جامعة الإمارات العربية المتحدة
United Arab Emirates University

UAEU Faculty of Medicine and Health Sciences

2011

Research Publications & Research Profiles

Office of the Assistant Dean for Research and Graduate Studies

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Annual Publication of the Office of The Assistant Dean for Research & Graduate Studies

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Dean's Message

It gives me great pleasure to invite you to review the 2011 edition of Faculty of Medicine and Health Sciences (FMHS) Research Publications and Research Profiles.

As our FMHS researchers continue to make important contributions to the biomedical, community and clinical literature, I congratulate all faculty who have contributed to this impressive research productivity. Each investigator would not function without a full support team that includes co-investigators, graduate students, medical students, technical staff, secretarial, support staff and volunteers. Their collaboration and cooperation makes such research feasible and we are grateful to all of them for their contributions to the research successes at FMHS.

The research output of the FMHS is greatly encouraged by senior administration at the UAEU and we are committed to rise to the challenge to further develop our research capabilities.

As ever, grant sponsorship remains a much-sought commodity and without generous grants from supportive organisations our research would not be possible. We are pleased to acknowledge sponsorship for the 2011 research projects from the following institutions:

- Sheikh Hamdan Award for Medical Sciences
- National Research Foundation
- National Rehabilitation Centre
- Terry Fox Cancer Funds in Dubai, Abu Dhabi, Ras Al Khaimah
- Emirates Foundation
- Michael J Fox Foundation, USA
- Lundbeck Foundation, Denmark
- European Union Collaborative Project
- Dubai Harvard Foundation for Medical Research
- International Center for Genetic Engineering and Biotechnology
- Emirate of Abu Dhabi Executive Council
- Swedish Government

- Medical Services Crops, UAE Armed Forces
- British Council, UK
- Satiogen, US
- Global Health Institute

We also gratefully acknowledge the following organisations for their ongoing financial support of our research:

- Wellcome Trust, UK
- ALESCO
- Harvard International
- Thrasher Research Fund
- Sonisite
- Red Crescent
- Abu Dhabi Environment Agency
- University of North Carolina
- University of California
- Children's Hospital, Boston
- HAAD
- Abu Dhabi Food Authority
- ICGEB

Our dedicated faculty, staff and students should be suitably proud of their continued high level of research productivity during 2011 and the resultant publications in quality international journals. Congratulations and thank you.

Prof. Mohamed Yousif Hassan Baniyas
Vice Provost, Medical Sciences and Dean, Faculty of Medicine and Health Sciences

Foreword from the Assistant Dean for Research & Graduate Studies

Research activities at the FMHS lead to a high number of peer-reviewed publications in internationally acclaimed journals every year.

In the last 20 years, we have maintained this tradition and have kept the community in the UAE and across the globe aware of the research contributions of the FMHS at the UAEU in the academic and scientific environment. The researchers at the FMHS are well-known investigators in various disciplines of Biomedical Sciences and have always made their presence felt in the scientific community through their publications and participation at national and international meetings and other scholarly activities, which has led us to position ourselves ideally as the top biomedical research-intense institution in the UAE and the region.

Despite a very competitive atmosphere to attract funds for research, we are proud of our faculty members who have preserved a progressive and cooperative environment while maintaining productivity of international standard. The Office of Research and Graduate Studies continues to promote such an environment by allocating resources wisely, nurturing incoming faculty, and providing the necessary infrastructure and resources by acquiring state of the art equipment and technologies, in addition to running a store for general consumables for research. In the recent years, we have also embarked on developing and maintaining central research facilities such as the Imaging, Analytical, and a Molecular and Cellular Biology facility, in addition to a small animal vivarium.

It is important to highlight and recognize the contribution and ongoing support of the UAEU administration who are seeking to make UAEU a research intensive institution in order to implement the vision of His Excellency the Chancellor Sheikh Nahayan Mabarak Al Nahayan.

I will take this opportunity to thank all those who have contributed in many ways to this publication and our research achievements at the FMHS.

Dr Ahmed H. Al-Marzouqi
Assistant Dean for Research & Graduate Studies

Preface

This is the 21st yearly report on Research Publications and Research Profiles for the Faculty of Medicine & Health Sciences, United Arab Emirates University. This volume is a continuation of a series of annual reports, dating back to our very first report in 1991.

As usual, every year, we try to upgrade and maintain the quality of this directory and this year is no exception. We have continued to include the Departmental Profiles and the Reports from the Research Priority Groups, including a report on Student Medical Research. At the end of the booklet we have also listed the journals in which we have published in 2011 and their impact factor.

We have also kept the design which we have used for the past 2-3 years. As you may remember, Ivanna Lizarriturri from the Media department had developed a new design for our booklet. As this seemed to have been met with general approval, she has in this edition continued with this design which provides for a uniform style and a consistent use of visual elements. With the new layout it is now easier to identify chapters, sections and text categories.

As always, it is a pleasure to thank the production team, who have put all this together. Ms Ivanna Lizarriturri was the Graphic Designer, literally from front to back cover. She also transformed all submissions into our in-house style using InDesign software. Mr Rajagopalan, as always, took care of editing the initial departmental contributions and the communication between all parties and Mr Ashook provided the numerous photographs. The translation, as in previous years, was ably performed by Ms Al-Anood Al-Jaberi.

Many thanks to all and to the faculty for their contributions,

Dr W Lammers,
Editor

Research Publications by Department

Anatomy

Biochemistry

Community Medicine

Family Medicine

Internal Medicine

Medical Education

Medical Microbiology & Immunology

Obstetrics & Gynaecology

Pediatrics

Pathology

Pharmacology

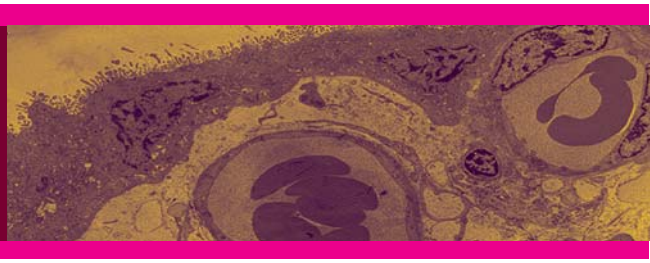
Physiology

Psychiatry

Radiology

Surgery

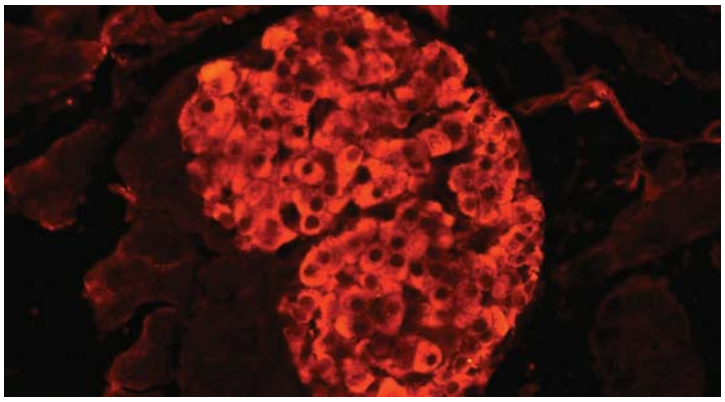
Department of Anatomy



Research Profile

Academic staff in the Department of Anatomy pursues research interests in a number of directions. We show considerable strength in the fields of neurobiology, stem cells, cancer, diabetes mellitus, and structure/function relations.

Ernest Adeghate's major research interest is on the effect of pancreas transplantation on metabolic parameters in experimental diabetes. He also examines the role of neuropeptides on insulin and glucagon secretion from the pancreas, especially in diabetic condition. Recent (2010-2011) results from his laboratory showed that spexin, a newly discovered peptide, is expressed in pancreatic beta cell. This indicates that spexin may be implicated in the regulation and control of islet function including insulin metabolism.



Immunolocalization of spexin in the pancreas of normal Wistar rat
Immunofluorescence micrograph, showing spexin immunoreactive cells (red) in pancreatic islet of normal Wistar rat, magnification: X 200.

Keith M. Bagnall's research has focused in three areas. He is interested in the aetiology of adolescent idiopathic scoliosis and is trying to find indicators of future development of this disease as well as indicators of progress of the spinal curves if they develop. He is also interested in the repair of articular cartilage by the introduction of cultured chondrocytes or stem cells. A third interest involves identifying the attributes necessary to be a successful clinician and the development of tests to predict the future performance of medical students, especially on the wards.

Professor & Chair:
Prof E Adeghate
Professor:
Prof K M Bagnall
Prof S M Karam
Prof E Mensah-Brown
Associate Professor:
Dr S Shehab
Assistant Professor:
Dr A Bahi
Dr. BS Emerald
Medical Research Specialist:
Mr RS Hameed
Ms A Rifaat
Ms W Al Dhaheri
Mr S Singh
Mr S Tariq
Mr W Wanniarachi
Secretary:
Ms S Lal
Office Assistant:
Mr TV Basheer

Sherif M. Karam's main research focuses on two main fundamental aspects of stem cell biology. 1) The proliferation and differentiation programs of gastric and mammary gland stem cells are investigated to define their role during carcinogenesis (stomach cancer and breast cancer). 2) The regenerative potentials of isolated gastric and dental stem cells are investigated by manipulating their growth and differentiation on nanofibrous scaffolds.

Eric Mensah-Brown continues to work on the mechanisms underlying multiple low dose diabetes with particular interest in the role of interferon gamma and IL-17 in autoimmune diabetogenesis. Presently, he is studying the role of the TLR-2 agonists, peptidoglycan and PAM3 CYS-CK4 (PAM3) via their induction of IL-17 and interferon gamma secretion on diabetogenesis. Dr. Mensah-Brown also investigates the role of cytokines and the protective role of microglia in the rodent model of multiple sclerosis, experimental allergic encephalomyelitis, EAE.

Dr. Safa Shehab studies the reorganisation of the neuronal circuitry in the dorsal horn of the spinal cord after peripheral nerve injury. He is investigating the types of primary afferent fibres that are critical for development of neuropathic pain and identifying the ascending spinal projection pathways which are responsible for transmitting visceral pain to the brain.

He is also investigating the mechanisms of deep brain stimulation which is now used increasingly to treat patients with movement disorders and variety of neurological diseases.

Amine Bahi's main research activities are in the area of molecular and behavioral neuroscience. He studied the effects of glutamatergic and dopaminergic transmissions in different brain regions on psychiatric disorders in rodents. He is mainly interested in addiction, depression, anxiety and chronic psychosocial stress. He is currently investigating how genetic manipulations using viral vectors in the central nervous system are likely to be critical in behavioral consequences of these psychiatric illnesses. A second interest involves studying the role of central extracellular proteases (tissue plasminogen activator "tPA") in depression and anxiety. Recent results showed that tPA, is mainly expressed in emotion related brain regions indicating that tPA is highly involved in the regulation of mood disorders. Using shRNA-expressing lentiviral vectors, tPA-knock down in the hippocampus impaired both depression and anxiety-like behaviors in mice probably trough a BDNF mechanism. The overall suggestion is that tPA manipulation may provide an effective therapeutic intervention for mood disorders. In collaboration with the Department of Pharmacology, FMHS, he analyses the effects of pharmacological modulation of Histamine H3 receptor "H3R" on ethanol consumption and preference in mice. Together with his collaborators in Rutgers University (New Jersey, USA) they wish to determine whether site-specific knock-down of the receptors for the cytokines IL-1 and TNF using viral vectors, alters the learning effects of immunological challenge in rodents.

Starling Emerald Bright David's major interest is to understand how shuttle changes regulatory interactions leads to metabolic diseases such as type 2 diabetes mellitus, obesity, cardiovascular disease and hypertension. In fact UAE has the second highest prevalence of diabetes in the world (International Diabetes Federation, 2009). According to the International Diabetes Federation's report the number of people (20-70 yrs) with diabetes in UAE is ~ 425000, a staggering 18.7% of the population) and is on the rise and expected to reach 21.7% by 2030. Although an adverse early-life environment has been linked to an increased risk for the development of metabolic diseases such as type 2 diabetes mellitus, obesity and hypertension the molecular mechanisms underlying these altered disease susceptibility are largely unknown. To understand the possible molecular mechanisms behind the foetal origins of metabolic syndrome as well as to elucidate its relevance to humans we have carried out gene expression profiling, methylation profiling as well microRNA profiling studies. From these studies we have identified a number of novel targets (genes, microRNAs and promoter sequences) including some key regulators. We are currently carrying out detailed epigenetic analysis of some of these targets. We believe that a detailed analysis of these may improve our understanding of how shuttle changes in epigenetic regulation/s predisposes towards metabolic syndrome which in turn may help design better intervention strategies which is required if we need to stop the increasing trend of metabolic syndrome.

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Adeghate E, Adem A, Hasan MY, Tekes K, Kalasz H. (2011). Medicinal Chemistry and Actions of Dual and Pan PPAR Modulators. The Open Medicinal Chemistry Journal, 5 (Suppl 2);93-98.

Adeghate E, Hameed R. (2011). Mechanism of orexin B-stimulated insulin and glucagon release from the pancreas of normal and diabetic rats. Pancreas 40; 131-136.

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Howarth FC, Qureshi MA, Hassan Z, Al Kury LT, Isaev D, Parekh K, Yammahi SR, Oz M, Adrian TE, Adeghate E. (2011). Changing pattern of gene expression is associated with ventricular myocyte dysfunction and altered mechanisms of Ca2+ signalling in young type 2 Zucker diabetic fatty rat heart. Experimental Physiology, 96; 325-337

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Books, Chapters, Reviews and Editorials

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Jamal M, Chogle S, Goodis H, Karam SM. (2011). Dental stem cells and their potential role in regenerative medicine. Journal of Medical Sciences, 4;53-61.

Published Abstracts, Letters and Correspondence

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Adeghate E. (2011). Adiponectin modifies the pattern of distribution of pancreatic islet cells in an animal model of type 1 diabetes. Islet Society Meeting, Stockholm, Sweden, July 17-18, 2011

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Karam SM, Al-Marzooqi F, Branicki F. (2011). Role of epithelial progenitors in gastric carcinogenesis. The Joint Meeting of the Anatomical Societies, Bursa, Turkey.

Karam SM. (2011). Stem cell origin of gastric cancer. The 1st meeting of the Middle Eastern Association for Cancer Research, Tanta, Egypt.

Mensah-Brown EPK, Shahin A. Al Shamsi M, Lukic ML. (2011). Toll-like 2 receptor agonist, Pam3Cys-Ser-(Lys) 4-trihydrochloride (Pam3) enhances and promotes diabetes in MLD-STZ induced diabetes. American Diabetic Association, 71st Scientific Sessions, San Diego, CA, USA

Pulikkot S, Yaser Greish Y, Karam SM. (2011). Gastric stem cell growth and differentiation on a nanofibrous scaffold. The 3rd SEHA Research Conference, Abu Dhabi, UAE.

Shehab S. (2011). Fifth lumbar spinal nerve injury causes neurochemical changes in corresponding as well as adjacent spinal segments. A possible mechanism underlying neuropathic pain. The 8th IBRO World Conference, Florence, Italy.

RESEARCH GRANTS

FMHS Research Grants

Profs FC Howarth (PI), E Adeghate
Alterations in calcium signalling and cardiac muscle proteins underlie contractile dysfunction in Zucker diabetic fatty rat heart

Profs E Adeghate (PI), FC Howarth
Localization of apolipoprotein A-1 and its effect in the pancreas of a rodent model of type 2 diabetes.

Prof SM Karam [PI]
Analysis of mammary gland stem cells during breast carcinogenesis

Dr S Shehab [PI]
Which type of primary afferent neurons is responsible for neuropathic pain?

Dr BS Emerald [PI]
Analysis of regulatory role of PAS domain containing serine/ threonine kinase (Pask) in histone modification using RNAi technology.

Dr A Bahi [PI]
Involvement of brain metabo-

tropic glutamate receptor 7 (mGluR7) in alcohol physiology and behavior

UAEU Seed Grant

Dr BS Emerald
Studies on the role of metabolic sensor Pask in muscle stem cell differentiation and its regulation by histone modification.

UAEU Individual Grant

Profs FC Howarth (PI), K Yuill, E Adeghate
Electrical remodelling of the atrioventricular node in diabetes. [21M064] – 2011-2014

UAEU/NRF Research Competition 2011

Dr S Shehab [PI]
Neuropathic pain due to trauma and inflammation of the viscera

UAEU Interdisciplinary Grant

Profs FC Howarth (PI), E Adeghate
Effects of exercise training on heart function in the Goto-Kakizaki type 2 diabetic rat

Sheikh Hamdan Award for Medical Sciences

Profs FC Howarth (PI), E Adeghate
Remodelling of Ca2+ transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat.

Terry Fox Fund for Cancer Research

Prof SM Karam [PI]
Characterization of the early stages of mammary gland carcinogenesis

National Research Foundation Grant

Prof SM Karam [PI]
Nanofibrous Scaffolds for Stem Cell Transplantation.

Emirates Foundation Grant

Prof E Adeghate [PI]
Effect of embryonic pancreatic beta cell transplantation on the metabolic parameters of diabetic rats

Profs FC Howarth (PI), E Adeghate
Progressive changes in expression of genes encoding Ca2+ signalling proteins and remodelling of Ca2+ proteins underlies cardiac muscle dysfunction in type 2 diabetic heart.

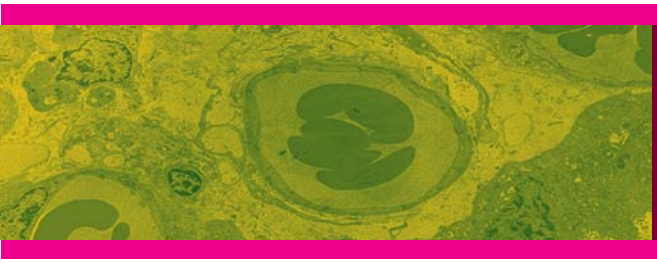
Prof SM Karam [PI]
Dental pulp regeneration potential of the stem cells of apical papilla.

2011

Anatomy

Standing left to right: ***Mr W Wanniarachi, Mr TV Basheer, Prof K M Bagnall, Mr S Singh, Prof E Mensah-Brown, Mr RS Hameed, Dr S Shehab, Prof S M Karam, Mr S Tariq***

Seated left to right: ***Ms Razan Al Khatib, Ms Afaf Rifaat, Ms Wafa Al Dhaheri, Ms Soni Lal, Prof E Adeghate, Dr. BS Emerald, Dr A Bahi, Ms Crystal D'Souza***



Department of Biochemistry

Research Profile

Professor & Chair:
Prof JM Conlon
Professor:
Prof H Raza
Prof S Galadari
Prof OMA El-Agnaf
Associate Professor:
Dr AH Al-Marzouqi
Dr M J Fernandez-Cabezudo
Assistant Professor:
Dr F Mustafa
Medical Research Specialist:
Dr M Patel
Ms M Mechkarska
Mr M Qureshi
Ms A John
Medical Research Technician:
Mr A Qader
Secretary
Ms M Hashem

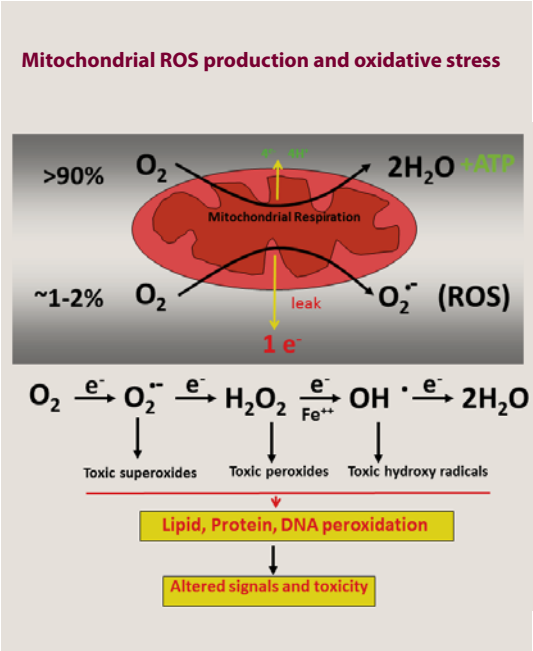
The diverse research interests of the Department of Biochemistry include investigation of the mechanisms of transcriptional regulation, the molecular basis of diseases induced by retroviruses, the relationship of signal transduction pathways to disease, the effects of environmental agents on immune response and mitochondrial function, neurodegenerative diseases particularly Parkinson's disease, and naturally occurring bioactive peptides.

The year 2011 saw the recruitment of Dr Farah Mustafa from COMSTATS Institute of Information Technology, Islamabad, Pakistan as Assistant Professor. Prof. Sehamuddin Galadari was appointed Vice-Provost for Research and Graduate Studies at UAEU and Dr Ahmed Al-Marzouqi assumed the duties of Assistant Dean for Research and Graduate Studies at FMHS. Prof. Omar El-Agnaf continued as Chair of the Neuroscience Research Priority Group.

Molecular toxicology and cellular oxidative stress (Prof. H. Raza)

My research is mainly focused on mitochondrial dysfunction in oxidative stress conditions caused by chemicals, drugs, diseases and toxicity. I am using in vivo and in vitro models in these studies. In addition, I am investigating the mechanisms of molecular/cellular defense against toxicity and/or diseases by studying the effects of known therapeutics, phytochemicals and dietary antioxidants on oxidative stress related complications.

Research Highlights.
In our recent studies, we have demonstrated that NSAIDs -induce oxidative stress and alter mitochondrial bioenergetics and glutathione dependent redox metabolism. Altered mitochondrial respiratory functions and glutathione-dependent redox homeostasis have been implicated in toxicities and diseases including cancer, diabetes, and cardiovascular disorders. Our recent studies using cancer cells and macrophages, when treated with experimental doses of NSAIDs, aspirin and acetaminophen, have shown that increased oxidative stress and mitochondrial dysfunction are the main causes of cellular toxicity and cell death (apoptosis/necrosis). We have identified molecular and metabolic targets of cytotoxicity in cancer and non-cancer cell lines.
In another collaborative study, we are investigating the mitochondrial functions, oxidative stress and drug metabolism in cardiac and other tissues from type 1 and type 2 diabetes using in vivo animal models. These studies have resulted in three publications in peer reviewed journals.



Molecular Basis of Pathogenesis (Dr. Farah Mustafa)
Overall, my research interest lies in the area of molecular basis of diseases induced by retroviruses. These single stranded RNA viruses are well-known pathogens that cause debilitating diseases such as immunodeficiency syndromes and a variety of cancers in both man and animals. My recent focus is on studying the viral etiology of human breast cancer. The mouse mammary tumor virus (MMTV) is a retrovirus that causes both breast cancer and leukemia in mice. However, it is being increasingly detected in human breast cancer patients. There is a lot of controversy as to whether this virus has any role to play in human cancer. My goal is to study systematically how this virus, if at all, may be involved in human breast and perhaps other cancers such as leukemia/lymphomas and eventually what role could it be playing in the induction of these human cancers. Additionally, I am interested in the mechanism of MMTV-induced tumors in the host, regulation of basic steps in MMTV replication and gene expression, and role of miRNAs in MMTV-host interactions. Finally, I am interested in how these processes could be modified by steroids and their antagonists as possible future therapeutics since MMTV is a hormone-inducible virus.

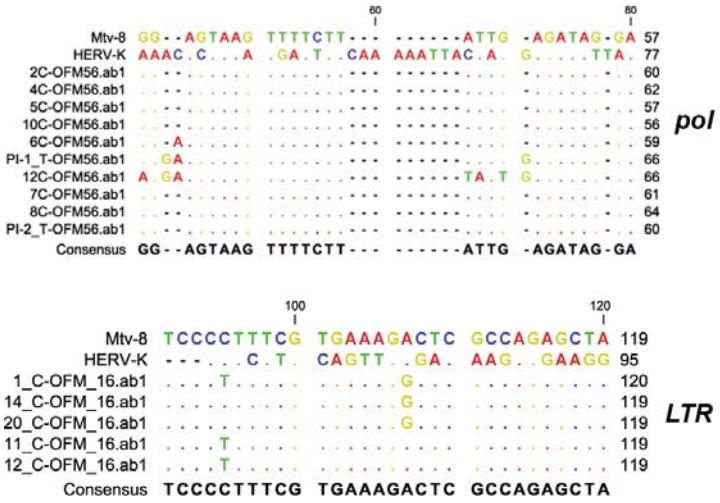
Research Highlights:
We have focused on three research goals:

• Preliminary Characterization of MMTV in Human Breast Carcinomas in Pakistan.
Our results have revealed that MMTV-like sequences can be found in human breast cancer patients. However, we can observe them in normal individuals as well, suggesting a general exposure of the population to this virus. These observations are being confirmed since normally MMTV-like sequences have only been observed in cancer patients. This study has resulted in an MS thesis in 2010.

• Molecular Characterization of HIV Strains Prevalent in Pakistan.
We characterized the genotype of HIV spreading in random HIV-infected individuals in Pakistan. Our study showed that the general HIV-infected individuals were predominantly harboring clade B of HIV-1, a particular virus strain that has not been reported in this region. This is an interesting finding since so far primarily clade A has been reported among intravenous drug users, a high risk group for HIV infection, while the general population has not been typed. These findings are being submitted for publication and have resulted in an MS thesis.

• Use of Bioinformatic Tools to Study Human Diseases and Complex Biological Phenomena.

We focused on using complex network analysis tools to study biological processes such as human consanguinity and congenital disorders, disease spread in the population using HIV/AIDS as an example, and RNA structure analysis. These studies have resulted in three MS theses (two as co-supervisor) and one publication.



Sequence comparison of MMTV-like fragments amplified out of human tissues compared to MMTV strain Mtv-8 and the endogenous human retrovirus HERV-K. Overall, these sequences revealed over 90% homology with MMTV, but less than 50% homology with HERV-K. Additionally, the various samples showed slight differences in their sequence between each other, ruling out any possible contamination with a laboratory strain of MMTV or otherwise.

Mechanisms of transcriptional regulation by chromatin-modifying complexes (Dr. A.H. Al-Marzouqi)

The research in my laboratory is focused on understanding the mechanisms of action of the protein complexes that regulate gene expression by modifying the structure of chromatin. In eukaryotes, the compaction of DNA into the nucleus inhibits the access of factors to DNA which leads to the repression of many important cellular processes required for maintenance and growth of the cell. To access the DNA and the genes, the nucleoprotein structure, called chromatin, which consists of DNA, histones, and non-histone proteins needs to be opened up or altered. This is accomplished as a result of DNA and histone modifications or by DNA binding proteins. Many studies in the past few years have described conserved protein complexes whose function is to modulate the access of transcription factors to regulatory regions of genes relieving chromatin-mediated repression. The action of these complexes that are able to overcome the repressive effects of chromatin is an important step in the regulation of eukaryotic gene expression.

Specifically, the overall goals of my research are to understand how certain proteins can regulate gene expression by modifying the structure of chromatin or interacting with its components. We are interested in how different types of chromatin modifying proteins work in turning genes on or off. This is an important question to be addressed since gene regulation can determine the amount of protein production required for important functions of all cells. This is also important since many subunits of these chromatin-modifying proteins in humans have been implicated in the initiation of various diseases. It is likely that errors in the function of these protein complexes can result in alterations in the life cycle of the cell that may lead to the development of cancer. Thus, we are also interested in studying how chromatin misregulation contributes to cancer development and could be helpful in finding potential cures for it in the future.

Research highlights

The three areas of research focus in my laboratory during 2011 were:

• Physical and functional interactions between the various chromatin-modifying complexes.

• Identification and characterization of novel ATP-dependent chromatin remodeling complexes.

• Investigating the *in vivo* functions of chromatin remodelers and their roles in gene silencing

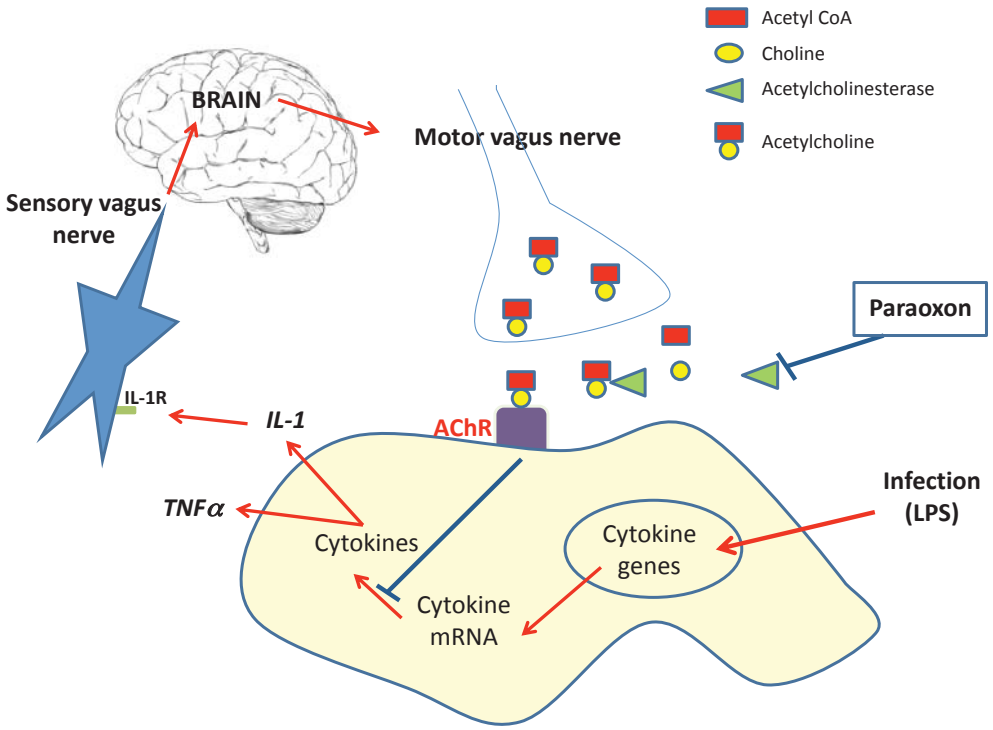
Neuro-modulation of the immune response (Dr. M.J. Fernandez-Cabezudo)

My main research interest is to investigate the mechanism by which organophosphorus compounds (OPCs) modulate the immune response. It has been well described that the toxic effects of the OPCs are due to inhibition of acetylcholinesterase (AChE) in the central and peripheral nervous systems, with a consequent increase in the levels of the neurotransmitter acetylcholine (ACh) which leads to cholinergic hyperstimulation. We have recently demonstrated that subchronic doses of paraoxon, the bioactive metabolite of the OPC parathion, prepared the

mice for a better immune response to infection. We are currently analyzing the functional link between the nervous and immune systems. Another area of interest, in which my laboratory is working, is the expression of different biomarkers in cancer cells. We are leading a project in which we are trying to correlate the expression of an intracellular protein (MCJ) in breast cancer cells with their resistance to chemotherapy.

Research Highlights

Our research had shown that the inhibition of the enzyme acetylcholinesterase (AChE), which leads to an accumulation of acetylcholine (ACh), enabled mice to mount a more effective inflammatory antimicrobial response. Immunologically, inhibition of AChE, can modulate the inflammatory response of splenic macrophages and enhance the antibody response to infection in these animals. Moreover, preliminary results suggest that AChE inhibition could also modulate macrophage inflammatory responses, both in infections as well as non-infections disease models.



Cholinergic anti-inflammatory pathway. Upon infection, macrophages produce pro-inflammatory cytokines that activate afferent signals to the brain by the sensory vagus nerve. Subsequent activation of the motor vagus nerve inhibits the synthesis of pro-inflammatory cytokines through the cholinergic anti-inflammatory pathway. By inhibiting the activity of the enzyme acetylcholinesterase (AChE) using paraoxon (an organophosphorous compound), and therefore increasing the concentration of acetylcholine (ACh), the pro-inflammatory response can be modulated.

Signal transduction pathways and disease (Prof. Sehamuddin Galadari)

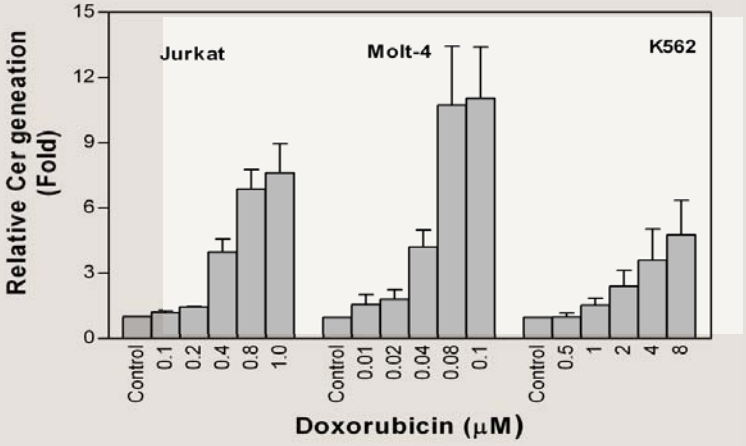
Biologically active sphingolipids have key roles in the regulation of several fundamental biological processes that are integral to cancer pathogenesis. Recent significant progress in understanding biologically active sphingolipid synthesis, specifically within ceramide, sphingosine and sphingosine-1-phosphate (S1P)-mediated pathways, has identified crucial roles for these molecules both in cancer development and progression. Ceramide and sphingosine - central molecules in sphingolipid metabolism- in effect function as a tumor-suppressor lipids inducing anti-proliferative, senescence, apoptotic and autophagic responses in various cancer cells. Conversely, S1P induces responses that, on aggregate, render S1P a tumor-promoting lipid. These discoveries are paving the way for the advancement of anticancer therapies. Ceramidases hydrolyses ceramide into sphingosine and fatty acid. After its generation sphingo-

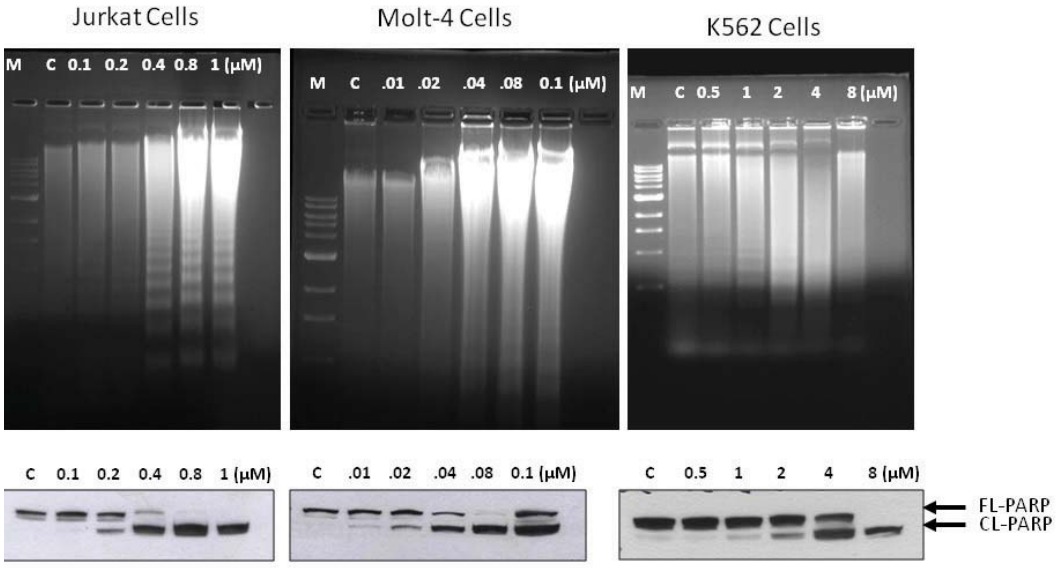
sine is phosphorylated to form S1P through the action of sphingosine kinase. Because the phosphorylation of sphingosine is the only pathway for the formation of S1P and cellular S1P is highly dependent on the availability of sphingosine generated by ceramidases, suggesting that ceramidases are critical in regulating not only the hydrolysis of ceramide but also the generation of both sphingosine and S1P in cells. Therefore, the action of ceramidase leads to an alteration in cellular ceramide, sphingosine, and S1P, thereby controlling cellular responses mediated by these bioactive lipids.

Ceramide mediates the regulation of growth arrest, senescence, and/or apoptosis. Some of these biological functions might be controlled through novel sphingolipid-protein interactions. Frequently, these targets of ceramide constitute protein phosphatases and kinases that regulate important signaling pathways in cancer, such as Akt, protein kinase C (PKC), MAP kinases, or phospholipase D.

Ceramide production in response to diverse stress stimuli.

Ceramide production is enhanced in response to environmental stress, ionic/ultraviolet radiation, heat, hypoxia, reperfusion, cytokines and growth factors, tumor necrosis factors, interferon-gamma, and interlekin-1-beta as well as chemotherapeutic agents, doxorubicin, adriamycin, tamoxifen, paclitaxel, 4-HRP and phytochemicals such as curcumin and capsaicin.



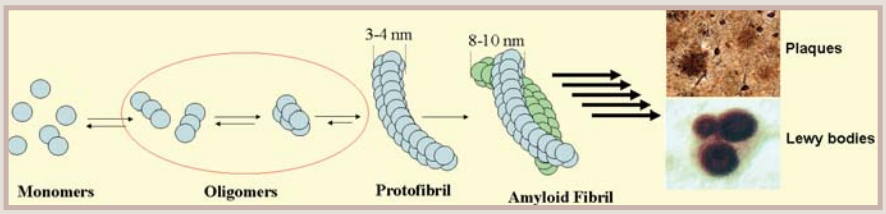


Doxorubicin induces ceramide generation and apoptosis in human leukemic cells. Jurkat, Molt-4 and K562 cells were treated with indicated concentrations of doxorubicin, (A) measurement of ceramide generation and (B) analysis of DNA fragmentation (top panel) and PARP cleavage (Bottom panel).

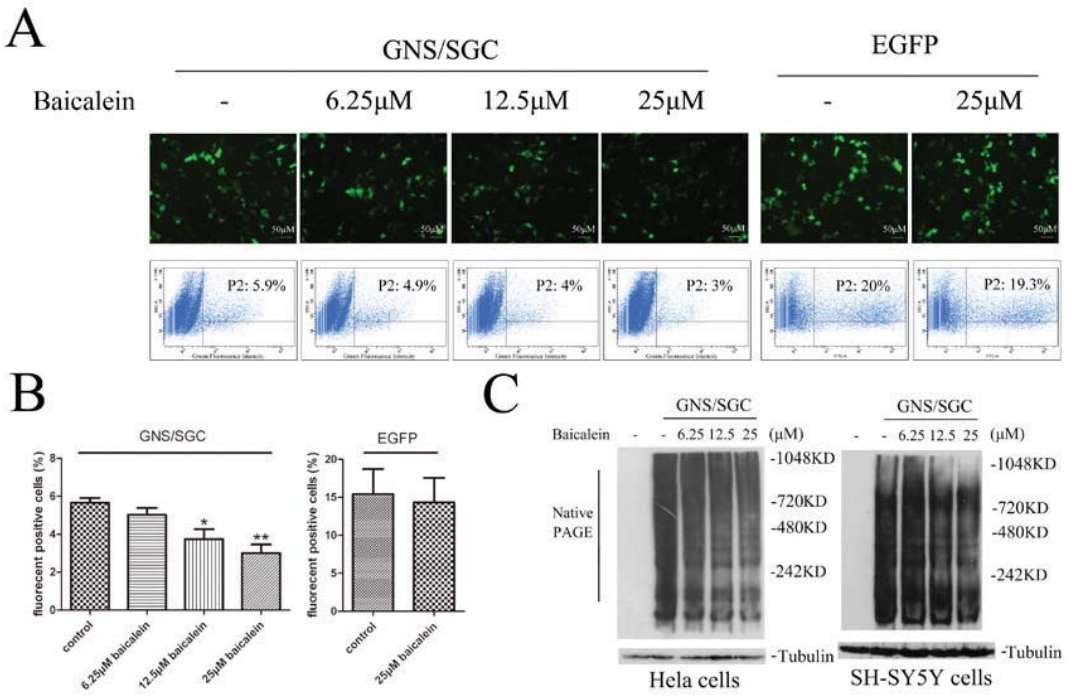
Our laboratory focuses on the following research area
1. Purification and biochemical characterization sphingolipid metabolizing enzymes such as neutral ceramidase isoformes from different species.
2. Investigation of phytochemicals and other natural products in cancer cell apoptosis.
3. Investigation of ceramide-mediated signal transduction in phytochemical-induced apoptosis and autophagy in human cancer cells.

Protein misfolding and neurodegenerative diseases (Prof. O.M.A. El-Agnaf)
Pathological studies in human neurodegenerative diseases such as Alzheimer's disease (AD), Parkinson's disease (PD), dementia with Lewy bodies (DLB), the prion dementias (e.g. mad cow disease and its equivalent, CJD, in humans), British dementia and Huntington's disease, have revealed abundant protein deposits ('amyloid') in the affected neurons. There is now substantial evidence from molecular genetics, transgenic animal and the biochemical studies to suggest that the conversion of these amyloid proteins from soluble monomers to aggregated, insoluble forms in the brain is a key event in the pathogenesis of these diseases.

Research highlights.
Abnormal protein aggregation in the brain is linked to the pathogenesis of neurodegenerative diseases, including Alzheimer's disease (AD) and Parkinson's disease (PD). Recent studies revealed that the oligomeric form of aggregates is most likely the toxic species, and thus could be a good therapeutic target. To screen for potent inhibitors that can inhibit both oligomerization and fibrillation of alpha-synuclein (α-syn), we systematically compared the anti-oligomeric and anti-fibrillar activities of eight compounds extracted from Chinese herbal medicines through three platforms that can monitor the formation of α-syn fibrils and oligomers in cell free or cellular systems. Our results revealed that baicalein, a flavonoid extracted from the Chinese herbal medicine Scutellaria baicalensis Georgi (Huang qin in Chinese), is a potent inhibitor of α-syn oligomerization both in cell free and cellular systems, and is also a effective inhibitor of α-syn fibrillation in cell free systems. We further tested the protective effect of baicalein against α-syn oligomers-induced toxicity in neuronal cells. Our data showed that baicalein inhibited the formation of α-syn oligomers in SH-SY5Y and Hela cells, and protected SH-SY5Y cells from α-syn oligomers-induced toxicity. We also explored the effect of baicalein on amyloid-beta peptide (Aβ) aggregation and toxicity.
We found that baicalein can also inhibit Aβ fibrillation and oligomerization, disaggregate pre-formed Aβ amyloid fibrils and prevent Aβ fibril-induced toxicity in PC12 cells. Our study indicates that baicalein is a good inhibitor of amyloid protein aggregation and toxicity. Given the role of these processes in neurodegenerative diseases such as AD and PD, our results suggest that baicalein has potential as a therapeutic agent in the treatment of these devastating disorders.



Current research efforts in the laboratory cover the following topics: (1) Elucidating the mechanism of protein aggregation and deposition and their potential link to neurodegeneration and cell loss; (2) Developing novel techniques for detecting amyloid aggregates, particularly in their early stages; (3) Designing peptides and small molecule inhibitors of α-synuclein and β-amyloid aggregation and toxicity as potential novel therapeutics for Parkinson's disease and Alzheimer's disease respectively; (4) Discovering novel biological markers for Alzheimer's and Parkinson's disease; (5) Developing novel MRI- and PET-imaging compounds for Parkinson's disease.



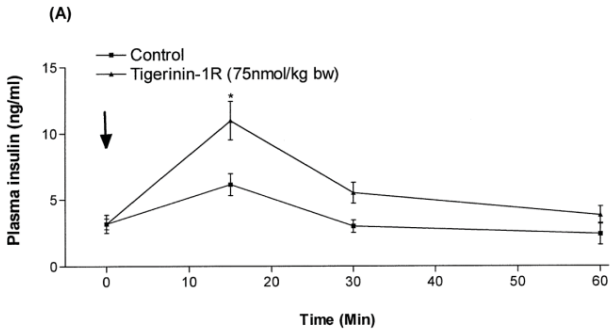
*Baicalein inhibits α-syn oligomerization in living cells. Hela cells were transfected with GNS+SGC or EGPF plasmids then followed by baicalein treatment for 48 hours. Baicalein dose-dependently inhibited co-expression of GNS+SGC-caused fluorescence signals, but did not affect fluorescence signals caused by EGFP expression alone (A, B). Hela cells and SH-SY5Y cells were transfected with GNS+SGC then treated with different concentration of baicalein for 48 hours. Cell lysate was electrophoresed on Native PAGE Novex 4–16% Bis-Tris gel or SDS PAGE gel and probed with anti-α-syn and anti-tubulin antibodies, respectively (C). P2 population in flow cytometry graphs indicates cells containing fluorescent α-syn oligomers. Results from the flow cytometry data are presented as means ±S.E. of at least three independent experiments. *P<0.05, **P<0.01 versus the control group by one-way ANOVA for multiple comparison and Dunnett's test as post hoc test.*

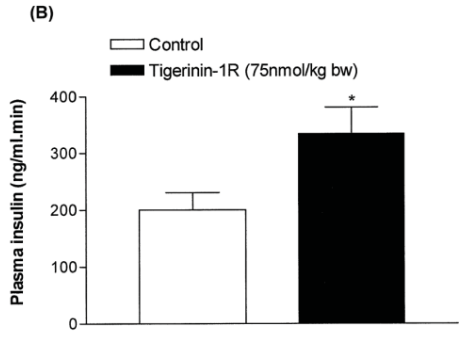
Peptides with therapeutic potential from frog skin (Prof. J.M. Conlon)

The skins of certain species of frogs represent an important source of biological active peptides that have the potential for development in therapeutically valuable pharmaceutical agents. These include bactericidal and fungicidal peptides as anti-infectives, peptides with potent cytotoxic activity against tumor cells as anti-cancer agents, and peptides with *in vitro* and *in vivo* insulin-releasing activities as therapy for patients with Type 2 diabetes:

Research highlights:

Peptides in an extract of the skin Vietnamese common lowland frog Hoplobatrachus rugulosus were purified by reversed-phase HPLC and their abilities to stimulate the release of insulin and the cytosolic enzyme lactate dehydrogenase were determined using rat BRIN-BD11 clonal beta-cells. A cyclic dodecapeptide (RVCSAIPLPICH.NH2), termed tigerinin-1R, was isolated from the extract that lacked cytotoxic and hemolytic activity but significantly ($P < 0.01$) stimulated the rate of release of insulin from BRIN-BD11 cells at concentrations ≥ 0.1 nM. The maximum response was 405% of the basal rate at 5.6 mM ambient glucose concentration and 290 % of basal rate at 16.7 mM glucose. C-terminal α-amidation was necessary for high potency and a possible mechanism of action of the peptide involved membrane depolarization and an increase in intracellular Ca^{2+} concentration. Administration of tigerinin-1R (75 nmol/kg body weight) to mice fed a high fat diet to induce obesity and insulin-resistance significantly ($P < 0.05$) enhanced insulin release and improved glucose tolerance during the 60 min period following an intraperitoneal glucose load. It is concluded that tigerinin-1R is a potent, non-toxic peptide that stimulates insulin release in vitro and improve glucose tolerance in vivo and so shows potential for development into an agent for the treatment of Type 2 diabetes.





