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**UAEU** Faculty of Medicine  
and Health Sciences

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# Dean's Message

**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 on-going 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*



# Foreword from the Assistant Dean for Research & Graduate Studies

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:

*Renata Crawford, Sandra Child, Helga Fiedler, Lorainne Ritchie, Joel Lanphear, Fiona White, Maha Hashem, Valerie Gondek, Adnan Tahir, Ms Ubaldine, Ivanna Lizarriturri, Shaikha Al Mazrouei, Ashok Prasad, Rajagopalan, Ali Ladahri, Mahmoud Mahmoud, Mohammed Zagar, Pamela Roberts, Al-Anood Al-Jaberi and Adriana Khazki.*

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<sup>(\*)</sup>.

Dr W Lammers, *Editor*

<sup>(\*)</sup> Neves K, Lammers WJ. Growth in biomedical publications and scientific institutions in the Emirates (1998-2004); an Arabian renaissance? Health Info Libr J. 2007 24:41-49



# UAEU Global Health Institute



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<sup>1</sup>.

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

<sup>1</sup>Inhorn MC. Introduction: Global Health and the UAE: Asia–Middle East Connections. *Asia-Pacific Journal of Public Health* 2010; 22(3): 65–95



# Research Publications by Department



Anatomy

Biochemistry

Community Medicine

Family Medicine

Internal Medicine

Medical Education

Medical Microbiology & Immunology

Obstetrics & Gynaecology

Pediatrics

Pathology

Pharmacology

Physiology

Psychiatry

Radiology

Surgery

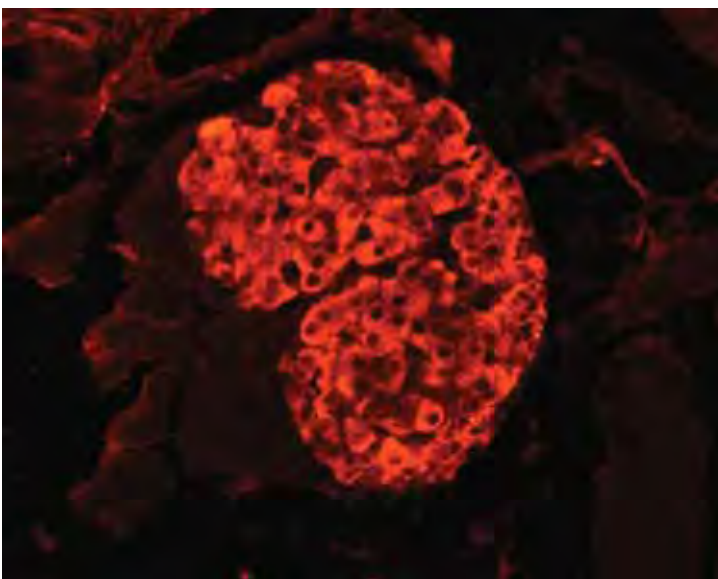


# Department of Anatomy

## Research Profile

Academic staff in the Department of Anatomy 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.



*Professor & Chair:*

**Prof E Adeghate**

*Professor:*

**Prof K M Bagnall**

**Prof G R Buzzell**

**Prof S M Karam**

**Prof D E Lorke**

*Associate Professor:*

**Dr E Mensah-Brown**

**Dr S Shehab**

*Medical Research Specialist:*

**Mr R S Hameed**

**Ms W Al Dhaheri**

**Ms A Rifaat**

**Mr S Singh**

**Mr S Tariq**

**Mr W Wanniarachi**

*Medical Research Technician:*

**Mr M Madathil**

*Secretary:*

**Ms L Ravindranathan**

*Office Assistant:*

**Mr TV Basheer**

**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

Adeghate E, Fernandez-Cabezudo M, Hameed R, El-Hasasna H, El Wasila M, Abbas T, al-Ramadi B. (2010). Orexin-1 receptor co-localizes with pancreatic hormones in islet cells and modulates the outcome of streptozotocin-induced diabetes mellitus. *PLoS ONE* 5 (1): e8587.

Adeghate E, Kalasz H, Veress G, Tekes K. (2010). Medicinal chemistry of drugs used in diabetic cardiomyopathy. *Current Medicinal Chemistry* 17 (6): 517-551.

Adeghate E, Hameed RS, Ponery AS, Tariq S, Sheen RS, Shafullah M, Donath T. (2010). Early morphological, physiological and biochemical events in streptozotocin-induced diabetes mellitus. *Experimental and Clinical Endocrinology and Diabetes* 118(10): 699-707.

Bagnall KM, Grivas TB, Alos N, Asher M, Aubin CE, Burwell GR, Dangerfield PH, Edouard T, Hill D, Lou E, Moreau A, O'Brien J, Stokes I, Weiss HR, Raso J. (2010). The IRSSD and its contribution to science. *Scoliosis* 22: 4-28.

Barley R, Adesida AB, Bagnall KM, Jomha M. (2010). Immunohistochemical characterization of reparative tissue present in human osteoarthritic tissue. *Virchows Archives* 456 (5):561-9.

Barley RDC, Bagnall KM, Jomha NM. (2010). Histological scoring of articular cartilage alone provides an incomplete picture of osteoarthritic disease progression. *Histology and Histopathology* 25 (3): 291-7.

Bastaki SMA, Adeghate E, Chandranath IS, Amir N, Tariq S, Hameed R, Adem A. (2010). Effects of Streptozotocin-induced long-term diabetes on parietal cell function and morphology in rats. *Molecular and Cellular Biochemistry* 341(1-2):43-50

Buzzell GR, Kinne J, Tariq S, Wernery U. (2010). The pleural curtain of

the camel (*Camelus dromedarius*). *Anatomical Record* 293(10):1776-1786.

Fernandez-Cabezudo MJ, Lorke DE, Azimullah S, Mechkarska M, Hasan MY, Petroianu GA, al-Ramadi BK. (2010). Cholinergic stimulation of the immune system protects against lethal infection by *Salmonella enterica* serovar Typhimurium. *Immunology* 130:388-398.

Kalász H, Adem A, Hasan MY, Adeghate E, Ram N, Gulyás Z, Tekes K. (2010). Medicinal chemistry of antiviral/anticancer prodrugs subjected to phosphate conjugation. *Mini Reviews in Medicinal Chemistry* 10: 822-845.

Kalász H, Hasan MY, Adeghate E, Tekes K, Adem A. (2010). Chromatographic separation of antiviral/anticancer nucleoside reverse transcriptase inhibitor drugs. *Analytical and Bioanalytical Chemistry* 398: 295-312.

Karam SM. (2010). Mouse models demonstrating the role of stem cells in gastric carcinogenesis. *Frontiers in Biosciences* 15:595-603.

Karam SM. (2010). A focus on parietal cells as a renewing cell population. *World Journal of Gastroenterology* 16:403-411.

Lammers WJ, Karam SM. (2010). Neurogastroenterology and motility around the world. *Neurogastroenterology and Motility* 22:946-949.

Langer RD, Usmani A, van Gorkom KN, Lorke DE, Petroianu G, Azimullah S, Nurulain SM. (2010). In vitro assessment of the antibiotic efficacy of contrast media and antibiotics and their combinations at various dilutions. *British Journal of Radiology* 83:394-400.

Lorke DE, Wai MS, Liang Y, Yew DT (2010). TUNEL and growth factor expression in the prefrontal cortex of Alzheimer patients over 80 years old. *International Journal of Immunopathology and Pharmacology* 23(1):13-23.

Mensah-Brown EPK, Shahin A, Al Shamsi M, Lukic ML (2010). Early influx of macrophages determines susceptibility to experimental allergic encephalomyelitis in Dark Agouti (DA) rats. *Journal of Neuroimmunology*. [Epub ahead of print] PMID: 21109309.

Schuster RK, Sivakumar S, Kinne J, Babiker H, Traversa D, Buzzell GR (2010). Cutaneous and pulmonary habronemiasis transmitted by *Musca domestica* in a stable in the United Arab Emirates. *Veterinary Parasitology* 174 (1-2):170-174.

Tokuda T, Qureshi MM, Ardah MT, Varghese S, Shehab SA, Kasai T, Ishigami N, Tamaoka A, Nakagawa M, El-Agnaf OM. (2010). Detection of elevated levels of [alpha]-synuclein oligomers in CSF from patients with Parkinson disease. *Neurology* 75:1766-1772.



## Published Abstracts, Letters and Correspondence

Bastaki SMA, Amir N, Adeghate E. (2010). Effect of Turmeric on serum IL-23 levels and histological parameters in acetic acid-induced inflammatory bowel disease in rats. *Journal of Gastroenterology Hepatology*, 25 (Suppl 2): A76-A76.

Howarth FC, Ljubisavljevic M, Qureshi MA, Adeghate E, Shafullah M, Jacobson M. (2010). Heart rhythm disturbances in two experimental rat models of alloxan-induced diabetes. *Journal of Molecular and Cellular Cardiology* 48: S131

Lammers WJ, Al-Bloushi HM, Al-Eisaei SA, Al-Dhaheer FA, Stephen B, George RR, Dhanasekaran S, Karam SM. (2010). ICC and slow wave propagation in the small intestine of diabetic rats. *Gastroenterology*, 138/5, S2067.

Singh J, Howarth FC, Adeghate E, D'Souza A. (2010). Morphological

changes in the hearts of diabetic rats. *Journal of Molecular and Cellular Cardiology* 48: S11–S12.



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

Al Ameri MH, Al Ahbabi SS, Al Dhaheri AM, Al Zaabi AH, Al Mansouri LS, Mameed R, Laleye L, Abbas T, Adeghate E. (2010). Effect of camel milk on metabolic parameters in type 1 diabetes. The 7th Scientific Conference for Medical Students in the GCC Countries, Jeddah, February 13-16.

Al-Dhaheri W, Adi M, Al Kendi F, Al Kaabi M, Karam SM. (2010). Alteration of carbohydrate expression and stem cells during breast cancer development. The 2nd SEHA Research Conference, Abu Dhabi, UAE.

Al-Dhaheri W, Hassouna I, Karam SM. (2010). Genes involved in breast cancer development due to an environmental carcinogen. The 2nd Annual e-Health Conference, Dubai, UAE.

Al Kitbi M, Howarth FC, Singh J, D'Souza A, Qureshi A, Tariq S, Hameed R, Adeghate E. (2010). Effects of type 1 and type 2 diabetes on contractile proteins of the isolated rat heart. The 7th Scientific Conference for Medical Students in the GCC Countries, Jeddah, February 13-16.

Bagnall KM, Bater J, Secretan C, Barley R, Jomha N. (2010). The importance of cell density during the culture of chondrocytes for the repair of articular cartilage. IRSSD Meeting, Montreal.

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.

Fernandez-Cabezudo M J, Azimullah, Al-Barazie S R, Lorke D, Shehab S, Hasan M, Petroianu G, Al-Ramadi B. (2010). Differential immunoregulatory effects of two organophosphate compounds, diisopropyl fluorophosphates and paraoxon, on the host's response to infection. The 50th Annual meeting of the American Society for Cell Biology (Dec. 11-15), Philadelphia, PA, USA

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

Lotfy M, Singh J, Adeghate E. (2010). Protective effect of GLP-1 and exenatide on rat pancreatic beta cells. Annual Graduate School Conference, University of Central Lancashire, Preston, UK.

Mensah-Brown E, Shahin A, Lukic ML. (2010). Interplay of cytokines in experimentally-induced diabetes: IL-17 VRS Interferon-gamma. 7th International Congress on Autoimmunity, Ljubljana, Slovenia May 5-9.

Shehab S, Al-Nahdi A, Al-Zaabi F, Al-Mugaddam F, Al-Sultan M and Ljubicavljjevic M. (2010). Does deep brain stimulation of substantia nigra suppress tonic epileptic seizures? 16th World Congress on Basic and Clinical Pharmacology, Copenhagen, Denmark.



## 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 Ljubicavljjevic (PI) NPY and streptozotocin-induced diabetic neuropathy-preliminary evaluation of behavioral and spinal pain processing changes (With Professor M. Ljubicavljjevic).

### 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.

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  
Greish YE, Karam SM, Murad A: Nanofibrous Scaffolds for Stem Cell Transplantation. National Research Foundation.

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



# 2010

## Anatomy



Standing left to right:  
*E Mensah-Brown, K Bagnall, RS Hameed, WAJ Wann, 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*



# Department of Biochemistry

## Research Profile

*Professor & Chair:*  
**Prof JM Conlon**  
*Professor:*  
**Prof OMA El-Agnaf**  
**Prof S Galadari**  
**Prof H Raza**  
*Associate Professor:*  
**Dr AH Al-Marzouqi**  
*Assistant Professor:*  
**Dr M J Fernandez-Cabezudo**  
*Medical Research Specialist:*  
**Ms E Ahmed**  
**Ms N Al-Ghafari**  
**Ms. A John**  
**Ms M Mechkarska**  
**Dr M Patel**  
**Mr M Qureshi**  
*Medical Research Technician:*  
**Mr A Qader**  
*Secretary:*  
**Ms K Al-Baloushi**

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

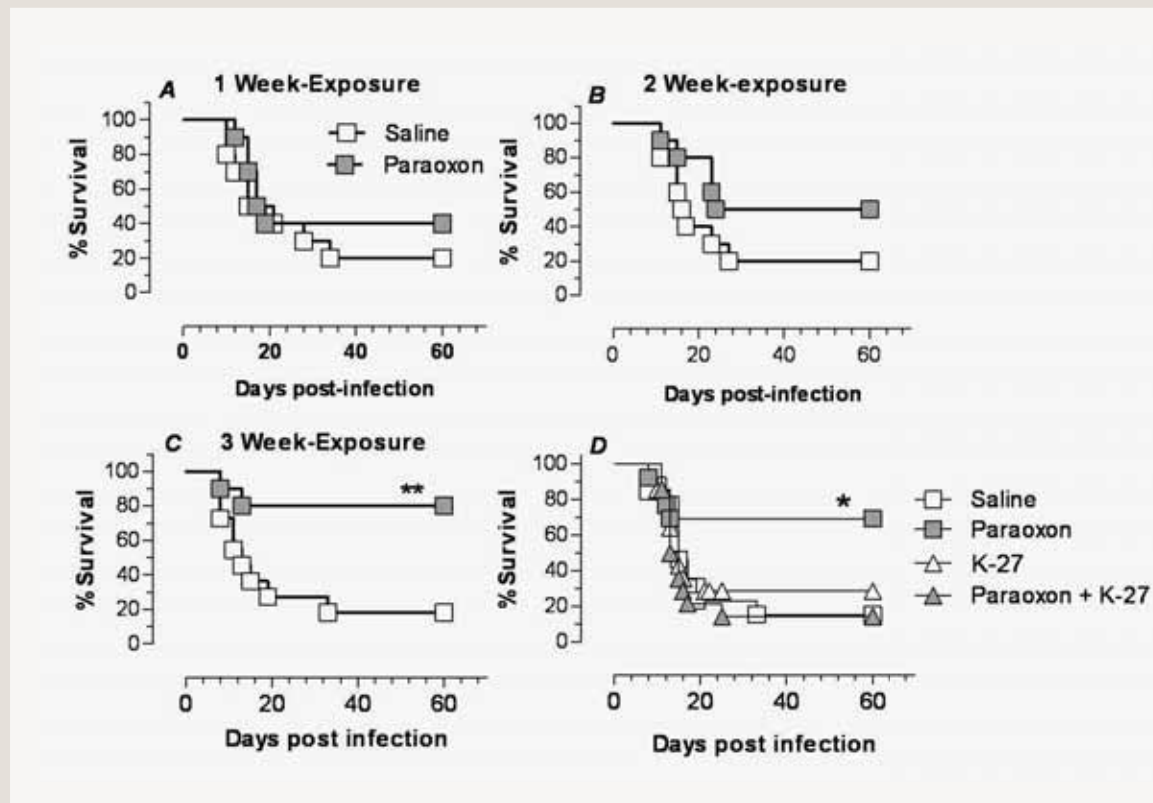
expression of different biomarkers in cancer cells. We are directing a project in which we are trying to correlate the expression of an intracellular protein (MCJ) in breast cancer cells with their resistance to chemotherapy.

**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)

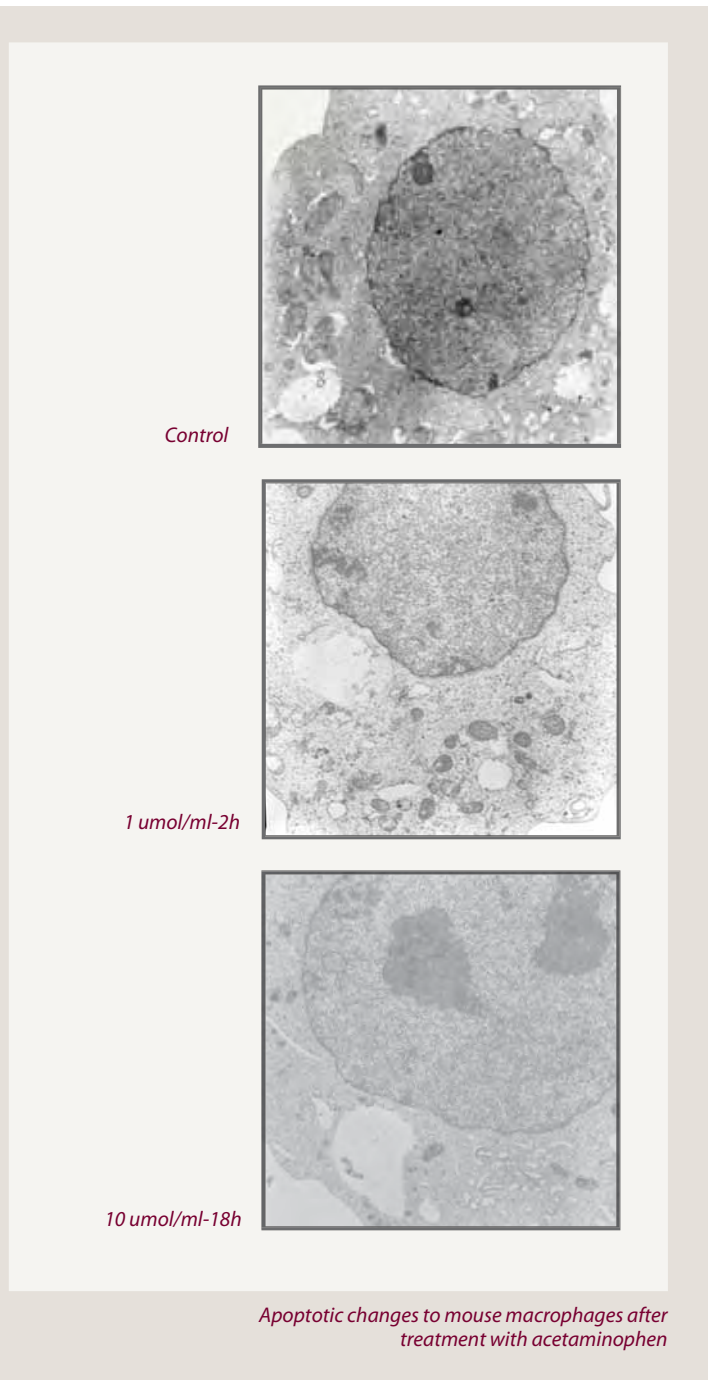
My research is mainly focused on mitochondrial dysfunction in oxidative stress conditions caused by chemicals, drugs, diseases and toxicity. I am using in vivo and in vitro models in our studies. In addition, I am investigating the mechanisms of molecular/cellular defense against toxicity and/or diseases 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-



#### 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  $1.0-1.5 \times 10^4$  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.

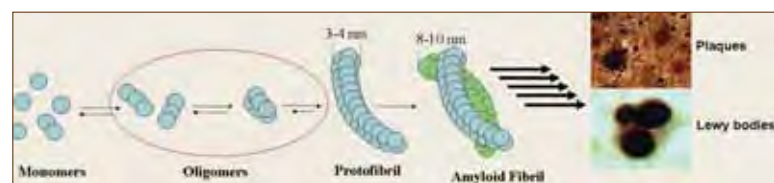


tes, neurodegeneration and cardiovascular disorders. Our recent studies using cancer cells and macrophages, when treated with higher doses of NSAIDs such as aspirin and acetaminophen, have shown that increased oxidative stress and mitochondrial dysfunction are the main causes of cellular toxicity and cell death (apoptosis/necrosis). We have identified molecular and metabolic targets of cytotoxicity in cancer and non-cancer cell lines.

In 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.

