مبادرات محمد بن راشد آل مكتوم العالمية
Mohammed Bin Rashid
Al Maktoum Global Initiatives

مؤسسة الجليلة
AL JALILA FOUNDATION

Al Jalila Foundation Research Grants Portfolio

Dedicated to Innovation
Committed to Care

The UAE will become a shining icon of development in many areas and a beacon of enlightenment for those pondering the path to achieving success.”

His Highness Sheikh Mohammed Bin Rashid Al Maktoum
Vice-President and Prime Minister of the UAE and Ruler of Dubai

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Research provides a gateway to discovering new knowledge, advancing medical breakthroughs”

We are immensely grateful to our Founder, His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, for championing innovation and research, and for establishing Al Jalila Foundation, a global philanthropic organisation dedicated to transforming lives through medical treatment, education and research.

Research provides a gateway to discovering new knowledge, advancing medical breakthroughs, and propelling economic development. In line with His Highness Sheikh Mohammed’s vision we have established a research institute within Al Jalila Foundation headquarters, a AED 200 million state-of-the-art facility, as regional hub for medical research.

The UAE’s first independent multi-disciplinary medical research institute will bring together leading local and international scientists to work together to discover solutions for the region’s biggest health challenges: cancer, cardiovascular diseases, diabetes, obesity and mental health. The institute will also collaborate with renowned research institutions around the world to foster international scientific partnerships, nurture home-grown biomedical researchers to strengthen best practices in the region.

Since our inception in 2013, Al Jalila Foundation has created opportunities to increase innovative, impactful research by funding 95 biomedical research projects and 8 international research fellowships with a total investment of AED 25 million. Our research is focused on cutting-edge translational research and we seek to identify causes of disease and to build on basic and clinical research findings to develop innovative prevention and treatment strategies. It gives me immense pride to present Al Jalila Foundation Research Portfolio; here you will find all the information on our grant recipients and an overview of their research projects.

Research is a life-long commitment and a responsibility we take seriously. A responsibility to our Founder who has entrusted us with his vision. Responsibility to our donors who have empowered us to fulfill our mission. And responsibility to the people we serve: be it a hopeful patient, an aspiring student or a pioneering scientist.

Medical research has the potential to save lives and the new research institute will pave the way for advancements in medicine, giving hope to patients and safeguarding the health of our children, and children’s children.

May I take this opportunity to thank our Board of Trustees, Board of Directors and Scientific Advisory Committee for their continued support and foresight. And, of course, special recognition to each one of our grant recipients for their unwavering commitment to biomedical research.

Dr Abdulkareem Sultan Al Olama
Chief Executive Officer
Member of the Board of Directors
Al Jalila Foundation

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Overview of Research Grants
2014 - 2018

AED 25M
invested in local research

428
grant applications received

135
reviewers from 19 countries

95
grants awarded

25
nationalities

15
institutions

4
Emirates

190
publications in international journals

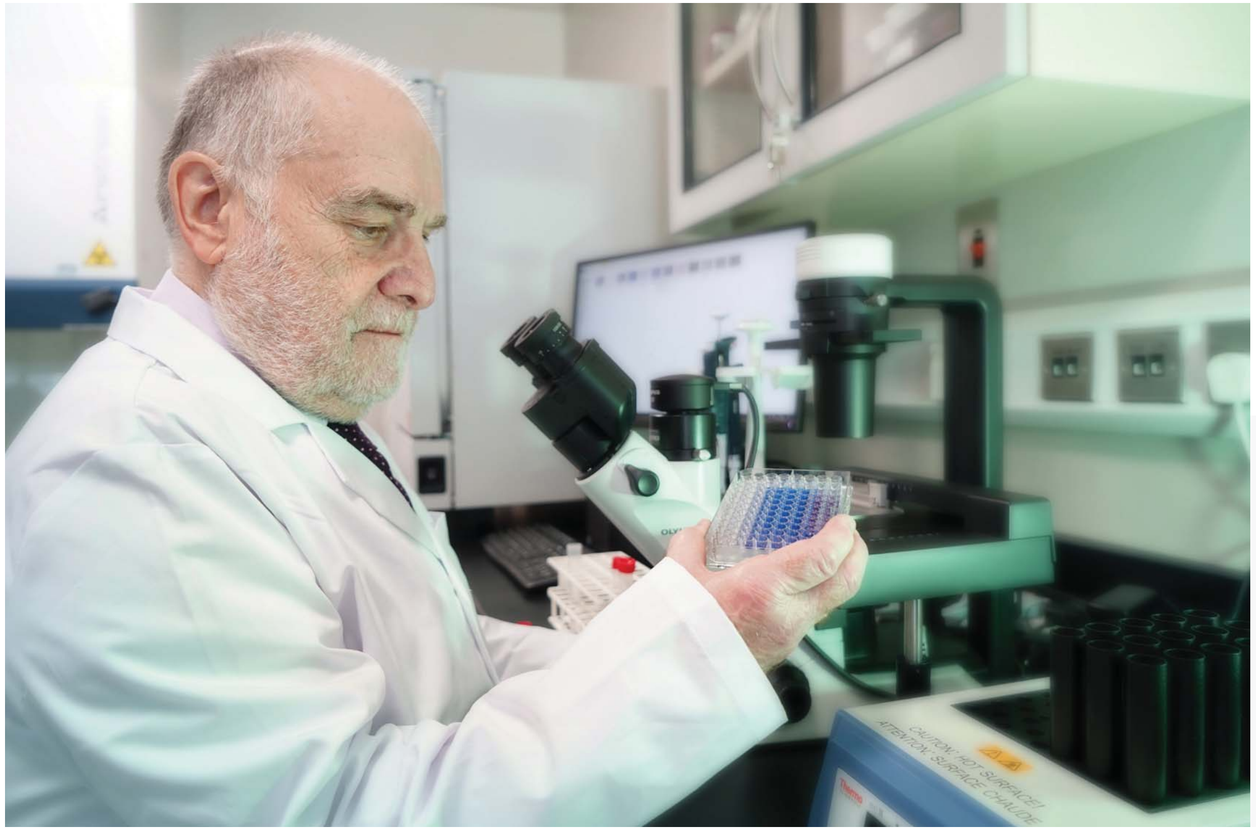
218
presentations at international conferences