*Effect of tigerinin-1R from the Vietnamese common lowland frog Hoplobatrachus rugulosus on plasma insulin concentrations in high fat-fed mice with dietary-induced obesity and insulin resistance. Glucose (18 mmol/kg body weight) was administered by intraperitoneal injection at the time indicated by the arrow, either alone (control) or in combination with tigerinin-1R (75 nmol/kg body weight). (A) Plasma insulin concentrations and (B) the integrated response (area under the curve, AUC) are shown. Values are mean ± SEM for six independent experiments. *P<0.05 compared to control.*

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RESEARCH GRANTS

FMHS New Research Grants

Prof JM Conlon [PI]
Structure-activity studies of the potent, non-toxic insulin-releasing peptide, tigerinin-1R

Dr MJ Fernandez-Cabezudo [PI]
Effect of acetylcholinesterase inhibition on intestinal macrophages.

Prof S Galadari [PI]
Functional modulation of ATP sensitive potassium channels by sphingolipids.

Dr F Mustafa [PI]
Preliminary Characterization of MMTV Integration Sites in the Human Genome (Seed Grant)

Prof H Raza [PI]
Molecular Mechanism of drug resistance/sensitivity in human hepatoma HepG2 cells and macrophages treated with acetaminophen.

UAE University Research Grants

Prof JM Conlon [PI]
Discovery and development of peptide-based therapeutic agents for the treatment of patients with Type 2 diabetes mellitus.

Prof OMA El-Agnaf [PI]
Developing a new therapeutic strategy for Parkinson's disease and related disorders.

Dr MJ Fernandez-Cabezudo [CI]
Inactivation of myeloid-derived suppressor cells as a novel target for enhancing. cancer immunotherapy

Terry Fox Fund for Cancer Research Grants

Dr AH Al-Marzouqi [PI]
Investigating the mechanisms of action of the Snf2-homolog protein Fun30 (continuation).

Prof JM Conlon [PI]
Transformation of the naturally occurring frog skin peptides ascaphin-8 and XT-7 into potent, non-toxic anti-cancer agents

Prof S Galadari [PI]
Characterization of curcumin signal transduction and apoptosis as possible target for chemotherapy (continuation).

Dr MJ Fernandez-Cabezudo [PI]
Novel resistance biomarkers in human breast cancer (continuation).

Prof H Raza [PI]
Alterations in mitochondrial bioenergetics and glutathione metabolism by NSAIDs (non-steroidal anti-inflammatory drugs): implications in cancer prevention and treatment.

Emirates Foundation Grants

Dr AH Al-Marzouqi [PI]
The Cooperation and/or Competition between the ATP-dependant Chromatin-Remodeling Protein SWI/SNF and the Histone Acetyltransferase SAGA in Binding to Nucleosomes (continuation)

Prof S Galadari [PI]
Purification and characterization of a novel more hydrophobic isoform of N-acylsphoingosine amidohydrolase (continuation)

Michael J. Fox Foundation for Parkinson's Research, USA Grants

Prof OMA El-Agnaf [PI]
Validation of alpha-synuclein oligomers as biomarker for Parkinson's disease.

Prof OMA El-Agnaf [PI] (with Parnetti L).
Validation of lysosomal enzymes assay in CSF.

Prof OMA El-Agnaf [PI]
Testing novel compounds for non-invasive delivery of small interfering RNA into CNS.

Lundbeck Foundation, Denmark.

Prof OMA El-Agnaf [PI] (with Li J-Y and Hansen C).
Can we block aggregation and intercellular propagation of alpha-synuclein to prevent pathological progression of Parkinson's disease ?

European Union Collaborative Project.

Prof OMA El-Agnaf [PI]
European Project on Mendelian Forms of Parkinson's Disease. (Continuation)

Dubai Harvard Foundation for Medical Research, Dubai, UAE

Dr AH Al-Marzouqi [PI]
Biochemical characterization and functional analysis of chromatin- remodeling proteins in gene activation and silencing (continuation).

International Center for Genetic Engineering and Biotechnology (ICGEB)

Dr AH Al-Marzouqi [PI]
Studying chromatin-modifying proteins in transcription regulation (continuation).

Sheikh Hamdan Award for Medical Sciences

Prof S Galadari [PI]
Investigation of signaling mechanisms of tumor suppressive sphingolipids

2011

Biochemistry

Standing left to right:
M. Qureshi, S. Galadari, A. Qader, H. Raza, Omar El-Agnaf, AH Al-Marzouqi, M. Patel
Seated left to right:
MJ Fernandez-Cabezudo, M. Hashem, F. Mustafa, JM Conlon, A. John, M. Panteva

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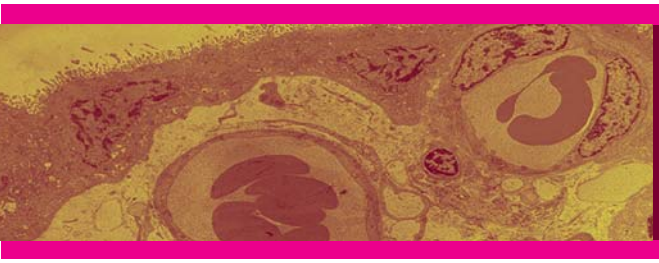

Department of Community Medicine

Research Profile

Professor & Chair
Prof TC Aw
Professor
Prof N Nagelkerke
Associate Professor
Dr F Al-Maskari
Dr I Blair
Dr M Grivna
Dr S Shah
Dr M Sheek-Hussein
Assistant Professor
Dr R Ali*
Dr D Handysides**
Dr T Loney***
Dr J Schneider
Medical Research Specialist
Ms R Kurdi
Academic Assistant
Dr M El Sadig
Medical Secretary
Ms A Kaljee
*Administrative Assistant******
Mr. Hisham Hassan
Office Assistant:
Mr M Jamal

* Joined on 27 March 2011
** Joined on 29 Dec 2011
*** Joined on 2 July 2011
**** Joined on 1 December 2011

In 2011, the department of Community Medicine continued to build on our good track record in research, and on developing global links with international academic colleagues. Research successes of the department included receipt of a number of large project grants following competitive bids, securing continuation of research funding from grant-awarding bodies, and an increase in the number of publications by our staff.

Our staff numbers have expanded with the hire of three new assistant professors from the UK, USA and the UAE.
The arrival of Drs Raghib Ali, Tom Loney and Daniel Handysides will strengthen our research efforts in global health, occupational and environmental health and health promotion and prevention. Dr Iain Blair was confirmed as director of our global health institute (now the Zayed Center for Health Sciences), and several activities are already being planned for 2012 in regards to global health.

Dr John Schneider worked closely with the Health Authority of Abu Dhabi (HAAD) on translating research findings from his research on exposure to heat, into practical guidance for the workforce of the UAE. Guidance leaflets on dealing with exposure to heat especially in the summer months (coinciding with Ramadan in 2011 and also in 2012) was launched by HAAD at several road shows and campaigns for UAE workers and employers.

Dr Michael Grivna helped Dubai Health Authority (DHA) in preparing an Injury prevention network. His research projects on injuries received best oral presentation award and best poster award at two international conferences on trauma. The occupational medicine textbook "Hunter's Diseases of Occupations, 10th edition", co-edited by Professor Aw and his colleagues was

The 2nd Conferment ceremony for new members of the Faculty of Occupational Medicine, Royal College of Physicians (Ireland), Al-Ain, May 2011

awarded First prize by the British Medical Association in their 2011 round of the Books on Medicine category (Patient Information Awards, 2011).

The department, and in particular Professor Nico Nagelkerke, continues to receive requests from colleagues within the Faculty of Medicine and external organisations e.g. hospitals, health authorities, and other agencies for statistical support and advice. There was a substantial increase in the number of in-house and external courses on statistics and epidemiology delivered by our staff in 2011. This is especially with the launch of several masters and doctoral level degrees by other Faculty departments requiring modules on research methods, critical appraisal, and biostatistics. Demand for training in occupational medicine has also accelerated following the designation of FMHS as an overseas exam centre for the Faculty of Occupational Medicine, Royal College of Physicians of Ireland (FOM). We conducted several courses on aspects of occupational health during the year. This attracted participants from the region (UAE, Oman, Qatar, Saudi Arabia) and beyond (Pakistan, Nigeria, Australia). The 2nd conferment ceremony of the FOM in the UAE was held in Al-Ain in May, 2011 for new licentiates, members, and fellows (see photos above).

Our epidemiologists (Drs Syed Shah, Fatma Al-Maskari, Mohamud Sheek-Hussein) worked on several existing and new grants for diabetes, cardio-vascular diseases, infections, and other chronic diseases. Dr Shah supervised a visiting Fulbright scholar (Matthew Skerritt) from the US. The department also hosted a Masters student (Lilian Ilesanmi-Oyelere) from the University of Canterbury, New Zealand.

International links were strengthened following the signing of an MOU (Memorandum of understanding) with the National University of Malaysia. This adds to previous MOUs signed with the University of Malaya, the FOM (Ireland), and locally with health authorities (Abu Dhabi and Dubai) and health care providers (SEHA). The international MOUs have led to an exchange of staff and students, participation as external examiners, and delivery of training. Following the MOUs, we placed several of our medical students for elective postings in Dublin and in Kuala Lumpur.

An exciting new initiative in 2011 followed the visit of Dr Peter Landless, Executive Director of the International Commission for the Prevention of Smoking and drug dependency (ICPA), to our department. Dr Landless and ICPA agreed to sponsor a health promotion project in our department. This led to the arrival of Dr Daniel Handysides from Loma Linda University to conduct research and develop programs for smoking cessation.

There were several distinguished visitors to our department last year. They delivered presentations on topics of recent research interest ranging from public health practice to occupational medicine. The visitors included:
a) Dr Ali Hasan Al Marzooqi, Dubai Health Authority
b) Dr Alex Finlayson, Oxford University
c) Professor David Whitworth, RCSI-Medical University of Bahrain
d) Professor David Sheehan, University of South Florida
e) Dr Jennifer Lim, University of Leeds
f) Professor Markku Sainio, Finnish Institute of Occupational Health
g) Dr Mohammad Al Redha, Dubai Health Authority
h) a team from the Children's National Medical Center, Washington DC, and students from Harvard and the American University in Dubai

Guest speakers at Community Medicine research seminars.

An encouraging trend in regards to Community Medicine postings for our FMHS medical students is their keenness to develop and present research protocols to their colleagues and to the faculty. Producing a sound research protocol is an important component of their 'senior clerkship' and there is usually a healthy debate and robust defence of their proposals at the end of their time with our department.

The research efforts of our department would have been difficult without the help of our research officers and administrative staff. They are an integral part of our research teams, and provide help especially with logistical and procedural aspects of research projects. Their key contributions are assistance with ethical clearance, translation of questionnaires into Arabic, recruitment and training of field investigators, and facilitating links with government departments. The department of Community Medicine acknowledges their support and the valuable output from the collaborative efforts with our academic staff in regards to research.

Senior students and staff at Community Medicine Senior Clerkship Project Presentations

Research Profile

Prof Tar-Ching Aw: US-Board certified in occupational medicine. He has a special interest in occupational toxicology, occupational risks to health-care workers, and training and education. Professor Aw is a member of the International Advisory board for several journals, including 'Occupational Medicine (Oxford Journals)', and 'Safety and Health at Work'. He is also a member of the UK Health and Safety Executive's working group on action to control chemicals (WATCH).

Prof Nico Nagelkerke: Senior Biostatistician with a special interest in statistical methodology and infectious disease modeling. Prof Nagelkerke has provided input in biostatistics to several projects which resulted in peer reviewed publications during 2011.

Dr Fatma Al-Maskari: Public health physician and epidemiologist with an interest in non-communicable chronic diseases epidemiology and prevention, lifestyle and health and evidence-based medicine. Dr Al-Maskari is one of the investigators collaborating with the Gillings School of Public Health at the University of North Carolina, Chapel Hill (UNC) and the Environment Agency of UAE in developing a National Strategy for Environment & Health in the UAE.

Dr Iain Blair: Public health consultant with a background in UK health protection. He has published articles on the surveillance and control of infectious diseases and has co-authored a textbook on health protection and several book chapters. His current research projects include a

qualitative study of the effect of chronic illness on Emirati families.

Dr Michal Grivna: Public health specialist physician with a special interest in child injury control, school and community safety, bicycle-related and playground injuries and more recently school traffic safety, trauma registration and HIV/AIDS prevention in the UAE. He is a founding member of the European Child Safety Alliance and the Centre for Childhood Injury Epidemiology and Prevention in the Czech Republic. Dr Grivna is a leading figure in the promotion and implementation of "WHO - Safe Community Programs".

Dr Syed Shah: Chronic Disease Epidemiologist with research interests in epidemiology of cardiovascular disease, work-related injuries and mental health. His recent international research project is on cardio-vascular risk factors in children in Pakistan, Malaysia, and the UAE.

Dr Mohamud Sheek-Hussein: Public health physician and epidemiologist with an interest in infectious diseases and public health services. Dr Sheek-Hussein is previously from the Preventive Medicine Department of the UAE Ministry of Health and lately of the Health Authority of Abu Dhabi (HAAD).

Dr Raghib Ali: Clinical epidemiologist with research interests in the epidemiology of non-communicable diseases (particularly cancer), clinical trials, and global health.

Dr Daniel Handysides: is a health educator trained at Loma Linda University, specializing in behavior change and risk perceptions. He has a strong background in program development and evaluation. His research interests surround high risk behaviors and the perceptions individuals hold towards health. Currently he is working in partnership with UAEU and the International Commission for the Prevention of Alcoholism and Drug Dependancy (ICPA) on smoking issues within UAE.

Dr Tom Loney: Occupational and environmental health scientist with a special interest in human performance optimization of personnel employed in challenging environments, exercise prescription for public health, and measurement issues related to human physiological monitoring.

Dr John Schneider: Occupational health physician. His main research interests are occupational rehabilitation, organization and planning of occupational health services in rural and remote work sites, work in hot environments, and impairment assessment at the workplace.

Ms Rana Kurdi: Research Specialist in basic science and public health research with a Masters degree in Public Health, Epidemiology and Biostatistics.

Dr Mohamed El-Sadig: Epidemiologist and health economist, with special interest in traffic safety and non-communicable diseases. He was a Research Director of the UAE Indoor Air, Health & Nutrition Study conducted by our department and the University of North Carolina.

Articles in Peer-reviewed Journals

Abbas AK, Hefny AF, Eid HO, Grivna M, Abu-Zidan FM. (2011). Effects of seatbelt usage on injury pattern and outcome of vehicle occupants after road traffic collisions: A prospective study. World Journal of Surgery. Published online: 21 December 2011.

Abdulrazzaq YM, Nagelkerke N, Moussa MA. (2011). UAE population reference standard charts for body mass index and skinfold thickness, at ages 0-18 years. Int J Food Sci Nutr.;62(7);692-702.

Al Haj M, Kazzam E, Nagelkerke NJ, Nyberg F, Nicholls MG, Adem A. (2011). Effect of dehydration in the presence and absence of the angiotensin receptor blocker Losartan on blood constituents in the camel. JMS;4;73-78.

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Al Nuaimi NS, Al-Ghas YS, Al Owais AH, Grivna M, Schneider J, Nagelkerke NJ, Bernsen RM. (2011). Human papillomavirus vaccination uptake and factors related to uptake in a traditional desert city in the United Arab Emirates. Int J STD AIDS,22(7);400-404.

Al Zaabi A, Asad F, Abdou J, Al Musaabi H, Al Saiari MB, Buhussien AS, Nagelkerke N, Soriano JB. (2011). Prevalence of COPD in Abu Dhabi, United Arab Emirates. Respir Med,105(4);566-570.

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Aw TC, Sharif A. (2011). Angst over University rankings. JUMMEC,14(1);1-5.

Aw TC, Zoubeidi T, Al-Maskari F, Blair I. (2011). Challenges and strategies for quantitative and qualitative field research in the United Arab Emirates. Asian Pac J Cancer Prev,12(6);1641-1645.

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Black TR, Shah SM, Busch AJ, Metcalfe J, Lim HJ. (2011). Effect of transfer, lifting and repositioning (TLR) injury prevention program on musculoskeletal injury among direct care workers. J Occup Environ Hyg,8(4);226-35.

Denic S, Souid AK, Nagelkerke N, Showqi S, Balhaj G. (2011). Erythrocyte reference values in Emirati people with and without α+ thalassemia. BMC Blood Disord,Feb 24 (on-line);11:1.

Gaffey MF, Venkatesh S, Dhingra N, Khera A, Kumar R, Arora P, Nagelkerke N, Jha P. (2011). Male use of female sex work in India: a nationally representative behavioural survey. PLoS One,6(7);e22704.

Grivna M, Barss P, Stanculescu C, Eid H, Abu-Zidan FM. (2011). Home and other nontraffic injuries among children and youth in a high-income Middle Eastern country: A trauma registry study. Asia-Pacific J Public Health. Published online: 23 December 2011.

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Holmes N, Miller VS, Schneider JD, Hasan O, Bates GP. (2011). Plasma Sodium Levels and Dietary Sodium Intake in Manual Workers in the Middle East, Annals Occ Hyg,55(4):397-402.

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Sharif AA, Blair I. (2011). The role of the hospital in the changing landscape of UAE health care: a focus on Dubai. World Hospitals and Health Services;47(3):13-15.

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Van den Wijngaard CC, Dijkstra F, van Pelt W, van Asten L, Kretzschmar M, Schimmer B, Nagelkerke NJ, Vellema P, Donker GA, Koopmans MP. (2011). In search of hidden Q-fever outbreaks: linking syndromic hospital clusters to infected goat farms. Epidemiol Infect,139(1);19-26.

Van den Wijngaard CC, van Pelt W, Nagelkerke NJ, Kretzschmar M, Koopmans MP. (2011). Evaluation of syndromic surveillance in the Netherlands: its added value and recommendations for implementation. Euro Surveill,16(9). pii: 19806.

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Aw TC, Aw LLF, Harrington JMH. (2011). Hepatic and gastrointestinal disorders. In Koh D, Takahashi K (eds.) Occupational medicine practice 3rd ed. Singapore, World Scientific Publishing.Co.

Aw TC, Schneider J. (2011). Occupational exposure to extremes of temperature. Unit 6.5 Course chapter for RCP (Ireland). Distance learning course 2011.

Blair I, Aw TC. (2011). Occupational infections. In Koh D, Takahashi K (eds.) Occupational medicine practice 3rd ed. Singapore, World Scientific Publishing.Co.

Schneider JD, Blair I, Sheek-Hussein M, Nagelkerke N, Shaban S. (2011). A Pilot Survey of Expatriate Working Conditions in Al Ain, UAE. Report Prepared for the Health Authority of Abu Dhabi.

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Aw TC. (2011). Asian criteria for occupational diseases. Journal of Community Health 2011;17(1):4.

Loney T, Micallef-Stafrace K, Carter J, Al Shehhi M. (2011). Advice after injury is like medicine after death! A multi-pronged approach to injury prevention in adolescents. German Medical Science October 24.

Micallef-Stafrace K, Loney T, Al Shehhi M, Carter J. (2011). Prevention of lower limb injuries in the military. German Medical Science October 24.

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Abu-Zidan FM, Abbas AK, Hefny AF, Hani OE, Grivna M. (2011). Effects of seatbelt usage on injury pattern and outcome of vehicle occupants after road traffic collisions: A prospective study. Proceedings of the Third Annual Seha Research Conference 2011, Abu Dhabi.

Al Baadani L, Al Mansouri F, Shah SM, Mirza D. (2011). Diabetes knowledge and its relation to the glycaemic control in Type 2 Diabetic patients in the primary health care centers in Al-Ain, UAE.

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Al Mehairi A, Khouri AA, Al Naqbi M, Al Muhairi S, Shah S, Al Maskari F, Nagelkerke N. (2011). The Prevalence of Metabolic Syndrome among Adolescents and its' Associated Risk Factors in the United Arab Emirates. The IDF World Diabetes Congress, Dubai, United Arab Emirates, December 4-8, 2011.

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Al Mehairi A, Khouri AA, Al Naqbi M, Al Muhairi S, Shah S, Al Maskari F, Nagelkerke N. (2011). The Prevalence of Metabolic Syndrome among Adolescents and its' Associated Risk Factors in Al Ain District, United Arab Emirates. The Biomedical Science Research Day, May, 2011.

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Ali R, Barnes I, Beral V. Childhood Cancer Incidence in British Indians in Leicester 1996–2008. The 2nd Annual UKACR/NCIN Conference, London, U.K., June 15-17, 2011.

Ali R, Barnes I, Beral V. Cancer Incidence in British Indian & British White Adolescents and Young Adults in Leicester: 1998 – 2007. (2011). The 2nd annual UKACR/NCIN conference, London, U.K., June 15-17, 2011.

Ali R. (2011). Building the required capacity for clinical trials in the MENA region IPQC. Invited presentation at the Clinical Trial Partnerships Middle East conference, Dubai, UAE, November 30, 2011.

Ali R. (2011). Enhancing Oncology Research in India. American Society of Tropical Medicine and Hygiene Annual Meeting, Philadelphia, USA, December 7, 2011.

Ali R. (2011). Establishing a Clinical Research Network across the MENA Region. Invited presentation at the MENA Oncology Conference, Cairo, Egypt, May 24, 2011.

Aw TC. (2011). Approaches to occupational toxicology. Invited presentation at SIPOH Occupational medicine symposium, Paramaribo, Suriname, Jan 24, 2011.

Aw TC. (2011). Diagnostic criteria for occupational diseases. Invited presentation at the 20th Asian Conference on Occupational health, Bangkok, Thailand, March 9-11, 2011.

Aw TC. (2011). Impact of H1N1 on air travel. Invited presentation at the 2011 Aviation Medicine course, Emirates Headquarters, Dubai, March 3, 2011.

Aw TC. (2011). Occupational health concerns of laboratory and healthcare workers. Invited presentation at the 4th Gulf Occupational Health Conference, Kuwait, April 5-6, 2011.

Aw TC. (2011). Occupational health needs of a developing country. Invited presentation at the 2011 Society of Occupational Medicine Annual Scientific Meeting, Belfast, UK, June14-16, 2011.

Aw TC. (2011). Occupational injuries surveillance. Invited presentation at the 2nd International Conference on Trauma management, Critical care and Prevention, Al-Ain, UAE, Feb 21-24, 2011.

Aw TC. (2011). Practical considerations for developing Asian criteria for occupational diseases. Invited presentation at the 18th National Public Health Colloquium, Kuala Lumpur, Malaysia, September 27-28, 2011.

Aw TC. (2011). Provisions for occupational medicine in developing countries. Invited keynote address at ANZSOM Annual Scientific Meeting 2011, Wellington, New Zealand, September 1-4, 2011.

Aw TC. (2011). Qualitative research in occupational health. Invited presentation at 3rd ENOC International Occupational Health Conference, 2011, Dubai, UAE, Nov 13-14, 2011.

Aw TC. (2011). Progress in research on delays in breast cancer presentation. Presented at the 2nd UK-SEA-ME Psychological research in Breast Cancer meeting of the WUN (Worldwide Universities Network) Breast Cancer Project. University of Malaya, Kuala Lumpur, Malaysia, Dec 1, 2011

Eid H, Hefny AF, Grivna M, Abu-Zidan FM. (2011). Bicycle-related injuries requiring hospitalization in the UAE. Book of abstracts from 2nd International Conference – Trauma management, critical care and prevention. 21-24.2.2011, Al Ain, UAE:79.

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Grivna M, Subait O, Al Kuwaiti A, Al Kuwaiti M, Al Rahoomi A, Barss P. (2011). Epidemiology and prevention of child falls in the UAE: An emergency department interview survey. Book of abstracts from Safe Community Conference 2011. 6-9.9.2011, Falun, Sweden:52.

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prevention. 21-24.2.2011, Al Ain, UAE:52.

Hani E, Shaban S, Lunsjo K, Barss P, Torab F, Grivna M, El-Ashaal Y, Branicki F, Abu-Zidan F. (2011). Trauma patterns in United Arab Emirates: Data from hospital-based trauma registry. Proceedings of the Third Annual Seha Research Conference 2011, Abu Dhabi, 14-15.

Hefny AF, Abbas AK, Eid HO, Grivna M, Abu-Zidan FM. (2011). Effects of seatbelt usage on injury pattern and outcomes in vehicle occupants after road traffic collisions. Book of abstracts from 2nd International Conference – Trauma management, critical care and prevention. 21-24.2.2011, Al Ain, UAE:81.

Hefny A, Eid HO, Grivna M, Abu-Zidan F. (2011). Bicycle-related injuries of hospitalized patients in a high-income developing country. The 12th European Congress of Trauma and Emergency Surgery. Milan, Italy, 27-30 April 2011.

Hefny AF, Eid H, Grivna M, Abu-Zidan FM. (2011). Bicycle-related injuries requiring hospitalization in the UAE. Book of abstracts from Safe Community Conference 2011. 6-9.9.2011, Falun, Sweden.

Hefny AF, Grivna M, Abbas AK, Branicki FJ, Abu-Zidan FM. (2011). Pediatric trauma research in the Gulf cooperation council countries. Book of abstracts from Safe Community Conference 2011. 6-9.9.2011, Falun, Sweden.

Hefny AF, Grivna M, Abbas AK, Branicki FJ, Abu-Zidan FM. (2011). Pediatric trauma research in the Gulf cooperation council countries. Book of abstracts from 2nd International Conference – Trauma management, critical care and prevention. 21-24.2.2011, Al Ain, UAE.

Hoffman R, Shah SM. (2011). Diabetes Prevalence in High Mountain Villages of Pakistan; Role of Obesity? International Symposium: Epidemiology of Diabetes, Sharjah, UAE, December 2-3, 2011.

Loney T. (2011). Managing risks from sedentary work. Invited contribution at the Institution of Occupational Safety and Health Annual UAE Conference, Dubai, United Arab Emirates, December 15, 2011.

Loney T. (2011). Physiological assessment in occupational health. Invited contribution at the 3rd Emirates National Oil Company International Occupational Health Conference, Dubai, United Arab Emirates, November 13-14, 2011.

Marzouqi LM, Al-Kaabi J, Agarwal M, Shah SM. (2011). Prevalence of diabetes in native Emirati adults. International Symposium: Epidemiology of Diabetes, Sharjah, UAE, December 2-3, 2011.

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Shah SM, Al Mehairi A, Khouri AA, Al Naqbi M, Al Myhairi S, Al Maskari F. (2011). Role of overweight and obesity in metabolic syndrome in youth: a population-based study. The 12th Symposium of the International Diabetes Epidemiology Group, Official Satellite to the World Diabetes Congress, University of Sharjah, United Arab Emirates, 2-4 December 2011.

Shah SM, Al-Housqani M, Lawson J, Dosman J. (2011). Prevalence of symptoms and risk of sleep apnea in a South Asian rural population. 10th Conference of the Canadian Rural Health Research Society, British Columbia, Canada 2011, October 20-22.

Shah SM, Mehairi AA, Khouri AA, Naqbi M Muhairi S Al-Maskari F. (2011). Role of Overweight and Obesity in Metabolic Syndrome in Youth: a Population-based Study. International Symposium: Epidemiology of Diabetes, Sharjah, UAE, December 2-3, 2011.

Shah SM, Mehairi A, Khouri AA, Naqbi MM, Muhairi SJ. (2011). Comparison of the diagnostic criteria for metabolic syndrome among youth in the United Arab Emirates: implications for care. IDF Abstract Book 2011;344-345.

Sharif A, Blair I. (2011). Teaching Health Systems in the UAE; Views of the Nation's Future Physicians. Presented at Evidence 2011, a conference organized by BMJ and Oxford University in London, UK. London, 2011.

Skerritt MR, Shah SM, Agarwal M, Al-Kaabi J. (2011). Metabolic syndrome prevalence among Emirati adult population. International Symposium: Epidemiology of Diabetes, Sharjah, UAE, December 2-3, 2011.

Subait O, Al Kuwaiti A, Al Kuwaiti M, Al Rahoomi A, Barss P, Grivna M. (2011). Epidemiology of falls in Al Ain: An emergency department interview survey. Proceedings of the Third Annual Seha Research Conference 2011, Abu Dhabi, 14-15.

Yeatts KB, Olshan AF, El-Sadig M, Funk WE, Leith D, Ng S, Zoubedi T, Al-Maskari F, Chan R, Couper D, Rusyn I, MacDonald J. (2011). Indoor Air Exposures and Health in the United Arab Emirates. The 3rd North American Congress of Epidemiology, June 21-24, 2011, Montreal, Quebec, Canada.

RESEARCH GRANTS

Seed Grants

Dr R Ali [PI], Prof TC Aw, Drs I Blair, SM Shah. (2011). Establishing a Middle East population health network.

Dr M Sheek-Hussein. (2011) UAEU Medical students' immunization status.

National Research Foundation Grant

Prof TC Aw [PI], Drs I Blair, T Loney, R Ali, M Sheek-Hussein, Prof N Nagelkerke. (2011).Project on Health status of the UAE population.

National Rehabilitation Centre

Prof TC Aw [PI], Drs OT Ossama, Blair I, Zoubeidi T, Sheek-Hussein M. (2011). Project on drug and alcohol addiction in the UAE.

Emirates Foundation Grant

Dr I Blair [PI]. (2011). The Effect of Chronic Illness on the Emirati Family.

Others

Prof TC Aw [PI]. (2011). ICPA (International Commission for the Prevention of Alcoholism and Drug Dependency). Project on health promotion and tobacco control.

Drs M Hartman [PI], CH Yip, JNW Lim, MT Nur Aishah, M Dahlui, GS Hong, Prof TC Aw. (2011). Global Asia Institute – Initiative to promote health in Asia (GAI-NIHA). International research project on Social and biological factors contributing to the burden of disease due to breast cancer in SE Asia.

Drs S Martin [PI], S Shah. (2011). Federal Demographic Council. Exploring the Influence of expatriate domestic workers on the physical, emotional and behavioural well-being of Emirati children.

2011

Community Medicine

Standing from left to right:
R Ali, T Loney, A Sharif, M El-Sadig, M Grivna, M Sheek-Hussein, D Handysides, N Nagelkerke, S Shah, H Hassan, M Jamal
Seated left to right:
R Kurdi, S Yousif, F Al-Maskari, T-C Aw, A Kaljee, R Thomas, I Blair
Absent: ***J Schneider***

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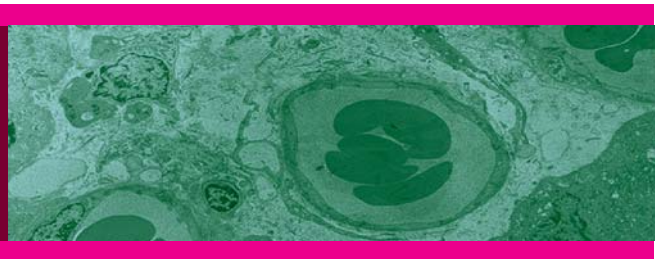
Department of Family Medicine



Research Profile

With a research focus on patient-physician communication, health education and learning portfolios, the Department of Family Medicine has been active in advancing the standards of patient care regionally. In 2011, new studies on cultural sensitivities in breaking bad news to patients and on online health education were initiated opening additional related areas of enquiry and subsequent grant proposals. The Department of Family Medicine takes the lead in mixed methods studies and innovative action research projects that are tightly linked to improving quality within the project lifecycle. This year we continue our agenda in translational research and support the development of faculty members in collaborative projects with local healthcare service providers.

Chair:
Dr EAM Prinsloo
Associate Professor:
Dr SC Major
Assistant Professor:
Dr MJ Hashim
Medical Research Specialist:
Ms H Mustafa
Medical Research Technician:
Mr J Cherian

Patient-Physician Communication
Drs. Stella Major, Leena Amiri and Jawad Hashim have been looking at Emirati medical students perceptions on how they think bad news should be delivered to patients in this cultural setting. The research team is responsible for the development and teaching of the components in the Clinical Skills course which address "Delivering bad news" into the undergraduate curriculum. They intend to use themes emerging from these discussions into the new more culturally adjusted breaking bad news' curriculum.

Earlier, Dr Stella Major and her colleagues at the American University of Beirut, Lebanon developed a bi-lingual (Arabic/English) video companion for health professionals titled: Communication in Medical Practice; which was quoted to be an excellent example

of a "culturally adjusted training tool for communication skills for medical students and practitioners." (Dr. Ahmed Mohit, WHO EMR Regional Advisor)
http://staff.aub.edu.lb/~webfamed/images/comm_skills.gif

Experiences in teaching communication skills to medical students in the Arab world were published in the Innovations in Family Medicine Education in Family Medicine:
http://staff.aub.edu.lb/~webfamed/downloads/comm_skills.pdf

On being an International Medical Educator-Profile from the Middle East
In an article on the internationalization of medical education Ron Harden (2006), described the different teaching contexts (local vs. international) with respect to students and teachers. That author contends that the trend in medical education is towards the international teacher and international student scenario. While much has been written about the international student (e.g. Asian students in the UK or Australia), little has been documented about the international teacher.

Dr Stella Major in collaboration with Prof. Michelle McLean and Prof. Judy McKimm are conducting an international study which is a qualitative survey that explores the perceptions and experiences of international medical educators in different settings. This project has commenced in the Middle East; United Arab Emirates, at FMHS where a number of faculty members are expatriates recruited from around the world, while students are Emiratis. This study aims to collect data from a sample of male and female expatriate FMHS teachers to gain insight into the challenges, expectations and rewards afforded by choosing to become international teachers. The following research questions frame the study:
1. Why medical teachers do chose to teach outside their home country?
2. What difficulties do international teachers experience?
3. Are there differences between male and female teachers in this regard?
4. How do they cope with these difficulties?
5. Are there particular attributes and qualities required to be an international teacher?
6. Are the experiences as an international teacher different in the Middle East compared with, for example, an international teacher in the US or UK?
Results of the pilot study will be presented at the APMEC conference in Singapore Jan 11-15, 2012.

Interactive electronic portfolios to enhance students' reflective practice
An online portfolio is part of the teaching strategy of the Department of Family Medicine. A four cycle reflective 'plan, act, revise, action' research study involving faculty and students is in progress and will be completed in August 2012. The aim of the study is to develop an online interactive learning portfolio to support students towards achieving the goal of self directed reflective independent learning. Where initially students' attitudes and knowledge about the use of portfolios, reflective journals and self assessment as part of the portfolio, was explored the focus in the final cycle 2011/2012 shifted to exploring barriers and use of reflective components and self assessment as part of the web based portfolio to finalize the final portfolio model by August 2012.
Due to identified frustration with functionality and duplication with the format of the online portfolio, and the need to increase interactivity in the portfolio, the format changed from blackboard to a web based portfolio. Word press is explored as part of the online portfolio.

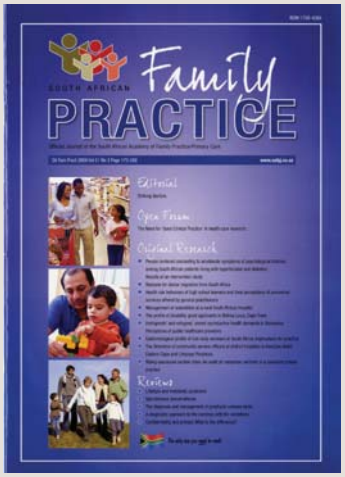
Institutional Development in Research Skills
Building the local research infrastructure requires an investment in human resource development through training workshops. The Dubai Harvard Foundation conducted a workshop on research methodology on 24 Jan 2011 at which Dr Jawad Hashim conducted a workshop on "Errors in Statistical Analysis."

Research and Academic Collaboration
Dr Adri Prinsloo acted as study leader for a residency student in the Department of Family Medicine, University of the Free State, South Africa and completed and published two research papers on trauma related to emergency department consultations by *undergraduate and residency students respectively.* She is an International member of the Editorial Board of the South African Family Practice Journal and a reviewer of articles for the African Journal of Primary Healthcare & Family Medicine, South

African Family Practice Journal, Acta Academica South Africa and Southern African Journal of Epidemiology and Infection. During the past year she has reviewed 6 articles for publication in these journals.

Associate Professor Dr Stella Major is an Honorary Senior Lecturer at Imperial College London. She has contributed to three chapters in a new undergraduate textbook published by Wiley; General Practice at a Glance, together with her colleagues from Imperial College, Department of Primary Care and Social Medicine. She is an independent external assessor for an application for registration for a PhD student in the school of public health and social medicine at Imperial College, London titled: *Exploring the Use of Smartphone Health Apps as a Self-Management Tool for Chronic Conditions*. Her collaboration with colleagues at the American University of Beirut continues by which she has been invited to attend as an external examiner for the Oral Examination of the Arab Board of Family Medicine Specialty in the New Year. In 2011, Dr Stella Major was awarded Fellowship of the Royal College of General Practitioners for her contribution to British and International General Practice in the fields of Teaching, Research and Academic Leadership. As an active member of the International MRCGP Int. Group, she has been invited to be an external examiner for the Clinical Skills Assessment component of the MRCGP International exams in Dubai in 2011.

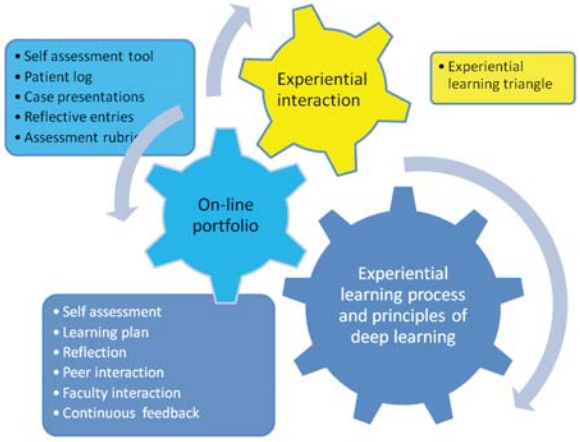
Associate Professor Engela A M Prinsloo is exploring the use of reflective portfolios, tutor support and feedback to students in a family medicine clerkship and an ongoing action research project is being conducted. Dr Prinsloo other research area is the implementation and use of obesity guidelines in primary health care settings for adult and pediatric population. She is also interested in developing and researching a sustainable conceptual model for experiential teaching sites for Family Medicine through collaboration between different partners including universities, communities and service providers.



Associate Professor Stella Major is the director of the newly created Clinical Skills Course in the Organs Systems Yrs (3 and 4) and is working hard on developing an integrated, sustainable and student- centered clinical skills program at the FMHS.
In an attempt to make the course as robust as possible, and yet culturally adjusted; she is working with colleagues from the FMHS on understanding the local context and how it impacts the teaching of skills such as the communication of bad news.
She plans to conduct an electronic Delphi process with subject experts (local and international) to formalize the content of the clinical skills curriculum which has been drawn up by all 5 clinical departments at the FMHS, to prepare the medical students for their junior clerkships where they will be rotating in the hospitals and outpatient clinic settings.
With the advent of internationalization of education, and she being an international educator herself, she is joined by medical educator colleagues from the UK and Australia, to explore attributes of an international medical educators who choose to work away from their home country, and hopes that the findings of this qualitative international study will pave way for improved understanding of how being an international medical educators can benefit oneself as a professional, the students, as well as the employing academic institutions all over the world.

Assistant Professor M Jawad Hashim is engaged in research on health education and health informatics. Health education is a relatively nascent field of enquiry in this region and our recent work with Emirati patients has shed light on their unique preferences for the format and delivery of health messages.

Cultural sensitivity in presenting key health information especially for diabetes and lifestyle modifications has been emphasized in existing literature. Using focus-group discussions and in-depth interviews, themes uncovered in this domain are leading to a novel analytical framework for health education. In a related study conducted over the last two years and presented at an international forum, we showed that interpretation of standard way-finding symbols used in healthcare facilities is suboptimal among laypersons in the UAE. The implications arising from these findings suggest consideration of broader testing of health messages across multicultural populations. Building on this framework, we are conducting research in online health education for chronic diseases including self-management of diabetes mellitus. The study will explore issues such as bilingual presentation, data formats and assisted data entry with validation. It is sometimes assumed that physicians have access to guidelines and current medical information in clinics and hospitals. Unfortunately, this is not necessarily true and we have published our observations to the contrary. Dr Hashim's research focus includes clinical decision support for physicians to provide evidence-based guidelines at the point-of-care. In addition, he has on-going collaborations with researchers in other departments as well as PhD students for study design (sample size estimation) and statistical analyses.



Action research cycles for online learning portfolios

Standard way-finding symbols used in healthcare can be misinterpreted in a multicultural population

Honouring Simulated Patients

Articles in Peer-reviewed Journals

Mirza DM, Hashim MJ and Sheikh A. (2011). Malaria. British Medical Journal; 342:d1149

Monese PH, Prinsloo EAM, Van Rooyen FC. (2011). Injuries in children and adolescents seen during 2006 at the emergency department of the National District Hospital, Bloemfontein S Afr Fam Pract;53(1);77-82

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Hashim MJ. (2011) Re: The Effects of Patient-Provider Communication on 3-Month Recovery From Acute Low Back Pain. The Journal of the American Board of Family Medicine. (5);616.

Hashim MJ, Mirza DM, Prinsloo A. (2011)Teaching chronic disease management to medical students. Fam Med. 43(3);206.

Hashim MJ. (2011). Access-literacy gap in online health education for diabetes-Internet access is just one link. J Prim Health Care. 3(4);333.

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Hashim MJ. (2011). Online clinical decision support for improving diabetes control. Ann Fam Med. 9;21.

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Hashim MJ, AlMarzouqi MA. (2011). Information seeking in clinical practice - time for a culture change. Canadian Family Physician.57;e228-e236.

Mirza DM .(2011). The use of chaperones for intimate examinations is often impractical in primary care. Letter to the Editor, Emergency Medicine Journal. Published online at http://emj.bmj.com/content/early/2010/12/22/emj.2010.105650/reply#emermed_el_9703

Mirza DM .(2011). Can physicians sanction religious/ spiritual treatment alongside conventional medical therapy? Letter to the Editor, Medical Humanities. Published online at http://mh.bmj.com/content/36/1/48/reply#medhum_el_163

Proceedings, Conferences, Invited Lectures, Web Sites and Others

Hashim MJ, Alkaabi MSKM (2011). Misinterpretation of standard way-finding symbols by a multicultural population – design implications for global health. International Conference on Rural Medicine (ICORM 3), Universiti Malaysia Sabah, Malaysia.

Major S, Amiri L, Hashim J, Nasir L, Al Haq A. (2011).Emirati medical student's perspectives on delivering bad news to patients in the local setting: the hidden curriculum. SEHA Research Conference, Fairmont Bab Al Bahr, Abu Dhabi, UAE.

Mirza DM. (2011). How should communication skills be adapted for Arab patients? 6th Congress of Asian Medical Education Association Kuala Lumpur, Malaysia

Mirza DM, Prinsloo EA, Hashim MJ. (2011). How do UAE medical students respond to unprofessionalism in the clinical setting? 6th Congress of Asian Medical Education Association Kuala Lumpur, Malaysia

Mirza DM, Bayouna LM, Al-Mekaini LA, Hashim MJ. (2011).How well do primary care physicians in the UAE understand and utilize communication skills? 6th Congress of Asian Medical Education Association Kuala Lumpur, Malaysia

Mirza DM. (2011). The Four Choices Model for responding to religious health beliefs in a Muslim setting. 6th Congress of Asian Medical Education Association Kuala Lumpur, Malaysia

Prinsloo EAM, J. Hashim, B Raasch, S Major. (2010). Implementing an online portfolio with a reflective component as formal requirement in a Family Medicine Clerkship: Achievements and Challenges. The Network:TUFH conference in Kathmandu Nepal.

Prinsloo EAM, J. Hashim, B Raasch, S Major. (2011).Implementing an online portfolio with a reflective component as formal requirement in a family medicine clerkship: achievements and challenges. 8th Asia Pacific Medical Education Conference (APMEC), Singapore.