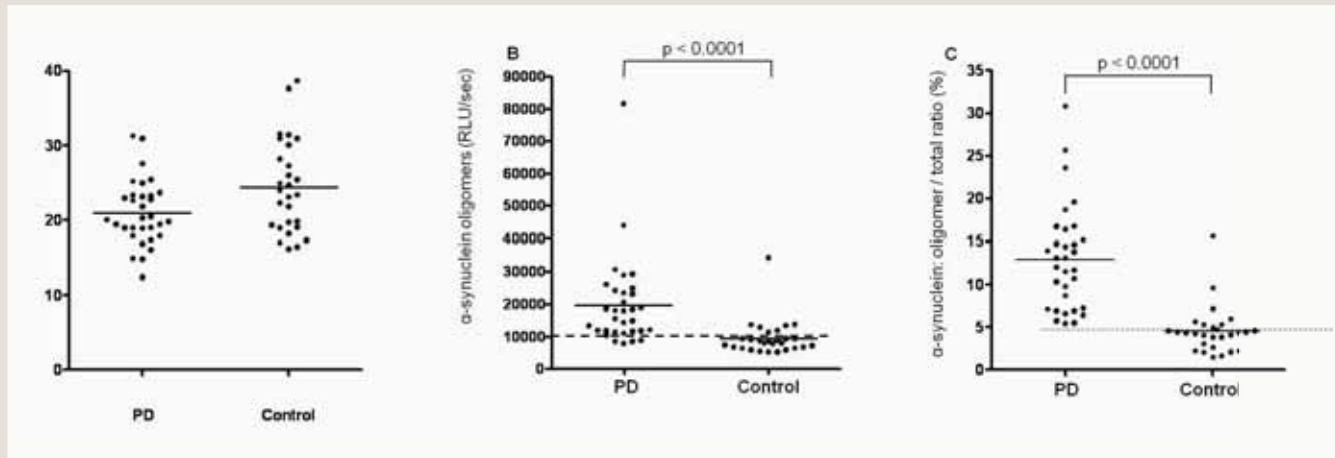
**Protein misfolding and neurodegenerative diseases (Prof. O.M.A. El-Agnaf)**

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  $\alpha$ -synuclein and  $\beta$ -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  $\alpha$ -synuclein oligomers in CSF from patients with PD and age-matched controls using an enzyme-linked immunosorbent assay (ELISA) that specifically detects  $\alpha$ -syn oligomers. We also measured the total- $\alpha$ -synuclein levels



#### CSF $\alpha$ -synuclein levels in patients with Parkinson's and healthy controls.

Individual values of the level of total  $\alpha$ -synuclein (A),  $\alpha$ -synuclein oligomers (B; RLU = relative luminescence units) and the ratio of  $\alpha$ -synuclein oligomers to total  $\alpha$ -synuclein (C; oligomer/total ratio, %) in CSF from PD patients (solid circles) and controls (open circles). Each bar represents the mean value. Dashed lines in (B) and (C) indicate respective cutoff values that yield the most reliable sensitivity and specificity by receiver operating characteristic curves (B; 9,950 RLU/sec for the levels of CSF  $\alpha$ -synuclein oligomers, C; 6.165% for the ratio of  $\alpha$ -synuclein oligomers to total  $\alpha$ -synuclein in CSF)

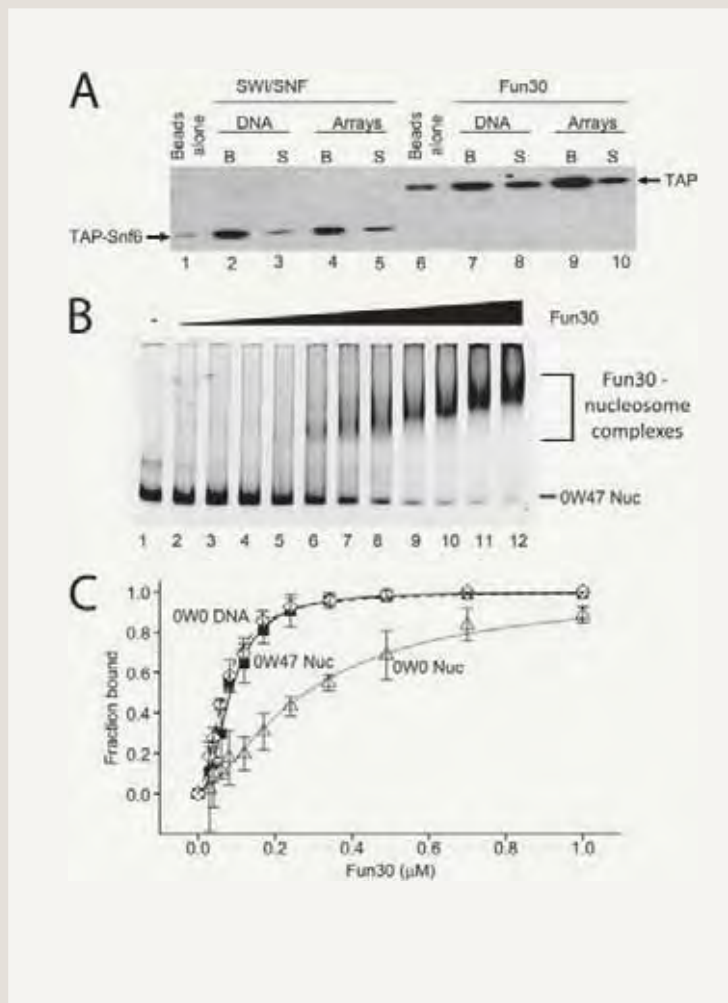
in CSF. The levels of  $\alpha$ -synuclein oligomers, and oligomers/total- $\alpha$ -synuclein ratio in CSF were significantly higher in the PD group ( $p < 0.0001$ , Mann-Whitney U test) compared with those in the control group. The area under the ROC curve (AUC) indicated sensitivity of 75.0% and specificity of 87.5% with an AUC of 0.859 for increased CSF  $\alpha$ -synuclein oligomers in clinically diagnosed PD cases. However, when the CSF oligomers/total- $\alpha$ -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  $\alpha$ -synuclein oligomers and oligomers/total- $\alpha$ -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



### The Fun30 binds DNA and chromatin.

A, Fun30 binds to nucleosome arrays efficiently. Immobilized G5E4 (either DNA or reconstituted into nucleosomal arrays), generated as described under "Experimental Procedures," was incubated with an equal amount of Fun30 (lanes 7–10) or the SWI/SNF complex (lanes 2–5, as control) based on anti-TAP Western blotting normalization. The amount of bound protein (SWI/SNF complex or Fun30) was determined by separating the supernatants (S) from the beads (B), washing the beads, and running them on a 12% SDS gel followed by Western blot analysis using the anti-TAP antibody for detection of the proteins. The background binding of SWI/SNF or Fun30 to the magnetic Dynabeads alone are shown in lanes 1 and 6, respectively. B, nucleosomes were assembled on the fragment OW47 in which the 601 nucleosome positioning sequence directs assembly of a nucleosome such that it is flanked by 47 bp of linker DNA on one side. Incubation of 30 nM OW47 nucleosomes with increasing concentrations of His<sub>6</sub> Fun30 (28 nM to 1  $\mu$ M, lanes 2–11) resulted in a gel-shifted species (Nuc/Fun30). C, binding curves indicating the fraction of the Fun30-bound template following incubation with the indicated concentrations of Fun30. Quantification was based on the material remaining unbound in gel shifts such as that shown in B. ◇, corresponds to OW0 DNA; ■, corresponds to OW47 nucleosomes; and △, corresponds to OW0 nucleosomes.

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:

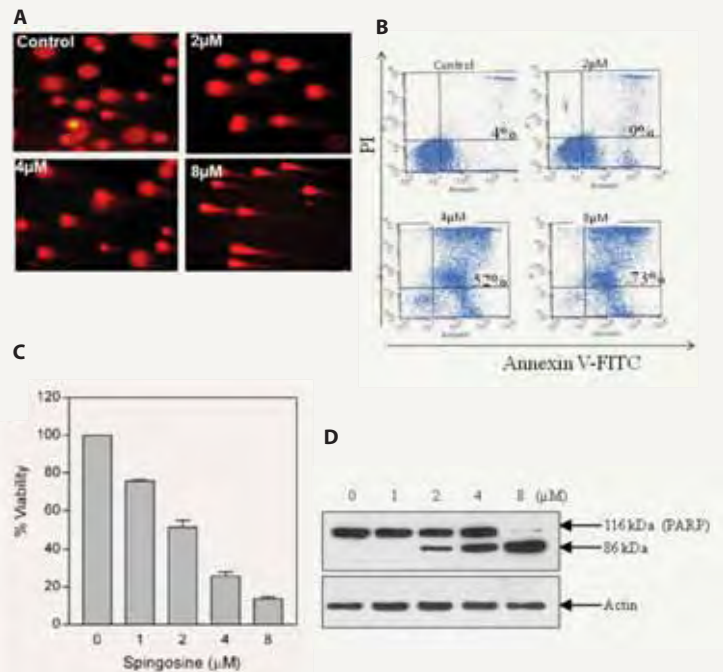
- Physical and functional interactions between the various chromatin-modifying complexes.
- Identification and characterization of novel ATP-dependent chromatin remodeling complexes.
- Investigating the in vivo functions of chromatin remodelers and their roles in gene silencing

### 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

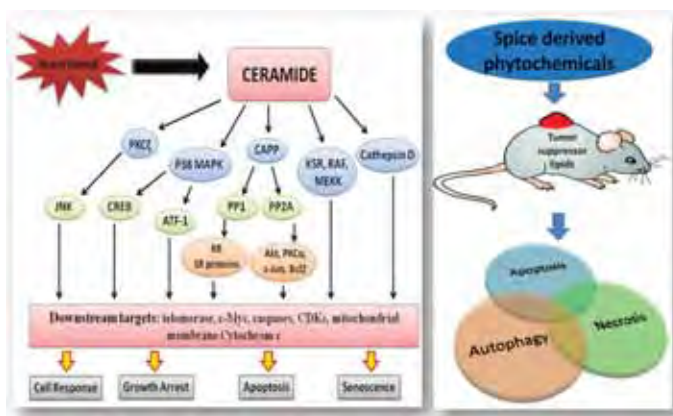
the advancement of anticancer therapies. Ceramidases hydrolyse ceramide into sphingosine and fatty acid. After its generation sphingosine is phosphorylated to form sphingosine-1-phosphate through the action of sphingosine kinase. Because the phosphorylation of sphingosine is the only pathway for the 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.



**Schematic representation of signaling targets of ceramide and role of spice derived phytochemicals in tumor suppression**



Release of skin secretions from the Marsabit clawed from *Xenopus borealis* following an intradermal injection of norepinephrine

3. Investigating ceramide mediated signal transduction in phytochemical induced apoptosis in human cancer cells.

#### **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 unambigu-

ously 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.

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organophosphate compounds, diisopropyl fluorophosphates and Paraoxon, on the host's response to infection. The 50th Annual meeting of the American Society for Cell Biology, Philadelphia, PA, USA.

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Hassan AH, Awad S., Prochasson P, Owen-Hughes T. (2010). The Snf2-homolog Fun30 is an ATP-dependent chromatin-remodeler with a role in DNA replication. *Chromatin Structure and Function*, Bryant University, Smithfield, RI, USA.

Raza H, John A. (2010). Streptozotocin-induced cytotoxicity and mitochondrial dysfunction in human hepatoma HepG2 cells. 101th Annual Meeting of American Association for Cancer Research, Washington, DC, USA.

## RESEARCH GRANTS

### FMHS Research Grants

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

Dr MJ Fernandez-Cabezudo (PI) Influence of the cholinergic anti-inflammatory pathway on the development of multiple low dose streptozotocin-induced diabetes.

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

### 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).

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

Prof S Galadari. (PI)  
Characterization of curcumin sig-

nal 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-acylsphingosine 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).



# 2010

## Biochemistry



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 Mechkarska, M Qureshi

# Department of Community Medicine

## Research Profile

*Professor & Chair*  
**Prof. TC Aw**  
*Professor*  
**Prof N Nagelkerke**  
*Associate Professor*  
**Dr F Al-Maskari**  
**Dr R Bernsen\***  
**Dr I Blair**  
**Dr M Grivna**  
**Dr S Shah**  
**Dr M Sheek-Hussein\*\***  
*Assistant Professor*  
**Dr J Schneider**  
**Dr A Wheatley\*\*\***  
*Medical Research Specialist*  
**Ms R Kurdi**  
*Academic Assistant*  
**Dr M El Sadig**  
*Medical Secretary*  
**Ms A Kaljee**  
*Office Assistant*  
**Mr M Jamal**

\* Departed on 31 January 2010

\*\* Joined on 2 May 2010

\*\*\* Departed on 31 August 2010

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.



**Conferment Ceremony of the Faculty of Occupational Medicine (Ireland) in Al Ain, 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-



Presenters, participants and guests at the UAEU Global Health Conference 2010



Community Medicine guest speakers at FMHS Research Seminars

est in occupational toxicology, occupational risks to health-care workers, and training and education. 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.

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Zahmi BS, Al Hammadi FM, Al Neaimi KR, Dhanhani HS, Shah SM, Schneider S. (2010). Epidemiology of Musculoskeletal Symptoms among medical students in UAE. 7th International Scientific Conference for Medical Students in the GCC Countries, Jeddah, Saudi Arabia, February 13-16, 2010.



## 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 Barss, 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, L 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 South-east Asia. WUN Leeds Research Fund for International Research Collaboration.



# 2010 Community Medicine



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*

# Department of Family Medicine

## Research Profile

*Professor & Chair:*  
**Prof Laeth Nasir**  
*Associate Professor:*  
**Dr C Leduc \***  
**Dr SC Major**  
**Dr EAM Prinsloo**  
**Dr B Raasch \*\***  
*Assistant Professor:*  
**Dr MJ Hashim**  
**Dr DM Mirza**  
*Medical Research  
Specialist:*  
**Ms H Mustafa**  
*Medical Research  
Technician:*  
**Mr J Cherian**  
*Medical Secretary:*  
**Ms MC Cetra**

\* till October 2010

\*\* till August 2010

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

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:*

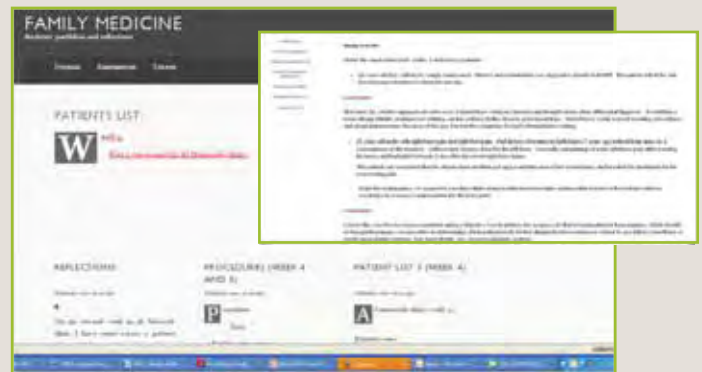
**Tutors:** Themes identified include 1) Mentoring, 2) on-line interaction and support, 3) preference of paper format and face to face interaction, 4) complexity of assessment criteria, 5) interpretation of terminology, and 6) labour intensity.

**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.



*Online portfolios in the Family Medicine clerkship*

### 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 collabo-

rates 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

ceptions 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.



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 per-

## Articles in Peer-reviewed Journals

De Jager GF, Prinsloo EAM, Joubert G. (2010). Use of traditional medicine versus use of the community-based primary health care clinic by the San community at Platfontein SA. *Fam Pract*;52(6):542-547.

Hashim MJ, Prinsloo EA, Leduc C, Raasch B, Mirza DM. (2010). What community-based preceptors want in teaching medical students: Findings from a mixed methods study. *Education for Health*;23(2):366.

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.

Mirza DM. (2010). Assessing professionalism in undergraduates using the MRCGP orals. *Medical Education*; 44(5):509-10.

Prinsloo EAM, Dimpe MW, Maphakisa MV, Matika MD, Shabalala SLNB, Joubert G. (2010). Doctors' use of laboratory tests in the diagnosis and treatment of patients. *South Afr J Epidemiol Infect*;25(3):16-20.



## Books, Chapters, Reviews and Editorials

Ellis C. (Apr 2009). *Pharmaceutical Latin*. *S Afr Med J*;99(4):222.

Ellis C. (2009). Consulting with veiled students. *BMJ*; 339:b2664.

Paulman PM, Paulman A, Harrison JD, Nasir LS, Bryan SK. (2010). Signs and symptoms in family practice: a literature-based approach in family medicine. Elsevier, Mosby, ISBN: 978-0-323-04981-8.



## Published Abstracts, Letters and Correspondence

Hashim MJ. (2010). Sigsearch: a new term for post hoc unplanned search for statistically significant relationships with the intent to create publishable findings. *Account Res*;17(5):270-2.

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?lookup=by\\_date&days=60#18383](http://www.annfammed.org/cgi/eletters?lookup=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>.

Mirza DM. (2010). Are UK communication curricula applicable throughout the world? Letter to the Editor. *Medical Education*; 44(5):529-30.

Mirza DM. (2010). Promoting unprofessionalism in the UAE? Letter to the Editor. *Education for Primary Care*;21(2):132.

Prinsloo E. (2010). Teaching and assessing doctors competent to consult both Muslim and non-Muslim patients *Journal of Medical Ethics*. E-Letter, published online at

<http://jme.bmj.com/letters>.



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

Hashim MJ. (2010). The patient-doctor relationship. Dubai Health Authority First Family Medicine symposium, Dubai.

Hashim MJ. (2010). A new model for informed consent. International Conference on Science in Society, Madrid, Spain.

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

Mirza DM. (2010). Communication Skills with Arab Patients. 3rd Middle East Review Course in Primary Healthcare Conference, Abu Dhabi.

Mirza DM. (2009). Leduc C, Hashim J, Al-Shekaili OA, Al-Awadi FA, Aal-Ali SO, Al-Kindi F, Al-Naqbi JO, Al-Naqbi ZM. Correlating Type 2 diabetic control with management stage in Al Ain primary care. 1st Annual Seha research conference.

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

Mirza DM. (2009). A New Method for Teaching Professionalism within a PBL Curriculum; 6th Asia Pacific Medical Education Conference, Singapore.

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

Prinsloo E, Hashim J. (2010). Implementing the use of online portfolio in a PHC based Family Medicine clerkship – using a plan, do, revise (reflective learning) cycle in a student and educator population previously never exposed to the portfolios as reflective learning tools. The Network: TUFH conference in Kathmandu Nepal.

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.

Drs DM Mirza (PI), C Leduc (2009). Assessing insulin initiation in type 2 diabetics in primary care.

### UAEU Individual Grant

MJ Hashim (2009). Effectiveness of a new model for communication skills teaching for Arabic-speaking medical students.

### 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.

Dr Syed M Shah (PI), MJ Hashim. (2010). Developed Developing Countries' (DDC) Partnership for Non-communicable Disease Prevention.

# 2010

## 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.**

# Department of Internal Medicine

## Research Profile

*Professor & Chair:*

**Prof H Saadi**

*Professor:*

**Prof J Braun**

**Prof I Galadari**

**Prof S Gariballa**

**Prof E E Kazzam**

*Associate Professor:*

**Dr W Conca**

**Dr S Denic**

**Dr I Hassan**

*Assistant Professor:*

**Dr A Al Dhanhani**

**Dr A Al-Fazari**

**Dr J Alkaabi**

**Dr S Alkaram**

**Dr S Al-Shamsi**

**Dr S Al-Suwaidi**

**Dr H Galadari**

**Dr M Al Houqani**

**Dr A Shehab**

*Teaching Assistant (Abroad)*

**Dr G Al Mansouri**

**Dr F Al-Shamsi**

*Medical Research Specialist:*

**Dr A M Abdulle**

**Dr B Al-Dabbagh**

**Mr J Yasin**

*Medical Research Assistant:*

**Ms V Doctor**

*Research Nurse:*

**Mr A Alessa**

*Administrative Assistant:*

**Mr H Hassan**

*Secretary:*

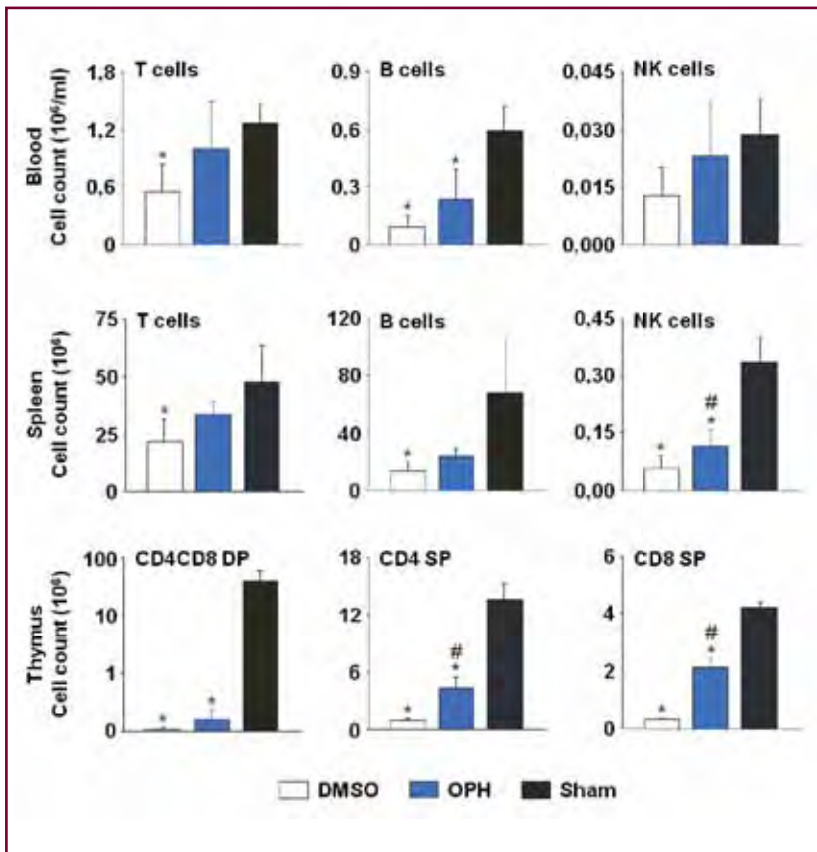
**Ms R John**

**Ms S Ogilvie**

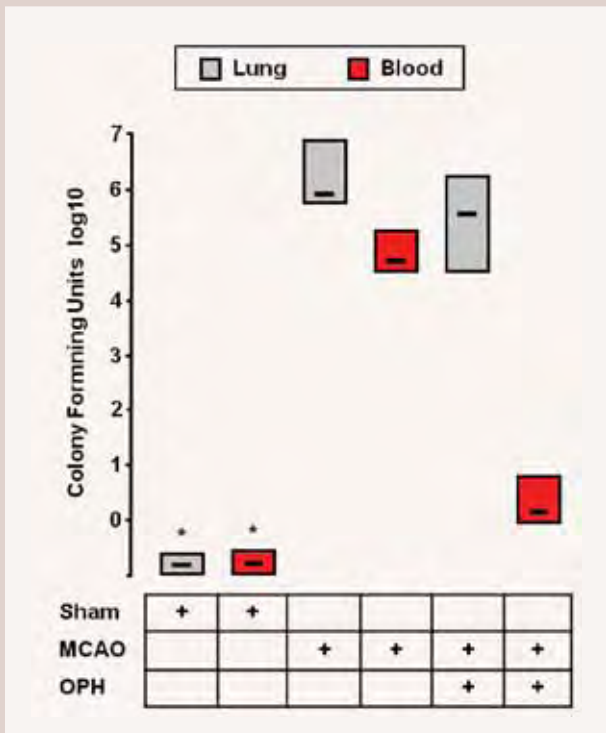
The Department of Internal Medicine has witnessed a substantial growth in number of faculty and staff during the year 2010. Our Department is now composed of 17 faculty, 2 teaching assistants, 5 research staff and 3 administrative staff. We are deeply committed to our research mission. Since high quality 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:

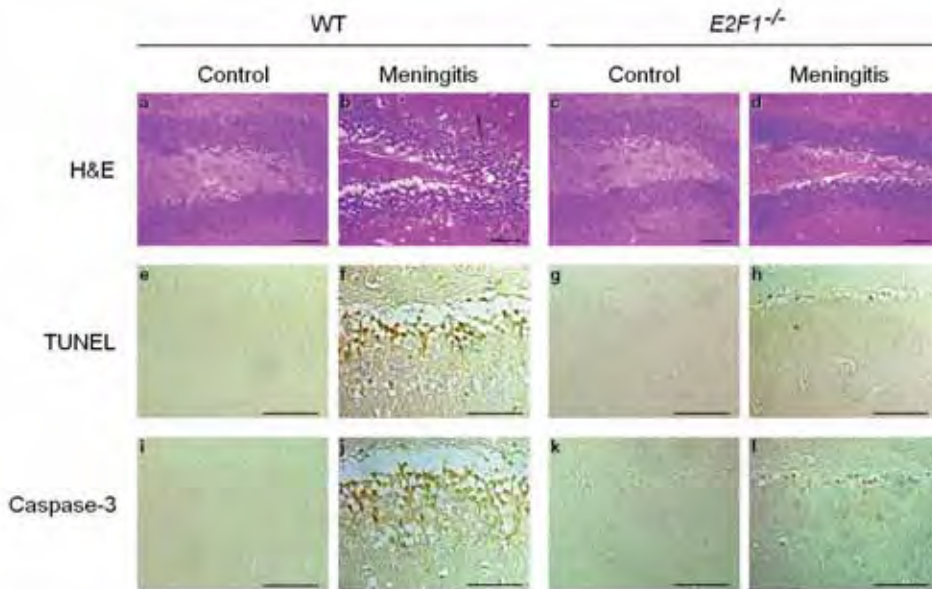
- Acute and chronic leukaemia
- Allergies
- Cardiovascular disease
- Chronic renal failure
- Consanguinity studies
- Dermatology
- Diabetes and metabolism
- Hypertension
- Nutrition and obesity
- Osteoporosis
- Population genetics
- Rheumatic disease
- Sleep apnea
- Thalassemia and sickle cell disease



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<sup>-/-</sup> 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<sup>-/-</sup> 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  $\mu$ m. (Provided by Prof. Braun.)*

## Articles in Peer-reviewed Journals

Abdulle AM, Pathan JY, Moussa N, Gariballa S. (2010). Association between homocysteine and endothelial dysfunction markers in stroke disease. *Nutritional Neuroscience* 13(1); 2-6.