254
research training completed

50
PhD/Master's Thesis

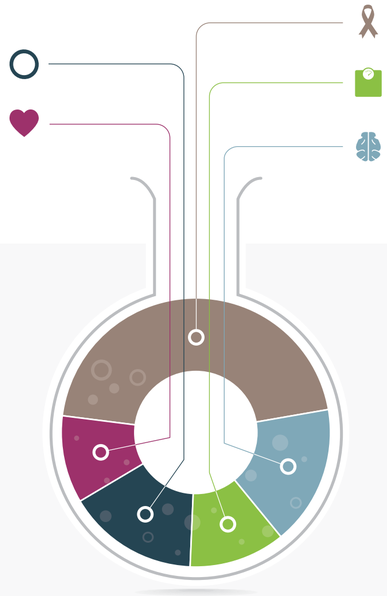
98
Principal Investigators

257
Co-investigators

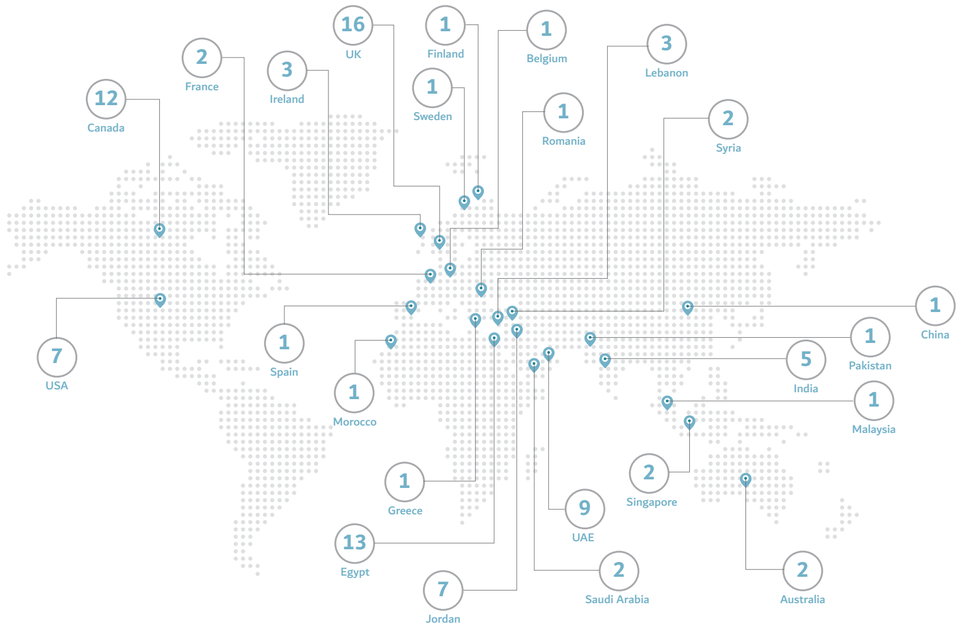


Research Grants Funded by Theme **2014 - 2018**

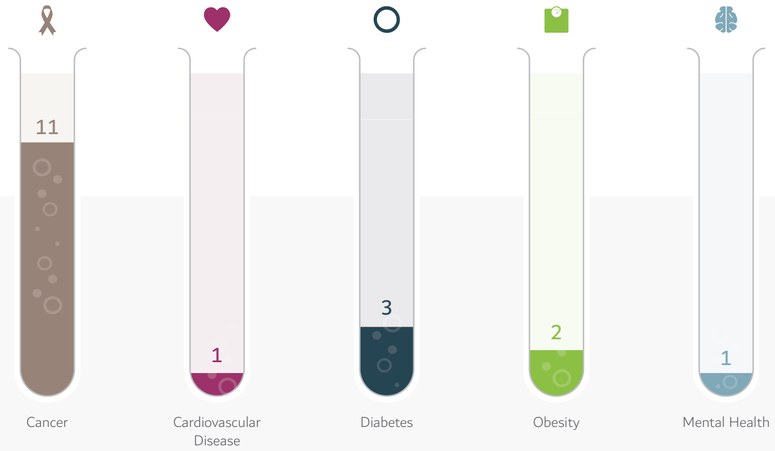
	Number	AED (M)
Cancer	43	11.80
Cardiovascular Disease	10	2.80
Diabetes	15	4.05
Obesity	11	3.10
Mental Health	16	3.31
TOTAL	95	25.06



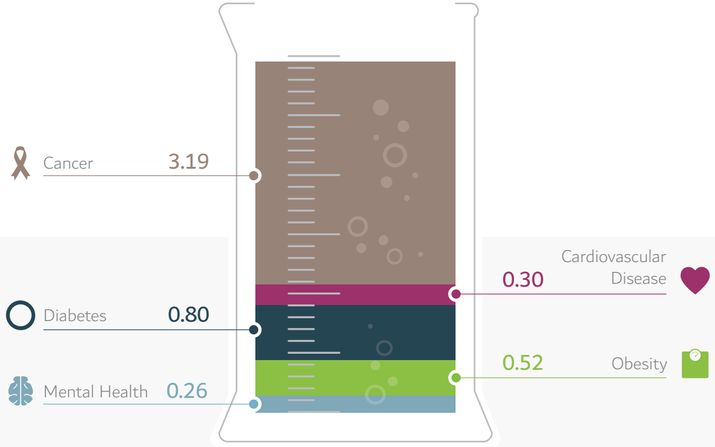
Total Research Grant Recipients by Nationality **2014 - 2018**



Research Grants Funded by Theme **2018**



Research Grants Funded by Value **2018**



Overview of Research Grants **2018**

Professor Thomas E Adrian

PhD, FRCPath
College of Medicine
Mohammed Bin Rashid University of Medicine and Health Sciences

Research Theme

Cancer

Project Title

Novel drug combinations to treat cancer.