Prinsloo EAM, Hashim J, Raasch B, Major S, McLean M. (2011). Developing and assessing portfolios to enhance a learner-centered ethos. The Network: TUFH conference in Austria, Graz

2011

Family Medicine

Standing left to right:
J Cherian, MJ Hashim, EAM Prinsloo, SC Major, H Mustafa

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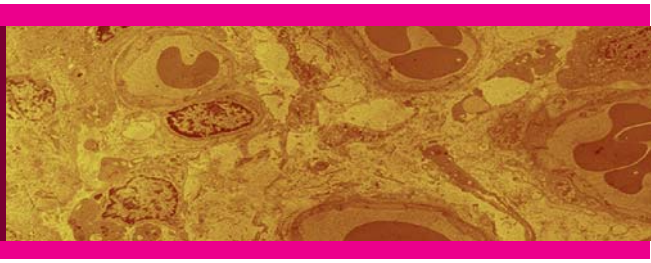
Department of Internal Medicine



Professor & Chair:
Prof S Gariballa
Professor:
Prof J Braun
Prof E E Kazzam
Associate Professor:
Dr S Al-Suwaidi
Dr O Bakoush
Dr S Denic
Dr I Hassan
Dr A Shehab
Assistant Professor:
Dr A Al Dhanhani
Dr A Al-Fazari
Dr M Al Houqani
Dr J Alkaabi
Dr S Alkaram
Dr S Al-Shamsi
Dr H Galadari
Teaching Assistant:
Dr F Al-Shamsi
Medical Research Specialist I:
Dr B Al-Dabbagh
Medical Research Specialist II:
Dr A M Abdulle
Mr J Yasin
Research Nurse:
Mr A Al Essa
Administrative Assistant:
Mr H Hassan
Medical Secretary:
Ms S Ogilvie
Secretary:
Ms R John

Research Profile

This Department has been highly active in the three fields of Teaching, Research and Clinical Services through 2011.

Below are some of the activities of the Department in 2011:

Clinical service: Members of the department provide inpatient and out of hours oncall consultant general and specialist service for the two main teaching hospitals on daily basis.

Clerkship & Residency Programs: We set up and contributed to a number of clinical teaching facilities and training programmes designed to enhance the learning experience in all areas of patient care and health care delivery.

Members of our department provide the clinical lead/directorship of the International Membership of the Royal College of Physicians (MRCP)[UK] diploma examination centre in Al Ain. We have a number of established examiners to Royal College of Physician of London who provide regular teaching sessions for residents and other junior doctors taking the MRCP diploma examination here in Al Ain.

Research Interest and collaboration
Many of our research priority areas such as obesity, diabetes and cardiovascular disease are not single academic disciplines but rather draw on many university and hospital departments from genetics to health services research studies and from nutrition to sociology. This is because the UAE society has been through rapid socioeconomic and social changes with urbanization over the last 40 years. Accompanying changes in diet and lifestyle are leading to growing epidemic of overweight/obesity, diabetes and other related cardiovascular diseases. Addressing some of these health issues requires collaboration and strong and vigorous research community.

Research priority area for 2011

Cardiovascular disease
Dermatology
Diabetes
Genetics
Hypertension
Haematological diseases
Nutrition-antioxidant & oxidative damage
Obesity
Renal Disease
Rheumatic disease
Sleep disorders
Stroke/neurological disorders

Dr B Al-Dabbagh (Medical Research Specialist I), Dr A M Abdulle (Medical Research Specialist II) and Mr J Yasin (Medical Research Specialist II) have been enmeshed in the research activities of various faculty within and outside the Department. Their workload increases steadily with time. Mr Awad Al Essa (Research Nurse) is busily occupied with several research projects.

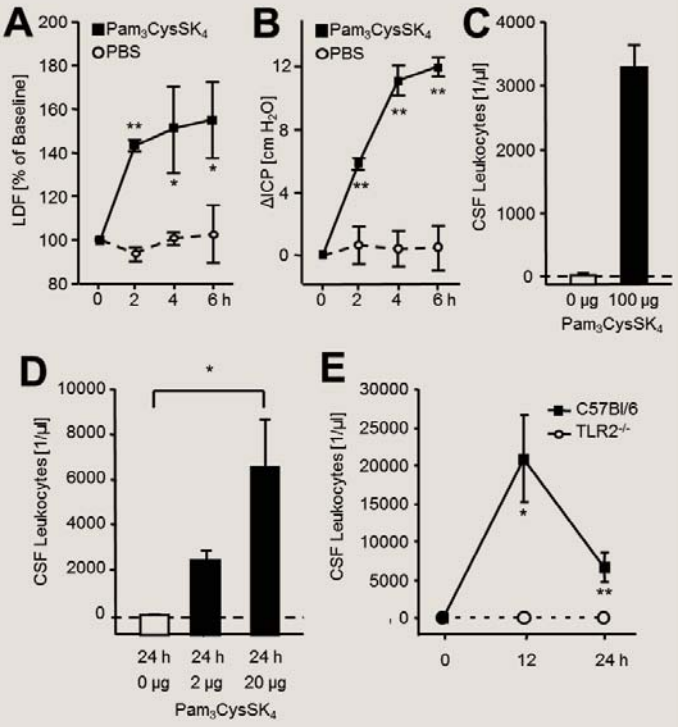
Ms Sheena Ogilvie and Ms Reena John continue to provide secretarial services and Mr Hisham Hassan vital administrative services for the Department.

Most significant recent accomplishment

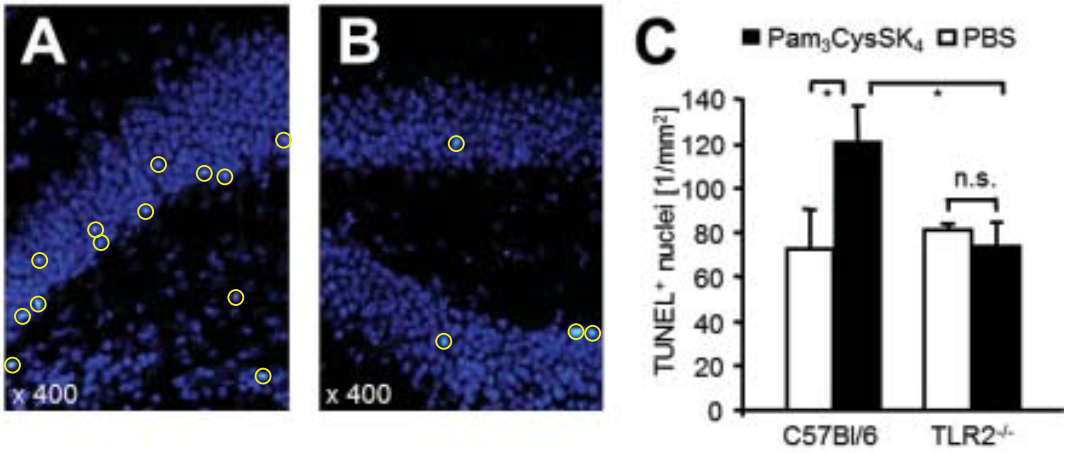
An important highlight is our involvement in the Abu Dhabi Food and Health Survey. This is a population-based survey designed to assess food safety and security and to examine the links between dietary intake, nutritional status, related chronic disease risk factors, and other specific measured health outcomes in the population of Abu Dhabi. The project overall aim is to help inform policy makers and health professionals to consider relevant food, dietary and other lifestyle interventions that could improve the population's health and reduce the burden of chronic diseases in a sustainable manner.

Our department is the lead applicant with collaboration from Abu Dhabi Food Control and Environment Agencies and a team from the USA.

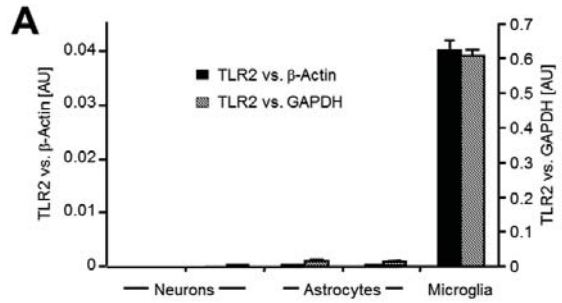
The Department members published 26 papers in peer-reviewed journals, 5 abstracts and 11 conference presentations, and a significant number of new and ongoing clinical research grants are held by members of the department.



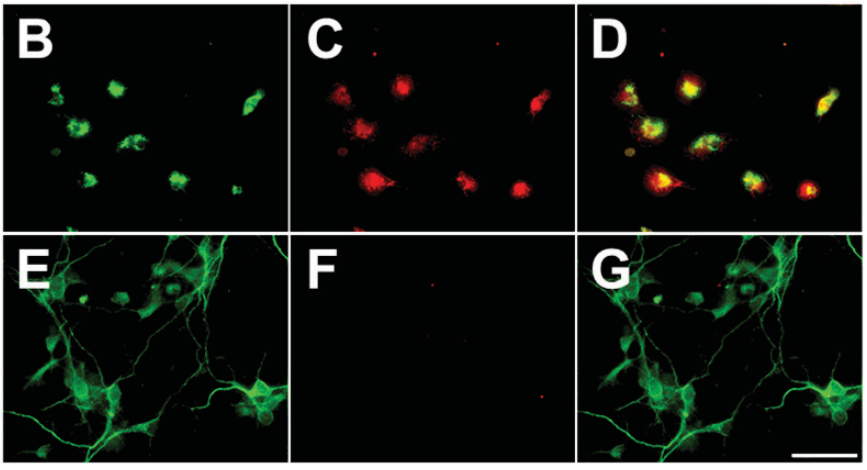
Intrathecal injection of the synthetic bacterial lipopeptide Pam3CysSK4 induces hallmarks of acute bacterial meningitis in rats (A-C) and mice (D,E). *Cerebral blood flow (A) and intracranial pressure (B) increase following Pam3CysSK4 (closed boxes), compared to PBS controls (open circles) *, $p < 0.05$; **, $p < 0.01$; Student's t-tests. C: After 6 h, CSF reveals influx of leukocytes in Pam3CysSK4 injected rats (closed bar) but not in PBS controls (open bar). D: Compared to intrathvmecal PBS (open bar), intrathecal Pam3CysSK4 causes influx of leukocytes (closed bars). *, $p < 0.05$; ANOVA on ranks with Dunn's post hoc analysis. E: Intrathecal Pam3CysSK4 causes a self-limiting CSF pleocytosis in wild type mice (closed boxes), no inflammation is observed in TLR2-/- mice (open circles). *, $p < 0.05$; **, $p < 0.01$; Mann-Whitney U-tests. Published and provided by Prof. Braun.*



Pam3CysSK4 induces neurodegeneration in the murine dentate gyrus.
*Merged TUNEL-Hoechst staining (A,B) reveals an increase in the number of apoptotic cells in the dentate gyrus in wildtype mice challenged with intrathecal Pam3CysSK4 (A) compared to controls receiving intrathecal PBS, but not in TLR2-/- mice (B). C: quantitative analysis of TUNEL positive nuclei in the dentate gyrus per area on multiple sections per animal. *, p < 0.05; One-way ANOVA followed by Student-Newman-Keuls post-hoc analysis. Published and provided by Prof. Braun.*



Cell type specific expression of TLR2 in the CNS.
A: Real time PCR using GAPDH (hatched bars) and β-Actin (closed bars) as internal standards reveals very low presence of TLR2 mRNA in neurons and astrocytes, but high levels in microglia. AU; arbitrary units. B-G: Immunocytochemical localisation of TLR2 (C,F). Murine primary microglia (B-D) is identified by IB4 immunostaining (B); neurons (E-G) are identified by MAP-2 immunoreactivity (E). D,G: merged images. Bar = 20 µm. Published and provided by Prof. Braun.



Articles in Peer-reviewed Journals

Alanbaei M, Zubaid M, Shehab A, Al-Mallah MH, Rashed WA, Al-Lawati J, Chb M, Amin H, Al Suwaidi J, Al-Hamdan R, Zubair S. (2011). Impact of diabetes and smoking epidemic in the Middle East on the presentation with acute coronary syndrome in very young patients. Angiology Epub May 8.

Al Haj M, Kazzam E, Nyberg F, Nicholls MG, Adem A. (2011). Effect of dehydration in the presence and absence of the angiotensin receptor blocker losartan on blood constituents in the camel. Journal of Medical Sciences 4(2); 00-00.

Al-Houqani M, Jamieson F, Mehta M, Chedore P, May K, Marras TK. (2011). Aging, COPD, and other risk factors do not explain the increased prevalence of pulmonary mycobacterium avium complex in Ontario. Chest Epub Jun 30.

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Al-kaabi JM, Al-Dabbagh B, Ahmad S, Saadi HF, Gariballa S, Al Ghazali M. (2011). Glycemic indices of five varieties of dates in healthy and diabetic subjects. Nutrition Journal May 28; 10:59.

Al-Kaabi JM, Al Neyadi M, Al Darei F, Al Mazrooei M, Al Yazedi J, Abdulle AM. (2011). Terrestrial snakebites in the South East of the Arabian Peninsula: patient characteristics, clinical presentations, and management. PLoSone Journal 6(9); e24637.

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Al Marzouqi N, Iratni R, Nemmar A, Arafat K, Al Sultan A, Yasin J, Collin P, Mester J, Adrian TE, Attoub S. (2011). Frondoside A inhibits human breast cancer cell survival, migration, invasion and the growth of breast tumor xenografts. European Journal of Pharmacology 1; 668(1-2):25-34.

Auberger N, Frlan R, Al-Dabbagh B, Bouhss A, Crouvoisier M, Gravier-Pelletier C, Le Merrer Y. (2011). Synthesis and biological evaluation of potential new inhibitors of the bacterial transferase MraY with a β-ketophosphonate structure. Organic & Biomolecular Chemistry 9(24); 8301-8312.

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Denic S, Janbeih J, Nair S, Conca W, Uz Zaman TW, Al-Salam S. (2011). Acute thrombocytopenia, leucopenia and multiorgan dysfunction: The first case of SFTS bunyavirus outside China? Case Reports in Infectious Diseases. Volume 2011(2011).

El-Menyar A, Zubaid M, Shehab A, Bulbanat B, Albustani N, Alenezi F, Al-Motarreb A, Singh R, Asaad N, Al Suwaidi J. (2011). Prevalence and impact of cardiovascular risk factors among patients presenting with acute coronary syndrome in the Middle East. Clinical Cardiology 34(1); 51-58.

Fahim MA, Nemmar A, Dhanasekaran S, Singh S, Shafiullah M, Yasin J, Zia S, Hassan MY. (2011). Acute cadmium exposure causes systemic and thromboembolic events in mice. Physiological Research Dec 20. [Epub ahead of print]

Gariballa S. (2011). Testing homocysteine-induced neurotransmitter deficiency, and depression of mood hypothesis in clinical practice. Age Ageing 40(6); 702-705.

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Al-Houqani M, Hajat C. (2011). Tobacco smoking among UAE Nationals. Chest 140; 438A-438A.

Gariballa SE. (2011). Homocysteine and mental health in older patients: a randomised double-blind placebo-controlled trial. Age Ageing 40; 2.

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Proceedings, Conferences, Invited Lectures, Web Sites and Others

Al-Houqani M, Eid H, Abu-Zidan F. (2011). Road traffic collisions caused by sleepiness in UAE. European Respiratory Society Annual Meeting.

Alkaabi J, Al-Dabbagh B, Saadi H, Gariballa S, Yasin J. (2011). Effect of coffee consumption on the glycemic index of khalas dates tested in healthy and diabetic subjects. ENDO 2011: The Endocrine Society's 93rd Annual Meeting & Expo, Boston, USA. June.

Braun JS. (2011). Neurological topical diagnosis. Charité University. Berlin, Germany.

Denic S, Nicholls GM, Nagelkerke N. (2011). Did Alexander the Great carry a thalassemia gene? A historical epidemiological analysis of his risk of dying from malaria. 12th International Conference on Thalassaemia and the Haemoglobinopathies. Antalya, Turkey. May.

Gariballa SE. (2011). Homocysteine and depression in older patients. The Spring British Geriatrics Society Scientific Meeting. Liverpool, UK. April.

Gariballa SE. (2011). Diet and health: Considerations for Abu Dhabi citizens. Abu Dhabi Diet and Health Workshop. Abu Dhabi, UAE. June.

Hassan IB, Nagelkerke NN, Bendect SB, Kristensen JK, Alizadeh HA. (2011). Cytokine syntheses by T-cell subsets of CML patients prior to and during imatinib therapy: relation between the level of response to therapy (optimal versus no optima) and endogenous T-cell function. 16th Congress of the European Hematology Association. Abstract No 1218.

Kazzam E. (2011). Assessment of right ventricular function: role of echocardiography. Invited international faculty and speaker. XVIth World Congress of Cardiology, Echocardiography & Allied Imaging Techniques. Delhi, India. September.

Kazzam E. (2011). Direct invasion of the left upper lobe pulmonary vein by lung tumor with tumor extension through the pulmonary vein into the left atrium: role of TTE. Recent advances in echocardiography and allied techniques (MRI, CT scan, nuclear). New Orleans, Louisiana, USA. April.

Kazzam E. (2011). Chest and cardiac trauma. 2nd International Conference on Trauma/Critical Care Management and Prevention. Al-Ain, United Arab Emirates. February.

Tofik R, Torffvit O, Rippe B, Bakoush O. (2011). Increased urine IgM excretion associated with progressive Type 2 diabetic nephropathy. World Congress of Nephrology. Vancouver, Canada. April.

Tofik R, Rippe B, Torffvit O, Bakoush O. (2011). Increased urine IgM excretion associated with progressive Type 2 diabetic nephropathy. ERA-EDTA Congress. June. Prague, Czech.

RESEARCH GRANTS

FMHS Research Grants

Dr M Al-Houqani (PI). The prevalence of obstructive sleep apnea in UAE national with type 2 diabetes. Seed research grant, UAEU. (2011-2012).

Dr O Bakoush (PI). The glomerular functional changes in hypertensive and diabetic diseases. Seed research grant, UAEU. (2011-2012).

Dr S Denic (PI). Developing erythroid standards for adult emiratis: Prevalence of iron deficiency and thalassemia trait and reference intervals for red cells.

Prof Kazzam E (PI). Risk factors and consequences of obstructive sleep apnea and short sleep duration: special emphasis on cardiovascular disease. Echocardiography and Neurohormonal Activation.

Emirates Foundation

Prof Kazzam E (PI). Cardiac function in patients with thalassemia major: with special emphasis on right ventricular remodeling and pulmonary hypertension: relation to neurohormones and collagen markers.

Others:

Emirate of Abu Dhabi Executive Council

Dr S Alsowaidi, Prof S Gariballa, Dr AM Abdulle, Ms M Al Yousuf, Dr A Bashir, Dr J Cotruvo, Prof A Mokdad. Diet and mineral water contents and prevalence of chronic diseases in the Abu Dhabi Emirate. (2010-2013).

Swedish Government Research Grant (ALF)

Prof B Rippe, Docent O Bakoush (co-investigator). Clinical and experimental microvascular research. Lund University. (2008-2011).

Medical Services Corps, UAE Armed Forces, United Arab Emirates

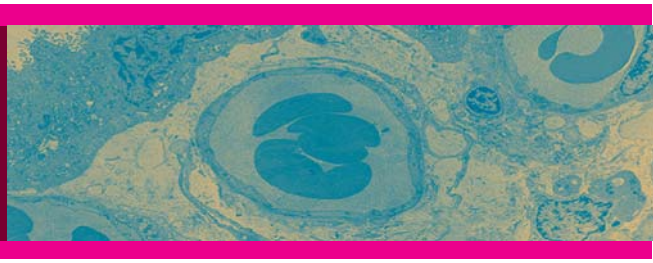
Dr A Abdulle. Abu Dhabi Childhood Obesity Study.

2011

Internal Medicine

Standing left to right:
A Al Dhanhani, M Al Houqani, J Braun, A Al Essa, J Yasin, O Abubaker, O Bakoush
Seated left to right:
I Hassan, R John, B Al-Dabbagh, S Gariballa, J Alkaabi, S Ogilvie, AM Abdulle, S Al-Shamsi, S Denic

Department of Medical Education



Research Profile

Mutairu Ezimokhai's research interests include Simulation, Assessment and Evaluation, Preterm labor and PCOS.
Michelle McLean's research includes transferable skills, students' perceptions of learning, reflection and self-assessment, learner-centered education, what it means to be an international medical teacher or educator.
Sami Shaban's research interests are in Health Informatics and electronic curriculum systems for medical education.

Summary of current research projects:
1. Medical students' perceptions of their first encounter in the Anatomy dissection room: McLean, Shehab (Anatomy).
2. Higher-achieving medical students' perceptions of their success: McLean
3. Student and staff perceptions of faculty evaluation: Aburawi (Paediatrics), McLean
4. Preparedness for medical practice: Final year medical students, McLean
5. Effective Use of a Medical School Curriculum Management System for the Faculty of Medicine and Health Sciences, UAEU. A database-driven secure website allows multiple level access for administrators, faculty, and students. Features include managing teaching session information, student attendance, instructor conflict display, and timetabling of sessions. [http://www.fmhs.uaeu.ac.ae/fmhscms/] Shaban
6. Effective Use of an Electronic Assessment for the Faculty of Medicine and Health Sciences, UAEU. Electronic assessment involves question management and data banks as well as assessment delivery and analysis. Shaban
7. Measuring Tools for Cellular Bioenergetics using Phosphorescence Oxygen Analyzers: Shaban.
8. Students' Views on Learning Styles: Ezimokhai, Shaban.
9. On being an international medical educator: McLean, Major (Family Medicine) McKinn (Swansea University).

**left FMHS in December 2011

Professor & Chair:
Prof Mutairu Ezimokhai
Professor:
Prof M McLean**
Assistant Professor:
Dr S Shaban
Lecturers:
Ms Geraldine Kershaw
Dr R Benner
Mr M Campbell
Medical Secretary:
Ms H Mansour
Administrative Assistants:
Ms N Seif Al Nasr
Mr CP Nair
Mr M Nazimuddin
Ms Soni Lal
Mr T Usman

MEDIA CENTER
Multimedia Designer:
Ms I Lizarriturri
Medical Photographer:
Mr A Prasad
Reprographic Technician:
Mr M Aboobacker
Audio-visual Specialist
Mr Musa Yassin

SKILLS AND TEACHING LABORATORIES
Clinical Skills Coordinator:
Ms M Sudhir
Clinical Laboratory Supervisor:
Mr K Unnikrishnan
Clinical Laboratory Assistant:
Mr S Pandian
Teaching Laboratory Supervisor:
Mr A Wahab
Teaching Laboratory Assistant:
Mr B Abubakkar

Articles in Peer-reviewed Journals

Gibbs TJ, McLean M. (2011). Creating equal opportunities: The social accountability of medical education. Medical Teacher 33:620-625.

McLean M, Shaban S, Murdoch-Eaton D. (2011). Transferable skills of incoming medical students and their development over the first academic year: The United Arab Emirates experience. Medical Teacher 33:e297-e305.

McKimm J, McLean M. (2011). Developing a global health practitioner: Time to act? Medical Teacher 33:626-631.

Rahman S, Majumder MAA, Shaban SF, Rahman N, Ahmed M, Abdulrahman KB, D'Souza UJA. (2011). Physician participation in clinical research and trials: issues and approaches. Advances in Medical Education and Practice.;2:1-9.

Shaban S. (2011). The Design and Development of a Medical School Curriculum Management System. Journal on Education, Informatics and Cybernetics. 2(3).

Shaban S, McLean M. (2011). Predicting performance at medical school: Can we identify at risk students? Advances in Medical Education and Practice. 2:139-148.

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Al-Jasmi F, Al Suwaidi AR, Al-Shamsi M, Marzouqi F, Al Mansouri A, Shaban S, Penefsky HS, Souid AK. (2011). Phosphorescence Oxygen Analyzer as a Measuring Tool for Cellular Bioenergetics. Chapter in Book: Bioenergetics, Clark KB Editor, InTech Open Access Publisher.

Proceedings, Conferences, Web Sites and Others:

Al-Eraky M, McLean M. (2011). Away from the customer-based approach, planning a faculty development program using an innovative "compass model". First International Conference on Faculty Development in the Health Professions, 10-13 May, Toronto, Canada.

McLean M. (2011). To what do high achieving FMHS students attribute their academic success? Capsule Issue 1:8-9.

McLean M. (2011). To what do high achieving attribute their success? A qualitative study of United Arab Emirates students. AMEE, 12-31 August, Vienna.

Mclean M. (2011). Citizens for an unknown future: Developing transferable skills in Higher Education. UGRU Professional Development Day, United Arab Emirates University, 10 February.

Mclean M. (2011). Education for the future global health practitioner, Delegates, Harvard College in Asia Program, American University of Dubai, March.

Othman AR, Al-Gazali L, Shaban S, Ali BR. (2011) UAE MutDB: The United Arab Emirates Mutations Database. HUGO (HGM) 2011: 4th Pan Arab Human Genetics Conference, Dubai, UAE, March.

Prinsloo EAM, Hashim J, Raasch B, Major S, McLean M. (2011). Implementing an online portfolio with a reflective component as formal requirement in a family medicine clerkship: achievements and challenges. 8th Asia Pacific Medical Education Conference (APMEC) 26-30 January, Singapore.

Prinsloo EAM, Hashim J, Raasch B, Major S, McLean M. (2011). Developing and assessing portfolios to enhance a learner-centred ethos. The Network: TUFH conference, 18–22 September, Graz, Austria.
Shaban S. (2011). Using a Curriculum Management System to Manage Teaching Load in an Integrated Medical Curriculum. The 9th International Conference on Education and Information Systems, Technologies and Applications: EISTA 2011, Orlando FL, USA, July.

Shaban S. (2011). A Curriculum Management System for Integrated Medical Education. Hamdan Bin Mohammad e-University (HbMeU) Annual Congress 2011, 4th Conference on eLearning Excellence in the Middle East, Dubai, UAE, February.

Shaban S, Eid H, Barka E, Abu-Zidan F. (2011). Technical Development and Evolution of a Trauma Registry. 2nd International Conference on Trauma Management, Critical Care and Prevention, Al Ain, February.

Awards

Sami Shaban was the recipient of the Khalifa Award for Education 2010/2011 in the category of Projects and Innovative Educational Programs within the UAE for his development and implementation of the FMHS Online Curriculum Management System.

Sami Shaban was the recipient of the Distinguished Service Award 2010-2011 at FMHS.

2011

Medical Education

Standing left to right:
Mr Nadeem ur Rehman, Mr Alsajir Mohammad, Mr K Unnikrishnan, Mr Ehsan Ullah, M Aboobacker, Mr M Campbell, Mr K Pandian, Mr CP Nair, Mr A Prasad, Mr T Usman, Mr B Abubakkar.
Seated left to right:
Ms Lakshmi Ravindranathan, Ms Mehana Sudhir, Prof M Elzubeir, Ms G Kershaw, Prof M Ezimokhai, Dr S Shaban, Ms I Lizarriturri, Ms Hoda Mansour.
Absent: ***Mr A Wahab, Mr M Yassin, Dr R Benner, Ms N S Al Nasr.***

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Department of Microbiology and Immunology

Research Profile

Professor & Chair
Prof Basel al-Ramadi
Professor
Prof S Dissanayake
Prof T Pal
Prof T A Rizvi
Associate Professor
Dr G Khan
Assistant Professor
Dr A Al-Qahtani
Dr M Al-Shamsi
Dr A Sonnevend
Medical Research Specialist
Ms L M Ali
Ms A Al-Ghazawi
Mr A Al-Haj
Ms M Ibrahim
Ms P S Philip
Mr A Shahin
Medical Research Technician
Ms G Bashir
Medical Secretary
Ms M Dawood
Office Assistant
Mr H Mohammed

The research interests of members of the Department of Medical Microbiology & Immunology span from studies into the molecular mechanism of bacterial and viral pathogenesis to investigating the underlying molecular and cellular mechanisms by which the immune system functions in health and diseases.

The Department is involved in teaching undergraduate medical students as well as graduate students in the MSc and PhD programs. Currently, there are four PhD and four MSc students in our program. Three more MSc students graduated from the program in 2011.

Professor Basel al-Ramadi

The functional characterization of the innate immune system and its role in disease has been the focus of research in our laboratory for the past few years. Although this system was initially thought to be simple in how its components function, the data from many laboratories demonstrate quite the opposite. It turns out that the innate immune system is at the center of many hitherto unexplained phenomena. These include, for instance, how adjuvants used in human vaccines actually work and why diseases like type I diabetes is now thought of as a chronic inflammatory condition. The innate immune system is at the heart of the many sequelae of human obesity, now collectively known as the metabolic syndrome. Work in our laboratory demonstrated a direct role for the Toll-like receptor pathway in maintaining self tolerance. This is the default pathway that prevents individuals from reacting against their own tissue, thereby averting the development of autoimmune diseases. Thus, animals deficient in MyD88 protein, a central regulator of Toll-like receptor path-

ways, develop autoantibodies directed against ubiquitous self antigens (see Figure 1). In a related project, we were successful in boosting the immunity of deficient hosts by using a bacterial vaccine engineered to express IFN-γ, a major immunomodulatory cytokine (see Figure 2). In another project, we have also shown that components of another innate immune system pathway, known as Nod-like receptors, may be involved in the recognition of nanoparticles, exceedingly tiny inorganic substances used in vaccine preparations and in many cosmetic creams. These findings may have important implications for the future use of such substances in biomedicine.

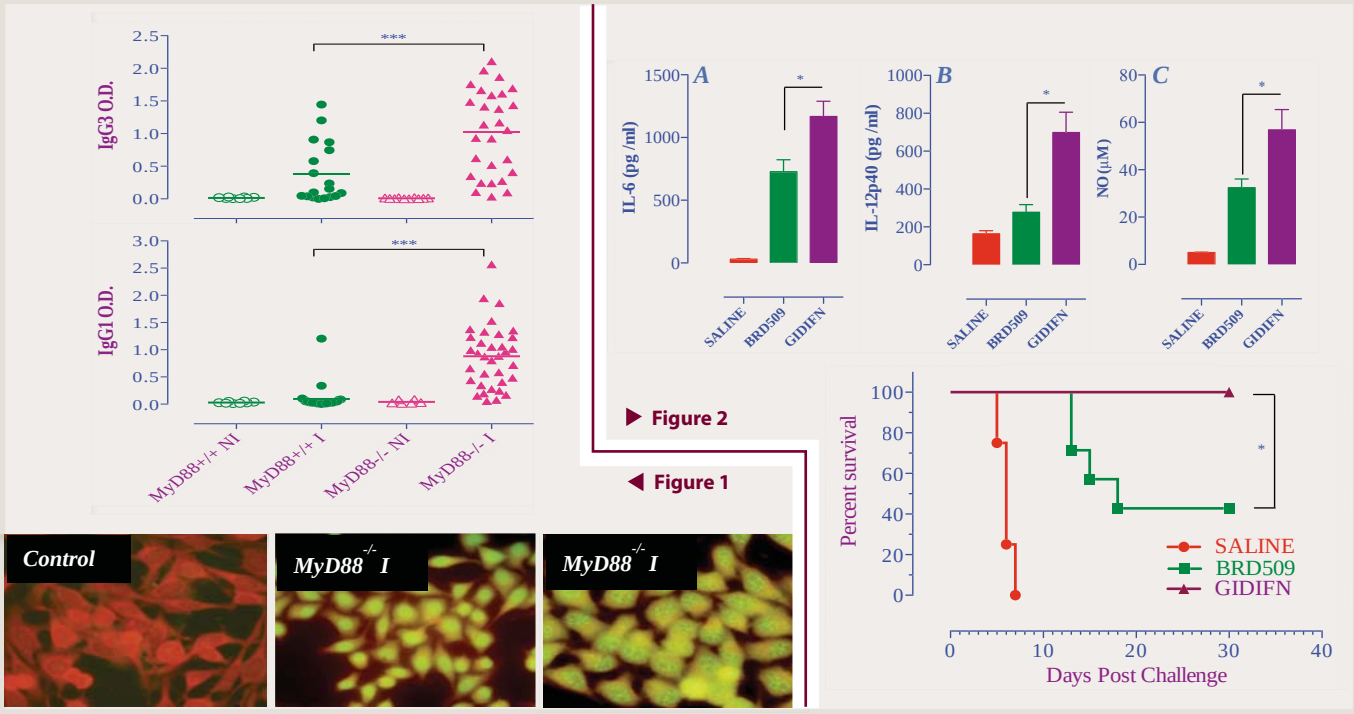

Figure 1
*Mice deficient in MyD88 protein (MyD88$^{-/-}$) have dysregulated antibody production and develop self-reactive autoantibodies following infection. (A) MyD88$^{+/+}$ and MyD88$^{-/-}$ mice were inoculated with a sublethal dose of Salmonella typhimurium. Serum was collected 4-6 weeks post infection and analyzed for the presence of Salmonella-specific IgG and IgG3 isotype antibodies. Asterisks denote statistically significant differences between infected MyD88$^{-/-}$ and MyD88$^{+/+}$ mouse strains (***, p<0.001). NI = not infected; I = infected. (B) Sera from non-infected or infected wild-type or MyD88-deficient mice were analyzed for reactivity to nuclear antigens by immunofluorescent staining using HepG2 cells. Green staining indicating positive reactivity to nuclear antigens (shown in bottom two panels) was observed only with sera obtained from infected MyD88$^{-/-}$ mice. Sera from non-infected mice as well as from infected wild-type mice were negative for HepG2 staining (top panel). [Adapted from Issac et al, Differential outcome of infection with attenuated Salmonella in MyD88-deficient mice is dependent on the route of administration, Immunobiology 2012 (in press) and unpublished data].*

Figure 2
*Vaccination with an IFN-γ-expressing Salmonella strain enhances immune responses and confers superior protection against lethal challenge in immunodeficient hosts. Panels A-C: TLR4-deficient mice were immunized with an attenuated strain of Salmonella (BRD509) or with its isogenic recombinant (GIDIFN) engineered to express IFN-γ. The production of proinflammatory cytokines (IL-6 and IL-12) and nitric oxide was analyzed 7 days post inoculation. Panel D: TLR4-deficient mice were vaccinated with BRD509 or GIDIFN strain, or with saline as control. All mice were challenged 8 weeks later with a lethal dose of a virulent strain of Salmonella. Survival was followed for up to 60 days after challenge. Asterisks denote statistically significant differences between the corresponding responses of GIDIFN and BRD509 experimental groups (*p ≤0.05). [Adapted from Al-Ojali et al, IFNγ-expression by an attenuated strain of Salmonella enterica serovar Typhimurium improves vaccine efficacy in susceptible TLR4-defective C3H/HeJ mice. Manuscript under review].*

Dr G Khan: The research in Dr Khan's laboratory is focused on viral tumour biology. Viruses are now believed to be involved, directly or indirectly, in the pathogenesis of approximately 15% of all human malignancies, accounting for around 1.5 million cases worldwide. Most of these cases are due to just 6 viruses: HTLV-1, HPV, Hepatitis B and C, HHV-8 and EBV. We are interest in understanding the mechanisms by which some of these viruses, in particular EBV, lead to cell transformation and proliferation. EBV is arguably one of the best studied human oncogenic viruses implicated in the pathogenesis of a number of malignancies of both epithelial and lymphoid origin. We are trying to understand the role of some of the viral latent products in regulating latency, inhibition of apoptosis and cell proliferation.

Research Highlight: Although numerous studies have been published over the last 10 to 15 years looking at the possible link between EBV and the pathogenesis of breast cancer, the association remains controversial and reports from both corners of the arena continue to be published. We too have examined the potential association of EBV to the pathogenesis of breast cancer in a large series of cases using a highly sensitive in situ hybridization method capable of detecting as little as a few EBV infected cells in an entire tissue section. We found that, although EBV can be detected in approximately 50% of breast cancer cases, the virus is not present in the malignant cells. Rather, the virus is localized to occasional infiltrating lymphocytes (Fig. 3), which could give rise to 'false' interpretations of PCR-based studies linking the virus to the pathogenesis of the disease. Furthermore, we did not find any correlation between the presence of EBV in infiltrating lymphocytes and ER, PR, HER2 expression or metastasis status.

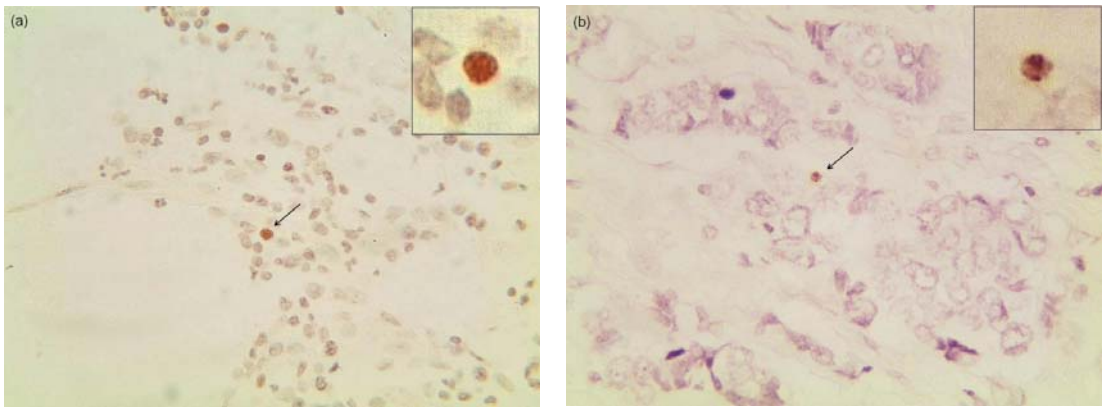

Figure 3
Detection of EBV by EBER-in situ hybridization (EBER-ISH) in breast tissues. EBER-ISH showing positive signal (brown staining) in an occasional infiltrating lymphocyte (arrow) in: (a) Reactive non-malignant breast tissues (b) Invasive ductal carcinoma of the breast. No positive signal for EBV was seen in the malignant cells in any of the 61 cases examined, indicating that EBV is not directly involved in the pathogenesis of this malignancy (from Khan et al. Exp Mol Pathol. 2011;91:466-70).

Professor T Pal: My main research interest is the investigations of the molecular epidemiology of multi drug resistant Gram negative pathogens and of the genetic background of their antibiotic resistance. We are focusing particularly on the strains producing carbapenemases, i.e. an emerging threat in the UAE. Also, the relationship between drug resistance and the presence of certain virulence genes and cell wall elements are being studied. We cooperate with colleagues in Paris, Edinburgh, Vienna.

Professor T A Rizvi: Dr. Rizvi has been interested in studying the basic steps in retroviral replication for nearly two decades now. He started his independent investigations with how retroviruses regulate the expression of their gene products. While continuing this work, the current research in his laboratory is now focused on how retroviruses/lentiviruses dimerize and package their genomic RNAs into a virus particle and what are some of the underlying molecular intricacies during these crucial steps in retroviral

life cycle. Over the years, these studies have included a number of retroviruses/lentiviruses including, HIV, SIV, FIV, MPMV, and MMTV. These studies have been expanded to include the prediction and validation of the RNA secondary structures of the dimerization and packaging sequences for a number of retroviruses and the role different structural motifs play in augmenting dimerization and packaging processes. Over the years, Dr. Rizvi has been able to successfully compete for both intramural and extramural grant support for his work on retroviruses. Studies on retroviral RNA packaging and dimerization have been published in journals of international repute.

Dr Mariam Al-Shamsi's main research activity is in the area of inflammation and autoimmunity. Currently I am focusing on investigating the changes in cellular bioenergetics in cells and tissues during clinical course of Concanavalin A induced hepatitis and experimental autoimmune encephalomyelitis, rodent models of fulminant hepatitis and multiple sclerosis.

Dr A Sonnevend-Pal's main research activities are in the area of molecular epidemiology and antibiotic sensitivity of human pathogenic bacteria. She studies polyresistant pathogenic bacteria like methicillin resistant *Staphylococcus aureus* (MRSA), extended spectrum beta lactamase (ESBL) and carbapenemese producer *Escherichia* and other Enterobacteriaceae, which are the major threat in the hospitals in the UAE and becoming more and more prevalent in the community, as well. Also, in cooperation with Prof. T Pal, she investigates the molecular epidemiology of *Acinetobacter baumannii* in the UAE. Beyond that she cooperates extensively with Prof. JM Conlon studying the effect of various peptides on different antibiotic resistant microorganisms.

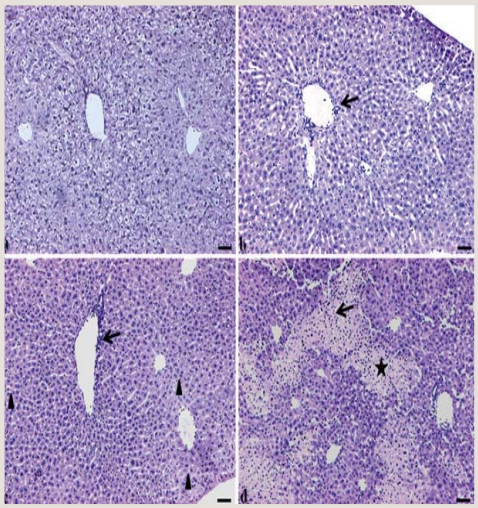

Figure 4
H&E stained sections representing liver section of C57Bl/6 mouse (a) treated with PBS (b) Con A treated mouse for 3 hours showing single cell infiltration around blood vessels. (c) Con A treated mouse for 6 hours showing more infiltrating cells in the tissue (arrow heads). (d) Con A treated mouse for 12 hours showing heavier infiltration and large necrotic areas (star).

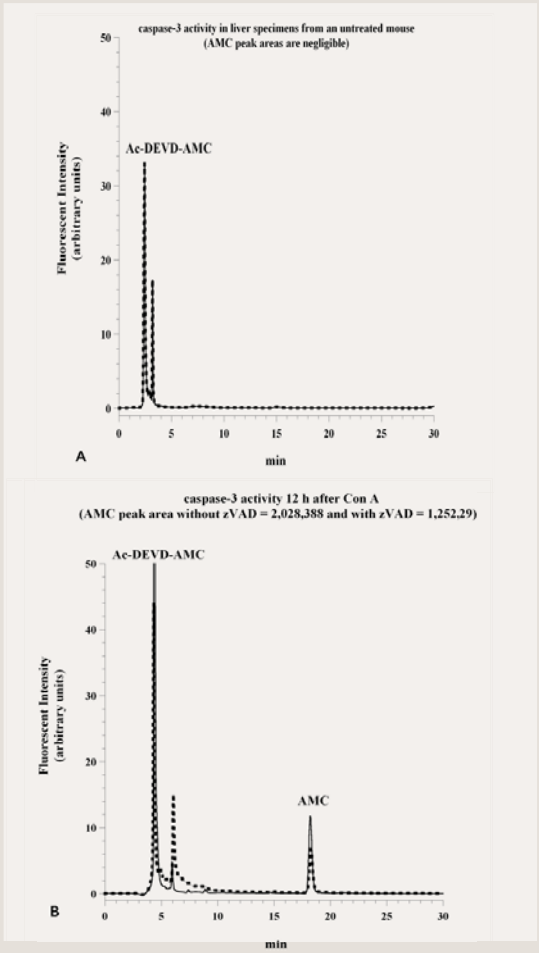

Figure 5
Respiration of liver pieces from C57Bl/6 mice treated or untreated with Con A for 3,6 and 12 hours. Respiration rates obtained by the phosphorescence analyzer for O2 concentration measured at 37oC. The rate of mitochondrial oxygen consumption (k, µM O2 min-1) was set as the negative of the slope of [O2] vs. time; the values of kc (in µM O2 min-1 mg-1) are shown.

Articles in Peer-reviewed Journals

Al Shamsi IR, Al Dhaheri NS, Phillip PS, Mustafa F, Rizvi, TA. (2011). Reciprocal cross-packaging of primate lentiviral (HIV-1 and SIV) RNAs by heterologous non-lentiviral MPMV proteins. Virus Research, 155; 352-357.

Conlon JM, Sonnevend A. (2011). Clinical applications of amphibian antimicrobial peptides J Medical Sciences 4; 40-46.

Fahim, M., H. Kataya, R. El-Kharrag, D.A. Amer, B. al-Ramadi, and S.M. Karam. (2011). Ghrelin attenuates chemotherapy-induced gastrointestinal epithelial damage. World Journal of Gastroenterology, 17(33):3836-41.

Ghazawi A, Sonnevend A, Bonnin RA, Poirel L, Nordmann P, Hashmey R, Rizvi TA, Hamadeh, MB, Pál, T. (2011). NDM-2 carbapenemase-producing Acinetobacteraumannii in the United Arab Emirates. Clinical Microbiology and Infection (Epub ahead of print), Dec. 22.

Hossain MA, Guilhaudis L, Sonnevend A, Attoub S, van Lierop BJ, Robinson AJ, Wade JD, Conlon JM. (2011). Synthesis, conformational analysis and biological properties of a dicarba derivative of the antimicrobial peptide, brevinin-1BYa. Eur Biophys 40; 555-64.

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Khan G, Al Mutawa J, Hashim MJ. (2011). Pandemic (H1N1) 2009, Abu Dhabi, United Arab Emirates, May 2009-March 2010. Emerg Infect Dis, 17; 292-5.

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Sonnevend A, Darvish D, Kristóf K, Szabó J, Urbán, Pál T. (2011). Emergence of Escherichia coli O25b-ST131 clone among Hungarian bloodstream isolates. 39th Congress of Hungarian Society of Clinical Microbiology and Infectious diseases.