Alkaabi JM, Mushtaq A, Al-Maskari FN, Moussa NA, Gariballa S. (2010). Hypokalemic periodic paralysis: A case series, review of the literature and update of management. *European Journal of Emergency Medicine* 17(1); 45-47.

Al-Samri MT, Al-Shamsi M, Al-Salam S, Marzouqi F, Al-Mansouri A, Al-Hammadi S, Balhaj G, Al-Dawaar SKM, Ruqayya SMS, Al-Hanjeri RSMS, Benedict S, Sudhadevi M, Conca W, Penefsky HS, Souid A-K. (2010). Measurement of oxygen consumption by murine tissues In Vitro. *Journal of Pharmacological and Toxicological Methods* Oct 27. (Epub ahead of print).

Al-Shamsi M, Al-Samri M, Al-Salam S, Conca W, Shaban S, Benedict S, Tariq S, Biradar A, Penefsky HS, Asefa T, Souid AK. (2010). Biocompatibility of calcined mesoporous silica particles with cellular bioenergetics in murine tissues. *Chemical Research in Toxicology* 23; 1796-1805.

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Alsowaidi S, Abdulle A, Zuberbier T, Bernsen R. (2010). Allergic rhinitis: Prevalence and possible risk factors in a Gulf Arab population. *Allergy* 65; 208-212.

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Braun JS. (2010). Ataxia, hypoaacusis, and dementia. *British Medical Journal* doi:10.1136/bcr.10.2009.2399. (On-line).

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

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Li K, Ichikawa S, Al-Dabbagh B, Bouhss A, Matsuda A. (2010). Function-oriented synthesis of simplified caprazamycins: Discovery of oxazolidine-containing uridine derivatives as antibacterial agents against drug-resistant bacteria. *Journal of Medicinal Chemistry* 53(9); 3793-3813.

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(2010). Bacterial transferase MraY inhibitors: Synthesis and biological evaluation. *Bioorganic & Medicinal Chemistry* 18(12); 4560-4569.

Marras TK, Mehta M, Chedore P, May K, Houqani MA, Jamieson F. (2010). Nontuberculous mycobacterial lung infections in Ontario, Canada: Clinical and microbiological characteristics. *Lung*. Aug;188(4); 289-299.

Obineche E, Abdulle A, Pathan J, Nagelkerke N. (2010). Plasma endothelin-1, homocysteine, and nitric oxide levels in a multiethnic hypertensive cohort from the United Arab Emirates. *Journal of Medical Sciences* 3; 153-159.

Saadi H, Al-Kaabi J, Afandi B, Al-Maskari F, Kazzam E, Nagelkerke N. (2010). Screening strategy for diabetes mellitus in the United Arab Emirates. *Asia Pac J Public Health* Jul 22(3 Suppl); 54S-59S.

Tanino T, Ichikawa S, Al-Dabbagh B, Bouhss A, Oyama H, Matsuda A. (2010). Synthesis and biological evaluation of muraymycin analogues active against anti-drug-resistant bacteria. *ACS Medicinal Chemistry Letters* 1(6); 258-262.

## Books, Chapters, Reviews and Editorials

Denic S, Nagelkerke N, Agarwal MM. (2010). On differing aspects and perception of consanguineous marriages. In: Jaworski JA (ed). *Advances in Sociology Research*. Volume 6. Nova Science Publishers, New York.

Gariballa SE. (2010). *Human Nutrition*, Geissler and Powers 12th Edition. Elsevier Churchill Livingstone, ISBN 0443073562, Volume 12, pp 342 - 350.

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Adrian TE, Gariballa S, Parekh KA, Thomas SA, Saadi H, Al Kaabi J, Nagelkerke N, Gedulin BR, Young AA. (2010). Can Diabetes be treated through the rectum? *Diabetologia* 53 (Suppl 1) S44.

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## Proceedings, Conferences, Invited Lectures and Others

Al-Dabbagh B, Barreateau H, Blanot D, Bostock J, Bouhss A, Chopra I, Crouvoisier M, Hervé M, Mengin-Lecreulx D, Olantunji S, Patin D, Touzé T. (2010). Recent advances in the study of the MurD, MurF, MraY, MurG and WecA enzymes. European Commission FP6 Program: Inhibition of new targets for

fighting antibiotic resistance (EUR-INTAFAR) 9th General Assembly. Paris, France. March.

Adrian TE, Gariballa S, Parekh KA, Thomas SA, Saadi H, Al Kaabi J, Nagelkerke N, Gedulin B, Young AA. (2010). The bile acid brake: A novel target for treating diabetes and obesity. 46th EASD Annual Meeting. Stockholm. 20-24 September.

Alkaabi J, Al-Dabbagh B, Ahmad S, Saadi H, Gariballa S, Al Ghazali M. (2010). Glycemic indices of five varieties of dates in healthy and diabetic subjects. 2nd Annual SEHA Research Conference. Abu Dhabi, United Arab Emirates. December.

Braun JS. (2010). Update cerebrospinal fluid diagnostics guidelines. ABx Program Meeting. Berlin, Germany.

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Denic S, Souid K-A, Nagelkerke N, Showqi S. (2010). Erythrocyte phenotypes in Emirati people with  $\alpha$ + Thalassemia. 15th Congress of the European Hematology Association. Barcelona, Spain. 10-13 June.

Gariballa S. (2010). Homocysteine and mental health in older patients: A randomised double-blind placebo-controlled trial. Platform presentation. BGS Edinburgh, UK.

Gariballa S. (2010). Role of nutrition in pathophysiology of cerebral ischaemia. 14th Congress of the European Federation of Neurological Society / World

Federation of Neurology. Geneva, Switzerland. 26 September. Kazzam E. (2010). Second World Heart Failure. Chandigarh, India. (Invited Faculty).

Kazzam E. (2010). Right ventricular failure. Second World Heart Failure. Chandigarh, India.

Kazzam E. (2010). Heart failure in the Middle East: Update and literature review. Second World Heart Failure. Chandigarh, India.

Kazzam E. (2010). Assessment of right ventricular function. Albert Einstein Medical Center. Philadelphia, Pennsylvania, USA.

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

Lobsien E, Gaus V, Schaumann A, Braun JS. (2010). Chronic otitis externa with lumbar mass and progredient vigilance reduction. 27th Congress of the German Society for Neurointensive and Emergency Medicine, Bad Homburg, Germany.

Saadi HF, Dawodu A, Bekdache G, Altaye M, Benedict S, Hollis BW. (2010). A randomized controlled trial of prenatal vitamin D supplementation to prevent vitamin D deficiency in mothers and their infants: interim results. Proceedings of the 92nd Annual Meeting of The Endocrine Society. San Diego, CA. June.

Saadi H. (2010). Lifestyle modification for morbid obesity: Is it effective? (2010). The second SKMC-Cleveland Clinic Annual Obesity Symposium. Abu Dhabi, United Arab Emirates. 16 Oct.

Saadi H. (2010). Screening strategy for diabetes in the UAE. (2010). 15th Annual workshop on diabetes mellitus. (2010). Faculty of Medicine and Health Sciences. Al Ain, United Arab Emirates.

Saadi H. (2010). Screening for diabetes: experience in the UAE.

(2010). Global health conference. Al Ain, United Arab Emirates. January.



## RESEARCH GRANTS

### FMHS Research Grants

Dr W Conca (PI)  
Impaired hepatocellular bioenergetics in concanavalin A-induced murine hepatitis. (2009-2010).

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.  
An interventional study of the effects of a healthy diet and physical activity on knowledge, attitude and health of obese Emirati subjects and their spouses. (2010-2012).

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)  
National survey of diabetes and  
its complications in the United  
Arab Emirates - Abu Dhabi Phase.  
(2010).

#### Others

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



# 2010

## Internal Medicine



*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*

# Department of Medical Education

## Research Profile

*Professor & Chair:*  
**Prof Mutairu Ezimokhai**

*Professor:*  
**Prof M McLean**

*Assistant Professor:*  
**Dr S Shaban**

*Medical Skills and  
Communication Lectures:*

**Ms G Kershaw**

**Dr R Benner**

**Mr M Campbell**

*Administrative Assistants:*

**Ms H Mansour**

**Mr CP Nair**

**Mr M Nazimuddin**

**Ms N Seifelnasr**

*Secretary:*

**Ms S LaI**

*Office Assistant:*

**Mr T Usman**

**MEDIA CENTER**

*AV Specialist:*

**Mr M Yassin**

*Graphic Designer:*

**Ms I Lizarriturri**

*Photographer:*

**Mr A Prasad**

*Reprographic Technician:*

**Mr M Aboobacker**

**SKILLS AND TEACHING  
LABORATORY**

*Clinical Skills Coordinator:*

**Ms M Sudhir**

*Laboratory Supervisor:*

**Mr K Unnikrishnan**

**Mr A Wahab**

*Laboratory Assistant:*

**Mr B Abubakkar**

**Mr S Pandian**

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

Al Shamsi M, Al Samri MT, Al Salam S, Conca W, Shaban S, Benedict S, Tariq S, Biradar A, Penefsky HS, Asefa T, Souid AK. (2010). Biocompatibility of Calcined Mesoporous Silica Particles with Cellular Bioenergetics in Murine Tissues. *Chemical Research in Toxicology*. Accepted 2010.

Jaber L, Shaban S, and Hariri D. (2010). Oral cancer prevention and early detection: Knowledge and practice among Saudi Arabian healthcare practitioners. *International Journal of Health Care Quality Assurance*. (Accepted for publication Jan 2010).

Jaber L, Shaban S, Hariri D, and Smith S. (2010). Perceptions of healthcare practitioners in Saudi Arabia regarding their training in oral cancer prevention, and early detection. *International Journal of Health Care Quality Assurance*, 2010;24(1).

McLean M, Al Ahababi S, Al Ameri M, Al Mansoori M, Al Yahyaie F, Bernsen R. (2010). Muslim women and medical students in the clinical encounter: A United Arab Emirates study. *Medical Education*, 44; 306-315.

McLean M, Gibbs T. (2010). Twelve tips to designing and implementing a learner-centred curriculum: Prevention is better than cure. *Medical Teacher* 32; 225-230.

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McLean M. (2010). How to professionalise your practice as a health professions educator. *Medical Teacher* 32; 953-955.

Shaban S, Marzouqi F, Al Mansouri A, Penefsky HF, Souid AK. (2010). Oxygen measurements via phosphorescence. *Computer Methods and Programs in Biomedicine*, 100:3, December 2010.

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McLean M, Shaban S. (2010). Development of transferable skills: A three-year study of first year Emirati medical students. Association of Medical Education in Europe, 4-8 September, Glasgow.

McLean M. (2010). Transferable Skills: A Gulf Perspective. First Zayed University Conference on Learning and Teaching in the Gulf. Dubai, UAE, 18 March 2010.

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

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McLean M. (2010). You are nothing without effective faculty: The importance of faculty development. Damascus University, Syria, 23-25 October 2010.

Prinsloo EAM, Hashim J, Raasch

B, Major S, McLean M. (2010). Implementing an online portfolio with a reflective component as formal requirement in a Family Medicine Clerkship: Achievements and challenges. The Network: TUFH Conference, 13-17 November 2010, Kathmandu.

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). A curriculum management system for integrated medical education. International Conference in Medical Education, Abu Dhabi, UAE, December 2010.

Shaban S. (2010). The design and development of a medical school curriculum management system. International Conference on Education, Training and Informatics, Orlando, USA, April 2010.

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.



# 2010

## Medical Education



*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 Lizarriturri, Ms S  
Lal, Ms Sudhir.*

*Absent: Mr A Wahab, Mr B  
Abubakkar.*

# Department of Medical Microbiology & Immunology

## 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 led to high-quality publications in top journals such as Nature Structural and Molecular Biology (Dr

*Professor & Chair*

**Prof Basel al-Ramadi**

**Prof M Lukic\***

*Professor*

**Prof S Dissanayake**

**Prof T Pal**

**Prof T A Rizvi**

*Associate Professor*

**Dr G Khan**

*Assistant Professor*

**Dr A Al-Qahtani**

**Dr M Al-Shamsi**

**Dr A Sonnevend**

*Medical Research Specialist*

**Ms L M Ali**

**Ms A Al-Ghazawi**

**Mr A Al-Haj**

**Ms M Ibrahim**

**Ms P S Philip**

**Mr A Shahin**

*Medical Research Technician*

**Ms G Bashir**

*Medical Secretary*

**Ms M Dawood**

*Office Assistant*

**Mr H Mohammed**

\*Departed in October 2010

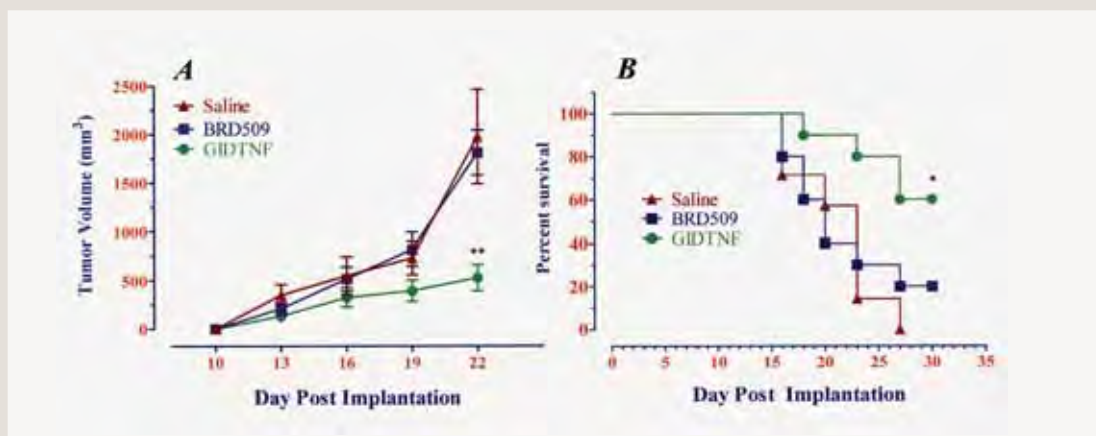
Al-Qhatani), Cancer Cell (Dr Khan) and Arthritis and Rheumatism (Dr Al-Shamsi).

**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- $\kappa$ B and signaling effects and mechanisms leading to IFN- $\gamma$  and IL-6

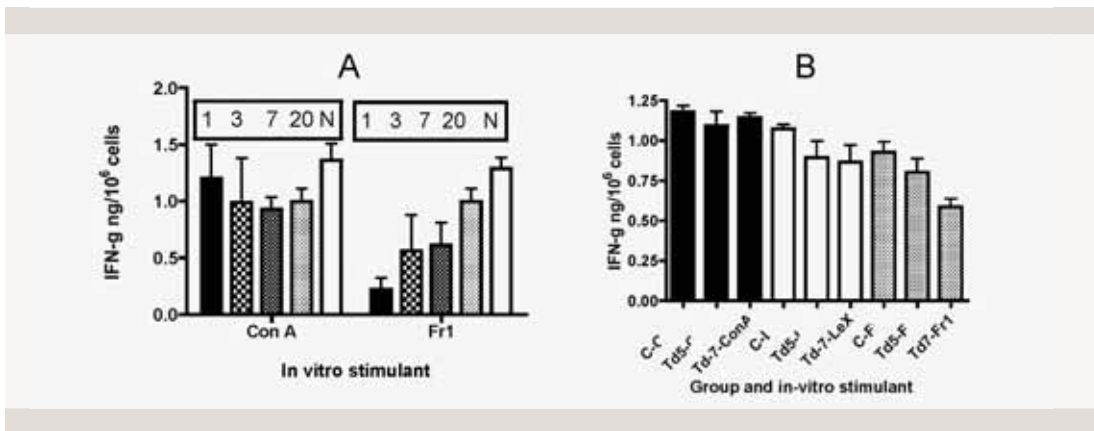
expression. With respect to IFN- $\gamma$ , one specific area of research is negative regulation of TLR signaling. Long-term objective is development of synthetic immunoadjuvants with defined Th-1 and Th-2 immunomodulatory properties. Based on the previous finding (Figure 2) that terminal  $\beta$ -(1-4) galactose residues on GlcNAc backbones is an epitope regulating IFN- $\gamma$  (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- $\alpha$ . Mice were implanted s.c. with B16 melanoma cells and 13 days later tumor-bearing mice were given an oral inoculum of  $4 \times 10^8$  CFUs/mouse of either attenuated *Salmonella* (strain BRD509) or TNF- $\alpha$ -expressing recombinant *Salmonella* strain (designated GIDTNE). Growth of tumor (A) and animal survival (B) were subsequently followed for up to 30 days. Each data point represents the mean  $\pm$  SEM of 10 mice per group. Asterisks denote statistically significant differences from saline control group (\*\*,  $p < 0.01$ ; \*,  $p < 0.05$ ).*



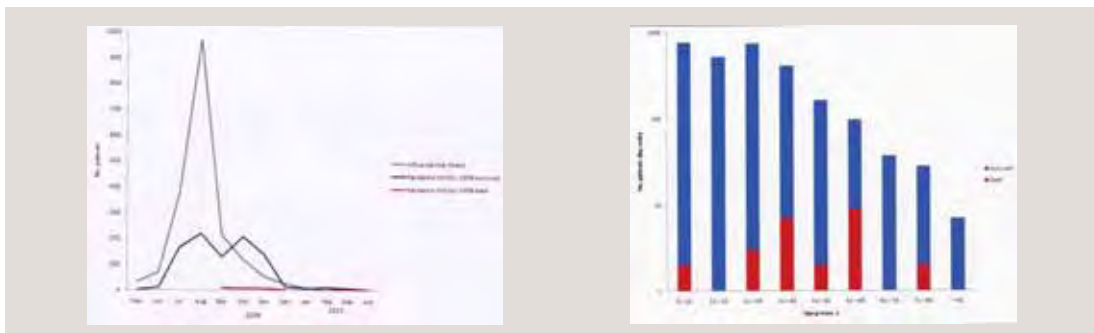
**Figure 2**

**A:** Pre-stimulation abolishes *Taenia glycan* Fr1 induced IFN- $\gamma$  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= naive animals. ■ = Naive cells + Con A; ▼ = Naive 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- $\gamma$  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, Td-7 Con A: *Taenia* Fr1 oral fed day 7 + Con A, C-Lex: 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-Fr 1: 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.

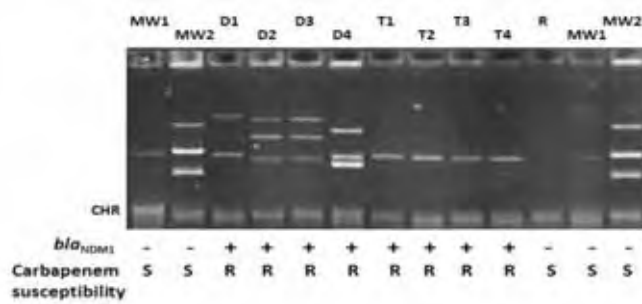
its oncogenic properties and it is associated with a number of human malignancies of both epithelial and lymphoid origin. We are trying to understand the role of some of the viral latent products in regulating latency, inhibition of apoptosis and cell proliferation. Other ongoing projects in my laboratory 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-



**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).



**Figure 4.** Conjugal transfer of New Delhi Metallo-beta lactamase gene-carrying plasmids from clinical isolates of *Escherichia coli* and *Klebsiella pneumoniae*. Lane designation is as follows: MW1 and 2: Plasmid molecular weight markers; D1-D4: clinical isolate plasmid donors; T1-T4: transconjugants; R: recipient. Carbapenem S and R: Carbapenem susceptible and resistant; *bla*<sub>NDM1</sub>: New Delhi metallo-beta lactamase gene (as detected by PCR)

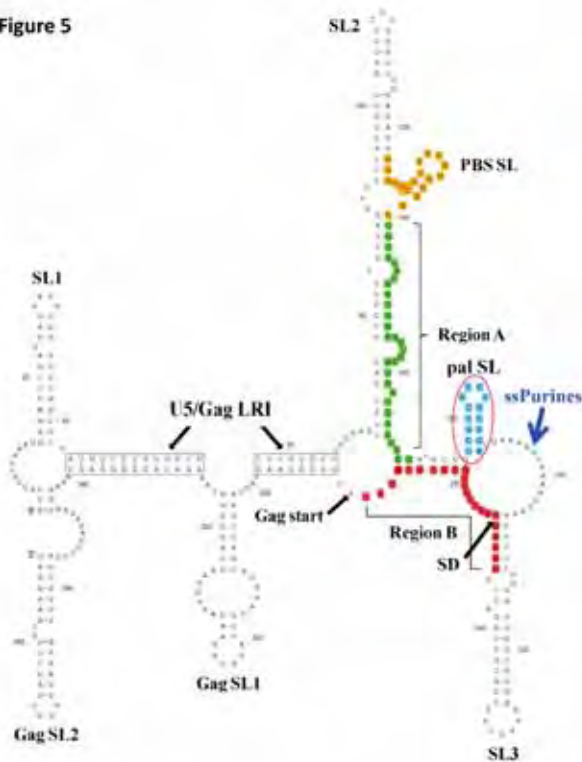
zymes called metallo-beta lactamases. Recently, the almost unprecedented fastness of spread of one of these genes (*bla*<sub>NDM-1</sub>) among enteric bacteria caused worldwide concerns. We found the same genes in *Acinetobacter*, as well as have shown that it is easily transferable, albeit with an unknown mechanism (Fig. 4). We believe that these efforts will lead to a better understanding, and hence better control and prevention of antibiotic 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).

