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Office of the Associate Dean for Research and Graduate Studies
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UAEU Global Health Institute

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It gives me great pleasure to provide an introduction to the 2010 edition of the Faculty of Medicine and Health Sciences (FMHS) Research Publications.

This is a particularly important edition as it marks the twentieth issue of the FMHS Research Publications and is therefore a significant milestone in the ongoing scientific output of the FMHS. My congratulations go to all faculty members who have contributed to the high level of research productivity evident in this edition. Our researchers, in conjunction with graduate students, medical students, and technical staff make important contributions to clinical literature and to scientific advancement in the UAE and internationally. Their continued dedication and productivity ensures that the FMHS maintains its record of enviable research accomplishments over the last two decades.

A highlight of 2010 was the UAEU Conference, Global Health and the UAE: Asia–Middle East Connections which discussed how the mixture of people, customs and commerce resulting from an increasingly mobile population are giving rise to new global health problems. The success and impact of this conference activated plans to establish a Global Health Institute whose main areas of research will be population health, both physical and mental, to include patterns and risk factors of lifestyle diseases as well as epidemic diseases. While recruitment efforts continue, the UAEU has appointed a member of the FMHS Community Medicine Department, Dr Iain Blair, as Interim Director of the Global Health Institute.

FMHS Research Priority Groups provide stimulus to the UAE scientific community and are greatly relevant to health issues within the country. The Groups focus on addressing the health concerns of the nation under the areas of: Genetics and Development, Trauma, Oncology, Neuroscience, Immunoregulation and Infection, Diabetes and Cardiovascular, Medical Education.
We are most indebted to the following benefactors for the ongoing sponsorship of our research and gratefully acknowledge their support:

- Sheikh Hamdan Award for Medical Sciences
- Terry Fox Cancer Funds in Dubai, Abu Dhabi and Canada
- Wellcome Trust, UK - Viral genetics and vaccines development
- Michael J Fox Foundation, USA - Parkinson’s disease
- British Council in the UAE
- ALESCO - Neuroscience
- Harvard International - Cancer
- Dubai Harvard - Genetics
- Thrasher Research Fund - Vitamin deficiency
- Satiogen - Diabetes
- Sonisite - Trauma
- Red Crescent - Trauma
- Abu Dhabi Environment Agency – Environmental health
- University of North Carolina - Environmental health
- University of California – Genetics
- Children’s Hospital, Boston - Genetics
- HAAD - Occupational Health
- Abu Dhabi Food Authority - Dates & Diabetes
- ICGEB - Genetics & Cancer

The UAEU places emphasis on high quality research and we at the FMHS are pleased to be in a position to respond positively to this challenge. We remain committed to this priority and strive to increase our efforts to further develop the FMHS research capabilities and output. I am impressed by the continued high-quality output of our dedicated researchers, especially considering the adverse conditions experienced during the global financial crisis. Congratulations to you all and thank you for your continued achievements.

Prof. Mohamed Yousif Hasan Baniyas
Vice Provost, Medical Sciences and Dean, Faculty of Medicine and Health Sciences
I am proud to present to you this 20th anniversary edition of our faculty’s research profile and contributions.

As in the previous 19 years, we maintain this now 20-year old tradition that has kept our community aware of the research endeavors and contributions to the United Arab Emirates University and the academic environment in the nation and abroad. Through our numerous peer-reviewed publications, attendance and contribution to national and international scientific meetings and other scholarly activities, we maintain our premium position as the top biomedical research center in the Emirates and one of the top in the MENA region.

Such a common endeavor can only be achieved and maintained in a progressive and cooperative environment. The Office of Research and Graduate Studies aims to promote such an environment by allocating resources wisely, to nurture incoming faculty, providing resources to maintain old equipment and install new equipment, and by running a faculty store for general consumables. In this anniversary edition, we have highlighted our central research facilities such as the Analytical Services, the Electrophysiology Center, the Electron and Confocal Laser Microscopy Imaging Unit and the Molecular Cellular Biology Facility. Of course, we have also provided space to the achievements and staff involved in our National Medical Library.

We should also acknowledge the contribution and ongoing support by the United Arab Emirates University, who are very active in implementing the research, vision of His Excellency the Chancellor Sheikh Nahayan Mabarak Al Nahayan who has repeatedly stated the top priority position for research at the UAE University.

With this anniversary edition, it is my privilege to thank all my predecessors in this office who started on this ambitious project so many years ago: Professors Wim Lammers (1990-1994), Andrew Garner (1995-1997), Sehamuddin Galadari (1998-2000), and Mio Lukic (2001-2007).

Professor Sehamuddin Galadari  
Assistant Dean for Research & Graduate Studies (2008-2011)
Preface

This is the 20th yearly report on Research Publications and Research Profiles for the Faculty of Medicine & Health Sciences, United Arab Emirates University. This volume is part of an unbroken series of research annual reports, dating back to our very first report in 1991.

We have continued to include the Departmental Profiles and the Reports from the Research Priority Groups, together with a report on Student Medical Research. This year we have included reports from the central laboratory facilities that support our research. And, finally, we open the booklet with a few pages dedicated to the foundation of the new Global Health Institute, a joint effort of FMHS and UAEU.

At this stage, it has always been our pleasure to thank those who have been involved in one way or another with the production of the annual booklet. This time, in this special anniversary edition, it is my pleasure to thank all those who have been involved in one way or another with all 20 productions from the very first 1991 edition:


And, obviously, we must also thank all those members of Faculty and staff who have published at FMHS in the past twenty years, making FMHS by far the leading publisher in biomedical research in the nation(1).
A unique conference Global Health and the UAE: Asia–Middle East Connections was held at the United Arab Emirates University (UAEU) in January 2010. Delegates discussed the global health problems that are emerging along the route of the new silk road which links the global cities of the UAE and Middle East with Mumbai, Kuala Lumpur, Singapore, Shanghai and Hong Kong.

Following the conference, the foundations of a Global Health Institute have been laid. As a key hub in the global network, the UAE is ideally placed to host this new Institute and it is appropriate that it should be established at UAEU where it will start to draw together experts and scholars to research the health issues faced by the Nation and the wider Region.

It is planned that the Institute's main areas of research will be population health (in particular the patterns and risk factors of diabetes, cardiovascular disease, genetic disorders and injury), the social and family factors that influence health behaviour, migrant health, epidemic disease and air travel, refugee physical and mental health and the challenges facing local health systems.

So far, work at the Institute has been focussed on seeking sponsorship, recruiting to a newly established faculty position in ethnography and exploring international links. The Institute is already funding two substantial research projects and Sir Richard Feachem, Professor of Global Health at the University of California has agreed to work with UAEU over the next three years to help to establish the Institute. Faculty and staff in FMHS and other UAEU colleges with an interest in global health who would like to contribute to the work of the Institute will be welcome to become affiliates of the Institute. A website for the Institute is under construction (http://www.fmhs.uaeu.ac.ae/globalhealth/) and contributions will be appreciated.

For more information contact Dr Iain Blair: (iain_blair@uaeu.ac.ae)
Interim Director, Dept. of Community Medicine
Faculty of Medicine & Health Sciences

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Research Publications by Department

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Research Profile

Academic staff in the Department of Anatomy pursue research interests in a number of directions. We show considerable strength in the fields of neurobiology, stem cells, cancer, diabetes, 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 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.

Sherif Karam’s main research focuses on some fundamental aspects of stem cell biology. Stem cells of the gastric glands and mammary glands are investigated to define the modulation of their proliferation and differentiation during carcinogenesis. Also, the regenerative potentials of isolated gastric and dental pulp stem cells are investigated.

Dietrich E. Lorke’s main research activities are in the area of neuroembryology. He studies developmental changes in the expression of neurotransmitters (GABA, catecholamines), of receptors (glycine receptor, nicotinic acetylcholine receptor, NMDA receptor, estrogen receptor-related receptor) and of functional parameters (functional MRI, c-fos) in different brain regions of rodents and humans. Together with his collaborators at the Center of Molecular Neurobiology, Hamburg, he investigates altered brain development in mutant mouse strains, including knock-out mice, and studies the reaction to injury in the spinal cord of mutant mice. His second research interest is concerned with the blood-brain barrier. In collaboration with the Department of Pharmacology, FMHS, he analyses factors influencing the passage of oximes into the brain. Oximes are important adjunct therapeutics in the treatment of organophosphorus poisoning. Together with researchers at the Faculty of Military Health Sciences, Hradec Kralove, Czech Republic, the efficacy of various newly developed oximes in the therapy of organophosphorus poisoning is tested. Together with his colleagues at the Chinese University of Hong Kong, he characterizes neurotransmitter expression in the central nervous system of different vertebrates and studies apoptotic cell death as well as neurotransmitter changes during aging and in Alzheimer’s disease. In addition, he is involved in cooperative clinical research, performing experimental studies on the development, imaging and therapy of malignant tumors and on the side effects of gadolinium-based radio contrast media.

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.

Safa Shehab studies the reorganization of the neuronal circuitry in the dorsal horn of the spinal cord after peripheral nerve section. His findings do not support the notion that peripheral nerve section causes sprouting of either injured or adjacent uninjured primary afferents in the dorsal horn. He is currently investigating the neuronal pathways that are likely to be critical in the production of the neuropathic pain. He is also investigating the role of the basal ganglia in suppressing epileptic seizures. His recent findings showed that the subthalamic nucleus might not have critical role in suppressing tonic seizure. He is currently investigating the mechanisms of deep brain stimulation and whether high frequency stimulation of substantia nigra can produce anticonvulsant effects using an animal model of epilepsy.
Articles in Peer-reviewed Journals


Published Abstracts, Letters and Correspondence


Department of Anatomy


Proceedings, Conferences, Invited Lectures, Web Sites and Others


Bagnall KM, Bater J, Secretan C, barley R, Jomha N. (2010). Baseline values of gene expression levels for cultured chondrocytes should be obtained from chondrocytes in situ. IRSSD Meeting, Montreal.

Fahim M, Karam SM, al-Ramadi B. (2010). Ghrelin enhances the regenerative potential of stem cells. The Annual meeting of the Federation of the American Societies of Experimental Biology (FASEB), USA.


Karam SM. (2010). Role of epithelial progenitors in gastric carcinogenesis. The International Anatomical Sciences and Cell Biology Conference, Singapore


UAEU Individual Grants

Prof E Adeghate
Effect of visfatin and adiponectin on the metabolic parameter of diabetic rats.

Prof DE Lorke
In vitro study of the efficacy of adding antibiotics to nonionic contrast media for intradiscal use at discography in order to reduce bacterial growth.

Dr E Mensah-Brown
Antigen presentation and CNS immune-mediated inflammation: The role of dendritic cells in experimental allergic encephalomyelitis.

UAEU Interdisciplinary Grants

Prof SM Karam
Ghrelin and recovery after anti-neoplastic and cytotoxic therapy.

Sheikh Hamdan Award for Medical Sciences

Prof E Adeghate
Effect of pancreatic beta cell transplantation on the metabolic parameters of diabetic rats.

RESEARCH GRANTS

FMHS Research Grants

Prof E Adeghate
Modulation of streptozotocin-induced diabetes by orexin-1 receptor.

Prof SM Karam
Lectin binding and cell proliferation analysis during early events of mammary gland carcinogenesis.

Dr E Mensah-Brown
The effects of Toll-like receptor-2 ligand, peptidoglycan on the development of autoimmune diabetes: An analysis in multiple low dose streptozotocin-induced diabetes in wild type mice, interferon-gamma and iNOS deficient mice.

Dr S Shehab
Neuroanatomical circuitry of neuropathic pain.

Dr S Shehab, Prof M Ljubisavljevic (PI) NPY and streptozotocin-induced diabetic neuropathy-preliminary evaluation of behavioral and spinal pain processing changes (With Professor M. Ljubisavljevic).
Dr E Mensah-Brown
Roles of toll-like receptor-2 ligands in the pathogenesis of autoimmune diabetes: An analysis in multiple low dose streptozotocin-induced diabetes in wild type, interferon gamma, interleukin-17 and iNOS deficient mice.

Dr S Shehab
Does high frequency stimulation of the substantia nigra suppress tonic epileptic seizures?

Terry Fox Fund for Cancer Research

Prof SM Karam
Role of gastric epithelial progenitors in gastric carcinogenesis.

Prof SM Karam
Characterization of the early stages of mammary gland carcinogenesis.

National Research Foundation Grant

Prof SM Karam

Prof SM Karam
Karam SM, Branicki F: Stem Cell Genes and Gastric Carcinogenesis – contribution to a Research Center of Excellence on Genes and Diseases.

Dr E Mensah-Brown
Interplay of cytokines at the level of the target tissue determines the outcome of Th1/Th17 mediated type 1 diabetes.

Dr S Shehab
How does deep brain stimulation work?
Dr S Shehab, Profs M Ljubisavljevic (PI), T E Adrian

The mechanisms of Repetitive Transcranial Magnetic Stimulation (rTMS) induced modulation of brain plasticity in health and disease.

Emirates Foundation Grant

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

Prof SM Karam
Karam SM, Bharwani S: Stem cells and Helicobacter pylori in the stomachs of children.

Prof. SM Karam
Ahmed M, Karam SM, Goodis H, Chogle S. Regenerative Potential of Dental Stem Cells

Anatomy

Standing left to right: E Mensah-Brown, K Bagnall, RS Hameed, WAJ Wanni, S Shehab, S Karam, S Singh, S Tariq, I Khan, M Madathil, Seated left to right: TV Basheer, J Shafarin, G Buzzell, E Adeghate, W Al Dhaheri, A Rifaat, L Ravindranathan

http://www.fmhs.uaeu.ac.ae/Departments/Anatomy. Tel: 7672000 / Fax: 7672033
Research Profile

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

The year 2010 saw the appointment of Dr Ahmed Al-Marzouqi as Chair of the Graduate Studies Committee. Prof. Sehamuddin Galadari continued in his role as Associate Dean for Research and Graduate Studies and Prof. Omar El-Agnaf as Chair of the Neuroscience research priority group.

**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 system, 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 directing 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 anti-microbial response. Immunologically, inhibition of AChE, can modulate the inflammatory response of splenic macrophages and enhance the antibody response to infection in these animals. Moreover, very preliminary results suggest that AChE inhibition could also modulate macrophage inflammatory responses, both in infections as well as non-infections disease models.

**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 our 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 chemical-induced increased oxidative stress alters mitochondrial bioenergetics and redox functions. Altered mitochondrial functions and glutathione-dependent redox homeostasis have been implicated in toxicities and diseases including cancer, diabe-

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**Exposure to paraoxon improves resistance to virulent infections.**

Mice were treated for 1 week (A) 2 weeks (B) or 3 weeks (C) with paraoxon or saline by daily i.p. injections. At the end of the treatment period, mice were infected orally with a dose of 1.0-1.5x10^4 organisms of SL1344 strain of *S. typhimurium* and followed for survival up to day 60 post-infection. To determine the effect of AChE on enhanced survival, mice were co-administered the K-27 oxime, with or without paraoxon, (D). Results are representative of 2 independent experiments. Asterisks denote significant differences between control and paraoxon groups (*, p < 0.05; **, p < 0.01). Chi square (Mantel-Cox) statistical test was used for this analysis.
In a separate study, we have investigated the mitochondrial functions and drug metabolism in camel tissues and have compared them with the tissues from other domestic and laboratory mammals. These studies have resulted in three publications in peer-reviewed journals.

**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.

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.

**Research Highlights:** Recently, we investigated the levels of α-synuclein oligomers in CSF from patients with PD and age-matched controls using an enzyme-linked immunosorbent assay (ELISA) that specifically detects α-syn oligomers. We also measured the total-α-synuclein levels.
in CSF. The levels of α-synuclein oligomers, and oligomers/total-α-synuclein ratio in CSF were significantly higher in the PD group (p < 0.0001, Mann-Whitney U test) compared with those in the control group. The area under the ROC curve (AUC) indicated sensitivity of 75.0% and specificity of 87.5% with an AUC of 0.859 for increased CSF α-synuclein oligomers in clinically diagnosed PD cases. However, when the CSF oligomers/total-α-synuclein ratio was analyzed, it provided even greater sensitivity of 89.3%, and a specificity of 90.6% with an AUC of 0.948. Our results demonstrate that the CSF levels of α-synuclein oligomers and oligomers/total-α-synuclein ratio can be useful biomarkers for diagnosis and early detection of PD.

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 2010 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

Signal transduction pathways and disease (Prof. S. 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 — a central molecule in sphingolipid metabolism — in effect functions as a tumour-suppressor lipids, inducing antiproliferative, senescence, apoptotic and autophagic responses in various cancer cells. Conversely, S1P induces responses that, on aggregate, render S1P a tumour-promoting lipid. These discoveries are paving the way for
the advancement of anticancer therapies. Ceramidases hydrolyse ceramide into sphingosine and fatty acid. After its generation sphingosine is phosphorylated to form sphingosine-1-phosphate through the action of sphingosine kinase. Because the phosphorylation of sphingosine is the only pathway for the formation of sphingosine-1-phosphate, cellular sphingosine-1-phosphate 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 sphingosine-1-phosphate in cells. Therefore, the action of ceramidase leads to an alteration in cellular ceramide, sphingosine, and sphingosine-1-phosphate, thereby controlling cellular responses mediated by these bioactive lipids. Ceramide mediate the regulation of growth arrest, senescence, and/or apoptosis. Some of these biological functions might be controlled through novel SL-protein interactions. Most frequently, these direct 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. The regulation of protein phosphatase-1 and -2 (PP1 and PP2A)-family enzymes, also referred to as ceramide activated protein phosphatases (CAPPs)

Our lab focuses on the following research areas
1. Purification and biochemical characterization sphingolipid metabolizing enzymes such as neutral ceramidase isoforms from different species.
2. Role of protein phosphatase-1 in sphingosine and ceramide induced apoptosis in human leukemic cells

SPH induces the DNA damage and apoptosis in Jurkat and Molt-4 cells.
(A) Jurkat cells incubated with indicated concentration of sphingosine for 6h and comet assay were performed. (B) Treatment of Jurkat cells with SPH leads to increased Annexin V and PI staining in a dose dependent fashion. (C) Molt-4 cells incubated with indicated concentration of sphingosine for 6h and MTT assay were performed. (D) Treatment of Jurkat cells with 8μM SPH for indicated time. Equal amounts of lysates (30 μg) were subjected to electrophoresis and analyzed by western blot for PARP. The 85 kDa proteolytic cleavage of PARP is indicated by the arrow.