Novel targeted therapeutic agents are desperately needed for cancer. Frondoside A is glycoside that blocks growth and inhibits the invasion of cancers into other tissues, which is what makes cancers deadly. Recent work has shown that cancers arise in cancer stem cells and that eradication of these stem cells is essential to cure the cancer. Findings have revealed that when treating leukemias or pancreatic cancers with frondoside A, it stimulates a stem-cell pathway (NF-kB pathway) that these stem cells use for survival.

When combining an inhibitor of the NF-kB pathway (a drug called andrographolide) together with frondoside A the effects were found to be dramatically better than either drug alone, killing all the cells including the cancer stem cells. This project aims to answer several questions: Does the combination of frondoside A and andrographolide work in all cancers? Do other drugs that target the NF-kB pathway have the same or even better effect? What is the mechanism for this interaction? Does the combination work in human tumors growing in mice?

Professor Riyad Bendardaf

MB ChB, PHD, FRCP (Edinburgh)
College of Medicine
University of Sharjah

Research Theme

Cancer

Project Title

The role and therapeutic implications of cyclin-dependent kinases 4 and 6 in colorectal cancer patients in the UAE.

This clinical-translational cancer research project is to identify prognostic and predictive role of CDK4/6 in colorectal cancer patients which can be predicted using genetic patterns to select patients' response to CDK inhibitors. The underlying molecular mechanism targeted by CDK uses multiple cellular pathways. The mechanism of intra-tumor heterogeneity in colorectal cancer cells leading to drug resistance mechanisms can be detected using whole transcriptome analysis followed by targeted genomics. This can be used to then follow the effect of combination therapy in vitro CRC cell lines.

The clinical potential significance of such research is to identify genetic panel that is predictive of the response to CDK-inhibitors and uses that to develop non-invasive pharmacogenomics screening tool to detect the response to therapy in CRC patients. Furthermore, studying the multiple molecular pathways targeted by CDK 4/6 can lead to the identification of novel therapeutic biomarkers that can be used to stratify different subgroups of CRC patients based on likely response to CDK 4/6 inhibition, both positive response, efficacy, and negative response, development of side effect or toxicity.

Professor Kirsten Sadler Edepli

PhD
Vice Provost for Faculty Development and Diversity
Professor of Biology
Program in Biology
New York University Abu Dhabi

Research Theme

Cancer

Project Title

Mechanism of UHRF1-mediated hepatocyte senescence.

There are dramatic differences in the organization of the genome and the marks around which it is packaged – i.e. the epigenome – between cancer and normal cells. How these epigenetic changes cause a normal cell to turn into a cancer cell is unknown. Activating tumor suppressive mechanisms, such as cell senescence, stop cancer growth. This is a universal response to changing the expression levels of cancer causing genes, including the epigenetic regulator UHRF1 discovered is an oncogene. Cancer only forms when tumor suppressive mechanisms are insufficient to restrain cells from uncontrolled growth.

The aim of the study is to understand how epigenetic rearrangement induced by high levels of UHRF1 cause senescence by using zebrafish as an in vivo model of liver development and cancer to address this. The hypothesis is that UHRF1 over expression engages cell cycle checkpoint pathways that respond to DNA damage or DNA replication stress halts the cell cycle.

Dr Saba Al Heialy

BSc, PhD
Assistant Professor of Immunology
Basic Sciences, College of Medicine
Mohammed bin Rashid University of
Medicine and Health Sciences

Research Theme

Cancer

Project Title

Deciphering the immunological mechanism involved in early lung cancer in the UAE population.

Worldwide, lung cancer is associated with a low prognosis and is a leading cause of cancer mortality in both men and women. In the United Arab Emirates (UAE), lung cancer is ranked among the top five deadliest diseases and the second among UAE nationals. Interestingly, recent data from this team has identified common genes, such as TLR4 and FCγRIIIB, between asthma and lung cancer, which are both heterogeneous diseases of the lungs.

Many studies have focused on the genetic alterations in asthma and lung cancer separately; however, there are no studies on the common genetic alterations in both lung cancer and asthma. The correlation between lung cancer and asthma are controversial. The dual hypothesis states that the chronic inflammation in asthma may predispose individuals to lung cancer whereas the increased immune surveillance described in asthma may protect individuals from lung cancer. This project aims to investigate the shared mechanisms involved in the progression from these two different conditions. Deciphering the immunological mechanisms involved in early lung cancer can lead to prevention and may identify novel immune-therapeutic targets for lung cancer.

Professor Rabah Iratni

PhD, HDR
Professor
Department of Biology, College of Science
United Arab Emirates University

Research Theme

Cancer

Project Title

Targeting the Death Associated Protein Kinase 1 (DAPK1) in the triple negative breast cancer cells by the naturally occurring polyphenols, carnosol.

