding that is of great importance to public health in the country. The project was undertaken under the supervision of the principal investigator, Dr. Marawan Abu-Madi, Assistant Professor of Biomedical Sciences in the Department of Health Sciences of the College of Arts and Sciences, Qatar University.

Dr. Abu-Madi is a parasitologist. Members of the research team include Dr. Jerzy Behnke, collaborator from United Kingdom; Dr. Aarti Sharma, Miss Haneen Alberdaweel and Miss Roda Al-Jhrahim, research assistants at QU. According to Dr. Sharma, the lab investigation work focused on parasites and data analysis of patterns of infection among housemaids and food handlers arriving in Qatar from different regions of the world. Intestinal parasitic infections are among the major diseases of concern to public health throughout the world, according to a World Health Organization (WHO) report. In recent decades the Arabian Gulf region has seen enormous growth mostly facilitated by oil and gas reserves and this growing economy has attracted many immigrants seeking work from less affluent states in Asia and Africa.

Qatar, in particular, has seen an enormous influx of immigrant workers for growing building and infrastructural projects, as well as for food industries and domestic purposes. Dr. Sharma said the ongoing study which started in 2005 and is approved by the Hamad Medical Corporation has led to some important conclusions. "The study was based on a survey of intestinal parasitic infections among immigrants in specific jobs (food handlers and housemaids) arriving in Qatar for the first time. Random samples were collected from healthy workers at the Medical Commission soon after arrival, during their participation in routine health examination prior to starting work," Dr. Sharma said. According to her, the workers were fully informed before being enrolled for the study while a record of their age, sex and nationality was kept .The samples were processed at the parasitology laboratory of the Hamad Medical Hospital. This study was conducted among 1,737 housemaids and food handlers originally from Philippines, Indonesia, Indian sub-continent and Africa who were sampled over a two year period.

Although both males and females were enrolled for the study, the percentage of females was more compared to males. All the female subjects were between 15 and 25 years old while the males were between 20 and 50 years. "We studied a total of three nematode and four protozoa," Dr. Sharma said. 33.9 percent of the subjects were found to be positive for at least one of the species. The prevalence of the parasites was more among the females than males. Geographically, the prevalence was found to be more among Africans, followed by those from the Indian sub-continent with the individuals from Indonesia and Philippines being intermediate.

Commonest parasites like hookworm and Ascarias lumbricoides were found to be more prevalent among Philippine housemaids. All the parasite species that were quantified indicated that at least 30 percent of the subjects were infected. Despite the low prevalence, some individuals were found to be heavily infected with eggs or cyst which is also a threat to public health. "Our analysis has clearly shown that female subjects in particular are more infected with parasites on arrival in Qatar; therefore greater vigilance is required to identify such subjects before employing them as housemaids or as food handlers. One approach that has been shown to work effectively (other than personal hygiene) is to ensure treatment of potential immigrants in their country of origin, before departure and arrival at their destination and this could be implemented at the time migrant workers seek visas and work permits, whilst still abroad," Dr. Sharma further said.At the national level in Qatar, continued vigilance, long term monitoring of new arrivals, follow-up inspections, and frequent analysis of new data collected are highly desirable to safe guard public health in the years ahead, she added.

Research Success Story

QU students and faculty get drills on aluminium processes in Norway

> "I mainly focused on exploring joint research collaboration with colleagues from the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway." - Dr. Bensalah

When primary aluminium metal is produced, for instance at Qatalum, it is exported to advanced downstream companies where additional value is created through high-tech manufacturing. Since the produced metal can be recycled infinitely, and the energy demand associated with transforming used metal back to the consumers is only 5% of the original energy for primary production, the metal in-use represents an enormous energy bank.

In addition, aluminium products facilitate green solutions in sectors like transportation, buildings and construction, electronic consumables, renewable energy generation, etc. These sustainable applications are due to the intrinsic properties of aluminium alloys, in combination with knowledge-based manufacturing and engineering.

Research Success Story

These exchanges between QU and NTNU foster interest and understanding about aluminium, provide insight into the R&D activities, and open new horizons regarding the technological opportunities and innovative solutions in aluminium."

Dr. Chris Devadas,
Head of Hydro Technology office at QSTP in Doha

In order to take deep advantage of national investments like Qatalum, Qatar University (QU) is building education and research capabilities, not only for aluminium production but also for the technology and science necessary for creating modern downstream sustainable products.

The Center for Advanced Materials (CAM) at QU and the otherdepartments supported by Qatalum and Hydro, a joint venture stakeholder of Qatalum, are engaged in performing various levels of advanced research with regard to aluminium production. One of them is the 'Aluminium Competence Project', where students and faculty are engaged in research that embraces the whole value-chain, including recycling. Aluminium production is facilitated by electrolysis technology and needs very high energy input. In Qatar, this energy is available from the country's natural gas power plants.

As part of this project, there was a student–faculty exchange program visit to Norway last summer anchored in the Memorandum of Understanding between Qatar University and the Norwegian University of Science and Technology (NTNU). The visit aimed to achieve various goals, the main one being to improve the knowledge of QU students regarding aluminum production through touring advanced Norwegian companies. Norway has a long history in making aluminium and aluminium products. It is regarded as an international knowledge hub for smelting of primary Al, casting, developing new alloys and for advanced products for a wide range of sectors.

The visit was also an opportunity to strengthen the collaboration between QU and NTNU and to explore potential collaborative projects between universities and industry, in line with the Qatar National Vision 2030 regarding establishing and creating a knowledge-based national economy.

Getting insight at NTNU

The team visited the Department of Material Science and Engineering at NTNU where Professor Hans J. Roven and his team gave them a tour of all the department's laboratories. It was noted that the research groups were deeply involved in different projects related to aluminum industry and especially to Hydro Aluminium. Parts of the research indicated extensive academic activity involving high number of publications in peer-reviewed international journals, participation in major international conferences, wide international collaboration, among others. Professors and researchers use their experimental- and computer-modeling expertise to provide crucial assistance to further optimize and improve the mechanical, functional and chemical properties of aluminum alloys.

Prof. Roven's team showed the visitors all the steps involved in the metallographic preparation of samples (molding, mechanical grinding and polishing, electrochemical anodizing). The prepared samples were then analyzed using optical and scanning electron microscopy.

The QU delegation visited other advanced analytical laboratories with high resolution transmission electron microscopy, X-ray diffraction and atomic force microscopy, located adjacent to their Nano laboratory housing the university's clean-rooms, for studies within bottom-up nanotechnology. They were also at the metal forming laboratories and laboratories for high deformation rate (impact) research.

They performed cross-cutting research in multi-disciplinary teams involving specialists in physical metallurgy, electrochemistry, solid state mechanics, atomistic simulations, physical modeling, architecture and computer assisted mechanical design. The university has state-of-the-art experimental and analytical facilities for advanced research along the whole value chain for metals, and especially for light metals, solar energy silicon and other green energy generating materials. The delegates found that the strong relationship between NTNU and industrial companies helps graduate and undergraduate students at NTNU to retain theoretical knowledge through working on industrial projects – normally defined by industry researchers having a PhD and long experience.