**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:
The anuran family Pipidae is composed of 32 species in 5 genera (Hymenochirus, Pipa, Pseudhymenochirus, Silurana, and Xenopus). All are found in Africa except for members of Pipa which are found in South America. The genus Xenopus (commonly known as African clawed frogs) currently contains 18 species, although several additional, as yet unnamed, species have been reported, and the genus Silurana contains at least four species. Despite the fact that X. laevis was the first amphibian species in which cutaneous antimicrobial peptides were unambiguously identified, frogs belonging to the family Pipidae have not been extensively studied as a source of potential anti-infective agents. My laboratory has begun a systematic investigation of the structural and biological properties of the antimicrobial peptides present in skin secretions of frogs from the genera Xenopus and Silurana. In 2010, multiple biologically active peptides were isolated from Xenopus amieti, X. andrei, X. borealis, X. clivii, X. mülleri, and Silurana paratropicalis and their abilities to inhibit the growth of a range clinically important bacteria were determined. A number of peptides with therapeutic potential have been identified.
Articles in Peer-reviewed Journals


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**Proceedings, Conferences, Invited Lectures, Web Sites and Others**


Conlon JM. (2010). Transformation of antimicrobial peptides from frog skin into therapeutically valuable anti-infective agents. 240th American Chemical Society National Meeting, Boston, USA.


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**RESEARCH GRANTS**

**FMHS Research Grants**

Prof JM Conlon. (PI) Structure-activity studies of the alyteserin-1 family of antimicrobial peptides


Prof H Raza. (PI) Effect of acetaminophen on mitochondrial cytochrome P450 2E1, aconitase and respiratory enzyme complexes in macrophages and hepatoma HepG2 cells.
Department of Biochemistry

Scientific Research Council UAE University
Dr MJ Fernandez-Cabezudo (PI) Cholinergic stimulation of the immune system: cellular and biochemical basis of action.

UAE University Interdisciplinary Grants
Prof OMA El-Agnaf. (PI) Testing novel inhibitors of alpha-synuclein oligomerization and toxicity as a novel treatment for Parkinson's and related disorders (continuation).

Terry Fox Fund for Cancer Research
Dr AH Al-Marzouqi. (PI) Investigating the mechanisms of action of the Snf2-homolog protein Fun30 (continuation).


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

Emirates Foundation Grant
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

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

Others
International Center for Genetic Engineering and Biotechnology (ICGEB)
Dr AH Al-Marzouqi. (PI) Studying chromatin-modifying proteins in transcription regulation (continuation).

Michael J. Fox Foundation for Parkinson's Research, USA Grants
Prof OMA El-Agnaf. (PI) A strategy to develop a radiotracer targeting alpha-synuclein (continuation).

Prof OMA El-Agnaf. (PI) Development of Lewy bodies MRI imaging agents for the early diagnosis of Parkinson's disease and related disorders (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).

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Standing left to right: H Raza, JM Conlon, A Qader, S Galadari, OMA El-Agnaf, Seated left to right: AH Al-Marzouqi, M Patel, A John, M Fernandez-Cabezudo, M Mechkaraka, M Qureshi
Research Profile

2010 was an eventful year for the department of Community Medicine, especially in regards to research activities. The year started with our joint organization of a major international conference on global health. Participants from prestigious international universities and organizations (including Yale, Harvard, UCLA, Simon Fraser University, The University of Hong Kong, National University of Singapore, and Monash) presented papers which were then published in a special supplement of the Asia-Pacific Journal of Public Health. Professor Aw and Dr. Blair worked with Professor Marcia Inhorn and Dr. Michael Dalby in organizing the event and editing the papers for publication.

The conference was followed by the announcement and award of two research grants and the launch of a UAE Global health institute. Syed Shah from our department was awarded one of the grants. Iain Blair was designated interim director of the Institute, and recruitment for staff has already started with expertise in ethnography and clinical epidemiology being two initial priority areas for development. We are fortunate in having Sir Richard Feachem from the University of California (and former dean of the London School of Hygiene and Tropical Medicine) on the advisory board of the institute.

Our international links also strengthened with the designation of the UAE University by the Royal College of Physicians (RCP), Ireland (Faculty of occupational medicine) as an overseas examination centre for occupational medicine. Dr. Martin Hogan and Dr. Paul Guerat from the RCP (Ireland) were external examiners for the first exam in occupational medicine in May 2010.
Compilation of a portfolio comprising research and field experience is part of the requirements for eligibility to take the exam. Dr. Ken Addley, former Dean of the Irish Faculty of Occupational Medicine, was our visiting professor in 2010. He collaborated with our departmental staff on a research paper for publication.

An MOU (Memorandum of understanding) signed with the University of Malaya led to Dr. Blair and Professor Aw being invited as external examiners for their Masters and doctoral research candidates. Professor Nagelkerke also taught a course on advanced statistics at the University of Malaya. Following award of a research grant from the University of Leeds, UK, we have started work with colleagues from the University of Malaya (Professor Awang Bulgiba) and the University of Leeds, UK (Dr. Jennifer Lim) on a global health project on breast cancer.

Two new postgraduate programmes were launched by the department of Community Medicine in 2010. We accepted our first PhD (Public health) candidate and several MPH (Masters in Public health) students. There are already enquiries for our next intake in 2011. We envisage the research projects from our doctoral and masters students to lead to several peer-reviewed publications.

Fatma Al-Maskari was awarded a research grant to investigate the metabolic syndrome amongst local youths. She also continued with her research interest in diabetes – a major public health problem in the UAE. John Schneider completed his research on heat stress, and the sponsoring agency (The Health Authority of Abu Dhabi) used the research findings to produce guidelines for workers. Michal Grivna organized a research seminar on the epidemiology of childhood injuries, and this attracted an audience of around 250 health professionals. It was one of the most successful UAE University CME events of the year.

We had a steady stream of distinguished visitors to the department throughout the year. They included Professor Harri Vainio, Director-General of the Finnish Institute of Occupational Health, Professor Elisabete Weiderpass from the University of Tromso, Norway, and Dr. Peter Verow NHS consultant from Birmingham, UK. Several visitors delivered research presentations to the faculty. The visits also provided an opportunity for discussions on research and possible collaboration with our staff.

Community Medicine staff members continue to bid for research funding from local, national, and international sources. For 2010, we succeeded in attracting research funding from the National Rehabilitation Centre (NRC), Health Authority of Abu Dhabi (HAAD), and the Emirates Foundation. We aim to maintain this track record and further strengthen our foundations for research on public health issues relevant to the United Arab Emirates.

**RESEARCH INTERESTS OF FACULTY AND STAFF**

**Dr Fatma Al-Maskari:** Public health physician and epidemiologist with 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.

**Prof Tar-Ching Aw:** US-Board certified in occupational medicine. He has a special inter-
Professor Aw is a member of the International Advisory board for the journal - Occupational Medicine (Oxford Journals), and was appointed last year to a new international journal for occupational health (Safety and Health at Work). He continues as a member of the UK Health and Safety Executive’s working group on action to control chemicals (WATCH).

Dr Roos Bernsen: Epidemiologist and Biostatistician with special interest in allergy and asthma. She provided consultations to the Research Department of the Erasmus Medical Center of the University of Rotterdam in the Netherlands for many years before joining FMHS, and conducted studies in the Netherlands on risk factors for childhood asthma and allergy. She is organizing related studies 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 qualitative studies on the effect of chronic illness on Emirati families and the social and environmental determinants of obesogenic lifestyles.

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

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”.

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 2010.

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.

Dr Syed Shah: Chronic Disease Epidemiologist with research interests in epidemiology of cardiovascular disease, work-related injuries and mental health.

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 Andrew Wheatley: Occupational hygienist with a broad-based background in consultancy, teaching and research. Research interests include exposure and risk characterization for combustion processes, metal industries and organic dusts.
Articles in Peer-reviewed Journals


McLean M, Al Ahibbi S, Al Ameri M, Al Mansoori M, Al Yahyaei F,


Al-Kaabi JM, Al-Maskari F, Saadi H, Afandi B. (2010). Prevalence of peripheral vascular disease among type 2 diabetics in Al Ain Medical District. 15th Annual Workshop on Diabetes Mellitus, FMHS, UAE University, Al Ain, UAE.


Aw TC. (2010). Approaches to Occupational medicine training. Hong Kong College of Community Medicine, Hong Kong. August 19, 2010.


Aw TC. (2010). Occupational health and safety priorities for the UAE. Report for the Health Authority of Abu Dhabi. Department of Community Medicine, UAE University.


Aw TC. (2010). The clinical rel-
Aw TC. (2010). The importance of recognising occupational diseases. Faculty of Medicine, Khon Kaen University, Thailand. May 3, 2010.


Grivna M, Barss P. (2010). Injury and safety education as a key component of a life-style project & other curricula for medical students in the Middle East.


RESEARCH GRANTS

FMHS Research Grants

Prof TC Aw [PI], Dr M Sheek-Hussein, Prof L Nasir Determination and comparison of socio-cultural factors influencing delays in seeking help for breast cancer.

Drs S Bahrwani [PI], SM Shah Gastric cancer burden in the UAE.

Drs MJ Hashim [PI], SM Shah Online diabetes health education – a randomized controlled trial.

Dr JD Schneider [PI] Pilot survey of expatriate working conditions in Abu Dhabi.

UAE University Individual Grant
Drs M Grivna [PI], P Bars, A Al Dhaheri, Adi MMF. Women's awareness, attitude and practice regarding the risk of baby walkers: a post-interventional study.

**Emirates Foundation Grant**

Drs F Al-Maskari [PI], M Elremeli, S Al-Hammadi, T Zoubeidi. Clarifying the role of vitamin D in management of moderate to severe asthma in children. Emirates Foundation Grant.

Drs I Blair [PI], M Tabishat, MA Alghorani. The effect of chronic illness on the Emirate family. Emirates Foundation Grant.

**National Rehabilitation Centre (NRC) Grant**

Prof TC Aw [PI], Drs O Osman, I Blair, M Sheek-Hussein, I Nasir. (2010). Developing a surveillance system for drug and alcohol addiction in the UAE.

**Provost’s Global Health Research Committee Grant**

Dr SM Shah [PI], Prof TC Aw, Drs F Al-Maskari, J Hussain, et al. Developed-developing countries partnership for chronic disease prevention.

**Health Authority of Abu Dhabi Grant**

Dr JD Schneider [PI], Prof N Nagelkerke, Drs I Blair, M Sheek-Hussein, S Shaban. Pilot survey of expatriate working conditions in Al Ain. Health Authority of Abu Dhabi Grant.

**Others**

Prof TC Aw [PI], Drs F Al-Maskari, J Schneider, M El-Sadig. UAE Indoor Air, Health and Nutrition Study. University of North Carolina at Chapel Hill and RAND Corporation.

Dr J Lim [PI], Prof TC Aw, Drs KS Chia, M Hartman, A Bulgiba, M Dahlui, CH Yip, N Aishah. The burden of advanced stage breast cancer due to delays: establishing a psychosocial cancer research network between Leeds (UK), Middle East (ME), and Southeast Asia. WUN Leeds Research Fund for International Research Collaboration.

Standing from left to right: S Shah, A Sharif, M El-Sadig, M Grivna, M Sheek-Hussein, N Nagelkerke, J Schneider, I Blair, M Jamal CK

Seated left to right: S Yousif, A Kaljee, R Kurdi, T-C Aw

Absent: F Al-Maskari

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Research Profile

Family Medicine is a discipline that encompasses all aspects of patient care biomedical, psychological and social. It emphasizes continuity of care and chronic disease management, via a strong doctor-patient relationship. Primary care also focuses on health promotion and health education, to empower patients to take responsibility for their own health. The Family Medicine department focuses on carrying out research into these domains. Additionally, as much time is spent teaching students and physicians how to practice such patient centered principles, the department also carry out medical education research into how one should teach family medicine within the Middle East.

Communication Skills for an Arab setting
The Family Medicine Department concentrates on communication skills as a key qualitative research area. Dr Deen Mirza is looking into how Arabic language and Muslim culture affects the way in which doctors and students communicate with patients. He has produced a new conceptual model for teaching physicians in the Arab world how to communicate with patients- the 'REACH consultation model for communicating with Arab patients'. He is also carrying out research into how well primary care doctors understand and utilize communication skills concepts in everyday practice. In addition to this he is carrying out a focus group study on Western patients’ experience of bad news delivery in the UAE. Dr Deen Mirza is also developing a new framework to examine how Muslim physicians respond internally to traditional health beliefs that derive from core Islamic belief: the 'Four Choices Model for responding to religious health beliefs in a Muslim setting'. Dr Jawad Hashim is carrying out research
Department of Family Medicine

into which patient-centered ‘micro-skills’ Arab medical students struggle with mastering when taught communication skills in English. Professor Laeth Nasir and Dr Stella Major are investigating Emirati medical students’ perceptions on how bad news is broken to patients.

**Interactive electronic portfolios to enhance students’ reflective practice**

The Department of Family Medicine has decided to include portfolios as part of the teaching strategy. Since the academic year 2009/2010 a four cycle reflective ‘plan, act, revise,’ action research study involving faculty and students is in progress. The first cycle was completed and data was obtained from 16 student questionnaires, two focus group discussions, two SWOT analysis, minutes of three departmental clerkship meetings, assessment reports and written communications from students and faculty members. Definitions and concept clarification informed by extensive literature review guided the development of questionnaires and moderators guide for use during the second cycle of the study. Cycle 2 will be completed within the next three months.

Self assessment, reflection and portfolio writing are innovative themes. Implementing these ideas as practical, acceptable and assessable activities is challenging. The terminologies - reflection and self assessment are confusing. Resource intensive activities like formative assessment and feedback are often viewed with suspicion opposed to an opportunity to achieve excellence. Implementing and harnessing ownership of this process in a culturally diverse setting is challenging. Students find documenting knowledge and competency gaps difficult, while lecturers, juggling multiple teaching, service and research obligations, reluctantly participate in processes lacking evidence based benefits.

**Achievements and challenges identified in cycle 1:**

**Tutors:** Themes identified include 1) Mentoring, 2) on-line interaction and support, 3) preference of paper format and face to face interaction, 4) complexity of assessment criteria, 5) interpretation of terminology, and 6) labour intensity.

**Students:** Themes identified are 1) tutor support, 2) computer technology support, 3) repetition and duplication, 4) lack of literature search skills, 5) time commitment, 6) peer interaction.

**Issues identified and changes implemented in Cycle 2:**

Students eagerly participated in the focus group discussions and offered to assist peers in novice groups to implement the portfolio. Themes identified are 1) willingness to conduct self assessment and develop learning plans 2) need for regular face to face feedback with opportunity to respond 3) Curiosity and excitement and caution about formal reflection 4) Frustration with duplication and non-functional technology 5) Willingness to interact and share knowledge and resources with peers.

Blackboard and other media are being explored as part of the online portfolio.

**Faculty Development in Research Skills**

Institutional development in research capacity requires support for research skills training. Dr Jawad Hashim has been conducting research workshops for faculty, PhD students, research assistants and students. These hands-on tutorials include step-by-step instructions, visual demonstration and practical exercises. Research workshops conducted so far include: statistical data analysis, randomization, bibliographic citation with Zotero, personal digital assistants (PDAs) and common errors in statistical analysis.

**Research and Academic Collaboration**

Dr Adri Prinsloo acts as study leader for residency students in the Department of Family Medicine, University of the Free State, South Africa. She is also involved in ongoing research and
publication with residents and undergraduate students of this department on obesity as well as trauma related emergency department consultations by children in Bloemfontein. She is an International member of the Editorial Board of the South African Family Practice Journal and a frequent reviewer of articles for the African Journal of Primary Healthcare & Family Medicine.

Dr Stella Major is an Honorary Senior Lecturer at Imperial College London. She is currently contributing to several chapters of a new textbook of General Practice which is being published together with her colleagues from Imperial College, Department of Primary Care and Social Medicine. After spending 12 years as an academic faculty member at the American University of Beirut, she continues to collaborate with family physicians from the American University of Beirut with whom she has a number of publications. In 2010, as one of two representatives from the RCGP (UK) International, she was officially invited to the Lebanon as a guest of the British Foreign Office and the Lebanese Ministry of Health, to explore ways of professionalizing General Practice in Lebanon. Her active collaboration with Imperial College has led to her travelling to Malaysia as an external examiner for the Masters in Family Medicine. In 2011, she has been awarded Fellowship of the Royal College of General Practice – UK.

Dr Deen M Mirza is the international editor for the London Journal of Primary Care, a peer reviewer for Advances in Health Sciences Education and a GP appraiser in the UK. In 2009 he attended the MRCGP International Development Workshop in the UK. In 2010 he was invited to be an observer for the MRCGP International clinical exam being held in Dubai. He collaborates with different primary care doctors in the UK attached to St George's University of London and the University of Edinburgh Medical School, as well as doctors in the family medicine departments of Qatar Petroleum and King Faisal Specialist Hospital and Research Centre (Saudi Arabia).

Professor Laeth Nasir has ongoing research into physician impairment in Arab countries and medical student specialty choice in the UAE. He is also developing a novel depression screening instrument in the Emirates. He is also examining Arab and Western perceptions of cooperative ventures in the Middle East within a conceptual theme called ‘the business of medicine’.

Associate Professor Engela A M Prinsloo is exploring the use of reflective portfolios, tutor support and feedback to students in a family medicine clerkship. It is the first time that students are exposed to reflection and portfolio writing as formal requirement for assessment and educational purposes. An ongoing action research project is being conducted. Dr Prinsloo’s other research area is the implementation and use of obesity guidelines in primary health care settings and exploring the perceptions and attitudes of patients regarding body image and risks of obesity. 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: My research interests are influenced by the fact that I am both a practicing clinician and an educator. Since joining the UAEU, I have started looking at a variety of issues which are known to present challenges to medical students. As we
are teaching the OSC1 students clinical and communication skills, my research is looking at the students perceived challenges when learning to perform clinical examination of a patient, and similarly challenges which they might face; when required to break bad news to their patients. At Clinical Clerkship level, our department has developed an online portfolio to assist the student learning process, and I join my colleagues in looking into the impact of this on the senior clerkship students learning. As a faculty member responsible for providing CME/CPD to colleagues; I am looking into the practice of CME/CPD activities that physicians in the UAE engage in; with a particular emphasis on seeing how these activities impact their daily clinical decision-making.

Assistant Professor M Jawad Hashim is working on improving health education in the region by studying how patients perceive health messages and how the design and delivery of health education materials can be optimized. He has received a grant from the Emirates Foundation to develop and test educational materials for patients with limited literacy. This mixed methods study will help highlight regional cultural and linguistic factors for patient empowerment for chronic disease self-care. Dr Hashim's other research areas include development of tools for assessment of health literacy and design of healthcare symbols for use in navigation of health facilities such as hospitals. Collaborating with researchers in other departments as well as PhD students and visiting scholars, he conducts statistical analysis of data and advises on study design.

Assistant Professor Deen M Mirza is exploring doctor-patient communication skills within an Arab setting. He is also carrying out research into professionalism, investigating student perceptions of unprofessionalism in the clinical setting and comparing how well family medicine residents recognize ‘cases of unprofessionalism’ as compared to medical students. He has presented new methods to insert professionalism into the ‘hidden curriculum’ of a PBL curriculum. He also carries out research into the MRCGP International exam held in Dubai, looking at local primary care doctors’ attitudes to this exam, as well as how different modules of the exam are assessed. Deen Mirza has also been involved in two Diabetes research projects: one investigating the link between patients’ knowledge of Diabetes and glycaemic control; and another looking at the role of insulin in Type 2 Diabetic control.
Articles in Peer-reviewed Journals


Mirza DM, Hashim MJ. (2010). Communication skills training in English alone can leave Arab medical students unconfident with patient communication in their native language. Education for Health;23(2):450.