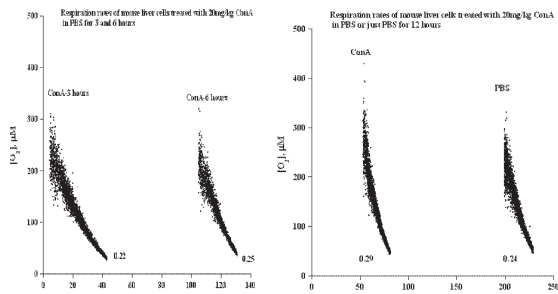
**Dr. Ahmed Al-Qahtani's** research interests comprise of studying the mechanism of autoimmunity, antibodies diversity and stem cell role in bio regenerative medicine.

**Dr Mariam Al-Shamsi's** main research activity is in the area of inflammation and autoimmuni-

**Figure 5**



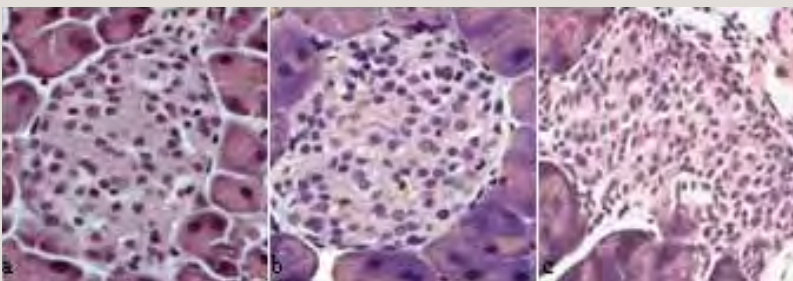
**Figure 5:** RNA secondary structural model of the 5' end of MPMV RNA genome recently proposed by Prof. Rizvi's group (Jaballah et al., *J. Mol. Biol.*, 401: 996-1014, 2010). The region used for folding predictions included sequences from R up to 120 nt of Gag and the structure was predicted by computer modeling using Mfold, which uses free-energy minimization algorithms ( $\Delta G = -124.70$  kcal/mol). The Mfold predicted structure redrawn using XRNA program showing five conserved stem loops (SLs) and two possible U5/Gag LRI regions, a 14-nt G-C-rich palindromic (pal) sequence, which acquires a stem loop motif labeled as pal SL, and a noticeable single stranded purine rich (ssPurine-rich) sequence. Sequences in orange, green, red, and blue represent the primer binding site (PBS), region A, region B, and pal sequences, respectively. Boxed area in purple show the predicted LRIs between U5 and Gag. SD, splice donor.



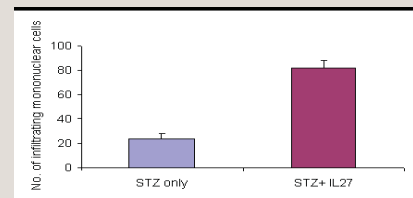
**Figure 6** showing measurement of oxygen consumption by liver pieces of C57BL/c mice collected 3, 6 and 12 hours following treatment with 20mg/kg of ConA or PBS alone. The figures clearly show significant enhancements in O2 consumption in pieces of liver tissues in Con A-treated mice over time.

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 sites, 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.

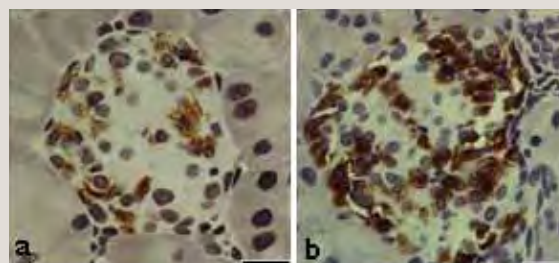


**Figure 7/2** a. a micrograph showing H&E stained paraffin sections of an islet from an untreated mouse, b. treated with STZ only and, c. treated with STZ+IL-27.

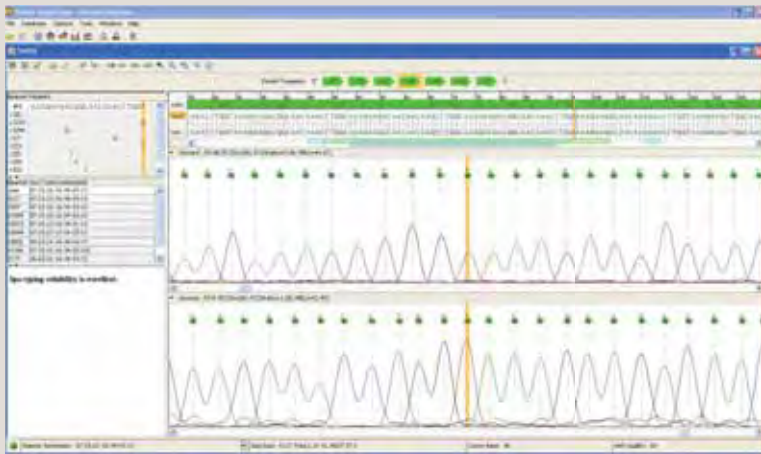


**Figure 7/1** Average number of infiltrating cells counted in islet of similar sizes of STZ only or STZ+IL-27.

**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 ( $40 \pm 7$ ) (b) when compared with islets of control mice treated with STZ only ( $22 \pm 6$ ) (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*

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Conlon JM, Ahmed E, Pal T, Sonnevend A. (2010). Potent and rapid bactericidal activity of alyteserin 1c and its [E4K] analog against multidrug resistant strains of *Acinetobacter baumannii*. *Peptides*, 31; 1806-10.

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*nol.* 228(1/2); 163-164.

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cells. Experimental Biology 2010, Anaheim, CA, USA. (April 24-28, 2010).

Fernandez-Cabezudo MJ, Azimullah S, Al-Barazie R, Lorke D, Shehab S, Hasan M, Petroianu G, al-Ramadi BK. (2010). Differential Immunoregulatory Effects of Two Organophosphate Compounds, Diisopropyl fluorophosphates and Paraoxon, on the Host's Response to Infection. 50th Annual Meeting of the American Society for Cell Biology, Philadelphia, PA, USA (December 11-15, 2010).

Issa, B., I.M. Obaidat, S. Qadri, B. al-Ramadi, Haik Y. (2010). NMR Relaxation of Mn<sub>0.5</sub>Zn<sub>0.5</sub>GdxFe(2-x)O<sub>4</sub> Hyperthermia Nanoparticles: Effects of Coating. Joint Annual Meeting of the International Society for Magnetic Resonance in Medicine and the European Society for Magnetic Resonance in Medicine and Biology (ISMRM-ESMRMB), Stockholm, Sweden (May 1-7, 2010).

Julia K, Tanner S, Legiewicz M, Philip PS, Rizvi TA, Grice SL, Lever A. (2010). High-throughput SHAPE analysis of FIV packaging signal structure and RNA dimerization. Presented at the spring meeting of the Society for General Microbiology, Edinburgh, 2010.

Khan G, Al-Mutawa J, Hashim J. (2010). Pandemic 2009 H1N1 influenza one year on: Abu Dhabi, UAE. NZMS & NZSBMB Annual Meeting, Auckland, 30 Nov - 3 Dec 2010.

Pál T, Sonnevend Á, Gazali A, Al-Mounthari N, Al-Haj M, M Ibrahim, Belal SE. (2010). Characterization of sporadic and outbreak strains of *Acinetobacter baumannii* isolated in Abu Dhabi hospitals - 12th WPCCID Singapore, 2010

Pál T. (2010). Detection of antimicrobial resistance in low-resource settings. Meet the expert session, ECCMID, Vienna, 2010.

Pál, T. (2010). Management of Gram-Negative MDRO – Extended Spectrum Beta Lactamase Producing Bacteria (ESBL), *Acinetobacter* - Abu Dhabi Medical Congress 2010.

Pál, T. (2010). Molecular detection of pathogenic microorganisms – Arab Health, Dubai, 2010.

Pál, T. (2010). Antibiotic Resistance in Developing Countries - Abu Dhabi Medical Congress 2010.

Sonnevend A. (2010). Community Acquired vs. Hospital Acquired MRSA How different they are? , 6th Middle East Infection Control Conference, Abu Dhabi, October 2010.

Sonnevend A. (2010). Recent Advances in Molecular Typing of Pathogens, Arab Health Congress, 2010, Dubai

Sonnevend, Á, El-Kurd S, Alkaabi M, Al-Haj M, Gazawi A, Akawi N, Pal T. (2010). Prevalence of the ST131 clone among extended spectrum beta-lactamase producing urinary tract *Escherichia coli* isolates in the United Arab Emirates - 12th WPCCID Singapore, 2010



## 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.

Prof Tahir Rizvi (PI) Role of palindromic (pal) sequence(s) in mouse mammary tumor virus (MMTV) RNA dimerization and packaging.

### UAE University Seed Grant

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

### UAU 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.

Dr Gulfaraz Khan (PI) Role of EBV-LMP-1 and EGFR gene expression in Emirati breast cancer.

### UAU 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.

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

**National Research Foundation Grant**

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

Prof Tahir A. Rizvi (PI)  
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)  
Fine Mapping of Sequences Important for Mason Pfizer Monkey Virus (MPMV) RNA Packaging

and their Mechanism of Action: Implications for the Development of MPMV Vectors for Human Gene Therapy.

**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



*Standing left to right:  
Prof Basel al-Ramadi, Prof Tibor Pal, Prof Miodrag Lukic, Dr Gulfaraz Khan, Prof Senarath Disanayake.*

*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.*

# Department of Obstetrics & Gynaecology

## Research Profile

*Associate Professor  
& Acting Chair*

**Dr H Mirghani**

*Associate Professor*

**Dr J Bodner**

*Assistant Professor:*

**Dr H Elbiss**

**Dr SJ George**

*Medical Research Specialist*

**Mrs. FD Lone**

**Dr. N Osman**

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

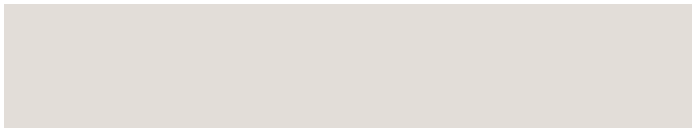
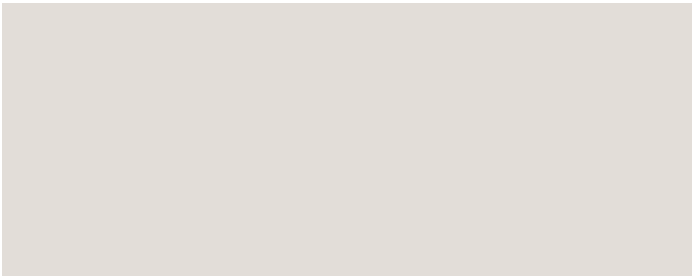
- Urogynecology.
- In-vitro human placenta perfusion.
- Minimal access surgery

**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

Alshami HA, Kadasne AR, Khalfan M, Iqbal SZ, Mirghani HM. (2010). Pregnancy outcome in late maternal age in a high-income developing country. *Arch Gynecol Obstet*. 2010 Dec 28. [Epub ahead of print]

Bekdache GN, Begum M, Al-Gazali L, Ali BR, Akawi NA, Mirghani H. (2010). Prenatal diagnosis of thanatophoric dysplasia and obstetrical challenges. *J Obstet Gynaecol*. 2010;30(6):628-30.

Begam M, Bekdache GN, Murthy SK, Mirghani HM. (2010). Double aneuploidy of trisomy 18 and Klinefelter syndrome: prenatal diagnosis and perinatal outcome. *J Perinat Med*. 2010 Sep;38(5):565-6.

Bodner K, Wierrani F, W, Bodner-Adler B. (2010). Influence of the mode of delivery on maternal and neonatal outcomes: a comparison between elective cesarean section and planned vaginal delivery in a low-risk obstetric population. *Arch Gynecol Obstet* 2010 May 27 (Epub ahead of print)

Bodner K, Laubichler PKimberger O, Czerwenka K, Zeillinger R, Bodner-Adler B. (2010). Oestrogen and progesterone receptor expression in patients with adenocarcinoma of the uterine cervix and correlation with various clinicopathologic parameters. *Anticancer Research* 30(4):1341-1345.

Bodner K, Laubichler P, Kimberger O, Czerwenka K, Zeillinger R, Bodner-Adler B. (2010). Expression of p16 protein and epidermal growth factor receptor in patients with adenocarcinoma of the uterine cervix: an immunohistochemical analysis. *Arch Gynecol Obstet* 2010 Apr 20 (Epub ahead of print)

Bodner K, Bodner-Adler B, Gruenberger W. (2010). Evaluation of the contraceptive efficacy, compliance, and satisfaction with the transdermal contraceptive patch system EVRA: a comparison between adolescent and adult users.

Arch Gynecol Obstet 2010 Jan 29 (Epub ahead of print)

Elbiss HM, Thomson AJM, Moran PA. (2010). How useful are the BSUG database outcome criteria: Validation using the MESA questionnaire. Journal of Obstetrics and Gynaecology, 2010; 30(7):716-720.

Hamdan MA, Begam M, Mirghani HM. (2010). Inseparable thoracophalopus twins. Pediatr Cardiol. 2010 Nov;31(8):1252-3.

Hamdan MA, El-Zoabi BA, Begam MA, Mirghani HM, Almalik MH. (2010). Antenatal diagnosis of pompe disease by fetal echocardiography: impact on outcome after early initiation of enzyme replacement therapy. J Inherit Metab Dis. 2010 Sep 4. [Epub ahead of print]



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

Bodner K. (2010). Oestrogen and progesterone receptor expression in patients with adenocarcinoma of the uterine cervix and correlation with various clinicopathologic parameters. XIX. Wissenschaftliche Tagung der Arbeitsgruppe Gynäkologische Onkologie (AGO), 8. Österreichischer Kongress KREBS BEI DER FRAU (Austrian Gynecologic Oncology Conference), Salzburg, Austria.

Bodner K. (2010). Expression of p16 protein and epidermal growth factor receptor in patients with adenocarcinoma of the uterine cervix: an immunohistochemical analysis. Jahrestagung 2010 der OEGGG (Annual meeting of the Austrian Society for Obstetrics and Gynecology), Zell am See, Austria.

Bodner-Adler B, Bodner K. (2010). Report of 2 maternal mortalities with different modes of delivery due to H1N1 2009 influenza virus

infection during third trimester pregnancy in United Arab Emirates. Jahrestagung 2010 der OEGGG (Annual meeting of the Austrian Society for Obstetrics and Gynecology), Zell am See, Austria.

Mirghani H, Bekdache G, Begam M, Khan F. (2010). Pregestational diabetes mellitus: A need for a fetal clinic. 5th Gulf International Congress in Obstetrics & Gynaecology. Jeddah, Saudi Arabia.

Mirghani H. (2010). Effect of maternal fasting during Ramadan on the fetus. 5th Gulf International Congress in Obstetrics & Gynaecology. Jeddah, Saudi Arabia.

Mirghani H, Bekdache G, Begam M, Khan F. (2010). Fetal measurements and growth in pregestational diabetes mellitus. 20th World Congress on Ultrasound in Obstetrics and Gynecology, Prague, Czech Republic.

Mirghani H. (2010). Intrauterine fetal blood transfusion. 6th International Scientific meeting of the International Society for Ultrasound in Obstetrics and Gynecology, Cairo, Egypt.



# 2010

Obs & Gyn

# Department of Paediatrics

## 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 neuro-genetics) (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-pachygyria associated with agenesis of corpus callosum was characterized, a severe form of a syndrome of myotonia and bone dysplasia [Stüve-Wiedemann Syndrome (SWS)] was identified to be common in the population of the UAE. Founder mutation in the Leukemia inhibitory factor receptor (LIFR) was found in all families affected with SWS in this population. A birth defect registry for Al Ain Medical District was established by the department, which has gained membership of the International Clearing House for Birth Defects. Several studies from this register were published identifying the incidence and pattern of the various types of birth defects in this population together with establishing risk factors involved in their etiology.

- In addition, the group has been investigating the reasons why some anti-epileptic drugs (vigabatrin, lamotrigine) ingested by women during pregnancy cause neural tube and other defects. Departmental researches have already established that these drugs are teratogenic. It

was established that methionine was 5 times lower in embryo of treated pregnant mice than in non-treated controls. Studies are ongoing to determine the impact of folic acid and vitamin B12 supplementation on the frequency of occurrence of anomalies in animal models.

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

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

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

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

#### **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 anti-microbial 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 detected 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 GS-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)**

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screening test. Newborn screening meeting, Dubai. UAE

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## 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.

Drs. Hassib Narchi (PI), D Ghomeim, A Skinner, P Coggins. Texture analysis of white matter flaring areas on neonatal cranial ultrasound scans.

Dr S Al-Hamadi Atopic Dermatitis in Children: Importance of Food sensitization.

### UAE University Interdisciplinary Grant

Professor L Al-Gazali (PI) Homozygosity 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-

dulrazzaq, N Nagelkerke.  
National Survey of children with Down syndrome and its associated problems.

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- 2years.

#### 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.



# 2010

## 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.*



# Department of Pathology

## Research Profile:

*Professor & Chair:*  
**Prof M Agarwal**  
*Associate Professor:*  
**Dr A Castella**  
**Dr B Ali**  
**Dr S Al Salam**  
*Assistant Professor:*  
**Dr A Al Bawardi**  
**Dr S Almarzooqi**  
*Medical Research  
Specialist:*  
**Ms A J Mathew**  
**Ms M Sudhadevi**  
*Medical Secretary:*  
**Ms K Al Ghanem**  
*Office Assistant:*  
**Mr M Hashiq**

**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.

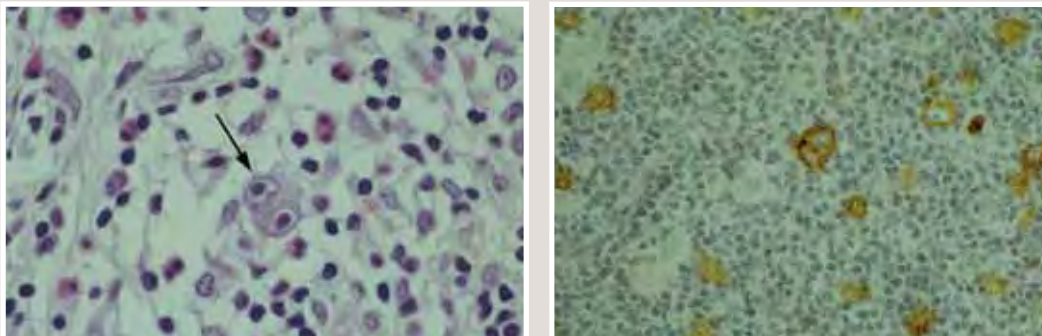
The aim of this study was to analyze the distribution of the various pathologic types of lymphoma in a native Arab population of the UAE. More than 200 native patients with lymphoma were studied. The cases were examined morphologically and immunohistochemically with an extensive panel of monoclonal antibodies, 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

### 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).



**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).

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)**

**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-associated degradation diseases. In addition, we are exploring ways of manipulation ER quality control for potential therapy of such diseases.

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

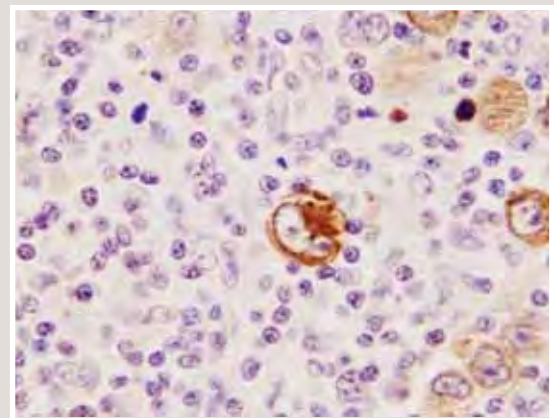
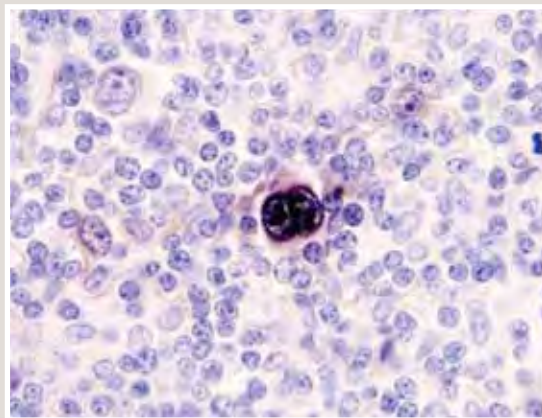
**1. Expression of EBV in Hodgkin Lymphoma among UAE nationals.**

The epidemiology of Hodgkin's lymphoma (HL) shows wide geographic variation in histological subtypes and in its association with the Epstein-Barr virus (EBV). The proportion of EBV positive HL is low in industrialized countries, high in non-industrialized countries and intermediate in early-industrialized countries. Reports from the Arabian Gulf and Middle East are few. The aim of our study was to determine the epidemiology of HL in The population of United Arab

**estrogen receptors and progesterone receptors expression.**

Breast carcinoma is the most common malignant tumor and the leading cause of cancer death in women all over the world. It is the commonest cancer among UAE population and the most common cancer among females .The age specific incidence ratio for females in UAE was 19.4 per 100,000 population. It is currently estimated that 5–10% of all breast cancers are hereditary and attributable to mutations in several high penetrance susceptibility genes, of which only two have been identified BRCA1 and BRCA.2. Earlier estimates suggested that BRCA1 and BRCA2 mutations were responsible for 75% of site-specific breast cancer families and the

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



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,**

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

#### **4. Role of Galectin 1, 3 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-1 $\alpha$ 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-1 is a transcription factor and its over expression 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-1  $\alpha$ , 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-1  $\alpha$  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.
2. Compare Ki67 staining in vocal cord dysplasia to histopathologic grading system of mild, moderate and severe dysplasia.
3. SLEEVE gastrectomy specimens are becoming increasingly common in the era of obesity epidemic. In many cases the patients are also found to be positive to H pylori. There is a need to estimate how many of those cases are positive and if this percentage is big enough to mandate change in lab policy by providing H pylori special stain as a routine procedure on every SLEEVE gastrectomy specimen.