Trips to Hydro, metal smelter, Raufoss

The industry tour program began with a visit to Hydro, one of the largest aluminum producers in the world and co-owner of Qatar's Qatalum. The company as a global player handles all stages of aluminum production from the raw bauxite to the sale of billets and ingots and further downstream processing such as rolling, extrusion, component casting, metal forming, welding, surface layering, systems and components for buildings. The delegation visited the metal smelter in the small city of Sunndalsora, located in between high mountains and a seawater 'fjord'. The energy for the plant is fully from hydroelectric power. In addition to the smelter pot-rooms, the group visited the corporate research center for materials technology which specializes in alloy development, casting technology and technical support for corporate international activity and innovation.

The final visit was to the Raufoss Industrial Park, located just north of the capital Oslo. Over 40 companies are located within this industrial park. They specialize in different areas and compete in the global market to serve the world's most demanding aluminum customers. These companies utilize the raw material from Hydro to produce and develop complex and advanced mechanical parts for the automotive industry, aviation, aerospace and other high technology applications. Here the delegation visited production lines for extrusion, profile forming, massive forging and welding. Some of these processes are very automated and instrumented for on-line control of the operating parameters. Among other things, it was impressive to watch the robots doing welding and montage of larger automotive components.

The visitors, Mohamed Saleh (CAM), student Rami Nabil (Department of Mechanical and Industrial Engineering) and Dr. Nasr Bensalah from the Department of Chemistry, College of Arts and Sciences at QU, were accompanied by graduate students from NTNU during the industry visits. Dr. Bensalah was also opportune to meet with collaborating professors at NTNU and able to expand his scientific and industrial network in aluminium technology.

Dr. Bensalah said that the student-faculty exchange program aimed to promote the skills and competences of students and attract more researchers and faculty to Qatar University in the area of aluminum and its utilization.

Gains of the trip

"During the visit, I mainly focused on exploring joint research collaboration with colleagues from the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway. I used the opportunity to visit the laboratory of Profs Geir Martin Haarberg and Hans J. Roven in the Department of Material Science and Engineering at NTNU," he said.

Dr. Bensalah agreed with Dr. Haarberg to start building up scientific collaboration through the joint supervision of a graduate student, emphasizing the key role of elemental impurities on the performance of aluminum electrolysis. He also met with researchers from SINTEF (one of the largest independent research institutes in Europe) and Hydro to discuss about scientific collaboration in the field of air emissions monitoring and control from aluminum smelters.

He accompanied the students to visit the largest aluminum plant in Europe, in Sunndalsøra. "It was a good opportunity

Prof. Hans Roven (second right) with Dr. Nasr Bensalah (second left), Mohamed Ismail Saleh (right) and Ramy Nabil

for me and QU students to have a look in a company that uses a highly advanced technology for primary aluminum production with minimum energy, high efficiency, and complete control of air pollution," he added.

"This kind of activities surely helps to reduce the barriers to university–industry collaboration and engage more students, researchers, and faculty members to work closer with companies to solve many technical and theoretical snags," Dr. Bensalah further said.

Prof Roven who is now Qatalum/Hydro Chair at QU said: "The gradual build-up of human capital among students, researchers and faculty members at Qatar University in aluminium technology, has accelerated over the last two years. One of the key instruments for this expansion has been the Aluminium Competence Project at the Center for Advanced Materials (CAM) and the establishment of the Aluminium Chair professors at the university."

The initiative, which according to him, is strongly supported by CAM Director Dr. Mariam Al-Maadeed and funded by Qatalum and Hydro Aluminium, has engaged numerous students in important research activities focusing on more environmental-friendly aluminium production and sustainable usage of aluminium.

"The exchange of students and faculty between Qatar University and the Norwegian University of Science and Technology has been taking place annually over the last three years and one is already seeing the fruits from this bilateral collaboration. The world-class smelter Qatalum, moving hand-in-hand with competence and knowledge development among young students and faculty members, truly supports the Qatar National Vision 2030," Prof Roven added.

One of the students on the visit, Mohamed Ismail Saleh, said every moment of the trip was a combination of science, culture and entertainment activities. "We didn't feel that we were foreign students. Our colleagues at NTNU were very friendly and welcoming. They showed us all the laboratories and research facilities while we shared our experiences with them on some of the topics.

Dr. Chris Devadas, Head of Hydro Technology office at QSTP in Doha, said: "It is very important for students to be exposed to the rigors of research and also the fruits of development. These exchanges between QU and NTNU foster interest and understanding about aluminium, provide insight into the R&D activities, and open new horizons regarding the technological opportunities and innovative solutions in aluminium. But more than all they build a network between these two Hydro strategic universities to be able to exploit the global demand for aluminium and aluminium products by producing the future material scientists, technologists and researchers."

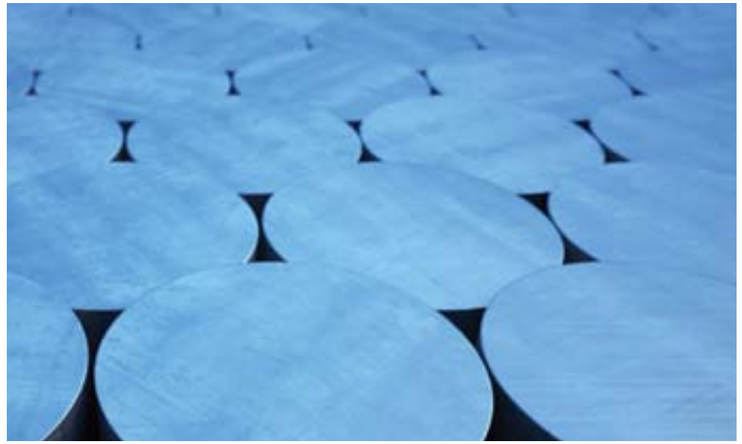
Dr. Devadas said that Hydro Aluminium has a strategy to promote collaborative network with key universities and R&D institutions and that for several decades Hydro has been working with NTNU University in Trondheim Norway and established strong ties with materials processing, manufacturing and products departments.

"This cooperation has led to innovative aluminium, processes, alloys and products. With the establishment of Qatalum, the premier smelter in Qatar, Qatar University has become a strategic university for Hydro. Qatalum and Hydro fund research at Hydro QSTP to develop aluminium competence in Qatar. The Centre for Advanced Materials (CAM) at QU has been the choice of Hydro as a key partner," Dr. Devadas added.

News

New 'high-entropy' alloy: light as aluminum, strong as titanium alloys

Dr. Khaled Youssef



Researchers from Qatar University and North Carolina (NC) State University have developed a new "high-entropy" metal alloy that has a higher strength-to-weight ratio than any other existing metal material.

High-entropy alloys are materials that consist of five or more metals in approximately equal amounts. These alloys are currently the focus of significant attention in materials science and engineering because they can have highly desirable properties.