Published Abstracts, Letters and Correspondence


Hashim MJ. (2010). Health literacy research should include patients from diverse ethnicities and those with limited literacy. (29 July 2010) response to Ann Fam Med; 8: 334-340. Published online at: http://www.annfammed.org/cgi/eletters/8/4/334.

Hashim MJ. (2010). Health education and preventive care among adolescents. response to Adolescent Primary Care Visit Patterns Nordin et al. (Ann Fam Med 2010) Published online at: http://www.annfammed.org/cgi/eletters/by_date&days=60#18383.

Mirza DM. (2010). Islamic opinions differ regarding physical contact between genders within a doctor-patient encounter. Letter to the Editor. Journal of Medical Ethics. Published online at http://jme.bmj.com/letters.

Mirza DM. (2010). Reflection depends on culture as much as on language. Letter to the Editor. Medical Humanities. Published online at http://mh.bmj.com/letters.


Procedures, Conferences, Invited Lectures, Web Sites and Others


Mirza DM. (2010). How should communication skills be adapted for Arab patients? Second Annual SEHA Research Conference .


Mirza DM. (2010). Are UK communication skills training in the UAE. The 10th Annual Research Conference of UAE University.

Mirza DM. (2009). The language of instruction for communication skills training in the UAE. The 10th Annual Research Conference of UAE University.


Raasch B, McLean M. (2010). Changes and Adaptations to an Introductory Clinical Skills module in an Undergraduate Medical Program. 7th Asia Pacific Medical Education Conference Singapore.

RESEARCH GRANTS

FMHS Research Grant
Prof TC Aw (PI), Dr M Sheek-Hussein, Prof L Nasir, Dr T Zoubeidi et al (2010). Determination and comparison of socio-cultural factors influencing delays in seeking help for breast cancer.


UAEU Individual Grant

Emirates Foundation Grant
Dr MJ Hashim (2009). Health education for patients with limited literacy.

UAEU Global Health Institute Grants
Drs R Mollica (PI), Dr O Osman, Prof L Nasir (2010) (Co-PIs). Building Capacity and Partnership For Excellence in Mental Health: A joint Collaboration Between UAEU and Harvard Program on Refugee Trauma–HPRT.


Family Medicine

Standing left to right:
Mr J Cherian, Dr C Leduc, Dr D Mirza, Dr J Hashim.
Seated left to right:
Dr B Raasch, Dr SC Major, Prof LS Nasir, Dr EAM Prinsloo, Ms MC Cetra, Ms H Mustafa.

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Research Profile

The Department of Internal Medicine has witnessed a substantial growth in number of faculty and staff during the year 2010. Our Department is now composed of 17 faculty, 2 teaching assistants, 5 research staff and 3 administrative staff. We are deeply committed to our research mission. Since high quality research activities enhance clinical and education missions, faculty engage in basic and clinical research. This work includes epidemiological studies, randomized clinical trials, case control studies, studies using large databases, qualitative research and computer simulation studies.

We conduct research in most priority areas including:

- Acute and chronic leukaemia
- Allergies
- Cardiovascular disease
- Chronic renal failure
- Consanguinity studies
- Dermatology
- Diabetes and metabolism
- Hypertension
- Nutrition and obesity
- Osteoporosis
- Population genetics
- Rheumatic disease
- Sleep apnea
- Thalassemia and sickle cell disease
Stroke: The novel, non-toxic broad spectrum caspase inhibitor Q-VD-OPH attenuates stroke-induced decrease in lymphocyte counts. Control mice were sham-operated. Stroke was induced by MCAO for 45 min and mice were treated with either vehicle (DMSO) or caspase-inhibitor Q-VD-OPH (500 μg). Thymus, spleens, and blood were collected 3 days after stroke. (Provided by Prof. Braun.)

Meningitis: Hippocampal damage in pneumococcal meningitis is reduced in E2F1-/- mice. Twenty hours following intrathecal injection of Streptococcus pneumoniae in wild type (b, f, j) and knockout mice (d, h, l) damage of dentate gyrus neurons was assessed with H&E (a - d), TUNEL (e - h), and active caspase-3 immunohistochemistry (i - l). Wild type (a, e, i) and knockout (c, g, k) control animals were injected intrathecally with PBS. Bar = 50 μm. (Provided by Prof. Braun.)
Meningitis: Hippocampal damage in pneumococcal meningitis is reduced in E2F1-/- mice. Twenty hours following intrathecal injection of Streptococcus pneumoniae in wild type (b, f, j) and knockout mice (d, h, l) damage of dentate gyrus neurons was assessed with H&E (a - d), TUNEL (e - h), and active caspase-3 immunohistochemistry (i - l). Wild type (a, e, i) and knockout (c, g, k) control animals were injected intrathecally with PBS. Bar = 50 μm. (Provided by Prof. Braun.)

Articles in Peer-reviewed Journals


Anaphylactic patient characteristics, clinical features, and current practice in the Emergency Unit. Biomedical Research 21(4); 406-410.


Braun JS. (2010). Ecto-5’-nucleotidase-positive cells in the choroid and ciliary body of the rat eye. The Anatomical Record 293; 379-382.


Books, Chapters, Reviews and Editorials


Published Abstracts, Letters and Correspondence


Department of Internal Medicine


Kazzam E. (2010). 26th Annual International Conference on Recent Advances in Echocardiography and Allied Techniques (MRI, CT Scan and Nuclear). Atlanta, USA.


27th Congress of the German Society for Neurointensive and Emergency Medicine, Bad Homburg, Germany.


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**RESEARCH GRANTS**

**FMHS Research Grants**

Dr W Conca (PI)


Prof E Kazzam (PI)

Cardiac function in patients with thalassemia major with special emphasis on right ventricular remodeling and pulmonary hypertension.

Prof H Saadi (PI)

A longitudinal study of the effect of high dose prenatal vitamin D supplementation on the physical growth and incidence of lower respiratory tract infection in the offspring during the first year of life. (2009-2010).

**UAEU Individual Grants**

Prof E Kazzam (PI)

Epidemiology, risk factors, and consequences of obstructive sleep apnea and short sleep duration: Special emphasis on cardiovascular disease and neurohormonal activation.

**Emirates Foundation**

Prof S Gariballa (PI), Drs J Alkaabi, H Ali.


Prof E Kazzam (PI)

Cardiac remodeling and ventricular interaction in patients with thalassemia major: Detailed echocardiographic and magnetic resonance imaging evaluation in relation to neurohormones and collagen markers.
Prof H Saadi (PI)

Others
Dr AM Abdulle,
United Arab Emirates Armed Forces
Emirates child obesity study.

Standing left to right:
AM Abdulle, Mr J Yasin, Dr B Al-Dabbagh, Mr H Hassan, Mrs S Ogilvie, Ms R John, Mr Abubaker, Mr A Al-Essa, Dr W Conca

Seated left to right:
Dr A Al Fazari, Dr S Denic, Dr I Hassan, Professor S Gariballa, Professor H Saadi, Professor I Galadari, Dr J Alkaabi, Dr H Galadari

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Research Profile

The main research activities of the Department of Medical Education can be found in the MERGE (Medical Education Research Group) report. Research that has been completed or is in progress in the department includes:

Mutairu Ezimokhai’s research interests include pre-term labour and polycystic ovarian syndrome.

Michelle McLean’s main research includes transferable skills, students’ perceptions of learning, reflection and self-assessment and learner-centred education.

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. High-achieving medical students’ perceptions of their success: McLean
3. Student and staff perceptions of faculty evaluation: Aburawi (Paediatrics), Shaban, 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 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).
Articles in Peer-reviewed Journals


Proceedings, Conferences, Invited Lectures and Others


McLean M. (2010). Faculty Development, Association of Medical Education in Europe, Glasgow, 5-8 September 2010.


Raasch BA, McLean M. (2010). Changes and adaptations to an introductory clinical skills module in an undergraduate medical program. 7th Asia Pacific Medical Education Conference, 4-8 February 2010, Singapore.


Shaban S. (2010). Electronic Medical Record (EMR) benefits and adoption challenges, Al Ain Hospital managed by Vienna Medical University and VAMED. SEHA Conference, Al Ain, March 2010.
Standing left to right:
Mr T Usman, Mr K Pandian, Mr M Yassin, Dr S Shaban, Mr M Campbell, Mr M Aboobacker, Dr R Benner, Mr CP Nair, Mr K Unnikrishnan, Mr M Nazimuddin, Mr A Prasad.
Seated left to right:
Professor M McLean, Ms N S Al Nasr, Ms G Kershaw, Professor M Ezimokhai, Ms I Lizarruturi, Ms S Lal, Ms Sudhir.
Absent: Mr A Wahab, Mr B Abubakkar.
Research Profile

The Department continues to build on a number of demonstrated areas of research strengths in the fields of immunology, immunoparasitology, virology and bacteriology.

During the year 2010, the departmental graduate program expanded with the awarding of two UAE University PhD Scholarships to graduate students being supervised by Professors Tahir Rizvi and Basel al-Ramadi. Currently the Department has a total of eight graduate students (four PhDs and four MSc) and it is anticipated that more students will join by the start of the 2011 academic year. Since the start of the graduate program, four students have already completed the course of studies for the M.Sc degree and defended their thesis. Two of these students are pursuing their PhD studies in Canada and Germany.

In 2010, four students defended their thesis and three more are expected to do so in the first trimester of 2011.

The Department was also successful in securing two National Research Foundation grants (through UAE University) which were awarded to Professors Rizvi and al-Ramadi. The funds will undoubtedly help in maintaining the strength of research programs in the Department.

In addition to graduate students, the Department is increasingly involved in hosting foreign postgraduate medical trainees as they fulfill their specialist training in microbiology or immunology by carrying out research work in the Department. These relatively short periods of training are helping to build bridges with the trainee’s institutions in Europe and the Middle East.

Several members of the Department continue to build on scientific collaborations with laboratories in Europe and North America. These efforts have lead to high-quality publications in top journals such as Nature Structural and Molecular Biology (Dr
Department of Medical Microbiology & Immunology

Al-Qhatani), Cancer Cell (Dr Khan) and Arthritis and Rheumatism (Dr Al-Shamsi).

Professor Basel al-Ramadi: One of the major research interests in our laboratory is focused on exploring the role of the innate immune system in the host’s response to infections and cancer. Through the use of genetically modified mouse strains, the influence of deficiencies in components of the Toll-like receptor and Nod-like receptor pathways on the host’s response to infection is being investigated. In another research focus, we have utilized cytokine-expressing bacterial strains as a means of boosting the immune response to tumor challenge. We have shown that this form of immunotherapy is active when given orally, which is of significant benefit as it decreases the toxicity often associated with systemic cytokine therapies (see Figure 1). A third focus of research is the development of composite nanoparticles as immunotherapy tools of various chronic diseases as well as for anti-infective treatment.

Professor S. Dissanayake’s research interests are in parasite glycan immunobiology and tuberculosis. Current emphasis in glycan immunobiology is on molecular characterization of parasite glycans with respect to upregulation of the transcription factor NF-κB and signaling effects and mechanisms leading to IFN-γ and IL-6 expression. With respect to IFN-γ, one specific area of research is negative regulation of TLR signaling. Long-term objective is development of synthetic immunoadjuvants with defined Th-1 and Th-2 immunomodulatory properties. Based on the previous finding (Figure 2) that terminal β-(1-4) galactose residues on GlcNAc backbones is an epitope regulating IFN-γ (a Th-1 cytokine), a panel of synthetic glycans is being investigated for further development as adjuvants. In tuberculosis research, epidemiological studies are being carried out to determine the source(s) of infection, patterns of transmission and the possible causes of likely re-activation in long-term residents of UAE.

Dr G Khan: Cancer is one of the leading causes of death in UAE, and indeed the world. Thus, research focused on understanding the aetiology and pathogenesis of cancer is of paramount interest. 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. The main focus of interest in my laboratory is to understand the mechanisms by which some of these viruses lead to cell transformation and proliferation. We are particularly interested in EBV. This virus is well known for

Figure 1
Inhibition of tumor growth and enhanced host survival following oral treatment with attenuated S. typhimurium expressing TNF-α. Mice were implanted s.c. with B16 melanoma cells and 13 days later tumor-bearing mice were given an oral inoculum of 4x10⁸ CFUs/mouse of either attenuated Salmonella (strain BRD509) or TNF-α expressing recombinant Salmonella strain (designated GIDTNF). Growth of tumor (A) and animal survival (B) were subsequently followed for up to 30 days. Each data point represents the mean ± SEM of 10 mice per group. Asterisks denote statistically significant differences from saline control group (**, p<0.01; *, p<0.05).
its oncogenic properties and it is associated with a number of human 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. Other ongoing projects in my laboratory include, investigations into the role of the recently discovered oncogenic viruses, XMRV and MCV and their association with human malignancies. On a broader level, we have interests in viral diseases relevant to public health. In this context, we recently carried out a comprehensive study of the pandemic 2009 H1N1 in the Emirate of Abu Dhabi (see figure 3).

**Professor T Pal:** The main research area in my laboratory is studying the molecular epidemiology and genetic background of antibiotic resistance in Gram negative organisms, in particular Acinetobacter baumannii and Enterobacteriaceae. In order to reveal the dynamics of nosocomial outbreaks caused by these bacteria we fingerprint them in an attempt to find out their key features to spread and survive in hospitals. We compare sporadic and outbreak strains in a variety of in vivo and in vitro models to learn whether there are any other features beyond antibiotic resistance in the latter group contributing to their fitness. Lately we focus increasingly on genes coding for a group of en-

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**Figure 2**

A. Pre-stimulation abolishes Taenia glycan Fr1 induced IFN-γ response. A: Mice were prestimulated by intraperitoneal injection of 0.5 OD 280 U of Taenia glycan and spleen cells were stimulated in vitro culture at day 1, 3, 7 and 20 post stimulation. Numbers above bars indicate the post stimulation day and N= naïve animals. ■ = Naïve cells + Con A; ▼ = Naïve cells + glycan; □ = post day 7 + Con A; △ = post day 7 + glycan.

B: Oral feeding of BALB/c mice with Taenia glycan Fr1 induced down regulation of spleen cell IFN-γ in response to in-vitro stimulation. C-Con A: control spleen cells + Con A, Td5-Con A: Taenia Fr1 oral fed day 5 + Con A, Td7 Con A: Taenia Fr1 oral fed day 7 + Con A, C-Le X: control spleen cells + Lewis X, Td5-Le X: Taenia Fr1 oral fed day 5 + Le X, Td7-Le X: Taenia Fr1 oral fed day 7 + Lex, C-Fr1: control spleen cells + Taenia Fr1, Td5-Fr1: Taenia Fr1 oral fed day 5 + Taenia Fr1, Td7- Fr1: Taenia Fr1 oral fed day 7 + Taenia Fr1.

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**Figure 3:**

Pandemic 2009 H1N1 in the Emirate of Abu Dhabi. (A) Distribution of cases of influenza-like illness, laboratory confirmed 2009 H1N1 (survivors), and H1N1-associated deaths from May 2009 to March 2010 in the Emirate of Abu Dhabi. A total of 2806 cases were reported to the Health Authority Abu Dhabi. Of these, 1872 were ILI (H1N1-negative or status unknown), 908 were confirmed H1N1 (survivors) and 26 were H1N1-associated deaths. ILI and confirmed H1N1 (survivors) are plotted by date of first presentation. H1N1 fatalities are plotted by date of death. (b) Distribution of cases of influenza-like illness and laboratory confirmed 2009 H1N1 cases by age from May 2009 to March 2010. (From Khan et al, Emerging Infectious Diseases 17:292-5, 2011).
zymes called metallo-beta lactamases. Recently, the almost unprecedented fastness of spread of one of these genes (blaNDM-1) among enteric bacteria caused worldwide concerns. We found the same genes in Acinetobacter, as well as have shown that it is easily transferable, albeit with an unknown mechanism (Fig. 4). We believe that these efforts will lead to a better understanding, and hence better control and prevention of antibiote resistance among bacterial pathogens.

Professor T A Rizvi: The focus of Professor Rizvi’s research concerns the basic steps in retroviral replication with the ultimate goal of developing improved retroviral vector systems for human gene therapy. Specifically Prof. Rizvi’s laboratory is attempting to unravel how retroviruses/lentiviruses package their genomic RNAs into a virus particle and what are some of the underlying differences in RNA packaging among retroviruses/lentiviruses. Over the years, these studies have included a number of retroviruses/lentiviruses including, HIV, SIV, FIV, MPMV, and MMTV. Recently these studies have been further expanded to include analyses of cross- and co-packaging among retroviruses/lentiviruses. Professor Rizvi has been very successful in acquiring both extramural and intramural grant support for his work on retroviral RNA packaging. In addition Prof. Rizvi has been very active in supervising and mentoring both the graduate and undergraduate student. His current studies on RNA packaging have been published in journals of international repute (Fig. 5).

Dr. Ahmed Al-Qahtani’s research interests compromise of studying the mechanism of autoimmunity, antibodies diversity and stem cell role in bio regenerative medicine.

Dr Mariam Al-Shamsi’s main research activity is in the area of inflammation and autoimmuni-
ty. Her current work is on evaluating the use of oxygen consumption measurement by cells in vitro as a tool to monitor the status of an inflammatory process in response to a therapeutic intervention. Therefore, we are trying to provide evidence here that measurement of oxygen consumption in inflammatory conditions using conA-induced hepatitis model can be utilized as a tool to evaluate progression or alleviation of the pathological condition following treatment. This suggestion relies on the fact that Immune reactions are very important energy consumers where ATP is the principle immediate donor of free energy and oxidation of fuel molecules to drive oxidative phosphorylation is the major source of ATP. ATP-dependent cellular functions include normal functions of immune cells such as lymphocytes and macrophages in response to antigen exposure. These functions include, synthesis of cytokines, antigen processing and presentation, cellular migration to inflammatory cites, effector functions and other responses.

In a recent experiment, we noted significant enhancements in O2 consumption in pieces of liver tissues in Con A-treated mice over time (see Figure 6). A critical study of the pathological presentation accompanied by analyzing O2 consumption following intravenous injections of Con A with and without treatment with an anti-inflammatory reagent will follow. Together with a collaboration from the department of Anatomy, Dr. Mariam is also continuing the work that have started to study the suspected anti-inflammatory role of IL-27 in the pathogenesis of MLD-STZ induced type 1 diabetes (fig. 7). Our unexpected finding of the opposite that in our MLD-STZ induced type 1 diabetes that IL-27 is rather proinflammatory is coming to an end with further evidence of our findings. Below is the figure (Fig. 7) showing number of infiltrating cells and a paraffin section of a pancreatic islet showing infiltration as well as a study on caspase 3 positively stained cells indicating apoptosis.

Figure 6 showing measurement of oxygen consumption by liver pieces of C57BL/c mice collected 3, 6 and 12 hours following treatment with 20mg/kg of ConA or PBS alone. The figures clearly show significant enhancements in O2 consumption in pieces of liver tissues in Con A-treated mice over time.