The triple-negative breast cancers (TNBC) are the most aggressive and invasive form of breast cancer with the worst prognosis among all forms of breast cancers. Sadly, TNBCs lacks effective treatments and therefore identification of specific targeted and more efficient therapies for TNBC patients remains nowadays a clinical challenge. Primary studies have previously reported that carnosol, a natural compound found in many culinary plants induced cell death of the mutant p53, MDA-MB-231 TNBC cells through the activation of both autophagic and apoptotic pathways.

The main objective of this study is to elucidate the molecular mechanism through which carnosol exerts its anti-TNBC activity. Based on preliminary results, the team hypothesize that one possible mechanism of action of carnosol on the TNBC is through the downregulation of the death-associated protein kinase 1 (DAPK1), a protein recently shown to be essential for the growth of p53-mutant triple-negative breast cancers. The expected findings from this study may reveal a novel therapeutic approach based on small natural molecules targeting DAPK1 in aggressive forms of breast cancer and that carnosol may serve as lead agent for the development of such anti-cancer therapeutics.

Professor Gulfaraz Khan

PhD, FRCPath
Professor & Chair
Medical Microbiology & Immunology
College of Medicine & Health Sciences
United Arab Emirates University

Research Theme

Cancer

Project Title

Mechanism of interaction of Epstein-Barr virus encoded small RNA 1 with the cellular protein La.

Epstein-Barr virus (EBV) is an oncogenic virus involved in the pathogenesis of several human malignancies. It is estimated that more than 200,000 people develop EBV-associated malignancies each year. However, the details of the mechanisms involved in inducing these malignancies, remains unclear. Studies indicate that some of the viral latent products are essential in the cell transformation process. All EBV infected cells consistently express 2 small RNAs, referred to as EBER1 and EBER2. Although both RNAs are abundantly expressed, their function remains unknown. Previous studies have demonstrated that EBERs are excreted from infected cells and they can modulate the microenvironment surrounding the infected cells. Furthermore, the cellular protein La is also secreted out of the infected cells together with EBERs, suggested that La could be acting as a chaperone for the transport of EBERs.

This study is aimed at determining if La protein is indeed the main vehicle of transport of EBERs, specifically EBER1, and how EBER1 interacts with La. Understanding the mechanism of excretion of EBERs will shed light on the potential role of these abundantly expressed small RNAs in the biology of EBV, mechanism of immune evasion and cell transformation.

Dr Mazin Magzoub

PhD
Assistant Professor of Biology
College of Medicine
New York University Abu Dhabi

Research Theme

Cancer

Project Title

Near infrared light-controlled nanoparticles for targeted delivery of anticancer drugs.

Cancer nanomedicine has the potential to enhance the efficacy, while reducing side-effects, of conventional chemotherapeutics. However, the practical application of nanocarriers as cancer drug delivery systems is often hampered by a number of issues, including low chemotherapeutic delivery loading efficiency, uncontrolled drug release, poor circulation stability, inadequate accumulation in target tumor tissue and inefficient uptake and/or intracellular trafficking in target cancer cells. Consequently, very few cancer nanocarriers have reached the clinical trial stage (eg. Genexol, Eligard, and Zinostatin stimalamer).

To address these issues, a "bottom-up-nanotechnological approach" is being used to develop novel nanocarriers characterized by: i) improved stability and increased loading capacity; ii) improved tumor and cancer cell targeting specificity; iii) high fluorescence intensity of attached probes for superior imaging and real-time monitoring; iv) near-infrared (NIR)-triggered release of cargoes within tumors; v) simultaneous delivery of chemotherapeutics and photosensitizers for enhanced treatment efficacy. The findings will likely promote therapeutic approaches to overcome the drawbacks of conventional treatments. Additionally, this work will provide the framework for combining treatment approaches – such as chemo, photodynamic and thermal therapy.

Dr Jibran Sualeh Muhammad

MBBS, PhD
Assistant Professor
Department of Basic Medical Science
College of Medicine
University of Sharjah

Research Theme

Cancer

Project Title

Estrogen-induced epigenetic regulation of iron metabolism in hepatocellular carcinoma.

Liver cancer (Hepatocellular carcinoma) is the third most common type of malignancy in men and the seventh in women. Female sex hormones, mainly estrogen, may have a role in this gender disparity. Estrogen treatment of cancer cells induces anti-cancer effects through its ability to control iron inside the cells. Preliminary data from the research suggests that estrogen treatment induces epigenetic changes in key iron regulatory genes to switch genes on and off.

Identification of mechanisms that can switch genes on/off in cancer cells is an active area of research. This study will further enhance understanding of the anti-carcinogenic effects of estrogen and estrogen receptor-mediated signals in controlling iron metabolism in liver cancer. Should estrogen signaling involves epigenetic modifications, as preliminary data suggests, this could provide for new avenues to further understand the mechanisms of carcinogenesis in cancers influenced by estrogen and may point to potential therapeutic targets.

Dr Hany Omar

BS, MS, PhD
Associate Professor
College of Pharmacy
University of Sharjah

Research Theme

Cancer

Project Title

Metabolic reprogramming as a novel approach to sensitize cancer cells to immunotherapy.

Cancer immunotherapy is a new, relatively safe approach for cancer treatment. It depends on directing the immune system against the cancer cells by blocking some surface proteins such as PD-L1, which hide cancer cells from immune surveillance. The percent of the response to immunotherapy in triple-negative breast cancer (TNBC), an aggressive type of cancer, is relatively low due to the ability of breast cancer cells to convert their surroundings into a non-supportive environment for immune cells.