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RESEARCH GRANTS

FMHS Research Grants

Prof. B al-Ramadi [PI], Dr. MJ Fernandez-Cabezudo.
Mechanisms underlying control of autoimmunity by the innate immune system.

Dr. MJ Fernandez-Cabezudo [PI], Prof. B. al-Ramadi.
Effect of acetyl cholinesterase inhibition on intestinal macrophages.

Dr B. Ali [PI], Dr Gulfaraz Khan.
Detection of BRCA gene mutations in formalin-fixed paraffin embedded tissues from Emirati breast cancer patients.

Dr G. Khan [PI]
Is there any evidence for the involvment of the newly discovered Merkel cell polyomavirus in the pathogenesis of breast cancer?

Dr M Al-Shamsi [PI]
Role of Blimp-1 as a tumor suppressor an in vitro study on MCF-7 breast cancer cell line.

Dr. A. Sonnevend [PI]
Prevalence and molecular background of New-Delhi metallo-beta-lactamase in Enterobacteriaceae and Acinetobacter baumannii isolated in Al Ain.

Prof. T Pal [PI]
Genetic Background of Aminoglycoside Resistance in Acinetobacter baumannii Strains Isolated in Abu Dhabi.

Prof. T A Rizvi [PI]
Role of palindromic (pal) sequence(s) in mouse mammary tumor virus (MMTV) RNA dimerization and packaging. UAE University, FMHS, UAE (Dean's Discretionary Grant)

UAEU FMHS [Dean's Discretionary Grant]

Dr G. Khan [PI]
Epstein-Barr and the pathogenesis of breast cancer

UAEU Interdisciplinary Grants

Profs. Tibor Pal [PI], Basel al-Ramadi, Dr Agnes Sonnevend, Prof Mohamed Fahim, Drs Mohammed Al-Kaabi, Mohammed Abdulmajid. Virulence of the nosocomial pathogen Acinetobacter baumannii.

Sheikh Hamdan Award for Medical Sciences

Prof T A Rizvi. Prevalence of HPV in cervical cancer among UAE nationals.

Terry Fox Fund for Cancer Research

Prof. Basel al-Ramadi [PI], Dr Maria Fernandez-Cabezudo
Cytokine-expressing Salmonella strains as effective biological therapy against cancer: analysis of the mechanisms underlying the inhibition of tumor growth.

Drs. Maria Fernandez-Cabezudo[PI], Prof Basel al-Ramadi, Drs Hakam El-Taji, Mohamed Jaloudi, Haytham El-Salhat
Novel resistance biomarkers in human breast cancer.

Prof TA Rizvi [PI]
Characterization of the Sequences Necessary for Mouse Mammary Tumor Virus (MMTV) RNA Packaging: Implications for the Development of MMTV-based Vectors for Cancer Gene Therapy.

National Research Foundation

Prof. Basel al-Ramadi [PI], Dr Maria Fernandez-Cabezudo
Inactivation of myeloid-derived suppressor cells as a novel target for enhancing cancer immunotherapy.

Prof Tahir A Rizvi [PI]
Role of structural elements in retroviral genomic RNA packaging and dimerization: Implications for developing new generation vectors for gene therapy.

Prof Tahir A Rizvi [PI]
Co-packaging and recombination among genetically distinct retroviruses: Implications for the development of retroviral vectors for gene therapy.

Emirates Foundation

Prof TA Rizvi [PI]
Fine Mapping of Sequences Important for Mason Pfizer Monkey Virus (MPMV) RNA Packaging and their Mechanism of Action: Implications for the Development of MPMV Vectors for Human Gene Therapy.

Others

Dubai Harvard Foundation for Medical Research

Drs. Raif Geha[PI], Luigi Notarangelo, S. Al-Hammadi, Prof Basel al-Ramadi
Collaborative Research Network on Primary Immunodeficiency Diseases

British Council, UK

Drs. W Richard [PI], Bowtell, Yousef Haik, Bashar Issa, Prof Basel al-Ramadi. Imaging-guided hyperthermia therapy. National Cancer Institute, National Institutes of Health, USA

Dr. Yousef Haik [PI], Prof Basel al-Ramadi. Nanoparticles for Non-invasive Thermometry Monitoring

2011 Medical Microbiology

Standing left to right: ***Ms Pretty Susan Philip, Mr Mohamed Al-Haj, Mr Yassir Mohamed; Professor Tibor Pal, Ms Akela Al-Ghazawi, Ms Lizna Ali, Ms Maureen Dawood.***

Seated left to right: ***Professor Senarath Dissanayake; Dr Ahmed Al-Qahtani; Dr Agnes Sonnevend Pal; Professor Basel (Chairman); Dr Mariam Al-Shamsi, Professor Tahir A Rizvi; Dr Gulfaraz Khan.***

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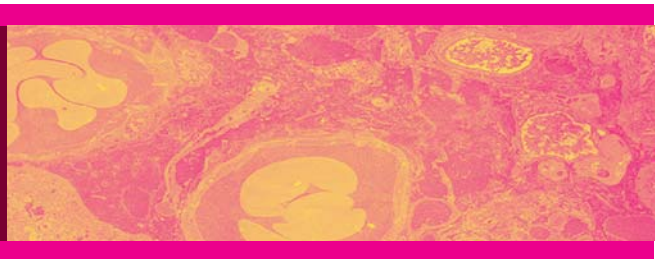
Department of Obstetrics & Gynaecology



Research Profile

The Research interests in the Department of Obstetrics and Gynaecology are in Obstetrics, Fetal Medicine, Gynaecology, Oncology and Urogynaecology.

Dr. Hassan Elbiss's major area of interests is urogyneacology, minimal access surgery, in-vitro human placenta perfusion.

Dr. Hisham Mirghani's major area of interest is fetal growth and physiology in diabetic pregnancy, fetal anomalies, in-vitro human placental perfusion.

Professor Mutairu Ezimokhai is interested in pathophysiology of pregnancy and medical disorders in pregnancy. Expertise is in working with vascular and uterine smooth muscles

Associate Professor & Acting Chair:
Dr. Hisham Mirghani
Professor:
Prof Mutairu Ezimokhai
Assistant Professor:
Dr. Hassan Elbiss
Medical Research Specialist:
Dr. Nawal Osman
Flora D. Lone
Medical Secretary:
Clarina G. Garcia

Placental function in gestational diabetes: in-vitro human placenta model

The initial electron microscopic examination showed several ultrastructure changes.

The syncytiotrophoblasts of normal placenta has numerous translucent cytoplasmic granules. These translucent granules were lost in the cytoplasm of syncytiotrophoblast in placentas of diabetic patients. In addition, the chorionic villi in diabetic subject contain more discrete bundles of collagen fibers compared to control (**Figure 1**: a; control, b; diabetic)

Figure 2 (a;control, b;diabetic) shows the syncytiotrophoblast of the placenta of control and diabetic subjects. These cells contain

Figure 1

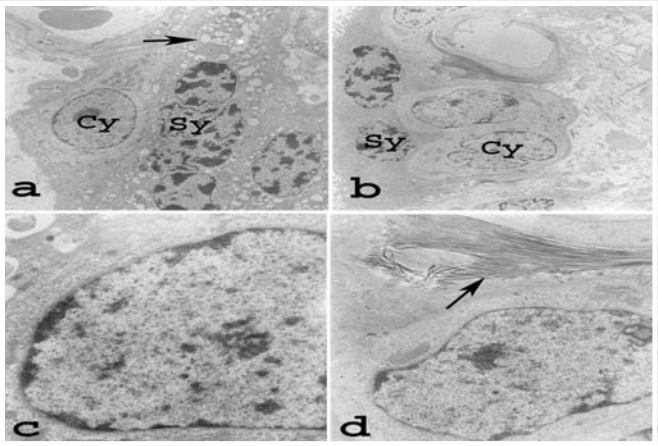


Figure 2

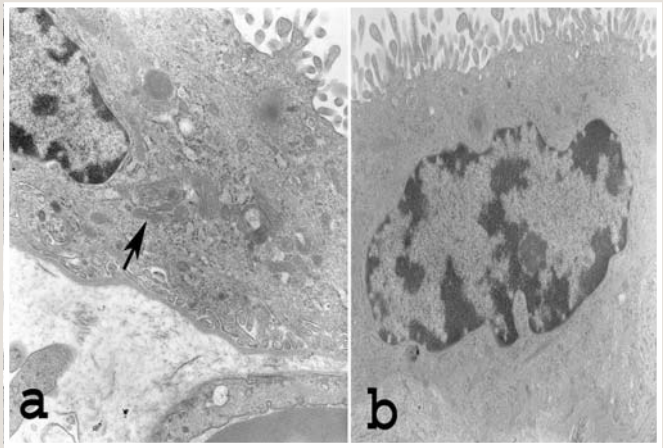
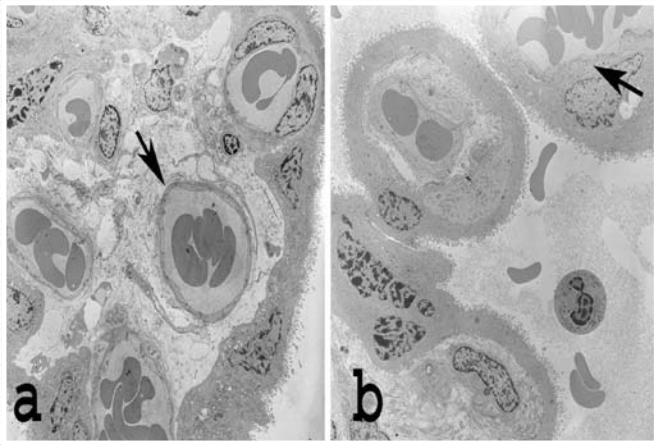


Figure 3



large number of mitochondria and different shapes. However, the number of mitochondria decreased significantly in diabetic placentas. The plasma membrane of syncytiotrophoblasts of the chorionic villi in the control subjects is highly invaginated. These membranous invaginations disappear in the syncytiotrophoblasts of diabetic patients.

The chorionic villi in diabetic patients contain fewer blood vessels when compared to that of control. In addition the wall of fetal capillaries is thicker in the placenta of diabetic patients compared to control (**Figure 3**: a; control, b; diabetic).

Placentas of type 2 diabetes are associated with significant ultrastructural changes. This involves the villi, syncytiotrophoblast and fetal capillary vessels. These changes might explain the poor perinatal outcome associated with pregnancy complicated with type 2 diabetes.

Placental function in gestational diabetes: in-vitro human placenta model

The ex vivo model of human placental cotyledon model is performed to compare viability parameters (metabolic, permeability, and ultra-structure) between uncomplicated normal pregnancies, and pregnant women on insulin.

Future Placenta Projects

1. The objective of the study is to determine the placental transfer of 2-naphthol (Naphthalene) using an ex-vivo human placenta perfusion model.

Naphthalene is a member of the polycyclic aromatic hydrocarbons (PAHs) group. They are one of the most widespread organic pollutants. (PAHs) are potent atmospheric pollutants that consist of fused aromatic rings and do not contain heteroatoms or carry substituent. Naphthalene is the simplest example of a PAH. Naphthalene is used mainly as a precursor to other chemicals. The single largest use of naphthalene is the industrial production of phthalic anhydride (plasticizers for plastics). Hemolytic anemia has been reported in infants born to mothers who were exposed to high levels of naphthalene vapors during pregnancy.

Naphthalene was detected in human breast milk. The umbilical cord blood of pregnant women exposed to naphthalene contains el-

evated levels of cytokine-producing T-cells. Data suggest that naphthalene may cross the placenta and affect the immune system of the newborn. Animals studies have shown that exposures to low doses of prior to conception results in early embryonic demise.

2. The objective of the study is to determine the transport of erythromycin in an ex-vivo closed perfusion system of placenta by perfusion of normotensive placenta by erythromycin and to determine the effect of erythromycin on production of inflammatory markers produced by placenta.

Intrauterine infection and sepsis is one of the leading causes of neonatal death.
Antibiotics has been used prophylactically to women with premature ruptured of membranes (PROM). The use of Erythromycin following PPROM was associated with a statistically significant reduction in chorioamnionitis, reduction in the numbers of babies born within 48 hours and seven days, significantly reduced in neonatal infection reduction in the number of babies with an abnormal cerebral ultrasound scan prior to discharge from hospital.

Bronchoalveolar lavage fluid from infants who developed chronic lung disease contains higher concentration of profibrotic agent transforming growth factor B.
This study will allow us determine whether erythromycin transport through the placenta and find out the changes on inflammatory factors produced by placenta.
Up to date, there is no study that will look at the transport of erythromycin using ex-vivo closed perfusion system of placenta.

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Elbiss HM, Hammad FT, Moran PA. (2011). Teaching patients on clean intermittent self-catheterization prior to anti-incontinence or prolapse surgery: is it necessary in women with obstructive voiding dysfunction? Int Urol Nephrol, 2011 Oct 22.

Elbiss HM, Thomson AJ. (2011). The Management of Stage III and IV Endometriosis. Arch Gynecol Obstet. 2011 Dec 8.

Mirghani HM, Ghazal-Aswad S, Badrinath P, Sidky I, Abdul-Razak Y, Davison J. (2011). Confidential enquiries into maternal mortality in the United Arab Emirates: A feasibility study. Journal of Obstetrics and Gynaecology Research. 2011 Mar;37(3):209-14.

Mirghani HM, Alshami HA, Kadasne AR, Khalfan M, Iqbal SZ. (2011). Pregnancy outcome in late maternal age in a high-income developing country. Archives of Gynecology and Obstetrics. 2011 Nov;284(5):1113-6.

Mirghani H, Bekdache GN, Hamdan MA, Begam MA, Chedid F, Tamim MM. (2011). Prenatal diagnosis of extrahepatic umbilicoportosystemic shunt: impact on postnatal management. Journal Obstetrics Gynaecology. 2011 Aug;31(6):542-3.

Proceedings, Conferences, Invited Lectures, Web Sites and Others

Elbiss HM, Hammad FT, Moran PA. (2011). Female pelvic floor disorders in the community United Arab Emirates prospective. Pan Arab Obstetrics and Gynecology Conference, Dubai, UAE.

Elbiss H. (2011). Female pelvic floor dysfunction. AAH Plenary Sessions, Al Ain, UAE.

Mirghani H. (2011). Collection of fluid in fetal brain. PanArab Association of Obstetrics and Gynaecology Societies (AAOGS) Conference. Dubai, UAE, April 3-5.

Mirghani H. (2011). Update in the Management of Rhesus Isoimmunization Continuous Professional Education (CPE) Program. Al Ain Hospital, Al Ain, UAE, March 23,

Mirghani H. (2011). Update in the Management of IUGR. Continuous Professional Education (CPE) Program. Al Ain Hospital, Al Ain, UAE. January 20.

Elbiss H. (2011). Update in surgical treatment of stress incontinence, International Iraqi Medical Association (IIMA), Dubai, UAE, February 2011.

Elbiss HM, Osman N, Hammad FT. (2011). Female urinary incontinence United Arab Emirates prospective. 3rd Annual SEHA Research Conference, Abu Dhabi, UAE, December 2011.

Elbiss HM, Osman N, Hammad FT. (2011). Prevalence and social impact of urinary incontinence among United Arab Emirates women. International Urogynecological Association Annual Scientific Meeting, Lisbon, Portugal, July 2011.

Mirghani H, Osman N, Malek A, Adegate E, Tariq S. (2011). Ultrastructure of the human placenta in type 2 diabetes. The 14th meeting for the International Federation of Placenta Associations (IFPA), Geilo, Norway, September 14-17.

RESEARCH GRANTS

FMHS New Research Grants

Dr. H Elbiss. [PI]. Urinary incontinence in pregnancy, prevalence and risk factors

Dr. H Elbiss. [PI]. Placental transport of erythromycin and the effect of erythromycin on production of placental inflammatory factors

Others

Diploma In Advanced Diagnostic Ultrasound in Obstetrics and Gynecology

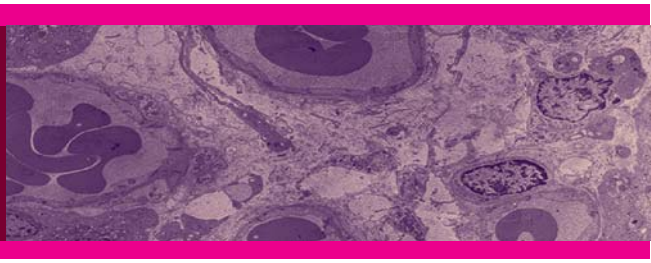
This is run by the Department of Obstetrics & Gynecology, Faculty of Medicine & Health Sciences is in collaboration with the Women's Institute at Al Ain Hospital. The aim of the Diploma is to raise the quality of OBGYN ultrasound services provided to pregnant women in Abu Dhabi and UAE. It consists of practical session, tutorials, and journal clubs. The duration of the Diploma is one year.

2011

Obstetrics & Gynaecology

Standing left to right: ***Dr. Osman Ortashi, Dr. Hassan Elbiss***
Seated left to right: ***Clarina Gonzales Garcia, Dr. Hisham Mirghani, Flora D. Lone***

Department of Paediatrics



Research Profile

The research in the Department of Pediatrics involves basic-science and clinical studies that are relevant to UAE. The fields include genetics, metabolic, epidemiology (e.g., nutrition, Down syndrome, growth and vitamin D deficiency), hematology, oncology, pulmonary, infectious diseases, cardiology, gastrointestinal, endocrine and immunology. This diversity of disorders has been made possible by the clinical expertise of the faculties in wide-ranges of pediatric conditions. The perceived needs of patients in UAE hospitals and outpatient clinics are the main drive of our research.

The laboratory work in the department supports collaborative clinical and epidemiological investigations in affiliated hospitals (Tawam and Al Ain) and in the community at large. The expertise and dedication of the pediatric staff are instrumental to our research productivity.

The pediatric faculties are actively engaged in collaborative research with other FMHS departments, such as Internal Medicine, Immunology, Biochemistry and Pathology. We also collaborate with UAEU colleges (e.g., Departments of Nutrition and Physics). Networking with other universities in many countries is also ongoing, which enhances our research visibility and output. Many faculties serve on the editorial board of several international peer reviewed journals, in addition of helping as reviewers.

Aiming toward enhancing the research productivity in child health issues of importance to UAE, the pediatric department is proactive in supporting and encouraging involvements of students and hospital colleagues. We have also involved pediatric residents with the objective of equipping them with the knowledge and experience in research of importance to the UAE.

Professor & Chair
A.-K. Souid
Professors
Y. M. Abdulrazzaq (Emeritus)
L. Al-Gazali
H. Narchi
Associate Professor
E. Aburawi
S. Bharwani
Assistant Professor
S. Al-Hammadi
F. Al-Jasmi
A. Al-Suwaidi
M. Al-Samri
R. Al-Mahmoud
Teaching Assistant
Dr. F. Ismail
Dr. N. Al Dhaheri
Research Medical Specialists
Dr. Sheela Benedict (I)
Mr. J. Kochiyil (II)
Mr. T. Pramathan (II)
Research Nurse
Mrs. Sania Al Hamad
Research Assistant/Secretary
Mr. Aws Rashad Diab
Medical Secretary
Ms. R. Clemente

The department's effort in these endeavors has included research workshops (on methodology, biostatistics, bibliography management, etc.) for hospital colleagues and pediatric residents. These encounters resulted in many non-faculty colleagues being co-authors in our publications.

The department has been active at projecting the research strengths and output of the FMHS. A.-K. Souid has contributed as an advisor to the Researcher newsletter and H. Narchi was instrumental in the conception, design and in "populating" the FMHS Medical Research website. Souid also teaches the PhD course on "molecular mechanism of human disease".

GENETICS/BIRTH DEFECTS (including neurogenetics) (Y. Abdulrazzaq and I. Al Gazali)

• The department has a strong research interest in the area of birth defect/dysmorphology and brain malformations including nervous system dysgenesis. Several disorders have been studied at the clinical and molecular level. For example, familial and sporadic forms of cerebral dysgenesis were studied and a new type of agyria-pachygyria associated with agenesis of corpus callosum was characterized, a severe form of a syndrome of myotonia and bone dysplasia [Stüve-Wiedemann Syndrome (SWS)] was identified to be common in the population of the UAE. Founder mutation in the Leukemia inhibitory factor receptor (LIFR) was found in all families affected with SWS in this population. A birth defect registry for Al Ain Medical District was established by the department, which has gained membership of the International Clearing House for Birth Defects. Several studies from this register were published identifying the incidence and pattern of the various types of birth defects in this population together with establishing risk factors involved in their etiology.

• In addition, the group has been investigating the reasons why some anti-epileptic drugs (vigabatrin, lamotrigine) ingested by women during pregnancy cause neural tube and other defects. Departmental researches have already established that these drugs are teratogenic. It was established that methionine was 5 times lower in embryo of treated pregnant mice than in non-treated controls. Studies are ongoing to determine the impact of folic acid and vitamin B12 supplementation on the frequency of occurrence of anomalies in animal models.

• Aflatoxins are commonly found in nuts, grains and have been found to be increased in pregnant women and their offspring. Study is ongoing to determine teratogenic effects of aflatoxins in mice.

• The department is also interested in mapping recessive genetic disorders using the concept of homozygosity mapping, particularly disorders which are common or unique to this population. For example, a gene for Joubert syndrome, which seems to be common in Arabs, was mapped to chromosome 9q34.3 and genetic heterogeneity was established. Subsequently other genes for Joubert Syndrome were mapped and mutations were identified in families from UAE. Another new type of epiphyseal dysplasia was described in a family from UAE and a gene was mapped to chromosome 15q26. Several other disorders are currently being investigated using the same concept.

• Metabolic disorders are common in the UAE. The department is active in establishing the prevalence of different metabolic disorders in the UAE population.

• A study has already determined the prevalence of alcaptonuria in the UAE population.

FETAL GROWTH (H. Narchi, A Skinner, B Williams)

• Several collaborative studies with UK hospitals have looked at the **evaluation of foetal growth by customized birth weight centiles.** The results have shown a better identification of outcomes associated with small and large for gestational age as defined by the customized centiles. Similar results have also been shown for macrosomic infants and infants born to diabetic mothers. The results have important implications for the screening and monitoring of infants at risk.

PERINATAL NUTRITION AND NUTRITIONAL DISORDERS (Y. Abdulrazzaq)

• The department is involved in studies on micronutrients abnormalities in pregnancy and the effect on the fetus/newborn. The preliminary results suggest that micronutrient deficiency is common in pregnancy and outcome studies are in progress.

• The department has been active through the

years in experiments involving amino acids levels at different ages in the UAE population and showed that some amino acids were abnormally high in newborn infants using the then available parenteral amino acid solution. This led to a change in the solutions use in the Medical District.

• The group working on reproductive toxicology has established that aflatoxin (a fungus toxin) contamination of foods is very common, and that aflatoxins have been detected in blood of pregnant women and their offspring in larger amounts than is acceptable. Measurement of aflatoxin in breast milk of lactating mothers is in progress. The results give a much clearer picture of exposure of infants to aflatoxins.

NEONATAL PERIVENTRICULAR LEUKOMALACIA- PVL (H Narchi, D Ghoneim, A Skinner)

• A collaborative study with the department of physics at the UAEU and neonatal units in UK hospitals has looked at the value of **computerised texture analysis of "flares on neonatal cranial ultrasound**. We found this new technology to be highly predictive of lesions which will eventually develop into PVL (with poor neurodevelopment prognosis) and those which will resolve and which have a good outcome. With this new technology the results are apparent several weeks before changes can be seen on other imaging modalities.

PERINATOLOGY (H. Narchi, A. Skinner)

• A collaborative study with UK hospitals has looked at the **role of maternal overweight and obesity on neonatal outcomes.** Although macrosomia was more prevalent and growth retardation less common with increasing levels of obesity, unlike previous reports, the results have shown a lower prevalence of poor neonatal outcomes. This is due to the multivariable analysis model used and which has addressed the limitations of prior studies. The results are important for the management of obese pregnant women and their newborn.

VITAMIN D STATUS FROM THE BIRTH TO ADOLESCENCE (H. Narchi, J. Kochyil, R. Zayed, M. Agarwal)

• **Hypovitaminosis was found in 70% of pregnant women** in Al Ain at their first antenatal booking, with progressive worsening towards delivery and up to 6 months postpartum. The underlying mechanisms have been unraveled and recommendations have been made for prevention.

• **Hypovitaminosis was found to be very common in otherwise healthy neonates** and has been shown to progressively improve over the first 6 months of life, without any vitamin D supplementation. The mechanisms for this were studied.

• In view of the high prevalence of hypovitaminosis D in young pregnant women, a population based study on the status of **vitamin D levels among female adolescents** is being planned. These projects will provide information which will lead to interventional studies in the future. The objective is to achieve normovitaminosis D status in women prior to pregnancy.

HELICOBACTER PYLORI (S. Bharwani)

• Preliminary data shows that H pylori prevalence is close to 60% in UAE. There is no data or cancer registry for gastric cancers in UAE and therefore the extent of H pylori involvement in Gastric cancer in this part of the world remains elusive. We are in the process of creating a gastric cancer registry from the data in Al Ain and Tawam hospitals.

• There has been a surge in H pylori resistance to the common antimicrobial agents like clarithromycin and metronidazole and in UAE according to one study at least one out of three point mutations is present in 65% of infected individuals. This is an alarming trend and we are conducting a series of phenotypic and genotypic resistance studies to create new guidelines for H pylori management in the UAE and likely in the GCC. The North American guidelines clearly will not hold grounds in this case.

• The virulence factors in H. pylori CagA and Vac A seem to be common in the Middle East. These virulent factors which have high likelihood of causing ulcers and newer biochemical markers will help us in identifying susceptible individuals whom we can treat with appropriate antibiotics. This personalized medicine is not only logical but is necessary to address the antimicrobial resistance and rising healthcare costs.

• Our collaborators at FMHS have shown in knock out animal models that the stem cells may have a prominent role in the evolutionary transition of gastritis to Gastric cancer in certain H pylori infected individuals. This area has certainly opened up possibilities for us to investigate in our Pediatric patients with H pylori infections that undergo endoscopies and biopsies to study H pylori using immunohistochemistry and electron microscopy. This study is already underway with collaborators from Al Ain Hospital, Tawam Hospital and the Department of Anatomy at FMHS.

TOXICOLOGY AND PHARMACOLOGY

• Effects of cytotoxic agents on various tissues (A.K. Souid, M. Al Samri, S. Al Hammadi). A primary interest is exploring toxin-induced apoptosis, particularly the "mitochondrial cell death pathway". Cell types include human lymphocytes and mouse hepatocytes, cardiomyocytes and lungs. The toxins include aflatoxins B1, dactinomycin and doxorubicin. The principle analytical method is phosphorescence oxygen analyzer that measures cellular respiration (cellular mitochondrial oxygen consumption). Moreover, intracellular caspase activities are monitored on HPLC, using caspase substrates such as Ac-DEVD-AMC and Ac-DEVD-AFC.

• Umbilical cord blood cell toxicology (A.K Souid, S. Al Hammadi and M Al Samri). We investigate the effects of various toxic agents (e.g., aflatoxins B1 and nanoparticles) on circulating fetal cells.

• Concanavalin A-induced hepatitis (M. Al-Shamsi, A.K. Souid, A. Shahin). We investigate Con A hepatitis is associated with hepatocyte apoptosis. The animal models include wild-type (C57BL) and various knockout mice. Apoptosis is detected by cellular respiration and caspase activation.

THE USE OF OXYGEN ANALYZER TO SCREEN FOR DISORDERS WITH IMPAIRED CELLULAR BIOENERGETICS (F. Al Jasmi, A.-K. Souid)

• The rate of lymphocyte respiration is determined for healthy adults, children and newborns (umbilical cord blood). Lymphocytes from patients with presumed impaired respiration are investigated. The aim of this project is to show feasibility of using the phosphorescence oxygen analyzer as a screening tool for patients with defective oxidative phosphorylation.

HAEMATOLOGY

• Red cell glutathione (GSH) levels in UAE patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency (A.-K. Souid). Blood samples will be collected from patients with G6PD deficiency during and after acute hemolysis. The red blood cell thiols will be labeled with monobromobimane. The GS-bimane derivatives will be separated on HPLC and detected by fluorescence.

• Erythrocyte phenotype in Emirati people with alpha-thalassemia trait. (S. Denic and A.-K. Souid).

The aim of this project is to establish red blood cell reference values for UAE citizen.

• Comparison of erythrocyte indices to differentiate between iron deficiency and alpha thalassaemias in children with microcytosis and/or hypochromia (H. Narchi, R. Basak). This study looked at the value of several RBC indices, calculated from available results on CBC of children with hypochromia and/or microcytosis, to predict alpha-thalassemia or iron deficiency, both being common conditions in children in the UAE. The results have important clinical implications to avoid unnecessary investigations and prevent inappropriate and potentially harmful administration of iron supplementation.

ALLERGY AND IMMUNOLOGY (S Al Hammadi)

• **Anaphylaxis to camel milk** has been reported and studied.
• The **prevalence of food allergy** in children in Al Ain has been established.
• The **prevalence and types of primary immunodeficiency** in the UAE is currently being studied.
• A project on **atopic dermatitis and food sensitization** in children is being planned.

RESPIRATORY MEDICINE (M Al Samri)

• Pediatric Tracheotomy. The aim of this project is to describe the natural history of pediatric tracheotomy and its outcomes.

• Sputum inflammatory phenotype in patients with asthma. The aim of this project is to

describe inflammatory phenotypes in induced sputum in children with asthma. Airway inflammation is a marker of asthma severity and response to treatment.

METABOLIC DISEASES (N. Al Yasi , F. Al Jasmi)

• **Screening for Fabry disease in dialysis patients**. The aim of this study to determine the prevalence of Fabry disease in UAE.

NEPHROLOGY (H. Narchi)

• **A study of biological markers of renal tubular damage in young children with urinary tract infections is underway (H Narchi, M Hamdani, I Attrach, A Shibli, J Kochiyil, G Dhatt)** The association of the presence, magnitude and duration of these markers as a potential predictor for permanent renal cortical scarring will be looked into. The results might potentially identify, without the risk of ionizing radiations, those children at higher risk of scarring who will need long0term antibiotic prophylaxis and other uro-imaging studies.

• **An experimental study of proteinuria and urinary cytokines in mice with experimental fever versus experimental nephrotic syndrome (H Narchi, J Kochiyil)** has shown a marked difference in the pattern of cytokines excretion. This would allow differentiation between the benign proteinuria associated with febrile illnesses in nephrotic children, versus the onset of a relapse of nephritic syndrome where prolonged corticosteroid therapy would be required, with potential requirement for renal biopsy and cytotoxic or immunosupooressive therapy.

• An extension of this study on nephrotic children is being planned

• **A study of fetal hydronephrosis** has shown that, when diagnosed in the third trimester of pregnancy, it has a higher predictive power for underlying uropathies. These results will result in modifications of current guidelines.

• **Several studies of uropathogens resistance to antibiotics in children with urinary** tract infections (H. Narchi, M. Hamdani) have looked at the role of first versus recurrent infection, presence of vesico-ureteric reflux and prior antibiotic prophylaxis. The results have implications for clinical practice.

INFECTIOUS DISEASES (S. Uduman, Ahmed Al Suwaidi)

• Clinical and immunological aspects of hepatitis C, seroepidemiology and neonatal screening of CMV and other congenital infections.

• Completing a Concise Book on Pediatric Infectious Diseases.

ESTABLISHMENT OF NORMAL GROWTH CHARTS FOR CHILDREN AND THE SIZE AT BIRTH OF INFANTS BORN TO UAE NATIONALS (Y. Abdulrazzaq).

• These growth charts have provided the first standards for assessing intrauterine and postnatal physical growth of UAE newly born infants and children. Role of food allergy and airway reactivity is another area of interest in our department. This is being investigated in a population based approach.

CARDIOVASCULAR (E. Aburawi)

• In the areas of Diabetes mellitus and cardiovascular diseases the research activities in our department is involved in the study of the Cardiovascular Diseases Risk Factors in Emirates adolescents and young patients (age between 15 – 25 year-old) with type 1 and type 2 Diabetes Mellitus. The hypothesis is to find out that the microalbuminuria may correlate with endothelial dysfunction and cardiovascular autonomic neuropathy in adolescents and young adults. Young patients with T1DM and T2DM that carry the high risk haptoglobin 2 allele would have higher levels of oxidative stress and more diabetes complications.

• Effects of N-3 Polyunsaturated Fatty Acids (PUFAs) on Left Ventricular Function and Coronary Flow (CF) in Children with Type 1 Diabetes Mellitus. Young diabetics are at risk of developing diabetic cardiomyopathy. Coronary flow disturbance is suggestive of coronary microvascular dysfunction, which is the earliest manifestation of coronary heart disease (CHD). The interaction between inflammation and the adaptive immune system are the mechanistic link for the pathogenesis of Type 1 DM and its complications. Coronary flow disturbance could be secondary to inflammation and endothelial dysfunction. Improvement of endothelial dysfunction would favourably influence the clinical prognosis. PUFAs reduce the inflammatory processes, vasoconstriction, and platelets aggregation, all known to be anti-atherogenic.

This is a collaborative study with Lund University, Sweden.

• Coronary flow in babies with Intra-Uterine Growth Retardation. Subclinical myocardial injury has been reported in newborns with fetal weight below 2 standard deviations for the gestational age. Our aim was to investigate whether impaired intrauterine growth affects cardiac function and coronary flow. This is a collaborative study with Lund University, Sweden.

• Study of myocardial function, coronary flow and inflammatory markers before and after cardiac surgery with Heart Lung Machine. How to prevent the myocardial injuries? An animal study. This is a collaborative study with Lund University, Sweden.

• We are carrying out a National Survey in patients with Down and its associated problems. The aims are to assess the prevalence of overweight/obesity and to establish the references for body mass index (BMI) percentile curves for Emirates children with uncomplicated Down syndrome. We are looking at the markers of Alzheimer Disease in these children. Also, we will study the epidemiology of CHD in these children. We are planning to carry out analysis of peripheral blood T-cell subsets, Natural killer cells and serum levels of cytokines in these Emirates children with Down syndrome.

MEDICAL EDUCATION (H. Narchi)

• **Study of the predictive value of the paediatric in-house examination** at the end of clerkship with regard to the NBME examination has identified the key components of our examination which can predict the NBME marks. These results, when used as a formative assessment, will help identify students predicted not to perform well at the NBME and offer remedial action. (H Narchi)

• **Comparison of the educational objectives of the paediatric in-house examination** at the end of clerkship and of the NBME examination, using Bloom's taxonomy of educational objectives, has identified which objectives are duplicated and which are unique to each examination. This will allow proper alignment of our assessment methods with our educational objectives set out in our paediatric curriculum. (H Narchi)

• **Students and faculty perceptions about the individual faculty evaluation – Survey** (E Aburawi, S. Shaban)

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RESEARCH GRANTS

FMHS New Research Grant

Prof H Narchi (PI).
Serum vitamin D levels in female adolescents and risk factors- A population-based cross-sectional study.

National Research Foundation Grant

Dr. B Ali. (PI), Prof L Al-Gazali
Manipulation of endoplasmic reticulum protein degradation machinery for therapy of genetic diseases. (2011)

Prof L Al-Gazali [PI]
Identification of Disease Genes of Recessive Disorders prevalent in the UAE population.

UAEU Individual Grant

Prof YM Abdulrazzaq [PI]
Deleterious effects of aflatoxin administration in pregnant mice.

Prof YM Abdulrazzaq [PI]
Oxygenation phenotype and genotype in UAE population.

Sheikh Hamdan Award for Medical Sciences

Prof YM Abdulrazzaq [PI]
Reproductive toxicological effect of lamotrigine on mice.

Dr. Elhadi Aburawi [PI]
Cardiovascular Diseases Risk Factors in UAE adolescents and young adults with type 1 and type 2 Diabetes Mellitus. Assessment of aortic and carotid intima media thickness indices in correlation with the classical

cardiovascular and metabolic risk factors.

Emirates Foundation Grant Prof H Narchi (PI).

Tubular cells damage markers in the urine of children with urinary tract infection and correlation with permanent renal scarring. Study duration 2 years.

Others

Dr. Elhadi Aburawi [PI]
National Survey of Down syndrome in Emirati's children and its associated problems. Emirati Fund
Prof YM Abdulrazzaq [PI]
FITS project. Nestle Nutrition Grant.

Dr B Ali, Prof L Al-Gazali [PIs]
Identification of genes for human cognition. (Dubai Harvard Foundation for Medical Research; PI: Bassam Ali and Lihadh Al-Gazali; UAE University, UAE; PI: Prof. Christopher Walsh, Harvard Medical School, USA; PI: Dr. Brian Meyer, KFRC, Saudi Arabia; 5 years starting January 2008

2011

Paediatrics

Standing left to right: ***Dr. Noura Al Dhaheri, Dr. Fatma Al Jasmi, Ms. Sania Al Hamad, Mr. Jose Kochiyil, Ms. Rose Clemente, Mr. Mohd Jamal, Professor Hassib Narchi, Dr. Ahmed Al Suwaidi and Mr. Aws Rashad Diab***
Seated left to right: ***Dr. Sheela Benedict, Dr. Fatima Ismail, Dr. Suleiman Al Hammadi, Professor Lihadh Al Gazali, Professor Yousef Abdulrazzaq, Professor Abdul-Kader Souid, Dr. Elhadi Aburawi, Dr. Mohamed Al Samri and Dr. Sulaiman Bharwani***

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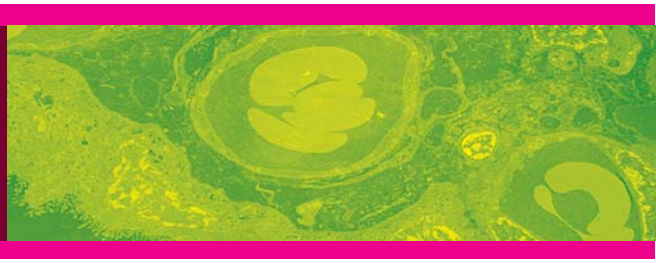
Department of Pathology



Research Profile

Pathology is a wide-ranging discipline of laboratory medicine. It covers several fields, including histopathology, cytology, laboratory haematology, clinical chemistry, genetics and molecular biology.

Professor and Chair:
Prof. M Agarwal
Associate Professors:
Dr. B Ali
Dr. S Al Salam
Dr. A Castella
Assistant Professors:
Dr. A Al Bawardi
Dr. S Al Marzooqi
Medical Research Technologists
Ms. M Ibrahim
Ms. A J Mathew
Ms. M Sudhadevi
Secretary
Mr D P Ranganathan

Clinical chemistry: (Dr. Mukesh M. Agarwal)
In the UAE, the prevalence of diabetes mellitus (DM) is the second highest in the world. This remains a major epidemiological challenge for the country. Multiple studies agree that aggressive life-style changes (after delivery) in women with gestational diabetes (GDM) can delay and even prevent the onset of Type 2 DM. Much of our research efforts are directed to GDM. How to screen a large population in a cost-effective manner? We are continually studying the value of various simple screening tests for GDM, which have a high degree of sensitivity. Ultimately, not missing any pregnant woman with GDM will help us to start prevention for DM, after childbirth. This will help our ultimate objective: to decrease the epidemic of Type 2 DM in the UAE.

Hematopathology: (Dr. Antonio Castella)
Lymphomas are malignant monoclonal disorders of the lymphatic system, which show diverse clinical features, pathology and outcome. The pathological classifications are controversial, especially with regard to non-Hodgkin's lymphomas (NHL). In recent years new classifications have been proposed which are based on modern concepts of lymphocyte function. The latest classifications of lymphomas (REAL) and (WHO) are an attempt to resolve the lack of uniformity in the reporting of malignant lymphomas by defining the different types according to morphology and immunology as well as cytogenetics.

Although lymphomas show a worldwide distribution, geographical variations in their histopathologic pattern, especially NHL, are well recognized. However, in the Middle East, and specifically in the Gulf countries, there was a paucity of data concerning the patterns of histopathologic subtypes of lymphomas.

The Pathology department undertook a project, in collaboration with Tawam and Al Ain Hospitals, to study the pattern of lymphomas in the UAE.

The aim of this study was to analyze the distribution of the various pathologic types of lymphoma in a native Arab population of the UAE. More than 200 native patients with lymphoma were studied. The cases were examined morphologically and immunohistochemically with an extensive panel of monoclonal antibodies, and are classified according to the revised European-American classification of lymphoid neoplasms (REAL). The results were compared with the distribution of lymphomas in other Asian and Western countries.

In addition, a second project studied the differences of the distribution pattern of NHL between native UAE cases and a similar number of cases diagnosed in expatriates living in the UAE. No differences are found between the two population groups suggesting that environmental factors may play a role in the developing of NHL in the UAE.

The results of some of this work have already been published in peer-reviewed journals and presented in International Pathology and Oncology conferences.

The expression of EBV in Hodgkin lymphoma among UAE nationals was studied in collaboration with Dr. Suhail Al-Salam (PI), by immunohistochemistry for the latent membrane protein- I and in situ hybridization for EBV encoded RNA (EBER). EBV was seen in 17 of 45 (38%) cases of HL and was predominately seen in the MC subtype followed by NS, LD and LR subtypes, respectively.

Human Genetics (Dr. Bassam Ali)

1. Identification of the molecular defects underlying single gene disorders in the UAE and Arab populations. Recessive disorders are highly prevalent in Arab populations including UAE mainly due to high levels of consanguinity and lack of prenatal and/or pre-conception diagnosis. We have develped a molecular genetics research laboratory to look at the molecular defects (defective genes and mutations) causing recessive disorders found in UAE population with emphasis on mental retardation, metabolic and dysmorphology disorders. We are collaborating with major research groups at Harvard Medical School (USA), University of California in San Diego USA), King Faisal specialist Hospital and Research Center (KSA) and Sultan Qaboos University (Oman).

2. The cellular mechanisms of human monogenic disorders. We are interested in protein trafficking and quality control within eukaryotic cells. The protein quality control at the endoplasmic reticulum level is responsible for the development of several human genetic diseases including cystic fibrosis and emphysema. We recently elucidated the cellular mechanisms underlying Robinow syndrome and Acromesomelic Dysplasia type Maroteaux, recessive disorders that has been found in several parts of the Middle East including Oman and Saudi Arabia. We are currently looking to establish the mechanisms underlying Familial Hypercholesterolemia, Hereditary Hemorrhagic Telangiectasia and other ER-associate degradation diseases. In addition, we are exploring ways of manipulation the ER quality control for potential therapy of such diseases.

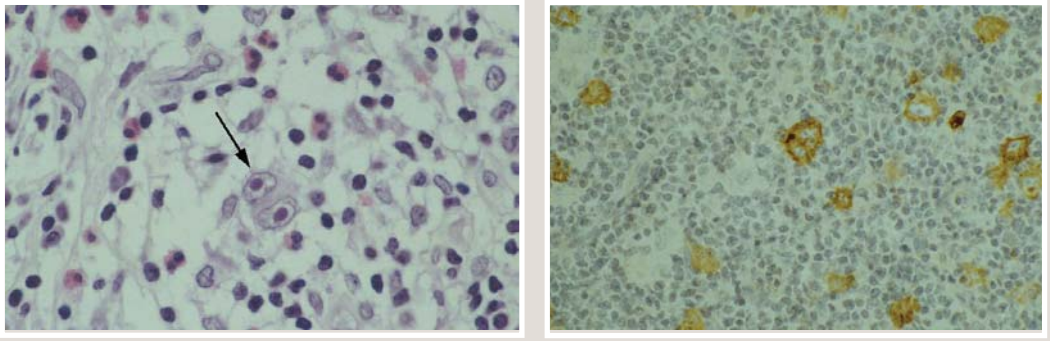


Figure:
Left side, classic binucleated Reed-Sternberg cell in a case of Hodgkin's disease (arrow) (H & E x 40), right side, immunohistochemistry with CD30 antibodies highlights the Reed-Sternberg cells (dark brown color).

3. Pharmacogenetics and pharmacogenomics. We are interested in establishing the alleles and genotypes frequencies of the genes encoding important drug metabolizing enzymes among UAE and Arab populations.

Histopathology/ lymphoma/ Breast pathology / CNS pathology/Renal Pathology/ Molecular Pathology (Dr. Suhail Al-Salam)

1. Expression of EBV in Hodgkin Lymphoma among UAE nationals

The epidemiology of Hodgkin's lymphoma (HL) shows wide geographic variation in histological subtypes and in its association with the Epstein-Barr virus (EBV). The proportion of EBV positive HL is low in industrialized countries, high in non-industrialized countries and intermediate in early-industrialized countries. Reports from the Arabian Gulf and Middle East are few. The aim of our study was to determine the epidemiology of HL in The population of United Arab Emirates (UAE) nationals, an early industrialized country in the Arabian Gulf, and to delineate the extent of its association with EBV. We review the cases of HL for the period 1988 through 2004 for histological classification and demographic data. All Cases diagnosed as Hodgkin's lymphoma were examined for the presence of EBV using immunohistochemistry (IHC) for the latent membrane protein I (LMPI) and in-situ hybridization (ISH) for EBV encoded RNA (EBER) to determine the prevalence of EBV in Hodgkin cells and its possible role in the pathogenesis of Hodgkin's lymphoma. EBV was seen in 17 of 45 (38%) cases of HL and was predominately seen in the MC subtype followed by NS, LD and LR subtypes, respectively.