Figure 7/1 Average number of infiltrating cells counted in islet of similar sizes of STZ only or STZ+IL-27.

Figure 7/2 a. a micrograph showing H&E stained paraffin sections of an islet from an untreated mouse, b. treated with STZ only and, c. treated with STZ+IL-27.

Figure 7/3 Micrograph showing immunohistochemically stained islets of caspase 3 positive cells in STZ only and STZ+IL27 treated mice. Note the significantly (p <0.005) greater number of apoptotic cells in islets of IL-27 treated mice (40 ±7) (b) when compared with islets of control mice treated with STZ only (22 ± 6) (a).
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 carbapenemase 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 (Fig. 8). 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 8: Protein A sequence based typing of Staphylococcus aureus

Articles in Peer-reviewed Journals


Published Abstracts, Letters and Correspondence


Proceedings, Conferences, Invited Lectures, Web Sites and Others


al-Ramadi, BK. (2010). Regulation of the Immune Response to Intracellular Bacteria. Department of Cellular Biology & Pharmacology, Herbert Wertheim College of Medicine, Florida International University, Miami, FL, USA (December 16, 2010).

al-Ramadi, BK. (2010). The MyD88 protein: a key regulator of immune responses. Immunotherapy Division, University of Michigan School of Medicine, Ann Arbor, MI, USA (September 2, 2010).


Fahim M.A., Karam S, al-Ramadi B. (2010). Ghrelin enhances the regenerative potential of stem


**RESEARCH GRANTS**

**FMHS Research Grants**

Dr Agnes Sonnevend (PI) Regulation of biofilm formation in a community acquired methicillin resistant Staphylococcus aureus (CA-MRSA) clone.

Dr Gulfaraz Khan (PI) Determination of the impact of EBV on apoptosis of Burkitt's lymphoma cell lines in response cytotoxic drugs.

Dr Tibor Pal (PI) Characterization of a locally prevalent multidrug resistant Acinetobacter baumannii epidemic clone different from globally distributed ones.


**UAE University Seed Grant**

Dr Ahmed Al-Qahtani (PI) N-acetylglucosamine (G1cNAc) role in the treatment of Type I Diabetes Mellitus.

**UAEU Individual Grant**

Dr Agnes. Sonnevend (PI) Prevalence of the international Escherichia coli clone O25:H4-ST131 amongst extended spectrum beta-lactamase producer urinary tract isolates of Tawam Hospital, Al Ain.

**UAEU Interdisciplinary Grant**

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 Tahir Rizvi (PI) 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.

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

National Research Foundation Grant

Prof Basel al-Ramadi (PI), Dr Maria Fernandez-Cabezudo

Inactivation of myeloid-derived suppressor cells as a novel target for enhancing cancer immuno-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 Grant

Prof Tahir Rizvi (PI)


Dubai Harvard Foundation for Medical Research

Prof Raif Geha, Luigi Notarangelo, S. Al-Hammadi, Prof Basel al-Ramadi

Collaborative Research Network on Primary Immunodeficiency Diseases

British Council, UK

Prof Richard W. Bowtell, Yousef Haik, Bashar Issa, Prof Basel al-Ramadi

Imaging-guided hyperthermia therapy

National Cancer Institute, National Institutes of Health, USA

Prof Yousef Haik, Prof Basel al-Ramadi

Nanoparticles for Noninvasive Thermometry Monitoring

2010 Medical Microbiology

http://www.fmhs.uaeu.ac.ae/Departments/Microbiology Tel: 7672000 / Fax: 7671966

Standing left to right:
Prof Basel al-Ramadi, Prof Tibor Pal, Prof Miodrag Lukic, Dr Gulfaraz Khan, Prof Senarath Dis-sanayake.
Seated left to right:
Prof Tahir A Rizvi, Mr Hussain Hasasna, Mr Mohamed Hashik, Ms Maureen Dawood, Dr Mariam Al-Shamsi, Dr Agnes Sonnevend Pal, Mr Allen Shahin.
Research Profile

The Research interests in the department are in Obstetrics, Fetal Medicine, Gynecology oncology, and Urogynecology.

Dr H Mirghani’s major area of research interest is
- Fetal growth and physiology in diabetic pregnancy.
- Fetal anomalies.
- In-vitro human placenta perfusion.

Dr K Bodner’s major area of research interest is
- Gynaecology oncology.
- Women Health.

Dr H Elbiss’s major area of research interest is
- Urogynecology.
- In-vitro human placenta perfusion.
- Minimal access surgery

Dr S George’s major area of research interest is
- Women’s Health
- Polycystic Ovary Syndrome.
- Minimal access surgery

The In-Vitro Placental Perfusion: A model to study the fetal environment

The Department of Obstetrics & Gynaecology inaugurated its Placenta Perfusion Lab. The placenta mediates the exchange of nutrients and waste products. It also transfers environmental pollutants and drugs from the mother to the fetus. Pregnant women with medical conditions, such as gestational diabetes and hypertension, require drug therapy that can effectively treat the mother without adversely affecting the fetus. As experimentation during pregnancy is ethically unjustified, the technique of human placental perfusion is the widely accepted method to study drug transport and determine its safety to the fetus.
The Department of Obstetrics & Gynaecology at UAEU has established the first human placenta perfusion laboratory in UAE. The lab is collaborating with Dr. Antione Malek from the University Hospital of Zurich, who visited our lab in December 2010. The department is planning for a three years phased study on the function of the placenta in pregnant women with gestational diabetes. It will also investigate the safety of antibiotics in pregnancy.

**Articles in Peer-reviewed Journals**


Proceedings, Conferences, Invited Lectures, Web Sites and Others


Research Profile

The research strengths of the department comprise basic science research, genetics, epidemiological studies of important problems to the UAE (nutrition, growth, vitamin D, etc.) as well as in most paediatric specialties (haematology, oncology, neonatology, imaging, gastroenterology, infectious diseases, cardiology, etc.) This has been made possible by the clinical expertise of our faculty in the vast range of paediatric conditions and their perceived needs of the patients they are managing on a daily basis in UAE hospitals and clinics.

On-site work in the paediatric laboratory is supporting not only basic sciences research, but also collaborative clinical and epidemiological work in the affiliated hospitals and in the community at large. The expertise and dedication of our medical research specialists in our laboratory have been instrumental to the research productivity of the department.

Paediatric faculty are also actively engaged in collaborative research works with other FMHS clinical and basic sciences departments, as well as other UAEU colleges (nutrition, physics, etc.) Networking with other universities and medical institutions in many countries is also ongoing and helps enhance the research visibility and output of the faculty. Many faculty are also serving on the editorial board of several international peer reviewed medical journals, in addition to helping as reviewers.

Aiming towards enhancing the research productivity in child health issues of importance to the country, the paediatric department has been very proactive in supporting and encouraging the involvement of hospital colleagues in collaborative research.

Acting Chairman
Dr H Narchi
Professor
Prof Y M Abdulrazzaq *
Prof L Al-Gazali
Prof A Souid *
Associate Professor
Dr E Aburawi
Dr S Bharwani
Dr H Narchi
Assistant Professor
Dr G Balhaj
Dr S Al-Hammadi
Dr F Al-Jasmi
Dr R Al- Mahmoud
Dr M Al-Samri
Dr A Al-Suwaidi
Teaching Assistant
Dr F Ismail
Research Medical Specialist
Dr S Benedict
Mr J Kochiyil
Mr T Pramathan
Medical Secretary
Ms R Clemente

* On Sabbatical Leave
work. We have also involved paediatric residents with the objective of equipping them with the knowledge and experience in carrying out research of importance to child health in the UAE once they become established paediatricians. The department efforts in this endeavour have included research workshops for hospital colleagues and paediatric residents (research methodology, biostatistics, bibliography management, etc.) These efforts have been worthwhile as many non-faculty colleagues have been cited as co-authors in many of our department’s medical publications.

The department has also been very active at projecting the research strengths and output of the FMHS. Prof. A.K. Souid has contributed as an advisor to the Researcher newsletter and Dr. H. Narchi was instrumental in the conception, design and in “populating” the FMHS Medical Research website.

**Genetics/birth defects (including neurogenetics) (Y Abdulrazzaq and L 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-pachygryia 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.

**Foetal growth (H Narchi, A Skinner, B Williams)**

- Several collaborative studies with UK hospitals have looked at the **evaluation of foetal growth by customised 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 neurodevelopmental 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 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 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 human and animal tissues (A K Souid, G Balhaj, F Al Jasmi, M Al Samri, S Al Hammadi) Our 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 a 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, G Balhaj, S Al Hammadi and M Al Samri) We investigate the effects of various toxic agents (e.g., aflatoxins B1) on circulating fetal cells.

- Concanavalin A-induced hepatitis (A K Souid, W Conca, A Shahin and M Lukic). We investigate whether Con A hepatitis is associated with hepatocyte apoptosis. The animal models include wild-type (C57BL) and various knockout mice. The procedure requires isolated hepatocytes. Apoptosis will be detect by measuring cellular respiration and caspase induction.

- The use of oxygen analyzer to screen for disorders with impaired cellular bioenergetics (A K Souid, G Balhaj, F Al Jasmi)
  - 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, F Al Jasmi). 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 GSH-bimane derivatives will be separated on HPLC and detected by fluorescence.

- Erythrocyte phenotype in Emirati people with alpha-thalassemia trait. (A K Souid, S Denic and S Showqi).
  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 thalassaemia 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 immunodeficiencies 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 Tracheostomy.** The aim of this project is to describe the natural history of pediatric tracheostomy 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 long-term 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 immunosuppressive therapy.

- **An extension of this study on nephrotic children is being planned**

- **A study of foetal 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 vesicoureteric reflux and prior antibiotic prophylaxis. The results have implications for clinical practice.

Infectious diseases (S Uduman)
- **Clinical and immunological aspects of hepatitis C, seroepidemiology and neonatal screening of CMV and other congenital infections.**

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 antiatherogenic. 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, M Mc Lean)
Articles in Peer-reviewed Journals


Al Jasmi F. (2010). A Novel Mutation in atypical presentation of a rare infantile Farber disease. 10th IWLSD. Prague, Czech Republic.


Al Jasmi F. (2010). Biotinidase Deficiency &Galactosemia. Presented at Newborn Screening. Abu-Dhabi Health Authority, UAE


Al Jasmi F. (2010). Premarital genetic Counseling and prenatal diagnosis of inherited Metabolic disorders. 8th International Pediatric Conference, Benghazi Medical Center, Benghazi. Libya

Al Jasmi F. (2010). Hyperammonemia: approach and emergency treatment. 8th International Pediatric Conference, Benghazi Medical Center, Benghazi. Libya

Al Jasmi F. (2010). Mucopolysaccharidosis type I. MPS meeting Children Hospital, Tehran, Iran.

Al Jasmi F. (2010). Practical management of positive newborn...
screening test. Newborn screening meeting, Dubai, UAE

Al Jasmi F. (2010) Unknown case. 7th Middle East Metabolic Group Meeting, Bahrain

Al Jasmi F. (2010). Lysosomal Storage disease in UAE. Middle Eastern Lysosomal Storage Disease Expert, Prague, Czech Republic

Al Jasmi F. (2010). Raising awareness of LSDs in the Middle East-present and future initiatives. Middle Eastern Lysosomal Storage Disease Expert, Prague, Czech Republic


Narchi H. (2010). Neonatal issues in Primary Care. 3rd Middle East Review Course in Primary Health Care Conference. Abu Dhabi


Narchi H. (2010). Undergraduate Paediatric Education- The use of Bloom’s taxonomy of educational objectives to compare the content validity of an in-house summative examination and the National Board for Medical Examiners (NBME) subject examination for international students. International Conference in Medical Education. Abu Dhabi.


**RESEARCH GRANTS**

**FMHS Research Grants**

Drs H Narchi (PI), L Al Reyami, N Al Hassani, G Ghatasheh. Why do some parents refuse diagnostic lumbar puncture on their child despite medical advice?

**Seed Grant**

Dr. E Aburawi (PI)

Coronary flow in babies with Intra-uterine Growth Retardation. 2010 - 2011

Dr. S Bharwani (PI)

UAE University SEED Grant to look at the Helicobacter pylori infection trends in UAE, 2009-2012

**UAEU Individual Grant**

Drs E Aburawi (PI), J Al Kaabi, A Shehab. Cardiovascular Diseases Risk Factors in UAE adolescents and young adults with type 1 and type 2 Diabetes Mellitus.


Dr S Al-Hamadi

Atopic Dermatitis in Children: Importance of Food sensitization.

**UAE University Interdisciplinary Grant**

Professor L Al-Gazali (PI)

Homzygosity mapping and molecular characterization of recessive disorders in the UAE.

**National Research Foundation Grant**

Professor L Al-Gazali (Co-PI)

Manipulation of endoplasmic reticulum protein degradation machinery for therapy of genetic diseases.

**Sheikh Hamdan Award for Medical Sciences**

Dr. E Aburawi (PI), Drs J Al Kaabi, A Shehab, B Ali, Prof H Al Saadi

Cardiovascular Diseases Risk Factors in UAE adolescents and young adults with type 1 and type 2 Diabetes Mellitus

Prof YM Abdulrazzaq

Reproductive toxicological effect of lamotrigine on mice.

**Emirates Foundation Grant**

Dr EH. Aburawi, (PI) Profs YM Ab-
**Department of Paediatrics**

**dulrazzaq, N Nagelkerke.**

Drs H Narchi (PI), G Dhatt, M Al Hamdani, Attrach.
Tubular cells damage markers in the urine of children with urinary tract infection and correlation with permanent renal scarring.

Prof YM Abdulrazzaq
Study of the impact of aflatoxins on cellular respiration and caspase activation. Duration- 2 years.

**Others**
Professor L Al-Gazali (PI)
A startup funding for a "Center of Excellence in Genetics Research" at UAEU. UAE University and National Research Foundation Initiative 2010/11 (AED250,000).
Identification of Disease Genes of Recessive Disorders Prevalent in UAE.

**Paediatrics**

Standing left to right: Dr F Al-Jasmi, Dr S Benedict, Ms Sania Al Hamad, MS R Clemente, Mr J Kochiyil, Mr M Jamal, Mr Pramathan T.
Seated left to right: S Bharwani, Dr S Al Hammadi, Prof L Al-Gazali, Dr M Al Samri, Dr H Narchi, Dr E Aburawi, Dr A Al Suwaidi.

http://www.fmhs.uaeu.ac.ae/Departments/Paediatrics  Tel: 7672000 / Fax: 7672067
Pathology is a wide-ranging discipline of laboratory medicine. It covers several fields, including histopathology, cytology, laboratory hematology, clinical chemistry, genetics and molecular biology.

Clinical Chemistry: (Prof 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 mellitus (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 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. (Figure)

Department of Pathology

The Molecular and Cellular Basis of Genetic Diseases: (Dr Bassam R. Ali)

Current Research Focus:

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 are developing a molecular genetics research laboratory to look at the molecular defects causing recessive disorders found in UAE population with emphasis on mental retardation phenotypes, 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 have recently elucidated the cellular mechanisms underlying Robinow syndrome and Acromesomelic Dysplasia type Maroteaux and SMED-SL, recessive disorders that have 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 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).
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. (Figure)

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 BRCA2. 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 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 report concerning the role of trefoil factors in the pathogenesis or progression of glioma. Our preliminary study on few cases of gliomas using immunohistochemical stains has shown expression of TFF 3 in gliomas with differences in the expression between low-grade and high-grade gliomas.

4. Role of Galectin 1, 3 in breast cancer chemoresistance
Breast carcinoma is the most common malignant neoplasm and the second cause of cancer death in women all over the world. Despite all the advances in the early detection, drug resistance is a major problem in our battle against cancer. Gal-1 and Gal-3 are members of the beta-galactoside-binding family and they play a role in cell proliferation, adhesion, and migration. Both of them have antiapoptotic function, hence they may play a role in cancer chemoresistance. This proposal is aimed at carrying out a prospective study to determine the role of Gal-1 & 3 in breast cancer chemoresistance with the aim of establishing Gal-1 and Gal-3 expression as a biomarker for drug resistance and establishing a method to overcome chemoresistance by targeting Gal-1 & 3 expression by using siRNAs. If successful, this would establish Gal-1 & 3 expression as a key prognostic marker for evaluating treatment success in breast carcinoma.

5. Hypoxia inducible factor-1α and lymph node metastasis in breast carcinoma
Breast cancer is the most common malignancy in women worldwide. Lymph node metastasis increases the stage of the disease and results in poor prognosis. HIF-1α is a transcription factor and its overexpression leads to up-regulation of many hypoxia inducible mRNAs including vascular endothelial growth factor (VEGF), and protease activated receptor-1 leading to tumor progression, invasiveness and metastasis. We will study the role of HIF-1α, PAR-1, and VEGF-C as possible predictors of lymph node metastasis in breast carcinoma using archive paraffin blocks of breast carcinomas in the pathology department at Tawam Hospital in Al Ain. We will use the streptavidin-biotin immunohistochemical staining method, in studying the expression of different markers that are essential for achieving our goals in this project.

We expect that our suggested study will clarify and elucidate the role of HIF-1α as possible predictors of lymph node metastasis in breast carcinoma and will provide new achievements in understanding the factors that influence lymph node metastasis.

Renal Pathology/Breast Pathology/GI Pathology: (Dr Alia Al Bawardi)
1. Breast carcinoma is one of the common malignancies among UAE females. The prevalence of precancerous lesions such as flat epithelial atypia needs to be determined in breast cancer resections. Also of interest is the rare mucinous breast carcinomas, its prevalence and immunohistologic characteristics.

Pediatric Pathology/Gynecologic Pathology: (Dr Saeeda Almarzooqi)
1. Pediatric pathology is a field of pathology unexplored in the UAE. Pediatric tumors are unique and different from tumors we encounter in the adult population. There are limited data on the incidence of these tumors in the UAE. A focus on the characteristic of pediatric tumor as it relates to our population would be of great value.

2. Pediatric lymphoma as a group has not been studied in the UAE. In collaboration with Dr. A. Castella, the incidence and types of pediatric lymphomas present in our population can be studied and characterized further. A prospective 2-3 year study would be done.
Articles in Peer-reviewed Journals


Ali BR, Xu H-F, Akawi NA, John A, Karuvantevida NS, Al-Gazali L & Leitinger B. (2010). Trafficking defects and loss of ligand binding are the underlying causes of all reported DDR2 missense mutations found in SMED-SL patients. Human Molecular Genetics 19; 2239-2250.


aggravate experimental acute renal failure. Toxicological Sciences 113(1); 267-277.


Department of Pathology

Department of Pathology

RESEARCH GRANTS

FMHS Research Grants
Dr S Al Salam (PI).
Could hypoxia inducible factor-1, vascular endothelial growth factor-C and protease activated receptor-1 predict lymph node metastasis in breast carcinoma?
Drs A Nemmar (PI), S Al Salam.
Impact of particulate air pollution on ischemic acute renal failure: Possible protective effect of thymoquinone.