To optimize immunotherapy for TNBC, the work is based on the ability of cancer cells behave differently considering energy production compared to normal cells. They are usually in a high need for energy to support their rapid division. So, cutting down their energy supply by what is called targeting the metabolic reprogramming, would be very helpful to stop their proliferation and prevent their survival. This work validates the combination of cancer immunotherapy and novel agents targeting the metabolic reprogramming in cancer cells, which can activate the immune system against the cancer cells. The long-term goal is to reduce deaths and improve the wellbeing of patients suffering from breast cancer

Dr Mohamed Rahmani

BS, MS, PhD
Associate Professor
College of Medicine
University of Sharjah

Research Theme

Cancer

Project Title

Deciphering mechanisms of triple negative breast cancer resistance to PI3K inhibitors.

Breast cancer is one of the major health problems in the world accounting for approximately 24% of all cancer-related death of women in the United Arab Emirates. Triple-Negative Breast Cancer (TNBC) is a group of aggressive diseases with a greater incidence of relapse, metastasis and patient mortality compared to other breast cancer subtypes. While there have been significant advances in the treatment of breast cancer in general, currently there is no effective treatment for TNBC. Importantly, PI3K/AKT/mTOR signaling pathway has recently emerged as a highly promising target in TNBC. However, PI3K/AKT/mTOR inhibitors showed only limited activity in patients with this disease. Therefore, identifying mechanisms by which TNBC cells mediate resistance to PI3K inhibitors is crucial for developing effective and durable PI3K-based treatment in this disease.

The primary goal of this study is to identify and validate genes that cause resistance to PI3K inhibitors in TNBC using a loss-of-function screen with CRISPR/Cas9 libraries. This will provide a theoretical framework for developing novel therapies by co-targeting PI3K and mechanism(s) of resistance to PI3K inhibitors in this disease.

Dr Rania Faouzi Zaarour

PhD
Senior Researcher
Thumbay Research Institute for Precision Medicine
Gulf Medical University

Research Theme

Cancer

Project Title

Effects of smoking on remodeling the tumor microenvironment and shaping stemness and immunogenicity in lung cancer.

The study is focused on understanding the effects of tobacco exposure on lung cells. The tobacco epidemic is one of the biggest public health epidemics that results in over 7 million deaths worldwide per year; smokers of tobacco are 20-40 times more at risk of developing lung cancer in comparison to non-smokers. In addition, lung cancer contributes significantly to the cancer related deaths in the UAE as reported by the Department of Health Abu Dhabi (HAAD). Tobacco can be smoked using cigarettes and waterpipe among others, as such and the study looks at the effects of both cigarette smoke and waterpipe smoke extracts on normal lung cells as well as lung cancer cells. Especially with the current trends in waterpipe smoking and the general belief that waterpipe is safer than cigarettes, it is important to obtain conclusive evidence to the effects of the latter.

More specifically, the focus of the study is on the molecular changes that occur in response to smoke including stem cell generation, epithelial mesenchymal transition and DNA damage. Understanding these mechanisms will help in developing targeted therapies for cancer patients.

Professor Sausan Al Kawas
DDS, MSC, PhD, FICD
Oral & Craniofacial Health Department
College of Dental Medicine
University of Sharjah

Research Theme

Cardiovascular Disease

Project Title

The effects of Dokha smoking on health in the UAE population.

Dokha smoking could cause oral health pathology which may be associated with increases in the risk for cardiovascular diseases (CVD), diabetes and obesity. This study aims to investigate the effects of dokha smoking on systemic and oral health in the UAE population. The main objectives are: i) measure the effects of dokha smoking on systemic inflammation and Cardiovascular Diseases in the UAE population, as measured through salivary C-reactive protein (CRP); ii) measure the effects of dokha smoking on oral health in the UAE population, as measured through tooth decay, gingival inflammation, and periodontal disease status; and iii) investigate the relationship between gingival and systemic health in the UAE's dokha smoking population.

The proposed study will provide new and vital information about the effects of dokha on systemic and oral health in UAE population. It will provide information about potential oral health pathology associated with increases in the risk for cardiovascular diseases (CVD), diabetes and obesity. The study will also provide new information about the effects of dokha smoking on the healthy oral microbiome when compared to oral microbiome of dokha smokers.

Dr Mohammed Ghazal

PhD, SMIEEE
Associate Professor and Chair of Electrical and Computer Engineering
College of Engineering
Abu Dhabi University

Research Theme

Diabetes

Project Title

Early and automatic diagnosis of retinopathy in diabetic patients.

Diabetic retinopathy (DR) is a major complication of diabetes which can lead to vision loss in adults between 20 and 74 years. The prevalence of DR is expected to increase to 191M by 2030. Innovative and comprehensive approaches are urgently needed to reduce the risk of vision loss by prompt diagnosis and early treatment. The main challenge in DR diagnosis is that it requires specialised training. Also, its clinical grading is, to some extent, subjective. Optical coherence tomography (OCT) and OCT angiography (OCTA) are non-invasive imaging techniques widely used to diagnose and manage DR

The proposed study seeks to revolutionize the way they are used and allow for unbiased, automated, and standardized diagnosis technology leading to expanding screening from retina specialists to community-based physicians. The system would allow for tailoring DR treatment regimens to individual patients and thus greatly improve outcomes and minimize costs

Dr Bashair Mussa

PhD
Assistant Professor
Department of Basic Medical Science
College of Medicine
University of Sharjah