The Qatar University and NC State research team combined lithium, magnesium, titanium, aluminum and scandium to make a nanocrystalline high-entropy alloy that has low density, but very high strength.

A paper on the work has been published in the Materials Research Letters. Lead author of the paper is Dr. Khaled Youssef of Qatar University. Co-authors include Alexander Zaddach and Changning Niu, Ph.D. students at NC State; and Douglas Irving, an associate professor of Materials Science and Engineering at NC State.

The work was supported in part by the National Science Foundation under grant number DMR-1104930

"The density is comparable to aluminum, but it is stronger than titanium alloys," says Dr. Carl Koch, Kobe Steel Distinguished Professor of Materials Science and Engineering at NC State and a co-author of a paper on the work.

"It has a combination of high strength and low density that is, as far as we can tell, unmatched by any other metallic material. The strength-to-weight ratio is comparable to some ceramics, but we think it's tougher – less brittle – than ceramics."

Dr. Khaled Youssef, the main author and scientist of this work says that "There are a wide range of applications for strong, lightweight materials, such as for use in vehicles, aircrafts, spacecrafts, prosthetic devices, etc." "We still have a lot of research to do to fully characterize this material and explore the best processing methods for it," Dr. Youssef says.

At this point, the primary problem with the alloy is that it is made of 20 percent scandium, which is extremely expensive. "One thing we'll be looking at is whether scandium can be replaced or eliminated from the alloy," Dr. Youssef added.

Dr. Youssef says that the research will be in parallel to the recent international efforts to investigate the structure and properties of these novel nanocrystalline alloys. Findings will define new design rules in creation of multi-component alloys.

An equally important goal is the development of intellectual resources in the form of MS and even PhD research students in the Materials Science & Technology Graduate Program at Qatar University, who will learn and develop new ideas and transfer that knowledge to Qatar industry, universities, and globally as well.

Our Partners

Leading heart surgeon

Prof. Sir Magdi Yacoub

talks to QU Research Magazine

This section will showcase the fruitful relationships between Qatar University and its partners and the positive outcomes that have been generated as a result. In essence, it will offer insight into research collaborations focusing on a distinct entity in each edition. It is an opportunity for companies and research-oriented establishments to showcase what they are doing to further enhance the achievement of the mandate of Qatar University as a teaching and research university.

Prof. Sir Magdi Yacoub

"For QU and QCRC, it is win-win, says Prof Magdi."

Qatar University (QU) and Qatar Cardiovascular Research Center (QCRC) have a promising symbiotic relationship, says leading heart surgeon Prof. Sir Magdi Yacoub, Executive Director of QCRC. Both institutions have signed a Memorandum of Understanding (MoU) to advance research in cardiovascular health and improve heart health. The collaboration from all indications is yielding benefits as students from QU benefit from the mentorship of QCRC researchers. In this interview, Prof. Magdi speaks about the benefits of the collaboration between QU and QCRC and the efforts of bodies associated with him in improving global health.

Recently, Qatar University (QU) and Qatar Cardiovascular Research Center (QCRC) signed a Memorandum of Understanding (MoU) to foster research on cardiovascular health. How will this enhance student sponsorship and access to research facilities in both institutions?

What we have seen from the beginning is that the two institutions are complementary because there are a lot of human resources in the form of students who are very bright and prepared to learn and research. They have facilities as well to be fully engaged. In QCRC, there are state-of-the-art equipment and people working on the latest topics in cardiovascular research, from heart muscle to stem cell to electrical activity in the heart and irregular heartbeat, biomechanics, inherited heart diseases, genomics and molecular biology. All these are very advanced. We need good people, PhD students to learn the new methods and contribute to us because young students always have ideas. They learn and go back to Qatar University and apply what they learnt for the health of the country. It is a very symbiotic relationship. It is what I call win-win relationship.

The establishment of the Qatar University Biomedical Research Center is a milestone in the university's quest to achieve greater height in medical research. Is there a potential first project between the BRC and QCRC?

There is definitely. They are establishing a facility for bioscience. By that I mean animal models. We have only zebra fish at QCRC because of space and now we are housing it with Qatar University Biomedical Research Center. They will have transgenics, a lot of models where they have animals which express abnormal human genes. We have technology to make use of that because we come from translational research, from humans to stem cells, carrying the disease as a human model and then create the animal models, whether mouse or zebra fish. You will be surprised at the amount of knowledge which can be gained from that because once we know the mutation we put it in.

We publish a very high quality journal which tackles the latest global cardiology science and practice. It is an open access journal published by Qatar Foundation."

At one time all the world thought that the human genome would conquer everything. But it was only the beginning. As you discover the abnormal gene you would want to know what it actually does.

What is the mechanism of the mutation? Alright you know the gene but how it acts and how you counteract the effect of the mutation in the body is much more important. For that you need molecular biology like we have and also animal models.

You see what happens with the zebra fish or mouse and you give the specific treatment to correct the genetic mutation at molecular level, what we call genetic engineering. We can then inject it back into the animal and cure the diseases. Some of the very serious diseases can be cured in the future because of that kind of thing.

The other important thing is the Biobank which is attached to Qatar University. We have been discussing to know the extent and type of diseases in the normal population of Qatar and compare that to what we see the people come to the clinic with.

We must have control to see what is in the genes of the ones who come to us as compared to the ones who do not come. And for the ones that do not come what are the differences which can pre-dispose them to disease so that we can help treat these conditions early if they have them.

The Biobank to us is a very good plus which will add to what we are already doing in the lab and hospital with Hamad Medical Corporation and Sidra Medical and Research Center. This large collaboration between all the research bodies, including obviously our keenness to work with Qatar University is contributing greatly to our output.

We have excellent three PhD students who work with us. We have taken some of them to Imperial College in London and Oxford University. We have some of them working with us in the lab. They are of excellent quality. Indeed we are very happy with this.

If you have all the latest equipment in the world and you do not have bright students, teachers cannot just sit there and teach nobody. The supervisors of the PhD students are not just supervising what they do but are advancing them to become top scientists in the future.

How many researchers can we expect from QCRC to be engaged in activities in QU?

That is an evolving number. I think there are already seven or eight but that probably will increase to three times as time goes by because you have to pick very bright students and find something they are interested in. So, gradually the number is increasing. It's very hard for me to say how many but it could double or triple in the next couple of years.

Were there previous efforts at collaboration between QU and QCRC?

Yes, indeed. We have appointed some people working in genetics from Qatar University but also the two very big projects which I have mentioned – the zebra fish and animal models – and now the evolving one of the biobank which Qatar University is playing a big role with Dr. Asmaa Al-Thani.

We are collaborating in what else we do following the human genome or Genome Qatar. We concentrate on many aspects of cardiovascular health. That again is a win-win situation.

How will the partnership contribute to the realization of the objectives of Qatar National Vision 2030?