UAEU Individual Grants
Dr A Nemmar (PI), S Al Salam.
Time-course and mechanisms of pulmonary and extrapulmonary toxicity of the systemically administered particulate air pollution in rats.

UAEU Interdisciplinary Grants
Dr S Al Salam (PI), Prof S Karam, Dr A Alshawarbi.
Role of Trefoil factor peptides in the development and progression of gliomas.

Sheikh Hamdan Award for Medical Sciences
Dr S Al Salam (PI), Prof T Rizvi.
Drs A Nemmar (PI), S Al Salam, Prof E Kazzam.
Mechanisms of adverse pulmonary and cardiovascular effects of particulate air pollution.

National Research Foundation Grant
Dr BR Ali (PI), Prof L Al-Gazali.
Acetylation genotyping of UAE nationals.

Emirates Foundation Grant
Drs S Bastaki (PI), BR Ali, Prof Y Abdulrazzaq.
Could Galectin-1 and 3 play a role in breast carcinoma chemoresistance?
Drs A Nemmar (PI), S Al Salam.
Experimental studies on the interactions between pulmonary exposure to particulate air pollution and hypertension: Pathophysiologic mechanisms and influence of protectant drugs.

Prof L Al-Gazali (PI), Dr BR Ali, Profs O El-Agnaf, TE Adrian, E Adeghate, B al-Ramadi.
A startup funding for the NRF Genes and Diseases Research Center.

2010

Pathology

Standing left to right: Dr Bassam Ali, Dr Suhail Al Salam, Dr Antonio Castella, Prof Mukesh Agarwal, Dr Chong Siew Meng
Seated left to right: Mr Noushad, Ms Anne Mathew, Ms Manjusha Sudhadevi, Ms Khaura Al Ghanem

http://www.fmhs.uaeu.ac.ae/Departments/Pathology  Tel: 7672000 / Fax: 7671966
Research Profile

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 (M1- M5) 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 M1 and M4 receptor subtype selective toxins from mamba snake (Dendroaspis) venoms. At present the status of M1 and M4 receptors in health and disease states in humans are being investigated. Our results show significant decrease of M4, but not of M1 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 M2, M3, and M5 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.

Dr. 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 Gastro 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.

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. Samir Attoub
Cancer research
My research is focused on the role of PI3K/Akt/NFκB 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 (Akt1/ PKBα, Akt2/PKBβ, and Akt3/PKBγ) 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-ma-
trix 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 assess 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.

Figure 2: Dose–response effect of luteolin on breast cancer cell invasion.
**Articles in Peer-reviewed Journals**


Salem KA, Qureshi A, Ljubisavi-jevic M, Oz M, Isaev D, Hussain M, Howarth FC. (2010). Alloxan reduces amplitude of ventricular myocyte shortening and intracellular Ca2+ without altering L-type Ca2+ current, sarcoplasmic reticular Ca2+ content or myofilament sensitivity to Ca2+ in Wistar rats. Mol Cell Biochem. 340:115-123.


**Published Abstracts, Letters and Correspondence**


Safieh-Garabedian B, El-Agnaf N, Saade NE, Nurulain SM, Oz M. (2010). Thymulin related peptide (PAT) potentiates the function of human α7-nicotinic acetylcholine receptor (α7-nachr) expressed in Xenopus oocytes. Soc. for Neurosci, 692.10/GGG18


Yang K-H, Isaev D, Galadari S, and Oz M. (2010). The endogenous...
cannabinoid anandamide inhibits the function of human serotonin transporter. Soc. for Neurosci, 545.7/F21.

Proceedings, Conferences, Invited Lectures, Web Sites and Others


RESEARCH GRANTS

FMHS New grant

Prof. Abdu Adem.
NP/10/37 - The Role of TNF-α in the Kainic Acid-induced Excitotoxic Neurodegeneration

Dr Samir Attoub.
Investigation of IKKalpha and beta role in human breast cancer survival, motility and invasion.

UAEU Individual grant

Dr. Salim Bastaki.
Effect of TNF-alpha deficient mice on gastric ulcers induced by Indomethacin.

Dr Samir Attoub.
Investigation of Frondoside A as a potential inhibitor of lung cancer cell survival and invasion in vitro and tumour growth and metastasis in vivo.

Dr Murat Oz.
Oleamide Modulation of Nicotinic Acetylcholine Receptors Expressed in Xenopus Oocytes.

Emirates Foundation

Prof Abdu Adem.
Search for Novel Anti-diabetic drug candidates

Dr Salim Bastaki.
NAT2 acetylation phenotyping/genotyping of Emiratis.

National Research Foundation

Dr Murat Oz.
The Effects of Endocannabinoids on the Function of Nicotinic Acetylcholine Receptors of the Hippocampal Interneurons.

Sheikh Hamdan Medical Research Grant

Prof. MY Hasan.
Effect of environmental factors on chronic experimental neurodegeneration.
Standing left to right: Ms Naheed Amir, Mr N Shafiullah, Mr D Subramanian, Dr S Bastaki, Mr M Elwasila, Mr S M Nurulain, Mr S Alikutty, Mr A Shamsulisam, Dr M Al Sultan.
Seated left to right: Professor Huba Kalasz, Ms S Duncan, Professor A Adem, Dr S Attoub, Ms K Arafat, Dr M Oz

http://www.fmhs.uae.ac.ae/Departments/Pharmacology. Tel: 7672000 / Fax: 7672033
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.

Electrophysiology and clinical neurophysiology laboratories
The research activities of the electrophysiology laboratory focuses on 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-extracellular/intracellular recordings). We have also recently introduced at FMHS the set of small animal behavioral techniques including Morris Water Maze, T and Y maze, coordination and balance motor testing etc. Currently, in collaboration with several colleagues we are focusing on validation of behavioral abnormalities in Rotenone rat model of Parkinson's disease. We are also planning to introduce multiunit recording by implementing multisite cell recordings in order to investigate in more details the plasticity changes of spinal cord pain processing neural networks. We are particularly interested to elucidate
differences between cervical and spinal neural networks as they may exhibit differential processing in chronic muscle pain conditions which are clinically quite different in these two regions. Initially, this work will focus on possible involvement of basal ganglia in chronic pain modulation.

The Clinical neurophysiology laboratory uses Transcranial Magnetic Stimulation (TMS) and other classical Clinical neurophysiology methods (H and F wave, Evoked potentials) to investigate mechanisms of human nervous system plasticity and the possibilities to remodel these processes in healthy subjects and several diseases. We primarily focus on movement disorders. Dr. Ljubisavljevic’s special interests over the years were cortical processes related to volition in exercise and fatigue. The work focuses on mechanisms associated with sensorimotor integration and maladaptive plasticity in central fatigue. In collaboration with colleagues from the Institute for Neurology, University Clinical Center Belgrade, we are also investigating the character of pathophysiological maladaptive cortical processes in Parkinson’s dystonia and tremor. Finally, in collaboration with neurology division and ENT department of Tawam Johns Hopkins Hospital we are currently developing a set of clinical experimental and therapeutic TMS protocols for Multiple Sclerosis, stroke and chronic idiopathic tinnitus patients.

Aging and neurodegenerative disorders

Studies on aging and neurodegenerative disorders have focused on synaptic plasticity and synaptic remodelling, particularly at the nerve-muscle junction in various peripheral neuropathies including those caused by diabetes, aging and heavy metal poisoning. Electrophysiological, laser confocal microscopy and electron microscopy 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 antioxidants like vitamin E & C may have a protective role. Studies on the cerebral microcirculation include changes in the susceptibility to thrombus formation in the brain, and the effects of metals, aspirin and heat.

Cardiovascular function and diabetes

Professor Chris Howarth (Physiology) and Dr Murat Oz (Pharmacology) are in the process of establishing an Electrophysiology Centre in FMHS. This multidisciplinary centre has a wide variety of technical capabilities which include tissue culture; cell isolation; in vivo biotelemetry; hemodynamic and electrophysiology in isolated perfused heart; patch clamp, microelectrode, fluorescence photometry and video edge motion detection in single and multicellular preparations. The research centre already has ongoing collaborations with colleagues in different departments in FMHS and with colleagues in the UK, USA and Ukraine. The research team includes MSc, PhD and undergraduate students, research collaborators visiting on a regular basis from international research laboratories and technical staff. The major research focus of Professor Chris Howarth is diabetes and heart function with particular emphasis on experimental models of type 2 diabetes.

Mapping laboratory

Work has proceeded very well in 2010 with major research developments obtained both in Al Ain and through our collaborations with other laboratories in the world. Probably the most important development has been the work and publication of the first high-resolution recordings in the human stomach.
This work, that was performed on patients at the University of Auckland, New Zealand, is the first demonstration of the location of the stomach pacemaker and the propagation of the electrical impulse, the slow wave, through the distal fundus, the corpus and the antrum. We had described last year similar variations in propagation in the canine model and this progress was further expanded by another study, again achieved this year, on the pig stomach. All this has led to an invitation to map the electrical propagation in gastroparetic patients, work that is currently underway at the Mississippi Medical Center, Jackson, MI, USA in collaboration with the Farrugia group at the Mayo Clinic in Rochester, USA.

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

a) the analysis of contractions of isolated Interstitial Cells of Cajal, originally recorded by the legendary Lars Thuneberg, together with the lab of Jan Huizinga at McMaster, Hamilton, Canada

b) at FMHS, Al Ain, the on-going study with Faye Hammad, dept of Surgery, on our obstructed ureter model, work that is ongoing with a new attempt to map the urinary bladder

c) a visit by Dr Hassiba Benabdallah, from the Faculty of Science, University of Setif, Algeria, on the effects of Quercetin on intestinal motility.

d) With Professor Sherif Karam, the study of the surprising finding that, in this model, contraction does not always follow electrical propagation and that there is a mismatch between electrical and contractile activity. We have submitted these initial results in an abstract that has meanwhile been accepted for presentation at the annual Society for Gynecological Investigations that will take place in March 2011 in Miami, USA and wrote a new grant proposal for the annual FMHS research program that will hopefully be awarded.

e) As before, in the FMHS summer research program, we collaborated, this year, with Ms Shaikha Al-Sharif (then OSC2). Shaikha investigated the spontaneous contraction pattern of the isolated pregnant rat uterus by placing 35-100 markers on their serosal surface and video mapping their displacements. This work led to

f) Following on our successful presentation on the origins of myometrial contractions in the pregnant guinea-pig uterus (Glasgow 2009),
we continued our work on the search of the pacemaker of the pregnant uterus of which we now have evidence that this is located along the mesenteric border of that organ.

g) We have continued our very successful collaboration with the Bioengineering group in Auckland, New Zealand (Pullan, Cheng, O’Grady et al) and expanded with a new collaboration with the Gastroparesis group at Jackson, Mississippi, USA where we are currently performing high resolution mapping of gastroparetic patients who are refractory to drug treatments.

But the **highlight** of the year 2010 must undoubtedly be the invitation by the editorial board of our journal, Neurogastroenterology & Motility, to contribute to a special edition of “Emerging Excellence in Neurogastroenterology & Motility”, a prize that we shared with a group in Brazil and another in China.

**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.

Clinical studies on lower gastrointestinal hormones in diabetes and obesity
Enteronecrine 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.
Articles in Peer-reviewed Journals


Books, Chapters, Reviews and Editorials


Published Abstracts, Letters and Correspondence


**RESEARCH GRANTS**

**FMHS Research Grants**

Prof TE Adrian (PI), Dr Eric Mensah-Brown.

Role of calpain 3 and other apoptosis-related proteins in the changes preceding retinopathy in diabetic rats. (NP/10/38).
Prof. E. Kazzam (PI), Dr I. Hassan, Dr A. Nemmar, Dr O. Trad
Cardiac function in patients with thalassemia major with special emphasis on right ventricular remodelling and pulmonary hypertension: relation to neurohormones and collagen markers.

Prof WJEP Lammers (PI), Ms B Stephen, Dr M Al Sultan.
Electrical activity in the pacemaker region of the pregnant guinea-pig uterus.

Prof Milos Ljubisavljevic (PI)
Changes in nociception and pain in rotenone rat model of Parkinson's disease.

Dr A. Nemmar (PI), Dr S. Al-Salam, Dr Hammad.
Impact of particulate air pollution on ischemic acute renal failure: Possible protective effect of thymoquinone.

UAEU Individual Grants
Dr A. Nemmar (PI), Dr S. Al-Salam.
Time-course and mechanisms of pulmonary and extrapulmonary toxicity of the systemically administered particulate air pollution in rats.

UAEU Interdisciplinary Grants
Profs TE Adrian (PI), F Safi, J Perment and Dr. D Kelly.
Expression of Genes Predisposing to Type 2 Diabetes in the UAE [2008-2010].

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

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

Sheikh Hamdan Award for Medical Sciences
Prof C Howarth (PI), E Adeghate, TE Adrian, Drs M Jacobson, K Parekh, Mr A Qureshi
Remodeling of Ca2+ transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat [2010-2011].

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

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

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

Emirates Foundation Grant
Profs TE Adrian (PI), JFB Morrison, A Perrin and 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 and 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.

Prof. E. Kazzam (PI), Dr I. Hassan and Dr A. Nemmar.

Dr A. Nemmar (PI), Dr S. Al-Salam, Profs. E. Kazzam and M. Lukic
Experimental studies on the interactions between pulmonary exposure to particulate air pollution and hypertension: Pathophysiologic mechanisms and influence of protectant drugs

National Research Foundation Grant
Prof Thomas E. 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) and Prof M. Ljubisavljevic (2010-2013)
How does Deep Brain Stimulation work?

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

Profs M. Ljubisavljevic (PI), Dr S. Shehab and Prof T. Adrian
Improved Therapy for Brain Injuries. (2011) Grant 31M016.

Others
Profs TE Adrian (PI), S Gariballa, H Saadi and 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 Howarth received FMHS Distinguished Research Award 2009-2010

Department of Physiology received FMHS best teaching award for 2010
Standing left to right: Ms K Parekh, Mr Saeed, Professors FC Howarth, W Lammers, Dr A Nemmar, Professor M Ljubisavljevic, Mr S Dhanasekaran and Mr 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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A. Departmental Profile and Research Themes:
1. Epidemiological aspects of common mental health disorders in primary health care and community settings

(a) First-episode psychosis presenting at the psychiatric department of Al-Ain Hospital. (Dr. M.O. Salem).

(b) A study of the prevalence, socio-demographic correlates and co-morbidity of premenstrual dysphoric disorder in the primary care. (Dr. O. Osman).

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

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

(e) Affective disorders in childhood and adulthood. (Dr. K. Dervic).

(f) Cross-cultural child and adolescent psychiatry (Dr. K. Dervic).

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

(h) Suicidal behaviour: An integrative approach. (Prof. M.R. Sadeghi)

(i) Effect of stress, depression, social support, and coping on psychological distress of patients with Ischemic heart disease. (Prof. M.R. Sadeghi).

(j) Prevalence of Teenager depression in Al Ain. (Prof. M.R. Sadeghi)


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

(m) 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) Depressive disorders as a risk factor in susceptibility to coronary heart disease. (Dr. H. Moselhy).
(d) Relation of brain lesion and apathy, depression, cognition and daily function in stroke patients. (Dr. H. Moselhy).

3. Cultural aspects of psychiatry
(a) Help seeking behaviour of psychiatric patients before attending the psychiatric services at Al-Ain Hospital. (Dr. M.O. Salem).
(b) Colour preference of patients attending the psychiatric Department of Al-Ain Hospital. (Dr. M.O. Salem).
(c) Time estimation of patients with psychiatric morbidity attending Al-Ain Hospital. (Dr. M.O. Salem).
(d) Cross-cultural child and adolescent psychiatry. (Dr. K. Dervic).
(e) Cultural Aspects of Trauma: A Joint partnership research project with Harvard Program on Refugee Trauma (Dr. O. Osman).

4. Dream Research
(a) Effect of Dreams on psychiatric patients presenting at Al Ain Hospital psychiatric clinic. (Dr. M.O. Salem).
(b) Significance of dreams among UAE University students. (Dr. M.O. Salem).
(c) Effect of watching movies on the viewer’s dreams in a sample of UAE university students. (Dr. M.O. Salem).
(d) Religious and Spiritual Dream Symbols in Two Samples: Canadians and the United Arab Emirates. (Dr. M O Salem).

5. Psychotherapy
Cognitive Behaviour Group Therapy (rCBGT) for Breast Cancer Patients with Psychiatric Morbidity: Controlled Study- in collaboration with the Dept of psychiatry, Faculty of Medicine, Alexandria University. (Dr. M.O. Salem).

6. Women’s Mental Health
(a) A study of Symptoms Expression of PMDD in Women in the Primary Care. (Dr. O. Osman).
(b) Psychosocial study of pregnant women with foetal abnormalities. (Dr. O. Osman).
(c) A study of the post-partum psychiatric disorders in Al Ain. (Dr. O. Osman).
(d) Maternal Anxiety and Depression Following a Diagnosis of Gestational Diabetes Mellitus (Prof. M.R. Sadeghi).

7. Postgraduate Education and Training
(a) Arab Board Curricular development in psychiatry (Dr. O. Osman).
(b) Survey of Arab Board programs for structural and procedural organizations (Dr. O. Osman).

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

9. Biological Psychiatric Research: Dr. H. Moselhy)
- Group IVA phospholipase A2: A potential marker for schizophrenia
- Molecular genetic study of schizophrenia in Arab population.
- Study of the Serotonin transporter genes promoter varian (5-HTTLPR) in depression and anxiety (Dr. O. Osman).

10. Trauma Research (Dr. O. Osman)
- Interpersonal violence among trauma patients in Al-Ain.
- Substance abuse among trauma patients from Al-Ain Registry.
Original articles in peer reviewed journals


Books, Chapters, Reviews and Editorials


Published Abstracts, Letters and Correspondence


Proceedings, Conferences, Invited Lectures, Web Sites and Others


Dervic K. (2010). Suicide in Childhood: An international perspective. International Symposium of the Wiener Werkstaette for Suicide Research, 9 October, Vienna, Austria


Dervic K. (2010). Assessment and Management of Suicidality in Childhood and Adolescence (Workshop). Jubilee Conference: 35 Years of Viennese Child Psychiatry, 24.-25 September, Medical University of Vienna, Vienna, Austria


adolescent psychiatric services in United Arab Emirates. The 1st International Conference For Psychological Sciences And Applications, Al Ain, UAE.

Dervic K. (2010). Suicide and suicide prevention among children: An international perspective. The 1st International Conference For Psychological Sciences And Applications, Al Ain, UAE.

Moselhy HF. (2010). Association of life satisfaction and mental disorders of older adults in UAE. World Psychiatric Association, Beijing, China.


Osman OT. (2010). Development and Evaluation of the First Structured UAE Psychiatric Residency Training Program. First International Conference on Medical Education (ICME 2010), Abu Dhabi...

Osman OT. (2010). Symptoms expression of and correlates of Premenstrual Dysphoric Disorder in Al-Ain region. Al-Ain Hospital/ Medical University of Vienna CME research presentation, Al-Ain.