2.Types of mutations in BRCA 1 and BRCA 2 genes in breast carcinoma among United Arab Emirates nationals and their correlation with P53, Ki 67, bcl2, nm2, c-erb-B2, estrogen receptors and progesterone receptors expression.

Breast carcinoma is the most common malignant tumor and the leading cause of cancer death in women all over the world. It is the commonest cancer among UAE population and the most common cancer among females .The age specific incidence ratio for females in UAE was 19.4 per 100,000 population. It is currently estimated that 5–10% of all breast cancers are hereditary and attributable to mutations in several high penetrance susceptibility genes, of which only two have been identified BRCA1 and BRCA.2. Earlier estimates suggested that BRCA1 and BRCA2 mutations were responsible for 75% of site-specific breast cancer families and the majority of breast and ovarian cancer families. The aim of this study is to identify the types of mutations in BRCA 1 and BRCA 2 genes in breast carcinoma among United Arab Emirates nationals and their correlation with the expression P53,Ki 67,bcl2,nm2, c-erb-B2, estrogen receptors and progesterone receptors.

3. Role of Trefoil Factor Peptides in the Development and Progression of Glioma.

Gliomas are the most common primary central nervous system tumors. They are the second most common cancer among children in UAE. They are graded into four grades from grade 1 which is the most benign to grade 4 which is the most malignant. They are characterized by progression from low grade to high grade within the same tumor. This progression is not well understood. Furthermore, the pathogenesis of

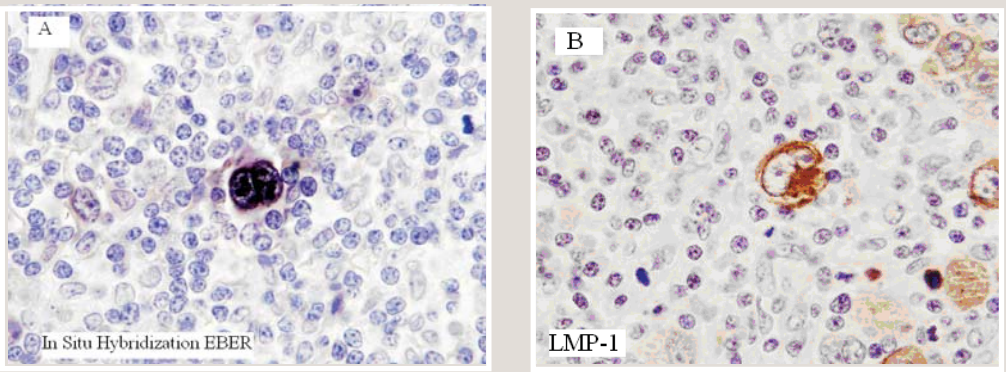


Figure:
Figure: (A) Hodgkin lymphoma with classical Reed–Sternberg cell showing dark-purple nuclear staining for EBER, in situ hybridization, X400. (B) Classical Reed–Sternberg cell showing membranous, cytoplasmic and Golgi immunoreactivity to LMP-1, streptavidin–biotin, X400

glioma is obscure. Several studies have shown the transforming potential of TFF peptides which is illustrated in tissues involved in cancer progression, while other studies have shown tumor suppressor action of TFF peptides. How can the apparent contradiction between the tumor-promoting and tumor-suppressing functions of TFF peptides be resolved? We hope that this project will answer some of these queries. There are nearly no published data concerning the expression of TFFs in human gliomas. In addition there was no previous reports concerning the role of trefoil factors in the pathogenesis or progression of glioma. Our preliminary study on few cases of gliomas using immunohistochemical stains have shown expression of TFF 3 in gliomas with difference in the expression between low grade and high grade gliomas.

4. Role of Galectin 1, 3, 4, 7 and 10 in the development and progression of uterine cervical carcinoma

Uterine cervical cancer is the second most common cancer in women worldwide, and the fifth most common cancer among females in UAE. Although high-risk human papillomaviruses (HPVs) are associated with cervical carcinoma, HPV infection alone is insufficient for the malignant transformation. Hence other molecular alterations are required for the development of cervical carcinoma and galectins may play an important role in these processes. The main purpose of this proposal is to study the expression of galectin-1, 3, 4, 7 and 10 in the neoplastic cells of different types, grades and stages of human uterine cervical carcinomas. We expect that our suggested studies will clarify and elucidate the role of galectin 1, 3, 4, 7 and 10 in the pathogenesis and progression of human uterine cervical carcinoma. In this project, we will verify this hypothesis by extending our experiments on peritumoral stromal mononuclear cells as well as non-neoplastic and dysplastic uterine cervical tissues.

5. Expression of estrogen receptors alpha and beta and progesterone receptors in thyroid carcinoma among UAE Nationals

Thyroid carcinoma (TC) is the sixth most common cancer among the United Arab Emirates (UAE) nationals and the second among UAE national females. The striking gender differences in the incidence of differentiated thyroid cancer, particularly for papillary thyroid carcinoma (PTC), suggests a possible influence of hormone related factors because the higher overall incidence of female PTC is established through a sharp increase during the fertile years of life. We found a high preponderance of differentiated thyroid carcinoma among UAE female nationals during the child – bearing, which was much higher than expatriates and other studies else where. We think that this finding suggests a possible hormonal influence and needs to be thoroughly investigated. We will review the cases of thyroid carcinoma which were diagnosed in the pathology department at Tawam Hospital for the period 1988 through 2007 for histological classification and demographic data. All cases diagnosed as thyroid carcinoma will be examined for the expression of estrogen receptors alpha and beta , progesterone receptors, EGFR, c-erb-B2, c-kit, cyclin D1, bcl- xL and p53 using immunohistochemistry (IHC) as well as fluorescent in situ hybridization (FISH) for EGFR, c-erb-B2 and cyclin D1 to determine the frequency of expression of estrogen and progesterone receptors in relation to the expression of EGFR, c-erb-B2, c-kit, cyclin D1, bcl- xL and p53 in different types of thyroid carcinoma among UAE national and in comparison with their expression among expatriates. This study will enable us to understand the role of sex steroid hormones and various growth factors in the development of thyroid carcinoma among UAE nationals.

Histopathology/ Breast pathology/ Renal Pathology (Dr. Alia Al Bawardi)

1. Cytotoxicity Analysis of Anticancer Therapies Targeting Cell-signalling.

Background: Several studies have confirmed the link between human carcinogenesis and molecular aberrations in cellular signaling pathways. For example, key mutations in Ras/Raf/MED/ERK or PI3K/PTEN/Akt/mTOR are implicated in the pathogenesis of numerous human epithelial cancers. Therefore, targeting these pathways with specific inhibitors of RAS, ERK, Pi3K, AKT and/or mTOR is expected (and has been proven in some tumours) to control the disease.

Aim: To assess the cytotoxicity of targeted anticancer agents (e.g., inhibitors of Pi3K, AKT, mTOR and MEK) in fresh samples of human epithelial tumours.

Study design: Tumour sections will be incubated in vitro with and without tested drug(s). The

cytotoxicity will be assessed by measuring cellular respiration (mitochondrial oxygen consumption), intracellular caspase activity, histology and ultrastructural features. Cellular respiration will be monitored using novel phosphorescence O2 analyzer. Intracellular caspases will be detected via cleavage of Ac-DEVD-AMC; the released AMC will be separated on HPLC and detected by fluorescence.
Significance: The experiment will assess sensitivity of various human carcinomas to inhibitors (singly or in combination) of Ras/Raf/MED/ERK or PI3K/PTEN/Akt/mTOR pathways.

2. H. pylori in Sleeve gastrectomies: Prevalence and Rate of Complications
Aims: Determine the prevalence of H pylori infection in sleeve gastrectomy specimens and compare that with the rate of post-operative complications such as bleeding and leak.
Hypothesis: The prevalence of H. pylori micro-organisms has not been established in sleeve gastrectomy specimens and yet initial observations indicate that it is significant. We hypothesize that establishment of the prevalence of H pylori in gastrectomy specimens will provide another preventive measure against H pylori complications such as chronic gastritis, and gastric lymphoma. In addition, we hypothesize that the rate of post-operative complications such as bleeding or leakage is higher in H pylori positive specimens compared to their negative counterparts.
Methods: Cerner computer based search for all non-tumor including sleeve gastrectomy cases performed between 16/04/2008 to 30/06/2011 will be done. Surgical pathology reports on these cases and slides will be re-examined and H pylori Warthin Starry special stain will be performed on every case if not previously done. Data on clinical history and post-operative complications will be sought from hospital electronic charts. Clinical history of upper G.I. symptoms, H pylori infection or eradication prior to Sleeve gastrectomy will be obtained. The prevalence of H pylori and rate of complications among H pylori positive and negative cases will be determined.
Conclusion: Data from this study will provide a better insight into the prevalence of H pylori among overweight National patients. If the prevalence is high, this might modify our local lab practice by providing a reflex Warthin Starry special stain on all Sleeve gastrectomy cases. If the rate of post-operative complications is high among H pylori positive cases then that would affect post-operative patients' management by providing H pylori eradication therapy.

Histopathology/gynaecological and paediatric Pathology (Dr. Saeeda Almarzooqi)
1. Cytotoxicity Analysis of Anticancer Therapies Targeting Cell-signalling
Background: Several studies have confirmed the link between human carcinogenesis and molecular aberrations in cellular signaling pathways. For example, key mutations in *Ras/Raf/MED/ERK* or *PI3K/PTEN/Akt/mTOR* are implicated in the pathogenesis of numerous human epithelial cancers. Therefore, targeting these pathways with specific inhibitors of RAS, ERK, Pi3K, AKT and/or mTOR is expected (and has been proven in some tumours) to control the disease.
Aim: To assess the cytotoxicity of targeted anticancer agents (e.g., inhibitors of Pi3K, AKT, mTOR and MEK) in fresh samples of human epithelial tumours.
Study design: Tumour sections will be incubated *in vitro* with and without tested drug(s). The cytotoxicity will be assessed by measuring cellular respiration (mitochondrial oxygen consumption), intracellular caspase activity, histology and ultrastructural features. Cellular respiration will be monitored using novel phosphorescence O2 analyzer. Intracellular caspases will be detected via cleavage of Ac-DEVD-AMC; the released AMC will be separated on HPLC and detected by fluorescence.
Significance: The experiment will assess sensitivity of various human carcinomas to inhibitors (singly or in combination) of Ras/Raf/MED/ERK or PI3K/PTEN/Akt/mTOR pathways.

2. H. pylori in Sleeve gastrectomies: Prevalence and Rate of Complications
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Hypothesis: The prevalence of H. pylori micro-organisms has not been established in sleeve gastrectomy specimens and yet initial observations indicate that it is significant. We hypothesize that establishment of the prevalence of H pylori in gastrectomy specimens will provide another preventive measure against

H pylori complications such as chronic gastritis, and gastric lymphoma. In addition, we hypothesize that the rate of post-operative complications such as bleeding or leakage is higher in H pylori positive specimens compared to their negative counterparts.

Methods: Cerner computer based search for all non-tumor including sleeve gastrectomy cases performed between 16/04/2008 to 30/06/2011 will be done. Surgical pathology reports on these cases and slides will be re-examined and H pylori Warthin Starry special stain will be performed on every case if not previously done. Data on clinical history and post-operative complications will be sought from hospital electronic charts. Clinical history of upper G.I. symptoms, H pylori infection or eradication prior to Sleeve gastrectomy will be obtained. The prevalence of H pylori and rate of complications among H pylori positive and negative cases will be determined.

Conclusion: Data from this study will provide a better insight into the prevalence of H pylori among overweight National patients. If the prevalence is high, this might modify our local lab practice by providing a reflex Warthin Starry special stain on all Sleeve gastrectomy cases. If the rate of post-operative complications is high among H pylori positive cases then that would affect post-operative patients' management by providing H pylori eradication therapy.

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RESEARCH GRANTS

FMHS New Research Grant

Dr. Suhail Al-Salam (PI)
Could resistin play a role in the development and progression of Breast carcinoma among type 2 diabetic patients? (2011):

Dr. Bassam Ali. (PI), Dr G Khan
Detection of BRCA gene mutations in Formalin-fixed paraffin embedded tissues from Emeriti breasts cancer patients. (2010/11)

National Research Foundation Grant

Dr. Bassam Ali. (PI), Prof L Al-Gazali
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Dr. Bassam Ali, Prof L Al-Gazali (PI)
Support for Further Development of the UAE Genetic Disease Diagnosis and Prevention Group. (2011)

Prof A Nemmar (PI), Dr S Al-Salam, Prof BH Ali.
Water-pipe (Shisha) smoking and hypertension: Pathophysiologic mechanisms and possible influence of antioxidant and anti-inflammatory drugs. [2011-2014]

Terry Fox Fund for Cancer Research

Drs. Suhail Al-Salam (PI), Dr M Bashir, M Jaloudi,
Role of Galectin 1&3 in the breast cancer chemoresistance. (2011-2014)

2011

Pathology

Standing left to right: ***Dr. Bassam Ali, Prof. Mukesh Agarwal, Dr. Antonio Castella, Dr. Suhail Al-Salam***
Seated left to right: ***Dr. Alia Al Bawardi, Dr. Saeeda Al Marzooqi, Ms. Anne Mathew, Mr. D. P. Ranganathan***

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Department of Pharmacology & Therapeutics

Research Profile

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Medical Research Specialist
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Mr. M El Wasila

The Pharmacology Department has special interests in Diabetes and Degenerative Diseases, Neuroscience, Clinical Toxicology, Gastroenterology and Oncology. The research is done with state of the art equipment in purpose-built laboratories with good technical and other support.

Prof. Abdu Adem
Diabetes
Mechanisms of Apoptotic Cell Death in Diabetes

In almost all multicellular organisms, cell suicide or apoptosis appears to play an important role in the maintenance of cellular homeostasis. Apoptosis is tightly regulated by a set of genes that either promote apoptosis or promote cell survival. Although a number of stimuli appear to trigger the process of apoptosis, there are two major signaling pathways of apoptosis: the death receptor pathway and the death receptor-independent or mitochondrial pathway. Mechanisms of apoptotic cell death are being studied in kidneys of an animal model of diabetes. The ultra structural features in the tubules seem to implicate apoptosis in the pathology of renal nephropathy. In addition we reported, for the first time, a significant loss of foot processes of podocytes (*) in the diabetic rat kidney (Fig.1 left). These findings could contribute to the understanding of the patho-physiology of diabetic nephropathy.

Neurodegenerative Diseases
Novel Selective Ligands for Muscarinic Acetylcholine Receptors

Five muscarinic acetylcholine receptor subtypes (M_1- M_5) have been cloned and are found in the brain. However, the pharmacological identification of the subtypes responsible for the various central effects of the muscarinic drugs is difficult due to the lack of highly selective muscarinic agonists and antagonists. We have isolated muscarinic M_1 and M_4 receptor subtype selective toxins from mamba snake (Dendroaspis) venoms. At present the status of M_1 and M_4 receptors in health and disease states in humans are being investigated. Our results show significant decrease of M_4, but not of M_1 receptors in the hippocampus of Alzheimer's patients compared to controls. Moreover, changes in these receptors in adrenalectomized animal models which have been shown to have a selective loss of hippocampal neurons. Attempts to isolate and characterize M_2, M_3, and M_5 selective toxins is also in progress. Behavioral, biochemical and electrophysiological techniques are also used in understanding the role of other neurotransmitters in diabetes, epilepsy, aggressive behavior, aging, and degenerative diseases.

Prof. MY Hasan
Neuroscience
The main line of research has been focusing on neurotransmission. We have been applying behavioral, biochemical and electrophysiological and morphological techniques in understanding the role of neurotransmitters in various disorders (diabetes, epilepsy, aging, neurodegenerative diseases). Findings indicated significant modification of specific neurotransmitters in many of the disorders. It appears that alteration in calcium mobilization and free radical system may be a common factor accounting for some of the changes observed in aging, diabetes and Parkinson's disease. Another line of research has been toxicological studies and impact of toxins on muscle the nervous system. We have investigated the effects of heavy metal Intoxication in relation to degenerative diseases. We studied impact of heavy metal toxicity on nervous system and muscle and observed that free radicals may be involved in metal toxicity and antioxidants like ascorbic acid & alpha-tocopherol may have a protective role against metals effects Also we have been looking and neurotoxicity and general toxicity from organophosphates and nerve gases. We have been screening antidotes for organophosphate poisoning and implication for treating exposure to nerve gas agents. Furthermore my interest covered broad areas in medical education and community health. Some of the projects performed included; drug utilization and rational use of antibiotics and analgesics in health care centers and community, developing Sickness Impact Profile for studying quality of life in infertile patients, studying views of medical students and physicians of clinical skills teaching at the medical colleges and surveying patient's attitudes towards students involvement in medical practice.

Prof. Salim Bastaki
Gastroenterology: Gastrointestinal diseases have increased in recent years. Work stress, alcohol, non-steroidal anti-inflammatory drugs (NSAIDS) strong tea or coffees have contributed to the pathology. Our research is based on gastrointestinal secretion and the mechanism of action of PPIs and other acid inhibitors on acid secretion. In the early years, Histamine H2-receptor antagonist, Sucralfate and Muscarinic receptor antagonists were used more often. But with the introduction of the proton pump inhibitors (PPIs) their use has declined owing to the potent anti-secretory and anti-ulcer activity of the PPIs. Recently we published the work on new proton pump inhibitor, esomeprazole, Astra-Zeneca (accepted for publication (2008)). At present we are studying the interactions of Aspirin in combination with ibuprofen on Gastric acid and Ulcer formation in the rat in vivo and in vitro (manuscript in preparation). In the near future we are planning to study the effect of stress on the mucosa of FSL and FRL rats and the healing rate of alcohol-and indomethacin-induced ulcers in the same rats.

Teratology: Epilepsy affects approximately 1% of the world's population and it is the second most common neurologic disorder after stroke. It is a heterogeneous symptom complex—a chronic disorder characterized by chronic seizures. Approximately 0.5% of all pregnancies occur in women with epilepsy. It is known that epileptic women demonstrate a higher liability to obstetric complication than non-epileptic females and congenital malformations are more common in their offsprings than those of normal or rats.

Pharmacogenetics: Oxidation by enzymes encoded at the CYP2D6 locus is the main route of elimination for a large number of drugs including many commonly prescribed in psychiatric practice such as antidepressants and neuroleptics. The CYP2D6 locus is highly polymorphic and numerous mutant CYP2D6 alleles are currently known including defective alleles which yield no functional protein product and duplicated active alleles which cause ultrarapid oxidation. Two CYP2D6 oxidation phenotypes EM (extensive metabolisers) and PM (poor metabolisers) are commonly recognized. These phenotypes can be accurately predicted by genotyping. The clinical implications of the CYP2D6 polymorphism are of potential importance to psychiatric practice in the UAE since tricyclic antidepressants are widely prescribed for treatment of depression. These drugs have a small therapeutic index and unpleasant side-effects or therapeutic failure is commonly encountered when fixed dose regimens are used. There are only very few and conflicting data concerning the distribution of CYP2D6 phenotypes in Arab populations and no genotyping studies have ever been carried out. We aim to determine the frequency of the most common CYP2D6 alleles in the local population using allele specific PCR methodology and to assess the relevance of the CYP2D6 polymorphism to psychiatric practice in the UAE (published in PlosOne).

Dr. Samir Attoub
Cancer research

My research is focused on the role of PI3K/Akt/NFκβ pathway as a driving force behind lung and colon cancer progression (apoptosis, invasion, angiogenesis and metastasis) using siRNA technology and in parallel screening of potential anti-cancer drugs.

1. Identification of Akt isoforms involved in colon cancer survival and invasion

The PI3K/Akt/NFκB signaling cascade is constitutively activated in cancers. Akt is linked to the transforming activity of c-src, c-kit, c-met oncogenes and growth factors, such as EGF and IGF receptors. Drugs targeting receptor tyrosine kinases (ErbB2/HER2 and ABL/c-kit) impact the PI3K/Akt pathway. Consequently, the inhibition of Akt is considered to be an attractive cancer therapeutic target. Three isoforms of Akt (Akt1/PKBα, Akt2/PKBβ, and Akt3/PKBγ) are over-expressed and activated in cancers, but the degree of functional redundancy between them on cancer cell survival and invasion are unclear. The identification of the Akt isoform that is the most promising target for cancer therapy is unknown and will be addressed in the following specific objectives:

a. To explore the respective roles of Akt-1, -2 and -3 in cancer cell survival, invasion, tumor growth and metastasis, studies will be conducted using RNA interference technology in LNM35 human lung cancer cells and HT29 human colon cancer cells.

b. To characterize the ability of different isoforms of Akt (Akt-1, -2 and -3) to transactivate different subsets of target genes to orchestrate either cell survival or invasion. This will be investigated in colon and lung cancer cells using microarray analysis.

The effects of knockdown of Akt-1, -2 or -3 on cellular survival will be determined by cellular viability, DNA fragmentation, cell cycle and TUNEL assays, caspases activity, PARP cleavage, cytochrome-c release and expression of pro- and anti- apoptotic proteins. The impact of Akt-1, -2 or -3 silencing on invasion will be investigated using the collagen type I and the chick heart invasion assays, cell-cell and cell-matrix adhesion and expression of E-Cadherin. The effect of knock down of the Akt's on HT29 cell line on tumour growth will be tested in nude mice. In addition, we will asses the development of new blood vessels (CD31 antibody), the presence of apoptotic cells (caspase 3 activity), and proliferative activity (ki67 antibody). We'll test the therapeutic impact of the Akt isoforms inhibition on metastasis using the highly invasive and metastatic lung cancer cell line LNM35 targeting the lymph nodes and lungs. This cell line is stably transfected with a vector encoding luciferase, to allow a rapid and reliable quantification of micro-metastases. To identify the mechanisms underlying the effects of Akt isoform inhibition, we will search for differentially expressed genes using microarray analysis and confirm the results by real-time RT-PCR.
It is anticipated that this project will provide evidence that targeting Akt-1 and/or -2 is a promising strategy for the treatment of colon and lung cancer.

2. Screening of potential anti-cancer compounds using in vitro and in vivo assays

The overall goals of this part of my research are directed towards studying the in vitro and in vivo cytotoxic properties of the synthesized/purified drugs (Luteolin, Thymoquinone and Frondoside A). The effective drugs will be further investigated in order to determine their mechanisms of action using various molecular biological techniques. In addition, we will attempt to investigate the effects of these drugs on cell survival and invasion in vitro and on tumor growth in vivo. The effects on metastasis in nude mice using various cancer cell lines will also be investigated.

Dr. Shreesh Ojha

Major research activities are in the area of cardiovascular pharmacology. He studies the role of pharmacological manipulation of oxidative stress and associated pathogenesis in ischemic heart disease, diabetes and diabetes related microvascular and macrovascular complications constitute metabolic syndrome. For this purpose, he employs animal models of ischemic heart disease subsequent to: isoprotoreneol induced myocardial infarction and cardiac hypertrophy, adriamycin-induced cardiomyopathy, coronary artery ligation induced myocardial

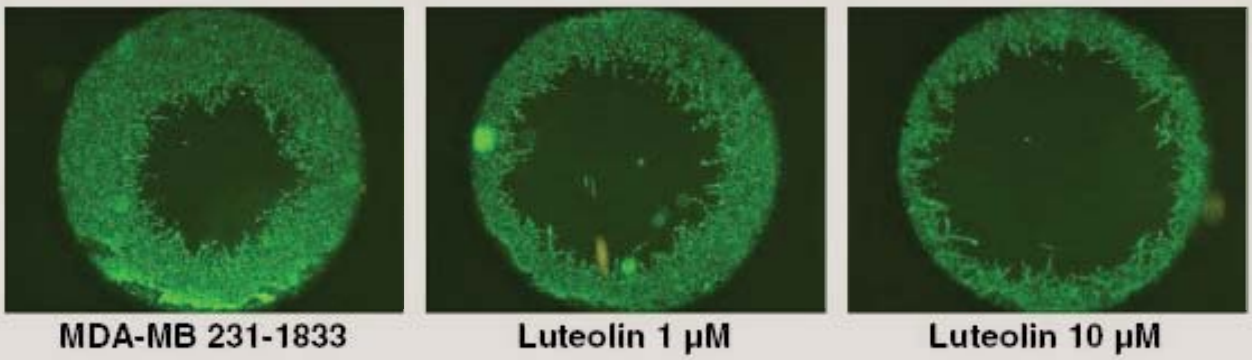


Figure 2: *Dose–response effect of luteolin on Breast cancer cell invasion.*

Dr. Murat Ahmet Oz

Research interest of Dr. Oz focuses on the identification of ion channels and neuronal networks upon which neuropharmacologically active agents act to modulate neuronal excitability. To this end, actions of neuropeptides such as vasopressin, angiotensin, and cholecystokinin on the spinal cord preparations and the effects of bioactive lipids such as endocannabinoids on the functions of ion channels are the major research topics investigated in his laboratory.

Dr. Rajesh Mohanraj

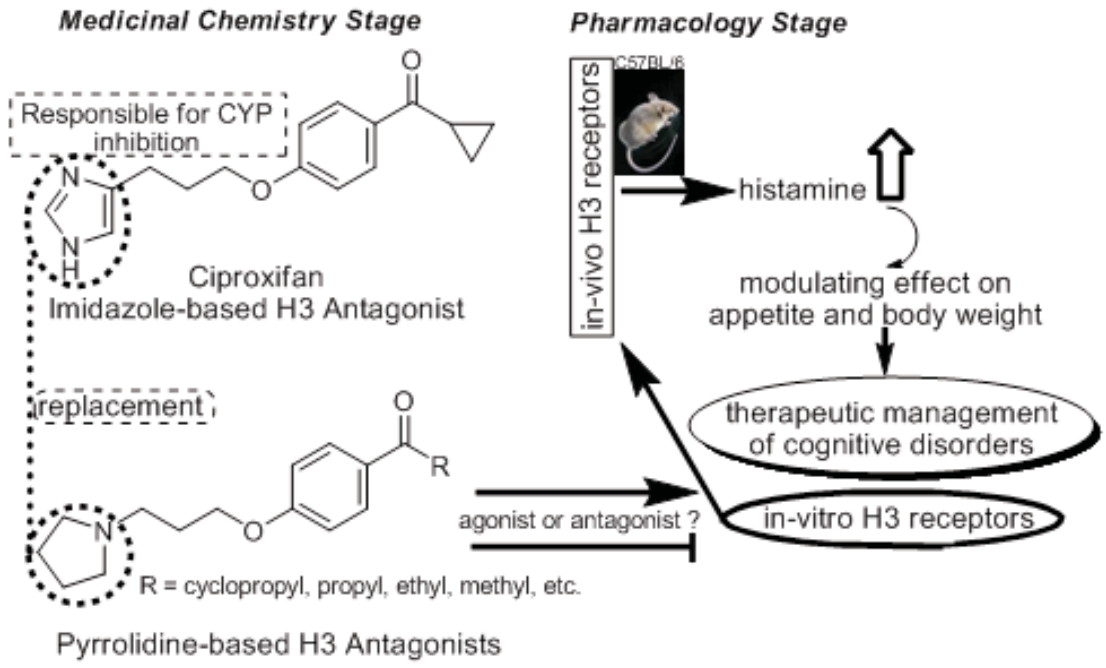
Research Profile: Dr. Rajesh was a new recruit to our department, in the summer of 2011. His main research interest pertains to the deciphering the role of neutral sphingolipids and endocannabinoid system in the pathogenesis of diabetic vascular complications and metabolic syndromes.

ischemia-reperfusion injury and streptozotocin-induced diabetes and diabetic complications. In particular, he is focused to examine renin-angiotensin system, sympathetic nervous system, oxidative stress, intracellular Ca^{2+} overload and remodeling for the transition of cardiac adaptation (hypertrophy and dilation) to maladaptation (cardiac dysfunction and heart failure). He is emphasizing pharmacological screening of conventional and newer compounds of synthetic or natural origin i.e. phytochemicals, extracts and formulations of complementary and alternative medicine. He is evaluating the cardioprotective potential of several phytochemicals and natural medicines and also studying the dietary interventions to find their use in better management of ischemic heart diseases and metabolic syndrome.

Dr. Bassem Shabab Sadek
Histamine H3 Receptors as Novel Drug Targets for Therapeutic Management of Cognitive Disorders

The development of selective antagonists targeting central histamine H_3 receptors enables the explanation of their physiological and pathophysiological functions, as the difficulty for developing satisfactory therapy of Alzheimer's disease (AD), Attention-Deficit-Hyperactivity-Disorder (ADHAD), or drugs abuse (DA) lies in the complex pathophysiology of the disease, which involves numerous pathways that include deficiency in cholinergic neurotransmission, abnormalities of adrenergic, serotonergic and dopaminergic neurotransmission. Thus, the development of H_3 receptor antagonists belonging to different chemical classes capable of penetrating into the CNS and modulating histaminergic neurotransmission in the central nervous system can positively affect the multi-neurotransmitter disorders, e.g. AD, ADHAD, or DA.

Research interest of Dr Bassem Shaban Sadek focuses on the structural development of those histamine H_3 receptor antagonists targeting cognitive disorders. To this end, different chemical classes of antagonists, e.g. piperidine- and pyrrolidine-based antagonists will be synthesized and investigated for their *in-vitro* antagonistic effect at human histamine H_3 receptors. Selected compounds with high *in-vitro* antagonist activity will be further studied on their *in-vivo* modulating effects on spatial memory impairment and drug addiction using Radial Maze, and Conditioned-Place Preference (CPP), respectively, as such pharmacologic evaluation is a key stone in the development of future drugs of significant role in therapeutic management of cognitive disorders, e.g. AD, ADHAD, and DA.



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Sadek, B, Attendance of The First United Arab Emirates Conference on Pure and Applied Chemistry (ECPAC11), American University of Sharjah, Sharjah/UAE (1-3 March 2011), Poster, Abstract Book (2011), p 257.

Sadek, B, Heterocycle Congeners and Histamine H3 Receptor Antagonism, Department of Chemistry, UAE University, AlAin/UAE (9 March 2011), Invited Speaker.

RESEARCH GRANTS

FMHS Research grants

Prof. Abdu Adem [PI]
The Role of TNF-α in experimental autoimmune neuritis: a model of inflammatory demyelinating polyneuropathy. (NP/10-11/1037)

Prof. Abdu Adem [PI]
Experimental autoimmune neuritis: Effect of TNF α. (2011-2012)

Dr. Samir. Attoub [PI]
Title: Role of SMARCAD1 in human breast cancer cell survival, proliferation, migration and invasion. 2011

Dr. Murat Oz [PI]
The effects of cathinone on the function of human dopamine, serotonin and norepinephrine transporters.

Dean's Discretionary Grant

Prof. S Bastaki

UAEU Grant

Dr. Rabah. Iratni [PI], Dr. Samir. Attoub [Co-PI]
Use Of Naturally Occurring Histone Deacetylase Inhibitors As Novel Anticancer Therapeutics. 2011-2013.

FMHS Equipment Grant

Dr. Samir. Attoub [PI]
Equipment: CO2 Incubator - 2011

Seed Grant Faculty of Medicine and Health Sciences

Dr. Bassem Sadik
Structural Development and pharmacological Evaluation of Histamine H3 Receptor Antagonists as Antiepileptic Drugs

Dr. Shreesh Ojha
Studying the cardioprotective role of thymoquinone in animal model of myocardial infarction

Emirates Foundation Grant

Prof. Abdu Adem
Search for Novel Anti-diabetic drug candidates (2011-2013)

Prof. S Bastaki
NAT2 acetylation phenotyping/ genotyping of Emiratis (2011-2013).

National Research Foundation Grant

Prof. Abdu Adem [co. PI]
Role of neutral sphingomyelinase activation in the pathogenesis of diabetic retinopathy (2011-2013)

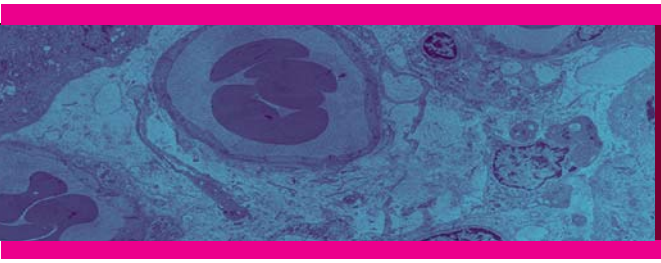
Dr. Murat Oz
The effects of endocannabinoids on the function of nicotinic acetylcholine receptors of the hippocampal interneurons

Dr. Rajesh Mohanraj [PI] Prof. Abdu Adem [Co-PI]
Role of neutral sphingomyelinase activation in the pathogenesis of diabetic retinopathy. 2011-2014

2011

Pharmacology

Standing left to right:
Mr. S Dhanasekaran, Dr. M Oz, Mr. A Shamsulisam, Dr. S Ojha, Dr. R Mohanraj, Dr. SM Nurulain, Mr. M El Wasila, Mr. S Alikutty, Mr. M Shafiullah
Seated left to right:
Dr. B Sadek, Dr. S Attoub, Prof. S Bastaki, Prof. A Adem, Ms S Duncan, Ms. K Arafat, Ms. N Amir



Department of Physiology

Research Profile

Professor & Chair:
Prof TE Adrian
Professor:
Prof M Fahim
Prof C Howarth
Prof W Lammers
Prof M Ljubisavljevic
Prof A Nemmar
Medical Research Specialist:
Mr J Oommen
Ms K Parekh
Mr A Qureshi
Ms B Stephen
Ms S Zia
MedicalResearch Technician:
Ms Hidaya
Ms GA Kanu
Ms SA Thomas
Secretary:
Mr P Rajagopalan
Office Assistant:
Mr Saeed C

Members of Staff of the Physiology Department have interests in neuroscience and muscle (including skeletal, cardiac and smooth muscle). The experimental work includes normal physiology as well as pathophysiology, particularly in relation to the peripheral nerves, autonomic nervous system, and heart in the diabetic state, which is a common disorder in the United Arab Emirates. The work requires complex electrophysiological and cellular methodologies, as well as electron microscopy, using in vitro and in vivo techniques. Other departmental research interests include uterine smooth muscle physiology, cardiovascular and pulmonary effects of particulate air pollution, cancer biology, as well as novel therapeutics for cancer, type 2 diabetes mellitus, and obesity.

Basic neurophysiology and experimental clinical neurophysiology laboratories

The research activities of the basic neurophysiology laboratory presently broadly focus on the skeletal muscle function and muscle pain. The main techniques employed are classical electrophysiological techniques (EMG, ENG, muscle force and velocity, single fiber and single unit recordings) and sensorimotor and pain assessment animal behavioral methods. Currently, in collaboration with several colleagues at FMHS we are focusing on validation of behavioral abnormalities in Rotenone rat model of Pakinson's disease and the possible role of basal ganglia in chronic pain modulation. The second area focuses on neural plasticity particularly in the spinal cord related to processing of somatic pain in cervical and lumbar spinal networks as well as of visceral pain. We are particularly interested in changes of cellular

and functional properties of spinal pain-related neural networks in various chronic pain conditions. Finally, we are trying to identify the effects of various repetitive Transcranial Magnetic Stimulation (rTMS) protocols on gene expression in diseases like stroke and chronic pain.

muscle junction in various peripheral neuropathies including those caused by diabetes, aging and heavy metal poisoning. Electrophysiological, laser confocal microscopy and electronmicroscopy techniques are used in combination to focus on changes in muscular performance in these conditions. It is hypothesised that free radicals are involved in these nerve injuries and

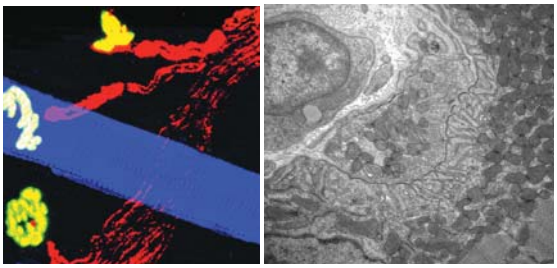
The rat with stroke induced by middle cerebral artery temporary occlusion being stimulated by TMS and the schematic depiction of TMS stimulation in a human subject.

The Experimental Clinical Neurophysiology laboratory uses various Transcranial Magnetic Stimulation (TMS) techniques, and other classical Clinical neurophysiology methods (H and F wave and visual evoked potentials) to investigate mechanisms of human nervous system plasticity and the possibilities to remodel these processes in health and diseases. We primarily focus on the organization and plasticity of cortical inhibitory and excitatory pathways in the normal human motor cortex, and in movement disorders and chronic pain. Furthermore, we are interested in application of TMS and transcranial direct current stimulation (TDCs) in neurorehabilitation and treatment of movement disorders and chronic pain syndromes. Finally, Dr. Ljubisavljevic's special interests over the years has been cortical processes related to volition in exercise and fatigue. The work focuses on mechanisms associated with sensorimotor integration and maladaptive plasticity in central fatigue. Our research activities are partly conducted in collaboration with colleagues from the Institute for Neurology, University Clinical Center Belgrade, and with Neurology division of Tawam Johns Hopkins Hospital.

Aging and neurodegenerative disorders
Studies on **aging and neurodegenerative disorders** have focused on synaptic plasticity and synaptic remodelling, particularly at the nerve-

antioxidants like vitamin E & C may have a protective role. Studies on the cerebral microcirculation include changes in the susceptibilty to thrombus formation in the brain, and the effects of metals, aspirin and heat.

Cardiovascular function and diabetes
The major research focus of Professor Chris Howarth is diabetes mellitus and heart function. A variety of in vivo and in vitro techniques are



employed to investigate the effects of type 1 and type 2 diabetes on the heart. Biotelemetry is used to continuously measure the ECG and other parameters in vivo. Video edge detection techniques are used to measure shortening and fluorescence photometry is used to measure intracellular Ca2+ in individual cardiac myocytes. Patch-clamp techniques are used to study membrane currents. Work in the centre is supported by technical staff, undergraduate medical and science students and graduates in our Ph.D. and

M.Sc. programs. Professor Howarth has ongoing collaborations with researchers in other departments in FMHS and various international research laboratories in U.S.A., U.K., Ukraine and other countries. Recent projects have included the progressive changes in expression of genes encoding Ca2+ signalling proteins and remodelling of Ca2+ proteins in type 2 diabetic heart, the effects of exercise training on heart function in the Goto-Kakizaki type 2 diabetic rat, remodelling of Ca2+ transport proteins and cardiac muscle dysfunction in the Zucker diabetic fatty rat and the effects of nanoparticles on myocyte electrophsyiology. Work in the laboratory has been generously supported by Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences, Emirates Foundation, United Arab Emirates University and the Faculty of Medicine & Health Sciences.

Mapping laboratory

Work has proceeded very well in 2011 with major research developments obtained both in the mapping lab in Al Ain and through our collaborations with other laboratories around the world.

Khawla Salem (PhD Student) and Anwar Qureshi (Technician) working with cardiac myocytes on one of our electrophysiology systems

We have continued our work in the emerging field of gastric arrhythmias with our analysis and publication of spontaneous arrhythmias and propagation disturbances that occur in the pig in vitro and in gastroparetic patients. This work is again part of a successful collaboration with the Pullan/Cheng group at the Bioengineering department at Auckland University, New Zealand and expands on our initial concepts of several mechanisms in gastric arrhythmias such as circus movements, reentries, ectopic pacemaking, complete and incomplete conduction blocks.

In Al Ain, we have continued our collaborative work with Dr Hamad Fayez on the origin and propagation of impulses in the normal and blocked ureter of the rat and the propagation pattern in the isolated bladder in guinea pigs.

And, this year, we finalized and published a first analysis of the propagation of the slow wave in diabetic small intestines, in collaboration with Professor Sherif Karam (Anatomy) *(see figure)*. It must be noted that this work actually started as a Student Research Summer activity (Al-Bloushi HM, Al-Eisae SA, Al-Dhaheri FA). In this work, we showed a significant decrease in the interstitial cells of Cajal (= ICC) in the myenteric plexus at 3 months diabetes and, surprisingly, a re-population of the ICC's at 7-months diabetes. This is important because the ICC's are responsible for the propagation of the electrical impulse (= slow wave) in the intestine, which in turn dictates the motility of that organ. Furthermore, we showed that the velocity of propagation was not affected by this level of depletion at 3-months diabetes and we explained this by developing a cellular automaton model to analyze the relationships between number of cells and the pattern of propagation.

Finally, we discovered in this same model the occurrence of circus movement arrhythmias in the diabetic small intestine, a first in this organ. This discovery led to several invitations for presentations in the USA, Canada, Australia and New Zealand and a first paper describing this phenomenon is now in press.

Other collaborative achievements, in Al Ain or elsewhere have been:

a) A visit by Dr Wing-Chiu Tong, from the Institute of Cellular Medicine, Newcastle University, Newcastle, UK for a 2-week training in mapping technology in the mapping lab in Al Ain.

b) Several visits by Dr Sandeep (Ras Al Khaima College of Medical Sciences, RAK) to develop a new project (effects of Imatinib on slow wave propagation in the small intestine).

c) With Professor Sherif Karam, the study of the propagation of the slow wave in diabetic small intestine of the rat. In this study, we recently discovered the occurrence of functional re-entries in these small intestines, which could be the substrate for functional bowel obstruction. A first paper describing this phenomena is in press.

d) Following on our successful presentation on the origins of myometrial contractions in the pregnant guinea-pig uterus (Glasgow 2009),

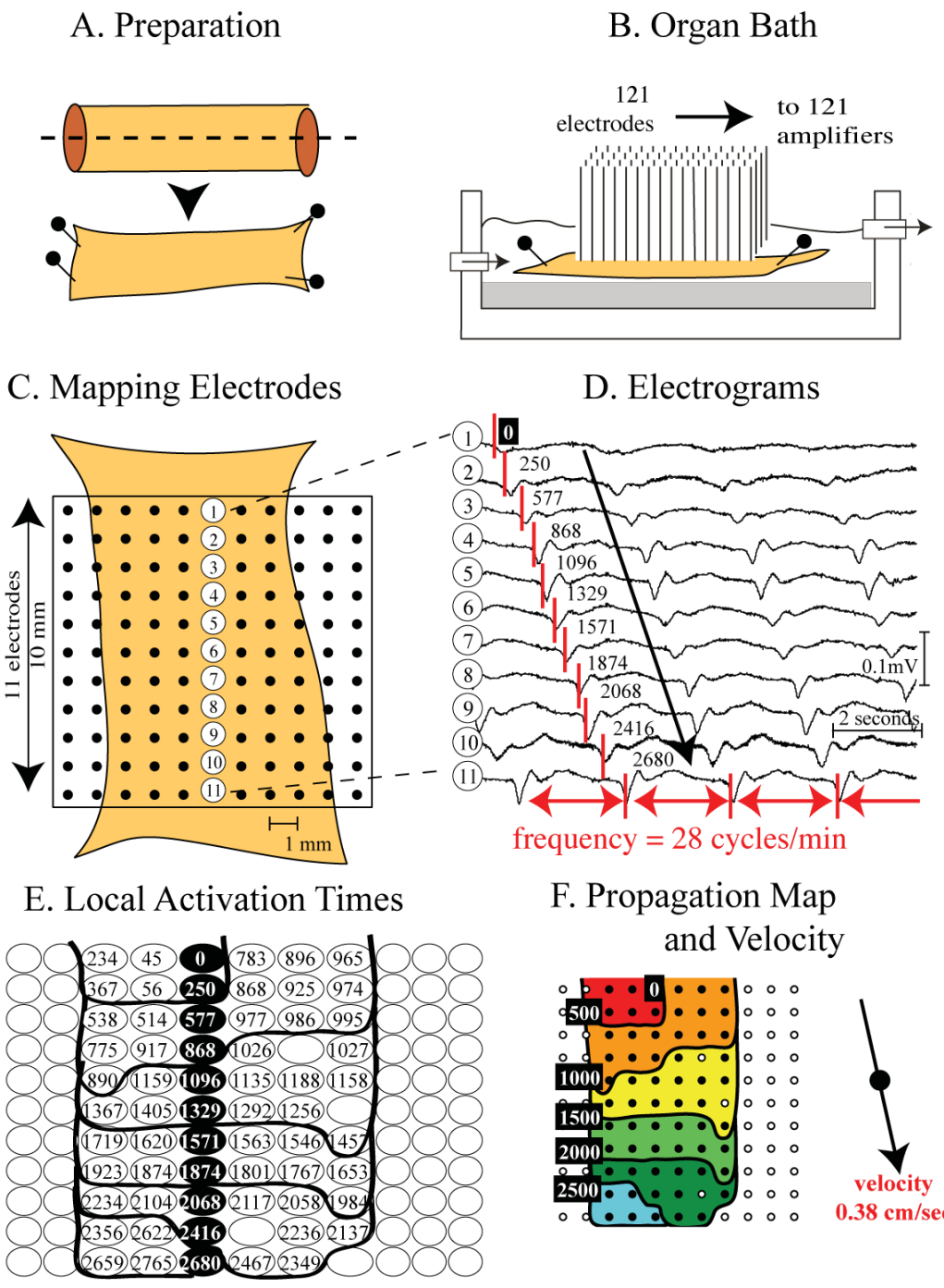


Figure:
Method of recording and analyzing isolated segments from the small intestine. Panels A & B show the opening of the tubular preparation and its positioning in an organ bath, serosal side facing upwards and the lowering of the 121 electrode array onto the tissue. Panel C shows that occasionally the array was larger than the tissue width. From the central column of recording electrodes (1-11), electrograms are displayed in panel D. From the first slow wave cycle, the rapid down stroke was time marked (times indicated in milliseconds) and these values plotted, as measured at all recording electrodes, in the map in panel E. In panel E, isochrones are drawn around areas activated in 500 msec time steps and false coloured as shown in panel F. From this data, the velocity of the slow wave and its frequency (panel D) were calculated.

we continued our work on the search of the pacemaker in the pregnant uterus of which we now have evidence that this is located along the mesometrial border of that organ. Based on these achievements, we were invited to write a review on the electrical activities of the pregnant uterus (in Reproductive Sciences) and to present a 1-hour talk at the annual Soc Gynaecological Investigations meeting (March 2012, San Diego).

e) We have continued our very successful collaboration with the Bioengineering group in Auckland, New Zealand (Pullan, Cheng, O'Grady et al) which has expanded with a collaboration with Drs Farrugia and colleagues (Mayo Clinic, Rochester, USA) and with the Gastroparesis group at Jackson, Mississippi (Abell, Lahr) USA, where we are currently performing high resolution mapping of gastroparetic patients who are refractory to drug treatments.