#### **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.

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## 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.  
Prevalence of Human papilloma virus and expression of E6, E7, p16, p53, pRb, ki-67 and bcl2 in uterine cervical cancers in a population of United Arab Emirates nationals.

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

Terry Fox Fund for Cancer Research  
Drs M Cabezudo (PI), H El-Salhat, H Taji, M Jalloudi, S Al Salam, M Rincon, Prof B al-Ramadi.  
Novel resistance biomarkers in human breast cancer.

### National Research Foundation Grant

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

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.

### Emirates Foundation Grant

Drs Al Salam (PI), M Bashir, M Jaloudi.  
Could Galectin-1 and 3 play a role in breast carcinoma chemoresistance?

Drs S Bastaki (PI), BR Ali, Prof Y Abdulrazzaq.  
Acetylation genotyping of UAE nationals.

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.



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 Khaula Al Ghanem*

# Department of Pharmacology

## Research Profile

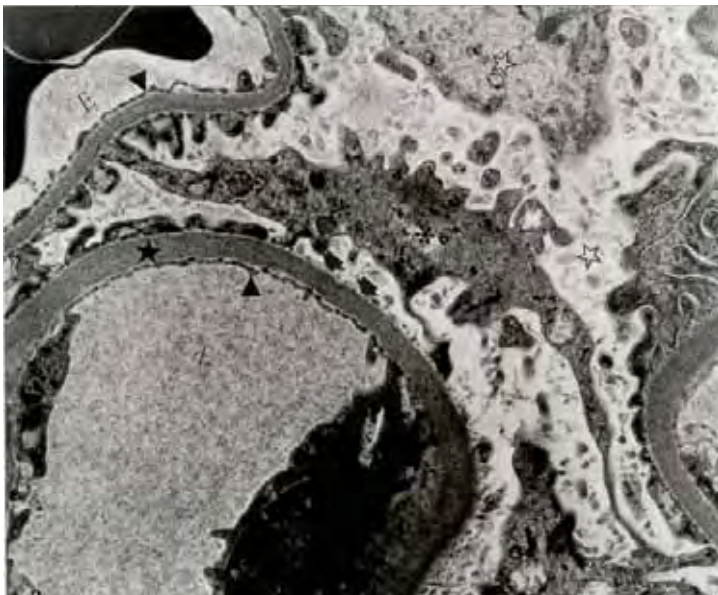
The Pharmacology Department has special interests in Diabetes and Degenerative Diseases, Neuroscience, Clinical Toxicology, Gastroenterology and Oncology. The research is done with state of the art equipment in purpose-built laboratories with good technical and other support.

### **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



*Professor & Chair:*

**Prof A Adem**

*Professor:*

**Prof MY Hasan**

*Associate Professors:*

**Dr S Attoub**

**Dr S Bastaki**

**Dr M Oz**

*Medical Research Specialist:*

**Ms N Amir**

**Ms K Arafat**

**Mr S Dhanasekaran**

**Dr SM Nurulain**

**Mr A Shamsulisam**

*Medical Secretary:*

**Ms S Duncan**

*Office Assistant*

**Mr S. Alikutty**

*Central Facilities (Animal House)▣*

*Medical Research Specialist*

**Dr M Al Sultan**

**Mr M Shafiullah**

**Mr M El Wasila**

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 Gastric acid and Ulcer formation in the rat in vivo and in vitro (manuscript in preparation). In the near future we are planning to study the effect of stress on the mucosa of FSL and FRL rats and the healing rate of alcohol-and indomethacin-induced ulcers in the same rats.

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

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

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

The effects of knockdown of Akt-1, -2 or -3 on cellular survival will be determined by cellular viability, DNA fragmentation, cell cycle and TUNEL assays, caspases activity, PARP cleavage, cytochrome-c release and expression of pro- and anti- apoptotic proteins. The impact of Akt-1, -2 or -3 silencing on invasion will be investigated using the collagen type I and the chick heart invasion assays, cell-cell and cell-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.

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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.

## RESEARCH GRANTS

### FMHS New grant

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

Dr Samir Attoub.  
Investigation of IKK $\alpha$  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 Fronodoside 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

# 2010

Pharmacology



*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*



# Department of Physiology

## Research Profile

<i>Professor &amp; Chair:</i> <b>Prof TE Adrian</b>	<b>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.</b>
<i>Professor:</i> <b>Prof M Fahim</b>	
<b>Prof C Howarth</b>	
<b>Prof W Lammers</b>	
<b>Prof M Ljubisavljevic</b>	
<i>Associate Professor:</i> <b>Dr A Nemmar</b>	
<i>Medical Research</i>	
<i>Specialist:</i> <b>Mr J Oommen</b>	
<b>Ms K Parekh</b>	
<b>Mr A Qureshi</b>	
<b>Ms B Stephen</b>	
<b>Ms S Zia</b>	
<i>Medical Research</i>	
<i>Technician:</i> <b>Ms GA Kanu</b>	
<b>Ms SA Thomas</b>	
<i>Secretary:</i> <b>Mr P Rajagopalan</b>	
<i>Office Assistant:</i> <b>Mr Saeed C</b>	

### **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.

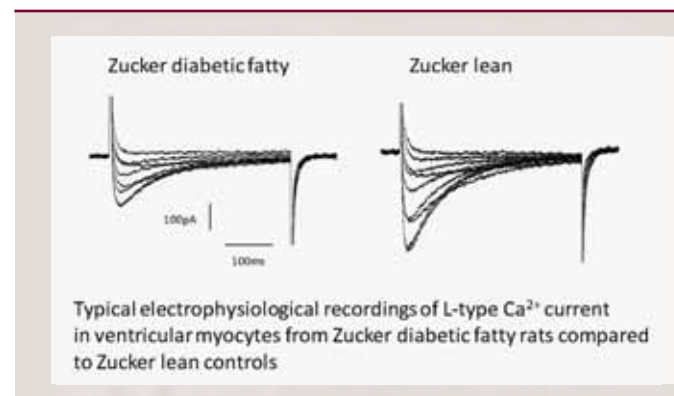
#### Aging and neurodegenerative disorders

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 electronmicroscopy techniques are used in combination to focus on changes in muscular performance in these conditions. It is hypothesised that free radicals are involved in these nerve injuries and

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

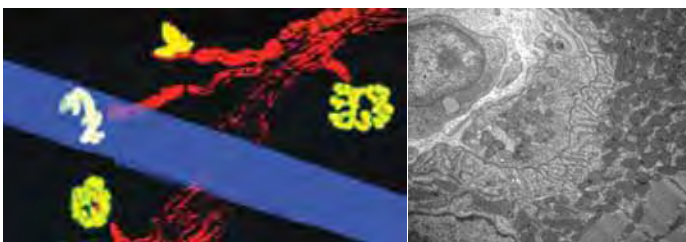
Professor Chris Howarth (Physiology) and Dr Murat Oz (Pharmacology) are in the process of establishing an Electrophysiology Centre in FMHS. This multidisciplinary centre has a wide variety of technical capabilities which include tissue culture; cell isolation; in vivo biotelemetry; hemodynamic and electrophysiology in isolated perfused heart; patch clamp, micro-electrode, 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 AI 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.

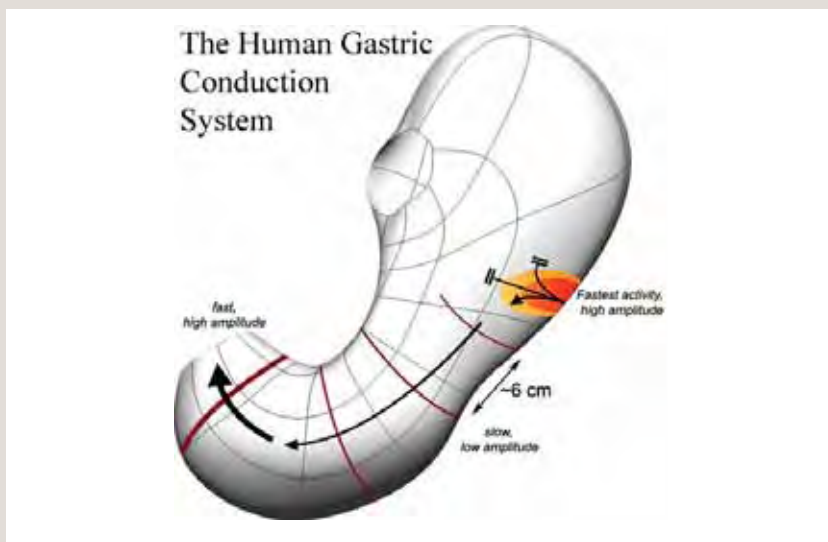


This work, that was performed on patients at the University of Auckland, New Zealand, is the first demonstration of the location of the stomach pacemaker and the propagation of the electrical impulse, the slow wave, through the distal fundus, the corpus and the antrum. We had described last year similar 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

propagation of the slow wave in diabetic small intestine of the rat. In this study, we show that in spite of a reduction of Interstitial Cells of Cajal at 3-months diabetes, there is no effect on the propagation of the slow wave. However, we recently discovered in this model the occurrence of functional re-entries in these small intestines, which could be the substrate for functional bowel obstruction. We hope to report this in more detail in next year's edition.

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

**Figure:**  
Description of the human gastric conduction system with a) high amplitude isotropic propagation in the pacemaker area, b) slow propagation in the corpus and c) fast propagation in the antrum. In addition, there are simultaneously present at least 4 different propagating wave fronts in the stomach as indicated by the brown lines. G O'Grady et al Am J Physiol Gastrointest Liver Physiol 299: G585-92, 2010



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 Fayez 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

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.

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  $\mu\text{m}$  contributes to respiratory and cardiovascular morbidity and mortality.

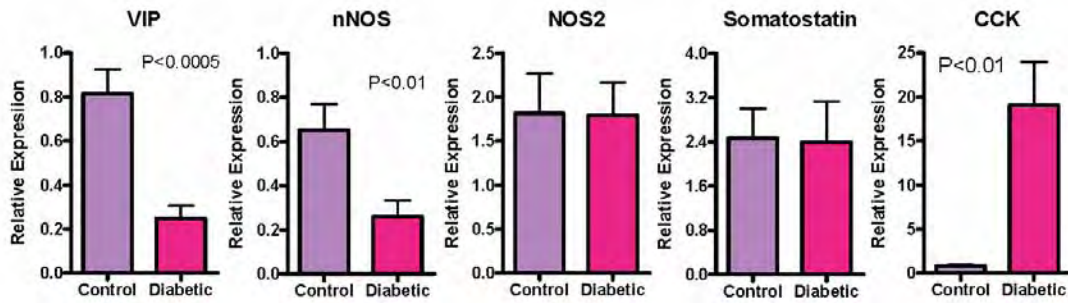
Diabetes, hypertension and renal failure are considered as major health problems in the UAE and the world at large. Not only the medical complications life-threatening but the cost of treatment is imposing enormous and increasing strains on national health budgets. In my laboratory we are studying mechanisms 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 technolo-

gies 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, TiO<sub>2</sub>, FeTiO<sub>2</sub>, 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.



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

Early changes in expression of several genes, including calpain 3, and several crystallins, in the retina have been seen in three different models of diabetes in the rat. Changes in expression of these genes are likely to be involved in the pathophysiology of glaucoma and diabetic retinopathy.

### 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

Enteroendocrine L-cells produce glucagon gene products (GLP-1 and oxyntomodulin) as well as PYY. All are satiety factors. GLP 1 is also an incretin. The number of L-cells and hormonal contents increases distally through the gut

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

## Articles in Peer-reviewed Journals

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Cheon EC, Strouch MJ, Barron MR, Ding Y, Melstrom LG, Krantz SB, Mullapadi B, Adrian K, Rao S, Adrian TE, Bentrem DJ, Grippo PJ. (2010). Alteration of strain background and a high omega-6 fat diet induces earlier onset of pancreatic neoplasia in EL-Kras transgenic mice. *Int J Cancer*. [Epub ahead of print] PMID: 20725998.

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Roginsky AB, Ding XZ, Woodward C, Ujiki MB, Singh B, Bell RH Jr, Collin P, Adrian TE. (2010). Anti-pancreatic cancer effects of a polar extract from the edible sea cucumber, *Cucumaria frondosa*. *Pancreas* 39:646-52.

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## Books, Chapters, Reviews and Editorials

Mantilla CB, Fahim MA, Sieck GC. (2010). Functional Development of Respiratory Muscles, Fetal and Neonatal Physiology [in press]

## Published Abstracts, Letters and Correspondence

Adrian TE, Gariballa S, Parekh KA, Thomas SA, Saadi H, Al Kaabi J, Nagelkerke N, Gedulin B, Young AA. (2010). The Bile Acid Brake: A Novel Target for Treating Diabetes and Obesity. *Diabetes* 59 (Supplement 1) A164.

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Egbuji JU, O'Grady G, Du P, Chen LK, Lammers WJEP, Windsor JA, Pullan AJ. (2010). High resolution mapping of regional variations in porcine gastric slow wave activity. *Gastroenterology* 138/5, S2073.

Fahim MA, Karam S, al-Ramadi B. (2010). Ghrelin enhances the regenerative potential of stem cells. *FASEB J*, 24: 1008.

Khan G, Rizvi TA, Blair I, Adrian TE. (2010). Risk of blood-borne infections in barber shops. *J Infect Public Health*. 3:88-9, Epub PMID: 20701897.

Lammers WJ, Al-Bloushi HM, Al-Eisaei SA, Al-Dhaheeri FA, Stephen B, John R, Dhanasekaran S, Karam SM. (2010). ICC and Slow Wave Propagation in the Small Intestine of Diabetic Rats. *Gastroenterology* 138/5, S2067.

Lammers WJEP, Ver Donck L, Stephen B, Smets D, Schuurkes JAJ. (2010). Initiation and propagation of secondary waves in the canine stomach in vivo. *Gastroenterology* 138/5, W1937.

Nemmar A, Al-Dhaheeri A, Marzouqi A, Zia S, Dhanasekaran S, Al-Salam S, Kazzam EE. (2010). Acute cardiovascular effects of pulmonary exposure to diesel exhaust particles: Protective effect of thymoquinone. *European Respiratory Society Conference, Barcelona, Spain, 18-22 September 2010. European Respiratory Journal*, No. 2543.

O'Grady G, Angeli TR, Lahr C, Due P, Cheng LK, Lammers WJ, Farrugia G, Abell T, and Pullan AJ. (2010). High-resolution mapping of slow wave activity in the gastroparetic

stomach: initial results. *Neurogastroenterol Motil* 22: 11, 2010.



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

Adrian TE. (2010). Project discussion: How to transform raw data into a manuscript and a ten minute talk. *Pancreas 2000 Conference, Fitzwilliam College, Cambridge, England, September 18.*

Ali, BH, Salam S, Nemmar A. (2010). The effect of diesel exhaust particles on cisplatin-induced acute renal failure in rats. Presented to the 2nd Pan-Arab Military Medicine, December, Jeddah, Saudi Arabia.

Ali BH, Al Salam S, Alhusseni I, Nemmar A. (2010). Comparative protective effect of N-acetyl cysteine and tetramethylpyrazine in rats with gentamicin nephrotoxicity. *Experimental Biology Conference, April 24-28, 2010, Anaheim, California. Abstract published in FASEB.*

D'Souza A, Yanni J, Dobrynski H, Boyett M, Howarth FC, Singh J. (2010). Remodelling of the left ventricle in ageing type 2 diabetic Goto-Kakizaki rats, XX World Congress International Society Heart Research, Kyoto International Conference Center, Kyoto, Japan, 71: P292.

Howarth FC, Ljubisavljevic M, Qureshi MA, Adeghate E, Shafiqullah M, Jacobson M. (2010). Heart rhythm disturbances in two experimental rat models of alloxan-induced diabetes, XX World Congress International Society Heart Research, Kyoto International Conference Center, Kyoto, Japan, 71: P353.

Hussien ZH, Qureshi ma, Howarth FC. (2010). The chronic effects of neonatal alloxan-induced diabetes mellitus on ventricular myocyte shortening and intracellular Ca<sup>2+</sup> transport. *Physiology 2010, University of Manchester, UK, PC112, P147-148.*

Ljubisavljevic M, Cukic M, Filipovic S, and Ismail F. (2010) The effects of transcranial magnetic stimulation on electromyographic characteristics in Primary writing tremor patients. *14th International Conference of Parkinson's Disease and Movement Disorders, Buenos Aires, Argentina, Jun 13 to 17.*

Marzouqi F, Al Dhaheeri A, Zia S, Dhanasekaran S, Kazzam EE, Al Salam S, Nemmar A. (2010). Assessment of the acute pulmonary and cardiovascular effects of particulate air pollution. *The 7th International Scientific Conference for Medical Students in the GCC Countries, Jeddah, Saudi Arabia.*

O'Grady G, Angeli T, Lahr C, Du P, Cheng LK, Lammers WJ, Farrugia G, Pullan AJ. (2010). High-resolution mapping of slow wave activity in the gastroparetic stomach : initial results. *Neurogastroenterology & Motility Joint International Meeting, Boston.*

Singh J, Howarth FC, Adeghate E, D'Souza A. (2010). Morphological changes in the hearts of diabetic rats, XX World Congress International Society Heart Research, Kyoto International Conference Center, Kyoto, Japan, 71: P181.



## 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 Permert 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 Ca<sup>2+</sup> 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 Ca<sup>2+</sup> signalling proteins and remodelling of Ca<sup>2+</sup> proteins underlies cardiac muscle dysfunction in type 2 diabetic heart.

Prof. E. Kazzam (PI), Dr I. Hassan and Dr A. Nemmar.  
Cardiac remodeling and ventricular interaction in patients with Thalassemia Major: Detailed Echocardiographic and Magnetic Resonance Imaging Evaluation in relation to Neurohormones and Collagen markers. (2010-2012)

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: Pathophysiological 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



# 2010

*Physiology*

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*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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<http://www.fmhs.uaeu.ac.ae/Departments/Physiology>. Tel: 7672000 / Fax: 7671966

# Department of Psychiatry and Behavioural Sciences

## **A. Departmental Profile and Research Themes:**

1. Epidemiological aspects of common mental health disorders in primary health care and community settings

(a) 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)

(k) Prevalence and correlates of suicidality in rural population of Pakistan. (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).

*Professor and Chair:*

**Prof Omer El Rufaie**

*Professor:*

**Prof. Mohammad Reza Sadeghi**

*Associate Professors:*

**Dr. Rafia Ghubash**

**Dr. Ossama T. Osman**

**Dr. Hamdy F. Moselhy**

**Dr. Mohamed Omar Salem**

**Dr. Kanita Dervic**

*Assistant Professor:*

**Dr. Leena Amiri**

*Research Technician*

**Mr Said Yousef**

**Ms. Fadwa Algid**

*Secretary*

**Mr D. Ranganathan**

**Miss Aisha Al Shamsi**

*Clerk II:*

**Mr O. Pocker**

## **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 Neuropsychiatric 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

Ali Younis, Hamdy Moselhy. (2010). Pattern of attempted suicide in Babylon in the last 6 years of sanction against Iraq. *The International Psychiatry Journal* 7(1);18-19.

Blasco-Fontecilla H, Baca-Garcia E, Duberstein P, Perez-Rodriguez MM, Dervic K, Saiz-Ruiz J, Courtet P, de Leon J, Oquendo MA. (2010). An exploratory study of the relationship between diverse life events and personality disorders in a sample of suicide attempters. *Journal of Personality Disorders* 24(6); 773-784.

Elmahdy M, Elsayed O, Elgamal R, Shahda M, Moselhy H. (2010). Family profile of heroin users in Mansoura, Egypt. *Addictive disorders and their treatment Journal* 9(3);117-122.

Fajkic A, Lepara O, Voracek M, Kapusta ND, Niederkrotenthaler T, Amiri L, Sonneck G, Dervic K. (2010). Child and adolescent suicides in Bosnia and Herzegovina before and after the war (1992-1995). *Crisis* 31(3);160-4.

Gubash R, El Rufai O, Zubaidi T, Sufian Sabri, Yousef S, Moselhy H. (2010). Subjective life satisfaction and mental disorder in old age people in UAE. *International Journal of Geriatric Psychiatry*.25; 458-465.

Kapusta ND, Voracek M, Niederkrotenthaler T, Dervic K, Etzersdorfer E, Plener PL, Schneider E, Stein C, Sonneck G. (2010). Characteristics of Police Officer Suicides in the Federal Austrian Police Corps. *Crisis* 31(5); 265-71.

Moselhy H, Ehsan Fahmy, Victor Samy, Hussain El Shiekh. (2010.) Impact of life events on the profile of opiate dependence syndrome. *American Journal of Drug and Alcohol Abuse* 36; 7-12.

Osman OT, Afifi (2010). Mental health research in the United Arab Emirates from 1989 to 2008. *Asia*

*Pac J Public Health*, 22S; 48-53.

Salem MO. (2010). Function of Dreams: An Integrated approach, *The Journal of the Islamic Medical Association of North America (JIMA)* 42(1);15-22.



## Books, Chapters, Reviews and Editorials

Osman OT. (2010). The skin as a mode of communication. *Expert Rev. Dermatol.* 5(5); 493-496. (Editorial).



## Published Abstracts, Letters and Correspondence

Dervic K, Fajkic A, Lepara O, Voracek M, Kapusta N, Niederkrotenthaler T, Amiri L, Sonneck G. (2010). Youth suicide in Bosnia and Herzegovina. *Chinese Medical Journal*, Vol. 123, Supplement 2, May 28, p.188.

Dervic K, Al Hallami A, Al Mazrouei A. (2010). Child and adolescent psychiatric services in United Arab Emirates. *Chinese Medical Journal*, Vol. 123, Supplement 2, May 28, p.159.

Salem MO, DeCicco TL, Latif MA, Yousif S, Murkar A. (2010). Religious and Spiritual Dream Symbols in Two Samples: Canadians and The United Arab Emirates. *International Journal of Dream Research*, Vol 3, Suppl 1; S8-9.

Salem MO, Salem OM, Yousef S. (2010). Effects of Watching Films on Dreams of the UAE University Students. *International Journal of Dream Research*, Vol 3, Suppl 1; S9.



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

Carballo JJ, Muñoz-Lorenzo L, Blasco-Fontecilla H, Lopez-Castroman J, Perez-Rodriguez MM, Dervic K, Oquendo, MA. (2010). Continuity of Depressive Disorders from Childhood and Adolescence to Adulthood: A Naturalistic Study at Community Mental Health Centers in Madrid, Spain., 163rd Annual Meeting of American Psychiatric Association (APA), New Orleans, USA.