Sadeghi MR. (2010). Suicidal behavior: An integrative approach. 1st International Conference on Psychological Sciences and Applications, UAE University, Al Ain, UAE.

Sadeghi MR. (2010). Integrating Mental Health into Primary Health Care. Invited contribution at 4th World Congress of the A.P.P.A.C. Association of psychology and psychiatry for adults and Children, Athens, Greece.


RESEARCH GRANTS

UAEU Individual Research Grant
Dr O Osman (PI)
Psychiatric Morbidity and Correlates of Mental Health Problems Among Bariatric Surgery Patients.

Others

UAEU Global Health Institute Grant
Dr O Osman (Co-PI)
Building Capacity and Partnership For Excellence in Mental Health: A joint Collaboration Between UAEU and Harvard Medical School- HRTP

UK, Aberdeen Research Group
Dr H Moselhy
Group IVA phospholipase A2: A potential marker for schizophrenia:

2010 Psychiatry
http://www.fmhs.uaeu.ac.ae/Departments/Psychiatry Tel: 7672000 / Fax: 7672995
Research Profile

Our research interests are focussed on common medical and health issues in the UAE.

Sports Medicine Imaging
We continue our interest in injuries sustained by sportsmen especially long distance runners and soccer players. We are currently investigating changes in Hoffa’s fat pad in the knee joint following trauma and osteoarthrosis of the knee.

Contrast medium research
We are active in this area of radiology. Two studies were performed during the year: An in vitro study of the efficiency of adding antibiotics to non-ionic contrast media for intradiscal (UAEU grant 2008/ completed); collaboration with the FMHS Department of Pharmacology, and international collaboration with ‘Experimental Radiology; Charité University, Berlin / Germany and an investigation of the development of NSF after IP administration of various GBCA (FMHS grant 2008/ animal experiments ongoing); collaboration with the FMHS Departments of Pharmacology, Anatomy, and international collaboration with ‘Experimental Radiology, Charité University, Berlin / Germany.

Renal Calculi Analysis using Dual Source Computed Tomography
We are currently investigating the usefulness of dual source CT in the detection of renal calculi of different composition in patients presenting with renal calculous disease at Al Ain Hospital with colleagues from Chemical pathology and physicians from Al Ain Hospital.

Investigation of Pharmaceutical and Herbal Agents that prevent the Pathogenesis of Hepatic Fibrosis and Liver Cancer in an Animal Model. This work, with colleagues in Molecular Biology and Medical Physics, involves the identification of herbal agents that may used to prevent the development of hepatic fibrosis and the progression of liver cancer in a rat model. Saffron herb used in cooking, has been found to have therapeutic effects preventing the development and progression of liver cancer within an animal model. Imaging of the microstructure of the
The liver is being performed using magnetic resonance imaging and the data processed with textural analysis.

**Development of Nanoparticle Contrast Agents that detect Cancer Angiogenesis**

We are investigating with researchers from the Faculty of Engineering’s Centre for Nanotechnology rare earth gadolinium and iron nanoparticles for the detection of new blood vessels in cancers of the liver, breast and colon. These tagged nanoparticles can be detected by magnetic resonance imaging and may be useful in targeted therapy and monitoring clinical treatment response of these cancers clinically. We are currently investigating intracellular and extracellular receptor sites for tagged nanoparticles in cancer cells.

**Thalassemia**

Thalassemia is one of the commonest inherited disorders affecting one in five residents and nationals of the UAE. With the researchers from Internal Medicine we have measured the quantity of iron deposited in the hearts of thalassemic patients attending Tawam Hospital using cardiac magnetic resonance imaging. This is an important marker of iron deposition as iron toxicity is a major cause of heart disease in thalassemic patients. Chelating drugs are now available to remove the excess iron and prevent this heart complication from occurring.

**Neuroimaging**

Neuroimaging plays a key role in analysis, diagnosis and treatment of diseases of the central nervous system. Magnetic Resonance Imaging is the tool of choice for the examination of the CNS in vivo without ionization radiation. Computed assisted evaluation. In allows for morphometric, fine-structural as well as for functional examinations. We are working at the implementation of sophisticated software (FSL & FreeSurfer) and adaptation to local needs and testing with normative external data-sets is the first step of this project. In a second step a small number of dedicated local MRI examinations (Tawam, Al Ain Hospitals) will be evaluated.

These efforts are also related to the upcoming projects in the field of cognitive sciences at the main university.

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**Articles in Peer-reviewed Journals**


**Published Abstracts, Letters and Correspondence**


**RESEARCH GRANTS**

**FMHS Research Grants**

Prof P Corr (PI)
Investigation of integrin receptor imaging of cancer cell using RGD tagged nanoparticles. (NP 10/13)

**UAEU Individual Grant**

Prof RD Langer (Pl), Drs K F W Neidl van Gorkom, M Fuchsjaeger, D Muslih, S Joshi
Dual energy CT (DECT) for non-invasive differentiation between renal tract stones composed of uric acid and non-uric acid calculi.

Dr K Neidl v Gorkom, Prof RD Langer
Determination of Gadolinium in the skin after long term administration of high dose Gadolinium contrast medium in rats

**Emirates Foundation Grant**

Drs A Amin (Pl), D Mahmoud Ghoneim, Prof P Corr
Evaluation of the saffron-based chemoprevention against liver cancer: A novel approach utilizing computed tomography as assessment tool.

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**Proceedings, Conferences, Invited Lectures, Web Sites and Others**


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**Radiology**

Left to right: T Al Mansour, Dr K Van Gorkom, R Qayed, Prof R Langer, Prof P Corr (Chair)

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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. Faculty members have Consultant privileges at Al Ain Hospital, Tawam Hospital or both institutions.

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 has led to generation of data for presentation and publication. These activities led to presentations in 2010 in Al Ain, Abu Dhabi, Dubai and Kampala (Uganda). Collaboration with Assoc Prof Fawaz Torab led to a publication relating to laparoscopy for gastric tumours. 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 a publication is in press. 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 Policy and Review Committee. In June 2010 he was the recipient of the Distinguished Performance Award in the Faculty of Medicine and Health Sciences (FMHS) at UAE University.

Professor & Chair:
Prof FJ Branicki

Professor:
Prof F Safi
Prof F Abu-Zidan

Associate Professor:
Dr F Torab
Dr F Hammad

Assistant Professor:
Dr A Al Belooshi
Dr A Jawas
Dr S Al Thani
Dr T Al Mahmoud
Dr Z Al Fardan

Teaching Assistant:
Dr MA Al Ali

Research Support:
Mr L Lubbad
Ms M Al Mansouri

Administrative Support:
Ms R Al Mansouri
Mr A C Jamal
Mr C Aboobacker
Professor Farouk Safi
Prof. Farouk Safi’s clinical interests in surgical oncology in particular have generated material for presentations at national and overseas meetings. His contributions have included the management of severe liver injuries, hepatocellular carcinoma and pancreatic carcinoma with lectures in Al Ain, Dubai, Vienna (Austria) and Aleppo (Syria). Currently, Prof Safi’s clinical practice has generated data relating to surgical interventions for hepatic, pancreatic malignancy and colorectal resections.

Professor Fikri Abu Zidan
In 2010 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 2010, he published 13 articles/reviews in international refereed Journals. At present he is studying seatbelt injuries, bicycle and motorcycle related injuries, camel 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 Local Chair of the Disaster Management and Crisis Response Middle East Conference 2010 that was held in Abu Dhabi (May), Chair of the Organizing Committee of the 6th Middle East Trauma, in Accident and Emergency Conference also in 2010 in Abu Dhabi (October), and the Co-Chair of the Organizing Committee of the 2nd International Conference: Trauma Management, Critical Care and Prevention which is scheduled for February 2011, in Al Ain, Prof. Branicki being the Chair of the Scientific Committee (Trauma).

Professor Abu-Zidan’s research activities in occupational injury and road traffic collisions attracted a good deal of media attention in 2010 with major coverage of the need for trauma prevention in the UAE. He continued his scholarship activities being a Guest Editor for a symposium 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 in particular. He is the Founding Program Director for our recently established Residency training program in Urology. Assoc Prof. Fayez Hammad 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.

Dr Hammad also continued his work on “Spatial and temporal electrical impulse propagation in the normal and the obstructed ureter” in collaboration with Prof. Wim Lammers from the Department of Physiology, FMHS. The early phase of this project was completed in 2009 and has resulted in two publications (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).
After receiving the required devices in late 2009 a model was developed for the project “The effect of gradual restoration of blood flow on ischemia-reperfusion injury in the rat kidney”. This work was supported by a research grant from the FMHS. Work has now been completed by Assoc Prof. Hammad and his co-investigator, Mr Loay Lubbad, Laboratory Manager on a new project “The effect of curcumin on the obstructed kidney in the rat”. The study has been accepted for publication in European Surgical Research. Work on the effect of curcumin on ischemia reperfusion injury in the rat commenced in 2010 and is ongoing as are studies of the ‘Regional distribution of spontaneous electrical activities in the isolated guinea-pig urinary bladder’. The manuscript has now been submitted for publication. 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 collaboration with Prof Abu Zidan, Dr Hammad has published data regarding the incidence of genitourinary injuries among general trauma patients and in road traffic collisions (Turkish Journal of Trauma & Emergency Surgery). In collaboration with the Urology team from Dubai Hospital, Dr Hammad has continued his research activities a) “The role of urologists in the management of urological injuries during obstetric and gynaecologic surgery” (Int Urogynecol J Pelvic Floor Dysfunct), b) “the Development and validation of an Arabic version of the International Prostate Symptom Score” (British Journal of Urology International), c) “The effect of fat and non-fat components of the skin-to-stone distance on Shockwave Lithotripsy success” (Journal of Endourology) and d) “The effect of fat, muscle and kidney on stone fragmentation by Shockwave Lithotripsy: An in vitro study” (Journal of Endourology). In collaboration with Dr Jawas and Prof Abu Zidan, Dr Hammad has reported findings concerning “Vascular injuries following road traffic collisions in a high-income developing country: a prospective cohort study” accepted for publication in the World J Emerg Surg.

**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 and approved 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 Obesity Surgery (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 University 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 2010, he has made significant contributions with presentations nationally in Al Ain, Abu Dhabi and Dubai and internationally in Syria and Iran.

**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 both Al Ain and Tawam Hospitals. Since 2008 he has been Program Director for our Integrated General Surgery Residency Training Program and 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”. In addition he is involved with studies of vascular trauma epidemiology and its management in the UAE, data were presented at meetings in Turkey, Qatar and in the UAE. Dr Jawas is 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, to be held in March 2011.

**Assistant Professor Tahra AlMahmoud**

Assistant Professor Tahra AlMahmoud 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 returned to Al Ain in 2006 and is now practising at Al Ain and Tawam Hospitals. Dr. AlMahmoud’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 AlMahmoud is performing, in collaboration with Prof. M Lukic at FMHS, experimental studies with an animal model of Experimental Autoimmune Uveitis in Galactin-3 Knockout Mice. Currently she is completing a fellowship in Uveitis in Montreal.

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 arthroplasty 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 is currently enrolled in 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 an 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 has commenced Residency training in Otorhinolaryngology at the Sahlgrenasks University Hospital, Sweden.

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 Hamad. Ms. Mahra Al Mansouri is a General Technician and assists with other duties relating to teaching as well as research. 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 and is now taking on more departmental administrative responsibilities. Ms Mansouri is actively engaged with administrative arrangements for teaching and CME activity, and this included the highly successful Trauma, Critical Care and Injury Prevention Conference which took place in February 2009.

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 have since been held again in the Faculty and in Fujairah. 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 2010 the Department hosted five ATLS and three ATCN courses in Al Ain and members also participated as Instructors in courses held in Fujairah.

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, radiologists 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


hernia, what’s worthwhile? Al Noor Hospital. Al Ain. UAE.


Torab FC. (2010). Complications of Bariatric Surgery. 2nd SKMC-Cleveland Clinic Annual Obesity Symposium, Abu Dhabi, UAE.


Torab FC. (2010). Gastric band erosion: A case report, the second SKMC-Cleveland Clinic Annual Obesity Symposium, Abu Dhabi, UAE.


RESEARCH GRANTS

United Arab Emirates University

The effect of curcumin on the obstructed kidney in the rat
F. T. Hammad (PI), L. Lobbad

Faculty of Medicine & Health Sciences, United Arab Emirates University

Impact of particulate air pollution on ischemic acute renal failure: Possible protective effect of thymoquinone
A. Nemmar (PI), F. T. Hammad, S. Al-Salam

Others

Ultrasound training and education.
F.M. Abu-Zidan
Education Grant SonoSite Ltd.
Standing left to right: Mr Abdulla Jamal, Mr Aboobacker CK, Prof Fikri Abu-Zidan, Dr Ali Abbas, Mr Loay Lubbad, Dr Fawaz Torab, Dr Zuhair Al Fardan, Dr Alaa Kamal
Seated left to right: Prof Frank Branicki, Ms Raisa Al Manosuri, Dr Tahra Almahmoud, Prof Farouk Safi
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
Annual Workshop on “Update on Diabetes Mellitus Management”, March 13, 2010
The DCRG organized a one-day Annual Workshop on “Update on Diabetes Mellitus Management” on Saturday, March 13, 2010 at the Faculty of Medicine & Health Sciences, United Arab Emirates University. The Workshop attracted more than 390 delegates across the UAE and abroad. In addition to local delegates, we hosted 2 international figures in the field of diabetes, Anne Belton of Anne B Belton & Associates, Calgary, Canada and Helen McGuire, Global Education Manager, International Diabetes Federation.

The Workshop covered different areas of diabetes including:
• The importance of Primary Care in an integrated response to the diabetes epidemic
• Screening strategy for Type 2 diabetes mellitus in the UAE

Core members:
Prof Hussain Saadi
Prof Abdu Adem
Prof Chris Howarth
Dr Juma Al Kaabi
Dr Syed Mehboob Ali Shah
Prof Thomas Adrian
Dr Fatma Al Maskari
Prof El-Sadig Kazzam
Prof Farouk Safi
Prof Ernest Adeghate (Chair)

In addition to the core members, group membership includes 44 other faculty members from within the FMHS.
• The coming 5 years strategy to prevent and care for diabetes in the GCC states
• Management of Type 2 diabetes: Translating the recent guidelines into clinical practice
• Update on the management of diabetic dyslipidaemia
• Prevalence of peripheral vascular disease among type 2 diabetic in Al Ain Medical district.
• Diabetes and periodontal disease – A complex two-way connection.
• Type 2 diabetes mellitus and hypertension: From guidelines to clinical practice for primary care providers.

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
FMHS Research Grant
Prof Ernest Adeghate [PI]

UAEU Interdisciplinary Grant
Prof Chris Howarth [PI]
Effects of exercise training on heart function in the Goto-Kakizaki type 2 diabetic rat. (1426-08-02-10).

Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences
Prof Chris Howarth [PI]
Remodeling of Ca2+ transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat. (2009-2010).

Prof Ernest Adeghate [PI]

Emirates Foundation Grant
Prof Chris Howarth [PI]
Progressive changes in expression of genes encoding Ca2+ signalling proteins and remodelling of Ca2+ proteins underlies cardiac muscle dysfunction in type 2 diabetic heart. (2010).

Dr Fatima Al-Maskeri [PI]

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 post-graduate research and teaching activities.

Publications
Members of the DCRG published more than 36 diabetes-related papers in top quality peer-reviewed journals including but not limited to BMC Public Health, Asia Pac J Public
The cumulative impact factors of these journals exceeded 42 (See Departments of Anatomy, Biochemistry, Community Medicine, Pathology, Pharmacology, Physiology, Psychiatry, Internal Medicine and Medical Microbiology for relevant publications).

Transmission electron micrographs of ventricular myocytes of normal (A) and diabetic (B) rats. Note severe degeneration of mitochondria (arrow) in diabetic rat. Vacuolization (arrowheads) of cytoplasmic organelles can also be observed. Magnification: X 14,000
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 three 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 and 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.

Members of the Group
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 and (2) Establishing the cellular mechanisms of genetic disorders.
Prof. Yousef M Abdulrazzaq (Paediatrics Department); Professor
Research interests: (1) The genetics of truncus arteriosus (2) Metabolic disorders (3) Birth defects with vigabatrin, lamotrigine and gabapentin and (4) Aflatoxin effects on the fetus

Prof. Thomas E Adrian (Physiology Department); Professor and Chair of Physiology
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: Inborn errors of metabolism

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

Dr. Salim Bastaki (Pharmacology and Therapeutics Department); Associate 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

Dr. Omar M El-Agnaf (Biochemistry Department); Professor
Research interest: The role of protein misfolding and aggregation in neurodegenerative diseases

Dr. Sehamuddin Galadari (Biochemistry Department); Professor and Associate Dean for Research and Postgraduate 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
Research interest: prenatal diagnosis

Dr. Hassib Narchi (Paediatrics Department); Associate Professor and Acting Chair of Paediatrics
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. Hussain Saadi (Internal Medicine Department); Professor and Senior Consultant Endocrinologist
Research interest: The genetic causes of common diseases in UAE and Arab populations

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
Research interests: Mechanisms of diseases

Collaborations of the group members with UAE, regional and international organizations
Local collaborations
- Ministry of Health
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

The Group Activities for 2009/2010
Seminars
Dr. Umit Yasar, MD, PhD, associate Professor, Hacettepe University, Turkey
Pharmacogenetics of drug-metabolizing enzymes: Implications for a safer drug therapy
Date: Sunday, February 7, 2010

Dr. Bassam Ali, Associate Professor, Department of Pathology, FMHS, UAE University, UAE
 Trafficking Defects and Loss of Ligand Binding are the Underlying Causes of All Reported DDR2 Missense Mutations Found in SMED-SL Patients
Date: Wednesday, March 10, 2010

Prof. Joseph G. Gleeson, Professor of Neuroscience & Pediatrics, University of California, San Diego, USA and Investigator, Howard Hughes Medical Institute
Putting Together the Human Brain: Collaboration for Discovery
Date: Tuesday, April 20, 2010

Dr. Sawsan Khuri, Bioinformatics Senior Scientist, Center for Computational Science & Assistant Professor, The Dr. John T. Macdonald Foundation Department of Human Genetics, University of Miami, USA
Practical Bioinformatics in the Life Sciences
Date: Tuesday, April 27, 2010

Workshop on Bioinformatics Tools
The group organized a workshop at FMHS on “Bioinformatics Tools” (16-18th May 2010). The

Diagram 1 shows the structural effects of a pathogenic mutation (E113K) in DDR2 on its ligand (collagen) binding. The data was published in Human Molecular Genetics (Ali et al., 2010, Hum Mol Genet., 19:2239-2250)
The workshop was attended by over 30 participants (mainly FMHS PhD and MSc students, research staff and faculty). The workshop was delivered primarily by Dr. Sawsan Khuri, a bioinformatics scientist associated with the University of Miami, USA. The workshop provided the participants with theoretical background and practical training in relevant bioinformatics tools such as navigating genomic databases, DNA and Protein sequence alignments, protein and DNA motif discovery, protein structure/function relationships.