Pathophysiologic mechanisms of particulate air pollution

Air pollution from road traffic is a serious health hazard, and particulates have become cause for increasing concern. The UAE has seen tremendous growth in road traffic during the last fifteen years resulting in a significant increase in vehicular air pollution. In the major cities such as Abu Dhabi, Dubai or Sharjah, vehicle emissions are currently considered as one of the greatest contributors to urban air pollution. Inhaled particulate air pollution with diameter below than 2.5 µm contributes to respiratory and cardiovascular morbidity and mortality.

Diabetes, hypertension and renal failure are considered as major health problems in the UAE and the world at large. Not only the medical complications life-threatening but the cost of treatment is imposing enormous and increasing strains on national health budgets. In my laboratory we are studying mechanisms underlying the effects of air pollution on diabetes, hypertension and renal failure. I also aim at searching novel pharmacological agents that can ameliorate or prevent the toxicity of air pollution.

Nanotechnology is a broad interdisciplinary area of research, grouping physical, chemical, biological, and engineering expertise involved in manufacturing materials at a sub–100-nm scale. Whereas benefits of nanotechnology in areas as diverse as diagnosis, imaging, drug delivery, and information and communication technologies are extensively publicized, the discussion of the potential effects of the widespread use of nanotechnology in consumer and industrial products is just beginning to emerge. In my laboratory, we are investigating the biokinetics and the pulmonary and cardiovascular toxicological potential of engineered nanoparticles. Studies on the pulmonary and extrapulmonary effects of particle shapes (e.g., spheres, tubes, rods), chemistries (e.g., polystyrene, TiO2, FeTiO2, carbon) and surface characteristics (iron coating, charge) are being investigated. These studies involve in vivo and in vitro investigations.

The cancer laboratory

The overall thrust of the pancreatic cancer program is elucidating the molecular mechanisms underlying its rapid growth and invasion and in developing novel strategies to treat it. Prof. Adrian investigates various aspects of this pancreatic cancer, including growth and differentiation signaling pathways, the role of the lipoxygenase pathways in tumor growth and escape from apoptosis, the interactions between pancreatic cancer cells and the pancreatic endocrine islet tissue, as well as the reasons for the severe metabolic disturbance and cachexia that accompany this devastating disease. With his collaborators, he has developed some novel therapeutic agents, one of which recently entered clinical trials. New anti-cancer compounds have been isolated from marine organisms, including the sea cucumber. The mechanisms by which these agents cause cell cycle arrest and induce apoptosis in cancer cells are currently under investigation. Recently, he has used oligonucleotide microarrays to identify novel growth-related genes from their expressed sequence tags and this has led to the discovery of a new tumor suppressor gene in the endoplasmic reticulum.

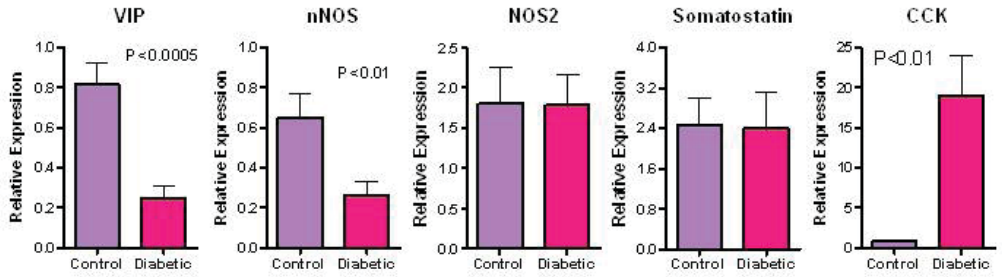
In other studies we have shown that the sea cucumber-derived triterpene glycoside, frondoside A causes marked growth inhibition of human pancreatic cancer cells, both in vitro and in vivo. Frondoside A causes apoptosis of the cancer cells via the mitochondrial pathway. We have recently shown that frondoside A has synergistic anti-cancer effects when combined with gemcitabine, the standard therapeutic agent used in this disease. Studies are underway to identify the mechanism of action of frondoside A.

Diabetic neuropathy and retinopathy

Changes in gene expression in the diabetic eye, in sympathetic and dorsal root ganglia, corpus cavernosum and vascular tissues were investigated by low density expression array in studies funded by the Emirates Foundation and the FMHS by Professors Adrian and Morrison. Several interesting early changes in gene expression were seen, particularly in the retinas of diabetic animals. Ongoing studies include confirmation of the expression changes using fast real-time RT-PCR and immunocytochemistry for the protein products of these genes in collaboration with Dr. Eric Mensah-Brown in the Department of Anatomy. Marked changes in gene expression have been documented. For example, in the pelvic ganglia from diabetic animals the expression of vasoactive intestinal polypeptide (VIP) and neuronal nitric oxide synthase (nNOS) are dramatically reduced in diabetic animals, while expression of another transmitter, Cholecystokinin (CCK) is dramatically increased. Since VIP and nNOS play a role in penile erection and in control of bladder function, these changes are likely to explain the erectile dysfunction and for urinary retention that are seen in diabetics. Early changes in expression of several genes, including calpain 3, and several crystallins, in the retina have been seen in three different models of diabetes in the rat. Changes in expression of these genes are likely to be involved in the pathophysiology of cataracts, diabetic retinopathy and glaucoma.

Clinical studies on lower gastointestinal hormones in diabetes and obesity

Enteroendocrine L-cells produce glucagon gene products (GLP-1 and oxyntomodulin) as well as PYY. All are satiety factors. GLP 1 is also an incretin. The number of L-cells and hormonal contents increases distally through the gut with highest concentrations in the rectum. We have previously shown that intracolonic infusion of bile salts in humans causes secretion of L-cell hormones, triggered via TGR5 membrane receptors. Together with colleagues in the Department of Internal Medicine, Prof. Adrian has been investigating release of these lower GI hormones in obese patients with type 2 diabetes mellitus. Using a simple and well-tolerated agent, this group has shown substantial increases in circulating concentrations of GLP-1, PYY and insulin. The release of the lower GI hormones resulted in a fall in circulating glucose levels and a marked reduction in spontaneous caloric intake of a subsequent meal. This mechanism is likely to be valuable in the treatment of type 2 diabetes and obesity. Investigations focused on the improvement of diabetic status and reduction in body weight with chronic administration of bile salts are planned.



Relative expression of mRNA for VIP, neuronal NOS (NOS1), NOS2, somatostatin, and CCK in pelvic ganglia from control rats and diabetic rats 12 weeks after treatment with streptozotocin. Real-time RT-PCR confirmation of low density gene expression array data, n=8 in each group.

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RESEARCH GRANTS

FMHS Research Grants

Profs FC Howarth (PI), E Adeghate, H Raza, Mr RS Hameed, Ms A John, Mr A Qureshi
Alterations in calcium signalling and cardiac muscle proteins underlie contractile dysfunction in Zucker diabetic fatty rat heart. (NO-10-11/102).

Profs E Adeghate (PI), FC Howarth
Localization of apolipoprotein A-1 and its effect in the pancreas of a rodent model of type 2 diabetes.

Prof A Nemmar (PI), Dr S Al-Salam
Pathophysiologic mechanism of the cardiovascular and pulmonary effects of particulate air pollution in a mouse model of hypertension: Possible protective effect of curcumin. (2011-2012).

Profs TE Adrian (PI),Eric Mensah-Brown.
Early Changes in Expression of VIP and nNOS in Pelvic Ganglia from Diabetic Rats: Implications for Erectile and Bladder Dysfunction.

Prof WJEP Lammers (PI), Ms B Stephen, Dr M Al Sultan
Mismatch between electrical and contractile activity in the pregnant rat uterus.

Dr F Hammad (PI), Prof WJEP Lammers
Regional distribution of spontaneous electrical activities in the isolated guinea-pig urinary bladder.

Prof M Ljubisavljevic (PI)
The influence of two electrical afferent stimulation paradigms on muscle fatigue related brain excitability and performance of a complex motor task.

UAEU Individual Grants

Profs FC Howarth (PI), K Yuill and E Adeghate
Electrical remodelling of the atrioventricular node in diabetes. [21M064] – 2011-2014

UAEU Interdisciplinary Grants

Prof MA Fahim (PI)
Ghrelin and recovery after antineoplastic and cytotoxic therapy.

Profs FC Howarth (PI), TE Adrian, Dr M Jacobson, Profs M Ljubisavijevic, E Adeghate
Effects of exercise training on heart function in the Goto-Kakizaki type 2 diabetic rat [1426-08-02-10] - 2010-2012.

Sheïkh Hamdan Award for Medical Sciences

Prof C Howarth [PI], E Adeghate, TE Adrian, Dr M Jacobson, Ms K Parekh, Mr A Qureshi
Remodeling of Ca2+ transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat [2010-2011].

Prof A. Nemmar (PI), Dr S. Al-Salam, Prof. E. Kazzam
Mechanisms of adverse pulmonary and cardiovascular effects of particulate air pollution. [2010-2012].

Terry Fox Fund for Cancer Research

Profs TE Adrian (PI), F Safi, Dr. P Collin.
Effects and Mechanism of Frondoside A, a Novel Anti-Cancer Agent. [2009-2011].

Profs TE Adrian (PI), F Safi, Dr P Collin
Marine Mussel Oil for Cancer Treatment [2010-1013].

Emirates Foundation Grant

Profs. TE Adrian (PI), JFB Morrison, A Perrin, Dr, R Hennig.
The Expression of Genes in Neurons and the Tissues they Innervate During Development of Neuropathy in Two Animal Models of Type 2 Diabetes and in Human Tissues [2010 -2012].

Profs FC Howarth (PI), TE Adrian, E Adeghate, Drs M Oz, Al-Minhali
Progressive changes in expression of genes encoding Ca2+ signalling proteins and remodelling of Ca2+ proteins underlies cardiac muscle dysfunction in type 2 diabetic heart.[21M053] – 2010-2012

Prof E Kazzam (PI), Dr I Hassan, Prof A Nemmar.
Cardiac remodeling and ventricular interaction in patients with Thalassemia Major: Detailed Echocardiograific and Magnetic Resonance Imaging Evaluation in relation to Neurohormones and Collagen markers. (2011-2013)

Dr C Leduc (PI), Prof M Ljubisavljevic
Determinants of motor coordination development in obese children. Emirates Foundation. (2010-2012)

National Research Foundation Grant

Prof TE. Adrian (PI).
Resolvins and protectins in cancer, 2010- 2011.

Profs L Al-Gazali (PI), EA Adeghate, TE Adrian, BK Al-Ramadi, OM El-Agnaf and Dr. BR Ali.
Genes and Diseases Research Center of Excellence. [2010-2015].
Dr S Shehab (PI), Prof M. Ljubisavljevic (2010-2013)
How does Deep Brain Stimulation work?

Profs M. Ljubisavljevic (PI), T Adrian, Dr S. Shehab
The mechanisms of Repetitive Transcranial Magnetic Stimulation (rTMS) induced modulation of brain plasticity in health and disease (2010-2013)

Prof A Nemmar (PI), Dr S Al-Salam, Prof BH Ali.
Water-pipe (Shisha) smoking and hypertension: Pathophysiologic mechanisms and possible influence of antioxidant and anti-inflammatory drugs. [2011-2014]

Others

Profs TE Adrian (PI), S Gariballa, H Saadi, Dr. J Al-Kaabi.
Release of Rectal Hormones for Weight Loss and Improvement of Type 2 Diabetes Mellitus. Satiogen Inc, San Diego, California, USA.

Awards

Prof A Nemmar received FMHS Distinguished Teaching Award 2010-2011

2011

Physiology

Standing left to right: ***Ms K Parekh; Mr Saeed; Professors FC Howarth, W Lammers, A Nemmar, M Ljubisavljevic; M/s S Dhanasekaran and P Rajagopalan.***
Seated left to right: ***Ms SA Thomas, B Stephen, S Zia; Professors TE Adrian, M Fahim; Mr A Qureshi.***

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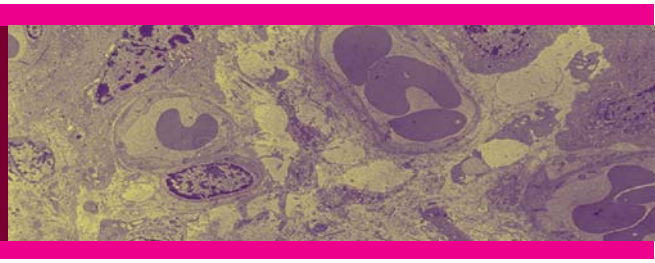
Department of Psychiatry and Behavioural Sciences



A. Departmental Profile and Research Themes:

1. Epidemiological aspects of common mental health disorders in primary health care and community settings
(a) A study of the prevalence, socio-demographic correlates and co-morbidity of premenstrual dysphoric disorder in the primary care. (Dr. O. Osman).

(b) A 10-year Retrospective study of the prevalence and correlates of various psychiatric diagnoses among inpatient admissions to Al-Ain Hospital. (Dr. O. Osman).

(c) Suicidal behavior and suicide prevention in childhood and adulthood. (Dr. K. Dervic).

(d) Affective and anxiety disorders in childhood and adolescence. (Dr. L. Amiri).

(e) Life satisfaction among older adults in UAE. (Dr. H. Moselhy).

(f) The association of mental disorders with unhealthy behaviours among adults in UAE (Dr. H. Moselhy).

2. Personality, psychosocial and trans-cultural aspects of physical illness
(a) Association of Irritable Bowl Syndrome with personality traits and with anxiety and depressive disorders. (Prof. O. El Rufaie).

(b) Psychological and social intervention in patients undergoing bariatric surgery. (Dr. O. Osman).

(c) Behavioral, social and Functional morbidities among Bariatric Surgery patients in the UAE (Dr. O. T. Osman)

(d) Depressive disorders as a risk factor in susceptibility to coronary heart disease. (Dr. H. Moselhy).

(e) Relation of brain lesion and apathy, depression, cognition and daily function in stroke patients. (Dr. H. Moselhy).

Professor and Chair:
Prof Omer El Rufaie
Professor:
Prof. Hamdy F. Moselhy
Associate Professors:
Dr. Rafia Ghubash
Dr. Ossama T. Osman
Dr. Kanita Dervic
Assistant Professor:
Dr. Leena Amiri
Research Technician
Mr Said Yousef
Ms Fadwa Almogaddam
Secretary
Ms Aisha Al Shamsi
Clerk II:
Mr O Pocker

3. Cultural aspects of psychiatry
(d) Cross-cultural child and adolescent psychiatry. (Dr. K. Dervic).

(e) A survey of Psychodermatology for Middle eastern Dermatologists (Dr. OT OSMAN)

4. Collaborative Research
(a) Cultural Aspects of Trauma and Recovery: A Joint partnership research project with Harvard Program on Refugee Trauma (HPRT) –Harvard Medical School and UAEU Global Health Institute (Dr. O. T. Osman).

(b) Drug and Alcohol Abuse in the United Arab Emirates. A joint partnership with the National Rehabilitation Institute (NRC) in Abu Dhabi (Dr. O.T. Osman)

(c) Epidemiology and qualitative Characteristics of Smoking 'Midwakh; and tobacco in the UAE. A joint Partnership research with Abu Dhabi Health Authority/Pfyzer (O.T. Osman)

(d) Pattern of heroin use among Egyptian population: positive gate way hypothesis (H Moselhy)

(e) Family profile among drug user in Mansoura, Egypt (H Moselhy)

(f) The rate of HIV among Egyptian adults drug users (H Moselhy)

5. Women's Mental Health
(a) A study of Symptoms Expression of PMDD in Women in the Primary Care. (Dr. O. Osman).

(b) A study of the post-partum psychiatric disorders in Al Ain. (Dr. O. Osman).

6. Postgraduate Education and Training
(a) Arab Board Curricular development in psychiatry (Dr. O. Osman).

(b) Accreditation Survey of Arab Board programs for structural and procedural organizations (Dr. O. Osman).

7. Recent translation, development and validation of psychiatric instruments for use among Arabic speaking population.
• Mini-International Neuropsychiatric Interview (MINI) (Dr. O. Osman).

8. Biological Psychiatric Research:
• Identification and Determination of Alleles and Genotypes Frequencies at the CYP2D6 Gene in Emiratis with mood disorders. (O.T. Osman)

• Characteristic metabolites of Dokha smoking in Human serum using Gaschromatographic method with mass spectrometry. (O.T. Osman)

• Group IVA phospholipase A2: A potential marker for schizophrenia (Dr. H. Moselhy)

• Molecular genetic study of schizophrenia in Arab population (Dr. H. Moselhy)

• Impact of heavy metals and other environmental risk factors on childhood mental health (Said Yousef).

Original articles in peer reviewed journals

Carballo JJ, Muñoz-Lorenzo L, Blasco-Fontecilla H, Lopez-Castroman J, García-Nieto R, Dervic K, Oquendo MA, Baca-García E. (2011). Continuity of Depressive Disorders From Childhood and Adolescence to Adulthood: A Naturalistic Study in Community Mental Health Centers. Prim Care Companion CNS Disord. 2011;13(5). pii: PCC.11m01150.

Daradka F, Moselhy HF (2011) Death anxiety (thanatophobia) among drug dependents in an Arabic psychiatric hospital. The American Journal of Drug and Alcohol Abuse, 37; 184-188.

Dervic K, Carballo JJ, Baca-Gracia E, Galfalvy H, Mann JJ, Brent DA, Oquendo MA. (2011). Moral or religious objections to suicide may protect against suicidal behavior in bipolar disorder. Journal of Clinical Psychiatry, Online ahead of print: February 8.

Dervic K, Amiri L, Niederkrotenthaler T, Yousef S, Salem MO, Voracek M, Sonneck G. (2011) Suicide rates in national and expatriate population in Dubai, United Arab Emirates. International Journal of Social Psychiatry, Dec 13. [Epub ahead of print].

Moselhy H, Gubash R, El Rufaie O, Zubaidi T, Sufian Sabri, Yousef S. (2011) The association of depression and anxiety with unhealthy lifestyle among UAE adults. Epidemiology and Psychiatric Sciences Journal [Epub ahead of print].

Niederkrotenthaler, T, Sonneck G, Dervic K, Nader IW, Voracek M, Kapusta ND, Etzersdorfer E, Mittendorfer-Rutz E, Dorner T. (2011) Associations of subway station characteristics with subway suicide and suicide attempt in Vienna, Austria. Journal of Urban Health, [Epub ahead of print].

Osman OT, Mufaddel A, Almugaddam F, Augusterfer EF. (2011). The psychiatric aspects of skin disorders. Expert Review of Dermatology, April 2011, Vol. 6, No. 2, 195-209

Qumsieh RY, Ali BR, Abdulrazzaq YM, Osman OT, Akawi NA, Bastaki SM (2011) Identification of New Alleles and the Determination of Alleles and Genotypes Frequencies at the CYP2D6 Gene in Emiratis. PLoS One. 2011;6(12)

Yousef S, Adem A, Zoubeidi T, Kosanovic M, Mabrouk A, Eapen V. (2011). Attention Deficit Hyperactivity Disorder and Environmental Toxic Metal Exposure in the United Arab Emirates. J Trop Pediatr, 57 (6); 457-60

Books, Chapters, Reviews and Editorials

Osman OT, Mufaddel A. (2011). The Dubai World Dermatology and Laser Conference and Exhibition Expert Review of Dermatology, August 2011, Vol. 6, No. 4, 349-354.

Moselhy H. (2011). Psychosocial and cultural aspects of epilepsy. Novel aspects on Epilepsy. ISBN 978-953-307-678-2. Edited by Humberto Foyaca-Sibat, publisher InTech.

Proceedings, Conferences, Invited Lectures, Web Sites and Others

Al Hallami, AY, Al Mazrouei A, Dervic K. Child and adolescent psychiatric services in UAE: A survey. FMHS, Research Day 2011. The Journal of Medical Sciences 4 (2): p.90

Al-Kayoumi TS, Mabrouk A, Yousef S, Al Sabousy M, Dervic K. A report of eight child abuse cases from Al Ain, United Arab Emirates. Abstract book, The 3rd SEHA (Abu Dhabi Health Service, UAE) Research Conference, 14-15.12.2011, Abu Dhabi, UAE

Dervic K. (2011). Youth suicidal behavior and prevention. Department of Child and Adolescent Psychiatry, University of Zurich, Switzerland

Dervic K. (2011). Diagnosis and Treatment of Attention Deficit/Hyperactivity Disorder (ADHD). Al Ain Pediatric Society, UAE

Dervic K. (2011). Attention Deficit/Hyperactivity Disorder (ADHD) – An Update. Al Ain Hospital Plenary Session, Al Ain, UAE

Dervic K. (2011). Attention Deficit/Hyperactivity Disorder (ADHD) in Childhood. The first conference of Ambulatory Health Care Services "Focus on Children Care in Primary Care", Al Ain, UAE

Dervic K. (2011). Diagnostic and Management of Attention Deficit/Hyperactivity Disorder (ADHD). Family Medicine Academic Day – Muwaiji Primary Health Center, Al Ain, UAE

Dervic K. (2011) Suicide among children and young adolescents. 8th Congress of the International Society for Adolescent Psychiatry and Psychology (ISAPP), Berlin, Germany

Dervic K. (2011) "Sleep disorders in childhood and adolescence" International Conference of Pediatrics, Tawam Hospital/Johns Hopkins International, Al Ain, UAE

Moselhy H. Rehabilitation in addiction: an Islamic model: in abstract book of 3rd conference of the International Muslim Association, Kaula Lampur, Malaysia, 5.12.2011-6.12.2011.

Moselhy H. (2011). Stress management. Workshop, Career day, Abu Dhabi 4.4.2011

Osman OT (2011) Outcomes of 2 decades of Research in the Middle East. In proceedings of The American Psychiatric Association Annual 164th Meeting- Honolulu, Hawaii May 15, 2011

Osman OT (2011) Current state of Research in the Arab World. Symposium on Arab Psychiatry. In proceedings of The American Psychiatric Association Annual 164th Meeting- Honolulu, Hawaii May 18, 2011

Osman OT (2011) Assessing Behavioral Research in the Gulf. Abstract book of The 1st International Brain Research Organization Middle-East Conference. Al-Ain, UAE February 7-9, 2011.

Osman, OT, Abbas, AK , Eid, HO, Salem, MO, Abu-Zidan, FM. Characteristics of Interpersonal Violence from Al-Ain Trauma Registry. Abstract Book of The 1st International Brain Research Organization Middle-East Conference. Al-Ain, UAE February 7-9, 2011.

Osman OT, Emam E, Babikir F, Torab F, Zoubeidi T (2011) Behavioral and functional morbidities among patients with obesity referred for Bariatric Surgery. Abstract book, The SEHA (Abu Dhabi Health Service, UAE) Research Conference, December 14, Abu Dhabi, UAE

Osman OT et al (2011) Psychiatric morbidities among Bariatric Surgery patients. Abstract Book, The Second International Psychiatric Conference. December 16, Doha, Qatar.

Osman OT (2011) Outcomes of 2 decades of Research in the Middle East. The American Psychiatric Association Annual 164th Meeting- Honolulu, Hawaii May 15, 2011

Osman OT (2011) Current state of Research in the Arab World. Symposium on Arab Psychiatry. The American Psychiatric Association Annual 164th Meeting- Honolulu, Hawaii May 18, 2011

Osman OT (2011) Assessing Behavioral Research in the Gulf. The 1st International Brain Research Organization Middle-East Conference. Al-Ain, UAE February 7-9, 2011.

Osman, OT, Abbas, AK , Eid, HO, Salem, MO, Abu-Zidan, FM. Characteristics of Interpersonal Violence from Al-Ain Trauma Registry. The international conference on trauma management, critical care and prevention February 21-24 Al-Ain, UAE.

Osman, OT, Abbas, AK , Abu-Zidan, FM. Secondary trauma among Physicians. The international conference on trauma management, critical care and prevention February 21-24 Al-Ain, UAE

Osman OT, Emam E, Babikir F, Torab F, Zoubeidi T. (2011). Behavioral and functional morbidities among patients with obesity referred for Bariatric Surgery. Second Annual SEHA Research Conference, , December 14, Abu Dhabi.

Osman OT et al (2011). Psychiatric morbidities among Bariatric Surgery patients. Second International Psychiatric Conference. December 16, Doha, Qatar.

Osman OT. (2011). Psychiatric Residency Training Presentation. FMHS, Career Day, April 4, Abu Dhabi Rotana Hotel, Abu Dhabi.

Osman OT. (2011). Age Related Psychiatric Disorders. Faculty of Medicine and Health Sciences, UAEU, CME "Psychiatry for Primary Care Physicians "Al-Ain Hilton, April 30, Al Ain, UAE.

Osman OT. (2011). Combating Compassion Fatigue. Al Ain Hospital Annual Paramedical Conference. May 7, Al Ain Hilton, Alain.

Osman OT. (2011). Translation of the MINI International Neuropsychiatric Interview. First Istanbul Psychiatric Research Workshop. July 3-5, Istanbul. Turkey.

Yousef S. (2011). Heavy Metals and Micronutrients Interactions and their Impact on School-aged Children in UAE. The First North Africa and Middle East (MENA) International conference". Marrakech - Morocco.

Yousef S. (2011). Micronutrients and Heavy Metals association with Behavioral Disorders of UAE Children. The 2nd GCC Symposium for HMG - Updates in Clinical Nutrition and Chronic Diseases. Al Qassim- Saudi Arabia.

Yousef S. (2011). Impact of Heavy Metals exposure on Childhood Developmental and Behavioral disorders: A UAE study. The Fourth Arab Nutrition Conference. Jordan University, Amman-Jordan

Yousef S, Adem A, Eapen V, Zoubeidi T, Kosanovic M, Mabrouk A. Impact of Heavy Metals exposure on Childhood Developmental and Behavioral disorders: A UAE study. The Fourth Arab Nutrition Conference. 5 – 7 April 2011, Jordan University, Amman-Jordan.

Yousef S, Adem A, Eapen V, Zoubeidi T, Kosanovic M, Mabrouk A. Heavy Metals and Micronutrients Interactions and their Impact on School-aged Children in UAE. The First North Africa and Middle East (MENA) International conference". 21 – 23 October 2011, Marrakech-Morocco.

Yousef S, Eapen V, Adem A, Zoubeidi T, Kosanovic M, Mabrouk A. Micronutrients and Heavy Metals association with Behavioral Disorders of UAE Children. The 2nd GCC Symposium for HMG - Updates in Clinical Nutrition and Chronic Diseases. 22-23 Noveber 2011, Al Qassim- Saudi Arabia.

Yousef S. (2011). Behavioral and developmental correlates of heavy metals exposure in UAE school-aged children. The Annual CME. Department of Psychiatry, FMHS-UAEU. Psychiatry for Primary Care Physicians- Age related Psychiatric Disorders, Al Ain, UAE

RESEARCH GRANTS

Emirates Foundation Grant

Dr K Dervic [PI]
Substance use, Depression and Suicidality among Teenagers in the UAE.

Prof Aw TC [PI], Drs Osman OT Blair I, Zoubaidi T, Sheek-Hussein M (2011)
National Rehabilitation Center (NRC) External Agency Grant on "Drug and Alcohol Addiction in the UAE

Others

Global Health Institute Grant.
Drs Mollica R [PI], Osman OT, Lavelle J, Naser L et al (2011).
Building Capacity and Partnership For Excellence in Mental Health: A joint UAEU Collaboration Between UAEU and Harvard Medical School- HRTP

UK, Aberdeen Research Group Grant
Prof H Moselhy [PI]
Group IVA phospholipase A2: A potential marker for schizophrenia

Awards

Dr Osman OT. `Merit Award' for best second oral research presentation at the 2nd International Conference on Trauma Management, Critical care and Prevention. February 2011.

Prof Hamdy Moselhy. Award of the UAE Union of Writers for short story "search for self"

2011

Psychiatry

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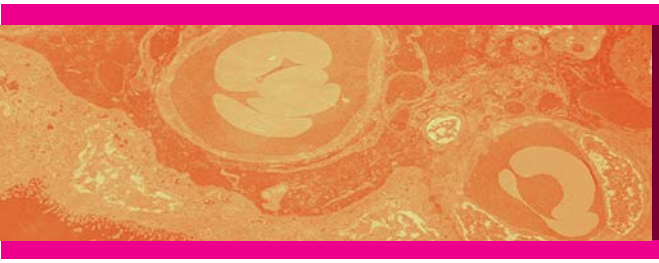

Department of Radiology

Research Profile

Professor & Chair:
Prof P Corr
Professor:
Prof R Langer
Associate Professor:
Dr K V Gorkom
Teaching Assistant
Dr T Al Mansour
Administrative Assistant:
Ms R Qayed

The department conducts research in a number of areas that are relevant to the health care needs of the UAE namely neuro-imaging, cancer imaging, radiological contrast agents, renal stone imaging, liver fibrosis and complications of thalassemia.

Prof. Peter Corr's research is in nanoparticle imaging of integrin receptors on cancer cells using magnetic resonance imaging. Integrin receptors are overexpressed in many common solid cancers and the ability to detect this overexpression by MR imaging will improve the sensitivity of early cancer detection. His other area of research is the detection of complications of thalassemia in the heart and livers of thalassemia patients using MR imaging. A new focus of research is improving quality of radiology reports at Tawam Hospital using double reading of cross sectional imaging.

Dr. Klaus Neidl van Gorkom and Prof. Ruth Langer have researched the usefulness of dual source CT imaging detection of urinary uric acid stones and have completed a prospective clinical study at Al Ain Hospital. They have also investigated nephrogenic systemic sclerosis, a rare skin complication following the injection of gadolinium contrast agents in patients with renal insufficiency that have MR imaging performed, using an animal model.

Articles in Peer-reviewed Journals

Abu Zidan F, Hefny A, Corr P. (2011). Clinical Ultrasound Physics. Journal Of Emergencies, Trauma and Shock, 4;501-503.

Baasanjav S, Al-Gazali L, Hashiguchi T, Mizumoto S, Bjoern Fischer B, Horn D, Seelow D, Ali BR, Aziz SAA, Langer R, Saleh AAH, Becker C, Nurnberg G, Cantagrel V, Gleeson JD, Gomez D, Michel JB, Stricker S,Lidner TH, Nurnberg P, Sugahara K, Mundlos S, Katrin Hoffman K. (2011). Faulty initiation of proteoglycan synthesis causes cardiac and joint defects. Am J Human Genetics, 89;15-27.

Corr P. (2011). Pulmonary Artery Aneurysm as a Cause of Massive Hemoptysis: Diagnosis and Management, Case Reports in Radiology, vol. 2011, Article ID 141563, 2 pages, 2011. doi:10.1155/2011/141563

Corr P. (2011). Imaging of Musculoskeletal Fungal Infections. Seminars in Musculoskeletal Imaging,15(5);506-510.

Corr P. (2011). Sonography of Gangrenous Cholecystitis. Journal Of Emergencies, Trauma and Shock,15(1);99-101

Corr P. (2011). Recognizing Pneumatosis Intestinalis-A Case of Bowel Ischemia Presenting as Renal Colic. Case Reports in Radiology, 2011

Conca W, Ghassan G, Al-Salam S, Neidl van Gorkom K. (2011). The medical odyssey of a boy with arthritis of familial Mediterranean fever. International Journal of Rheumatic Diseases (Dec 2011) doi: 10.1111/j.1756185X.2011.01686.x

Szólics M, Chaudhry M, Ljubisavljevic M, Corr P, Sameer H, Neidl van Gorkom K. (2011). Unusual neuroimaging features of serotonin toxicity - brain MR and 18 F-fluoro-2 deoxy-D-glucose PET findings following fluoxetine overdose. J Neuroradiology Dec 2011 Doi : 10.1016/j.neurad.2011.10.00

Web Articles

Corr P. (2011). Management of severe hemoptysis from pulmonary aspergilloma using endovascular embolization. http:// www.surgytec. com/video/management-of-severe-hemoptysis-from-pulmonary-aspergilloma-using-endovascular-embolization

Published Abstracts, Letters and Correspondence

Baasanjav S, Al-Gazali L, Hashiguchi T, Mizumoto S, Bjoern Fischer B, Horn D, Seelow D, Ali BR, Aziz SAA, Langer R, Saleh AAH, Becker C, Nurnberg G, Cantagrel V, Gleeson JD, Gomez D, Michel JB, Stricker S,Lidner TH, Nurnberg P, Sugahara K, Mundlos S, Katrin Hoffman K. (2011). Faulty initiation of proteoglycan synthesis causes cardiac and joint defects. 84th Annual of Japanese Biochemical Society 2011.

Corr P. (2011). Does Double Reading Change Patient Management in a Tertiary Level Hospital? Radiological Society of North America Chicago November 2011. P401.

Corr P. (2011). Does double reading of CT and MR studies change patient management? 3rd SEHA Research Conference Abu Dhabi 14-15th December 2011, F23.

Langer RD, Al Gazali L, Neidl van Gorkom KFW. (2011). Neue Ergebnisse bei Uberlebenden mit Stuwe-Weideman-Syndrom Fortschr Roentgenstr 2011,183,292-293.

Neidl v Gorkom K, Mahmoud Mohamed N, Fuchsjaeger M, Lehtovirta J, Hachem AA, Langer RD. (2011). Dual energy computed tomography for non-invasive differentiation of renal stone composition. 3rd SEHA Research Conference, Abu Dhabi, 2011.

2011

Radiology

Standing left to right:
T Al Mansour, Dr K Van Gorkom, R Qayed, Prof R Langer, Prof P Corr.

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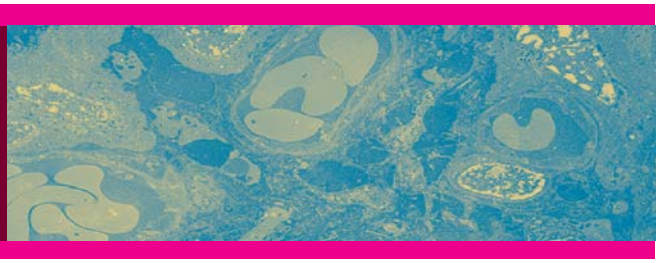
Department of Surgery



Research Profile

Faculty members in the Department have now increased from four (1999) to ten currently, five of whom are UAE nationals, with five previously advertised senior positions (breast/endocrine surgery, minimal access surgery, neurosurgery, orthopaedics and otorhinolaryngology) yet to be filled. All Faculty members have Consultant privileges at Al Ain and Tawam Hospitals.

Professor & Chair:
Prof FJ Branicki
Professor:
Prof F Abu-Zidan
Prof F Safi
Associate Professor:
Dr F Hammad
Dr F Torab
Assistant Professor:
Dr S Al Thani
Dr T Al Mahmoud
Dr A Al Belooshi
Dr Z Al Fardan
Dr A Jawas
Teaching Assistant:
Dr M A Al Ali
Research Support:
Dr A Abbas
Dr A Hefny
Mr L Lubbad
Administrative Support:
Mr C Aboobacker
Ms K Al Ghanem
Mr A C Jamal

Professor Frank Branicki
Prof. Branicki's clinical interests include the management of gastrointestinal bleeding, peptic ulcer and benign and malignant gastroduodenal disease in particular as well as acute care surgery and trauma management. Principal practice is in the management of oesophago-gastric cancers. His role as Course Director for Advanced Trauma Life Support (ATLS) with involvement in Advanced Trauma Care for Nurses (ATCN) courses generated data for presentation and publication. These activities led to invited presentations in 2011 in Egypt, India, Iran, Kenya, Oman, Syria and the UAE and ongoing participation in the International Gastric Cancer Congress in Korea. Collaboration with Assoc Prof Fawaz Torab led to a publication relating to peritoneal resorption capacity in an animal model of peritonitis. In addition, collaboration with Prof. Sherif Karam has involved experimental studies relating to gastric cancer conducted by a co-supervised Master's student, now awarded, under supervision in Prof Karam's laboratory. This work, funded by a research grant from the Terry Fox Foundation, has been productive and one aspect of this work has already been published. Prof Branicki is Emeritus Editor of the indexed Asian Journal of Surgery and regularly reviews articles for the World Journal of Surgery, the European Journal of Surgical Oncology, etc. He also serves as the Chair of the Undergraduate Curriculum Committee and Director of the Final Integrated Examination for medical undergraduates on completion of training. In June 2010 he was the recipient of the Distinguished Performance Award in the Faculty of Medicine and Health Sciences (FMHS) at UAE University, and was inducted as a

Fellow of the American College of Surgeons in San Francisco in October 2011.

Professor Farouk Safi

Prof. Farouk Safi's clinical interests in colorectal and hepatobiliary surgery led to presentations at national and overseas meetings. His contributions have included the management of severe liver injuries, hepatocellular carcinoma (HCC) and pancreatic carcinoma with lectures in Al Ain, Abu Dhabi, Dubai and Umm Al Quwain and in Europe (Copenhagen and Milan). Currently, Prof Safi's clinical practice has generated data relating to surgical interventions for hepatic and pancreatic malignancy and colorectal resections. Liver failure after hepatectomy, atypical appearance of HCC, rare liver tumors are new areas in which he has developed an interest. Professor Safi made presentations in 2011 in Jeddah (KSA), Kuwait, Oman and three presentations during the Annual Meeting of the Asian Society for Surgery in the Philippines. Professor Safi also organized a very successful (1st) Liver Surgery Workshop held at FMHS with international speakers and participants.

Professor Fikri Abu Zidan

In 2011 Professor Fikri Abu-Zidan continued his focused research activities in the areas of trauma management, 'point-of-care' critical care ultrasound and acute care surgery. He is effectively leading the Trauma Research Group of the FMHS with collaborative work involving the Departments of Community Medicine and Radiology (FMHS), and Departments of Surgery, Critical Care, Emergency Medicine and Radiology at both Tawam and Al Ain Hospitals. In 2011, he published 18 articles/reviews in international refereed Journals. At present he is studying seatbelt injuries, pedestrian injuries, animal related injuries, and 'point-of-care' emergency abdominal ultrasound. He has been able to raise external funds to appoint a Research Fellow (Dr Alaa Abbas) and a Senior Research Fellow (Dr Ashraf Hefny).
Professor Abu-Zidan was the Chair of the Organizing Committee of the 7th Middle East Trauma Meeting in the Accident and Emergency Conference in 2011 in Abu Dhabi (October), and the Co-Chair of the Organizing Committee of the 2nd International Conference: Trauma Management, Critical Care and Prevention which was held in February 2011, in Al Ain, Prof. Branicki being the Chair of the Scientific Committee (Trauma).
Professor Abu-Zidan continued scholarship activities including being a Guest Editor for two symposia on emergency sonography for the Journal of Emergencies, Trauma and Shock.

Associate Professor Fayez Hammad

Assoc Prof. Fayez Hammad has particular clinical interests in minimally invasive surgery for renal stone disease and oncology. He is the Founding Program Director for the recently established residency training program in Urology which is currently under the auspices of HAAD (Health Authority of Abu Dhabi).
Assoc Prof. Fayez Hammad completed a study on the "propagation characteristics of the electrical impulse in the normal and permanently and reversibly obstructed ureter as determined at high electrophysiological resolution" in collaboration with Prof. Wim Lammers from the Department of Physiology, FMHS. This work has resulted in two publications in both the Journal of Urology and the British Journal of Urology-International. The research was funded by an Individual Research Grant from the United Arab Emirates University (2008).

From the experimental work performed at the Research Laboratory, Department of Surgery (FMHS), Dr Hammad also completed a study of "The effect of NSAIDs (non-steroidal anti-inflammatory drugs) on the obstructed kidney" funded by a Seed Grant from FMHS, United Arab Emirates University. The study commenced in late 2008

and by the end of 2009 work in two groups of animals had been completed (control group (left ureteric obstruction for two days) and an NSAIDs group (left ureteric obstruction for two days having received NSAIDs), data were published in Urological Research. The work on "the effect of curcumin on the renal dysfunction following reversible unilateral ureteric obstruction in the rat" has also been completed. The data were published in the journal of European Surgical Research. In addition, the study of "the effect of curcumin on the renal dysfunction following renal ischemia-reperfusion injury in the rat" was completed and currently, the manuscript is under preparation. All these experimental studies were performed in collaboration with Mr. Loay Lubbad, research assistant.
In collaboration with Dr Hasan Elbiss, Department of Obstetrics and Gynaecology, Dr Hammad is participating in a study related to the incidence of urinary incontinence and prolapse

in UAE women. In addition, they completed a study on whether teaching patients clean intermittent self catheterization prior to anti-incontinence or prolapse surgery is necessary in women with voiding difficulty. The data were accepted for publication in International Urology and Nephrology. The study was performed in collaboration with the Department of Obstetrics and Gynaecology, Worcestershire Royal Hospital NHS Trust, Worcester, UK. They also reported a rare case of "placenta percreta invading urinary bladder and parametrium" which was accepted for publication in the Journal of Obstetrics and Gynaecology.
In collaboration with Prof Abu Zidan, Dr Hammad has published data regarding the incidence of genitourinary injuries in United Arab Emirates (Journal of Emergency Trauma and Shock). With Prof Abu Zidan and Dr Shaban from the Medical Education team, Dr Hammad also has a manuscript, accepted for publication in Medical Principles and Practice, entitled "Multiple authorship and article type in urology journals across the Atlantic: trends over the past six decades".

In collaboration with the Urology team from Dubai Hospital, Dr Hammad has reported on a rare case of "Congenital pelvic arteriovenous malformation presenting with urinary retention". This was also accepted for publication in Medical Principles and Practice.

Associate Professor Fawaz Torab
Associate Professor Fawaz Torab is the Chair of the Al Ain Medical District (AAMD) Human Research Ethics Committee. This Committee includes members from Tawam and Al Ain Hospitals in addition to Primary Health Care, Preventive Medicine, Zayed Military Hospital and Oasis Hospital. All research projects performed by human investigators or in a Health institution in AAMD are reviewed for approval by this Committee. A submission seeking renewal of acceptance with the Federal Wide Assurance authorities in USA was successful. This will facilitate any research project carried out in collaboration with researchers in the USA.

Promoted to Associate Professor Dr Torab is the 'Founder' and 'President' of the Obesity and Metabolic Surgery Interest Group in the UAE (OMSIG). This group was accredited in 2009 through the International Federation of Surgery for Obesity (IFSO) and the UAE has now become a member of this prestigious federation. He has been a member of the Technical and Scientific Committee of the Roadways, Transportation and Traffic Safety Research Centre, UAE Univer-

sity since 2005, and of the National Committee on Research Ethics, Ministry of Health, since 2008. Assoc Prof Torab was also nominated for membership of the National Research Committee of the UAE.
Assoc Prof Fawaz Torab's clinical interests are in acute care surgery, particularly pancreatitis and abdominal sepsis. There is a principal interest in laparoscopic procedures (bariatric surgery) for morbidly obese patients, whose co-morbidities affecting life style and life span can be ameliorated by surgical intervention. A prospectively

collected large database relating to surgical procedures performed is accruing and Assoc Prof Torab has pioneered, in the UAE, the use of single incision laparoscopic surgery (SILS) for various procedures.

He has also continued oversight of basic and advanced laparoscopic surgical workshops and courses in the UAE and elsewhere for Residents in training and more experienced surgeons. Research interests in collaboration with departmental, basic sciences and hospital colleagues at Al Ain and Tawam Hospital include clinical outcomes of primary and revisional bariatric surgery and single port procedures, experimental models of peritoneal sepsis, experimental studies of treatment of breast cancer, and the investigation of pro-inflammatory mediators in patients undergoing open or laparoscopic surgery for perforated peptic ulcer. In 2011 he has made significant contributions with presentations nationally in Al Ain, Abu Dhabi and Dubai and in Germany.

Assistant Professor Ali Jawas
Assistant Professor Ali Jawas successfully completed Residency training in General and Vascular Surgery at the University of Toronto in 2004 and was appointed Assistant Professor in December 2004. Following his training in Vascular Surgery he has also completed a Fellowship in Toronto and rejoined us in Al Ain in October 2005. He is actively involved in the provision of vascular services in Tawam Hospital. Previously the Program Director for our Integrated General Surgery Residency Training Program he was appointed by the Arab Board for Medical Specialization, Damascus, Syria as their representative for General Surgery training in the United Arab Emirates. He has been a member of the Evaluation Committee for surgical training programs in different emirates. Main research interests are related to the study of the management of peripheral arterial disease in Gulf countries. An Executive Board member in the Vascular Society he contributed to writing the "Guidelines for the Management of Peripheral Arterial Disease in the GCC countries". Dr Jawas was much involved as Coordinator and Chair of the Scientific Committee for the 5th Conference of the Gulf Vascular Society and the 5th Scientific Meeting of the Saudi Society for Vascular Surgery, which was held in Dubai in March 2011 and deemed to be very successful.