By doing translational research and joining forces between studying physiology, studying incidents of diseases and severity in the community and finding the mechanisms, we are contributing to the realization of the objectives of Qatar national Vision 2030. That is why we want to do to improve cardiovascular health among the Qatari population.

What can you say about the graduates of Qatar University who are working in Qatar Cardiovascular Research Center?

They are young but very, very bright and hardworking. I am very optimistic of what they are going to do in the future because the quality is very high. So also is the interest. The last time I was at Qatar University I asked for more although there are limitations on the number of positions we have. Obviously, we love the collaboration.

Why was the QCRC established? What aims is it supposed to achieve?

The QCRC was established to improve Qatari cardiovascular health, including the expatriates and the world at large because we want research, especially translational research from this region to have a major impact on world health. You cannot do all the translational research in Western Europe, UK and Australia. You need data from this region. As a result, everybody benefits. They benefit as much as we benefit.

We want to make Qatar a hub for science. Already we are collaborating with people in the Gulf area in doing genetic research and recruiting patients. We are already going to Kuwait; we will go to Oman and Abu Dhabi. Making Qatar a hub for science is a priority.

We also have an interest in neglected diseases. I mean conditions like rheumatic heart disease which is not very high here but in Yemen. Egypt also is following it. It affects the joints and the heart. We are researching into that. We want to stop all these diseases. This is what we call global health. We want to attack the diseases.

For example, we have a charity called Chain of Hope which operates with QCRC and Qatar Foundation to bring in children from war-torn countries from Palestine, Iraq and Africa with advanced heart diseases and give them a chance. With that also we spread knowledge, another very important objective of the QCRC.

We publish a very high quality journal which tackles the latest global cardiology science and practice. It is an open access journal published by Qatar Foundation.

It helps to improve the health of poor people and we go on missions to train people in Mozambique and Kenya. In the past we went to Nigeria, Burundi and Ethiopia. We also have presence in Central America like Jamaica.

We want to improve health and give everybody a chance through teaching. That is the education side of QCRC. We have a big grant from Qatar Foundation to produce that journal at the highest level and put it on the internet for free, as a hub of knowledge. We also run seminars and conferences and make the outcomes available on the QCRC website so that people can have access to them.

What do you think is the future of the human heart? How promising do you think is research in this field?

To reproduce the functions of the human heart is very complex. We have in QCRC, tissue engineering because we know that biology is supreme; life, a living heart.

We do reproduce many functions of the heart by mechanical things but it is not as perfect as the biology of the heart. So we try tissue engineering; grow matrices and cells and through chemistry as well put we call decorate the scaffold, the thing which we insert like a valve or a piece of muscle which starts functioning like a biological valve, a living valve or heart muscle.

The dream of creating a whole heart by tissue engineering is difficult. Now what we rely on is what we call a hybrid heart, using both mechanical and biology which interact with each other.

We lead in that to put artificial heart to rest the heart, to interact with it molecularly and mechanically to allow it to recover. Sometimes we leave the hybrid for years. Sometimes we induce recovery and take the device out. So this mixture of mechanical, biological and tissue engineering is very exciting.

It might be in the next 20 to 30 years that we will be able to produce a complete lung or heart.

Please tell us about the Magdi Yacoub Heart Foundation and the impact it has been able to make in the lives of people, especially in Egypt?

There are different foundations carrying my name. The one in London is called Magdi Yacoub Research Network (MYRN). The Magdi Research Heart Foundation is established independently but also with the help of the Chain of Hope charity which is in London. They raise money from abroad. Qatar has helped in that. A lot of money also comes from the poor people who give small amounts.

The important thing of the Foundation is four-fold. It treats children and young adults with severe heart conditions; giving them the very latest for free. It performs 800 to 1,000 open heart surgeries of very complex conditions a year; about 2,000 procedures to prevent heart attacks, and close the effects of congenital heart diseases. We give priority to the poor people because they cannot go anywhere else. We pay particular attention to people in the south of Egypt because they have been neglected for long.

The second objective is to develop infrastructure which consists first and foremost of human resources. So the center is dedicated to training young doctors, nurses and technicians at the highest level.

They are now performing everything mostly by themselves without international experts, making it a center of excellence like you have nowhere in the world in a neglected area.

We are also putting up physical facilities by building the latest type of structure as clean and advanced as can be with a research institute attached to it. So you need the physical infrastructure with equipment and all that, diagnostics like MRI and CT that work round the clock to serve the patients in the region and also to do research.

The foundation as well aims to create local expertise to carry on in the future; and enhance knowledge dissemination. All the advanced countries know that they cannot do everything alone. So in science and medicine, the buzz word is collaboration.

We work together because we cannot do everything alone. We want collaboration with big minds, getting together young people. Working with different institutions is much better than the sum of the component parts. That is the concept of the MYRN.

We have five or six top universities we collaborate with. They include Imperial College, Oxford University, Cambridge University, Harvard University and University of Florence, Italy. With Imperial College we have access to Singapore where they are doing a lot of genetic studies on Chinese Singaporeans. We are also going to Africa in Ethiopia to do research on different diseases. This is extremely exciting.

Our Exclusive

GPC working to reduce eco pollution as a result of gas extraction

Dr. Mustafa Nasser (right) with Ahmed Soliman, Senior Analytical Chemist.

The Gas Processing Center (GPC) at Qatar University (QU) is tremendously raising awareness in the society and among school and college students on the importance and relevance of gas to Qatar's environment and economy. To achieve this objective, the GPC has also embarked on vigorous research efforts to reduce environmental pollution in alignment with the objectives of the Qatar National Vision 2030. According to Dr. Mustafa Saleh Nasser, Assistant Research Professor at GPC, the Center aims to develop research related to the gas industry, treatment and purification of water extracted from gas and to find effective solutions to the challenges and issues that Qatar faces as a result of polluted water from oil and gas production activities.

In this direction, he rated the International Gas Processing Symposium, organized by the GPC biennially, as a significant event since Qatar is one of the largest exporters of liquefied natural gas (LNG) in the world.

The GPC, he said, seeks to become an international leader in gas processing research, learning, application, and knowledge management through researching and investigating the issues, challenges, and opportunities available to Qatar in the gas industry. The water produced as a result of oil and gas production is one of the priorities of the GPC. It is estimated that 10 to 70 water barrels are produced per a hundred oil barrels from most wells in the Gulf.

This also applies to gas extraction mechanism where the amount of water produced differs from one well to another. The water produced from oil and gas productions contains contaminated materials, organic and inorganic compounds, and some heavy metals which show the need for water treatment and purification through the use of polymers.

To get through with this, Dr. Nasser said the GPC has signed an agreement with French company SNF, one of the well-known international companies for polymers production. The agreement aims at doing research on as well as making and developing polymers that suit the characteristics of the polluted water, especially the water extracted from gas wells.

Besides the use of polymers, GPC also uses 'hybrid' methods to transform polluted water to irrigation water. On this score, according to him, Qatar University signed an agreement with Maersk Oil Qatar to build a huge platform in GPC for the treatment of the water.