**PhD in Genetics Program**

The group established an interdepartmental PhD program in Human Genetics. The compulsory courses for the program will be provided by the Departments of Pathology (2 courses), Pediatrics (1 course) and Biochemistry (1 course). The students will select their electives from a pool of courses offered by various FMHS departments. We already have two students enrolled in this program.

Diagram 2 shows confocal microscopy images captured using the FMHS confocal microscope illustrating the effects of several pathogenic mutations on the cellular trafficking of the DDR2 receptor (Ali et al., 2010, Hum Mol Genet., 19:2239-2250).
The Immunoregulation and Infection Research Priority Group

Group Leader:
Professor Basel al-Ramadi

Core Members:
Professor Miodrag Lukic
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

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 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 2010 is given below:
February 24, 2010 “Development of glycan adjuvants for immunotherapy” by Professor Senarath Dissanayake.
April 28, 2010 “IL-33/ST2 Signaling in Tumor Immunity and Autoimmunity” by Professor Miodrag Lukic.
October 27, 2010 “Novel method for measuring oxygen consumption by cells and tissues, biological applications” by Dr Mariam Al-Shamsi.
November 23, 2010 “Functional analysis of estrogen receptor-alpha using conditional knockout mice” by Dr Sohaib Khan, PhD, Professor & Vice Chair, Department of Cancer & Cell Biology, Vontz Center for Molecular Studies, UC College of Medicine, Cincinnati.

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 Miodrag Lukic (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)
Dr Eric Mensah-Brown ((Anatomy)
Dr Maria Cabezudo (Biochemistry)
Dr Walter Conca (Internal Medicine)
Dr Suleiman Al Hammadi (Paediatrics)
Dr Ahmed Deemas Al Suwaidi (Paediatrics)
Dr Suhail Abdullah (Pathology)
Medical Education Research Group

Chair
Prof M McLean

Core members
Dr E Abuwari
Dr T Al Mahmoud
Dr M Grivna
Prof C Howarth
Dr H Narchi
Dr S Shaban
Dr A Shehab
Ms G Kershaw

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 group meets every two months, usually discussing a topic of interest suggested by members of the group.
January: Student evaluation of faculty. A survey was circulated to faculty and students to gauge perceptions (Abuwari, McLean).

March: Assessment of professionalism. Dr Tahra Al Mahmoud has applied for ethical approval to survey interns and residents about witnessing or practicing unprofessional behaviour. 

May: A visiting PhD student, Dr Sereen Al Khalili (USA) presented a seminar entitled “The historic teaching of Anatomy and the trend towards more digital media”. She demonstrated some of the 3D material she is developing and evaluating. There is the possibility of FMHS students being included in the project.

RESEARCH ACTIVITIES

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), Shaban, 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 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
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 develops 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 2010
Besides the monthly journal clubs meetings and the evening seminars, the group activities for 2010 was mainly focusing on launching two major activities: First the “2nd IBRO-UAE Neuroscience School – Fundamentals of Basic and Clinical Neuroscience” from January 30th to February 5th 2011 at the Faculty of Medicine and Health Sciences – UAE University and second the “1st IBRO Middle East Neuroscience Conference” from February 7 – 9, 2011.

“2nd IBRO-UAE Neuroscience School – Fundamentals of Basic and Clinical Neuroscience”
The 2nd UAE-IBRO Neuroscience School has been jointly organized by UAEU Neuroscience Group and the International Brain Research Organization (IBRO). It brought together 32 students, clinicians, and young scientists from different countries in the region, including Algeria, Egypt, Iraq, Libya, Jordan, Lebanon, Morocco, Oman, Palestine, Saudi Arabia, Tunisia, UAE, and Yemen.

The primary goal of the School was to provide students with a general understanding of the basic principles of neuroscience, and to encourage them to pursue careers in research and academia. Through a series of lectures, practical workshops, and discussion sessions, students were exposed to the fundamentals of neuroscience, from the molecular to the behavioral and clinical
levels. The course provided students with four general skill sets:

- Neuroscience education
- Experimental work
- Oral presentations
- Professional development

The goal of the school is also to bring young neuroscientists from the Middle East and North Africa (MENA) together to build future collaborations between them. The School will provide students a forum for the exchange of ideas through interaction with colleagues from the region and with renowned international scientists and clinicians in the field of neuroscience. In this event we had strong representations and participation of Neuroscientists from MENA region working abroad. We feel strongly that a partnership between the two communities is crucial for advancing neuroscience research and capacity building in the region. In addition to the scientific program, the school represents a unique opportunity to collectively assess the current state of training and research in the region and formulate various programs and initiatives to 1) promote the field of neuroscience in the region; 2) support neuroscientists and neuroscience programs in the region; 3) develop programs/initiatives to attract young scientists to pursue academic and research careers in the field of neuroscience.

“1st IBRO Middle East Neuroscience Conference”

The aim of the Conference was to bring together neuroscientists from the Middle East, North Africa and the rest of the world to discuss the advances in the field of basic and clinical neuroscience. The Conference presented a balance between the recent advances in basic neuroscience research and treatments of psychiatric and neurological disorders. Current issues and challenges in these fields were debated during the Conference in order to set better standards in research, medical service and education. The conference themes included:

- Neurodegenerative diseases
- Neuropsychiatry and behavior
- Neurotransmitters and neuropeptides in health and disease
- Neuroimaging in health and diseases
- Neuroimmunology
- Neuroendocrinology
- Neuropathic Pain

The conference provided local scientists with the opportunity to network and establish collaborations with leading international scientists in the field as well as expatriate neuroscientists from the region. According to the IBRO officers and the organizers of the School and Conference, the neuroscience community that exists within the Middle East, while fragmented, is highly dedicated and eager to help pave the way for improved infrastructure and development programs for future generations of neuroscientists. To help advance and coordinate these efforts, the leadership of IBRO has committed to the establishment of an IBRO Middle East chapter. The conference participants also discussed the preparation for developing a Middle East Society of Neuroscience.

IBRO is the global neuroscience federation dedicated to the promotion of neuroscience and communication between brain researchers around the world, with special emphasis on assisting young investigators in the developing world. Incorporated in 1961, IBRO now counts 84 member societies in 61 countries around the world, with a total membership of more than 75,000 neuroscientists.
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
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 2010
(refer to departmental reports as below):
Shehab S (Anatomy).
Adeghate E (Anatomy).
Mensah-Brown E (Anatomy).
Dietrich Lorke (Anatomy).
Conlon JM (Biochemistry).
El-Agnaf O (Biochemistry).
Galadari S (Biochemistry).
Nicholls MG (Internal Medicine).
Lukic M (Medical Microbiology).
Al-Gazali L (Paediatrics).
Gururaj A (Paediatrics).
Petroianu G (Pharmacology).
Adem A (Pharmacology).
Hasan MY (Pharmacology).
Bastaki S (Pharmacology).
Attoub S (Pharmacology).
Murat Oz (Pharmacology).
Fahim M (Physiology).
Lammers W (Physiology).
Ljubisavljevic M (Physiology).
El-Rufaie O (Psychiatry).
Raguram R (Psychiatry).
Osman O (Psychiatry).
Salem M (Psychiatry).
Corr P (Radiology).
Gorkom van K (Radiology).
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. Sanjay Jain 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

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 Mohammad-Reza Sadeghi
Prof Omar El-Agnaf
Prof Ruth Langer
Prof Sherif Karam
Prof Tahir Rizvi
Dr Ahmed Al-Marzouqi
Dr Fawaz Torab
Dr Gulfaraz Khan
Dr Maria JF Cabezudo
Dr Samir Attoub
Dr Sehamuddin Galadari
Dr Srdjan Denic
Dr Suhail Al-Salam

UAE University:
Dr Amr Amin
Dr Mohammad Khasanneh
Dr Rabah Iratni
Dr Soleiman Hisaindee

Tawam Hospital:
Dr Sanjay Jain [Dep. Chair]
Dr Anjum Naveed
Dr Hakam El Taji
Dr Karim Elmasry
Dr Mohammed Jaloudi
Dr Saad G. Aswad
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. A committee has been set up under the leadership of Dr. Sanjay Jain to work on all aspects of the registry. The group recently enlisted our local bioinformatics expert, Dr. Sami Shaban to help to improve the database. 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. 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.

Research Day for Projects Funded by the Terry Fox Fund for Cancer Research
A cancer research day is being planned for the autumn of 2011. This meeting will focus on presentations of research projects currently funded by the Terry Fox Fund for Cancer Research.

Research Activities
During 2010, members of the ORG received a total of 31 research grants for their work, including nine awards from the Terry Fox Fund for Cancer Research, two UAE University Interdisciplinary Awards, three UAE University Individual Awards, two from the Emirates Foundation, two from the Sheikh Hamdan Awards, Three from the National Research Foundation/EAEU, and one form the US National Cancer Institute. In 2010, members of the ORG published 21 papers in peer-reviewed journals.
Summary
During 2010 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 10 papers related to trauma in international refereed journals, and presented more than thirty abstracts at national and international meetings. Trauma Group members were actively involved in the preparation of the Second International Conference on Trauma Management, Critical Care and Prevention which will be held in 2011.

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 2010 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. 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.

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. Eleven hundred sixty seven doctors have taken the Provider Course to date countrywide in UAE. We have been encouraged by the increasing support and popularity of ATLS in the UAE. This course has been conducted at the Faculty of Medicine and Health Sciences several times every year since 2004 (Fig 1). A greater awareness of the value of
2) **Point-of-Care Ultrasound Courses.** Twenty five courses have been run since 2004. 427 doctors have received “hands on” training on Point-of-Care ultrasound (Fig 2). The majority were senior registrars from Emergency Medicine (Fig 3). 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. These activities run under the umbrella of The Clinical Skills Training Centre at the Faculty of Medicine and Health Sciences, UAE University.

3) **Advanced Trauma Operative Management (ATOM) Course:** Members of the Trauma Group were actively involved as instructors of the ATOM Course of the American College of Surgeons which is regularly run in Dubai. This course teaches surgeons techniques, decision making, and operative skills for penetrating trauma (Fig 4).

C) **Preparation for the Second International Conference on Trauma Management, Critical Care and Prevention**

The Trauma Group has been actively involved in planning the Second International Conference on Trauma Management, Critical Care and Prevention. The above conference will take place at the Danat Hotel and Resort at Al-Ain on 21-24 February 2011. The Conference is an initiative of the Trauma Group at the Faculty of Medicine and Health Sciences (FMHS), United Arab Emirates University.

**Five organizations are 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.

The scientific program was built on controversial themes. Parallel sessions will cover three main areas: Critical Care, Trauma Management, and Injury Prevention. Four workshops are to be held on 21 February 2011. These will include...
‘hands on training’ in four areas: Focused Assessment 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 accepted the participation in the conference. This International Conference will provide a forum for the exchange of ideas and knowledge concerning trauma management and critical care as well as strategies for optimization prevention. The meeting will focus on recent advances and controversies through interaction with renowned international speakers. The Conference will be of interest in particular to Emergency Physicians, Critical Care Physicians, Radiologists, Surgeons, Nursing Staff, Pre-hospital Staff as well as Epidemiologists. Issues to be addressed include management and critical care of trauma patients, abdominal trauma, angioembolization, and new trends in trauma research. Specific important topic sessions including psychological aspects of trauma, clinical reasoning, trauma education and training, and injury prevention will also be featured.

D) Successful Grants

Grants

• Educational Grant to support Point of Care Ultrasound courses, Sonosite, Middle East.
• Women’s awareness, attitude and practice regarding the risk of baby walkers: A post-interventional study. UAE University.

Details of these grants are to be found in the relevant Departmental Reports (Department of Surgery and Department of Community Medicine).

E) Publications and Abstracts

In 2010, the group has published 10 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 thirty abstracts and oral presentations at national and international meetings in 2010. Details of these publications and presentations are also to be found in the relevant Departmental Reports (Department of Surgery, and Department of Community Medicine).

F) International recognition:

1. Professor Abu-Zidan was the Local Chair of the Disaster management and Crisis Response Middle East Conference 2010, Abu Dahbi, 24-25 th May 2010.
2. Professor Abu-Zidan was the Chair of the Organizing Committee of the 6th Middle East Trauma, Accident and Emergency Conference, 17-19 October 2010, Abu Dhabi, UAE.
3. Professor Abu-Zidan has been invited to be the Guest Editor for a special symposium on Emergency Sonography for the Journal of Emergencies Trauma and Shock.

Awards:

A poster entitled “Seatbelt Compliance and Mortality in the Gulf Cooperation Council Countries in Comparison with Other High-Income Countries” by Alaa K Abbas, Ashraf F Hefny, Fikri M Abu-Zidan, won the first prize of the 2nd SEHA conference, Abu-Dhabi 12-13 December 2010 over 78 posters (Fig 5).

Media Reports on Trauma Group activities

The Trauma Group research activities on Trauma Registries and occupational injuries have attracted considerable Media attention last year with major coverage on the need for national statistics regarding trauma patients. This included:


Fig 5: Dr Alaa Abbas (middle) has won the best poster prize for the second SEHA conference on his work on the role of seatbelts on injury prevention in the GCC countries.
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 given an introduction to research in Medical Sciences year 1 (Unit 2) to provide the necessary background to plan and execute research projects. Students are told about the research interests of faculty and the special interest groups. Planning and design of research projects, research ethics, research project funding and biostatistics are introduced. The program culminates with visits to the research laboratories.

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 attachments. The summer holidays are a good time for student research and more than 50 students were involved in research activities during the summer of 2010. 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 would like to visit a UK laboratory to learn new techniques and develop their research. During the summer of 2010 three students visited UK – Alaa Sehamuddin Husain Galadari visited the laboratory of Professor Howard Morris at Imperial College, Salama Abdulbasit Al-Majed visited the laboratory of Professor Saadeh Suleiman at the Bristol Heart Institute, University of Bristol and Shaikha Ahmed Saif Al-Eisaei visited the laboratory of Professor Malcolm Alison at the Centre for Diabetes, Barts & The London School of Medicine.

‘The 7th Scientific Conference for Medical Students in the GCC Countries’ was held in the ‘Ceremonial Hall and Conference Centre’ at King Abdulaziz University, Jeddah, Saudi Arabia, 13 – 16 February, 2010. The slogan for the conference was ‘When students become scientists’. The event attracted more than 1,100 delegates mainly from the GCC Countries but a few from other countries including Czechoslovakia, India, Pakistan, Iran and Nigeria. The conference included 5 keynote presentations, 58 oral, 52 posters, 48 workshops and a variety of social events. The keynote speakers included: Professor Philip Agop Philip (Wayne State University, USA), Doctor Ilham Saleh Abuljadayel (1996-2000 headed TriStem
Medical Student Research

Research at the London Hospital, Kings College, Downing College, University of Cambridge and Addenbrooke Hospital, UK), Doctor Salwa B. Al-Aidarous (King Khalid National Guard Hospital, Jeddah, Saudi Arabia), Professor Sabri Kemahli (Al-Kharj University, Saudi Arabia and Ankara University, Turkey), Doctor Delia Wolf (Harvard School of Public Health, USA). The themes of the keynote speakers were; Cancer, Stem cells, Osteoporosis, Medical Education and Medical Ethics, respectively.

Our delegation of 76 students contributed 9 oral and 14 poster abstracts. Professor Reza Sadeghi kindly provided a workshop entitled: ‘Progressive muscle relaxation training’.

The 5th Emirates Medical Student Society Conference  
Ras Al-Khaimah December 18-20, 2010

Our students received three awards for oral and poster presentations.

In December 2010 some of our students attended ‘The 5th UAE Medical Student Conference’ which was held in Ras Al Khaimah. Mariam Salem Khamis Matar Alkaabi won first prize for her poster entitled: ‘Cigarette smoking and its correlates among youth in UAE’. The project was supervised by Dr Syed Ali Shah (Community Medicine).


University, Turkey, Germany, Italy, Belgium, Portugal, USA, Canada, UK, Israel, Indonesia, South Korea, Thailand, Egypt, Saudi Arabia, Jordan, Bahrain, Oman.
Biomedical Science Research Day

Dr. Abdullah Saad Al-Khanbashi, Vice Chancellor of the United Arab Emirates University and Prof. Mohamed Yousif Hasan Baniyas, Vice Provost, Medical Sciences and Dean, Faculty of Medicine and Health Sciences during the Students Scientific poster sessions at the Biomedical Research Day held at the FMHS on May, 2011.

UK Research Scholarship Program Summer 2010

1- Alaa Sehamuddin Husain Galadari visited the laboratory of Professor Howard Morris at Imperial College. FMHS Research Supervisor – Professor Sehamuddin Galadari (Department of Biochemistry)

2- Salama Abdulbasit Al-Majed visited the laboratory of Professor Saadeh Suleiman at the Bristol Heart Institute, University of Bristol. FMHS Research Supervisor - Professor Chris Howarth (Department of Physiology)

Summer Research FMHS Laboratories

3- Mey Khalfan Al Ketbi working in the laboratory of Professor Ernest Adeghate (Department of Anatomy)

4- Salem Rashed Yammahi and Jasem Bani Shemaili working in the laboratory of Professor Tom Adrian (Department of Physiology)
Research Support

The Analytical Services (Central Facilities)

The Electrophysiology Centre

The Electron and Confocal Laser Microscopy Imaging Unit

The Molecular Cellular Biology Facility

The National Medical Library
Central Facilities in the Faculty of Medicine, United Arab Emirates University (UAEU) managed by department of pharmacology under the directorship of Prof. Abdu Adem, is to cater the need of analytical requirements of various departments within the institution and other divisions of the UAEU. It had also rendered service to external research organisations in terms of research collaborations. Primarily the central facility in the Faculty of Medicine is used extensively for the medical research and also to the requirement of student’s learning in their summer projects.

Components of Central Facilities include:

- HPLC (High Pressure Liquid Chromatography),
- ICP-MS (Inductively Coupled Plasma-Mass spectrometry),
- GC-MS (Gas Chromatography-Mass Spectrometry).

**High Pressure Liquid Chromatography (HPLC)**

**Introduction**

HPLC is the sensitive analytical equipment which is used to identify and measure various chemicals and drugs in the mixtures. This instrument is an excellent and commonly used in separating the components of interest to its pure form in a given particular mixture. Our regular use of the equipment is to study the concentrations of the drug in the biological samples obtained during the research experiments either from human or animal models.

On a regular basis, under the annual maintenance contracts, our machines are maintained by the faculty and the expenditure allotted through the central budget. However, the day to day running costs for a given research projects are met by the end users. This unit used to collaborate with research organisations outside the University, and had in the past, generated funds which were later used for FMHS research activities.
Present Status:
The following HPLC assays are run on a regular basis, by Departments of Pharmacology, Physiology, Obstetrics and Gynaecology, Surgery, Paediatrics and Anatomy.

Estimations of
1- Catecholamines in plasma and animal tissues.
2- Rotenone in rat plasma
3- Antipyrene, Erythromycin and other antibiotics in the human placental perfusion model.
4- Vitamin C in rat blood plasma
5- Vitamin E in rat blood plasma
6- Analysis of Allantoin.
7- Analysis of Uric acid.