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). Epidemiology and Clinical Characteristics of Depression and Suicidality in Childhood and Adolescence. *Jubilee Conference: 35 Years of Viennese Child Psychiatry*, 24.-25. September, Medical University of Vienna, 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

Dervic K. (2010). Religious affiliation: A protective factor against suicidal behavior? *11th Pan-Arab Psychiatric Conference*, Khartoum, Sudan.

Dervic K, Lenz G, Friedrich MH. (2010). Residency research training in child and adolescent psychiatry. *Annual Meeting of the Association for Study of Medical Education (ASME)*, Cambridge, United Kingdom.

Dervic K, Al Hallami A, Al Mazrouei A. (2010). A survey of child and

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.

Moselhy HF. (2010). Impact of self reported life events on the profile of opioid dependence syndrome. World Psychiatric Association (WPA International Congress) Beijing, China.

Moselhy HF. (2010). Creativity dissociation and suicide. 11th pan Arab Psychiatric congress. Khartoum.

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). Psychiatric Research In the United Arab Emirates 1989-2009. International Conference on Global Health, Al-Ain.

Osman OT. (2010). Psycho-dermatologic Disorders: Skin as a mode of Communication. 10th annual Dubai Derma international Conference, Dubai.

Osman OT. (2010). Descriptive Outcome of the First Psychiatry Residency Training Program in the United Arab Emirates. The Ottawa International Conference on Medical Education, Miami, Florida.

Osman OT. (2010). Mastery of Global Mental Health and Psychiatric Research in the Gulf. Harvard University Program on Refugee and Trauma as part of their Harvard University -HPRT Advanced Certificate Training in Trauma &

Recovery. Orvieto-Italy, Nov 9, entitled: Mastery in Global Mental Health: Trauma and Recovery.

Osman OT. (2010). Excellence in Global Mental Health- keynote presentation invited by The Behavioral Sciences Pavilion (Formerly Abu Dhabi Psychiatric Hospital) at Sheikh Khalifa Medical City- Event: World Mental Health Day Scientific Program, Abu Dhabi.

Osman OT. (2010). The invisible injuries of war and disaster: 6th Middle East Trauma, Accident and Emergency (A&E) Conference, 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). Progressive Muscle Relaxation Training for psychologist. 4th World Congress of the A.P.P.A.C. Association of Psychology and Psychiatry for Adults and Children, Athens, Greece.

Sadeghi MR. (2010). Cognitive-Behavior Therapy for Depression. Iranian Psychological Association series of workshops, September 8 and 9, Tehran, Iran.

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.

Sadeghi MR (2010). Progressive muscle relaxation training for medical students. The 7th Scientific Conference for Medical Students in the GCC countries

Salem MO. (2010). Precognitive Dreams in science and Religion. The Arabic Literature Dept. of the

UAE University, Al Ain.

Salem MO, Salem OM. Yousef S. (2010). Effects of Watching Films on Dreams of the UAE University Students. 27th Annual Conference for the International Association of the Study of Dreams, Chicago, USA .

Salem MO, DeCicco TL, Latif MA, Yousif S, Murkar A. (2010). Religious and Spiritual Dream Symbols in Two Samples. Canadians and The United Arab Emirates. 27th Annual Conference of the International Association for the Study of Dreams, Chicago, USA.

Salem MO. (2010). Workshop on Integrating Spiritual Techniques into Psychotherapy – Islamic Model. Proceedings of the 1st International Conference of Saudi Psychiatric Association, Al Khobar, Saudi Arabia.

Salem MO. (2010). Workshop on Dream Interpretation in Science and Religion. Proceedings of the 11th Pan Arab Psychiatric Congress, Khartoum, Sudan.

Salem MO, Hamdan AL. (2010). Spiritual and Religious interventions in Psychiatry and Psychotherapy. 1st International Conference on Psychological Sciences and Applications. Al Ain, UAE.

Salem MO. (2010). Integrating Spiritual Techniques into Psychotherapy – Islamic Model. 1st International Conference of Saudi Psychiatric Association, Al Khobar, Saudi Arabia.

Salem MO. (2010). Dream Interpretation in Science and Religion. Proceedings of the 11th Pan Arab Psychiatric Congress, Khartoum, Sudan.

Yousef S, Adem A, Eapen V, Zoubeidi T, Kosanovic M, Mabrouk AA, Souid AK. (2010). Impact of Heavy Metals on Childhood Behaviors and Development: A UAE Study. Globalization and Public Health Conference, Beirut-Lebanon.

Yousef S, Adem A, Eapen V, Zoubeidi T, Kosanovic M, Mabrouk AA, Souid AK. (2010). Blood concentration of Heavy Metals and its association with Behaviors of UAE children. 11th Pan Arab Psychiatric Congress- Mental Health services in the Arab World (Challenges and Prospects), Khartoum – Sudan.



## 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





# Department of Radiology

## Research Profile

*Professor & Chair:*

**Prof P Corr**

*Professor:*

**Prof R Langer**

*Associate Professor:*

**Dr K V Gorkom**

*Teaching Assistant*

**Dr T Al Mansour**

*Administrative Assistant:*

**Ms R Qayed**

**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 osteoarthritis 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 be 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

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.

## **Articles in Peer-reviewed Journals**

Ali BR, Xu H, Akawi NA, John A, Karuvantevida NS, Langer R, 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* 2010 Jun1;19(11):2239-50, Epub2010 Mar 10.



## **Published Abstracts, Letters and Correspondence**

Langer RD, Lorke DE, Neidl van Gorkom KFW, Petroianu G, Azimullah S, Nurulain SM, Speck U. (2010). Nephrogenic systemic fibrosis cannot be induced by administering Gadolinium bound contrast agents in rats. *European Congress of Radiology [ECR] Vienna, Austria, March 4-8/C-1138*

Langer RD, Neidl van Gorkom KFW, Usmani A, Petroianu G, Lorke DE, Banyias MYH, Azimullah S, Nurulain SM. (2010). In vitro assessment of potential interactions between radio contrast media and antibiotics and their impact on discography. *European Congress of Radiology [ECR] Vienna, Austria, March 4-8/C-1129*

Langer RD, Lorke DE, Neidl van Gorkom KFW, Petroianu G, Azimullah S, Nurulain SM, Speck U. (2010). Rats do not develop nephrogenic systemic fibrosis after intraperitoneal administration of Gadolinium bound contrast agents. *AJR* 2010; 194 (5/Suppl), A 315

Langer RD, Neidl v Gorkom K, Usmani A, Lorke DE, Petroianu G, Banyias MYH, Azimullah S, Nurulain SM. (2010). Potential interactions between radio contrast media and antibiotics and their possible impact on discography - an in vitro study. *AJR* 2010; 194 (5/Suppl), A 687

Langer RD, Lorke DE, Neidl van Gorkom KFW, Petroianu G, Azimullah S, Nurulain SM, Speck U. (2010). Rats do not develop nephrogenic systemic fibrosis after intraperitoneal administration of Gadolinium bound contrast agents. *Fortschr Roentgenstr* 2010, 182(S 1), S306



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

Ali BR, Xu HF, Akawi NA, John A, Karuvantevida NS, Langer R, 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 Spondylo-meta-epiphyseal dysplasia with short limbs and abnormal calcifications [SMED-SL] patients. *British Society for Matrix Biology Meeting, UK, 2010*

Ali BR, Xu HF, Akawi NA, John A, Karuvantevida NS, Langer R, Leitinger B, Al-Gazali L. (2010). The cellular and biochemical mecha-

nisms underlying Spondylo-meta-epiphyseal dysplasia with short limbs and abnormal calcifications (SMED-SL). *3rd Pan Arab Genetics Conference, Dubai 13.-14. 03.2010*

Amin A, Mahmoud Ghoneim D, Corr P. (2010). Saffron protects against liver cancer in animal model: Molecular and imaging insights. *50th Annual Meeting of the American Society for Cell Biology in Philadelphia, PA, December 11-15.*

Amin A, Mahmoud Ghoneim D, Corr P. (2010). Preventive potential of local herbs against drug induced-liver fibrosis: Promising future for noninvasive MRI-based texture analyses Abu Dhabi Genomics and Systems Biology Meeting January.

Corr P. (2010). *Asian Musculoskeletal Society Annual Scientific Meeting February 2010 Muscat Oman Invited Lecture: Imaging bone contusions in sports related knee injuries with diffusion MR*

Corr P. (2010). *International Society of Gastrointestinal Radiology Meeting August 2010 Cape Town, S Africa: CT Signs of Small Bowel Wall Thickening*

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



# Radiology



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

<http://www.fmhs.uaeu.ac.ae/Departments/Radiology>. Tel: 7672000 / Fax: 76722067

# 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

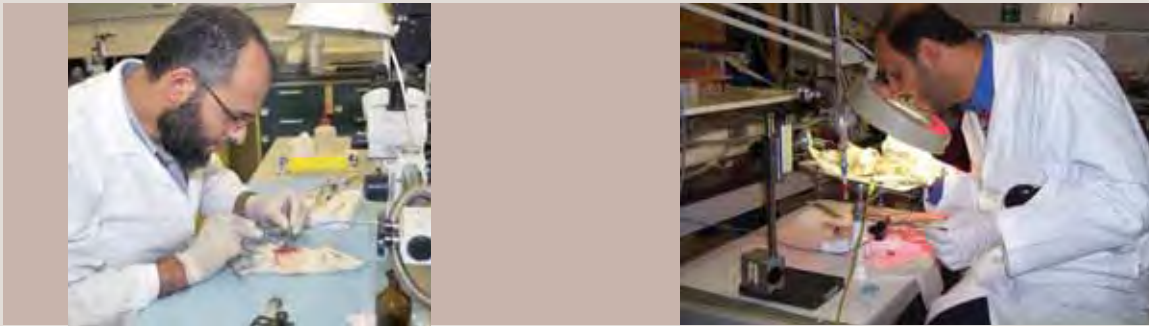
Conference: Trauma Management, Critical Care and Prevention which is scheduled for February 2011, in Al Ain, Prof. Branicki being the Chair of the Scientific Committee (Trauma).

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 genitor-urinary 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 Sahlgrenska 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 Hammad. 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

Abu-Zidan FM, Elzubeir MA. (2010). An interactive problem-solving approach to teach traumatology for medical students. *World J Emerg Surg*,13;5:24.

Abu-Zidan FM, Hefny AF, Saadeldinn YA, El-Ashaal YI. (2010). Sonographic findings of superior mesenteric artery syndrome causing massive gastric dilatation in a young healthy girl. *Singapore Med J*, 51(11):e184-6.

Bernieh B, Al Hakim MR, Boobes Y, Abu Zidan FM. (2010). Fasting in Ramadan in chronic kidney disease patients: clinical and biochemical effects. *Saudi J Kidney Dis Transpl*, 21(5):898-902.

Branicki FJ, Torab FC. (2010). Diagnostic and therapeutic Laparoscopy in the Management of Gastric Tumours. *Arab Health (Show Issue)*, 96-100.

El-Ashaal YI, Saadeldin YA, Abu-Zidan FM. (2010). Rectovesical tract caused by trans-anal metallic rod impalement. *J Trauma*, 68(5):1265.

Hammad FT, Eid H, Jawas A, Abu-Zidan F. (2010). Genitourinary injuries following road traffic collisions: a population-based study from the Middle East. *Turkish Journal of Trauma and Emergency Surgery*, 16(5):449-52.

Hammad FT, Lubbad L. (2010). The effect of diclofenac sodium on renal function in reversible unilateral ureteric obstruction. *Urol Res*. [Epub ahead of print].

Hammad FT, Lammers W J, Stephen B, Lubbad L. (2010). Propagation of the electrical impulse in reversible unilateral ureteral obstruction as determined at high electrophysiological resolution. *Journal of Urology*,185(2):744-50.

Hammad FT, Lammers W J, Stephen B, Lubbad L. (2010). Propagation characteristics of the electrical impulse in the normal

and obstructed ureter as determined at high electrophysiological resolution. *British Journal of Urology International*. [Epub ahead of print].

Hammad FT, Balakrishnan A. (2010). The effect of fat and non-fat components of the skin-to-stone distance on Shockwave Lithotripsy success. *Journal of Endourology*, 24(11):1825-9.

Hammad FT, Eid H., Jawas A, Abu-Zidan F (2010). Genitourinary injuries following road traffic collisions: A population-based study from the Middle East. *Turkish Journal of Trauma & Emergency Surgery*, 16 (5):449-452.

Hammad FT, Alqaiwani KM, Shirodkar SS. (2010). The role of urologists in the management of urological injuries during obstetric and gynaecologic surgery. *Int Urogynecol J Pelvic Floor Dysfunct*, 21(10):1237-41.

Hammad FT, Kaya M. (2010). Development and validation of an Arabic version of the International Prostate Symptom Score. *British Journal of Urology International*, 105(10):1434-8.

Hammad FT, Al Najjar A. (2010). The effect of fat, muscle and kidney on stone fragmentation by Shockwave Lithotripsy: An in vitro study. *Journal of Endourology*, 24(2):289-92.

Hefny AF, Al-Ashaal YI, Bani-Hashem AM, Abu-Zidan FM. (2010). Seatbelt syndrome associated with an isolated rectal injury: case report. *World J Emerg Surg*, 5(1):4.

Hefny AF, Abu-Zidan FM. (2010). Necrotizing fasciitis as an early manifestation of tuberculosis: report of two cases. *Turkish Journal of Trauma and Emergency Surgery*, 16(2):174-6.

Hefny AF, Eid HO, Al-Bashir M, Abu-Zidan FM. (2010). Blast injuries of large tyres: case series. *Int J Surg*, 8(2):151-4.

Jawas A, Hammad F, Eid HO, Abu-

Zidan FM. (2010). Vascular injuries following road traffic collisions in a high-income developing country: a prospective cohort study. *World J Emerg Surg*, 5(1):13.

Lewis PM, Al-Belooshi A, Olsen M, Schemitsch EH, Waddell JP. (2010). Prospective randomized trial comparing alumina ceramic-on-ceramic with ceramic-on-conventional polyethylene bearings in total hip arthroplasty. *Journal of Arthroplasty*, 25(3): 392-397.

Shaban S, Eid HO, Barka E, Abu-Zidan FM. (2010). Towards a national trauma registry for the United Arab Emirates. *BMC Res Notes*, 10;3:187.

Tadros AM, Eid HO, Abu-Zidan FM. (2010). Epidemiology of foot injury in a high-income developing country. *Injury*, 41(2):137-40.



## Published Abstracts (Oral and Poster), Letters, Correspondence

Torab FC, Fardoun A, Branicki F. (2010). Revisional Bariatric Surgery: an experience of a tertiary bariatric center. *Surgery for Obesity and Related Diseases* 6(2): 229.



## Proceedings, Invited Lectures and Others

Abbas AK, Hefny AF, Abu-Zidan FM. (2010). Seatbelt compliance and mortality in the Gulf Cooperation Council countries in comparison with other high-income countries. 2nd Annual Abu Dhabi Health Service (SEHA) Research Conference. Abu Dhabi, UAE.

Abbas AK, Mirghani H, Eid HO,

Abu-Zidan FM. (2010). Trauma in child-bearing age in a high-income developing country. 2nd Annual Abu Dhabi Health Service (SEHA) Research Conference. Abu Dhabi, UAE.

Abu Zidan FM. (2010). Biomechanism of road traffic collisions. Middle East Surgery, Arab Health Congress 2010. Dubai. UAE.

Abu Zidan FM. (2010). Childhood Trauma in the Gulf. Setting Standards in Surgery Conference, Dubai, UAE.

Abu Zidan FM. (2010). Clinical reasoning in trauma management. Al Rahba Hospital Polytrauma Conference. Abu Dhabi, UAE.

Abu Zidan FM. (2010). Critical thinking in ICU. Updates in Critical Care Medicine. Al-Ain, UAE.

Abu Zidan FM. (2010). Pediatric trauma research in the GCC countries. Arab Children Health Congress 2010. Child Accident Prevention. Dubai, UAE.

Abu Zidan FM. (2010). Role of 'point-of-care' ultrasound in the management of shock. Al Rahba Hospital Polytrauma Conference. Abu Dhabi, UAE.

Abu Zidan FM. (2010). Role of pre-hospital ultrasound in disasters. Disaster Management and Crisis Response, Middle East 2010. Abu-Dhabi, UAE.

AlMahmoud T, Al-Fazari A, Branicki F. (2010). Postgraduate Medical Education in the United Arab Emirates: guidelines for a code of ethics and professional conduct. International Conference on Residency Education. Ottawa, Canada.

AlMahmoud T, Munger R, Jackson WB. (2010). Comparison of advanced corneal surface ablation and femtosecond Thin-Flap LASIK: clinical outcome and changes in higher-order aberrations for myopia. American Society of Cataract and Refractive Surgery. Boston, USA.

AlMahmoud T, Munger R. (2010).

Comparison of wavefront and corneal aberration changes after advanced corneal surface ablation and femtosecond Thin Flap LASIK. The VI World Cornea Congress. Boston, USA.

AlMahmoud T, Munger R, Lafontaine M, Taylor S, Jackson BW. (2010). Advanced corneal surface ablation efficacy in myopia: clinical outcome and changes in higher order aberrations. Emirates Ophthalmological Conference. Dubai, UAE.

AlMahmoud T. (2010). Allergic Conjunctivitis. Update in Allergy & Pulmonology. Al Ain, UAE.

AlMahmoud T. (2010). Update in dry eye management. Vision –X. Dubai, UAE.

AlMahmoud T, Deschenes J. (2010). Case of Uveitis. Multidisciplinary Meeting. Montreal, Canada.

Al Belooshi AA. (2010). Resurfacing total hip arthroplasty, is a fad or a good operation? Arab Health Annual Congress. Dubai, UAE.

Al Belooshi AA. (2010). Scaphoid fracture update. Upper extremity update meeting. Abu Dhabi, UAE.

Branicki FJ. (2010). Evolving Strategy for Esophago-gastric GIST. Gastroenterology - Part 1. 9th Middle East Surgery Conference. Arab Health. Dubai, UAE.

Branicki FJ. (2010). Camel related injuries. Grand rounds – Tawam Hospital. Al Ain, UAE.

Branicki FJ. (2010). Surgery for Gastric Cancer in 2010. 6th Emirates Gastroenterology and Hepatology Conference. Dubai, UAE.

Branicki F, Taji H, Al-Ashaal Y, Ahmed I, Abu-Zidan F. (2010). Delayed Diagnoses and Missed Injuries. 1st National Trauma Conference (Al Rahba Hospital). Abu Dhabi, UAE.

Branicki FJ, Abu Zidan FM, Torab FC, Abdulla J, Kazim S, Gautam S. (2010). Advanced Trauma Life Support (ATLS) Courses in the United Arab Emirates. 6th Middle East Abu

Dhabi Trauma and Emergency Medicine Conference. Abu Dhabi, UAE.

Branicki FJ, Abu-Zidan F, Eid H, Bashir M. (2010). Camel Related Injuries. 11th Annual Scientific Conference and AGM, College of Surgeons of East, Central and Southern Africa/ 61st Annual Meeting Association of Surgeons of East Africa. Kampala, Uganda.

Branicki F, Shaban S, Ashour M, Bashir M, El-Ashaal Y, Abu-Zidan F. (2010). The Long Term Impact of an Early Analysis of a Trauma Registry. 11th Annual Scientific Conference and AGM, College of Surgeons of East, Central and Southern Africa/ 61st Annual Meeting Association of Surgeons of East Africa. Kampala, Uganda.

Branicki FJ. (2010). Role of Surgery for Upper Gastrointestinal Tumours (GIST). 11th Annual Scientific Conference and AGM, College of Surgeons of East, Central and Southern Africa/ 61st Annual Meeting Association of Surgeons of East Africa. Kampala, Uganda.

Eid H, Shaban S, Lunsjo K, Barss P, Torab F, Grivna M, El Ashaal Y, Branicki, FM Abu Zidan. (2010). Trauma patterns in the United Arab Emirates: data from hospital-based trauma registry. 11th European Congress of Trauma and Emergency Surgery, Brussels, Belgium.

Eid H, Hefny A, Idris K, Abu-Zidan F (2010). Factors affecting mortality of Critical Care Unit Trauma Patients. 2nd Annual Abu Dhabi Health Service (SEHA) Research Conference. Abu Dhabi, UAE.

Eid H, Hefny A, Grivna M, Abu-Zidan F. (2010). Bicycle-related Injuries of hospitalized patients in a high-income developing country. 2nd Annual Abu Dhabi Health Service (SEHA) Research Conference. Abu Dhabi, UAE.

El-Ashaal Y, Hefny A, Saadeldinn Y, Abu-Zidan F. (2010). Superior mesenteric artery syndrome. causing massive gastric dilatation in a young healthy female. 11th European Congress of Trauma and Emergency Surgery, Brussels,

Belgium.

El-Ashaal Y, Abu-Zidan FM. (2010). Management of trans-anal rectal injuries. 2nd Annual Abu Dhabi Health Service (SEHA) Research Conference. Abu Dhabi, UAE.

Hefny A, Grivna M, Abbas KA, Branicki FJ, Abu-Zidan FM. (2010). Pediatric trauma research in the Gulf Cooperation Council Countries. 2nd Annual Abu Dhabi Health Service (SEHA) Research Conference. Abu Dhabi, UAE.

Hefny A, Eid H, Al-Bashir M, Abu-Zidan F. (2010). Blast injuries of large tyres. A case series. 11th European Congress of Trauma and Emergency Surgery, Brussels, Belgium.

Hefny A, Barss P, Eid HO, Abu-Zidan FM. (2010). Motorcycle-related Injuries in a High-income Developing Country. 2nd Annual Abu Dhabi Health Service (SEHA) Research Conference. Abu Dhabi, UAE.

Jackson WB, AlMahmoud T, Munger R. (2010). Correlation between visual acuity and ocular aberrations following advanced surface ablations and thin flap (femtosecond) LASIK. The Association for Research in Vision and Ophthalmology (ARVO) Conference. Florida, USA.

Kayyal Y, Branicki F. (2010). Trauma in a Morbidly Obese patient. 6th Middle East Abu Dhabi Trauma and Emergency Medicine Conference. Abu Dhabi, UAE.

Safi F. (2010). Biliary tract injury following laparoscopic surgery. International Surgical Conference. Aleppo, Syria.

Safi F. (2010). Pancreatic Surgery, personal experience. International Surgical Conference. Aleppo, Syria.