He said based on the objectives of Qatar National Vision 2030, providing sustainable economic and social development is not possible without a comprehensive environmental vision in which preserving the environment is top priority for the future generations of Qatar. From this perspective, the national vision focuses on establishing a legal framework and effective environmental institutions to protect the country's environmental legacy, he said.

"The vision also stresses the importance of raising awareness among the citizens of their role in protecting the country's environment, and to preserve the health and well-being of their children and the future generations," he added. "Our commitment is to preserve our environmental reservoir during gas extraction, and to attempt to avoid risks as much as possible. The first risk in gas extraction is in the large amount of unclean water which contains contaminated materials.

The second risk is the resulting wastewater which is treated using membranes processes and oxidization. Dr. Nasser said the GPC has been coordinating with other institutions that conduct environmental studies with respect to water in Qatar through the Industrial Advisory board for Gas Research. Its members are Qatar Petroleum, Air Products, General Electric, Oryx GTL, Qatar Chemical Company (Q-Chem), Exxon Mobil, ConocoPhillips, Ministry of Environment, RasGas, Qatar Shell, QAFCO, Total, Qatargas, and Chevron.

GPC consults them on issues related to the gas industry, organization of training courses for their employees on how to process gas and ensure the safety of the workers in the field.

Dr. Nasser said that Qatar is facing multiple challenges in terms of polluted industrial water. He said that some solutions such as re-injecting part of the water which negatively affects the sustainability of the wells. "Thus, we should reduce the injection. For this reason, the Ministry of Environment has formulated plans to inject a certain percentage of this water to gradually stop injections in the near future and to treat all the polluted water," he said.

The second problem is caused by the use of membrane processing technology to reduce the water produced which leads to the production of polluted water that contains a lot of salt. 'What is notable is that treating the salty water that remains in membrane is difficult.

One of the solutions to this problem is to dump this water in the sea, which results in causing environmental problems, polluting marine water and increasing the concentration of salt in it.

> "The vision stresses the importance of raising awareness among the citizens of their role in protecting the country's environment, and to preserve the health and well-being of their children and the future generations."

Student in the Limelight

QU students make waves with frontier technology

> “I am very proud of my students and their ability to comprehend and learn a new technology in such short time. The project also provided an excellent chance for them to learn and practice new topics.”
>
> Dr. Halabi

Qatar University (QU) is making strides with the latest technology in immersive virtual reality in the Middle East. And QU is taking the lead in advancing students’ involvement in frontier technology and innovation. A group of three Qatari female students from the Department of Computer Science and Engineering and their professor are the pace setters. The final year students, Mariam Ba Hameish, Latefa Al-Naimi and Amna Al-Kaabi were the QU team members that won the Microsoft Imagine Cup Qatar last year. They were supervised by Dr. Osama Halabi, Assistant Professor of Computer Science in the College of Engineering at QU.

Student in the Limelight

> According to the study, haptic-based information in vehicles has major safety implications on reducing visual and auditory overload in driving."

After the Microsoft Imagine Cup, they delved into creating the 'Optimum Design of Haptic Seat for Driving Simulator', which utilizes QU's recently installed virtual reality CAVE System at the College of Engineering. Their study centered on the design and effectiveness of engaging the sense of touch while driving.

The students presented two papers on the project, one during the 20th ACM Symposium on Virtual Reality Software and Technology in Edinburgh, UK in November last year. The other one was during The 11th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA' 2014) in Doha, also in November last year. Their senior project also focused on it.

The work aimed to design and develop an optimal haptic (or vibrotactile) seat –a seat emitting vibrations that utilizes the driver's sense of touch to convey information from the vehicle to the driver – that will provide a higher level of safety for drivers on the road while maintaining comfort.

It was undertaken as part of the Undergraduate Research Experience Program (UREP) award from the Qatar National Research Fund (QNRF).

Drivers rely largely on the sense of sight and hearing for navigation and warnings while on the road, for example, through the use of GPS devices and audio sensors. However, visual and auditory channels are highly important for the act of driving; the visual for watching the road and the auditory for listening to warning car horns or other significant sounds.

These senses should typically be used in the essential activities of the driving process. Therefore, when the driver resorts to relying on the map, GPS devices or audio directions, he or she undergoes perceptual overload, where too much information is being received through these channels

According to the study, haptic-based information in vehicles has major safety implications on reducing visual and auditory overload in driving. Given that seats are interfaces that touch the largest area of the driver's body, it became sensible to consider them as an additional channel of information to the driver.

In their paper, the students presented the design and development of an optimal vibrotactile seat to provide a means by which to receive safe tactile navigational and warning signals that are also satisfying for the driver. The seat was designed by experimenting with different design parameters such as the intensity, position, and the rhythm of vibrations.

Experiments were conducted to investigate the proper values of voltage, frequency, and amplitude that are specifically related to the developed haptic seat. A driving simulation was developed to evaluate the haptic seat for vehicle navigation in an immersive virtual driving simulator on both HMD (Head Mounted Display) and CAVE display. Results showed that users preferred the vibrations to the audio feedback.

With the increase of electronic devices in today's driving environment, drivers get distracted easily, heightening the risk of being subjected to car accidents. This makes visual and auditory channels highly important for driving; the visual for watching the road and the auditory for listening to warning car horns or other significant sounds.

When the driver relies on the map, GPS devices or audio directions, he or she can be too overwhelmed by the amount of information received and may not be solely focused on the road with eyes focused on the GPS for directions.

According to the research, haptic feedback has major safety implication on reducing visual and auditory overloading in driving as it was shown to be an independent sensory channel that processes faster than vision.

This has been tested by many studies to aid navigation for several fields including pilots and people with visual impairment. It was found that the use of haptic helped visually impaired people to navigate and that haptic feedback has a significant effect on user performance.

Many studies have been done recently regarding the effect of haptic feedback on driving, indicating that haptic interfaces improve the effectiveness and efficiency of the information transfer from vehicles to drivers for their safety and make drivers react more quickly when faced with problems, thereby avoiding accidents.

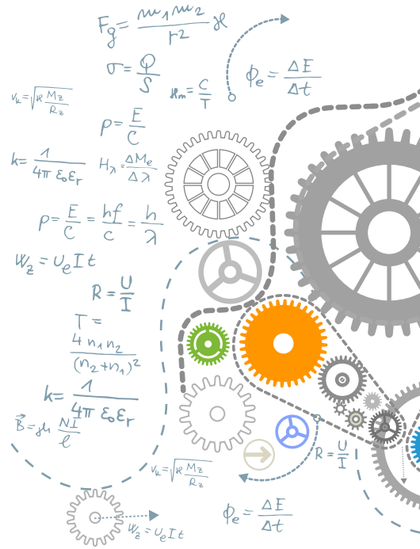
The students who can be seen as role models for other upcoming Qatari students said they were happy and fulfilled to have participated in the project and contribute to the knowledge and innovation base of the country.