Research Theme

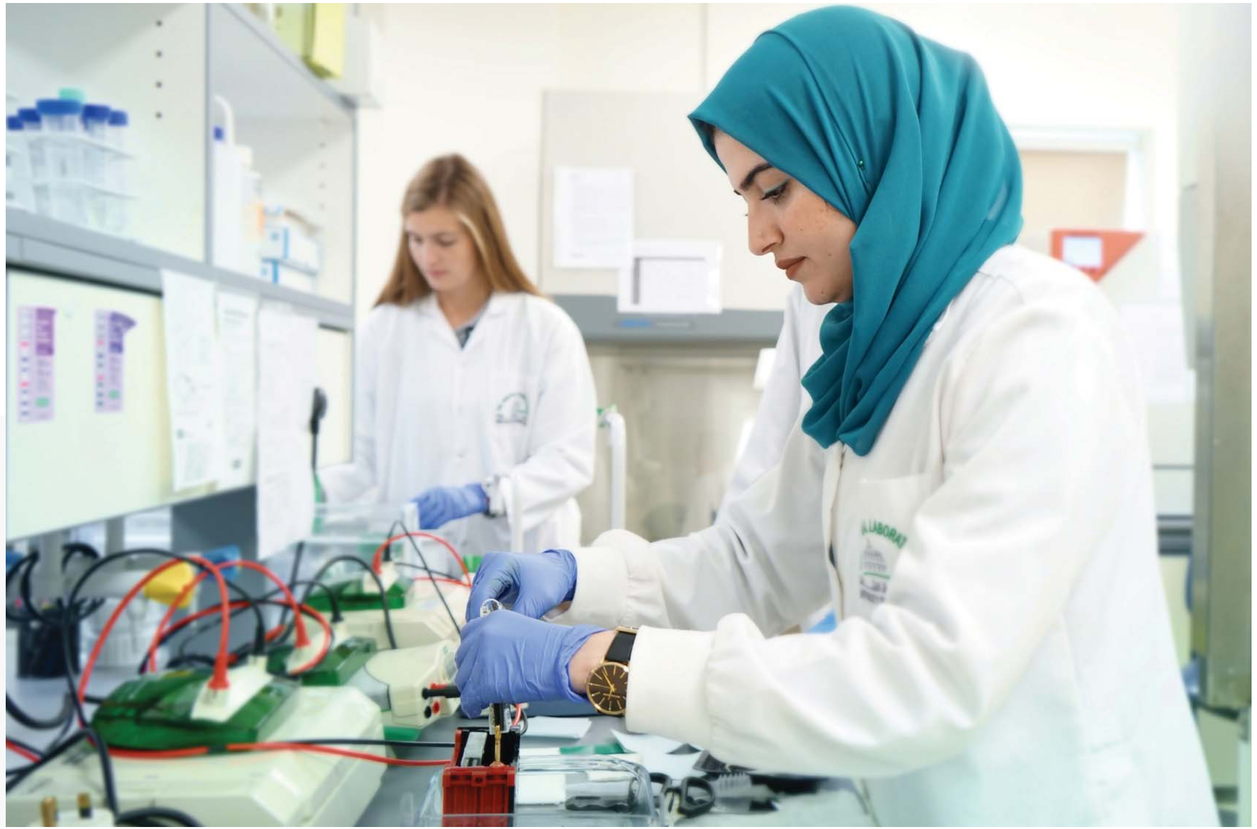
Diabetes

Project Title

Investigating the role of FOS and BECLIN1-inducing autophagy in pathogenesis of hypoglycaemia-associated autonomic failure in diabetes.

Hypoglycaemia-Associated Autonomic Failure (HAAF) is a serious complication of diabetes which is associated with the absence of physiological homeostatic counter-regulatory mechanisms that are controlled by the hypothalamus. Expression of FOS (a proto-oncogene) is considered as a sensitive marker of neuronal activity in the hypothalamus which possesses significant responses to hypoglycemia. It has suggested that the involvement of FOS in regulation of the neuronal signal, in the hypothalamus, is more complex than previously believed.

In addition, disrupted autophagy mechanisms are involved in the pathogenesis of various neurodegenerative disorders including diabetic neuropathies. Expression of autophagic adaptor proteins such as BECLIN 1, is associated with cognitive dysfunction in diabetes. It has been suggested that FOS mediates the regulatory effect of BECLIN1 on autophagic processes in the brain. This project aims to identify the role of FOS and BECLIN1 in the pathogenesis of HAAF and to profile the involvement of autophagic markers in HAAF. Identification of novel biomarkers for early detection of HAAF will help patients with diabetes to prevent hypoglycemic episodes, to improve their quality of life and preserve their cognitive functions.



Dr Mohammad A Qasaimeh
BS, MS, PhD
Assistant Professor
Division of Engineering
New York University Abu Dhabi

Research Theme

Diabetes

Project Title

High throughput and rapid assessment of erythrocyte deformability in diabetic patients.

Blood rheological disorders that occur in diabetes patients are found to put them at a higher risk for developing atherosclerotic coronary and peripheral arterial diseases. These associated health conditions reduce life expectancy and quality of life. Type 2 Diabetes (T2DM) in the UAE affects approximately a quarter of the local population, and thus fighting the disease is considered a national priority.

Increased stiffness of erythrocytes, also called Red Blood Cells (RBCs), decreases their deformability when squeezed through vascular constrictions, which is also linked to T2DM progression. The study is developing a high-throughput BioChip technique that will enable researchers and clinicians with a rapid measurement platform to assess RBCs deformability in diabetic patients. The proposed BioChip and study on a larger population of cells will help clinicians obtain statistically accurate data and correlate disease severity with the onset of other complications such as arterial diseases.

Dr Teresa Arora

BSc (Hons), MSc, PhD, CPsychol, AFBPsS
Assistant Professor
College of Natural & Health Sciences
Zayed University

Research Theme

Obesity

Project Title

A pilot study to assess the feasibility and adherence of a sleep improvement intervention for weight loss and its maintenance in sleep impaired obese adults.

There is a very well-established association between sleep and obesity, both cross-sectionally as well as prospectively. The team's approach that has not been previously explored is the possibility and effectiveness of treating sleep impaired obese patients with sleep improvement to enhance weight loss and its maintenance.