Safi F. (2010). International Conference for study of the liver. Vienna, Austria.

Safi F. (2010). Surgical approach for HCC. UAE Oncology, Dubai. UAE.

Safi F. (2010). Treatment of inguinal

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

Shaban S, Ashour M, Bashir M, El Ashaal Y, Branicki F and Abu Zidan FM. (2010). The long term impact of early analysis of a Trauma Registry. 11th European Congress of Trauma and Emergency Surgery, 15-18 May 2010, Brussels, Belgium.

Torab FC. (2010). SILS: International and Preliminary Local Results. Arab Health Congress, Dubai, UAE.

Torab FC. (2010). Single Incision Laparoscopic Surgery (SILS): International and UAE results. Annual meeting of the Lebanese Endoscopic Surgery Association. Beirut, Lebanon.

Torab FC. (2010). Training in the UAE. Setting Standards in Surgery Conference, Dubai, UAE.

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

Torab FC. (2010). Seminar on Single Incisional Laparoscopic Surgery (SILS), 10th Mediterranean and Middle Eastern Endoscopic Surgery Congress, Tehran, Iran.

Torab FC. (2010). Live Surgery on SILS Sleeve Gastrectomy. 10th Mediterranean and Middle Eastern Endoscopic Surgery Congress, Tehran, Iran.

Torab FC. (2010). Factors affecting ethics in surgery. The First Annual Medical & Professional Ethics Conference. Al Ain, UAE.

Torab F, Fardoun A. (2010). SILS Bariatric Surgery. 12th World Congress of Endoscopic Surgery, (SAGES Meeting). Washington, USA.

Torab F, Fardoun A. (2010). Complications of bariatric surgery and solution. 12th World Congress of Endoscopic Surgery, (SAGES Meeting). Washington, USA.

Torab F, Fardoun A. (2010). Single incision cholecystectomy versus laparoscopic. 12th World Congress of Endoscopic Surgery, (SAGES Meeting). Washington, USA.

Torab F, Fardoun A. (2010). Single port access cholecystectomy. 12th World Congress of Endoscopic Surgery, (SAGES Meeting) Washington, USA.

Torab F, Fardoun A. (2010). Morbidity and mortality related to bariatric surgery: Experience of bariatric surgeons in the UAE. 12th World Congress of Endoscopic Surgery, (SAGES Meeting) Washington, USA.

Torab F, Fardoun A. (2010). Single Incision Laparoscopic Surgery (SILS). International and UAE results. 12th World Congress of Endoscopic Surgery, (SAGES Meeting). Washington, USA.

Torab FC. (2010). Preliminary results of SILS bariatric surgery. 4th IFSO-EC congress, Lausanne, Switzerland.

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

Torab FC. (2010). Morbidity and mortality related to bariatric surgery: experience of surgeons in the UAE. 2nd SEHA Annual Research Conference. Abu Dhabi, UAE.

Torab FC. (2010). Single Incision Laparoscopic Surgery (SILS): Results of innovative surgery in

the UAE started at Tawam Hospital. 2nd SEHA Annual Research Conference. Abu Dhabi. UAE.

Varghese A, AlMahmoud T, Eata-madi H, Najab I. (2010). Meibomian gland dysfunction in pseudo-hypoadosteronism. Emirates Ophthalmological Conference. Dubai, 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.



# 2010

*Surgery*

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*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]  
 Modulation of streptozotocin-induced diabetes by orexin-1 receptor. (2010).

**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 Ca<sup>2+</sup> transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat. (2009-2010).

Prof Ernest Adeghate [PI]  
 Effect of pancreatic beta cell transplantation

on the metabolic parameters of diabetic rats. (2009-2010).

**Emirates Foundation Grant**

Prof Chris Howarth [PI]  
 Progressive changes in expression of genes encoding Ca<sup>2+</sup> signalling proteins and remodelling of Ca<sup>2+</sup> proteins underlies cardiac muscle dysfunction in type 2 diabetic heart. (2010).

Dr Fatima Al-Maskeri [PI]  
 National survey of Diabetes and its complications in the UAE-Abu Dhabi phase. (2010).

**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.

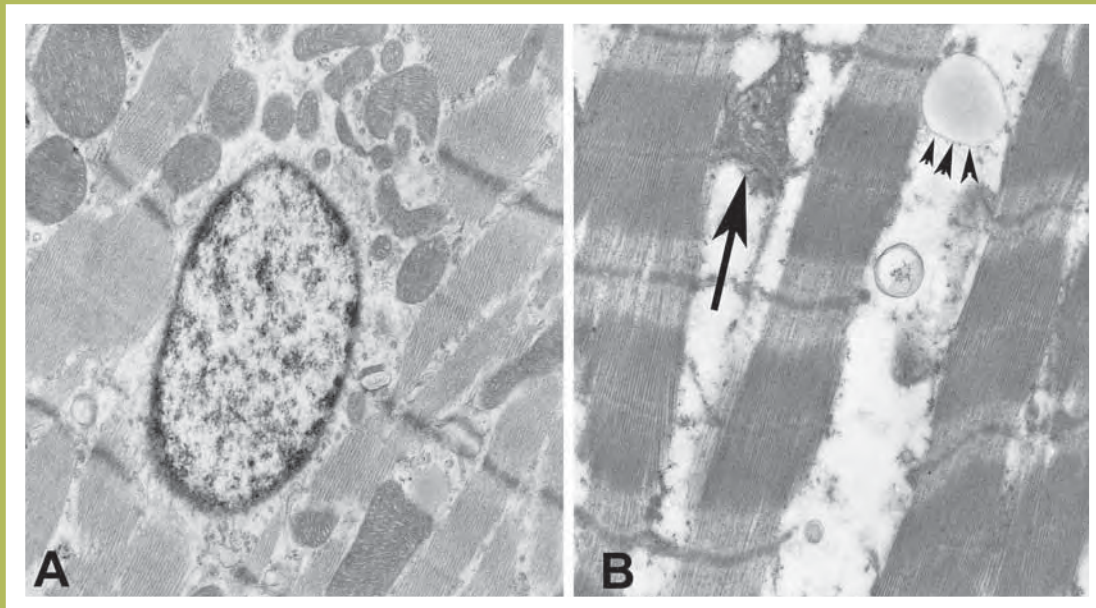
**Publications**

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



Health, Journal of Diabetes & its Complications, Molecular and Cellular Biochemistry, Physiology Research, PLoS ONE, Current Medicinal Chemistry, Experimental and Clinical Endocrinology and Diabetes, Journal of Tropical Pediatrics, Health Society Care Community, Metabolic Syndrome and Related Disorders, Nutrition Metabolism and Cardiovascular Disorders, Review of Diabetes Studies in 2010.

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



# Genetics and Development Research Group

## **Mission of the Group**

Consanguineous marriages are prevalent in UAE population and therefore recessive single gene disorders occur more frequently in the UAE than in other populations with over 160 recessive disorders have been reported so far. In addition, local population has a high frequency of alpha and beta thalassemia mutations and hemoglobin S. Furthermore, the incidence of multifactorial diseases such as type 2 diabetes, obesity, certain cancers, neurodegenerative and cardiovascular diseases have been steadily rising in the UAE over the past 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-Marzouqi** (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

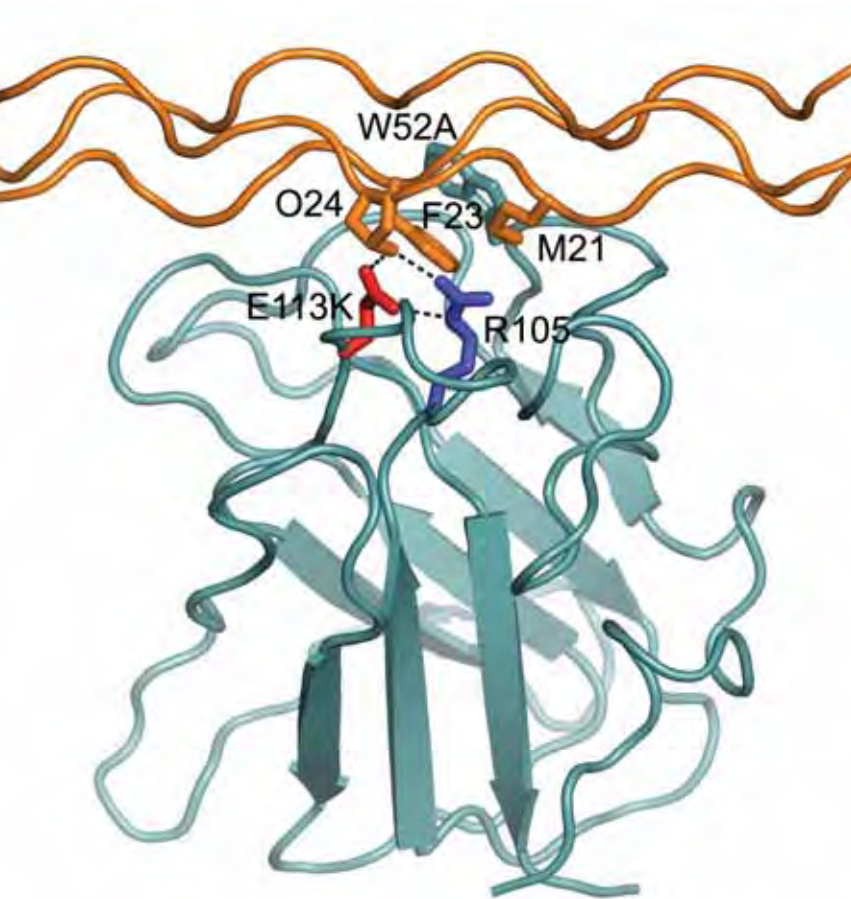


Diagram 1 shows the structural effects of a pathogenic mutation (E113K) in DDR2 on its ligand (collagen) binding. The data was published in *Human Molecular Genetics* (Ali et al., 2010, *Hum Mol Genet.*, 19:2239-2250)

- School Health Authorities
- Sheikh Hamdan Awards for Medical Sciences
- Center for Arab Genomic Studies
- Central Veterinary Research Laboratory

#### Regional collaborations

Sultan Qaboos University, Muscat, Sultanate of Oman  
King Faisal Specialist Hospital and Research Center, Saudi Arabia

#### International collaborations

- International Clearing House for Birth Defect Monitoring System [member]
- Harvard University, USA
- University of California, San Diego
- Cambridge University, UK

- Birmingham University, UK
- Imperial College London, UK
- University College London Medical School, UK
- National Human Genome Research Institute
- National Institute of Health, Bethesda, USA
- Institute of Human Genetics, Erlangen, Germany
- Mount Sinai School of Medicine, New York, USA
- Telethon Institute of Genetics and Medicine Naples, Italy
- UT Southwestern Medical Center at Dallas, USA
- Institute für 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

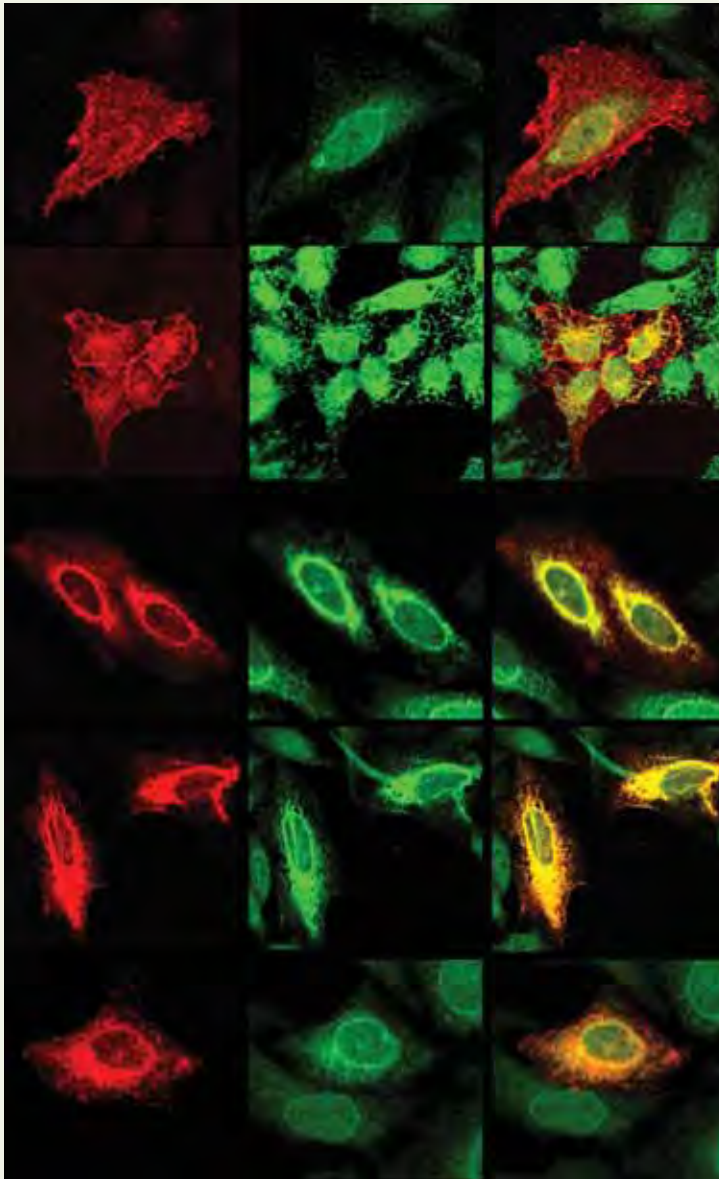
#### Workshop on Bioinformatics Tools

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

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.

September 28, 2010 "The MyD88 protein: a key regulator of immune responses" by Professor Basel al-Ramadi.

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.

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

## 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



# Neuroscience Research Group

## *Group Leader*

**Professor Omar El-Agnaf**  
(Biochemistry Department)

## *Core Members*

**Prof. Milos Ljubisavljevic**  
(Physiology Department)

**Dr. Murat Oz**  
(Pharmacology Department)

**Prof. Peter Corr**  
(Radiology Department)

**Dr. Ossama Osman**  
(Psychiatry Department)

## *Members:*

**Prof. Abdu Adem**

**Dr. Safa Shehab**

**Dr. Eric Mensah-Brown**

**Prof. Wim Lammers**

**Prof. Ernest Adeghate**

**Prof. Omer El-Rufaie**

**Dr. Fadwa El-Mughairibi**

**Dr. Fatima Aljasmi**

**Dr. Maria Cabezudo**

**Prof. Basel Al Ramadi**

**Dr. Gururaj Aithala**

**Dr. Taha Amir**

**Dr. Sami Abdel-Kawi**

**Prof. Lihadh Al-Gazali**

**Prof. Mohamed Fahim**

**Prof. Mohammed Hassan**

**Dr. Sehamuddin Galadari**

**Dr. Chris Howarth**

**Dr. AbdelAzim Mabrook**

**Dr. Salim Bastaki**

**Dr. Juman Kubba**

**Dr. Amr A. Amin**

**Dr. Ahmed Al Marzouqi**

**Dr. Klaus van Gorkom**

**Dr. Mahmoud Al Sultan**

**Dr. Hamdy Moselhy**

**Dr. Mohamed Omar Salem**

**Dr. Amin Bahi**

**Prof. Johann Braun**

**Dr. Leena Amiri**

**Dr. Kanita Dervic**

**Prof. Sehamdduin Galadari**

**Por. John Conlon**

**Dr. Bassam Ali**

**Dr. Suhail Al Salam**

**Prof. Mohamed Y Hasan Baniyas**

The UAE University Neuroscience Group was officially formed in 2006 by a Decree from the Vice Chancellor of the UAE University.

The group consists of basic scientists and clinicians with a common interest in the nervous system. The primary goal of the group is to strengthen collaborative research ties between its members and promote neuroscience research in the UAE and the region. The group develop educational programs at the UAE University that lead to higher degrees in Neuroscience, organize seminars, congresses and workshops, participate in scientific activities of other groups in the field of neuroscience. Moreover, the group develops educational programs, provides professional development activities, information and educational resources for neuroscientists at all stages of their careers in the UAE and the Region.

## **Major Achievements for 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 scientist

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



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

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  
 Università 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

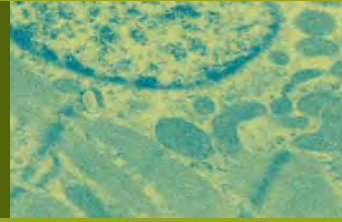
University of Glasgow  
 University of Groningen, Netherlands  
 University of Turin, Italy  
 University of Xi'an, China  
 Utrecht Medical Centre, Netherlands

### Summary of Grants & Publications 2010

(refer to departmental reports as below):

Shehab S (Anatomy).  
 Adegghate 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).  
 Moselhy H (Psychiatry).  
 Salem M (Psychiatry).  
 Corr P (Radiology).  
 Gorkom van K (Radiology).

# Oncology Research Group



## 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.

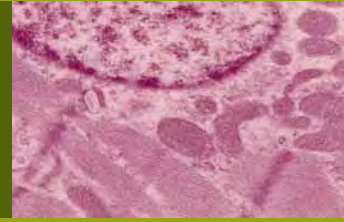
### **Research Day for Projects Funded by the Terry Fox Fund for Cancer Research**

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 from the US National Cancer Institute. In 2010, members of the ORG published 21 papers in peer-reviewed journals.

# Trauma Research Group



## 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

## Core Members:

### Faculty of Medicine and Health Sciences

**Professor Fikri Abu-Zidan**  
**Professor Frank Branicki**  
**Professor Peter Corr**  
**Professor Elsadig Kazzam**  
**Assoc Prof Fawaz Torab**  
**Assoc Prof Fayez Hammad**  
**Assoc Prof Michael Grivna**  
**Asst Prof Ali Jawas**  
**Asst Prof Sami Shaban**  
**Dr Mohamed Sadig**  
**Dr Ashraf Hefny**  
**Dr Alaa Abbas**  
**Mr Abdulla Jamal**

### Al Rahba Hospital, Abu Dhabi

**Dr Masoud Bashir**

### Tawam Hospital

**Dr Said Abuhasna**  
**Dr Mohammad Al Bashir**  
**Dr Abdel Norueldin**  
**Dr Masoud ur Rahman**  
**Dr Hani Eid**

### Al Ain Hospital

**Professor Stefan Marlovits**  
**Dr Yousef El Ashaal**  
**Dr Mohammad Kamal Idris**



Fig 1: ATLS Provider course has been conducted several times every year at the Faculty of Medicine and Health Sciences.



Fig 2: Training on inserting ultrasound guided intravenous cannulation.

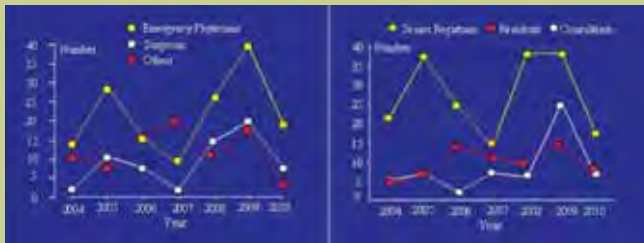


Fig 3. Specialty and rank of trained participants of Point of Care Ultrasound Courses.



Fig 4: Members of the Trauma Group were actively involved as instructors of the ATOM Course.

ATLS enhancement of the early management of severe trauma is more evident in our setting.

**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

- 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).**



*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.*

#### 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:

1. 'Statistics help deliver health messages better' Khaleej Times, 20th October 2010  
[http://www.khaleejtimes.com/displayarticle.asp?xfile=data/theuae/2010/October/theuae\\_October481.xml&section=theuae&col](http://www.khaleejtimes.com/displayarticle.asp?xfile=data/theuae/2010/October/theuae_October481.xml&section=theuae&col)
2. UAE : Safety Fears for High-Rise Cleaners. The National, Tuesday, September 07, 2010  
[http://www.daijiworld.com/news/news\\_disp.asp?n\\_id=84967&n\\_tit=UAE+%3A+Safety+Fe+ars+for+High-Rise+Cleaners](http://www.daijiworld.com/news/news_disp.asp?n_id=84967&n_tit=UAE+%3A+Safety+Fe+ars+for+High-Rise+Cleaners)



# Medical Student Research







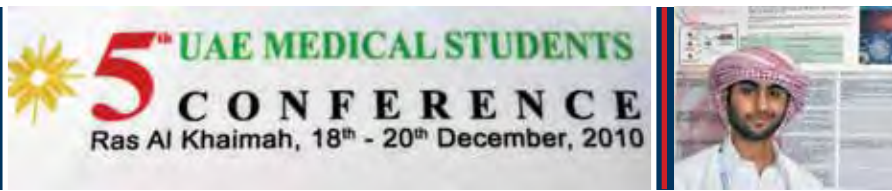
## Medical Student Research

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



Research at the London Hospital, Kings College, Downing College, University of Cambridge and Addenbroke 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.

Al-Ketbi MI, Dhanya S, Fernandez-Cabezudo MJ, al-Ramadi BK. FMHS, UAE University won first prize for an oral presentation entitled: 'The role of MyD88 protein and TLR signaling pathway in protection against bacterial infections'.

Marzouqi FM, Al Mansouri A, Shaban S, Harvey S, Souid A-K. FMHS, UAE University won first prize for a poster entitled: 'Oxygen measurements via phosphorescence: biological applications'.

Al Ameri MMSS, Al Ahbabi S, Al Dhaheri A, Al Zaabi A, Al Mansouri L, Hameed R, Laleye L, Abbas T, Adeghate E. FMHS, UAE University won third prize for a poster entitled: 'Effect of camel milk on the metabolic parameters of type 1 diabetes mellitus'.



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).

During the 2nd SEHA conference in Abu Dhabi (2010) Aldhaheri W, Adi M, Alkendi F, Alka'abi M, Karam SM won best oral presentation for an oral presentation entitled: 'Alteration of carbohydrate expression and stem cells during breast cancer development'.





**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.*



1



2



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**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

# The Analytical Services (Central Facilities)

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 Amoxycillin 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.

ally. Tissues can be digested in nitric acid and assayed. This instrument is ideal to estimate trace elements and heavy metals.