Latefa said: "I think the fact that we were able to research and test as much as we did in one year in a field as advanced as virtual reality and haptic technology could be enough incentive for others as well as for ourselves to continue to research possible solutions for the things we care about.

"Anyone with an interest in modern technology, is interested in finding fixes to specific problems, and is willing to make the effort to learn and experiment, can accomplish so much, or at the very least: learn of a better way to do things."

For Amna: "Researching in the field of virtual reality along with haptic feedback -sense of touch- opened my eyes to their great impact on providing solutions to some serious problems besides their common use in the entertainment areas. Taking part in developing this solution offered me a great experience and the capability for overcoming challenges. People who seek innovation are highly recommended to work in this field."

"The involvement of haptic feedback -sense of touch- in the virtual reality field opens the doors for creative projects that help in improving different aspects of the society.



Dr. Osama Halabi with the students

This is an interesting area to work in since it engages informative and entertaining purposes," said Mariam.

Dr. Halabi said it would be difficult for Qatar to develop its economy and society without its human capital and resources, noting that the Qatar National Vision 2030 recognizes this imperative and targets to prepare Qatar's students to take on the world's challenges and become tomorrow's innovators, entrepreneurs, and professionals.

He said, "This project provided a great opportunity to the students to be involved in researching and learning a new technology that is considered a world-class frontier and the state-of-art in virtual reality and haptic interaction. These two new topics are expected to drive the next generation of human interaction.

According to him, being able to develop such high-end application using the CAVE display as well as Head Mounted display (HMD) and integrate it with steering wheel and connect home-made haptic seat to the whole system is an impressive work and world-class research and application.

"The project provides a new approach to increase driving safety and save lives, thereby contributing to the second pillar of the Qatar National Vision 2030 which focuses on maintaining the health of Qatar's population. Diving accidents are considered very high in Qatar and this project can be a potential solution to improve the safety of driving.

"I am very proud of my students and their ability to comprehend and learn a new technology in such short time. The project also provided an excellent chance for them to learn and practice new topics that is not covered before in the curriculum and considered as advanced topics.

This work on virtual reality using CAVE display and haptic seat can be considered one of its kinds in the region; moreover, undergraduate students have accomplished it," Dr. Halabi added.

News

Innovation and entrepreneurship highlighted in seminar on OpenROV

Dean of College of Business and Economics, Dr. Nitham Hindi presents a memento to Mr. Eric Stackpole

Over 70 Qatar University (QU) students, faculty and researchers on Sunday attended the seminar on 'Follow your passion, Lead the future – The story of OpenROV', an innovative underwater robot for exploration and education.

The event was a joint effort of the Center for Entrepreneurship (CFE) at QU's College of Business and Economics and Research Office, and the U.S. Embassy in Doha. It aimed to engage participants on how innovative ideas can be transformed into a business. The seminar was conducted by OpenRov CEO and founder Mr Eric Stackpole. A mechanical engineer, he is a NASA-trained, robotics entrepreneur, who channeled his interest in science and space technology into a number of innovative projects.

He built his first telepresence robot as an undergraduate at (university name) and founded its CubeSat group, and later went on to build nanosatellites at NASA.

Mr Stackpole's presentation included a demonstration of the workings of the OpenROV, and a discussion on his experience as an innovator and entrepreneur in which he also explained the process of developing an idea into an enterprise. Also on the agenda was a presentation by the Dean of College of Business and Economics (CBE), Dr. Nitham Hindi who shed the light on the efforts of CBE to develop entrepreneurial education, culture and research. This includes introducing minor specialization in Entrepreneurship for undergraduate and MBA concentration in Entrepreneurship for graduate students.

Also the CBE established the Center for Entrepreneurship on Fall 2013 to support various entrepreneurial activities within QU and collaborating with peer institutions in Qatar and abroad to stimulate entrepreneurial research.

With regard to the entrepreneurial activities within QU, the CFE director Dr Mahmoud Abdellatif outlined the Center's mission to support entrepreneurship at QU and the wider community and its ongoing working to link academic life with business reality through training, incubation, research and consultation.

"The Center is well placed to promote the culture of entrepreneurship and innovation institution-wide and within the community. In collaborating with companies and experts in the field of business, we are providing our students as well as those in other colleges at QU with invaluable opportunities to learn how to shape their ideas into viable businesses".

Dr Abdellatif also highlighted current programs on entrepreneurship such as the ERADA training series and the "From Innovation to Commercialization" training program. Vice President for Research at QU Dr. Hassan Al-Derham said: "We are pleased to be involved in this forum which highlights the level of determination and commitment that is needed to pursue one's innovation and see it flourish into a product that has an impact on society and how we live.

The Research Office continues to support students and faculty through a wide range of research projects and it is indeed exciting to see ideas, however small, transformed into something meaningful".

Our Exclusive

Research develops biodegradable polymers for cancer therapy

Dr. Husam Younes

One of the major challenges that drug delivery and formulation scientists face is to develop polymeric material that is safe and biodegradable and finding a method of loading the therapeutic proteins into this biodegradable polymer matrix in a manner that keeps the protein intact, stable and bioactive.

Cytokines are proteins present in the human body, which have proven to demonstrate great efficiency in helping to initiate and trigger different defense mechanisms in the immune system to efficiently combat many immune-related diseases like cancer.

One type of such proteins is the Interleukins family, which encompass many subtypes like Interleukin-1, Interleukin-2 (IL-2), and others. IL-2 in specific was found to be one of the most efficient cytokines in treatment of cancer.

“Currently, the final segment of the National Priorities Research Program (NPRP) project, which involves the in vivo animal work and in vivo anticancer activity of the new delivery systems, is ongoing in Bristol.”

As such, an active research work is currently focusing on designing the most efficient polymeric pharmaceutical formulations for the delivery of IL-2.

Nearly most, if not all, of the strategies and methods currently utilized in formulating Interleukin-2 (IL-2) in a drug delivery system utilize heat, shearing force, or organic solvents or the polymers biodegrade to acidic fragments, which render the loaded IL-2 inactive.The idea of developing a novel family of biodegradable polymers by utilizing the visible light photocrosslinking approach started in the lab as a proposed solution to the above challenges, said Dr. Husam Younes, Associate Professor of Bio-Pharmaceutics, Pharmaceutics & Polymeric Drug Delivery Research Lab (PPDDRL), College of Pharmacy at Qatar University.

It materialized in 2010 when a patent application was submitted demonstrating the ability of the new polymers to provide an excellent biocompatibility as well as the ability to maintain the bioactivity of loaded therapeutic proteins and the capability of releasing drugs in a controlled, constant and linear fashion.

This would help in administering a bioactive IL-2 to the cancer patient and increase the treatment efficiency. The main idea is to load the protein in its native powder form and utilize light energy to formulate the polymeric system without use of organic solvents or heat.

Dr. Younes said that the research work in Qatar was mainly conducted in the new state of the art Pharmaceutics and Polymeric Drug Delivery Research Laboratory (PPDDRL) located in the College of Pharmacy, Qatar University.