This feasibility study will recruit 40 obese, sleep impaired adults and will randomized them to one of two groups (experimental versus control). Both groups will receive a lifestyle intervention to improve dietary and exercise habits using evidence-based psychological approaches. The experimental group will, in addition, undertake a six-week training program to improve sleep outcomes targeting sleep duration, sleep quality and sleep timing. Should the 12-week lifestyle intervention be feasible, secondary outcomes including weight loss and weight loss sustainability will be assessed as well as other outcomes (mood, sleep, food intake, quality of life) over a six-month follow up time frame.

Professor Ibrahim M Elfadel

PhD
Department of Electrical Engineering and Computer Science
Khalifa University of Science, Technology and Research

Research Theme

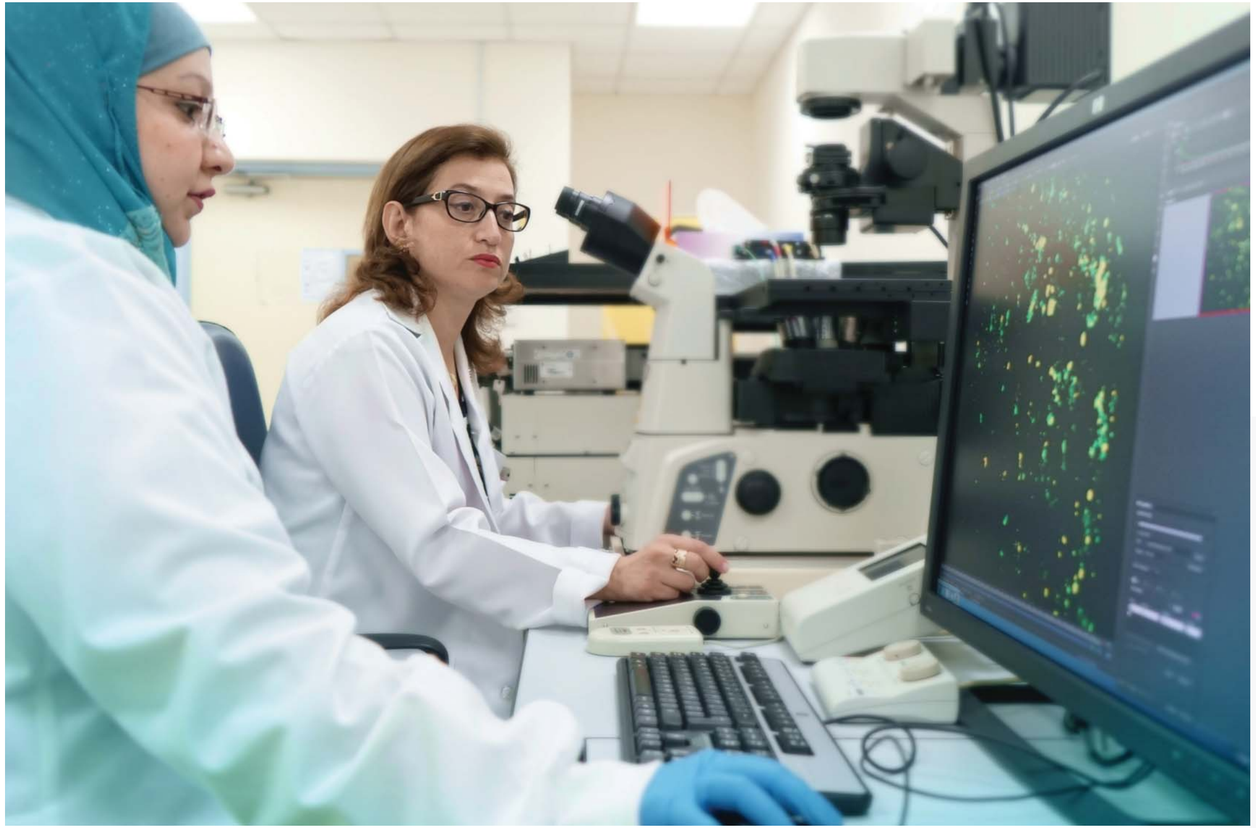
Obesity and Cardiovascular Disease

Project Title

Wearable device for continuous body weight measurement.

The act of stepping on the scale to measure one's weight is a self-conscious act that oftentimes requires will and motivation. Yet, the strict and frequent monitoring of weight in risky medical conditions such as congestive heart failure has to be done systematically without the patient's lack of will gating or compromising the monitoring chain. The research addresses the important problem of designing a wearable system for reliable continuous weight monitoring that will run in the background and that will remain operational whether the patient is standing or walking.

Specifically, the research group is using innovative sensing and instrumentation technologies for the design and prototyping of a shoe-integrated weight measurement system that is immune to motion artifacts and capable of accounting for various walk patterns. One focus of the current project is to design, implement, integrate, and test a VLSI chip with an ultra-small form factor that will be the shoe-wearable data processing hub of the continuous weight measurement system.