**Inductively Coupled Plasma Mass Spectrometer (ICP-MS)**

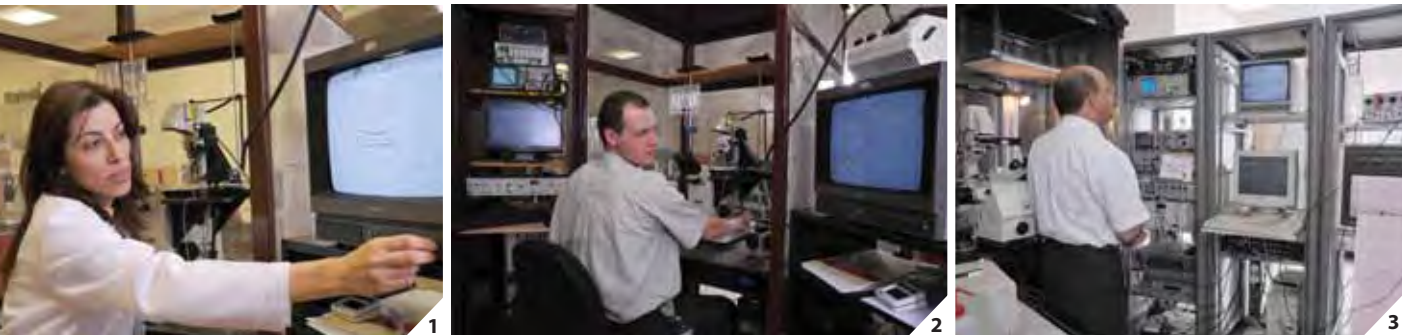
ICP-MS is one of the most useful tools for trace element analysis. Detection sensitivity of ICP-MS is of the order of parts per billion (ppb). Currently equipped to handle aqueous samples and biological samples to a limited extent. Biological samples have to be treated and diluted manu-

# The Electrophysiology Centre

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.



1-2. Lina Kury (Ph.D student) performing experiments using the patch clamp system and Dr Oleg Voitychuk (Post-doctoral scientist) visiting from Bogomoletz Institute of Physiology, Ukraine.  
3. Anwar Qureshi (Technician) performing experiments using the video edge detection system

# The Electron and Confocal Laser Microscopy Imaging Unit

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.

Associate Professor

Department of Anatomy

Faculty of Medicine & Health Sciences

U.A.E. University

P.O. Box 17666

Al Ain, United Arab Emirates

Tel : 00 971 3 7137186

Fax : 00 971 3 7672033

e-mail: [s.shehab@uaeu.ac.ae](mailto:s.shehab@uaeu.ac.ae)

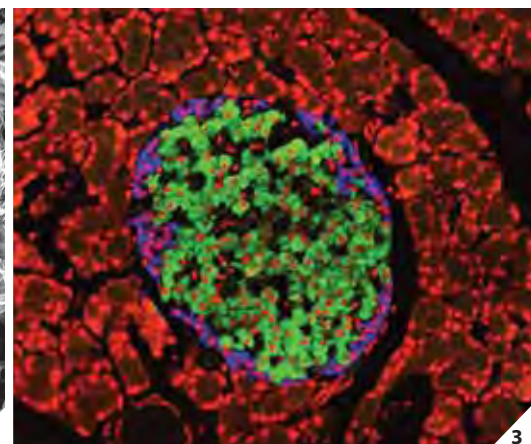
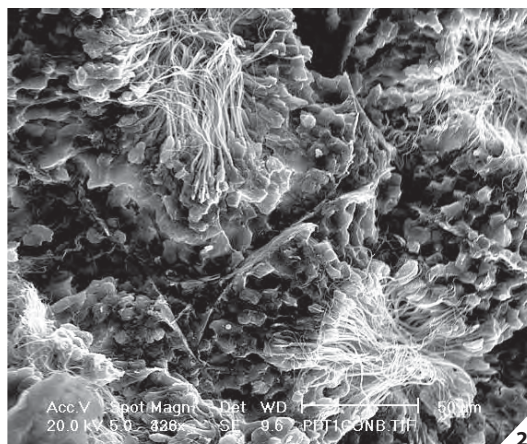
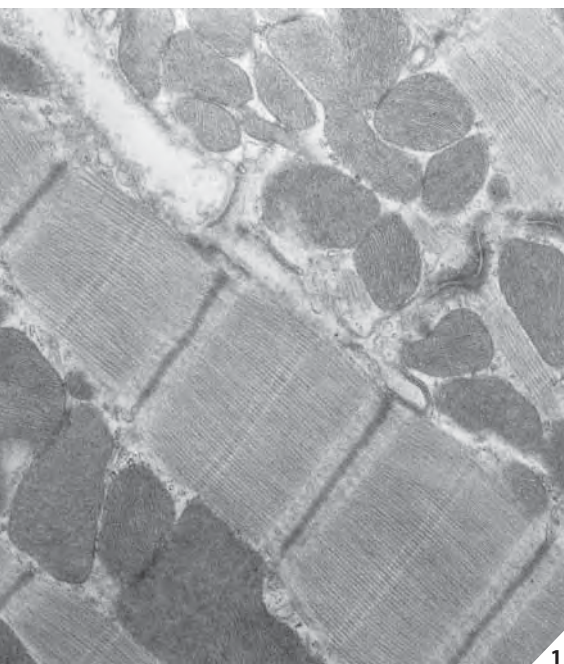
or

**Mr Said Tariq**

Image unit

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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, ebrary, 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. Abdurahiman**

**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. Ac-

cess 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"*



# Impact Factor

Jornal	Impact Factor	Jornal	Impact Factor
Cell	31.152	Reprod Toxicol	3.367
Cancer Cell	25.288	Neuroscience	3.292
Brit Med J	13.660	Immunology	3.276
PLoS Med	13.050	Adv Anat Pathol	3.221
Am J Hum Genet	12.303	Mol Immunol	3.202
Nat Struct Mol Biol	12.273	Mini Rev Med Chem	2.971
Brain	9.490	Brit J Urology Intl	2.865
Proc Natl Acad Sci USA	9.432	J Neuroimmunol	2.841
Neurology	8.172	BMC Med Genet	2.840
Stem Cells	7.747	Bioorgan Med Chem	2.822
Hum Mol Genet	7.386	Pancreas	2.733
Arthritis Rheum	7.332	Peptides	2.705
Hum Mutat	6.887	Med Educ	2.696
Diabetes Care	6.718	Horm Metab Res	2.686
Allergy	6.380	Ann NY Acad Sci	2.670
J Med Genet	5.751	Exp Biol Med	2.635
J Biol Chem	5.328	J Trauma	2.626
AIDS	4.909	Eur J Pharmacol	2.585
Toxicol Sci	4.814	Comp Biochem Phys C	2.582
J Med Chem	4.802	Biochem Biophys Res Commun	2.548
Endocrinology	4.752	Int Arch Allergy Immunol	2.542
Curr Med Chem	4.708	Int Urogynecol J Pelvic Floor Dysfunct	2.412
Am J Public Health	4.371	Histol Histopathol	2.404
J Clin Microbiol	4.162	Injury	2.383
J Pharmacol Exp Ther	4.093	Trop Med Int Health	2.328
J Urology	4.016	J Gastroenterol Hepatol	2.317
J Neurochem	3.999	Cell Tissue Res	2.308
J Mol Biol	3.871	Virchows Arch	2.305
Histopathology	3.855	Vet Parasitol	2.278
Chem Res. Toxicol	3.740	BMC Public Health	2.223
Front Biosci	3.736	J Pediatr Gastroenterol Nutr	2.183
J Inherit Metab Dis	3.598	Regul Pept	2.160
Neurogastroenterol Motil	3.568	Pediatr Blood Cancer	2.134
Anal Bioanal Chem	3.480	Toxicol	2.128
Toxicol Lett	3.479	Food Chem Toxicol	2.114
Int J Cardiol	3.469	J Diabetes Complicat	2.110
J Mass Spectrom	3.411	Bri J Radiol	2.105
Int Immunol	3.403		

Jornal	Impact Factor	Jornal	Impact Factor
World J Gastroenterol	2.092	Biochem Biophys Acta	-
J Appl Toxicol	2.073	BMC Med Educ	-
J Biomed Sci	2.007	BMC Res Notes	-
Microb Drug Resist	1.989	Case Report Med	-
Int J Geriatr Psychiatry	1.981	Crisis	-
Respiration	1.935	East Mediterr Health J	-
J Comp Physiol B	1.897	Education for Health	-
Mol Cell Biochem	1.896	Head Neck Pathol	-
Pharmacology	1.833	Health Soc Care Community	-
J Arthroplasty	1.787	Ibnosina J Med Biomed Sci	-
J Endourol	1.754	Int J Global Harmony	-
J Perinat Med	1.736	Int J Health Care Qual Assur	-
BMC Health Serv Res	1.660	Int J Surgery	-
Lung	1.583	Int Psych J	-
Fam Pract	1.515	J Community Genetics	-
Rheumatol Int	1.493	J Infect Public Health	-
Anat Rec	1.490	J Immunopathol & Pharmacol	-
Urol Res	1.465	J Islamic Med Assoc of North America	-
Physiol Res	1.430	J Med Sci	-
Anticancer Res	1.428	J Pediatr Sci	-
J Matern Fetal Neo M	1.362	J Pers Disord	-
Med Teach	1.333	J Pharmacol Toxicol Method	-
Int J Toxicol	1.243	Learning & Teaching in Higher Education: Gulf Perspectives	-
Pediatr Cardiol	1.151	Methods Mol Biol	-
Biomed Res	1.146	Open Inf Dis J	-
Comput Methods Programs Biomed	1.144	Pathophysiology	-
Nutr Neurosci	1.143	Public Health Genomics	-
Ann Hum Biol	1.064	Saudi J Kidney Dis & Transpl	-
Int Urol Nephrol	1.053	Scoliosis	-
Arch Gynecol Obstet	0.912	SHAMS J Med Sci	-
Biomark Med	0.861	Singapore Med J	-
Asia Pacific J Pub Health	0.763	South Afr J Epidemiol Infect	-
Eur J Emerg Med	0.733	Turk J Trauma Emerg Surg	-
J Obstet Gynaecol	0.431	World J Emerg Surg	-
ACS Med Chem Lett	-		
Addictive Disorder & Their Treatment	-		
Am J Drug Alcohol Abuse	-		
Arab Health	-		





## معهد جامعة الإمارات للصحة العامة



استضافة جامعة الإمارات العربية المتحدة في شهر يناير الماضي ٢٠١٠ مؤتمر الصحة العالمية والإمارات: آسيا ورابطة الشرق الأوسط والذي يعد مؤتمرا فريد من نوعه حيث ناقشت الوفود المشاركة مشاكل الصحة العالمية التي ظهرت عند اكتشاف « طريق الحرير الجديد » الذي يربط بين المدن العالمية لدولة الإمارات والشرق الأوسط مع مومباي وكوالالمبور وسنغافورة وشنغهاي وهونج كونج. وفي ختام المؤتمر تم وضع الأسس لمعهد 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 أنماط وعوامل خطر مرض السكري وأمراض القلب والأوعية الدموية والاضطرابات الوراثية والإصابات، وبالإضافة للعوامل الاجتماعية والأسرية التي تؤثر على السلوك الصحي وصحة المهاجرين والأمراض الوبائية والمتعلقة بالسفر والصحة البدنية والعقلية. للتحديات التي تواجه نظم الصحة المحلية. وحاليا يسعى المعهد جاهدا في البحث على رعاية وتأسيس وظيفة جديدة في الكلية لعلم الاثنوغرافيا واستكشاف الروابط الدولية، حيث قام المعهد بتمويل مشروعين أساسيين للبحوث كما وافق السيد ريتشارد فيشم أستاذ الصحة العالمية بجامعة كاليفورنيا على العمل بجانب جامعة الإمارات العربية المتحدة والمساعدة في تأسيس المعهد على مدى الثلاث سنوات المقبلة

يرحب المعهد بجميع أعضاء هيئة التدريس والموظفين في جامعة الإمارات وكلية الطب بالإضافة إلى المهتمين بالصحة العالمية للمساهمة في عمل المعهد لكي يصبحوا شركاء تابعة له. ومازال الموقع الالكتروني للمعهد قيد الإنشاء  
([www.fmhs.uaeu.ac.ae/globalhealth](http://www.fmhs.uaeu.ac.ae/globalhealth))

وللمزيد من المعلومات يرجى التواصل مع الدكتور ايان بلير، الأستاذ المشارك بقسم طب المجتمع بكلية الطب والعلوم الصحية  
([iaian\\_blair@uaeu.ac.ae](mailto:iaian_blair@uaeu.ac.ae))



## كلمة العميد

انه لمن دواعي سروري أن أضع بين أيديكم مقدمة طبعة 2010 الخاصة بالأبحاث العلمية لكلية الطب والعلوم الصحية.

لهذه الطبعة أهميه خاصة حيث ستلقي الضوء على الإصدارات العشريون السابقة للبحث العلمي كما أنها تشكل أهمية حقيقة في الإنتاج العلمي المستمر لكلية الطب والعلوم الصحية، وأنا بدوري أهنيئ جميع أعضاء هيئة التدريس الذين ساهموا في إثراء الإنتاجية البحثية ووصولها لأعلى المستويات. كما اغتتم الفرصة لأشكر الباحثين بالتعاون مع طلاب الدراسات العليا وطلاب الطب والفنيين لما قدموه من مساهمات هامة في العلوم السريرية والتقدم العلمي على الصعيد المحلي والدولي. حيث أن تفانيهم المتواصل وإنتاجهم يكفل بقاء كلية الطب في مكانتها المرموقة من حيث انجازات البحوث على مدى العقدين الماضيين.

يعد مؤتمر جامعة الإمارات العربية المتحدة " الصحة العالمية والإمارات: آسيا ورابطة الشرق الأوسط " من ابرز أحداث عام 2010 والذي سلط الضوء على اختلاف الشعوب والأعراف والتبادل الفكري الناتج عن الارتفاع الهائل في عدد السكان مما يؤدي إلى تفاقم مشاكل صحية عالمية جديدة، فقد ساهم نجاح وتأثير هذا المؤتمر إلى ولادة خطط وأفكار لإنشاء معهد الصحة العالمية والذي ستمركز مجالات بحثه الرئيسية حول صحة السكان البدنية والعقلية لتشمل أنماط وعوامل خطر الأمراض المعاصرة والوبائية. كما تستمر جهود جامعة الإمارات حيث قامت بتعيين الدكتور لادين براين عضو الهيئة التدريسية بقسم طب المجتمع بكلية الطب والعلوم الصحية كرئيس مؤقت لمعهد الصحة العالمي.

تقدم مجموعات الأولوية البحثية بكلية الطب والعلوم الصحية حافزا للمجتمع العلمي في دولة الإمارات وهي ذات صلة كبيرة بالقضايا الصحية في الدولة حيث أنها تقوم بمعالجة القضايا الصحية التي تتركز في المجالات التالية: أمراض الوراثة والنمو، والإصابات، والأورام، والعلوم العصبية، والمناعة والعدوى، والسكري وأمراض القلب والأوعية الدموية والتعليم الطبي.

نود أن نعرب عن امتناننا وعرفاننا الشديد للرعاة وذلك لتقديم الرعاية المتواصلة والدعم لأبحاثنا وهم:

- جائزة الشيخ حمدان للعلوم الطبية
- صندوق تيري للسرطان في دبي وابوظبي وكندا
- ويلكوم ترست بالمملكة المتحدة - تطوير علم الوراثة الفيروسي واللقاحات
- مؤسسة مايكل جيه فوكس بالولايات المتحدة الأمريكية - - مرض



# مقدمة العميد المشارك لشؤون البحث العلمي و الدراسات العليا

يشرفني أن أقدم لكم الطبعة السنوية العشرين الخاصة بملامح بحوث وإسهامات كلية الطب والعلوم الصحية بجامعة الإمارات العربية المتحدة

نحن لازلنا نحافظ في هذه السنة العشرون وكما عهدتم في السنوات التسع عشر الماضية على أن نستمر في نهجنا لتوعية المجتمع بإسهامات البحوث العلمية في جامعة الإمارات العربية المتحدة بمشاركة البيئة الأكاديمية في داخل الدولة وخارجها، وذلك من خلال العديد من المنشورات البحثية والمساهمات الدولية والوطنية في اللقاءات العلمية والأنشطة الأكاديمية الأخرى، كما نحافظ على موقعنا الرائد كأفضل مركز للبحوث الطبية الحيوية في دولة الإمارات وإحدى اعلى المراكز في منطقة الشرق الأوسط.

وهذا الجهد المشترك لا يمكن تحقيقه والحفاظ عليه إلا في بيئة تقدمية وتعاونية حيث يهدف مكتب البحوث والدراسات العليا إلى تعزيز هذه البيئة العلمية عن طريق تخصيص الموارد بصورة حكيمة وذلك لرعاية قوة جديدة وتوفير الموارد للحفاظ على المعدات القديمة وتركيب المعدات الحديثة لتسيير ذخائر الكلية للاستهلاك العام. لقد القينا الضوء في هذه الذكرى السنوية للطبعة العشرون على مرافق البحوث المركزية مثل وحدة الأبحاث التحليلية ومركز فسيولوجيا الكهرباء ووحدة التصوير والأشعة ومرفق الخلية الجزئية الحيوية، كما قمنا بتخصيص جزء من المجلد لأهم إنجازات ومشاركات المكتبة الوطنية الطبية.

نود أن نعبر عن امتناننا للإسهامات والدعم المتواصل لجامعة الإمارات العربية المتحدة والتي تعتبر سباقه في تنفيذ البحوث وهذا يعكس رؤية معالي الشيخ نهيان مبارك آل نهيان الذي صرح مرارا وتكرارا عن الأولوية القصوى للبحث العلمي بجامعة الإمارات العربية المتحدة.

ويشرفني في الذكرى السنوية للطبعة العشرون أن أعرب عن شكري لجميع زملائي الذين كانوا في هذا المنصب والذين بدعوا هذا المشروع الطموح منذ سنوات عدة:

أ.د. ويم لامرز (١٩٩٠-١٩٩٤)

أ.د. اندريو جارنر (١٩٩٥-١٩٩٧)

د. سهام الدين كلداري (١٩٩٨-٢٠٠٠)

أ.د. ميودراج لوكيتج (٢٠٠١-٢٠٠٧)

الأستاذ الدكتور/ سهام الدين كلداري  
مساعد العميد للبحوث والدراسات العليا (٢٠٠٨-٢٠١١)



- باركنسون
- المجلس الثقافي البريطاني في دولة الإمارات العربية المتحدة
  - أليسكو - العلوم العصبية
  - هارفارد الدولية - لمكافحة السرطان
  - هارفرد دبي - علم الوراثة
  - صندوق أبحاث ثراشر - نقص الفيتامينات
  - ساتيجن - مرض السكري
  - سونيسايت - الإصابات
  - الهلال الأحمر - الإصابات
  - هيئة أبوظبي للبيئة - الصحة البيئية
  - جامعة نورث كارولينا - الصحة البيئية
  - جامعة كاليفورنيا - علم الوراثة
  - مستشفى الأطفال في بوسطن - علم الوراثة
  - هيئة الصحة بأبوظبي - الصحة المهنية
  - هيئة أبوظبي للأغذية - التمر وداء السكري
  - المركز الدولي للهندسة الوراثية والتقنية الحيوية - علم الوراثة والسرطان

وكما تعلمون فإن جامعة الإمارات العربية المتحدة تولي أهمية كبرى للبحوث العلمية وفق معايير الجودة العالمية ونحن في كلية الطب والعلوم الصحية فخورون بقدرتنا على مواكبة هذا التحدي وسنبقى ملتزمين بتحقيق أولوياتنا ولن نألوا جهداً في المضي قدماً في تطوير قدراتنا وإمكاناتنا البحثية والارتقاء بها و تعزيز قطاع البحث العلمي ورفع مستواه ومخرجاته. ولا يسعني سوى التعبير عن إعجابي الشديد بالمحافظة على جودة نتائج البحوث العلمية التي يجريها باحثوننا المتفانون بالرغم من ظروف الأزمة المالية العالمية. تهانينا لكم جميعاً وأعرب عن شكري وتقديري لانجازاتكم المتواصلة.

الأستاذ الدكتور/ محمد يوسف حسن بني ياس  
نائب مدير الجامعة المشارك للعلوم الطبية وعميد كلية الطب والعلوم الصحية

# مقدمة العميد المشارك لشؤون البحث العلمي و الدراسات العليا

يعتبر هذا التعريف البحثي دلالة على المساهمات والمسااعي الأكاديمية لأعضاء هيئة التدريس وموظفي كلية الطب والعلوم الصحية.

وإننا نتبع منذ 19 عاماً تقليداً لتوعية المجتمع خارج أسوار الجامعة بالإسهامات التي تقدمها كلية الطب والعلوم الصحية للمعرفة وللأمة، فمن خلال إنتاجنا البحثي، والعروض التي نقدمها في المؤتمرات الدولية والأنشطة الأكاديمية الأخرى فإننا نسهم في إثراء الأمة، وما هذه الطبعة إلا عرض لنا وإنجازاتنا في نور ساطع.

أن هذا المستوى من الإنتاجية لا يمكن أن يتحقق إلا في بيئة تقدمية وتعاونية، ونحن - في مكتب البحوث والدراسات العليا - نسعى جاهدين لتوفير تلك البيئة، ويتحقق ذلك من خلال تخصيص الموارد بصورة حكيمة، وتوفير ودعم مرافق البحث العلمي، وتشمل هذه الجهود تقديم دعم للبحوث مثل وحدة التصوير، والمختبر التحليلي، ومرفق حجز الحيوانات، والمخزن المركزي للبحوث، ومورد المعدات الأساسية، بالإضافة إلى ذلك فإننا - باتباع أسلوب الشفافية - رحبنا بالنقد البناء وبردود أفعال وآراء أعضاء هيئة التدريس التي نرى أنها توفر - على المدى الطويل - البيئة المناسبة "للمساءلة" والتي تركز على تعزيز إنتاجية البحوث.

لقد بدأ الدكتور روري هيوم - نائب مدير الجامعة - في السنة الماضية التنفيذ الفعلي لرؤية معالي الرئيس الأعلى للجامعة - الشيخ نهيان مبارك آل نهيان - والتي حددت جامعة الإمارات على أنها الجامعة الرائدة في دولة الإمارات حيث تكون الأولوية لإنتاج نوعية عالية من البحث العلمي، وقد وفر الدعم المستمر لمكاتب شؤون الأبحاث بجامعة الإمارات - برئاسة الدكتورة ميثاء الشامسي - 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 للرعاة الذين يمكنوننا من الاستمرار في جهودنا البحثية، فبدونهم لم يكن بمقدور باحثينا مواصلة مستواهم الإنتاجي الفذ ولا تقديم مثل تلك العروض الفعالة في المؤتمرات البحثية الرئيسية التي تعقد دولياً ومحلياً.

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المنشورات السنوية لمكتب العميد المشارك  
لشؤون البحث العلمي و الدراسات العليا

طبع بواسطة وحدة المطبوعات  
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# المنشورات العلمية و الاهتمامات البحثية

مكتب العميد المشارك لشؤون البحث العلمي  
و الدراسات العليا



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