Method Development for antibiotics such as Amoxyccillin and Norfloxacin, were also been performed for quick and effective output. Resources and technical expertise are available for developing and validating methods for other applications on demand.

Gas Chromatograph Mass Spectrometer (GC-MS)
A full scale GC-MS (Jeol) and a mini version of the GC-MS (HP) are available. The new one (Jeol) is commissioned, but not being used regularly. The mini version was used to run pesticide analysis, mostly. Currently it is being set up for organic acid analysis from biological samples. Operator level assistance is available for GC-MS, at the moment.

Inductively Coupled Plasma Mass Spectrometer (ICP-MS)
ICP-MS is one of the most useful tools for trace element analysis. Detection sensitivity of ICP-MS is of the order of parts per billion (ppb). Currently equipped to handle aqueous samples and biological samples to a limited extent. Biological samples have to be treated and diluted manu-
An ‘Electrophysiology Centre’ has been recently established in the Faculty of Medicine & Health Sciences. Establishing this centre has been the result of a collaborative initiative between colleagues in Physiology and Pharmacology Departments. The centre includes a wide range of facilities to conduct studies using in vivo biotelemetry, tissue culture, cell isolation, and in vitro electrophysiology. State-of-the art techniques such as isolated heart hemodynamic measurements, two-electrode voltage clamping in oocytes, patch clamping, and electrophysiological recordings from brain slices, dissociated cells and mammalian cell lines are routinely used in the center. An imaging facility for video edge motion detection and fluorescence photometry is also located within the facility.

Ongoing research projects include investigations of the mechanisms that underlie cardiac muscle dysfunction in diabetic heart; actions of the endogenous cannabinoid neurotransmitter anandamide on the electrophysiology of cardiac myocytes; the effects of nanoparticles on electrophysiology of cardiac myocytes, effects of psychoactive drugs on various receptors and ion channels.

Work in the centre is supported by technical staff, and by undergraduate medical students and graduate students in our PhD. and M.Sc. programs. The centre has ongoing research collaborations with various international research laboratories in U.S.A., Canada, U.K., Ukraine and other countries.
The FMHS Imaging Unit provides electron microscopy service to a wide variety of individuals and organizations in FMHS, Faculty of Science & Engineering, UAEU, Tawam Hospital and Central Veterinary Research Laboratory, Dubai, UAE. This is the only transmission electron microscopy service in the UAEU, and possibly in the whole of the UAE.

For this, we have two Philips CM10 transmission electron microscopes and one Environmental Scanning Electron microscope, XL 30. In addition, we have recently acquired one confocal laser Scanning microscope, Nikon Eclipse C1. The Confocal Laser Scanning Imaging System is a microscope that uses laser to visualize fluorescent markers inside cells. The images are recorded directly into the hard drive of a computer that also controls the microscope. This system is used by several members of FMHS in various research disciplines.

The workload on the Imaging Unit is considerable and continues to increase.

For help please contact:
Dr. Safa Shehab, MBChB, PhD
Director of the image unit.
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Department of Anatomy
Faculty of Medicine & Health Sciences
U.A.E. University
P.O. Box 17666
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or

Mr Said Tariq
Image unit
Tel : 00 971 3 7137186
e-mail: stariq@uaeu.ac.ae

1. A transmission electron micrograph of a heart muscle, showing cytoplasmic organelles including mitochondria, myofibrils and T tubules.

2. Scanning electron micrograph of the testis showing the sperms.

3. Confocal image of a section of the pancreas showing the cells of islet of Langerhans which contain insulin (green) and glucagon (blue).
The Molecular & Cellular Biology Facility

The Molecular & Cellular Biology Facility Unit at the FMHS supports investigators in their research endeavors by providing high quality services and access to state of the art technology. In this facility, located on the 4th floor (Block E) of the Faculty of medicine and Health Sciences (FMHS), the following equipment are available:

- BD FACSCanto II (Fluorescence-Activated Cell Sorter)
- Real Time Quantitative PCR (Applied Biosystems)
- DNA Sequencing
- Image Analyzer System (Bio-Rad)
- FPLC (fast protein liquid chromatography) AKTA System
- Ultra Centrifuges (Beckman Coulter)
- High Speed Centrifuges (Beckman Coulter)
- Micro Analytical Balance
- Orbital Shakers (Thermo Scientific)
- NenoDrop Spectrofluorometer
- Spectrophotometers
- + general facilities equipment such as Autoclave, High Purity Ultra Milli-Q Water System, -80 Freezers, Cryo Storage Liquid Nitrogen Tanks, Cold Rooms, etc.

Currently at the FMHS Molecular & Cellular Biology Facility, we support the use of the flow cytometry, and other services such as the real time quantitative PCR and DNA sequencing are supported through investigators on the 4th floor. These include running samples, instrument training, troubleshooting, and experimental design.

**BD FACSCanto II**

Recent technology acquired by the facility includes a BD FACSCanto II. Flow cytometry is routinely used in the diagnosis of health disorders, especially blood cancers, but has many other applications in both research and clinical practice including molecular biology, pathology, immunology, etc. It has broad application in medicine especially in transplantation, hematology, tumor immunology and chemotherapy, genetics and sperm sorting. The FACSCanto II features a fixed-optics design and advanced digital electronics to support multi-colour analyses of up to 8 fluorescent markers and two scattered parameters per assay with two lasers; blue and red and the instrument functions are controlled by BD FACS Diva software.
The National Medical Library (NML)

The NML staff has many reasons to be proud of itself for its achievements during 2010, not the least of which was successfully navigating the challenges of providing services to an incoming student class more than twice the size of any previous classes. Solutions included dividing orientation into three cohort groups for both the male and female populations, having all staff trained to explain the most popular resources, and expanding our electronic resources license agreements to allow access by an unlimited number of users at any one time.

In order to keep the students aware throughout the year of resources that can assist them in their studies, the NML took on the challenge of integrating information literacy and library skills into the course modules. At the beginning of each course and module, NML staff demonstrated to students how to access and use resources applicable to the topic of the module.

NML met the challenge of serving the students enrolled in the FMHS’s several new Ph.D. and Master degree programs by purchasing a site license to Embase, a citation database particularly strong in the areas of pharmacology, biochemistry, and public health articles indexing.

Another challenge to the NML has been to train faculty, students, and staff on how to effectively and efficiently use the numerous electronic resources that are increasingly replacing traditional printed resources. To that end, the NML staff undertook an intensive program of staff training on major e-resources during 2010. As a result, all NML staff members are now able to teach skills for effectively using PubMed, ebrainy, and OvidBooks to the Library’s users. Several training sessions on those resources were offered throughout the year. Also introduced, and especially popular with FMHS faculty and graduate students, were the NML’s EndNote Web training session. For 2011, the goals are to have all staff trained to teach users how to search the Cochrane Library of Systematic Reviews and Embase.

As for individual staff achievement, the NML is very proud that our Interlibrary-Loan Librarian, Mr. Abdul Salim, was honored with one of three Employee-of-the-Year for Excellence awards by the Faculty of Medicine and Health Sciences.

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. Abrurahiman
Mr. Koya Kariyankandy
Successful as 2010 was, it ended on a bitter-sweet note as the NML said good-bye to Mr. Altilathu Varughese Thomas, who retired in December to his family home in India. Mr. Thomas gave the FMHS Faculty and students over twenty years of devoted service. While we regret his leaving, we treasure his legacy of wisdom and many contributions to the NML.

In February, 2011, the NML welcomed Dr. Muhammed Salih Thiyyakanidi to its staff as its Health Sciences Reference Librarian. With 24 years of library experience and many publications to his credit, Dr. Salih specializes in performing mediated searches for FMHS faculty. His research areas of interest include digital libraries, institutional repositories, and open-source applications.

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 2010, visitors, students, and faculty had access to over: 4,000 licensed electronic journals, 400 print journals, 6,145 printed books, and 4,600 health-sciences and microbiology e-books.

Housed within the NML is the Learning Resource Centre (LRC), whose 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.

"An FMHS student captures the moment when Mr. Thomas cuts the first slice in the cake baked in his honor to celebrate his 20-plus years of service to the NML and the FMHS."

"His fellow NML male staff members gather with Mr. Thomas at the NML Farewell Open House held in his honor in December. Pictured from left to right are Mr. Khurshid Iqbal, Mr. Abdul Salim, Mr. Ahmed Fathy, Mr. A. V. Thomas, Mr. Osama Kayal, Mr. Pattarathil Abdulrahiman, Mr. Koya Kariankandy, and Mr. Khalid Pasha. Not shown are NML staff members, Mrs. Widad El Jaily, Mrs. Eben A. Prasad, Mrs. Mona Abdul Hameed, Dr. Muhammed Salih, and NML Director, Ms. Marybeth Gaudette."
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استضافة جامعة الإمارات العربية المتحدة في شهر يناير الماضي، 2020، مؤتمر الصحة العالمية والإمارات: آسيا ورابطة الشرق الأوسط والذي يعد مؤتمراً فريداً من نوعه حيث ناقشت الوفود المشاركة مشاكل الصحة العالمية التي ظهرت عند اكتشاف طريق الحصين «الذي يربط بين المدن العالمية لدولة الإمارات والشرق الأوسط مع مومباي وكوالالمبور وسنغافورة وشنغهاي ومانجاشين وكونغ.»
وفي ختام المؤتمر تم وضع الأسس لمجلس الصحة العالمية كمحور رئيسي في الشبكة العالمية، وتعتبر جامعة الإمارات العربية المتحدة المكان المثالي لاستضافة وتأسيس هذا المعهد الجديد على أرضها، حيث أنها ستبدأ بتعيين خبراء وعلماء لبحث القضايا الصحية التي تواجه الأمة والمنطقة على نطاق أوسع.
ومن أهم مجالات البحث الرئيسية للمعهد هي صحة السكان وخاصة أنواع وجود خطر مرض السكري وأمراض القلب والأوعية الدموية والأمراض الوراثية والإصابات، وبالإضافة للاستفادة من الوضع الصحي وصحة المهاجرين والأمراض الوبائية والمتعلقة بالتغير المناخي والصحة البيئية والعملية للفتيات والنساء الذين تواجه نظم الصحة المحلية.
وخلايا يسعى المعهد جاهزاً في البحث على زيادة وتحسن وظيفة جديدة في الكلية لعلم الانثروبولوجيا واستكشاف الروابط الدولية، حيث قام المعهد بتوريد مشاريع أساسية للبحث، كما وافق السيد رئيس جامعة كاليفورنيا على العمل بجانب جامعة الإمارات العربية المتحدة والمساعدة في تأسيس المعهد على مدى ثلاث سنوات المقبلة.

يرحب المعهد بجميع أعضاء هيئة التدريس والموظفين في جامعة الإمارات وكلية الطب بالإضافة إلى المهتمين بالصحة العالمية للمساعدة في عمل المعهد، لكي يصبحوا شركاءً تابعة له، ونأمل أن يكونوا مشاركاً في التقدم الإشعاعي، (www.fmhs.uaeu.ac.ae/globalhealth)
واللنازد من المعلومات يرجى التواصل مع الدكتور إيان بلير، الاستاذ المشرف.
يشمل طلب المجتمع بكلية الطب والعلوم الصحية (iain_blair@uaeu.ac.ae)
كلمة العميد

يعد مؤتمر جامعة الإمارات العربية المتحدة "الصحة العالمية والإمارات: أسباب ورابطة الشرق الأوسط" من أبرز أحداث عام 2010 والذي سلط الضوء على اختلاف الشعوب والأعراف والتبادل الفكري الناتج عن الارتفاع الهائل في عدد السكان مما يؤدي إلى تفاقم مشاكل صحة عالمية جديدة، فقد ساهم نجاح وتأثير هذا المؤتمر إلى إحداث خطط وأفكار لنشأة معهد الصحة العالمية والذي سينشر كوميوداء بيئة الراسية حول صحة السكان البديلة والعقلية لتشمل أنماط وعوامل خطر الأمراض المعاصرة والوبائية. كما تستمر جهود جامعة الإمارات حيث قامت تعيين الدكتور لين برين عضو الهيئة التنسيبية بقسم طب المجتمع بكلية الطب والعلوم الصحية كرئيس مؤقت لمعهد الصحة العالمي.

تقدم مجموعات الأولى البحثية بكلية الطب والعلوم الصحية حافزاً للمجتمع العلمي في دولة الإمارات وهي ذات صلة كبيرة بالقضايا الصحية في الدولة حيث أنها تقوم بمعالجة القضايا الصحية التي تؤوق الأمة في المجالات التالية: أمراض الوراثة والنمو، والإصابات، والآثر، والعلوم العصبية، والمناعة والعدوى، والسكرى وأمراض القلب والأوعية الدموية والتعليم الطبي.

نود أن نعرب عن امتناننا وعرفائنا الشديد للرعاية وذلك لتقديم الرعاية المتواصلة والدعم لأبحاثنا.

وهما: جائزة الشيخ حمدان للعلوم الطبية

- صندوق تبرى للسرطان في دبي وبوطلي وكاندا
- ويلكوم تريست ب المملكة المتحدة- تطوير علم الوراثة الفيروسي

- مؤسسة مايكل جيه فوكس بالولايات المتحدة الأمريكية - مرض -
مقدمة العميد المشارك لشؤون البحث العلمي ودراسات العليا

يشرحني أن أقدم لكم الطبعة السنوية العشرين الخاصة بملامح بحوث وإسهامات كلية الطب وعلوم الصحة بجامعة الإمارات العربية المتحدة.

نحن نؤمن بأن تجاوز في هذه السنة العشرين وكما عهدتم في السنوات العشر الماضية على أن نستمر في نهجنا لتنوعية المجتمع بإستمرار البحوث العلمية في جامعة الإمارات العربية المتحدة ومشاركته بليستية الأكاديمية في داخل الدولة وخارجا، وذلك من خلال العديد من المنشورات البحثية والمساهمات الدولية والوطنية في الكيانات العلمية والأنشطة الأكاديمية الأخرى، كما نحافظ على موقعنا الرائد كأفضل مركز للبحوث الطبية الحيوية في دولة الإمارات ون주의 على المراكز في المنظمة الشرق الأوسط.

وهذا الجهود المشترك لا يمكن تحقيقه والحفاظ عليه إلا في بيئة تقدمية وتعاونية حيث يهدف مكتب البحث والدراسات العليا إلى تعزيز هذه البيئة العلمية عن طريق تخصيص الموارد بصورة حكيمة وذلك لرفعة قوة جديدة وتوفير الموارد للحفاظ على المعدات الحديثة وتركيب المعدات الحديثة لتسير ذخائر الكلية الاستهلالي العام. لقد القينا الوضوء في هذه الذكرى السنوية للطبعة العشرين على مرافق البحث المركزية مثل وحدة الأبحاث التحليلية ومراكز فسيولوجيا الكهرباء ووحدة التصوير والأشعة ومركز الخلايا الجزيئية الحيوية، كما قمنا بتخصيص جزء من المجدل لأهم انجازات ومشاريع المكتبة الوطنية الطبية.

نود أن نعبر عن امتناننا للاسهامات والدعم المتبادل لجامعة الإمارات العربية المتحدة والتي تعتبر ساقفة في تنفيذ البحث وهذا يعكس رؤية مالك الشيخ نهيان مبارك آل نهيان الذي صرح مرارا وتكرارا عن الأولوية القصوى للبحث العلمي بجامعة الإمارات العربية المتحدة.

وبشرفني في الذكرى السنوية للطبعة العشرين أن أعرب عن شكري لجميع زملائي الذين كانوا في هذا المنصب والذين بدؤوا هذا المشروع الطموح منذ سنوات عدة:

أ. د. وليم لامزر (1994-1996) 
أ. د. إندرو جايزنر (1997) 
أ. د. سلمان الدين كيلادي (2000) 
أ. د. ميودراغ لوكينجي (2001-2007)

الاستاذ الدكتور سهام الدين كيلادي 
مساعد العميد للبحوث والدراسات العليا (2008-2011)
الاستاذ الدكتور/ محمد يوسف حسن بني ياس
ناطق مدير الجامعة للمشارك في البحوث والعلوم الطبية وعميد كلية الطب والعلوم الصحية
يعتبر هذا التعرف البحثي دالدا على المساهمات والمساهمات الأكاديمية لأعضاء هيئة التدريس بمجموعة كلية الطب والعلوم الصحية.

وأتنا تتبع منذ 19 عاماً تقليداً لتوعية المجتمع خارج أسوار الجامعة بالأنشطة التي تقدمها كلية الطب والعلوم الصحية للمعرفة وللامة، فمن خلال شؤون البحث، والمشاريع التي تقدمها في المؤتمرات الدولية والأنشطة الأكاديمية الأخرى فإننا نساهم في إثراء الأمة، وما هذه الطبعة إلا عرض لنا وإنجازنا في نور ساطع.

أن هذا المستوى من الإنتاجية لا يمكن أن يتحقق إلا في بيئة تقدمية وتعاونية. نحن، في مكتب البحوث والدراسات العليا. نسعى جاهدين لتوفير تلك البيئة، ونتحقق ذلك من خلال تخصيص الموارد بصورة حكيمة، وتوفير ودعم مراكز البحث العلمي، وتشمل هذه الجهود تقديم عام لليابان، وتحقيق وحدة التصور، والبحث التحليلي، ومرفق حجز التماثيل، والمخزن المركزي للبحوث، وموردي المواد الأساسية، بالإضافة إلى ذلك فإننا، من خلال أسلوب الشفافية، نحن بالند الشفافية، ودراجين، بدون أن ننسى أن نوفر على المدى الطويل، البيئة المناسبة "للمساءلة" والتي تركز على تعزيز إنتاجية البحوث.

لقد بدأ الدكتور روبي هيفو، نائب مدير الجامعة، في السنة الماضية التنفيذ الفعلي لرؤية معالي الرئيس الأعلى للجامعة. الشيخ نهيان مبارك آل نهيان، والذي حددت جامعة الإمارات على أنها الجامعة الرائدة في دول الإمارات حيث تكون الأولوية لإنتاج نوعية عالية من البحث العلمي، وقد وفر الدم المستمر لمكافحة شؤون الأبحاث بجامعة الإمارات، برئاسة الدكتور شيبت الشامي. مصدراً لا يقدر بثمن لجهود كلية الطب والعلوم الصحية الرامية إلى تمكين رؤية الرئيس الأعلى من أن تؤتي ثمارها.

وكما هو الحال دائماً، فإننا مدينون للرعاية التي يمنكوننا من الاستمرار في جهودنا البحثية، فبلاهم لم يكن يمكننا أن نحقق بذلك. نتطلع مشاركة مستواهم الإنتاجي الفذ ولا نقدم مثل تلك العروض الفعالة في المؤتمرات البحثية الرئيسية التي تعقد دولياً ومحلياً.
المحتويات

كلمة العميد
مقدمة العميد المشارك لشؤون البحث العلمي والدراسات العليا
تمهيد
معهد جامعة الإمارات للصحة العالمية

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