The cytocompatibility, cell culture studies and in vitro anticancer activity were carried out in collaboration with a team of molecular biologists and oncologists in the Department of Cellular & Molecular Medicine, University of Bristol, UK.

Currently, the final segment of the National Priorities Research Program (NPRP) project, which involves the in vivo animal work and in vivo anticancer activity of the new delivery systems, is ongoing in Bristol to prove the ability of this new polymeric delivery system to act as a controlled release vehicle and as a safe environment for therapeutic proteins. The collaboration with Dr. Wael Kafienah at Bristol University has proved to be efficient and extremely fruitful over the last three years of the project, Dr. Younes said.

Apart from Dr. Younes, the Lead Principal Investigator, and Dr. Kafienah, Dr. David Morgan from the School of Cellular and Molecular Medicine, University of Bristol, UK, is also in the team. A postdoctoral fellow, two research assistants, a lab technician and a graduate student are also involved in the research activities pertaining to this funded research.

Facilities at Qatar University’s Central Laboratory Unit (CLU) and Center for Advanced Materials (CAM) were also greatly used for the research activities that took place during the project. According to Dr. Younes, the work is in the core research priorities of Qatar in tackling cancer disease through addressing an approach to develop advanced drug delivery systems for IL-2.

Apart from training a graduate student and hiring and training a research assistant, this project, he said, is in perfect alignment with the objectives of the Qatar National Vision 2030 as it has been contributing in research and efforts to develop new and better delivery systems of therapeutic proteins and cytokines that could help in treating people suffering from cancer.

He said that biomaterials development and cancer are priority areas for the Qatar National Research Fund (QNRF) and the research fits into several of QNRF’s strategic plan objectives. “This type of project enhances future pharmaceutical research and industrial relations in Qatar.

For example, it would help in having possible future utilization of Qatar polymeric products for design of polymeric controlled drug delivery systems and scaffolds and sponges designs; and contribute in enhancing research culture in Qatar,” he added.

Our Exclusive

Can students be assumed to perform well in national tests?

A research project by four members of faculty of the College of Education at Qatar University has looked into presumptions that students are capable of learning and achieving high standards and scores in national tests and international university admission tests. The project was conducted by Prof. Aisha Fakhro, Coordinator, BED – Primary Education; with Dr. Badreya El-Malky, Dr. Fatma Al-Motawa and Dr. Mubarka Al-Akraf, associate professors in the College of Education, with funding grant from the National Priorities Research Program (NPRP) of the Qatar National Research Fund (QNRF).

In 2006, Qatar's Supreme Council of Education in Qatar (SEC) launched a Comprehensive Educational Assessment (CEA) designed to test achievement on the national curriculum standards that are foundational in the education reform in the country.

These standards presume that all students are capable of learning and achieving high performance standards. A further assumption is that achievement of these standards will be reflected in high scores on the CEA and that this will, in turn, result in high scores in international university admission tests that provide comparison of the performance of Qatari students with the performance of students in other countries.

The research questioned the assumptions and sought to provide critical information that may improve student achievement as well as improve validity in measuring their achievements.

The project aimed to identify the actual performance of primary stage students in realizing the standards embedded in the national curricula, whether in school tests or in national tests; to clarify barriers to achievement and potential reasons for those barriers. It also aimed to determine and propose strategies that may contribute to resolving some of these problems; to improve the educational process and develop it to become more efficient and accurate in measuring student achievement of standards.

The findings of the study and their implications provide information that may inform important decisions related to the reform of the educational process, raising the performance of students on national tests, and realizing the objectives of the educational reform in Qatar. The context of the study was fourth, fifth, and sixth grades in government primary schools in Qatar and may not be generalizable beyond that. The sample was randomly selected. It is, however, assumed to appropriately represent the population, the authors said.

The survey covered government schools in the city of Doha and its suburbs in the fourth to sixth primary classes during the 2012-2013 academic year. The total number of schools was 79, including both boys' schools and girls' schools. The sample consisted of 35 primary schools, which represented 44% of the population.

The sample included 41 principals and deputies, 90 female coordinators, 321 teachers and 919 parents. All the administrators, coordinators, and teachers were female because of the context of primary schools in Qatar, which requires administrators and teachers at the primary level to be female.

A sample of the school units, school-based tests and national tests in the four specializations which were applied during the last two academic years (2011-2013) were examined.

The research revealed that the educational policies for standardized testing adopted by the Supreme Council of Education as well as the execution mechanism for the policies are unclear and unreliable thereby leading to a conflict of opinions among stakeholders about the effectiveness of the administration of the national tests in government primary schools.

The study also discovered that some teachers are not academically prepared to teach at the standards levels even as the curriculum standards are not appropriate in number or in level to meet the needs of students.

According to the researchers, there is a discrepancy between the contents of the texts and the contents of the national tests while many school unit plans do not correspond to the standards, especially in the disciplines of science and mathematics even as there are no criteria for evaluating content or higher-level thinking in unit plans. They further observed that, in general, school managements are not committed to holding regular educational meetings with parents to discuss the results of the national tests and the means to improve them.

The research identified statistical differences with regard to the type of school material, the class level, the type of school and the year from which the test and/materials were selected.

With all basic elements in relation to school-based tests not reaching acceptable levels the team recommended improvement on the CEA with respect to the test instructions, the general organization of the test, and the corresponding of test questions to the standards.

The study provides several recommendations that may contribute to raising the performance of students in the upper primary grades in the national tests in the four investigated school disciplines.

The study also discovered that some teachers are not academically prepared to teach at the standards levels even as the curriculum standards are not appropriate in number or in level to meet the needs of students.

Profile

Name: Dr. Mohammed Al-Khulaifi
Major: Law
Graduated in: 2007
Occupation: Dean, QU College of Law

He was in the top five of his LL.B graduating class from Qatar University's College of Law in 2007. With that he won a competitive teaching assistantship with full scholarship to pursue the LL.M and JSD degrees from 2008 to 2011 at the University of California, Berkeley School of Law in the United States. Dr. Mohammed Abdulaziz Al-Khulaifi, Dean of the College of Law at Qatar University, therefore had a straight run from first degree to Ph.D. in record time.

On his return to QU in May 2011, he was appointed assistant professor of commercial law and was Associate Dean of Academic Affairs of the College of Law from October 2012 to June 2014. He became Dean of College of Law in June 2014. He is among a competitive group of participants in the Rising Leaders Program being organized by the Qatar Leadership Center (2014 - 2015).

"The students need to hear from lawyers and legal consultants."

Dr. Mohammed Al-Khulaifi

In this interview, Dr. Al-Khulaifi talks about his attraction to law, his leadership style, the strides the College of Law has been making, and other issues.

Why did you go into the legal profession? What was your motivation?