Dr M Emdadul Haque

BS, MS, PhD
Associate Professor
Department of Biochemistry
College of Medicine and Health Sciences
United Arab Emirates University

Research Theme

Mental Health

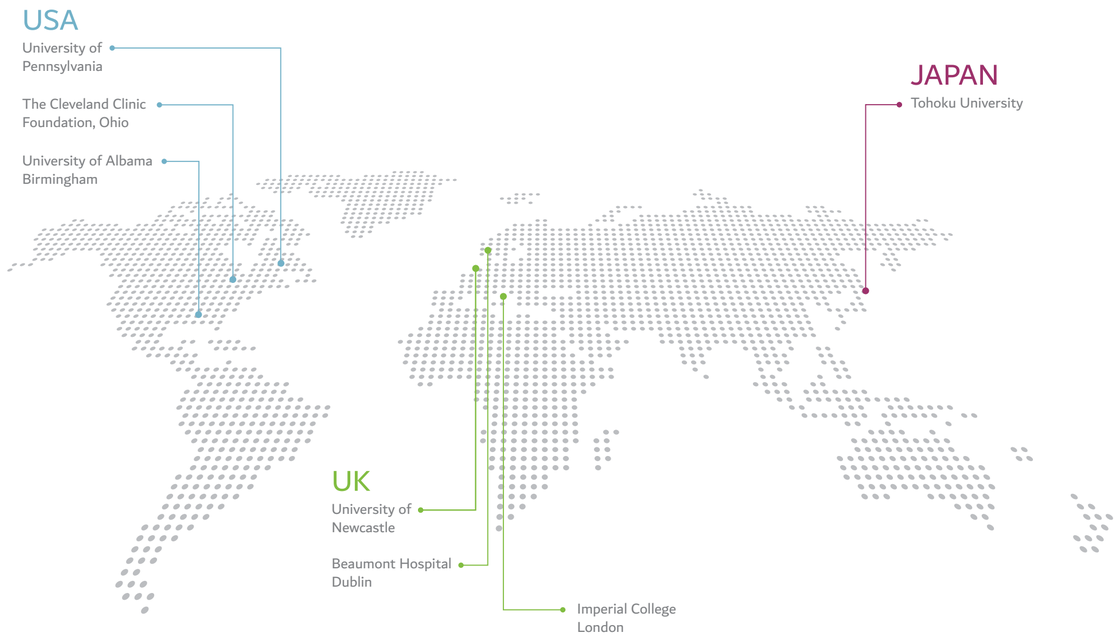
Project Title

Parkin in cancer and neurodegeneration: critical role of Parkin as E3 ligase and redox molecule.

Parkin/PINK1 insufficiency may cause accumulation of damaged mitochondria. However, there is no mitochondrial accumulation in patients' brains and mouse models. The question is simple: is it true that they are removing abnormal mitochondria? "Autophagy" is one of the essentials in life phenomena, especially for cell survival. Insufficient mitophagy produces oxidative stress and energy crisis in cells and finally leads to cell death or cancer. Thus, it is important to question whether Parkin and PINK1 have a central role in conducting mitophagy. In the clinical aspect, they are involved in several major serious diseases that many people are suffering from.

By understanding what is truly happening on the surface of mitochondria around Parkin (and PINK1), the findings will unveil a series of flow which causes dopaminergic cell death and tumorigenesis in cells. The results have the potential to change the notion of "mitophagy process" and provide the cause-directed therapeutic strategy for several major diseases.

Research Fellowships
2014 - 2018



Overview of Research Fellowship **2018**

Ms Nour Alloghani
Medical Student
Bachelor in Medicine Surgery and Obstetrics
Royal College of Surgeons, Ireland

Ms Nour Alloghani is a medical student completing her Bachelor in Medicine, Surgery and Obstetrics from the Royal College of Surgeons in Ireland. Through an Al Jalila Foundation Fellowship, Ms Nour undertook two months training at histopathology department in Beaumont Hospital in Dublin, Ireland.

Cancer is the leading cause of death in Ireland and worldwide with non-small cell lung cancer (NSCLC) making up 80% of all cases. The programmed death 1 (PD-1) and its ligand (PD-L1) are immune checkpoint inhibitors, which have been increasingly used as biomarkers in the treatment of NSCLC. The inhibition of the PD-1/PD-L1 bond with monoclonal antibodies has been found to be the most successful treatment of NSCLC in the past few years. Pembrolizumab was one of the first line immunotherapy treatments to be approved by the HSE in Ireland for use in adults with NSCLC. The treatment is effective in patients whose tumour expression of PD-L1 is ≥ 50%.

The fellowship offered Ms Nour the opportunity to examine the effectiveness of digital image analysis in the assessment of PD-L1 immuno-stained NSCLC tissue samples. Qupath open source software scoring of PD-L1-stained NSCLC samples was compared to the scores recorded by a Pathologist using a standard microscope. The findings of this study demonstrated that Qupath is a useful tool to support the analysis of PD-L1 staining in NSCLC. It is also suitable for monitoring the quality of controls. However, Qupath is unable to accurately discriminate tumour from non-tumour and requires additional testing before it can be introduced into a clinical setting.

Institutions Funded
2014 - 2018

1. Abu Dhabi University
2. Al Jalila Children's Speciality Hospital
3. American University of Sharjah
4. Dubai Health Authority
5. Dubai Hospital
6. Gulf Medical University
7. Khalifa University of Science, Technology and Research
8. Latifa Hospital
9. Mediclinic City Hospital
10. Mohamed Bin Rashid University of Medicine and Health Sciences
11. New York University Abu Dhabi
12. University of Sharjah
13. United Arab Emirates University
14. University of Modern Sciences
15. Zayed University

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- Aster DM Healthcare
- AW Rostamani Group
- Azizi Investments
- Dubai Electricity & Water Authority
- Dubai Holding
- Dubai Duty Free
- DUTCO Group
- Easa Saleh Al Gurg Charity Foundation
- Emaar Properties
- Emirates Integrated Telecommunications Company (du)
- Faizal & Shabana Kottikollon
- HDS Group
- Khansaheb Civil Engineering
- Landmark Group
- Malabar Gold & Diamonds
- NMC Healthcare
- Raghuvinder Kataria
- Rajen Kilachand, Dr
- Sobha Group
- Sunny Varkey
- Union Co-operative Society

Today's Investments
Tomorrow's Cures