Assistant Professor Tahra Al Mahmoud
Assistant Professor Tahra Al Mahmoud completed Residency training in Ophthalmology at McGill University, Montreal and a Fellowship period in Ottawa concerned with disease of the anterior chamber of the eye. Appointed Assistant Professor, Dr. Tahra is on subatical leave to complete a fellowship in Uveitis at McGill University. Dr. Al Mahmoud's main research activities are in the area of Ophthalmology. Together with colleagues in Canada, she is involved in collaborative clinical research comparing clinical outcomes of various refractive procedures

such as Advanced Corneal Surface Ablation and Femtosecond Thin-Flap LASIK. In addition, Dr Al Mahmoud is planning to continue her collaborations with the Department of Microbiology and Immunology at FMHS, experimental studies with an animal model of Experimental Autoimmune Uveitis in Galactin-3 Knockout Mice. Dr Al Mahmoud has published guidelines for Postgraduates in Residency Training.

Assistant Professor Saeed Al Thani
Assistant Professor Saeed Al Thani completed Residency Training in Orthopaedics at the University of Toronto and was appointed Assistant Professor in July 2004. Following Fellowship training in 'sports injuries, hand and joint replacement surgery' at the same institution in Toronto he rejoined the Faculty in Al Ain in January 2006 and has been able to establish a busy Sports Injuries clinic and surgical practice in Tawam Hospital.
Dr Al Thani is Vice President of the AO UAE Alumni, Vice President of the National Sports Medicine Committee and currently is President of the Al Ain Orthopaedic Club.

Assistant Professor Ali Abbas Al Beloushi
Assistant Professor Ali Al Belooshi completed his Residency training in Toronto (Orthopaedic Surgery) and having been appointed as an Assistant Professor, he undertook an extended period of subspecialty Fellowship training in lower limb arthoplasty including revisional surgery and is actively participating in elective and emergency clinical services at Tawam Hospital. In 2009 he took on the role of Coordinator for the Junior Surgical Clerkship. A number of presentations (oral and poster) were made regarding hip arthroplasty in Al Ain, Dubai and in the USA. Dr Al Beloushi also serves as an Instructor for an AO Course for Orthopedic Trauma management. He has recently completed an MBA program with a focus in Health Sector Management (Duke University, USA). He is also the Chair of the Malpractice Committee in Orthopedic Surgery for the Dubai Health Care Authority.

Assistant Professor Zuhair Al Fardan
Assistant Professor Zuhair Al-Fardan completed Residency training in Plastic and Reconstruction Surgery in Toronto, and subsequently Breast Reconstruction Fellowship training including experience in microvascular surgery. Appointed Assistant Professor he returned to the Faculty in August 2008 and is actively participating in clinical services at Tawam Hospital. Dr Al-Fardan's main research areas are wound healing and clinical outcome of reconstructive surgery. His principal clinical interests are in breast reconstructive surgery and hand surgery. Dr Al-Fardan is a co-founder and academic officer for the 'Hand Surgery Club, UAE' and co-founder of the 'Abu Dhabi Plastic Surgery Club'. He is also an active faculty member of AO-trauma Middle East which conducts hand surgery workshops countrywide, and he is active member of the Canadian Society of Plastic Surgery. Dr Al-Fardan has also conducted workshops for injectable fillers in the GCC countries.

Dr. Mohamad Al Ali
Dr. Mohamad Al Ali, the most recently appointed Teaching Assistant in the Department, undertook a short term period of training in Toronto for three months in 2007 and is completing a Residency training program in Otorhinolaryngology at the Sahlgrenasks University Hospital, Sweden.

Support Staff
A senior medical laboratory specialist, Mr Loay Lubbad took up appointment in the Department in May 2008 and is much involved, in particular, with experimental studies of smooth muscle function conducted by Dr. Fayez Hammad. Mr. Abdulla Jamal has been working for some years as Departmental Secretary and, facilitates both teaching activities in the Clerkships, workshops and various CME activities with dedicated service to a high standard, with assistance from Mr. Aboobacker in office duties. Ms Raisa Al Mansouri joined the Department as Secretary in May 2008 following secretarial duties in the Department of Mathematics at the UAE University. Ms Mansouri was actively engaged with administrative arrangements for teaching and CME activity, and this included the highly successful Trauma, Critical Care and Injury Prevention Conferences which organized by the FMHS Trauma Research Group in February 2009 and February 2011. Following her transfer to FMHS administration she was succeeded in her post by Ms Khuloud Al Ghanem who joined the Department in April 2011.

Skills and Procedural Training
In April 2004 the Department hosted inaugural back to back Provider and Instructor courses in

the UAE for the Advanced Trauma Life Support (ATLS). Four invited Faculty and staff from the USA and one from Canada participated in the teaching and Provider courses are regularly held at FMHS, Fujairah and Abu Dhabi. These courses are training Emirati graduates and others in trauma care and will help reduce the burden of disabling illness and mortality from motor vehicle crashes. In March 2008 the FMHS was the site for inauguration of the Advanced Trauma Provider Course for Nurses (ATCN) in the UAE.

These activities run in concert with ATLS courses are made possible with the enthusiastic participation of Instructors from Tawam Hospital. In 2011 the Department hosted four ATLS and one ATCN courses in Al Ain.

With the support of Faculty Administration it has been possible to establish a Clinical Skills and Procedural Training

Centre which is a multidisciplinary venture to foster training for undergraduates and particularly Residents in a variety of clinical disciplines. Dr. Fawaz Torab, who received the Faculty Award for Teaching in April 2007, is the Director of the Center with basic and advanced laparoscopic courses planned in collaboration with industry who have strongly supported the project financially. Both FAST and ATLS courses are accommodated as need be, and also courses in laparoscopic gynaecological surgery and fetal ultrasonography. FAST trainers include, cardiologists, nephrologists, obstetrician/gynaecologists, radiol-ogists and surgeons. This exciting initiative has been made possible with donations from instrument and equipment manufacturers. A number of Interns and Residents in the General Surgery training program have successfully completed ATLS, FAST and laparoscopic training Courses.

Original Peer-Reviewed Scientific Articles

Abbas AK, Hefny AF, Abu-Zidan FM. (2011). Seatbelts and Road Traffic Collision Injuries (Review). World J Emerg, Surg, 6;18.

Abbas AK, Hefny AF, Abu-Zidan FM. (2011). Seatbelt Compliance and Mortality in the Gulf Cooperation Council (GCC) Countries in Comparison with Other High-Income Countries. Ann Saudi Med, 31;347-50.

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Abu-Zidan FM, Hefny AF. (2011). Is FAST reliable in severely injured blunt trauma patients? Injury, Jan;42(1):114-5.

Abu-Jayyab Z, Abu-Zidan FM, Marlovits S. (2011). Fracture dislocation of the lateral condyle and medial epicondyle of the humerus associated with complete radial nerve transection. J Pak Med Assoc, 61; 920-921.

Al-Ashaal, Hefny A, Joshi S, Abu-Zidan FM. (2011). Papillary Thyroid Carcinoma Presenting as a Lateral Neck Cyst. Afr Health Sci, 11;296-300.

Al-Ashaal Y, Hefny AF, Safi F, Abu Zidan FM. (2011). Tension pneumothorax complicating endoscopic retrograde cholangiopancreatography: case report and systematic literature review. Asian Journal of Surgery, 34(1); 46-9.

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AlMahmoud T, Priest D, Munger R, Jackson WB. (2011). Correlation

between Refractive Error, Corneal Power and Thickness in a Large Population with a Wide Range of Ametropia. Invest Ophthalmol Vis Sci, (IOVS) 52; 1235-1242.

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Blair J, Hodge W, Al-Ghamdi S, Balabanian R, Lowcock B, Pan YI, Sherif H, AlMahmoud T, Fergusson D, Slomovic A. (2011). Comparison of antibiotic-only and antibiotic-steroid combination treatment in corneal ulcer patients: double-blinded randomized clinical trial. Can J Ophthalmol, 46; 40-5.

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Hammad FT, Eid HO, Hefny AF, Abu-Zidan FM. (2011). Profiling genitourinary injuries in United Arab Emirates. Journal of Emergency Trauma and Shock, 4(3);342-5.

Hammad FT, Lubbad L. (2011). Does curcumin protect against renal dysfunction following reversible unilateral ureteric obstruction in the rat? European Surgical Research, 46;188-193.

Hammad F, Shawish F, Kazim E. (2011). Congenital Pelvic Arteriovenous Malformation Presenting with Urinary Retention: a Case Report. Medical Principles and Practice, 20(3);294-6.

Hammad FT, Lubbad L. (2011). The effect of diclofenac sodium on renal function in reversible unilateral ureteric obstruction. Urological Research, Oct; 39(5);351-6.

Hammad FT, Lammers WJ, Stephen B, Lubbad L. (2011). Propagation of the electrical impulse in reversible unilateral ureteral obstruction as determined at high electrophysiological resolution. Journal of Urology, 185(2);744-50.

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Abu-Zidan FM. (2011). What's New in Emergencies, Trauma and Shock? Mapping and Managing Missile Injuries (Editorial). J Emerg Trauma Shock, 4;159-60.

Abu-Zidan FM, Hefny AF. (2011). Promoting pediatric trauma research in the developing countries. (Guest Editorial) Contemp Clin Trials, 32; 783-4.

Abu-Zidan FM, Hefny AF, Corr P. (2011). Clinical Ultrasound Physics (Invited Review). J Emerg Trauma Shock, 4; 501-503.

Abu-Zidan FM, Abusharia MI, Kesseler K. (2011). Surgeon-performed sonographic findings in a traumatic trans-anal rectal perforation. World J Emerg Surg, 6;26.

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Torab FC, Kayyal MY, Branicki FJ. (2011) Revision in bariatric surgery: Results and experience of a tertiary referral centre. Proceedings: XVI World Congress of the International Federation for the Surgery of Obesity and Metabolic Disorders, Germany. Obesity Surgery. 21(8);1004

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Conference, Invited Lectures & Presentation

Abbas KA, Hefny AF, Abu-Zidan FM. (2011). Helmets reduce motorcycle-related death: a glo-

bal evaluation. 2nd International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abbas KA, Hefny AF, Abu-Zidan FM. (2011). Seatbelts and Road Traffic Collision Injuries. 2nd International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abbas AK, Mirghani H, Eid HO, Abu-Zidan FM. (2011). Trauma in Child-bearing Age in a High-income Developing Country. 2nd International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abbas AK, Hefny AF, Abu-Zidan FM (2011). Seatbelt Compliance and Mortality in the Gulf Cooperation Council Countries in Comparison with Other High-Income Countries. 2nd International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abbas AK, Hefny AF, Abu-Zidan FM (2011). Seatbelt Compliance and Mortality in the Gulf Cooperation Council Countries in Comparison with Other High-Income Countries. 12th European Congress of Trauma and Emergency Surgery, Milano, Italy.

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Abu-Zidan FM, Noureldin A, Hefny AF, Jamal A, Corr P, Kazzam E. (2011). Point-of-care ultrasound training: an experience from UAE. 2nd International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abu-Zidan FM, Eid HO, Hefny AF, Bashir MO, Branicki FJ. (2011). Camel Bite Injuries in United Arab Emirates: A 6 year prospective study. 3rd Annual SEHA Research Conference, Abu Dhabi, UAE. (poster).

Abu-Zidan F. (2011). Basic Ultrasound Physics. Critical Care Ultrasound Workshop. 2nd International Conference: Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abu-Zidan F. (2011). Detection of fluid in the abdomen and chest. Critical Care Ultrasound Workshop. 2nd International Conference: Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abu-Zidan F. (2011). Basic echocardiography in the ICU. 2nd International Conference: Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abu-Zidan F. (2011). Reading a trauma chest X ray. 2nd International Conference: Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abu-Zidan F. (2011). Clinical reasoning in trauma and critical care management. 2nd International Conference: Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Abu-Zidan F. (2011). Clincal Decision Making process: an essential skill in emergency. 12th European Congress of Trauma and Emergency Surgery, Milan, Italy.

Abu-Zidan F. (2011). Introducing EFAST. Hands-On Course of Ultrassound Extended Focused Assessment with Sonography for Trauma. 12th European Congress of Trauma and Emergency Surgery, Milan, Italy.

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Branicki FJ. (2011). Subspecialty surgical practice: a case for risk reduction? Arab Health – Hospital Build Middle East Conference. Dubai, UAE.

Branicki FJ. (2011). Carcinoma of the stomach: current concepts in management and treatment. 1st Kenya Society for Haematology and Oncology (KESHO)/Kenya Christian Medical Fellowship Conference. Nairobi, Kenya.

Branicki FJ. (2011). Surgery for Complicated Peptic Ulcer. Aga Khan University Hospital. Nairobi, Kenya.

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Eid H, Shaban S, Lunsjo K, Barss P, Torab F, Grivna M, El Ashaal Y, Branicki F, Abu Zidan FM. (2011). Trauma patterns in the United Arab Emirates: Data from hospital-based trauma registry. 3rd Annual SEHA Research Conference, Abu Dhabi, UAE, December 2011.

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Hammad FT. (2011). Cystoscopy for the Gynecologists. Urogynaecology Workshop – Dubai Health Authority, Arab Health, Dubai, UAE.

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Hefny AF, Eid H, Grivna M, Abu-Zidan FM. (2011). Bicycle-related Injuries of Hospitalized Patients in a High-income Developing Country. 2nd International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE.

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Hefny AF, Eid H, Grivna M, Abu-Zidan FM. (2011). Bicycle-related Injuries of Hospitalized Patients in a High-income Developing Country. 20th International Safe Community Conference, Falun, Dalarna, Sweden.

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Hefny AF, Al-Kuwaiti A, Bellou A, Eid HO, Abu-Zidan FM. (2011). Epidemiology of head injury in the United Arab Emirates. 3rd Annual SEHA Research Conference, Abu Dhabi, UAE.

Hefny AF, Abu-Zidan FM. (2011). Research as an important component of a Trauma System. 7th Middle East Trauma, Accident and Emergency Conference. Abu Dhabi UAE.

Jawas A, Hefny AF, Abbas KA, Abu-Zidan FM. (2011). Vascular Surgery Research in the Gulf Cooperation Council countries. 3rd Annual SEHA Research Conference, Abu Dhabi, UAE.

Jawas A. (2011). Management of Blunt Renal Artery Thrombosis. 7th Middle East Trauma, Accident & Emergency Conference. Abu Dhabi, UAE.

Osman OT, Abbas AK , Eid HO, Salem MO, Abu Zidan FM. (2011). Characteristics of interpersonal violence from Al Ain trauma registry. 2nd International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Osman OT, Emam E, Almugaddam F, Torab F, Zoubeidi F. (2011). Behavioral and Functional Morbidities Among Patients with Obesity Referred for Bariatric surgery. 3rd Annual SEHA Research Conference, Abu Dhabi, UAE.

Safi F, Bekdache O. (2011). Surgical approach for HCC. The first Oman Gastroenterology Conference, Muscat, Oman.

Safi F. (2011). Surgery for HCC. Second Liver Update. Kuwait City, Kuwait.

Safi F. (2011). Surgical management for HCC. Hepatocellular carcinoma symposium. Dubai, UAE.

Safi F. (2011). Is stenting preoperatively in obstructive Jaundice worthwhile? Emirates Gastroenterology Society Meeting. Dubai, UAE.

Safi F. (2011). Multivisceral surgery for colorectal cancer. Annual meeting of the Asian Society for Surgery. Cebu, Philippines.

Safi F. (2011). Liver surgery in UAE. Annual meeting of the Asian Society for Surgery. Cebu, Philippines.

Safi F. (2011). Cattle Warren anastomosis in pancreatic cancer. Annual meeting of the Asian Society for Surgery. Cebu, Philippines.

Safi F. (2011). How far do we extend the envelope in resection of advanced CRC liver metastasis? UAE Cancer Congress. Dubai, UAE.

Safi F. (2011). Management of severe hepatic injuries in UAE. 7th Middle-East Trauma, Accident & Emergency Conference. Abu Dhabi, UAE.

Safi F. (2011). Current Treatment of rectal Cancer. 7th Annual Saudi General Surgery Society Scientific Meeting. Jeddah, K.S.A.

Safi F. (2011). Multivisceral resection in colorectal cancer. 7th Annual Saudi General Surgery Society Scientific Meeting. Jeddah, K.S.A.

Safi F. (2011). Update on liver surgery. 7th Annual Saudi General Surgery Society Scientific Meeting. Jeddah, K.S.A.

Safi B, Trab M, Jawas A. (2011). Hemodialysis (HD) Access managements: A Single Center Experience with 269 procedures in 2 years. 5th Gulf Vascular Surgery Conference. Dubai, UAE.

Shaban S, Eid H, Abu-Zidan FM. (2011). Technical aspects of trauma registries. 2nd International Conference: Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Torab FC. (2011). SILS bariatric surgery: UAE experience. Arab Health Congress, 10th Middle East Surgery Conference, Dubai, UAE.

Torab FC. (2011). Ethical Issues and challenges. 2nd UAE-IBRO Neuroscience School. Al Ain, UAE.

Torab FC. (2011). Setting up a Center of Excellence for Obesity Surgery, Surgery Management. Hospital Build Middle East Congress and Exhibition. Dubai, UAE.

Torab FC. (2011). Revisions in bariatric surgery: Results and experience of a tertiary referral center. XVI World Congress of the International Federation for the Surgery of Obesity and Metabolic Disorders. Hamburg, Germany.

Torab FC. (2011). Ante-colic vs. retro-colic for gastric bypass. The 3rd SKMC-Cleveland Clinic BMI Abu Dhabi Annual Obesity and Digestive Disease Symposium. Abu Dhabi, UAE.

Torab FC. (2011). Status of Bariatric and Metabolic surgery in Al Ain: own and International results. Ibn Sina Research Seminar Series. Al Ain, UAE.

RESEARCH GRANTS

FMHS New Research Grants

Dr F Hammad (PI), Prof WJEP Lammers
Regional distribution of spontaneous electrical activities in the isolated guinea-pig urinary bladder.

2011

Surgery

Standing left to right:
Mr Abdulla Jamal, Dr Fayez Hammad, Dr Ashraf Hefny, Mr CK Aboobacker
Seated left to right:
Dr Saeed Al Thani, Dr Zuhair A Fardan, Prof Frank Branicki, Prof Fikri Abu-Zidan

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Research Priority Groups

Diabetes and Cardiovascular

Genetics and Development

Immunology and Immunoregulation

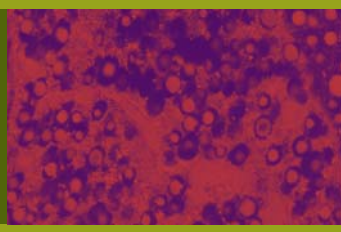
MERGE

Neurosciences

Oncology

Trauma

Diabetes and Cardiovascular Research Priority Group



Introduction
The Diabetes and Cardiovascular Research Priority Group (DCRG) was established on January 27, 2002, after an initial meeting called by the Dean in the autumn of 2001. The DCRG works closely with the Al Ain Diabetes Research Group and the Emirates Diabetes Society.

Aims of the Group
Facilitate diabetes and cardiovascular research in the faculty.
Enhance the clinical and basic research capabilities of established diabetes investigators.
Act as a channel for research funding.
Act as a resource for new faculty members and for those who may want to start research in diabetes/cardiovascular diseases.
Present scientific research at national and international scientific conferences.
Publish scientific research in national and international scientific journals.
Cooperate and liaise with any local, national or international agency with similar research interests.
Train post-doctoral, doctoral, masters and bachelors degree students.
Act as a resource unit on diabetes and cardiovascular diseases.

Activities
International Diabetes Federation Symposium on Diabetes Education and Clinical Practice- 3 December, 2011
The DCRG organized a one-day symposium on "International Diabetes Federation Symposium on Diabetes Education and Clinical Practice" on Saturday, December 3, 2011 at the Faculty of Medicine & Health Sciences, United Arab Emirates University. The Workshop attracted more than 300 delegates across the UAE and abroad In addition to local delegates, we hosted 9 international figures along with local speakers and in the field of diabetes.

International Speakers
- Prof Hussain Saadi, Chair, Department of Medical Subspecialties, Cleveland Clinic, Abu Dhabi
- Prof Marg McGill, Manager, Diabetes Centre, Royal Prince Alfred Hospital, Sydney, Australia
- Prof Geremia Bolli, Professor of Medicine and Director of Internal

Core members:
Prof Abdu Adem
Prof Chris Howarth
Dr Juma Al Kaabi
Dr Syed Mehboob Ali Shah
Prof. Thomas Adrian
Prof M Agarwal
Dr Fatma Al Maskari
Prof El-Sadig Kazzam
Prof Farouk Safi
Dr Rajesh Mohanraj
Prof Ernest Adeghate (Chair)

In addition to the core members, group membership includes 44 other faculty members from within the FMHS.

Medicine and Diabetes Clinic, University of Perugia, Italy
- Dr.Ebaa Al-Ozairi, Assistant Professor and Consultant Endocrinologist, Faculty of Medicine, Kuwait University, Kuwait.
- Dr Seyda Ozcan, Associate Professor, Florence Nightingale School of Nursing, Istanbul University, Turkey.
- Dr Sheridan Waldron, Diabetes Specialist Dietician, Dorset County Hospital, Dorchester, UK.
- Dr Jane Overland, Associate Professor, Nurse Practitioner, Diabetes Centre, Royal Prince Alfred Hospital, Camperdown, Australia
- Dr. Sara J Meltzer, Associate Professor of Medicin, and Obstetrics and Gynaecology, McGill University, Canada.
- Ms Natasha Leader, Specialist Diabetes Educator, Royal Prince Alfred Hospital, Sydney, Australia.

The Symposium covered different areas of diabetes including:
- Diabetes epidemiology in the developing regions.
- Using data from clinical trials to individualize our treatment target.
- Management of obesity in type 2 diabetes
- Developing effective communication to help the person set and achieve their goals.
- Structured home blood glucose monitoring for individualized medication and insulin regimens.
- Obstacles of achieving optimal glycaemic control: A clinician perspective
- Individualizing glycaemic control in diabetes mellitus.
- Early insulinisation in type diabetes.
- Effective medical nutrition therapy-age related care
- Diabetes in pregnancy
- HbA1c: Old Test, New Function
- Gestational Diabetes Update
- Prevention and management of diabetes complications.

Themes of research include the following
Neuropeptides and neurotransmitters in diabetes
Trace elements in diabetes
Immunology of diabetes
Clinical pharmacology of diabetes
Insulin and glucagon secretion
Effects of diabetes on cardiac muscle function
Epidemiology of diabetes
Diabetic complications (nephropathy, neuropathy and angiopathy)
Lipids in human and experimental diabetes
Metabolic syndrome and obesity
Pancreas transplantation
Hypertension
Gestational diabetes

Grants obtained by members
- Exploring the Influence of expatriate domestic Workers on the physical, emotional and behavioural well-being of Emirati children-Federal Demographic Council
- Electrical remodelling of the atrioventricular node in diabetes - UAE University Research Grant
- Progressive changes in expression of genes encoding Ca2 + signalling proteins and remodelling of Ca2 + proteins underlies cardiac muscle dysfunction in type 2 diabetic heart-Emirates Foundation Grant
- Effects of exercise training on heart function in the Goto-Kakizaki type 2 diabetic rat" -UAE University Interdisciplinary Grant
- Alterations in calcium signalling and cardiac muscle proteins underlie contractile dysfunction in Zucker diabetic fatty rat heart". FMHS Project Grant
- Remodeling of Ca2+ transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences Grant
- Effect of embryonic pancreatic beta cell transplantation on the metabolic parameters of diabetic rats -Emirates Foundation Grant
- Localization of apolipoprotein A-1 and its effect in the pancreas of a rodent model of type 2 diabetes- FMHS Research Grant
- The Role of TNF-ά in experimental autoimmune neuritis: a model of inflammatory demyelinating polyneuropathy-FMHS Research Grant
- Search for Novel Anti-diabetic drug candidates Emirates Foundation Grant

Collaboration with local and international institutions

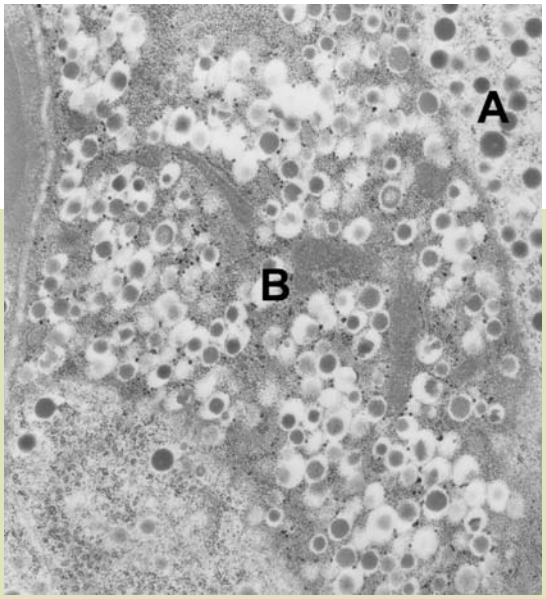
Local
Al Ain Diabetes Research Group
Emirates Diabetes Society (Emirates Medical Association)
Tawam and Jimi Hospitals, Al Ain, UAE
Neuroscience Research Group, FMHS, UAEU

Faculty of Science, UAEU
Faculty of Engineering, UAEU

International
University of Manchester, UK
James Cook University, Queensland, Australia
University of Bristol, UK
University of Leeds, UK
University of Central Lancashire, UK
Karolinska Institut, Sweden
Semmelweis University, Hungary
CNRS, France

Future plans
Establishment of a Diabetes research Centre
The group is planning to establish a Diabetes Research Centre. The centre will provide a facility that enables and facilitates a multidisciplinary approach to the study of diabetes and its complications and to provide the infrastructure for diabetes related undergraduate and postgraduate research and teaching activities.

Publications
Members of the DCRG published more than 50 diabetes-related papers in top quality peer-reviewed journals including but not limited to BMC Public Health, Asia Pac J Public Health, Journal of Diabetes & its Complications, Molecular and Cellular Biochemistry, Journal of Pancreas, Experimental Physiology, Pathophysiology, Physiology Research, PLoS ONE, International Journal of Occupational and Environmental Health, Nutrition Journal, Diabetologia, The Review of Diabetic Studies, Journal of Immigrant and Minority Health, Asia Pacific journal of Allergy and Immunology, Current Medicinal Chemistry, The Open Medicinal Chemistry Journal, Acta Chromatographica, Journal of Diabetes Mellitus, Islets, Canadian Journal of Public Health, Journal of Occupational and Environmental Hygiene, Journal of Safety Research, International Journal of Gynecology and Obstetrics, Gynecologic and Obstetric Investigation, Diabetes Technology and Therapeutics, Journal of Chromatographic Science, Environmental Toxicology and Pharmacology, Experimental and Clinical Endocrinology and Diabetes, Journal of Tropical Pediatrics, Experimental Neurology, Journal of Neuroscience Research, Health Society Care Community, Metabolic Syndrome and Related Disorders,
The cumulative impact factors of these journals exceeded 48 (See Departments of Anatomy, Biochemistry, Community Medicine, Pathology, Pharmacology, Physiology, Psychiatry, Internal Medicine and Medical Microbiology for relevant publications).



Genetics and Development Research Priority Group

Mission of the Group

Consanguineous marriages are prevalent in UAE population and therefore recessive single gene disorders occur more frequently in the UAE than in other populations with over 160 recessive disorders have been reported so far. In addition, local population has a high frequency of alpha and beta thalassemia mutations and hemoglobin S. Furthermore, the incidence of multifactorial diseases such as type 2 diabetes, obesity, certain cancers, neurodegenerative and cardiovascular diseases have been steadily rising in the UAE over the past few decades. This is mainly due to the rapid socioeconomic growth and a significant rise in life expectancy. The rapid increase in the prevalence of multifactorial diseases also suggest genetic predisposition to those diseases revealed by rapid changes in lifestyle including diet.

The mission of the Genetics and Development Research Group is to provide the highest quality research into the basis of genetic diseases, provide high quality health care and education. In support of its mission, the group strives to (1) define the extent of genetic, developmental and multifactorial disorders in the country; (2) be the leading source of research into the causes and pathogenesis of these disorders and (3) to seek new approaches to diagnosis, treatment and prevention of such disorders. Our mission is also to educate the next generation of health care leaders by providing continuing professional development to physicians with up to date courses and to educate the public by providing information on different genetic disorders and approaches to prevention.

The Group Principal Investigators and their Research Interests

Principal investigators members of the Genetics and Development Research Group are affiliated to different departments within the Faculty of Medicine and Health Sciences of the UAE University. The current membership of the group is:

Dr. Bassam R Ali (Pathology Department); Associate Professor of Molecular Genetics and Leader of the Genetics and Development Research Group

Research interests: (1) Elucidation of the molecular defects responsible for genetic disorders in the UAE and Arab populations (2) Establishing the cellular mechanisms of genetic disorders and

(3) Pharmacogenetics and pharmacogenomics.
Prof. Yousef M Abdulrazzaq (Paediatrics Department); Professor Emeritus
Research interests: Neonatology, birth defects, metabolic disorders and asthma.
Prof. Thomas E Adrian (Physiology Department); Professor and Chair
Research interests: Identification of diabetes susceptibility genes in UAE nationals
Prof. Lihadh Al-Gazali (Paediatrics Department); Professor and Senior Consultant in Clinical Genetics
Research interests: Delineation of the clinical and molecular aspects of congenital malformations in the UAE.
Dr. Fatima Al-Jasmi, (Paediatrics Department) Assistant Professor
Research interests: Biochemical genetics
Dr. Ahmad Hassan Al-Marzoouqi (Biochemistry Department); Associate Professor
Research interest: Protein Complexes that Modify Chromatin for Transcription Regulation
Dr. Suhail Al-Salam (Pathology Department); Associate Professor
Research interests: Molecular pathology of cancers in UAE
Dr. Samir Attoub (Pharmacology and Therapeutics Department); Associate Professor
Research interest: The roles of Akt signaling in the mechanisms of cancer
Prof. Salim Bastaki (Pharmacology and Therapeutics Department); Professor
Research interests: 1) Oxidative phenotyping and genotyping UAE nationals using antidepressant drugs 2) Teratogenic effects of antiepileptic drugs
Dr. Srdjan Denic (Internal Medicine Department); Associate Professor
Research interests: (1) Effect of human inbreeding on selection of alpha-thalassemia (2) The genetics of neutropenia
Prof. Omar M El-Agnaf (Biochemistry Department); Professor
Research interest: The role of protein misfolding and aggregation in neurodegenerative diseases
Dr. Starling Emerald (Anatomy Department); Assistant professor
Research interest: Epigenetics in metabolic syndrome and obesity
Prof. Sehamuddin Galadari (Biochemistry Department); Professor and Vice Provost for Research and Graduate Studies
Research interest: Cell signaling and human disease
Prof. Mohammad Y Hassan (Pharmacology and Therapeutics Department); Professor of Pharmacology and Therapeutics, Vice Provost for Medical Sciences and Dean of Medicine
Research interest: The roles of neurotransmitters in diabetes, epilepsy, aging and neurodegenerative diseases
Prof. Ruth Langer (Radiology Department); Professor, Associate Dean for Administration and senior consultant Radiologist
Dr. Hisham Mirghani (Obs/Gyne Department); Associate Professor and Chair
Research interest: Prenatal diagnosis
Prof. Hassib Narchi (Paediatrics Department); Professor
Research interests: Causes and mechanisms of common diseases in Middle Eastern populations
Prof. Tahir A Rizvi (Medical Microbiology Department); Professor
Research interest: Retroviral/lentiviral vectors for human gene therapy.
Dr. Sami Shaban (Medical Education); Assistant Professor
Research Interests: Biomedical informatics, health registries, e-learning, database-driven website design and relational databases
Prof. Abdul-Kader Souid (Paediatric Department); Professor and Chair
Research Interests: Analytical biochemistry, investigating effects of drugs and toxins on cellular bioenergetics and mitochondrial function

Publications and Grants
Please refer to the list of publications and grants for in individual memebrs of the group in their respective department.

Collaborations of the group members with UAE, regional and international organizations
Local collaborations
• Ministry of Health
• School Health Authorities
• Sheikh Hamdan Awards for Medical Sciences
• Center for Arab Genomic Studies
• Central Veterinary Research Laboratory

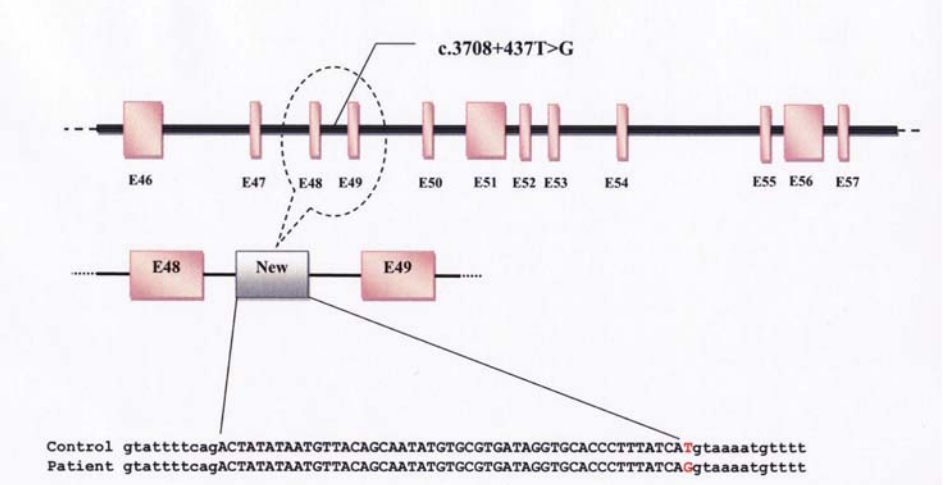
Regional collaborations
Sultan Qaboos University, Muscat, Sultanate of Oman
King Faisal Specialist Hospital and Research Center, Saudi Arabia

International collaborations
• International Clearing House for Birth Defect

Monitoring System [member]
- Harvard University, USA
- University of California, San Diego
- Cambridge University, UK
- Birmingham University, UK Imperial College London, UK
- University College London Medical School, UK
- National Human Genome Research Institute
- National Institute of Health, Bethesda, USA
- Institute of Human Genetics, Erlangen, Germany
- Mount Sinai School of Medicine, New York, USA
- Telethon Institute of Genetics and Medicine Naples, Italy
- UT Southwestern Medical Center at Dallas, USA
- Institute fur Medizinische Genetik, Berlin, Germany
- Cincinnati Children's Hospital, OH, USA
- University of Ottawa, Canada
- Medical University of South Carolina, Charleston, South Carolina

PhD in Genetics Program

The group has supported the establishment of an interdepartmental PhD program in Human Genetics. The compulsory courses for the program are provided by the Departments of Pathology (2 courses), Paediatrics (1 course) and Biochemistry (1 course). Two PhD students are currently enrolled in this programme.



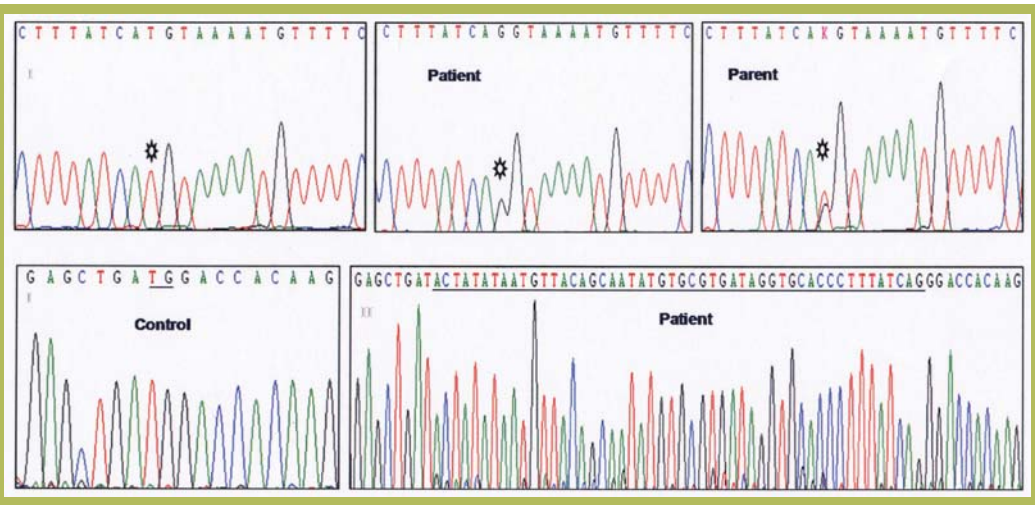
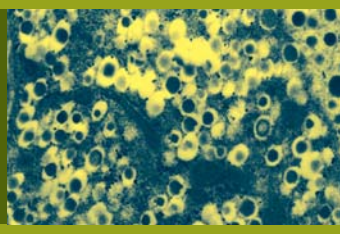


Diagram illustrating the presence of an intronic single nucleotide mutation that resulted in the creation of an additional exon in COL11A1 gene in an Emirati family with Fibrochondrogenesis (Akawi NA, Al-Gazali L & Ali BR (2012) Clinical and molecular analysis of UAE Fibrochondrogenesis patients expands the phenotype and reveals two COL11A1 homozygous null mutations. Clinical Genetics, Jun 13. doi: 10.1111/j.1399-0004.2011.01734.x. [Epub ahead of print]).

The Immunoregulation and Infection Research Priority Group



The main aim of the Immunoregulation and Infection Research Priority Group (IIRPG) is to promote basic and clinical research in the immunology, microbiology, and related disciplines. Through its wide membership, which encompasses investigators in a diverse number of departments in the Faculty of Medicine and Health Sciences and affiliated hospitals, the Group aims to facilitate inter-departmental collaborations in basic and clinical research broadly related to immunological disorders, infectious diseases, and microbial pathogenesis.

In 2011, members of the IIRPG (especially Prof. Pal, Sonnevend and al-Ramadi) took on the task of organizing a 2-day Postgraduate Course in Antibiotic Resistance. This Course is planned for February 2012 and, thanks to the Chair of the Organizing Committee, Prof. Pal, international participation of experts in the field of clinical microbiology is expected to be strong.

In order to foster closer interactions between group members, the IIRPG launched a Lunch Seminar series in 2009. These Seminars have continued to attract interest and attendees now encompass everyone involved in microbiology/infectious diseases/immunology research, including faculty members, postgraduate students, postdoctoral trainees, undergraduate medical students and research assistants.

A list of the lunch seminars held in 2011 is given below:

January 26, 2011 "***Retroviral Genomic RNA Structural Elements and their Role in RNA Packaging and Dimerization"*** by Professor Tahir A Rizvi.

March 30, 2011 "***A preliminary analysis of the tear fluid proteome in extant tylopodon Camelus dromedarius discloses ad hoc synergy of innate and adaptive immunity"*** by Dr Walter Conca.

October 30, 2011 "***Emerging viral zoonoses in Europe"*** by Dr Ferenc Jakab, University of Pécs, Hungary.

October 31, 2011 ***"Metabolically Induced Retina Degenerations and Possible Protective Agents in Experimental Models"***

Group Leader:
Professor Basel al-Ramadi

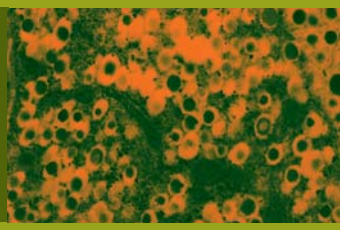
Core Members:
Professor Senarath Dissanayake
Professor Tahir Rizvi
Professor Tibor Pal
Dr Gulfaraz Khan
Dr Mariam Al-Shamsi
Dr Agnes Sonnevend
Dr Ahmed Al-Qahtani
Professor Michael Conlon
Dr Maria Cabezudo
Dr Suleiman Al Hammadi
Dr Eric Mensah-Brown
Dr Fawaz Torab
Dr Suhail Abdullah
Dr Ahmed Deemas Al Suwaidi
Dr Walter Conca

by Professor Robert Gabriel, University of Pécs, Hungary.

Original Publications by IIRPG members:
Publication details of the members of the Immunoregulation and Infection Research Priority Group can be found under their respective FMHS departments (refer to departmental reports as below):

Professor Basel al-Ramadi
(*Microbiology & Immunology*)
Professor Senarath Dissanayake
(*Microbiology & Immunology*)
Professor Tahir Rizvi
(*Microbiology & Immunology*)
Professor Tibor Pal
(*Microbiology& Immunology*)
Dr Gulfaraz Khan
(*Microbiology & Immunology*)
Dr Mariam Al-Shamsi
(*Microbiology & Immunology*)
Dr Agnes Sonnevend
(*Microbiology & Immunology*)
Dr Ahmed Al-Qahtani
(*Microbiology & Immunology*)
Prof Eric Mensah-Brown
(*Anatomy*)
Dr Maria Cabezudo
(*Biochemistry*)
Dr Suleiman Al Hammadi
(*Paediatrics*)
Dr Ahmed Deemas Al Suwaidi
(*Paediatrics*)
Dr Suhail Abdullah
(*Pathology*)

Medical Education Research Priority Group



Mission of the Group
To act as a co-ordinating body within the Faculty of Medicine and Health Sciences (UAEU) for individuals or groups interested in medical education in order to promote scholarly activities in teaching and learning locally, regionally and internationally.

Primary Aims include
- Developing an ethos of medical education research within the FMHS
- Providing staff development to promote medical education research through workshops, journal clubs, etc.
- Providing guidance and resources for those interested in medical education research
- Promoting and facilitating teaching and learning scholarship by publishing research in peer-reviewed journals, conference attendance, etc.
- Co-ordinating medical education research activities within the FMHS
- Promoting medical education research with the Gulf region and internationally by establishing networks of collaborators
- Securing funding for medical research activities
- Establishing focus areas in research in terms of the current and future trends in medical education
- Communicating results of research activities to decision- and policy-makers
- Involving students in the activities of MERGE, wherever appropriate

Activities
The groups meets every two months, usually discussing a topic of interest suggested by members of the group.

1- Research Activities
- Medical students' perceptions of their first encounter in the Anatomy dissection room: McLean, Shehab (Anatomy).
- Higher-achieving medical students' perceptions of their success: McLean
- Student and staff perceptions of faculty evaluation: Aburawi (Paediatrics), McLean
- Preparedness for medical practice: Final year medical students, McLean

Chair
Prof M McLean

Core members
Prof C Howarth
Prof M Ezimokhai
Prof H Narchi
Dr E Abuwari
Dr T Al Mahmoud
Dr M Grivna
Dr S Shaban
Dr A Shehab
Ms G Kershaw

- Effective Use of a Medical School Curriculum Management System for the Faculty of Medicine and Health Sciences, UAEU. A database-driven secure website allows multiple level access for administrators, faculty, and students. Features include managing teaching session information, student attendance, instructor conflict display, and timetabling of sessions. [http://www.fmhs.uaeu.ac.ae/fmhscms/] Shaban
- Effective Use of a Electronic Assessment for the Faculty of Medicine and Health Sciences, UAEU. Electronic assessment involves question management and data banks as well as assessment delivery and analysis. Shaban
- Medical students perceptions on learning about breaking bad news project. Major.
- Students' Views on Learning Styles: Ezimokhai, Shaban.
- Interactive electronic portfolios to enhance students' reflective practice. Online portfolios is part of the teaching strategy of the Department of Family Medicine. A four cycle reflective 'plan, act, revise,' action research study involving faculty and students is in progress and will be completed in August 2012. The aim of the study is to develop an online interactive learning portfolio to support students towards achieving the goal of self directed reflective independent learning. Where initially students' attitudes and knowledge about the use of portfolios, reflective journals and self assessment as part of the portfolio was explored the focus in the final cycle 2011/2012 shifted to exploring barriers and use of reflective components and self assessment as part of the web based portfolio to finalize the final portfolio model by August 2012. Due to identified frustration with functionality and duplication with the format of the online portfolio and the need to increase interactivity in the portfolio the format changed from blackboard to a web based portfolio. Word press is explored as part of the online portfolio.
- On being an international medical educator: McLean, Major (Family Medicine), McKimm (Swansea University)

2- PUBLICATIONS in Peer-reviewed Journals

- Shaban S, McLean M. Predicting performance at medical school: Can we identify at risk students? Advances in Medical Education and Practice. 2011;2:139-148. http://www.dovepress.com/articles.php?article_id=7477
- McLean M, Shaban S, Murdoch-Eaton D. 2011. Transferable skills of incoming medical students and their development over the first academic year: The United Arab Emirates experience. Medical Teacher 33:e297-e305.
- Gibbs TJ, McLean M. 2011. Creating equal opportunities: The social accountability of medical education. Medical Teacher 33:620-625.
- McKimm J, McLean M. 2011. Developing a global health practitioner: Time to act? Medical Teacher 33:626-631.
- Rahman S, Majumder MAA, Shaban SF, Rahman N, Ahmed M, Abdulrahman KB, D'Souza UJA. Physician participation in clinical research and trials: issues and approaches. Advances in Medical Education and Practice. 2011;2:1-9.
- Shaban S. The Design and Development of a Medical School Curriculum Management System. Journal on Education, Informatics and Cybernetics. 2011;2(3).