My father is a lawyer. He used to be Deputy Chief Justice of the Sharia Court in Qatar. For more than 10 years, the courts in Qatar were separated into Civil Court and Sharia Court. The Sharia Court handled Sharia related issues such as inheritance, family law issues, disputes, etc. In 2004 both courts were merged. My father was a judge there. Observing him motivated me to want to be like him in the future. Currently, I work as an assistant professor and a Qatari lawyer in the field of commercial law.

Why are you in academia?

In the third year of my bachelor degree program, Dr. Hassan Sayed, the first Dean of Law at Qatar University approached me and we had a long conversation about academic life. He said that the university was looking for motivated and intellectual young Qataris who were willing to pursue their graduate studies abroad. He told me that the characteristics had been found in me and that the university would like to recruit me as a Qatari TA after graduation. It was a unique chance for a Qatari to pursue his graduate studies. I found it to be an exceptional opportunity, after carefully studying it and consulting my father. That was my main reason for choosing to be in academia.

You had a straight run from first degree to PhD and came back to join QU. What outside work experience did you have before joining the university?

After graduating from Qatar University, I worked with my father in his law office. Working with him provided me with the practical skills on how to be a lawyer, dealing with cases, meeting clients, drafting contracts and memoranda. These are skills that a lawyer needs to be a savvy practitioner. When I got the opportunity to pursue my master degree in law abroad I thought it was better to link and connect it with the J.S.D. Alhamdulillah, I succeeded in completing both degrees (master and doctorate) at University of California, Berkeley from 2008 to 2011.

What does it take to manage faculty members who are highly intellectual and educated?

The college has a very interesting mix of professors. We have highly experienced professors like Dr. Ali Negedah and Dr. Jaber Mahjoob, at one end, and newly hired young teaching assistants and lecturers at the other end of the spectrum. It is a challenge on my mind; how to manage this dynamic mix of colleagues?

As I progress on the job I found out that these concerns were only in my mind. As soon as I approach my colleagues and treat them professionally, they co-operate genuinely. The Dean of Law is responsible for all matters related to the college including 50 faculty members, over 20 admin assistants, and over 1,200 male and female students. This is a huge number in my perspective, but with the right team I have, it becomes very manageable. In the college we have three Associate Deans for research, academic affairs and community engagement, and one Assistant Dean for student affairs. I believe that we have a strong team. With the right persons beside you, inshallah all your goals will be achievable. I always focus on the college's strategic plan as we engage in any activity and take any actions. At the end of the year the college will be assessed to determine its achievements and challenges.

Does your experience as a legal consultant add value to the knowledge the students gain?

Absolutely, the students need to hear from lawyers and legal consultants. I always encourage new Qatari colleagues in the college to practice and find some time to work with existing law firms or legal entities or even establish their own law offices. Building the bridge between theory and practice is crucial and we treasure it at the College of Law. We consider ourselves a very practical college. We don't see ourselves as a theoretical college. Indeed we are not different from medicine, engineering and other practical schools. The College of Law at Qatar University invites judges, lawyers, and legal experts to share their experience with the students in the different courses. For example, we have the civil and commercial procedures course where the students will take one extra lab course to gain practical skills from a judge at the court. The judge will invite the students to attend a real court session and witness a complete trial.

> "We definitely have a role to play in spreading legal awareness. We achieve this by arranging activities, seminars and workshops related to the issues that the laws address."

I think that connecting practice with theory is one of the most useful methods adopted by many law schools in the western world.

Do you just graduate students and they leave? Do you contact and maintain relationship with them?

There is a link between the college and its graduate students. One of the ways is by providing Continuing Legal Education (CLE) workshops which are essential for lawyers to enhance their knowledge base and improve their skills.

We have appointed an Associate Dean of Community Engagement to work specifically in that area. By the beginning of each academic year the college provides a full schedule of workshops and seminars for Qatari and non-Qatari experts in Qatar. We are working harder to improve on this and provide more to the Qatari legal community. We don't claim that we are the best in Continuing Legal Education. However, we are progressing and taking very good steps.

Additionally, the college has a chapter of the Alumni Association at QU. We are very much interested in strengthening the relationship between the college and its graduates even more.

You are a consultant with the Qatar Financial Center Regulatory Authority. Can you offer an insight into the impact QFCRA has had on you and your career?

The Qatar Financial Center is mainly established to provide an opportunity for international investors to establish their corporations in Qatar and invest in the country. QFCRA needed Qatari legal experience. So I was approached as a Qatari lawyer to assist the regulatory authority with the required legal consultations. I mainly provide them with advice on Qatari legislation or cases related to Qatari laws. I'm definitely gaining so much experience from this practice not only as a lawyer but also as a faculty member at the College of law.

Legislations are supposed to bring about definite changes. Are the laws we are having in Qatar in this direction?

I believe Qatar is moving in the right direction in terms of enacting legislations. The country has adopted a series of legislations. We have a responsibility in the College of Law to provide academic opinion on legislations in Qatar. In addition, we definitely have a role to play in spreading legal awareness. We achieve this by arranging activities, seminars and workshops related to the issues that the laws address. Also, we encourage our faculty members to write and publish on important legal topics relevant to Qatar.

I think the country is moving correctly in terms of consulting and taking cautious steps towards adopting new legislations. Part of fulfilling the Qatar National Vision 2030 is to have solid regulations that will enhance the development of Qatar.

Is the legal profession attractive for Qatari youth?

We are very proud at the College of Law that we have the highest percentage of Qatari candidates admitted. This academic year, the Qatari students we admitted exceeded 90%. Our non-Qatari percentage is very low because the legal market demands more Qataris in various legal departments. Almost all firms and institutions (private and public) need Qatari qualified lawyers or legal researchers. Qatar University is one of the main sources of providing the community with qualified Qatari candidates.

What role do you think legal research will play in the development of Qatar's legal system?

In the College of Law, one of our main objectives is to emphasize and focus on legal research. Our faculty members play a very important role in this task by publishing in different areas of law and in highly distinguished journals. Additionally, the college established an online law journal called "International Review of Law" published by Bloomsbury in Qatar Foundation.

We invite writers locally and internationally to submit papers on the journal's website for publication. It is a peer-reviewed journal and we are proud to have a highly distinguished publisher like Bloomsbury to be our partner. The college is playing a role in the dissemination of knowledge with the publication of the journal.

Can you talk about the quality of research being undertaken at the college?

Our faculty members are doing well in terms of publishing articles and legal opinions in regional and international law journals. But I think that more work should be done in terms of publishing books. We have proposed a new book publishing policy to encourage faculty members to publish more law books.

The Qatar National Library lacks materials in Qatari laws, whether textbooks or reference books, and the college is in the process of establishing new graduate degrees. These are the main reasons behind proposing the new policy and we hope that it will be adopted soon by QU.

Generally, the college is progressing in this aspect. We have colleagues who have won NPRP and UREP grants as well as university and other extra-mural grants for research in areas such as human trafficking, the fiscal regime for oil and gas, family law, trade and investment law. All these are high level works that contribute to the development of Qatar.

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انضم إلينا اليوم !