3- Invited presentations:

- Mclean M. Citizens for an unknown future: Developing transferable skills in Higher Education. UGRU Professional Development Day, United Arab Emirates University, 10 February 2011.
- Mclean M. Education for the future global health practitioner, Delegates, Harvard College in Asia Program, American University of Dubai, March 2011

4- Proceedings, Conferences, Invited Lectures, Web Sites and Others

- Al-Eraky M, McLean M. Away from the customer-based approach, planning a faculty development program using an innovative "compass model". First International Conference on Faculty Development in the Health Professions, 10-13 May 2011,Toronto, Canada.
- McLean M. 2011. To what do high achieving FMHS students attribute their academic success? Capsule Issue 1:8-9.
- McLean M. To what do high achieving attribute their success? A qualitative study of United Arab Emirates students. AMEE, 12-31 August 2011, Vienna.
- Shaban S. Using a Curriculum Management System to Manage Teaching Load in an Integrated Medical Curriculum. The 9th

International Conference on Education and Information Systems, Technologies and Applications: EISTA 2011, Orlando FL, USA, Jul 2011.
- Shaban S, Eid H, Barka E, Abu-Zidan F. Technical Development and Evolution of a Trauma Registry. 2nd International Conference on Trauma Management, Critical Care and Prevention, Alain, February 2011.

5- Poster Presentations
- Mirza DM, Prinsloo EA, Hashim MJ. (2011). How do UAE medical students respond to unprofessionalism in the clinical setting? Poster presentation for the 6th Congress of Asian Medical Education Association Kuala Lumpur, Malaysia.
- Prinsloo EAM, Hashim J, Raasch B, Major S, McLean M. Implementing an online portfolio with a reflective component as formal requirement in a family medicine clerkship: achievements and challenges. 8th Asia Pacific Medical Education Conference (APMEC) 26-30 January 2011, Singapore.
- Prinsloo EAM, Hashim J, Raasch B, Major S, McLean M. Developing and assessing portfolios to enhance a learner-centred ethos. The Network: TUFH conference, 18–22 September 2011, Graz, Austria.
- Shaban S. A Curriculum Management System for Integrated Medical Education. Hamdan Bin Mohammad e-University (HbMeU) Annual Congress 2011, 4th Conference on eLearning Excellence in the Middle East, Dubai, UAE, Feb 2011.

6- Awards:
- E Aburawi. FMHS Education Award 2010-2011
- H Narchi. FMHS Clinical Science Excellence Teaching Award 2010-2011
- Sami Shaban, Khalifa Award for Education 2010/2011 in the category of Projects and Innovative Educational Programs within the UAE (development and implementation of the FMHS Online Curriculum Management System).
- Sami Shaban, Distinguished Service Award 2010-2011.

Neuroscience Research Priority Group

Group Leader
Professor Omar El-Agnaf
(Biochemistry Department)
Core Members
Prof. Milos Ljubisavljevic
(Physiology Department)
Dr. Murat Oz
(Pharmacology Department)
Prof. Peter Corr
(Radiology Department)
Dr. Ossama Osman
(Psychiatry Department)
Members:
Prof. Abdu Adem
Dr. Safa Shehab
Dr. Eric Mensah-Brown
Prof. Wim Lammers
Prof. Ernest Adeghate
Prof. Omer El-Rufaie
Dr. Fadwa El-Mughairibi
Dr. Fatima Aljasmi
Dr. Maria Cabezudo
Prof. Basel Al Ramadi
Dr. Gururaj Aithala
Dr. Taha Amir
Dr. Sami Abdel-Kawi
Prof. Lihadh Al-Gazali
Prof. Mohamed Fahim
Dr. Sehamuddin Galadari
Dr. Chris Howarth
Dr. AbdelAzim Mabrook
Dr. Salim Bastaki
Dr. Juman Kubba
Dr. Amr A. Amin
Dr. Ahmed Al Marzouqi
Dr. Klaus van Gorkom
Dr. Hamdy Moselhy
Dr. Amin Bahi
Prof. Johann Braun
Dr. Leena Amiri
Dr. Kanita Dervic
Prof. Sehamdduin Galadari
Por. John Conlon
Dr. Bassam Ali
Dr. Suhail Al Salam
Prof. M Yousif Hasan Baniyas

Neuroscience Research Priority Group for 2011

The UAE University Neuroscience Group was officially formed in 2006 by a Decree from the Vice Chancellor of the UAE University. The group consists of basic scientists and clinicians with a common interest in the nervous system. The primary goal of the group is to strengthen collaborative research ties between its members and promote neuroscience research in the UAE and the region. The group develop educational programs at the UAE University that lead to higher degrees in Neuroscience, organize seminars, congresses and workshops, participate in scientific activities of other groups in the field of neuroscience Moreover, the group develops educational programs, provides professional development activities, information and educational resources for neuroscientists at all stages of their careers in the UAE and the Region.

Major Achievements for 2011

In the year 2011 the members of the group have presented several abstracts in national and international meetings and a number of publications have resulted from their research activities. Several members of the group have received major research grants from local and international bodies including Michael J. Fox Foundation for Parkinson's Research, USA, Shaikh Hamdan Award for Medical Sciences, Emirates Foundation, and several FMHS & UAE University Research Grants.
Several members of the group hold membership in prestigious organizations and serve on the editorial board of international journals and committees. Also the group members collaborate with a number of research groups, institutions and organizations within the UAE & abroad.

International Research Collaboration

The Faculty of Medicine and Health Sciences - United Arab Emirates signed MoU with the Faculty of Medicine, Lund University Sweden to promote their cooperation in academic education and research in the field of Neurosciences. The cooperation also includes:
Exchange of graduate and postgraduate students
Joint teaching activities
Joint supervision of PhD students
Joint research activities

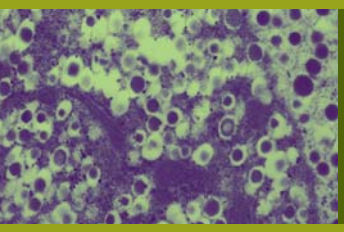
Visits by, and exchange of, scholars, teachers and other staff.

Scientific Collaboration
Several members of the group hold membership in prestigious organizations and serve on the editorial board of international journals and committees. Also the group members collaborate with a number of research groups, institutions and organizations within the UAE & abroad.

UAE:
Al Ain Hospital, Al Ain
Central Veterinary Research Laboratory, Dubai
Centre for Arab Genomic Study
Faculty of Science, UAEU
Hamdan Award for Medical Sciences
Tawam Hospital, Al Ain
Zayed University, Dubai

Abroad:
Lund University Medical School, Sweden
Boston College, MA, USA
Bogomeletz Institute, Ukraine
Conway Institute, Dublin, Ireland
Columbia University, NY, USA
Chapman University, USA
Chinese University of Hong Kong, China
Center of Molecular Neurobiology, University of Hamburg, Germany
Harvard Medical School, USA
Imperial College, London
Institut Pasteur de Lille, Cedex, France
Institutes for Medical Research and Neurology, Belgrade, Yugoslavia
Iowa Medical School, USA
James Cook University, Queensland, Australia
Janssen Research Foundation, Belgium
Lancaster University, UK
Kyoto Prefectural University of Medicine, Kyoto, Japan
Laboratory of Neurogenetics, National Institute on Aging, Maryland, USA
Mayo Clinic, Florida, USA
Manchester University, UK
McMaster University, Canada
National Institute of Health, USA
Royal Free & University College London Medical School, UK
SGHMS, University of London, UK
Sultan Qaboos University, Muscat, Oman
The Karolinska Institute, Sweden
The Queen's University of Belfast, UK
University of Manchester, UK
University of Aarhus, Denmark
Universita La Sapienza, Rome
University of Aalborg, Denmark
University of Amsterdam, Netherlands
University of Bonn, Germany
University of California and San Diego, USA
University of Gevle, Sweden
University of Glasgow
University of Groningen, Netherlands
University of Turin, Italy
University of Xi'an, China
Utrecht Medical Centre, Netherlands

Summary of Grants & Publications 2011 (refer to departmental reports as below):
Shehab S (Anatomy).
Adeghate E (Anatomy).
Mensah-Brown E (Anatomy).
Conlon JM (Biochemistry).
El-Agnaf O (Biochemistry).
Galadari S (Biochemistry).
Al-Gazali L (Paediatrics).
Gururaj A (Paediatrics).
Adem A (Pharmacology).
Hasan MY(Pharmacology).
Bastaki S (Pharmacology).
Murat Oz (Pharmacology).
Fahim M (Physiology).
Lammers W (Physiology).
Ljubisavljevic M (Physiology).
El-Rufaie O (Psychiatry).
Raguram R (Psychiatry).
Osman O (Psychiatry).
Moselhy H (Psychiatry).
Salem M (Psychiatry).
Corr P (Radiology).
Gorkom van K (Radiology).



Oncology Research Group

Group Leader:
Prof Thomas E Adrian

Members:
Faculty of Medicine and Health Sciences:
Prof Frank Branicki
Prof Basel al-Ramadi
Prof Farouk Safi
Prof Haider Raza
Prof John M. Conlon
Prof Omar El-Agnaf
Prof Ruth Langer
Prof Sehamuddin Galadari
Prof Sherif Karam
Prof Tahir Rizvi
Dr Ahmed Al-Marzouqi
Dr Fawaz Torab
Dr Gulfaraz Khan
Dr Maria JF Cabezudo
Dr Samir Attoub
Dr Srdjan Denic
Dr Suhail Al-Salam
UAE University:
Prof Amr Amin
Dr Mohammad Khasanneh
Dr Rabah Iratni
Dr Soleiman Hisaindee
Tawam Hospital:
Dr Mohamed Jaloudi
Dr Anjum Naveed
Dr Hakam El Taji
Dr Karim Elmasry
Dr Mohammed Jaloudi
Dr Saad G. Aswad

Introduction

The Oncology Research Group (ORG) comprises colleagues at FMHS and the Abu Dhabi Health Authority, who share an interest in oncology research. The Chair of this group is Prof. Thomas Adrian and the Vice-Chair is Prof. Frank Branicki. Dr. Mohammed Jaloudi, Chair of Oncology at Tawam Hospital is the Deputy Chair.

Objectives

- To promote cancer research-being a catalyst for research activity
- To create a forum for collaboration between Faculty members, basic scientists and colleagues in clinical disciplines, Faculty staff and colleagues of the Abu Dhabi Health Authority dealing with oncology.
- To create and maintain an inventory of
  -research activities
  -resources available
  -basic research expertise
  -available clinical services
  -specialty interests-subspecialties
  -individuals-registry of interest in Oncology
- To act as a reference group regarding cancer research and funding
- To act as an Advisory body to the Abu Dhabi Health Authority regarding cancer issues of national interest, e.g. breast cancer screening, cervical screening, risk factors
- To create a unified list of all cancer-related educational activities countrywide
- To act as an Advisory body for education regarding cancer, organizing lectures on cancer, cancer conferences and meetings at a local and national level
- To promote quality control in the management of patients with cancer

Membership
This year has seen an increase in membership, partly with members from the Department of Oncology in the John's Hopkins Tawam Hospital and partly from our colleagues in the faculty of Science that are working in the cancer area. The group is inclusive and is very pleased to welcome these new members into the fold.

Cancer Database
Members of the group are supporting efforts to improve the national cancer register at Tawam hospital. This is considered to be the cornerstone of cancer surveillance in the UAE and will provide the tool to measure the nation's progress against cancer. In the future all government and private healthcare providers in the UAE will contribute to the registry.

Tissue Bank
The group considers this to be a valuable resource for oncology research in the UAE. The bank will provide for the collection, processing and storage of human tumors and appropriate control tissues for research. The bank will help to foster collaborations between clinical oncologists and basic scientists at the FMHS and Tawam Hospital. Approval for the tissue bank from the human ethics committee is in place, although approval for individual projects utilizing tissue will have to be obtained by the project investigators. The equipment and staff for the tissue procurement bank are in place. A subcommittee has developed protocols for tissue collection and storage as well as other issues, such as ethical approval, consent, maintenance of records, authorship recognition for surgeons and pathologists participating in tissue collection, etc.

Emirates Oncology Conference
The group will participate in the upcoming Emirates Oncology Conference to be held on 1-3 November, 2012 at the Emirates Palace Hotel in Abu Dhabi. A symposium on basic cancer research projects that have been funded by the Terry Fox Fund for Cancer Research will be included in the program; so several members of the group will give presentations at the conference.

Research Activities
During 2011, members of the ORG received a total of 27 research grants for their work, including 12 awards from the Terry Fox Fund for Cancer Research, 2 Sheikh Hamdan Awards, 4 UAE University National Research Foundation awards. In 2011, members of the ORG published 25 papers in peer-reviewed journals.

Trauma Research Priority Group

Core Members:

Faculty of Medicine and Health Sciences
Professor Fikri Abu-Zidan
Professor Frank Branicki
Professor Peter Corr
Professor Elsadig Kazzam
Assoc Prof Fawaz Torab
Assoc Prof Fayez Hammad
Assoc Prof Michael Grivna
Asst Prof Ali Jawas
Asst Prof Sami Shaban
Asst Prof Mohd Al Houqani
Dr Mohamed Sadig
Dr Ashraf Hefny
Dr Alaa Abbas
Mr Abdulla Jamal

Al Rahba Hospital, Abu Dhabi
Dr Masoud Bashir

Tawam Hospital
Dr Said Abuhasna
Dr Abdel Norueldin
Dr Masoud ur Rahman

Al Ain Hospital
Professor Stefan Marlovits
Dr Mohammad Kamal Idris

Emirates International Hospital
Dr Yousef El Ashaal

Sharjah Kuwait Hospital
Dr Hani Eid

Summary
During 2011 the Trauma Group has made major contributions in trauma education and research both nationally and internationally. The "hands on training" in point-of-care ultrasound has continued to flourish. The members of the Trauma Group published 15 papers related to trauma in international refereed journals, and presented more than fifty abstracts at national and international meetings. Trauma Group members organized the Second International Conference on Trauma Management, Critical Care and Prevention which was highly successful, more than 600 participants attending the meeting.

Mission
Our mission is to promote and perform research and education of a high standard in the field of trauma so as to improve patient care.

Major achievements of the Trauma Group in 2011 include:

A) Road Traffic Collision Registry:
This project has run as planned and was successfully completed. We have collected detailed information on more than 1000 patients involved in road traffic collisions and pre-event information. A full time Senior Research Fellow, Dr Ashraf Hefny, and a Research Fellow, Dr Alaa Abbas, have been appointed to analyze the data of this registry. This has tremendously increased the research activity of the Trauma Group. The Trauma Group carried their experience in this area to other hospitals and assisted Tawam Hospital, Al-Ain Hospital, Al-Rahba Hospital (Abu Dhabi) and Rashid Hospital (Dubai) to start their Registries. Our ultimate goal is the establishment of a nationwide registry. Professor Abu-Zidan chaired the Trauma Registry Subcommittee of the Trauma System Initiative of Abu Dhabi Emirate. Recommendations and Standards for establishing a Trauma Registry for Abu Dhabi Emirate was established (Fig 1). This Committee is now chaired by Dr Masoud Bashir, another member of the Trauma Group.

B) Participation in trauma training courses
The Trauma Group was actively involved in the organization and conduct of numerous courses.

1- ATLS Provider and Instructor Courses:
It was deemed essential to train UAE doctors using ATLS principles to improve the management of trauma patients. More than 1200 doctors have taken the Provider Course to date countrywide in UAE. The first "back to back" Provider and Instructor Courses in the UAE were held at the Faculty of Medicine and Health Sciences, UAE University in 2004. We have been encouraged by the increasing support and popularity of ATLS in the UAE and the region. In 2011 Professor Branicki taught inaugural Provider and Instructor Courses in Syria, Oman, Iran and Egypt. A greater awareness of the value of ATLS enhancement of the early management of severe trauma is more evident in our setting.

2- Point-of-Care Ultrasound Courses. Twenty eight courses have been run since 2004. 490 doctors have received "hands on" training on Point-of-Care ultrasound. We have noticed increasing support and popularity for "Point-of-Care" Ultrasound in clinical practice in our setting. The demand from participants, local and overseas, is increasing (Fig 2). These activities run under the umbrella of The Clinical Skills Training Centre at the Faculty of Medicine and Health Sciences, UAE University.

C) Organization of the Second International Conference on *Trauma Management, Critical Care and Prevention*
The Trauma Group has organized the Second International Conference on Trauma Management, Critical Care and Prevention. The above conference took place at the Danat Hotel and Resort at Al-Ain on 21-24 February 2011 (Fig 3). The Conference was an initiative of the Trauma Group at the Faculty of Medicine and Health Sciences (FMHS), United Arab Emirates University.

Five organizations were involved in the preparation of this conference:
1. Critical Care Department, Tawam Hospital in affiliation with Johns Hopkins Medicine.

2. Trauma Group, Faculty of Medicine and Health Sciences, UAE University.

3. Al-Ain Hospital managed by University of Vienna/Va Med.

4. Health Authority Abu Dhabi (HAAD).

5. Sheikh Hamdan Awards for Medical Sciences.

Fig 1: The Trauma Group has helped to develop the recommendations and standards for establishing a trauma Registry for Abu Dhabi Emirate.

Fig 2: Professor Abu-Zidan was invited to be the Course Director for the Hands-On Course of Ultrasound Extended Focused Assessment with Sonography for Trauma, 12th European Congress of Trauma and Emergency Surgery, Milan, Italy, in April 2011.

Fig 3: The Trauma Group has organized the Second International Conference on Trauma Management, Critical Care and Prevention at the Danat Hotel and Resort in Al-Ain on 21-24 February 2011.

The scientific program was built on controversial themes. Parallel sessions covered three main areas: Critical Care, Trauma Management, and Injury Prevention. Four workshops were held on 21 February 2011. These included 'hands on training' in four areas: Focused Assesment Sonography of Trauma, Critical Care Ultrasound, High Frequency Ventilation, and reading a trauma chest-X-ray.
Sixteen well known international experts from North America, Europe, Asia, Africa, Australia, New Zealand and the GCC countries have participated in the conference. More than 600 participants attended the meeting.

This International Conference provided a forum for the exchange of ideas and knowledge concerning trauma management and critical care as well as strategies for optimizing prevention. The meeting focused on recent advances and controversies through interaction with renowned international speakers. Issues addressed included management and critical care of trauma patients, abdominal trauma, angioembolization, and new trends in trauma research. Specific important topic sessions included psychological aspects of trauma, clinical reasoning, trauma education and training.

E) Publications and Abstracts
In 2011, the group has published 15 papers related to trauma in international refereed journals. Both quality and quantity of research has improved. These papers stemmed from collaborative work with Tawam and Al-Ain Hospitals networking between the University and these two institutions. The group has presented more than fifty abstracts and oral presentations at national and international meetings in 2011. Details of these publications and presentations are also to be found in the relevant Departmental Reports (Department of Surgery, and Department of Community Medicine).

E) International recognition:
1. Professor Abu-Zidan was the Chair of the Organizing Committee of the 7th Middle East Trauma, Accident and Emergency Conference, 23 - 25 October, Abu Dhabi UAE, 2011.

2. Professor Abu-Zidan was the Guest Editor for two symposia on Critical Sonography for the Journal of Emergencies Trauma and Shock (Published in USA 2011/2012).

3. Professor Abu-Zidan was invited to be the Course Director for the Hands-On Course of Ultrasound Extended Focused Assessment with Sonography for Trauma. 12th European Congress of Trauma and Emergency Surgery, Milan, Italy, April 27-30, 2011.

Awards:
1. Dr Ashraf Hefny won the Best Poster Prize of the Second International Conference: Trauma Management, Critical Care and Prevention, 21-24 February 2011 Al Ain, UAE on his poster: Pediatric Trauma Research in the Gulf Cooperation Council Countries (Fig 4).

2. Dr Mohd Al-Houqani won the Best Oral Presentation Prize in the Injury Prevention Section of the Second International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE, February 2011 on his oral presentation: Road traffic collisions caused by drivers falling asleep (Fig 5).

3. Dr Hani Eid won the Second Best Oral Presentation Prize of the injury prevention section of the Second International Conference: Trauma Management, Critical Care and Prevention, 21-24 February 2011 Al Ain, UAE on his oral presentation: Bicycle-related Injuries of Hospitalized Patients in a High-income Developing Country.

4. Dr Osama Osman won the Second best oral presentation prize in the Trauma Section of the International Conference: Trauma Management, Critical Care and Prevention, 21-24 February 2011 Al Ain, UAE on his oral presentation: Characteristics of interpersonal violence from Al Ain trauma registry.

5. Professor Fikri Abu-Zidan won the Third Best Poster Prize at the Third Annual SEHA Research Conference, 12-13 Dec 2011, Abu Dhabi, UAE on his poster: Camel Bite Injuries in United Arab Emirates: A 6 year prospective study.

Media Reports on Trauma Group activities
The Trauma Group research activities on Trauma Registries have attracted considerable Media attention in 2011 including international coverage on our experience in this area. This included:

Fig 4: Dr Ashraf Hefny won the Best Poster Prize of the Second International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE, February 2011 with his poster: Pediatric Trauma Research in the Gulf Cooperation Council Countries.

Fig 5: Dr Mohd Al-Houqani won the Best Oral Presentation Prize in the Injury Prevention Section of the Second International Conference. Trauma Management, Critical Care and Prevention. Al Ain, UAE, February 2011 with his oral presentation: Road traffic collisions caused by drivers falling asleep.

1. 'Trauma system in the pipeline in Abu Dhabi' Khaleej Times, 25 October 2011 http://www.khaleejtimes.com/DisplayArticle08.asp?xfile=/data/theuae/2011/October/theuae_October631.xml&section=theuae

2. Government of Western Australia, Department of Health. Trauma team shares expertise. Health View Winter. 2011; pp 18.

3. Government of Western Australia, Department of Health, Royal Perth Hospital. International focus on road safety. Servionews, June 2011, pp: 2

Medical Student Research

Medical Student Research

We believe that research is becoming an increasingly important part of career development for medical students. The Faculty of Medicine & Health Sciences (FMHS) provides a wide variety of opportunities for students to participate in research which includes both curricular and extracurricular research. Students are introduced to research early in the medical curriculum. Students are told about the research interests of faculty and the special interest research groups. Planning and design of research projects, research ethics, research project funding and biostatistics are introduced.

Opportunities for extracurricular research include laboratory attachments, summer research projects and the UK Research Scholarship program. Students are encouraged to join research laboratories and to shadow research activities. It is hoped that some of these attachments will lead to long term collaborations. The summer holidays are a good time for student research and around 80 students were involved in research activities during the summer of 2011.

The UK Research Scholarship program provides opportunities for selected students to visit UK Research Laboratories during the summer. Typically students will have been working in FMHS laboratories and visit UK laboratory to learn new techniques and generally develop their research interests. During the summer of 2011 four students visited UK – Aaesha Abdulla Mohammed S. Alhanjeri (4th year student) visited the laboratory of Professor Alison Gurney, University of Manchester; Omar Ali Mohammed Al Ali (3rd year student) and Abdulla Saif Al Harbi (6th year student) visited the laboratory of Professor Jaipaul Singh, University of Central Lancashire; Abdulla Ali Abdulla Al-Baloushi (3rd year student) visited the laboratory of Professor Ken Addley, Northern Ireland Civil Service, Occupational Health Service, Centre for Workplace Health Improvement, Northern Ireland.

The second Research Day was held in May 2011 in FMHS. The event provides opportunities for undergraduate and post-graduate Medical and Biomedical students from UAEU and other academic organizations in the UAE to present and discuss research. The event was well attended attracting around 260 students from UAE University, Dubai Pharmacy College, Ras Al Khaimah Medical Health Sciences University, Dubai Medical College, Al Ain University and the American University. The program included two guest speakers (Professor David Eisner (University of Manchester, UK) and Professor

Malcolm Alison (Barts and the London School of Medicine & Dentistry, UK); 12 oral and 37 poster presentations. The event was generously supported by Tawam Hospital, Sheikh Hamdan Awards, British Council, Julphar and SEHA. 40 abstracts (including guest speaker abstracts) were accepted for publication in the Journal of Medical Sciences. Winners of Oral and Poster prizes were:

Oral:

- First Prize - Akawi NAF, FMHS - Clinical and molecular analysis of Fibrochondrogenesis patients from the United Arab Emirates expands the phenotype and reveals the first human homozygous null mutations in COL11A1 gene.
- Second Prize - Shemaili JKSB, FMHS - Frondoside A enhances the antiproliferative effects of gemcitabine in pancreatic cancer cells.
- Third Prize - Al Ketbi MI, FMHS - Modulation of immune responses by IFN-G expressing bacterial strain in immunodeficient mice.

Poster:

- First Prize - Issac JM, FMHS - Control of self reactivity of B lymphocytes by Toll like receptors.
- Second Prize - Al Mansouri L, FMHS - Effect of camel milk on metabolic parameters in type 1 diabetes.
- Third Prize - Alshoaibi HM, DPC - Investigation of the prevalence and approbation of herbal medicine in UAE: An ethno-botanical research survey conducted in Dubai and Sharjah.
- Fourth Prize - Al Kindi F, FMHS - Stem cell labelling during mammary gland carcinogenesis.

Students Summer Research
Abdulla Ali Abdulla Al-Baloushi
Professor Ken Addley
Northern Ireland Civil Service
Occupational Health Service

Students Summer Research
Aaesha Abdulla Mohammed S. Alhanjeri
Laboratory of Professor Alison Gurney
Core Technology Facility, University of Manchester

Professor
David Eisner
Invited Speaker
University of Manchester, UK

The National Medical Library

National Medical Library

Director
Ms. Marybeth Gaudette
Health Sciences Ref Librarian
Mr. Mohammed Salih
Circulation Librarians
Mr. Osama Kayal
Ms. Muna Hameed
Catalogue Librarian
M. Khurshid Iqbal
Acquisition Librarian
Mr. Khalid Pasha
Document Delivery Librarian
Mr. Abdul Salim
Library Technical Assistants
Mrs. Eben Prasad
Mr. Abdurahiman
Mr. Koya Kariyankandy

2011 proved to be a breakthrough year for the NML because for the first time, training in Library Skills/ Information Literacy Skills became part of the FMHS core curriculum.

Beginning with the 2011 fall semester, all first-year medical students are now required to demonstrate proficiency in the following abilities:

- Identifying scholarly resources
- Evaluating online health Information
- Performing a MeSH search
- Writing effective search queries
- Navigating and using the features of electronic book collections
- Locating literature using Health Sciences citation databases
- Using the NML's Online Public Access Catalogue
- The program's success was demonstrated by a passing rate of 94 percent for the 2011 cohort, with competency in the course work itself counting for 40 percent of a student's Information Technology/Numeracy grade.

Keeping up with the times, the NML added links to mobile computing resources to its web site during 2011. Library patrons can now easily locate the instructions they need to download the applications that will deliver licensed content to the smartphones, iPhones, iPads, Blackberries, etc.

2011 also saw a continuation of the shift toward the purchase of information resources in electronic format as opposed to print. By the end of the year, users had online access to all but a dozen of the journals subscribed to by the NML. Its e-book holdings were augmented by the addition of titles to the ebrary platform and the leasing of a clinical e-book collection from STAT!Ref. FMHS researchers were appreciative of the NML's augmenting its e-journals holdings with the purchase of subscriptions to the online version of the high-impact journal Science and its new sister journal Science Translational Medicine. Students preparing for the USMLE were quick to take advantage of the NML's addition of USMLEasy to its pool of resources.
The installation of two state-of-the-art book scanners in the NML also demonstrated its increasing commitment to electronic

technology. Enabling users to create searchable PDF files of scanned book and journal pages for storage on portable USB drives, the scanners have proved to be extremely popular with both students and visitors, who save money by no longer having to depend solely on paper printouts for copying texts.

Throughout the year, the NML continued its ambitious program of promoting user awareness and competency by offering training sessions for a variety of information resources, both licensed and free, to FMHS faculty, staff, and students. Training sessions were offered for MeSH, PubMed, Embase, Cochrane Library, EndNote Web, Web of Knowledge, Academic Search Complete, AccessMedicine, MDConsult, STAT!Ref, Books@Ovid, and ebrary. No doubt because of the high volume of research carried on at the FMHS, the most requested training was for the bibliographic management resource EndNote Web.

In addition to serving as the nation's foremost repository of Health Sciences information, the NML also helped contribute to the growth of the UAE's population of medical professionals by offering its computer labs as the site of various national and international licensing examinations.

In July, the NML was pleased to welcome Mrs. Maria Cristina Talavera Cetra to its staff. Mrs. Cetra transferred to the NML from the FMHS Family Medicine Department. Her knowledge of medical terminology, physiology, and anatomy—acquired through her prior training as a physical therapist—has made her a most valuable addition to the NML's Reference Staff.

Meeting its commitment as the National Medical Library of the Emirates, the NML has available for visitors six public-access computers, via which all the NML's electronic resources can be accessed. Visitors can also use within the NML any of its print and multimedia resources. Access to listings of the NML's electronic and print resources is available free to all via the NML's Web Site at http://nml.uaeu.ac.ae. During 2012, the NML offered visitors, students, and faculty access to Health and Life Sciences resources consisting of over: 4000 licensed electronic journals; 435 print journals; 6,600 printed books; and 9,450 e-books.

Housed within the NML is the Learning Resource Centre (LRC), containing two computer labs can accommodate 31 users each and can be reserved for hands-on computer training. Two more classrooms are equipped with state-of-the-art video equipment that allows broadcasting of lectures to linked facilities. There are also dedicated rooms set aside for multimedia-resources viewing, clinical-skills practice and problem-based learning sessions. While the main floor is designed to be conducive to teaching and collaborative learning, private study and quiet reading areas are available on the first floor of the NML.

Standing left to right: ***Mr Koya Kariyankandy, Mr Abdurahiman, Mr Ahmed Fathy (LRC), Mr Khurshid Iqbal, Mr Abdul Salim, Mr Khalid Pasha, Mr Osama Kayal,***

Seatead left to right:
Mr Mohammed Salih, Widad Al Jaili (LRC), Ms Marybeth Gaudette, Mrs Muna Abdul Hameed, Mrs Eben Prasad.

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Impact Factor

Impact Factors

Journal	Impact Factors
Science	31.377
Brit Med J	13.471
Am J Hum Genet	11.680
Med Res Rev	10.228
PLOS Genet	9.543
Brain	9.232
Diabetes	8.889
Neurology	8.017
Nucleic Acids Res	7.836
Cell Mol Life Sci	7.047
J Med Genet	7.037
Diabetologia	6.973
Emerg Infect Dis	6.859
Int J Cardiol	6.802
Chest	6.519
J Inf Dis	6.288
Free Radical Bio Med	5.707
Pediatrics	5.391
Am J Kidney Dis	5.242
J Med Chem	5.207
Neurobiol Dis	5.121
Toxicol Sci	5.093
BBA-Mol Cell Biol Lipids	5.084
J Clin Psychiat	5.023
Brit J Pharmacol	4.925
Circ-Cardiovasc Qual	4.840
Br J Cancer	4.831
Clin Microbiol Infect	4.784
BBA-Biomembranes	4.647
Curr Med Chem	4.630
Movement Disord	4.480
Exp Neurol	4.436
PLOS One	4.411
BMC Genomics	4.206
Addict Biol	4.152
J Pediatrics	4.042
J Urology	3.862

Journal	Impact Factors
J Neurol	3.853
Immunol Cell Biol	3.741
Toxicology	3.641
Vaccine	3.572
Mol Genet Metab	3.539
J Am Soc Echocardiogr	3.520
Invest Ophth Vis Sci	3.466
Org Biomol Chem	3.451
Diabetes, Obes Metab	3.415
Behav Brain Res	3.393
Exp Physiol	3.354
Neurogastroent Motil	3.349
Dev Com Immunol	3.293
Neuroscience	3.215
Eur J Med Chem	3.193
BJU Int	3.190
Ultrasound Obst Gyn	3.163
FEBS J	3.129
J Cell Biochem	3.122
Gen Comp Endocr	3.108
Adv Anat Pathol	3.087
Brit J Nutr	3.072
Public Health Genom	3.049
Sex Transm Infect	3.029
Exp Mol Pathol	2.986
J Neurosci Res	2.958
Exp Biol Med	2.954
Clin Genet	2.942
Virus Res	2.905
J Neuroimmunol	2.901
Neuroradiology J	2.870
Cell Tissue Res	2.804
Eur J Pharmacol	2.737
Age Ageing	2.719
World J Surg	2.693
Phytomedicine	2.662
Peptides	2.654

Journal	Impact Factors
Brain Res	2.623
Pancreas	2.607
J Neural Transm	2.597
Biophys Res Comm	2.595
Eur J Clin Nutr	2.563
Nutr J	2.560
Int J Tuberc Lung D	2.557
Resp Med	2.525
Am J Med Genet A	2.505
Histol Histopathol	2.502
J Clin Pathol	2.475
Diabetes Vasc Dis Res	2.468
Eur Biophys J	2.387
Basic Clin Pharmacol Toxicol	2.371
J Theor Biol	2.371
Exp Toxicol Pathol	2.283
Int J Mol Sci	2.279
Injury	2.269
Epidemiol Infect	2.257
World J Gastroentero	2.240
Pediatric Diabetes	2.171
Mol Cell Biochem	2.168
Fundam Clin Pharmacol	2.152
J Neurosci Meth	2.100
Trials	2.080
J Urban Health	2.068
BMC Cardiovasc Disord	2.021
Ann Occup Hyg	2.014
Epilepsy Behav	1.994
Molecules	1.988
Cancer Biother Radio	1.873
Clin Cardiol	1.807
Int J Toxicol	1.762
Int J Gynecol Obstet	1.704
Physiol Res	1.646
Scand J Clin Lab Inv	1.629
Intl Urol Nephrol	1.567
Scand J Infect Dis	1.562

Journal	Impact Factors
Physica A	1.522
Med Teach	1.494
Environ Toxicol Phar	1.378
Can J Ophthalmol	1.294
J Occup Environ Hyg	1.293
J Trop Pediatrics	1.248
Eur Surg Res	1.214
J Neuroradiology	1.203
Cancer Epidem	1.182
Urol Res	1.172
Int J Social Psych	1.100
Zool Sci	1.087
Int J STD AIDS	1.082
J Chromatogr Sci	1.078
Arch Gynecol and Obstet	1.072
Med Prin Pract	1.069
Int J Pediatr Otorhi	1.067
Gynecol Obstet Invest	1.031
Int J Occup Env Heal	1.000
Angiology	0.992
Asia-Pac J Public Health	0.988
Ann Trop Paediatr	0.966
Toxicol Ind Health	0.915
Genet Test Mol Bioma	0.879
J Obstet Gynaecol Re	0.869
Acta Chromatogr	0.779
Int J Food Sci Nutr	0.778
Singap Med J	0.730
Cardiovasc J Afr	0.708
Ann Saudi Med	0.697
Asian J Surgery	0.652
Pharm Biol	0.638
Saudi Med J	0.560
Afr Health Sci	0.521
J Obstet Gynaecol	0.440
Int J Rheum Dis	0.205
Libyan J Med	0.169

Journal	Impact Factors
Adv in Med Educ and Practice	-
Am J Applied Sci	-
Am J Drug Alcohol Abuse	-
Arab J Nephrol Transplant	-
Asian Pac J Allergy Immunol	-
BMC Blood Disord	-
BMJ Case Reports	-
Brain Dev	-
Can J Public Hlth	-
Cancer	-
Cancer Genet	-
Case Rep in Infectious Dis	-
Case Rep Oncol	-
Case Reports in Radiol	-
Chem Biochem	-
Chem Ind	-
Comp Biochem Physiol C: Toxicol Pharmacol	-
Comp Biochem Physiol D: Genomics Proteomics	-
Der Pharma Chemica	-
Diabetes Technol Therap	-
EJHG	-
Epidemiol Psych Sci J	-
Eur Surveill	-
Expert Review Dermatol	-
Ibnosina J Med BS	-
Indian J Dermatol	-
Int J Nephrol Renovasc Dis	-
Islets	-
J Diabetes Mellitus	-
J Emerg Trauma Shock	-
J Environ Biol	-
J Immigr Minor Health	-
J Med Sci	-
J Edu Informat Cybernet	-
J Pak Med Assoc	-
J Pancreas	-
J Pharmacol Toxicol Methods	-
J Safety Res	-
J Tropical Pediatrics Adv Access	-

Journal	Impact Factors
JUMMEC	-
Nucleos Nucleot Nucl Acids	-
Occup Health at Work	-
Open Medicinal Chemistry J	-
Pathophysiology	-
Prim Care Companion CNS Disord	-
Psychopharmacology (Berl)	-
Res Reports Med Chem	-
Rev Diabetic Studies	-
Safety Hlth at Work	-
Saudi J Opthalmol	-
Sci Pharm	-
Semin Musculoskel Imaging	-
S Afr Fam Pract	-
Trauma and Shock	-
Turk J Trauma Emerg Surgery	-
World Hospitals Health Services	-
World J Emerg, Surg	-

تمهيد

هذا هو التقرير السنوي الحادي والعشرين عن نشر البحوث وملامح بحوث كلية الطب والعلوم الصحية بجامعة الإمارات العربية المتحدة. و يعتبر هذا العدد بمثابة جزء من سلسلة متواصلة من التقارير البحثية السنوية التي يعود تاريخها منذ أول تقرير لنا سنة 1991.

و كما جرت العادة في كل عام فقد حاولنا تطوير والحفاظ على جودة هذا المجلد وواصلنا إدراج ملامح عن الأقسام والتقارير الواردة من مجموعات الأولوية البحثية، بما في ذلك تقرير عن البحث العلمي لطلبة الطب. في نهاية هذا المجلد أرفقنا قائمة تضم المجلات التي قمنا بنشرها عام 2011 وعوامل تأثيرها.

حافظنا في هذا المجلد على التصميم الذي قمنا باستخدامه على مدى السنوات الثلاث الماضية، حيث قامت السيدة إيفانا من قسم الإعلام المرئي بعمل تصميم جديد للمجلد وحظي على الموافقة العامة، وفي هذا الإصدار اتبعت السيدة إيفانا هذا التصميم الذي ينص على أسلوب موحد والتناسق في استخدام العناصر البصرية، حيث يتميز هذا التصميم الجديد بسهولة تحديد الفصول والأقسام وفئات النص.

يسرني أن اتوجه بالشكر والثناء لفريق الإنتاج، السيدة إيفانا مصممة الجرافيك التي بذلت مجهودا في تصميم المجلد، والسيد راجا جوبالان والذي يعتني بمرحلة تحرير المساهمات الأولية للإدارات والتواصل مع جميع الأعضاء، بالاضافة الى السيد اشوك لمساهمته بتوفير الصورالفواتوغرافية، والآنسة العنود للمشاركة والقيام بدورالترجمة.

الشكر الجزيل الى جميع المساهمين في هذا الإصدار

الدكتور/ ويم لامرز
المحرر

مقدمة العميد المشارك لشؤون البحث العلمي و الدراسات العليا

في كل عام تتزايد أعداد الأنشطه البحثية لكلية الطب والعلوم الصحية المعروضة في مجلات عالمية مرموقه، وكما عهدتم في السنوات العشرين الماضيه نحن لازلنا نحافظ على نهجنا لتوعية المجتمع في دولة الإمارات ومختلف أنحاء العالم بإسهامات البحوث العلمية لكلية الطب والعلوم الصحية بجامعة الإمارات العربية المتحدة في البيئة الأكاديمية والعلمية، حيث يقوم الباحثون بكلية الطب والعلوم الصحية من مختلف التخصصات في العلوم الطبية الحيوية بتقديم إسهاماتهم للمجتمع العلمي وذلك من خلال المنشورات البحثية والمساهمات الدولية والوطنية في اللقاءات العلمية والأنشطة الأكاديمية الأخرى التي جعلتنا نحتل موقع رائد كأفضل مركز للبحوث الطبية الحيوية في دولة الإمارات والمنطقة.

بالرغم من الأجواء التنافسية العالية لجذب الأموال اللازمة للبحوث، نحن فخورون بأعضاء هيئة التدريس الذين حافظوا على بيئة تقدمية وتعاونية مع المحافظة ايضا على الإنتاجية ذات مستوى عالمي، ولايزال مكتب البحوث والدراسات العليا المواصلة في تعزيز هذه البيئة العلمية عن طريق تخصيص الموارد بصورة حكيمة ورعاية قوة جديدة وتوفير البنية التحتية والموارد اللازمة من خلال الحصول على احدث المعدات والتقنيات بالإضافة الى تسيير ذخائر الكلية للاستهلاك العام. في السنوات الأخيرة قمنا أيضا بتطوير وصيانة مرافق البحوث المركزية مثل وحدة التصوير والأبحاث التحليلية ومرفق الخلية الجزئية الحيوية بالإضافة إلى مربى لحيوانات التجارب الصغيرة.

نود أن نعبر عن امتنانا للإسهامات والدعم المتواصل من قبل موظفي جامعة الإمارات العربية المتحدة والذين يسعون الى جعل جامعة الإمارات العربية المتحدة مؤسسة للأبحاث المكثفة من أجل تنفيذ رؤية معالي الشيخ نهيان مبارك آل نهيان الرئيس الأعلى للجامعة.

يسرني أن أغتنم هذه الفرصة لأشكر جميع المساهمين في هذا المجلد والأسهامات البحثية بكلية الطب والعلوم الصحية.

الدكتور/ أحمد المرزوقي
مساعد العميد لشؤون البحث العلمي و الدراسات العليا

ونود أن نعرب ايضا عن إمتنانا وعرفاننا للمنظمات التالية وذلك لتقديم الدعم المالي المتواصل لإبحاثنا:

- ويلكوم ترست- المملكة المتحدة
- أليسكو
- هارفارد الدولية
- صندوق أبحاث ثراشر
- سونيسايت
- الهلال الأحمر
- هيئة أبوظبي للبيئة
- جامعة نورث كارولينا
- جامعة كاليفورنيا
- مستشفى الأطفال- بوسطن
- هيئة الصحة- ابوظبي
- هيئة أبوظبي للأغذية
- علم الوراثة والسرطان

يجب أن يفخر باحثونا وأعضاء هيئة التدريس والإداراين والطلبة على تفانيهم ومواصلة رفع مستوى الانتاجية البحثية خلال عام 2011
حيث عرضت المنشورات العلمية في مجلات عالمية مرموقة.

تهانينا لكم جميعا وأعرب عن شكري لانجازاتكم.

الأستاذ الدكتور/ محمد يوسف حسن بني ياس
نائب مدير الجامعة المشارك للعلوم الطبية وعميد كلية الطب والعلوم الصحية

كلمة العميد

انه لمن دواعي سروري أن أضع بين أيديكم مقدمة طبعة 2011 الخاصة بالأبحاث العلمية لكلية الطب والعلوم الصحية.

لا يزال الباحثون بكلية الطب والعلوم الصحية يقدمون اسهامات هامة في مجالات الطب الحيوي والعلوم السريرية وعلوم المجتمع.
وأنا بدوري أهنئ جميع أعضاء هيئة التدريس الذين يسهمون في إثراء الإنتاجية البحثية. إن كل باحث لا يمكنه تحقيق الإنجازات إلا عن طريق التعاون مع فريق الدعم الكامل الذي يتضمن مساعدو الباحثين والطلبة الخريجين و طلبة الطب والفنيين وموظفي السكرتارية والمتطوعين وموظفي الدعم. حيث أن تعاونهم وتكاتفهم ساهم في انجازهذه البحوث ونحن ممتنون لهم جميعا لما قدموه من إسهامات ساعدت في نجاح البحوث بكلية الطب والعلوم الصحية.

تقدم الإدارة العليا بجامعة الإمارات العربية المتحدة حافزا كبيرا لمخرجات البحوث بكلية الطب والعلوم الصحية كما أننا ملتزمون على مواكبة التحدي والمضي قدماً في تطوير قدراتنا وإمكاناتنا البحثية.

كان للمنحة السخية المقدمة من قبل المنظمات الداعمة الفضل الكبير في إظهار هذه الابحاث الى النور، لذا نود أن نعرب عن إمتناننا وعرفاننا الشديد للرعاة وذلك لتقديم الرعاية لأبحاث 2011
وهم:

- جائزة الشيخ حمدان للعلوم الطبية
- مؤسسة البحوث الوطنية
- المركز الوطني للتأهيل
- صندوق تيري للسرطان في دبي وابوظبي ورأس الخيمة
- مؤسسة الإمارات
- مؤسسة مايكل جيه فوكس بالولايات المتحدة الأمريكية
- مؤسسة لندبيك- الدنمارك
- الإتحاد الاوروبي للمشروع التعاوني
- مؤسسة دبي هارفارد للأبحاث الطبية
- المركز الدولي للهندسة الوراثية والتقنية الحيوية
- المجلس التنفيذي لإمارة ابوظبي
- الحكومة السويدية
- سلك الخدمات الطبية- القوات المسلحة لدولة الإمارات
- المجلس الثقافي البريطاني- المملكة المتحدة
- ساتيجن- الولايات المتحدة
- معهد الصحة العالمية

المحتويات

كلمة العميد

مقدمة مساعد العميد لشؤون البحث العلمي و الدراسات العليا

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هيئة التحرير
المحرر:
الأستاذ ويم لامرز
السكرتير الإداري:
السيد راجاغوبالان
التصميم:
السيدة إفانا ليزاريتوري
التصوير:
السيد أشوك براساد
الترجمة:
الآنسة العنود الجابري

الصور المدرجة بالداخل من قبل الباحثين

جامعة الإمارات العربية المتحدة
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المنشورات السنوية لمكتب العميد المشارك
لشؤون البحث العلمي و الدراسات العليا

طبع بواسطة وحدة المطبوعات
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2011

المنشورات العلمية و الاهتمامات البحثية

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